2026 In-depth Element Level and NSTM Inspection Report - Draft

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AECOM Technical Services, Inc.



Department of Transportation

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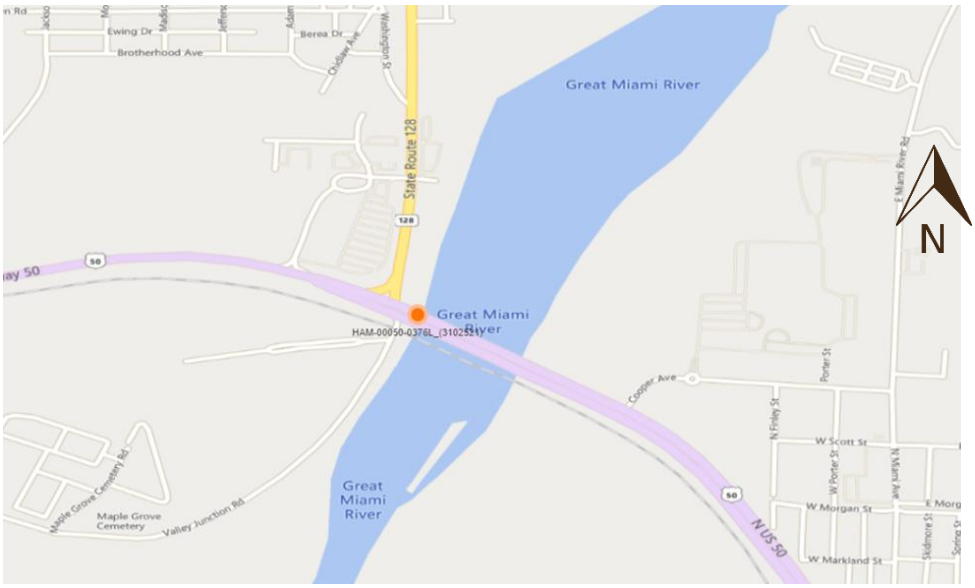
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Chapter 1: Introduction

1.1 BRIDGE DESCRIPTION

HAM-00050-03.760L (SFN 3102521) is a four-span structure that carries two lanes of U.S. Route 50 westbound vehicular traffic over the Great Miami River in Cleves (see Figure 1). Eastbound traffic is carried by the adjacent bridge HAM-50-0376R (SFN 3102548). The roadway width on the bridge is 32'-0" with an overall bridge length of 892'-8". The bridge was opened to traffic in 1959, with rehabilitations in 1992 and 2017-2018. The bridge was undergoing rehabilitation at the time of the inspection.

FIGURE 1-LOCATION MAP



The bridge consists of four simply supported modified Pratt Truss spans. Interior spans (Spans 2 & 3) measure 250'-0" c/c bearings with ten 25'-0" panels. End spans (Spans 1 & 4) measure 191'-4" c/c bearings with eight 23'-11" panels. The truss upper chord members consist of rivetted built-up members made from channels, plates, and lacing bars. The lower chord members consist of plates connected with diaphragms. The diagonals and verticals are rolled wide flange sections. Sway bracing and upper lateral bracing are riveted to the gusset plates and truss members at panel points. No lower lateral bracing exists on the structure.

The floor system consists of five stringers spaced at 7'-0" with nine floorbeams spaced at panel points in end spans and eleven floorbeams spaced at panel points in interior spans.

The substructures are reinforced concrete on steel piles, with a wall-type Rear Abutment, three wall piers, and a stub-type Forward Abutment.

The nomenclature for this bridge follows a west-to-east stationing with trusses labeled as North and South. Floorbeams are labeled from 0 to 8 (Spans 1 and 4) and 0 to 10 (Spans 2 and 3) from west to east. The stringers are labeled from 1 to 5 from north to south (left to right looking east/forward). Abutments are labeled as Abutment 1 (west/rear) and

Abutment 5 (east/forward). Piers are labeled from 2 to 4 (west to east). The stream flows from north to south.

1.2 INSPECTION METHOD

AECOM and WSP performed the in-depth element level and Non-Redundant Steel Members (NSTM) inspection from June 29, 2026, to July 2, 2026 and on August 25, 2026 and August 26, 2026. The NSTM members are all floorbeams and lower chord members, as well as certain vertical and diagonal members (see Figure 2 and Figure 3).

The wearing surface and portions of the trusses in the splash zone (within approximately 5' of the deck surface) were inspected from the bridge deck. The lower chords were inspected by structure climbing. The diagonal, vertical and upper chord truss members were inspected using a combination of boom lift with single lane closures on U.S. 50 and rope access. The floorbeams and stringers were inspected either from the boom lift, from a ladder, or by rope access techniques. The piers and pier bearings were inspected either from the boom lift or by rope access. The abutments and abutment bearings were inspected from the ground with a ladder. A drone was used to provide supplemental photographs of portions of the bridge over water, as well as aerial photographs of the overall bridge and approaches. The inspection was performed in accordance with the D08 BI 2025/2026 (A) Consultant Bridge Inspection Scope of Services.

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FIGURE 2-PLAN AND ELEVATION FOR SPAN 1 AND 2

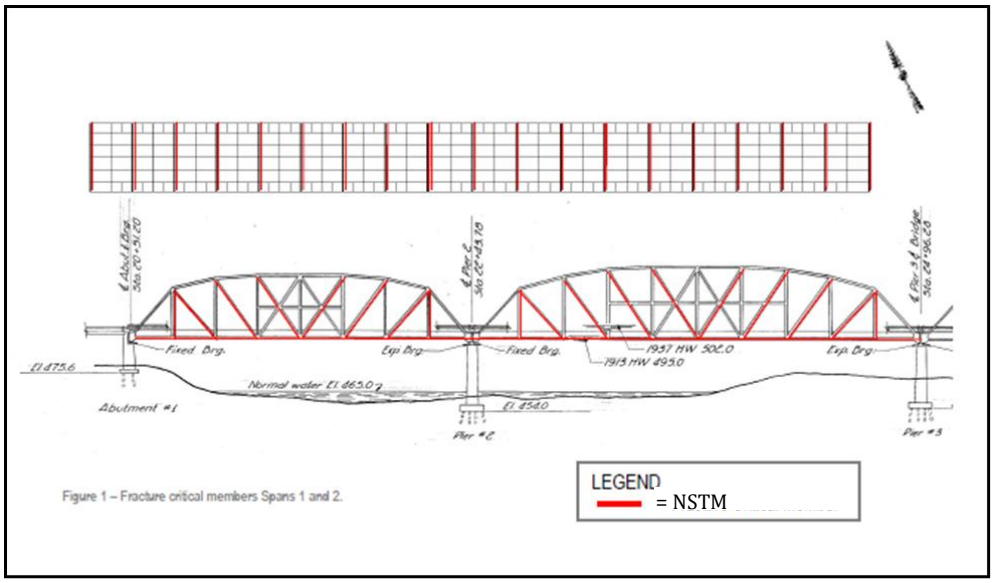


Figure 1 – Fracture critical members Spans 1 and 2.

FIGURE 3-PLAN AND ELEVATION FOR SPAN 3 AND 4

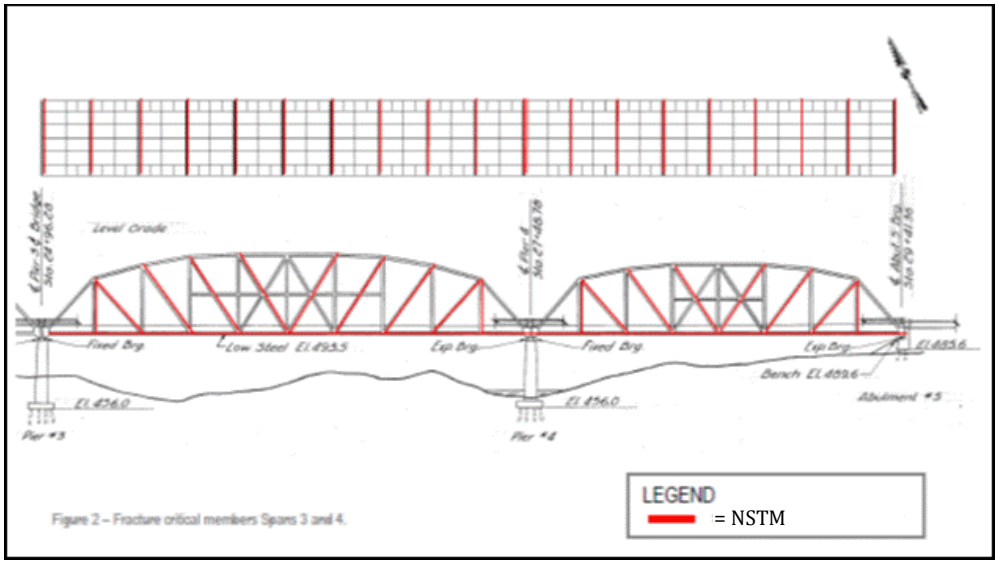


Figure 2 – Fracture critical members Spans 3 and 4.

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1.3 CONDITION DESCRIPTIONS AND RATINGS

Condition ratings for all elements are provided in the sections below according to (see Table 1). For quantities and condition states for all elements, see the AssetWise Bridge Inspection report in Appendix A.

The load rating was last completed in 2009 by others and AECOM has used the findings of this load rating in assigning condition ratings and condition states with consideration of potential impacts to member strength.

TABLE 1-CONDITION RATING GUIDELINES (TABLE 7.2-ODOT MBIS 2025)

Condition		Defect Severity				Strength or Performance Affected
		Inherent	Minor	Moderate	Major	
9	Excellent	Isolated				No
8	Very Good	Some				No
7	Good		Some			No
6	Satisfactory		Widespread	Isolated		No
5	Fair			Some	Isolated AND	No
4	Poor			Widespread	Isolated AND	Yes—advanced deterioration of structure. Repairs are necessary.
3	Serious				≥ Isolated	Yes—local failures possible. Urgent repairs are necessary.
2	Critical				≥ Isolated	Yes—severe loss of strength. Emergency repairs are required.
1	Imminent Failure					Yes—bridge is closed pending major repairs or rehabilitation.
0	Failed					Yes—bridge is closed and beyond repair.

Chapter 2: Bridge Condition

2.1 ITEM B.C.01—DECK CONDITION RATING

The reinforced concrete deck is in SATISFACTORY CONDITION [6-SNBI].

2.1.1 Element 12—Reinforced Concrete Deck

The underside of the reinforced concrete deck is visible and is in satisfactory condition. Isolated longitudinal and transverse cracking up to 1/16" wide with efflorescence is present (see Figure 4). The fascia stringer haunches exhibit isolated areas of delamination and spalling up to 6" wide by 1" deep along the length of the stringer (see Figure 5).

FIGURE 4-CRACKING WITH EFFLORESCENCE BETWEEN FB5 AND FB6 (SPAN 4)



FIGURE 5-STRINGER HAUNCH SPALLING BETWEEN FB6 AND FB7 AT STRINGER 1 (SPAN 4)



2.2 ITEM B.C.01.01—WEARING SURFACE CONDITION RATING

The wearing surface is in SATISFACTORY CONDITION [6-SNBI].

2.2.1 Element 805—Wearing Surface-Monolithic Concrete

The monolithic concrete deck wearing surface is in satisfactory condition. Hairline longitudinal and transverse cracks are present throughout all spans. The wearing surface also exhibits moderate wear along the wheel paths in each span. Some concrete and asphalt patches are present with isolated areas of minor spalling and medium-width cracks within the patches (see Figure 6). There is isolated spalling throughout the spans, noted most pronounced at the following locations:

- Span 1, east end of span, spall 12" long by 6" wide by 1" deep.
- Span 2, south lane wheel path – two spalls approx. 2.5' long × 1.5' wide × 1" deep (see Figure 7).
- Span 3, between Panel Points 2 and 3, south lane, 2 spalls. One 16" long by 17" wide by 2" deep with longitudinal rebar exposed and the other 10" long by 9" wide by 2" deep; there is no corrosion or section loss evident (see Figure 8).
- Span 4, pop-out spalls up to 10" diameter (see Figure 9).

FIGURE 6-1-1/2' LONG CRACK IN REPAIR PATCH (SPAN 2)

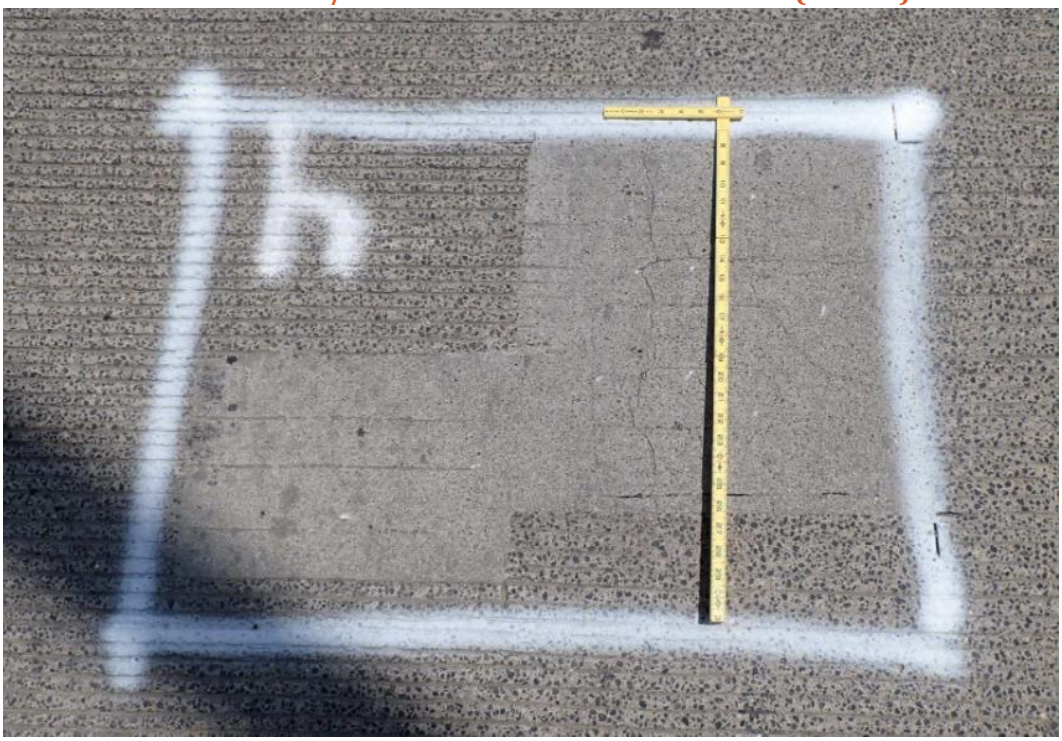


FIGURE 7-2-SPALLS UP TO 2" DEEP IN THE SOUTH LANE (SPAN 2)



FIGURE 8-2-SPALLS UP TO 2" DEEP, ONE WITH EXPOSED REBAR, IN SOUTH LANE (SPAN 3)



FIGURE 9-POP-OUT SPALLS IN SOUTH LANE UP TO 10" DIA. (SPAN 4)



2.3 ITEM B.C.02—SUPERSTRUCTURE CONDITION RATING

The superstructure is in FAIR CONDITION [5-SNBI] overall.

2.3.1 Element 113—Steel Stringer

The steel stringers are in satisfactory condition, with the following notable deficiencies:

- There is surface corrosion with no measurable section loss to the unpainted inside edges of the top flanges of Stringers 1 and 5 throughout.
- There are isolated areas of freckled rust present at the stringer bottom flange cover plates (see Figure 10) and isolated locations of minor surface rust on various other stringer locations.
- There are welded top and bottom flange cover plates on the stringer ends at each floorbeam; the ends of these welds are Category E details. The top flange cover plates are not visible due to the presence of the deck haunch, but the bottom flange cover plates were inspected. There are indications of poor-quality welding throughout these details.
- There are welded web connection plates with horizontal and vertical welds on the stringer ends at each floorbeam. The horizontal welds are Category D details and the vertical welds are Category C details. There is a full width crack in the bottom horizontal weld of the web connection plate on Stringer 5 on the north side of the web of FB2 in Span 2 (see Figure 11). There are indications of poor quality welding throughout these details.
- There are welds on the stringer bottom flange cover plates for the knee brace connection angles; these welds are Category E details. There is a potential 3/8” long crack in the bottom cover plate at the end of the weld for the knee brace on Stringer 4 in Span 2 near Floorbeam 0 (see Figure 12). Due to the location of the potential crack, a magnetic particle test could not be performed.
- At the Stringer 5 connection to Floorbeam 6 in Span 2, a 1" discontinuity was noted in the weld for the stringer bottom flange connection plate, adjacent to the connection plate (see Figure 13).

FIGURE 10-FRECKLED RUST ON BOTTOM COVER PLATE (S4, SPAN 4)



FIGURE 11-CRACK IN BOTTOM WELD AT FB2 WEB CONNECTION PLATE (S5, SPAN 2)



FIGURE 12-POTENTIAL CRACK IN THE BOTTOM COVER PLATE AT THE END OF THE WELD FOR THE KNEE BRACE NEAR FB0 (STRINGER 4, SPAN 2)



FIGURE 13-DISCONTINUITY IN WELD (STRINGER 5, FB6, SPAN 2)



2.3.2 Element 120—Steel Truss

The steel truss is in fair condition overall. Using the table for Steel Condition States in the ODOT Bridge Inspection Manual, truss section loss measurements not included in the previous load rating were screened for inclusion in Condition State 4 if greater than 20% of the member cross-sectional area; based on this criterion, no Condition State 4 locations were identified.

