

# Bridge Load Rating

*Prepared for*

## Maine Department of Transportation

**ETNA**

**WEST ETNA ROAD/I-95 BRIDGE**

**Bridge No. 5961**

**WEST ETNA ROAD**

**OVER**

**INTERSTATE 95**

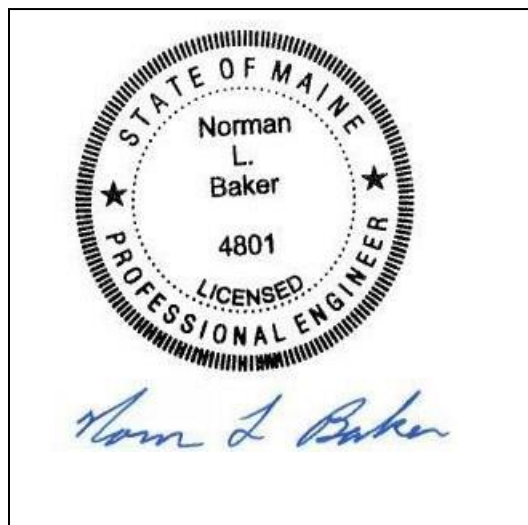
**Date of Inspection: August 13, 2015**

**Date of Rating: August 31, 2017**

**Prepared By: Zoran Umicevic, P.E.**

**Checked By: Daniel Myers, P.E.**

**TYLIN**INTERNATIONAL



Bridge No: 5961  
 Town/City: Etna  
 Route Carried: West Etna Road  
 Crosses: I-95

Bridge Name: West Etna Rd/I-95  
 Owner: MaineDOT  
 Year Built: 1962  
 Year(s) Rebuilt/Rehab: 1994

## SUMMARY OF BRIDGE RATING

VEHICLE TYPE		RF	RT (TONS)	POSTING LOAD (TONS)
HL-93	INVENTORY	<b>0.90</b>	32.40	
	OPERATING	1.17	42.12	
HL-93 modified	INVENTORY			
	OPERATING			
CONFIGURATION 1		<b>0.93</b>	<b>46.50</b>	45.00
CONFIGURATION 2		1.03	48.41	OK
CONFIGURATION 3		<b>0.91</b>	40.04	38.34
CONFIGURATION 4		<b>0.92</b>	40.48	38.97
CONFIGURATION 5		<b>0.93</b>	40.92	39.60
CONFIGURATION 6		<b>0.90</b>	34.16	32.53
CONFIGURATION 7		1.12	33.04	OK
CONFIGURATION 8		<b>1.69</b>	<b>31.60</b>	OK

### Group 1 Posting Analysis (Configuration 1)

Governing Posting: 45.00  
 Governing Load Model: CONFIGURATION 1

### Group 2 Posting Analysis (Configurations 2 - 5)

Governing Posting: 38.34  
 Governing Load Model: CONFIGURATION 3

### Group 3 Posting Analysis (Configurations 6 - 8)

Governing Posting: 32.53  
 Governing Load Model: CONFIGURATION 6

### LRFR Evaluation Factors:

Live Load Distribution Factor: N/A - Grid Model in MDX  
 Live Load LF Routine Commercial: 1.30  
 Live Load LF Special Hauling: 1.30  
 Impact Factor: 1.33  
 Governing Condition Factor,  $\phi_c$ : 1  
 System Factor,  $\phi_s$ : 1  
 ADTT (one-way): 11

*Please check all the boxes that apply:*

- ☐ Bridge load rating is governed by substructure rating  
☐ Connections control the load rating  
☐ Exterior girder controls load rating  
☒ As-built load rating  
☐ As-inspected load rating  
☐ One Lane Loaded  
☒ Advanced Analysis Used  
☐ Actual Measurements Taken  
☒ Finite Fatigue Life > 100 years

Route Carried:	West Etna Road
Crosses:	I-95

## LOAD RATING POINTS OF INTEREST

[illegible]

Exterior Girder Strength I Negative Moment, Piers	1.24	1.61										
Exterior Girder Service II Negative Moment, Piers	1.75											
Interior Girder Strength I Negative Moment, Piers	<b>0.97</b>	1.26			<b>0.93</b>	1.03	<b>0.91</b>	<b>0.92</b>	<b>0.93</b>	<b>0.90</b>	1.12	1.69
Interior Girder Service II Negative Moment, Piers	1.38											
CONTROLLING RATING FACTORS	<b>0.90</b>	1.17			<b>0.93</b>	1.03	<b>0.91</b>	<b>0.92</b>	<b>0.93</b>	<b>0.90</b>	1.12	1.69



## **DESCRIPTION OF BRIDGE**

Bridge Number:	5961
Owner:	MaineDOT
Maintained By:	MaineDOT
Location:	Etna
Route Carried:	West Etna Road
Feature Intersected:	Interstate 95
Latest NBI Inspection Date:	August 13, 2015
Field Verification Date (if applicable):	None
Date of Construction:	1962
Bridge Type:	Steel Girders
Material Properties:	Structural Steel: $F_y=33$ ksi
Original Design Loading:	H20
Date(s) of Rebuild/Rehab :	1994
Description of Rebuild/Rehab :	Wearing Surface & Deck Rehabilitation
Posting:	None
Superstructure:	Non-Composite Concrete Deck on Multiple Steel Girders
Substructure:	Cantilevered Concrete Abutments on Concrete Pedestals to Ledge; Concrete Column Piers on Ledge
Bearings:	Steel Rocker Bearings
Bridge Spans:	394'-10" Total, 70'-6" Max Span
Bridge Skew:	20°12'00"
Bridge Width:	29'-0" out-to-out
Roadway Width:	24'-0" curb-to-curb
Roadway Surface:	Bituminous
Curbs:	Granite
Sidewalk/Walkway/Median:	None
Utilities:	None
Bridge Railing:	2 Bar Aluminum on Concrete Parapet with Thrie Beam (Substandard)
Approach Railing:	Type 3 Guard Rail Attached (Substandard)
Wearing Surface Condition:	Good
Bridge Railing Condition:	Substandard
Deck Condition:	Good
Beam Condition:	Good
Bearing Condition:	Good
Abutment Condition:	Good
Pier Condition:	Good

## **West Etna Bridge #5961**

### **Load Rating Notes**

1. The load rating analysis performed and reported herein was based upon MaineDOT supplied design plans, fabrication drawings, inspection reports, and photographs. No field visits were performed to verify dimension or conditions.
2. The load rating analysis was completed using LRFR methodology.
3. The load rating analysis was completed through the use of MDX software package. This software utilizes a finite element grid model (beam elements) to determine force demands and calculates corresponding capacities and rating factors. Distribution factors for live load are determined by the program and consider relative stiffness of members.
4. Verification calculations for the MDX model are provided in a MathCAD worksheet and plotted in PDF format.
5. Strength I, Service II, and Fatigue load combinations were considered during this load rating for shear and bending of the non-composite girders – no other load combinations or design elements were checked.
6. The plastic section modulus of the non-composite girders was used in the load rating analysis in order to obtain moment resistance.
7. Since the bridge is non-composite, it is assumed that the concrete curbs and sidewalk do not contribute stiffness to the overall model.
8. The multiple presence reduction specified in AASHTO C3.6.1.1.2 was applied to HL-93 loading.
9. Shear connectors are not included in the as-built or fabrication drawings; therefore, the bridge has been rated as a non-composite structure.
10. The bridge is built in 1961 and rehabilitated in 1995; the scope of rehabilitation included removal of 2 inches of existing bituminous concrete wearing surface and membrane waterproofing and subsequently installing new 3 inch hot bituminous pavement membrane waterproofing. In addition, a new thrie beam with spacers is attached to the existing concrete parapet.
11. The negative moment redistribution option was not utilized in obtaining negative moment capacity.
12. Where discrepancies are noted between As-Built drawings and fabrication drawings, the fabrication drawings are assumed to be correct.

13. Since inventory load rating for the bridge did not pass the acceptable limit, Maine DOT legal load trucks were utilized to obtain posting limit for the bridge.

References:

1. MaineDOT Load Rating Guide, 2015
2. MaineDOT Bridge Design Guide, 2003 with updates through 2014
3. Manual for Bridge Evaluation Second Edition with Interims through 2016
4. AASHTO LRFD Bridge Design Specifications – 7<sup>th</sup> Edition, with Interims through 2016
5. AISC Steel Construction Manual, thirteen edition, 3<sup>rd</sup> printing. Supplemental historical data spreadsheet.



engineers | planners | scientists

**PROJECT:** Bridge Load Ratings **JOB NO:** 411927.00  
**TASK:** 5961 West Etna Road Bridge

**ORIGINATOR:** Z. Umicevic **DATE:** Jun 21, 2017  
**CHECKER:** D. Myers **DATE:** Jun 29, 2017

# West Etna Road Bridge #5961

## Loads, Geometry, Materials, & Use Information

### Rating Inputs

#### Bridge Dimensions

Year := 1962

Year of design

Bridge<sub>L</sub> := 394.833ft

Total bridge length

Span<sub>1</sub> := 56.417ftSpan<sub>2</sub> := 70.5ftSpan<sub>3</sub> := 70.5ftN<sub>span</sub> := 6

Span lengths and Number of spans

Span<sub>4</sub> := 70.5ftSpan<sub>5</sub> := 70.5ftSpan<sub>6</sub> := 56.417ftBridge<sub>wd.out</sub> := 29ft = 29·ft

Bridge Width

Skew := 20.20deg

Bridge Skew

Roadway<sub>wd</sub> := 24ft + 0in = 24·ft

Roadway Width

t<sub>s</sub> := 6.5in

Concrete slab thickness

Overhang := 1ft + 10in = 1.83·ft

Slab overhang that extends beyond center of exterior beam

Wearing<sub>t.conc</sub> := 0in

Wearing Surface Thickness, Concrete

Wearing<sub>t.bit</sub> := 3in

Wearing Surface Thickness, Bituminous

Curb<sub>wd.conc</sub> := 2ft + 0in = 2·ft

Average Width of Concrete Curbs

Curb<sub>wd.gran</sub> := 6in

Average Width of Granite Curbs

Curb<sub>ht</sub> := 11in

Height of the Curbs from deck

Para<sub>wd.conc</sub> := 1ft

Width of Parapet

Para<sub>ht</sub> := 1.5ft

Height of the Parapet

ADT<sub>cur</sub> := 236

Average daily traffic, Current

ADT<sub>fut</sub> := 354

Average daily traffic, Future

Truck<sub>perc</sub> := 8%Percentage of truck percentage of the ADT  
(2015, Inspection Report)ADT<sub>Direction\_Split</sub> := 0.55Directional Split for ADT, 0.55 unless otherwise  
specified (per AASHTO C3.6.1.4.2)ADTT := ceil(ADT<sub>cur</sub> · Truck<sub>perc</sub> · ADT<sub>Direction\_Split</sub>) = 11Average Daily Truck Traffic in one direction (put in  
5000 if unknown)

Condition := "Good"

Condition of superstructure (2015, Inspection Report)

## Beam Dimensions

$$S := 6\text{ft} + 4\text{in}$$

Beam spacing, CL Web to CL Web, all bays

$$N_{\text{beams}} := 5$$

Total number of beams

$$\text{Curb} := \text{Curb}_{\text{wd.conc}} + \text{Curb}_{\text{wd.gran}} - \text{Overhang} = 0.6667\text{ft}$$

Gutterline offset from CL of exterior girder web, for use in MDX (positive inside)

$$\text{wt}_{\text{beam}} := 130\text{plf}$$

Self weight of the beam, 33WF130

$$\text{SectionType} := \text{"Rolled"}$$

Type of section Rolled or Built-Up

$$D_{\text{gird}} := 33.1\text{in}$$

Depth of rolled girder

$$t_w := 0.58\text{in}$$

Thickness of web

$$b_{\text{tf}} := 11.5\text{in}$$

Width of top flange

$$t_{\text{tf}} := 0.855\text{in}$$

Thickness of the top flange

$$b_{\text{bf}} := 11.5\text{in}$$

Width of bottom flange

$$t_{\text{bf}} := 0.855\text{in}$$

Thickness of the bottom flange

$$t_{\text{tcp}} := 0\text{in}$$

Thickness of the top cover plate, spans 2&3 in positive bending location for verification calcs, interior girder

$$b_{\text{tcp}} := 0\text{in}$$

Width of the top cover plate, spans 2&3 in positive bending location for verification calcs, interior girder

$$t_{\text{bcp}} := 0\text{in}$$

Thickness of the bottom cover plate, spans 2&3 in positive bending location for verification calcs

$$b_{\text{bcp}} := 0\text{in}$$

Width of the bottom cover plate, spans 2&3 in positive bending location for verification calcs

$$t_{\text{tcp.neg15}} := 0.625\text{in}$$

Thickness of the top cover plate, at Pier 1 and 5

$$b_{\text{tcp.neg15}} := 10\text{in}$$

Width of the top cover plate, at Pier 1 and 5

$$t_{\text{bcp.neg15}} := 0.625\text{in}$$

Thickness of the bottom cover plate, at Pier 1 and 5

$$b_{\text{bcp.neg15}} := 10\text{in}$$

Width of the bottom cover plate at piers, at Pier 1 and 5

$$t_{\text{tcp.neg234}} := 0.75\text{in}$$

Thickness of the top cover plate, at Pier 2,3, and 4

$$b_{\text{tcp.neg234}} := 10\text{in}$$

Width of the top cover plate, at Pier 2,3, and 4

$$t_{\text{bcp.neg234}} := 0.75\text{in}$$

Thickness of the bottom cover plate, at Pier 2,3, and 4

$$b_{\text{bcp.neg234}} := 10\text{in}$$

Width of the bottom cover plate at piers, at Pier 2,3, and 4

$$A_{\text{gird}} := 38.3\text{in}^2$$

Area of Rolled Girder (per Historic AISC  
A=38.26in<sup>2</sup>)

$$I_{\text{rolledgirder}} := 6710 \text{ in}^4$$

*Moment of Inertia of Rolled Girder*

$$Z_{\text{rolledgirder}} := 467 \text{ in}^3$$

*Plastic Section Modulus of Rolled Girder*

$$L_{b,\text{pos}} := 1 \text{ ft}$$

*Maximum Unbraced Length for compression flange, positive moment (fully braced-due to concrete deck)*

$$L_{b,\text{neg}} := 18 \text{ ft}$$

*Maximum Unbraced Length for compression flange, negative moment region (piers 1-5)*

$$\text{Haunch} := 4 \text{ in} - t_{\text{tf}} = 3.15 \cdot \text{in}$$

*Theoretical clear distance between top of top flange and bottom of deck*

$$W_{\text{haunch}} := 4 \text{ in}$$

*Width of haunch, beyond girder flange tips (for embedded flanges)*

## Properties

$$\gamma_{\text{conc}} := 150 \text{ pcf}$$

*Unit weight of concrete*

$$\gamma_{\text{WS}} := 150 \text{ pcf}$$

*Unit weight of wearing surface*

$$\gamma_{\text{steel}} := 490 \text{ pcf}$$

*Unit weight of Steel*

$$\gamma_{\text{al}} := 175 \text{ pcf}$$

*Unit weight of Aluminum*

$$E_s := 29000 \text{ ksi}$$

*Elastic modulus of steel*

$$f_c := 1200 \text{ psi}$$

*Allowable concrete stress (from existing design plans)*

$$F_s := 18000 \text{ psi}$$

*Allowable steel stress (from existing design plans)*

$$f_c := \text{if } f_c = \text{"Unknown"}, \begin{cases} 2.5 \text{ ksi} & \text{if Year} < 1959 \\ 3.0 \text{ ksi} & \text{otherwise} \end{cases}, \left( \frac{f_c}{0.4} \right) = 3 \cdot \text{ksi} \quad \text{Maximum concrete compressive stress}$$

$$F_y := 33 \text{ ksi}$$

*Structural Steel Yield Strength A7 (1962 RP -Shop Drawings, MBE Tbl. 6A.5.2.2-1)  
Note: 1995 RP show A36 steel grade,  $F_y=36 \text{ ksi}$ . Use lesser as conservative measure.*

$$\lambda := 1.0$$

*Concrete density modification factor (AASHTO 5.4.2.8)*

$$f_r := 0.24 \cdot \lambda \cdot \sqrt{f_c \cdot \text{ksi}} = 0.42 \text{ ksi}$$

*Rupture stress of concrete (AASHTO 5.4.2.6)*

$$E_c := 2500 \text{ ksi} \left( \frac{f_c}{\text{ksi}} \right)^{0.33} = 3592.44 \text{ ksi}$$

*Elastic modulus of concrete (AASHTO C5.4.2.4-1)*

$$n := \frac{E_s}{E_c} = 8.07$$

*Modular Ratio*

*Note: Record Drawings show  $n=10$*

## Load Factors

$$\gamma_{DC} := 1.25$$

*LRFD load factor for structural components and attachments (MBE Table 6A.4.2.3)*

$$\gamma_{DW} := 1.50$$

*LRFD load factor for wearing surfaces and utilities*

$$\gamma_{LL.INV} := 1.75$$

*Live Load Factor for Design Loads, Inventory (MBE Table 6A.4.2.2-1)*

$$\gamma_{LL.OPR} := 1.35$$

*Live Load Factor for Design Loads, Operating (MBE Table 6A.4.2.2-1)*

$$\gamma_{LL.Legal} := \begin{cases} 1.45 & \text{if } ADTT \geq 5000 \\ \max \left[ 1.30 + \frac{(1.45 - 1.30)}{(5000 - 1000)} \cdot (ADTT - 1000), 1.3 \right] & \text{otherwise} \end{cases} = 1.3$$

*Generalized Live Load Factors for Maine Legal Loads (MBE 6A.4.2.3a-1, 2013 Interims)*

$$\gamma_{LL} := \begin{pmatrix} \gamma_{LL.INV} \\ \gamma_{LL.OPR} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \\ \gamma_{LL.Legal} \end{pmatrix} = \begin{pmatrix} 1.75 \\ 1.35 \\ 1.3 \\ 1.3 \\ 1.3 \\ 1.3 \\ 1.3 \\ 1.3 \\ 1.3 \\ 1.3 \end{pmatrix} \quad Trucks := \begin{pmatrix} \text{"Inventory HL-93"} \\ \text{"Operating HL-93"} \\ \text{"Maine DOT C1"} \\ \text{"Maine DOT C2"} \\ \text{"Maine DOT C3"} \\ \text{"Maine DOT C4"} \\ \text{"Maine DOT C5"} \\ \text{"Maine DOT C6"} \\ \text{"Maine DOT C7"} \\ \text{"Maine DOT C8"} \end{pmatrix} \quad \text{Live Load Factors for each of the Truck Configurations}$$

$$MP_{red} := \begin{cases} 0.9 & \text{if } ADTT < 100 \\ 0.95 & \text{if } 100 \leq ADTT \leq 1000 \\ 1 & \text{otherwise} \end{cases} = 0.9$$

*Multiple presence reduction factor (AASHTO C3.6.1.1.2)*

$$MLFACTORS := MP_{red} \cdot \begin{pmatrix} 1.2 \\ 1.0 \\ 0.85 \\ 0.65 \end{pmatrix} = \begin{pmatrix} 1.08 \\ 0.9 \\ 0.765 \\ 0.585 \end{pmatrix}$$

*Reduced multiple presence factors due to low traffic volume, MLFACTORS command in MDX*

$$\varphi_c := \begin{cases} 1.00 & \text{if Condition = "Satisfactory" } \vee \text{ Condition = "Good" } = 1 \\ 0.95 & \text{if Condition = "Fair"} \\ 0.85 & \text{if Condition = "Poor"} \end{cases}$$

*Condition Factor (MBE 6A.4.2.3-1) ('PHIC' command in MDX)*

$$\varphi_s := 1.0$$

*System factor - five girder system (MBE 6A.4.2.4-1) ('PHIS' command in MDX)*

**DC Loading**

MDX will automatically calculate and apply self weight of girder, primary member in cross frame connection (ie: not connection plates), cover plates, concrete deck, concrete wearing surface, splices, and haunch. MaineDOT allows the use of 1" of haunch for section properties, so any haunch beyond 1 inch thickness needs to be applied as noncomposite dead load, calculated herein.

**Additional Steel Weight, Non-composite (WAS-i)***Intermediate Diaphragms*

Type D1= 16WF36 welded to 3/8"x6"connection plate (2'-4" long)

Type D2= 15C33.9 welded to 3/8"x6"connection plate (2'-4" long)

$$N_{\text{inter.D1}} := \begin{pmatrix} 10 \\ 10 \\ 10 \\ 10 \end{pmatrix}$$

Number of Intermediate diaphragms, per bay

$$N_{\text{inter.D2}} := \begin{pmatrix} 6 \\ 6 \\ 6 \\ 6 \end{pmatrix}$$

Number of Intermediate diaphragms, per bay

$$L_{\text{dia.inter}} := (6\text{ft} + 4\text{in}) = 6.33\text{ft}$$

Length of intermediate diaphragms

$$wt_{\text{dia.inter.D1}} := 36\text{plf}$$

Weight per foot for intermediate diaphragms

$$wt_{\text{dia.inter.D2}} := 33.9\text{plf}$$

Weight per foot for intermediate diaphragms

$$wt_{\text{plate.inter}} := \gamma_{\text{steel}} \cdot 0.375\text{in} \cdot [(2\text{ft} + 4\text{in}) \cdot 6\text{in}] = 17.86\text{lbf}$$

Weight per connection plate for intermediate diaphragms

*Abutment Diaphragms*

Type D1= 16WF36 welded to 3/8"x6"connection plate (2'-4" long)

$$wt_{\text{dia.abut}} := 36\text{plf}$$

Weight per foot for abutment diaphragms

$$l_{\text{dia.abut}} := (6\text{ft} + 4\text{in}) = 6.33\text{ft}$$

Length of abutment diaphragms

*Pier Diaphragms*

Type D2= 15C33.9 welded to 3/8"x6"connection plate (2'-4" long)

$$wt_{\text{dia.pier}} := 33.9\text{plf}$$

Weight per foot for abutment diaphragms

$$l_{\text{dia.pier}} := (6\text{ft} + 4\text{in}) = 6.33\text{ft}$$

Length of abutment diaphragms



### Abutment and Pier Connection Plates

$$wt_{plate.int} := \gamma_{steel} \cdot 0.375in \cdot [(2ft + 4in) \cdot 6in] = 17.86 lbf$$

*Weight per connection plate on interior girders, abutments and piers*

$$wt_{plate.ext} := \gamma_{steel} \cdot 0.375in \cdot [(2ft + 4in) \cdot 6in] = 17.86 lbf$$

*Weight per connection plate on exterior girders, abutments and piers*

### Miscellaneous

$$wt_{misc.ext} := 5plf$$

*Additional steel weight along exterior girders (weld metal, bolts, etc)*

$$wt_{misc.int} := 10plf$$

*Additional steel weight along interior girders (weld metal, bolts, etc)*

$$wt_{sp.pl} := 5\gamma_{steel} \cdot \left( 11in \cdot 0.375in \cdot 31in \cdot 2 + 4in \cdot 0.625in \cdot 31in \cdot 4 + 19in \cdot \frac{9}{16}in \cdot 29.5in \cdot 2 \right) \cdot \frac{1}{Bridge_L} = 4.296 \cdot plf$$

*Weight of all splice plates per girder*

$$wt_{cover} := \gamma_{steel} \cdot (2 \cdot 2 \cdot 18ft \cdot 10in \cdot 0.625in + 2 \cdot 3 \cdot 20ft \cdot 10in \cdot 0.75in) \cdot \frac{1}{Bridge_L} = 11.63 \cdot plf$$

*Distributed weight of the cover plates*

### Total loads for MDX input:

$$WAS := \left[ \begin{array}{l} \frac{N_{inter.D1_0} \cdot wt_{plate.int} + (N_{span} + 1) \cdot wt_{plate.ext} + N_{inter.D2_0} \cdot wt_{plate.int}}{Bridge_L} + wt_{misc.ext} \\ \frac{(N_{inter.D1_0} + N_{inter.D1_1}) \cdot wt_{plate.int} + (N_{span} + 1) \cdot wt_{plate.int} \cdot 2 + (N_{inter.D2_0} + N_{inter.D2_1}) \cdot wt_{plate.int}}{Bridge_L} + wt_{misc.int} \\ \frac{(N_{inter.D1_1} + N_{inter.D1_2}) \cdot wt_{plate.int} + (N_{span} + 1) \cdot wt_{plate.int} \cdot 2 + (N_{inter.D2_1} + N_{inter.D2_2}) \cdot wt_{plate.int}}{Bridge_L} + wt_{misc.int} \\ \frac{(N_{inter.D1_2} + N_{inter.D1_3}) \cdot wt_{plate.int} + (N_{span} + 1) \cdot wt_{plate.int} \cdot 2 + (N_{inter.D2_2} + N_{inter.D2_3}) \cdot wt_{plate.int}}{Bridge_L} + wt_{misc.int} \\ \frac{N_{inter.D1_3} \cdot wt_{plate.int} + (N_{span} + 1) \cdot wt_{plate.ext} + N_{inter.D2_3} \cdot wt_{plate.int}}{Bridge_L} + wt_{misc.ext} \end{array} \right]$$

$$WAS = \begin{pmatrix} 0.006 \\ 0.0121 \\ 0.0121 \\ 0.0121 \\ 0.006 \end{pmatrix} \cdot klf$$

*Additional weight of steel applied to each girder (connection plates, bolts and misc.)*

$$DC1_{g2} := WAS_1 + \frac{\left[ wt_{dia.inter.D1} \cdot L_{dia.inter} \cdot \frac{N_{inter.D1_0} + N_{inter.D1_1}}{2} + 2 \cdot wt_{dia.abut} \cdot l_{dia.abut} + (N_{span} - 1) \cdot wt_{dia.pier} \cdot l_{dia.pier} \right] \dots}{Bridge_L + wt_{cover} + wt_{sp.pl}}$$

$$DC1_{g2} = 0.041 \cdot klf \quad \text{Total additional weight of steel applied to girder 2 for verification calcs}$$

$$DC1_{g1} := WAS_0 + \frac{wt_{dia.inter.D1} \cdot L_{dia.inter} \cdot N_{inter.D1_0} \cdot 0.5 + 2 \cdot wt_{dia.abut} \cdot l_{dia.abut} \cdot 0.5 + (N_{span} - 1) \cdot wt_{dia.pier} \cdot l_{dia.pier} \cdot 0.5 \dots}{Bridge_L + wt_{cover} + wt_{sp.pl}}$$

$$DC1_{g1} = 0.028 \cdot klf \quad \text{Total additional weight of steel applied to girder 1 for verification calcs}$$

### Additional Concrete Weight, Non-composite (WAC-i)

$$wt_{haunch} := \gamma_{conc} \cdot \left[ (H_{haunch} - 1 \text{ in} + t_{tf}) \cdot (2 \cdot W_{haunch} + b_{tf}) - b_{tf} \cdot (t_{tf}) \right] = 0.0507 \cdot klf \quad \text{Weight of additional concrete in haunches}$$

$$ht_{ohang.conc} := \left( \text{Overhang} - \frac{b_{tf}}{2} - W_{haunch} \right) \cdot \frac{0 \text{ in}}{12 \text{ in}} = 0 \cdot \text{in} \quad \text{Height of additional concrete under overhangs at face of haunch}$$

$$wt_{ohang} := \gamma_{conc} \cdot 0.5 \cdot \left( \text{Overhang} - \frac{b_{tf}}{2} - W_{haunch} \right) \cdot ht_{ohang.conc} = 0 \cdot klf \quad \text{Weight of additional concrete in slab overhangs}$$

### Total

$$WAC_{ext} := wt_{haunch} + wt_{ohang} = 0.0507 \cdot klf$$

Total weight of additional non-composite concrete weight on exterior girders

$$WAC_{int} := wt_{haunch} = 0.0507 \cdot klf$$

Total weight of additional non-composite concrete weight on interior girders

Additional concrete in slab end beam does not contribute to bending forces and is not included, shear does not control

**Superimposed Dead Loads, composite (WS-i)***Assume equal distribution to all girders***Railing Load***2 Bar aluminum bridge railing mounted to concrete curb*

$$w_{4in} := \left[ \frac{\pi \cdot (4in)^2}{4} - \frac{\pi \cdot (4in - 0.125in - 0.125in)^2}{4} \right] \cdot \gamma_{al} = 0.0018 \cdot klf$$

$$w_{3.5in} := \left[ \frac{\pi \cdot (3.5in)^2}{4} - \frac{\pi \cdot (3.5in - 0.125in - 0.125in)^2}{4} \right] \cdot \gamma_{al} = 0.0016 \cdot klf$$

$$Rail_{wt.alum} := w_{4in} + w_{3.5in} = 0.00346 \cdot klf$$

$$wt_{rail} := 2 \cdot 0.005 klf = 0.01 \cdot klf \quad \text{Weight of aluminum rail}$$

**Curb**

$$wt_{curb} := (Curb_{ht} \cdot Curb_{wd.conc} \cdot \gamma_{conc} + Para_{ht} \cdot Para_{wd.conc} \cdot \gamma_{conc} + Curb_{ht} \cdot Curb_{wd.gran} \cdot 175pcf) \cdot 2 = 1160.42 \cdot plf \quad \text{Weight of 2 Curbs}$$

**Thrie Beam**

$$wt_{thrie} := 10plf \quad \text{Assume 10plf with spacers}$$

**Loads Applied in MDX**

$$WS := \frac{wt_{rail} + wt_{curb} + wt_{thrie}}{N_{beams}} = 0.2361 \cdot klf$$

*Total weight of superimposed dead loads per Girder***DW Loading**

$$WEAR := \frac{(Wearing_{t.conc} + Wearing_{t.bit}) \cdot \gamma_{WS} \cdot Roadway_{wd}}{N_{beams}} = 0.18 \cdot klf$$

*Distributed wearing surface load applied to each girder*

## Verification Calculations: Girder 2, Midspan Capacity Span 2

*Note: These verification calculations are approximate, and are not to be reported as Rating Factors in the final Report*

### Moment Coefficients for Continuity:

Refer to **AISC Moments, Shears and Reactions for Continuous Highway Bridges**

<https://www.aisc.org/globalassets/aisc/publications/out-of-print/moments-shears-and-reactions-for-continuous-highway-bridges.pdf>

Use **Table 4.2 and 4.3** to get Truck Loading and Continuous Loading Coefficients (for a 6 span bridge)

$N$  is the ratio of interior span length to exterior span lengths.

$$\text{SpanRatio} := \frac{\text{Span}_2}{\text{Span}_1} = 1.25 \quad \text{Actual ratio of interior to exterior span length}$$

$$\text{Span}_1 = 56.42 \cdot \text{ft} \quad \text{Length of exterior spans (spans 1 and 5)}$$

$$M_{\text{truck.span2}} := \text{interp} \left[ \begin{pmatrix} 1.2 \\ 1.3 \end{pmatrix}, \begin{bmatrix} \text{interp} \left[ \begin{pmatrix} 54.5 \text{ ft} \\ 59.1 \text{ ft} \end{pmatrix}, \begin{pmatrix} 562.2 \text{ kip} \cdot \text{ft} \\ 625.9 \text{ kip} \cdot \text{ft} \end{pmatrix}, \text{Span}_1 \end{bmatrix} \\ \text{interp} \left[ \begin{pmatrix} 52.2 \text{ ft} \\ 56.5 \text{ ft} \end{pmatrix}, \begin{pmatrix} 584.5 \text{ kip} \cdot \text{ft} \\ 650.2 \text{ kip} \cdot \text{ft} \end{pmatrix}, \text{Span}_1 \end{bmatrix}, \text{SpanRatio} \right] = 618.61 \cdot \text{kip} \cdot \text{ft}$$

*Moment from  
HS20 truck at max  
moment location  
of span 2, per  
truck (equivalent  
to current  
AASHTO truck)*

$$M_{\text{continuous.span2}} := 1 \cdot (\text{Span}_1)^2 \cdot \text{interp} \left[ \begin{pmatrix} 1.2 \\ 1.3 \end{pmatrix}, \begin{pmatrix} .0593 \\ .0725 \end{pmatrix}, \text{SpanRatio} \right] = 209.59 \cdot \text{ft}^2$$

*Moment from continuous load at max  
moment location of span 2, per unit  
load*

## ***Demands:***

### ***DC1***

$$wt_{beam} = 130 \cdot plf$$

*Self weight of the beam*

$$DC1_{g2} = 40.92 \cdot plf$$

*Distributed weight of connection plates and diaphragms*

$$wt_{deck} := (t_s) \cdot S \cdot \gamma_{conc} = 514.58 \cdot plf$$

*Weight of concrete slab*

$$wt_{fillet} := wt_{haunch} + 1 \text{ in} \cdot (b_{tf} + 2 \cdot W_{haunch}) \cdot \gamma_{conc} = 71.01 \cdot plf$$

*Weight of the haunch*

$$M_{DC1} := M_{continuous.span2} \cdot (wt_{beam} + DC1_{g2} + wt_{deck} + wt_{fillet}) = 158.56 \cdot kip \cdot ft$$

*Moment due to DC1 terms*

*Compare to MDX result: 126 kip\*ft*

### ***DC2***

$$M_{DC2} := M_{continuous.span2} \cdot WS = 49.48 \cdot kip \cdot ft$$

*Moment due to Superimposed Dead Loads (Rail, Curb, Parapet)*

*Compare to MDX result: 42 kip\*ft*

### ***DW***

$$M_{DW} := M_{continuous.span2} \cdot WEAR = 37.73 \cdot kip \cdot ft$$

*Moment due to wearing surface*

*Compare to MDX result: 32 kip\*ft*

### ***LL + IM***

$$e_g := \frac{D_{gird}}{2} + \frac{t_s}{2} + 1 \text{ in} = 20.8 \text{ in}$$

*Distance between the center of gravity of the beam and the deck*

$$K_g := n \cdot (I_{rolledgirder} + A_{gird} \cdot e_g^2) = 187928.67 \cdot \text{in}^4$$

*Longitudinal stiffness parameter [AASHTO 4.6.2.2.1-1]*

$$\text{simplified} := \left( \frac{K_g}{\text{Span}_2 \cdot t_s^3} \right)^{0.1} = 0.98$$

*Simplified method Tbl. 4.6.2.2.1-2*

- *One Design Lane Loaded*

$$g_{\text{bend.single.int}} := 0.06 + \left(\frac{S}{14\text{ft}}\right)^{0.4} \cdot \left(\frac{S}{\text{Span}_2}\right)^{0.3} \cdot (\text{simplified}) = 0.41$$

*AASHTO Table 4.6.2.2.2b-1, includes multipresence*

- *Two or More Design Lanes Loaded*

$$g_{\text{bend.multi.int}} := 0.075 + \left(\frac{S}{9.5\text{ft}}\right)^{0.6} \cdot \left(\frac{S}{\text{Span}_2}\right)^{0.2} \cdot (\text{simplified}) = 0.55$$

*AASHTO Table 4.6.2.2.2b-1, includes multipresence*

$$c_1 := \begin{cases} 0.25 \cdot \left(\frac{K_g}{\text{Span}_2 \cdot t_s^3}\right)^{0.25} \cdot \left(\frac{S}{\text{Span}_2}\right)^{0.5} & \text{if Skew} > 30\text{deg} \\ 0 & \text{otherwise} \end{cases} = 0$$

*Skewed support distribution factor reduction parameter [AASHTO Table 4.6.2.2.2e-1]*

$$g_{\text{red}} := 1 - c_1 \cdot \tan(\text{Skew})^{1.5} = 1$$

*Reduction to distribution factor for skewed supports*

$$g_{\text{red}} := \text{MP}_{\text{red}} \cdot \max(g_{\text{bend.single.int}}, g_{\text{bend.multi.int}}) = 0.49$$

*Max Distribution Factor for bending, interior beam, with multipresence reduction*

$$g_{\text{red}} := g_{\text{red}} \cdot g = 0.49$$

*Distribution factor for moment, reduced for skewed supports*

$$M_{\text{truck.total}} := 1.33(M_{\text{truck.span2}}) = 822.75 \cdot \text{kip} \cdot \text{ft}$$

*Moment due to Truck, with impact*

$$M_{\text{truck}} := g \cdot M_{\text{truck.total}} = 406.56 \cdot \text{kip} \cdot \text{ft}$$

*Controlling moment from design tandem or design truck*

$$M_{\text{lane.total}} := M_{\text{continuous.span2}} \cdot 0.64\text{klf} = 134.14 \cdot \text{kip} \cdot \text{ft}$$

*Maximum positive moment due to lane load*

$$M_{\text{lane}} := g \cdot M_{\text{lane.total}} = 66.28 \cdot \text{kip} \cdot \text{ft}$$

$$M_{\text{LL\_IM}} := M_{\text{truck}} + M_{\text{lane}} = 472.84 \cdot \text{kip} \cdot \text{ft}$$

*Live Load moment on interior girder*

*MDX says 366 kip\*ft*

$$M_u := 1.25 \cdot (M_{\text{DC1}} + M_{\text{DC2}}) + 1.5 \cdot M_{\text{DW}} + 1.75 \cdot M_{\text{LL\_IM}} = 1144 \cdot \text{kip} \cdot \text{ft}$$

*Ultimate moment, strength I*

*MDX reports 934.5 kip-ft;*

## Section Capacity using AASHTO LRFD Appendix A6 (Positive Moment Check)

Per AASHTO LRFD 6.10.6.2.3, non-composite sections in straight bridges may be proportioned according to the provisions of AASHTO LRFD A6 if:

- Bridge supports are skewed less than 20 degrees from normal.
- Intermediate diaphragms or cross-frames placed in contiguous lines parallel to the support are used.
- The specified min. yield strength of the flanges is less than 70ksi.
- The web satisfies the noncompact slenderness limit in AASHTO LRFD Equation 6.10.6.2.3-1.
- The flanges satisfy AASHTO LRFD equation 6.10.6.2.3-2

Determine Applicability of AASHTO LRFD Section A6.1, per section 6.10.6.2.3

### Check Skew

$$\text{Check}_{\text{skew}} := \begin{cases} \text{"Okay"} & \text{if Skew} < 20\text{deg} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{skew}} = \text{"Not passed"}$$

### Check yield strength of steel

$$\text{Check}_{\text{yield}} := \begin{cases} \text{"Okay"} & \text{if } F_y \leq 70\text{ksi} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{yield}} = \text{"Okay"}$$

### Check web satisfies non compact slenderness limit

$$F_{yc} := F_y = 33 \text{ ksi}$$

### Full Section Section Properties

$$D_w := D_{\text{gird}} - 2 \cdot t_{\text{tf}} = 31.39 \text{ in}$$

Depth of web

$$A_w := D_w \cdot t_w = 18.21 \text{ in}^2$$

Area of web

$$A_{\text{tf}} := b_{\text{tf}} \cdot t_{\text{tf}} = 9.83 \text{ in}^2$$

Area of top flange

$$A_{\text{bf}} := b_{\text{bf}} \cdot t_{\text{bf}} = 9.83 \text{ in}^2$$

Area of bottom flange

$$y_{\text{gird}} := \frac{A_{\text{gird}} \left( \frac{D_{\text{gird}}}{2} \right)}{A_{\text{gird}}} = 16.55 \text{ in}$$

Neutral Axis, from compression face

$$I_{\text{gird}} := I_{\text{rolledgirder}} + A_{\text{gird}} \left[ y_{\text{gird}} - \left( \frac{D_{\text{gird}}}{2} \right) \right]^2 = 6710 \text{ in}^4$$

Moment of inertia of non-composite girder

$$y_{\text{t\_non}} := D_{\text{gird}} - y_{\text{gird}} = 16.55 \text{ in}$$

Distance from Neutral Axis to tension face

$$S_{\text{t\_non}} := \frac{I_{\text{gird}}}{y_{\text{gird}}} = 405.44 \cdot \text{in}^3$$

Elastic Section Modulus - tension

$$S_{\text{c\_non}} := \frac{I_{\text{gird}}}{y_{\text{t\_non}}} = 405.44 \cdot \text{in}^3$$

Elastic Section Modulus - tension face

*Depth of Web in compression (D6.3):*

$$M_{\text{unit}} := 1 \text{ kip} \cdot \text{ft}$$

$$f_{\text{wc}} := \frac{-M_{\text{unit}}}{S_{\text{c\_non}}} = -0.03 \cdot \text{ksi}$$

$$f_{\text{t}} := \frac{M_{\text{unit}}}{S_{\text{t\_non}}} = 0.03 \cdot \text{ksi}$$

$$t_{\text{f}} := t_{\text{bf}} + t_{\text{bcp}} \cdot 0 = 0.855 \text{ in}$$

$$D_{\text{c}} := \left( \frac{-f_{\text{c}}}{|f_{\text{c}}| + f_{\text{t}}} \right) \cdot (D_{\text{gird}}) - t_{\text{f}} = 15.7 \text{ in}$$

$$\text{Check}_{\text{web}} := \begin{cases} \text{"Okay"} & \text{if } \frac{2 \cdot D_{\text{c}}}{t_{\text{w}}} \leq 5.7 \sqrt{\frac{E_{\text{s}}}{F_{\text{yc}}}} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{web}} = \text{"Okay"}$$

*unit load for elastic Range ( $D_{\text{c}}$ )*

*unit stress in extreme compression fiber, applicable for non-composite section*

*unit stress in extreme tension fiber, applicable for non-composite section*

*Depth of the web in compression in the elastic range  
AASHTO LRFD D6.3.1-1*

*Check flanges satisfy ratio*

$$I_{\text{yt.M.pos}} := \frac{t_{\text{f}} \cdot b_{\text{tf}}^3}{12} = 108.36 \text{ in}^4$$

*Moment of inertia of tension flange*

$$I_{\text{yc.M.pos}} := \frac{t_{\text{bf}} \cdot b_{\text{bf}}^3}{12} = 108.36 \text{ in}^4$$

*Moment of inertia of compression flange*

$$\text{Check}_{\text{flange.M.pos}} := \begin{cases} \text{"Okay"} & \text{if } \frac{I_{\text{yc.M.pos}}}{I_{\text{yt.M.pos}}} \geq 0.3 \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{flange.M.pos}} = \text{"Okay"}$$

*Diaphragm Check*

*Are diaphragms continuous and parallel to the supports?*

$$\text{Diaphragm}_{\text{cont,para}} := \text{"Yes"}$$

*Type in "Yes" or "No"*

$$\text{Check}_{\text{diaphragm}} := \begin{cases} \text{"Okay"} & \text{if } \text{Diaphragm}_{\text{cont,para}} = \text{"Yes"} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{diaphragm}} = \text{"Okay"}$$

*Can AASHTO LRFD Appendix A6 be used?*

$$\text{Check}_{\text{final}} := \begin{cases} \text{"Use Appendix A6"} & \text{if } \text{Check}_{\text{skew}} = \text{Check}_{\text{yield}} = \text{Check}_{\text{web}} = \text{Check}_{\text{flange.M.pos}} = \text{Check}_{\text{diaphragm}} = \text{"Okay"} \\ \text{"Do not use Appendix A6"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{final}} = \text{"Do not use Appendix A6"}$$



## Positive Moment Capacity Check:

*Since the A6 provision is not applicable, the section 6.10.8 shall be used to obtain capacity of tension and compression flange. Since the section is considered noncomposite and compression flange continuously braced, sections 6.10.8.1.3 and 6.10.8.3 shall be checked for minimum capacity.*

### Beam Section Capacity:

#### *Section 6.10.8.1.3:*

$$R_h := 1.0$$

*Hybrid Factor (6.10.1.10.1) - for rolled shape beam*

$$F_{nc} := R_h \cdot F_y = 33 \text{ ksi}$$

#### *Section 6.10.8.3:*

$$F_{yt} := 33 \text{ ksi}$$

*Yield Strength of Tension Flange*

$$F_{nt} := R_h \cdot F_{yt} = 33 \text{ ksi}$$

*Nominal tensile flexural resistance (Eq-6.10.8.3-1)*

## **Factored Flexural Resistance**

$$S_x := 406 \text{ in}^3$$

*Beam elastic section modulus (W33x130)*

$$Z_x := 467 \text{ in}^3$$

*Beam plastic section modulus (W33x130)*

$$M_n := \min(F_{nc}, F_{nt}) \cdot S_x = 1116.5 \cdot \text{kip} \cdot \text{ft}$$

*Nominal tensile flexural resistance (Eq-6.10.8.3-1)*

### *Resistance Factors*

$$\phi_f := 1.00$$

*AASHTO LRFD 6.5.4.2*

### *Moment Capacity*

$$\phi M_n := M_n \cdot \phi_f = 1116.5 \cdot \text{ft} \cdot \text{kip}$$

*MDX Calculates 1116.5 k\*ft*

## Section Capacity using AASHTO LRFD Appendix A6 (Negative Moment Check)

Per AASHTO LRFD 6.10.6.2.3, non-composite sections in straight bridges may be proportioned according to the provisions of AASHTO LRFD A6 if:

- Bridge supports are skewed less than 20 degrees from normal.
- Intermediate diaphragms or cross-frames placed in contiguous lines parallel to the support are used.
- The specified min. yield strength of the flanges is less than 70ksi.
- The web satisfies the noncompact slenderness limit in AASHTO LRFD Equation 6.10.6.2.3-1.
- The flanges satisfy AASHTO LRFD equation 6.10.6.2.3-2

Determine Applicability of AASHTO LRFD Section A6.1, per section 6.10.6.2.3

### Check Skew

$$\text{Check}_{\text{skew}} := \begin{cases} \text{"Okay"} & \text{if Skew} < 20\text{deg} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{skew}} = \text{"Not passed"}$$

### Check yield strength of steel

$$\text{Check}_{\text{yield}} := \begin{cases} \text{"Okay"} & \text{if } F_y \leq 70\text{ksi} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{yield}} = \text{"Okay"}$$

### Check web satisfies non compact slenderness limit

$$F_{wc} := F_y = 33 \text{ ksi}$$

### Full Section Section Properties

$$D_w := D_{\text{gird}} - 2 \cdot t_{\text{tf}} = 31.39 \text{ in}$$

Depth of web

$$A_w := D_w \cdot t_w = 18.21 \text{ in}^2$$

Area of web

$$A_{\text{tf}} := b_{\text{tf}} \cdot t_{\text{tf}} = 9.83 \text{ in}^2$$

Area of top flange

$$A_{\text{bf}} := b_{\text{bf}} \cdot t_{\text{bf}} = 9.83 \text{ in}^2$$

Area of bottom flange

$$A_{\text{tcp.neg}} := b_{\text{tcp.neg15}} \cdot t_{\text{tcp.neg15}} = 6.25 \text{ in}^2$$

Area of top cover plate

$$A_{\text{bcp.neg}} := b_{\text{bcp.neg15}} \cdot t_{\text{bcp.neg15}} = 6.25 \text{ in}^2$$

Area of bottom cover plate

$$I_{\text{tcp.neg}} := \frac{b_{\text{tcp.neg15}} \cdot t_{\text{tcp.neg15}}^3}{12} = 0.2 \text{ in}^4$$

Moment of Inertia of top cover plate

$$I_{\text{bcp.neg}} := \frac{b_{\text{bcp.neg15}} \cdot t_{\text{bcp.neg15}}^3}{12} = 0.2 \text{ in}^4$$

Moment of Inertia of bottom cover plate

$$Y_{\text{gird}} := \frac{A_{\text{tcp.neg}} \cdot \frac{t_{\text{tcp.neg15}}}{2} + A_{\text{bcp.neg}} \cdot \left( t_{\text{tcp.neg15}} + \frac{t_{\text{bcp.neg15}}}{2} + D_{\text{gird}} \right) + A_{\text{gird}} \cdot \left( t_{\text{tcp.neg15}} + \frac{D_{\text{gird}}}{2} \right)}{A_{\text{tcp.neg}} + A_{\text{bcp.neg}} + A_{\text{gird}}} = 17.17 \text{ in}$$

Neutral Axis, from compression face

$$\begin{aligned}
 I_{\text{gird}} &:= I_{\text{rolledgirder}} + A_{\text{gird}} \cdot \left[ y_{\text{gird}} - \left( \frac{D_{\text{gird}}}{2} + t_{\text{tcp.neg15}} \right) \right]^2 \dots = 10264.71 \text{ in}^4 \\
 &+ I_{\text{bcp.neg}} + A_{\text{bcp.neg}} \cdot \left( D_{\text{gird}} + t_{\text{tcp.neg15}} - y_{\text{gird}} + \frac{t_{\text{bcp.neg15}}}{2} \right)^2 \dots \\
 &+ I_{\text{tcp.neg}} + A_{\text{tcp.neg}} \cdot \left[ y_{\text{gird}} - \left( \frac{t_{\text{tcp.neg15}}}{2} \right) \right]^2
 \end{aligned}$$

*Moment of inertia of non-composite girder*

$$y_{\text{t\_non}} := D_{\text{gird}} + t_{\text{tcp.neg15}} + t_{\text{bcp.neg15}} - y_{\text{gird}} = 17.18 \text{ in}$$

*Distance from Neutral Axis to tension face*

$$S_{\text{t\_non}} := \frac{I_{\text{gird}}}{y_{\text{gird}}} = 597.65 \cdot \text{in}^3$$

*Elastic Section Modulus - tension*

$$S_{\text{c\_non}} := \frac{I_{\text{gird}}}{y_{\text{t\_non}}} = 597.65 \cdot \text{in}^3$$

*Elastic Section Modulus - tension face*

*Depth of Web in compression (D6.3):*

$$M_{\text{unit}} := 1 \text{ kip} \cdot \text{ft}$$

*unit load for elastic Range (D<sub>6</sub>)*

$$f_{\text{c}} := \frac{-M_{\text{unit}}}{S_{\text{c\_non}}} = -0.02 \cdot \text{ksi}$$

*unit stress in extreme compression fiber, applicable for non-composite section*

$$f_{\text{t}} := \frac{M_{\text{unit}}}{S_{\text{t\_non}}} = 0.02 \cdot \text{ksi}$$

*unit stress in extreme tension fiber, applicable for non-composite section*

$$t_{\text{f}} := t_{\text{bf}} + t_{\text{bcp.neg15}} = 1.48 \text{ in}$$

$$D_{\text{w}} := \left( \frac{-f_{\text{c}}}{|f_{\text{c}}| + f_{\text{t}}} \right) \cdot (D_{\text{gird}} + t_{\text{tcp}} + t_{\text{bcp}}) - t_{\text{f}} = 15.07 \text{ in}$$

*Depth of the web in compression in the elastic range  
AASHTO LRFD D6.3.1-1*

$$\text{Check}_{\text{web}} := \begin{cases} \text{"Okay"} & \text{if } \frac{2 \cdot D_{\text{c}}}{t_{\text{w}}} \leq 5.7 \sqrt{\frac{E_{\text{s}}}{F_{\text{yc}}}} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

Check<sub>web</sub> = "Okay"

*Check flanges satisfy ratio (negative Moment)*

$$I_{\text{yt.M.neg}} := \frac{t_{\text{f}} \cdot b_{\text{tf}}^3}{12} + \frac{t_{\text{tcp.neg15}} \cdot b_{\text{tcp.neg15}}^3}{12} = 160.45 \text{ in}^4$$

*Moment of inertia of tension flange*

$$I_{\text{yc.M.neg}} := \frac{t_{\text{bf}} \cdot b_{\text{bf}}^3}{12} + \frac{t_{\text{bcp.neg15}} \cdot b_{\text{bcp.neg15}}^3}{12} = 160.45 \text{ in}^4$$

*Moment of inertia of compression flange*

$$\text{Check}_{\text{flange.M.neg}} := \begin{cases} \text{"Okay"} & \text{if } \frac{I_{\text{yc.M.neg}}}{I_{\text{yt.M.neg}}} \geq 0.3 \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{flange.M.neg}} = \text{"Okay"}$$

### Diaphragm Check

Are diaphragms continuous and parallel to the supports?

$$\text{Diaphragm}_{\text{cont para}} := \text{"Yes"}$$

Type in "Yes" or "No"

$$\text{Check}_{\text{diaphragm}} := \begin{cases} \text{"Okay"} & \text{if } \text{Diaphragm}_{\text{cont para}} = \text{"Yes"} \\ \text{"Not passed"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{diaphragm}} = \text{"Okay"}$$

Can AASHTO LRFD Appendix A6 be used?

$$\text{Check}_{\text{final}} := \begin{cases} \text{"Use Appendix A6"} & \text{if } \text{Check}_{\text{skew}} = \text{Check}_{\text{yield}} = \text{Check}_{\text{web}} = \text{Check}_{\text{flange.M.neg}} = \text{Check}_{\text{diaphragm}} = \text{"Okay"} \\ \text{"Do not use Appendix A6"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{final}} = \text{"Do not use Appendix A6"}$$

## Negative Moment Check:

Since the A6 provision is not applicable, the section 6.10.8 shall be used to obtain capacity of tension and compression flange. Since the section is considered noncomposite, sections 6.10.8.2 and 6.10.8.3 shall be checked for minimum capacity.

### Compression Flange Flexural Resistance (6.10.8.2):

#### Local Buckling Resistance:

$$b_{\text{tf}} = 11.5 \text{ in}$$

Width of compression flange

$$t_{\text{tf}} = 0.86 \text{ in}$$

Thickness of compression flange

$$\lambda_f := \frac{b_{\text{tf}}}{2 \cdot (t_{\text{tf}} + t_{\text{bcp.neg15}})} = 3.89$$

Slenderness ratio for compression flange (Eq-6.10.8.2.2-3)

$$E_s := 29000 \text{ ksi}$$

Modulus of Elasticity for Steel

$$F_y := 33 \text{ ksi}$$

Yield Strength of Compression Flange

$$\lambda_{pf} := 0.38 \cdot \sqrt{\frac{E_s}{F_{yc}}} = 11.26$$

Compact section limit (Eq-6.10.8.2.2-4)

$$F_{yr} := 0.70 \cdot F_{yc} = 23.1 \text{ ksi}$$

Thickness of compression flange

$$\lambda_{rf} := 0.56 \cdot \sqrt{\frac{E_s}{F_{yr}}} = 19.84$$

Non-compact section limit (Eq-6.10.8.2.2-5)

$$R_{hw} := 1.0$$

Hybrid Factor (6.10.1.10.1) - for rolled shape beam

$$R_b := 1.0$$

Web Load-Shedding Factor (Eq-6.10.1.10.2-2 satisfies)

$$F_{nc.LB} := \begin{cases} R_b \cdot R_h \cdot F_{yc} & \text{if } \lambda_f \leq \lambda_{pf} \\ \left[ 1 - \left( 1 - \frac{F_{yr}}{R_h \cdot F_{yc}} \right) \cdot \left( \frac{\lambda_f - \lambda_{pf}}{\lambda_{rf} - \lambda_{pf}} \right) \right] \cdot R_b \cdot R_h \cdot F_{yc} & \text{otherwise} \end{cases}$$

Nominal local buckling resistance

$$F_{nc.LB} = 33 \text{ ksi}$$

**Lateral Torsional Buckling Resistance:**

$$L_b := 17\text{ft} + 10\text{in} = 214 \text{ in}$$

$$t_w := 0.58 \text{ in}$$

Thickness of web

$$r_i := \frac{b_{tf}}{\sqrt{12 \cdot \left[ 1 + \frac{1}{3} \cdot \frac{D_c \cdot t_w}{b_{tf} \cdot (t_{tf} + t_{bcp.neg15})} \right]}} = 3.07 \text{ in}$$

Effective radius of gyration for lateral torsional buckling (Eq-6.10.8.2.3-9)

$$L_p := 1.0 \cdot r_i \cdot \sqrt{\frac{E_s}{F_{yc}}} = 90.94 \text{ in}$$

Limited unbraced length to archive the nominal flexural resistance of  $R_b \cdot R_h \cdot F_{yc}$  under uniform bending (Eq-6.10.8.2.3-4)

$$L_r := \pi \cdot r_i \cdot \sqrt{\frac{E_s}{F_{yr}}} = 341.46 \text{ in}$$

Limited unbraced length to archive the onset of nominal yielding in either flange under uniform bending with consideration of compression-flange residual stress effect (Eq-6.10.8.2.3-5)

$$C_b := 1$$

Assumed

$$F_{nc.LTB} := \begin{cases} R_b \cdot R_h \cdot F_{yc} & \text{if } L_b \leq L_p \\ \min \left[ C_b \cdot \left[ 1 - \left( 1 - \frac{F_{yr}}{R_h \cdot F_{yc}} \right) \cdot \left( \frac{L_b - L_p}{L_r - L_p} \right) \right] \cdot R_b \cdot R_h \cdot F_{yc}, R_b \cdot R_h \cdot F_{yc} \right] & \text{if } L_p < L_b \leq L_r \\ \min \left[ \frac{C_b \cdot R_b \cdot \pi^2 \cdot E_s}{\left( \frac{L_b}{r_i} \right)^2}, R_b \cdot R_h \cdot F_{yc} \right] & \text{otherwise} \end{cases}$$

$$F_{nc.LTB} = 28.14 \text{ ksi}$$

*Nominal lateral torsional buckling resistance*

*Tension Flange Flexural Resistance (6.10.8.3):*

$$F_{xt} := 33 \text{ ksi}$$

*Yield Strength of Tension Flange*

$$F_{nt} := R_b \cdot F_{yt} = 33 \text{ ksi}$$

*Nominal tensile flexural resistance (Eq-6.10.8.3-1)*

**Factored Flexural Resistance**

$$S_{xx} := S_{c\_non} = 597.65 \cdot \text{in}^3$$

*Beam elastic section modulus (W33x130)*

$$Z_{xx} := b_{bf} \cdot (t_{tf} + t_{tcp.neg15}) \cdot (D_{gird} - 2 \cdot t_{tf}) + 0.25 \cdot t_w \cdot (D_{gird} - 2 \cdot t_{tf})^2 = 677.13 \cdot \text{in}^3$$

*Beam plastic section modulus (W33x130)*

$$M_n := \min(F_{nc.LB}, F_{nc.LTB}, F_{nt}) \cdot S_x = 1401.34 \cdot \text{kip} \cdot \text{ft}$$

*Nominal tensile flexural resistance (Eq-6.10.8.3-1)*

*Resistance Factors*

$$\phi_f := 1.00$$

*AASHTO LRFD 6.5.4.2*

*Moment Capacity*

$$\phi M_n := M_n \cdot \phi_f = 1401.34 \cdot \text{ft} \cdot \text{kip}$$

*Moment capacity outside the cover plates*

*MDX Calculates 1643.5 k\*ft with calculated Cb factor  
MDX Calculates 1398.2 k\*ft with 1.0 Cb factor. Say OK.*

## Calculation of Remaining Fatigue Life:

The remaining fatigue life was investigated for the fatigue detail in MDX with the highest Demand/Capacity Ratio

### Welded end of Cover Plates (E')

$$M_{ser} := \frac{229 \text{ kip}\cdot\text{ft}}{0.75} = 305.33 \cdot \text{kip}\cdot\text{ft}$$

$$\text{Category} := \text{"E"}$$

$$\Delta F_{th} := \begin{cases} (24 \text{ ksi}) & \text{if Category} = \text{"A"} \\ (16 \text{ ksi}) & \text{if Category} = \text{"B"} \\ (12 \text{ ksi}) & \text{if Category} = \text{"B"} \\ (10 \text{ ksi}) & \text{if Category} = \text{"C"} \\ (12 \text{ ksi}) & \text{if Category} = \text{"C"} \\ (7 \text{ ksi}) & \text{if Category} = \text{"D"} \\ (4.5 \text{ ksi}) & \text{if Category} = \text{"E"} \\ (2.6 \text{ ksi}) & \text{if Category} = \text{"E"} \\ \text{"Need Category"} & \text{otherwise} \end{cases} = 2.6 \cdot \text{ksi}$$

$$S_{b\_non\_fat} := \frac{I_{rolledgird}}{D_{gird} \div 2} = 405.44 \cdot \text{in}^3$$

$$\Delta f := \frac{0.75 M_{ser}}{S_{b\_non\_fat}} = 6.78 \text{ ksi}$$

$$R_{sa} := 0.95$$

$$R_{st} := 1.0$$

$$L := 56.417 \text{ ft}$$

$$ADTT_{cur} := \text{ceil}(ADT_{cur} \cdot \text{Truck}_{perc}) = 19$$

$$n_L := 2$$

$$R_p := \max \left( 0.988 + 6.87 \cdot 10^{-5} \cdot \frac{L}{\text{ft}} + 4.01 \cdot 10^{-6} \cdot ADTT_{cur} + \frac{0.0107}{n_L}, 1.0 \right) = 1 \quad \text{Multiple presence factor (MBE 7.2.2.1)}$$

$$R_s := R_{sa} \cdot R_{st} = 0.95$$

$$\Delta f_{eff} := R_p \cdot R_s \cdot \Delta f = 6.44 \text{ ksi}$$

$$\text{Check}_{inf} := \text{if} \left( \frac{2 \Delta f_{eff}}{\Delta F_{th}} < 1.0, \text{"Infinite Fatigue Life Anticipated"}, \text{"Finite Fatigue Life Anticipated"} \right)$$

$$\text{Check}_{inf} = \text{"Finite Fatigue Life Anticipated"}$$

MBE 7.2.4

Maximum unfactored Fatigue Truck Moment Range from MDX, maximum among all girders (Girder 1), at the end of the welded cover plate

Controlling fatigue category

Constant-Amplitude Fatigue Threshold [AASHTO Table 6.6.1.2.5-3]

Section modulus excluding cover plates

Fatigue Stress Range (Fatigue II)

Stress Range Determined by Refined Analysis (MBE 7.2.2.1.1)

Stress Range with AASHTO truck weight (MBE 7.2.2.1.1)

Span Length

Current Average daily truck traffic

Number of lanes

Stress-range estimate partial load factor (MBE 7.2.2)

Effective Stress Range (MBE 7.2.2)

$$A := \begin{cases} 250 & \text{if Category} = \text{"A"} \\ 120 & \text{if Category} = \text{"B"} \\ 61 & \text{if Category} = \text{"B"} \\ 44 & \text{if Category} = \text{"C"} \\ 44 & \text{if Category} = \text{"C"} \\ 22 & \text{if Category} = \text{"D"} \\ 11 & \text{if Category} = \text{"E"} \\ 3.9 & \text{if Category} = \text{"E"} \\ \text{"Need Category"} & \text{otherwise} \end{cases} \cdot 10^8 \text{ ksi}^3 = 3.9 \times 10^8 \cdot \text{ksi}^3 \quad \text{Detail category constant, AASHTO Table 6.6.1.2.5-1}$$

$$n_p := 1.0$$

Cycles due to truck passage (AASHTO Table 6.6.1.2.5-2)

$$R_R := 2.5$$

Resistance Factor for evaluation, MBE Table 7.2.5.2-1, taken as the Mean Life

$$g := \left( \frac{ADT_{fut}}{ADT_{cur}} \right)^{\left( \frac{1}{20} \right)} - 1 = 2.05\%$$

Approximate Growth rate of traffic, based on current and future Traffic Volumes

$$a := 2017 - \text{Year} = 55$$

Bridge Age

$$Y := \frac{\log \left[ \frac{R_R \cdot A}{365 \cdot n_p \cdot ADTT \cdot (\Delta f_{eff})^3} \cdot g \cdot (1 + g)^{a-1} + 1 \right]}{\log(1 + g)} \cdot \text{yr} = 199.14 \cdot \text{yr}$$

Total finite fatigue life of detail considered (MBE 7.2.5.1-1)

$$\text{Remaining Life} := Y - (a) \text{yr} = 144 \cdot \text{yr}$$

Years of life remaining, based on finite fatigue of this detail



ID: WEST ETNA 5961

CONDITIONS

ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
MLFACTORS 1.08 0.9 0.76 0.58  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS ONE SIDE OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 59.994  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 1  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1  
SPN 56.417 70.5 70.5 70.5 70.4999 56.4169

```

SS 0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.
10. 10.
TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99
TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.625 0.625 0.625
TFISPB 4. 4. 4. 4. 4.
TFISPT 0.625 0.625 0.625 0.625 0.625
TFOSPB 11. 11. 11. 11. 11.
TFOSPT 0.375 0.375 0.375 0.375 0.375
TSLABW 59.994
TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.
210. 426. 212. 212. 426. 231.5
WCONC 150.
GO

```

ID: WEST ETNA 5961

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.999 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 2  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1  
SPN 56.417 70.5 70.5 70.5 70.4999 56.4169

```

SS 0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.
10. 10.
TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99
TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.625 0.625 0.625
TFISPB 4. 4. 4. 4. 4.
TFISPT 0.625 0.625 0.625 0.625 0.625
TFOSPB 11. 11. 11. 11. 11.
TFOSPT 0.375 0.375 0.375 0.375 0.375
TSLABW 75.996
TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.
210. 426. 212. 212. 426. 231.5
WCONC 150.
GO

```

ID: WEST ETNA 5961

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1  
SPN 56.417 70.5 70.5 70.5 70.4999 56.4169

```

SS 0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.
10. 10.
TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99
TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.625 0.625 0.625
TFISPB 4. 4. 4. 4. 4.
TFISPT 0.625 0.625 0.625 0.625 0.625
TFOSPB 11. 11. 11. 11. 11.
TFOSPT 0.375 0.375 0.375 0.375 0.375
TSLABW 75.996
TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.
210. 426. 212. 212. 426. 231.5
WCONC 150.
GO

```

ID: WEST ETNA 5961

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 4  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1  
SPN 56.417 70.5 70.5 70.5 70.4999 56.4169



```

SS 0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.
10. 10.
TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99
TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.625 0.625 0.625
TFISPB 4. 4. 4. 4. 4.
TFISPT 0.625 0.625 0.625 0.625 0.625
TFOSPB 11. 11. 11. 11. 11.
TFOSPT 0.375 0.375 0.375 0.375 0.375
TSLABW 75.996
TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.
210. 426. 212. 212. 426. 231.5
WCONC 150.
GO

```

ID: WEST ETNA 5961

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS ONE SIDE OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 59.994  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 5  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1  
SPN 56.417 70.5 70.5 70.5 70.4999 56.4169

```

SS 0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.
10. 10.
TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99
TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.625 0.625 0.625
TFISPB 4. 4. 4. 4. 4.
TFISPT 0.625 0.625 0.625 0.625 0.625
TFOSPB 11. 11. 11. 11. 11.
TFOSPT 0.375 0.375 0.375 0.375 0.375
TSLABW 59.994
TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.
210. 426. 212. 212. 426. 231.5
WCONC 150.
GO

```

ID: WEST ETNA 5961

CONDITIONS

A7 STEEL  
DIAPHRAGM W16X36 FOR GROUP 1  
DIAPHRAGM C15X33.9 FOR GROUP 2  
ENGLISH INPUT  
ENGLISH OUTPUT  
LRFD METHOD  
LRFR RATINGS  
RATE MODE  
TYPE D BRACING FOR GROUP 1  
TYPE D BRACING FOR GROUP 2

DATA

ADTT 11  
BRL-1 6.7481 6.7481 6.748 6.748 6.7481 6.7481 6.7481 6.748  
6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.748 6.748  
6.748 6.748 6.748 6.748 6.748 6.748  
BRL-2 6.7481 6.748 6.7481 6.7481 6.748 6.748 6.748 6.7481  
6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481  
6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481  
BRL-3 6.7481 6.7481 6.748 6.748 6.7481 6.7481 6.7481 6.7481  
6.748 6.748 6.748 6.748 6.748 6.748 6.748 6.748 6.748 6.748  
6.748 6.748 6.748 6.748 6.748  
BRL-4 6.7481 6.748 6.748 6.748 6.7481 6.7481 6.7481 6.7481  
6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481  
6.7481 6.7481 6.7481 6.7481 6.7481 6.7481 6.7481  
ETAD 1.  
ETAI 1.  
ETAR 1.  
GCONNDST 4.5 4.5  
GRP-1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1  
GRP-2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1  
GRP-3 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1  
GRP-4 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1  
GRPHT 0. 0.  
KCOL 0.75  
LIFE 75

GO

Girder System Case Data - WEST ETNA 5961

Geometry

Span Lengths, Girder 1

Span 1	56.417 ft
Span 2	70.500 ft
Span 3	70.500 ft
Span 4	70.500 ft
Span 5	70.500 ft
Span 6	56.417 ft

Brace Angles at Supports, Girder 1

Support 1	69.800 deg
Support 2	69.800 deg
Support 3	69.800 deg
Support 4	69.800 deg
Support 5	69.800 deg
Support 6	69.800 deg
Support 7	69.800 deg

Girder spacing

Girder 1 to 2	6.33 ft
Girder 2 to 3	6.33 ft
Girder 3 to 4	6.33 ft
Girder 4 to 5	6.33 ft

Slab extension from center of girder 1 1.83 ft

Slab extension from center of girder 5 1.83 ft

Intermediate brace spacing

Girder 1

Brace 1	19.29 ft
Brace 2	19.29 ft
Brace 3	35.50 ft
Brace 4	17.67 ft
Brace 5	17.67 ft
Brace 6	35.50 ft
Brace 7	17.50 ft
Brace 8	17.50 ft
Brace 9	35.00 ft
Brace 10	17.50 ft
Brace 11	17.50 ft
Brace 12	35.50 ft
Brace 13	17.67 ft
Brace 14	17.67 ft
Brace 15	35.50 ft
Brace 16	19.29 ft

No curvature

Lane Geometry

Curb from girder 1, ft

[illegible]

## Lane Spacing

Lane	1	12.00 ft
Lane	2	12.00 ft

## Loading

Superimposed dead load, k/ft

## Girder 1

[illegible]

## Girder 2

[illegible]

Girder 3

[illegible]

## Girder 4

[illegible]

## Girder 5

[illegible]

[illegible][illegible]

Girder 3



[illegible]

Design truck multiplier: 1.0000

Tandem truck multiplier: 1.0000

Influence surface values not displayed

Multiple Presence Factors

1.08  
0.90  
0.76  
0.58

Units

Input: U.S. customary

Output: U.S. customary

Girder 1 Case Data - WEST ETNA 5961

AASHTO Specification

Load and Resistance Factor Method  
 6th Edition LRFD Bridge Design Specifications  
 2nd Edition Manual for Bridge Evaluation

Dimensions (additional information available in Dimensions table)

Given dimensions-

Top Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Top Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Web Depth	31.39 in	31.39 in	31.39 in	31.39 in
Web Thickness	0.58 in	0.58 in	0.58 in	0.58 in
Bottom Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Bottom Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Bearing Stiff. Width	6.00 in	6.00 in	6.00 in	6.00 in
Bearing Stiff. Thickness	0.38 in	0.38 in	0.38 in	0.38 in

Execution Mode

Rate Mode

Geometry

Brace locations

0.00 ft	19.29 ft	38.58 ft	56.42 ft
74.08 ft	91.75 ft	109.42 ft	126.92 ft
144.92 ft	162.42 ft	179.92 ft	197.42 ft
214.92 ft	232.42 ft	249.92 ft	267.92 ft
285.42 ft	303.09 ft	320.75 ft	338.42 ft
356.25 ft	375.54 ft	394.83 ft	
Unbraced length of comp. flange at support 2 is 17.83 ft.			
Unbraced length of comp. flange at support 3 is 18.00 ft.			
Unbraced length of comp. flange at support 4 is 17.50 ft.			
Unbraced length of comp. flange at support 5 is 18.00 ft.			
Unbraced length of comp. flange at support 6 is 17.84 ft.			

