

LEVEL 2 LOAD RATING (VIRTIS)

MILEPOST: 240.48

BIN: 5512980

REGION: 2

COUNTY: ONEIDA

FEATURE CARRIED: JUDD ROAD

FEATURE CROSSED: 90IX

LEVEL 2 LOAD RATING REVIEW

VIRTIS RUN DATE: 7/20/2017

CHANGES TO INPUT DATA: No changes to the VIRTIS model.

LOADING	INVENTORY RATING (TONS)	OPERATING RATING (TONS)
HS-20	42.0 (HS-23)	70.1 (HS-38)
H-20	34.1 (H-34)	56.9 (H-56)
EV-2	-	79.0
EV-3	-	76.9

* ANALYSIS METHOD: LOAD FACTOR

** Lane loading controls the H20 rating. Truck loading controls the HS20 rating.

CONTROLLING MEMBER FOR RATING

LOCATION: SPAN 3

COMPONENT: INTERIOR GIRDERS G2 & G4

FAILURE TYPE: STEEL SERVICEABILITY NEAR MIDSPAN

EFFECTIVE SPAN LENGTH: 59'

H EQUIVALENT OF LEGAL LOAD H25

PRIMARY MEMBER RATING: 4

SAFE LOAD CAPACITY: H47

SLC COMPUTATION USED (IN BOLD)				
0.60 HOR	0.70 HOR	0.80 HOR	0.85 HOR	HOR

ACTION TAKEN: NONE REQUIRED X

RECOMMEND LEVEL 1

UNRATABLE

COMPLETED BY

REVIEWED BY

KENNETH SWEENEY

AMODH NIRALA

PE # 086434

LOAD RATING ENGINEER

Bridge

Bridge Id: 5512980

Description: Original analysis by Hardesty & Hanover, LLP - 6/04. Reviewed by Clark Patterson Associates - 6/04. Reviewed by DiDonato Associates - 7/06, 6/08, 6/10. Reviewed by CHA - 7/12, 6/14, 7/15. Reviewed by WSA Group PE-PC - 7/17. Original construction - Contract MT 52-12. Concrete overlay = 4.0 inches. Bridge oriented northwest. 2008 Notes: - Indicated lateral support for composite sections. - All stiffener references removed. 2010 Notes: - Rating engine changed from BRASS LFD to VIRTIS LFD. - Bridge rail load updated to reflect attached double box beam and pedestrian safety fence. 2012 Notes: - f'c changed to 2,500 psi based on year built since not found on plans. - Adjusted railing base plate dimensions and distance from edge of deck. - Changed distance to edge of deck to account for 2" sidewalk overhang. Overhang widths adjusted accordingly. - Changed sidewalk thickness to be depth above the construction joint. remaining concrete added as stage 1 and stage 2 member loads to the fascia girders. - Superstructure loading: changed stage 2 to uniform distribution. - Member alternatives: Changed girder overhang distances from the bearing. - Adjusted live load shear distribution at supports for G2. Added G3 since it has a larger shear live load distribution at supports. - Adjusted fascia girder haunch and embedded the flange. - Added connection plates as stiffeners. 2014 Notes: - Sidewalk thickness revised, weighted average used. Sidewalk keyway load (DC2 portion only) removed. - Additional self load revised. - Rating engine changed to AASHTO LFD. - Section loss added in Spans 2 & 3 per 2014 report. 2015 Notes: - Span 1 - G1 Composite deck thickness revised due to spalling. See the member alt. descriptions for more info. - Revised section loss per 2015 inspection. See member alt. descriptions for web loss for Span 1 - G1 & G2, Span 4 - G1. 2017 Notes: - No changes to the model.

Facility Carried: Judd Road

Feature Intersected: 90 IX

Structure Number: 5512980

Location: Whitestown

Length: 202.17

ft

Route Number:

System Of Units: US Customary

Year Built: 1952

Name: MP 240.48 - Judd Road over 90 IX

District:

County:

LOAD RATING SUMMARY

Member Rating Results

System of Units
☒ US Customary ☐ SI / Metric

Lane/Impact Loading Type
☒ As Requested ☐ Detailed

Display Format
 Multiple rating levels per row

Bridge Id	Structure	Member	Vehicle	Inventory Rating Factor	Operating Rating Factor	Legal Operating Rating Factor	Legal Rating Factor	Permit Inventory Rating Factor	Permit Operating Rating Factor	Permit Rating Factor	Inventory Capacity (Ton)	Operating Capacity (Ton)	Legal Capacity (Ton)	Permit Inventory Capacity (Ton)	Permit Operating Capacity (Ton)	Permit Capacity (Ton)	Inventory Location (ft)	Operating Location (ft)
5512980	Span 1	G1	H 20-44	2.751	4.594						55.02	91.88					22.08	22.08
5512980	Span 1	G2	H 20-44	2.416	4.034						48.32	80.69					22.08	22.08
5512980	Span 1	G3	H 20-44	2.416	4.034						48.32	80.69					22.08	22.08
5512980	Span 2	G1	H 20-44	2.025	3.383						40.51	67.65					29.34	29.34
5512980	Span 2	G2	H 20-44	2.159	3.605						43.17	72.09					29.34	29.34
5512980	Span 2	G3	H 20-44	2.159	3.605						43.17	72.09					29.34	29.34
5512980	Span 4	G1	H 20-44	3.649	6.093						72.98	121.87					18.84	18.84
5512980	Span 4	G2	H 20-44	2.252	3.760						45.04	75.21					18.84	18.84
5512980	Span 4	G3	H 20-44	2.252	3.761						45.04	75.21					18.84	18.84
5512980	Span 3	G1	H 20-44	2.104	3.514						42.09	70.28					29.34	29.34
5512980	Span 3	G2	H 20-44	1.706	2.849						34.12	56.97					31.80	31.80
5512980	Span 3	G3	H 20-44	2.026	3.383						40.52	67.66					29.80	29.80
5512980	Span 1	G1	HS 20-44	2.060	3.440						74.16	123.85					22.08	22.08
5512980	Span 1	G2	HS 20-44	1.809	3.021						65.13	108.76					22.08	22.08
5512980	Span 1	G3	HS 20-44	1.809	3.021						65.13	108.76					22.08	22.08
5512980	Span 2	G1	HS 20-44	1.408	2.351						50.68	84.64					29.34	29.34
5512980	Span 2	G2	HS 20-44	1.489	2.486						53.59	89.50					12.33	12.33
5512980	Span 2	G3	HS 20-44	1.489	2.486						53.59	89.50					12.33	12.33
5512980	Span 4	G1	HS 20-44	2.916	4.870						104.98	175.32					22.61	22.61
5512980	Span 4	G2	HS 20-44	1.807	3.017						65.04	108.62					22.61	22.61
5512980	Span 4	G3	HS 20-44	1.807	3.017						65.04	108.62					15.07	15.07
5512980	Span 3	G1	HS 20-44	1.463	2.443						52.65	87.93					29.34	29.34
5512980	Span 3	G2	HS 20-44	1.167	1.949						42.02	70.17					31.80	31.80
5512980	Span 3	G3	HS 20-44	1.403	2.344						50.52	84.37					29.80	29.80

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☒ Show up-to-date results only

Print

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Member Rating Results

System of Units
☒ US Customary ☐ SI / Metric

Lane/Impact Loading Type
☒ As Requested ☐ Detailed

Display Format
 Multiple rating levels per row

Bridge Id	Structure	Member	Vehicle	Inventory Rating Factor	Operating Rating Factor	Legal Operating Rating Factor	Legal Rating Factor	Permit Inventory Rating Factor	Permit Operating Rating Factor	Permit Rating Factor	Inventory Capacity (Ton)	Operating Capacity (Ton)	Legal Capacity (Ton)	Permit Inventory Capacity (Ton)	Permit Operating Capacity (Ton)	Permit Capacity (Ton)	Inventory Location (ft)	Operating Location (ft)
5512980	Span 1	G1	Type EV2		3.853							110.77						26.50
5512980	Span 1	G2	Type EV2		4.309							123.89						17.67
5512980	Span 1	G3	Type EV2		4.309							123.89						17.67
5512980	Span 2	G1	Type EV2		2.750							79.07						29.34
5512980	Span 2	G2	Type EV2		3.658							105.18						12.33
5512980	Span 2	G3	Type EV2		3.658							105.18						12.33
5512980	Span 4	G1	Type EV2		5.242							150.71						22.61
5512980	Span 4	G2	Type EV2		4.134							118.84						22.61
5512980	Span 4	G3	Type EV2		4.134							118.84						15.07
5512980	Span 3	G1	Type EV2		2.857							82.15						29.34
5512980	Span 3	G2	Type EV2		2.887							83.01						31.80
5512980	Span 3	G3	Type EV2		3.487							100.24						29.80
5512980	Span 1	G1	Type EV3		2.504							107.67						22.08
5512980	Span 1	G2	Type EV3		2.799							120.34						22.08
5512980	Span 1	G3	Type EV3		2.799							120.34						22.08
5512980	Span 2	G1	Type EV3		1.790							76.96						29.34
5512980	Span 2	G2	Type EV3		2.428							104.39						29.34
5512980	Span 2	G3	Type EV3		2.428							104.39						29.34
5512980	Span 4	G1	Type EV3		3.441							147.96						18.84
5512980	Span 4	G2	Type EV3		2.703							116.21						18.84
5512980	Span 4	G3	Type EV3		2.703							116.21						18.84
5512980	Span 3	G1	Type EV3		1.860							79.96						29.34
5512980	Span 3	G2	Type EV3		1.903							81.83						31.80
5512980	Span 3	G3	Type EV3		2.274							97.80						29.80

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☒ Show up-to-date results only

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Bridge Name: MP 240.48 - Judd Road over 90 IX

NBI Structure ID: 5512980

Bridge ID: 5512980

Analyzed By: BrR

Analyze Date: Friday, July 21, 2017 09:17:32

Analysis Engine: AASHTO LFR Engine Version 6.7.0.3001

Analysis Preference Setting: None

Report By: BrR

Report Date: Friday, July 21, 2017 09:17:59

Structure Definition Name: Span 3

Member Name: G2

Member Alternative Name: G-2

Individual Vehicle Load Factor Rating Summary

Live Load	Vehicle Rating				Capacity		Location			
	Type	Factor	Controls	(Ton)	Span	(ft)	Percent	Impact	Lane	
H 20-44	Inventory	Lane	2.171	Service - Steel	43.42	1	31.80	54.2	As Requested	As Requested
H 20-44	Operating	Lane	3.626	Service - Steel	72.51	1	31.80	54.2	As Requested	As Requested
H 20-44	Inventory	Lane	2.171	Service - Steel	43.42	1	31.80	54.2	With Impact	Single Lane
H 20-44	Operating	Lane	3.626	Service - Steel	72.51	1	31.80	54.2	With Impact	Single Lane
H 20-44	Inventory	Lane	1.706	Service - Steel	34.12	1	31.80	54.2	With Impact	Multi-Lane
H 20-44	Operating	Lane	2.849	Service - Steel	56.97	1	31.80	54.2	With Impact	Multi-Lane
H 20-44	Inventory	Lane	2.762	Service - Steel	55.24	1	31.80	54.2	Without Impact	Single Lane
H 20-44	Operating	Lane	4.613	Service - Steel	92.25	1	31.80	54.2	Without Impact	Single Lane
H 20-44	Inventory	Lane	2.170	Service - Steel	43.40	1	31.80	54.2	Without Impact	Multi-Lane
H 20-44	Operating	Lane	3.624	Service - Steel	72.48	1	31.80	54.2	Without Impact	Multi-Lane
H 20-44	Inventory	Axle Load	2.189	Service - Steel	43.78	1	31.80	54.2	As Requested	As Requested
H 20-44	Operating	Axle Load	3.655	Service - Steel	73.11	1	31.80	54.2	As Requested	As Requested
	Inventory		2.189		43.78	1	31.80	54.2		