Lower Chord

Pack rust between 1/8" and 1/2" thick is widespread and active or reactivating between the lower chord plates and splice plates throughout each span. Pack rust up to 1" is present between the lower chord and diaphragms in all spans (see Figure 14). The pack rust has caused bowing of the lower chord plates and diaphragm angles in some locations (see Figure 15). The lower chord also exhibits some locations of bowing due to inconsistent diaphragm dimensions, most notably in the end spans (see Figure 16).

Tack welds between the lower chord and gusset plates and internal diaphragms are typical in all spans, with one broken tack weld in Span 4, North Truss, at Panel Point 1 (see Figure 17).

The lower chord plates exhibit some surface corrosion, with isolated painted over and active pitting typically 1/16" to 1/8" deep on the plate edges and around the diaphragm angles (see Figure 18). There is a 3” wide by 3/16” deep area of active section loss on the splice plate near L2 in Span 1 of the North Truss (see Figure 19). There are isolated areas of laminating corrosion present on the stiffening angles (See Figure 20). See Appendix C for section loss measurements per member.

FIGURE 14-PACK RUST BETWEEN LOWER CHORD WEB AND DIAPHRAGMS NEAR L0 (SPAN 2, SOUTH TRUSS, L0L1)



FIGURE 15-TYPICAL PACK RUST BETWEEN WEB PLATES CAUSING DISTORTION (L2L3, SPAN 4, SOUTH TRUSS)



FIGURE 16-BOWING DUE TO INCONSISTENT DIAPHRAGM DIMENSIONS (L6L7, SPAN 4, NORTH TRUSS)



FIGURE 17-BROKEN TACK WELD (L1, SPAN 4, NORTH TRUSS)



FIGURE 18-PAINTED OVER AND ACTIVE SECTION LOSS AROUND DIAPHRAGM ANGLE (L5L6, SPAN 1, NORTH TRUSS)



FIGURE 19-SECTION LOSS ON INBOARD EXTERIOR SPLICE PLATE NEAR L2 (L1L2, SPAN 1, NORTH TRUSS)

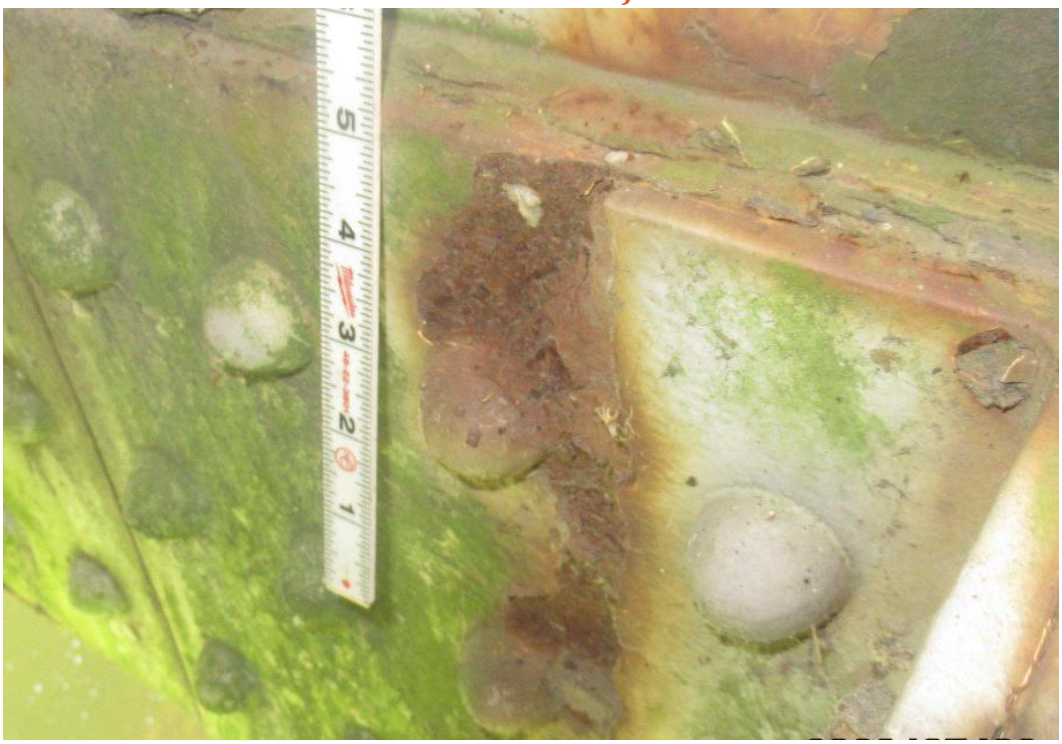


FIGURE 20-SECTION LOSS TO OUTBOARD PLATE AND LAMINATING CORROSION ON STIFFENER ANGLES (L9L10, SPAN 2, NORTH TRUSS)



Upper Chord

The upper chord exhibits some areas of spot rust and surface corrosion due to paint failure. There are some areas of reactivated corrosion between the channels and web plates with initiating pack rust between the web plates and bottom flange (see Figure 21). Pack rust up to 1/16" is present between the flanges and tie plates in isolated locations (see Figure 22).

There are some missing rivet heads between the upper chord connections with the diaphragm interior clip angles and some with flattened rivet heads (see Figure 23). At some locations, there are improperly installed rivets.

There are tack welds between the upper chord and the gusset plate clip angles and the bracing connection plates. There are isolated welds with corrosion initiation at the weld toe (see Figure 24).

FIGURE 21-INITIATING PACK RUST BETWEEN OUTBOARD WEB AND BOTTOM FLANGE (U3U4, SPAN 3, SOUTH TRUSS)



FIGURE 22-PACK RUST BETWEEN TIE PLATE AND BOTTOM FLANGE (U8U9, SPAN 2, SOUTH TRUSS)



FIGURE 23-TYPICAL FLATTENED RIVET HEAD AT DIAPHRAGM CLIP ANGLE (U3, SPAN 1, NORTH TRUSS)



FIGURE 24-INITIATING CORROSION AT THE WELD TOE ON THE BRACING CONNECTION PLATE (U7, SPAN 4, SOUTH TRUSS)



End Posts

The end posts exhibit section loss on the lacing bars on both trusses. There are lacing bars that have been replaced, but these posts still have remaining bars with section loss. One broken lacing bar is present on Span 1, North Truss, member L0U1 (see Figure 26).

There is pack rust up to 1/4" thick between the lacing bars and bottom flanges. Pack rust is also present at the upper bracing connection near U1, Span 1, South Truss and on the inside of the inboard web plate at L0U1 in Spans 2 and 3 of the South Truss, where the pack rust is initiating distortion to the web (see Figure 27).

The end-post webs and flanges exhibit some areas of painted over pitting up to 1/8" deep and areas of active corrosion with section loss up to 1/8" deep (see Figure 28). There are areas with laminar corrosion present on the bottom flanges most notable in the splash zone (see Figure 25). Corrosion holes up to 1" diameter in the batten plate near L0 in the North Truss of Span 4 were noted (see Figure 29). See Appendix C for section loss measurements per member.

FIGURE 25-TYPICAL LAMINAR CORROSION ADJACENT TO LACING BARS (L0U1, SPAN 2, SOUTH TRUSS)



FIGURE 26-BROKEN LACING BAR (L0U1, SPAN 1, NORTH TRUSS)



FIGURE 27-PACK RUST BETWEEN INBOARD WEB AND TOP ANGLE (L0U1, SPAN 3, SOUTH TRUSS)



FIGURE 28-SECTION LOSS ON BOTTOM FLANGE (L10U9, SPAN 3, NORTH TRUSS)



FIGURE 29-CORROSION HOLES IN BATTEN PLATE NEAR L0 (L0U1, SPAN 4, NORTH TRUSS)



Verticals

The vertical members exhibit some areas of active corrosion and section loss up to 3/16" deep (see Figure 30 and Figure 31). Isolated painted over pitting up to 1/4" deep is present, predominantly near the former railing attachments, along the gusset plate edges, and in the splash zone. See Appendix C for section loss measurements per member.

The following vertical members exhibit deformations:

- North Truss, Span 1, on U7L7 at mid height, 1/2" over 5".
- North Truss, Span 3, on U6L6 above mid height, 1/2" over 6" to the south, north flange.
- South Truss, Span 1, on U4L4 below mid height, minor.
- South Truss, Span 4, on U7L7 near L7, 1/2" over 8".

FIGURE 30-SECTION LOSS IN WEB (L9U9, SPAN 2, NORTH TRUSS)



FIGURE 31-PAINTED OVER PITTING ON INBOARD FLANGE WITH ACTIVE CORROSION AND SECTION LOSS AT GUSSET PLATE CONNECTION IN SPLASH ZONE (L9U9, NORTH TRUSS, SPAN 3)



Diagonals

The diagonal members exhibit some areas of paint failure and surface corrosion. Pack rust is also present between the diagonal member and lower gusset plate in Span 3, North Truss, at Panel Point 2, and in Span 2, North Truss, at Panel Point 8.

Painted over pitting up to 1/8” deep is present in some locations, most notably in the splash zone (see Figure 32). In Span 2, North Truss, on member L8U9, there is 3/16" deep section loss to the south inboard face of the diagonal along the lower gusset plate (see Figure 33). There is a 1/2" deformation in the flange of the diagonal in Span 4, North Truss, on member U1L2. See Appendix C for section loss measurements per member.

There are tack welds between the diagonal members and the middle gusset plate at the following locations:

- South Truss, Span 1, member L4U5.
- South Truss, Span 4, member L3U4.
- South Truss, Span 4, member L4U5.

The tack welds are typically of poor quality, but no cracks were observed.

Member L5U6 in Span 1 of the North Truss was previously reported to vibrate significantly under live load; this behavior was not observed during this inspection.

FIGURE 32-PAINTED OVER PITTING IN WEB AND OUTBOARD FLANGE IN SPLASH ZONE (L8U9, SPAN 2, NORTH TRUSS)



FIGURE 33-SECTION LOSS ON INBOARD FLANGE AT GUSSET CONNECTION (L8U9, SPAN 2, NORTH TRUSS)



2.3.3 Element 152—Steel Floor Beam

The steel floorbeams are in fair condition overall. Using the table for Steel Condition States in the ODOT Bridge Inspection Manual, floorbeam section loss measurements not included in the previous load rating were screened for inclusion in Condition State 4 at the ends if greater than 30% of the web cross-sectional area and at mid-span if greater than 25% of the bottom flange cross-sectional area; based on these criteria, no Condition State 4 locations were identified.

Painted over pitting typically up to 1/8" deep is present along the top of the top flange, top of the bottom flange and bottom 4” of the web for up to 4' on the ends of many floorbeams (see Figure 34). There are also isolated areas of active section loss up to 1/4” deep at the ends of the floorbeams (see Figure 35). Outside of the end 4’, there are some locations with painted over pitting typically up to 1/8” deep with isolated areas up to 1/4” deep (see Figure 36 and Figure 37). See Appendix C for section loss measurements per member.

Laminating corrosion with section loss up to 1/8” deep on the web and top flange is present throughout all spans at the bridge deck and floorbeam interface with rust staining on the floorbeam (see Figure 38). There are also isolated areas of active corrosion at the angle connections to the floorbeam webs (see Figure 39).

There are welds on the floorbeam webs for the stringer web connection plates, stringer bottom flange connection plates, and stringer knee brace connection angles; these welds are Category E details. Some of the welds are of poor quality.

FIGURE 34-TYPICAL PAINTED OVER PITTING ON BOTTOM FLANGE AND WEB AT ENDS OF FLOORBEAM (SOUTH END FB7, SPAN 4)



FIGURE 35-ACTIVE SECTION LOSS AT SOUTH END (FB2, SPAN 1)

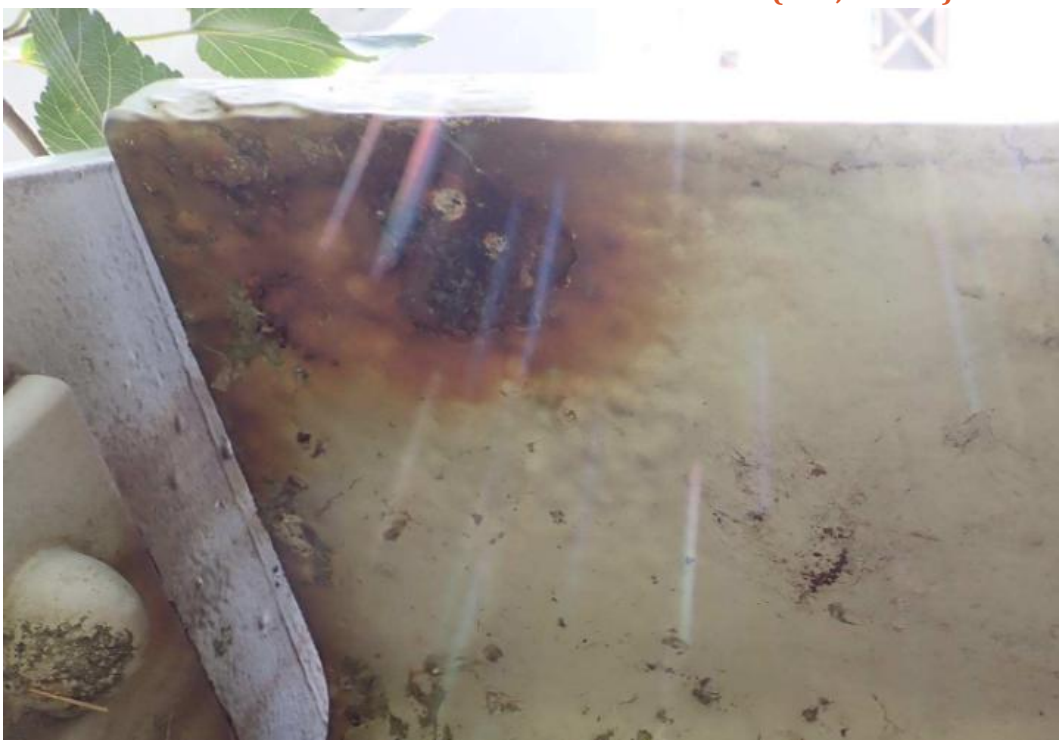


FIGURE 36-PAINTED OVER PITTING ON BOTTOM FLANGE UNDER S4 (FB5, SPAN 1)



FIGURE 37-PAINTED OVER PITTING ON BOTTOM FLANGE UNDER S4 (FB1, SPAN 3)



FIGURE 38- LAMINATING CORROSION AT FLOORBEAM AND DECK INTERFACE AT THE SOUTH END (FB1, SPAN 2)



FIGURE 39-LAMINATING CORROSION ON TOP FLANGE AND WEB AROUND CONNECTION ANGLE (FB6, SPAN 1)



2.3.4 Element 162—Steel Gusset Plate

The steel gusset plates are in fair condition. Poor condition was not used given that a need for repairs is not immediately evident. Using the table for Truss Gusset Plate Condition States in the ODOT Bridge Inspection Manual, section loss measurements not included in the previous load rating were screened for inclusion in Condition State 4 if greater than 25% of the approximate high stress region area. Lost area was taken as the depth of loss multiplied by its length along the section, summed where multiple losses occurred along the same member, and compared to the high stress area of that section; critical section lengths were approximated from the previous load rating. Based on this criterion, the following Condition State 4 locations were identified and warrant a structural review:

- South Truss, Span 4, L0, Inboard — 3/16" by 24" along the diagonal = 30% (see Figure 40)
- South Truss, Span 4, L8, Inboard — 3/16" by 24" along the diagonal = 30% (see Figure 41)
- South Truss, Span 4, L8, Outboard — 3/16" by 24" along the diagonal = 30% (see Figure 42)

The lower chord gusset plates away from the bearing locations exhibit some pack rust up to 5/16" thick between the gusset plates and the truss members (see Figure 43). The gusset

plates exhibit widespread painted over pitting and active laminating and surface corrosion with section loss typically between 1/8" and 3/16" deep (see Figure 44) with isolated areas up to 1/4" deep (see Figure 45). Section loss predominately occurs along the interface with the lower chord and diagonals. See Appendix C for section loss measurements for each gusset plate.

In addition to the CS4 section loss discussed above, the gusset plates at the bearing locations exhibit pack rust, laminating corrosion, and section loss in the plates, stiffening angles, and rivets. The top cover plates at bearing locations were removed for rehabilitation work at the time of inspection (see Figure 46). The following deficiencies were observed at the gusset plates at the bearing locations:

- Pack rust up to 3/16" between the vertical cover plates and connection angles is typical, with isolated pack rust up to 1" thick at L10 in Span 3 of the North Truss (see Figure 47).
- There is laminating corrosion and section loss in the gusset plate stiffening angles. Up to 100% section loss is present in these stiffening angles at several bearings, primarily on the bottom angles adjacent to the bearings (see Figure 48).
- Section loss on the rivet heads is typical (see Figure 49).
- The top stiffener angle at L10, Span 2, of the North Truss has 100% section loss at the end 3" (see Figure 50).
- Section loss up to 3/16" deep is typical, primarily on the interior faces, with isolated areas up to 5/16" deep (see Figure 51).

The gussets exhibit bowing up to 1/4" out of plane at locations with and without pack rust. While some bowing measurements had minor changes from the previous inspection, bowing has been documented in previous reports from at least 2010, and it remains largely unchanged. Based on the inspection history, any bowing not due to pack rust is assumed to be induced by as-built conditions for the purposes of assigning condition states based on the table for Truss Gusset Plate Condition States in the ODOT Bridge Inspection Manual. Select bowing measurements are listed below, including those with apparent change > 1/4" from the previous inspection. For this inspection, a straight edge was placed between the truss members, and the gusset edge with the most prominent bowing was recorded. Where bowing occurred toward the centerline of the truss, it was designated as positive; bowing away from the truss was designated as negative. Given the potential variability in measurements between inspections and the lack of a documented measuring procedure, these gussets have not been placed in Condition State 4 and should be monitored during future inspections. For bowing measurements on all gussets, see Appendix B.