Cover plates

Top cover plated regions-

47.42 - 50.41 ft	50.42 - 62.42 ft
62.43 - 65.42 ft	116.92 - 119.91 ft
119.92 - 133.92 ft	133.93 - 136.92 ft
187.42 - 190.41 ft	190.42 - 204.42 ft
204.43 - 207.42 ft	257.92 - 260.91 ft
260.92 - 274.92 ft	274.93 - 277.92 ft
328.42 - 331.41 ft	331.42 - 343.42 ft
343.43 - 346.42 ft	
Top cover plate widths	10.00 10.00 10.00 10.00 10.00
	10.00 10.00 10.00 10.00 10.00
	10.00 10.00 10.00 10.00 10.00
Top cover plate thicknesses	0.62 0.62 0.62 0.75 0.75
	0.75 0.75 0.75 0.75 0.75
	0.75 0.75 0.62 0.62 0.62

Bottom cover plated regions-

47.42 - 50.41 ft	50.42 - 62.42 ft
62.43 - 65.42 ft	116.92 - 119.91 ft
119.92 - 133.92 ft	133.93 - 136.92 ft
187.42 - 190.41 ft	190.42 - 204.42 ft

204.43 -	207.42	ft	257.92 -	260.91	ft
260.92 -	274.92	ft	274.93 -	277.92	ft
328.42 -	331.41	ft	331.42 -	343.42	ft
343.43 -	346.42	ft			

Bottom cover plate widths	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00

Bottom cover plate thicknesses	0.62	0.62	0.62	0.75	0.75
	0.75	0.75	0.75	0.75	0.75
	0.75	0.75	0.62	0.62	0.62

## Curvature

No curvature

## Girder Type

Rolled shapes

## Hinges

No interior hinges

## Span lengths

Spans	56.42 ft	70.50 ft	70.50 ft	70.50 ft
	70.50 ft	56.42 ft		

## Stiffeners

Bearing stiffeners

## Web splices

Web splice locations	71.42 ft	141.92 ft	212.42 ft	282.92 ft
	323.42 ft			

## Fatigue

Average Single Lane Daily Truck Traffic: 9  
 Lanes available to trucks 2  
 Fatigue life: 100  
 Fatigue stress category B flange splices

## Composite Behavior

Noncomposite regions for composite loading-  
 0.00 - 394.83 ft

## Unshored construction

## Load Factors

DC1,DC2	1.250
DW	1.500
HL93 LL+I	1.750
Constructibility	1.250

## Load Modifiers

Ductility	1.00
Redundancy	1.00
Operational Classification	1.00

## Reactions

Max unfactored live load+impact reactions				
31.85 k	53.39 k	58.05 k	58.35 k	58.04 k
53.71 k	32.25 k			
Min unfactored live load+impact reactions				
-6.40 k	-10.40 k	-11.18 k	-11.49 k	-11.16 k
-10.26 k	-6.47 k			
Max unfactored live reactions - No dynamic load allowance				
25.53 k	44.43 k	48.23 k	48.53 k	48.23 k
44.67 k	25.83 k			
Min unfactored live reactions - No dynamic load allowance				
-5.22 k	-8.54 k	-9.41 k	-9.72 k	-9.40 k
-8.43 k	-5.27 k			
Total unfactored dead load DC1+DC2 reactions				
18.08 k	62.11 k	61.97 k	61.71 k	61.97 k

62.08 k	18.09 k			
Total unfactored dead load DW reactions				
3.67 k	12.81 k	12.72 k	12.67 k	12.72 k
12.81 k	3.67 k			
Bearing skew for redistribution qualification				
69.80	69.80	69.80	69.80	69.80
69.80	69.80			

## Material

## Concrete

Concrete strength	3.00 ksi
Unit wt of concrete	150. lb/cu ft

Aggregate source correction factor K1	1.00
---------------------------------------	------

Slab T for strength	6.50 in	6.50 in	6.50 in	6.50 in
Fillet	1.00 in			
Effective slab width	59.99 in			
Self weight slab width	59.99 in			

## Steel

Top flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Top cover plate yield	33.00 ksi	33.00 ksi		
Bottom flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Bottom cover plate yield	33.00 ksi	33.00 ksi		
Web yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Stiffener yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Rebar yield	60.00 ksi			

## Output

Standard resolution summary tables

## Units

Input units: U.S. cust.  
Output units: U.S. cust.

Girder 2 Case Data - WEST ETNA 5961

AASHTO Specification

Load and Resistance Factor Method  
6th Edition LRFD Bridge Design Specifications  
2nd Edition Manual for Bridge Evaluation

Dimensions (additional information available in Dimensions table)

Given dimensions-

Top Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Top Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Web Depth	31.39 in	31.39 in	31.39 in	31.39 in
Web Thickness	0.58 in	0.58 in	0.58 in	0.58 in
Bottom Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Bottom Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Bearing Stiff. Width	6.00 in	6.00 in	6.00 in	6.00 in
Bearing Stiff. Thickness	0.38 in	0.38 in	0.38 in	0.38 in

Execution Mode

Rate Mode

Geometry

Brace locations

0.00 ft	19.29 ft	38.58 ft	56.42 ft
74.08 ft	91.75 ft	109.42 ft	126.92 ft
144.92 ft	162.42 ft	179.92 ft	197.42 ft
214.92 ft	232.42 ft	249.92 ft	267.92 ft
285.42 ft	303.08 ft	320.75 ft	338.42 ft
356.25 ft	375.54 ft	394.83 ft	
Unbraced length of comp. flange at support 2 is 17.83 ft.			
Unbraced length of comp. flange at support 3 is 18.00 ft.			
Unbraced length of comp. flange at support 4 is 17.50 ft.			
Unbraced length of comp. flange at support 5 is 18.00 ft.			
Unbraced length of comp. flange at support 6 is 17.83 ft.			

Cover plates

Top cover plated regions-

47.42 - 50.41 ft	50.42 - 62.42 ft
62.43 - 65.42 ft	116.92 - 119.91 ft
119.92 - 133.92 ft	133.93 - 136.92 ft
187.42 - 190.41 ft	190.42 - 204.42 ft
204.43 - 207.42 ft	257.92 - 260.91 ft
260.92 - 274.92 ft	274.93 - 277.92 ft
328.42 - 331.41 ft	331.42 - 343.42 ft
343.43 - 346.42 ft	
Top cover plate widths	10.00 10.00 10.00 10.00 10.00
	10.00 10.00 10.00 10.00 10.00
	10.00 10.00 10.00 10.00 10.00
Top cover plate thicknesses	0.62 0.62 0.62 0.75 0.75
	0.75 0.75 0.75 0.75 0.75
	0.75 0.75 0.62 0.62 0.62

Bottom cover plated regions-

47.42 - 50.41 ft	50.42 - 62.42 ft
62.43 - 65.42 ft	116.92 - 119.91 ft
119.92 - 133.92 ft	133.93 - 136.92 ft
187.42 - 190.41 ft	190.42 - 204.42 ft

204.43 -	207.42	ft	257.92 -	260.91	ft
260.92 -	274.92	ft	274.93 -	277.92	ft
328.42 -	331.41	ft	331.42 -	343.42	ft
343.43 -	346.42	ft			

Bottom cover plate widths	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00

Bottom cover plate thicknesses	0.62	0.62	0.62	0.75	0.75
	0.75	0.75	0.75	0.75	0.75
	0.75	0.75	0.62	0.62	0.62

## Curvature

No curvature

## Girder Type

Rolled shapes

## Hinges

No interior hinges

## Span lengths

Spans	56.42 ft	70.50 ft	70.50 ft	70.50 ft
	70.50 ft	56.42 ft		

## Stiffeners

Bearing stiffeners

## Web splices

Web splice locations	71.42 ft	141.92 ft	212.42 ft	282.92 ft
	323.42 ft			

## Fatigue

Average Single Lane Daily Truck Traffic: 9  
 Lanes available to trucks 2  
 Fatigue life: 100  
 Fatigue stress category B flange splices

## Composite Behavior

Noncomposite regions for composite loading-  
 0.00 - 394.83 ft

## Unshored construction

## Load Factors

DC1,DC2	1.250
DW	1.500
HL93 LL+I	1.750
Constructibility	1.250

## Load Modifiers

Ductility	1.00
Redundancy	1.00
Operational Classification	1.00

## Reactions

Max unfactored live load+impact reactions				
46.52 k	68.32 k	72.10 k	72.35 k	72.11 k
69.72 k	49.49 k			
Min unfactored live load+impact reactions				
-5.42 k	-7.29 k	-8.66 k	-8.93 k	-8.63 k
-7.33 k	-5.42 k			
Max unfactored live reactions - No dynamic load allowance				
36.80 k	56.20 k	59.47 k	59.72 k	59.48 k
57.41 k	39.22 k			
Min unfactored live reactions - No dynamic load allowance				
-4.42 k	-5.94 k	-7.30 k	-7.57 k	-7.27 k
-5.97 k	-4.42 k			
Total unfactored dead load DC1+DC2 reactions				
20.23 k	68.46 k	68.38 k	68.10 k	68.38 k



68.51 k	20.19 k			
Total unfactored dead load DW reactions				
3.68 k	12.81 k	12.72 k	12.67 k	12.72 k
12.80 k	3.67 k			
Bearing skew for redistribution qualification				
69.80	69.80	69.80	69.80	69.80
69.80	69.80			

## Material

### Concrete

Concrete strength	3.00 ksi			
Unit wt of concrete	150. lb/cu ft			
Aggregate source correction factor K1	1.00			
Slab T for strength	6.50 in	6.50 in	6.50 in	6.50 in
Fillet	1.00 in	6.50 in		
Effective slab width	76.00 in			
Self weight slab width	76.00 in			

### Steel

Top flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Top cover plate yield	33.00 ksi	33.00 ksi		
Bottom flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Bottom cover plate yield	33.00 ksi	33.00 ksi		
Web yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Stiffener yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Rebar yield	60.00 ksi			

## Output

Standard resolution summary tables

## Units

Input units: U.S. cust.  
Output units: U.S. cust.

Girder 3 Case Data - WEST ETNA 5961

AASHTO Specification

Load and Resistance Factor Method  
 6th Edition LRFD Bridge Design Specifications  
 2nd Edition Manual for Bridge Evaluation

Dimensions (additional information available in Dimensions table)

Given dimensions-

Top Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Top Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Web Depth	31.39 in	31.39 in	31.39 in	31.39 in
Web Thickness	0.58 in	0.58 in	0.58 in	0.58 in
Bottom Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Bottom Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Bearing Stiff. Width	6.00 in	6.00 in	6.00 in	6.00 in
Bearing Stiff. Thickness	0.38 in	0.38 in	0.38 in	0.38 in

Execution Mode

Rate Mode

Geometry

Brace locations

0.00 ft	19.29 ft	38.58 ft	56.42 ft
74.08 ft	91.75 ft	109.42 ft	126.92 ft
144.92 ft	162.42 ft	179.92 ft	197.42 ft
214.92 ft	232.42 ft	249.92 ft	267.92 ft
285.42 ft	303.09 ft	320.75 ft	338.42 ft
356.25 ft	375.54 ft	394.83 ft	
Unbraced length of comp. flange at support 2 is 17.83 ft.			
Unbraced length of comp. flange at support 3 is 18.00 ft.			
Unbraced length of comp. flange at support 4 is 17.50 ft.			
Unbraced length of comp. flange at support 5 is 18.00 ft.			
Unbraced length of comp. flange at support 6 is 17.84 ft.			

Cover plates

Top cover plated regions-

47.42 -	50.41 ft	50.42 -	62.42 ft
62.43 -	65.42 ft	116.92 -	119.91 ft
119.92 -	133.92 ft	133.93 -	136.92 ft
187.42 -	190.41 ft	190.42 -	204.42 ft
204.43 -	207.42 ft	257.92 -	260.91 ft
260.92 -	274.92 ft	274.93 -	277.92 ft
328.42 -	331.41 ft	331.42 -	343.42 ft
343.43 -	346.42 ft		

Top cover plate widths

10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00

Top cover plate thicknesses

0.62	0.62	0.62	0.75	0.75
0.75	0.75	0.75	0.75	0.75
0.75	0.75	0.62	0.62	0.62

Bottom cover plated regions-

47.42 -	50.41 ft	50.42 -	62.42 ft
62.43 -	65.42 ft	116.92 -	119.91 ft
119.92 -	133.92 ft	133.93 -	136.92 ft
187.42 -	190.41 ft	190.42 -	204.42 ft

204.43 -	207.42	ft	257.92 -	260.91	ft
260.92 -	274.92	ft	274.93 -	277.92	ft
328.42 -	331.41	ft	331.42 -	343.42	ft
343.43 -	346.42	ft			

Bottom cover plate widths	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00

Bottom cover plate thicknesses	0.62	0.62	0.62	0.75	0.75
	0.75	0.75	0.75	0.75	0.75
	0.75	0.75	0.62	0.62	0.62

## Curvature

No curvature

## Girder Type

Rolled shapes

## Hinges

No interior hinges

## Span lengths

Spans	56.42 ft	70.50 ft	70.50 ft	70.50 ft
	70.50 ft	56.42 ft		

## Stiffeners

Bearing stiffeners

## Web splices

Web splice locations	71.42 ft	141.92 ft	212.42 ft	282.92 ft
	323.42 ft			

## Fatigue

Average Single Lane Daily Truck Traffic: 9  
 Lanes available to trucks 2  
 Fatigue life: 100  
 Fatigue stress category B flange splices

## Composite Behavior

Noncomposite regions for composite loading-  
 0.00 - 394.83 ft

## Unshored construction

## Load Factors

DC1,DC2	1.250
DW	1.500
HL93 LL+I	1.750
Constructibility	1.250

## Load Modifiers

Ductility	1.00
Redundancy	1.00
Operational Classification	1.00

## Reactions

Max unfactored live load+impact reactions				
54.08 k	77.84 k	80.06 k	80.48 k	80.09 k
78.51 k	53.81 k			
Min unfactored live load+impact reactions				
-5.50 k	-7.41 k	-8.81 k	-9.05 k	-8.80 k
-7.38 k	-5.52 k			
Max unfactored live reactions - No dynamic load allowance				
42.89 k	64.72 k	66.67 k	67.04 k	66.68 k
65.25 k	42.69 k			
Min unfactored live reactions - No dynamic load allowance				
-4.48 k	-6.03 k	-7.42 k	-7.66 k	-7.41 k
-6.00 k	-4.49 k			
Total unfactored dead load DC1+DC2 reactions				
20.51 k	69.87 k	69.65 k	69.38 k	69.65 k

69.83 k	20.54 k			
Total unfactored dead load DW reactions				
3.67 k	12.81 k	12.72 k	12.67 k	12.72 k
12.81 k	3.68 k			
Bearing skew for redistribution qualification				
69.80	69.80	69.80	69.80	69.80
69.80	69.80			

## Material

## Concrete

Concrete strength	3.00 ksi
Unit wt of concrete	150. lb/cu ft

Aggregate source correction factor K1	1.00
---------------------------------------	------

Slab T for strength	6.50 in	6.50 in	6.50 in	6.50 in
Fillet	1.00 in			
Effective slab width	76.00 in			
Self weight slab width	76.00 in			

## Steel

Top flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Top cover plate yield	33.00 ksi	33.00 ksi		
Bottom flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Bottom cover plate yield	33.00 ksi	33.00 ksi		
Web yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Stiffener yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Rebar yield	60.00 ksi			

## Output

Standard resolution summary tables

## Units

Input units: U.S. cust.  
Output units: U.S. cust.

Girder 4 Case Data - WEST ETNA 5961

AASHTO Specification

Load and Resistance Factor Method  
 6th Edition LRFD Bridge Design Specifications  
 2nd Edition Manual for Bridge Evaluation

Dimensions (additional information available in Dimensions table)

Given dimensions-

Top Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Top Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Web Depth	31.39 in	31.39 in	31.39 in	31.39 in
Web Thickness	0.58 in	0.58 in	0.58 in	0.58 in
Bottom Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Bottom Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Bearing Stiff. Width	6.00 in	6.00 in	6.00 in	6.00 in
Bearing Stiff. Thickness	0.38 in	0.38 in	0.38 in	0.38 in

Execution Mode

Rate Mode

Geometry

Brace locations

0.00 ft	19.29 ft	38.58 ft	56.42 ft
74.08 ft	91.75 ft	109.42 ft	126.92 ft
144.92 ft	162.42 ft	179.92 ft	197.42 ft
214.92 ft	232.42 ft	249.92 ft	267.92 ft
285.42 ft	303.09 ft	320.75 ft	338.42 ft
356.25 ft	375.54 ft	394.83 ft	
Unbraced length of comp. flange at support 2 is 17.83 ft.			
Unbraced length of comp. flange at support 3 is 18.00 ft.			
Unbraced length of comp. flange at support 4 is 17.50 ft.			
Unbraced length of comp. flange at support 5 is 18.00 ft.			
Unbraced length of comp. flange at support 6 is 17.84 ft.			

Cover plates

Top cover plated regions-

47.42 - 50.41 ft	50.42 - 62.42 ft
62.43 - 65.42 ft	116.92 - 119.91 ft
119.92 - 133.92 ft	133.93 - 136.92 ft
187.42 - 190.41 ft	190.42 - 204.42 ft
204.43 - 207.42 ft	257.92 - 260.91 ft
260.92 - 274.92 ft	274.93 - 277.92 ft
328.42 - 331.41 ft	331.42 - 343.42 ft
343.43 - 346.42 ft	

Top cover plate widths

10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00

Top cover plate thicknesses

0.62	0.62	0.62	0.75	0.75
0.75	0.75	0.75	0.75	0.75
0.75	0.75	0.62	0.62	0.62

Bottom cover plated regions-

47.42 - 50.41 ft	50.42 - 62.42 ft
62.43 - 65.42 ft	116.92 - 119.91 ft
119.92 - 133.92 ft	133.93 - 136.92 ft
187.42 - 190.41 ft	190.42 - 204.42 ft

204.43 -	207.42	ft	257.92 -	260.91	ft
260.92 -	274.92	ft	274.93 -	277.92	ft
328.42 -	331.41	ft	331.42 -	343.42	ft
343.43 -	346.42	ft			

Bottom cover plate widths	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00

Bottom cover plate thicknesses	0.62	0.62	0.62	0.75	0.75
	0.75	0.75	0.75	0.75	0.75
	0.75	0.75	0.62	0.62	0.62

## Curvature

No curvature

## Girder Type

Rolled shapes

## Hinges

No interior hinges

## Span lengths

Spans	56.42 ft	70.50 ft	70.50 ft	70.50 ft
	70.50 ft	56.42 ft		

## Stiffeners

Bearing stiffeners

## Web splices

Web splice locations	71.42 ft	141.92 ft	212.42 ft	282.92 ft
	323.42 ft			

## Fatigue

Average Single Lane Daily Truck Traffic: 9  
 Lanes available to trucks 2  
 Fatigue life: 100  
 Fatigue stress category B flange splices

## Composite Behavior

Noncomposite regions for composite loading-  
 0.00 - 394.83 ft

## Unshored construction

## Load Factors

DC1,DC2	1.250
DW	1.500
HL93 LL+I	1.750
Constructibility	1.250

## Load Modifiers

Ductility	1.00
Redundancy	1.00
Operational Classification	1.00

## Reactions

Max unfactored live load+impact reactions				
46.49 k	68.94 k	71.34 k	71.63 k	71.42 k
69.31 k	46.44 k			
Min unfactored live load+impact reactions				
-5.45 k	-7.35 k	-8.70 k	-8.97 k	-8.69 k
-7.35 k	-5.45 k			
Max unfactored live reactions - No dynamic load allowance				
36.78 k	56.80 k	58.88 k	59.17 k	58.94 k
57.10 k	36.74 k			
Min unfactored live reactions - No dynamic load allowance				
-4.44 k	-5.99 k	-7.33 k	-7.60 k	-7.32 k
-5.99 k	-4.44 k			
Total unfactored dead load DC1+DC2 reactions				
20.22 k	68.54 k	68.38 k	68.10 k	68.38 k

68.52 k	20.20 k			
Total unfactored dead load DW reactions				
3.68 k	12.81 k	12.72 k	12.67 k	12.72 k
12.81 k	3.67 k			
Bearing skew for redistribution qualification				
69.80	69.80	69.80	69.80	69.80
69.80	69.80			

## Material

## Concrete

Concrete strength	3.00 ksi
Unit wt of concrete	150. lb/cu ft

Aggregate source correction factor K1	1.00
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Slab T for strength	6.50 in	6.50 in	6.50 in	6.50 in
Fillet	1.00 in			
Effective slab width	76.00 in			
Self weight slab width	76.00 in			

## Steel

Top flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Top cover plate yield	33.00 ksi	33.00 ksi		
Bottom flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Bottom cover plate yield	33.00 ksi	33.00 ksi		
Web yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Stiffener yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Rebar yield	60.00 ksi			

## Output

Standard resolution summary tables

## Units

Input units: U.S. cust.  
Output units: U.S. cust.

Girder 5 Case Data - WEST ETNA 5961

AASHTO Specification

Load and Resistance Factor Method  
6th Edition LRFD Bridge Design Specifications  
2nd Edition Manual for Bridge Evaluation

Dimensions (additional information available in Dimensions table)

Given dimensions-

Top Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Top Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Web Depth	31.39 in	31.39 in	31.39 in	31.39 in
Web Thickness	0.58 in	0.58 in	0.58 in	0.58 in
Bottom Flange Width	11.50 in	11.50 in	11.50 in	11.50 in
Bottom Flange Thickness	0.86 in	0.86 in	0.86 in	0.86 in
Bearing Stiff. Width	6.00 in	6.00 in	6.00 in	6.00 in
Bearing Stiff. Thickness	0.38 in	0.38 in	0.38 in	0.38 in

Execution Mode

Rate Mode

Geometry

Brace locations

0.00 ft	19.29 ft	38.58 ft	56.42 ft
74.08 ft	91.75 ft	109.42 ft	126.92 ft
144.92 ft	162.42 ft	179.92 ft	197.42 ft
214.92 ft	232.42 ft	249.92 ft	267.92 ft
285.42 ft	303.09 ft	320.75 ft	338.42 ft
356.25 ft	375.54 ft	394.83 ft	
Unbraced length of comp. flange at support 2 is 17.83 ft.			
Unbraced length of comp. flange at support 3 is 18.00 ft.			
Unbraced length of comp. flange at support 4 is 17.50 ft.			
Unbraced length of comp. flange at support 5 is 18.00 ft.			
Unbraced length of comp. flange at support 6 is 17.84 ft.			

Cover plates

Top cover plated regions-

47.42 -	50.41 ft	50.42 -	62.42 ft
62.43 -	65.42 ft	116.92 -	119.91 ft
119.92 -	133.92 ft	133.93 -	136.92 ft
187.42 -	190.41 ft	190.42 -	204.42 ft
204.43 -	207.42 ft	257.92 -	260.91 ft
260.92 -	274.92 ft	274.93 -	277.92 ft
328.42 -	331.41 ft	331.42 -	343.42 ft
343.43 -	346.42 ft		

Top cover plate widths

10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00

Top cover plate thicknesses

0.62	0.62	0.62	0.75	0.75
0.75	0.75	0.75	0.75	0.75
0.75	0.75	0.62	0.62	0.62

Bottom cover plated regions-

47.42 -	50.41 ft	50.42 -	62.42 ft
62.43 -	65.42 ft	116.92 -	119.91 ft
119.92 -	133.92 ft	133.93 -	136.92 ft
187.42 -	190.41 ft	190.42 -	204.42 ft



204.43 -	207.42	ft	257.92 -	260.91	ft
260.92 -	274.92	ft	274.93 -	277.92	ft
328.42 -	331.41	ft	331.42 -	343.42	ft
343.43 -	346.42	ft			

Bottom cover plate widths	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00
	10.00	10.00	10.00	10.00	10.00

Bottom cover plate thicknesses	0.62	0.62	0.62	0.75	0.75
	0.75	0.75	0.75	0.75	0.75
	0.75	0.75	0.62	0.62	0.62

## Curvature

No curvature

## Girder Type

Rolled shapes

## Hinges

No interior hinges

## Span lengths

Spans	56.42 ft	70.50 ft	70.50 ft	70.50 ft
	70.50 ft	56.42 ft		

## Stiffeners

Bearing stiffeners

## Web splices

Web splice locations	71.42 ft	141.92 ft	212.42 ft	282.92 ft
	323.42 ft			

## Fatigue

Average Single Lane Daily Truck Traffic: 9  
 Lanes available to trucks 2  
 Fatigue life: 100  
 Fatigue stress category B flange splices

## Composite Behavior

Noncomposite regions for composite loading-  
 0.00 - 394.83 ft

## Unshored construction

## Load Factors

DC1,DC2	1.250
DW	1.500
HL93 LL+I	1.750
Constructibility	1.250

## Load Modifiers

Ductility	1.00
Redundancy	1.00
Operational Classification	1.00

## Reactions

Max unfactored live load+impact reactions				
32.88 k	53.33 k	57.90 k	58.16 k	57.90 k
53.88 k	31.85 k			
Min unfactored live load+impact reactions				
-6.42 k	-10.20 k	-11.10 k	-11.50 k	-11.19 k
-10.42 k	-6.38 k			
Max unfactored live reactions - No dynamic load allowance				
26.29 k	44.39 k	48.13 k	48.39 k	48.13 k
44.80 k	25.53 k			
Min unfactored live reactions - No dynamic load allowance				
-5.24 k	-8.39 k	-9.35 k	-9.74 k	-9.43 k
-8.56 k	-5.21 k			
Total unfactored dead load DC1+DC2 reactions				
18.09 k	62.05 k	61.98 k	61.70 k	61.97 k

62.08 k	18.08 k			
Total unfactored dead load DW reactions				
3.68 k	12.81 k	12.72 k	12.67 k	12.72 k
12.80 k	3.67 k			
Bearing skew for redistribution qualification				
69.80	69.80	69.80	69.80	69.80
69.80	69.80			

## Material

### Concrete

Concrete strength	3.00 ksi			
Unit wt of concrete	150. lb/cu ft			
Aggregate source correction factor K1	1.00			
Slab T for strength	6.50 in	6.50 in	6.50 in	6.50 in
Fillet	1.00 in	6.50 in		
Effective slab width	59.99 in			
Self weight slab width	59.99 in			

### Steel

Top flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Top cover plate yield	33.00 ksi	33.00 ksi		
Bottom flange yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Bottom cover plate yield	33.00 ksi	33.00 ksi		
Web yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Stiffener yield	33.00 ksi	33.00 ksi	33.00 ksi	33.00 ksi
Rebar yield	60.00 ksi			

## Output

Standard resolution summary tables

## Units

Input units: U.S. cust.  
Output units: U.S. cust.

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	5.76	7.47
5.64	33000. B	348.47	3.51	T 4.55	6.76	8.76
11.28	33000. B	348.47	1.80	T 2.33	7.93	10.28
16.93	33000. B	348.47	1.33	T 1.72	9.57	12.40
22.57	33000. B	348.47	1.20	T 1.56	15.11	19.59
28.21	33000. B	348.47	1.31	T 1.70	11.43	14.81
33.85	33000. B	348.47	1.55	T 2.01	9.12	11.82
39.49	33000. B	348.47	2.18	T 2.82	6.16	7.99
45.13	33000. B	348.47	2.11	T 2.73	5.34	6.93
50.78	33000. B	348.47	2.32	T 3.01	4.81	6.24
56.42	33000. B	348.47	1.35	T 1.75	4.38	5.68

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.35	T 1.75	4.31	5.58
7.05	33000. B	348.47	2.70	T 3.50	4.84	6.27
14.10	33000. B	348.47	3.04	T 3.94	5.41	7.02
21.15	33000. B	348.47	1.89	T 2.45	7.74	10.04
28.20	33000. B	348.47	1.35	T 1.75	9.24	11.98
35.25	33000. B	348.47	1.18	T 1.53	11.84	15.34
42.30	33000. B	348.47	1.32	T 1.71	9.25	12.00
49.35	33000. B	348.47	1.79	T 2.31	7.78	10.08
56.40	33000. B	348.47	2.38	T 3.08	5.38	6.98
63.45	33000. B	348.47	2.44	T 3.16	4.85	6.29
70.50	33000. B	348.47	1.25	T 1.62	4.36	5.65

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	1.25 T	1.62	4.22	5.47
7.05	33000. B	348.47	2.47 T	3.20	4.68	6.06
14.10	33000. B	348.47	2.46 T	3.19	5.38	6.97
21.15	33000. B	348.47	1.84 T	2.39	7.68	9.96
28.20	33000. B	348.47	1.34 T	1.73	9.12	11.83
35.25	33000. B	348.47	1.20 T	1.56	11.54	14.96
42.30	33000. B	348.47	1.32 T	1.72	9.13	11.84
49.35	33000. B	348.47	1.80 T	2.34	7.66	9.93
56.40	33000. B	348.47	2.40 T	3.12	5.34	6.93
63.45	33000. B	348.47	2.42 T	3.14	4.81	6.24
70.50	33000. B	348.47	1.25 T	1.61	4.33	5.62

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.25 T	1.61	4.26	5.53
7.05	33000. B	348.47	2.42 T	3.14	4.81	6.23
14.10	33000. B	348.47	2.36 T	3.06	5.45	7.06
21.15	33000. B	348.47	1.82 T	2.35	7.60	9.85
28.20	33000. B	348.47	1.33 T	1.72	9.06	11.75
35.25	33000. B	348.47	1.18 T	1.53	11.69	15.15
42.30	33000. B	348.47	1.33 T	1.73	9.20	11.92
49.35	33000. B	348.47	1.85 T	2.40	7.61	9.86
56.40	33000. B	348.47	2.47 T	3.20	5.36	6.95
63.45	33000. B	348.47	2.47 T	3.20	4.82	6.24
70.50	33000. B	348.47	1.25 T	1.62	4.33	5.61

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.25 T	1.62	4.24	5.50
7.05	33000. B	348.47	2.44 T	3.16	4.70	6.10
14.10	33000. B	348.47	2.34 T	3.03	5.20	6.74
21.15	33000. B	348.47	1.80 T	2.33	7.26	9.42
28.20	33000. B	348.47	1.33 T	1.72	8.40	10.88
35.25	33000. B	348.47	1.18 T	1.53	11.96	15.51
42.30	33000. B	348.47	1.34 T	1.74	9.34	12.11
49.35	33000. B	348.47	1.90 T	2.46	7.68	9.95
56.40	33000. B	348.47	3.05 T	3.95	5.40	7.00
63.45	33000. B	348.47	2.69 T	3.49	4.75	6.16
70.50	33000. B	348.47	1.34 T	1.73	4.38	5.68

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.34 T	1.73	4.42	5.72
5.64	33000. B	348.47	2.31 T	3.00	4.87	6.32

11.28	33000. B	348.47	2.10 T	2.72	5.46	7.08
16.93	33000. B	348.47	2.21 T	2.86	6.21	8.05
22.57	33000. B	348.47	1.55 T	2.01	9.17	11.89
28.21	33000. B	348.47	1.29 T	1.68	11.46	14.85
33.85	33000. B	348.47	1.20 T	1.56	15.53	20.13
39.49	33000. B	348.47	1.31 T	1.69	9.49	12.30
45.13	33000. B	348.47	1.77 T	2.29	7.81	10.13
50.78	33000. B	348.47	3.43 T	4.45	6.59	8.54
56.42	33000. B	348.47	>999.00 T	>999.00	5.70	7.39

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	4.10 B	5.33
11.28	26400. S	2.23 B	2.91
16.93	26400. S	1.70 B	2.20
22.57	26400. S	1.56 B	2.03
28.21	26400. S	1.65 B	2.14
33.85	26400. S	1.84 B	2.39
39.49	26400. S	2.39 B	3.11
45.13	26400. S	2.46 B	3.20
50.78	26400. S	2.91 B	3.78
56.42	26400. S	1.91 T	2.48

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.91 T	2.48
7.05	26400. S	3.30 B	4.29
14.10	26400. S	3.39 B	4.40
21.15	26400. S	2.17 B	2.82
28.20	26400. S	1.66 B	2.15
35.25	26400. S	1.49 B	1.93
42.30	26400. S	1.62 B	2.11
49.35	26400. S	2.04 B	2.66
56.40	26400. S	2.67 B	3.47
63.45	26400. S	2.97 B	3.86
70.50	26400. S	1.76 T	2.29

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.76 T	2.29
7.05	26400. S	3.00 B	3.90
14.10	26400. S	2.76 B	3.59
21.15	26400. S	2.10 B	2.73
28.20	26400. S	1.63 B	2.12
35.25	26400. S	1.48 B	1.93
42.30	26400. S	1.62 B	2.11
49.35	26400. S	2.06 B	2.68
56.40	26400. S	2.69 B	3.50
63.45	26400. S	2.95 B	3.83
70.50	26400. S	1.75 T	2.27

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.75 T	2.27
7.05	26400. S	2.94 B	3.83
14.10	26400. S	2.68 B	3.49
21.15	26400. S	2.08 B	2.70
28.20	26400. S	1.63 B	2.11
35.25	26400. S	1.48 B	1.93
42.30	26400. S	1.63 B	2.12
49.35	26400. S	2.09 B	2.71
56.40	26400. S	2.77 B	3.60
63.45	26400. S	3.00 B	3.91
70.50	26400. S	1.76 T	2.29

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.76 T	2.29
7.05	26400. S	2.97 B	3.86
14.10	26400. S	2.66 B	3.45
21.15	26400. S	2.06 B	2.68
28.20	26400. S	1.63 B	2.11
35.25	26400. S	1.49 B	1.94
42.30	26400. S	1.65 B	2.15
49.35	26400. S	2.15 B	2.79
56.40	26400. S	3.39 B	4.41
63.45	26400. S	3.29 B	4.28
70.50	26400. S	1.89 T	2.46

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.89 T	2.46
5.64	26400. S	2.90 B	3.76
11.28	26400. S	2.45 B	3.18
16.93	26400. S	2.40 B	3.13
22.57	26400. S	1.84 B	2.39
28.21	26400. S	1.63 B	2.12
33.85	26400. S	1.56 B	2.02
39.49	26400. S	1.68 B	2.19
45.13	26400. S	2.20 B	2.86
50.78	26400. S	4.00 B	5.20
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 1.18 at location 35.25 in span 2.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.93	5.09
5.64	33000. B	348.47	2.66	T 3.44	5.18	6.71
11.28	33000. B	348.47	1.50	T 1.95	7.12	9.23
16.93	33000. B	348.47	1.22	T 1.58	10.13	13.14
22.57	33000. B	348.47	1.11	T 1.44	8.52	11.04
28.21	33000. B	348.47	1.17	T 1.52	8.10	10.50
33.85	33000. B	348.47	1.44	T 1.87	5.85	7.58
39.49	33000. B	348.47	2.05	T 2.66	6.44	8.34
45.13	33000. B	348.47	2.15	T 2.79	4.91	6.37
50.78	33000. B	348.47	2.23	T 2.88	3.72	4.83
56.42	33000. B	348.47	1.23	T 1.60	3.22	4.18

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.23	T 1.60	3.68	4.77
7.05	33000. B	348.47	2.49	T 3.23	4.41	5.71
14.10	33000. B	348.47	2.98	T 3.87	5.91	7.66
21.15	33000. B	348.47	1.93	T 2.50	6.10	7.90
28.20	33000. B	348.47	1.39	T 1.80	8.91	11.55
35.25	33000. B	348.47	1.27	T 1.65	13.26	17.19
42.30	33000. B	348.47	1.37	T 1.77	6.74	8.73
49.35	33000. B	348.47	1.86	T 2.41	4.95	6.42
56.40	33000. B	348.47	2.47	T 3.20	8.15	10.57
63.45	33000. B	348.47	2.19	B 2.84	3.64	4.72
70.50	33000. B	348.47	1.18	T 1.53	2.86	3.71

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	1.18 T	1.53	3.23	4.19
7.05	33000. B	348.47	2.37 T	3.07	4.36	5.65
14.10	33000. B	348.47	2.53 T	3.28	5.88	7.62
21.15	33000. B	348.47	1.90 T	2.46	6.00	7.78
28.20	33000. B	348.47	1.38 T	1.79	8.72	11.30
35.25	33000. B	348.47	1.29 T	1.68	12.83	16.63
42.30	33000. B	348.47	1.37 T	1.78	6.72	8.71
49.35	33000. B	348.47	1.87 T	2.42	4.93	6.39
56.40	33000. B	348.47	2.50 T	3.24	8.08	10.47
63.45	33000. B	348.47	2.36 T	3.06	3.62	4.70
70.50	33000. B	348.47	1.17 T	1.52	2.85	3.70

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.17 T	1.52	3.22	4.17
7.05	33000. B	348.47	2.34 T	3.03	4.28	5.55
14.10	33000. B	348.47	2.43 T	3.15	6.01	7.79
21.15	33000. B	348.47	1.86 T	2.41	6.02	7.81
28.20	33000. B	348.47	1.37 T	1.78	8.79	11.39
35.25	33000. B	348.47	1.27 T	1.64	8.65	11.21
42.30	33000. B	348.47	1.38 T	1.79	6.65	8.61
49.35	33000. B	348.47	1.93 T	2.50	8.51	11.03
56.40	33000. B	348.47	2.56 T	3.32	4.92	6.38
63.45	33000. B	348.47	2.39 T	3.10	3.63	4.71
70.50	33000. B	348.47	1.17 T	1.52	2.86	3.71

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.17 T	1.52	2.89	3.75
7.05	33000. B	348.47	2.34 T	3.04	3.91	5.06
14.10	33000. B	348.47	2.40 T	3.11	5.52	7.15
21.15	33000. B	348.47	1.85 T	2.40	5.36	6.95
28.20	33000. B	348.47	1.37 T	1.77	7.73	10.02
35.25	33000. B	348.47	1.27 T	1.65	7.45	9.65
42.30	33000. B	348.47	1.39 T	1.80	6.77	8.78
49.35	33000. B	348.47	1.96 T	2.54	8.03	10.40
56.40	33000. B	348.47	3.04 T	3.94	5.00	6.49
63.45	33000. B	348.47	2.51 T	3.26	3.67	4.75
70.50	33000. B	348.47	1.22 T	1.59	2.90	3.76

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.22 T	1.59	3.27	4.24
5.64	33000. B	348.47	2.19 T	2.84	4.22	5.47

11.28	33000. B	348.47	2.12 T	2.75	5.29	6.85
16.93	33000. B	348.47	2.28 T	2.96	6.29	8.15
22.57	33000. B	348.47	1.58 T	2.04	6.61	8.57
28.21	33000. B	348.47	1.27 T	1.65	8.74	11.32
33.85	33000. B	348.47	1.21 T	1.56	7.55	9.79
39.49	33000. B	348.47	1.31 T	1.70	10.11	13.10
45.13	33000. B	348.47	1.65 T	2.13	7.98	10.34
50.78	33000. B	348.47	2.92 T	3.79	5.80	7.52
56.42	33000. B	348.47	>999.00 T	>999.00	3.68	4.77

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	3.13 B	4.07
11.28	26400. S	1.91 B	2.48
16.93	26400. S	1.59 B	2.07
22.57	26400. S	1.47 B	1.92
28.21	26400. S	1.51 B	1.96
33.85	26400. S	1.74 B	2.26
39.49	26400. S	2.26 B	2.93
45.13	26400. S	2.53 B	3.29
50.78	26400. S	2.84 B	3.69
56.42	26400. S	1.76 T	2.29

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.76 T	2.29
7.05	26400. S	3.09 B	4.02
14.10	26400. S	3.33 B	4.33
21.15	26400. S	2.22 B	2.89
28.20	26400. S	1.74 B	2.26
35.25	26400. S	1.63 B	2.12
42.30	26400. S	1.70 B	2.22
49.35	26400. S	2.14 B	2.79
56.40	26400. S	3.03 T	3.94
63.45	26400. S	2.73 B	3.55
70.50	26400. S	1.67 T	2.17

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.67 T	2.17
7.05	26400. S	2.93 B	3.81
14.10	26400. S	2.84 B	3.70
21.15	26400. S	2.18 B	2.83
28.20	26400. S	1.72 B	2.23
35.25	26400. S	1.62 B	2.11
42.30	26400. S	1.71 B	2.22
49.35	26400. S	2.15 B	2.80
56.40	26400. S	2.82 B	3.66
63.45	26400. S	2.91 B	3.79
70.50	26400. S	1.66 T	2.16

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.66 T	2.16
7.05	26400. S	2.88 B	3.75
14.10	26400. S	2.78 B	3.61
21.15	26400. S	2.15 B	2.79
28.20	26400. S	1.71 B	2.22
35.25	26400. S	1.62 B	2.11
42.30	26400. S	1.72 B	2.23
49.35	26400. S	2.18 B	2.84
56.40	26400. S	2.88 B	3.75
63.45	26400. S	2.96 B	3.85
70.50	26400. S	1.67 T	2.17

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.67 T	2.17
7.05	26400. S	2.90 B	3.76
14.10	26400. S	2.75 B	3.57
21.15	26400. S	2.13 B	2.77
28.20	26400. S	1.71 B	2.22
35.25	26400. S	1.63 B	2.12
42.30	26400. S	1.73 B	2.25
49.35	26400. S	2.23 B	2.89
56.40	26400. S	3.39 B	4.41
63.45	26400. S	3.12 B	4.05
70.50	26400. S	1.75 T	2.27

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.75 T	2.27
5.64	26400. S	2.80 B	3.64
11.28	26400. S	2.49 B	3.24
16.93	26400. S	2.48 B	3.23
22.57	26400. S	1.89 B	2.46
28.21	26400. S	1.64 B	2.13
33.85	26400. S	1.60 B	2.08
39.49	26400. S	1.73 B	2.25
45.13	26400. S	2.09 B	2.71
50.78	26400. S	3.45 B	4.48
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 1.11 at location 22.57 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	5.51	7.15
5.64	33000. B	348.47	2.31	T 3.00	6.95	9.02
11.28	33000. B	348.47	1.25	T 1.62	9.13	11.83
16.93	33000. B	348.47	0.99	T 1.28	12.36	16.02
22.57	33000. B	348.47	0.90	T 1.17	13.23	17.15
28.21	33000. B	348.47	0.96	T 1.24	11.00	14.26
33.85	33000. B	348.47	1.20	T 1.55	8.33	10.80
39.49	33000. B	348.47	1.74	T 2.25	7.64	9.90
45.13	33000. B	348.47	1.83	T 2.38	6.09	7.90
50.78	33000. B	348.47	1.80	T 2.34	5.03	6.52
56.42	33000. B	348.47	0.99	T 1.28	4.30	5.58

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.99	T 1.28	4.29	5.56
7.05	33000. B	348.47	2.03	T 2.63	5.09	6.60
14.10	33000. B	348.47	2.38	T 3.09	6.80	8.82
21.15	33000. B	348.47	1.47	T 1.90	7.32	9.49
28.20	33000. B	348.47	1.07	T 1.39	10.22	13.24
35.25	33000. B	348.47	1.00	T 1.30	11.47	14.86
42.30	33000. B	348.47	1.07	T 1.38	10.19	13.22
49.35	33000. B	348.47	1.43	T 1.86	7.54	9.78
56.40	33000. B	348.47	2.12	T 2.75	6.63	8.60
63.45	33000. B	348.47	1.94	T 2.52	5.11	6.62
70.50	33000. B	348.47	0.97	T 1.26	4.17	5.41

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.97 T	1.26	4.19	5.43
7.05	33000. B	348.47	1.98 T	2.57	5.03	6.52
14.10	33000. B	348.47	2.22 T	2.88	6.69	8.68
21.15	33000. B	348.47	1.46 T	1.89	7.23	9.38
28.20	33000. B	348.47	1.07 T	1.38	9.98	12.94
35.25	33000. B	348.47	1.02 T	1.33	11.27	14.61
42.30	33000. B	348.47	1.07 T	1.39	10.19	13.22
49.35	33000. B	348.47	1.44 T	1.87	7.50	9.72
56.40	33000. B	348.47	2.15 T	2.79	6.60	8.56
63.45	33000. B	348.47	1.94 T	2.52	5.09	6.59
70.50	33000. B	348.47	0.97 T	1.26	4.16	5.39

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.97 T	1.26	4.16	5.39
7.05	33000. B	348.47	1.95 T	2.53	4.91	6.37
14.10	33000. B	348.47	2.14 T	2.77	6.82	8.84
21.15	33000. B	348.47	1.43 T	1.85	7.23	9.37
28.20	33000. B	348.47	1.06 T	1.38	10.06	13.04
35.25	33000. B	348.47	1.00 T	1.30	10.81	14.01
42.30	33000. B	348.47	1.07 T	1.39	10.14	13.14
49.35	33000. B	348.47	1.49 T	1.93	7.34	9.52
56.40	33000. B	348.47	2.20 T	2.85	6.66	8.63
63.45	33000. B	348.47	1.97 T	2.55	5.18	6.72
70.50	33000. B	348.47	0.97 T	1.26	4.18	5.42

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.97 T	1.26	3.79	4.91
7.05	33000. B	348.47	1.96 T	2.54	4.45	5.76
14.10	33000. B	348.47	2.11 T	2.73	6.17	7.99
21.15	33000. B	348.47	1.42 T	1.84	6.47	8.38
28.20	33000. B	348.47	1.06 T	1.37	8.75	11.35
35.25	33000. B	348.47	1.00 T	1.30	9.43	12.23
42.30	33000. B	348.47	1.08 T	1.39	10.36	13.43
49.35	33000. B	348.47	1.49 T	1.94	7.43	9.63
56.40	33000. B	348.47	2.45 T	3.18	6.76	8.76
63.45	33000. B	348.47	2.01 T	2.60	5.25	6.81
70.50	33000. B	348.47	0.98 T	1.28	4.24	5.49

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.98 T	1.28	4.16	5.40
5.64	33000. B	348.47	1.81 T	2.34	5.04	6.53

11.28	33000. B	348.47	1.85 T	2.40	5.84	7.57
16.93	33000. B	348.47	1.68 T	2.18	7.85	10.17
22.57	33000. B	348.47	1.20 T	1.56	8.13	10.53
28.21	33000. B	348.47	0.96 T	1.24	10.78	13.97
33.85	33000. B	348.47	0.90 T	1.17	13.41	17.38
39.49	33000. B	348.47	0.99 T	1.28	12.28	15.92
45.13	33000. B	348.47	1.27 T	1.65	9.16	11.88
50.78	33000. B	348.47	2.36 T	3.05	6.87	8.90
56.42	33000. B	348.47	>999.00 T	>999.00	5.52	7.15

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.73 B	3.55
11.28	26400. S	1.59 B	2.07
16.93	26400. S	1.30 B	1.69
22.57	26400. S	1.20 B	1.57
28.21	26400. S	1.24 B	1.61
33.85	26400. S	1.44 B	1.88
39.49	26400. S	1.91 B	2.49
45.13	26400. S	2.17 B	2.82
50.78	26400. S	2.32 B	3.01
56.42	26400. S	1.42 T	1.85

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.42 T	1.85
7.05	26400. S	2.53 B	3.29
14.10	26400. S	2.47 B	3.22
21.15	26400. S	1.69 B	2.20
28.20	26400. S	1.34 B	1.75
35.25	26400. S	1.30 B	1.69
42.30	26400. S	1.34 B	1.74
49.35	26400. S	1.66 B	2.15
56.40	26400. S	2.40 B	3.12
63.45	26400. S	2.41 B	3.14
70.50	26400. S	1.38 T	1.80

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.38 T	1.80
7.05	26400. S	2.46 B	3.20
14.10	26400. S	2.40 B	3.12
21.15	26400. S	1.67 B	2.18
28.20	26400. S	1.34 B	1.74
35.25	26400. S	1.29 B	1.68
42.30	26400. S	1.34 B	1.74
49.35	26400. S	1.67 B	2.17
56.40	26400. S	2.43 B	3.15
63.45	26400. S	2.41 B	3.13
70.50	26400. S	1.38 T	1.79

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.38 T	1.79
7.05	26400. S	2.42 B	3.15
14.10	26400. S	2.23 B	2.90
21.15	26400. S	1.65 B	2.15
28.20	26400. S	1.33 B	1.73
35.25	26400. S	1.29 B	1.68
42.30	26400. S	1.34 B	1.75
49.35	26400. S	1.69 B	2.19
56.40	26400. S	2.47 B	3.21
63.45	26400. S	2.44 B	3.17
70.50	26400. S	1.38 T	1.80

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.38 T	1.80
7.05	26400. S	2.43 B	3.16
14.10	26400. S	2.22 B	2.89
21.15	26400. S	1.64 B	2.13
28.20	26400. S	1.33 B	1.73
35.25	26400. S	1.30 B	1.69
42.30	26400. S	1.35 B	1.76
49.35	26400. S	1.70 B	2.21
56.40	26400. S	2.55 B	3.31
63.45	26400. S	2.50 B	3.25
70.50	26400. S	1.41 T	1.84

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.41 T	1.84
5.64	26400. S	2.32 B	3.02
11.28	26400. S	2.19 B	2.84
16.93	26400. S	1.84 B	2.39
22.57	26400. S	1.45 B	1.88
28.21	26400. S	1.24 B	1.61
33.85	26400. S	1.21 B	1.57
39.49	26400. S	1.32 B	1.71
45.13	26400. S	1.62 B	2.11
50.78	26400. S	2.78 B	3.62
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.90 at location 22.57 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:



C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.93	5.09
5.64	33000. B	348.47	2.65	T 3.44	5.18	6.71
11.28	33000. B	348.47	1.50	T 1.95	7.13	9.24
16.93	33000. B	348.47	1.21	T 1.57	10.17	13.19
22.57	33000. B	348.47	1.11	T 1.44	8.41	10.91
28.21	33000. B	348.47	1.17	T 1.52	8.14	10.55
33.85	33000. B	348.47	1.45	T 1.88	5.88	7.62
39.49	33000. B	348.47	2.06	T 2.68	6.37	8.25
45.13	33000. B	348.47	2.12	T 2.75	4.76	6.17
50.78	33000. B	348.47	2.17	T 2.82	3.73	4.84
56.42	33000. B	348.47	1.21	T 1.57	3.09	4.01

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.21	T 1.57	3.17	4.10
7.05	33000. B	348.47	2.48	T 3.21	3.98	5.16
14.10	33000. B	348.47	2.87	T 3.73	5.49	7.12
21.15	33000. B	348.47	1.75	T 2.27	5.36	6.95
28.20	33000. B	348.47	1.28	T 1.66	7.84	10.17
35.25	33000. B	348.47	1.18	T 1.53	7.41	9.61
42.30	33000. B	348.47	1.27	T 1.64	7.81	10.12
49.35	33000. B	348.47	1.70	T 2.20	5.38	6.97
56.40	33000. B	348.47	2.44	T 3.17	5.42	7.03
63.45	33000. B	348.47	2.34	T 3.03	3.77	4.88
70.50	33000. B	348.47	1.17	T 1.52	3.03	3.92

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	1.17 T	1.52	3.12	4.04
7.05	33000. B	348.47	2.38 T	3.08	3.92	5.09
14.10	33000. B	348.47	2.53 T	3.28	5.40	7.00
21.15	33000. B	348.47	1.73 T	2.24	5.29	6.86
28.20	33000. B	348.47	1.28 T	1.65	7.67	9.94
35.25	33000. B	348.47	1.21 T	1.56	7.30	9.47
42.30	33000. B	348.47	1.27 T	1.65	7.81	10.13
49.35	33000. B	348.47	1.71 T	2.22	5.35	6.93
56.40	33000. B	348.47	2.47 T	3.20	5.39	6.99
63.45	33000. B	348.47	2.34 T	3.03	3.75	4.86
70.50	33000. B	348.47	1.17 T	1.51	3.02	3.91

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.17 T	1.51	3.10	4.02
7.05	33000. B	348.47	2.34 T	3.03	3.82	4.95
14.10	33000. B	348.47	2.43 T	3.15	5.52	7.16
21.15	33000. B	348.47	1.70 T	2.20	5.31	6.89
28.20	33000. B	348.47	1.27 T	1.64	7.75	10.05
35.25	33000. B	348.47	1.18 T	1.53	7.36	9.54
42.30	33000. B	348.47	1.28 T	1.66	7.73	10.02
49.35	33000. B	348.47	1.77 T	2.30	5.21	6.76
56.40	33000. B	348.47	2.53 T	3.28	5.40	7.01
63.45	33000. B	348.47	2.20 B	2.85	3.84	4.98
70.50	33000. B	348.47	1.17 T	1.52	3.03	3.93

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.17 T	1.52	2.79	3.61
7.05	33000. B	348.47	2.34 T	3.04	3.45	4.47
14.10	33000. B	348.47	2.41 T	3.12	5.03	6.52
21.15	33000. B	348.47	1.68 T	2.18	4.72	6.12
28.20	33000. B	348.47	1.26 T	1.64	6.76	8.76
35.25	33000. B	348.47	1.19 T	1.54	6.38	8.27
42.30	33000. B	348.47	1.28 T	1.66	7.92	10.27
49.35	33000. B	348.47	1.79 T	2.32	5.28	6.84
56.40	33000. B	348.47	2.87 T	3.72	5.50	7.12
63.45	33000. B	348.47	2.48 T	3.21	3.90	5.05
70.50	33000. B	348.47	1.22 T	1.58	3.08	3.99

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.22 T	1.58	3.16	4.09
5.64	33000. B	348.47	2.18 T	2.83	3.89	5.05

11.28	33000. B	348.47	2.13 T	2.76	4.71	6.11
16.93	33000. B	348.47	2.00 T	2.59	6.50	8.42
22.57	33000. B	348.47	1.45 T	1.88	5.85	7.58
28.21	33000. B	348.47	1.18 T	1.53	8.10	10.50
33.85	33000. B	348.47	1.11 T	1.44	8.64	11.20
39.49	33000. B	348.47	1.21 T	1.57	10.11	13.10
45.13	33000. B	348.47	1.51 T	1.95	7.15	9.27
50.78	33000. B	348.47	2.66 T	3.45	5.11	6.62
56.42	33000. B	348.47	>999.00 T	>999.00	3.93	5.10

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	3.13 B	4.07
11.28	26400. S	1.91 B	2.48
16.93	26400. S	1.58 B	2.06
22.57	26400. S	1.47 B	1.91
28.21	26400. S	1.51 B	1.96
33.85	26400. S	1.74 B	2.26
39.49	26400. S	2.27 B	2.95
45.13	26400. S	2.50 B	3.25
50.78	26400. S	2.77 B	3.61
56.42	26400. S	1.73 T	2.25

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.73 T	2.25
7.05	26400. S	3.08 B	4.00
14.10	26400. S	2.99 B	3.89
21.15	26400. S	2.02 B	2.63
28.20	26400. S	1.60 B	2.08
35.25	26400. S	1.52 B	1.98
42.30	26400. S	1.58 B	2.05
49.35	26400. S	1.96 B	2.55
56.40	26400. S	2.75 B	3.58
63.45	26400. S	2.89 B	3.76
70.50	26400. S	1.66 T	2.16

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.66 T	2.16
7.05	26400. S	2.94 B	3.82
14.10	26400. S	2.85 B	3.71
21.15	26400. S	1.98 B	2.58
28.20	26400. S	1.59 B	2.06
35.25	26400. S	1.51 B	1.97
42.30	26400. S	1.58 B	2.06
49.35	26400. S	1.97 B	2.57
56.40	26400. S	2.78 B	3.61
63.45	26400. S	2.88 B	3.75
70.50	26400. S	1.66 T	2.15

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.66 T	2.15
7.05	26400. S	2.89 B	3.75
14.10	26400. S	2.65 B	3.44
21.15	26400. S	1.96 B	2.54
28.20	26400. S	1.58 B	2.05
35.25	26400. S	1.51 B	1.97
42.30	26400. S	1.59 B	2.07
49.35	26400. S	2.00 B	2.61
56.40	26400. S	2.85 B	3.71
63.45	26400. S	2.74 B	3.57
70.50	26400. S	1.66 T	2.16

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.66 T	2.16
7.05	26400. S	2.89 B	3.76
14.10	26400. S	2.63 B	3.42
21.15	26400. S	1.94 B	2.53
28.20	26400. S	1.58 B	2.05
35.25	26400. S	1.52 B	1.98
42.30	26400. S	1.60 B	2.09
49.35	26400. S	2.04 B	2.65
56.40	26400. S	2.99 B	3.88
63.45	26400. S	3.07 B	3.99
70.50	26400. S	1.74 T	2.27

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.74 T	2.27
5.64	26400. S	2.79 B	3.62
11.28	26400. S	2.51 B	3.26
16.93	26400. S	2.18 B	2.83
22.57	26400. S	1.74 B	2.26
28.21	26400. S	1.51 B	1.96
33.85	26400. S	1.48 B	1.92
39.49	26400. S	1.60 B	2.08
45.13	26400. S	1.91 B	2.48
50.78	26400. S	3.14 B	4.08
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 1.11 at location 22.57 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	5.59	7.24
5.64	33000. B	348.47	3.39	T 4.39	6.52	8.45
11.28	33000. B	348.47	1.76	T 2.29	7.79	10.10
16.93	33000. B	348.47	1.33	T 1.72	9.74	12.63
22.57	33000. B	348.47	1.21	T 1.57	14.91	19.32
28.21	33000. B	348.47	1.30	T 1.68	11.55	14.97
33.85	33000. B	348.47	1.57	T 2.03	9.26	12.00
39.49	33000. B	348.47	2.20	T 2.85	6.21	8.04
45.13	33000. B	348.47	2.11	T 2.73	5.59	7.25
50.78	33000. B	348.47	2.31	T 3.00	5.03	6.52
56.42	33000. B	348.47	1.33	T 1.73	4.56	5.91