H 20-44		Axle Load		Service - Steel					With Impact	Single Lane
H 20-44	Operating	Axle Load	3.655	Service - Steel	73.11	1	31.80	54.2	With Impact	Single Lane
H 20-44	Inventory	Axle Load	1.720	Service - Steel	34.40	1	31.80	54.2	With Impact	Multi-Lane
H 20-44	Operating	Axle Load	2.872	Service - Steel	57.44	1	31.80	54.2	With Impact	Multi-Lane
H 20-44	Inventory	Axle Load	2.785	Service - Steel	55.69	1	31.80	54.2	Without Impact	Single Lane
H 20-44	Operating	Axle Load	4.650	Service - Steel	93.01	1	31.80	54.2	Without Impact	Single Lane
H 20-44	Inventory	Axle Load	2.188	Service - Steel	43.76	1	31.80	54.2	Without Impact	Multi-Lane
H 20-44	Operating	Axle Load	3.654	Service - Steel	73.08	1	31.80	54.2	Without Impact	Multi-Lane

Note:

"N/A" indicates not applicable

*** indicates not available

Individual Vehicle Load Factor Rating Summary

		Vehicle Rating			Capacity		Location			
Live Load		Type	Factor	Controls	(Ton)	Span	(ft)	Percent	Impact	Lane
HS 20-44	Inventory	Lane	2.171	Service - Steel	78.16	1	31.80	54.2	As Requested	As Requested
HS 20-44	Operating	Lane	3.626	Service - Steel	130.52	1	31.80	54.2	As Requested	As Requested
HS 20-44	Inventory	Lane	2.171	Service - Steel	78.16	1	31.80	54.2	With Impact	Single Lane
HS 20-44	Operating	Lane	3.626	Service - Steel	130.52	1	31.80	54.2	With Impact	Single Lane
HS 20-44	Inventory	Lane	1.706	Service - Steel	61.41	1	31.80	54.2	With Impact	Multi-Lane
HS 20-44	Operating	Lane	2.849	Service - Steel	102.55	1	31.80	54.2	With Impact	Multi-Lane
HS 20-44	Inventory	Lane	2.762	Service - Steel	99.43	1	31.80	54.2	Without Impact	Single Lane

HS 20- 44	Operating	Lane	4.613	Service - Steel	166.05	1	31.80	54.2	Without Impact	Single Lane
HS 20- 44	Inventory	Lane	2.170	Service - Steel	78.13	1	31.80	54.2	Without Impact	Multi- Lane
HS 20- 44	Operating	Lane	3.624	Service - Steel	130.47	1	31.80	54.2	Without Impact	Multi- Lane
HS 20- 44	Inventory	Axle Load	1.486	Service - Steel	53.48	1	31.80	54.2	As Requested	As Requested
HS 20- 44	Operating	Axle Load	2.481	Service - Steel	89.31	1	31.80	54.2	As Requested	As Requested
HS 20- 44	Inventory	Axle Load	1.486	Service - Steel	53.48	1	31.80	54.2	With Impact	Single Lane
HS 20- 44	Operating	Axle Load	2.481	Service - Steel	89.31	1	31.80	54.2	With Impact	Single Lane
HS 20- 44	Inventory	Axle Load	1.167	Service - Steel	42.02	1	31.80	54.2	With Impact	Multi- Lane
HS 20- 44	Operating	Axle Load	1.949	Service - Steel	70.17	1	31.80	54.2	With Impact	Multi- Lane
HS 20- 44	Inventory	Axle Load	1.890	Service - Steel	68.04	1	31.80	54.2	Without Impact	Single Lane
HS 20- 44	Operating	Axle Load	3.156	Service - Steel	113.63	1	31.80	54.2	Without Impact	Single Lane
HS 20- 44	Inventory	Axle Load	1.485	Service - Steel	53.46	1	31.80	54.2	Without Impact	Multi- Lane
HS 20- 44	Operating	Axle Load	2.480	Service - Steel	89.28	1	31.80	54.2	Without Impact	Multi- Lane

Note:

"N/A" indicates not applicable

*** indicates not available

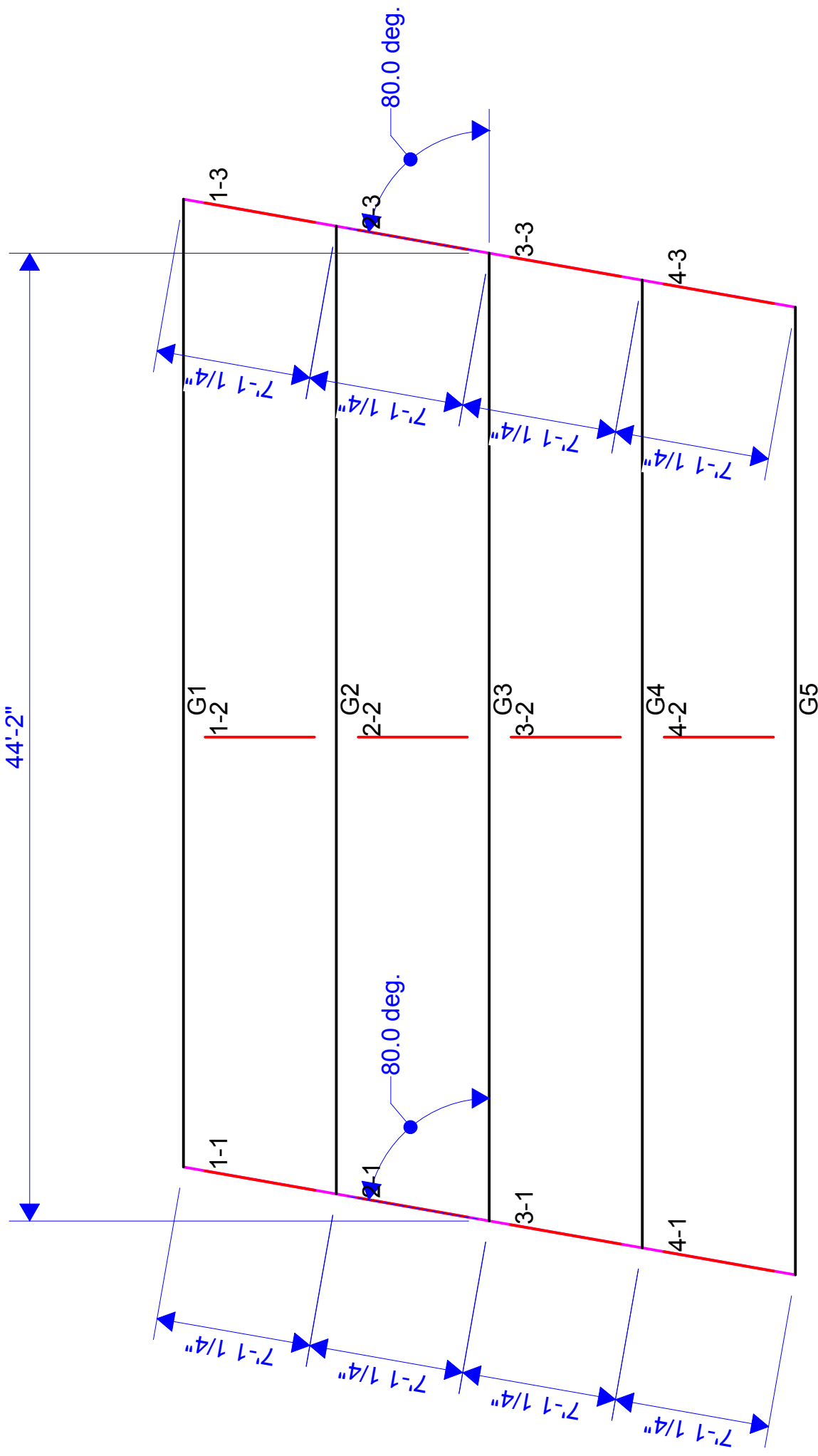
SCHEMATIC DRAWINGS

5512980

MP 240.48 - Judd Road over 90 IX - Span 1

Judd Road / 90 IX

07/20/17

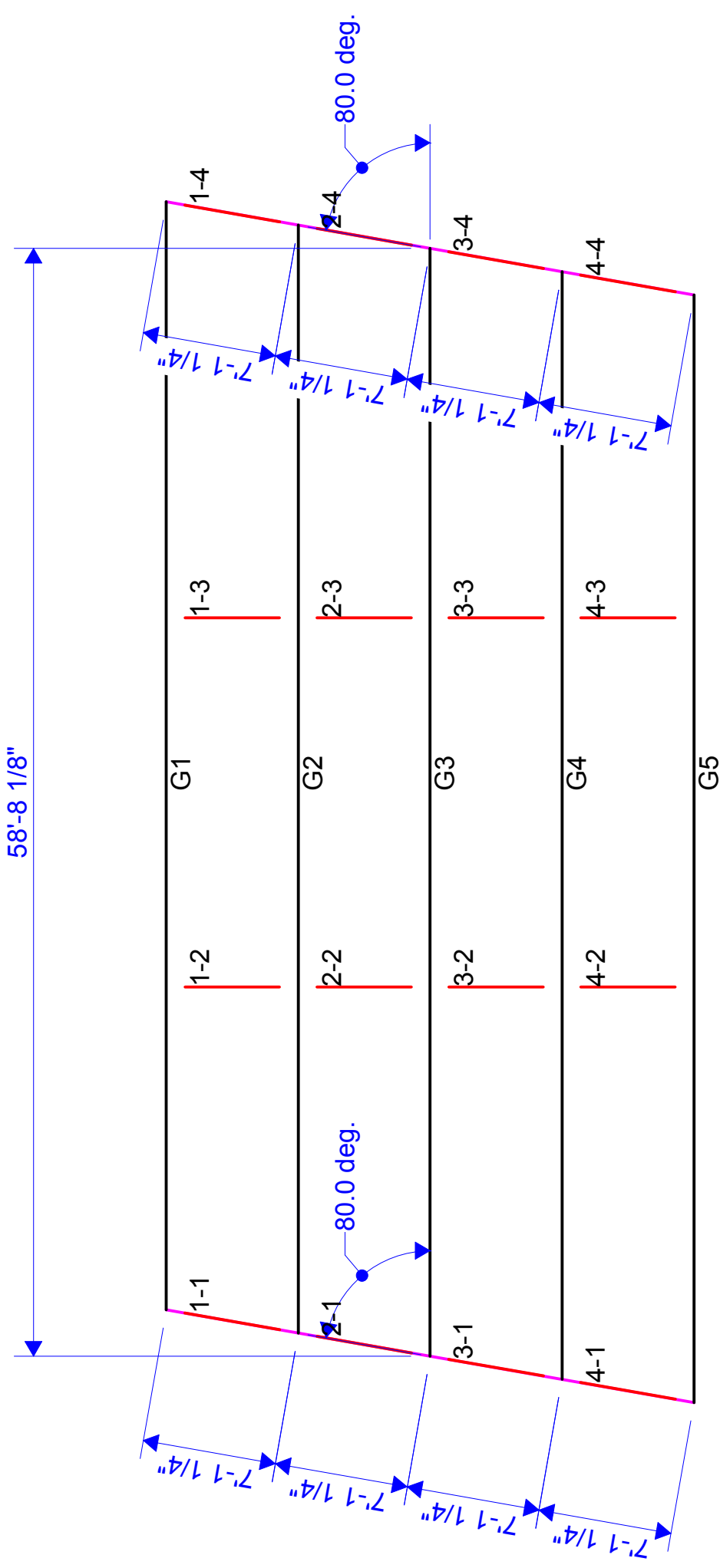


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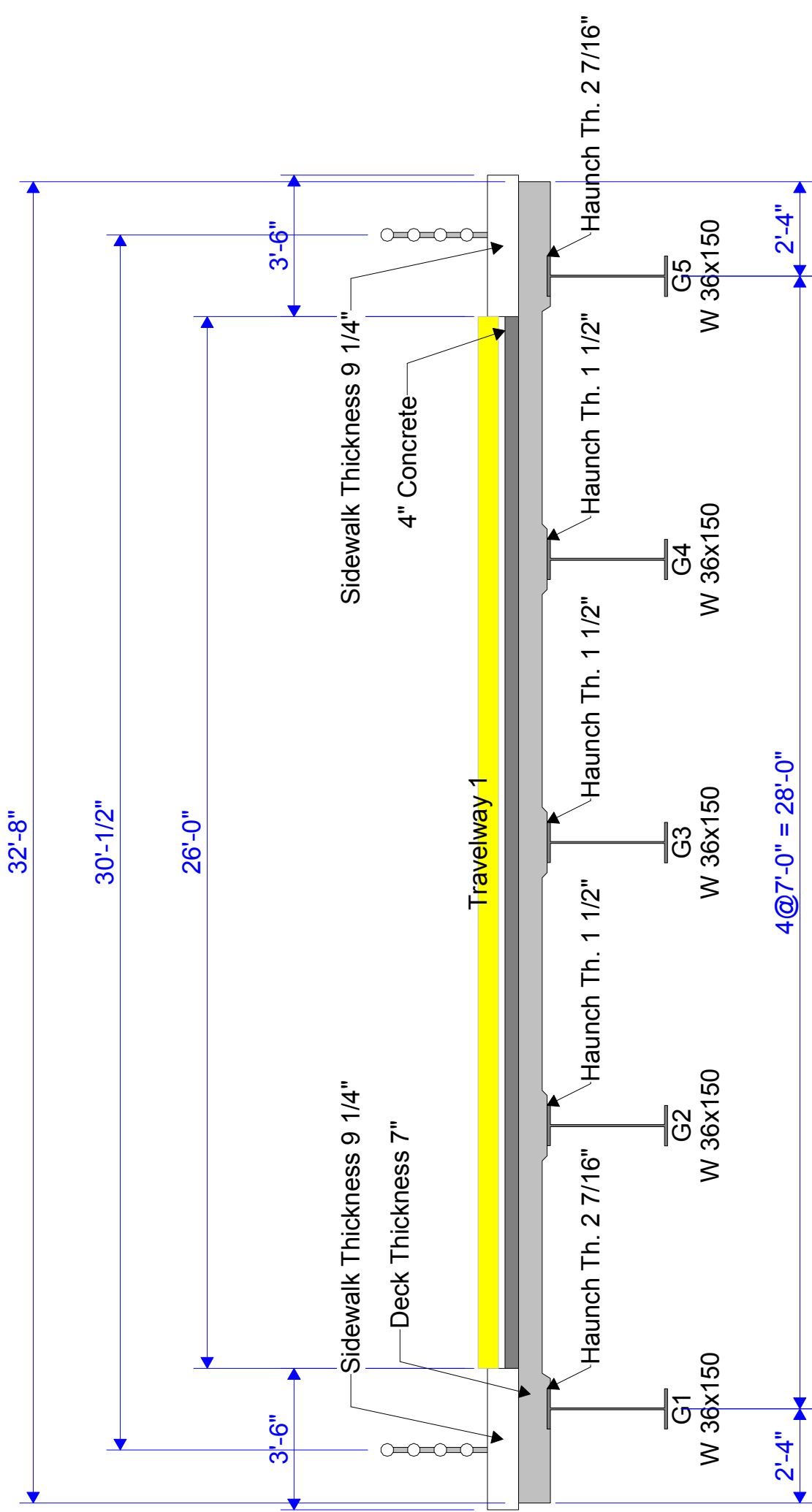
MP 240.48 - Judd Road over 90 IX - Span 2

Judd Road / 90 IX

07/20/17



5512980
MP 240.48 - Judd Road over 90 IX - Span 2
Judd Road / 90 IX
07/20/17

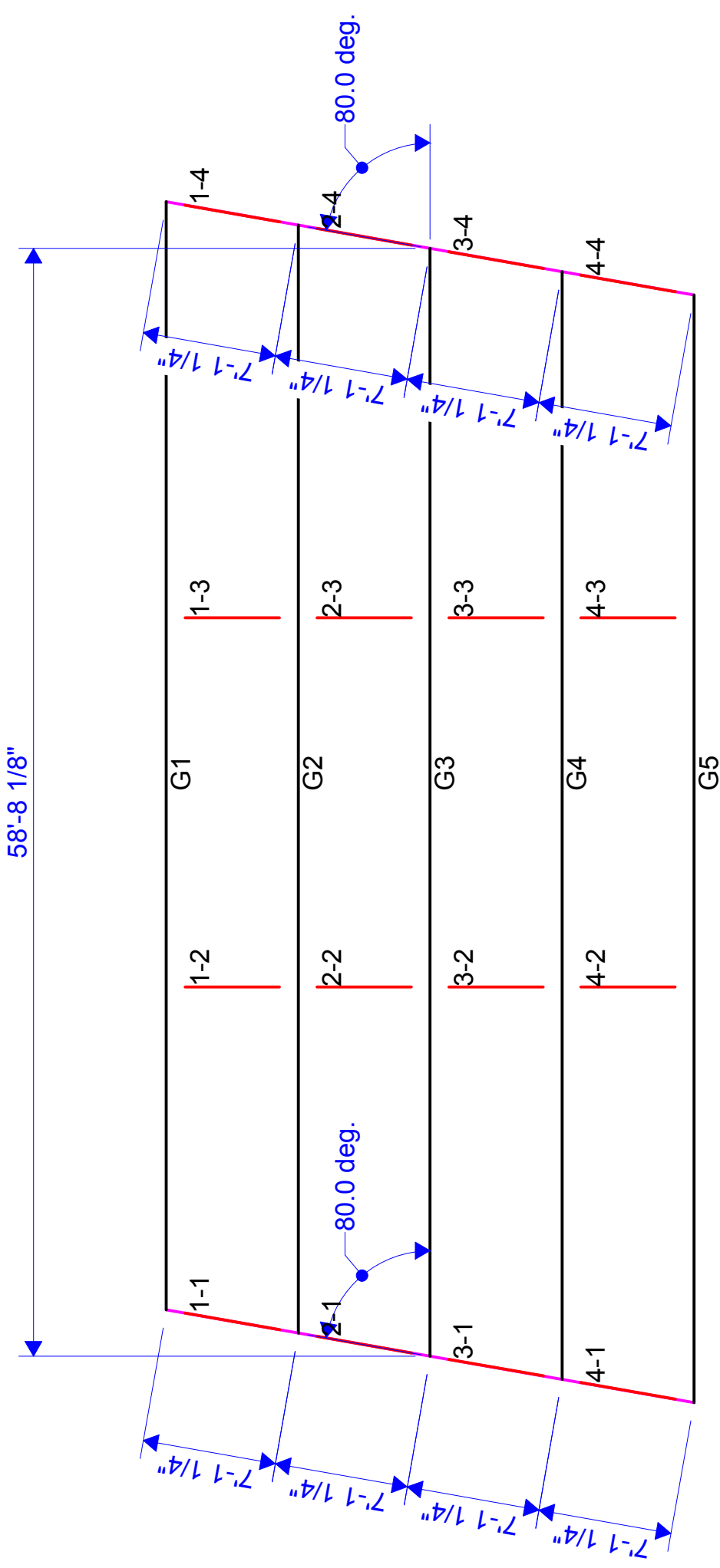


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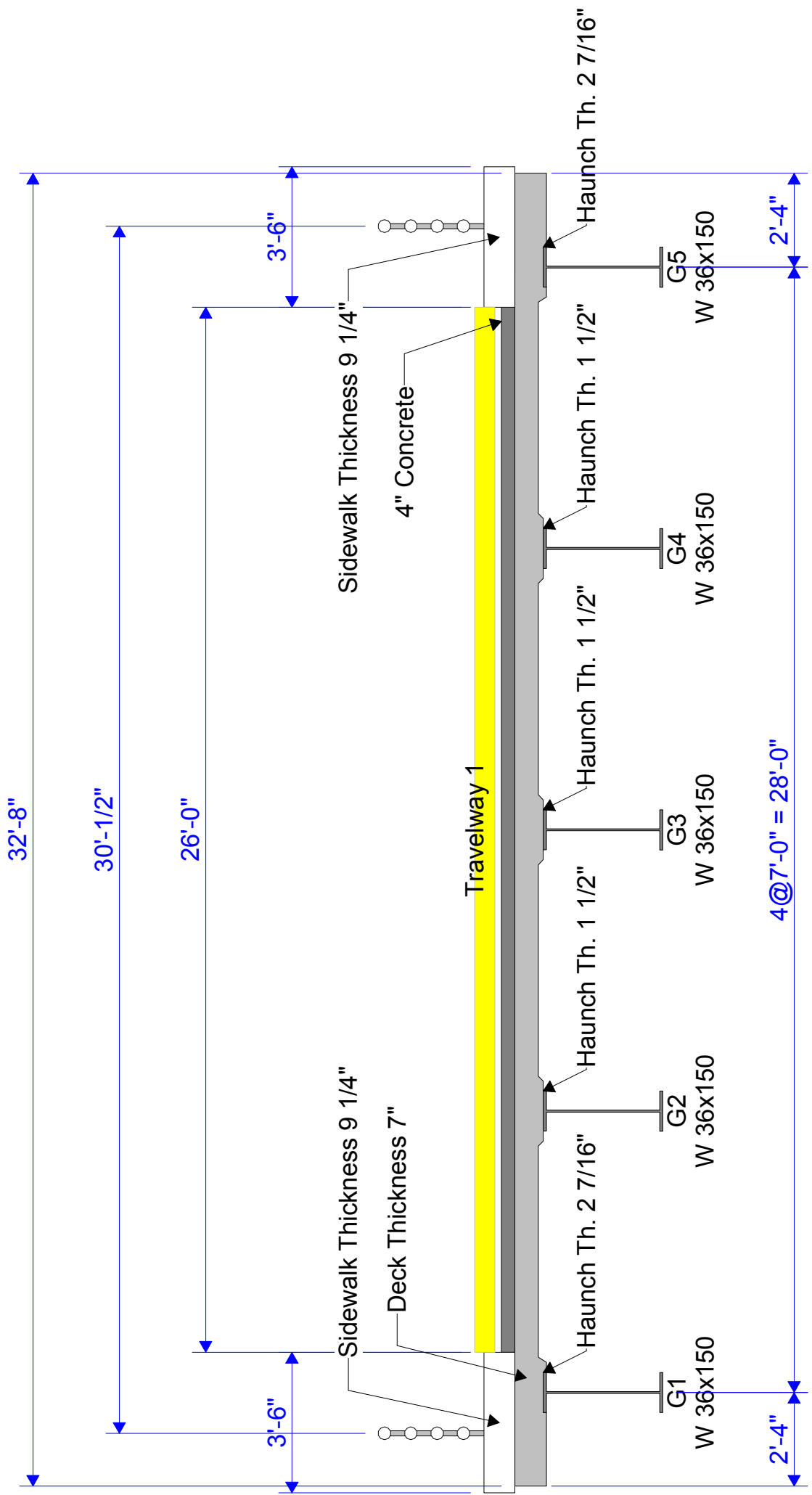
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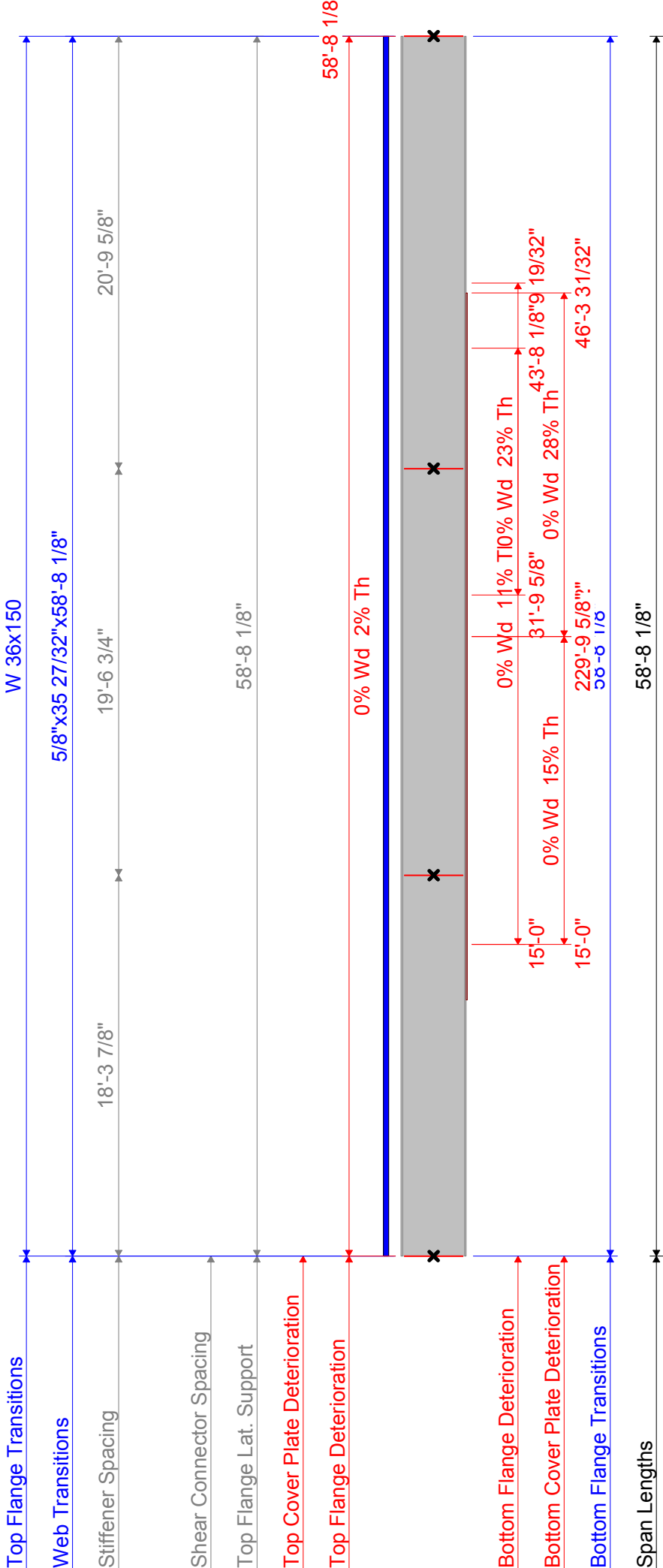
Judd Road / 90 IX