- South Truss, Span 1, U2, Inboard: 2024 = -1/16" to 2026 = -1/4" (see Figure 52)
- South Truss, Span 3, L2, Inboard: 2024 = -1/16" to 2026 = 1/4"

- South Truss, Span 3, L3, Outboard: 2024 = -1/8” to 2026 = 1/4”
- South Truss, Span 3, L6, Inboard: 2024 = -1/8” to 2026 = 1/4”
- North Truss, Span 4, L6, Outboard: 2024 = -1/8” to 2026 = 1/4” (see Figure 53)

As mentioned in previous sections, tack welds are also present between the gusset plates and the lower chord, upper chord, and diagonals. Refer to previous sections for additional details.

FIGURE 40-SECTION LOSS ON INBOARD PLATE ALONG THE DIAGONAL (L0, SPAN 4, SOUTH TRUSS)



FIGURE 41-SECTION LOSS ON INBOARD PLATE ALONG THE DIAGONAL (L8, SPAN 4, SOUTH TRUSS)



FIGURE 42-SECTION LOSS ON OUTBOARD PLATE ALONG THE DIAGONAL (L8, SPAN 4, SOUTH TRUSS)



FIGURE 43-PACK RUST BETWEEN THE INBOARD PLATE AND L8U9 DIAGONAL (L8, SPAN 3, NORTH TRUSS)

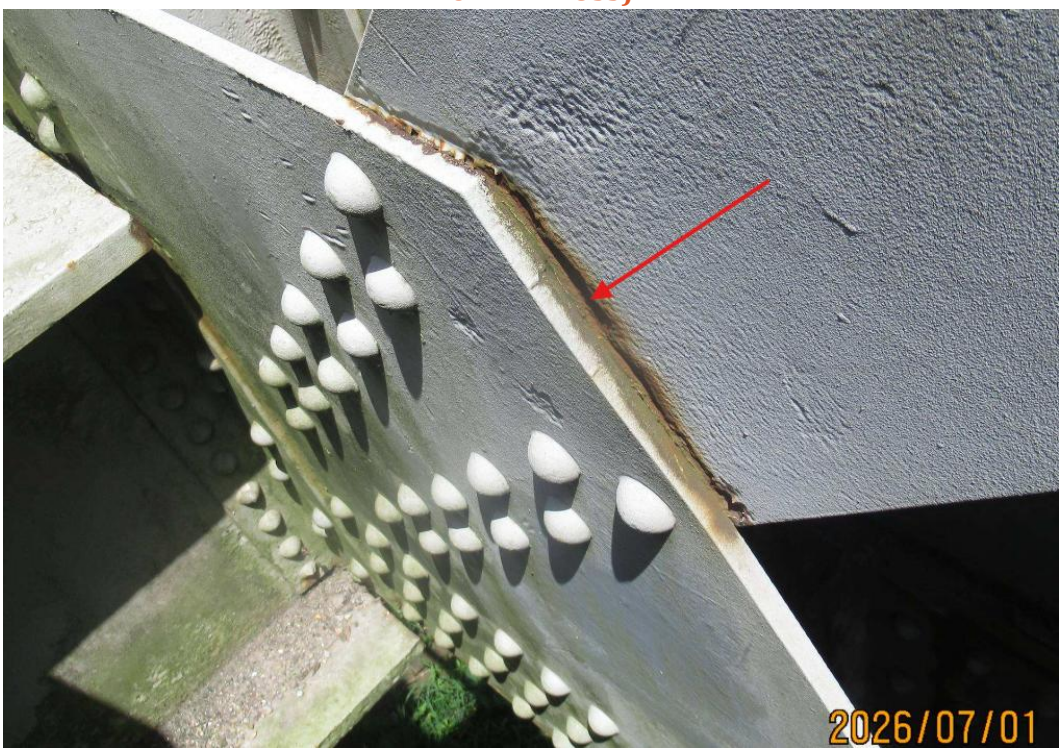


FIGURE 44-SECTION LOSS ON INBOARD PLATE ALONG DIAGONAL AND LOWER CHORD (L7, SPAN 3, SOUTH TRUSS)



FIGURE 45-SECTION LOSS ON OUTBOARD PLATE ALONG THE LOWER CHORD (L3, SPAN 2, NORTH TRUSS)



FIGURE 46-REMOVED TOP COVER PLATE (L8, SPAN 4, SOUTH TRUSS)



FIGURE 47-PACK RUST BETWEEN THE VERTICAL COVER PLATE AND CONNECTION ANGLES (L10, SPAN 3, NORTH TRUSS)



FIGURE 48-100% SECTION LOSS TO STIFFENER ANGLES (L0, SPAN 3, SOUTH TRUSS)



FIGURE 49-RIVET HEAD SECTION LOSS AT BEARING LOCATION (L10, SPAN 2, NORTH TRUSS)



FIGURE 50- SECTION LOSS TO TOP STIFFENER ANGLE (L10, SPAN 2, NORTH TRUSS)



FIGURE 51-SECTION LOSS ALONG THE INTERIOR INBOARD PLATE (L10, SPAN 2, NORTH TRUSS)



FIGURE 52- -1/4" BOWING (U2, SPAN 1, SOUTH TRUSS, INBOARD)



FIGURE 53-1/4" BOWING (L6, SPAN 4, NORTH TRUSS, OUTBOARD)



2.3.5 Non-Inventoried Superstructure Items

Diaphragms and Cross Frames

The steel cross frames and diaphragms are in good condition. There are isolated deformed cross frames in Spans 1, 2, and 4.

Lateral and Sway Bracing

The lateral and sway bracing is in satisfactory condition overall. There are isolated areas of surface corrosion and pack rust present at the upper lateral bracing connections. Isolated areas of paint failure and active corrosion are present on the bracing members (see Figure 54).

There are isolated locations of deformation to the bracing members and the bracing connections. Types of deformations include bent flanges (see Figure 55), bowed connection plates (see Figure 56), and distorted bracing members due to impact damage (see Figure 57).

There is a cracked tack weld at the connection angle to the portal cross member and U8 of the North Truss in Span 3 (see Figure 58).

FIGURE 54-ACTIVE CORROSION ON LATERAL BRACING MEMBER (U4 TO U4, SPAN 1)



FIGURE 55-BENT BRACING FLANGE AT CONNECTION NEAR NORTH TRUSS (U5, SPAN 1)



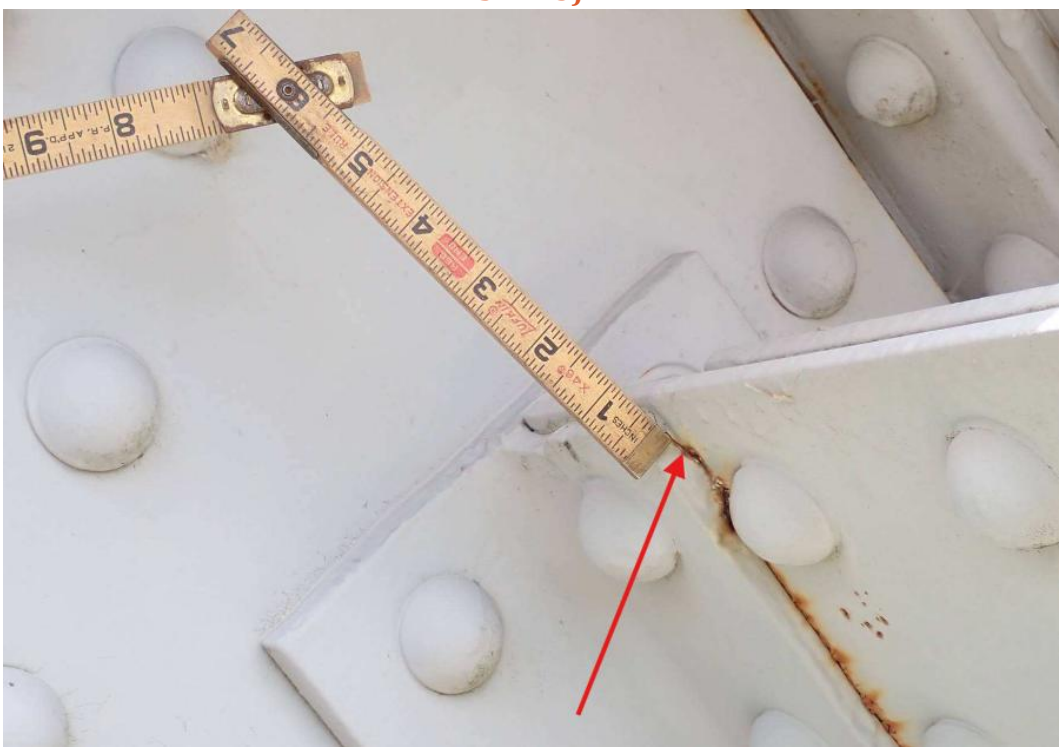
FIGURE 56-BOWED CONNECTION PLATE AT THE NORTH TRUSS (U3, SPAN 2)



FIGURE 57-DISTORTED FLANGE ON LATERAL SWAY BRACE DUE TO IMPACT DAMAGE OVER SOUTH LANE (U6, SPAN 2)



FIGURE 58-CRACKED TACK WELD AT THE NORTH TRUSS PORTAL CONNECTION ANGLE (U8, SPAN 3)



Alignment

The alignment is in fair condition with isolated misalignment in the stringers and bowing and local deformation in the truss lower chords, verticals, and diagonals.

Fatigue

The fatigue elements are in satisfactory condition. Deficiencies include widespread poor quality welds and isolated cracked tack welds.

2.3.6 Item B.C.14—NSTM Inspection Condition

The superstructure is in fair condition overall, with active corrosion, pack rust, and section loss throughout the truss members, gusset plates, and floorbeams.

2.4 ITEM B.C.02.01—PROTECTIVE COATING SYSTEM CONDITION RATING

The protective coating system is in FAIR CONDITION [5-SNBI] overall.

2.4.1 Element 515—Steel Protective Coating

The structure was painted in 1992 with OZEU paint. Overall, the steel protective coating is in fair condition. There are widespread areas of paint failure and corrosion throughout the lower chord and in the splash zones, as well as in the lower chord gusset plates and

bearings. The paint on the upper half of the trusses has isolated areas of peeling paint and surface corrosion (see Figure 59). The paint on the floorbeams and stringers is in good condition, with minor isolated spots of paint failures and areas of rust staining at the floorbeam ends. The upper lateral bracing has isolated areas of peeling paint with surface corrosion (see Figure 54).

FIGURE 59-PAINT FAILURE AND SURFACE CORROSION TO LOWER CHORD (L4L5, SPAN 3, NORTH TRUSS)



2.5 ITEM B.C.03—SUBSTRUCTURE CONDITION RATING

The substructure is in FAIR CONDITION [5-SNBI] overall.

2.5.1 Element 210—Reinforced Concrete Pier Wall

The reinforced concrete pier walls are in fair condition. All three exhibit widespread delaminations and some large spalls predominantly in the upper half of the wall with exposed reinforcing bars on both faces. Efflorescence and map cracking are typical for all pier faces. The predominant deficiencies for each pier are detailed below:

The west face of Pier 2 has three large spalls (see Figure 60). The spall under Stringer 3 measures 4' high by 2' wide by 3" deep with exposed rebar, while the other spall, under Stringer 5, is 4' high by 3' wide by 3" deep with exposed rebar. The east face of Pier 2 contains two 4' wide by 4' high spalls, one located under Stringer 2 and one between Stringers 4 and 5, both with exposed rebar (see Figure 61).

On the west face of Pier 3, there is one large spall under Stringer 2 that measures 8' high by 3' wide by 3" deep with an exposed rebar for 3' length (see Figure 62). The exposed rebar exhibits up to 25% section loss.

The west face of Pier 4 has multiple spalls with exposed rebar (see Figure 63). There is a large spall measuring 10' long by 2' high, between Stringers 1 and 3, with 4 exposed vertical rebars and 1 exposed transverse rebar and a large spall 10’ high under Stringer 4; the exposed rebar exhibits up to 25% section loss.

FIGURE 60-DELAMINATIONS AND SPALLS WITH EXPOSED REBAR (PIER 2, WEST FACE)

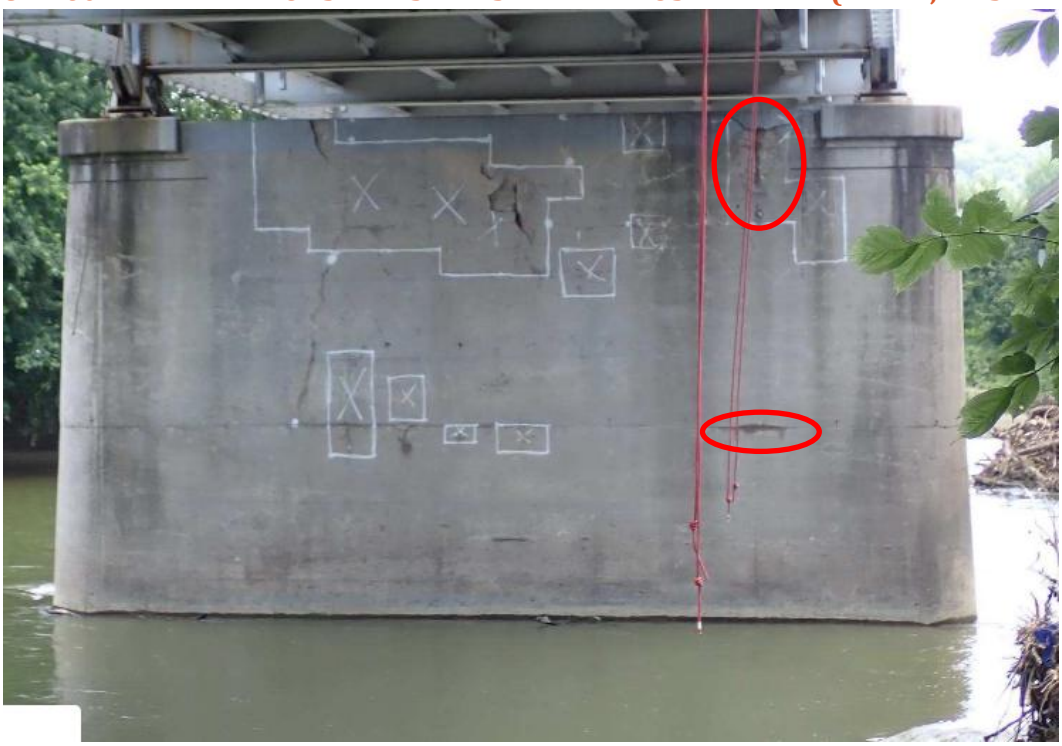


FIGURE 61-DELAMINATIONS AND SPALLS WITH EXPOSED REBAR (PIER 2, EAST FACE)



FIGURE 62- SPALL WITH EXPOSED REBAR (PIER 3, WEST FACE)



FIGURE 63-SPALLS WITH EXPOSED REBAR (PIER 4, WEST FACE)



2.5.2 Element 215—Reinforced Concrete Abutment

The reinforced concrete abutments are in fair condition overall with longitudinal cracks, moderate spalls with exposed rebar and delaminations.

On the Rear Abutment, there is a 18’ wide by full height delamination between Stringers 2 and 5 with cracking up to 1/2" wide running horizontally between Stringers 2 and 4 (see Figure 64). There is a 3’ high by 8’ wide spall with exposed rebar under stringers 4 and 5 (see Figure 65). There is a 24’ long area of cracking and delamination on the abutment seat (see Figure 66).

The Forward Abutment has isolated areas of delaminations and cracks on the abutment face and seat. There is a 8’ wide by 14” high by 3” deep spall with exposed rebar on the seat between Stringer 3 and 4 (see Figure 67).

FIGURE 64-CRACKING AND DELAMINATIONS (REAR ABUTMENT)



FIGURE 65-SPALL WITH EXPOSED REBAR (REAR ABUTMENT)



FIGURE 66-CRACKING AND DELAMINATION ON ABUTMENT SEAT (REAR ABUTMENT)



FIGURE 67- SPALL WITH EXPOSED REINFORECEMNT (FORWARD ABUTMENT)



2.5.3 Element 234—Reinforced Concrete Pier Cap

The reinforced concrete pier caps are in fair condition overall. Spalls and delaminations within the pier cap are present in every pier in the following locations:

- Pier 2, west face, previously identified spall in pier wall extends into pier cap (see Figure 60).
- Pier 3, west face, previously identified spall in pier wall extends into pier cap (see Figure 62).
- Pier 3, east face, large spall along pier cap between Stringers 2 and 4, measuring 12' wide by 2' high by 2" deep, with exposed rebar (see Figure 68).
- Pier 4, west face, previously identified spalls in pier wall extends into pier cap (see Figure 63).
- Pier 4, east face, 2' wide by 2' high by 2” deep spall in pier cap under Stringer 3 (see Figure 69).

FIGURE 68-SPALL WITH EXPOSED REBAR (PIER 3, EAST FACE)



FIGURE 69-SPALLING AND DELAMINATION (PIER 4, EAST FACE)



2.5.4 Element 830—Abutment Backwall

The reinforced concrete abutment backwalls are satisfactory condition. The Rear Abutment backwall has a full height by 18’ wide delaminated area that has been partly removed for patching under Stringers 2-5. The Forward Abutment backwall has medium width diagonal cracking (see Figure 70).