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.33	T 1.73	4.20	5.44
7.05	33000. B	348.47	2.75	T 3.57	4.73	6.13
14.10	33000. B	348.47	3.08	T 3.99	5.37	6.97
21.15	33000. B	348.47	1.89	T 2.45	7.65	9.91
28.20	33000. B	348.47	1.35	T 1.75	9.30	12.05
35.25	33000. B	348.47	1.18	T 1.52	11.96	15.50
42.30	33000. B	348.47	1.33	T 1.72	9.40	12.18
49.35	33000. B	348.47	1.79	T 2.31	7.85	10.18
56.40	33000. B	348.47	2.38	T 3.09	5.54	7.19
63.45	33000. B	348.47	2.44	T 3.16	4.94	6.40
70.50	33000. B	348.47	1.25	T 1.62	4.38	5.67

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	1.25 T	1.62	4.16	5.39
7.05	33000. B	348.47	2.47 T	3.20	4.70	6.09
14.10	33000. B	348.47	2.48 T	3.22	5.33	6.91
21.15	33000. B	348.47	1.84 T	2.39	7.57	9.81
28.20	33000. B	348.47	1.34 T	1.74	9.14	11.85
35.25	33000. B	348.47	1.20 T	1.55	11.61	15.05
42.30	33000. B	348.47	1.33 T	1.72	9.28	12.03
49.35	33000. B	348.47	1.80 T	2.34	7.74	10.04
56.40	33000. B	348.47	2.41 T	3.12	5.50	7.13
63.45	33000. B	348.47	2.43 T	3.15	4.90	6.36
70.50	33000. B	348.47	1.24 T	1.61	4.35	5.63

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.24 T	1.61	4.16	5.39
7.05	33000. B	348.47	2.43 T	3.15	4.68	6.06
14.10	33000. B	348.47	2.39 T	3.09	5.40	7.00
21.15	33000. B	348.47	1.81 T	2.35	7.49	9.71
28.20	33000. B	348.47	1.33 T	1.73	9.09	11.78
35.25	33000. B	348.47	1.17 T	1.52	11.72	15.20
42.30	33000. B	348.47	1.34 T	1.73	9.35	12.12
49.35	33000. B	348.47	1.85 T	2.40	7.68	9.96
56.40	33000. B	348.47	2.47 T	3.20	5.45	7.06
63.45	33000. B	348.47	2.48 T	3.21	4.94	6.41
70.50	33000. B	348.47	1.25 T	1.62	4.35	5.64

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.25 T	1.62	4.13	5.35
7.05	33000. B	348.47	2.26 B	2.93	4.54	5.88
14.10	33000. B	348.47	2.35 T	3.05	5.12	6.64
21.15	33000. B	348.47	1.79 T	2.33	7.12	9.22
28.20	33000. B	348.47	1.33 T	1.72	8.37	10.85
35.25	33000. B	348.47	1.17 T	1.52	11.97	15.52
42.30	33000. B	348.47	1.35 T	1.75	9.49	12.30
49.35	33000. B	348.47	1.89 T	2.45	7.75	10.05
56.40	33000. B	348.47	3.07 T	3.98	5.49	7.11
63.45	33000. B	348.47	2.69 T	3.48	4.98	6.45
70.50	33000. B	348.47	1.34 T	1.74	4.41	5.71

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	1.34 T	1.74	4.30	5.57
5.64	33000. B	348.47	2.33 T	3.02	4.85	6.28



11.28	33000. B	348.47	2.12 T	2.74	5.29	6.85
16.93	33000. B	348.47	2.20 T	2.85	6.21	8.05
22.57	33000. B	348.47	1.55 T	2.01	9.07	11.75
28.21	33000. B	348.47	1.32 T	1.70	11.36	14.73
33.85	33000. B	348.47	1.21 T	1.56	15.64	20.28
39.49	33000. B	348.47	1.32 T	1.71	9.53	12.35
45.13	33000. B	348.47	1.80 T	2.33	7.93	10.28
50.78	33000. B	348.47	3.52 T	4.56	6.63	8.59
56.42	33000. B	348.47	>999.00 T	>999.00	5.76	7.47

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	3.95 B	5.14
11.28	26400. S	2.19 B	2.85
16.93	26400. S	1.70 B	2.21
22.57	26400. S	1.57 B	2.05
28.21	26400. S	1.63 B	2.12
33.85	26400. S	1.86 B	2.42
39.49	26400. S	2.42 B	3.14
45.13	26400. S	2.45 B	3.19
50.78	26400. S	2.90 B	3.77
56.42	26400. S	1.88 T	2.45

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.88 T	2.45
7.05	26400. S	3.36 B	4.37
14.10	26400. S	3.42 B	4.45
21.15	26400. S	2.16 B	2.81
28.20	26400. S	1.66 B	2.16
35.25	26400. S	1.48 B	1.93
42.30	26400. S	1.63 B	2.11
49.35	26400. S	2.04 B	2.66
56.40	26400. S	2.67 B	3.47
63.45	26400. S	2.97 B	3.86
70.50	26400. S	1.76 T	2.29

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.76 T	2.29
7.05	26400. S	3.01 B	3.91
14.10	26400. S	2.78 B	3.62
21.15	26400. S	2.10 B	2.73
28.20	26400. S	1.64 B	2.13
35.25	26400. S	1.48 B	1.92
42.30	26400. S	1.63 B	2.11
49.35	26400. S	2.06 B	2.68
56.40	26400. S	2.70 B	3.51
63.45	26400. S	2.96 B	3.84
70.50	26400. S	1.75 T	2.27

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.75 T	2.27
7.05	26400. S	2.95 B	3.84
14.10	26400. S	2.71 B	3.52
21.15	26400. S	2.07 B	2.69
28.20	26400. S	1.63 B	2.12
35.25	26400. S	1.48 B	1.92
42.30	26400. S	1.63 B	2.12
49.35	26400. S	2.08 B	2.71
56.40	26400. S	2.77 B	3.60
63.45	26400. S	3.01 B	3.92
70.50	26400. S	1.76 T	2.28

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.76 T	2.28
7.05	26400. S	2.77 B	3.61
14.10	26400. S	2.67 B	3.47
21.15	26400. S	2.05 B	2.67
28.20	26400. S	1.63 B	2.12
35.25	26400. S	1.48 B	1.93
42.30	26400. S	1.65 B	2.15
49.35	26400. S	2.14 B	2.79
56.40	26400. S	3.42 B	4.44
63.45	26400. S	3.28 B	4.27
70.50	26400. S	1.90 T	2.47

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.90 T	2.47
5.64	26400. S	2.92 B	3.79
11.28	26400. S	2.47 B	3.21
16.93	26400. S	2.40 B	3.12
22.57	26400. S	1.84 B	2.40
28.21	26400. S	1.65 B	2.15
33.85	26400. S	1.56 B	2.03
39.49	26400. S	1.70 B	2.21
45.13	26400. S	2.24 B	2.91
50.78	26400. S	4.10 B	5.33
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 1.17 at location 35.25 in span 4.  
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Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Girder 1 Factored Strengths

Forces include ductility, redundancy, and operational factors

Tenth Point	Loc	Factored Shear (k )	Shear Strength (k )	Ratio	Factored Moment (k-ft)	Bending Strength (k-ft)	Ratio
		HL93				HL93	
0	0.00	83.1	348.5 (5)	0.238	0.1	100.0 (6)	0.001
1	5.64	68.5	348.5 (5)	0.197	413.0 I	1116.5 (6)	0.370
2	11.28	54.8	348.5 (5)	0.157	720.5 I	1116.5 (6)	0.645
3	16.93	35.3	348.5 (5)	0.101	906.3 I	1116.5 (6)	0.812
4	22.57	28.2	348.5 (5)	0.081	975.9 I	1116.5 (6)	0.874
5	28.21	40.1	348.5 (5)	0.115	908.0 I	1116.5 (6)	0.813
6	33.85	54.3	348.5 (5)	0.156	776.1 I	1116.5 (6)	0.695
7	39.49	78.8	348.5 (5)	0.226	532.3 I	1116.5 (6)	0.477
8	45.13	92.5	348.5 (5)	0.265	599.2 I	1116.5 (6)	0.537
9	50.78	105.0	348.5 (5)	0.301	902.9 I	1643.5 (6)	0.549
10L	56.42	117.3	348.5 (5)	0.337	1374.0 I	1643.5 (6)	0.836
10R	56.42	117.6	348.5 (5)	0.338	1374.0 I	1643.5 (6)	0.836
11	63.47	102.3	348.5 (5)	0.294	794.4 I	1643.5 (6)	0.483
12	70.52	87.7	348.5 (5)	0.252	406.4 I	1116.5 (6)	0.364
13	77.57	59.6	348.5 (5)	0.171	639.3 I	1116.5 (6)	0.573
14	84.62	46.2	348.5 (5)	0.132	882.6 I	1116.5 (6)	0.790
15	91.67	29.5	348.5 (5)	0.085	983.1 I	1116.5 (6)	0.881
16	98.72	46.4	348.5 (5)	0.133	894.5 I	1116.5 (6)	0.801
17	105.77	61.5	348.5 (5)	0.176	671.2 I	1116.5 (6)	0.601
18	112.82	89.9	348.5 (5)	0.258	509.5 I	1116.5 (6)	0.456
19	119.87	102.4	348.5 (5)	0.294	897.8 I	1749.8 (6)	0.513
20L	126.92	117.1	348.5 (5)	0.336	1521.0 I	1749.8 (6)	0.869
20R	126.92	119.4	348.5 (5)	0.343	1521.0 I	1749.8 (6)	0.869
21	133.97	104.7	348.5 (5)	0.300	891.6 I	1749.8 (6)	0.510
22	141.02	88.3	348.5 (5)	0.253	494.1 I	1116.5 (6)	0.443
23	148.07	60.3	348.5 (5)	0.173	649.9 I	1116.5 (6)	0.582
24	155.12	46.8	348.5 (5)	0.134	886.8 I	1116.5 (6)	0.794
25	162.17	25.8	348.5 (5)	0.074	967.6 I	1116.5 (6)	0.867
26	169.22	46.7	348.5 (5)	0.134	892.5 I	1116.5 (6)	0.799
27	176.27	61.9	348.5 (5)	0.178	665.1 I	1116.5 (6)	0.596
28	183.32	90.2	348.5 (5)	0.259	504.2 I	1116.5 (6)	0.452
29	190.37	102.7	348.5 (5)	0.295	899.8 I	1749.8 (6)	0.514
30L	197.42	117.4	348.5 (5)	0.337	1524.7 I	1749.8 (6)	0.871
30R	197.42	118.5	348.5 (5)	0.340	1524.7 I	1749.8 (6)	0.871
31	204.47	102.8	348.5 (5)	0.295	900.2 I	1749.8 (6)	0.514
32	211.52	84.0	348.5 (5)	0.241	519.3 I	1116.5 (6)	0.465
33	218.57	62.3	348.5 (5)	0.179	660.9 I	1116.5 (6)	0.592
34	225.62	47.0	348.5 (5)	0.135	890.4 I	1116.5 (6)	0.798
35	232.67	30.3	348.5 (5)	0.087	981.6 I	1116.5 (6)	0.879
36	239.72	46.5	348.5 (5)	0.134	888.5 I	1116.5 (6)	0.796
37	246.77	65.9	348.5 (5)	0.189	642.4 I	1116.5 (6)	0.575
38	253.82	88.5	348.5 (5)	0.254	492.6 I	1116.5 (6)	0.441
39	260.87	102.8	348.5 (5)	0.295	891.1 I	1749.8 (6)	0.509
40L	267.92	117.5	348.5 (5)	0.337	1520.5 I	1749.8 (6)	0.869
40R	267.92	119.0	348.5 (5)	0.341	1520.5 I	1749.8 (6)	0.869
41	274.97	104.4	348.5 (5)	0.300	898.2 I	1749.8 (6)	0.513
42	282.02	87.1	348.5 (5)	0.250	524.5 I	1116.5 (6)	0.470
43	289.07	64.5	348.5 (5)	0.185	667.1 I	1116.5 (6)	0.597
44	296.12	50.1	348.5 (5)	0.144	892.7 I	1116.5 (6)	0.800
45	303.17	29.3	348.5 (5)	0.084	981.9 I	1116.5 (6)	0.879
46	310.22	45.7	348.5 (5)	0.131	884.5 I	1116.5 (6)	0.792
47	317.27	65.3	348.5 (5)	0.187	632.8 I	1116.5 (6)	0.567
48	324.32	87.8	348.5 (5)	0.252	405.9 I	1116.5 (6)	0.364
49	331.37	103.4	348.5 (5)	0.297	795.2 I	1643.5 (6)	0.484
50L	338.42	116.5	348.5 (5)	0.334	1379.7 I	1643.5 (6)	0.839
50R	338.42	116.7	348.5 (5)	0.335	1379.7 I	1643.5 (6)	0.839
51	344.06	104.2	348.5 (5)	0.299	906.0 I	1643.5 (6)	0.551
52	349.70	91.2	348.5 (5)	0.262	601.9 I	1116.5 (6)	0.539
53	355.34	75.2	348.5 (5)	0.216	519.8 I	1116.5 (6)	0.466
54	360.98	54.1	348.5 (5)	0.155	777.6 I	1116.5 (6)	0.696
55	366.63	40.1	348.5 (5)	0.115	917.0 I	1116.5 (6)	0.821

56	372.27	25.4	348.5	(5)	0.073	976.9 I	1116.5	(6)	0.875
57	377.91	42.4	348.5	(5)	0.122	918.5 I	1116.5	(6)	0.823
58	383.55	55.4	348.5	(5)	0.159	728.8 I	1116.5	(6)	0.653
59	389.19	69.7	348.5	(5)	0.200	419.8 I	1116.5	(6)	0.376
60	394.83	83.7	348.5	(5)	0.240	0.1	1116.5	(6)	0.000

Absolute values of factored moment are shown with determining strength

Shear Strength at Intermediate Transverse Stiffeners  
not Located at a Tenth Point

19.29	32.3	348.5	(5)	0.093
38.58	74.9	348.5	(5)	0.215
74.08	73.5	348.5	(5)	0.211
109.42	76.2	348.5	(5)	0.219
144.92	72.8	348.5	(5)	0.209
162.42	26.6	348.5	(5)	0.076
179.92	76.5	348.5	(5)	0.220
214.92	73.5	348.5	(5)	0.211
232.42	30.9	348.5	(5)	0.089
249.92	76.0	348.5	(5)	0.218
285.42	76.2	348.5	(5)	0.219
303.08	29.5	348.5	(5)	0.085
320.75	76.4	348.5	(5)	0.219
356.25	71.8	348.5	(5)	0.206
375.54	35.3	348.5	(5)	0.101

(5)  $C \geq 0.58 F_y W_D t$

(6)  $R_b R_h F_y S(\text{equiv})$

Maximum moment in factored strength expression

Girder 2 : Rating Output : Factored Strengths  
 Tue Aug 29 18:33:16 2017

## Girder 2 Factored Strengths

Forces include ductility, redundancy, and operational factors

Tenth Point	Loc	Factored Shear (k )	Shear Strength (k )	Ratio	Factored Moment (k-ft)	Bending Strength (k-ft)	Ratio
		HL93				HL93	
0	0.00	110.9	348.5 (5)	0.318	0.1	1116.5 (6)	0.000
1	5.64	84.6	348.5 (5)	0.243	510.3 I	1116.5 (6)	0.457
2	11.28	61.7	348.5 (5)	0.177	823.2 I	1116.5 (6)	0.737
3	16.93	40.8	348.5 (5)	0.117	967.0 I	1116.5 (6)	0.866
4	22.57	40.1	348.5 (5)	0.115	1036.2 I	1116.5 (6)	0.928
5	28.21	56.4	348.5 (5)	0.162	990.4 I	1116.5 (6)	0.887
6	33.85	76.8	348.5 (5)	0.220	825.6 I	1116.5 (6)	0.739
7	39.49	78.0	348.5 (5)	0.224	563.7 I	1116.5 (6)	0.505
8	45.13	99.5	348.5 (5)	0.285	594.6 I	1116.5 (6)	0.533
9	50.78	126.0	348.5 (5)	0.361	941.2 I	1643.5 (6)	0.573
10L	56.42	144.5	348.5 (5)	0.415	1454.5 I	1643.5 (6)	0.885
10R	56.42	132.4	348.5 (5)	0.380	1454.5 I	1643.5 (6)	0.885
11	63.47	110.7	348.5 (5)	0.318	847.8 I	1643.5 (6)	0.516
12	70.52	84.3	348.5 (5)	0.242	415.9 I	1116.5 (6)	0.373
13	77.57	72.6	348.5 (5)	0.208	632.6 I	1116.5 (6)	0.567
14	84.62	49.4	348.5 (5)	0.142	865.7 I	1116.5 (6)	0.775
15	91.67	29.1	348.5 (5)	0.084	934.5 I	1116.5 (6)	0.837
16	98.72	62.0	348.5 (5)	0.178	876.5 I	1116.5 (6)	0.785
17	105.77	86.9	348.5 (5)	0.249	653.0 I	1116.5 (6)	0.585
18	112.82	72.0	348.5 (5)	0.207	496.6 I	1116.5 (6)	0.445
19	119.87	125.8	348.5 (5)	0.361	928.7 I	1749.8 (6)	0.531
20L	126.92	155.7	348.5 (5)	0.447	1585.7 I	1749.8 (6)	0.906
20R	126.92	143.8	348.5 (5)	0.413	1585.7 I	1749.8 (6)	0.906
21	133.97	111.8	348.5 (5)	0.321	927.7 I	1749.8 (6)	0.530
22	141.02	84.8	348.5 (5)	0.243	485.7 I	1116.5 (6)	0.435
23	148.07	73.4	348.5 (5)	0.211	637.3 I	1116.5 (6)	0.571
24	155.12	50.4	348.5 (5)	0.145	868.5 I	1116.5 (6)	0.778
25	162.17	33.9	348.5 (5)	0.097	916.5 I	1116.5 (6)	0.821
26	169.22	61.9	348.5 (5)	0.178	874.3 I	1116.5 (6)	0.783
27	176.27	87.0	348.5 (5)	0.250	649.0 I	1116.5 (6)	0.581
28	183.32	72.1	348.5 (5)	0.207	490.7 I	1116.5 (6)	0.439
29	190.37	125.9	348.5 (5)	0.361	928.7 I	1749.8 (6)	0.531
30L	197.42	155.8	348.5 (5)	0.447	1589.2 I	1749.8 (6)	0.908
30R	197.42	144.0	348.5 (5)	0.413	1589.2 I	1749.8 (6)	0.908
31	204.47	112.9	348.5 (5)	0.324	934.7 I	1749.8 (6)	0.534
32	211.52	79.3	348.5 (5)	0.227	512.8 I	1116.5 (6)	0.459
33	218.57	75.4	348.5 (5)	0.216	650.5 I	1116.5 (6)	0.583
34	225.62	49.9	348.5 (5)	0.143	872.1 I	1116.5 (6)	0.781
35	232.67	42.2	348.5 (5)	0.121	934.8 I	1116.5 (6)	0.837
36	239.72	62.7	348.5 (5)	0.180	868.6 I	1116.5 (6)	0.778
37	246.77	66.1	348.5 (5)	0.190	622.5 I	1116.5 (6)	0.558
38	253.82	95.3	348.5 (5)	0.273	480.2 I	1116.5 (6)	0.430
39	260.87	125.9	348.5 (5)	0.361	921.7 I	1749.8 (6)	0.527
40L	267.92	155.7	348.5 (5)	0.447	1587.5 I	1749.8 (6)	0.907
40R	267.92	154.6	348.5 (5)	0.444	1587.5 I	1749.8 (6)	0.907
41	274.97	120.0	348.5 (5)	0.344	934.4 I	1749.8 (6)	0.534
42	282.02	84.3	348.5 (5)	0.242	517.7 I	1116.5 (6)	0.464
43	289.07	81.9	348.5 (5)	0.235	654.8 I	1116.5 (6)	0.586
44	296.12	54.1	348.5 (5)	0.155	875.3 I	1116.5 (6)	0.784
45	303.17	47.0	348.5 (5)	0.135	933.9 I	1116.5 (6)	0.836
46	310.22	61.4	348.5 (5)	0.176	867.3 I	1116.5 (6)	0.777
47	317.27	65.7	348.5 (5)	0.188	618.8 I	1116.5 (6)	0.554
48	324.32	94.0	348.5 (5)	0.270	409.7 I	1116.5 (6)	0.367
49	331.37	124.8	348.5 (5)	0.358	844.3 I	1643.5 (6)	0.514
50L	338.42	154.1	348.5 (5)	0.442	1460.9 I	1643.5 (6)	0.889
50R	338.42	143.1	348.5 (5)	0.411	1460.9 I	1643.5 (6)	0.889
51	344.06	116.3	348.5 (5)	0.334	950.0 I	1643.5 (6)	0.578
52	349.70	95.0	348.5 (5)	0.273	602.1 I	1116.5 (6)	0.539
53	355.34	87.4	348.5 (5)	0.251	504.1 I	1116.5 (6)	0.451
54	360.98	85.5	348.5 (5)	0.245	770.6 I	1116.5 (6)	0.690
55	366.63	63.9	348.5 (5)	0.183	932.0 I	1116.5 (6)	0.835

56	372.27	51.0	348.5	(5)	0.146	977.0 I	1116.5	(6)	0.875
57	377.91	43.3	348.5	(5)	0.124	920.7 I	1116.5	(6)	0.825
58	383.55	68.1	348.5	(5)	0.195	773.1 I	1116.5	(6)	0.692
59	389.19	92.7	348.5	(5)	0.266	476.8 I	1116.5	(6)	0.427
60	394.83	116.3	348.5	(5)	0.334	0.1	1116.5	(6)	0.000

Absolute values of factored moment are shown with determining strength

Shear Strength at Intermediate Transverse Stiffeners  
not Located at a Tenth Point

19.29	40.5	348.5	(5)	0.116
38.58	77.8	348.5	(5)	0.223
74.08	78.4	348.5	(5)	0.225
109.42	79.2	348.5	(5)	0.227
144.92	78.5	348.5	(5)	0.225
162.42	34.9	348.5	(5)	0.100
179.92	79.3	348.5	(5)	0.228
214.92	77.4	348.5	(5)	0.222
232.42	42.4	348.5	(5)	0.122
249.92	79.2	348.5	(5)	0.227
285.42	83.1	348.5	(5)	0.239
303.08	47.1	348.5	(5)	0.135
320.75	79.7	348.5	(5)	0.229
356.25	87.1	348.5	(5)	0.250
375.54	46.5	348.5	(5)	0.134

(5)  $C \geq 0.58 F_y W D t$

(6)  $R_b R_h F_y S(\text{equiv})$

Maximum moment in factored strength expression

Girder 3 Factored Strengths

Forces include ductility, redundancy, and operational factors

Tenth Point	Loc	Factored Shear (k )	Shear Strength (k )	Ratio	Factored Moment (k-ft)	Bending Strength (k-ft)	Ratio
		HL93				HL93	
0	0.00	87.9	348.5 (5)	0.252	0.1	1116.5 (6)	0.000
1	5.64	68.8	348.5 (5)	0.197	566.2 I	1116.5 (6)	0.507
2	11.28	50.5	348.5 (5)	0.145	942.6 I	1116.5 (6)	0.844
3	16.93	27.2	348.5 (5)	0.078	1128.3 I	1116.5 (6)	1.011
4	22.57	28.6	348.5 (5)	0.082	1207.8 I	1116.5 (6)	1.082
5	28.21	44.0	348.5 (5)	0.126	1153.4 I	1116.5 (6)	1.033
6	33.85	59.3	348.5 (5)	0.170	962.1 I	1116.5 (6)	0.862
7	39.49	71.0	348.5 (5)	0.204	659.6 I	1116.5 (6)	0.591
8	45.13	87.9	348.5 (5)	0.252	674.7 I	1116.5 (6)	0.604
9	50.78	105.4	348.5 (5)	0.303	1079.3 I	1643.5 (6)	0.657
10L	56.42	122.2	348.5 (5)	0.351	1654.1 I	1643.5 (6)	1.006
10R	56.42	121.6	348.5 (5)	0.349	1654.1 I	1643.5 (6)	1.006
11	63.47	102.0	348.5 (5)	0.293	973.7 I	1643.5 (6)	0.592
12	70.52	78.0	348.5 (5)	0.224	482.4 I	1116.5 (6)	0.432
13	77.57	63.3	348.5 (5)	0.182	798.2 I	1116.5 (6)	0.715
14	84.62	44.4	348.5 (5)	0.127	1059.0 I	1116.5 (6)	0.949
15	91.67	31.0	348.5 (5)	0.089	1113.6 I	1116.5 (6)	0.997
16	98.72	43.9	348.5 (5)	0.126	1061.9 I	1116.5 (6)	0.951
17	105.77	64.4	348.5 (5)	0.185	813.7 I	1116.5 (6)	0.729
18	112.82	81.5	348.5 (5)	0.234	565.4 I	1116.5 (6)	0.506
19	119.87	102.2	348.5 (5)	0.293	1062.5 I	1749.8 (6)	0.607
20L	126.92	123.8	348.5 (5)	0.355	1781.4 I	1749.8 (6)	1.018
20R	126.92	123.5	348.5 (5)	0.354	1781.4 I	1749.8 (6)	1.018
21	133.97	103.0	348.5 (5)	0.296	1049.3 I	1749.8 (6)	0.600
22	141.02	78.9	348.5 (5)	0.226	544.2 I	1116.5 (6)	0.487
23	148.07	64.2	348.5 (5)	0.184	800.0 I	1116.5 (6)	0.717
24	155.12	45.5	348.5 (5)	0.130	1059.4 I	1116.5 (6)	0.949
25	162.17	36.1	348.5 (5)	0.104	1096.2 I	1116.5 (6)	0.982
26	169.22	43.6	348.5 (5)	0.125	1058.6 I	1116.5 (6)	0.948
27	176.27	64.4	348.5 (5)	0.185	809.2 I	1116.5 (6)	0.725
28	183.32	81.5	348.5 (5)	0.234	559.2 I	1116.5 (6)	0.501
29	190.37	102.2	348.5 (5)	0.293	1062.3 I	1749.8 (6)	0.607
30L	197.42	123.8	348.5 (5)	0.355	1783.6 I	1749.8 (6)	1.019
30R	197.42	123.9	348.5 (5)	0.356	1783.6 I	1749.8 (6)	1.019
31	204.47	104.4	348.5 (5)	0.300	1057.4 I	1749.8 (6)	0.604
32	211.52	73.6	348.5 (5)	0.211	571.5 I	1116.5 (6)	0.512
33	218.57	66.1	348.5 (5)	0.190	815.2 I	1116.5 (6)	0.730
34	225.62	45.1	348.5 (5)	0.129	1063.5 I	1116.5 (6)	0.953
35	232.67	33.3	348.5 (5)	0.096	1113.2 I	1116.5 (6)	0.997
36	239.72	43.9	348.5 (5)	0.126	1054.2 I	1116.5 (6)	0.944
37	246.77	69.9	348.5 (5)	0.201	780.2 I	1116.5 (6)	0.699
38	253.82	79.2	348.5 (5)	0.227	548.7 I	1116.5 (6)	0.491
39	260.87	101.2	348.5 (5)	0.290	1054.8 I	1749.8 (6)	0.603
40L	267.92	123.6	348.5 (5)	0.355	1782.0 I	1749.8 (6)	1.018
40R	267.92	131.0	348.5 (5)	0.376	1782.0 I	1749.8 (6)	1.018
41	274.97	111.1	348.5 (5)	0.319	1057.9 I	1749.8 (6)	0.605
42	282.02	78.8	348.5 (5)	0.226	578.4 I	1116.5 (6)	0.518
43	289.07	71.6	348.5 (5)	0.206	819.8 I	1116.5 (6)	0.734
44	296.12	49.3	348.5 (5)	0.141	1067.1 I	1116.5 (6)	0.956
45	303.17	36.8	348.5 (5)	0.106	1112.6 I	1116.5 (6)	0.996
46	310.22	42.9	348.5 (5)	0.123	1054.2 I	1116.5 (6)	0.944
47	317.27	69.2	348.5 (5)	0.198	780.5 I	1116.5 (6)	0.699
48	324.32	78.2	348.5 (5)	0.224	480.8 I	1116.5 (6)	0.431
49	331.37	100.2	348.5 (5)	0.288	981.1 I	1643.5 (6)	0.597
50L	338.42	122.4	348.5 (5)	0.351	1658.8 I	1643.5 (6)	1.009
50R	338.42	124.5	348.5 (5)	0.357	1658.8 I	1643.5 (6)	1.009
51	344.06	105.4	348.5 (5)	0.302	1078.3 I	1643.5 (6)	0.656
52	349.70	90.1	348.5 (5)	0.259	670.4 I	1116.5 (6)	0.600
53	355.34	65.9	348.5 (5)	0.189	674.0 I	1116.5 (6)	0.604
54	360.98	60.3	348.5 (5)	0.173	958.1 I	1116.5 (6)	0.858
55	366.63	45.8	348.5 (5)	0.131	1152.4 I	1116.5 (6)	1.032



56	372.27	30.2	348.5 (5)	0.087	1204.0 I	1116.5 (6)	1.078
57	377.91	35.7	348.5 (5)	0.103	1125.1 I	1116.5 (6)	1.008
58	383.55	50.5	348.5 (5)	0.145	929.3 I	1116.5 (6)	0.832
59	389.19	69.4	348.5 (5)	0.199	558.3 I	1116.5 (6)	0.500
60	394.83	87.8	348.5 (5)	0.252	0.1	1116.5 (6)	0.000

Absolute values of factored moment are shown with determining strength

Shear Strength at Intermediate Transverse Stiffeners  
not Located at a Tenth Point

19.29	27.8	348.5 (5)	0.080
38.58	69.1	348.5 (5)	0.198
74.08	70.5	348.5 (5)	0.202
109.42	73.3	348.5 (5)	0.210
144.92	70.8	348.5 (5)	0.203
162.42	36.4	348.5 (5)	0.104
179.92	73.3	348.5 (5)	0.210
214.92	70.0	348.5 (5)	0.201
232.42	33.7	348.5 (5)	0.097
249.92	74.0	348.5 (5)	0.212
285.42	75.3	348.5 (5)	0.216
303.08	37.0	348.5 (5)	0.106
320.75	73.6	348.5 (5)	0.211
356.25	65.0	348.5 (5)	0.187
375.54	33.4	348.5 (5)	0.096

(5)  $C \geq 0.58 F_y W D t$

(6)  $R_b R_h F_y S(\text{equiv})$

Maximum moment in factored strength expression

Girder 4 : Rating Output : Factored Strengths  
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## Girder 4 Factored Strengths

Forces include ductility, redundancy, and operational factors

Tenth Point	Loc	Factored Shear (k )	Shear Strength (k )	Ratio	Factored Moment (k-ft)	Bending Strength (k-ft)	Ratio
		HL93			HL93		
0	0.00	110.9	348.5 (5)	0.318	0.1	1116.5 (6)	0.000
1	5.64	84.6	348.5 (5)	0.243	510.9 I	1116.5 (6)	0.458
2	11.28	61.7	348.5 (5)	0.177	823.4 I	1116.5 (6)	0.737
3	16.93	41.0	348.5 (5)	0.118	969.3 I	1116.5 (6)	0.868
4	22.57	40.4	348.5 (5)	0.116	1036.9 I	1116.5 (6)	0.929
5	28.21	55.9	348.5 (5)	0.160	990.0 I	1116.5 (6)	0.887
6	33.85	76.5	348.5 (5)	0.219	824.3 I	1116.5 (6)	0.738
7	39.49	78.6	348.5 (5)	0.226	560.2 I	1116.5 (6)	0.502
8	45.13	101.5	348.5 (5)	0.291	600.5 I	1116.5 (6)	0.538
9	50.78	125.8	348.5 (5)	0.361	955.6 I	1643.5 (6)	0.581
10L	56.42	148.5	348.5 (5)	0.426	1468.8 I	1643.5 (6)	0.894
10R	56.42	145.5	348.5 (5)	0.417	1468.8 I	1643.5 (6)	0.894
11	63.47	118.3	348.5 (5)	0.339	851.2 I	1643.5 (6)	0.518
12	70.52	88.4	348.5 (5)	0.254	415.9 I	1116.5 (6)	0.373
13	77.57	79.5	348.5 (5)	0.228	684.9 I	1116.5 (6)	0.613
14	84.62	54.9	348.5 (5)	0.158	920.3 I	1116.5 (6)	0.824
15	91.67	50.9	348.5 (5)	0.146	983.0 I	1116.5 (6)	0.880
16	98.72	54.8	348.5 (5)	0.157	928.2 I	1116.5 (6)	0.831
17	105.77	81.6	348.5 (5)	0.234	702.6 I	1116.5 (6)	0.629
18	112.82	91.4	348.5 (5)	0.262	500.8 I	1116.5 (6)	0.449
19	119.87	123.0	348.5 (5)	0.353	935.4 I	1749.8 (6)	0.535
20L	126.92	150.1	348.5 (5)	0.431	1589.7 I	1749.8 (6)	0.909
20R	126.92	147.1	348.5 (5)	0.422	1589.7 I	1749.8 (6)	0.909
21	133.97	119.6	348.5 (5)	0.343	926.3 I	1749.8 (6)	0.529
22	141.02	89.6	348.5 (5)	0.257	485.0 I	1116.5 (6)	0.434
23	148.07	80.7	348.5 (5)	0.232	689.4 I	1116.5 (6)	0.617
24	155.12	55.9	348.5 (5)	0.160	922.3 I	1116.5 (6)	0.826
25	162.17	55.7	348.5 (5)	0.160	966.0 I	1116.5 (6)	0.865
26	169.22	54.8	348.5 (5)	0.157	925.8 I	1116.5 (6)	0.829
27	176.27	81.8	348.5 (5)	0.235	698.6 I	1116.5 (6)	0.626
28	183.32	91.6	348.5 (5)	0.263	496.1 I	1116.5 (6)	0.444
29	190.37	123.1	348.5 (5)	0.353	934.4 I	1749.8 (6)	0.534
30L	197.42	150.2	348.5 (5)	0.431	1592.3 I	1749.8 (6)	0.910
30R	197.42	147.6	348.5 (5)	0.424	1592.3 I	1749.8 (6)	0.910
31	204.47	121.6	348.5 (5)	0.349	933.8 I	1749.8 (6)	0.534
32	211.52	84.0	348.5 (5)	0.241	512.0 I	1116.5 (6)	0.459
33	218.57	82.2	348.5 (5)	0.236	703.8 I	1116.5 (6)	0.630
34	225.62	55.2	348.5 (5)	0.159	926.5 I	1116.5 (6)	0.830
35	232.67	47.6	348.5 (5)	0.137	983.3 I	1116.5 (6)	0.881
36	239.72	55.5	348.5 (5)	0.159	921.3 I	1116.5 (6)	0.825
37	246.77	87.6	348.5 (5)	0.251	669.5 I	1116.5 (6)	0.600
38	253.82	89.6	348.5 (5)	0.257	485.6 I	1116.5 (6)	0.435
39	260.87	121.3	348.5 (5)	0.348	926.8 I	1749.8 (6)	0.530
40L	267.92	149.8	348.5 (5)	0.430	1589.2 I	1749.8 (6)	0.908
40R	267.92	158.6	348.5 (5)	0.455	1589.2 I	1749.8 (6)	0.908
41	274.97	130.4	348.5 (5)	0.374	934.7 I	1749.8 (6)	0.534
42	282.02	90.0	348.5 (5)	0.258	516.2 I	1116.5 (6)	0.462
43	289.07	90.1	348.5 (5)	0.259	708.0 I	1116.5 (6)	0.634
44	296.12	60.4	348.5 (5)	0.173	929.2 I	1116.5 (6)	0.832
45	303.17	54.8	348.5 (5)	0.157	982.2 I	1116.5 (6)	0.880
46	310.22	54.4	348.5 (5)	0.156	919.6 I	1116.5 (6)	0.824
47	317.27	86.7	348.5 (5)	0.249	666.5 I	1116.5 (6)	0.597
48	324.32	88.4	348.5 (5)	0.254	413.6 I	1116.5 (6)	0.370
49	331.37	119.9	348.5 (5)	0.344	852.0 I	1643.5 (6)	0.518
50L	338.42	148.2	348.5 (5)	0.425	1462.9 I	1643.5 (6)	0.890
50R	338.42	146.5	348.5 (5)	0.421	1462.9 I	1643.5 (6)	0.890
51	344.06	122.4	348.5 (5)	0.351	952.7 I	1643.5 (6)	0.580
52	349.70	102.3	348.5 (5)	0.293	599.9 I	1116.5 (6)	0.537
53	355.34	74.1	348.5 (5)	0.213	570.7 I	1116.5 (6)	0.511
54	360.98	75.8	348.5 (5)	0.218	823.9 I	1116.5 (6)	0.738
55	366.63	55.9	348.5 (5)	0.161	987.6 I	1116.5 (6)	0.885

56	372.27	46.7	348.5	(5)	0.134	1033.1 I	1116.5	(6)	0.925
57	377.91	46.3	348.5	(5)	0.133	972.8 I	1116.5	(6)	0.871
58	383.55	61.5	348.5	(5)	0.177	822.2 I	1116.5	(6)	0.736
59	389.19	86.5	348.5	(5)	0.248	509.8 I	1116.5	(6)	0.457
60	394.83	110.8	348.5	(5)	0.318	0.1	1116.5	(6)	0.000

Absolute values of factored moment are shown with determining strength

Shear Strength at Intermediate Transverse Stiffeners  
not Located at a Tenth Point

19.29	40.7	348.5	(5)	0.117
38.58	78.2	348.5	(5)	0.225
74.08	83.9	348.5	(5)	0.241
109.42	86.7	348.5	(5)	0.249
144.92	84.7	348.5	(5)	0.243
162.42	55.7	348.5	(5)	0.160
179.92	86.9	348.5	(5)	0.249
214.92	83.1	348.5	(5)	0.239
232.42	47.9	348.5	(5)	0.137
249.92	88.5	348.5	(5)	0.254
285.42	90.1	348.5	(5)	0.258
303.08	54.9	348.5	(5)	0.158
320.75	87.5	348.5	(5)	0.251
356.25	74.4	348.5	(5)	0.213
375.54	46.5	348.5	(5)	0.133

(5)  $C \geq 0.58 F_y W D t$

(6)  $R_b R_h F_y S(\text{equiv})$

Maximum moment in factored strength expression

Girder 5 Factored Strengths

Forces include ductility, redundancy, and operational factors

Tenth Point	Loc	Factored Shear (k )	Shear Strength (k )	Ratio	Factored Moment (k-ft)	Bending Strength (k-ft)	Ratio
		HL93				HL93	
0	0.00	84.8	348.5 (5)	0.243	0.1	1116.5 (6)	0.000
1	5.64	70.3	348.5 (5)	0.202	423.4 I	1116.5 (6)	0.379
2	11.28	55.6	348.5 (5)	0.159	730.0 I	1116.5 (6)	0.654
3	16.93	34.6	348.5 (5)	0.099	906.0 I	1116.5 (6)	0.811
4	22.57	27.7	348.5 (5)	0.079	968.9 I	1116.5 (6)	0.868
5	28.21	39.8	348.5 (5)	0.114	914.9 I	1116.5 (6)	0.819
6	33.85	53.7	348.5 (5)	0.154	770.3 I	1116.5 (6)	0.690
7	39.49	78.4	348.5 (5)	0.225	526.5 I	1116.5 (6)	0.472
8	45.13	89.8	348.5 (5)	0.258	599.6 I	1116.5 (6)	0.537
9	50.78	102.2	348.5 (5)	0.293	905.2 I	1643.5 (6)	0.551
10L	56.42	114.6	348.5 (5)	0.329	1382.6 I	1643.5 (6)	0.841
10R	56.42	119.5	348.5 (5)	0.343	1382.6 I	1643.5 (6)	0.841
11	63.47	103.7	348.5 (5)	0.298	784.4 I	1643.5 (6)	0.477
12	70.52	88.1	348.5 (5)	0.253	402.1 I	1116.5 (6)	0.360
13	77.57	60.1	348.5 (5)	0.173	641.3 I	1116.5 (6)	0.574
14	84.62	45.9	348.5 (5)	0.132	880.4 I	1116.5 (6)	0.789
15	91.67	29.1	348.5 (5)	0.084	985.4 I	1116.5 (6)	0.883
16	98.72	45.8	348.5 (5)	0.132	893.0 I	1116.5 (6)	0.800
17	105.77	61.0	348.5 (5)	0.175	671.0 I	1116.5 (6)	0.601
18	112.82	88.2	348.5 (5)	0.253	508.8 I	1116.5 (6)	0.456
19	119.87	101.2	348.5 (5)	0.290	898.2 I	1749.8 (6)	0.513
20L	126.92	116.9	348.5 (5)	0.335	1522.1 I	1749.8 (6)	0.870
20R	126.92	120.4	348.5 (5)	0.346	1522.1 I	1749.8 (6)	0.870
21	133.97	104.4	348.5 (5)	0.300	890.9 I	1749.8 (6)	0.509
22	141.02	88.9	348.5 (5)	0.255	490.3 I	1116.5 (6)	0.439
23	148.07	60.9	348.5 (5)	0.175	650.7 I	1116.5 (6)	0.583
24	155.12	46.8	348.5 (5)	0.134	883.7 I	1116.5 (6)	0.791
25	162.17	25.6	348.5 (5)	0.074	970.0 I	1116.5 (6)	0.869
26	169.22	46.1	348.5 (5)	0.132	890.6 I	1116.5 (6)	0.798
27	176.27	61.4	348.5 (5)	0.176	664.9 I	1116.5 (6)	0.596
28	183.32	88.4	348.5 (5)	0.254	503.7 I	1116.5 (6)	0.451
29	190.37	101.5	348.5 (5)	0.291	897.7 I	1749.8 (6)	0.513
30L	197.42	117.1	348.5 (5)	0.336	1526.0 I	1749.8 (6)	0.872
30R	197.42	120.3	348.5 (5)	0.345	1526.0 I	1749.8 (6)	0.872
31	204.47	104.6	348.5 (5)	0.300	899.1 I	1749.8 (6)	0.514
32	211.52	84.6	348.5 (5)	0.243	515.3 I	1116.5 (6)	0.462
33	218.57	62.9	348.5 (5)	0.180	662.3 I	1116.5 (6)	0.593
34	225.62	46.9	348.5 (5)	0.134	888.0 I	1116.5 (6)	0.795
35	232.67	30.2	348.5 (5)	0.087	986.0 I	1116.5 (6)	0.883
36	239.72	45.9	348.5 (5)	0.132	886.8 I	1116.5 (6)	0.794
37	246.77	65.5	348.5 (5)	0.188	643.4 I	1116.5 (6)	0.576
38	253.82	87.5	348.5 (5)	0.251	492.3 I	1116.5 (6)	0.441
39	260.87	101.1	348.5 (5)	0.290	889.2 I	1749.8 (6)	0.508
40L	267.92	117.2	348.5 (5)	0.336	1522.9 I	1749.8 (6)	0.870
40R	267.92	121.0	348.5 (5)	0.347	1522.9 I	1749.8 (6)	0.870
41	274.97	106.8	348.5 (5)	0.306	897.9 I	1749.8 (6)	0.513
42	282.02	88.0	348.5 (5)	0.253	521.7 I	1116.5 (6)	0.467
43	289.07	65.4	348.5 (5)	0.188	668.3 I	1116.5 (6)	0.599
44	296.12	50.3	348.5 (5)	0.144	890.2 I	1116.5 (6)	0.797
45	303.17	29.3	348.5 (5)	0.084	986.3 I	1116.5 (6)	0.883
46	310.22	45.2	348.5 (5)	0.130	882.7 I	1116.5 (6)	0.791
47	317.27	64.9	348.5 (5)	0.186	634.2 I	1116.5 (6)	0.568
48	324.32	86.9	348.5 (5)	0.249	403.4 I	1116.5 (6)	0.361
49	331.37	100.5	348.5 (5)	0.288	796.2 I	1643.5 (6)	0.484
50L	338.42	116.0	348.5 (5)	0.333	1375.4 I	1643.5 (6)	0.837
50R	338.42	118.6	348.5 (5)	0.340	1375.4 I	1643.5 (6)	0.837
51	344.06	104.5	348.5 (5)	0.300	901.4 I	1643.5 (6)	0.548
52	349.70	93.1	348.5 (5)	0.267	597.5 I	1116.5 (6)	0.535
53	355.34	75.2	348.5 (5)	0.216	521.6 I	1116.5 (6)	0.467
54	360.98	54.5	348.5 (5)	0.156	775.0 I	1116.5 (6)	0.694
55	366.63	40.3	348.5 (5)	0.116	906.4 I	1116.5 (6)	0.812

56	372.27	25.2	348.5 (5)	0.072	973.1 I	1116.5 (6)	0.872
57	377.91	42.3	348.5 (5)	0.121	913.5 I	1116.5 (6)	0.818
58	383.55	54.8	348.5 (5)	0.157	719.6 I	1116.5 (6)	0.645
59	389.19	69.5	348.5 (5)	0.199	412.8 I	1116.5 (6)	0.370
60	394.83	83.0	348.5 (5)	0.238	0.1	1116.5 (6)	0.000

Absolute values of factored moment are shown with determining strength

Shear Strength at Intermediate Transverse Stiffeners  
not Located at a Tenth Point

19.29	31.7	348.5 (5)	0.091
38.58	74.5	348.5 (5)	0.214
74.08	74.0	348.5 (5)	0.212
109.42	75.1	348.5 (5)	0.216
144.92	73.4	348.5 (5)	0.211
162.42	26.4	348.5 (5)	0.076
179.92	75.4	348.5 (5)	0.216
214.92	74.1	348.5 (5)	0.213
232.42	30.8	348.5 (5)	0.088
249.92	75.3	348.5 (5)	0.216
285.42	77.1	348.5 (5)	0.221
303.08	29.5	348.5 (5)	0.085
320.75	75.8	348.5 (5)	0.217
356.25	71.9	348.5 (5)	0.206
375.54	35.1	348.5 (5)	0.101

(5)  $C \geq 0.58 F_y W D t$

(6)  $R_b R_h F_y S(\text{equiv})$

Maximum moment in factored strength expression

Girder 1 : Rating Output : Service Moment  
 Tue Aug 29 18:34:10 2017

## Girder 1 Service Moment - k-ft - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane Max LL+I	Design Truck+ Lane Min LL+I	Tandem Truck+ Lane Max LL+I	Tandem Truck+ Lane Min LL+I	Fatigue Truck Range LL+I
0	0.0	0.	0.	0.	0.	0.	0.	0.	0.
1	5.6	62.	23.	18.	160.	-36.	137.	-29.	94.
2	11.3	104.	39.	30.	284.	-72.	251.	-59.	165.
3	16.9	120.	48.	36.	367.	-108.	340.	-88.	220.
4	22.6	129.	49.	37.	399.	-140.	380.	-116.	247.
5	28.2	111.	42.	32.	382.	-173.	373.	-143.	245.
6	33.9	74.	28.	21.	353.	-207.	340.	-171.	252.
7	39.5	16.	6.	5.	284.	-239.	281.	-197.	241.
8	45.1	-62.	-23.	-17.	162.	-267.	180.	-220.	200.
9	50.8	-160.	-60.	-46.	101.	-320.*	92.	-259.	182.
10	56.4	-279.	-104.	-79.	111.	-444.*	92.	-319.	209.
11	63.5	-137.	-51.	-39.	67.	-286.*	96.	-215.	132.
12	70.5	-27.	-10.	-8.	178.	-199.	193.	-167.	177.
13	77.6	48.	19.	14.	305.	-176.	297.	-149.	226.
14	84.6	97.	36.	28.	385.	-160.*	364.	-132.	243.
15	91.7	113.	42.	32.	424.	-154.*	405.	-125.	252.
16	98.7	96.	36.	27.	393.	-182.	373.	-152.	263.
17	105.8	49.	18.	14.	324.	-217.	314.	-180.	252.
18	112.8	-33.	-11.	-9.	198.	-252.	209.	-208.	206.
19	119.9	-143.	-53.	-40.	110.	-339.*	117.	-259.	178.
20	126.9	-286.	-106.	-81.	126.	-520.*	107.	-340.	209.
21	134.0	-143.	-53.	-41.	96.	-335.*	111.	-255.	166.
22	141.0	-32.	-12.	-9.	190.	-243.	205.	-200.	205.
23	148.1	45.	18.	13.	316.	-212.	307.	-175.	249.
24	155.1	94.	35.	27.	391.	-184.*	370.	-152.	260.
25	162.2	99.	41.	31.	426.	-169.*	407.	-130.	249.
26	169.2	95.	35.	27.	394.	-183.	374.	-154.	261.
27	176.3	48.	18.	14.	321.	-216.	313.	-179.	250.
28	183.3	-33.	-11.	-9.	194.	-249.	206.	-206.	204.
29	190.4	-141.	-53.	-40.	112.	-341.*	118.	-260.	177.
30	197.4	-284.	-105.	-80.	131.	-524.*	112.	-344.	207.
31	204.5	-141.	-53.	-40.	112.	-341.*	118.	-261.	177.
32	211.5	-43.	-12.	-9.	201.	-250.	218.	-207.	210.
33	218.6	48.	18.	14.	319.	-216.	311.	-180.	250.
34	225.6	95.	35.	27.	393.	-185.*	373.	-155.	262.
35	232.7	111.	41.	31.	425.	-169.*	407.	-130.	249.
36	239.7	94.	35.	27.	392.	-180.	371.	-152.	259.
37	246.8	35.	18.	13.	318.	-211.	309.	-175.	249.
38	253.8	-32.	-12.	-9.	191.	-243.	206.	-199.	205.
39	260.9	-143.	-53.	-41.	96.	-334.*	112.	-254.	166.
40	267.9	-286.	-106.	-81.	126.	-520.*	108.	-341.	210.
41	275.0	-143.	-53.	-40.	110.	-339.*	117.	-261.	178.
42	282.0	-43.	-12.	-9.	200.	-253.	214.	-209.	209.
43	289.1	48.	18.	14.	322.	-218.	313.	-181.	252.
44	296.1	96.	36.	27.	393.	-182.	372.	-153.	264.
45	303.2	113.	42.	32.	423.	-159.*	404.	-125.	252.
46	310.2	97.	36.	28.	387.	-154.	365.	-132.	242.
47	317.3	39.	19.	14.	308.	-176.	299.	-148.	226.
48	324.3	-27.	-10.	-8.	180.	-198.	194.	-166.	177.
49	331.4	-137.	-51.	-39.	67.	-286.*	97.	-213.	132.
50	338.4	-279.	-104.	-79.	110.	-447.*	92.	-320.	207.
51	344.1	-160.	-60.	-46.	101.	-321.*	91.	-260.	182.
52	349.7	-62.	-23.	-18.	161.	-268.	176.	-221.	199.
53	355.3	9.	6.	5.	282.	-240.	275.	-199.	242.
54	361.0	74.	28.	21.	354.	-208.	339.	-172.	254.
55	366.6	111.	42.	32.	387.	-174.	374.	-144.	247.
56	372.3	129.	49.	37.	399.	-140.	385.	-116.	246.
57	377.9	126.	48.	36.	370.	-109.	349.	-88.	221.
58	383.6	104.	39.	30.	288.	-73.	259.	-59.	166.
59	389.2	62.	23.	18.	164.	-36.	142.	-29.	95.
60	394.8	0.	0.	0.	0.	0.	0.	0.	0.

19.3	125.	49.	37.	387.	-121.	363.	-100.
38.6	27.	10.	8.	298.	-234.	293.	-193.
56.4	-279.	-104.	-79.	111.	-444.	92.	-319.
74.1	14.	6.	4.	248.	-186.	250.	-158.
91.8	113.	42.	32.	424.	-154.	405.	-125.
109.4	10.	4.	3.	254.	-229.	258.	-192.
126.9	-286.	-106.	-81.	126.	-520.	107.	-340.
144.9	14.	6.	4.	266.	-225.	266.	-186.
162.4	99.	41.	31.	426.	-169.	407.	-130.
179.9	10.	4.	3.	250.	-226.	255.	-189.
197.4	-284.	-105.	-80.	131.	-524.	112.	-344.
214.9	2.	4.	3.	254.	-227.	264.	-190.
232.4	111.	41.	31.	425.	-169.	407.	-130.
249.9	6.	6.	4.	268.	-225.	268.	-185.
267.9	-286.	-106.	-81.	126.	-520.	108.	-341.
285.4	2.	4.	3.	255.	-229.	261.	-192.
303.1	113.	42.	32.	423.	-159.	404.	-125.
320.8	7.	6.	4.	251.	-187.	252.	-157.
338.4	-279.	-104.	-79.	110.	-447.	92.	-320.
356.3	20.	10.	8.	297.	-236.	288.	-195.
375.5	130.	49.	37.	388.	-121.	371.	-100.

Sidewalk		Max		Min		Max		Min	
Max	Min	LL+I		LL+I		LL+I		LL+I	
		Fat	Trk	Fat	Trk	Prmt	Trk	Prmt	Trk

0	0.	0.	0.	0.	0.	0.	0.
1	0.	0.	77.	-17.	0.	0.	0.
2	0.	0.	132.	-33.	0.	0.	0.
3	0.	0.	170.	-50.	0.	0.	0.
4	0.	0.	181.	-66.	0.	0.	0.
5	0.	0.	163.	-82.	0.	0.	0.
6	0.	0.	155.	-97.	0.	0.	0.
7	0.	0.	129.	-112.	0.	0.	0.
8	0.	0.	75.	-125.	0.	0.	0.
9	0.	0.	45.	-137.	0.	0.	0.
10	0.	0.	50.	-159.	0.	0.	0.
11	0.	0.	34.	-98.	0.	0.	0.
12	0.	0.	90.	-87.	0.	0.	0.
13	0.	0.	152.	-74.	0.	0.	0.
14	0.	0.	184.	-59.	0.	0.	0.
15	0.	0.	193.	-59.	0.	0.	0.
16	0.	0.	184.	-79.	0.	0.	0.
17	0.	0.	153.	-99.	0.	0.	0.
18	0.	0.	88.	-118.	0.	0.	0.
19	0.	0.	44.	-134.	0.	0.	0.
20	0.	0.	50.	-159.	0.	0.	0.
21	0.	0.	34.	-132.	0.	0.	0.
22	0.	0.	89.	-116.	0.	0.	0.
23	0.	0.	151.	-98.	0.	0.	0.
24	0.	0.	183.	-78.	0.	0.	0.
25	0.	0.	191.	-58.	0.	0.	0.
26	0.	0.	183.	-78.	0.	0.	0.
27	0.	0.	151.	-98.	0.	0.	0.
28	0.	0.	87.	-117.	0.	0.	0.
29	0.	0.	44.	-133.	0.	0.	0.
30	0.	0.	51.	-156.	0.	0.	0.
31	0.	0.	44.	-133.	0.	0.	0.
32	0.	0.	93.	-117.	0.	0.	0.
33	0.	0.	151.	-99.	0.	0.	0.
34	0.	0.	183.	-79.	0.	0.	0.
35	0.	0.	191.	-58.	0.	0.	0.
36	0.	0.	182.	-77.	0.	0.	0.
37	0.	0.	151.	-98.	0.	0.	0.
38	0.	0.	90.	-115.	0.	0.	0.
39	0.	0.	34.	-132.	0.	0.	0.
40	0.	0.	51.	-159.	0.	0.	0.
41	0.	0.	44.	-134.	0.	0.	0.
42	0.	0.	91.	-118.	0.	0.	0.
43	0.	0.	153.	-100.	0.	0.	0.
44	0.	0.	184.	-79.	0.	0.	0.
45	0.	0.	193.	-59.	0.	0.	0.
46	0.	0.	183.	-59.	0.	0.	0.
47	0.	0.	152.	-74.	0.	0.	0.
48	0.	0.	90.	-87.	0.	0.	0.
49	0.	0.	34.	-98.	0.	0.	0.

50	0.	0.	50.	-157.	0.	0.
51	0.	0.	45.	-137.	0.	0.
52	0.	0.	74.	-125.	0.	0.
53	0.	0.	129.	-113.	0.	0.
54	0.	0.	157.	-98.	0.	0.
55	0.	0.	165.	-82.	0.	0.
56	0.	0.	180.	-66.	0.	0.
57	0.	0.	171.	-50.	0.	0.
58	0.	0.	133.	-33.	0.	0.
59	0.	0.	78.	-17.	0.	0.
Top flg spl	0.	0.	0.	0.	0.	0.
Bot flg spl	0.	0.	0.	0.	0.	0.

\* 0.9(two des trks + lane)



Girder 2 Service Moment - k-ft - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane Max LL+I	Design Truck+ Lane Min LL+I	Tandem Truck+ Lane Max LL+I	Tandem Truck+ Lane Min LL+I	Fatigue Truck Range LL+I
0	0.0	0.	0.	0.	0.	0.	0.	0.	0.
1	5.6	71.	23.	18.	208.	-30.	209.	-22.	116.
2	11.3	118.	39.	30.	322.	-61.	332.	-44.	182.
3	16.9	134.	48.	36.	366.	-91.	382.	-66.	213.
4	22.6	146.	49.	37.	395.	-123.	410.	-89.	235.
5	28.2	126.	42.	32.	395.	-155.	413.	-113.	241.
6	33.9	84.	28.	21.	349.	-187.	365.	-136.	237.
7	39.5	18.	6.	5.	258.	-220.	288.	-161.	213.
8	45.1	-69.	-23.	-17.	171.	-259.	223.	-193.	200.
9	50.8	-180.	-60.	-46.	80.	-328.*	129.	-243.	168.
10	56.4	-314.	-104.	-79.	82.	-465.*	68.	-318.	219.
11	63.5	-154.	-51.	-39.	52.	-305.*	108.	-217.	140.
12	70.5	-30.	-10.	-8.	158.	-202.	196.	-152.	165.
13	77.6	54.	19.	14.	272.	-165.	288.	-122.	196.
14	84.6	109.	36.	28.	356.	-139.*	356.	-105.	214.
15	91.7	126.	42.	32.	366.	-125.*	361.	-96.	203.
16	98.7	108.	36.	27.	370.	-161.	362.	-120.	226.
17	105.8	55.	18.	14.	295.	-196.	297.	-145.	208.
18	112.8	-37.	-11.	-9.	188.	-241.	213.	-179.	185.
19	119.9	-160.	-53.	-40.	89.	-344.*	122.	-243.	160.
20	126.9	-323.	-106.	-81.	99.	-531.*	86.	-339.	218.
21	134.0	-160.	-53.	-41.	78.	-343.*	123.	-243.	159.
22	141.0	-36.	-12.	-9.	170.	-236.	208.	-175.	182.
23	148.1	50.	18.	13.	279.	-192.	295.	-140.	208.
24	155.1	106.	35.	27.	361.	-159.*	362.	-119.	224.
25	162.2	109.	41.	31.	370.	-128.*	364.	-100.	202.
26	169.2	107.	35.	27.	369.	-162.	363.	-122.	225.
27	176.3	54.	18.	14.	293.	-195.	296.	-144.	207.
28	183.3	-37.	-11.	-9.	186.	-239.	212.	-177.	184.
29	190.4	-159.	-53.	-40.	91.	-345.*	124.	-243.	159.
30	197.4	-320.	-105.	-80.	104.	-535.*	90.	-344.	217.
31	204.5	-159.	-53.	-40.	89.	-349.*	131.	-248.	162.
32	211.5	-49.	-12.	-9.	178.	-242.	223.	-180.	187.
33	218.6	54.	18.	14.	283.	-196.	300.	-145.	210.
34	225.6	107.	35.	27.	361.	-162.	362.	-122.	225.
35	232.7	124.	41.	31.	370.	-128.*	364.	-99.	202.
36	239.7	106.	35.	27.	368.	-159.	361.	-119.	224.
37	246.8	39.	18.	13.	289.	-190.	291.	-140.	205.
38	253.8	-36.	-12.	-9.	186.	-233.	213.	-172.	186.
39	260.9	-160.	-53.	-41.	79.	-339.*	118.	-238.	157.
40	267.9	-323.	-106.	-81.	99.	-532.*	86.	-343.	218.
41	275.0	-160.	-53.	-40.	87.	-347.*	130.	-247.	164.
42	282.0	-50.	-12.	-9.	180.	-244.	224.	-182.	189.
43	289.1	55.	18.	14.	285.	-199.	301.	-146.	212.
44	296.1	108.	36.	27.	361.	-162.	363.	-120.	227.
45	303.2	126.	42.	32.	367.	-125.*	360.	-95.	202.
46	310.2	109.	36.	28.	364.	-137.	356.	-105.	212.
47	317.3	43.	19.	14.	283.	-163.	285.	-121.	190.
48	324.3	-30.	-10.	-8.	175.	-198.	202.	-149.	166.
49	331.4	-154.	-51.	-39.	55.	-302.*	104.	-210.	136.
50	338.4	-315.	-104.	-79.	82.	-468.*	69.	-320.	214.
51	344.1	-180.	-60.	-45.	77.	-332.*	94.	-247.	158.
52	349.7	-70.	-23.	-17.	149.	-263.	188.	-197.	183.
53	355.3	9.	6.	5.	239.	-223.	259.	-163.	198.
54	361.0	83.	28.	21.	322.	-189.	330.	-138.	220.
55	366.6	126.	42.	32.	376.	-157.	373.	-113.	222.
56	372.3	146.	49.	37.	377.	-124.	368.	-89.	212.
57	377.9	141.	48.	36.	350.	-92.	341.	-66.	194.
58	383.6	118.	39.	30.	304.	-61.	296.	-44.	162.
59	389.2	71.	23.	18.	184.	-31.	190.	-22.	102.
60	394.8	0.	0.	0.	0.	0.	0.	0.	0.

19.3	139.	49.	37.	380.	-90.	396.	-75.
38.6	30.	10.	8.	272.	-187.	300.	-156.
56.4	-314.	-104.	-79.	82.	-419.	68.	-318.
74.1	16.	6.	5.	220.	-160.	246.	-135.
91.8	126.	42.	32.	366.	-115.	361.	-96.
109.4	11.	4.	3.	239.	-188.	254.	-159.
126.9	-323.	-106.	-81.	99.	-479.	86.	-339.
144.9	16.	6.	4.	233.	-185.	259.	-154.
162.4	109.	41.	31.	370.	-127.	364.	-100.
179.9	11.	4.	3.	236.	-185.	253.	-157.
197.4	-320.	-105.	-80.	104.	-483.	90.	-344.
214.9	1.	4.	3.	227.	-188.	262.	-159.
232.4	124.	41.	31.	370.	-128.	364.	-100.
249.9	6.	6.	4.	246.	-183.	258.	-153.
267.9	-323.	-106.	-81.	99.	-479.	86.	-343.
285.4	1.	4.	3.	229.	-190.	264.	-161.
303.1	126.	42.	32.	367.	-120.	360.	-95.
320.8	7.	6.	5.	233.	-157.	245.	-133.
338.4	-315.	-104.	-79.	82.	-423.	69.	-320.
356.3	21.	10.	8.	253.	-190.	271.	-158.
375.5	145.	49.	37.	363.	-91.	355.	-76.