07/20/17



5512980
MP 240.48 - Judd Road over 90 IX - Span 3
Judd Road / 90 IX
07/20/17



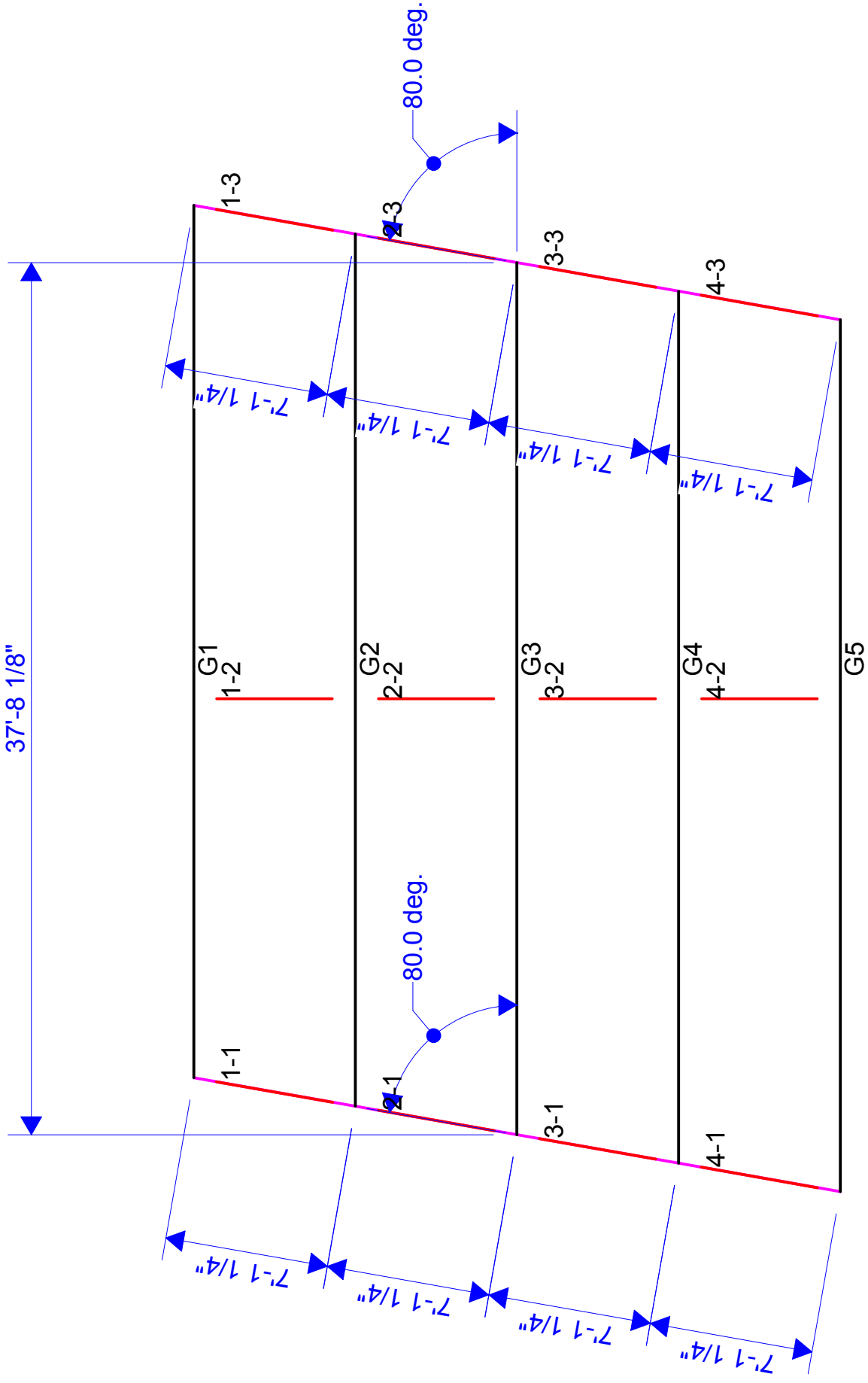


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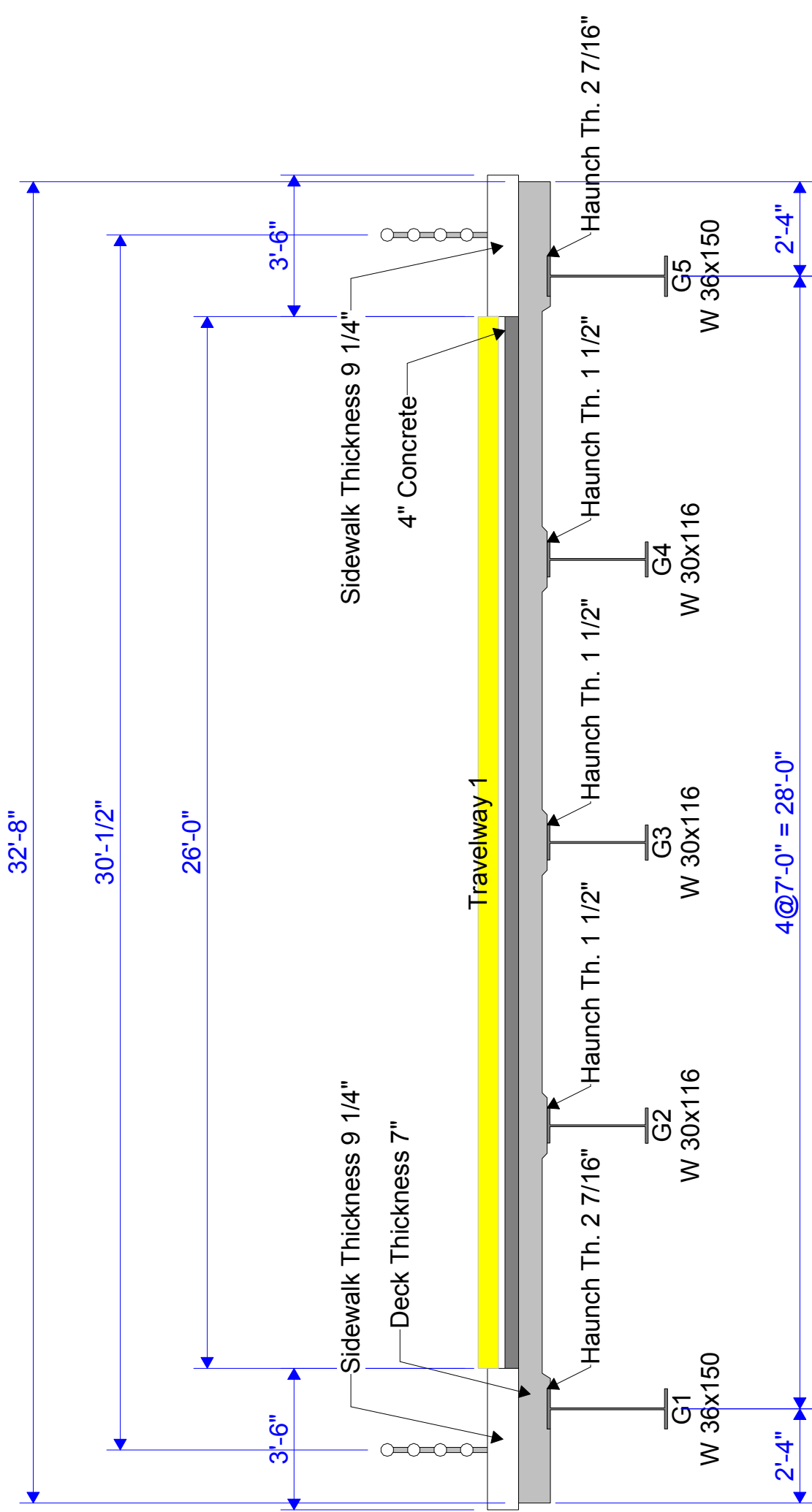
MP 240.48 - Judd Road over 90 IX - Span 4

Judd Road / 90 IX

07/20/17



5512980
MP 240.48 - Judd Road over 90 IX - Span 4
Judd Road / 90 IX
07/20/17



VIRTIS INPUT

Username: BrR

Date: Friday, July 21, 2017 08:52:12

Bridge ID 5512980 MP 240.48 - Judd Road over 90 IX

NBI Structure ID (8): 5512980

Description: Original analysis by Hardesty & Hanover, LLP - 6/04.

Reviewed by Clark Patterson Associates - 6/04.

Reviewed by DiDonato Associates - 7/06, 6/08, 6/10.

Reviewed by CHA - 7/12, 6/14, 7/15.

Reviewed by WSA Group PE-PC - 7/17.

Original construction - Contract MT 52-12.

Concrete overlay = 4.0 inches.

Bridge oriented northwest.

2008 Notes:

- Indicated lateral support for composite sections.
- All stiffener references removed.

2010 Notes:

- Rating engine changed from BRASS LFD to VIRTIS LFD.
- Bridge rail load updated to reflect attached double box beam and pedestrian safety fence.

2012 Notes:

- f_c changed to 2,500 psi based on year built since not found on plans.
- Adjusted railing base plate dimensions and distance from edge of deck.
- Changed distance to edge of deck to account for 2" sidewalk overhang. Overhang widths adjusted accordingly.
- Changed sidewalk thickness to be depth above the construction joint.
remaining concrete added as stage 1 and stage 2 member loads to the fascia girders.
- Superstructure loading: changed stage 2 to uniform distribution.
- Member alternatives: Changed girder overhang distances from the bearing.
- Adjusted live load shear distribution at supports for G2. Added G3 since it has a larger shear live load distribution at supports.
- Adjusted fascia girder haunch and embedded the flange.
- Added connection plates as stiffeners.

2014 Notes:

- Sidewalk thickness revised, weighted average used. Sidewalk keyway load (DC2 portion only) removed.
- Additional self load revised.
- Rating engine changed to AASHTO LFD.
- Section loss added in Spans 2 & 3 per 2014 report.

2015 Notes:

- Span 1 - G1 Composite deck thickness revised due to spalling. See the member alt. descriptions for more info.
- Revised section loss per 2015 inspection. See member alt. descriptions for web loss for Span 1 - G1 & G2, Span 4 - G1.

2017 Notes:

- No changes to the model.