FIGURE 70-DIAGONAL CRACKING IN BACKWALL (FORWARD ABUTMENT)



2.5.5 Wingwalls

The reinforced concrete wingwalls are in satisfactory condition. The southwest wingwall at the Rear Abutment has two 1'x4" spalls with exposed rebar. The southwest wingwall has vegetation growth in the construction joint gap. The northwest wingwall at the Rear Abutment has a 3" long by 9" wide by 1.5" deep spall. The southeast wingwall at the Forward Abutment has a delaminated area on the top.

2.6 ITEM B.C.05—BRIDGE RAILING CONDITION RATING

2.6.1 Element 330—Metal Bridge Railing

The metal bridge railing is in SATISFACTORY CONDITION [6-SNBI]. A 10' long by 6" high by 1" deep spall is present in the south curb between Panel Points 5 and 6 in Span 2 (see Figure 71). Impact damage was observed along the metal railing in Span 3 at the following locations:

- Span 3, south railing between Panel Points 0 and 1: 4 linear feet (see Figure 72)
- Span 3, south railing between Panel Points 1 and 2: 6 linear feet
- Span 3, north railing at Panel Point 3: 2 linear feet
- Span 3, north railing at Panel Point 4: 5 linear feet
- Span 3, north railing between Panel Points 6 and 7: 5 linear feet

- Span 3, north railing at Panel Point 8: 2 linear feet

FIGURE 71-SPALLING ON SOUTH CURB BETWEEN L5 AND L6 IN SPAN 2



FIGURE 72-IMPACT DAMAGE TO SOUTH BRIDGE RAIL BETWEEN L0 AND L1 IN SPAN 3



2.7 ITEM B.C.06—BRIDGE RAILING TRANSITIONS CONDITION RATING

The bridge railing transitions have been recently replaced and are in VERY GOOD CONDITION [8-SNBI].

2.8 ITEM B.C.07—BRIDGE BEARINGS CONDITION RATING

The bearings are in SATISFACTORY CONDITION [6-SNBI] overall. The bridge has both fixed and movable bearings, with a fixed and expansion bearing at each pier. The Rear Abutment has fixed bearings, while the Forward Abutment has movable bearings.

2.8.1 Element 311—Movable Bearings

The movable bearings are in satisfactory condition overall. There is active surface and laminating corrosion on the masonry plates and bearing assemblies (see Figure 73). The southeast anchor bolt nut at the south bearing of Span 2 at Pier 3 is backed off. Two backed-off nuts were also noted at the south bearing of Span 3 at Pier 4 (see Figure 74). There is debris under the north bearing at the forward abutment (Figure 75).

FIGURE 73-LAMINATING CORROSION ON MASONRY PLATE (SOUTH BEARING, PIER 3)



FIGURE 74- BACKED OFF ANCHOR BOLTS NUTS (SOUTH BEARING, PIER 4)

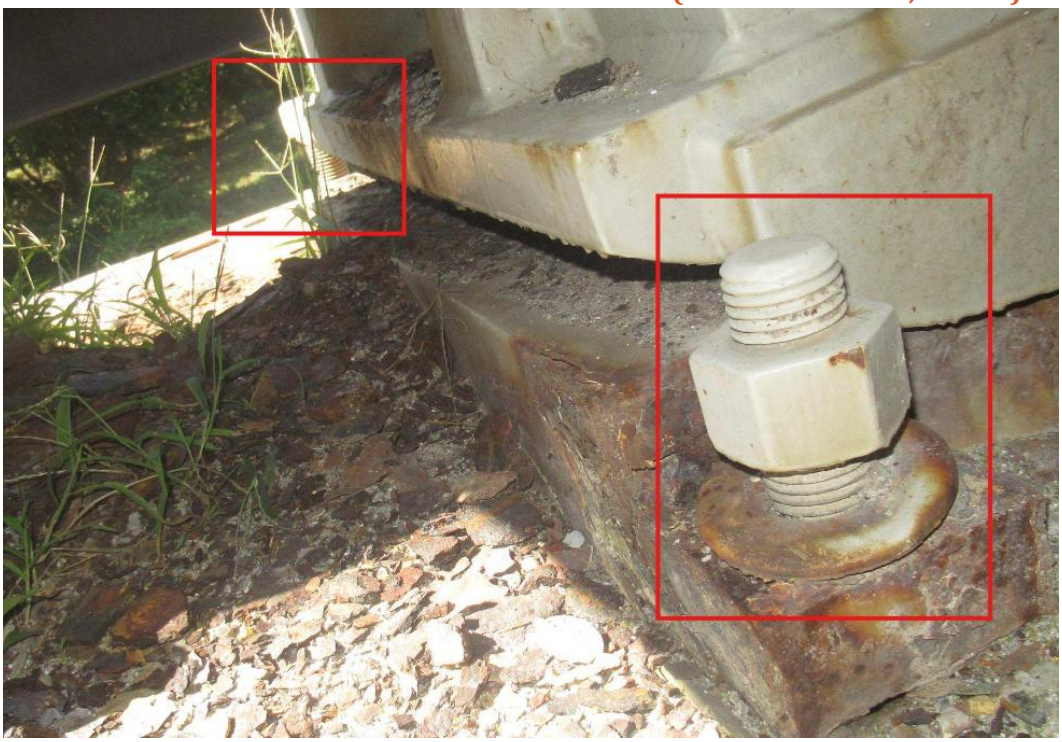


FIGURE 75- DEBRIS UNDER BEARING (NORTH BEARING, FORWARD ABUTMENT)



2.8.2 Element 313—Fixed Bearings

The fixed bearings are in satisfactory condition overall. All bearings exhibit surface corrosion with painted over pitting up to 1/8" deep (see Figure 76). Laminating corrosion is also present on the bearings and anchor rod nuts, most notably at the south bearing at Pier 4 (see Figure 77).

FIGURE 76-SURFACE CORROSION AND PAINTED OVER PITTING (SOUTH BEARING, PIER 3)



FIGURE 77- LAMINATING CORROSION TO BEARING AND ANCHOR ROD NUTS (SOUTH BEARING, PIER 4)



2.9 ITEM B.C.08—BRIDGE JOINTS CONDITION RATING

The bridge joints are in SATISFACTORY CONDITION [6-SNBI].

2.9.1 Element 300—Strip Seal Expansion Joint

The expansion joints are in satisfactory condition with moderate debris accumulation in all joints. Debris accumulation is heavier along the shoulders. The debris does not impact the joints' ability to function. The armored edges at the Rear Abutment and Piers 2 and 4 exhibit up to 1/16" section loss with surface corrosion throughout. There are minor gouges in the edges of the armor and minor isolated spalling along the joint armor at Pier 2 (see Figure 78).

Joint opening measurements were taken at each joint and are summarized below (see Table 2).

TABLE 2-EXPANSION JOINT MEASUREMENTS (INCHES)

Joint	2020 Measurement at 80° F	2022 Measurement at 90° F	2024 Measurement at 75° F	2026 Measurement at 85° F
Rear Abutment	5/8”	5/8”	7/8”	3/4”
Pier 2	1 3/16”	1 1/8”	1 1/4”	1 1/4”
Pier 3	1 9/16”	1 1/4”	1 1/2”	1 1/2”
Pier 4	2 1/4”	2 3/4”	2 1/2”	3”
Fwd Abutment	1 1/4”	1 1/4”	1 1/2”	1 3/8”

Note: Measurements shown from previous inspections were populated from previous inspection reports created by other consultants; these measurements were not verified by AECOM.

FIGURE 78-SPALLING AND SURFACE CORROSION ALONG JOINT ARMOR (PIER 2)



2.10 ITEM B.C.09—CHANNEL CONDITION RATING

The channel is in SATISFACTORY CONDITION [6-SNBI], with a debris pile around Pier 3. Debris build up is present on the adjacent 50 EB bridge piers on the downstream side within Spans 1 and 2 (see Figure 79).

FIGURE 79-DEBRIS PILE UP ON ADJACENT BRIDGE PIERS ON THE DOWNSTREAM SIDE



2.11 ITEM B.C.10—CHANNEL PROTECTION CONDITION RATING

Channel protection is in GOOD CONDITION [7-SNBI] with moderate vegetation along each embankment. Dumped rocks are present in front of both abutments. The Forward Abutment has some loss of rock (see Figure 80).

FIGURE 80-LOSS OF ROCK AT THE FORWARD ABUTMENT



2.12 ITEM B.C.11—SCOUR CONDITION RATING

Scour is in SATISFACTORY CONDITION [6-SNBI] based on the scope of this inspection. At the time of the inspection, only Pier 2 was in the water. A 1’ deep by 4’ diameter scour hole is present at Pier 4 with moderate erosion occurring at the north end (see Figure 81).

FIGURE 81-SCOUR HOLE THE NORTH END OF PIER 4



2.13 APPROACH

2.14.1 Element 321—Reinforced Concrete Approach Slabs

The reinforced concrete approach slabs are in satisfactory condition. The west approach slab has multiple full-length by 1/16" wide cracks. There are also longitudinal cracks 12" long by 1/16" wide along the top of the header of the Rear Abutment. Spalling is present at both approach slabs which includes:

- West Approach - 3’ wide by 9” long by 1.5” deep spall (see Figure 82).
- East Approach - 1’ wide by 10” long by 2” deep spall (see Figure 83).
- East Approach - 10” wide by 2’ long asphalt patch (see Figure 83).
- East Approach - 8” diameter spall and asphalt breakup on approach slab joint.

FIGURE 82-SPALL IN THE SOUTH LANE OF WEST APPROACH



FIGURE 83-SPALLING AND ASPHALT PATCH IN EAST APPROACH SLAB



2.14.2 Approach Roadway

The asphalt approach roadway is in satisfactory condition, with up to 1/8" wide longitudinal and transverse cracks throughout. Map cracking up to 1/8" wide is present at the west approach.

2.14 ELEMENT 815—DRAINAGE

The bridge deck drainage is in satisfactory condition. There is debris accumulation along the edges of the deck throughout all four spans and some partially clogged drains (see Figure 84). Some drains exhibit minor corrosion below deck at the outlets.

FIGURE 84-PARTIALLY CLOGGED DRAIN IN SPAN 4



2.15 SIGNS AND UTILITY ITEMS

The approach warning signs are in good condition. There are no sign supports on the bridge.

2.16 ITEM B.C.13.01—OHIO GENERAL APPRAISAL

Based on the 2022 In-Depth Element Level and NSTM Inspection findings, the HAM-50-0376L bridge is in FAIR CONDITION [5-SNBI]. The overall rating is controlled by the conditions of the superstructure and substructure. The AssetWise Bridge Inspection Report reflecting the element level condition ratings can be found in Appendix A.

Chapter 3: Recommendations

3.1 RECOMMENDATIONS

The four categories of recommendations for the HAM-00050-03.760L Bridge are as follows:

Priority Work: (Within 6 Month Period)	Work which should be performed as soon as possible to address deficiencies which affect the capacity of the structure or public safety.
Rehabilitation/Evaluation: (Within 5 Year Period)	Recommendations for large-scale deficiencies which are extensive in nature and require engineering analysis.
Maintenance: (As Scheduled)	Recommendations that are minor in nature and can be easily repaired.
Monitoring: (As Recommended)	Regular field observation of defects which are not currently in need of repair but will require corrective action if deterioration continues.

Priority Work:

Superstructure

1. Complete structural review of gusset plates in Condition State 4.

Rehabilitation/Evaluation:

Deck

1. Patch spalls and overlay the wearing surface.

Superstructure

2. Update load rating based on current section loss. While the current inspection has only identified Condition State 4 locations on isolated gusset plates, many superstructure members have section loss changes since the previous load rating. Although notable changes in capacity are not anticipated, an updated load rating is recommended to capture the current section loss.
3. Clean and paint steel superstructure.
4. Caulk areas of pack rust on the lower chord, gusset plates, and diaphragms.
5. Replace lacing bars with severe section loss.

Rehabilitation/Evaluation:

6. Replace poorly installed rivets and rivets with missing heads.
7. Replace top cover plates to gussets at bearing locations.
8. Repair the gusset stiffening angles at bearing locations.
9. Consider fatigue analysis based on the expected remaining service life.

Substructure

10. Repair the cracks, spalls and delaminations in the abutments, piers, and pier caps.

Approach

11. Patch spalls in approach slabs.

Maintenance:
(As Scheduled)

Deck

1. Remove debris from the deck shoulders and scuppers.
2. Remove debris from the expansion joints.
3. Replace impact-damaged bridge railing.

Superstructure

4. Tighten bearing anchor nuts.

Substructure

5. Remove debris from the channel.
6. Replace loss of riprap at the Forward Abutment.

Monitoring:
(As Recommended)

Superstructure

1. Monitor the fatigue prone details of the NSTMs.
2. Monitor the section loss to all members and update current measurements after bridge painting is complete.
3. Monitor the pack rust and how it affects the elements.

Monitoring:
(As Recommended)

4. Monitor the gusset plate bowing/deformations and establish a documented measuring procedure. Considerations for a measuring procedure include:
    - Clarify which gusset edge bowing measurements were taken on and focus on edges adjacent to compression members.
    - Include reference marks on gussets when taking bowing measurements.
    - Focus measurements on gussets bowed 1/8" or more.

Substructure

5. Monitor the scour hole at Pier 4.

APPENDIX A

AssetWise Bridge Inspection Report

Inspector: Nepal,Prateek
Inspection Date: 08/26/2026

Structure Number: 3102521
Facility Carried: US50

Ohio Bridge Inspection Summary Report

HAM-00050-0376L_(3102521)

B.L.04: District	District 08	84938 - WHITEWATER TWP (HAM county)
B.CL.02: Major Maint.	01 - State Highway Agency	/
B.CL.02.02: Rou. Maint A/B	01 - State Highway Agency	/
B.CL.02.03: Inspection A/B	01 - State Highway Agency	/

Condition

B.C.01: Deck	6
58.01: Wearing Surface	6
B.C.08: Joint	6
B.C.02: Superstructure	5
59.01: Paint & PCS	5
B.C.03: Substructure	5
B.C.09: Channel	6
B.C.11: Scour	6
B.C.10: Channel Prot.	7
B.C.05: Bridge Railing	6
B.C.06: Transitions	8
B.C.07: Bearings	6
B.C.04: Culverts	N
Ohio GA	5

Appraisal

B.AP.03: Scour Vul.	0 - Scour appraisal has not been completed.

Geometric

B.G.01: NBIS Bridge Length (ft)	893.0
B.G.02: Total Bridge Length (ft)	893
B.G.03: Max Span (ft)	248
B.G.05: Deck Width, Out-To-Out (ft)	40.7
B.G.16: Calc Deck Area (sf)	36345.1
B.G.09: Appr Roadway Width (ft)	24
B.G.06: Bridge Width, Curb-Curb (ft)	32.2
B.G.07: Curb/SW Width: Left (ft)	0
B.G.08: Curb/SW Width: Right (ft)	0
B.G.11: Skew (deg)	0
54B: Min Vert Underclearance (ft)	12.08
336A: Min Vert Clrnce IR Cardinal (ft)	18.583
336B: Min V Clr IR Non-Cardinal (ft)	0
B.SP.16.02: Culvert Length (ft)	0

Load Posting

41: Op/Post/Closed	A - Open
70: Posting	5 - Equal to or above legal loads
70.01: Date	
70.02: Sign Type	
734: Percent Legal (%)	150
B.LR.03: Rating Date	02/28/2020
B.LR.04: Rating Method	LFR - Load Factor Rating

5A: Inventory Route	1	00050
7: Facility On	US50	
6: Feature Ints	GREAT MIAMI R;PRIVATE DR	
9: Location	JUST E OF SR128	
Lat, Lon	39.170394	, -84.759018

Structure Type

43: Bridge Type	3 - Steel 10 - Truss - Thru N- Not Applicable
45: Spans Main / Approach	4 / 0
107: Deck Type	1 - Concrete Cast-in-Place
408: Composite Deck	N - Non-composite Construction
414A Joint Type 1	2 - Sliding Metal Plate Angle
414B: Joint Type 2	N - None
108: Wearing Surface	1 - Monolithic Concrete (concurrently placed with structural deck) N - Not Applicable
B.SP.10.03: WS Date	01/01/1989
B.SP.10.02: WS Thick (in)	1.2
B.SP.07.01: PCS Type	0 - Other Paint
483: PCS Date	01/01/1992
453: Bearing Type 1	2 - Rockers & Bolsters
455: Bearing Type 2	N - None
528: Foundn: Abut Fwd	1 - Steel H Piles (Other size)
533: Foundn: Abut Rear	1 - Steel H Piles (Other Size)
536: Foundn: Pier 1	1 - Steel H Piles (Other size)
539: Foundn: Pier 2	N - None (Such as most Culverts)

Age and Service

B.W.01: Year Built / Rehab	1959 / 0000
42A: Service On	1 - Highway
42B: Service Under	5 - Waterway
28A: Lanes on	02
28B: Lanes Under	00
19: Bypass Length	4
29: ADT	9907
109: % Trucks (%)	7

Inspections

		Months	
B.IE.03 Routine Insp.		12	01/02/2026
B.IE.03: NSTM Insp.	Y	24	08/26/2026
B.IE.03: UW Insp.	Y	72	08/15/2024
B.IE.03: Special Insp.		0	
UBIT Insp.	N	0	
Drone Insp.	N	0	
Inspector	Nepal,Prateek		

Inspector:	Nepal,Prateek	**Structure Number:**	3102521
Inspection Date:	08/26/2026	**Facility Carried:**	US50

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12-Reinforced Concrete Deck	3 - Mod.	29867	sq. ft.	12727	16960	180	0
	CS3: -Spalling of the haunches is typical along the top flanges of the exterior stringers, up to 1-inch deep with no exposed reinforcement noted. -There is a 2 SF spall with exposed rebar in Span 3 between Panel Points 2 and 3. CS2: -The deck underside exhibits widespread unsealed medium-width transverse and longitudinal cracking with efflorescence.						
805-Wearing Surface - Monolithic Concrete		29867	sq. ft.	26074	3740	53	0
	CS3: -There is a 12” long by 6” wide by 1” deep spall in Span 1 at the east end. -There are two spalls in Span 2 in the south lane. Both spalls are approximately 2.5' long × 1.5' wide × 1" deep. -There are two spalls in Span 3 between Panel Points 2 and 3 in the south lane. One 16" long by 17" wide by 2" deep with longitudinal rebar exposed and the other 10" long by 9" wide by 2" deep. -There are pop-out spalls up to 10” in diameter in Span 4. CS2: -The wearing surface exhibits moderate wear along the wheel paths throughout the length of the structure. -Several patches exist on the concrete wearing surface. These patches exhibit minor spalls and medium-width cracks. -Medium-width longitudinal and transverse cracks are present, most common along the gutter line.						
113-Steel Stringer	3 - Mod.	4413	ft.	3728	670	15	0
	CS3: -There are welds on the stringer bottom flange cover plates for the knee brace connection angles; these welds are Category E details. There is a 3/8” long potential crack in the bottom cover plate at the end of the weld for the knee brace on Stringer 4 in Span 2. -There are welded web connection plates with horizontal and vertical welds on the stringer ends at each floorbeam. The horizontal welds are Category D details and the vertical welds are Category C details. -There is a full width crack in the bottom horizontal weld of the web connection plate on Stringer 5 of the north side of the web of FB2 in Span 2. -At the Stringer 5 connection to Floorbeam 6 in Span 2, a 1" discontinuity was noted in the weld for the stringer bottom flange connection plate, adjacent to the connection plate. CS2: -There is surface corrosion with no measurable section loss to the unpainted inside edges of the top flanges of Stringers 1 and 5. -There are isolated areas of freckled rust present at the stringer bottom flange cover plates and isolated locations of minor surface rust on various other stringer locations. -There are welded top and bottom flange cover plates on the stringer ends at each floorbeam; the ends of these welds are Category E details. The top flange cover plates are not visible due to the presence of the deck haunch, but the bottom flange cover plates were inspected. There are indications of poor-quality welding throughout these details.						