Sidewalk		Max		Min		Max		Min	
Max	Min	LL+I		LL+I		LL+I		LL+I	
		Fat	Trk	Fat	Trk	Prmt	Trk	Prmt	Trk

0	0.	0.	0.	0.	0.	0.	0.
1	0.	0.	105.	-12.	0.	0.	0.
2	0.	0.	159.	-23.	0.	0.	0.
3	0.	0.	178.	-35.	0.	0.	0.
4	0.	0.	187.	-47.	0.	0.	0.
5	0.	0.	181.	-60.	0.	0.	0.
6	0.	0.	164.	-73.	0.	0.	0.
7	0.	0.	126.	-87.	0.	0.	0.
8	0.	0.	95.	-105.	0.	0.	0.
9	0.	0.	45.	-123.	0.	0.	0.
10	0.	0.	37.	-182.	0.	0.	0.
11	0.	0.	40.	-100.	0.	0.	0.
12	0.	0.	87.	-77.	0.	0.	0.
13	0.	0.	136.	-59.	0.	0.	0.
14	0.	0.	169.	-45.	0.	0.	0.
15	0.	0.	162.	-41.	0.	0.	0.
16	0.	0.	168.	-58.	0.	0.	0.
17	0.	0.	133.	-76.	0.	0.	0.
18	0.	0.	89.	-96.	0.	0.	0.
19	0.	0.	40.	-120.	0.	0.	0.
20	0.	0.	37.	-181.	0.	0.	0.
21	0.	0.	39.	-120.	0.	0.	0.
22	0.	0.	87.	-95.	0.	0.	0.
23	0.	0.	134.	-74.	0.	0.	0.
24	0.	0.	168.	-57.	0.	0.	0.
25	0.	0.	161.	-40.	0.	0.	0.
26	0.	0.	167.	-58.	0.	0.	0.
27	0.	0.	132.	-75.	0.	0.	0.
28	0.	0.	88.	-95.	0.	0.	0.
29	0.	0.	40.	-119.	0.	0.	0.
30	0.	0.	37.	-179.	0.	0.	0.
31	0.	0.	41.	-121.	0.	0.	0.
32	0.	0.	92.	-96.	0.	0.	0.
33	0.	0.	136.	-75.	0.	0.	0.
34	0.	0.	167.	-57.	0.	0.	0.
35	0.	0.	161.	-40.	0.	0.	0.
36	0.	0.	167.	-57.	0.	0.	0.
37	0.	0.	131.	-74.	0.	0.	0.
38	0.	0.	91.	-95.	0.	0.	0.
39	0.	0.	39.	-118.	0.	0.	0.
40	0.	0.	37.	-181.	0.	0.	0.
41	0.	0.	42.	-122.	0.	0.	0.
42	0.	0.	92.	-97.	0.	0.	0.
43	0.	0.	137.	-76.	0.	0.	0.
44	0.	0.	169.	-58.	0.	0.	0.
45	0.	0.	162.	-41.	0.	0.	0.
46	0.	0.	168.	-44.	0.	0.	0.
47	0.	0.	133.	-57.	0.	0.	0.
48	0.	0.	91.	-75.	0.	0.	0.
49	0.	0.	40.	-96.	0.	0.	0.

50	0.	0.	37.	-178.	0.	0.
51	0.	0.	33.	-125.	0.	0.
52	0.	0.	77.	-106.	0.	0.
53	0.	0.	110.	-87.	0.	0.
54	0.	0.	147.	-73.	0.	0.
55	0.	0.	162.	-60.	0.	0.
56	0.	0.	165.	-47.	0.	0.
57	0.	0.	159.	-35.	0.	0.
58	0.	0.	139.	-23.	0.	0.
59	0.	0.	90.	-12.	0.	0.
Top flg spl	0.	0.	0.	0.	0.	0.
Bot flg spl	0.	0.	0.	0.	0.	0.

\* 0.9(two des trks + lane)

Girder 3 : Rating Output : Service Moment  
 Tue Aug 29 18:35:02 2017

## Girder 3 Service Moment - k-ft - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane Max LL+I	Design Truck+ Lane Min LL+I	Tandem Truck+ Lane Max LL+I	Tandem Truck+ Lane Min LL+I	Fatigue Truck Range LL+I
0	0.0	0.	0.	0.	0.	0.	0.	0.	0.
1	5.6	72.	23.	18.	171.	-31.	166.	-19.	84.
2	11.3	122.	39.	30.	275.	-62.	276.	-37.	136.
3	16.9	139.	48.	36.	324.	-93.	331.	-56.	166.
4	22.6	151.	49.	37.	351.	-129.	352.	-77.	182.
5	28.2	130.	42.	32.	346.	-167.	349.	-99.	185.
6	33.9	86.	28.	21.	304.	-205.	309.	-122.	185.
7	39.5	19.	6.	5.	226.	-246.	246.	-146.	168.
8	45.1	-72.	-23.	-17.	137.	-303.	173.	-182.	153.
9	50.8	-187.	-60.	-46.	67.	-401.*	83.	-241.	125.
10	56.4	-326.	-104.	-79.	69.	-571.*	59.	-324.	173.
11	63.5	-160.	-51.	-39.	52.	-372.*	106.	-212.	118.
12	70.5	-32.	-10.	-8.	154.	-239.	191.	-143.	141.
13	77.6	55.	19.	14.	253.	-183.	264.	-110.	162.
14	84.6	113.	36.	28.	322.	-148.*	326.	-93.	175.
15	91.7	131.	42.	32.	337.	-125.*	336.	-82.	170.
16	98.7	112.	36.	27.	326.	-170.	332.	-106.	186.
17	105.8	57.	18.	14.	261.	-216.	277.	-129.	173.
18	112.8	-39.	-11.	-9.	165.	-280.	198.	-169.	154.
19	119.9	-166.	-53.	-40.	78.	-416.*	97.	-242.	123.
20	126.9	-333.	-106.	-81.	88.	-635.*	77.	-347.	171.
21	134.0	-166.	-53.	-41.	74.	-408.*	120.	-233.	132.
22	141.0	-37.	-12.	-9.	164.	-268.	202.	-161.	153.
23	148.1	52.	18.	13.	259.	-207.	270.	-124.	170.
24	155.1	110.	35.	27.	326.	-167.*	331.	-104.	182.
25	162.2	114.	41.	31.	340.	-127.*	339.	-86.	170.
26	169.2	110.	35.	27.	326.	-170.	332.	-107.	184.
27	176.3	56.	18.	14.	259.	-213.	276.	-129.	171.
28	183.3	-38.	-11.	-9.	163.	-277.	197.	-168.	153.
29	190.4	-164.	-53.	-40.	80.	-417.*	98.	-242.	122.
30	197.4	-331.	-105.	-80.	92.	-639.*	81.	-349.	170.
31	204.5	-165.	-53.	-40.	83.	-415.*	125.	-238.	133.
32	211.5	-51.	-12.	-9.	176.	-274.	217.	-166.	159.
33	218.6	56.	18.	14.	263.	-212.	275.	-128.	172.
34	225.6	110.	35.	27.	327.	-170.*	332.	-106.	183.
35	232.7	129.	41.	31.	340.	-127.*	340.	-85.	169.
36	239.7	110.	35.	27.	325.	-167.	331.	-105.	184.
37	246.8	40.	18.	13.	256.	-208.	271.	-125.	169.
38	253.8	-37.	-12.	-9.	163.	-271.	198.	-162.	155.
39	260.9	-166.	-53.	-41.	71.	-411.*	93.	-237.	121.
40	267.9	-333.	-106.	-81.	87.	-635.*	77.	-344.	171.
41	275.0	-166.	-53.	-40.	81.	-413.*	124.	-238.	135.
42	282.0	-51.	-12.	-9.	177.	-278.	218.	-167.	160.
43	289.1	56.	18.	14.	265.	-215.	277.	-129.	173.
44	296.1	112.	36.	27.	327.	-170.	332.	-105.	184.
45	303.2	131.	42.	32.	337.	-124.*	336.	-81.	170.
46	310.2	113.	36.	28.	321.	-147.	326.	-93.	176.
47	317.3	45.	19.	14.	251.	-182.	265.	-109.	159.
48	324.3	-32.	-10.	-8.	153.	-238.	187.	-143.	142.
49	331.4	-160.	-51.	-39.	49.	-376.*	78.	-213.	104.
50	338.4	-325.	-104.	-79.	69.	-573.*	58.	-320.	168.
51	344.1	-187.	-60.	-46.	67.	-401.*	94.	-237.	128.
52	349.7	-72.	-23.	-18.	139.	-300.	176.	-181.	152.
53	355.3	10.	6.	5.	231.	-245.	256.	-146.	171.
54	361.0	86.	28.	21.	304.	-205.	308.	-122.	184.
55	366.6	130.	42.	32.	346.	-167.	348.	-99.	187.
56	372.3	151.	49.	37.	352.	-128.	352.	-76.	183.
57	377.9	147.	48.	36.	324.	-93.	331.	-55.	166.
58	383.6	122.	39.	30.	275.	-62.	276.	-37.	136.
59	389.2	72.	23.	18.	171.	-31.	166.	-18.	84.
60	394.8	0.	0.	0.	0.	0.	0.	0.	0.

19.3	145.	49.	37.	338.	-75.	344.	-64.
38.6	32.	10.	8.	239.	-167.	257.	-142.
56.4	-326.	-104.	-79.	69.	-408.	59.	-324.
74.1	16.	6.	5.	208.	-144.	229.	-124.
91.8	131.	42.	32.	337.	-100.	336.	-82.
109.4	11.	4.	3.	210.	-170.	239.	-146.
126.9	-333.	-106.	-81.	88.	-453.	77.	-347.
144.9	16.	6.	4.	220.	-162.	241.	-138.
162.4	114.	41.	31.	340.	-109.	339.	-86.
179.9	11.	4.	3.	208.	-167.	237.	-144.
197.4	-331.	-105.	-80.	92.	-456.	81.	-349.
214.9	2.	4.	3.	218.	-166.	249.	-143.
232.4	129.	41.	31.	340.	-109.	340.	-85.
249.9	7.	6.	4.	218.	-164.	240.	-139.
267.9	-333.	-106.	-81.	87.	-452.	77.	-344.
285.4	2.	4.	3.	220.	-169.	251.	-145.
303.1	131.	42.	32.	337.	-103.	336.	-81.
320.8	8.	6.	5.	206.	-144.	229.	-124.
338.4	-325.	-104.	-79.	69.	-412.	58.	-320.
356.3	23.	10.	8.	244.	-166.	266.	-141.
375.5	151.	49.	37.	338.	-75.	344.	-64.

Sidewalk		Max		Min		Max		Min	
Max	Min	LL+I		LL+I		LL+I		LL+I	
		Fat	Trk	Fat	Trk	Prmt	Trk	Prmt	Trk

0	0.	0.	0.	0.	0.	0.	0.
1	0.	0.	76.	-9.	0.	0.	0.
2	0.	0.	119.	-18.	0.	0.	0.
3	0.	0.	140.	-26.	0.	0.	0.
4	0.	0.	145.	-36.	0.	0.	0.
5	0.	0.	137.	-47.	0.	0.	0.
6	0.	0.	127.	-58.	0.	0.	0.
7	0.	0.	98.	-70.	0.	0.	0.
8	0.	0.	68.	-85.	0.	0.	0.
9	0.	0.	25.	-100.	0.	0.	0.
10	0.	0.	28.	-145.	0.	0.	0.
11	0.	0.	38.	-80.	0.	0.	0.
12	0.	0.	79.	-62.	0.	0.	0.
13	0.	0.	114.	-47.	0.	0.	0.
14	0.	0.	140.	-35.	0.	0.	0.
15	0.	0.	140.	-30.	0.	0.	0.
16	0.	0.	141.	-45.	0.	0.	0.
17	0.	0.	112.	-60.	0.	0.	0.
18	0.	0.	77.	-78.	0.	0.	0.
19	0.	0.	25.	-98.	0.	0.	0.
20	0.	0.	28.	-143.	0.	0.	0.
21	0.	0.	37.	-95.	0.	0.	0.
22	0.	0.	78.	-75.	0.	0.	0.
23	0.	0.	112.	-58.	0.	0.	0.
24	0.	0.	139.	-43.	0.	0.	0.
25	0.	0.	140.	-30.	0.	0.	0.
26	0.	0.	140.	-45.	0.	0.	0.
27	0.	0.	112.	-60.	0.	0.	0.
28	0.	0.	76.	-77.	0.	0.	0.
29	0.	0.	24.	-97.	0.	0.	0.
30	0.	0.	28.	-141.	0.	0.	0.
31	0.	0.	38.	-95.	0.	0.	0.
32	0.	0.	83.	-76.	0.	0.	0.
33	0.	0.	113.	-59.	0.	0.	0.
34	0.	0.	139.	-44.	0.	0.	0.
35	0.	0.	140.	-29.	0.	0.	0.
36	0.	0.	140.	-44.	0.	0.	0.
37	0.	0.	111.	-59.	0.	0.	0.
38	0.	0.	79.	-76.	0.	0.	0.
39	0.	0.	24.	-97.	0.	0.	0.
40	0.	0.	28.	-143.	0.	0.	0.
41	0.	0.	38.	-97.	0.	0.	0.
42	0.	0.	84.	-76.	0.	0.	0.
43	0.	0.	114.	-59.	0.	0.	0.
44	0.	0.	140.	-44.	0.	0.	0.
45	0.	0.	140.	-30.	0.	0.	0.
46	0.	0.	141.	-35.	0.	0.	0.
47	0.	0.	112.	-47.	0.	0.	0.
48	0.	0.	80.	-62.	0.	0.	0.
49	0.	0.	25.	-80.	0.	0.	0.

50	0.	0.	27.	-141.	0.	0.
51	0.	0.	29.	-99.	0.	0.
52	0.	0.	68.	-83.	0.	0.
53	0.	0.	103.	-68.	0.	0.
54	0.	0.	127.	-57.	0.	0.
55	0.	0.	140.	-46.	0.	0.
56	0.	0.	147.	-36.	0.	0.
57	0.	0.	140.	-26.	0.	0.
58	0.	0.	118.	-17.	0.	0.
59	0.	0.	75.	-9.	0.	0.
Top flg spl	0.	0.	0.	0.	0.	0.
Bot flg spl	0.	0.	0.	0.	0.	0.

\* 0.9(two des trks + lane)

Girder 4 : Rating Output : Service Moment  
Tue Aug 29 18:35:13 2017

## Girder 4 Service Moment - k-ft - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane Max LL+I	Design Truck+ Lane Min LL+I	Tandem Truck+ Lane Max LL+I	Tandem Truck+ Lane Min LL+I	Fatigue Truck Range LL+I
0	0.0	0.	0.	0.	0.	0.	0.	0.	0.
1	5.6	71.	23.	18.	208.	-31.	210.	-22.	117.
2	11.3	118.	39.	30.	321.	-61.	332.	-44.	182.
3	16.9	134.	48.	36.	364.	-92.	381.	-66.	214.
4	22.6	146.	49.	37.	394.	-124.	408.	-90.	236.
5	28.2	126.	42.	32.	394.	-157.	413.	-114.	241.
6	33.9	83.	28.	21.	350.	-190.	367.	-138.	238.
7	39.5	18.	6.	5.	259.	-223.	289.	-163.	213.
8	45.1	-69.	-23.	-17.	170.	-262.	224.	-196.	202.
9	50.8	-181.	-60.	-46.	79.	-335.*	109.	-247.	162.
10	56.4	-315.	-104.	-79.	83.	-472.*	69.	-322.	220.
11	63.5	-154.	-51.	-39.	61.	-306.*	144.	-217.	157.
12	70.5	-31.	-10.	-8.	183.	-202.	235.	-152.	183.
13	77.6	54.	19.	14.	295.	-165.	320.	-122.	210.
14	84.6	109.	36.	28.	375.	-139.*	392.	-106.	231.
15	91.7	126.	42.	32.	378.	-126.*	394.	-96.	220.
16	98.7	108.	36.	27.	381.	-162.	399.	-121.	244.
17	105.8	55.	18.	14.	310.	-199.	335.	-146.	228.
18	112.8	-37.	-11.	-9.	196.	-244.	243.	-181.	200.
19	119.9	-160.	-53.	-40.	90.	-348.*	162.	-246.	180.
20	126.9	-323.	-106.	-81.	100.	-533.*	86.	-344.	224.
21	134.0	-160.	-53.	-41.	81.	-342.*	158.	-242.	177.
22	141.0	-36.	-12.	-9.	194.	-235.	246.	-175.	202.
23	148.1	50.	18.	13.	301.	-192.	326.	-141.	224.
24	155.1	106.	35.	27.	380.	-160.	397.	-120.	242.
25	162.2	109.	41.	31.	382.	-129.*	398.	-100.	219.
26	169.2	107.	35.	27.	381.	-163.	399.	-122.	242.
27	176.3	54.	18.	14.	308.	-197.	334.	-145.	226.
28	183.3	-37.	-11.	-9.	194.	-242.	242.	-180.	199.
29	190.4	-159.	-53.	-40.	92.	-349.*	163.	-246.	179.
30	197.4	-320.	-105.	-80.	104.	-537.*	90.	-346.	222.
31	204.5	-159.	-53.	-40.	93.	-348.*	163.	-247.	179.
32	211.5	-49.	-12.	-9.	208.	-241.	265.	-181.	210.
33	218.6	54.	18.	14.	306.	-197.	332.	-146.	226.
34	225.6	107.	35.	27.	380.	-163.	399.	-123.	243.
35	232.7	124.	41.	31.	382.	-129.*	398.	-100.	219.
36	239.7	106.	35.	27.	381.	-160.	398.	-120.	242.
37	246.8	39.	18.	13.	303.	-193.	328.	-141.	224.
38	253.8	-36.	-12.	-9.	195.	-236.	246.	-174.	202.
39	260.9	-160.	-53.	-41.	80.	-342.*	157.	-241.	177.
40	267.9	-323.	-106.	-81.	100.	-533.*	86.	-344.	224.
41	275.0	-160.	-53.	-40.	90.	-347.*	162.	-247.	181.
42	282.0	-50.	-12.	-9.	210.	-243.	267.	-182.	211.
43	289.1	55.	18.	14.	309.	-198.	334.	-146.	228.
44	296.1	108.	36.	27.	380.	-162.	398.	-121.	245.
45	303.2	126.	42.	32.	378.	-125.*	394.	-96.	220.
46	310.2	109.	36.	28.	376.	-138.	393.	-105.	230.
47	317.3	43.	19.	14.	297.	-164.	322.	-121.	209.
48	324.3	-30.	-10.	-8.	185.	-201.	235.	-151.	182.
49	331.4	-154.	-51.	-39.	62.	-307.*	143.	-216.	155.
50	338.4	-315.	-104.	-79.	83.	-469.*	69.	-322.	220.
51	344.1	-180.	-60.	-46.	79.	-334.*	127.	-247.	172.
52	349.7	-70.	-23.	-18.	168.	-262.	222.	-197.	202.
53	355.3	9.	6.	5.	264.	-222.	300.	-164.	219.
54	361.0	83.	28.	21.	347.	-189.	364.	-138.	237.
55	366.6	126.	42.	32.	394.	-157.	412.	-114.	241.
56	372.3	146.	49.	37.	393.	-124.	409.	-90.	233.
57	377.9	141.	48.	36.	366.	-92.	381.	-67.	213.
58	383.6	118.	39.	30.	322.	-61.	332.	-44.	181.
59	389.2	71.	23.	18.	208.	-31.	209.	-22.	116.
60	394.8	0.	0.	0.	0.	0.	0.	0.	0.

19.3	139.	49.	37.	378.	-91.	395.	-76.
38.6	30.	10.	8.	274.	-190.	301.	-158.
56.4	-315.	-104.	-79.	83.	-427.	69.	-322.
74.1	16.	6.	5.	244.	-160.	279.	-136.
91.8	126.	42.	32.	378.	-113.	394.	-96.
109.4	11.	4.	3.	250.	-190.	286.	-160.
126.9	-323.	-106.	-81.	100.	-481.	86.	-344.
144.9	15.	6.	4.	257.	-186.	292.	-155.
162.4	109.	41.	31.	382.	-126.	398.	-100.
179.9	11.	4.	3.	247.	-188.	285.	-159.
197.4	-320.	-105.	-80.	104.	-485.	90.	-346.
214.9	1.	4.	3.	257.	-188.	302.	-160.
232.4	124.	41.	31.	382.	-126.	398.	-100.
249.9	6.	6.	4.	258.	-185.	293.	-154.
267.9	-323.	-106.	-81.	100.	-481.	86.	-344.
285.4	1.	4.	3.	260.	-190.	304.	-161.
303.1	126.	42.	32.	378.	-118.	394.	-96.
320.8	7.	6.	5.	246.	-158.	281.	-134.
338.4	-315.	-104.	-79.	83.	-424.	69.	-322.
356.3	21.	10.	8.	278.	-190.	312.	-159.
375.5	145.	49.	37.	379.	-91.	396.	-76.

Sidewalk		Max		Min		Max		Min	
Max	Min	LL+I		LL+I		LL+I		LL+I	
		Fat	Trk	Fat	Trk	Prmt	Trk	Prmt	Trk

0	0.	0.	0.	0.	0.	0.	0.
1	0.	0.	105.	-12.	0.	0.	0.
2	0.	0.	159.	-24.	0.	0.	0.
3	0.	0.	179.	-35.	0.	0.	0.
4	0.	0.	188.	-48.	0.	0.	0.
5	0.	0.	180.	-61.	0.	0.	0.
6	0.	0.	164.	-74.	0.	0.	0.
7	0.	0.	125.	-88.	0.	0.	0.
8	0.	0.	95.	-107.	0.	0.	0.
9	0.	0.	36.	-126.	0.	0.	0.
10	0.	0.	37.	-183.	0.	0.	0.
11	0.	0.	57.	-99.	0.	0.	0.
12	0.	0.	106.	-77.	0.	0.	0.
13	0.	0.	151.	-59.	0.	0.	0.
14	0.	0.	186.	-45.	0.	0.	0.
15	0.	0.	179.	-41.	0.	0.	0.
16	0.	0.	185.	-59.	0.	0.	0.
17	0.	0.	152.	-76.	0.	0.	0.
18	0.	0.	103.	-98.	0.	0.	0.
19	0.	0.	58.	-122.	0.	0.	0.
20	0.	0.	37.	-186.	0.	0.	0.
21	0.	0.	57.	-121.	0.	0.	0.
22	0.	0.	106.	-96.	0.	0.	0.
23	0.	0.	149.	-75.	0.	0.	0.
24	0.	0.	185.	-57.	0.	0.	0.
25	0.	0.	178.	-41.	0.	0.	0.
26	0.	0.	184.	-58.	0.	0.	0.
27	0.	0.	151.	-76.	0.	0.	0.
28	0.	0.	102.	-97.	0.	0.	0.
29	0.	0.	57.	-122.	0.	0.	0.
30	0.	0.	38.	-184.	0.	0.	0.
31	0.	0.	57.	-122.	0.	0.	0.
32	0.	0.	113.	-97.	0.	0.	0.
33	0.	0.	150.	-76.	0.	0.	0.
34	0.	0.	185.	-58.	0.	0.	0.
35	0.	0.	178.	-41.	0.	0.	0.
36	0.	0.	184.	-57.	0.	0.	0.
37	0.	0.	149.	-75.	0.	0.	0.
38	0.	0.	106.	-96.	0.	0.	0.
39	0.	0.	56.	-121.	0.	0.	0.
40	0.	0.	37.	-186.	0.	0.	0.
41	0.	0.	58.	-122.	0.	0.	0.
42	0.	0.	114.	-98.	0.	0.	0.
43	0.	0.	151.	-77.	0.	0.	0.
44	0.	0.	186.	-59.	0.	0.	0.
45	0.	0.	178.	-41.	0.	0.	0.
46	0.	0.	186.	-44.	0.	0.	0.
47	0.	0.	151.	-58.	0.	0.	0.
48	0.	0.	107.	-75.	0.	0.	0.
49	0.	0.	57.	-98.	0.	0.	0.



50	0.	0.	37.	-183.	0.	0.
51	0.	0.	46.	-126.	0.	0.
52	0.	0.	95.	-107.	0.	0.
53	0.	0.	131.	-88.	0.	0.
54	0.	0.	163.	-74.	0.	0.
55	0.	0.	180.	-61.	0.	0.
56	0.	0.	185.	-48.	0.	0.
57	0.	0.	178.	-35.	0.	0.
58	0.	0.	158.	-24.	0.	0.
59	0.	0.	105.	-12.	0.	0.
Top flg spl	0.	0.	0.	0.	0.	0.
Bot flg spl	0.	0.	0.	0.	0.	0.

\* 0.9(two des trks + lane)

Girder 5 Service Moment - k-ft - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane Max LL+I	Design Truck+ Lane Min LL+I	Tandem Truck+ Lane Max LL+I	Tandem Truck+ Lane Min LL+I	Fatigue Truck Range LL+I
0	0.0	0.	0.	0.	0.	0.	0.	0.	0.
1	5.6	62.	23.	18.	166.	-36.	145.	-29.	96.
2	11.3	104.	39.	30.	289.	-72.	264.	-58.	165.
3	16.9	120.	48.	36.	367.	-108.	351.	-87.	216.
4	22.6	129.	49.	37.	395.	-139.	383.	-115.	242.
5	28.2	111.	42.	32.	386.	-173.	370.	-143.	246.
6	33.9	74.	28.	21.	349.	-206.	333.	-171.	253.
7	39.5	17.	6.	5.	281.	-239.	268.	-198.	240.
8	45.1	-62.	-23.	-17.	142.	-267.	145.	-221.	183.
9	50.8	-160.	-60.	-46.	101.	-321.*	90.	-261.	182.
10	56.4	-278.	-104.	-79.	110.	-449.*	91.	-321.	206.
11	63.5	-137.	-51.	-39.	66.	-280.*	96.	-211.	131.
12	70.5	-27.	-10.	-8.	179.	-197.	196.	-164.	178.
13	77.6	48.	19.	14.	306.	-174.	299.	-146.	225.
14	84.6	97.	36.	28.	384.	-163.*	365.	-130.	242.
15	91.7	113.	42.	32.	425.	-158.*	402.	-124.	253.
16	98.7	96.	36.	27.	393.	-181.	369.	-152.	263.
17	105.8	49.	18.	14.	324.	-216.	308.	-180.	253.
18	112.8	-33.	-11.	-9.	196.	-251.	204.	-208.	202.
19	119.9	-143.	-53.	-40.	108.	-339.*	98.	-261.	177.
20	126.9	-286.	-106.	-81.	125.	-521.*	107.	-344.	210.
21	134.0	-143.	-53.	-41.	96.	-334.*	111.	-252.	165.
22	141.0	-32.	-12.	-9.	190.	-241.	208.	-198.	206.
23	148.1	45.	18.	13.	316.	-210.	309.	-174.	248.
24	155.1	94.	35.	27.	390.	-187.*	372.	-151.	259.
25	162.2	99.	41.	31.	427.	-175.*	405.	-129.	250.
26	169.2	95.	35.	27.	393.	-183.	370.	-154.	261.
27	176.3	48.	18.	14.	321.	-215.	306.	-179.	250.
28	183.3	-33.	-11.	-9.	193.	-249.	202.	-206.	201.
29	190.4	-141.	-53.	-40.	111.	-340.*	100.	-262.	177.
30	197.4	-284.	-105.	-80.	131.	-525.*	112.	-347.	208.
31	204.5	-141.	-53.	-40.	112.	-341.*	118.	-258.	177.
32	211.5	-43.	-12.	-9.	202.	-248.	222.	-205.	212.
33	218.6	48.	18.	14.	320.	-215.	313.	-178.	249.
34	225.6	95.	35.	27.	391.	-189.*	375.	-154.	261.
35	232.7	111.	41.	31.	428.	-175.*	405.	-130.	251.
36	239.7	94.	35.	27.	391.	-180.	368.	-152.	260.
37	246.8	35.	18.	13.	318.	-210.	303.	-175.	250.
38	253.8	-32.	-12.	-9.	190.	-242.	201.	-200.	202.
39	260.9	-143.	-53.	-41.	94.	-333.*	92.	-256.	165.
40	267.9	-286.	-106.	-81.	126.	-521.*	107.	-341.	209.
41	275.0	-143.	-53.	-40.	109.	-339.*	117.	-258.	179.
42	282.0	-43.	-12.	-9.	201.	-251.	218.	-207.	211.
43	289.1	48.	18.	14.	323.	-217.	315.	-180.	252.
44	296.1	96.	36.	27.	391.	-185.*	374.	-152.	263.
45	303.2	113.	42.	32.	425.	-165.*	402.	-125.	254.
46	310.2	97.	36.	28.	386.	-153.	361.	-132.	243.
47	317.3	39.	19.	14.	309.	-175.	293.	-149.	227.
48	324.3	-27.	-10.	-8.	178.	-197.	189.	-167.	173.
49	331.4	-137.	-51.	-39.	65.	-287.*	77.	-215.	125.
50	338.4	-279.	-104.	-79.	110.	-445.*	92.	-315.	204.
51	344.1	-160.	-60.	-46.	101.	-319.*	92.	-257.	183.
52	349.7	-62.	-23.	-17.	162.	-266.	180.	-219.	201.
53	355.3	9.	6.	5.	283.	-239.	280.	-197.	242.
54	361.0	74.	28.	21.	352.	-207.	340.	-171.	253.
55	366.6	111.	42.	32.	381.	-174.	373.	-143.	246.
56	372.3	129.	49.	37.	397.	-140.	380.	-116.	247.
57	377.9	126.	48.	36.	367.	-108.	340.	-88.	220.
58	383.6	104.	39.	30.	283.	-72.	251.	-59.	165.
59	389.2	62.	23.	18.	160.	-36.	137.	-29.	94.
60	394.8	0.	0.	0.	0.	0.	0.	0.	0.

19.3	125.	49.	37.	385.	-120.	371.	-99.
38.6	27.	10.	8.	296.	-234.	283.	-194.
56.4	-278.	-104.	-79.	110.	-449.	91.	-321.
74.1	14.	6.	5.	249.	-184.	253.	-155.
91.8	113.	42.	32.	425.	-158.	402.	-124.
109.4	10.	4.	3.	253.	-228.	254.	-191.
126.9	-286.	-106.	-81.	125.	-521.	107.	-344.
144.9	14.	6.	4.	266.	-223.	269.	-185.
162.4	99.	41.	31.	427.	-175.	405.	-130.
179.9	10.	4.	3.	249.	-226.	252.	-190.
197.4	-284.	-105.	-80.	131.	-525.	112.	-347.
214.9	2.	4.	3.	256.	-224.	268.	-189.
232.4	111.	41.	31.	428.	-175.	405.	-130.
249.9	6.	6.	4.	268.	-225.	262.	-186.
267.9	-286.	-106.	-81.	126.	-521.	107.	-341.
285.4	2.	4.	3.	256.	-228.	265.	-191.
303.1	113.	42.	32.	425.	-165.	402.	-125.
320.8	7.	6.	5.	251.	-186.	246.	-157.
338.4	-279.	-104.	-79.	110.	-445.	92.	-315.
356.3	20.	10.	8.	298.	-234.	292.	-193.
375.5	130.	49.	37.	386.	-121.	362.	-100.

Sidewalk		Max		Min		Max		Min	
Max	Min	LL+I		LL+I		LL+I		LL+I	
		Fat	Trk	Fat	Trk	Prmt	Trk	Prmt	Trk

0	0.	0.	0.	0.	0.	0.	0.
1	0.	0.	79.	-16.	0.	0.	0.
2	0.	0.	132.	-33.	0.	0.	0.
3	0.	0.	166.	-49.	0.	0.	0.
4	0.	0.	177.	-65.	0.	0.	0.
5	0.	0.	165.	-81.	0.	0.	0.
6	0.	0.	156.	-97.	0.	0.	0.
7	0.	0.	128.	-112.	0.	0.	0.
8	0.	0.	59.	-124.	0.	0.	0.
9	0.	0.	45.	-137.	0.	0.	0.
10	0.	0.	50.	-156.	0.	0.	0.
11	0.	0.	33.	-98.	0.	0.	0.
12	0.	0.	91.	-87.	0.	0.	0.
13	0.	0.	151.	-74.	0.	0.	0.
14	0.	0.	183.	-59.	0.	0.	0.
15	0.	0.	194.	-59.	0.	0.	0.
16	0.	0.	185.	-79.	0.	0.	0.
17	0.	0.	154.	-99.	0.	0.	0.
18	0.	0.	85.	-117.	0.	0.	0.
19	0.	0.	44.	-134.	0.	0.	0.
20	0.	0.	50.	-160.	0.	0.	0.
21	0.	0.	33.	-132.	0.	0.	0.
22	0.	0.	90.	-116.	0.	0.	0.
23	0.	0.	150.	-98.	0.	0.	0.
24	0.	0.	182.	-78.	0.	0.	0.
25	0.	0.	193.	-58.	0.	0.	0.
26	0.	0.	184.	-78.	0.	0.	0.
27	0.	0.	152.	-98.	0.	0.	0.
28	0.	0.	84.	-116.	0.	0.	0.
29	0.	0.	44.	-133.	0.	0.	0.
30	0.	0.	51.	-157.	0.	0.	0.
31	0.	0.	44.	-133.	0.	0.	0.
32	0.	0.	94.	-117.	0.	0.	0.
33	0.	0.	150.	-99.	0.	0.	0.
34	0.	0.	182.	-79.	0.	0.	0.
35	0.	0.	193.	-59.	0.	0.	0.
36	0.	0.	183.	-77.	0.	0.	0.
37	0.	0.	153.	-97.	0.	0.	0.
38	0.	0.	87.	-115.	0.	0.	0.
39	0.	0.	33.	-132.	0.	0.	0.
40	0.	0.	51.	-158.	0.	0.	0.
41	0.	0.	44.	-134.	0.	0.	0.
42	0.	0.	92.	-118.	0.	0.	0.
43	0.	0.	152.	-100.	0.	0.	0.
44	0.	0.	183.	-80.	0.	0.	0.
45	0.	0.	194.	-60.	0.	0.	0.
46	0.	0.	184.	-59.	0.	0.	0.
47	0.	0.	154.	-73.	0.	0.	0.
48	0.	0.	87.	-86.	0.	0.	0.
49	0.	0.	28.	-97.	0.	0.	0.

50	0.	0.	51.	-154.	0.	0.
51	0.	0.	46.	-138.	0.	0.
52	0.	0.	75.	-126.	0.	0.
53	0.	0.	128.	-113.	0.	0.
54	0.	0.	155.	-98.	0.	0.
55	0.	0.	163.	-82.	0.	0.
56	0.	0.	181.	-67.	0.	0.
57	0.	0.	170.	-50.	0.	0.
58	0.	0.	131.	-34.	0.	0.
59	0.	0.	77.	-17.	0.	0.
Top flg spl	0.	0.	0.	0.	0.	0.
Bot flg spl	0.	0.	0.	0.	0.	0.

\* 0.9(two des trks + lane)

Girder 1 Service Shear - k - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane LL+I (+)	Design Truck+ Lane LL+I (-)	Tandem Truck+ Lane LL+I	Fatigue Truck Range LL+I
0	0.00	12.64	4.82	3.68	31.84	-6.21	27.14	19.12
1	5.64	9.23	3.49	2.66	27.78	-6.21	23.83	16.63
2	11.28	5.81	2.16	1.64	24.21	-6.37	21.37	14.63
3	16.93	-2.12	0.82	-0.63	20.54	-6.62	18.95	12.59
4	22.57	-1.52	-0.51	-0.39	11.25	-13.06	-14.35	10.16
5	28.21	-4.94	-1.84	-1.40	8.11	-16.90	-16.88	11.27
6	33.85	-8.35	-3.17	-2.42	5.82	-20.71	-19.13	12.17
7	39.49	-12.65	-4.50	-3.43	2.40	-29.84	-26.47	14.75
8	45.13	-15.64	-5.84	-4.45	2.44	-33.69	-28.27	16.96
9	50.78	-19.18	-7.17	-5.47	2.40	-36.49	-29.42	18.64
10	56.42L	-22.83	-8.50	-6.48	2.43	-39.08	-30.69	20.81
10	56.42R	22.38	8.30	6.33	39.87	-6.58	31.32	23.05
11	63.47	17.81	6.63	5.06	36.65	-6.61	29.37	21.20
12	70.52	13.40	4.97	3.79	33.75	-6.63	27.89	19.04
13	77.57	7.07	3.31	2.52	24.48	-6.92	20.78	14.08
14	84.62	4.44	1.64	1.25	20.97	-9.02	18.92	11.98
15	91.67	0.12	-0.04	0.03	16.81	-11.63	16.24	10.64
16	98.72	-4.59	-1.69	-1.29	8.97	-20.91	-18.76	11.89
17	105.77	-8.86	-3.35	-2.56	5.97	-24.21	-20.92	13.19
18	112.82	-15.14	-5.02	-3.83	5.81	-33.71	-28.09	18.47
19	119.87	-17.99	-6.68	-5.10	5.79	-36.52	-29.23	20.27
20	126.92L	-22.62	-8.35	-6.36	5.79	-39.33	-30.83	22.54
20	126.92R	22.57	8.34	6.36	40.70	-6.85	31.83	23.15
21	133.97	17.94	6.67	5.09	37.89	-6.85	29.60	21.13
22	141.02	13.50	5.01	3.82	33.97	-6.90	28.09	19.00
23	148.07	7.34	3.35	2.55	24.64	-7.27	20.92	14.00
24	155.12	4.55	1.68	1.28	21.22	-9.51	19.20	11.95
25	162.17	-3.24	0.02	-0.01	17.05	-12.09	16.48	10.68
26	169.22	-4.47	-1.65	-1.26	9.29	-21.21	-19.04	11.95
27	176.27	-8.74	-3.31	-2.53	6.93	-24.58	-21.26	13.98
28	183.32	-15.02	-4.98	-3.80	6.89	-33.99	-28.37	19.19
29	190.37	-17.87	-6.64	-5.07	6.87	-36.82	-29.54	21.00
30	197.42L	-22.49	-8.31	-6.33	6.87	-39.64	-31.13	23.27
30	197.42R	22.49	8.31	6.34	40.26	-7.08	31.84	23.14
31	204.47	17.87	6.65	5.07	36.88	-7.09	29.63	21.13
32	211.52	10.12	4.98	3.80	33.97	-7.13	28.12	19.00
33	218.57	8.75	3.32	2.53	24.79	-7.48	21.06	14.08
34	225.62	4.48	1.65	1.26	21.37	-9.60	19.35	12.10
35	232.67	-0.39	-0.01	-0.01	12.21	-17.01	-16.37	11.02
36	239.72	-4.54	-1.67	-1.28	9.23	-21.05	-18.89	11.79
37	246.77	-12.11	-3.34	-2.55	7.26	-24.44	-20.68	13.91
38	253.82	-13.50	-5.01	-3.82	6.90	-34.06	-28.45	19.22
39	260.87	-17.94	-6.67	-5.09	6.89	-36.78	-29.53	20.98
40	267.92L	-22.57	-8.33	-6.35	6.89	-39.62	-31.13	23.28
40	267.92R	22.62	8.35	6.36	40.42	-5.78	31.54	22.43
41	274.97	17.99	6.68	5.10	37.66	-5.79	29.32	20.42
42	282.02	10.24	5.02	3.83	35.58	-5.83	27.82	18.27
43	289.07	8.87	3.36	2.56	25.91	-6.32	20.64	13.35
44	296.12	4.60	1.69	1.29	23.05	-9.30	19.08	12.02
45	303.17	-0.20	0.03	-0.02	12.94	-16.63	-15.99	10.50
46	310.22	-4.43	-1.64	-1.25	10.22	-20.74	-18.56	11.82
47	317.27	-12.00	-3.30	-2.52	8.13	-24.23	-20.50	14.01
48	324.32	-13.38	-4.97	-3.79	6.61	-33.84	-28.23	19.28
49	331.37	-17.80	-6.64	-5.06	6.61	-37.32	-30.00	21.06
50	338.42L	-22.36	-8.30	-6.33	6.61	-39.23	-30.66	23.32
50	338.42R	22.82	8.50	6.48	38.77	-2.30	30.52	20.50
51	344.06	19.16	7.17	5.47	36.04	-2.30	28.62	18.50
52	349.70	15.63	5.84	4.45	32.95	-2.30	27.49	16.65
53	355.34	9.57	4.51	3.44	29.97	-2.30	25.76	14.49
54	360.98	8.36	3.18	2.42	20.59	-6.40	18.65	11.34
55	366.63	4.94	1.84	1.41	16.85	-8.66	16.64	10.57
56	372.27	1.53	0.51	0.39	12.71	-11.42	11.36	10.37
57	377.91	-3.50	-0.82	-0.63	6.83	-20.61	-19.41	12.67
58	383.55	-5.80	-2.15	-1.64	6.49	-24.58	-22.00	14.73
59	389.19	-9.22	-3.49	-2.66	6.45	-28.50	-24.54	16.77

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	16.18	0.00	0.00	0.00
1	13.68	0.00	0.00	0.00
2	11.68	0.00	0.00	0.00
3	9.64	0.00	0.00	0.00
4	-5.32	0.00	0.00	0.00
5	-8.00	0.00	0.00	0.00
6	-9.79	0.00	0.00	0.00
7	-13.66	0.00	0.00	0.00
8	-15.87	0.00	0.00	0.00
9	-17.55	0.00	0.00	0.00
10	-19.72	0.00	0.00	0.00
10R	19.93	0.00	0.00	0.00
11	18.08	0.00	0.00	0.00
12	15.92	0.00	0.00	0.00
13	11.03	0.00	0.00	0.00
14	8.93	0.00	0.00	0.00
15	6.65	0.00	0.00	0.00
16	-8.92	0.00	0.00	0.00
17	-10.89	0.00	0.00	0.00
18	-16.11	0.00	0.00	0.00
19	-17.91	0.00	0.00	0.00
20	-20.19	0.00	0.00	0.00
20R	20.05	0.00	0.00	0.00
21	18.03	0.00	0.00	0.00
22	15.90	0.00	0.00	0.00
23	10.95	0.00	0.00	0.00
24	8.90	0.00	0.00	0.00
25	6.61	0.00	0.00	0.00
26	-8.91	0.00	0.00	0.00
27	-10.94	0.00	0.00	0.00
28	-16.09	0.00	0.00	0.00
29	-17.90	0.00	0.00	0.00
30	-20.17	0.00	0.00	0.00
30R	20.05	0.00	0.00	0.00
31	18.04	0.00	0.00	0.00
32	15.90	0.00	0.00	0.00
33	11.05	0.00	0.00	0.00
34	9.07	0.00	0.00	0.00
35	-6.52	0.00	0.00	0.00
36	-8.74	0.00	0.00	0.00
37	-10.85	0.00	0.00	0.00
38	-16.11	0.00	0.00	0.00
39	-17.86	0.00	0.00	0.00
40	-20.17	0.00	0.00	0.00
40R	20.07	0.00	0.00	0.00
41	18.06	0.00	0.00	0.00
42	15.91	0.00	0.00	0.00
43	11.04	0.00	0.00	0.00
44	9.08	0.00	0.00	0.00
45	-6.57	0.00	0.00	0.00
46	-8.76	0.00	0.00	0.00
47	-10.95	0.00	0.00	0.00
48	-16.16	0.00	0.00	0.00
49	-17.94	0.00	0.00	0.00
50	-20.20	0.00	0.00	0.00
50R	19.56	0.00	0.00	0.00
51	17.56	0.00	0.00	0.00
52	15.71	0.00	0.00	0.00
53	13.55	0.00	0.00	0.00
54	8.86	0.00	0.00	0.00
55	7.17	0.00	0.00	0.00
56	-5.44	0.00	0.00	0.00
57	-9.72	0.00	0.00	0.00
58	-11.78	0.00	0.00	0.00
59	-13.82	0.00	0.00	0.00
60	-16.10	0.00	0.00	0.00

Girder 2 Service Shear - k - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane LL+I (+)	Design Truck+ Lane LL+I (-)	Tandem Truck+ Lane LL+I	Fatigue Truck Range LL+I
0	0.00	14.54	4.82	3.68	46.38	-4.36	45.43	25.87
1	5.64	10.48	3.49	2.66	36.07	-4.36	35.98	20.65
2	11.28	6.42	2.16	1.64	26.90	-6.25	27.71	17.74
3	16.93	-2.65	0.82	-0.63	19.35	-17.54	22.56	18.77
4	22.57	-1.45	-0.51	-0.39	23.18	-16.33	24.63	18.09
5	28.21	-5.51	-1.84	-1.40	15.31	-23.78	-25.79	18.16
6	33.85	-9.57	-3.17	-2.42	9.07	-32.13	-32.71	19.91
7	39.49	-13.97	-4.50	-3.43	14.20	-28.43	-27.74	20.92
8	45.13	-17.51	-5.84	-4.45	2.50	-36.36	-35.15	20.22
9	50.78	-21.69	-7.17	-5.46	1.39	-46.69	-44.57	24.07
10	56.42L	-25.99	-8.50	-6.48	1.39	-52.40	-46.80	26.20
10	56.42R	25.47	8.30	6.33	46.10	-4.57	39.88	22.45
11	63.47	20.10	6.63	5.06	39.86	-4.57	37.50	22.45
12	70.52	14.87	4.97	3.79	30.73	-4.57	29.43	17.82
13	77.57	7.94	3.30	2.52	30.99	-4.68	31.29	17.95
14	84.62	4.88	1.64	1.25	21.70	-6.47	22.52	13.86
15	91.67	-0.25	-0.05	-0.03	15.00	-13.46	16.41	13.42
16	98.72	-5.05	-1.69	-1.29	13.49	-28.68	-29.49	18.35
17	105.77	-10.12	-3.35	-2.56	7.26	-37.83	-36.67	21.08
18	112.82	-17.03	-5.02	-3.83	6.47	-22.09	-21.88	13.86
19	119.87	-20.32	-6.68	-5.09	4.12	-48.21	-45.29	26.06
20	126.92L	-25.76	-8.35	-6.36	4.12	-59.14	-51.94	28.92
20	126.92R	25.73	8.34	6.36	52.41	-4.81	50.55	28.58
21	133.97	20.30	6.67	5.09	40.28	-5.04	37.82	22.43
22	141.02	15.04	5.01	3.82	30.89	-4.81	29.59	17.85
23	148.07	8.27	3.34	2.55	31.43	-4.91	31.44	17.77
24	155.12	5.02	1.68	1.28	22.16	-6.66	22.93	13.78
25	162.17	-4.13	0.02	-0.01	15.29	-13.51	16.44	13.39
26	169.22	-4.92	-1.65	-1.26	13.75	-28.77	-29.59	18.29
27	176.27	-9.99	-3.31	-2.53	7.49	-38.05	-37.00	21.12
28	183.32	-16.91	-4.98	-3.79	6.68	-22.31	-22.11	13.85
29	190.37	-20.20	-6.64	-5.06	4.82	-48.45	-45.52	26.50
30	197.42L	-25.63	-8.31	-6.33	4.82	-59.39	-52.16	29.37
30	197.42R	25.64	8.31	6.34	52.62	-5.00	50.56	28.53
31	204.47	20.21	6.65	5.07	40.98	-5.22	37.98	22.46
32	211.52	10.89	4.98	3.80	30.70	-5.00	29.89	18.00
33	218.57	10.00	3.32	2.53	31.11	-5.10	31.41	17.75
34	225.62	4.92	1.65	1.26	22.00	-6.71	22.71	13.52
35	232.67	-0.26	-0.01	-0.01	23.00	-7.71	24.30	15.34
36	239.72	-5.01	-1.68	-1.28	13.39	-29.08	-29.93	18.34
37	246.77	-14.16	-3.34	-2.55	8.08	-21.67	-23.10	13.30
38	253.82	-15.03	-5.00	-3.82	4.84	-36.87	-35.79	21.12
39	260.87	-20.28	-6.67	-5.08	4.84	-48.35	-45.48	26.54
40	267.92L	-25.72	-8.33	-6.35	4.84	-59.20	-52.13	29.43
40	267.92R	25.77	8.35	6.37	58.49	-4.04	50.34	28.03
41	274.97	20.34	6.69	5.10	44.91	-4.27	37.75	21.95
42	282.02	11.01	5.02	3.83	33.42	-4.04	29.65	17.52
43	289.07	10.13	3.36	2.56	34.96	-4.14	31.26	17.27
44	296.12	5.05	1.69	1.29	24.99	-6.45	22.58	13.55
45	303.17	0.15	0.03	0.02	26.72	-8.54	24.78	14.62
46	310.22	-4.88	-1.64	-1.25	16.09	-28.56	-29.39	18.26
47	317.27	-14.02	-3.30	-2.52	9.92	-23.00	-22.64	13.22
48	324.32	-14.90	-4.96	-3.78	4.64	-36.30	-35.24	20.97
49	331.37	-20.12	-6.62	-5.05	4.64	-47.91	-45.19	26.51
50	338.42L	-25.50	-8.29	-6.32	4.64	-58.52	-51.62	29.37
50	338.42R	26.02	8.50	6.48	51.59	-1.41	49.59	26.75
51	344.06	21.72	7.16	5.46	41.16	-1.55	38.54	21.43
52	349.70	17.54	5.83	4.45	33.79	-1.41	31.92	17.86
53	355.34	10.23	4.50	3.43	29.53	-4.75	36.50	22.89
54	360.98	9.58	3.17	2.42	28.43	-3.48	37.68	21.39
55	366.63	5.52	1.84	1.40	22.05	-6.73	30.08	19.40
56	372.27	1.46	0.51	0.39	13.37	-26.13	-27.41	17.84
57	377.91	-3.72	-0.82	-0.63	19.32	-10.48	28.53	19.49
58	383.55	-6.41	-2.15	-1.64	4.56	-24.02	-31.37	18.24
59	389.19	-10.47	-3.49	-2.66	4.56	-32.20	-40.70	23.11

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	23.81	0.00	0.00	0.00
1	18.58	0.00	0.00	0.00
2	14.05	0.00	0.00	0.00
3	9.53	0.00	0.00	0.00
4	11.06	0.00	0.00	0.00
5	-12.21	0.00	0.00	0.00
6	-16.35	0.00	0.00	0.00
7	-13.34	0.00	0.00	0.00
8	-18.61	0.00	0.00	0.00
9	-23.41	0.00	0.00	0.00
10	-25.54	0.00	0.00	0.00
10R	20.28	0.00	0.00	0.00
11	20.28	0.00	0.00	0.00
12	15.64	0.00	0.00	0.00
13	15.73	0.00	0.00	0.00
14	10.26	0.00	0.00	0.00
15	-7.04	0.00	0.00	0.00
16	-13.89	0.00	0.00	0.00
17	-18.88	0.00	0.00	0.00
18	-9.94	0.00	0.00	0.00
19	-24.37	0.00	0.00	0.00
20	-27.23	0.00	0.00	0.00
20R	26.40	0.00	0.00	0.00
21	20.25	0.00	0.00	0.00
22	15.68	0.00	0.00	0.00
23	15.55	0.00	0.00	0.00
24	10.20	0.00	0.00	0.00
25	-6.94	0.00	0.00	0.00
26	-13.83	0.00	0.00	0.00
27	-18.92	0.00	0.00	0.00
28	-9.94	0.00	0.00	0.00
29	-24.35	0.00	0.00	0.00
30	-27.23	0.00	0.00	0.00
30R	26.38	0.00	0.00	0.00
31	20.31	0.00	0.00	0.00
32	15.85	0.00	0.00	0.00
33	15.54	0.00	0.00	0.00
34	9.92	0.00	0.00	0.00
35	11.40	0.00	0.00	0.00
36	-13.96	0.00	0.00	0.00
37	-9.91	0.00	0.00	0.00
38	-18.96	0.00	0.00	0.00
39	-24.38	0.00	0.00	0.00
40	-27.28	0.00	0.00	0.00
40R	26.39	0.00	0.00	0.00
41	20.31	0.00	0.00	0.00
42	15.89	0.00	0.00	0.00
43	15.59	0.00	0.00	0.00
44	9.96	0.00	0.00	0.00
45	10.69	0.00	0.00	0.00
46	-13.81	0.00	0.00	0.00
47	-9.81	0.00	0.00	0.00
48	-18.80	0.00	0.00	0.00
49	-24.34	0.00	0.00	0.00
50	-27.20	0.00	0.00	0.00
50R	26.09	0.00	0.00	0.00
51	20.77	0.00	0.00	0.00
52	17.20	0.00	0.00	0.00
53	19.53	0.00	0.00	0.00
54	19.03	0.00	0.00	0.00
55	14.86	0.00	0.00	0.00
56	-12.70	0.00	0.00	0.00
57	13.66	0.00	0.00	0.00
58	-16.18	0.00	0.00	0.00
59	-21.05	0.00	0.00	0.00
60	-24.37	0.00	0.00	0.00



Girder 3 : Rating Output : Service Shear  
 Tue Aug 29 18:36:23 2017

Girder 3 Service Shear - k - (load modifier not included)

Tenth	Loc	DC1	DC2	DW	Design	Tandem	Fatigue
Point					Truck+	Truck+	Truck
					Lane	Lane	Range
					LL+I	LL+I	LL+I
					(+)	(-)	
0	0.00	14.86	4.82	3.68	33.00	-3.31	30.88
1	5.64	10.80	3.49	2.66	26.84	-3.31	25.80
2	11.28	6.74	2.16	1.64	20.97	-4.10	21.11
3	16.93	-2.65	0.82	-0.63	15.87	-9.85	16.33
4	22.57	-1.68	-0.51	-0.39	14.91	-12.56	15.63
5	28.21	-5.74	-1.84	-1.40	10.36	-17.50	-18.55
6	33.85	-9.80	-3.17	-2.42	6.32	-22.55	-22.06
7	39.49	-14.69	-4.50	-3.43	7.07	-23.90	-22.96
8	45.13	-18.23	-5.84	-4.45	2.19	-29.23	-27.26
9	50.78	-22.41	-7.17	-5.47	1.19	-34.44	-31.08
10	56.42L	-26.71	-8.50	-6.48	1.19	-39.14	-33.70
10	56.42R	26.16	8.30	6.33	39.45	-3.26	34.78
11	63.47	20.79	6.63	5.06	34.39	-3.38	31.00
12	70.52	15.56	4.97	3.79	26.64	-3.70	25.63
13	77.57	8.18	3.30	2.52	25.79	-6.98	23.66
14	84.62	5.11	1.64	1.25	18.92	-11.98	19.46
15	91.67	0.06	-0.04	0.03	13.20	-17.36	-17.72
16	98.72	-5.28	-1.69	-1.29	11.76	-18.93	-18.99
17	105.77	-10.36	-3.35	-2.56	6.92	-24.81	-23.56
18	112.82	-17.67	-5.02	-3.83	5.22	-27.09	-25.52
19	119.87	-20.97	-6.68	-5.10	2.96	-34.28	-31.85
20	126.92L	-26.40	-8.35	-6.36	2.96	-40.46	-34.93
20	126.92R	26.36	8.34	6.36	40.35	-3.47	36.30
21	133.97	20.93	6.67	5.09	34.80	-3.59	31.24
22	141.02	15.68	5.01	3.82	27.05	-3.91	25.99
23	148.07	8.50	3.34	2.55	26.05	-7.10	23.94
24	155.12	5.24	1.68	1.28	19.34	-12.01	19.94
25	162.17	-3.96	0.02	-0.01	13.43	-17.42	-17.85
26	169.22	-5.15	-1.65	-1.26	11.96	-18.95	-18.98
27	176.27	-10.23	-3.31	-2.53	7.10	-24.98	-23.85
28	183.32	-17.55	-4.98	-3.80	5.43	-27.23	-25.67
29	190.37	-20.84	-6.64	-5.06	3.43	-34.43	-32.01
30	197.42L	-26.27	-8.31	-6.33	3.43	-40.61	-35.08
30	197.42R	26.28	8.31	6.34	40.66	-3.58	36.38
31	204.47	20.85	6.65	5.07	35.67	-3.68	31.08
32	211.52	11.52	4.98	3.80	27.00	-4.03	26.42
33	218.57	10.24	3.32	2.53	25.92	-6.81	23.85
34	225.62	5.16	1.65	1.26	19.20	-12.37	19.81
35	232.67	-0.30	-0.01	-0.01	18.41	-13.65	19.26
36	239.72	-5.23	-1.68	-1.28	11.65	-19.04	-19.07
37	246.77	-14.38	-3.34	-2.55	7.61	-25.09	-23.91
38	253.82	-15.67	-5.01	-3.82	4.98	-27.20	-25.63
39	260.87	-20.92	-6.67	-5.08	3.45	-33.78	-30.97
40	267.92L	-26.35	-8.33	-6.35	3.45	-40.40	-35.05
40	267.92R	26.41	8.35	6.37	44.60	-2.94	36.24
41	274.97	20.97	6.69	5.10	39.35	-3.06	30.92
42	282.02	11.65	5.02	3.83	29.82	-3.41	26.27
43	289.07	10.37	3.36	2.56	28.94	-6.63	23.71
44	296.12	5.29	1.69	1.29	22.05	-13.12	19.85
45	303.17	-0.12	0.03	-0.02	21.10	-13.05	18.73
46	310.22	-5.10	-1.63	-1.25	14.27	-18.65	-18.64
47	317.27	-14.25	-3.30	-2.52	9.83	-24.83	-23.75
48	324.32	-15.54	-4.97	-3.79	4.66	-26.81	-25.27
49	331.37	-20.76	-6.63	-5.05	3.24	-33.36	-30.64
50	338.42L	-26.14	-8.29	-6.32	3.24	-39.91	-34.69
50	338.42R	26.69	8.50	6.48	40.45	-1.19	35.74
51	344.06	22.39	7.17	5.47	34.41	-1.27	31.65
52	349.70	18.21	5.84	4.45	30.49	-2.09	27.79
53	355.34	10.90	4.51	3.44	23.60	-6.61	23.71
54	360.98	9.81	3.17	2.42	23.11	-6.48	22.57
55	366.63	5.75	1.84	1.40	17.86	-11.14	19.53
56	372.27	1.69	0.51	0.39	11.91	-14.71	-15.38
57	377.91	-4.04	-0.82	-0.63	9.44	-15.89	-16.40
58	383.55	-6.74	-2.16	-1.64	4.51	-20.88	-21.12
59	389.19	-10.80	-3.49	-2.66	3.40	-27.17	-26.56

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	16.54	0.00	0.00	0.00
1	13.42	0.00	0.00	0.00
2	10.63	0.00	0.00	0.00
3	7.72	0.00	0.00	0.00
4	6.77	0.00	0.00	0.00
5	-8.74	0.00	0.00	0.00
6	-11.06	0.00	0.00	0.00
7	-11.08	0.00	0.00	0.00
8	-14.21	0.00	0.00	0.00
9	-17.05	0.00	0.00	0.00
10	-19.03	0.00	0.00	0.00
10R	18.82	0.00	0.00	0.00
11	16.46	0.00	0.00	0.00
12	13.21	0.00	0.00	0.00
13	11.54	0.00	0.00	0.00
14	8.66	0.00	0.00	0.00
15	-7.41	0.00	0.00	0.00
16	-8.75	0.00	0.00	0.00
17	-11.80	0.00	0.00	0.00
18	-13.10	0.00	0.00	0.00
19	-17.25	0.00	0.00	0.00
20	-19.10	0.00	0.00	0.00
20R	19.22	0.00	0.00	0.00
21	16.50	0.00	0.00	0.00
22	13.23	0.00	0.00	0.00
23	11.60	0.00	0.00	0.00
24	8.82	0.00	0.00	0.00
25	-7.38	0.00	0.00	0.00
26	-8.73	0.00	0.00	0.00
27	-11.85	0.00	0.00	0.00
28	-13.09	0.00	0.00	0.00
29	-17.23	0.00	0.00	0.00
30	-19.08	0.00	0.00	0.00
30R	19.22	0.00	0.00	0.00
31	16.40	0.00	0.00	0.00
32	13.45	0.00	0.00	0.00
33	11.57	0.00	0.00	0.00
34	8.79	0.00	0.00	0.00
35	7.62	0.00	0.00	0.00
36	-8.79	0.00	0.00	0.00
37	-11.90	0.00	0.00	0.00
38	-13.12	0.00	0.00	0.00
39	-16.73	0.00	0.00	0.00
40	-19.08	0.00	0.00	0.00
40R	19.25	0.00	0.00	0.00
41	16.41	0.00	0.00	0.00
42	13.45	0.00	0.00	0.00
43	11.59	0.00	0.00	0.00
44	8.89	0.00	0.00	0.00
45	7.61	0.00	0.00	0.00
46	-8.74	0.00	0.00	0.00
47	-11.89	0.00	0.00	0.00
48	-13.00	0.00	0.00	0.00
49	-16.63	0.00	0.00	0.00
50	-19.03	0.00	0.00	0.00
50R	19.13	0.00	0.00	0.00
51	16.93	0.00	0.00	0.00
52	14.33	0.00	0.00	0.00
53	11.28	0.00	0.00	0.00
54	9.98	0.00	0.00	0.00
55	8.03	0.00	0.00	0.00
56	-7.63	0.00	0.00	0.00
57	-7.73	0.00	0.00	0.00
58	-10.57	0.00	0.00	0.00
59	-13.51	0.00	0.00	0.00
60	-16.66	0.00	0.00	0.00

Girder 4 Service Shear - k - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane LL+I (+)	Design Truck+ Lane LL+I (-)	Tandem Truck+ Lane LL+I	Fatigue Truck Range LL+I
0	0.00	14.54	4.82	3.67	46.39	-4.43	45.48	25.85
1	5.64	10.48	3.49	2.66	36.08	-4.43	36.06	20.66
2	11.28	6.42	2.16	1.64	26.87	-6.23	27.75	17.73
3	16.93	-2.65	0.82	-0.63	19.28	-17.58	22.66	18.92
4	22.57	-1.46	-0.51	-0.39	23.46	-16.36	24.82	18.05
5	28.21	-5.52	-1.84	-1.40	15.40	-23.66	-25.50	18.41
6	33.85	-9.58	-3.17	-2.42	9.65	-31.98	-32.51	19.76
7	39.49	-14.01	-4.50	-3.43	10.17	-28.74	-27.91	19.60
8	45.13	-17.55	-5.84	-4.45	1.41	-37.51	-36.14	19.40
9	50.78	-21.73	-7.17	-5.46	1.41	-46.54	-44.29	24.04
10	56.42L	-26.03	-8.50	-6.48	1.41	-54.65	-49.75	26.71
10	56.42R	25.51	8.30	6.33	53.56	-4.65	50.28	29.02
11	63.47	20.14	6.63	5.06	44.13	-4.65	41.27	24.31
12	70.52	14.92	4.97	3.79	33.09	-5.23	32.24	19.33
13	77.57	7.95	3.30	2.52	35.25	-9.21	33.74	19.55
14	84.62	4.89	1.64	1.25	24.65	-17.07	25.64	19.11
15	91.67	-0.25	-0.05	-0.03	16.55	-26.84	-28.85	19.81
16	98.72	-5.05	-1.69	-1.29	16.67	-24.74	-25.41	17.82
17	105.77	-10.12	-3.35	-2.56	8.18	-34.82	-34.62	19.77
18	112.82	-17.04	-5.02	-3.83	9.57	-33.21	-31.55	20.53
19	119.87	-20.33	-6.68	-5.10	4.13	-46.60	-45.36	25.42
20	126.92L	-25.77	-8.35	-6.36	4.13	-55.92	-50.61	27.81
20	126.92R	25.72	8.34	6.36	54.29	-4.87	50.85	29.09
21	133.97	20.29	6.67	5.09	44.72	-4.87	41.68	24.40
22	141.02	15.03	5.01	3.82	33.61	-5.44	32.74	19.42
23	148.07	8.28	3.34	2.55	35.63	-9.34	34.15	19.60
24	155.12	5.03	1.68	1.28	25.21	-17.05	26.06	18.96
25	162.17	-4.12	0.02	-0.01	16.87	-26.86	-28.93	19.83
26	169.22	-4.92	-1.65	-1.26	16.94	-24.75	-25.57	17.80
27	176.27	-9.99	-3.31	-2.53	8.42	-35.07	-35.01	19.86
28	183.32	-16.91	-4.98	-3.80	9.81	-33.44	-31.77	20.52
29	190.37	-20.20	-6.64	-5.06	4.86	-46.85	-45.61	25.91
30	197.42L	-25.63	-8.31	-6.33	4.86	-56.17	-50.84	28.31
30	197.42R	25.64	8.31	6.34	54.68	-5.01	50.89	29.05
31	204.47	20.21	6.65	5.07	45.94	-5.01	41.60	24.31
32	211.52	10.89	4.98	3.80	33.43	-5.61	33.32	19.77
33	218.57	10.00	3.32	2.53	35.27	-9.02	33.84	19.25
34	225.62	4.93	1.65	1.26	24.94	-17.78	25.78	19.52
35	232.67	-0.26	-0.01	-0.01	27.02	-17.00	27.39	18.72
36	239.72	-5.01	-1.68	-1.28	16.26	-25.00	-25.84	17.78
37	246.77	-14.15	-3.34	-2.55	9.20	-35.38	-35.32	21.48
38	253.82	-15.03	-5.01	-3.82	9.05	-33.59	-32.60	19.50
39	260.87	-20.29	-6.67	-5.08	4.88	-45.68	-43.67	24.98
40	267.92L	-25.72	-8.33	-6.35	4.88	-55.85	-50.84	28.37
40	267.92R	25.77	8.35	6.37	60.78	-4.07	50.67	28.53
41	274.97	20.34	6.69	5.10	50.87	-4.07	41.36	23.78
42	282.02	11.01	5.02	3.83	36.68	-4.68	33.07	19.82
43	289.07	10.13	3.36	2.56	39.67	-8.76	33.66	19.27
44	296.12	5.06	1.69	1.29	28.60	-19.16	25.63	19.51
45	303.17	0.15	0.03	0.02	31.18	-16.16	28.51	19.59
46	310.22	-4.88	-1.64	-1.25	19.84	-24.41	-25.38	17.79
47	317.27	-14.02	-3.30	-2.52	11.39	-34.96	-35.03	21.53
48	324.32	-14.90	-4.97	-3.79	9.02	-33.06	-32.10	19.45
49	331.37	-20.12	-6.63	-5.05	4.66	-45.09	-43.12	24.81
50	338.42L	-25.50	-8.29	-6.32	4.66	-55.13	-50.28	28.29
50	338.42R	26.02	8.50	6.48	53.52	-1.41	49.93	27.32
51	344.06	21.72	7.17	5.47	44.63	-1.41	42.45	23.45
52	349.70	17.54	5.84	4.45	37.92	-2.71	35.33	20.35
53	355.34	10.23	4.51	3.44	28.57	-12.24	28.88	20.58
54	360.98	9.58	3.17	2.42	32.14	-8.90	32.03	17.98
55	366.63	5.52	1.84	1.40	23.79	-16.45	25.50	18.42
56	372.27	1.46	0.51	0.39	15.58	-22.84	-24.95	18.16
57	377.91	-3.72	-0.82	-0.63	16.50	-19.33	-22.67	18.77
58	383.55	-6.41	-2.16	-1.64	5.76	-26.80	-27.63	17.69
59	389.19	-10.47	-3.49	-2.66	4.59	-36.58	-37.15	20.84