Description

Location: Whitestown
Total Length: 202.17 *(ft)*
Facility Carried: Judd Road
Route Number:
Feature Intersected: 90 IX
Mi Post: 240.48 *(mi)*
Units: US Customary
Year Built: 1952
Recent ADTT: 0

District:

County:

Owner:

National Highway System:

Functional Class:

Global Reference Point

X Coordinate: 0.000 *(ft)*
Y Coordinate: 0.000 *(ft)*
Elevation: *(ft)*
Longitude: *(Degrees)*
Latitude: *(Degrees)*

Materials

Structural Steel

Name: **ASTM A7**
Description: **Fy = 33 ksi**
Specified minimum yield strength (Fy): 33.000 *(ksi)*
Specified minimum tensile strength (Fu): 60.000 *(ksi)*
Coefficient of thermal expansion: *(1/F)*
Density: 0.4900 *(kcf)*
Modulus of elasticity (E): 29000.00 *(ksi)*

Concrete

Name: **Unknown Strength Concrete Prior to 1959**
Description:
Specified compressive strength at 28 days (f'c): 2.500 *(ksi)*
Initial specified compressive strength (f'ci): *(ksi)*
Coefficient of thermal expansion: 0.0000060000 *(1/F)*
Density (for dead loads): 0.150 *(kcf)*
Density (for modulus of elasticity): 0.145 *(kcf)*
Modulus of elasticity (Ec): 2880.95 *(ksi)*
Poisson's ratio: 0.200
Modulus of rupture: 0.379 *(ksi)*
Shear factor: 1.000

Composition of concrete: Normal
Initial modulus of elasticity (Eci): 0.00 (ksi)

Reinforcing Steel

Name: Unknown Steel Prior to 1954
Description: 33 ksi reinforcing steel
Specified yield strength (Fy): 33.000 (ksi)
Modulus of elasticity (Es): 29000.00 (ksi)
Ultimate strength (Fu): 70.000 (ksi)
Type: Plain

No prestressing strand materials.

No timber materials.

Beam Shapes

Steel Shapes

No steel angles.

No steel channels.

Steel I Shapes

Name: W 36x150
Description: W 36x150 from AISC 5th Edition (1946-1962)
Depth (d): 35.8400 (in)
Flange width (bf): 11.9720 (in)
Flange thickness (tf): 0.9400 (in)
Web thickness (tw): 0.6250 (in)
k: 1.8125 (in)
k1: 1.1250 (in)
Cross sectional area: 44.160 (in²)
Nominal load: 150.000 (lb/ft)
Ixx: 9012.100 (in⁴)
Iyy: 250.400 (in⁴)
Zx: 581.000 (in³)
Zy: 70.900 (in³)
Nominal Depth: 36.0000 (in)
Type: W Shape
Name: W 33x141
Description: W 33x141 from AISC 5th Edition (1946-1962)
Depth (d): 33.3100 (in)
Flange width (bf): 11.5350 (in)
Flange thickness (tf): 0.9600 (in)

Web thickness (tw):	0.6050 (in)
k:	1.7500 (in)
k1:	1.1250 (in)
Cross sectional area:	41.510 (in ²)
Nominal load:	141.000 (lb/ft)
Ixx:	7442.200 (in ⁴)
Iyy:	229.700 (in ⁴)
Zx:	514.000 (in ³)
Zy:	66.900 (in ³)
Nominal Depth:	33.0000 (in)
Type:	W Shape
Name:	W 30x116
Description:	W 30x116 from AISC 5th Edition (1946-1962)
Depth (d):	30.0000 (in)
Flange width (bf):	10.5000 (in)
Flange thickness (tf):	0.8500 (in)
Web thickness (tw):	0.5640 (in)
k:	1.5625 (in)
k1:	1.1250 (in)
Cross sectional area:	34.130 (in ²)
Nominal load:	116.000 (lb/ft)
Ixx:	4919.100 (in ⁴)
Iyy:	153.200 (in ⁴)
Zx:	378.000 (in ³)
Zy:	49.200 (in ³)
Nominal Depth:	30.0000 (in)
Type:	W Shape
No steel structural tee shapes.	

Prestressed Shapes

No prestressed shapes.

Timber Shapes

No timber shapes.

Appurtenances

No concrete railings.

Railings

Name:	4 Rail w/ Double Box and Ped Fence
Description:	4 Rail w/ Double Box and Ped Fence
Effective Wind Height:	39.0000 (in)
Railing Load:	0.110 (kip/ft)

Distance From Edge to Centroid: 15.0000 (in)
Width: 30.0000 (in)

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Factors

No LFD Factors specified.

No LRFD Factors specified.

Bridge Alternatives MP 240.48

Reference Line

Reference Line Length: (ft)

Starting Station: (ft)

Bearing: N 90^ 0' 0.00" E

Global Positioning

Distance: 0.000 (ft)

Offset: 0.000 (ft)

Elevation: (ft)

Structures

Name: Span 1

Description:

Structure Alternatives

Name: Inspection 2004

Description:

Superstructure Definition: Span 1

Structures

Name: Span 2

Description:

Structure Alternatives

Name: Inspection 2004

Description:

Superstructure Definition: Span 2

Structures

Name: Span 4

Description:

Structure Alternatives

Name: Inspection 2004

Description:

Superstructure Definition: Span 4

Structures

Name: Span 3

Description:

Structure Alternatives

Name: Span 3

Description:

Superstructure Definition: Span 3

Superstructure Definition Span 1Definition

Units: US Customary

Number of spans: 1

Number of girders: 5

Length

Span

(ft)

1 44.1667

Frame Structure Simplified Definition:

Support Frame Connection

1

2

Girder Spacing Display Type: Perpendicular

Average Humidity: *(%)*Analysis*Default Library Factors**Factor Override**Analysis Module*

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module:
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Structure Framing Plan Details

Layout

	Skew (Degrees)	
Support		
1	10.0000	
2	10.0000	
Girder Spacing Orientation:		Perpendicular

Girder Bay	Girder Spacing Start (ft)	End (ft)
1	7.0000	7.0000
2	7.0000	7.0000
3	7.0000	7.0000
4	7.0000	7.0000

Diaphragms

Girder Bay 1

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.61	20.85	0.00	1	
44.17	44.17	0.00	1	

Girder Bay 2

Distance Left Girder	Distance Right Girder	Diaphragm Spacing	Number of Spaces	Diaphragm Weight
-------------------------	--------------------------	----------------------	---------------------	---------------------

(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
20.85	22.08	0.00	1	
44.17	44.17	0.00	1	
<i>Girder Bay 3</i>				
Distance	Distance	Diaphragm	Number of	Diaphragm
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
22.08	23.32	0.00	1	
44.17	44.17	0.00	1	
<i>Girder Bay 4</i>				
Distance	Distance	Diaphragm	Number of	Diaphragm
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
23.32	24.55	0.00	1	
44.17	44.17	0.00	1	

Structure Typical Section

Deck

Left start width:	16.33 (ft)
Left end width:	16.33 (ft)
Right start width:	16.33 (ft)
Right end width:	16.33 (ft)
Left start overhang:	2.33 (ft)
Left end overhang:	2.33 (ft)

Deck (Cont'd)

Deck concrete:	Unknown Strength Concrete Prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)
Sustained modular ratio factor:	3.000

Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4 Rail w/...	DC2		Left Ed...	0.06	0.06	Right
4 Rail w/...	DC2		Right E...	0.06	0.06	Left

Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
42.0000	9.2700	Unknown...	DC2		Left Ed...	-0.17 ...
42.0000	9.2700	Unknown...	DC2		Right E...	-0.17 ...

Lane Position

Offset Left Start:	-13.00 (ft)
Offset Left End:	-13.00 (ft)
Offset Right Start:	13.00 (ft)
Offset Right End:	13.00 (ft)

Wearing Surface

Wearing surface material:	Concrete
---------------------------	----------

Description: Overlay
Wearing surface thickness: 4.0000 (in)
Wearing surface density: 150.000 (pcf)
Load case: DW

Load Case Description

Load Case Name	Description	Stage	Type	Time
			(Days)	
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW
Sidewalk Keyway	Additional deck concr...	Non-composite (Sta...		D,DC

Superstructure Loads

Uniform Temperature

Load Case:

Temperature rise: (F)

Temperature fall: (F)

Gradient Temperature

Load Case:

Temperature value T1: (F)

Temperature value T2: (F)

Temperature value T3: (F)

Wind

Load Case:

Design Pressure: (psf)

Wind Load Path: Truss action

DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Uniformly to All Girders

Stiffener Definitions

Transverse Stiffeners

Name: fascia connection (single)
Stiffener number: Single
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.0000 (in)
Bottom Gap: 1.0000 (in)
Top Weld:
Web Weld:
Bottom Weld:

Name: dia. conn. - interior (pair)
Stiffener number: Pair
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)

Material: ASTM A7
Top Gap: 2.2500 (in)
Bottom Gap: 2.2500 (in)
Top Weld:
Web Weld:
Bottom Weld:

Name: dia. conn. @ Ends (pair)
Stiffener number: Pair
Plate Width: 6.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 2.2500 (in)
Bottom Gap: 2.2500 (in)
Top Weld:
Web Weld:
Bottom Weld:

No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

Member G1

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms and connections.

Section Loss at Pier 1:

Use 0.480" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.585" reading for 3" height. Use 0.594" reading for remaining height. Weighted average thickness for the 35.84" beam is 0.579".

Section loss for the 0.625" thick original beam is 7.4%, say 10%.

Current: G-1 - Additional self load is for the diaphragms and connections.

Section Loss at Pier 1:

Use 0.480" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.585" reading for 3" height. Use 0.594" reading for remaining height. Weighted average thickness for the 35.84" beam is 0.579".

Section loss for the 0.625" thick original beam is 7.4%, say 10%.

Number of Spans: 1

Span Span Length

Number (ft)

1 44.166667

Support Frame Connection

1
2

Pedestrian load: 0.000 (lb/ft)

Member Loads

Distributed Loads

Distance (ft)	Length (ft)	Start (kip/ft)	End (kip/ft)	Load Case Name
0.00	44.17	0.134	0.134	Sidewalk K...

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-1

Description: Additional self load is for the diaphragms and connections.

Section Loss at Pier 1:

Use 0.480" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.585" reading for 3" height.
Use 0.594" reading for remaining height. Weighted average thickness for the 35.84" beam is 0.579". Section loss for the 0.625" thick original beam is 7.4%, say 10%.

Description

Material Type:	Steel
Girder Type:	Rolled
Member units:	US Customary
Girder property input method:	Schedule based
Left end X:	4.7500 (in)
Right end X:	5.2500 (in)
Additional Self Load:	0.015 (kip/ft)
Additional Self Load %:	(%)
<i>Analysis Module</i>	
Analysis Method:	ASD
Analysis Module:	AASHTO ASD

Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:
Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.217	0.571	1.217	0.400
Multi-Lane	1.217	0.571	1.217	0.800

Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 44.17 (ft)

Material: ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance n	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown Stren...	0.00	44.17		6.5000	67.0000	70.0000
	10.1...					

Shear Connectors

Start	Connector	Number	Number of	Transverse
Distance	Name	per Row	Spaces	Spacing
(ft)				(in)
0.00	Composite			

Haunch Profile

Haunch Type: Flange edges

Embedded flange: TRUE

Distance	Length	Z1	Z2	Z3	Z4	Y1	Y2
(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
0.00	44.17	3.0000	4.5000	22.0100	22.0100	1.5000	1.5000

Bracing Ranges

Lateral Support

Distance	Length
(ft)	(ft)
0.00	44.17

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
fascia connection ...	0.00	1	0.0000
fascia connection ...	19.61	1	0.0000
fascia connection ...	44.17	1	0.0000

Bearing Stiffener Locations

Points of Interest

Distance from left most support: 44.07 (ft)

Side: Right

Transverse Stiffeners

Override Schedule: FALSE

Stiffener spacing: (in)

Stiffener width: (in)

Stiffener thickness: (in)

Material: ASTM A7

Stiffener number: Single

Stiffener type: Plate

Other Stiffeners

Bearing Stiffener

Override Schedule: FALSE

Stiffener width: (in)

Stiffener thickness: (in)

Material: ASTM A7

Clip: (in)

Number of pairs:

Pair spacing: (in)

Attachment Type: Welds

Longitudinal Stiffener

Override Schedule: FALSE

Stiffener width: (in)

Stiffener thickness: (in)

Material: ASTM A7

Distance from flange to stiffener: (in)

Distance measured from: Top Flange

Fatigue

Number of cycles: 0

Bracing

Deck provides lateral support:

Override diaphragm schedule: FALSE

Distance to left diaphragm: (ft)

Distance to right diaphragm: (ft)

Diaphragm at this location: TRUE

ASD

Compression flange unsupported length: (ft)

Tension Field Action Ignore combined shear and bending

Riveted Section

Net moment of inertia:	(in ⁴)
Distance to centroid:	(in)
Net area of web:	(in ²)
Top plate allowable shear:	(ksi)
Bottom plate allowable shear:	(ksi)
Percent area top flange:	(%)
Percent area bottom flange:	(%)

Web Deterioration

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)
10.0	43.67	0.50

Member G2

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms and connections.