Inspector: Nepal,Prateek
Inspection Date: 08/26/2026

Structure Number: 3102521
Facility Carried: US50

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
515-Steel Protective Coating		19390	sq. ft.	19180	200	10	0
	CS3: -There are isolated areas of surface corrosion. CS2: -Stringers have minor freckling.						
120-Steel Truss	3 - Mod.	1786	ft.	0	728	1058	0

515-Steel Protective Coating	CS2: -The truss members exhibit minor spot rust and surface corrosion. -The truss members exhibit reactivating corrosion between channels and plate members. Verticals: CS3: -The verticals exhibit active corrosion with section loss up to 1/8” deep as well as painted over pitting up to 1/4” deep in the splash zone, at the gusset plates, and near former railing attachments. -The following vertical members exhibit deformations: North Truss, Span 1, on U7L7 at mid height, 1/2" over 5". North Truss, Span 3, on U6L6 above mid height, 1/2" over 6" to the south, north flange. South Truss, Span 4, on U7L7 near L7, 1/2" over 8". -Pack rust up to 1/8-inch thick is typical between truss verticals and gusset plates Diagonals: CS3: -The diagonals exhibit active corrosion with section loss up to 3/16” deep as well as painted over pitting up to 1/8” deep in the splash zone, at the gusset plates, and near former railing attachments. - Pack rust is present between the diagonal member and lower gusset plate in Span 3, North Truss, at Panel Point 2, and in Span 2, North Truss, at Panel Point 8. -The inboard flange of U1L2, Span 4, North Truss is deformed up to 1/2” out of plane. Upper Chord: CS3: -There is pack rust up to 1/16” thick between lateral bracing connection plates and upper chord cover plates. -There are some missing rivet heads between the upper chord connections with the diaphragm interior clip angles. CS2: - There are tack welds between the upper chord and the gusset plate clip angles and the bracing connection plates. There are isolated welds with corrosion initiation at the weld toe. End Posts: CS3: -In the splash zones, there is laminating corrosion with section loss up to 1/8” on the channels and pack rust up to 1/8” thick under the cover plates. -The lacing bars exhibit exhibit section loss, laminar corrosion, and deformations due to pack rust up to 1/4” thick. One broken lacing bar is present on Span 1, North Truss, member L0U1. -Isolated locations of painted over pitting up to 1/8" deep were observed on the exterior of the channel webs. -The endposts typically exhibit pack rust up to 1/8" thick between the top cover plate and portal bracing connection plates. - There are corrosion holes up to 1” diameter in the batten plate near L0 in the North Truss of Span 4. Lower Chord: CS3: -Pack rust of 1/8” to 1/4” thick is typical between lower chord plates in all spans with isolated locations up to 1/2” thick. -Pack rust up to 1" thick is present under the lower chord diaphragm angles. -The lower chords exhibit surface corrosion throughout with active pitting typically 1/16" to 1/8" deep on the plate edges and around the diaphragm angles. -There are isolated areas of laminating corrosion present on the stiffening angles. -Several lower chord members exhibit minor bowing and local deformations. -For section loss measurements on all truss members, see the 2026 inspection report.	54837	sq. ft.	0	52606	1809	422

Inspector: Nepal,Prateek
Inspection Date: 08/26/2026

Structure Number: 3102521
Facility Carried: US50

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	CS4: -The protective coating system exhibits isolated areas of paint failure and active corrosion to the upper portions of the truss. -Throughout the lower chords and splash zone of the trusses the paint system is failing, with active pack rust and corrosion. CS3: -The paint on the upper half of the trusses has isolated areas of peeling paint and surface corrosion. CS2: Fading and light rust.						
152-Steel Floor Beam	3 - Mod.	1500	ft.	765	350	385	0
	CS3: - Up to 1/8" deep painted over pitting is present along the top of the top flange, top of the bottom flange and bottom 4” of the web for up to 4' on the ends of many floorbeams. -There are isolated areas of painted over pitting and active section loss up to 1/4-inch deep on the bottom flange, top flange, and bottom 2” of web. -There are isolated areas of pack rust at the gusset plate connection angles. -Laminating corrosion with section loss up to 1/8” deep on the web and top flange is present throughout all spans at the bridge deck and floorbeam interface. -Isolated rivet heads at the connection angles exhibit up to 25% section loss. The section loss generally is less than 1/8-inch deep. -For section loss measurements on all floorbeams, see the 2026 inspection report. CS2: -Several locations of poor quality welds exist at stringer connections to floor beams. -Isolated areas of surface corrosion.						
515-Steel Protective Coating		8360	sq. ft.	7862	150	306	42
	CS2- -There are isolated areas with initiated freckled rust and substantial effectiveness. CS3- There are isolated areas of surface corrosion. CS4- There are isolated areas of laminar corrosion and exposure of bare metal.						
162-Steel Gusset Plate	3 - Mod.	400	each	28	292	77	3

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Structure Number: 3102521
Facility Carried: US50

Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4

CS4:
Using the table for Truss Gusset Plate Condition States in the ODOT Bridge Inspection Manual, section loss measurements were screened for inclusion in Condition State 4 if greater than 25% of the approximate high stress region area. Lost area was taken as the depth of loss multiplied by its length along the section, summed where multiple losses occurred along the same member, and compared to the high stress area of that section; critical section lengths were approximated from the previous load rating. Based on this criterion, the following Condition State 4 locations were identified and warrant a structural review:
• South Truss, Span 4, L0, Inboard — 3/16" by 24" along the diagonal = 30.0%
• South Truss, Span 4, L8, Inboard — 3/16" by 24" along the diagonal = 30.0%
• South Truss, Span 4, L8, Outboard — 3/16" by 24" along the diagonal = 30.0%

CS3:
-The gusset plates typically exhibit active pack rust up to 5/16” thick.
-The gusset plates exhibit widespread active laminating and surface corrosion with section loss typically between 1/8" and 3/16", with isolated areas up to 1/4" deep, primarily on the interior faces. For section loss measurements on all gusset plates, see the 2026 inspection report.
- Pack rust up to 3/16" thick between the vertical cover plates and connection angles at bearing locations is typical, with isolated pack rust up to 1" thick at L10 in Span 3 of the North Truss.
- There is laminating corrosion and section loss in the gusset plate stiffening angles. Up to 100% section loss is present in these stiffening angles at several bearings, primarily on the bottom angles adjacent to the bearings.
- Rivet heads with section loss is typical at bearing locations.
-The top stiffener angle at L10, Span 2, of the North Truss has 100% section loss at the end 3”.
-Section loss up to 3/16" deep is typical on gussets at bearing locations, primarily on the interior faces. Areas with section loss deeper than 3/16” include the below:
•North Truss, Span 2, L10, Inboard — 15" long by 5" high by 5/16" deep section loss along the top of the plate along the diagonal.
•North Truss, Span 4, L8, Outboard — 4” long by 16” high by 1/4” deep section loss along the bearing vertical.
-The gussets exhibit bowing up to 1/4" out of plane at locations with and without pack rust. While some bowing measurements had minor changes from the previous inspection, bowing has been documented in previous reports from at least 2010, and it remains largely unchanged. Based on the inspection history, any bowing not due to pack rust is assumed to be induced by as-built conditions for the purposes of assigning condition states based on the table for Truss Gusset Plate Condition States in the ODOT Bridge Inspection Manual. Select bowing measurements are listed below, including those with apparent change > 1/4" from the previous inspection. For this inspection, a straight edge was placed between the truss members and the gusset edge with the most prominent bowing was recorded. Where bowing occurred toward the centerline of the truss, it was designated as positive; bowing away from the truss was designated as negative. Given the potential variability in measurements between inspections and the lack of a documented measuring procedure, these gussets have not been placed in Condition State 4 and should be monitored during future inspections. For bowing measurements on all gussets, see the 2026 inspection report.
• South Truss, Span 1, U2, Inboard: 2024 = -1/16” to 2026 = -1/4”
• South Truss, Span 3, L2, Inboard: 2024 = -1/16” to 2026 = 1/4”
• South Truss, Span 3, L3, Outboard: 2024 = -1/8” to 2026 = 1/4”
• South Truss, Span 3, L6, Inboard: 2024 = -1/8” to 2026 = 1/4”
• North Truss, Span 4, L6, Outboard: 2024 = -1/8” to 2026 = 1/4”

CS2:
There are improperly installed rivets at U6, Span 2, South Truss. 2023 CS3, Span 3, south, L4 (end post L0), warped gusset from pack rust, at bottom forward.

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Structure Number: 3102521
Facility Carried: US50

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
515-Steel Protective Coating		3120	sq. ft.	0	2989	94	37
	CS4: -The protective coating system typically exhibits areas of paint failure and active corrosion at all lower chord gusset plates. CS3: -Surface corrosion. CS2: -Fading and light rust.						
210-Reinforced Concrete Pier Wall	3 - Mod.	138	ft.	0	89	49	0
	CS3: - The west face of Pier 2 has two large spalls. The spall under Stringer 3 measures 4' high by 2' wide by 3" deep with exposed rebar, while the other spall, under Stringer 5, is 4' high by 3' wide by 3" deep with exposed rebar. The east face of Pier 2 contains two 4' wide by 4' high spalls, one located under Stringer 2 and one between Stringers 4 and 5, both with exposed rebar. - On the west face of Pier 3, there is one large spall under Stringer 2 that measures 8' high by 3' wide by 3" deep with an exposed rebar for 3' length. The exposed rebar exhibits up to 25% section loss. - The west face of Pier 4 has multiple spalls with exposed rebar. There is a large spall measuring 10' long by 2' high, between Stringers 1 and 3, with 4 exposed vertical rebars and 1 exposed transverse rebar and a large spall 10’ high under Stringer 4; bars Exposed rebar exhibit up to 25% section loss. CS2: -The piers typically exhibit unsealed medium-width cracking. -Pier 2 has map cracking with efflorescence and widespread delamination on both faces. -Pier 3 has widespread delaminations and map cracking throughout. Pier 4 has widespread delaminations and map cracking throughout. -On all piers, the delaminations are concentrated in the upper half of the pier wall.						
215-Reinforced Concrete Abutment	3 - Mod.	101	ft.	17	44	40	0
	CS3: -The Rear Abutment has a 24’ long area of cracking and delamination on the abutment seat -The Rear Abutment has a 3’ high by 8’ wide spall with exposed rebar under Stringers 4 and 5. -The Rear Abutment has a 18’ wide by full height delamination between Stringers 2 and 5 with cracking up to 1/2" wide running horizontally between Stringers 2 and 4 -The Forward Abutment has a 8’ wide by 14” high by 3” deep spall with exposed rebar on the seat between Stringer 3 and 4. CS2: -The forward abutment has isolated areas of delaminations and cracks on the face and seat.						
234-Reinforced Concrete Pier Cap	3 - Mod.	141	ft.	49	48	44	0
	CS3: - All pier caps exhibit spalling with exposed rebar originating from the pier walls and extending into the pier caps. -Pier 3, east face, large spall along pier cap between Stringers 2 and 4, measuring 12' wide by 2' high by 2" deep, with exposed rebar. -Pier 4, east face, 2' wide by 2' high by 2” deep spall in pier cap under Stringer 3. CS2: -The pier caps exhibit areas of delaminations and minor spalls.						

Inspector: Nepal,Prateek
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	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
300-Strip Seal Joint	3 - Mod.	167	ft.	0	35	132	0
	CS3: -There is moderate debris accumulation in all joints, heavier at the shoulders. -The armored edges at the Rear Abutment, Pier 2 and Pier 4 exhibit up to 1/16" section loss. CS2: -Small spalls exist on the concrete header in isolated locations along the length of the joints. -There is surface corrosion on the armored edges. See the 2026 inspection report for joint measurements.						
311-Movable Bearing	3 - Mod.	8	each	0	6	2	0
	CS3: -There is active laminating corrosion on the masonry plates and bearing assemblies. CS2: -Active surface corrosion is present on all bearings, pins, and masonry plates. -Loose anchor rod nuts are present on several bearings.						
313-Fixed Bearing	3 - Mod.	8	each	0	0	8	0
	CS3: -There is widespread painted over pitting up to 1/8" deep. -There is laminating corrosion on the bearings and anchor rod nuts most notable at the south bearing at Pier 4. CS2: -Active surface corrosion is present on all bearings, pins, and masonry plates.						
321-Reinforced Concrete Approach Slab	3 - Mod.	1716	sq. ft.	1479	225	12	0
	CS3: -There is a 3' wide by 9" long by 1.5" deep spall in the West Approach slab. -There is a 1' wide by 10" long by 2" deep spall in the East Approach slab. -There is a 10" wide by 2' long asphalt patch in the East Approach slab. -There is an 8" diameter spall and asphalt breakup on the East Approach slab joint. -The west approach slab has multiple full-length by 1/16" wide cracks. CS2: -Medium-width transverse and longitudinal cracking.						
330-Metal Bridge Railing	3 - Mod.	1792	ft.	1758	0	34	0
	CS3: -There are areas of impact damage at the following locations: Span 3, south railing between Panel Points 0 and 1: 4 linear feet Span 3, south railing between Panel Points 1 and 2: 6 linear feet Span 3, north railing at Panel Point 3: 2 linear feet Span 3, north railing at Panel Point 4: 5 linear feet Span 3, north railing between Panel Points 6 and 7: 5 linear feet Span 3, north railing at Panel Point 8: 2 linear feet - There is a 10' long by 6" high by 1" deep spall is present in the south curb between Panel Points 5 and 6 in Span 2.						
815-Drainage	3 - Mod.	88	each	87	1	0	0
	There is debris accumulation along the edges of the deck throughout all four spans and some partially clogged drains. Some drains exhibit minor corrosion below deck at the outlets.						
830-Abutment Backwall	3 - Mod.	101	ft.	60	41	0	0

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Inspection Date: 08/26/2026

Structure Number: 3102521

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Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
CS2: -The Rear Abutment backwall has a full height by 18’ wide delaminated area under Stringers 2-5. - The Forward Abutment backwall has medium width diagonal cracking.						

Inspector:	Nepal,Prateek	**Structure Number:**	3102521
Inspection Date:	08/26/2026	**Facility Carried:**	US50

HAM-00050-0376L_(3102521)

ODOT District:	District 08			Date Built:	07/01/1959
Major Maint:	01 - State Highway Agency	Facility Carried:	US50	Traffic On: 1 - Highway	Rehab Date: 07/01/1990
Routine Maint:	01 - State Highway Agency	Feature Inters:	GREAT MIAMI R;PRIVATE DR	Traffic Under: 5 - Waterway	Insp. Resp A: 01 - State Highway Agency
FIPS Code:	84938 - WHITEWATER TWP (HAM county)	Location:	DISTRICT 08 JUST E OF SR128		Insp Resp B:
Inspector	Nepal,Prateek	Inspection Date	08/26/2026	Reviewer	Not Approved

Inspector Comments - Deck and Approach

Deck, Wearing Surface, Joints, Railing

Deck

Isolated longitudinal and transverse cracking up to 1/16" wide with efflorescence is present. The fascia stringer haunches exhibit isolated areas of delamination and spalling up to 6" wide by 1" deep along the length of the stringer.

