# Physical Condition Report for

# CUY-006-1456

## SFN 1800930

## Detroit-Superior (Veterans Memorial) Bridge over the Cuyahoga River

## 2021 Routine Inspection

**Prepared for:**

Ohio Department of Transportation

District 12

5500 Transportation Blvd.

Garfield Heights, OH 44125

**Prepared By:**

Palmer ENGINEERING

3745 Medina Road, Suite A

Medina, OH 44256

STATE OF OHIO
JUSTIN PAUL RUFENER
E-76867
REGISTERED PROFESSIONAL ENGINEER

1/26/22

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# Inspection Dates and Procedure

*NBI Inspection Completion Date: 10/29/21*

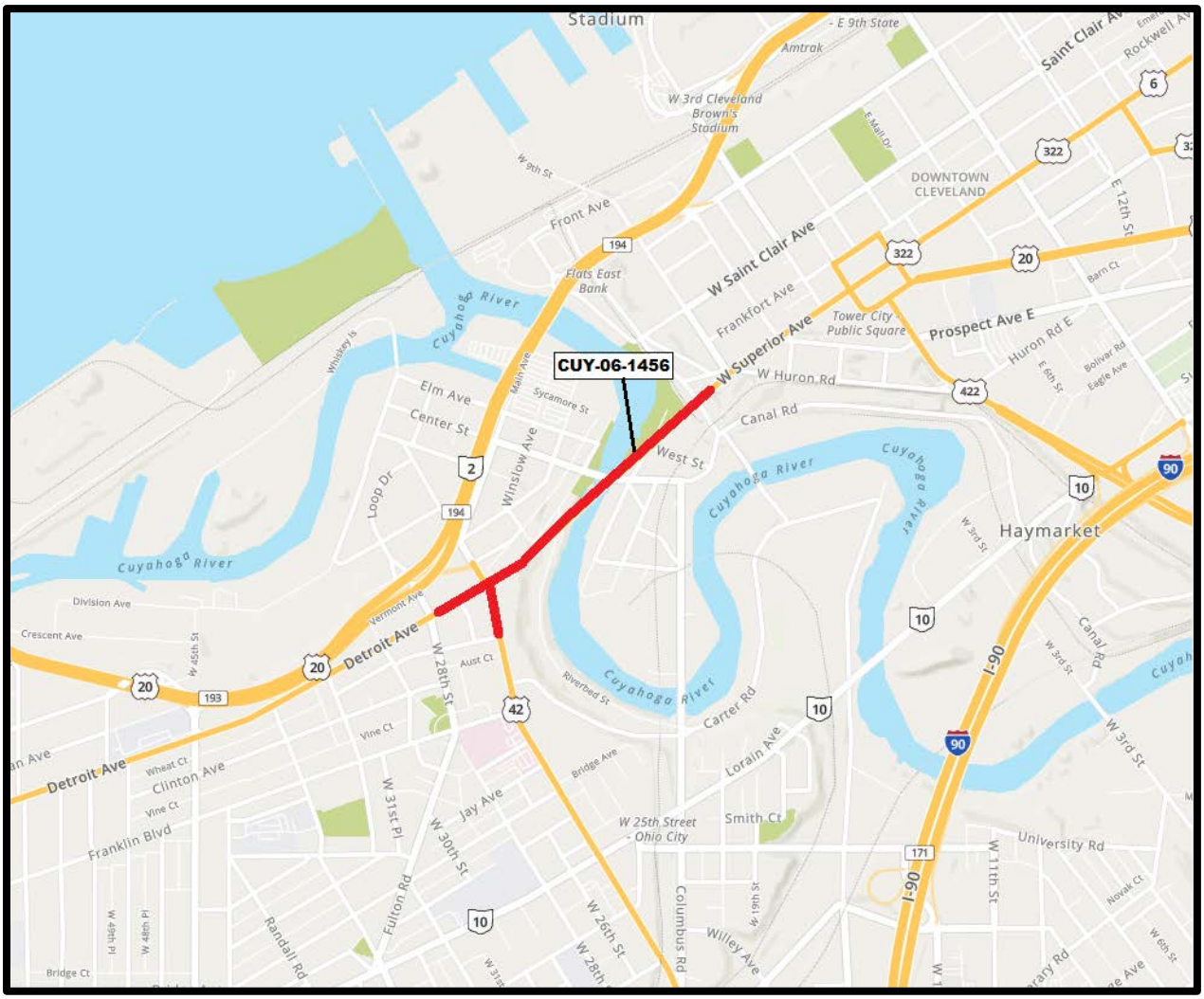
Palmer Engineering, with the assistance of Strinteg conducted a routine & fracture critical inspection on the structural elements of the bridge. The majority of the bridge elements were accessed using aerial work platforms. A 120-ft aerial work platform was used to access Spans 1-3 and 5-13 from the ground below. A 40-ft aerial work platform was used to access portions of Spans 1-13 from the maintenance (lower) deck. The Span 4 steel truss was accessed using industrial rope access techniques. The inspection crews documented previously reported and new areas of deterioration and structural distress.