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	23.76	0.00	0.00	0.00
1	18.58	0.00	0.00	0.00
2	14.07	0.00	0.00	0.00
3	9.61	0.00	0.00	0.00
4	11.16	0.00	0.00	0.00
5	-12.34	0.00	0.00	0.00
6	-16.15	0.00	0.00	0.00
7	-13.29	0.00	0.00	0.00
8	-18.74	0.00	0.00	0.00
9	-23.38	0.00	0.00	0.00
10	-26.04	0.00	0.00	0.00
10R	26.82	0.00	0.00	0.00
11	22.11	0.00	0.00	0.00
12	17.00	0.00	0.00	0.00
13	16.68	0.00	0.00	0.00
14	11.70	0.00	0.00	0.00
15	-12.68	0.00	0.00	0.00
16	-12.24	0.00	0.00	0.00
17	-17.18	0.00	0.00	0.00
18	-16.36	0.00	0.00	0.00
19	-23.74	0.00	0.00	0.00
20	-26.14	0.00	0.00	0.00
20R	26.90	0.00	0.00	0.00
21	22.21	0.00	0.00	0.00
22	17.15	0.00	0.00	0.00
23	16.78	0.00	0.00	0.00
24	11.80	0.00	0.00	0.00
25	-12.60	0.00	0.00	0.00
26	-12.20	0.00	0.00	0.00
27	-17.26	0.00	0.00	0.00
28	-16.36	0.00	0.00	0.00
29	-23.74	0.00	0.00	0.00
30	-26.13	0.00	0.00	0.00
30R	26.87	0.00	0.00	0.00
31	22.13	0.00	0.00	0.00
32	17.45	0.00	0.00	0.00
33	16.61	0.00	0.00	0.00
34	11.71	0.00	0.00	0.00
35	11.73	0.00	0.00	0.00
36	-12.34	0.00	0.00	0.00
37	-17.44	0.00	0.00	0.00
38	-17.21	0.00	0.00	0.00
39	-22.80	0.00	0.00	0.00
40	-26.18	0.00	0.00	0.00
40R	26.89	0.00	0.00	0.00
41	22.14	0.00	0.00	0.00
42	17.49	0.00	0.00	0.00
43	16.64	0.00	0.00	0.00
44	11.74	0.00	0.00	0.00
45	12.66	0.00	0.00	0.00
46	-12.25	0.00	0.00	0.00
47	-17.43	0.00	0.00	0.00
48	-17.09	0.00	0.00	0.00
49	-22.61	0.00	0.00	0.00
50	-26.10	0.00	0.00	0.00
50R	26.65	0.00	0.00	0.00
51	22.78	0.00	0.00	0.00
52	18.73	0.00	0.00	0.00
53	13.94	0.00	0.00	0.00
54	14.64	0.00	0.00	0.00
55	10.62	0.00	0.00	0.00
56	-12.17	0.00	0.00	0.00
57	-9.51	0.00	0.00	0.00
58	-13.99	0.00	0.00	0.00
59	-18.75	0.00	0.00	0.00
60	-23.80	0.00	0.00	0.00

Girder 5 Service Shear - k - (load modifier not included)

Tenth	Loc	DC1	DC2	DW	Design	Tandem	Fatigue
Point					Truck+	Truck+	Truck
					Lane	Lane	Range
					LL+I	LL+I	LL+I
					(+)	(-)	
0	0.00	12.64	4.82	3.67	32.85	-6.19	27.88
1	5.64	9.23	3.49	2.66	28.82	-6.19	25.18
2	11.28	5.81	2.16	1.64	24.66	-6.29	22.35
3	16.93	-2.11	0.82	-0.63	20.17	-6.48	19.48
4	22.57	-1.52	-0.51	-0.39	11.77	-13.24	-14.02
5	28.21	-4.93	-1.84	-1.40	8.07	-16.72	-16.36
6	33.85	-8.35	-3.17	-2.42	6.96	-20.40	-18.70
7	39.49	-12.62	-4.50	-3.43	2.30	-29.64	-25.28
8	45.13	-15.61	-5.83	-4.45	2.29	-32.17	-26.00
9	50.78	-19.15	-7.17	-5.46	2.31	-34.94	-27.93
10	56.42L	-22.80	-8.50	-6.48	2.31	-37.55	-29.69
10	56.42R	22.36	8.30	6.33	40.95	-6.55	32.29
11	63.47	17.79	6.63	5.06	37.50	-6.55	30.26
12	70.52	13.37	4.97	3.79	34.01	-6.55	28.51
13	77.57	7.06	3.30	2.52	24.79	-6.95	21.36
14	84.62	4.43	1.64	1.25	20.84	-8.59	19.02
15	91.67	0.11	-0.05	0.03	16.64	-11.40	16.27
16	98.72	-4.60	-1.69	-1.29	9.73	-20.60	-18.29
17	105.77	-8.87	-3.36	-2.56	5.84	-23.96	-20.79
18	112.82	-15.13	-5.02	-3.83	5.88	-32.73	-26.76
19	119.87	-17.99	-6.68	-5.09	5.76	-35.86	-28.58
20	126.92L	-22.61	-8.35	-6.36	5.76	-39.21	-31.21
20	126.92R	22.58	8.34	6.36	41.29	-6.81	32.67
21	133.97	17.95	6.67	5.09	37.71	-6.81	30.50
22	141.02	13.51	5.01	3.82	34.28	-6.81	28.76
23	148.07	7.34	3.34	2.55	25.01	-7.23	21.54
24	155.12	4.55	1.68	1.28	21.18	-8.99	19.39
25	162.17	-3.24	0.01	-0.01	16.95	-11.80	16.58
26	169.22	-4.48	-1.65	-1.26	10.07	-20.87	-18.56
27	176.27	-8.75	-3.31	-2.53	6.90	-24.33	-21.12
28	183.32	-15.01	-4.98	-3.79	6.94	-33.00	-27.03
29	190.37	-17.86	-6.64	-5.06	6.82	-36.15	-28.88
30	197.42L	-22.49	-8.31	-6.33	6.82	-39.51	-31.51
30	197.42R	22.50	8.31	6.34	41.32	-7.11	32.66
31	204.47	17.87	6.65	5.07	37.91	-7.11	30.44
32	211.52	10.12	4.98	3.80	34.28	-7.11	28.86
33	218.57	8.75	3.32	2.53	25.15	-7.50	21.68
34	225.62	4.48	1.65	1.26	21.31	-9.08	19.53
35	232.67	-0.39	-0.01	-0.01	12.90	-16.96	-16.02
36	239.72	-4.54	-1.68	-1.28	10.01	-20.71	-18.44
37	246.77	-12.12	-3.34	-2.55	7.23	-24.20	-20.63
38	253.82	-13.49	-5.00	-3.81	6.84	-33.53	-27.65
39	260.87	-17.94	-6.67	-5.08	6.84	-35.86	-28.68
40	267.92L	-22.56	-8.33	-6.35	6.84	-39.44	-31.51
40	267.92R	22.62	8.35	6.37	41.54	-5.77	32.36
41	274.97	17.99	6.69	5.10	39.03	-5.77	30.13
42	282.02	10.24	5.02	3.83	36.09	-5.77	28.55
43	289.07	8.87	3.36	2.56	26.45	-6.15	21.24
44	296.12	4.60	1.69	1.29	23.12	-8.78	19.26
45	303.17	-0.20	0.03	-0.02	13.63	-16.62	-15.68
46	310.22	-4.43	-1.64	-1.25	11.23	-20.42	-18.18
47	317.27	-12.00	-3.30	-2.52	6.96	-24.00	-20.45
48	324.32	-13.37	-4.96	-3.78	6.58	-33.32	-27.41
49	331.37	-17.79	-6.63	-5.05	6.58	-35.64	-28.43
50	338.42L	-22.36	-8.29	-6.32	6.58	-38.98	-30.96
50	338.42R	22.82	8.50	6.48	39.85	-2.50	31.40
51	344.06	19.17	7.17	5.47	36.23	-2.47	29.52
52	349.70	15.64	5.84	4.45	34.04	-2.51	28.21
53	355.34	9.58	4.51	3.44	29.97	-2.46	26.57
54	360.98	8.35	3.17	2.42	20.82	-5.73	19.11
55	366.63	4.94	1.84	1.40	16.99	-8.74	16.98
56	372.27	1.53	0.51	0.39	12.61	-11.07	11.28
57	377.91	-3.50	-0.82	-0.63	6.89	-20.52	-18.93
58	383.55	-5.81	-2.16	-1.64	6.48	-24.20	-21.36
59	389.19	-9.22	-3.49	-2.66	6.41	-28.34	-24.31

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	16.24	0.00	0.00	0.00
1	14.05	0.00	0.00	0.00
2	11.72	0.00	0.00	0.00
3	9.45	0.00	0.00	0.00
4	5.13	0.00	0.00	0.00
5	-7.86	0.00	0.00	0.00
6	-9.57	0.00	0.00	0.00
7	-13.54	0.00	0.00	0.00
8	-15.37	0.00	0.00	0.00
9	-17.31	0.00	0.00	0.00
10	-19.53	0.00	0.00	0.00
10R	20.39	0.00	0.00	0.00
11	18.27	0.00	0.00	0.00
12	16.17	0.00	0.00	0.00
13	11.22	0.00	0.00	0.00
14	9.00	0.00	0.00	0.00
15	6.89	0.00	0.00	0.00
16	-8.82	0.00	0.00	0.00
17	-10.86	0.00	0.00	0.00
18	-15.64	0.00	0.00	0.00
19	-17.88	0.00	0.00	0.00
20	-19.92	0.00	0.00	0.00
20R	20.35	0.00	0.00	0.00
21	18.21	0.00	0.00	0.00
22	16.10	0.00	0.00	0.00
23	11.12	0.00	0.00	0.00
24	8.99	0.00	0.00	0.00
25	6.85	0.00	0.00	0.00
26	-8.80	0.00	0.00	0.00
27	-10.91	0.00	0.00	0.00
28	-15.62	0.00	0.00	0.00
29	-17.86	0.00	0.00	0.00
30	-19.91	0.00	0.00	0.00
30R	20.35	0.00	0.00	0.00
31	18.20	0.00	0.00	0.00
32	16.15	0.00	0.00	0.00
33	11.22	0.00	0.00	0.00
34	9.15	0.00	0.00	0.00
35	-6.47	0.00	0.00	0.00
36	-8.63	0.00	0.00	0.00
37	-10.80	0.00	0.00	0.00
38	-15.71	0.00	0.00	0.00
39	-17.64	0.00	0.00	0.00
40	-19.90	0.00	0.00	0.00
40R	20.37	0.00	0.00	0.00
41	18.22	0.00	0.00	0.00
42	16.15	0.00	0.00	0.00
43	11.15	0.00	0.00	0.00
44	9.17	0.00	0.00	0.00
45	-6.52	0.00	0.00	0.00
46	-8.65	0.00	0.00	0.00
47	-10.89	0.00	0.00	0.00
48	-15.77	0.00	0.00	0.00
49	-17.69	0.00	0.00	0.00
50	-19.90	0.00	0.00	0.00
50R	19.73	0.00	0.00	0.00
51	17.70	0.00	0.00	0.00
52	15.81	0.00	0.00	0.00
53	13.64	0.00	0.00	0.00
54	8.99	0.00	0.00	0.00
55	7.19	0.00	0.00	0.00
56	-5.41	0.00	0.00	0.00
57	-9.62	0.00	0.00	0.00
58	-11.60	0.00	0.00	0.00
59	-13.59	0.00	0.00	0.00
60	-16.18	0.00	0.00	0.00

Girder 1 : Rating Output : Service Shear  
 Tue Aug 29 18:36:59 2017

Girder 1 Service Shear - k - (load modifier not included)

Tenth	Loc	DC1	DC2	DW	Design	Tandem	Fatigue
Point					Truck+	Truck+	Truck
					Lane	Lane	Range
					LL+I	LL+I	LL+I
					(+)	(-)	
0	0.00	12.64	4.82	3.68	31.84	-6.21	27.14
1	5.64	9.23	3.49	2.66	27.78	-6.21	23.83
2	11.28	5.81	2.16	1.64	24.21	-6.37	21.37
3	16.93	-2.12	0.82	-0.63	20.54	-6.62	18.95
4	22.57	-1.52	-0.51	-0.39	11.25	-13.06	-14.35
5	28.21	-4.94	-1.84	-1.40	8.11	-16.90	-16.88
6	33.85	-8.35	-3.17	-2.42	5.82	-20.71	-19.13
7	39.49	-12.65	-4.50	-3.43	2.40	-29.84	-26.47
8	45.13	-15.64	-5.84	-4.45	2.44	-33.69	-28.27
9	50.78	-19.18	-7.17	-5.47	2.40	-36.49	-29.42
10	56.42L	-22.83	-8.50	-6.48	2.43	-39.08	-30.69
10	56.42R	22.38	8.30	6.33	39.87	-6.58	31.32
11	63.47	17.81	6.63	5.06	36.65	-6.61	29.37
12	70.52	13.40	4.97	3.79	33.75	-6.63	27.89
13	77.57	7.07	3.31	2.52	24.48	-6.92	20.78
14	84.62	4.44	1.64	1.25	20.97	-9.02	18.92
15	91.67	0.12	-0.04	0.03	16.81	-11.63	16.24
16	98.72	-4.59	-1.69	-1.29	8.97	-20.91	-18.76
17	105.77	-8.86	-3.35	-2.56	5.97	-24.21	-20.92
18	112.82	-15.14	-5.02	-3.83	5.81	-33.71	-28.09
19	119.87	-17.99	-6.68	-5.10	5.79	-36.52	-29.23
20	126.92L	-22.62	-8.35	-6.36	5.79	-39.33	-30.83
20	126.92R	22.57	8.34	6.36	40.70	-6.85	31.83
21	133.97	17.94	6.67	5.09	37.89	-6.85	29.60
22	141.02	13.50	5.01	3.82	33.97	-6.90	28.09
23	148.07	7.34	3.35	2.55	24.64	-7.27	20.92
24	155.12	4.55	1.68	1.28	21.22	-9.51	19.20
25	162.17	-3.24	0.02	-0.01	17.05	-12.09	16.48
26	169.22	-4.47	-1.65	-1.26	9.29	-21.21	-19.04
27	176.27	-8.74	-3.31	-2.53	6.93	-24.58	-21.26
28	183.32	-15.02	-4.98	-3.80	6.89	-33.99	-28.37
29	190.37	-17.87	-6.64	-5.07	6.87	-36.82	-29.54
30	197.42L	-22.49	-8.31	-6.33	6.87	-39.64	-31.13
30	197.42R	22.49	8.31	6.34	40.26	-7.08	31.84
31	204.47	17.87	6.65	5.07	36.88	-7.09	29.63
32	211.52	10.12	4.98	3.80	33.97	-7.13	28.12
33	218.57	8.75	3.32	2.53	24.79	-7.48	21.06
34	225.62	4.48	1.65	1.26	21.37	-9.60	19.35
35	232.67	-0.39	-0.01	-0.01	12.21	-17.01	-16.37
36	239.72	-4.54	-1.67	-1.28	9.23	-21.05	-18.89
37	246.77	-12.11	-3.34	-2.55	7.26	-24.44	-20.68
38	253.82	-13.50	-5.01	-3.82	6.90	-34.06	-28.45
39	260.87	-17.94	-6.67	-5.09	6.89	-36.78	-29.53
40	267.92L	-22.57	-8.33	-6.35	6.89	-39.62	-31.13
40	267.92R	22.62	8.35	6.36	40.42	-5.78	31.54
41	274.97	17.99	6.68	5.10	37.66	-5.79	29.32
42	282.02	10.24	5.02	3.83	35.58	-5.83	27.82
43	289.07	8.87	3.36	2.56	25.91	-6.32	20.64
44	296.12	4.60	1.69	1.29	23.05	-9.30	19.08
45	303.17	-0.20	0.03	-0.02	12.94	-16.63	-15.99
46	310.22	-4.43	-1.64	-1.25	10.22	-20.74	-18.56
47	317.27	-12.00	-3.30	-2.52	8.13	-24.23	-20.50
48	324.32	-13.38	-4.97	-3.79	6.61	-33.84	-28.23
49	331.37	-17.80	-6.64	-5.06	6.61	-37.32	-30.00
50	338.42L	-22.36	-8.30	-6.33	6.61	-39.23	-30.66
50	338.42R	22.82	8.50	6.48	38.77	-2.30	30.52
51	344.06	19.16	7.17	5.47	36.04	-2.30	28.62
52	349.70	15.63	5.84	4.45	32.95	-2.30	27.49
53	355.34	9.57	4.51	3.44	29.97	-2.30	25.76
54	360.98	8.36	3.18	2.42	20.59	-6.40	18.65
55	366.63	4.94	1.84	1.41	16.85	-8.66	16.64
56	372.27	1.53	0.51	0.39	12.71	-11.42	11.36
57	377.91	-3.50	-0.82	-0.63	6.83	-20.61	-19.41
58	383.55	-5.80	-2.15	-1.64	6.49	-24.58	-22.00
59	389.19	-9.22	-3.49	-2.66	6.45	-28.50	-24.54

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	16.18	0.00	0.00	0.00
1	13.68	0.00	0.00	0.00
2	11.68	0.00	0.00	0.00
3	9.64	0.00	0.00	0.00
4	-5.32	0.00	0.00	0.00
5	-8.00	0.00	0.00	0.00
6	-9.79	0.00	0.00	0.00
7	-13.66	0.00	0.00	0.00
8	-15.87	0.00	0.00	0.00
9	-17.55	0.00	0.00	0.00
10	-19.72	0.00	0.00	0.00
10R	19.93	0.00	0.00	0.00
11	18.08	0.00	0.00	0.00
12	15.92	0.00	0.00	0.00
13	11.03	0.00	0.00	0.00
14	8.93	0.00	0.00	0.00
15	6.65	0.00	0.00	0.00
16	-8.92	0.00	0.00	0.00
17	-10.89	0.00	0.00	0.00
18	-16.11	0.00	0.00	0.00
19	-17.91	0.00	0.00	0.00
20	-20.19	0.00	0.00	0.00
20R	20.05	0.00	0.00	0.00
21	18.03	0.00	0.00	0.00
22	15.90	0.00	0.00	0.00
23	10.95	0.00	0.00	0.00
24	8.90	0.00	0.00	0.00
25	6.61	0.00	0.00	0.00
26	-8.91	0.00	0.00	0.00
27	-10.94	0.00	0.00	0.00
28	-16.09	0.00	0.00	0.00
29	-17.90	0.00	0.00	0.00
30	-20.17	0.00	0.00	0.00
30R	20.05	0.00	0.00	0.00
31	18.04	0.00	0.00	0.00
32	15.90	0.00	0.00	0.00
33	11.05	0.00	0.00	0.00
34	9.07	0.00	0.00	0.00
35	-6.52	0.00	0.00	0.00
36	-8.74	0.00	0.00	0.00
37	-10.85	0.00	0.00	0.00
38	-16.11	0.00	0.00	0.00
39	-17.86	0.00	0.00	0.00
40	-20.17	0.00	0.00	0.00
40R	20.07	0.00	0.00	0.00
41	18.06	0.00	0.00	0.00
42	15.91	0.00	0.00	0.00
43	11.04	0.00	0.00	0.00
44	9.08	0.00	0.00	0.00
45	-6.57	0.00	0.00	0.00
46	-8.76	0.00	0.00	0.00
47	-10.95	0.00	0.00	0.00
48	-16.16	0.00	0.00	0.00
49	-17.94	0.00	0.00	0.00
50	-20.20	0.00	0.00	0.00
50R	19.56	0.00	0.00	0.00
51	17.56	0.00	0.00	0.00
52	15.71	0.00	0.00	0.00
53	13.55	0.00	0.00	0.00
54	8.86	0.00	0.00	0.00
55	7.17	0.00	0.00	0.00
56	-5.44	0.00	0.00	0.00
57	-9.72	0.00	0.00	0.00
58	-11.78	0.00	0.00	0.00
59	-13.82	0.00	0.00	0.00
60	-16.10	0.00	0.00	0.00



Girder 2 Service Shear - k - (load modifier not included)

Tenth Point	Loc	DC1	DC2	DW	Design Truck+ Lane LL+I (+)	Design Truck+ Lane LL+I (-)	Tandem Truck+ Lane LL+I	Fatigue Truck Range LL+I
0	0.00	14.54	4.82	3.68	46.38	-4.36	45.43	25.87
1	5.64	10.48	3.49	2.66	36.07	-4.36	35.98	20.65
2	11.28	6.42	2.16	1.64	26.90	-6.25	27.71	17.74
3	16.93	-2.65	0.82	-0.63	19.35	-17.54	22.56	18.77
4	22.57	-1.45	-0.51	-0.39	23.18	-16.33	24.63	18.09
5	28.21	-5.51	-1.84	-1.40	15.31	-23.78	-25.79	18.16
6	33.85	-9.57	-3.17	-2.42	9.07	-32.13	-32.71	19.91
7	39.49	-13.97	-4.50	-3.43	14.20	-28.43	-27.74	20.92
8	45.13	-17.51	-5.84	-4.45	2.50	-36.36	-35.15	20.22
9	50.78	-21.69	-7.17	-5.46	1.39	-46.69	-44.57	24.07
10	56.42L	-25.99	-8.50	-6.48	1.39	-52.40	-46.80	26.20
10	56.42R	25.47	8.30	6.33	46.10	-4.57	39.88	22.45
11	63.47	20.10	6.63	5.06	39.86	-4.57	37.50	22.45
12	70.52	14.87	4.97	3.79	30.73	-4.57	29.43	17.82
13	77.57	7.94	3.30	2.52	30.99	-4.68	31.29	17.95
14	84.62	4.88	1.64	1.25	21.70	-6.47	22.52	13.86
15	91.67	-0.25	-0.05	-0.03	15.00	-13.46	16.41	13.42
16	98.72	-5.05	-1.69	-1.29	13.49	-28.68	-29.49	18.35
17	105.77	-10.12	-3.35	-2.56	7.26	-37.83	-36.67	21.08
18	112.82	-17.03	-5.02	-3.83	6.47	-22.09	-21.88	13.86
19	119.87	-20.32	-6.68	-5.09	4.12	-48.21	-45.29	26.06
20	126.92L	-25.76	-8.35	-6.36	4.12	-59.14	-51.94	28.92
20	126.92R	25.73	8.34	6.36	52.41	-4.81	50.55	28.58
21	133.97	20.30	6.67	5.09	40.28	-5.04	37.82	22.43
22	141.02	15.04	5.01	3.82	30.89	-4.81	29.59	17.85
23	148.07	8.27	3.34	2.55	31.43	-4.91	31.44	17.77
24	155.12	5.02	1.68	1.28	22.16	-6.66	22.93	13.78
25	162.17	-4.13	0.02	-0.01	15.29	-13.51	16.44	13.39
26	169.22	-4.92	-1.65	-1.26	13.75	-28.77	-29.59	18.29
27	176.27	-9.99	-3.31	-2.53	7.49	-38.05	-37.00	21.12
28	183.32	-16.91	-4.98	-3.79	6.68	-22.31	-22.11	13.85
29	190.37	-20.20	-6.64	-5.06	4.82	-48.45	-45.52	26.50
30	197.42L	-25.63	-8.31	-6.33	4.82	-59.39	-52.16	29.37
30	197.42R	25.64	8.31	6.34	52.62	-5.00	50.56	28.53
31	204.47	20.21	6.65	5.07	40.98	-5.22	37.98	22.46
32	211.52	10.89	4.98	3.80	30.70	-5.00	29.89	18.00
33	218.57	10.00	3.32	2.53	31.11	-5.10	31.41	17.75
34	225.62	4.92	1.65	1.26	22.00	-6.71	22.71	13.52
35	232.67	-0.26	-0.01	-0.01	23.00	-7.71	24.30	15.34
36	239.72	-5.01	-1.68	-1.28	13.39	-29.08	-29.93	18.34
37	246.77	-14.16	-3.34	-2.55	8.08	-21.67	-23.10	13.30
38	253.82	-15.03	-5.00	-3.82	4.84	-36.87	-35.79	21.12
39	260.87	-20.28	-6.67	-5.08	4.84	-48.35	-45.48	26.54
40	267.92L	-25.72	-8.33	-6.35	4.84	-59.20	-52.13	29.43
40	267.92R	25.77	8.35	6.37	58.49	-4.04	50.34	28.03
41	274.97	20.34	6.69	5.10	44.91	-4.27	37.75	21.95
42	282.02	11.01	5.02	3.83	33.42	-4.04	29.65	17.52
43	289.07	10.13	3.36	2.56	34.96	-4.14	31.26	17.27
44	296.12	5.05	1.69	1.29	24.99	-6.45	22.58	13.55
45	303.17	0.15	0.03	0.02	26.72	-8.54	24.78	14.62
46	310.22	-4.88	-1.64	-1.25	16.09	-28.56	-29.39	18.26
47	317.27	-14.02	-3.30	-2.52	9.92	-23.00	-22.64	13.22
48	324.32	-14.90	-4.96	-3.78	4.64	-36.30	-35.24	20.97
49	331.37	-20.12	-6.62	-5.05	4.64	-47.91	-45.19	26.51
50	338.42L	-25.50	-8.29	-6.32	4.64	-58.52	-51.62	29.37
50	338.42R	26.02	8.50	6.48	51.59	-1.41	49.59	26.75
51	344.06	21.72	7.16	5.46	41.16	-1.55	38.54	21.43
52	349.70	17.54	5.83	4.45	33.79	-1.41	31.92	17.86
53	355.34	10.23	4.50	3.43	29.53	-4.75	36.50	22.89
54	360.98	9.58	3.17	2.42	28.43	-3.48	37.68	21.39
55	366.63	5.52	1.84	1.40	22.05	-6.73	30.08	19.40
56	372.27	1.46	0.51	0.39	13.37	-26.13	-27.41	17.84
57	377.91	-3.72	-0.82	-0.63	19.32	-10.48	28.53	19.49
58	383.55	-6.41	-2.15	-1.64	4.56	-24.02	-31.37	18.24
59	389.19	-10.47	-3.49	-2.66	4.56	-32.20	-40.70	23.11

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	23.81	0.00	0.00	0.00
1	18.58	0.00	0.00	0.00
2	14.05	0.00	0.00	0.00
3	9.53	0.00	0.00	0.00
4	11.06	0.00	0.00	0.00
5	-12.21	0.00	0.00	0.00
6	-16.35	0.00	0.00	0.00
7	-13.34	0.00	0.00	0.00
8	-18.61	0.00	0.00	0.00
9	-23.41	0.00	0.00	0.00
10	-25.54	0.00	0.00	0.00
10R	20.28	0.00	0.00	0.00
11	20.28	0.00	0.00	0.00
12	15.64	0.00	0.00	0.00
13	15.73	0.00	0.00	0.00
14	10.26	0.00	0.00	0.00
15	-7.04	0.00	0.00	0.00
16	-13.89	0.00	0.00	0.00
17	-18.88	0.00	0.00	0.00
18	-9.94	0.00	0.00	0.00
19	-24.37	0.00	0.00	0.00
20	-27.23	0.00	0.00	0.00
20R	26.40	0.00	0.00	0.00
21	20.25	0.00	0.00	0.00
22	15.68	0.00	0.00	0.00
23	15.55	0.00	0.00	0.00
24	10.20	0.00	0.00	0.00
25	-6.94	0.00	0.00	0.00
26	-13.83	0.00	0.00	0.00
27	-18.92	0.00	0.00	0.00
28	-9.94	0.00	0.00	0.00
29	-24.35	0.00	0.00	0.00
30	-27.23	0.00	0.00	0.00
30R	26.38	0.00	0.00	0.00
31	20.31	0.00	0.00	0.00
32	15.85	0.00	0.00	0.00
33	15.54	0.00	0.00	0.00
34	9.92	0.00	0.00	0.00
35	11.40	0.00	0.00	0.00
36	-13.96	0.00	0.00	0.00
37	-9.91	0.00	0.00	0.00
38	-18.96	0.00	0.00	0.00
39	-24.38	0.00	0.00	0.00
40	-27.28	0.00	0.00	0.00
40R	26.39	0.00	0.00	0.00
41	20.31	0.00	0.00	0.00
42	15.89	0.00	0.00	0.00
43	15.59	0.00	0.00	0.00
44	9.96	0.00	0.00	0.00
45	10.69	0.00	0.00	0.00
46	-13.81	0.00	0.00	0.00
47	-9.81	0.00	0.00	0.00
48	-18.80	0.00	0.00	0.00
49	-24.34	0.00	0.00	0.00
50	-27.20	0.00	0.00	0.00
50R	26.09	0.00	0.00	0.00
51	20.77	0.00	0.00	0.00
52	17.20	0.00	0.00	0.00
53	19.53	0.00	0.00	0.00
54	19.03	0.00	0.00	0.00
55	14.86	0.00	0.00	0.00
56	-12.70	0.00	0.00	0.00
57	13.66	0.00	0.00	0.00
58	-16.18	0.00	0.00	0.00
59	-21.05	0.00	0.00	0.00
60	-24.37	0.00	0.00	0.00

Girder 3 Service Shear - k - (load modifier not included)

Tenth	Loc	DC1	DC2	DW	Design	Tandem	Fatigue
Point					Truck+	Truck+	Truck
					Lane	Lane	Range
					LL+I	LL+I	LL+I
					(+)	(-)	
0	0.00	14.86	4.82	3.68	33.00	-3.31	18.10
1	5.64	10.80	3.49	2.66	26.84	-3.31	14.98
2	11.28	6.74	2.16	1.64	20.97	-4.10	12.98
3	16.93	-2.65	0.82	-0.63	15.87	-9.85	12.42
4	22.57	-1.68	-0.51	-0.39	14.91	-12.56	12.26
5	28.21	-5.74	-1.84	-1.40	10.36	-17.50	12.91
6	33.85	-9.80	-3.17	-2.42	6.32	-22.55	13.62
7	39.49	-14.69	-4.50	-3.43	7.07	-23.90	14.46
8	45.13	-18.23	-5.84	-4.45	2.19	-29.23	15.12
9	50.78	-22.41	-7.17	-5.47	1.19	-34.44	17.61
10	56.42L	-26.71	-8.50	-6.48	1.19	-39.14	19.59
10	56.42R	26.16	8.30	6.33	39.45	-3.26	20.35
11	63.47	20.79	6.63	5.06	34.39	-3.38	17.99
12	70.52	15.56	4.97	3.79	26.64	-3.70	14.77
13	77.57	8.18	3.30	2.52	25.79	-6.98	13.90
14	84.62	5.11	1.64	1.25	18.92	-11.98	13.57
15	91.67	0.06	-0.04	0.03	13.20	-17.36	12.74
16	98.72	-5.28	-1.69	-1.29	11.76	-18.93	12.76
17	105.77	-10.36	-3.35	-2.56	6.92	-24.81	13.73
18	112.82	-17.67	-5.02	-3.83	5.22	-27.09	15.74
19	119.87	-20.97	-6.68	-5.10	2.96	-34.28	18.42
20	126.92L	-26.40	-8.35	-6.36	2.96	-40.46	20.27
20	126.92R	26.36	8.34	6.36	40.35	-3.47	20.75
21	133.97	20.93	6.67	5.09	34.80	-3.59	18.04
22	141.02	15.68	5.01	3.82	27.05	-3.91	14.82
23	148.07	8.50	3.34	2.55	26.05	-7.10	13.87
24	155.12	5.24	1.68	1.28	19.34	-12.01	13.57
25	162.17	-3.96	0.02	-0.01	13.43	-17.42	12.75
26	169.22	-5.15	-1.65	-1.26	11.96	-18.95	12.75
27	176.27	-10.23	-3.31	-2.53	7.10	-24.98	13.78
28	183.32	-17.55	-4.98	-3.80	5.43	-27.23	15.73
29	190.37	-20.84	-6.64	-5.06	3.43	-34.43	18.73
30	197.42L	-26.27	-8.31	-6.33	3.43	-40.61	20.57
30	197.42R	26.28	8.31	6.34	40.66	-3.58	20.74
31	204.47	20.85	6.65	5.07	35.67	-3.68	17.92
32	211.52	11.52	4.98	3.80	27.00	-4.03	15.05
33	218.57	10.24	3.32	2.53	25.92	-6.81	13.61
34	225.62	5.16	1.65	1.26	19.20	-12.37	13.90
35	232.67	-0.30	-0.01	-0.01	18.41	-13.65	13.04
36	239.72	-5.23	-1.68	-1.28	11.65	-19.04	12.73
37	246.77	-14.38	-3.34	-2.55	7.61	-25.09	15.29
38	253.82	-15.67	-5.01	-3.82	4.98	-27.20	14.63
39	260.87	-20.92	-6.67	-5.08	3.45	-33.78	18.24
40	267.92L	-26.35	-8.33	-6.35	3.45	-40.40	20.59
40	267.92R	26.41	8.35	6.37	44.60	-2.94	20.42
41	274.97	20.97	6.69	5.10	39.35	-3.06	17.59
42	282.02	11.65	5.02	3.83	29.82	-3.41	15.06
43	289.07	10.37	3.36	2.56	28.94	-6.63	13.61
44	296.12	5.29	1.69	1.29	22.05	-13.12	13.97
45	303.17	-0.12	0.03	-0.02	21.10	-13.05	12.98
46	310.22	-5.10	-1.63	-1.25	14.27	-18.65	12.76
47	317.27	-14.25	-3.30	-2.52	9.83	-24.83	15.40
48	324.32	-15.54	-4.97	-3.79	4.66	-26.81	14.51
49	331.37	-20.76	-6.63	-5.05	3.24	-33.36	18.14
50	338.42L	-26.14	-8.29	-6.32	3.24	-39.91	20.54
50	338.42R	26.69	8.50	6.48	40.45	-1.19	19.68
51	344.06	22.39	7.17	5.47	34.41	-1.27	17.48
52	349.70	18.21	5.84	4.45	30.49	-2.09	15.54
53	355.34	10.90	4.51	3.44	23.60	-6.61	13.95
54	360.98	9.81	3.17	2.42	23.11	-6.48	12.44
55	366.63	5.75	1.84	1.40	17.86	-11.14	13.02
56	372.27	1.69	0.51	0.39	11.91	-14.71	12.34
57	377.91	-4.04	-0.82	-0.63	9.44	-15.89	13.03
58	383.55	-6.74	-2.16	-1.64	4.51	-20.88	13.41
59	389.19	-10.80	-3.49	-2.66	3.40	-27.17	15.04

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	16.54	0.00	0.00	0.00
1	13.42	0.00	0.00	0.00
2	10.63	0.00	0.00	0.00
3	7.72	0.00	0.00	0.00
4	6.77	0.00	0.00	0.00
5	-8.74	0.00	0.00	0.00
6	-11.06	0.00	0.00	0.00
7	-11.08	0.00	0.00	0.00
8	-14.21	0.00	0.00	0.00
9	-17.05	0.00	0.00	0.00
10	-19.03	0.00	0.00	0.00
10R	18.82	0.00	0.00	0.00
11	16.46	0.00	0.00	0.00
12	13.21	0.00	0.00	0.00
13	11.54	0.00	0.00	0.00
14	8.66	0.00	0.00	0.00
15	-7.41	0.00	0.00	0.00
16	-8.75	0.00	0.00	0.00
17	-11.80	0.00	0.00	0.00
18	-13.10	0.00	0.00	0.00
19	-17.25	0.00	0.00	0.00
20	-19.10	0.00	0.00	0.00
20R	19.22	0.00	0.00	0.00
21	16.50	0.00	0.00	0.00
22	13.23	0.00	0.00	0.00
23	11.60	0.00	0.00	0.00
24	8.82	0.00	0.00	0.00
25	-7.38	0.00	0.00	0.00
26	-8.73	0.00	0.00	0.00
27	-11.85	0.00	0.00	0.00
28	-13.09	0.00	0.00	0.00
29	-17.23	0.00	0.00	0.00
30	-19.08	0.00	0.00	0.00
30R	19.22	0.00	0.00	0.00
31	16.40	0.00	0.00	0.00
32	13.45	0.00	0.00	0.00
33	11.57	0.00	0.00	0.00
34	8.79	0.00	0.00	0.00
35	7.62	0.00	0.00	0.00
36	-8.79	0.00	0.00	0.00
37	-11.90	0.00	0.00	0.00
38	-13.12	0.00	0.00	0.00
39	-16.73	0.00	0.00	0.00
40	-19.08	0.00	0.00	0.00
40R	19.25	0.00	0.00	0.00
41	16.41	0.00	0.00	0.00
42	13.45	0.00	0.00	0.00
43	11.59	0.00	0.00	0.00
44	8.89	0.00	0.00	0.00
45	7.61	0.00	0.00	0.00
46	-8.74	0.00	0.00	0.00
47	-11.89	0.00	0.00	0.00
48	-13.00	0.00	0.00	0.00
49	-16.63	0.00	0.00	0.00
50	-19.03	0.00	0.00	0.00
50R	19.13	0.00	0.00	0.00
51	16.93	0.00	0.00	0.00
52	14.33	0.00	0.00	0.00
53	11.28	0.00	0.00	0.00
54	9.98	0.00	0.00	0.00
55	8.03	0.00	0.00	0.00
56	-7.63	0.00	0.00	0.00
57	-7.73	0.00	0.00	0.00
58	-10.57	0.00	0.00	0.00
59	-13.51	0.00	0.00	0.00
60	-16.66	0.00	0.00	0.00

Girder 4 Service Shear - k - (load modifier not included)

Tenth	Loc	DC1	DC2	DW	Design	Tandem	Fatigue
Point					Truck+	Truck+	Truck
					Lane	Lane	Range
					LL+I	LL+I	LL+I
					(+)	(-)	
0	0.00	14.54	4.82	3.67	46.39	-4.43	45.48
1	5.64	10.48	3.49	2.66	36.08	-4.43	36.06
2	11.28	6.42	2.16	1.64	26.87	-6.23	27.75
3	16.93	-2.65	0.82	-0.63	19.28	-17.58	22.66
4	22.57	-1.46	-0.51	-0.39	23.46	-16.36	24.82
5	28.21	-5.52	-1.84	-1.40	15.40	-23.66	-25.50
6	33.85	-9.58	-3.17	-2.42	9.65	-31.98	-32.51
7	39.49	-14.01	-4.50	-3.43	10.17	-28.74	-27.91
8	45.13	-17.55	-5.84	-4.45	1.41	-37.51	-36.14
9	50.78	-21.73	-7.17	-5.46	1.41	-46.54	-44.29
10	56.42L	-26.03	-8.50	-6.48	1.41	-54.65	-49.75
10	56.42R	25.51	8.30	6.33	53.56	-4.65	50.28
11	63.47	20.14	6.63	5.06	44.13	-4.65	41.27
12	70.52	14.92	4.97	3.79	33.09	-5.23	32.24
13	77.57	7.95	3.30	2.52	35.25	-9.21	33.74
14	84.62	4.89	1.64	1.25	24.65	-17.07	25.64
15	91.67	-0.25	-0.05	-0.03	16.55	-26.84	-28.85
16	98.72	-5.05	-1.69	-1.29	16.67	-24.74	-25.41
17	105.77	-10.12	-3.35	-2.56	8.18	-34.82	-34.62
18	112.82	-17.04	-5.02	-3.83	9.57	-33.21	-31.55
19	119.87	-20.33	-6.68	-5.10	4.13	-46.60	-45.36
20	126.92L	-25.77	-8.35	-6.36	4.13	-55.92	-50.61
20	126.92R	25.72	8.34	6.36	54.29	-4.87	50.85
21	133.97	20.29	6.67	5.09	44.72	-4.87	41.68
22	141.02	15.03	5.01	3.82	33.61	-5.44	32.74
23	148.07	8.28	3.34	2.55	35.63	-9.34	34.15
24	155.12	5.03	1.68	1.28	25.21	-17.05	26.06
25	162.17	-4.12	0.02	-0.01	16.87	-26.86	-28.93
26	169.22	-4.92	-1.65	-1.26	16.94	-24.75	-25.57
27	176.27	-9.99	-3.31	-2.53	8.42	-35.07	-35.01
28	183.32	-16.91	-4.98	-3.80	9.81	-33.44	-31.77
29	190.37	-20.20	-6.64	-5.06	4.86	-46.85	-45.61
30	197.42L	-25.63	-8.31	-6.33	4.86	-56.17	-50.84
30	197.42R	25.64	8.31	6.34	54.68	-5.01	50.89
31	204.47	20.21	6.65	5.07	45.94	-5.01	41.60
32	211.52	10.89	4.98	3.80	33.43	-5.61	33.32
33	218.57	10.00	3.32	2.53	35.27	-9.02	33.84
34	225.62	4.93	1.65	1.26	24.94	-17.78	25.78
35	232.67	-0.26	-0.01	-0.01	27.02	-17.00	27.39
36	239.72	-5.01	-1.68	-1.28	16.26	-25.00	-25.84
37	246.77	-14.15	-3.34	-2.55	9.20	-35.38	-35.32
38	253.82	-15.03	-5.01	-3.82	9.05	-33.59	-32.60
39	260.87	-20.29	-6.67	-5.08	4.88	-45.68	-43.67
40	267.92L	-25.72	-8.33	-6.35	4.88	-55.85	-50.84
40	267.92R	25.77	8.35	6.37	60.78	-4.07	50.67
41	274.97	20.34	6.69	5.10	50.87	-4.07	41.36
42	282.02	11.01	5.02	3.83	36.68	-4.68	33.07
43	289.07	10.13	3.36	2.56	39.67	-8.76	33.66
44	296.12	5.06	1.69	1.29	28.60	-19.16	25.63
45	303.17	0.15	0.03	0.02	31.18	-16.16	28.51
46	310.22	-4.88	-1.64	-1.25	19.84	-24.41	-25.38
47	317.27	-14.02	-3.30	-2.52	11.39	-34.96	-35.03
48	324.32	-14.90	-4.97	-3.79	9.02	-33.06	-32.10
49	331.37	-20.12	-6.63	-5.05	4.66	-45.09	-43.12
50	338.42L	-25.50	-8.29	-6.32	4.66	-55.13	-50.28
50	338.42R	26.02	8.50	6.48	53.52	-1.41	49.93
51	344.06	21.72	7.17	5.47	44.63	-1.41	42.45
52	349.70	17.54	5.84	4.45	37.92	-2.71	35.33
53	355.34	10.23	4.51	3.44	28.57	-12.24	28.88
54	360.98	9.58	3.17	2.42	32.14	-8.90	32.03
55	366.63	5.52	1.84	1.40	23.79	-16.45	25.50
56	372.27	1.46	0.51	0.39	15.58	-22.84	-24.95
57	377.91	-3.72	-0.82	-0.63	16.50	-19.33	-22.67
58	383.55	-6.41	-2.16	-1.64	5.76	-26.80	-27.63
59	389.19	-10.47	-3.49	-2.66	4.59	-36.58	-37.15

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	23.76	0.00	0.00	0.00
1	18.58	0.00	0.00	0.00
2	14.07	0.00	0.00	0.00
3	9.61	0.00	0.00	0.00
4	11.16	0.00	0.00	0.00
5	-12.34	0.00	0.00	0.00
6	-16.15	0.00	0.00	0.00
7	-13.29	0.00	0.00	0.00
8	-18.74	0.00	0.00	0.00
9	-23.38	0.00	0.00	0.00
10	-26.04	0.00	0.00	0.00
10R	26.82	0.00	0.00	0.00
11	22.11	0.00	0.00	0.00
12	17.00	0.00	0.00	0.00
13	16.68	0.00	0.00	0.00
14	11.70	0.00	0.00	0.00
15	-12.68	0.00	0.00	0.00
16	-12.24	0.00	0.00	0.00
17	-17.18	0.00	0.00	0.00
18	-16.36	0.00	0.00	0.00
19	-23.74	0.00	0.00	0.00
20	-26.14	0.00	0.00	0.00
20R	26.90	0.00	0.00	0.00
21	22.21	0.00	0.00	0.00
22	17.15	0.00	0.00	0.00
23	16.78	0.00	0.00	0.00
24	11.80	0.00	0.00	0.00
25	-12.60	0.00	0.00	0.00
26	-12.20	0.00	0.00	0.00
27	-17.26	0.00	0.00	0.00
28	-16.36	0.00	0.00	0.00
29	-23.74	0.00	0.00	0.00
30	-26.13	0.00	0.00	0.00
30R	26.87	0.00	0.00	0.00
31	22.13	0.00	0.00	0.00
32	17.45	0.00	0.00	0.00
33	16.61	0.00	0.00	0.00
34	11.71	0.00	0.00	0.00
35	11.73	0.00	0.00	0.00
36	-12.34	0.00	0.00	0.00
37	-17.44	0.00	0.00	0.00
38	-17.21	0.00	0.00	0.00
39	-22.80	0.00	0.00	0.00
40	-26.18	0.00	0.00	0.00
40R	26.89	0.00	0.00	0.00
41	22.14	0.00	0.00	0.00
42	17.49	0.00	0.00	0.00
43	16.64	0.00	0.00	0.00
44	11.74	0.00	0.00	0.00
45	12.66	0.00	0.00	0.00
46	-12.25	0.00	0.00	0.00
47	-17.43	0.00	0.00	0.00
48	-17.09	0.00	0.00	0.00
49	-22.61	0.00	0.00	0.00
50	-26.10	0.00	0.00	0.00
50R	26.65	0.00	0.00	0.00
51	22.78	0.00	0.00	0.00
52	18.73	0.00	0.00	0.00
53	13.94	0.00	0.00	0.00
54	14.64	0.00	0.00	0.00
55	10.62	0.00	0.00	0.00
56	-12.17	0.00	0.00	0.00
57	-9.51	0.00	0.00	0.00
58	-13.99	0.00	0.00	0.00
59	-18.75	0.00	0.00	0.00
60	-23.80	0.00	0.00	0.00

Girder 5 Service Shear - k - (load modifier not included)

Tenth	Loc	DC1	DC2	DW	Design	Tandem	Fatigue
Point					Truck+	Truck+	Truck
					Lane	Lane	Range
					LL+I	LL+I	LL+I
					(+)	(-)	
0	0.00	12.64	4.82	3.67	32.85	-6.19	27.88
1	5.64	9.23	3.49	2.66	28.82	-6.19	25.18
2	11.28	5.81	2.16	1.64	24.66	-6.29	22.35
3	16.93	-2.11	0.82	-0.63	20.17	-6.48	19.48
4	22.57	-1.52	-0.51	-0.39	11.77	-13.24	-14.02
5	28.21	-4.93	-1.84	-1.40	8.07	-16.72	-16.36
6	33.85	-8.35	-3.17	-2.42	6.96	-20.40	-18.70
7	39.49	-12.62	-4.50	-3.43	2.30	-29.64	-25.28
8	45.13	-15.61	-5.83	-4.45	2.29	-32.17	-26.00
9	50.78	-19.15	-7.17	-5.46	2.31	-34.94	-27.93
10	56.42L	-22.80	-8.50	-6.48	2.31	-37.55	-29.69
10	56.42R	22.36	8.30	6.33	40.95	-6.55	32.29
11	63.47	17.79	6.63	5.06	37.50	-6.55	30.26
12	70.52	13.37	4.97	3.79	34.01	-6.55	28.51
13	77.57	7.06	3.30	2.52	24.79	-6.95	21.36
14	84.62	4.43	1.64	1.25	20.84	-8.59	19.02
15	91.67	0.11	-0.05	0.03	16.64	-11.40	16.27
16	98.72	-4.60	-1.69	-1.29	9.73	-20.60	-18.29
17	105.77	-8.87	-3.36	-2.56	5.84	-23.96	-20.79
18	112.82	-15.13	-5.02	-3.83	5.88	-32.73	-26.76
19	119.87	-17.99	-6.68	-5.09	5.76	-35.86	-28.58
20	126.92L	-22.61	-8.35	-6.36	5.76	-39.21	-31.21
20	126.92R	22.58	8.34	6.36	41.29	-6.81	32.67
21	133.97	17.95	6.67	5.09	37.71	-6.81	30.50
22	141.02	13.51	5.01	3.82	34.28	-6.81	28.76
23	148.07	7.34	3.34	2.55	25.01	-7.23	21.54
24	155.12	4.55	1.68	1.28	21.18	-8.99	19.39
25	162.17	-3.24	0.01	-0.01	16.95	-11.80	16.58
26	169.22	-4.48	-1.65	-1.26	10.07	-20.87	-18.56
27	176.27	-8.75	-3.31	-2.53	6.90	-24.33	-21.12
28	183.32	-15.01	-4.98	-3.79	6.94	-33.00	-27.03
29	190.37	-17.86	-6.64	-5.06	6.82	-36.15	-28.88
30	197.42L	-22.49	-8.31	-6.33	6.82	-39.51	-31.51
30	197.42R	22.50	8.31	6.34	41.32	-7.11	32.66
31	204.47	17.87	6.65	5.07	37.91	-7.11	30.44
32	211.52	10.12	4.98	3.80	34.28	-7.11	28.86
33	218.57	8.75	3.32	2.53	25.15	-7.50	21.68
34	225.62	4.48	1.65	1.26	21.31	-9.08	19.53
35	232.67	-0.39	-0.01	-0.01	12.90	-16.96	-16.02
36	239.72	-4.54	-1.68	-1.28	10.01	-20.71	-18.44
37	246.77	-12.12	-3.34	-2.55	7.23	-24.20	-20.63
38	253.82	-13.49	-5.00	-3.81	6.84	-33.53	-27.65
39	260.87	-17.94	-6.67	-5.08	6.84	-35.86	-28.68
40	267.92L	-22.56	-8.33	-6.35	6.84	-39.44	-31.51
40	267.92R	22.62	8.35	6.37	41.54	-5.77	32.36
41	274.97	17.99	6.69	5.10	39.03	-5.77	30.13
42	282.02	10.24	5.02	3.83	36.09	-5.77	28.55
43	289.07	8.87	3.36	2.56	26.45	-6.15	21.24
44	296.12	4.60	1.69	1.29	23.12	-8.78	19.26
45	303.17	-0.20	0.03	-0.02	13.63	-16.62	-15.68
46	310.22	-4.43	-1.64	-1.25	11.23	-20.42	-18.18
47	317.27	-12.00	-3.30	-2.52	6.96	-24.00	-20.45
48	324.32	-13.37	-4.96	-3.78	6.58	-33.32	-27.41
49	331.37	-17.79	-6.63	-5.05	6.58	-35.64	-28.43
50	338.42L	-22.36	-8.29	-6.32	6.58	-38.98	-30.96
50	338.42R	22.82	8.50	6.48	39.85	-2.50	31.40
51	344.06	19.17	7.17	5.47	36.23	-2.47	29.52
52	349.70	15.64	5.84	4.45	34.04	-2.51	28.21
53	355.34	9.58	4.51	3.44	29.97	-2.46	26.57
54	360.98	8.35	3.17	2.42	20.82	-5.73	19.11
55	366.63	4.94	1.84	1.40	16.99	-8.74	16.98
56	372.27	1.53	0.51	0.39	12.61	-11.07	11.28
57	377.91	-3.50	-0.82	-0.63	6.89	-20.52	-18.93
58	383.55	-5.81	-2.16	-1.64	6.48	-24.20	-21.36
59	389.19	-9.22	-3.49	-2.66	6.41	-28.34	-24.31

	Fatigue Trk LL+I	Permit Trk LL+I	Permit Range	Sidewalk
0	16.24	0.00	0.00	0.00
1	14.05	0.00	0.00	0.00
2	11.72	0.00	0.00	0.00
3	9.45	0.00	0.00	0.00
4	5.13	0.00	0.00	0.00
5	-7.86	0.00	0.00	0.00
6	-9.57	0.00	0.00	0.00
7	-13.54	0.00	0.00	0.00
8	-15.37	0.00	0.00	0.00
9	-17.31	0.00	0.00	0.00
10	-19.53	0.00	0.00	0.00
10R	20.39	0.00	0.00	0.00
11	18.27	0.00	0.00	0.00
12	16.17	0.00	0.00	0.00
13	11.22	0.00	0.00	0.00
14	9.00	0.00	0.00	0.00
15	6.89	0.00	0.00	0.00
16	-8.82	0.00	0.00	0.00
17	-10.86	0.00	0.00	0.00
18	-15.64	0.00	0.00	0.00
19	-17.88	0.00	0.00	0.00
20	-19.92	0.00	0.00	0.00
20R	20.35	0.00	0.00	0.00
21	18.21	0.00	0.00	0.00
22	16.10	0.00	0.00	0.00
23	11.12	0.00	0.00	0.00
24	8.99	0.00	0.00	0.00
25	6.85	0.00	0.00	0.00
26	-8.80	0.00	0.00	0.00
27	-10.91	0.00	0.00	0.00
28	-15.62	0.00	0.00	0.00
29	-17.86	0.00	0.00	0.00
30	-19.91	0.00	0.00	0.00
30R	20.35	0.00	0.00	0.00
31	18.20	0.00	0.00	0.00
32	16.15	0.00	0.00	0.00
33	11.22	0.00	0.00	0.00
34	9.15	0.00	0.00	0.00
35	-6.47	0.00	0.00	0.00
36	-8.63	0.00	0.00	0.00
37	-10.80	0.00	0.00	0.00
38	-15.71	0.00	0.00	0.00
39	-17.64	0.00	0.00	0.00
40	-19.90	0.00	0.00	0.00
40R	20.37	0.00	0.00	0.00
41	18.22	0.00	0.00	0.00
42	16.15	0.00	0.00	0.00
43	11.15	0.00	0.00	0.00
44	9.17	0.00	0.00	0.00
45	-6.52	0.00	0.00	0.00
46	-8.65	0.00	0.00	0.00
47	-10.89	0.00	0.00	0.00
48	-15.77	0.00	0.00	0.00
49	-17.69	0.00	0.00	0.00
50	-19.90	0.00	0.00	0.00
50R	19.73	0.00	0.00	0.00
51	17.70	0.00	0.00	0.00
52	15.81	0.00	0.00	0.00
53	13.64	0.00	0.00	0.00
54	8.99	0.00	0.00	0.00
55	7.19	0.00	0.00	0.00
56	-5.41	0.00	0.00	0.00
57	-9.62	0.00	0.00	0.00
58	-11.60	0.00	0.00	0.00
59	-13.59	0.00	0.00	0.00
60	-16.18	0.00	0.00	0.00



ID: WEST ETNA 5961 - C1

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 10. 20. 20. 16.7 16.7 16.6  
PRMITSP 10. 4. 20. 4. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C1

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

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[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.    Oper.	Inv.    Oper.
0.00	33000. B	348.47	>999.00	4.48
5.64	33000. B	348.47	3.11	5.90
11.28	33000. B	348.47	1.71	7.95
16.93	33000. B	348.47	1.40	11.25
22.57	33000. B	348.47	1.35	13.19
28.21	33000. B	348.47	1.50	8.77
33.85	33000. B	348.47	1.81	6.43
39.49	33000. B	348.47	2.72	7.35
45.13	33000. B	348.47	2.45	4.57
50.78	33000. B	348.47	2.70	4.41
56.42	33000. B	348.47	1.74	3.52

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.    Oper.	Inv.    Oper.
0.00	33000. B	348.47	1.74	3.53
7.05	33000. B	348.47	3.41	4.39
14.10	33000. B	348.47	3.47	5.80
21.15	33000. B	348.47	2.18	6.64
28.20	33000. B	348.47	1.57	9.43
35.25	33000. B	348.47	1.47	14.06
42.30	33000. B	348.47	1.55	7.83
49.35	33000. B	348.47	2.16	5.70
56.40	33000. B	348.47	2.86	6.44
63.45	33000. B	348.47	3.08	5.03
70.50	33000. B	348.47	1.93	3.48

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.    Oper.	Inv.    Oper.
0.00	33000. B	348.47	1.93	3.47
7.05	33000. B	348.47	3.18	4.36
14.10	33000. B	348.47	2.95	5.75
21.15	33000. B	348.47	2.23	6.59
28.20	33000. B	348.47	1.60	9.34
35.25	33000. B	348.47	1.52	13.78
42.30	33000. B	348.47	1.56	7.86
49.35	33000. B	348.47	2.18	5.71
56.40	33000. B	348.47	2.90	6.45
63.45	33000. B	348.47	3.13	5.04
70.50	33000. B	348.47	1.96	3.48

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.96	3.48
7.05	33000. B	348.47	3.17	4.34
14.10	33000. B	348.47	2.87	5.80
21.15	33000. B	348.47	2.21	6.58
28.20	33000. B	348.47	1.59	9.39
35.25	33000. B	348.47	1.49	11.36
42.30	33000. B	348.47	1.57	7.83
49.35	33000. B	348.47	2.23	7.47
56.40	33000. B	348.47	2.93	5.05
63.45	33000. B	348.47	3.14	5.06
70.50	33000. B	348.47	1.95	3.48

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.95	3.48
7.05	33000. B	348.47	3.12	4.34
14.10	33000. B	348.47	2.84	5.80
21.15	33000. B	348.47	2.19	6.56
28.20	33000. B	348.47	1.57	9.34
35.25	33000. B	348.47	1.47	16.27
42.30	33000. B	348.47	1.54	7.88
49.35	33000. B	348.47	2.17	7.53
56.40	33000. B	348.47	3.46	5.10
63.45	33000. B	348.47	3.39	5.11
70.50	33000. B	348.47	1.80	3.51

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.80	3.47
5.64	33000. B	348.47	2.75	4.25
11.28	33000. B	348.47	2.47	5.32
16.93	33000. B	348.47	2.71	7.11
22.57	33000. B	348.47	1.84	7.89
28.21	33000. B	348.47	1.47	12.35
33.85	33000. B	348.47	1.33	9.79
39.49	33000. B	348.47	1.39	11.73
45.13	33000. B	348.47	1.73	6.52
50.78	33000. B	348.47	3.13	5.95
56.42	33000. B	348.47	>999.00	4.57

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.68
11.28	26400. S		2.19
16.93	26400. S		1.84
22.57	26400. S		1.81
28.21	26400. S		1.94
33.85	26400. S		2.18
39.49	26400. S		3.01
45.13	26400. S		2.90
50.78	26400. S		3.48
56.42	26400. S		2.51

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.51
7.05	26400. S		4.26
14.10	26400. S		3.89
21.15	26400. S		2.52
28.20	26400. S		1.98
35.25	26400. S		1.91
42.30	26400. S		1.95
49.35	26400. S		2.51
56.40	26400. S		3.24
63.45	26400. S		3.84
70.50	26400. S		2.76

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.76
7.05	26400. S		3.97
14.10	26400. S		3.33
21.15	26400. S		2.57
28.20	26400. S		2.00
35.25	26400. S		1.92
42.30	26400. S		1.96
49.35	26400. S		2.53
56.40	26400. S		3.28
63.45	26400. S		3.89
70.50	26400. S		2.79

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.79
7.05	26400. S		3.94

14.10	26400. S	3.30
21.15	26400. S	2.57
28.20	26400. S	1.99
35.25	26400. S	1.92
42.30	26400. S	1.96
49.35	26400. S	2.53
56.40	26400. S	3.31
63.45	26400. S	3.91
70.50	26400. S	2.78

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.78
7.05	26400. S		3.89
14.10	26400. S		3.26
21.15	26400. S		2.55
28.20	26400. S		1.98
35.25	26400. S		1.91
42.30	26400. S		1.94
49.35	26400. S		2.48
56.40	26400. S		3.89
63.45	26400. S		4.25
70.50	26400. S		2.59

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.59
5.64	26400. S		3.54
11.28	26400. S		2.93
16.93	26400. S		2.96
22.57	26400. S		2.23
28.21	26400. S		1.90
33.85	26400. S		1.79
39.49	26400. S		1.85
45.13	26400. S		2.21
50.78	26400. S		3.72
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.33 at location 372.27 in span 6.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C1 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 10. 20. 20. 16.7 16.7 16.6 10. 20. 20. 16.7 16.7 16.6  
PRMITSP 10. 4. 20. 4. 4. 30. 10. 4. 20. 4. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C1 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 0.975
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	4.15
5.64	33000. B	348.47	2.85	5.47
11.28	33000. B	348.47	1.56	7.38
16.93	33000. B	348.47	1.27	10.44
22.57	33000. B	348.47	1.22	12.22
28.21	33000. B	348.47	1.37	6.70
33.85	33000. B	348.47	1.66	5.16
39.49	33000. B	348.47	2.57	5.31
45.13	33000. B	348.47	2.30	3.76
50.78	33000. B	348.47	1.83	3.67
56.42	33000. B	348.47	0.95	3.00

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	0.95	2.99
7.05	33000. B	348.47	2.10	3.65
14.10	33000. B	348.47	3.20	4.57
21.15	33000. B	348.47	2.09	5.29
28.20	33000. B	348.47	1.59	7.07
35.25	33000. B	348.47	1.50	10.44
42.30	33000. B	348.47	1.50	5.97
49.35	33000. B	348.47	2.00	4.57
56.40	33000. B	348.47	2.84	4.69
63.45	33000. B	348.47	1.96	3.97
70.50	33000. B	348.47	0.93	2.93

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	0.93	2.88
7.05	33000. B	348.47	2.01	3.51
14.10	33000. B	348.47	2.98	4.37
21.15	33000. B	348.47	2.11	5.11
28.20	33000. B	348.47	1.61	6.90
35.25	33000. B	348.47	1.62	10.20
42.30	33000. B	348.47	1.58	5.97
49.35	33000. B	348.47	2.07	4.57
56.40	33000. B	348.47	2.87	4.68
63.45	33000. B	348.47	1.97	3.96
70.50	33000. B	348.47	0.93	2.93

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.93	2.88
7.05	33000. B	348.47	2.01	3.50
14.10	33000. B	348.47	2.88	4.42
21.15	33000. B	348.47	2.09	5.09
28.20	33000. B	348.47	1.60	6.91
35.25	33000. B	348.47	1.59	8.81
42.30	33000. B	348.47	1.59	5.97
49.35	33000. B	348.47	2.13	5.58
56.40	33000. B	348.47	2.91	4.01
63.45	33000. B	348.47	1.98	3.98
70.50	33000. B	348.47	0.93	2.93

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.93	2.88
7.05	33000. B	348.47	2.00	3.51
14.10	33000. B	348.47	2.86	4.43
21.15	33000. B	348.47	2.02	5.09
28.20	33000. B	348.47	1.52	6.89
35.25	33000. B	348.47	1.54	12.03
42.30	33000. B	348.47	1.57	6.17
49.35	33000. B	348.47	2.11	5.77
56.40	33000. B	348.47	3.20	4.18
63.45	33000. B	348.47	2.08	4.15
70.50	33000. B	348.47	0.95	3.00