Wearing Surface

Hairline longitudinal and transverse cracks are present throughout all spans. The wearing surface also exhibits moderate wear along the wheel paths in each span. Some concrete and asphalt patches are present with isolated areas of minor spalling and medium-width cracks within the patches. There is isolated spalling throughout the spans.

Metal Bridge Railing

A 10' long by 6" high by 1" deep spall is present in the south curb between Panel Points 5 and 6 in Span 2. Impact damage was observed along the metal railing in Span 3.

Strip Seal Expansion Joints

There is moderate debris accumulation in all joints. Debris accumulation is heavier along the shoulders. The debris does not impact the joints' ability to function. The armored edges at the Rear Abutment and Piers 2 and 4 exhibit up to 1/16" section loss with surface corrosion throughout. There are minor gouges in the edges of the armor and minor isolated spalling along the joint armor at Pier 2.

Drainage

There is debris accumulation along the edges of the deck throughout all four spans and some partially clogged drains. Some drains exhibit minor corrosion below deck at the outlets.

Approach

Reinforced Concrete Approach Slabs

The west approach slab has multiple full-length by 1/16" wide cracks. There are also longitudinal cracks 12" long by 1/16" wide along the top of the header of the Rear Abutment. Spalling is present at both approach slabs.

Approach Roadway

The asphalt approach roadway has up to 1/8" wide longitudinal and transverse cracks throughout. Map cracking up to 1/8" wide is present at the west approach.

Inspector:	Nepal,Prateek	**Structure Number:**	3102521
Inspection Date:	08/26/2026	**Facility Carried:**	US50

Inspector Comments - General Appraisal

Superstructure, Bearings

Steel Stringer

There is surface corrosion with no measurable section loss to the unpainted inside edges of the top flanges of Stringers 1 and 5 throughout.

There are isolated areas of freckled rust present at the stringer bottom flange cover plates and isolated locations of minor surface rust on various other stringer locations.

There are welded top and bottom flange cover plates on the stringer ends at each floorbeam; the ends of these welds are Category E details. The top flange cover plates are not visible due to the presence of the deck haunch, but the bottom flange cover plates were inspected. There are indications of poor-quality welding throughout these details.

There are welded web connection plates with horizontal and vertical welds on the stringer ends at each floorbeam. The horizontal welds are Category D details and the vertical welds are Category C details. There is a full width crack in the bottom horizontal weld of the web connection plate on Stringer 5 on the north side of the web of FB2 in Span 2. There are indications of poor quality welding throughout these details.

There are welds on the stringer bottom flange cover plates for the knee brace connection angles; these welds are Category E details. There is a potential 3/8” long crack in the bottom cover plate at the end of the weld for the knee brace on Stringer 4 in Span 2 near Floorbeam 0. Due to the location of the potential crack, a magnetic particle test could not be performed.

At the Stringer 5 connection to Floorbeam 6 in Span 2, a 1" discontinuity was noted in the weld for the stringer bottom flange connection plate, adjacent to the connection plate.

Lower Chord

Pack rust between 1/8" and 1/2" thick is widespread and active or reactivating between the lower chord plates and splice plates throughout each span. Pack rust up to 1" is present between the lower chord and diaphragms in all spans. The pack rust has caused bowing of the lower chord plates and diaphragm angles in some locations. The lower chord also exhibits some locations of bowing due to inconsistent diaphragm dimensions, most notably in the end spans.

Tack welds between the lower chord and gusset plates and internal diaphragms are typical in all spans, with one broken tack weld in Span 4, North Truss, at Panel Point 1.

The lower chord plates exhibit some surface corrosion, with isolated painted over and active pitting typically 1/16" to 1/8" deep on the plate edges and around the diaphragm angles. There is a 3” wide by 3/16” deep area of active section loss on the splice plate near L2 in Span 1 of the North Truss. There are isolated areas of laminating corrosion present on the stiffening angle.

Upper Chord

The upper chord exhibits some areas of spot rust and surface corrosion due to paint failure. There are some areas of reactivated corrosion between the channels and web plates with initiating pack rust between the web plates and bottom flange. Pack rust up to 1/16” is present between the flanges and tie plates in isolated locations.

There are some missing rivet heads between the upper chord connections with the diaphragm interior clip angles and some with flattened rivet heads. At some locations, there are improperly installed rivets.

There are tack welds between the upper chord and the gusset plate clip angles and the bracing connection plates. There are isolated welds with corrosion initiation at the weld toe.

End Posts

The end posts exhibit section loss on the lacing bars on both trusses. There are lacing bars that have been replaced, but these posts still have remaining bars with section loss. One broken lacing bar is present on Span 1, North Truss, member L0U.

There is pack rust up to 1/4” thick between the lacing bars and bottom flanges. Pack rust is also present at the upper bracing connection near U1, Span 1, South Truss and on the inside of the inboard web plate at L0U1 in Spans 2 and 3 of the South Truss, where the pack rust is initiating distortion to the web.

The end-post webs and flanges exhibit some areas of painted over pitting up to 1/8” deep and areas of active corrosion with section loss up to 1/8” deep. There are areas with laminar corrosion present on the bottom flanges most notable in the splash zone. Corrosion holes up to 1” diameter in the batten plate near L0 in the North Truss of Span 4 were noted.

Verticals

The vertical members exhibit some areas of active corrosion and section loss up to 3/16" deep. Isolated painted over pitting up to 1/4" deep is present, predominantly near the former railing attachments, along the gusset plate edges, and in the splash zone.

Isolated vertical members exhibit deformations.

Diagonals

The diagonal members exhibit some areas of paint failure and surface corrosion. Pack rust is also present between the diagonal member and lower gusset plate in Span 3, North Truss, at Panel Point 2, and in Span 2, North Truss, at Panel Point 8.

Painted over pitting up to 1/8” deep is present in some locations, most notably in the splash zone. In Span 2, North Truss, on member L8U9, there is 3/16" deep section loss to the south inboard face of the diagonal along the lower gusset plate. There is a 1/2" deformation in the flange of the diagonal in Span 4, North Truss, on member U1L2.

There are tack welds between the diagonal members and the middle gusset plate at the isolated locations. The tack welds are typically of poor quality, but no cracks were observed.

Member L5U6 in Span 1 of the North Truss was previously reported to vibrate significantly under live load; this behavior was not observed during this inspection.

Steel Floorbeams

Painted over pitting typically up to 1/8" deep is present along the top of the top flange, top of the bottom flange and bottom 4” of the web for up to 4' on the ends of many floorbeams. There are also isolated areas of active section loss up to 1/4” deep at the ends of the floorbeams. Outside of the end 4’, there are some locations with painted over pitting typically up to 1/8” deep with isolated areas up to 1/4” deep.

Laminating corrosion with section loss up to 1/8” deep on the web and top flange is present throughout all spans at the bridge deck and floorbeam interface with rust staining on the floorbeam. There are also isolated areas of active corrosion at the angle connections to the floorbeam webs.

There are welds on the floorbeam webs for the stringer web connection plates, stringer bottom flange connection plates, and stringer knee brace connection angles; these welds are Category E details. Some of the welds are of poor quality.

Steel Gusset Plate

The lower chord gusset plates away from the bearing locations exhibit some pack rust up to 5/16" thick between the gusset plates and the truss members. The gusset plates exhibit widespread painted over pitting and active laminating and surface corrosion with section loss typically between 1/8" and 3/16" deep with isolated areas up to 1/4" deep. Section loss predominately occurs along the interface with the lower chord and diagonals.

The gusset plates at the bearing locations exhibit pack rust, laminating corrosion, and section loss in the plates, stiffening angles, and rivets. The top cover plates at bearing locations were removed for rehabilitation work at the time of inspection.

The gussets exhibit bowing up to 1/4" out of plane at locations with and without pack rust.

Diaphragms and Cross Frames

There are isolated deformed cross frames in Spans 1, 2, and 4.

Lateral and Sway Bracing

There are isolated areas of surface corrosion and pack rust present at the upper lateral bracing connections. Isolated areas of paint failure and active corrosion are present on the bracing members.

There are isolated locations of deformation to the bracing members and the bracing connections. Types of deformations include bent flanges, bowed connection plates, and distorted bracing members due to impact damage.

There is a cracked tack weld at the connection angle to the portal cross member and U8 of the North Truss in Span 3.

Alignment

There is isolated misalignment in the stringers and bowing and local deformation in the truss lower chords, verticals, and diagonals.

Fatigue

Deficiencies include widespread poor quality welds and isolated cracked tack welds.

Steel Protective Coating

There are widespread areas of paint failure and corrosion throughout the lower chord and in the splash zones, as well as in the lower chord gusset plates and bearings. The paint on the upper half of the trusses has isolated areas of peeling paint and surface corrosion. The paint on the floorbeams and stringers has minor isolated spots of paint failures and areas of rust staining at the floorbeam ends. The upper lateral bracing has isolated areas of peeling paint with surface corrosion.

Moveable Bearings

There is active surface and laminating corrosion on the masonry plates and bearing assemblies. The southeast anchor bolt nut at the south bearing of Span 2 at Pier 3 is backed off. Two backed-off nuts were also noted at the south bearing of Span 3 at Pier 4. There is debris under the north bearing at the forward abutment.

Fixed Bearings

All bearings exhibit surface corrosion with painted over pitting up to 1/8” deep. Laminating corrosion is also present on the bearings and anchor rod nuts, most notably at the south bearing at Pier 4.

Substructure

Reinforced Concrete Pier Wall

All three exhibit widespread delaminations and some large spalls predominantly in the upper half of the wall with exposed reinforcing bars on both faces. Efflorescence and map cracking are typical for all pier faces.

Reinforced Concrete Abutment

On the Rear Abutment, there is a 18’ wide by full height delamination between Stringers 2 and 5 with cracking up to 1/2" wide running horizontally between Stringers 2 and 4. There is a 3’ high by 8’ wide spall with exposed rebar under stringers 4 and 5. There is a 24’ long area of cracking and delamination on the abutment seat.

The Forward Abutment has isolated areas of delaminations and cracks on the abutment face and seat. There is a 8’ wide by 14” high by 3” deep spall with exposed rebar on the seat between Stringer 3 and 4.

Reinforced Concrete Pier Cap

Spalls and delaminations within the pier cap are present in every pier.

Abutment Backwall

The Rear Abutment backwall has a full height by 18’ wide delaminated area that has been partly removed for patching under Stringers 2-5. The Forward Abutment backwall has medium

width diagonal cracking.

Wingwalls

The southwest wingwall at the Rear Abutment has two 1'x4" spalls with exposed rebar. The southwest wingwall has vegetation growth in the construction joint gap. The northwest wingwall at the Rear Abutment has a 3" long by 9" wide by 1.5" deep spall. The southeast wingwall at the Forward Abutment has a delaminated area on the top.

Culvert

N/A

Inspector Comments - Waterway

Channel Protection

Channel Protection

Channel protection has moderate vegetation along each embankment. Dumped rocks are present in front of both abutments. The Forward Abutment has some loss of rock.

Channel

Channel

The channel has a debris pile around Pier 3. Debris build up is present on the adjacent 50 EB bridge piers on the downstream side within Spans 1 and 2.

Scour

Scour

At the time of the inspection, only Pier 2 was in the water. A 1' deep by 4' diameter scour hole is present at Pier 4 with moderate erosion occurring at the north end.

APPENDIX B

Gusset Plate Bowing Tables

HAM-00050-03.760L—North Truss Upper Chord Gusset Plates														
Span	Location	Plan Plate Thickness (in)	Outboard Gusset Plate						Inboard Gusset Plate					
			2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)	2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)
1	U1	1/2	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U2	1/2	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
	U3	1/2	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U5	1/2	- 1/16	- 1/16	- 1/16	1/8	- 1/16	-1/16	- 1/16	- 1/16	- 1/16	- 1/8	-1/16	-1/16
	U6	1/2	- 1/8	- 1/8	- 1/8	- 1/8	-1/8	-1/8	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U7	1/2	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
2	U1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U2	9/16	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	1/16	1/16	1/16	1/16	1/16	1/16
	U3	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U5	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U6	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U7	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U8	9/16	Flat	Flat	Flat	Flat	Flat	Flat	1/8	1/8	1/8	1/8	1/8	1/8
	U9	9/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
3	U1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	1/16	1/16	1/16	1/16	1/16	1/16
	U2	9/16	- 1/16	- 1/16	- 1/16	1/16	1/16	-1/16	- 1/8	- 1/8	- 1/8	- 1/8	-1/8	-1/8
	U3	9/16	1/16	1/16	1/16	1/16	1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
	U4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U5	1/2	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
	U6	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U7	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U8	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U9	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
4	U1	1/2	- 1/8	- 1/8	- 1/8	- 1/8	-1/8	-1/8	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U2	1/2	1/16	1/16	1/16	1/8	1/16	1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U3	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	1/16	1/16	1/16	1/16	1/16	1/16
	U5	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U6	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	- 1/16	- 1/16	- 1/16	-1/16	-1/16
	U7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat

Note:

Positive bow indicates the center of the gusset plate is bowing away from the centerline of the truss.

Negative bow indicates the center of the gusset plate is bowing towards from the centerline of the truss.

+/- indicates both positive and negative bows measured at different locations on the plate.

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HAM-00050-03.760L—North Truss Lower Chord Gusset Plates														
Span	Location	Plan Plate Thickness (in)	Outboard Gusset Plate						Inboard Gusset Plate					
			2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)	2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)
1	L0	5/8	Flat	Flat	1/8	1/8	1/8	1/8	Flat	Flat	Flat	Flat	Flat	Flat
	L1	1/2	Flat	Flat	1/16	1/16	1/16	1/16	Flat	Flat	Flat	Flat	Flat	Flat
	L2	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	1/8	-1/16	-1/16	-1/16	-1/16	-1/16	1/8
	L3	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	L4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/4	1/4	1/4	1/4
	L5	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	L6	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L8	5/8	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/8	1/8	1/8	1/8
2	L0	3/4	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	L2	9/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	1/8	1/8	3/16	3/16	3/16	3/16
	L3	9/16	1/8	1/8	Flat	Flat	Flat	Flat	3/16	3/16	3/16	3/16	3/16	3/16
	L4	9/16	1/8	1/8	1/16	1/16	1/16	1/16	3/16	3/16	3/16	3/16	3/16	3/16
	L5	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L6	9/16	3/16	3/16	3/16	3/16	3/16	3/16	1/16	1/16	1/16	1/16	1/16	1/16
	L7	9/16	1/4	1/4	1/4	1/4	1/4	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	L8	9/16	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L9	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L10	3/4	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
3	L0	3/4	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
	L1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L2	9/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	1/8	1/8	1/8	1/8
	L3	9/16	Flat	Flat	Flat	Flat	Flat	Flat	-1/4	-1/4	1/8	1/8	1/8	3/16
	L4	9/16	-1/8	-1/8	-1/16	-1/16	-1/16	-1/16	Flat	Flat	1/8	1/8	1/8	1/8
	L5	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L6	9/16	1/8	1/8	1/16	1/16	1/16	1/16	Flat	Flat	1/16	1/16	1/16	1/16
	L7	9/16	1/4	1/4	1/4	1/4	1/4	1/4	1/8	1/8	1/16	1/16	1/16	1/16
	L8	9/16	1/8	1/8	1/8	1/8	1/8	1/8	1/16	1/16	1/16	1/16	1/16	1/16
	L9	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L10	3/4	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
4	L0	5/8	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L1	1/2	1/16	1/16	1/16	1/16	1/16	1/16	Flat	Flat	Flat	Flat	Flat	Flat
	L2	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L3	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L4	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat
	L5	1/2	-1/4	-1/4	-1/4	-1/4	-1/4	-1/4	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L6	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	1/4	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L8	5/8	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	1/16

Note:

Positive bow indicates the center of the gusset plate is bowing away from the centerline of the truss.

Negative bow indicates the center of the gusset plate is bowing towards from the centerline of the truss.

+/- indicates both positive and negative bows measured at different locations on the plate.

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HAM-00050-03.760L—South Truss Upper Chord Gusset Plates														
Span	Location	Plan Plate Thickness (in)	Inboard Gusset Plate						Outboard Gusset Plate					
			2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)	2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)
1	U1	1/2	+/- 1/16	+/- 1/16	+/- 1/16	+/- 1/16	+/- 1/16	+/- 1/16	Flat	Flat	Flat	Flat	Flat	Flat
	U2	1/2	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	-1/4	Flat	Flat	Flat	Flat	Flat	+/-1/8
	U3	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/16
	U5	1/2	- 1/16	- 1/16	- 1/16	- 1/16	- 1/16	Flat	Flat	Flat	-1/16	-1/16	-1/16	1/16
	U6	1/2	- 1/8	- 1/8	- 1/8	- 1/8	- 1/8	1/8	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	U7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	1/16	1/16	1/16	1/16	1/16	1/16
2	U1	9/16	-1/16	-1/16	-1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	Flat	-1/16
	U2	9/16	-1/8	-1/8	-1/8	-1/8	-1/8	1/16	Flat	Flat	Flat	Flat	Flat	1/16
	U3	9/16	Flat	-1/16	-1/16	-1/16	-1/16	1/8	Flat	Flat	Flat	Flat	Flat	1/8
	U4	1/2	Flat	1/16	1/16	1/16	1/16	1/8	Flat	Flat	Flat	Flat	Flat	1/8
	U5	1/2	Flat	Flat	Flat	Flat	Flat	1/8	Flat	Flat	Flat	Flat	Flat	Flat
	U6	1/2	Flat	-1/16	-1/16	-1/16	-1/16	1/16	Flat	Flat	Flat	Flat	Flat	-1/16
	U7	9/16	Flat	Flat	Flat	Flat	Flat	1/16	Flat	Flat	1/16	1/16	1/16	-1/16
	U8	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/16
	U9	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	-1/16
3	U1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	-1/16
	U2	9/16	-1/16	-1/16	-1/16	-1/16	-1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/8
	U3	9/16	Flat	Flat	Flat	Flat	Flat	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	-1/8
	U4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U5	1/2	Flat	1/16	1/16	1/16	1/16	1/4	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	U6	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U7	9/16	Flat	Flat	Flat	Flat	Flat	1/16	Flat	Flat	Flat	Flat	Flat	Flat
	U8	9/16	Flat	Flat	Flat	Flat	Flat	1/16	Flat	Flat	Flat	Flat	Flat	Flat
	U9	9/16	1/16	1/16	Flat	Flat	Flat	-1/16	1/16	1/16	1/16	1/16	1/16	+/- 1/16
4	U1	1/2	Flat	Flat	Flat	Flat	Flat	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	1/16
	U2	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	U3	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	Flat	Flat	Flat	Flat	Flat	1/8
	U4	1/2	Flat	Flat	Flat	Flat	Flat	1/8	1/16	1/16	1/16	1/16	1/16	1/16
	U5	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	U6	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	Flat
	U7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat

Note:

Positive bow indicates the center of the gusset plate is bowing away from the centerline of the truss.