The following personnel were involved in the bridge inspection:

- Justin Rufener, PE, Team Leader (Palmer)
- Matt Johnson, PE, Team Leader (Palmer)
- Adam Lenemier (Palmer)
- Pete Anamasi, PE, Team Leader (Patrick)
- Tim Tuskas, PE (Patrick)
- Don Cartwright, PE, Team Leader (Strinteg)
- Doug Dickson, PE, Team Leader (Strinteg)
- Luke Traverso, EI (Strinteg)

Previous construction and rehab that was ongoing during the 2020 inspection was completed prior to the 2021 inspection. Active construction work on Canal Basin Park limited access to Spans 7 & 8 from below the bridge.

# Location Map




**Structure: CUY-06-1456**
**Detroit-Superior/Veterans Memorial over the Cuyahoga River**
**Cleveland, OH**

# General Bridge Description

The Veterans Memorial/Detroit-Superior Bridge (CUY-6-1456, SFN 1800930) carries three lanes of vehicular traffic and one lane of bike traffic over the Cuyahoga River Valley, local streets, and RTA railroad tracks. The bridge is approximately 2,880 feet long, including 1,673 feet of subway tunnel that is linked by the lower deck. The bridge was constructed from 1912 to 1917.

The upper deck was opened to vehicular traffic in November 1917 and currently carries three lanes of traffic. The lower deck was designed for four streetcar lines with room for an additional two lines. The rail lines were active from January 1918 to 1953. On January 18, 1974, the bridge was added to the National Register of Historic Places. On Veterans Day, November 11, 1989, the bridge was renamed the Veterans Memorial Bridge.

The bridge consists of three (3) units of varying structure types within each unit:

Unit I – West Approach
Unit II – Main Unit Spans
Unit III – East Station

Plan views of the Veterans Memorial/Detroit-Superior Bridge with the units identified are shown in *Figures 1 - 3*.

## Unit I – West Approach

The West Approach section consists of the West Station area spanning a total of 350 feet west of Tower A and two abandoned subway tunnels: the Detroit Avenue Tunnel (660 feet long) and the West 25th Street Tunnel (480 feet long). There are several utilities that pass through the west station and tunnels.

## Unit II – Main Unit Spans

The Main Unit is composed of Spans 1A, 1B, and Spans 1 through 13. Spans 1A and 1B are transition structures from the underground West Station to the main spans. These two concrete cellular spans total 220 feet long and have an enclosed cellular construction below the lower deck referred to as the chambers. Spans 1 through 13 are the main spans of the bridge with a double deck design. Spans 1 through 3, 5 through 11, and 13 are concrete open spandrel arches. Span 12 is a concrete encased steel half through arch. Span 4 is a 591-foot long, three-hinged steel half through arch truss in a Pratt configuration. The upper deck is used for vehicular and pedestrian traffic and the lower deck is used for utilities and maintenance access.

## Unit III – East Station

The East Station is a concrete cellular span that extends 165 feet past the East Abutment. A three-panel long, cellular construction is present under the East Station lower deck immediately behind the East Abutment.