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.95	2.91
5.64	33000. B	348.47	1.86	3.50
11.28	33000. B	348.47	2.39	4.19
16.93	33000. B	348.47	2.53	5.26
22.57	33000. B	348.47	1.69	6.05
28.21	33000. B	348.47	1.34	9.15
33.85	33000. B	348.47	1.20	9.26
39.49	33000. B	348.47	1.26	10.83
45.13	33000. B	348.47	1.58	6.13
50.78	33000. B	348.47	2.88	5.46
56.42	33000. B	348.47	>999.00	4.23

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.38
11.28	26400. S		2.00
16.93	26400. S		1.67
22.57	26400. S		1.63
28.21	26400. S		1.77
33.85	26400. S		2.01
39.49	26400. S		2.84
45.13	26400. S		2.72
50.78	26400. S		2.36
56.42	26400. S		1.37

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.37
7.05	26400. S		2.63
14.10	26400. S		3.59
21.15	26400. S		2.43
28.20	26400. S		2.01
35.25	26400. S		1.95
42.30	26400. S		1.89
49.35	26400. S		2.32
56.40	26400. S		3.22
63.45	26400. S		2.44
70.50	26400. S		1.33

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
7.05	26400. S		2.51
14.10	26400. S		3.37
21.15	26400. S		2.44
28.20	26400. S		2.01
35.25	26400. S		2.05
42.30	26400. S		1.98
49.35	26400. S		2.40
56.40	26400. S		3.24
63.45	26400. S		2.45
70.50	26400. S		1.33

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
7.05	26400. S		2.50

14.10	26400. S	3.31
21.15	26400. S	2.42
28.20	26400. S	2.00
35.25	26400. S	2.05
42.30	26400. S	1.99
49.35	26400. S	2.42
56.40	26400. S	3.29
63.45	26400. S	2.47
70.50	26400. S	1.33

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
7.05	26400. S		2.49
14.10	26400. S		3.28
21.15	26400. S		2.34
28.20	26400. S		1.92
35.25	26400. S		2.00
42.30	26400. S		1.98
49.35	26400. S		2.41
56.40	26400. S		3.59
63.45	26400. S		2.61
70.50	26400. S		1.37

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.37
5.64	26400. S		2.40
11.28	26400. S		2.84
16.93	26400. S		2.76
22.57	26400. S		2.04
28.21	26400. S		1.74
33.85	26400. S		1.61
39.49	26400. S		1.68
45.13	26400. S		2.02
50.78	26400. S		3.41
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 0.93 at location 126.92 in span 2.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C2

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 10. 16.6 16.7 16.7 17. 17.  
PRMITSP 10. 4. 4. 10. 20.333  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C2

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T	>999.00	3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	>999.00	4.56
5.64	33000. B	348.47	3.14	5.96
11.28	33000. B	348.47	1.70	7.88
16.93	33000. B	348.47	1.32	11.38
22.57	33000. B	348.47	1.20	13.53
28.21	33000. B	348.47	1.29	8.29
33.85	33000. B	348.47	1.66	6.44
39.49	33000. B	348.47	2.55	7.46
45.13	33000. B	348.47	2.52	4.69
50.78	33000. B	348.47	2.78	4.57
56.42	33000. B	348.47	1.75	3.70

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.75	3.66
7.05	33000. B	348.47	3.48	4.56
14.10	33000. B	348.47	3.53	6.02
21.15	33000. B	348.47	1.99	6.88
28.20	33000. B	348.47	1.43	9.93
35.25	33000. B	348.47	1.33	15.09
42.30	33000. B	348.47	1.42	8.22
49.35	33000. B	348.47	2.03	5.91
56.40	33000. B	348.47	2.94	6.61
63.45	33000. B	348.47	3.17	5.12
70.50	33000. B	348.47	1.89	3.67

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.89	3.53
7.05	33000. B	348.47	3.28	4.52
14.10	33000. B	348.47	3.03	5.94
21.15	33000. B	348.47	2.03	6.81
28.20	33000. B	348.47	1.45	9.82
35.25	33000. B	348.47	1.37	14.92
42.30	33000. B	348.47	1.44	8.25
49.35	33000. B	348.47	2.04	5.93
56.40	33000. B	348.47	2.97	6.62
63.45	33000. B	348.47	3.20	5.13
70.50	33000. B	348.47	1.90	3.67

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.90	3.53
7.05	33000. B	348.47	3.27	4.51
14.10	33000. B	348.47	2.96	6.01
21.15	33000. B	348.47	2.01	6.81
28.20	33000. B	348.47	1.45	9.90
35.25	33000. B	348.47	1.34	11.58
42.30	33000. B	348.47	1.44	8.20
49.35	33000. B	348.47	2.09	7.83
56.40	33000. B	348.47	3.00	5.26
63.45	33000. B	348.47	3.22	5.15
70.50	33000. B	348.47	1.89	3.67

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.89	3.53
7.05	33000. B	348.47	3.24	4.50
14.10	33000. B	348.47	2.93	6.00
21.15	33000. B	348.47	1.99	6.78
28.20	33000. B	348.47	1.44	9.84
35.25	33000. B	348.47	1.33	16.26
42.30	33000. B	348.47	1.42	8.28
49.35	33000. B	348.47	2.04	7.90
56.40	33000. B	348.47	3.52	5.30
63.45	33000. B	348.47	3.45	5.19
70.50	33000. B	348.47	1.79	3.70

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.79	3.54
5.64	33000. B	348.47	2.85	4.40
11.28	33000. B	348.47	2.56	5.41
16.93	33000. B	348.47	2.51	7.02
22.57	33000. B	348.47	1.67	7.66
28.21	33000. B	348.47	1.30	10.56
33.85	33000. B	348.47	1.21	10.01
39.49	33000. B	348.47	1.31	12.50
45.13	33000. B	348.47	1.73	6.52
50.78	33000. B	348.47	3.19	6.06
56.42	33000. B	348.47	>999.00	4.91

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.72
11.28	26400. S		2.18
16.93	26400. S		1.74
22.57	26400. S		1.62
28.21	26400. S		1.67
33.85	26400. S		2.00
39.49	26400. S		2.82
45.13	26400. S		2.99
50.78	26400. S		3.59
56.42	26400. S		2.51

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.51
7.05	26400. S		4.35
14.10	26400. S		3.96
21.15	26400. S		2.30
28.20	26400. S		1.80
35.25	26400. S		1.73
42.30	26400. S		1.79
49.35	26400. S		2.35
56.40	26400. S		3.33
63.45	26400. S		3.95
70.50	26400. S		2.69

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.69
7.05	26400. S		4.09
14.10	26400. S		3.42
21.15	26400. S		2.34
28.20	26400. S		1.82
35.25	26400. S		1.74
42.30	26400. S		1.81
49.35	26400. S		2.37
56.40	26400. S		3.36
63.45	26400. S		3.99
70.50	26400. S		2.71

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.71
7.05	26400. S		4.06

14.10	26400. S	3.40
21.15	26400. S	2.33
28.20	26400. S	1.82
35.25	26400. S	1.74
42.30	26400. S	1.81
49.35	26400. S	2.38
56.40	26400. S	3.39
63.45	26400. S	4.01
70.50	26400. S	2.70

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.70
7.05	26400. S		4.03
14.10	26400. S		3.37
21.15	26400. S		2.31
28.20	26400. S		1.81
35.25	26400. S		1.73
42.30	26400. S		1.79
49.35	26400. S		2.34
56.40	26400. S		3.95
63.45	26400. S		4.32
70.50	26400. S		2.58

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.58
5.64	26400. S		3.67
11.28	26400. S		3.03
16.93	26400. S		2.74
22.57	26400. S		2.02
28.21	26400. S		1.68
33.85	26400. S		1.62
39.49	26400. S		1.75
45.13	26400. S		2.21
50.78	26400. S		3.78
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.20 at location 22.57 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C2 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 10. 16.6 16.7 16.7 17. 17. 10. 16.6 16.7 16.7 17. 17.  
PRMITSP 10. 4.4. 10. 20.3333 30. 10. 4. 4. 10. 20.3333  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C2 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 0.975
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	>999.00	4.22
5.64	33000. B	348.47	2.88	5.53
11.28	33000. B	348.47	1.56	7.32
16.93	33000. B	348.47	1.20	10.79
22.57	33000. B	348.47	1.10	11.99
28.21	33000. B	348.47	1.21	6.70
33.85	33000. B	348.47	1.63	5.44
39.49	33000. B	348.47	2.81	5.74
45.13	33000. B	348.47	2.33	4.11
50.78	33000. B	348.47	1.95	3.93
56.42	33000. B	348.47	1.05	3.28

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.05	3.20
7.05	33000. B	348.47	2.26	3.97
14.10	33000. B	348.47	3.30	5.09
21.15	33000. B	348.47	1.92	5.78
28.20	33000. B	348.47	1.45	7.74
35.25	33000. B	348.47	1.34	10.47
42.30	33000. B	348.47	1.40	6.42
49.35	33000. B	348.47	1.90	4.96
56.40	33000. B	348.47	2.72	5.08
63.45	33000. B	348.47	2.09	4.26
70.50	33000. B	348.47	1.03	3.22

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.03	3.07
7.05	33000. B	348.47	2.14	3.86
14.10	33000. B	348.47	2.80	4.82
21.15	33000. B	348.47	1.93	5.48
28.20	33000. B	348.47	1.46	7.31
35.25	33000. B	348.47	1.45	10.27
42.30	33000. B	348.47	1.45	6.42
49.35	33000. B	348.47	1.94	4.96
56.40	33000. B	348.47	2.73	5.07
63.45	33000. B	348.47	2.09	4.26
70.50	33000. B	348.47	1.04	3.22

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.04	3.06
7.05	33000. B	348.47	2.13	3.84
14.10	33000. B	348.47	2.71	4.87
21.15	33000. B	348.47	1.90	5.47
28.20	33000. B	348.47	1.45	7.35
35.25	33000. B	348.47	1.43	8.63
42.30	33000. B	348.47	1.46	6.39
49.35	33000. B	348.47	2.00	5.98
56.40	33000. B	348.47	2.78	4.38
63.45	33000. B	348.47	2.11	4.27
70.50	33000. B	348.47	1.03	3.22

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.03	3.07
7.05	33000. B	348.47	2.13	3.85
14.10	33000. B	348.47	2.70	4.89
21.15	33000. B	348.47	1.87	5.47
28.20	33000. B	348.47	1.41	7.34
35.25	33000. B	348.47	1.35	11.23
42.30	33000. B	348.47	1.45	6.72
49.35	33000. B	348.47	1.98	6.27
56.40	33000. B	348.47	3.26	4.55
63.45	33000. B	348.47	2.23	4.43
70.50	33000. B	348.47	1.04	3.26

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.04	3.10
5.64	33000. B	348.47	2.00	3.83
11.28	33000. B	348.47	2.36	4.56
16.93	33000. B	348.47	2.69	5.70
22.57	33000. B	348.47	1.61	6.20
28.21	33000. B	348.47	1.20	7.99
33.85	33000. B	348.47	1.10	9.46
39.49	33000. B	348.47	1.20	11.48
45.13	33000. B	348.47	1.58	6.13
50.78	33000. B	348.47	2.92	5.55
56.42	33000. B	348.47	>999.00	4.52

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.42
11.28	26400. S		1.99
16.93	26400. S		1.59
22.57	26400. S		1.47
28.21	26400. S		1.57
33.85	26400. S		1.97
39.49	26400. S		3.10
45.13	26400. S		2.76
50.78	26400. S		2.52
56.42	26400. S		1.51

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.51
7.05	26400. S		2.83
14.10	26400. S		3.45
21.15	26400. S		2.22
28.20	26400. S		1.83
35.25	26400. S		1.74
42.30	26400. S		1.76
49.35	26400. S		2.20
56.40	26400. S		3.08
63.45	26400. S		2.61
70.50	26400. S		1.48

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.48
7.05	26400. S		2.67
14.10	26400. S		3.16
21.15	26400. S		2.23
28.20	26400. S		1.83
35.25	26400. S		1.84
42.30	26400. S		1.82
49.35	26400. S		2.24
56.40	26400. S		3.09
63.45	26400. S		2.60
70.50	26400. S		1.48

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.48
7.05	26400. S		2.65

14.10	26400. S	3.11
21.15	26400. S	2.20
28.20	26400. S	1.82
35.25	26400. S	1.84
42.30	26400. S	1.83
49.35	26400. S	2.27
56.40	26400. S	3.14
63.45	26400. S	2.63
70.50	26400. S	1.48

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.48
7.05	26400. S		2.65
14.10	26400. S		3.10
21.15	26400. S		2.17
28.20	26400. S		1.77
35.25	26400. S		1.75
42.30	26400. S		1.83
49.35	26400. S		2.26
56.40	26400. S		3.63
63.45	26400. S		2.79
70.50	26400. S		1.50

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.50
5.64	26400. S		2.57
11.28	26400. S		2.80
16.93	26400. S		2.94
22.57	26400. S		1.95
28.21	26400. S		1.56
33.85	26400. S		1.48
39.49	26400. S		1.60
45.13	26400. S		2.02
50.78	26400. S		3.47
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.03 at location 126.92 in span 2.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C3

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 10. 16.6 16.7 16.7 14. 14.  
PRMITSP 10. 4. 4. 12. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C3

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		>999.00		4.84
5.64	33000. B	348.47		3.02		5.73
11.28	33000. B	348.47		1.67		7.48
16.93	33000. B	348.47		1.30		10.72
22.57	33000. B	348.47		1.18		12.29
28.21	33000. B	348.47		1.27		8.53
33.85	33000. B	348.47		1.63		6.39
39.49	33000. B	348.47		2.57		7.32
45.13	33000. B	348.47		2.46		4.73
50.78	33000. B	348.47		2.72		4.48
56.42	33000. B	348.47		1.84		3.64

Span 2

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		1.84		3.65
7.05	33000. B	348.47		3.26		4.52
14.10	33000. B	348.47		3.31		5.92
21.15	33000. B	348.47		1.98		6.69
28.20	33000. B	348.47		1.40		9.50
35.25	33000. B	348.47		1.30		12.81
42.30	33000. B	348.47		1.41		7.58
49.35	33000. B	348.47		2.01		5.64
56.40	33000. B	348.47		2.87		6.28
63.45	33000. B	348.47		3.10		5.09
70.50	33000. B	348.47		1.96		3.68

Span 3

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		1.96		3.53
7.05	33000. B	348.47		3.21		4.48
14.10	33000. B	348.47		2.96		5.85
21.15	33000. B	348.47		2.03		6.63
28.20	33000. B	348.47		1.43		9.40
35.25	33000. B	348.47		1.34		12.73
42.30	33000. B	348.47		1.43		7.61
49.35	33000. B	348.47		2.03		5.66
56.40	33000. B	348.47		2.91		6.29
63.45	33000. B	348.47		3.13		5.09
70.50	33000. B	348.47		1.97		3.69

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.97	3.54
7.05	33000. B	348.47	3.19	4.47
14.10	33000. B	348.47	2.89	5.91
21.15	33000. B	348.47	2.00	6.63
28.20	33000. B	348.47	1.43	9.47
35.25	33000. B	348.47	1.32	11.06
42.30	33000. B	348.47	1.43	7.56
49.35	33000. B	348.47	2.08	7.22
56.40	33000. B	348.47	2.93	5.02
63.45	33000. B	348.47	3.15	5.11
70.50	33000. B	348.47	1.96	3.68

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.96	3.54
7.05	33000. B	348.47	3.16	4.46
14.10	33000. B	348.47	2.86	5.91
21.15	33000. B	348.47	1.99	6.60
28.20	33000. B	348.47	1.41	9.41
35.25	33000. B	348.47	1.30	15.46
42.30	33000. B	348.47	1.40	7.61
49.35	33000. B	348.47	2.03	7.27
56.40	33000. B	348.47	3.31	5.07
63.45	33000. B	348.47	3.25	5.15
70.50	33000. B	348.47	1.89	3.70

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.89	3.51
5.64	33000. B	348.47	2.78	4.25
11.28	33000. B	348.47	2.50	5.14
16.93	33000. B	348.47	2.53	6.66
22.57	33000. B	348.47	1.64	7.15
28.21	33000. B	348.47	1.28	10.06
33.85	33000. B	348.47	1.19	10.06
39.49	33000. B	348.47	1.30	11.91
45.13	33000. B	348.47	1.69	6.69
50.78	33000. B	348.47	3.06	5.82
56.42	33000. B	348.47	>999.00	4.99

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.58
11.28	26400. S		2.14
16.93	26400. S		1.71
22.57	26400. S		1.59
28.21	26400. S		1.65
33.85	26400. S		1.97
39.49	26400. S		2.84
45.13	26400. S		2.92
50.78	26400. S		3.51
56.42	26400. S		2.65

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.65
7.05	26400. S		4.09
14.10	26400. S		3.72
21.15	26400. S		2.29
28.20	26400. S		1.77
35.25	26400. S		1.69
42.30	26400. S		1.77
49.35	26400. S		2.33
56.40	26400. S		3.25
63.45	26400. S		3.86
70.50	26400. S		2.80

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.80
7.05	26400. S		3.99
14.10	26400. S		3.34
21.15	26400. S		2.34
28.20	26400. S		1.79
35.25	26400. S		1.70
42.30	26400. S		1.79
49.35	26400. S		2.35
56.40	26400. S		3.29
63.45	26400. S		3.90
70.50	26400. S		2.81

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.81
7.05	26400. S		3.97

14.10	26400. S	3.32
21.15	26400. S	2.32
28.20	26400. S	1.79
35.25	26400. S	1.70
42.30	26400. S	1.79
49.35	26400. S	2.36
56.40	26400. S	3.31
63.45	26400. S	3.92
70.50	26400. S	2.80

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.80
7.05	26400. S		3.94
14.10	26400. S		3.29
21.15	26400. S		2.30
28.20	26400. S		1.77
35.25	26400. S		1.69
42.30	26400. S		1.77
49.35	26400. S		2.32
56.40	26400. S		3.72
63.45	26400. S		4.07
70.50	26400. S		2.72

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.72
5.64	26400. S		3.58
11.28	26400. S		2.96
16.93	26400. S		2.77
22.57	26400. S		1.98
28.21	26400. S		1.65
33.85	26400. S		1.59
39.49	26400. S		1.73
45.13	26400. S		2.16
50.78	26400. S		3.63
56.42	26400. S		>999.00

\*\*\*\*\*  
Minimum rating is 1.18 at location 22.57 in span 1.  
\*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
B - Bottom steel governs  
C - Concrete governs  
R - Rebar governs  
V - Shear governs  
S - Serviceability governs

## Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C3 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 10. 16.6 16.7 16.7 14. 14. 10. 16.6 16.7 16.7 14. 14.  
PRMITSP 10. 4.4. 12. 4. 30. 10. 4. 4. 12. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C3 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

SPN 56.417 70.5 70.5 70.5 70.4999 56.4169  
 SS 0.  
 STFGAP 1.645  
 SUPBST 0.375  
 SUPBSW 6.  
 SVPBETA 0.975  
 TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
 10. 10.  
 TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
 TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75  
 0.75 0.75 0.625 0.625 0.625  
 TFISPB 4. 4. 4. 4. 4.  
 TFISPT 0.625 0.625 0.625 0.625 0.625  
 TFOSPB 11. 11. 11. 11. 11.  
 TFOSPT 0.375 0.375 0.375 0.375 0.375  
 TSLABW 75.996  
 TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.  
 210. 426. 212. 212. 426. 231.5  
 WCONC 150.  
 GO

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T	>999.00	3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		>999.00		4.46
5.64	33000. B	348.47		3.08		5.90
11.28	33000. B	348.47		1.67		7.80
16.93	33000. B	348.47		1.28		11.07
22.57	33000. B	348.47		1.11		12.85
28.21	33000. B	348.47		1.16		6.67
33.85	33000. B	348.47		1.47		5.20
39.49	33000. B	348.47		2.32		5.33
45.13	33000. B	348.47		2.26		3.85
50.78	33000. B	348.47		1.75		3.73
56.42	33000. B	348.47		0.91		3.15

Span 2

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		0.91		3.19
7.05	33000. B	348.47		1.98		3.83
14.10	33000. B	348.47		3.02		4.77
21.15	33000. B	348.47		1.89		5.41
28.20	33000. B	348.47		1.44		7.50
35.25	33000. B	348.47		1.40		9.79
42.30	33000. B	348.47		1.41		5.81
49.35	33000. B	348.47		1.87		4.52
56.40	33000. B	348.47		2.81		4.59
63.45	33000. B	348.47		1.93		4.06
70.50	33000. B	348.47		0.92		3.13

Span 3

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		0.92		2.98
7.05	33000. B	348.47		1.97		3.66
14.10	33000. B	348.47		2.93		4.51
21.15	33000. B	348.47		1.90		5.23
28.20	33000. B	348.47		1.45		7.00
35.25	33000. B	348.47		1.49		9.68
42.30	33000. B	348.47		1.44		5.81
49.35	33000. B	348.47		1.89		4.53
56.40	33000. B	348.47		2.83		4.59
63.45	33000. B	348.47		1.94		4.05
70.50	33000. B	348.47		0.92		3.13

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.92	2.98
7.05	33000. B	348.47	1.96	3.65
14.10	33000. B	348.47	2.83	4.57
21.15	33000. B	348.47	1.87	5.21
28.20	33000. B	348.47	1.44	7.03
35.25	33000. B	348.47	1.46	8.62
42.30	33000. B	348.47	1.45	5.80
49.35	33000. B	348.47	1.95	5.43
56.40	33000. B	348.47	2.88	3.97
63.45	33000. B	348.47	1.94	4.07
70.50	33000. B	348.47	0.92	3.13

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.92	2.99
7.05	33000. B	348.47	1.96	3.66
14.10	33000. B	348.47	2.80	4.58
21.15	33000. B	348.47	1.85	5.21
28.20	33000. B	348.47	1.40	7.00
35.25	33000. B	348.47	1.40	11.23
42.30	33000. B	348.47	1.44	5.94
49.35	33000. B	348.47	1.93	5.56
56.40	33000. B	348.47	3.01	4.13
63.45	33000. B	348.47	1.97	4.23
70.50	33000. B	348.47	0.91	3.24

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.91	2.99
5.64	33000. B	348.47	1.77	3.63
11.28	33000. B	348.47	2.32	4.18
16.93	33000. B	348.47	2.29	5.26
22.57	33000. B	348.47	1.49	6.18
28.21	33000. B	348.47	1.17	7.64
33.85	33000. B	348.47	1.12	9.50
39.49	33000. B	348.47	1.27	10.97
45.13	33000. B	348.47	1.67	6.33
50.78	33000. B	348.47	3.10	5.89
56.42	33000. B	348.47	>999.00	4.65

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.65
11.28	26400. S		2.13
16.93	26400. S		1.69
22.57	26400. S		1.49
28.21	26400. S		1.50
33.85	26400. S		1.78
39.49	26400. S		2.57
45.13	26400. S		2.68
50.78	26400. S		2.25
56.42	26400. S		1.31

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.31
7.05	26400. S		2.48
14.10	26400. S		3.39
21.15	26400. S		2.19
28.20	26400. S		1.82
35.25	26400. S		1.82
42.30	26400. S		1.78
49.35	26400. S		2.17
56.40	26400. S		3.18
63.45	26400. S		2.40
70.50	26400. S		1.31

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.31
7.05	26400. S		2.45
14.10	26400. S		3.31
21.15	26400. S		2.19
28.20	26400. S		1.82
35.25	26400. S		1.89
42.30	26400. S		1.81
49.35	26400. S		2.20
56.40	26400. S		3.21
63.45	26400. S		2.41
70.50	26400. S		1.32

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.32
7.05	26400. S		2.44

14.10	26400. S	3.25
21.15	26400. S	2.17
28.20	26400. S	1.81
35.25	26400. S	1.89
42.30	26400. S	1.82
49.35	26400. S	2.22
56.40	26400. S	3.26
63.45	26400. S	2.42
70.50	26400. S	1.31

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.31
7.05	26400. S		2.44
14.10	26400. S		3.22
21.15	26400. S		2.14
28.20	26400. S		1.77
35.25	26400. S		1.82
42.30	26400. S		1.82
49.35	26400. S		2.21
56.40	26400. S		3.38
63.45	26400. S		2.46
70.50	26400. S		1.31

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.31
5.64	26400. S		2.28
11.28	26400. S		2.75
16.93	26400. S		2.50
22.57	26400. S		1.80
28.21	26400. S		1.52
33.85	26400. S		1.50
39.49	26400. S		1.69
45.13	26400. S		2.14
50.78	26400. S		3.67
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 0.91 at location 56.42 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C4

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 10. 16.1 24.2 18.9 18.8  
PRMITSP 10. 10. 10. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C4

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

SPN 56.417 70.5 70.5 70.5 70.4999 56.4169  
 SS 0.  
 STFGAP 1.645  
 SUPBST 0.375  
 SUPBSW 6.  
 SVPBETA 1.3  
 TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
 10. 10.  
 TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
 TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75  
 0.75 0.75 0.625 0.625 0.625  
 TFISPB 4. 4. 4. 4. 4.  
 TFISPT 0.625 0.625 0.625 0.625 0.625  
 TFOSPB 11. 11. 11. 11. 11.  
 TFOSPT 0.375 0.375 0.375 0.375 0.375  
 TSLABW 75.996  
 TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.  
 210. 426. 212. 212. 426. 231.5  
 WCONC 150.  
 GO

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T	>999.00	3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	4.59
5.64	33000. B	348.47	3.00	5.71
11.28	33000. B	348.47	1.64	7.59
16.93	33000. B	348.47	1.31	10.59
22.57	33000. B	348.47	1.23	11.96
28.21	33000. B	348.47	1.35	7.61
33.85	33000. B	348.47	1.67	5.83
39.49	33000. B	348.47	2.58	6.66
45.13	33000. B	348.47	2.47	4.40
50.78	33000. B	348.47	2.73	4.36
56.42	33000. B	348.47	1.84	3.55

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	1.84	3.54
7.05	33000. B	348.47	3.26	4.36
14.10	33000. B	348.47	3.32	5.66
21.15	33000. B	348.47	2.06	6.35
28.20	33000. B	348.47	1.47	8.80
35.25	33000. B	348.47	1.36	12.19
42.30	33000. B	348.47	1.47	7.38
49.35	33000. B	348.47	2.05	5.50
56.40	33000. B	348.47	2.88	6.16
63.45	33000. B	348.47	3.10	5.05
70.50	33000. B	348.47	1.95	3.54

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	1.95	3.47
7.05	33000. B	348.47	3.20	4.32
14.10	33000. B	348.47	2.96	5.60
21.15	33000. B	348.47	2.11	6.29
28.20	33000. B	348.47	1.49	8.72
35.25	33000. B	348.47	1.40	12.11
42.30	33000. B	348.47	1.49	7.41
49.35	33000. B	348.47	2.07	5.52
56.40	33000. B	348.47	2.92	6.17
63.45	33000. B	348.47	3.14	5.06
70.50	33000. B	348.47	1.96	3.55

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.96	3.46
7.05	33000. B	348.47	3.19	4.33
14.10	33000. B	348.47	2.89	5.65
21.15	33000. B	348.47	2.10	6.29
28.20	33000. B	348.47	1.49	8.79
35.25	33000. B	348.47	1.38	10.11
42.30	33000. B	348.47	1.49	7.36
49.35	33000. B	348.47	2.11	7.03
56.40	33000. B	348.47	2.94	4.94
63.45	33000. B	348.47	3.16	5.09
70.50	33000. B	348.47	1.94	3.56

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.94	3.46
7.05	33000. B	348.47	3.14	4.32
14.10	33000. B	348.47	2.85	5.65
21.15	33000. B	348.47	2.08	6.26
28.20	33000. B	348.47	1.47	8.74
35.25	33000. B	348.47	1.36	14.22
42.30	33000. B	348.47	1.47	7.42
49.35	33000. B	348.47	2.06	7.08
56.40	33000. B	348.47	3.33	4.99
63.45	33000. B	348.47	3.26	5.13
70.50	33000. B	348.47	1.87	3.60

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.87	3.46
5.64	33000. B	348.47	2.76	4.19
11.28	33000. B	348.47	2.49	5.16
16.93	33000. B	348.47	2.58	6.66
22.57	33000. B	348.47	1.70	7.17
28.21	33000. B	348.47	1.35	9.97
33.85	33000. B	348.47	1.22	8.98
39.49	33000. B	348.47	1.30	10.65
45.13	33000. B	348.47	1.65	6.15
50.78	33000. B	348.47	3.05	5.78
56.42	33000. B	348.47	>999.00	4.69

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.56
11.28	26400. S		2.09
16.93	26400. S		1.72
22.57	26400. S		1.65
28.21	26400. S		1.74
33.85	26400. S		2.03
39.49	26400. S		2.85
45.13	26400. S		2.92
50.78	26400. S		3.51
56.42	26400. S		2.65

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.65
7.05	26400. S		4.08
14.10	26400. S		3.72
21.15	26400. S		2.39
28.20	26400. S		1.85
35.25	26400. S		1.77
42.30	26400. S		1.85
49.35	26400. S		2.38
56.40	26400. S		3.26
63.45	26400. S		3.86
70.50	26400. S		2.78

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.78
7.05	26400. S		3.99
14.10	26400. S		3.35
21.15	26400. S		2.44
28.20	26400. S		1.87
35.25	26400. S		1.78
42.30	26400. S		1.87
49.35	26400. S		2.40
56.40	26400. S		3.30
63.45	26400. S		3.91
70.50	26400. S		2.80

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.80
7.05	26400. S		3.97

14.10	26400. S	3.32
21.15	26400. S	2.43
28.20	26400. S	1.87
35.25	26400. S	1.78
42.30	26400. S	1.87
49.35	26400. S	2.40
56.40	26400. S	3.32
63.45	26400. S	3.94
70.50	26400. S	2.78

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.78
7.05	26400. S		3.91
14.10	26400. S		3.27
21.15	26400. S		2.41
28.20	26400. S		1.85
35.25	26400. S		1.77
42.30	26400. S		1.85
49.35	26400. S		2.36
56.40	26400. S		3.74
63.45	26400. S		4.08
70.50	26400. S		2.70

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.70
5.64	26400. S		3.56
11.28	26400. S		2.95
16.93	26400. S		2.82
22.57	26400. S		2.06
28.21	26400. S		1.75
33.85	26400. S		1.64
39.49	26400. S		1.73
45.13	26400. S		2.11
50.78	26400. S		3.61
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.22 at location 372.27 in span 6.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C4 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 10. 16.1 24.2 18.9 18.8 10. 16.1 24.2 18.9 18.8  
PRMITSP 10. 10. 10. 4. 30. 10. 10. 10. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C4 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 0.975
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

## Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	4.67
5.64	33000. B	348.47	3.12	5.99
11.28	33000. B	348.47	1.70	8.13
16.93	33000. B	348.47	1.29	12.06
22.57	33000. B	348.47	1.15	13.81
28.21	33000. B	348.47	1.22	6.96
33.85	33000. B	348.47	1.51	5.45
39.49	33000. B	348.47	2.33	5.79
45.13	33000. B	348.47	2.30	4.04
50.78	33000. B	348.47	1.77	3.63
56.42	33000. B	348.47	0.92	2.96

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	0.92	3.18
7.05	33000. B	348.47	2.01	3.70
14.10	33000. B	348.47	3.02	4.48
21.15	33000. B	348.47	1.97	5.35
28.20	33000. B	348.47	1.51	6.80
35.25	33000. B	348.47	1.46	10.50
42.30	33000. B	348.47	1.47	6.30
49.35	33000. B	348.47	1.91	4.87
56.40	33000. B	348.47	2.85	4.89
63.45	33000. B	348.47	1.95	3.95
70.50	33000. B	348.47	0.92	2.95

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	0.92	2.87
7.05	33000. B	348.47	1.98	3.47
14.10	33000. B	348.47	2.99	4.26
21.15	33000. B	348.47	1.98	4.91
28.20	33000. B	348.47	1.52	6.51
35.25	33000. B	348.47	1.55	9.35
42.30	33000. B	348.47	1.50	6.31
49.35	33000. B	348.47	1.93	4.88
56.40	33000. B	348.47	2.87	4.89
63.45	33000. B	348.47	1.96	3.94
70.50	33000. B	348.47	0.93	2.95

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.93	2.86
7.05	33000. B	348.47	1.98	3.47
14.10	33000. B	348.47	2.89	4.31
21.15	33000. B	348.47	1.95	4.89
28.20	33000. B	348.47	1.51	6.54
35.25	33000. B	348.47	1.52	7.96
42.30	33000. B	348.47	1.51	6.29
49.35	33000. B	348.47	1.99	5.88
56.40	33000. B	348.47	2.92	4.23
63.45	33000. B	348.47	1.97	3.96
70.50	33000. B	348.47	0.93	2.96

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.93	2.86
7.05	33000. B	348.47	1.97	3.48
14.10	33000. B	348.47	2.87	4.31
21.15	33000. B	348.47	1.93	4.88
28.20	33000. B	348.47	1.47	6.52
35.25	33000. B	348.47	1.47	11.17
42.30	33000. B	348.47	1.50	6.50
49.35	33000. B	348.47	1.97	6.07
56.40	33000. B	348.47	3.03	4.42
63.45	33000. B	348.47	2.00	4.13
70.50	33000. B	348.47	0.92	3.23

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.92	2.88
5.64	33000. B	348.47	1.79	3.47
11.28	33000. B	348.47	2.35	4.10
16.93	33000. B	348.47	2.33	4.95
22.57	33000. B	348.47	1.54	5.89
28.21	33000. B	348.47	1.23	7.12
33.85	33000. B	348.47	1.15	10.31
39.49	33000. B	348.47	1.29	12.21
45.13	33000. B	348.47	1.72	6.61
50.78	33000. B	348.47	3.15	5.99
56.42	33000. B	348.47	>999.00	4.72

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.70
11.28	26400. S		2.17
16.93	26400. S		1.70
22.57	26400. S		1.55
28.21	26400. S		1.58
33.85	26400. S		1.83
39.49	26400. S		2.57
45.13	26400. S		2.73
50.78	26400. S		2.28
56.42	26400. S		1.32

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.32
7.05	26400. S		2.51
14.10	26400. S		3.39
21.15	26400. S		2.28
28.20	26400. S		1.90
35.25	26400. S		1.89
42.30	26400. S		1.85
49.35	26400. S		2.21
56.40	26400. S		3.22
63.45	26400. S		2.43
70.50	26400. S		1.32

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.32
7.05	26400. S		2.47
14.10	26400. S		3.38
21.15	26400. S		2.28
28.20	26400. S		1.90
35.25	26400. S		1.96
42.30	26400. S		1.89
49.35	26400. S		2.24
56.40	26400. S		3.25
63.45	26400. S		2.44
70.50	26400. S		1.33

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
7.05	26400. S		2.46

14.10	26400. S	3.32
21.15	26400. S	2.26
28.20	26400. S	1.89
35.25	26400. S	1.96
42.30	26400. S	1.90
49.35	26400. S	2.26
56.40	26400. S	3.30
63.45	26400. S	2.45
70.50	26400. S	1.32

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.32
7.05	26400. S		2.45
14.10	26400. S		3.30
21.15	26400. S		2.23
28.20	26400. S		1.85
35.25	26400. S		1.90
42.30	26400. S		1.89
49.35	26400. S		2.25
56.40	26400. S		3.40
63.45	26400. S		2.50
70.50	26400. S		1.32

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.32
5.64	26400. S		2.31
11.28	26400. S		2.79
16.93	26400. S		2.54
22.57	26400. S		1.86
28.21	26400. S		1.59
33.85	26400. S		1.55
39.49	26400. S		1.71
45.13	26400. S		2.19
50.78	26400. S		3.74
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 0.92 at location 338.42 in span 5.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C5

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 10. 22. 22. 17. 17.  
PRMITSP 10. 4. 16. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C5

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

## Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	4.77
5.64	33000. B	348.47	3.03	5.75
11.28	33000. B	348.47	1.67	7.49
16.93	33000. B	348.47	1.32	10.71
22.57	33000. B	348.47	1.22	12.32
28.21	33000. B	348.47	1.33	8.64
33.85	33000. B	348.47	1.66	6.45
39.49	33000. B	348.47	2.60	7.37
45.13	33000. B	348.47	2.51	4.73
50.78	33000. B	348.47	2.78	4.56
56.42	33000. B	348.47	1.88	3.67

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	1.88	3.70
7.05	33000. B	348.47	3.36	4.54
14.10	33000. B	348.47	3.41	5.93
21.15	33000. B	348.47	2.04	6.74
28.20	33000. B	348.47	1.45	9.50
35.25	33000. B	348.47	1.35	12.40
42.30	33000. B	348.47	1.45	7.46
49.35	33000. B	348.47	2.06	5.57
56.40	33000. B	348.47	2.93	6.24
63.45	33000. B	348.47	3.16	5.14
70.50	33000. B	348.47	2.00	3.73

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	2.00	3.57
7.05	33000. B	348.47	3.27	4.51
14.10	33000. B	348.47	3.02	5.86
21.15	33000. B	348.47	2.08	6.68
28.20	33000. B	348.47	1.47	9.40
35.25	33000. B	348.47	1.39	12.32
42.30	33000. B	348.47	1.47	7.48
49.35	33000. B	348.47	2.08	5.59
56.40	33000. B	348.47	2.97	6.25
63.45	33000. B	348.47	3.20	5.15
70.50	33000. B	348.47	2.01	3.73

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.01	3.58
7.05	33000. B	348.47	3.26	4.51
14.10	33000. B	348.47	2.95	5.90
21.15	33000. B	348.47	2.06	6.68
28.20	33000. B	348.47	1.47	9.47
35.25	33000. B	348.47	1.36	11.20
42.30	33000. B	348.47	1.47	7.43
49.35	33000. B	348.47	2.12	7.10
56.40	33000. B	348.47	2.99	4.97
63.45	33000. B	348.47	3.22	5.18
70.50	33000. B	348.47	2.00	3.73

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.00	3.58
7.05	33000. B	348.47	3.23	4.51
14.10	33000. B	348.47	2.92	5.90
21.15	33000. B	348.47	2.05	6.66
28.20	33000. B	348.47	1.46	9.42
35.25	33000. B	348.47	1.35	15.46
42.30	33000. B	348.47	1.45	7.48
49.35	33000. B	348.47	2.07	7.14
56.40	33000. B	348.47	3.41	5.02
63.45	33000. B	348.47	3.35	5.23
70.50	33000. B	348.47	1.93	3.74

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.93	3.54
5.64	33000. B	348.47	2.84	4.29
11.28	33000. B	348.47	2.55	5.18
16.93	33000. B	348.47	2.55	6.68
22.57	33000. B	348.47	1.68	7.25
28.21	33000. B	348.47	1.32	10.20
33.85	33000. B	348.47	1.23	10.29
39.49	33000. B	348.47	1.32	11.95
45.13	33000. B	348.47	1.69	6.68
50.78	33000. B	348.47	3.07	5.83
56.42	33000. B	348.47	>999.00	4.61

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.59
11.28	26400. S		2.14
16.93	26400. S		1.74
22.57	26400. S		1.65
28.21	26400. S		1.72
33.85	26400. S		2.01
39.49	26400. S		2.87
45.13	26400. S		2.98
50.78	26400. S		3.58
56.42	26400. S		2.70

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.70
7.05	26400. S		4.20
14.10	26400. S		3.83
21.15	26400. S		2.36
28.20	26400. S		1.82
35.25	26400. S		1.75
42.30	26400. S		1.83
49.35	26400. S		2.39
56.40	26400. S		3.32
63.45	26400. S		3.94
70.50	26400. S		2.85

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.85
7.05	26400. S		4.08
14.10	26400. S		3.41
21.15	26400. S		2.40
28.20	26400. S		1.85
35.25	26400. S		1.76
42.30	26400. S		1.84
49.35	26400. S		2.41
56.40	26400. S		3.36
63.45	26400. S		3.98
70.50	26400. S		2.87

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.87
7.05	26400. S		4.05

14.10	26400. S	3.39
21.15	26400. S	2.39
28.20	26400. S	1.85
35.25	26400. S	1.76
42.30	26400. S	1.84
49.35	26400. S	2.42
56.40	26400. S	3.38
63.45	26400. S	4.01
70.50	26400. S	2.86

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.86
7.05	26400. S		4.02
14.10	26400. S		3.36
21.15	26400. S		2.37
28.20	26400. S		1.83
35.25	26400. S		1.75
42.30	26400. S		1.82
49.35	26400. S		2.37
56.40	26400. S		3.83
63.45	26400. S		4.19
70.50	26400. S		2.77

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.77
5.64	26400. S		3.65
11.28	26400. S		3.02
16.93	26400. S		2.79
22.57	26400. S		2.03
28.21	26400. S		1.71
33.85	26400. S		1.65
39.49	26400. S		1.76
45.13	26400. S		2.16
50.78	26400. S		3.64
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.22 at location 22.57 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C5 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 10. 22. 22. 17. 17. 10. 22. 22. 17. 17.  
PRMITSP 10. 4. 16. 4. 30. 10. 4. 16. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C5 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

SPN 56.417 70.5 70.5 70.5 70.4999 56.4169  
 SS 0.  
 STFGAP 1.645  
 SUPBST 0.375  
 SUPBSW 6.  
 SVPBETA 0.975  
 TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
 10. 10.  
 TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
 TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75  
 0.75 0.75 0.625 0.625 0.625  
 TFISPB 4. 4. 4. 4. 4.  
 TFISPT 0.625 0.625 0.625 0.625 0.625  
 TFOSPB 11. 11. 11. 11. 11.  
 TFOSPT 0.375 0.375 0.375 0.375 0.375  
 TSLABW 75.996  
 TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.  
 210. 426. 212. 212. 426. 231.5  
 WCONC 150.  
 GO

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

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Strength II

## Span 1

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		>999.00		4.40
5.64	33000. B	348.47		3.07		5.90
11.28	33000. B	348.47		1.68		7.99
16.93	33000. B	348.47		1.35		11.11
22.57	33000. B	348.47		1.19		13.01
28.21	33000. B	348.47		1.21		6.69
33.85	33000. B	348.47		1.51		5.18
39.49	33000. B	348.47		2.34		5.31
45.13	33000. B	348.47		2.36		3.83
50.78	33000. B	348.47		1.80		3.78
56.42	33000. B	348.47		0.93		3.16

Span 2

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		0.93		3.18
7.05	33000. B	348.47		2.04		3.83
14.10	33000. B	348.47		3.10		4.74
21.15	33000. B	348.47		1.94		5.45
28.20	33000. B	348.47		1.48		7.49
35.25	33000. B	348.47		1.44		9.60
42.30	33000. B	348.47		1.45		5.76
49.35	33000. B	348.47		1.91		4.49
56.40	33000. B	348.47		2.95		4.58
63.45	33000. B	348.47		1.98		4.06
70.50	33000. B	348.47		0.93		3.13

Span 3

Location	Allowable	Shear	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47		0.93		3.00
7.05	33000. B	348.47		2.02		3.66
14.10	33000. B	348.47		3.10		4.51
21.15	33000. B	348.47		1.96		5.27
28.20	33000. B	348.47		1.49		7.05
35.25	33000. B	348.47		1.53		9.49
42.30	33000. B	348.47		1.48		5.76
49.35	33000. B	348.47		1.94		4.50
56.40	33000. B	348.47		2.98		4.58
63.45	33000. B	348.47		1.99		4.06
70.50	33000. B	348.47		0.94		3.12

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.94	3.01
7.05	33000. B	348.47	2.02	3.66
14.10	33000. B	348.47	2.99	4.56
21.15	33000. B	348.47	1.93	5.26
28.20	33000. B	348.47	1.48	7.07
35.25	33000. B	348.47	1.50	8.78
42.30	33000. B	348.47	1.49	5.75
49.35	33000. B	348.47	2.00	5.38
56.40	33000. B	348.47	3.03	3.95
63.45	33000. B	348.47	1.99	4.08
70.50	33000. B	348.47	0.93	3.12

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.93	3.01
7.05	33000. B	348.47	2.01	3.67
14.10	33000. B	348.47	2.96	4.56
21.15	33000. B	348.47	1.90	5.25
28.20	33000. B	348.47	1.45	7.06
35.25	33000. B	348.47	1.45	11.17
42.30	33000. B	348.47	1.48	5.89
49.35	33000. B	348.47	1.98	5.51
56.40	33000. B	348.47	3.10	4.11
63.45	33000. B	348.47	2.03	4.25
70.50	33000. B	348.47	0.93	3.22

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.93	3.01
5.64	33000. B	348.47	1.82	3.64
11.28	33000. B	348.47	2.43	4.19
16.93	33000. B	348.47	2.30	5.30
22.57	33000. B	348.47	1.52	6.27
28.21	33000. B	348.47	1.22	7.77
33.85	33000. B	348.47	1.20	9.70
39.49	33000. B	348.47	1.33	11.01
45.13	33000. B	348.47	1.68	6.35
50.78	33000. B	348.47	3.09	5.88
56.42	33000. B	348.47	>999.00	4.55

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.64
11.28	26400. S		2.15
16.93	26400. S		1.78
22.57	26400. S		1.60
28.21	26400. S		1.57
33.85	26400. S		1.82
39.49	26400. S		2.59
45.13	26400. S		2.80
50.78	26400. S		2.32
56.42	26400. S		1.33

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
7.05	26400. S		2.55
14.10	26400. S		3.48
21.15	26400. S		2.25
28.20	26400. S		1.86
35.25	26400. S		1.87
42.30	26400. S		1.82
49.35	26400. S		2.22
56.40	26400. S		3.34
63.45	26400. S		2.46
70.50	26400. S		1.34

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.34
7.05	26400. S		2.52
14.10	26400. S		3.51
21.15	26400. S		2.26
28.20	26400. S		1.87
35.25	26400. S		1.94
42.30	26400. S		1.86
49.35	26400. S		2.25
56.40	26400. S		3.37
63.45	26400. S		2.47
70.50	26400. S		1.34

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.34
7.05	26400. S		2.51

14.10	26400. S	3.33
21.15	26400. S	2.23
28.20	26400. S	1.86
35.25	26400. S	1.94
42.30	26400. S	1.87
49.35	26400. S	2.27
56.40	26400. S	3.43
63.45	26400. S	2.49
70.50	26400. S	1.33

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
7.05	26400. S		2.50
14.10	26400. S		3.30
21.15	26400. S		2.20
28.20	26400. S		1.82
35.25	26400. S		1.88
42.30	26400. S		1.87
49.35	26400. S		2.26
56.40	26400. S		3.48
63.45	26400. S		2.54
70.50	26400. S		1.33

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.33
5.64	26400. S		2.35
11.28	26400. S		2.88
16.93	26400. S		2.52
22.57	26400. S		1.84
28.21	26400. S		1.59
33.85	26400. S		1.62
39.49	26400. S		1.78
45.13	26400. S		2.15
50.78	26400. S		3.67
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 0.93 at location 56.42 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C6

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 11.9 21.3 21.4 21.3  
PRMITSP 9. 4. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C6

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

## Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	4.27
5.64	33000. B	348.47	2.78	5.27
11.28	33000. B	348.47	1.49	6.86
16.93	33000. B	348.47	1.17	9.20
22.57	33000. B	348.47	1.07	10.02
28.21	33000. B	348.47	1.15	6.55
33.85	33000. B	348.47	1.45	5.29
39.49	33000. B	348.47	2.19	6.03
45.13	33000. B	348.47	2.58	4.26
50.78	33000. B	348.47	2.84	4.32
56.42	33000. B	348.47	1.92	3.55

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	1.92	3.50
7.05	33000. B	348.47	3.30	4.20
14.10	33000. B	348.47	2.99	5.36
21.15	33000. B	348.47	1.76	5.84
28.20	33000. B	348.47	1.28	7.82
35.25	33000. B	348.47	1.21	10.20
42.30	33000. B	348.47	1.29	6.81
49.35	33000. B	348.47	1.77	5.20
56.40	33000. B	348.47	3.01	5.87
63.45	33000. B	348.47	3.24	4.94
70.50	33000. B	348.47	2.02	3.52

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	2.02	3.44
7.05	33000. B	348.47	3.33	4.18
14.10	33000. B	348.47	3.06	5.31
21.15	33000. B	348.47	1.79	5.79
28.20	33000. B	348.47	1.30	7.74
35.25	33000. B	348.47	1.24	10.17
42.30	33000. B	348.47	1.31	6.84
49.35	33000. B	348.47	1.78	5.21
56.40	33000. B	348.47	3.04	5.87
63.45	33000. B	348.47	3.28	4.94
70.50	33000. B	348.47	2.03	3.52

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.03	3.44
7.05	33000. B	348.47	3.31	4.16
14.10	33000. B	348.47	2.95	5.36
21.15	33000. B	348.47	1.77	5.79
28.20	33000. B	348.47	1.30	7.80
35.25	33000. B	348.47	1.22	8.52
42.30	33000. B	348.47	1.31	6.79
49.35	33000. B	348.47	1.82	6.48
56.40	33000. B	348.47	3.07	4.81
63.45	33000. B	348.47	3.29	4.99
70.50	33000. B	348.47	2.02	3.53

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.02	3.44
7.05	33000. B	348.47	3.28	4.16
14.10	33000. B	348.47	2.93	5.36
21.15	33000. B	348.47	1.76	5.78
28.20	33000. B	348.47	1.29	7.76
35.25	33000. B	348.47	1.21	11.40
42.30	33000. B	348.47	1.29	6.84
49.35	33000. B	348.47	1.78	6.53
56.40	33000. B	348.47	3.14	4.85
63.45	33000. B	348.47	3.29	5.03
70.50	33000. B	348.47	1.93	3.56

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.93	3.45
5.64	33000. B	348.47	2.88	4.07
11.28	33000. B	348.47	2.60	4.83
16.93	33000. B	348.47	2.16	6.06
22.57	33000. B	348.47	1.47	6.27
28.21	33000. B	348.47	1.15	8.19
33.85	33000. B	348.47	1.07	7.77
39.49	33000. B	348.47	1.17	9.28
45.13	33000. B	348.47	1.52	5.65
50.78	33000. B	348.47	2.84	5.39
56.42	33000. B	348.47	>999.00	4.17

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.29
11.28	26400. S		1.91
16.93	26400. S		1.54
22.57	26400. S		1.44
28.21	26400. S		1.49
33.85	26400. S		1.76
39.49	26400. S		2.42
45.13	26400. S		3.05
50.78	26400. S		3.67
56.42	26400. S		2.77

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.77
7.05	26400. S		4.13
14.10	26400. S		3.11
21.15	26400. S		2.04
28.20	26400. S		1.62
35.25	26400. S		1.56
42.30	26400. S		1.63
49.35	26400. S		2.05
56.40	26400. S		3.39
63.45	26400. S		4.03
70.50	26400. S		2.89

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.89
7.05	26400. S		4.15
14.10	26400. S		3.17
21.15	26400. S		2.07
28.20	26400. S		1.63
35.25	26400. S		1.57
42.30	26400. S		1.64
49.35	26400. S		2.06
56.40	26400. S		3.41
63.45	26400. S		4.08
70.50	26400. S		2.90

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.90
7.05	26400. S		4.12

14.10	26400. S	3.01
21.15	26400. S	2.06
28.20	26400. S	1.63
35.25	26400. S	1.58
42.30	26400. S	1.64
49.35	26400. S	2.07
56.40	26400. S	3.33
63.45	26400. S	4.10
70.50	26400. S	2.89

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.89
7.05	26400. S		4.09
14.10	26400. S		2.99
21.15	26400. S		2.04
28.20	26400. S		1.62
35.25	26400. S		1.57
42.30	26400. S		1.63
49.35	26400. S		2.04
56.40	26400. S		3.28
63.45	26400. S		4.12
70.50	26400. S		2.78

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.78
5.64	26400. S		3.72
11.28	26400. S		3.08
16.93	26400. S		2.36
22.57	26400. S		1.78
28.21	26400. S		1.49
33.85	26400. S		1.44
39.49	26400. S		1.56
45.13	26400. S		1.94
50.78	26400. S		3.36
56.42	26400. S		>999.00

\*\*\*\*\*  
Minimum rating is 1.07 at location 22.57 in span 1.  
\*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
B - Bottom steel governs  
C - Concrete governs  
R - Rebar governs  
V - Shear governs  
S - Serviceability governs

Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C6 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 11.9 21.3 21.4 21.3 11.9 21.3 21.4 21.3  
PRMITSP 9. 4. 4. 30. 9. 4. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C6 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

SPN 56.417 70.5 70.5 70.5 70.4999 56.4169  
 SS 0.  
 STFGAP 1.645  
 SUPBST 0.375  
 SUPBSW 6.  
 SVPBETA 0.975  
 TCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
 10. 10.  
 TCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
 0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
 TCOVT 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75 0.75  
 0.75 0.75 0.625 0.625 0.625  
 TFISPB 4. 4. 4. 4. 4.  
 TFISPT 0.625 0.625 0.625 0.625 0.625  
 TFOSPB 11. 11. 11. 11. 11.  
 TFOSPT 0.375 0.375 0.375 0.375 0.375  
 TSLABW 75.996  
 TSSP 231.5 231.5 426. 212. 212. 426. 210. 210. 420. 210.  
 210. 426. 212. 212. 426. 231.5  
 WCONC 150.  
 GO

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

## Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	3.89
5.64	33000. B	348.47	2.58	4.95
11.28	33000. B	348.47	1.43	6.81
16.93	33000. B	348.47	1.12	9.96
22.57	33000. B	348.47	1.00	11.00
28.21	33000. B	348.47	1.06	6.05
33.85	33000. B	348.47	1.33	4.91
39.49	33000. B	348.47	2.00	5.04
45.13	33000. B	348.47	2.26	3.74
50.78	33000. B	348.47	1.83	3.48
56.42	33000. B	348.47	0.90	2.88

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	0.90	2.76
7.05	33000. B	348.47	2.13	3.44
14.10	33000. B	348.47	2.92	4.15
21.15	33000. B	348.47	1.63	4.98
28.20	33000. B	348.47	1.23	6.38
35.25	33000. B	348.47	1.23	10.52
42.30	33000. B	348.47	1.22	6.05
49.35	33000. B	348.47	1.61	4.60
56.40	33000. B	348.47	2.64	4.62
63.45	33000. B	348.47	2.16	3.81
70.50	33000. B	348.47	0.95	2.73

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	0.95	2.69
7.05	33000. B	348.47	2.23	3.34
14.10	33000. B	348.47	2.70	4.10
21.15	33000. B	348.47	1.65	4.73
28.20	33000. B	348.47	1.24	6.38
35.25	33000. B	348.47	1.26	9.68
42.30	33000. B	348.47	1.22	6.07
49.35	33000. B	348.47	1.62	4.60
56.40	33000. B	348.47	2.68	4.63
63.45	33000. B	348.47	2.17	3.80
70.50	33000. B	348.47	0.95	2.73

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.95	2.69
7.05	33000. B	348.47	2.23	3.32
14.10	33000. B	348.47	2.60	4.15
21.15	33000. B	348.47	1.63	4.71
28.20	33000. B	348.47	1.23	6.41
35.25	33000. B	348.47	1.23	7.75
42.30	33000. B	348.47	1.23	6.06
49.35	33000. B	348.47	1.66	5.67
56.40	33000. B	348.47	2.72	4.00
63.45	33000. B	348.47	2.18	3.83
70.50	33000. B	348.47	0.95	2.73

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.95	2.69
7.05	33000. B	348.47	2.21	3.33
14.10	33000. B	348.47	2.56	4.15
21.15	33000. B	348.47	1.62	4.70
28.20	33000. B	348.47	1.22	6.38
35.25	33000. B	348.47	1.22	10.84
42.30	33000. B	348.47	1.22	6.14
49.35	33000. B	348.47	1.64	5.74
56.40	33000. B	348.47	3.05	4.07
63.45	33000. B	348.47	2.14	3.89
70.50	33000. B	348.47	0.91	2.76

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	0.91	2.77
5.64	33000. B	348.47	1.87	3.31
11.28	33000. B	348.47	2.23	3.81
16.93	33000. B	348.47	1.98	4.68
22.57	33000. B	348.47	1.35	5.42
28.21	33000. B	348.47	1.06	6.60
33.85	33000. B	348.47	1.00	8.60
39.49	33000. B	348.47	1.13	10.00
45.13	33000. B	348.47	1.44	5.42
50.78	33000. B	348.47	2.60	4.94
56.42	33000. B	348.47	>999.00	3.75

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.06
11.28	26400. S		1.83
16.93	26400. S		1.48
22.57	26400. S		1.34
28.21	26400. S		1.37
33.85	26400. S		1.61
39.49	26400. S		2.21
45.13	26400. S		2.68
50.78	26400. S		2.35
56.42	26400. S		1.30

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.30
7.05	26400. S		2.66
14.10	26400. S		3.04
21.15	26400. S		1.89
28.20	26400. S		1.55
35.25	26400. S		1.60
42.30	26400. S		1.53
49.35	26400. S		1.87
56.40	26400. S		2.99
63.45	26400. S		2.69
70.50	26400. S		1.35

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.35
7.05	26400. S		2.77
14.10	26400. S		3.04
21.15	26400. S		1.90
28.20	26400. S		1.55
35.25	26400. S		1.59
42.30	26400. S		1.53
49.35	26400. S		1.88
56.40	26400. S		3.04
63.45	26400. S		2.70
70.50	26400. S		1.36

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.36
7.05	26400. S		2.77

14.10	26400. S	2.89
21.15	26400. S	1.89
28.20	26400. S	1.55
35.25	26400. S	1.60
42.30	26400. S	1.54
49.35	26400. S	1.89
56.40	26400. S	3.08
63.45	26400. S	2.71
70.50	26400. S	1.35

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.35
7.05	26400. S		2.75
14.10	26400. S		2.86
21.15	26400. S		1.87
28.20	26400. S		1.54
35.25	26400. S		1.58
42.30	26400. S		1.53
49.35	26400. S		1.88
56.40	26400. S		3.26
63.45	26400. S		2.68
70.50	26400. S		1.30

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.30
5.64	26400. S		2.41
11.28	26400. S		2.65
16.93	26400. S		2.16
22.57	26400. S		1.63
28.21	26400. S		1.38
33.85	26400. S		1.35
39.49	26400. S		1.50
45.13	26400. S		1.84
50.78	26400. S		3.08
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 0.90 at location 56.42 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C7

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 13.4 23. 23.  
PRMITSP 10. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C7

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	>999.00	4.94
5.64	33000. B	348.47	3.45	6.55
11.28	33000. B	348.47	1.84	8.40
16.93	33000. B	348.47	1.46	11.11
22.57	33000. B	348.47	1.34	11.97
28.21	33000. B	348.47	1.44	7.96
33.85	33000. B	348.47	1.83	6.50
39.49	33000. B	348.47	2.73	7.39
45.13	33000. B	348.47	3.29	5.26
50.78	33000. B	348.47	3.62	5.43
56.42	33000. B	348.47	2.45	4.42

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.45	4.42
7.05	33000. B	348.47	4.19	5.24
14.10	33000. B	348.47	3.69	6.63
21.15	33000. B	348.47	2.20	7.25
28.20	33000. B	348.47	1.61	9.57
35.25	33000. B	348.47	1.52	12.18
42.30	33000. B	348.47	1.62	8.32
49.35	33000. B	348.47	2.20	6.39
56.40	33000. B	348.47	3.83	7.25
63.45	33000. B	348.47	4.12	6.24
70.50	33000. B	348.47	2.57	4.44

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.57	4.32
7.05	33000. B	348.47	4.23	5.21
14.10	33000. B	348.47	3.78	6.57
21.15	33000. B	348.47	2.24	7.19
28.20	33000. B	348.47	1.64	9.48
35.25	33000. B	348.47	1.57	12.14
42.30	33000. B	348.47	1.64	8.34
49.35	33000. B	348.47	2.22	6.40
56.40	33000. B	348.47	3.87	7.25
63.45	33000. B	348.47	4.17	6.24
70.50	33000. B	348.47	2.58	4.45

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.58	4.31
7.05	33000. B	348.47	4.21	5.21
14.10	33000. B	348.47	3.64	6.60
21.15	33000. B	348.47	2.22	7.18
28.20	33000. B	348.47	1.63	9.56
35.25	33000. B	348.47	1.53	10.46
42.30	33000. B	348.47	1.64	8.29
49.35	33000. B	348.47	2.27	7.91
56.40	33000. B	348.47	3.90	5.95
63.45	33000. B	348.47	4.19	6.30
70.50	33000. B	348.47	2.57	4.46

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.57	4.31
7.05	33000. B	348.47	4.17	5.21
14.10	33000. B	348.47	3.62	6.60
21.15	33000. B	348.47	2.21	7.16
28.20	33000. B	348.47	1.61	9.52
35.25	33000. B	348.47	1.52	14.11
42.30	33000. B	348.47	1.62	8.35
49.35	33000. B	348.47	2.22	7.97
56.40	33000. B	348.47	3.85	6.00
63.45	33000. B	348.47	4.19	6.35
70.50	33000. B	348.47	2.45	4.51

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	2.45	4.35
5.64	33000. B	348.47	3.67	5.04
11.28	33000. B	348.47	3.30	5.97
16.93	33000. B	348.47	2.67	7.48
22.57	33000. B	348.47	1.84	7.64
28.21	33000. B	348.47	1.44	9.94
33.85	33000. B	348.47	1.35	9.35
39.49	33000. B	348.47	1.46	11.22
45.13	33000. B	348.47	1.88	6.89
50.78	33000. B	348.47	3.52	6.69
56.42	33000. B	348.47	>999.00	4.99

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		4.09
11.28	26400. S		2.36
16.93	26400. S		1.93
22.57	26400. S		1.80
28.21	26400. S		1.87
33.85	26400. S		2.21
39.49	26400. S		3.01
45.13	26400. S		3.89
50.78	26400. S		4.67
56.42	26400. S		3.52

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		3.52
7.05	26400. S		5.25
14.10	26400. S		3.85
21.15	26400. S		2.55
28.20	26400. S		2.03
35.25	26400. S		1.97
42.30	26400. S		2.04
49.35	26400. S		2.56
56.40	26400. S		4.15
63.45	26400. S		5.14
70.50	26400. S		3.67

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		3.67
7.05	26400. S		5.27
14.10	26400. S		3.91
21.15	26400. S		2.59
28.20	26400. S		2.05
35.25	26400. S		1.98
42.30	26400. S		2.06
49.35	26400. S		2.57
56.40	26400. S		4.18
63.45	26400. S		5.19
70.50	26400. S		3.69

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		3.69
7.05	26400. S		5.24

14.10	26400. S	3.72
21.15	26400. S	2.58
28.20	26400. S	2.05
35.25	26400. S	1.98
42.30	26400. S	2.06
49.35	26400. S	2.59
56.40	26400. S	4.08
63.45	26400. S	5.22
70.50	26400. S	3.68

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		3.68
7.05	26400. S		5.19
14.10	26400. S		3.69
21.15	26400. S		2.56
28.20	26400. S		2.03
35.25	26400. S		1.97
42.30	26400. S		2.04
49.35	26400. S		2.54
56.40	26400. S		4.01
63.45	26400. S		5.25
70.50	26400. S		3.53

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		3.53
5.64	26400. S		4.72
11.28	26400. S		3.91
16.93	26400. S		2.92
22.57	26400. S		2.23
28.21	26400. S		1.87
33.85	26400. S		1.81
39.49	26400. S		1.95
45.13	26400. S		2.40
50.78	26400. S		4.18
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.34 at location 22.57 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C7 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 13.4 23. 23. 13.4 23. 23.  
PRMITSP 10. 4. 30. 10. 4.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C7 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 0.975
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T	>999.00	3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	4.27
5.64	33000. B	348.47	2.92	5.61
11.28	33000. B	348.47	1.67	7.70
16.93	33000. B	348.47	1.32	10.32
22.57	33000. B	348.47	1.21	11.16
28.21	33000. B	348.47	1.30	6.60
33.85	33000. B	348.47	1.66	5.39
39.49	33000. B	348.47	2.50	5.57
45.13	33000. B	348.47	2.62	4.22
50.78	33000. B	348.47	2.32	4.26
56.42	33000. B	348.47	1.12	3.38

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	1.12	3.33
7.05	33000. B	348.47	2.75	4.14
14.10	33000. B	348.47	3.68	5.04
21.15	33000. B	348.47	1.98	5.81
28.20	33000. B	348.47	1.46	7.69
35.25	33000. B	348.47	1.45	10.84
42.30	33000. B	348.47	1.45	6.68
49.35	33000. B	348.47	1.96	5.11
56.40	33000. B	348.47	3.06	5.30
63.45	33000. B	348.47	2.79	4.64
70.50	33000. B	348.47	1.19	3.30

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	1.19	3.23
7.05	33000. B	348.47	2.88	4.07
14.10	33000. B	348.47	3.15	4.98
21.15	33000. B	348.47	1.99	5.76
28.20	33000. B	348.47	1.47	7.70
35.25	33000. B	348.47	1.47	10.74
42.30	33000. B	348.47	1.45	6.69
49.35	33000. B	348.47	1.98	5.10
56.40	33000. B	348.47	3.10	5.30
63.45	33000. B	348.47	2.81	4.63
70.50	33000. B	348.47	1.20	3.29

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.20	3.23
7.05	33000. B	348.47	2.89	4.07
14.10	33000. B	348.47	3.04	5.02
21.15	33000. B	348.47	1.97	5.74
28.20	33000. B	348.47	1.47	7.74
35.25	33000. B	348.47	1.44	9.36
42.30	33000. B	348.47	1.46	6.66
49.35	33000. B	348.47	2.03	6.22
56.40	33000. B	348.47	3.15	4.55
63.45	33000. B	348.47	2.81	4.67
70.50	33000. B	348.47	1.19	3.30

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.19	3.23
7.05	33000. B	348.47	2.86	4.08
14.10	33000. B	348.47	3.00	5.02
21.15	33000. B	348.47	1.95	5.74
28.20	33000. B	348.47	1.46	7.71
35.25	33000. B	348.47	1.43	13.39
42.30	33000. B	348.47	1.44	6.74
49.35	33000. B	348.47	2.01	6.29
56.40	33000. B	348.47	3.80	4.60
63.45	33000. B	348.47	2.77	4.75
70.50	33000. B	348.47	1.13	3.33

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.13	3.31
5.64	33000. B	348.47	2.39	4.00
11.28	33000. B	348.47	2.62	4.65
16.93	33000. B	348.47	2.43	5.71
22.57	33000. B	348.47	1.66	6.30
28.21	33000. B	348.47	1.30	8.30
33.85	33000. B	348.47	1.21	8.87
39.49	33000. B	348.47	1.32	10.38
45.13	33000. B	348.47	1.70	6.46
50.78	33000. B	348.47	2.93	5.57
56.42	33000. B	348.47	>999.00	4.29

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		3.47
11.28	26400. S		2.14
16.93	26400. S		1.74
22.57	26400. S		1.62
28.21	26400. S		1.68
33.85	26400. S		2.01
39.49	26400. S		2.76
45.13	26400. S		3.10
50.78	26400. S		2.99
56.42	26400. S		1.62

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.62
7.05	26400. S		3.44
14.10	26400. S		3.83
21.15	26400. S		2.29
28.20	26400. S		1.84
35.25	26400. S		1.88
42.30	26400. S		1.82
49.35	26400. S		2.28
56.40	26400. S		3.46
63.45	26400. S		3.47
70.50	26400. S		1.70

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.70
7.05	26400. S		3.59
14.10	26400. S		3.56
21.15	26400. S		2.30
28.20	26400. S		1.85
35.25	26400. S		1.86
42.30	26400. S		1.82
49.35	26400. S		2.29
56.40	26400. S		3.51
63.45	26400. S		3.50
70.50	26400. S		1.71

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.71
7.05	26400. S		3.59

14.10	26400. S	3.49
21.15	26400. S	2.28
28.20	26400. S	1.84
35.25	26400. S	1.86
42.30	26400. S	1.82
49.35	26400. S	2.31
56.40	26400. S	3.56
63.45	26400. S	3.51
70.50	26400. S	1.70

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.70
7.05	26400. S		3.56
14.10	26400. S		3.45
21.15	26400. S		2.27
28.20	26400. S		1.83
35.25	26400. S		1.86
42.30	26400. S		1.82
49.35	26400. S		2.29
56.40	26400. S		4.04
63.45	26400. S		3.46
70.50	26400. S		1.63

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		1.63
5.64	26400. S		3.08
11.28	26400. S		3.11
16.93	26400. S		2.65
22.57	26400. S		2.01
28.21	26400. S		1.69
33.85	26400. S		1.63
39.49	26400. S		1.76
45.13	26400. S		2.17
50.78	26400. S		3.48
56.42	26400. S		>999.00

\*\*\*\*\*  
Minimum rating is 1.12 at location 56.42 in span 1.  
\*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
B - Bottom steel governs  
C - Concrete governs  
R - Rebar governs  
V - Shear governs  
S - Serviceability governs

Mom Strength Codes:

C - Compact  
B - Braced non-compact  
U - Unbraced non-compact  
T - Transition between compact and braced non-compact  
S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$



ID: WEST ETNA 5961 - C8

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.  
PRMITP 13.2 24.2  
PRMITSP 10.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C8

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 1.3  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 1.3
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
 of the 2011 edition of the Manual for Bridge  
 Evaluation.]