Negative bow indicates the center of the gusset plate is bowing towards from the centerline of the truss.

+/- indicates both positive and negative bows measured at different locations on the plate.

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HAM-00050-03.760L—South Truss Lower Chord Gusset Plates														
Span	Location	Plan Plate Thickness (in)	Inboard Gusset Plate						Outboard Gusset Plate					
			2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)	2014 Bowing (in)	2018 Bowing (in)	2020 Bowing (in)	2022 Bowing (in)	2024 Bowing (in)	2026 Bowing (in)
1	L0	5/8	Flat	Flat	1/4	1/4	1/4	1/4	1/16	1/16	1/8	1/8	1/8	1/8
	L1	1/2	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/8
	L2	1/2	1/8	1/8	1/8	1/8	1/8	1/8	1/16	1/16	1/16	1/16	1/16	1/8
	L3	1/2	1/8	1/8	1/8	1/8	1/8	1/8	3/16	3/16	3/16	3/16	3/16	3/16
	L4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L5	1/2	1/8	1/8	1/16	1/16	1/16	1/4	1/16	1/16	1/16	1/16	1/16	3/16
	L6	1/2	3/16	3/16	1/8	1/8	1/8	3/16	1/16	1/16	1/16	1/16	1/16	1/8
	L7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	-1/16	-1/16	-1/8	-1/8	-1/8	-1/8
	L8	5/8	Flat	Flat	Flat	Flat	Flat	1/8	Flat	Flat	1/16	1/16	1/16	-1/16
2	L0	3/4	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/16	1/16	1/16	1/16
	L2	9/16	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	1/16	1/16	1/16	1/16	1/16	1/8
	L3	9/16	1/16	1/16	1/16	1/16	1/16	1/8	3/16	3/16	3/16	3/16	3/16	1/4
	L4	9/16	3/16	3/16	1/8	1/8	1/8	1/8	1/4	1/4	1/8	1/8	1/8	1/8
	L5	9/16	1/8	1/8	1/8	1/8	1/8	1/8	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	L6	9/16	3/16	3/16	3/16	3/16	3/16	3/16	1/8	1/8	1/8	1/8	1/8	1/8
	L7	9/16	1/4	1/4	1/8	1/8	1/8	1/4	1/8	1/8	1/8	1/8	1/8	1/8
	L8	9/16	1/16	1/16	1/16	1/16	1/16	1/16	1/8	1/8	1/8	1/8	1/8	1/8
	L9	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/4	1/4	1/4	1/4
	L10	3/4	1/16	1/16	1/16	1/16	1/16	1/16	Flat	Flat	Flat	Flat	Flat	Flat
3	L0	3/4	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/16	1/16	1/16	1/16
	L1	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/8	1/8	1/8	1/8
	L2	9/16	- 3/16	- 3/16	- 1/16	- 1/16	- 1/16	1/4	-1/16	-1/16	-1/8	-1/8	-1/8	1/8
	L3	9/16	Flat	Flat	Flat	Flat	Flat	Flat	-1/8	-1/8	-1/8	-1/8	-1/8	1/4
	L4	9/16	+/- 1/16	+/- 1/16	+/- 3/16	+/- 3/16	+/- 3/16	1/4	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L5	9/16	Flat	Flat	Flat	Flat	Flat	1/4	1/16	1/16	1/16	1/16	1/16	1/8
	L6	9/16	- 1/8	- 1/8	- 1/8	- 1/8	- 1/8	1/4	Flat	Flat	Flat	Flat	Flat	Flat
	L7	9/16	Flat	Flat	Flat	Flat	Flat	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
	L8	9/16	Flat	Flat	1/16	1/16	1/16	1/4	Flat	Flat	1/16	1/16	1/16	1/8
	L9	9/16	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L10	3/4	Flat	Flat	Flat	Flat	Flat	Flat	-1/16	-1/16	-1/16	-1/16	-1/16	Flat
4	L0	5/8	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L1	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	-1/4
	L2	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	1/16	1/16	1/16	1/16	1/16	1/16
	L3	1/2	1/8	1/8	1/8	1/8	1/8	1/8	Flat	Flat	Flat	Flat	Flat	Flat
	L4	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	1/8
	L5	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L6	1/2	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8
	L7	1/2	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
	L8	5/8	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat

Note:

Positive bow indicates the center of the gusset plate is bowing away from the centerline of the truss.

Negative bow indicates the center of the gusset plate is bowing towards from the centerline of the truss.

+/- indicates both positive and negative bows measured at different locations on the plate.

Measurements shown from previous inspections were populated from previous inspection reports created by other consultants; these measurements were not verified by AECOM.

APPENDIX C

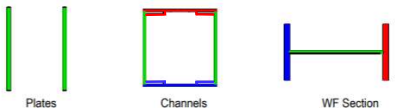
Section Loss Tables

Note: Section loss tables are provided for the truss members, floorbeams, and gusset plates. Values in black are carried from the 2009 inspection.
Section loss added or revised from the 2009 load rating is shown in red. Section loss on splice plates, connection plates, fill plates, and batten plates is not included.

HAM-00050-03.760L — UPPER CHORD — SECTION LOSS

Legend:
FH=Full Height
FW=Full Width
Int.=Interior
Ext.=Exterior
REM=Remaining Thickness
IB = Inboard
OB = Outboard

Note: Only controlling locations are listed (Depth × Width). Where section loss occurs in multiple locations along a member and the controlling location is not obvious, multiple locations are provided and marked S#.



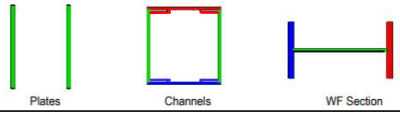
Structure	Member	Section Loss						
			North Truss			South Truss		
		Plates	Top Plate	Web Plate*	Bottom Plate	Top Plate	Web Plate*	Bottom Plate
		Channels/ WF Section	Horizontal Legs	Veritcal Legs/ Web Plate	Horizontal Legs	Horizontal Legs	Vertical Legs/ Web Plate	Horizontal Legs
Span 1	U1 to U2	Channels						
	U2 to U3	Channels						
	U3 to U4	Channels						
	U4 to U5	Channels						
	U5 to U6	Channels						
	U6 to U7	Channels						
Span 2	U1 to U2	Box Section						
	U2 to U3	Box Section						
	U3 to U4	Box Section						
	U4 to U5	Box Section						
	U5 to U6	Box Section						
	U6 to U7	Box Section						
	U7 to U8	Box Section						
	U8 to U9	Box Section						
Span 3	U1 to U2	Box Section						
	U2 to U3	Box Section						
	U3 to U4	Box Section						
	U4 to U5	Box Section						
	U5 to U6	Box Section						
	U6 to U7	Box Section						
	U7 to U8	Box Section						
	U8 to U9	Box Section						
Span 4	U1 to U2	Box Section						
	U2 to U3	Box Section						
	U3 to U4	Box Section						
	U4 to U5	Box Section						
	U5 to U6	Box Section						
	U6 to U7	Box Section						

*Section loss may occur on the inboard or outboard web plate, or both. The affected plate is identified when section loss occurs on only one plate or at different locations. Where section loss occurs on both plates at the same location, the reported loss applies to both unless otherwise noted.

HAM-00050-03.760L — LOWER CHORD — SECTION LOSS

Legend:
FH=Full Height
FW=Full Width
Int.=Interior
Ext.=Exterior
REM=Remaining Thickness
IB = Inboard
OB = Outboard

Note: Only controlling locations are listed (Depth × Width). Where section loss occurs in multiple locations along a member and the controlling location is not obvious, multiple locations are provided and marked S#.



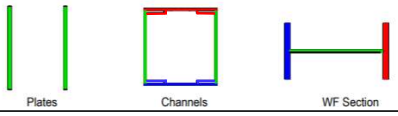
Structure	Member	Section Loss						
			North Truss			South Truss		
		Plates	Top Plate	Web Plate*	Bottom Plate	Top Plate	Web Plate*	Bottom Plate
		Channels/ WF Section	Horizontal Legs	Veritcal Legs/ Web Plate	Horizontal Legs	Horizontal Legs	Vertical Legs/ Web Plate	Horizontal Legs
Span 1	L0 to L1	Plates		1/16"×6" (S1) 1/8"×6" (S1) 1/16"×1½" (S2) 1/16"×1" (S2)				
	L1 to L2	Plates						
	L2 to L3	Plates						
	L3 to L4	Plates						
	L4 to L5	Plates						
	L5 to L6	Plates		1/8"x1½" (OB)				
	L6 to L7	Plates						
	L7 to L8	Plates						
Span 2	L0 to L1	Plates		1/8" x FW				
	L1 to L2	Plates						
	L2 to L3	Plates						
	L3 to L4	Plates						
	L4 to L5	Plates						
	L5 to L6	Plates						
	L6 to L7	Plates						
	L7 to L8	Plates						
	L8 to L9	Plates						
	L9 to L10	Plates		1/16"x1" (OB)				
Span 3	L0 to L1	Plates						
	L1 to L2	Plates						
	L3 to L4	Plates						
	L4 to L5	Plates						
	L5 to L6	Plates						
	L6 to L7	Plates						
	L7 to L8	Plates						
	L8 to L9	Plates					1/8"x2" (OB)	
	L9 to L10	Plates						
Span 4	L0 to L1	Plates						
	L1 to L2	Plates						
	L3 to L4	Plates						
	L4 to L5	Plates						
	L5 to L6	Plates						
	L6 to L7	Plates						
	L7 to L8	Plates						

*Section loss may occur on the inboard or outboard web plate, or both. The affected plate is identified when section loss occurs on only one plate or at different locations. Where section loss occurs on both plates at the same location, the reported loss applies to both unless otherwise noted.

HAM-00050-03.760L— DIAGONALS — SECTION LOSS

Legend:
FH=Full Height
FW=Full Width
Int.=Interior
Ext.=Exterior
REM=Remaining Thickness
IB = Inboard
OB = Outboard

Note: Only controlling locations are listed (Depth × Width). Where section loss occurs in multiple locations along a member and the controlling location is not obvious, multiple locations are provided and marked S#.



Structure	Member	Section Loss						
			North Truss			South Truss		
		Plates	Inboard Flange	Web	Outboard Flange	Inboard Flange	Web	Outboard Flange
Span 1	U1 to L2	WF Section						
	U2 to L3	WF Section			1/16"×2"			
	U3 to L4	WF Section						
	U4 to L3	WF Section	1/8"×FW (S1)	1/8"x3" (S2)	1/16"×FW (Ext.) (S1) 1/16"×2" (Int.) (S2)			
	U4 to L5	WF Section	1/8"×FW					
	U5 to L4	WF Section	1/16"×3"					
	U6 to L5	WF Section			1/16"×4" (Int.)			
	U7 to L6	WF Section			1/16"×5" (Int.)			
Span 2	U1 to L2	WF Section						
	U2 to L3	WF Section						
	U3 to L4	WF Section						
	U4 to L5	WF Section						
	U5 to L4	WF Section				1/8"×2"		
	U5 to L6	WF Section						
	U6 to L5	WF Section						
	U7 to L6	WF Section						
	U8 to L7	WF Section			1/8"×5" (Int.)			
	U9 to L8	WF Section		1/8"×FH	3/16"×FW (Int.)			
Span 3	U1 to L2	WF Section	1/8"×3"					
	U2 to L3	WF Section	1/16"×8"					
	U3 to L4	WF Section						
	U4 to L5	WF Section	1/16"×6"					
	U5 to L4	WF Section		1/8"×1" 1/16"×2"				
	U5 to L6	WF Section						
	U6 to L5	WF Section		1/16"×6" 3/16"×3"				
	U7 to L6	WF Section	1/8"x5"	3/16"×3"	1/8"×3" (Int.)			
	U8 to L7	WF Section	1/16"×4"	1/8"×8"				
	U9 to L8	WF Section	1/8"×3"			1/8"×2"	1/8"×6"	1/8"×6" (Int.)
Span 4	U1 to L2	WF Section	1/16"×FW					
	U2 to L3	WF Section	1/8"×7"					
	U3 to L4	WF Section						
	U4 to L3	WF Section	1/16"×2"	1/16"×2"				
	U4 to L5	WF Section	1/8"×FW					
	U5 to L4	WF Section				1/16"x2"		
	U6 to L5	WF Section			1/16"×2" (Int.)	1/8"×6" (S1) 1/16"×5" (Int.) (S1) 1/8"x4" (S3)	1/16"×3" (S1) 1/16"×11" (S2)	1/16"×3" (Int.) (S1) 1/16"×5" (Int.) (S1) 1/8"x4" (S3)
	U7 to L6	WF Section	1/16"×8" 1/8"×2"				1/8"×6"	1/8"×4" (Int.) 3/16"×1" (Int.)

HAM-00050-03.760L— END POSTS — SECTION LOSS

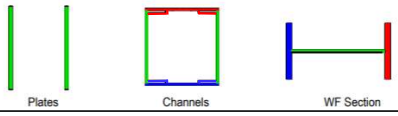
Structure	Member	Section Loss						
			North Truss			South Truss		
		Plates	Inboard Flange	Web*	Outboard Flange	Inboard Flange	Web*	Outboard Flange
		Channels	Horizontal Legs	Veritcal Legs/ Web Plate	Horizontal Legs	Horizontal Legs	Vertical Legs/ Web Plate	Horizontal Legs
Span 1	U1 to L0	Channels						
	U7 to L8	Channels					1/8"x2"	1/8"x2"
Span 2	U1 to L0	Channels		1/8"x4" (OB)	1/8"×3¾"			
	U9 to L10	Channels						
Span 3	U1 to L0	Channels	1/8"x1"		1/8"x3"			
	U9 to L10	Channels		1/8"x3" (IB)				
Span 4	U1 to L0	Channels		1/8"x1"	1/8"x2"		1/8" x 4" (OB)	1/8" x 2"
	U7 to L8	Channels		1/8"x3" (IB)				

*Section loss may occur on the inboard or outboard web plate, or both. The affected plate is identified when section loss occurs on only one plate or at different locations. Where section loss occurs on both plates at the same location, the reported loss applies to both unless otherwise noted.

HAM-00050-03.760L — VERTICALS — SECTION LOSS

Note: Only controlling locations are listed (Depth × Width). Where section loss occurs in multiple locations along a member and the controlling location is not obvious, multiple locations are provided and marked S#.

Legend:
FH=Full Height
FW=Full Width
Int.=Interior
Ext.=Exterior
REM=Remaining Thickness

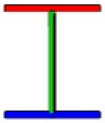


Structure	Member	Section Loss						
			North Truss			South Truss		
		Plates	Inboard Flange	Web	Outboard Flange	Inboard Flange	Web	Outboard Flange
Span 1	U1 to L1	WF Section	1/8"×6"			1/8" x 6"		
	U2 to L2	WF Section	1/16"×2"		1/16"×3" (Int.)			
	U3 to L3	WF Section	3/16"×5"					
	U4 to L4	WF Section	1/16" x FW 1/8"×2"					
	U5 to L5	WF Section	1/16"×4" 1/8"×3" 1/16"×1"					
	U6 to L6	WF Section						
	U7 to L7	WF Section						
Span 2	U1 to L1	WF Section						1/4"×5"
	U2 to L2	WF Section						1/16"×5"
	U3 to L3	WF Section		1/16" x 4"				
	U4 to L4	WF Section						
	U5 to L5	WF Section						
	U6 to L6	WF Section	1/8"×FW	1" dia. hole	1/8" x 4"			
	U7 to L7	WF Section	1/8"×2 1/2"					
	U8 to L8	WF Section						
	U9 to L9	WF Section	1/8"×4"	3/16" x 2"		1/8" x 4"	1/8" X 4" 1/8" X 4"	1/8" x 4"
Span 3	U1 to L1	WF Section	1/8"×5"		1/16"×1"	3/16"×FW		
	U2 to L2	WF Section	1/16"×4"			3/16"×6"		
	U3 to L3	WF Section	1/8"×7"			1/8"×FW		
	U4 to L4	WF Section	1/16"×5" 1/8"×3"			3/16"×FW		
	U5 to L5	WF Section	3/16"×7"					
	U6 to L6	WF Section	1/8"×FW			1/8"×FW		
	U7 to L7	WF Section	1/8"×FW			1/8"×FW		
	U8 to L8	WF Section	1/8"×9"			1/8"×8"		
	U9 to L9	WF Section	1/4"×FW	1/16" x 3"		1/8"×8"		
Span 4	U1 to L1	WF Section	3/16"×7"		1/16" x 4" (Int.)			1/8" x 6"
	U2 to L2	WF Section	1/8"×8"	1/16"×5"		1/8"×3"		1/16"×FW
	U3 to L3	WF Section	3/16"×FW			1/8"×FW		
	U4 to L4	WF Section	3/16"×3" (Ext.) 1/16"×3" (Int.)			1/8"×FW		1/16"×FW
	U5 to L5	WF Section	1/8"×FW			1/8"×FW		
	U6 to L6	WF Section	1/8"×5"		1/16"×6" (Int.)			
	U7 to L7	WF Section	1/8"×FW		1/16"×4" (Int.)	1/16"×FW (Ext.) 1/16" x 2" (Int.)		