Section Loss:

Use 0.480" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.585" reading for 3" height. Use 0.594" reading for remaining height. Weighted average thickness for the 33.31" beam is 0.586". Section loss for the 0.605" thick original beam is 3.1%, say 5%.

Current: G-2 - Additional self load is for the diaphragms and connections.

Section Loss:

Use 0.480" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.585" reading for 3" height. Use 0.594" reading for remaining height. Weighted average thickness for the 33.31" beam is 0.586". Section loss for the 0.605" thick original beam is 3.1%, say 5%.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	44.166667

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				

Support Constraints**General**

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-2

Description: Additional self load is for the diaphragms and connections.

Section Loss:

Use 0.480" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.585" reading for 3" height.
Use 0.594" reading for remaining height. Weighted average thickness for the 33.31" beam is 0.586". Section loss for the 0.605" thick original beam is 3.1%, say 5%.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 4.7500 (in)
Right end X: 4.7500 (in)
Additional Self Load: 0.030 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:

Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:
Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)				
Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.286	1.273	0.800

Girder Profile

Shape

Shape: W 33x141
Distance: 0.00 (ft)
Length: 44.17 (ft)
Material: ASTM A7

Deck Profile**Deck Concrete**

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown Stren...	0.00	44.17		7.0000	84.0000	84.0000
	10.1...					

Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	44.17	Composite			

Haunch Profile

Haunch Type: Flange edges
Embedded flange: FALSE

Distance (ft)	Length (ft)	Z1 (in)	Z2 (in)	Y1 (in)
0.00	44.17	3.0000	4.5000	1.5000

Bracing Ranges**Lateral Support**

Distance (ft)	Length (ft)
0.00	44.17

Stiffener Ranges**Transverse Stiffener Ranges (Location)**

Name	Distance (ft)	Number	Spacing (in)
dia. conn. - inter...	0.00	1	0.0000
dia. conn. - inter...	20.85	1	0.0000
dia. conn. @ Ends ...	44.17	1	0.0000

Bearing Stiffener Locations**Points of Interest**

Distance from left most support: 44.07 (ft)
Side: Right

Transverse Stiffeners

Override Schedule: FALSE

Stiffener spacing:	(in)
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Stiffener number:	Single
Stiffener type:	Plate
<u>Other Stiffeners</u>	
<i>Bearing Stiffener</i>	
Override Schedule:	FALSE
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Clip:	(in)
Number of pairs:	
Pair spacing:	(in)
Attachment Type:	Welds
<i>Longitudinal Stiffener</i>	
Override Schedule:	FALSE
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Distance from flange to stiffener:	(in)
Distance measured from:	Top Flange
<u>Fatigue</u>	
Number of cycles:	0
<u>Bracing</u>	
Deck provides lateral support:	
Override diaphragm schedule:	FALSE
Distance to left diaphragm:	(ft)
Distance to right diaphragm:	(ft)
Diaphragm at this location:	FALSE
<u>ASD</u>	
Compression flange unsupported length:	(ft)
Tension Field Action	Ignore combined shear and bending
<i>Riveted Section</i>	
Net moment of inertia:	(in ⁴)
Distance to centroid:	(in)
Net area of web:	(in ²)
Top plate allowable shear:	(ksi)
Bottom plate allowable shear:	(ksi)
Percent area top flange:	(%)
Percent area bottom flange:	(%)

Web Deterioration

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)
5.0	43.67	0.50

Member G3

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms and connections.

Current: G-3 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span Number	Span Length (ft)
1	44.166667

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-3

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 4.7500 (in)
Right end X: 4.7500 (in)
Additional Self Load: 0.030 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:

Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes Loaded	Shear	Shear at Supports	Moment	Deflection
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.572	1.273	0.800

Girder Profile

Shape

Shape: W 33x141

Distance: 0.00 (ft)

Length: 44.17 (ft)

Material: ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance n	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown Stren...	0.00	44.17		7.0000	84.0000	84.0000
	10.1...					

Shear Connectors

Start	Connector	Number	Number of	Transverse
Distance	Name	per Row	Spaces	Spacing
(ft)				(in)
0.00	Composite			

Haunch Profile

Haunch Type: Flange edges

Embedded flange: FALSE

Distance	Length	Z1	Z2	Y1
(ft)	(ft)	(in)	(in)	(in)
0.00	44.17	3.0000	4.5000	1.5000

Bracing Ranges

Lateral Support

Distance Length

(ft) (ft)
0.00 44.17

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
dia. conn. @ Ends ...	0.00	1	0.0000
dia. conn. - inter...	22.08	1	0.0000
dia. conn. @ Ends ...	44.17	1	0.0000

Bearing Stiffener Locations

Member G4

Link with: G2

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	44.166667

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

Member G5

Link with: G1

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	44.166667

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

Superstructure Definition Span 2

Definition

Units: US Customary

Number of spans: 1

Number of girders: 5

Length

Span (ft)

1 58.6771

Frame Structure Simplified Definition:

Support Frame Connection

1

2

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

Analysis

Default Library Factors

Factor Override

Analysis Module

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)
 All other limit states: 33.0 (%)

Structure Framing Plan Details

Layout

Support Skew
 (Degrees)
 1 10.0000
 2 10.0000
 Girder Spacing Orientation: Perpendicular

Girder Bay	Girder Spacing Start (ft)	Girder Spacing End (ft)
1	7.0000	7.0000
2	7.0000	7.0000
3	7.0000	7.0000
4	7.0000	7.0000

Diaphragms

Girder Bay 1

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
17.09	18.32	0.00	1	
17.09	18.32	19.56	1	
58.68	58.68	0.00	1	

Girder Bay 2

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.32	19.56	0.00	1	
18.32	19.56	19.56	1	
58.68	58.68	0.00	1	

Girder Bay 3

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.56	20.79	19.56	1	
19.56	20.79	0.00	1	
58.68	58.68	0.00	1	

Girder Bay 4

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
20.79	22.02	0.00	1	

20.79	22.02	19.56	1
58.68	58.68	0.00	1

Structure Typical Section

Deck

Left start width:	16.33	(ft)
Left end width:	16.33	(ft)
Right start width:	16.33	(ft)
Right end width:	16.33	(ft)
Left start overhang:	2.33	(ft)
Left end overhang:	2.33	(ft)

Deck (Cont'd)

Deck concrete:	Unknown Strength Concrete Prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)
Sustained modular ratio factor:	3.000

Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4 Rail w/...	DC2		Left Ed...	0.06	0.06	Right
4 Rail w/...	DC2		Right E...	0.06	0.06	Left

Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
42.0000	9.2700	Unknown...	DC2		Left Ed...	-0.17 ...
42.0000	9.2700	Unknown...	DC2		Right E...	-0.17 ...

Lane Position

Offset Left Start:	-13.00	(ft)
Offset Left End:	-13.00	(ft)
Offset Right Start:	13.00	(ft)
Offset Right End:	13.00	(ft)

Wearing Surface

Wearing surface material:	Concrete
Description:	Overlay
Wearing surface thickness:	4.0000 (in)
Wearing surface density:	150.000 (pcf)
Load case:	DW

Load Case Description

Load Case Name	Description	Stage	Type	Time (Days)
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW
Sidewalk Keyway	Additional deck concr...	Non-composite (Sta...		D,DC

Superstructure Loads

Uniform Temperature

Load Case:

Temperature rise: (F)
Temperature fall: (F)

Gradient Temperature

Load Case:

Temperature value T1: (F)
Temperature value T2: (F)
Temperature value T3: (F)

Wind

Load Case:

Design Pressure: (psf)

Wind Load Path: Truss action

DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Uniformly to All Girders

Stiffener Definitions

Transverse Stiffeners

Name: dia. conn. (pair)
Stiffener number: Pair
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.0000 (in)
Bottom Gap: 1.0000 (in)
Top Weld:
Web Weld:
Bottom Weld:

Name: fascia connection (single)
Stiffener number: Single
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.0000 (in)
Bottom Gap: 1.0000 (in)
Top Weld:
Web Weld:
Bottom Weld:

No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

Member G1

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms and connections.

Current: G-1 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span Span Length

Number	(ft)
1	58.677100

Support Frame Connection

1
2

Pedestrian load: 0.000 (lb/ft)

Member Loads

Distributed Loads

Distance	Length	Start	End	Load Case Name
(ft)	(ft)	(kip/ft)	(kip/ft)	
0.00	58.68	0.134	0.134	Sidewalk K...

Member Loads - Settlement

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				
2				

Support Constraints

General

Support	Support	X Translation	Y Translation	Z Rotation
Number	Type			
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

Elastic

Support	X Translation	Y Translation	Z Rotation	Override Computed
Number	(kip/ft)	(kip/ft)	(kip-in/rad)	Z Rotation
1				
2				

Member Alternative G-1

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based

Left end X: 5.2500 (in)
Right end X: 5.2500 (in)
Additional Self Load: 0.015 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
 Deck concrete: Unknown Strength Concrete Prior to 1959
 Deck reinforcement: Unknown Steel Prior to 1954
 Welds:
 Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.217	0.571	1.217	0.400
Multi-Lane	1.217	0.571	1.217	0.800

Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 58.68 (ft)

Material: ASTM A7

Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		11.000...	11.000...	0.5000	0.50	57.67 ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown Stren...	0.00	58.68		7.0000	70.0000	70.0000
	10.1...					

Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	58.68	Composite			

Haunch Profile

Haunch Type:		Flange edges					
Embedded flange:		TRUE					
Distance	Length	Z1	Z2	Z3	Z4	Y1	Y2
(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
0.00	58.68	3.0000	4.5000	22.0100	22.0100	1.5000	1.5000

Bracing Ranges

Lateral Support	
Distance	Length
(ft)	(ft)
0.00	58.68

Stiffener Ranges**Transverse Stiffener Ranges (Location)**

Name	Distance	Number	Spacing
	(ft)		(in)
fascia connection ...	0.00	1	0.0000
fascia connection ...	17.09	1	0.0000
fascia connection ...	36.64	1	0.0000
fascia connection ...	58.68	1	0.0000

Bearing Stiffener Locations**Top Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	1.0	0.00	45.00

Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	14.0	0.00	45.00

Top Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)

Bottom Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)
1 : 0.50 - 58.17	0.0	3.0	0.50	44.50

Member G2

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms and connections.
Current: G-2 - Additional self load is for the diaphragms and connections.
Number of Spans: 1

Span Number	Span Length (ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-2

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 4.7500 (in)
Right end X: 4.7500 (in)
Additional Self Load: 0.030 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD

Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:
Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.286	1.273	0.800

Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 58.68 (ft)

Material: ASTM A7

Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		11.000...	11.000...	0.6250	12.33	34.00 ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown Stren...	0.00	58.68		7.0000	84.0000	84.0000
	10.1...					

Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	58.68	Composite			

Haunch Profile

Haunch Type: Flange edges

Embedded flange: FALSE

Distance (ft)	Length (ft)	Z1 (in)	Z2 (in)	Y1 (in)
0.00	58.68	3.0000	4.5000	1.5000

Bracing Ranges**Lateral Support**

Distance	Length
(ft)	(ft)
0.00	58.68

Stiffener Ranges**Transverse Stiffener Ranges (Location)**

Name	Distance	Number	Spacing
	(ft)		(in)
dia. conn. (pair)	0.00	1	0.0000
dia. conn. (pair)	18.32	1	0.0000
dia. conn. (pair)	37.88	1	0.0000
dia. conn. (pair)	58.68	1	0.0000

Bearing Stiffener Locations**Top Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	2.0	0.00	45.00

Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	23.0	0.00	12.80
0.0	11.0	12.80	32.20

Top Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)

Bottom Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)
1 : 12.33 - 46.33	0.0	13.0	12.80	32.20

Member G3

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms and connections.

Current: G-3 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				
2				

Support Constraints

General

Support	Support			
Number	Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

Elastic

Support	X Translation	Y Translation	Z Rotation	Override Computed
Number	(kip/ft)	(kip/ft)	(kip-in/rad)	Z Rotation
1				
2				

Member Alternative G-3

Description: Additional self load is for the diaphragms and connections.

Description

Material Type:	Steel
Girder Type:	Rolled
Member units:	US Customary
Girder property input method:	Schedule based
Left end X:	4.7500 (in)
Right end X:	4.7500 (in)
Additional Self Load:	0.030 (kip/ft)
Additional Self Load %:	(%)

Analysis Module

Analysis Method:	ASD
Analysis Module:	AASHTO ASD
Analysis Module Component:	
Properties:	

Analysis Method:	LFD
Analysis Module:	AASHTO LFD

Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:
Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes Loaded	Shear	Shear at Supports	Moment	Deflection
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.572	1.273	0.800

Girder Profile

Shape

Shape: W 36x150
Distance: 0.00 (ft)
Length: 58.68 (ft)
Material: ASTM A7

Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		11.000...	11.000...	0.6250	12.33	34.00 ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown Stren...	0.00	58.68		7.0000	84.0000	84.0000
	10.1...					

Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	58.68	Composite			

Haunch Profile

Haunch Type: Flange edges
Embedded flange: FALSE
Distance Length Z1 Z2 Y1
(ft) (ft) (in) (in) (in)
0.00 58.68 3.0000 4.5000 1.5000

Bracing Ranges

Lateral Support

Distance (ft)	Length (ft)
0.00	58.68

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
dia. conn. (pair)	0.00	1	0.0000
dia. conn. (pair)	19.56	1	0.0000
dia. conn. (pair)	39.11	1	0.0000
dia. conn. (pair)	58.68	1	0.0000

Bearing Stiffener Locations

Top Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	2.0	0.00	45.00

Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	23.0	0.00	12.80
0.0	11.0	12.80	32.20

Top Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)

Bottom Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)
1 : 12.33 - 46.33	0.0	13.0	12.80	32.20

Member G4

Link with: G2

Description:

Existing:

Current:

Number of Spans: 1

Span	Span Length
Number	(ft)
1	58.677100

Support Frame Connection

1
2

Pedestrian load: (lb/ft)

Member G5

Link with: G1

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

Superstructure Definition Span 4

Definition

Units: US Customary

Number of spans: 1

Number of girders: 5

Length

Span	(ft)
1	37.6771

Frame Structure Simplified Definition:

Support	Frame Connection
1	
2	

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

Analysis

Default Library Factors

Factor Override

Analysis Module

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Structure Framing Plan Details

Layout

	Skew	
Support	(Degrees)	
1	10.0000	
2	10.0000	
Girder Spacing Orientation:	Perpendicular	

Girder	Girder Spacing	
Bay	Start	End
	(ft)	(ft)
1	7.0000	7.0000
2	7.0000	7.0000
3	7.0000	7.0000
4	7.0000	7.0000

Diaphragms

Girder Bay 1

Distance	Distance	Diaphragm	Number of	Diaphragm
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
16.36	17.60	0.00	1	
37.68	37.68	0.00	1	

Girder Bay 2

Distance	Distance	Diaphragm	Number of	Diaphragm
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
17.60	18.83	0.00	1	
37.68	37.68	0.00	1	

Girder Bay 3

Distance	Distance	Diaphragm	Number of	Diaphragm
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
18.83	20.07	0.00	1	
37.68	37.68	0.00	1	

Girder Bay 4

Distance	Distance	Diaphragm	Number of	Diaphragm
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
20.07	21.30	0.00	1	
37.68	37.68	0.00	1	

Structure Typical Section

Deck

Left start width:	16.33 (ft)
Left end width:	16.33 (ft)
Right start width:	16.33 (ft)
Right end width:	16.33 (ft)
Left start overhang:	2.33 (ft)
Left end overhang:	2.33 (ft)

Deck (Cont'd)

Deck concrete:	Unknown Strength Concrete Prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)
Sustained modular ratio factor:	3.000

Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4 Rail w/...	DC2		Left Ed...	0.06	0.06	Right
4 Rail w/...	DC2		Right E...	0.06	0.06	Left

Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
42.0000	9.2700	Unknown...	DC2		Left Ed...	-0.17 ...
42.0000	9.2700	Unknown...	DC2		Right E...	-0.17 ...

Lane Position

Offset Left Start:	-13.00 (ft)
Offset Left End:	-13.00 (ft)
Offset Right Start:	13.00 (ft)

Offset Right End: 13.00 *(ft)*
Wearing Surface
Wearing surface material: Concrete
Description: Overlay
Wearing surface thickness: 4.0000 *(in)*
Wearing surface density: 150.000 *(pcf)*
Load case: DW

Load Case Description

Load Case Name	Description	Stage	Type	Time <i>(Days)</i>
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW
Sidewalk Keyway	Additional deck concr...	Non-composite (Sta...		D,DC

Superstructure Loads

Uniform Temperature

Load Case:

Temperature rise: *(F)*

Temperature fall: *(F)*

Gradient Temperature

Load Case:

Temperature value T1: *(F)*

Temperature value T2: *(F)*

Temperature value T3: *(F)*

Wind

Load Case:

Design Pressure: *(psf)*

Wind Load Path: Truss action

DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Uniformly to All Girders

Stiffener Definitions

Transverse Stiffeners

Name: fascia connection (single)
Stiffener number: Single
Plate Width: 5.5000 *(in)*
Plate Thickness: 0.5000 *(in)*
Material: ASTM A7
Top Gap: 1.0000 *(in)*
Bottom Gap: 1.0000 *(in)*
Top Weld:
Web Weld:
Bottom Weld:

Name: dia. conn. - interior (pair)

Stiffener number: Pair
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.1250 (in)
Bottom Gap: 1.1250 (in)
Top Weld:
Web Weld:
Bottom Weld:

Name: dia. conn. @ Ends (pair)
Stiffener number: Pair
Plate Width: 6.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.1250 (in)
Bottom Gap: 1.1250 (in)
Top Weld:
Web Weld:
Bottom Weld:
No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

Member G1

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms and connections.

Section Loss at Pier 3:

Use 0.420" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.554" reading for 3" height. Use 0.605" reading for remaining height. Weighted average thickness for the 35.84" beam is 0.578".

Section loss for the 0.625" thick original beam is 7.5%, say 10%.

Current: G-1 - Additional self load is for the diaphragms and connections.

Section Loss at Pier 3:

Use 0.420" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.554" reading for 3" height. Use 0.605" reading for remaining height. Weighted average thickness for the 35.84" beam is 0.578".

Section loss for the 0.625" thick original beam is 7.5%, say 10%.

Number of Spans: 1

Span	Span Length
Number	(ft)

1 37.677100

Support Frame Connection

1

2

Pedestrian load: 0.000 (lb/ft)

Member Loads

Distributed Loads

Distance (ft)	Length (ft)	Start (kip/ft)	End (kip/ft)	Load Case Name
0.00	37.68	0.134	0.134	Sidewalk K...

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
-------------------	--------------------	------------------	-------------------------	----------------

1

2

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
-------------------	---------------------------	---------------------------	----------------------------	---------------------------------

1

2

Member Alternative G-1

Description: Additional self load is for the diaphragms and connections.

Section Loss at Pier 3:

Use 0.420" reading for 4.5" height (1" flange + 2" + 3"/2). Use 0.554" reading for 3" height. Use 0.605" reading for remaining height. Weighted average thickness for the 35.84" beam is 0.578". Section loss for the 0.625" thick original beam is 7.5%, say 10%.

Description

Material Type:	Steel
Girder Type:	Rolled
Member units:	US Customary
Girder property input method:	Schedule based
Left end X:	5.2500 (in)
Right end X:	4.7500 (in)
Additional Self Load:	0.015 (kip/ft)
Additional Self Load %:	(%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:

Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at	Moment	Deflection
Loaded		Supports		
1 Lane	1.217	0.571	1.217	0.400
Multi-Lane	1.217	0.571	1.217	0.800

Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 37.68 (ft)

Material: ASTM A7

Deck Profile

Deck Concrete

Material	Distance	Length	Total	Structural	Effective	Effective
(LRFD)	n		Thickness	Thickness	Width (Std)	Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown Stren...	0.00	37.68		7.0000	70.0000	70.0000
	10.1...					

Shear Connectors

Start	Connector	Number	Number of	Transverse
Distance	Name	per Row	Spaces	Spacing
(ft)				(in)
0.00	Composite			

Haunch Profile

Haunch Type: Flange edges

Embedded flange: TRUE

Distance	Length	Z1	Z2	Z3	Z4	Y1	Y2
(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
0.00	37.68	3.0000	4.5000	22.0100	22.0100	1.5000	1.5000

Bracing Ranges

Lateral Support

Distance Length

(ft) (ft)
0.00 37.68

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
fascia connection ...	0.00	1	0.0000
fascia connection ...	16.36	1	0.0000
fascia connection ...	37.68	1	0.0000

Bearing Stiffener Locations

Web Deterioration

Thickness Loss (%)	Start Distance (ft)	Length (ft)
10.0	0.00	0.50

Member G2

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms and connections.

Current: G-2 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span Number	Span Length (ft)
1	37.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
-------------------	-----------------	---------------	---------------	------------

1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-2

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
 Girder Type: Rolled
 Member units: US Customary
 Girder property input method: Schedule based
 Left end X: 4.7500 (in)
 Right end X: 4.7500 (in)
 Additional Self Load: 0.030 (kip/ft)
 Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
 Analysis Module: AASHTO ASD
 Analysis Module Component:
 Properties:

Analysis Method: LFD
 Analysis Module: AASHTO LFD
 Analysis Module Component:
 Properties:

Analysis Method: LRFD
 Analysis Module: AASHTO LRFD
 Analysis Module Component:
 Properties:

Analysis Method: LRFR
 Analysis Module: AASHTO LRFR
 Analysis Module Component:
 Properties:

Analysis Method: Distribution Factors
 Analysis Module:
 Analysis Module Component:
 Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

Inventory

Operating

Structural steel

Concrete

PS Concrete Comp.

PS Concrete Tens.

PS Moment Cap.

Reinforcement

Bearing Stiffener

Stirrup

Timber

NA

Default Materials

Structural steel:

ASTM A7

Deck concrete:

Unknown Strength Concrete Prior to 1959

Deck reinforcement:

Unknown Steel Prior to 1954

Welds:

Bolts:

Impact

Standard Impact Factor

Type:

Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.286	1.273	0.800

Girder Profile

Shape

Shape: W 30x116

Distance: 0.00 (ft)

Length: 37.68 (ft)

Material: ASTM A7

Deck Profile

Deck Concrete

Material	Distance	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
(LRFD)	n					

Unknown Stren...	(ft) 0.00	(ft) 37.68	(in)	(in) 7.0000	(in) 84.0000	(in) 84.0000
	10.1...					

Shear Connectors

Start	Connector	Number	Number of	Transverse
Distance	Name	per Row	Spaces	Spacing
(ft)				(in)
0.00	Composite			

Haunch Profile

Haunch Type:		Flange edges		
Embedded flange:		FALSE		
Distance	Length	Z1	Z2	Y1
<i>(ft)</i>	<i>(ft)</i>	<i>(in)</i>	<i>(in)</i>	<i>(in)</i>
0.00	37.68	3.0000	4.5000	1.5000

Bracing Ranges

<u>Lateral Support</u>	
Distance	Length
<i>(ft)</i>	<i>(ft)</i>
0.00	37.68

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance	Number	Spacing
	(ft)		(in)
dia. conn. @ Ends ...	0.00	1	0.0000
dia. conn. - inter...	17.60	1	0.0000
dia. conn. @ Ends ...	37.68	1	0.0000

Bearing Stiffener Locations

Member G3

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms and connections.