HL93

Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.

0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

## Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

## Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

## Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T>999.00		3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	>999.00	7.56
5.64	33000. B	348.47	4.96	9.42
11.28	33000. B	348.47	2.74	11.91
16.93	33000. B	348.47	2.21	15.53
22.57	33000. B	348.47	2.07	16.61
28.21	33000. B	348.47	2.22	12.65
33.85	33000. B	348.47	2.77	10.31
39.49	33000. B	348.47	4.10	11.74
45.13	33000. B	348.47	5.18	8.36
50.78	33000. B	348.47	5.73	8.59
56.42	33000. B	348.47	3.87	6.72

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	3.87	6.73
7.05	33000. B	348.47	6.59	7.90
14.10	33000. B	348.47	5.57	9.92
21.15	33000. B	348.47	3.35	10.79
28.20	33000. B	348.47	2.47	14.04
35.25	33000. B	348.47	2.32	18.82
42.30	33000. B	348.47	2.49	12.95
49.35	33000. B	348.47	3.34	9.95
56.40	33000. B	348.47	5.87	11.30
63.45	33000. B	348.47	6.51	9.71
70.50	33000. B	348.47	4.04	6.76

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.      Oper.	Inv.      Oper.
0.00	33000. B	348.47	4.04	6.63
7.05	33000. B	348.47	6.65	7.86
14.10	33000. B	348.47	5.68	9.83
21.15	33000. B	348.47	3.41	10.70
28.20	33000. B	348.47	2.51	13.92
35.25	33000. B	348.47	2.39	18.77
42.30	33000. B	348.47	2.52	12.99
49.35	33000. B	348.47	3.36	9.97
56.40	33000. B	348.47	5.91	11.30
63.45	33000. B	348.47	6.58	9.71
70.50	33000. B	348.47	4.06	6.77

Span 4



Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	4.06	6.62
7.05	33000. B	348.47	6.62	7.86
14.10	33000. B	348.47	5.44	9.87
21.15	33000. B	348.47	3.37	10.70
28.20	33000. B	348.47	2.50	14.03
35.25	33000. B	348.47	2.34	15.23
42.30	33000. B	348.47	2.52	12.90
49.35	33000. B	348.47	3.46	12.31
56.40	33000. B	348.47	5.75	9.30
63.45	33000. B	348.47	6.61	9.83
70.50	33000. B	348.47	4.04	6.78

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	4.04	6.62
7.05	33000. B	348.47	6.57	7.86
14.10	33000. B	348.47	5.41	9.86
21.15	33000. B	348.47	3.35	10.67
28.20	33000. B	348.47	2.48	13.97
35.25	33000. B	348.47	2.32	20.91
42.30	33000. B	348.47	2.49	13.00
49.35	33000. B	348.47	3.38	12.41
56.40	33000. B	348.47	5.62	9.38
63.45	33000. B	348.47	6.56	9.91
70.50	33000. B	348.47	3.84	6.81

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	3.84	6.61
5.64	33000. B	348.47	5.78	7.47
11.28	33000. B	348.47	5.20	8.84
16.93	33000. B	348.47	4.02	10.71
22.57	33000. B	348.47	2.80	11.02
28.21	33000. B	348.47	2.22	13.88
33.85	33000. B	348.47	2.06	14.89
39.49	33000. B	348.47	2.21	17.85
45.13	33000. B	348.47	2.80	10.97
50.78	33000. B	348.47	5.07	9.63
56.42	33000. B	348.47	>999.00	7.61

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		5.88
11.28	26400. S		3.51
16.93	26400. S		2.92
22.57	26400. S		2.78
28.21	26400. S		2.88
33.85	26400. S		3.35
39.49	26400. S		4.53
45.13	26400. S		6.14
50.78	26400. S		7.38
56.42	26400. S		5.57

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		5.57
7.05	26400. S		8.25
14.10	26400. S		5.80
21.15	26400. S		3.88
28.20	26400. S		3.12
35.25	26400. S		3.01
42.30	26400. S		3.13
49.35	26400. S		3.87
56.40	26400. S		6.08
63.45	26400. S		8.11
70.50	26400. S		5.77

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		5.77
7.05	26400. S		8.29
14.10	26400. S		5.88
21.15	26400. S		3.94
28.20	26400. S		3.15
35.25	26400. S		3.03
42.30	26400. S		3.16
49.35	26400. S		3.90
56.40	26400. S		6.12
63.45	26400. S		8.18
70.50	26400. S		5.79

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		5.79
7.05	26400. S		8.24

14.10	26400. S	5.56
21.15	26400. S	3.91
28.20	26400. S	3.14
35.25	26400. S	3.03
42.30	26400. S	3.16
49.35	26400. S	3.93
56.40	26400. S	5.96
63.45	26400. S	8.23
70.50	26400. S	5.77

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		5.77
7.05	26400. S		8.18
14.10	26400. S		5.53
21.15	26400. S		3.89
28.20	26400. S		3.12
35.25	26400. S		3.01
42.30	26400. S		3.13
49.35	26400. S		3.87
56.40	26400. S		5.86
63.45	26400. S		8.21
70.50	26400. S		5.53

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		5.53
5.64	26400. S		7.45
11.28	26400. S		6.17
16.93	26400. S		4.39
22.57	26400. S		3.39
28.21	26400. S		2.88
33.85	26400. S		2.77
39.49	26400. S		2.95
45.13	26400. S		3.58
50.78	26400. S		6.02
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 2.06 at location 372.27 in span 6.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

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$$\text{OR} = \frac{\text{Fb} - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$\text{IR} = \text{OR} / (\text{LL+I factor})$$

ID: WEST ETNA 5961 - C8 - TRAIN

CONDITIONS

ALL LANES  
ENGLISH INPUT  
ENGLISH OUTPUT  
FLOAT LANES  
GRID MODEL  
INCLUDE LANE LOADING IN PERMIT TRUCK FOOTPRINT  
INTERMEDIATE BRACING NOT BOLTED FOR STEEL ANALYSIS  
LRFD METHOD  
MEDIUM RESOLUTION MESH  
OVERLAY PERMIT TRUCK WITH LANE LOADING  
PERMIT TRUCK IN ALL LANES  
RATE MODE  
RATING PROJECT  
SELF WEIGHT FOR DEAD LOAD 1

DATA

BR-1 19.292 19.292 35.5 17.667 17.667 35.5 17.5 17.5 35. 17.5 17.5  
35.5 17.667 17.667 35.5 19.292  
BSK-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
69.8 69.8 69.8  
CURB 0.667  
FPC 3.  
GDSPC 6.333 6.333 6.333 6.333  
LANES 12. 12.  
PRLANE 0.2667  
PRMITP 13.2 24.2 13.2 24.2  
PRMITSP 10. 30. 10.  
ROADWP 24.  
SKEW-1 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
SLABEXT 1.833 1.833  
SLABT 6.5  
SLABWEAR 0.  
SPN-1 56.417 70.5 70.5 70.5 70.5 56.417  
WAC-1 0.0507  
WAC-2 0.0507  
WAC-3 0.0507  
WAC-4 0.0507  
WAC-5 0.0507  
WAS-1 0.006  
WAS-2 0.0121  
WAS-3 0.0121  
WAS-4 0.0121  
WAS-5 0.006  
WCONC 150.  
WEAR 0.18  
WHLSPC 6.  
WS-1 0.2361  
WS-2 0.2361  
WS-3 0.2361  
WS-4 0.2361  
WS-5 0.2361

GO

ID: WEST ETNA 5961 - C8 - TRAIN

CONDITIONS

AWS MINIMUM WELDS  
ENGLISH INPUT  
ENGLISH OUTPUT  
FULL DEPTH CONNECTION PLATES  
IGNORE MOMENT SHIFTING  
IGNORE WET CONCRETE STRESS CHECK  
INTERMEDIATE TRANSVERSE STIFFENERS BOTH SIDES OF WEB  
LRFD METHOD  
LRFR RATINGS  
NONCOMPOSITE GIRDER  
PARABOLIC INTERPOLATION  
RATE MODE  
ROLLED SHAPES GIRDER  
SINGLE BEARING STIFFENERS EACH SIDE  
STANDARD RESOLUTION OUTPUT  
SYSTEM FORCES  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130  
W33X130

DATA

ADTT 11  
BCOVB 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.  
10. 10.  
BCOVSP 47.417 2.99 0.01 12. 0.01 2.99 51.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 14. 0.01 2.99 50.5 2.99 0.01 14.  
0.01 2.99 50.5 2.99 0.01 12. 0.01 2.99  
BCOVT 0.625 0.625 0.625 0.625 0.75 0.75 0.75 0.75 0.75 0.75  
0.75 0.75 0.625 0.625 0.625  
BFISPB 4. 4. 4. 4. 4.  
BFISPT 0.625 0.625 0.625 0.625 0.625  
BFOSPB 11. 11. 11. 11. 11.  
BFOSPT 0.375 0.375 0.375 0.375 0.375  
BNGSKEW 69.8 69.8 69.8 69.8 69.8 69.8 69.8  
BR 19.292 19.292 17.833 17.667 17.667 17.667 17.499 18.001  
17.5 17.5 17.4991 17.5009 17.5 17.5 17.9991 17.5009 17.667  
17.667 17.6649 17.8351 19.292 19.2899  
EDGEH 1.5 1.5 1.5 1.5 1.5  
EDGEV 1.5 1.5 1.5 1.5 1.5  
EDGEW 2. 2. 2. 2. 2.  
ESLABW 75.996  
ETAD 1.  
ETAI 1.  
ETAR 1.  
FBLTDIAM 0.875  
FILLET 1.  
FNHOLES 2 2 2 2 2  
FPC 3.  
FPEDGE 1.5 1.5 1.5 1.5 1.5  
FPEND 1.5 1.5 1.5 1.5 1.5  
FSPBSP 2. 2. 2. 2. 2.  
FY 33.  
FYS 33.  
GAGEH 3. 3. 3. 3. 3.  
GAGEV 3.75 3.75 3.75 3.75 3.75  
IBRNG 1 1 1 1 1 1  
IGIRD 3  
LIFE 100  
NBLTB 10 10 10 10 10  
NBLTT 10 10 10 10 10  
NLINEH 8 8 8 8 8  
NLINEV 3 3 3 3 3  
PBETA 0.975  
PHIC 1.  
PHIS 1.  
SLABT 6.5  
SLABWEAR 0.  
SPL 71.417 70.5 70.5 70.5 40.5  
SPLT 0.5625 0.5625 0.5625 0.5625 0.5625  
SPLTST 0.375  
SPLTSW 6.  
SPLTYP 1 1 1 1 1

```

SPN 56.417  70.5  70.5  70.5  70.4999  56.4169
SS  0.
STFGAP 1.645
SUPBST 0.375
SUPBSW 6.
SVPBETA 0.975
TCOVB 10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.  10.
10.  10.
TCOVSP 47.417  2.99  0.01  12.  0.01  2.99  51.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  14.  0.01  2.99  50.5  2.99  0.01  14.
0.01  2.99  50.5  2.99  0.01  12.  0.01  2.99
TCOVT 0.625  0.625  0.625  0.75  0.75  0.75  0.75  0.75  0.75  0.75
0.75  0.75  0.625  0.625  0.625
TFISPB 4.  4.  4.  4.  4.
TFISPT 0.625  0.625  0.625  0.625  0.625
TFOSPB 11.  11.  11.  11.  11.
TFOSPT 0.375  0.375  0.375  0.375  0.375
TSLABW 75.996
TSSP 231.5  231.5  426.  212.  212.  426.  210.  210.  420.  210.
210.  426.  212.  212.  426.  231.5
WCONC 150.
GO

```

[This table uses the rating equation (6A.4.2.1-1)  
of the 2011 edition of the Manual for Bridge  
Evaluation.]

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Strength I

Span 1

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	>999.00	T>999.00	3.03	3.92
5.64	33000. B	348.47	1.99	T 2.58	3.85	4.98
11.28	33000. B	348.47	1.11	T 1.44	5.02	6.50
16.93	33000. B	348.47	0.89	T 1.16	6.76	8.77
22.57	33000. B	348.47	0.82	T 1.06	7.42	9.62
28.21	33000. B	348.47	0.87	T 1.13	6.09	7.90
33.85	33000. B	348.47	1.10	T 1.42	4.59	5.96
39.49	33000. B	348.47	1.69	T 2.19	4.17	5.40
45.13	33000. B	348.47	1.65	T 2.14	3.38	4.38
50.78	33000. B	348.47	1.62	T 2.10	2.81	3.64
56.42	33000. B	348.47	0.89	T 1.15	2.37	3.08

Span 2

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89	T 1.15	2.39	3.10
7.05	33000. B	348.47	1.83	T 2.37	2.88	3.74
14.10	33000. B	348.47	2.26	T 2.94	3.76	4.88
21.15	33000. B	348.47	1.39	T 1.81	4.15	5.38
28.20	33000. B	348.47	0.98	T 1.26	5.74	7.44
35.25	33000. B	348.47	0.90	T 1.16	6.57	8.51
42.30	33000. B	348.47	0.97	T 1.26	5.82	7.55
49.35	33000. B	348.47	1.36	T 1.76	4.26	5.52
56.40	33000. B	348.47	1.91	T 2.48	3.76	4.88
63.45	33000. B	348.47	1.75	T 2.27	2.89	3.75
70.50	33000. B	348.47	0.87	T 1.13	2.35	3.05

Span 3

Location	Compct Mom Cap/Noncmt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.



0.00	33000. B	348.47	0.87 T	1.13	2.33	3.02
7.05	33000. B	348.47	1.78 T	2.31	2.84	3.68
14.10	33000. B	348.47	2.00 T	2.59	3.70	4.80
21.15	33000. B	348.47	1.39 T	1.80	4.10	5.31
28.20	33000. B	348.47	0.98 T	1.26	5.61	7.27
35.25	33000. B	348.47	0.91 T	1.19	6.46	8.37
42.30	33000. B	348.47	0.98 T	1.27	5.83	7.55
49.35	33000. B	348.47	1.37 T	1.78	4.23	5.49
56.40	33000. B	348.47	1.94 T	2.51	3.74	4.85
63.45	33000. B	348.47	1.75 T	2.26	2.88	3.73
70.50	33000. B	348.47	0.87 T	1.13	2.34	3.04

Span 4

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.32	3.00
7.05	33000. B	348.47	1.76 T	2.28	2.77	3.60
14.10	33000. B	348.47	1.92 T	2.49	3.78	4.90
21.15	33000. B	348.47	1.36 T	1.77	4.09	5.30
28.20	33000. B	348.47	0.97 T	1.26	5.65	7.32
35.25	33000. B	348.47	0.90 T	1.16	6.26	8.11
42.30	33000. B	348.47	0.98 T	1.27	5.80	7.52
49.35	33000. B	348.47	1.42 T	1.84	4.14	5.37
56.40	33000. B	348.47	1.98 T	2.56	3.75	4.86
63.45	33000. B	348.47	1.77 T	2.29	2.95	3.83
70.50	33000. B	348.47	0.87 T	1.13	2.36	3.05

Span 5

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.87 T	1.13	2.12	2.75
7.05	33000. B	348.47	1.76 T	2.28	2.54	3.30
14.10	33000. B	348.47	1.90 T	2.46	3.47	4.49
21.15	33000. B	348.47	1.35 T	1.75	3.70	4.79
28.20	33000. B	348.47	0.97 T	1.26	4.99	6.47
35.25	33000. B	348.47	0.90 T	1.16	5.50	7.13
42.30	33000. B	348.47	0.98 T	1.27	5.93	7.68
49.35	33000. B	348.47	1.42 T	1.84	4.19	5.44
56.40	33000. B	348.47	2.27 T	2.95	3.81	4.93
63.45	33000. B	348.47	1.81 T	2.34	3.00	3.88
70.50	33000. B	348.47	0.89 T	1.15	2.39	3.10

Span 6

Location	Compct Mom Cap/Noncmpt Allow Stress	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv.	Oper.	Inv.	Oper.
0.00	33000. B	348.47	0.89 T	1.15	2.32	3.01
5.64	33000. B	348.47	1.62 T	2.11	2.82	3.65

11.28	33000. B	348.47	1.66 T	2.16	3.26	4.22
16.93	33000. B	348.47	1.67 T	2.16	4.27	5.54
22.57	33000. B	348.47	1.11 T	1.43	4.53	5.87
28.21	33000. B	348.47	0.87 T	1.13	6.02	7.81
33.85	33000. B	348.47	0.82 T	1.06	7.69	9.97
39.49	33000. B	348.47	0.88 T	1.15	6.73	8.72
45.13	33000. B	348.47	1.12 T	1.45	5.07	6.57
50.78	33000. B	348.47	2.02 T	2.62	3.83	4.97
56.42	33000. B	348.47	>999.00 T	>999.00	3.05	3.95

## Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	> 999.00 B	>999.00
5.64	26400. S	2.36 B	3.06
11.28	26400. S	1.41 B	1.84
16.93	26400. S	1.17 B	1.53
22.57	26400. S	1.10 B	1.43
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.32 B	1.72
39.49	26400. S	1.86 B	2.42
45.13	26400. S	1.95 B	2.54
50.78	26400. S	2.09 B	2.71
56.42	26400. S	1.28 T	1.66

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.28 T	1.66
7.05	26400. S	2.28 B	2.96
14.10	26400. S	2.53 B	3.28
21.15	26400. S	1.61 B	2.09
28.20	26400. S	1.23 B	1.59
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.22 B	1.58
49.35	26400. S	1.57 B	2.04
56.40	26400. S	2.16 B	2.81
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.25 T	1.62

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.25 T	1.62
7.05	26400. S	2.22 B	2.88
14.10	26400. S	2.25 B	2.93
21.15	26400. S	1.59 B	2.07
28.20	26400. S	1.22 B	1.59
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.59 B	2.06
56.40	26400. S	2.18 B	2.84
63.45	26400. S	2.17 B	2.82
70.50	26400. S	1.24 T	1.61

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.61
7.05	26400. S	2.18 B	2.84
14.10	26400. S	2.20 B	2.86
21.15	26400. S	1.57 B	2.05
28.20	26400. S	1.22 B	1.58
35.25	26400. S	1.16 B	1.50
42.30	26400. S	1.22 B	1.59
49.35	26400. S	1.61 B	2.09
56.40	26400. S	2.23 B	2.90
63.45	26400. S	2.20 B	2.86
70.50	26400. S	1.24 T	1.62

## Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.24 T	1.62
7.05	26400. S	2.19 B	2.84
14.10	26400. S	2.17 B	2.83
21.15	26400. S	1.56 B	2.03
28.20	26400. S	1.21 B	1.58
35.25	26400. S	1.16 B	1.51
42.30	26400. S	1.23 B	1.60
49.35	26400. S	1.62 B	2.10
56.40	26400. S	2.54 B	3.31
63.45	26400. S	2.25 B	2.93
70.50	26400. S	1.27 T	1.65

## Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S	1.27 T	1.65
5.64	26400. S	2.09 B	2.71
11.28	26400. S	1.97 B	2.56
16.93	26400. S	1.82 B	2.36
22.57	26400. S	1.33 B	1.73
28.21	26400. S	1.13 B	1.47
33.85	26400. S	1.10 B	1.43
39.49	26400. S	1.18 B	1.53
45.13	26400. S	1.43 B	1.85
50.78	26400. S	2.39 B	3.10
56.42	26400. S	> 999.00	B>999.00

\*\*\*\*\*  
 Minimum rating is 0.82 at location 22.57 in span 1.  
 \*\*\*\*\*

Permit

Strength II

## Span 1

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	>999.00	6.03
5.64	33000. B	348.47	4.26	8.21
11.28	33000. B	348.47	2.37	10.68
16.93	33000. B	348.47	1.91	14.03
22.57	33000. B	348.47	1.77	15.10
28.21	33000. B	348.47	1.93	10.32
33.85	33000. B	348.47	2.42	8.29
39.49	33000. B	348.47	3.56	8.48
45.13	33000. B	348.47	3.58	6.36
50.78	33000. B	348.47	3.59	6.18
56.42	33000. B	348.47	1.69	4.79

Span 2

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.69	4.77
7.05	33000. B	348.47	4.29	5.94
14.10	33000. B	348.47	5.48	7.27
21.15	33000. B	348.47	2.86	8.43
28.20	33000. B	348.47	2.05	11.22
35.25	33000. B	348.47	2.00	16.31
42.30	33000. B	348.47	2.04	10.17
49.35	33000. B	348.47	2.85	7.50
56.40	33000. B	348.47	4.17	7.88
63.45	33000. B	348.47	4.28	6.73
70.50	33000. B	348.47	1.79	4.72

Span 3

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.79	4.58
7.05	33000. B	348.47	4.42	5.86
14.10	33000. B	348.47	4.31	7.20
21.15	33000. B	348.47	2.87	8.39
28.20	33000. B	348.47	2.06	11.26
35.25	33000. B	348.47	2.02	16.48
42.30	33000. B	348.47	2.04	10.18
49.35	33000. B	348.47	2.87	7.49
56.40	33000. B	348.47	4.22	7.87
63.45	33000. B	348.47	4.32	6.72
70.50	33000. B	348.47	1.80	4.72

Span 4

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.80	4.58
7.05	33000. B	348.47	4.37	5.86
14.10	33000. B	348.47	4.16	7.24
21.15	33000. B	348.47	2.84	8.37
28.20	33000. B	348.47	2.06	11.31
35.25	33000. B	348.47	1.98	13.57
42.30	33000. B	348.47	2.05	10.14
49.35	33000. B	348.47	2.95	9.36
56.40	33000. B	348.47	4.29	6.57
63.45	33000. B	348.47	4.36	6.77
70.50	33000. B	348.47	1.79	4.72

Span 5

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.79	4.59
7.05	33000. B	348.47	4.33	5.87
14.10	33000. B	348.47	4.12	7.25
21.15	33000. B	348.47	2.82	8.37
28.20	33000. B	348.47	2.05	11.31
35.25	33000. B	348.47	1.98	20.90
42.30	33000. B	348.47	2.04	10.26
49.35	33000. B	348.47	2.93	9.47
56.40	33000. B	348.47	5.49	6.65
63.45	33000. B	348.47	4.31	6.87
70.50	33000. B	348.47	1.71	4.79

Span 6

Location	Allowable	Shear	Rating Factors	
			Bending	Shear
			Inv.	Oper.
0.00	33000. B	348.47	1.71	4.64
5.64	33000. B	348.47	3.70	5.70
11.28	33000. B	348.47	3.60	6.65
16.93	33000. B	348.47	3.45	8.02
22.57	33000. B	348.47	2.41	8.93
28.21	33000. B	348.47	1.93	11.55
33.85	33000. B	348.47	1.77	13.70
39.49	33000. B	348.47	1.90	15.83
45.13	33000. B	348.47	2.38	9.18
50.78	33000. B	348.47	4.30	8.17
56.42	33000. B	348.47	>999.00	6.02

Service II

## Span 1

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		>999.00
5.64	26400. S		5.05
11.28	26400. S		3.03
16.93	26400. S		2.52
22.57	26400. S		2.38
28.21	26400. S		2.50
33.85	26400. S		2.93
39.49	26400. S		3.94
45.13	26400. S		4.24
50.78	26400. S		4.63
56.42	26400. S		2.43

## Span 2

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.43
7.05	26400. S		5.37
14.10	26400. S		5.82
21.15	26400. S		3.31
28.20	26400. S		2.59
35.25	26400. S		2.59
42.30	26400. S		2.56
49.35	26400. S		3.31
56.40	26400. S		4.72
63.45	26400. S		5.33
70.50	26400. S		2.56

## Span 3

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.56
7.05	26400. S		5.50
14.10	26400. S		4.87
21.15	26400. S		3.31
28.20	26400. S		2.59
35.25	26400. S		2.56
42.30	26400. S		2.57
49.35	26400. S		3.33
56.40	26400. S		4.78
63.45	26400. S		5.37
70.50	26400. S		2.57

## Span 4

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.57
7.05	26400. S		5.43

14.10	26400. S	4.78
21.15	26400. S	3.29
28.20	26400. S	2.58
35.25	26400. S	2.56
42.30	26400. S	2.57
49.35	26400. S	3.35
56.40	26400. S	4.85
63.45	26400. S	5.43
70.50	26400. S	2.55

Span 5

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.55
7.05	26400. S		5.40
14.10	26400. S		4.73
21.15	26400. S		3.27
28.20	26400. S		2.57
35.25	26400. S		2.57
42.30	26400. S		2.57
49.35	26400. S		3.35
56.40	26400. S		6.15
63.45	26400. S		5.39
70.50	26400. S		2.46

Span 6

Location	Allowable Stress	Rating Factors Bending	
		Inv.	Oper.
0.00	26400. S		2.46
5.64	26400. S		4.77
11.28	26400. S		4.27
16.93	26400. S		3.78
22.57	26400. S		2.92
28.21	26400. S		2.50
33.85	26400. S		2.37
39.49	26400. S		2.54
45.13	26400. S		3.04
50.78	26400. S		5.10
56.42	26400. S		>999.00

\*\*\*\*\*  
 Minimum rating is 1.69 at location 56.42 in span 1.  
 \*\*\*\*\*

Note: PHIC and PHIS are not shown in the above capacities.

## Rating Codes:

T - Top steel governs  
 B - Bottom steel governs  
 C - Concrete governs  
 R - Rebar governs  
 V - Shear governs  
 S - Serviceability governs

## Mom Strength Codes:

C - Compact  
 B - Braced non-compact  
 U - Unbraced non-compact  
 T - Transition between compact and braced non-compact  
 S - Serviceability

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Operating rating for Strength II is

$$OR = \frac{F_b - \text{factored dead load stress}}{\text{factored LL+I stress}}$$

Inventory rating for Strength II is

$$IR = OR / (LL+I \text{ factor})$$



# Highway Bridge Inspection Report

**WEST ETNA ROAD / I95**  
**WEST ETNA ROAD**  
**over**  
**I-95**



**Inspection Date:** 08/13/2015

**Inspected By:** Carl Edwards

**Inspection Type(s):** Routine

**National Bridge Inventory**

Status: 0 - ND

Bridge Name: WEST ETNA ROAD / I95

Sufficiency Rating: 80.4

**Inspections**

(90) INSPECTION DATE	& (91) DESIGNATED INSPECTION FREQUENCY	24	08/13/2015
(92) CRITICAL FEATURE INSPECTION	& (93) CFI DATE		
(92A) FRACTURE CRITICAL DETAIL		N	
(92B) UNDERWATER INSPECTION		N	
(92C) OTHER SPECIAL INSPECTION		N	

**Identification**

(1) STATE CODE	231 - Maine
(8) STRUCTURE NUMBER	5961
(5) INVENTORY ROUTE	
(5A) RECORD TYPE	1: Route carried "on" the structure
(5B) ROUTE SIGNING PREFIX	5 - CITY STREET
(5C) DESIGNATED LEVEL OF SERVICE	0 - None
(5) INVENTORY ROUTE	0
(5) INVENTORY ROUTE	0 - NOT APPLICABLE
(2) HIGHWAY AGENCY DISTRICT	04 - Eastern
(3) COUNTY CODE	019 Penobscot
(4) PLACE CODE	23865
(6) FEATURES INTERSECTED	I-95
(7) FACILITY CARRIED	WEST ETNA ROAD
(9) LOCATION	0.5 MI N OF JCT RTE 69
(11) MILEPOINT	0.610
(12) BASE HIGHWAY NETWORK	Inventory Route is not on the Base Network
(13) LRS INVENTORY ROUTE, SUBROUTE	
(13A) LRS INVENTORY ROUTE	0001900457
(13B) SUBROUTE NUMBER	00
(16) LATITUDE	44.787913888 8889
(17) LONGITUDE	69.164666666 6667
(98A) BORDER BRIDGE CODE	
(98B) PERCENT RESPONSIBILITY	0
(99) BORDER BRIDGE STRUCT NO.	n/a

**Structure Type and Material**

(43) STRUCTURE TYPE, MAIN	
(43A) KIND OF MATERIAL/DESIGN	4 - Steel continuous
(43B) TYPE OF DESIGN/CONSTR	02 - Stringer/Multi-beam or Girder
(44) STRUCTURE TYPE, APPROACH SPANS	
(44A) KIND OF MATERIAL/DESIGN	
(44B) TYPE OF DESIGN/CONSTRUCTION	
(45) NUMBER OF SPANS IN MAIN UNIT	6
(46) NUMBER OF APPROACH SPANS	0
(107) DECK STRUCTURE TYPE	1 - Concrete Cast-in-Place
(108) WEARING SURFACE/PROTECTIVE SYSTEMS	
(108A) WEARING SURFACE	6 - Bituminous
(108B) DECK MEMBRANE	2 - Preformed Fabric
(108C) DECK PROTECTION	0 - None

**Age of Service**

(27) YEAR BUILT	1962
(106) YEAR RECONSTRUCTED	1994
(42) TYPE OF SERVICE	
(42A) TYPE OF SERVICE ON BRIDGE	1 - Highway
(42B) TYPE OF SERVICE UNDER BRIDGE	1 - Highway, with or w/out pedestrian
(28) LANES	
(28A) LANES ON THE STRUCTURE	02
(28B) LANES UNDER THE STRUCTURE	04
(29) AVERAGE DAILY TRAFFIC	236
(30) YEAR OF AVERAGE DAILY TRAFFIC	2014
(109) AVERAGE DAILY TRUCK TRAFFIC	5
(19) BYPASS DETOUR LENGTH	6

**Geometric Data**

(48) LENGTH OF MAXIMUM SPAN (ft.)	71.0
(49) STRUCTURE LENGTH (ft.)	401.0
(50) CURB/SIDEWALK WIDTHS	
(50A) LEFT CURB SIDEWALK (ft.)	0.5
(50B) RIGHT CURB SIDEWALK (ft.)	0.5
(51) BRDG RDWY WIDTH CURB-TO-CURB (ft.)	24.1
(52) DECK WIDTH, OUT-TO-OUT (ft.)	29.2
(32) APPROACH ROADWAY WIDTH (ft.)	28.0
(33) BRIDGE MEDIAN	0 - No median
(34) SKEW (deg.)	20
(35) STRUCTURE FLARED	0 - No flare
(10) INV RTE, MIN VERT CLEARANCE (ft.)	328.05
(47) TOTAL HORIZONTAL CLEARANCE (ft.)	24.0
(53) VERTICAL CLEARANCE OVER BRIDGE ROADWAY (ft.)	327.76
(54) MIN VERTICAL UNDERCLEARANCE	
(54A) REFERENCE FEATURE	H - Highway beneath structure
(54B) MIN VERTICAL UNDERCLENREANCE (ft.)	16.67
(55) MIN LATERAL UNDER CLEARANCE RIGHT	
(55A) REFERENCE FEATURE	H - Highway beneath structure
(55B) MIN LATERAL UNDER CLEARANCE RIGHT (ft.)	9.84
(56) MIN LATERAL UNDER CLEARANCE (ft.)	5.9

**Classification**

(112) NBIS BRIDGE LENGTH	Yes
(104) HIGHWAY SYSTEM OF THE INVENTORY ROUTE	0 - Structure/Route is NOT on NHS
(26) FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE	09 - Rural - Local
(100) STRAHNET HIGHWAY DESIGNATION	Not a STRAHNET route
(101) PARALLEL STRUCTURE DESIGNATION	N - No parallel structure
(102) DIRECTION OF TRAFFIC	2-way traffic
(103) TEMP STRUCTURE	
(105) FEDERAL LANDS HIGHWAYS	Not Applicable
(110) DESIGNATED NATIONAL NETWORK	Inventory route not on network
(20) TOLL	3 - On Free Road
(21) MAINTENANCE RESPONSIBILITY	01 - State Highway Agency
(22) OWNER	01 - State Highway Agency
(37) HISTORICAL SIGNIFICANCE	4 - Not determinable

**Condition**

(58) DECK	7 - Good Condition (some minor problems)
(59) SUPERSTRUCTURE	7 - Good Condition (some minor problems)
(60) SUBSTRUCTURE	7 - Good Condition (some minor problems)
(61) CHANNEL & CHANNEL PROTECTION	N - Not Applicable
(62) CULVERT	N - Not Applicable

**Load Rating and Posting**

(31) DESIGN LOAD	5 - HS 20
(63) METHOD USED TO DETERMINE OPERATING RATING	2 - Allowable Stress (AS)
(64) OPERATING RATING	46.3
(65) METHOD USED TO DETERMINE INVENTORY RATING	2 - Allowable Stress (AS)
(66) INVENTORY RATING	29.9
(70) BRIDGE POSTING	5 - Equal to or above legal
(41) STRUCTURE OPEN/POSTED/CLOSED	A - Open

**Appraisal**

(67) STRUCTURAL EVALUATION	6
(68) DECK GEOMETRY	5
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL	4
(71) WATERWAY ADEQUACY	N - Not Applicable
(72) APPROACH ROADWAY ALIGNMENT	8 - Equal to present desirable criteria
(36) TRAFFIC SAFETY FEATURE	
36A) BRIDGE RAILINGS:	0 - Does not meet acceptable standards/safety feature is required
36B) TRANSITIONS:	0 - Does not meet acceptable standards/safety feature is required
36C) APPROACH GUARDRAIL	0 - Does not meet acceptable standards/safety feature is required
36D) APPROACH GUARDRAIL ENDS	0 - Does not meet acceptable standards/safety feature is required
(113) SCOUR CRITICAL BRIDGES	N - Not over waterway

<b>Proposed Improvements</b>
------------------------------

(75) TYPE OF WORK	
(75A) TYPE OF WORK PROPOSED	
(75B) WORK DONE BY	
(76) LENGTH OF STRUCTURE IMPROVEMENT (ft.)	
(94) BRIDGE IMPROVEMENT COST (\$K)	-2
(95) ROADWAY IMPROVEMENT COST (\$K)	
(96) TOTAL PROJECT COST	
(97) YEAR OF IMPROVEMENT COST ESTIMATE	
(114) FUTURE ADT	354
(115) YEAR OF FUTURE ADT	2034

<b>Navigation Data</b>
------------------------

(38) NAVIGATION CONTROL	N - Not applicable, no waterway
(111) PIER OR ABUTMENT PROTECTION	
(39) NAV VERT CLEARANCE	0
(116) MIN NAVIGATION VERT CLEARANCE, VERT LIFT BRIDGE	0
(40) NAV HORIZONTAL CLEARANCE	0

## Inspection Notes

Structure Number: 5961

Town: Etna

Structure Name: WEST ETNA ROAD / I95

Inspection Date: 08/13/2015

---

### Structure Notes

Six span steel painted girders. Concrete deck, abutments, piers and wing walls. Bituminous wearing surface.

### Wearing Surface

Bit WS is minor cracking throughout. Thrie beam guardrail placed on curb in front of br. rail.

### Deck

**NBI Item 58:** 7

Some spalling of conc. haunches at top of girders, otherwise conc. in good cond fallen pieces are into shoulders, not travelway currently. see photo

### Superstructure

**NBI Item 59:** 7

Paint peeling mostly on top of bottom flanges and some paint failure on bottom of girders - see photos

### Substructure

**NBI Item 60:** 7

This bridge is in good condition overall. Cut brush, remove overfill. Slope under South end of bridge Approx. (8' X 8') of concrete blocks on either sides under drains, is marginally unstable and distorted.

### Culvert

**NBI Item 62:** N

**Channel**

**NBI Item 61:** N

**Other**

**Special Inspection**

**Monitoring**

**Pontis Notes**

Inspector: Carl Edwards

Structure Number: 5961

Inspection Date: 08/13/2015

Facility Carried: WEST ETNA ROAD

## Highway Bridge Inspection Report

## Element Inspection

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
<b>12 - Reinforced Concrete Deck</b>	2 - Low	11709	sq. ft.	11709	0	0	0
<b>107 - Steel Open Girder/Beam</b>	2 - Low	2005	ft.	2005			
515 - Steel Protective Coating		30425	sq. ft.	30425			
<b>205 - Reinforced Concrete Column</b>	2 - Low	15	each	15			
<b>215 - Reinforced Concrete Abutment</b>	2 - Low	58	ft.	58			
<b>234 - Reinforced Concrete Pier Cap</b>	2 - Low	146	ft.	146			
<b>300 - Strip Seal Expansion Joint</b>	2 - Low	58	ft.	58	0	0	0
<b>311 - Movable Bearing</b>	2 - Low	35	each	35			
515 - Steel Protective Coating		35	sq. ft.	35			
<b>313 - Fixed Bearing</b>	2 - Low	5	each	5			
<b>330 - Metal Bridge Railing</b>	2 - Low	401	ft.	401			
<b>331 - Reinforced Concrete Bridge Railing</b>	2 - Low	401	ft.	401			
<b>801 - Beam End</b>	2 - Low	10	each	10			
<b>820 - Reinforced Concrete Wall</b>	2 - Low	40	ft.	40			
<b>841 - Asphalt Wearing Surface with Membrane</b>	2 - Low	9664	sq. ft.	9664			
<b>855 - Slope Protection - Concrete</b>	2 - Low	3600	sq. ft.	3600			
<b>861 - Beam End – Protective Coating</b>	2 - Low	10	each	10			
<b>862 - Beam End – Preventative Coating</b>	2 - Low	10	each	10			

**Inspector:** Carl Edwards  
**Inspection Date:** 08/13/2015

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## Highway Bridge Inspection Report

### Pictures



PHOTO 1

Description    General view



PHOTO 2

Description    Joint



**Inspector:** Carl Edwards  
**Inspection Date:** 08/13/2015

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### Highway Bridge Inspection Report

## Pictures



PHOTO 3

Description      Joint



PHOTO 4

Description



Inspector: Carl Edwards  
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### Highway Bridge Inspection Report

#### Pictures



PHOTO 5

Description Joint header



PHOTO 6

Description



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## Highway Bridge Inspection Report

### Pictures



PHOTO 7

Description note bearings fluid film



PHOTO 8

Description

Inspector: Carl Edwards  
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Facility Carried: WEST ETNA ROAD

## Highway Bridge Inspection Report

### Pictures



PHOTO 9

Description fluid film bearing



PHOTO 10

Description



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### Highway Bridge Inspection Report

## Pictures



PHOTO 11

Description



PHOTO 12

Description

Inspector: Carl Edwards  
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Facility Carried: WEST ETNA ROAD

## Highway Bridge Inspection Report

### Pictures



PHOTO 13

Description soffit



PHOTO 14

Description



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**Facility Carried:** WEST ETNA ROAD

## Highway Bridge Inspection Report

### Pictures



PHOTO 15

Description



PHOTO 16

Description

Inspector: Carl Edwards  
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## Highway Bridge Inspection Report

### Pictures



PHOTO 17

Description



PHOTO 18

Description



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## Highway Bridge Inspection Report

### Pictures



PHOTO 19

Description haunch concrete fallen



PHOTO 20

Description



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## Highway Bridge Inspection Report

### Pictures



PHOTO 21

Description



PHOTO 22

Description sunken slope protection

Inspector: Carl Edwards  
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## Highway Bridge Inspection Report

### Pictures



PHOTO 23

Description



PHOTO 24

Description



Inspector: Carl Edwards  
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### Highway Bridge Inspection Report

## Pictures



PHOTO 25

Description



PHOTO 26

Description three beam guardrail attached

**Inspector:** Carl Edwards  
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**Facility Carried:** WEST ETNA ROAD

### Highway Bridge Inspection Report

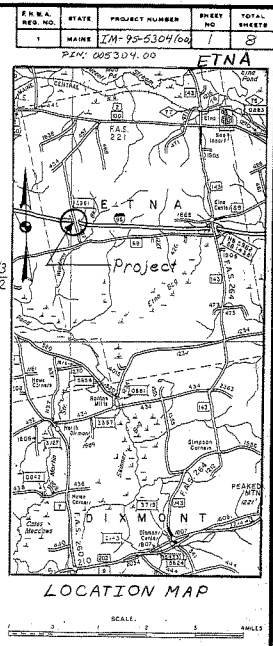
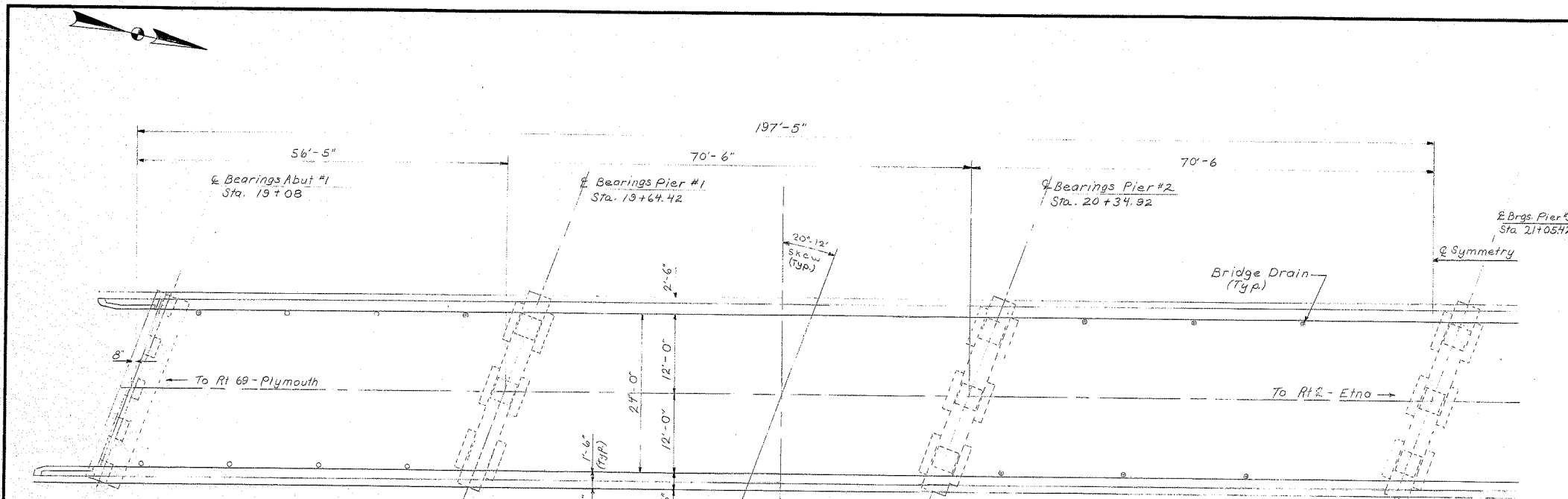
#### Pictures



PHOTO 27

Description





**UTILITIES**  
C.M.P.  
Hampden Telephone  
West Penobscot Telephone  
NYNEX

**TRAFFIC DATA**

AADT 1994	55
AADT 2014	80
DHV	9
Trucks (DHV) %	6
Directional %	60
18 Kip Equivalent P2.0	2

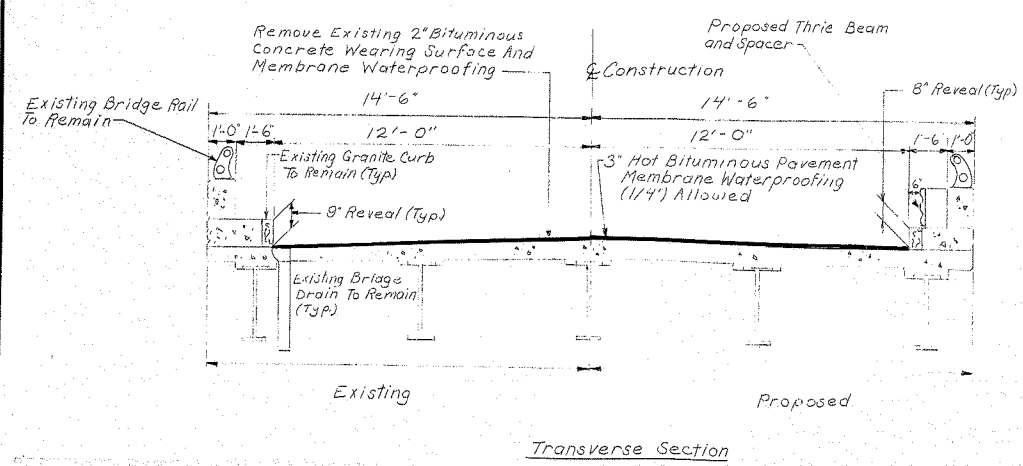
**MAINTENANCE OF TRAFFIC**  
One way traffic shall be maintained on a 10'-0" minimum lane with traffic lights.

**SCOPE OF WORK**  
Replace the existing bituminous pavement and membrane waterproofing with 3" new bituminous pavement and membrane waterproofing.  
The deck will be patched as required.  
The finger joints will be modified and sealed with a gland type seal.  
Taper approach pavement to match new bridge grade. Butt joint ends of taper.  
Add three beam to existing bridge rail and connect to existing approach rail.  
Taper proposed pavement around existing bridge drains.

**SPECIFICATION**  
DESIGN: AASHTO Standard Specifications for Highway Bridges 1992 and interim specifications 1993.  
CONTRACT: State of Maine, Department of Transportation, Standard Specifications Highway Bridges Revisions of Oct. 1990.  
DESIGN LOADING  
LIVE LOAD: M20-44 (Existing)  
MATERIALS  
CONCRETE ----- C/ass A  
REINFORCING STEEL ----- ASTM A615 Grade 60  
STRUCTURAL STEEL ----- A36  
BASIC ALLOWABLE STRESSES  
CONCRETE -----  $f'_c = 4,000$  psi  
REINFORCING STEEL -----  $f_y = 60,000$  psi  
STRUCTURAL STEEL -----  $f_y = 36,000$  psi

**INDEX OF SHEETS**

DESCRIPTION	SHEET NO.
GENERAL PLAN	1
DETAILS	2
HD-10	3
HD-11	4
HD-12	5

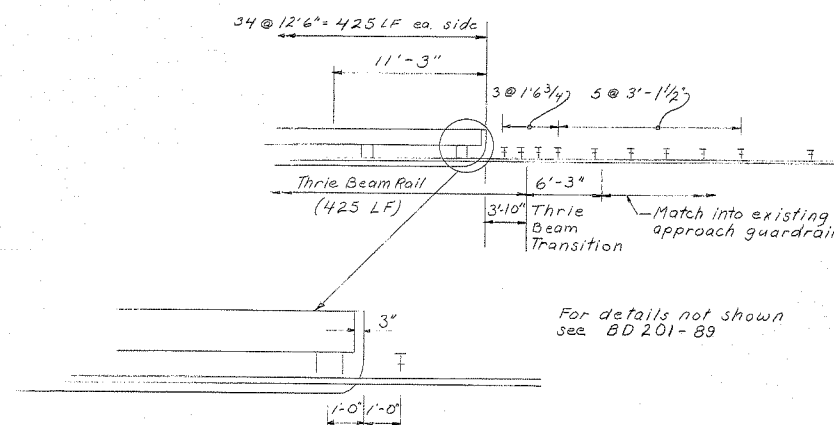


**NOTE:**  
All work contemplated under this contract to be governed by and in conformity with the Standard Specifications (Revision of October 1990) and supplements thereto as modified on the plans and in the Special Provisions.  
Plans of existing bridge are available for the Contractor's reference at the Bridge Design Office in Augusta. These are reproductions of original drawings as prepared for the construction of the bridge and it is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

Core reports and shear bond tests done for this bridge will be made available for the contractor's reference at the Bridge Design Office in Augusta. The report is based on the interpretation by the Department of Transportation and the conclusions may not represent the actual conditions at the site.

APPROVED  
State of Maine  
Department of Transportation  
United States  
Department of Transportation  
Federal Highway Administration  
Region 1  
COMMISSIONER  
CHIEF ENGINEER  
DATE  
APPROVED  
DIVISION ADMINISTRATOR  
DATE

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
WEST ETNA ROAD BRIDGE  
OVER  
INTERSTATE HIGHWAY 95  
IN THE TOWN OF  
ETNA  
PENOBSCOT COUNTY  
GENERAL PLAN  
SHEET 1 OF 6 AUGUSTA, MAINE 04/06/95



1. Additional holes in the type 3 thrie beam guard rail panels may be made by drilling, punching, or other method that produces a neat clean hole of the required size. Burning of holes will not be allowed.
2. Any damage to the existing concrete bridge rail resulting from drilling operations shall be repaired at the contractor's expense.
3. All work and materials for attaching thrie beam to rail bracket and rail bracket to the concrete posts will be considered incidental to the thrie beam pay item.
4. The temporary signal controller shall be a two-phase pre-timed controller. It shall operate as shown below:

INTERVAL	1	2	3	4	5	6	1
NORTH BOUND	G	Y	R	R	R	R	G
SOUTH BOUND	R	R	R	G	Y	R	Y
TIMING 50 SECOND DIAL	10	3	12	10	3	12	

Timing Assumes 50' Barrier Top Each End.

G = Green  
Y = Yellow  
R = Red

Adjust timing as necessary in the field.

## ESTIMATED QUANTITIES

202.202	REMOVING PAVEMENT SURFACE	1,058	SY
202.203	PAVEMENT BUTT JOINTS	383	SY
403.10	HOT LUMINOUS PAVEMENT, GRADING D	192	T
409.18	BITUMINOUS TACK COAT APPLIED	2	G
506.13	MEMBRANE WATERPROOFING	LUMP	LUMP
518.30	REHAB STR CONC SLAB TO REIN STL	190	SF
518.31	REHAB STR CONC SLAB LR REIN STL	48	SF
518.32	REHAB CONC SLAB FULL DEPTH	5	SF
520.244	BRIDGE JOINT MODIFICATION TYPE 4	2	EA
526.301	TEMPORARY CONC BARRIER TYPE I	LUMP	LUMP
527.32	PORTABLE CRASH BARRELS	11	EA
606.70	TRANSITION SECTION THRU BEAM	4	EA
606.73	GR THRU BM SINGL LR BR MT	850	LF
627.61	4" SOLID WHITE PAVE MARK LINE	1,500	LF
627.62	4" SOLID YELLOW PAVE MARK LINE	1,500	LF
627.65	WHITE OR YELL PAVE & CURB MARK	50	SF
627.67	REMOVING PAVEMENT MARKINGS	1,050	SF
627.68	TEMP 4" PNTD PAVE MKR WH OR YE	1,500	LF
639.19	FIELD OFFICE TYPE B	1	EA
643.72	TEMPORARY TRAFFIC SIGNAL	1	EA
650.004	REMOVING REFLECTORIZED DELINEATOR, SINGLE	3	EA
652.31	TYPE I BARRICADE	10	EA
652.312	TYPE III BARRICADE	6	EA
652.33	DRUM	10	EA
652.34	CONE	20	EA
652.35	CONSTRUCTION SIGNS	260	SF
652.351	MAINT OF TRAFF CONTROL DEV	LUMP	LUMP
652.38	FLAGGER	270	T

659.10	MOBILIZATION	1	1
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115-163

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

WEST ETNA ROAD BRIDGE

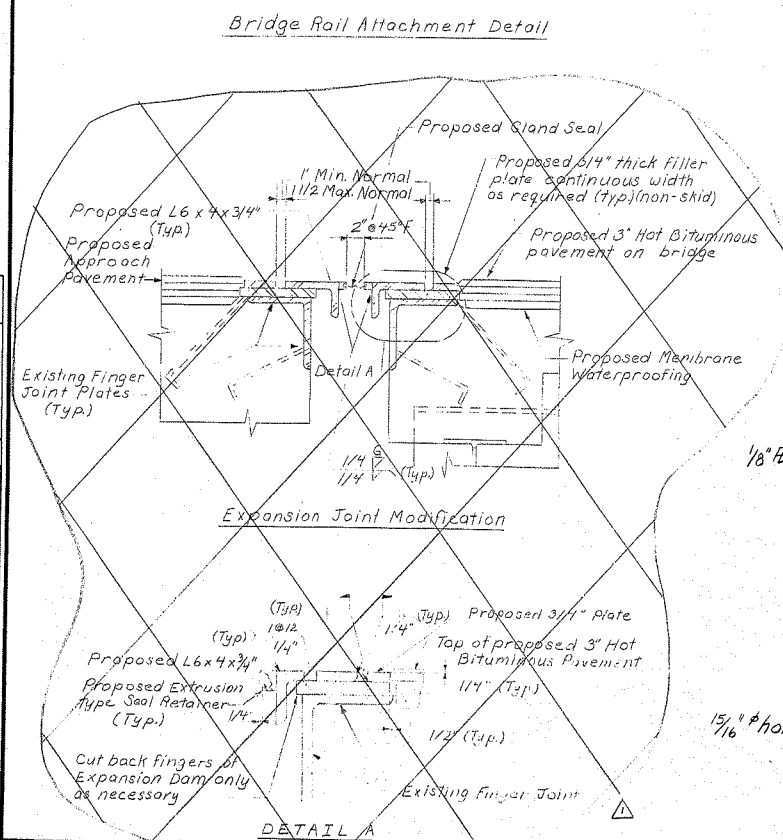
INTERSTATE HIGHWAY 95  
IN THE TOWN OF

ETNA

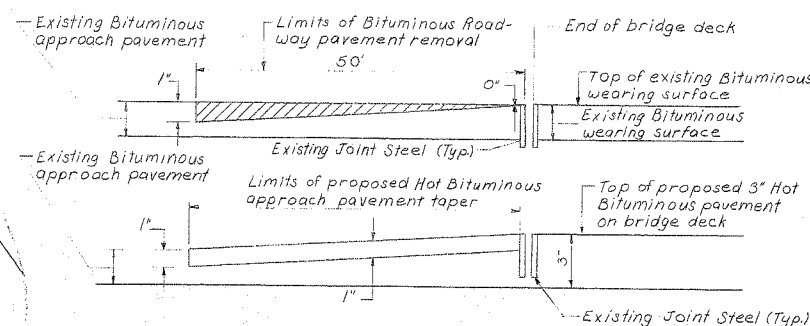
PENOBSCOT COUNTY

BRIDGE RAIL DETAILS

SHEET 2 OF 6 AUGUSTA, MAINE 04/06/95



Bridge Rail Attachment Detail



Butt Joint Detail

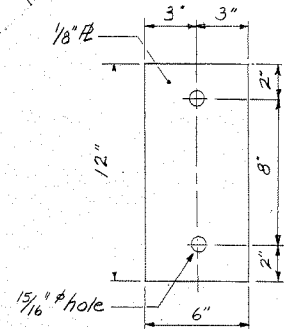
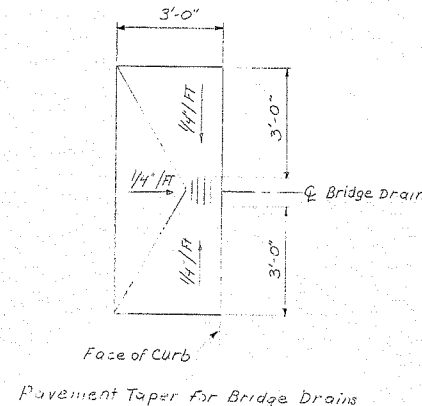


PLATE WASHER DETAIL

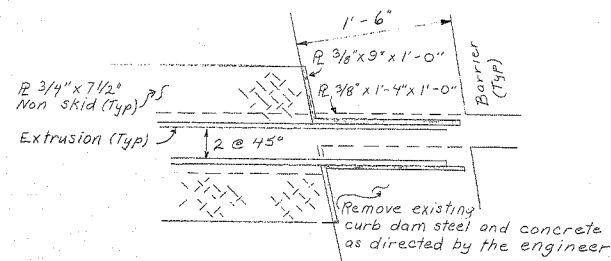
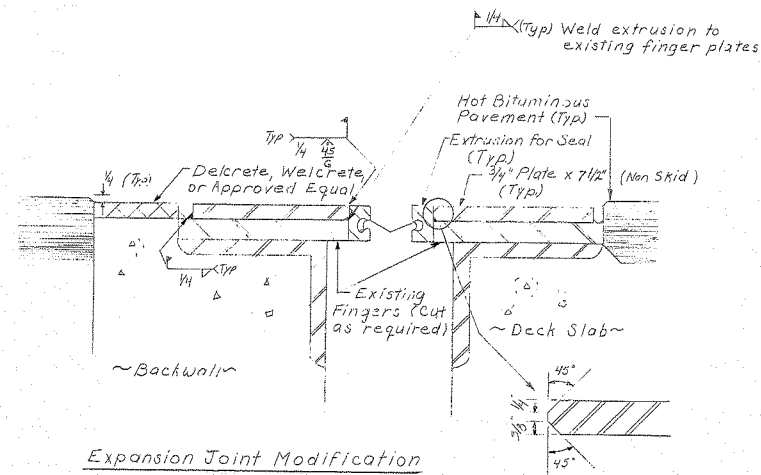


### Pavement Taper for Bridge Drains

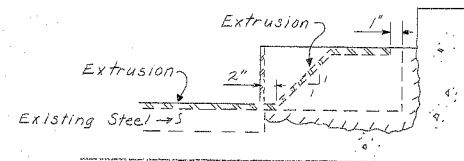
Remove Details  
G/MAM 5-15-95

SHEET 2 OF 6 AUGUSTA, MAINE 04/06/95

P.R.A. REV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	17-95-8304(4)	3	8



PLAN



See BD 302-93 for plate anchorage

SECTION THROUGH JOINT

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN - DETAILED	Chadwick BAW	5/95
CHECKED		
REVISIONS		
FIELD CHANGES		

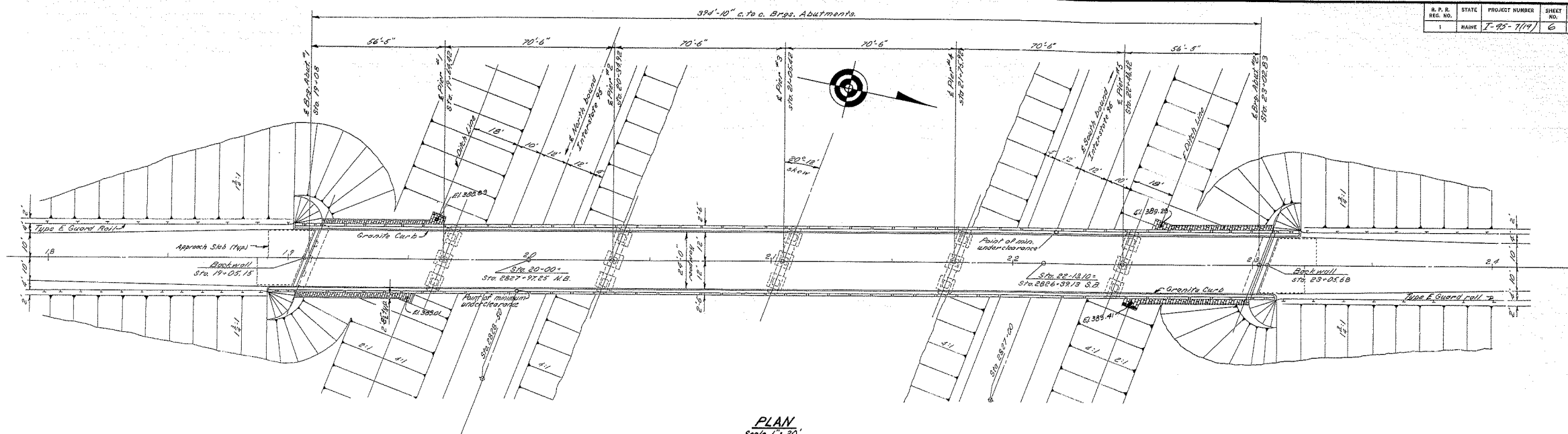
PLANS

115-164

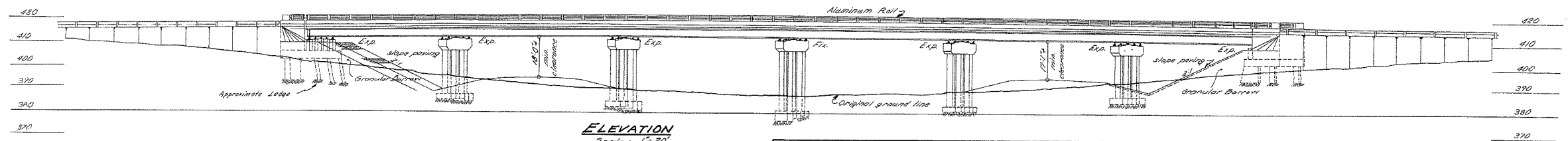
STATE OF MAINE DEPARTMENT OF TRANSPORTATION
WEST ETNA ROAD BRIDGE OVER INTERSTATE HIGHWAY 95 IN THE TOWN OF ETNA PENOBSCOT COUNTY
JOINT DETAILS
SHEET 2A OF 6 AUGUSTA, MAINE MAY 11, 1995



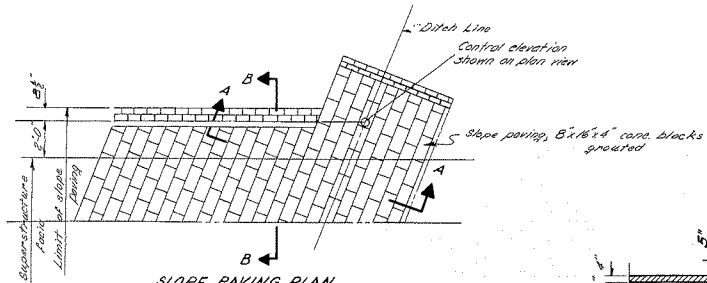
R. F. D.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-7179	6	14



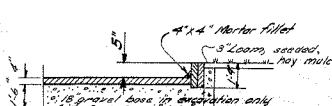
PLAN  
Scale 1" = 20'



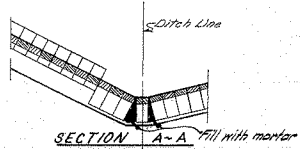
ELEVATION  
Scale 1" = 20'



SLOPE PAVING PLAN



SECTION B-B



SLOPE PAVING DETAILS

NOTE: If the material adjacent to the ditch is not free draining, the gravel base under the slope paving shall be drained as directed by the Engineer.  
Payment for the excavation required for this drainage will be made under Item 203-9, Earth Excavation and if ledge is encountered, Item 203-10, Rock Excavation.  
Payment for the materials required for this drainage will be made under the appropriate items of the contract unit prices.