HAM-00050-03.760L — FLOORBEAMS — SECTION LOSS

S# indicates a specific location along a member. Length is measured to center of section loss from corresponding truss line. For the corresponding location, see the Location Key. Refer to Typical End Section Loss Key for typical conditions. Section loss is reported as Depth × Width or Height × Length.

Legend:
FW=Full Width
REM=Remaining Thickness
WF=West Face
EF=East Face
NT=North Truss
ST=South Truss



Typical End Section Loss Key:
Nearly all floorbeams have typical section loss up to 1/8"xFW on the tops of the flanges and 1/8"x4" on the webs, extending up to 4' from the floorbeam ends. Section loss beyond the typical end loss is noted in the table below. If a member has Typical End Section Loss exceeding the aforementioned typical dimensions, clarification has been added next to member name.

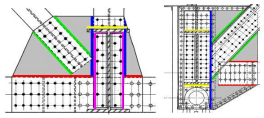
Structure	Member*	Section Loss				
		Floorbeam Type	Top Flange	Web	Bottom Flange	Location Key (Feet to Nearest Truss)
Span 1	FB 00	W36×260				
	FB 01	W36×280			1/8" x FW (S1) 1/4"×FW (S2)	S1 - Full Length S2 - 3' NT
	FB 02	W36×260	1/4"x2"Φ (S1)		1/8"×2" (S2) 1/16"×4" (S2)	S1 - 0' ST S2 - Midpsan
	FB 03	W36×260			1/8"×6" (S1) 3/16"×2" (S1)	S1 - 12.417' ST
	FB 04	W36×260		1/4" x 8" x 1" (S1)	3/16" x 3" (S2) 1/8"×2" (S3) 1/4"×2" (S3)	S1 - 3' NT S2 - 12.417' ST S3 - 12.417' NT
	FB 05	W36×260		1/8" x1"x 3" (S4)	3/16" x 2"Φ (S1) 1/4"×3" (S2) 3/16" x 3" x 24" (S3)	S1 - 8.917' NT S2 - 12.417' NT S3 - 12.417' ST S4 - 0' NT
	FB 06	W36×260	3/16" x 8" (S1) 1/8" x 8" (S1)		1/8"×3" (S2)	S1 - 3' NT S2 - 12.417' NT
	FB 07	W36×280		1/16"×2" (S1)	3/16"×8" (S1) 1/16"×3" (S2) 1/8" x 2" (S2)	S1 - Midpsan S2 - 12.417' ST
	FB 08	W36×260		1/4" x 2" x 16" (WF) (S1) 1/8" x 2" x 4" (EF) (S2)	1/16" x 8" (S3)	S1 - 3' NT S2 - 0' ST S3 - Midspan
Span 2	FB 00	W36×280		1/4" x 2" x 24" (EF) (S1)	1/16" x 8" (S2)	S1 - 3' NT S2 - Full Length
	FB 01	W36×300	1/4" x 8" x 4" (S1) 1/4" x 8" x 2" (S2)	1/4" x 5" x 2" (WF) (S1) 1/4" x 6" x 12" (EF) (S2)	1/16" x 8" (S3)	S1 - 3' NT S2 - 3' ST S3 - Full Length
	FB 02	W36×280			3/16" x1½" x 8" (S1)	S1 - 5.417' ST
	FB 03	W36×280				
	FB 04	W36×280		1/16"×4" (S1)	1/8"×FW (S1)	S1 - 5.417' NT
	FB 05 *end 6'	W36×280				
	FB 06	W36×280		1/16"×33⅜" (S1)	1/8"×8" (S2)	S1 - Midspan S2 - Full Length
	FB 07	W36×280		1/16" x 3" x 12" (EF) (S1)		S1 - 5.417' ST
	FB 08	W36×280				
	FB 09	W36×300				
	FB 10	W36×280			1-5/16" REM×FW (S1)	S1 - Midspan
Span 3	FB 00	W36×280				
	FB 01	W36×300		1/8"×4" (S1)	1/4" x 2" x 4" (S1)	S1 - 12.417' ST
	FB 02	W36×280				
	FB 03	W36×280				
	FB 04	W36×280				
	FB 05 *end 5'	W36×280				
	FB 06	W36×280				
	FB 07	W36×280		3/16"×2" (S1)	1/8"×8" (S2)	S1 - Midspan S2 - Full Length
	FB 08 *Full length	W36×280				
	FB 09	W36x300				
	FB 10	W36x280				
Span 4	FB 00	W36×260			3/16"×6" (S1) 1/4"×2" (S1)	S1 - Midspan
	FB 01	W36×280				
	FB 02	W36×260				
	FB 03	W36×260				
	FB 04	W36×260				
	FB 05	W36×260				
	FB 06 *1/4" Section Loss	W36×260				
	FB 07	W36×280			1/16" x 8" (S1)	S1 - 12.417' NT
	FB 08	W36×260				

HAM-00050-03.760L — NORTH TRUSS LOWER GUSSETS — SECTION LOSS

Legend:
*Depth x Length x Height
FL=Full Length
Φ=diameter
Top=Above Member
Bot.=Below Member

Bold = CS4

Location Diagram



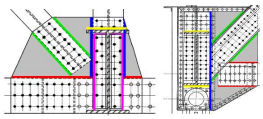
Location		Plate Thickness (inches)	Section Loss*									
			Outboard Gusset					Inboard Gusset				
			Exterior	Interior				Exterior	Interior			
Span	Panel Point		Isolated	Lower Chord	Diagonal	Vertical	Isolated	Isolated	Lower Chord	Diagonal	Vertical	Isolated
1	L0	5/8			1/16"x24"x3" (Top)			1/16"x1"x36" 1/8"x1"x24" 1/16"x5"x6"		3/16"x4"x4" (Top)	1/8"xFLx1"	
	L1	1/2		1/8"x2"x1"							(2) 1/16"x2"x1/2"	
	L2	1/2		1/8"x2"x1.5"								
	L3	1/2		1/8"x10"x1" (Top L3-L4)	1/16"x12"x1"				1/8"x15"x1/2"			
	L4	1/2			1/16"x6"x6" (Top L4-U5)	1/16"x8"x5"				1/16" (Top U3-L4, typical above area)	1/16"x4"x6"	
	L5	1/2		1/8"x9"x1.5"	1/8"x3"x1" (L5-U6)			1/16"x16"x1"	1/16"x6"x2" (Top)			
	L6	1/2		1/8"x9"x5" (Top)					1/8"x9"x5" (Top)			
	L7	1/2										
	L8	5/8		3/16"x8"x6"	3/16"x2"x4" (Top) 1/8"x15"x5" (Top)			1/16"x27"x1"	3/16"x6"x6"	3/16"x2"x2" (Top) 1/8"x6"x2" (Top) 1/8"x15"x5" (Top)		
2	L0	3/4		1/8"x6"x3"								
	L1	9/16		1/16"x3"x1" (Top) 1/16"x3"x1" (Top)					1/16"x3"x1" (Top) 1/16"x3"x1" (Top)			
	L2	9/16		1/8"x1"x1" (Top L2-L3)					1/16"x8"x1"			
	L3	9/16		1/16"x12"x3" (Top L2-L3) 1/4"x3"x3" (Top L2-L3) 1/8"x6"x2" (Top L2-L3) 1/8"x4"x1" (Top L3-L4)	1/8"x12"x1" (Bot. U2-L3)				1/8"x3"x2" (Top L2-L3) 1/16"x12"x2" (Top L2-L3) 1/8"x10"x1" (Top L2-L3) 1/16"x6"x1" (Top L3-L4)	1/8"x2"x2" (Bot. U2-L3)		
	L4	9/16		1/8"x15"x2" (Top)					1/8"x2"x2" (Top)			
	L5	9/16		1/16"x6"x1" (Top)								
	L6	9/16		1/8"x42"x1" (Top) 1/8"x6"x1" (Top) 1/16"x8"x1" (Top)					1/8"x24"x1" (Top) 1/8"x6"x1" (Top) 1/16"x8"x1" (Top)			
	L7	9/16		1/16"x8"x1" (Top) 3/16"x6"x4" (Top)					1/16"x2"x2" (Top)			
	L8	9/16			1/16"x4"x1" (Bot.)				1/8"x20"x1" (Top)			
	L9	9/16		1/8"x2"x1" (Top)								
	L10	3/4		up to 1/8" area under chord	3/16"x7"x12" (Top) 1/8"x12"x4" (Top)				up to 1/8" area under chord 1/8"x12"x1" (Top)	5/16"x15"x5" (Top)		
3	L0	3/4		1/16"x12"x3" (Bot.) 3/16"x6"x3" (Top)					1/16"x6"x1" (Bot.)			
	L1	9/16										
	L2	9/16		1/8"x2"x2" (Top L2-L3)								
	L3	9/16		1/16"x5"x3" (Top)		1/16"x2"x4"						
	L4	9/16										
	L5	9/16										
	L6	9/16		1/8"x36"x1" (Top)			1/16"x3"x2"		1/8"x5"x2" (Top)			
	L7	9/16		1/8"x30"x4" (Top)				1/16"x4"Φ 1/16"x4"Φ 1/16"x4"Φ 1/16"x4"Φ				
	L8	9/16		3/16"x2"x1" (Top) 1/16"x4"x4" (Top) 1/8"x1.5"Φ (Top)	1/16"x4"x1" (Top) 1/16"x8"x4" (Bot.) 1/16"x3"x3" (Bot.) 3/16"x2"x2" (Top)	1/8"x1"x4"	1/16"x4"x8"	1/16"x2"Φ 1/16"x2"Φ 1/16"x8"x1"	1/16"x30"x1" (Top L8-L9)	1/16"x4"x1" (Top)	1/16"x1"x4"	
	L9	9/16						1/8"x1"x3"				
	L10	3/4			1/8"x15"x5" (Top U9-L10)					1/8"x15"x5" (Top U9-L10)		
4	L0	5/8		1/8"x12"x2" (Top L0-L1)	1/8"x6"Φ (Top)				1/8"x8"x1" (Top)	1/8"x24"x8"	3/16"x2"x12"	
	L1	1/2										
	L2	1/2		1/8"x5"x1" (Bot.)						1/8"x3"x1" (Bot.)		
	L3	1/2										
	L4	1/2										
	L5	1/2								1/8"x9"x2" (Bot. L5-U6)		
	L6	1/2		1/8"x3"x1" (Top) 1/16"x6"x1" (Top)					1/4"x2"x1" (Top) 1/8"x16"x1" (Top L6-L7)			
	L7	1/2		1/8"x1"x1" (Top)					1/8"x2"x1" (Top)			
	L8	5/8			1/8"x15"x5" (Top)	1/4"x16"x4"			3/16"x20"x2" (Bot.) 1/16"x5"x1" (Top)	1/8"x15"x5" (Top)		

HAM-00050-03.760L — SOUTH TRUSS LOWER GUSSETS — SECTION LOSS

Legend:
*Depth x Length x Height
FL=Full Length
Φ=diameter
Top=Above Member
Bot.=Below Member

Bold = CS4

Location Diagram



Location		Plate Thickness (inches)	Section Loss*									
			Outboard Gusset					Inboard Gusset				
			Exterior	Interior				Exterior	Interior			
Span	Panel Point		Isolated	Lower Chord	Diagonal	Vertical	Isolated	Isolated	Lower Chord	Diagonal	Vertical	Isolated
1	L0	5/8		1/8"x12"x1" (Top)					1/16"xFLx1" (Top) 1/8"xFLx1" (Bot.)	3/16"x12"x2" (Top)		
	L1	1/2										
	L2	1/2		1/16"x18"x1" (Top)	1/16"x24"x1" (Top)				1/16"x12"x1" (Top) 1/8"x12"x2" (Top)			
	L3	1/2		1/16"x6"x1" (Top L2-L3)					1/16"x18"x1"	1/16"xFLx1" (Top)		
	L4	1/2			1/16"x6"x1" (Top L4-U5) 1/16"x6"x3" (Top L4-U3)	1/16"x3"x3"					1/16"x4"x8"	1/16"x6"Φ
	L5	1/2		1/8"x2"Φ (Top) 1/8"x2"Φ (Top)					1/8"x6"x1" (Top) 1/8"x4"x4" (Top) 3/16"x8"x1" (Top)			
	L6	1/2		1/8"x9"x4" (Top L6-L7) 1/8"x18"x1" (Top L6-L7)					1/8"x24"x1" (Top)			
	L7	1/2		1/16"x3"x1" (Top)					1/16"x3"x3" (Top L6-L7)			
	L8	5/8			1/8"x12"x6" (Top)				1/8"x1"x12" (Top)	3/16"x18"x4" (Top)		
2	L0	3/4			1/16"x6"x2" (Bot.)				1/8"x6"x2" (Top L0-L1)	1/8"x6"x2" (Bot.)		3/16"x12"x2" (Top edge)
	L1	9/16		(2) 1/8"x4"x1" (Top)					(2) 1/8"x4"x1" (Top)			
	L2	9/16		1/8"x7"x1" (Top)					1/8"x18"x5" (Top L1-L2)			
	L3	9/16		1/16"x24"x1" (Top L2-L3) 1/8"x8"x1" (Top L3-L4)					1/8"x6"x6" (Top L2-L3) 1/8"x2"x1" (Top L2-L3)			
	L4	9/16		1/8"x42"x2" (Top) 1/16"x13"x1" (Top)					1/16"x42"x2" (Top) 1/16"x13"x1" (Top)			
	L5	9/16							1/8"x6"x1" (Top)			
	L6	9/16							1/8"x6"x1" (Top)			
	L7	9/16		1/4"x6"x1" (Top) 3/16"x15"x1.5" (Top L7-L8)				1/8"x4"x1" 1/8"x1"x4"	1/16"x20"x1" (Top) 3/16"x12"x1" (Top)	1/16"x6"x4" (Bot.)		
	L8	9/16		1/8"x15"x4" (Top)	1/8"x2"x2" (Top)				1/16"x4"x4" (Top) 1/8x16"x2" (Top)	1/8"x2"x2" (Top)		
	L9	9/16		1/16"x3"x1" (Top)		1/8" x FW					1/8"xFW	
	L10	3/4		1/8"x12"x3" (Bot.)			3/16"x10"x2" (Top edge)		1/8"x12"x1" (Bot.)			3/16"x6"x3" (Top edge)
3	L0	3/4								1/8"x12"x2" (Top)		3/16"x12"x3" (Top edge)
	L1	9/16		1/16"x4"x1" (Top) 1/8"x3"x1" (Top)					1/16"x2"x1" (Top L1-L2)			
	L2	9/16		1/8"x6"x1" (Top L1-L2)					1/8"x11"x2" (Top L1-L2) 1/16"x4"Φ (Top L1-L2)			
	L3	9/16		1/16"x21"x2" (Top L2-L3) 1/16"x8"x1" (Top L2-L3)					1/8"x7"x1" (Top) 1/16"x5"x7" (Top)			
	L4	9/16		1/8"x12"x2" (Top)					1/8"x12"x1" (Top L3-L4)			
	L5	9/16		1/8"x4"x1" (Top) 1/8"x8"x1" (Top)								
	L6	9/16		3/16"x18"x2" (Top L6-L7) 1/8"x18"x3" (Top L6-L7)					3/16"x30"x2.5" (Top)			
	L7	9/16		1/16"x32"x2" 1/8"x15"x1"					1/8"x15"x3" 1/16"x32"x2"	1/8"x5"x3" (Bot.) 3/16"x6"x9" (Bot.)		
	L8	9/16		1/16"x30"x1" (Top)					1/16"x15"x2" (Top L8-L9)	1/8"x2"Φ (Bot.)		
	L9	9/16		1/16"x2"x2" (Top)					1/16"x2"x2" (Top)			
	L10	3/4								1/8"x8"x2" (Top)		
4	L0	5/8			3/16"x6"x3" (Bot.)					**3/16"x24"x2" (Top)**		
	L1	1/2							1/8"x3"x2" (Top L0-L1)			
	L2	1/2		1/16"x3"x2" (Top L1-L2)								
	L3	1/2		1/16"x16"x1" (Top) 1/8"x4"x1" (Top)					1/16"x5"x1" (Top) 1/16"x4"x1" (Top) 1/8"x7"x1" (Top)			
	L4	1/2										
	L5	1/2							1/8"x6"x1" (Top L5-L6) 1/8"x3"Φ (Top L5-L6)			
	L6	1/2		1/8"x6"x1" (Top)					1/8"x6"x3"***			
	L7	1/2										
	L8	5/8			**3/16"x24"x2" (Top)**	3/16"x12"x1"				**3/16"x24"x4" (Top)**	3/16"x15"x2"	