Current: G-3 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	37.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-3

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 4.7500 (in)
Right end X: 4.7500 (in)
Additional Self Load: 0.030 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:
Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.572	1.273	0.800

Girder Profile

Shape

Shape: W 30x116
Distance: 0.00 (ft)
Length: 37.68 (ft)
Material: ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance n	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown Stren...	0.00	37.68		7.0000	84.0000	84.0000
	10.1...					

Shear Connectors

Start Distance	Length	Connector Name	Number per Row	Number of Spaces	Transverse Spacing
(ft)	(ft)				(in)
0.00	37.68	Composite			

Haunch Profile

Haunch Type:		Flange edges		
Embedded flange:		FALSE		
Distance	Length	Z1	Z2	Y1
(ft)	(ft)	(in)	(in)	(in)
0.00	37.68	3.0000	4.5000	1.5000

Bracing Ranges

Lateral Support

Distance	Length
(ft)	(ft)
0.00	37.68

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance	Number	Spacing
	(ft)		(in)
dia. conn. @ Ends ...	0.00	1	0.0000
dia. conn. - inter...	18.83	1	0.0000
dia. conn. @ Ends ...	37.68	1	0.0000

Bearing Stiffener Locations

Member G4

Link with: G2

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	37.677100

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

Member G5

Link with: G1

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	37.677100

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

Superstructure Definition Span 3

Definition

Units: US Customary

Number of spans: 1

Number of girders: 5

Span	Length (ft)
1	58.6771

Frame Structure Simplified Definition:

Support	Frame Connection
1	
2	

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

Analysis

Default Library Factors

Factor Override

Analysis Module

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Structure Framing Plan Details

Layout

	Skew	
Support	(Degrees)	
1	10.0000	
2	10.0000	
Girder Spacing Orientation:		Perpendicular

Girder	Girder Spacing	
Bay	Start	End
	(ft)	(ft)
1	7.0000	7.0000
2	7.0000	7.0000

3	7.0000	7.0000
4	7.0000	7.0000

Diaphragms

Girder Bay 1

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
17.09	18.32	0.00	1	
17.09	18.32	19.56	1	
58.68	58.68	0.00	1	

Girder Bay 2

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.32	19.56	0.00	1	
18.32	19.56	19.56	1	
58.68	58.68	0.00	1	

Girder Bay 3

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.56	20.79	19.56	1	
19.56	20.79	0.00	1	
58.68	58.68	0.00	1	

Girder Bay 4

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
20.79	22.02	19.56	1	
20.79	22.02	0.00	1	
58.68	58.68	0.00	1	

Structure Typical Section

Deck

Left start width:	16.33 (ft)
Left end width:	16.33 (ft)
Right start width:	16.33 (ft)
Right end width:	16.33 (ft)
Left start overhang:	2.33 (ft)
Left end overhang:	2.33 (ft)

Deck (Cont'd)

Deck concrete:	Unknown Strength Concrete Prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)

Sustained modular ratio factor: 3.000

Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4 Rail w/...	DC2		Left Ed...	0.06	0.06	Right
4 Rail w/...	DC2		Right E...	0.06	0.06	Left

Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
42.0000	9.2700	Unknown...	DC2		Left Ed...	-0.17 ...
42.0000	9.2700	Unknown...	DC2		Right E...	-0.17 ...

Lane Position

Offset Left Start:	-13.00 (ft)
Offset Left End:	-13.00 (ft)
Offset Right Start:	13.00 (ft)
Offset Right End:	13.00 (ft)

Wearing Surface

Wearing surface material:	Concrete
Description:	Overlay
Wearing surface thickness:	4.0000 (in)
Wearing surface density:	150.000 (pcf)
Load case:	DW

Load Case Description

Load Case Name	Description	Stage	Type	Time (Days)
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW
Sidewalk Keyway	Additional deck concr...	Non-composite (Sta...		D,DC

Superstructure Loads

Uniform Temperature

Load Case:

Temperature rise:	(F)
Temperature fall:	(F)

Gradient Temperature

Load Case:

Temperature value T1:	(F)
Temperature value T2:	(F)
Temperature value T3:	(F)

Wind

Load Case:

Design Pressure:	(psf)
Wind Load Path:	Truss action

DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Uniformly to All Girders

Stiffener Definitions

Transverse Stiffeners

Name: dia. conn. (pair)
Stiffener number: Pair
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.0000 (in)
Bottom Gap: 1.0000 (in)
Top Weld:
Web Weld:
Bottom Weld:

Name: fascia connection (single)
Stiffener number: Single
Plate Width: 5.5000 (in)
Plate Thickness: 0.5000 (in)
Material: ASTM A7
Top Gap: 1.0000 (in)
Bottom Gap: 1.0000 (in)
Top Weld:
Web Weld:
Bottom Weld:

No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

Member G1

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms and connections.

Current: G-1 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span Number	Span Length (ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Distributed Loads

Distance (ft)	Length (ft)	Start (kip/ft)	End (kip/ft)	Load Case Name
0.00	58.68	0.134	0.134	Sidewalk K...

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-1

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 5.2500 (in)
Right end X: 5.2500 (in)
Additional Self Load: 0.015 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel: ASTM A7
Deck concrete: Unknown Strength Concrete Prior to 1959
Deck reinforcement: Unknown Steel Prior to 1954
Welds:
Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.217	0.571	1.217	0.400
Multi-Lane	1.217	0.571	1.217	0.800

Girder Profile

Shape

Shape: W 36x150
 Distance: 0.00 *(ft)*
 Length: 58.68 *(ft)*
 Material: ASTM A7

Flange Cover Plates

Plate	Begin Width <i>(in)</i>	End Width <i>(in)</i>	Thickness <i>(in)</i>	Distance <i>(ft)</i>	Length <i>(ft)</i>	Material
1 (Bot...		11.000...	11.000...	0.5000	0.50	57.67 ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance <i>(ft)</i>	Length <i>(ft)</i>	Total Thickness <i>(in)</i>	Structural Thickness <i>(in)</i>	Effective Width (Std) <i>(in)</i>	Effective Width <i>(in)</i>
Unknown Stren...	0.00	58.68		7.0000	70.0000	70.0000
	10.1...					

Shear Connectors

Start Distance <i>(ft)</i>	Length <i>(ft)</i>	Connector Name	Number per Row	Number of Spaces	Transverse Spacing <i>(in)</i>
0.00	58.68	Composite			

Haunch Profile

Haunch Type: Flange edges
 Embedded flange: TRUE

Distance <i>(ft)</i>	Length <i>(ft)</i>	Z1 <i>(in)</i>	Z2 <i>(in)</i>	Z3 <i>(in)</i>	Z4 <i>(in)</i>	Y1 <i>(in)</i>	Y2 <i>(in)</i>
0.00	58.68	3.0000	4.5000	22.0100	22.0100	1.5000	1.5000

Bracing Ranges

Lateral Support

Distance <i>(ft)</i>	Length <i>(ft)</i>
0.00	58.68

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
fascia connection ...	0.00	1	0.0000
fascia connection ...	17.09	1	0.0000
fascia connection ...	36.64	1	0.0000
fascia connection ...	58.68	1	0.0000

Bearing Stiffener Locations

Top Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)

Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	5.0	15.00	43.67

Top Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)

Bottom Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)
1 : 0.50 - 58.17	0.0	11.0	15.00	43.17

Member G2

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms and connections.

Current: G-2 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-2

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 4.7500 (in)
Right end X: 4.7500 (in)
Additional Self Load: 0.030 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR

Analysis Module Component:
Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

Inventory

Operating

Structural steel

Concrete

PS Concrete Comp.

PS Concrete Tens.

PS Moment Cap.

Reinforcement

Bearing Stiffener

Stirrup

Timber

NA

Default Materials

Structural steel: ASTM A7

Deck concrete: Unknown Strength Concrete Prior to 1959

Deck reinforcement: Unknown Steel Prior to 1954

Welds:

Bolts:

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.286	1.273	0.800

Girder Profile

Shape

Shape: W 36x150
 Distance: 0.00 (ft)
 Length: 58.68 (ft)
 Material: ASTM A7

Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		11.000...	11.000...	0.6250	12.33	34.00 ASTM A7

Deck Profile**Deck Concrete**

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown Stren...	0.00	58.68		7.0000	84.0000	84.0000
	10.1...					

Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	58.68	Composite			

Haunch Profile

Haunch Type: Flange edges
 Embedded flange: FALSE

Distance (ft)	Length (ft)	Z1 (in)	Z2 (in)	Y1 (in)
0.00	58.68	3.0000	4.5000	1.5000

Bracing Ranges**Lateral Support**

Distance (ft)	Length (ft)
0.00	58.68

Stiffener Ranges**Transverse Stiffener Ranges (Location)**

Name	Distance (ft)	Number	Spacing (in)
dia. conn. (pair)	0.00	1	0.0000
dia. conn. (pair)	18.32	1	0.0000
dia. conn. (pair)	37.88	1	0.0000
dia. conn. (pair)	58.68	1	0.0000

Bearing Stiffener Locations

Top Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	2.0	0.00	58.68

Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	11.0	15.00	31.80
0.0	23.0	31.80	11.88

Top Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)

Bottom Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)
1 : 12.33 - 46.33	0.0	15.0	15.00	14.80
1 : 12.33 - 46.33	0.0	28.0	29.80	16.53

Member G3

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms and connections.

Current: G-3 - Additional self load is for the diaphragms and connections.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

Member Loads

Member Loads - Settlement

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	

1
2

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-3

Description: Additional self load is for the diaphragms and connections.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 4.7500 (in)
Right end X: 4.7500 (in)
Additional Self Load: 0.030 (kip/ft)
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:

Analysis Module Component:
Properties:

Default rating method: LFD

Factors

Factor Override

LRFD:

LFD:

ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel:	ASTM A7
Deck concrete:	Unknown Strength Concrete Prior to 1959
Deck reinforcement:	Unknown Steel Prior to 1954
Welds:	
Bolts:	

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)				
Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.000	1.143	1.000	0.400
Multi-Lane	1.273	1.572	1.273	0.800

Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 58.68 (ft)

Material: ASTM A7

Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		11.000...	11.000...	0.6250	12.33	34.00 ASTM A7

Deck Profile

Deck Concrete

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown Stren...	0.00 10.1...	58.68		7.0000	84.0000	84.0000

Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	58.68	Composite			

Haunch Profile

Haunch Type:		Flange edges		
Embedded flange:		FALSE		
Distance (ft)	Length (ft)	Z1 (in)	Z2 (in)	Y1 (in)
0.00	58.68	3.0000	4.5000	1.5000

Bracing Ranges

Lateral Support

Distance (ft)	Length (ft)
0.00	58.68

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
dia. conn. (pair)	0.00	1	0.0000
dia. conn. (pair)	19.56	1	0.0000
dia. conn. (pair)	39.11	1	0.0000
dia. conn. (pair)	58.68	1	0.0000

Bearing Stiffener Locations

Top Flange Deterioration

Width Loss	Thickness Loss	Start Distance	Length
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(%)	(%)	(ft)	(ft)
0.0	2.0	0.00	58.68

Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
0.0	11.0	15.00	31.80
0.0	23.0	46.80	11.88

Top Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)

Bottom Cover Plate Deterioration

Cover	Width	Thickness	Start	Length
Plate	Loss	Loss	Distance	
	(%)	(%)	(ft)	(ft)
1 : 12.33 - 46.33	0.0	15.0	15.00	14.80
1 : 12.33 - 46.33	0.0	28.0	29.80	16.53

Member G4

Link with: G2

Description:

Existing:

Current:

Number of Spans: 1

Span	Span Length
Number	(ft)
1	58.677100

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

Member G5

Link with: G1

Description:

Existing:

Current:

Number of Spans: 1

Span	Span Length
Number	(ft)

1 58.677100

Support Frame Connection

1

2

Pedestrian load: *(lb/ft)*