ESTIMATE OF QUANTITIES		QUANTITY
DESCRIPTION		
Earth Excavation		985 cu yd
Rock Excavation		630 cu yd
Structural Earth Excavation, Abutments & Retaining Walls		145 cu yd
Structural Rock Excavation, Abutments & Retaining Walls		18 cu yd
Structural Earth Excavation, Piers		330 cu yd
Structural Rock Excavation, Piers		70 cu yd
Common Borrow		5000 cu yd
Granular Borrow		1185 cu yd
Gravel Base Course, In Place Measurement		1830 cu yd
Crushed Gravel Base Course, In Place Measurement		340 cu yd
Gravel Surface Course		75 cu yd
Bituminous Concrete Surface Course, Type B		428 tons
Portland Cement Concrete Abutments & Retaining Walls		164 cu yd
Portland Cement Concrete Piers		265 cu yd
Portland Cement Concrete Roadway & Sidewalk Slabs on Steel Bridges		380 cu yd
Portland Cement		1215 bbls
Structural Steel, Fabricated & Delivered		331,500 lbs
Structural Steel, Erection		331,500 lbs
Structural Steel, Field Painting		331,500 lbs
Reinforcing Steel, Delivered		125,840 lbs
Reinforcing Steel, Placing		125,840 lbs
Aluminum Rail		820 l.f.
Membrane Waterproofing		1055 sq yd
Slope Paving		380 sq yd
Bridge Granite Curb		825 l.f.
Guard Rail, Type "E"		750 l.f.
Guard Rail, Type "E", Terminal Section		5 each
Loam Borrow		290 cu yd
Seedling, Method No. 2		32 units
Hay Mulch		3.5 tons
Asphalt Mulch Binder		880 gal
Epoxy Resin Surface Sealant		65 sq yd

### DESIGN SPECIFICATIONS

A.A.S.H.O. ~ 1957

#### LOADING

STRUCTURAL STEEL 15,000 psi.  
REINFORCED CONCRETE

H20-44

#### TRAFFIC DATA

ADT 1960	25
ADT 1980	35
DHV	4
T	11%
D	60%
V	50 mph

15,000 psi.  
12,000 psi.  
17 - 10

### CONTRACT SPECIFICATIONS

State of Maine, State Highway Commission,  
Standard Specifications, Revision of Jan. 1956

### CONCRETE CLASSIFICATION - All concrete Class "A"

DESIGN - F.M. Barnes  
TRACE - L.H.S.  
CHECK - T.H.K.

BRIDGE NO.  
SURVEY  
PLOT

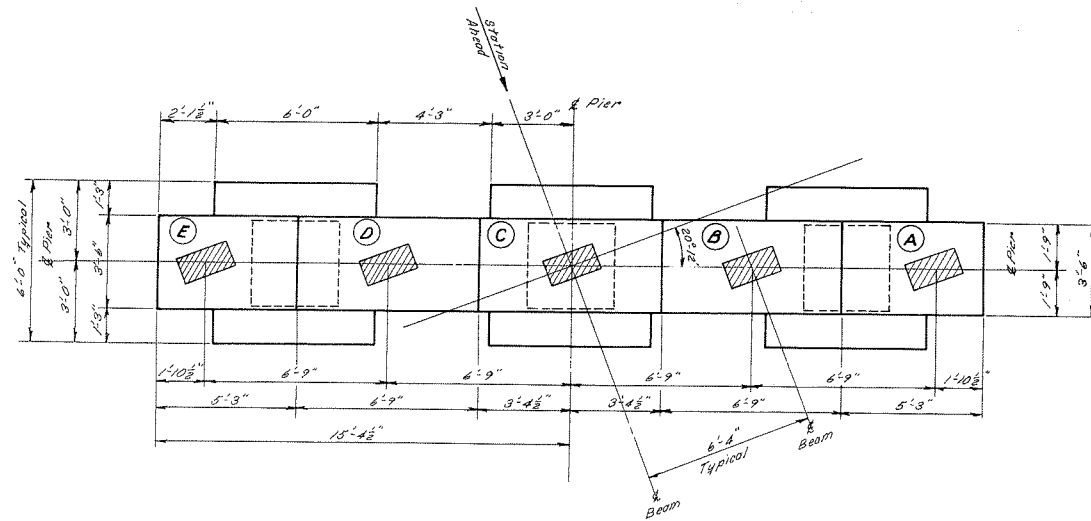
STATE HIGHWAY COMMISSION  
BRIDGE DIVISION  
**WEST ETNA ROAD BRIDGE**  
OVER  
**INTERSTATE HIGHWAY 95**  
IN THE TOWN OF  
**ETNA**  
**PENOBSCOT COUNTY**  
GENERAL PLAN

SHEET 6 OF 14 AUGUSTA, MAINE, MARCH, 1961

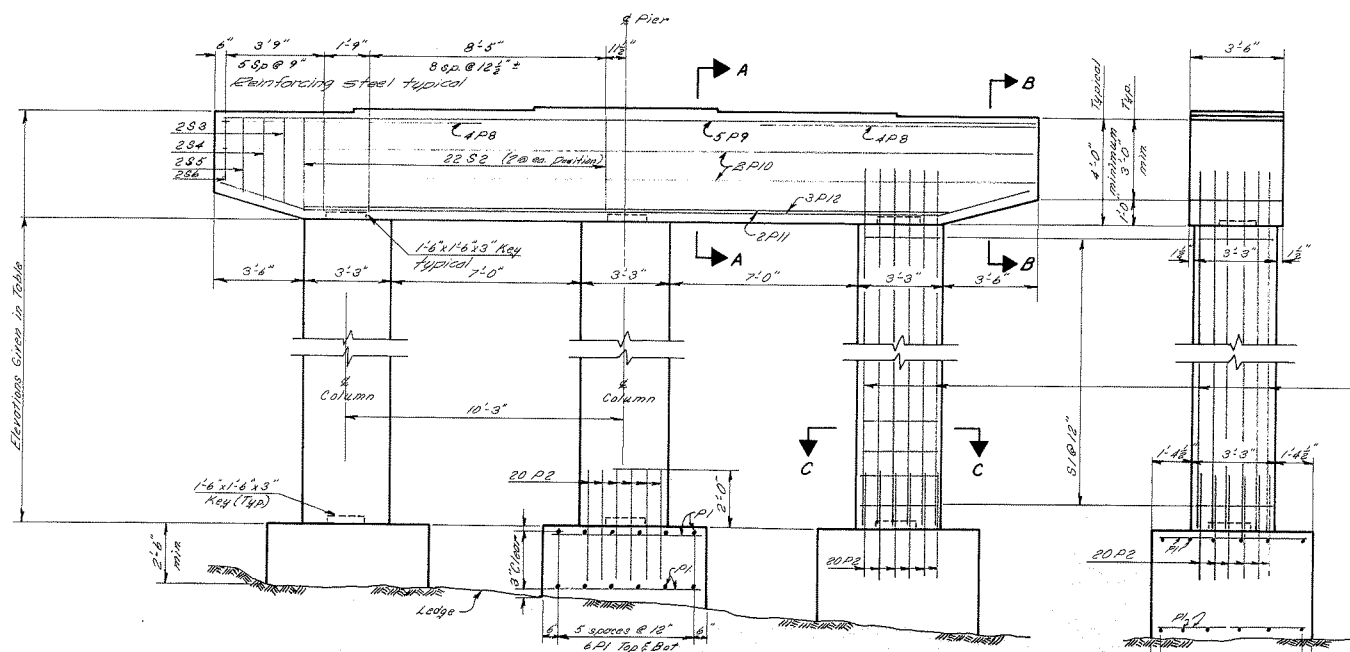




S. P. R. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-7(1)	9	12



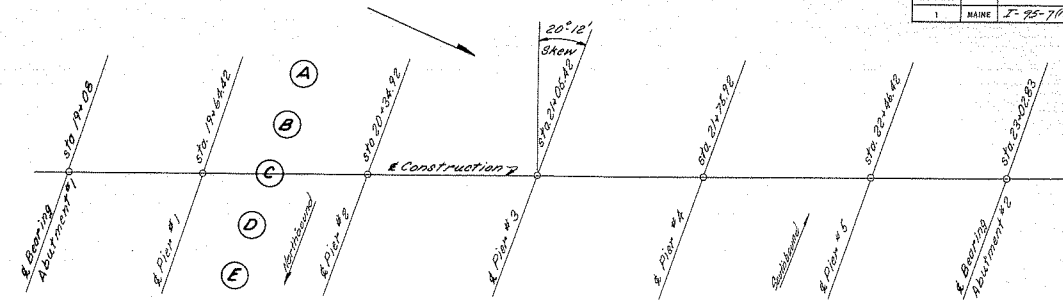
PLAN-ALL PIERS



ELEVATION ALL PIERS

Piers are symmetrical about both their longitudinal and transverse center lines, except for bearing areas.

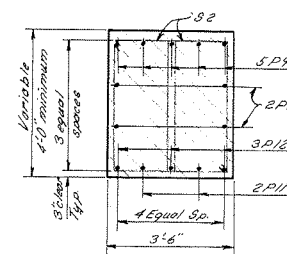
END ELEVATION



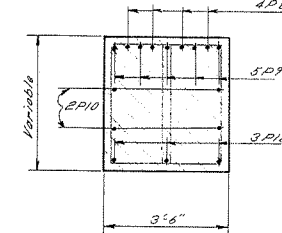
GENERAL LAYOUT

Pier Number	Top of Footing El.	Bottom of Cap Elev.	Bearing Area Elevations				
			A	B	C	D	E
Pier #1	387.50	407.23	411.25	411.38	411.50	411.37	411.23
Pier #2	384.00	407.34	411.34	411.47	411.60	411.47	411.34
Pier #3	381.00	407.26	411.26	411.40	411.53	411.41	411.26
Pier #4	385.00	407.01	411.01	411.15	411.29	411.17	411.03
Pier #5	388.00	406.59	410.59	410.74	410.89	410.77	410.66

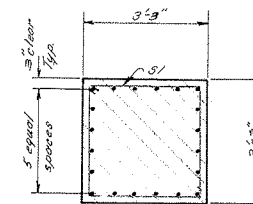
\* See Note on this sheet.



SECTION A-A



SECTION B-B



SECTION C-C

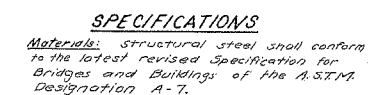
Notes:  
Dress shaded bearing areas to exact elevation shown and one inch larger all around than the required masonry plate. (See sheet #11 for size of masonry plate.)  
Reinforcing steel in top of cap to clear anchor bolts.  
All weathered and/or broken ledge to be removed before any footing concrete is placed.  
Reinforcing steel: 5" clear.  
Maximum Footing Pressure = 8 tons/sq. ft.

Pier #1 - 20 P3, 19S1 per column  
Pier #2 - 20 P4, 23S1 " "  
Pier #3 - 20 P5, 26S1 " "  
Pier #4 - 20 P6, 22S1 " "  
Pier #5 - 20 P7, 18S1 per column

Note: Piers #2, #3 and #4 only.  
If sound ledge is encountered and excessive rock excavation would be required to obtain a 2'-6" minimum depth of footing, the elevation for the top of any footing may be raised. However, the top of the footing shall not be less than 1'-0" from the surface of the final ground elevation of the pier in question.  
In the case of overbreakage of ledge no payment will be made for rock excavation, concrete and cement of depths more than 6' below the elevation of the bottom of any column footing as previously determined by the Engineer.

DESIGN - T.H.H.	BRIDGE NO.
TRACE - J.H.H.	SURVEY -
CHECK -	PLOT -
STATE HIGHWAY COMMISSION BRIDGE DIVISION	
WEST ETNA ROAD BRIDGE OVER INTERSTATE HIGHWAY 95 IN THE TOWN OF ETNA PENOBSCOT COUNTY PIERS	
SHEET 9 OF 14 AUGUSTA, MAINE MARCH 1961	

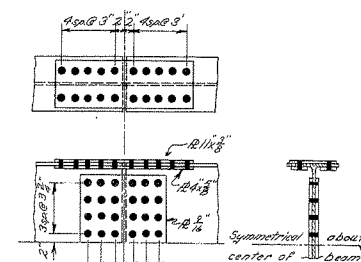
0 2 3 4 5 INCHES



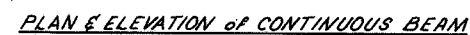
Design: A.A.S.H.O. 1957 and revisions

Fabrication & Erection: State of Maine,  
Standard Specifications Highways and  
Bridges, Revision of January 1956.

Field Connections:  $\frac{7}{8}$ "  $\phi$  rivets or  $\frac{7}{8}$ "  $\phi$  high tensile strength bolts, holes  $\frac{11}{16}$ "  $\phi$



TYPICAL DETAIL OF BEAM SPLICE

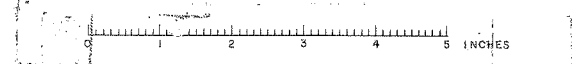


DESIGN - <i>F.H.R.</i>	BRIDGE NO. _____
TRACE - <i>W.F.</i>	SURVEY - _____
CHECK - <i>W.F.</i>	PLOT - _____

STATE HIGHWAY COMMISSION  
BRIDGE DIVISION

**WEST ETNA ROAD BRIDGE**  
OVER  
**INTERSTATE HIGHWAY 95**  
IN THE TOWN OF  
**ETNA**  
**PENOBSCOT COUNTY**  
STRUCTURAL STEEL

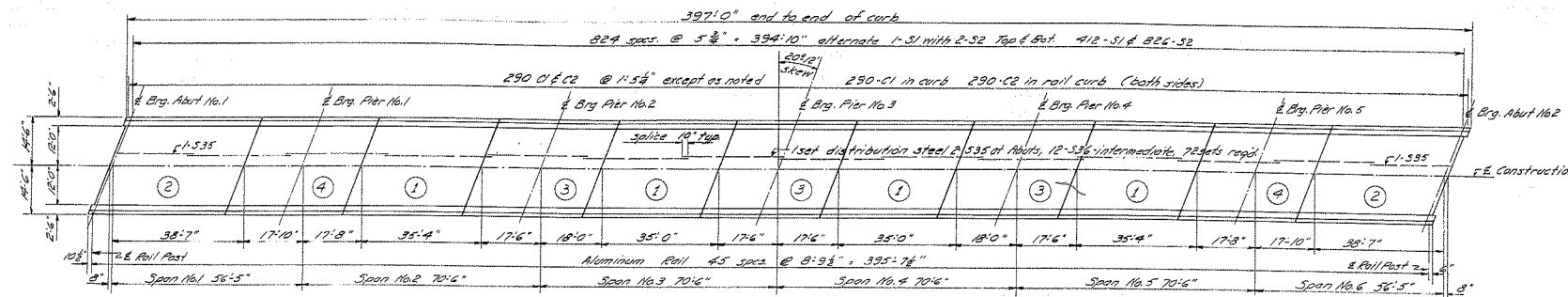
SHEET 10 OF 14      **AUGUSTA, MAINE**      **MARCH 19**





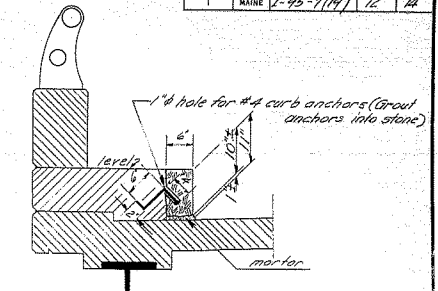


STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
MAINE	F-95-7(19)	12	14



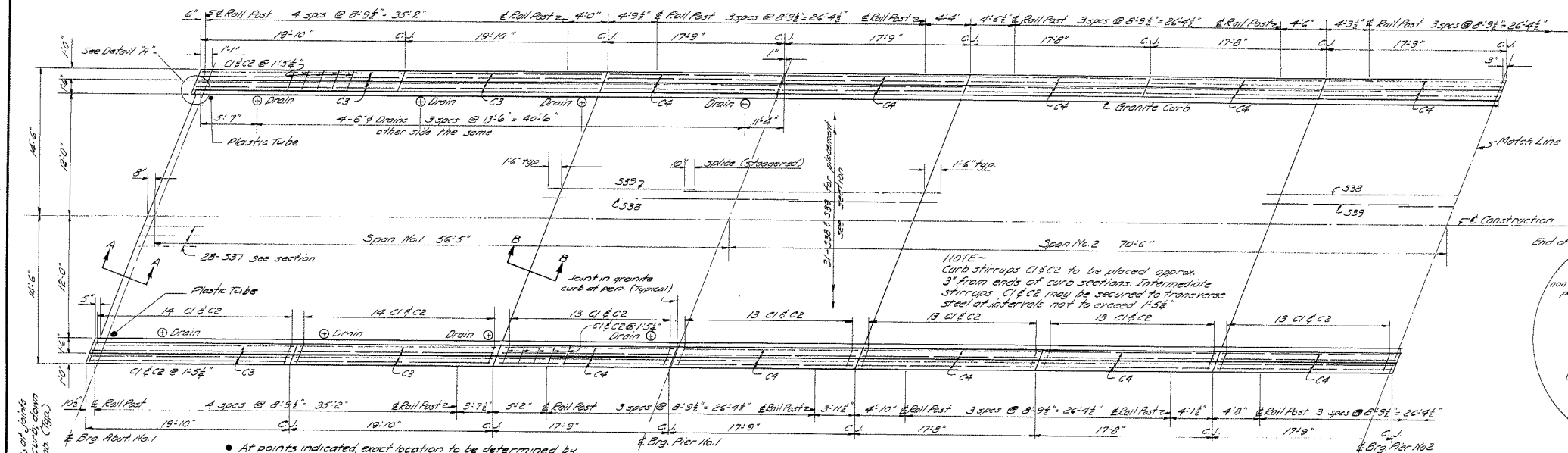
LAYOUT PLAN

○ CONCRETE PLACING SEQUENCE: All panels 1 must be placed before starting panels 2, etc.

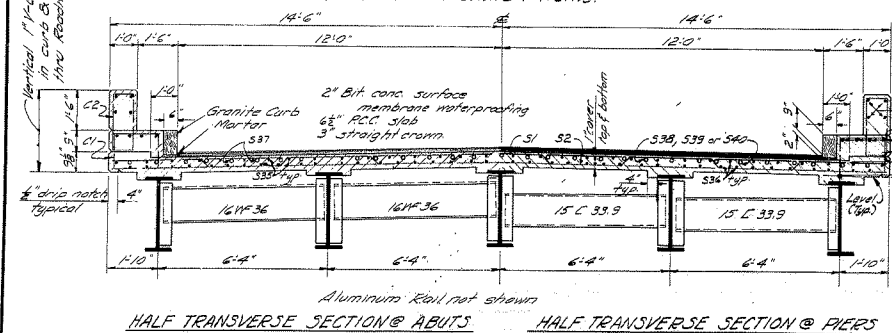


GRANITE CURB DETAIL

Granite curb anchors to be spaced 2'-0" c/c maximum and 1'-0" maximum from end of stone. Minimum of two anchors per stone. Granite shall conform to Supplemental Specifications, Section 901 Granite Bridge Curb.

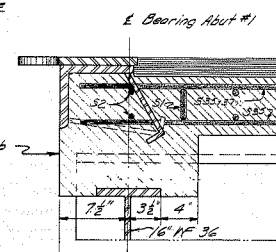
SUPERSTRUCTURE PLAN - SPANS 1 & 2  
Rotate 180° for Spans 5 & 6

At points indicated, exact location to be determined by Engineer in the field. Place a 1" plastic tube thru slab for drainage. Do not cover with waterproofing. This work to be incidental to contract items.

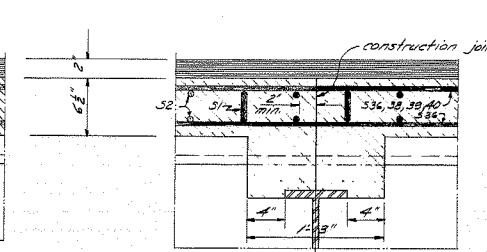


HALF TRANSVERSE SECTION @ ABUTS

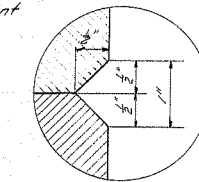
HALF TRANSVERSE SECTION @ PIERS



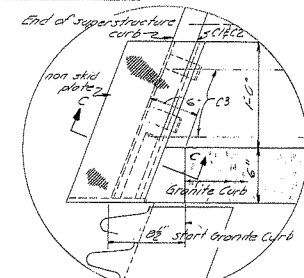
SECTION A-A



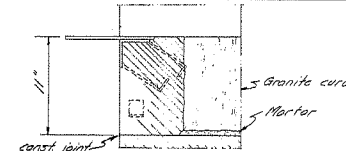
SECTION B-B



DETAIL 1" V GROOVE  
Use same detail for vertical construction joints, both inside and outside face of curbs.



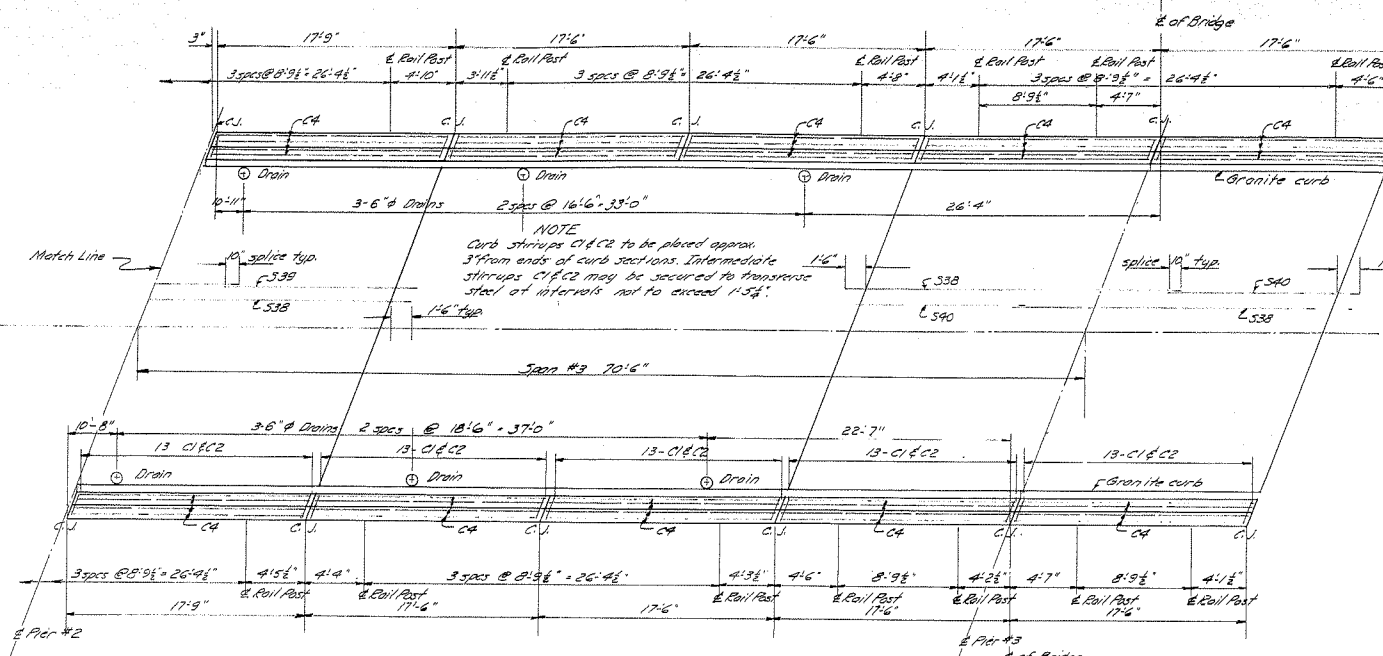
DETAIL A (other side app. hand)



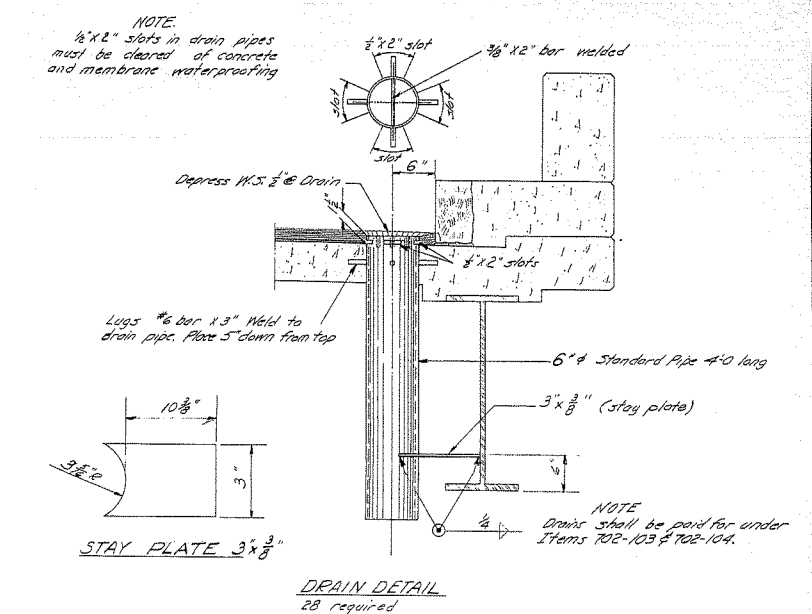
SECTION C-C

DESIGN - T. H. K.	DETAIL - R. Barnes	BRIDGE NO.
TRACE - F. Barnes	PLOT -	SURV. -
CHECK - G. Barnes		PLOT -
STATE HIGHWAY COMMISSION		
BRIDGE DIVISION		
WEST ETNA ROAD BRIDGE		
OVER		
INTERSTATE HIGHWAY 95		
IN THE TOWN OF		
ETNA		
PENOBSCOT COUNTY		
SUPERSTRUCTURE		
SHEET 12 OF 14	AUGUSTA, MAINE	MARCH, 1961

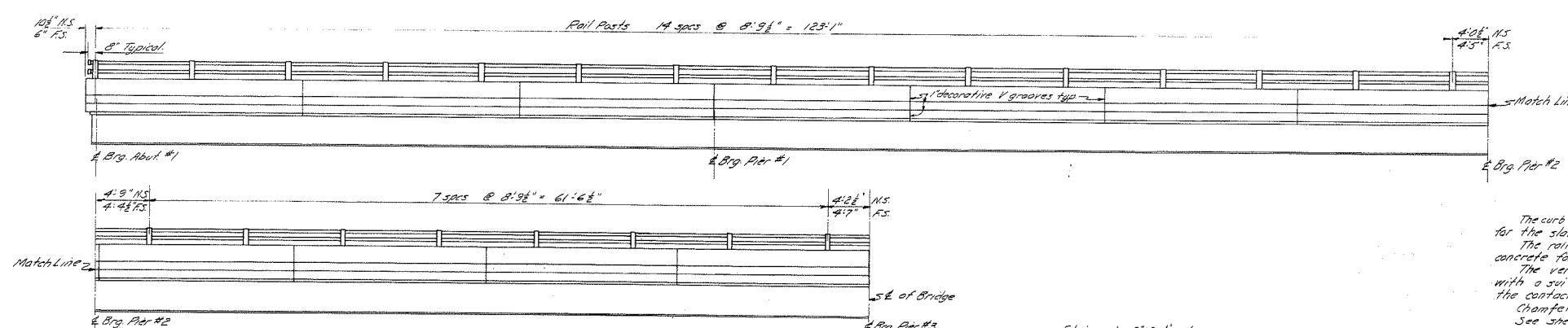
D.P.R.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	7-95-7(14)	13	44



**SUPERSTRUCTURE PLAN - SPAN 3**  
Rotate 180° for Span #4

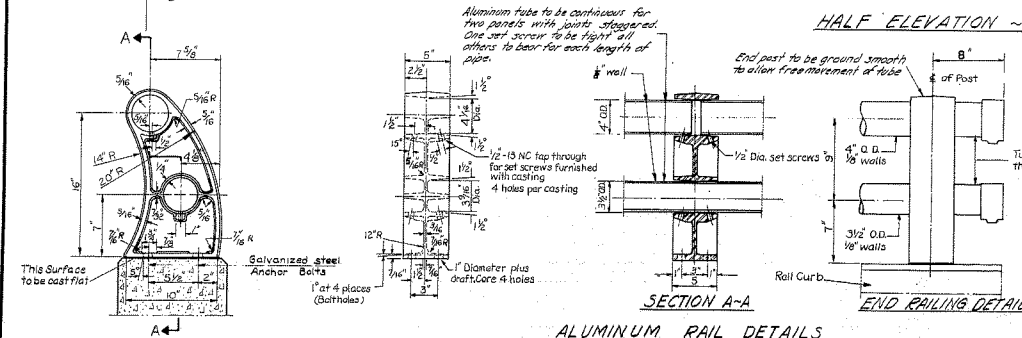


**DRAIN DETAIL**  
28 required



**HALF ELEVATION - RIGHT SIDE**

**GENERAL NOTES**  
The curb steel is to be in place before the concrete for the slab is placed.  
The rail curb steel is to be in place before the concrete for the curb is placed.  
The vertical construction joints are to be coated with a suitable grade of asphaltic paint applied to the contact surfaces.  
Chamfer all exposed edges of concrete  $\frac{3}{4}$ ".  
See sheet no. 11 for blocking table.  
Use edging tool along top of curb at construction joints.



**ALUMINUM RAIL DETAILS**

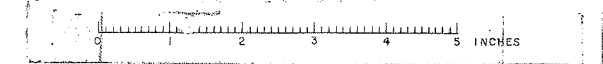
- NOTES**
- Any variation in railing dimensions shall be submitted for approval.
  - All anchor bolts, nuts and washers to be of galvanized steel.
  - All anchor bolts to be  $\frac{3}{4}$ "  $\phi$  L bolts (set 10" into concrete).
  - Provide shims for 50% of railing posts.

**ANCHOR BOLT**  
Structural steel galvanized

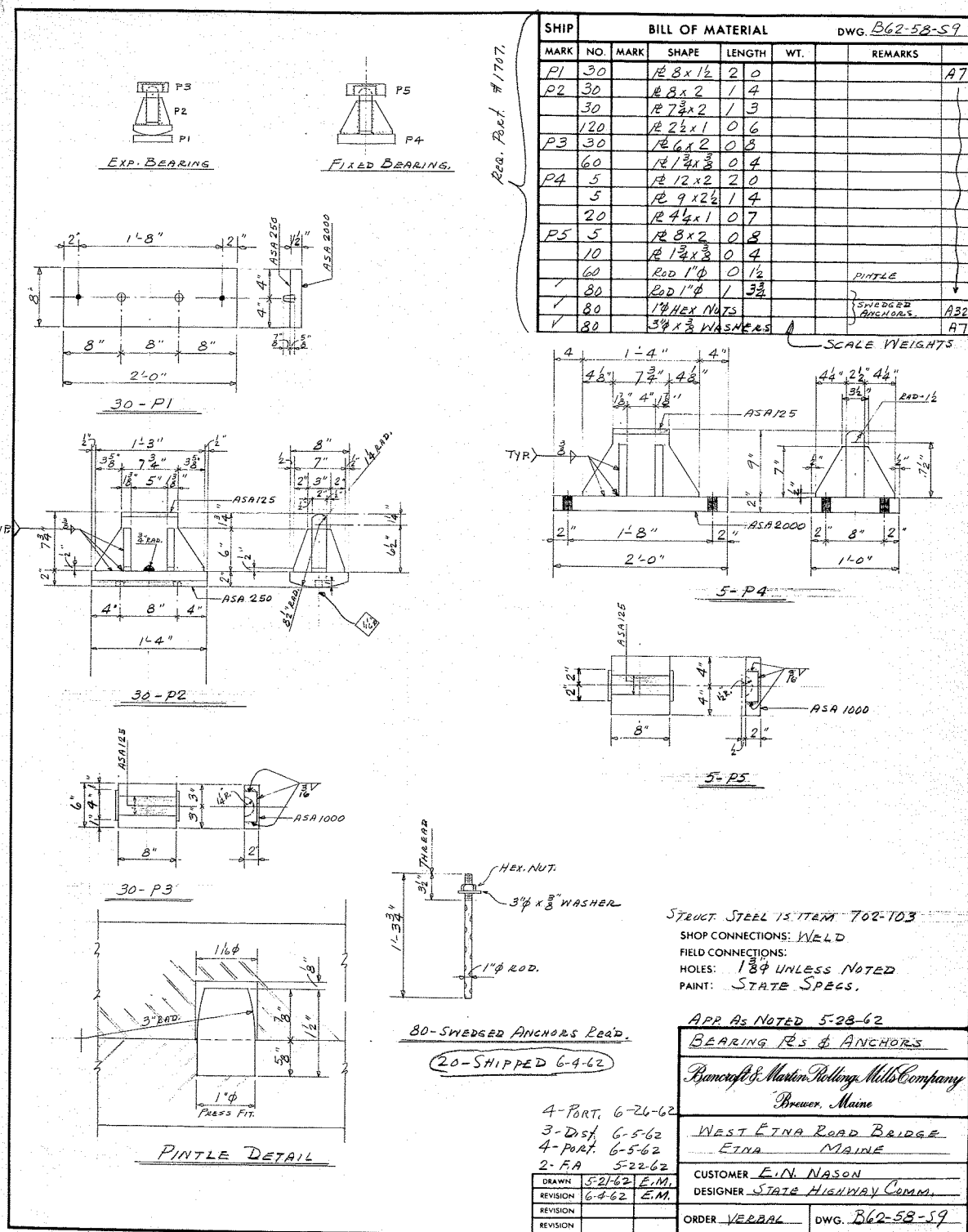
DESIGN - T.M.E. DETAIL - F.B.A.R.I.E.J. BRIDGE NO. 13  
TRACE - F.B.A.R.I.E.J. SURVEY - PLOT -  
CHECK - G.M.E.J.

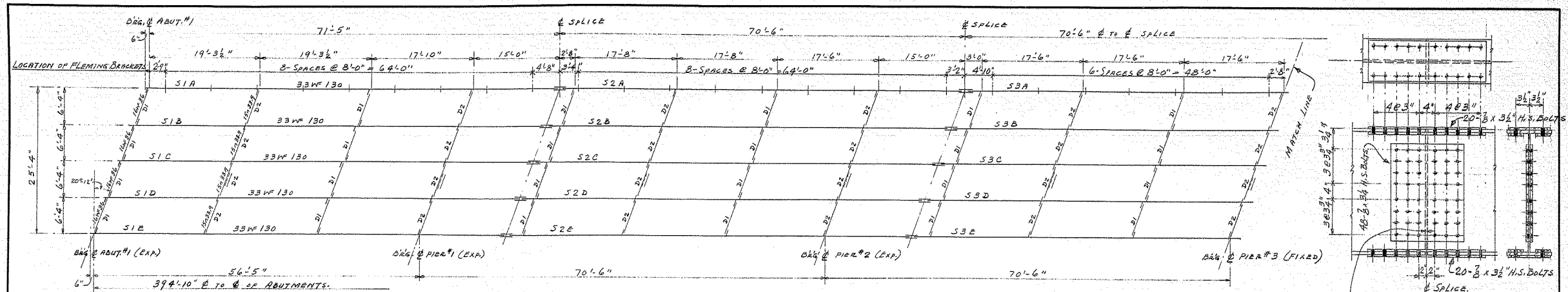
STATE HIGHWAY COMMISSION  
BRIDGE DIVISION  
**WEST ETNA ROAD BRIDGE**  
OVER  
**INTERSTATE HIGHWAY 95**  
IN THE TOWN OF  
**ETNA**  
**PENOBSCOT COUNTY**  
SUPERSTRUCTURE 6 ALUMINUM RAIL

SHEET 13 OF 14 AUGUSTA, MAINE MARCH 1961

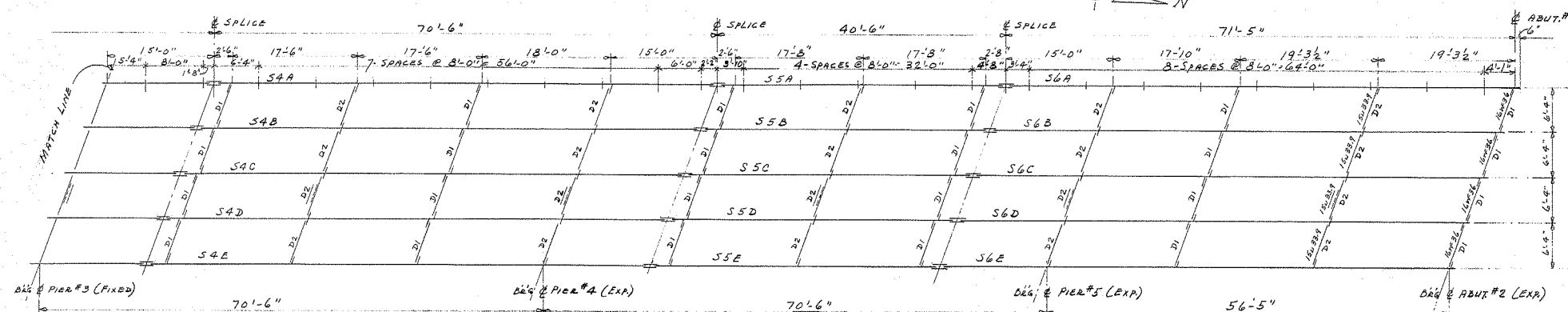




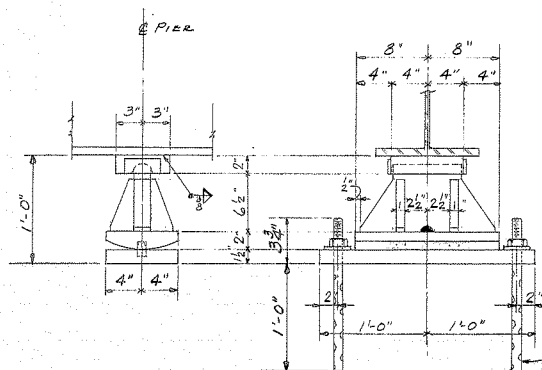




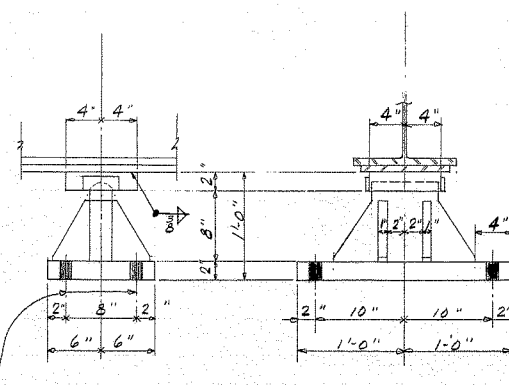
FRAMING PLAN - SOUTH END



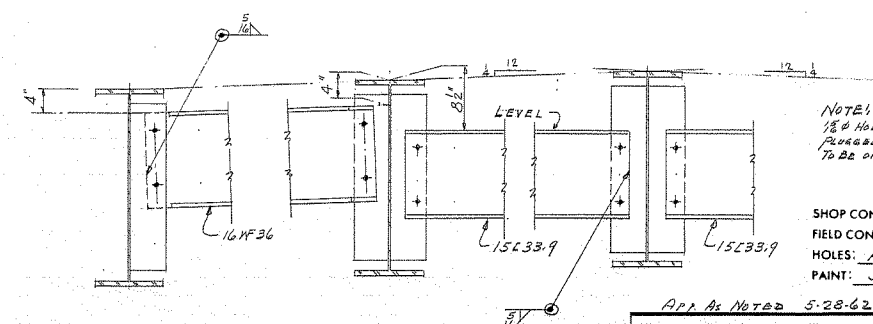
FRAMING PLAN - NORTH END



EXPANSION BEARINGS @ ABUTMENTS & PIERS



FIXED BEARING @ PIER #3

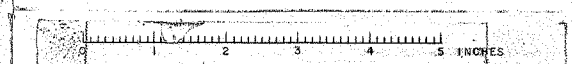


DIAPHRAM DETAILS

NOTE:  
1/8" HOLES FOR FLEMING BRACKETS TO BE  
PLUGGED WITH 3/8" CARBIDE BOLTS. HEADS  
TO BE ON OUTSIDE. HOLES TO BE COMPLETELY COVERED.

SHOP CONNECTIONS: WELD  
FIELD CONNECTIONS: 3/8" H.S. BOLTS  
HOLES: AS NOTED ON DETAILS  
PAINT: STATE SPECS.

APPROVED 5-28-62	
FRAMING PLAN	
PRINT ISSUE	
3 DIST	4-5-62
1 SHOP	4-5-62
1 CUST.	5-28-62
1 CUST.	5-22-62
2 F.A.	5-22-62
DRAWN	5-15-62 E.M.
REVISION	6-4-62 E.M.
REVISION	
REVISION	
Bancroft & Martin, Portland, Maine	
Brewer, Maine	
WEST ETNA ROAD BRIDGE	
ETNA MAINE	
CUSTOMER E. N. NASON	
DESIGNER STATE HIGHWAY COMM.	
ORDER VERBAL	DWG. B62-58-F1



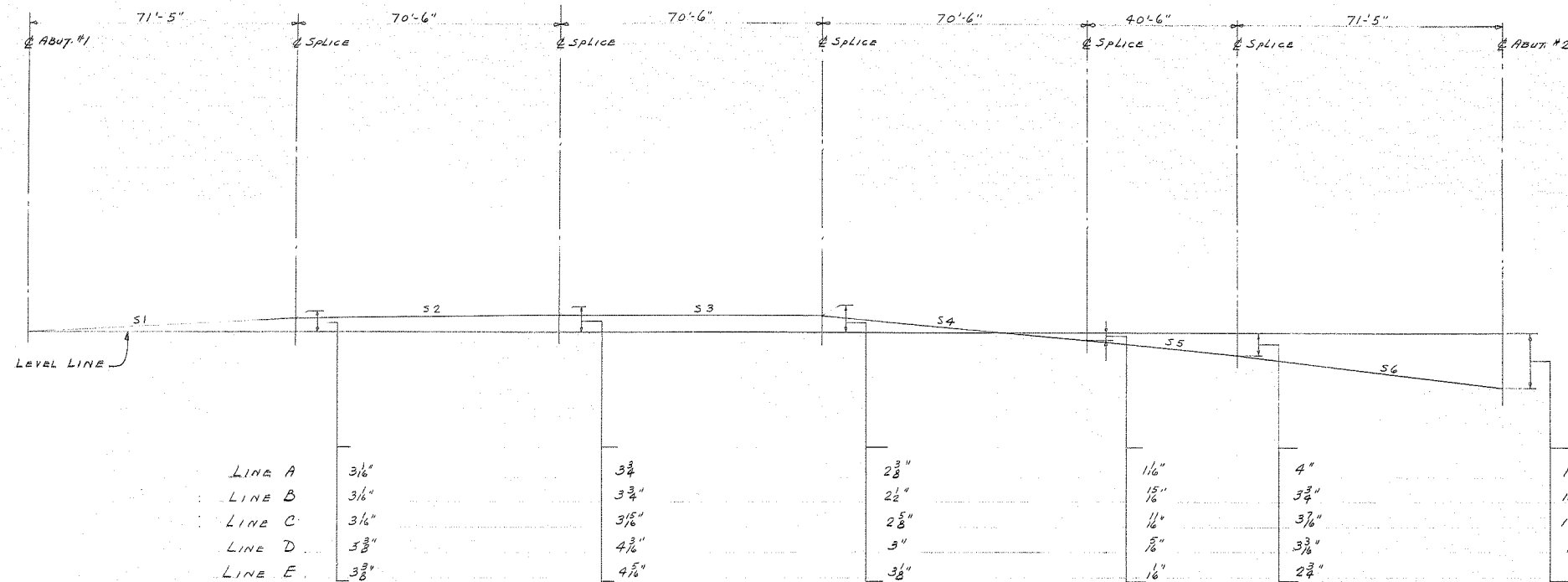
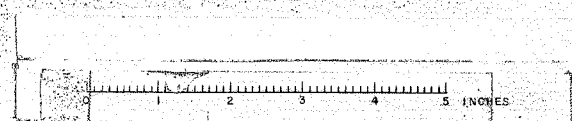


DIAGRAM OF STRINGER ELEVATIONS  
COMPUTATION OF DIMENSIONS ARE BASED ON BEARING AREA ELEVATIONS

SHOP CONNECTIONS:  
FIELD CONNECTIONS:  
HOLES:  
PAINT:

APP. AS NOTED 5-28-62

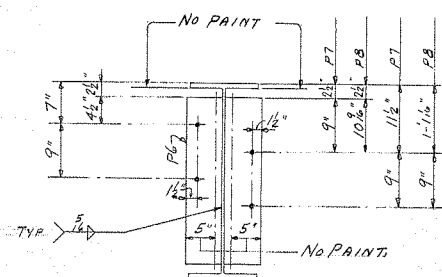
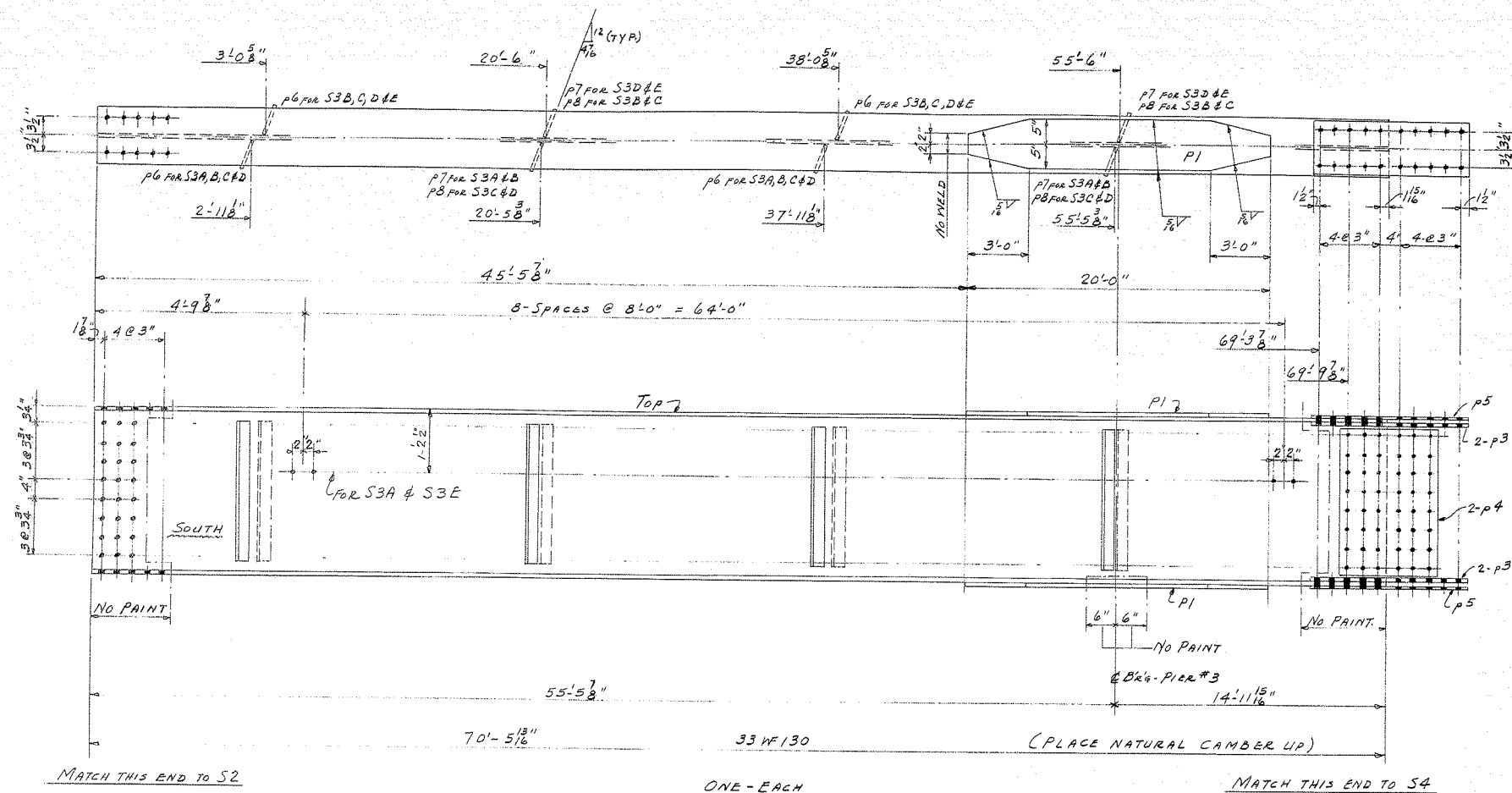
DIAGRAM OF STRINGER ELEVATIONS		
PRINT ISSUE		
Bancroft & Martin Rolling Mills Company		
Brewer, Maine		
WEST ETNA ROAD BRIDGE		
ETNA NAHLE		
3 DIST	6-5-62	CUSTOMER E. N. NASON
1 SHOP	6-5-62	DESIGNER STATE HIGHWAY COM.
2 F.A.	5-22-62	ORDER VERBAL
DRAWN	5-16-62 E.M.	DWG. B62-58-F2
REVISION	6-4-62 E.M.	
REVISION		
REVISION		











DETAIL DIAPHRAM Rs.

[illegible]

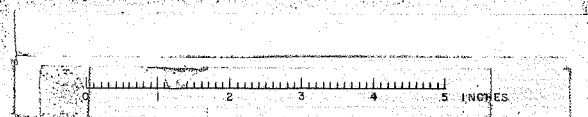
SHOP CONNECTIONS: WELD  
FIELD CONNECTIONS: 3" A.S. BOLTS  
HOLES: 1 5/8" (SEE NOTE SH.#1.)  
PAINT: STATE SPECS.

APP. AS NOTED 5-28-62

53 - STRINGERS

PRINT ISSUE		<i>Bancroft &amp; Martin Rollings Mills Company</i> <i>Brewer, Maine</i>  <b>WEST ETNA ROAD BRIDGE</b> <b>ETNA MAINE</b>  <b>CUSTOMER <u>E. M. NASON</u></b> <b>DESIGNER <u>STATE HIGHWAY COMM.</u></b>  <b>ORDER <u>VERBAL</u></b> <b>DWG. <u>B62-58-53</u></b>
3 DIST	6-5-62	
5 SHOP.	6-5-62	
2 F.A.	5-22-62	
DRAWN	5-17-62 E.M.	
REVISION	6-7-62 E.M.	
REVISION		
REVISION		

85-158



SHOP CONNECTIONS: WELD  
FIELD CONNECTIONS: 3" H.S. BOLTS  
HOLES: 1 1/2" (SEE NOTE SH. 1)  
PAINT: STATE SPECS.

APP. AS NOTED 5-28-62

54- STRINGERS

*Bancroft & Martin Rolling Mills Company*  
*Brewer, Maine*

WEST ETNA ROAD BRIDGE  
ETNA MAINE

CUSTOMER E. N. NASON  
DESIGNER STATE HIGHWAY COMM.

ORDER <u>VERBAL</u>	DWG. <u>B62-58-54</u>
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05-1586

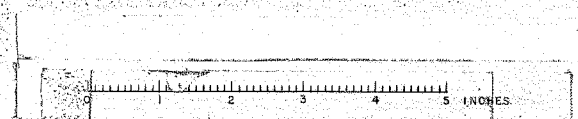
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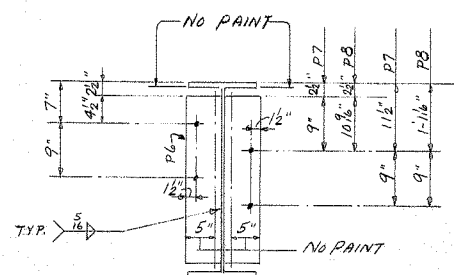
[illegible]

DETAIL- DIAPHRAM R<sub>5</sub>

ONE-EACH  
54A-54B-54C-54D-54E

MATCH THIS END TO S5





DETAIL-DIAPHRAM  $\phi_s$

[illegible]

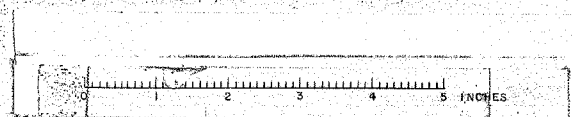
SHOP CONNECTIONS: WELD  
FIELD CONNECTIONS: 3  $\phi$  H. S. BOLTS  
HOLES: 1/2  $\phi$  (SEE NOTE SH. 1)  
PAINT: STATE SPECS.

APP. AS NOTED 5-28-62

55 - STRINGERS

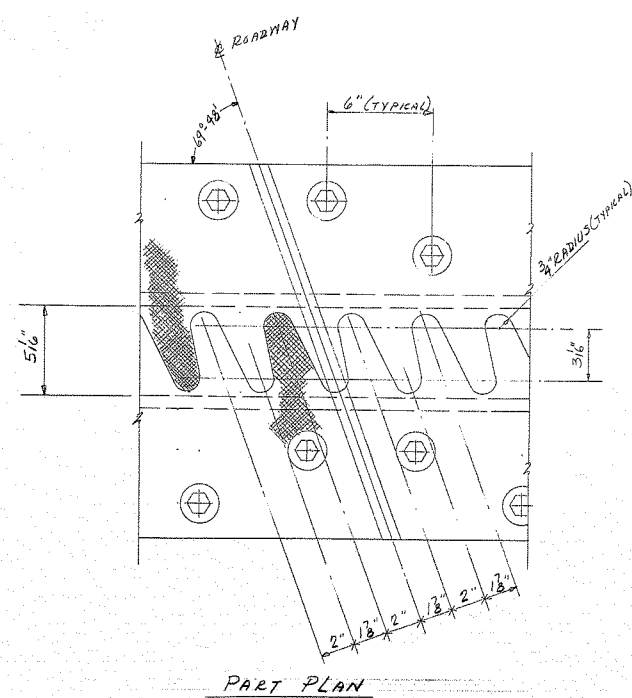
PRINT ISSUE		<i>Rancraft &amp; Martin Rollings Mills Company</i> <i>Brewer, Maine</i> <u>WEST FINE ROAD BRIDGE</u> <u>FINE MAINE</u> CUSTOMER <u>E. N. NASON</u> DESIGNER <u>STATE HIGHWAY COMM.</u>  ORDER <u>VERBAL</u> DWG <u>B62-58-55</u>
3 D.S.T	6-5-62	
5 SHOP	6-5-62	
2 F.A.	5-22-62	
DRAWN	5-17-62 E.M.	
REVISION	6-4-62 E.M.	
REVISION		
REVISION		

05-133 H









## PART PLAN

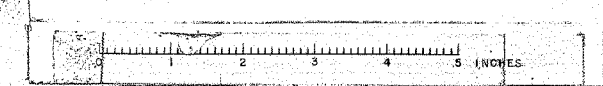
EXPANSION DAMS	
PRINT ISSUE	
3	STATE 6-6-62
5	SHOP 6-6-62
3	DIST 6-5-62
5	SHOP 6-5-62
2	FA 5-22-62
DRAWN	5-18-62 EM
REVISION	6-4-62 F.M.
REVISION	6-6-62 E.M.
REVISION	

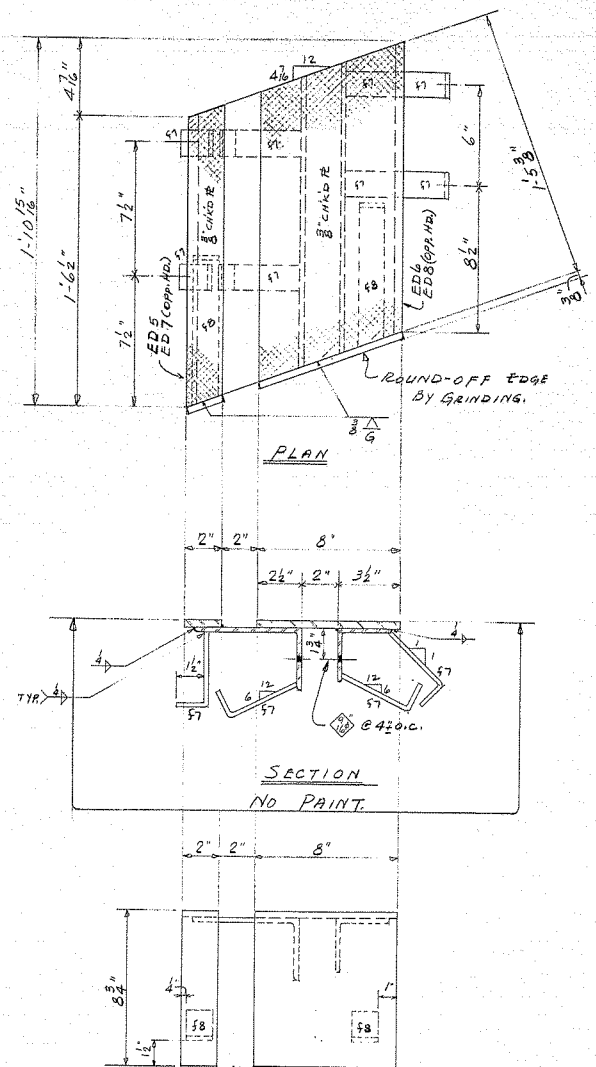
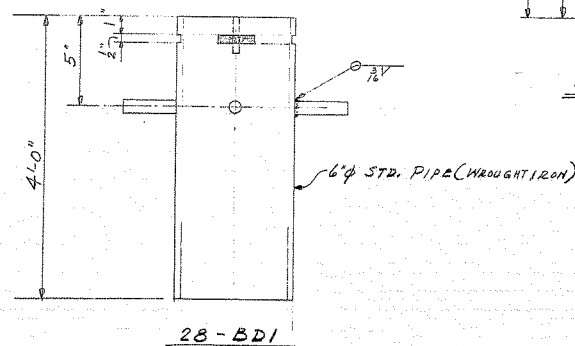
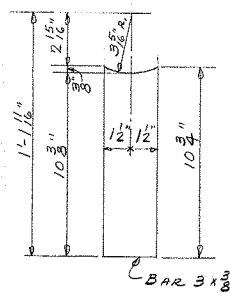
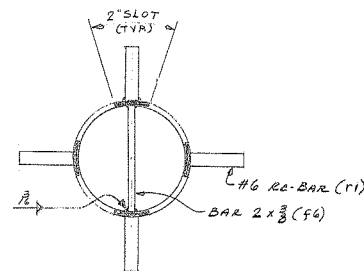
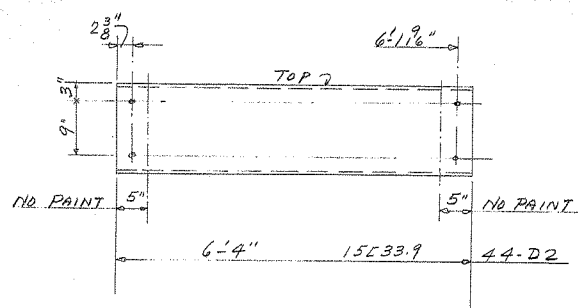
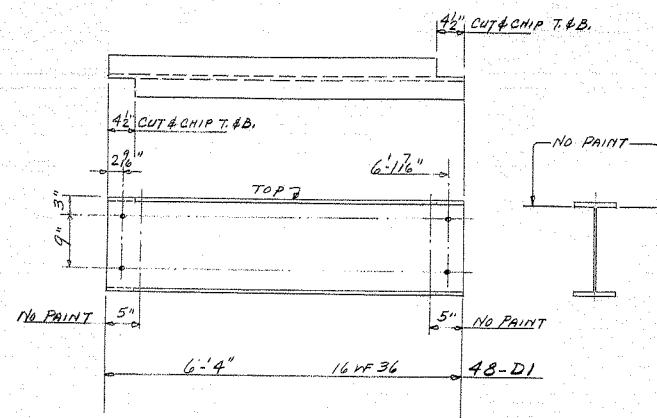
*Bancroft & Martin Rollins Mills Company*  
*Brewer, Maine*

WEST ETNA ROAD BRIDGE  
ETNA MAINE

CUSTOMER F.N. NASON  
DESIGNER STATE HIGHWAY COMM

ORDER VERBAL DWG B62-58-57





ELEVATION OF CURB DAM  
2-REQ'D AS SHOWN  
2-REQ'D OPR HAND

SHIP	BILL OF MATERIAL				DWG. D62-58-S8		
MARK	NO.	MARK	SHAPE	LENGTH	WT.	DEDUCT	REMARKS
D1	48		16WF36	6 4		358.50#	A7
D2	44		15L33.9	6 4		150#	A7
BD1	28		6" PLATEWENT 1/4" THK	4 0		18.00#	A7
	28	FL	BAR 2x3	0 6			FIT.
	112	RI	3" RB-BAR	0 3			
F1	28		BAR 3x3	0 10 3/4		1.50#	
ED5	2		6x3 1/2 x 3/4	1 8 3/4		3.77#	
ED6	2		3x3x1/4	1 7 1/2		1.00#	
ED7	2		6x3 1/2 x 3/4	1 8 3/4		3.77#	
ED8	2		3x3x1/4	1 7 1/2		1.00#	
	4		R 8 x 3/8	1 9 1/2		10.00#	CH 66 16
	4		R 2 x 3/8	1 7 1/4		1.63#	20
	4		R 8 1/2 x 3/8	0 8 3/4			
	4		R 2 1/2 x 3/8	0 8 3/4			
	16	57	BAR 1 1/2 x 4	0 5 1/2			
	8	58	20	0 10			
STRUCT. STEEL IS ITEM 702-103							

SHOP CONNECTIONS: WELD  
FIELD CONNECTIONS: 3/8\"/>

APP AS NOTED 5-28-62

DIAPHRAGMS - DRAINS - CURB DAMS			
PRINT	ISSUE	Bancroft & Martin, Portland, Maine	
3	Dist	6-5-62	WEST ETNA ROAD BRIDGE
5	Shop	6-5-62	ETNA MAINE
2	F.A.	5-22-62	CUSTOMER E.N. NASON
DRAWN	5-19-62 E.M.	DESIGNER STATE HIGHWAY COMM.	
REVISION	6-4-62 E.M.	ORDER VERBAL	
REVISION		DWG. D62-58-SB	