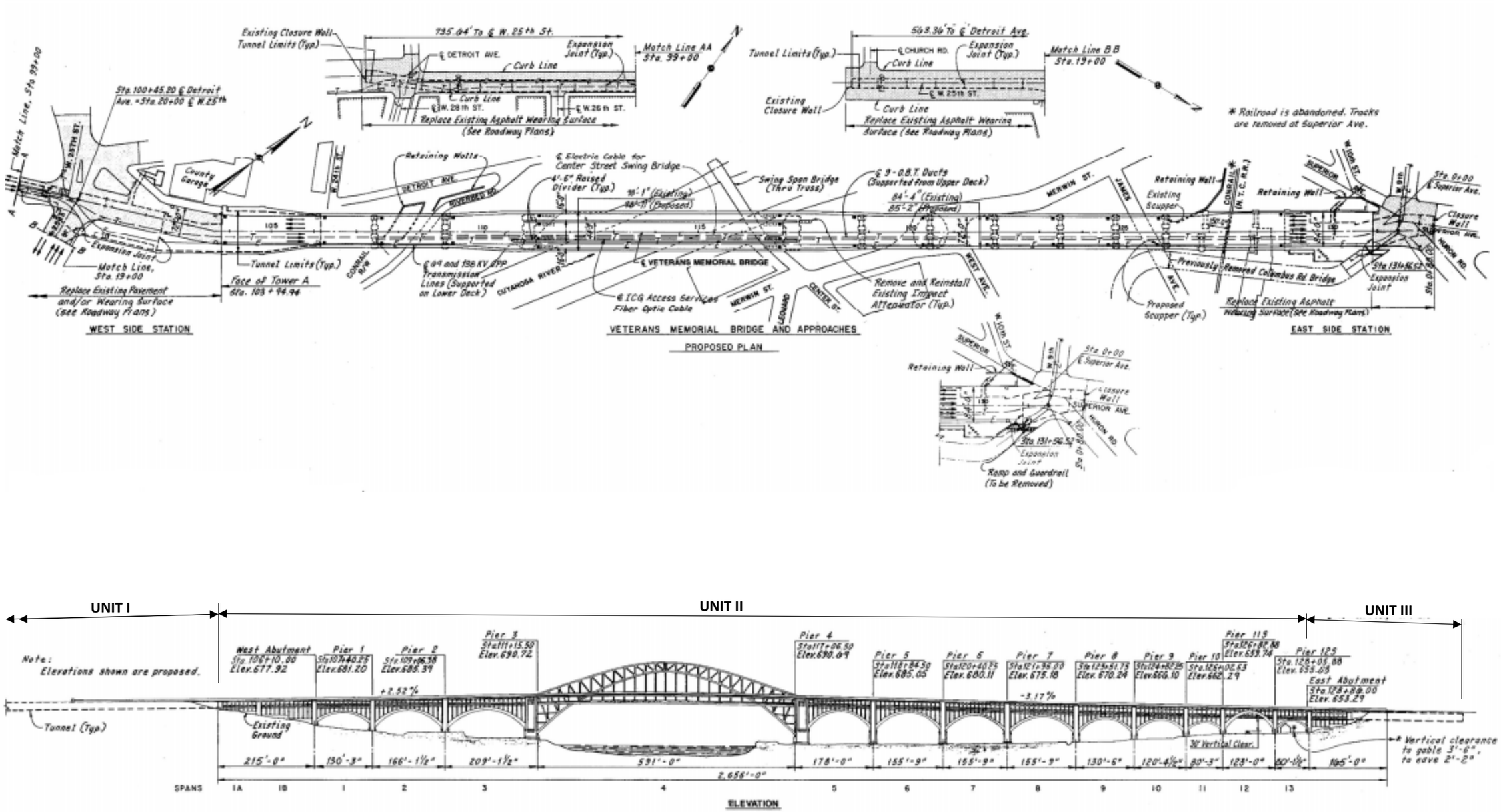
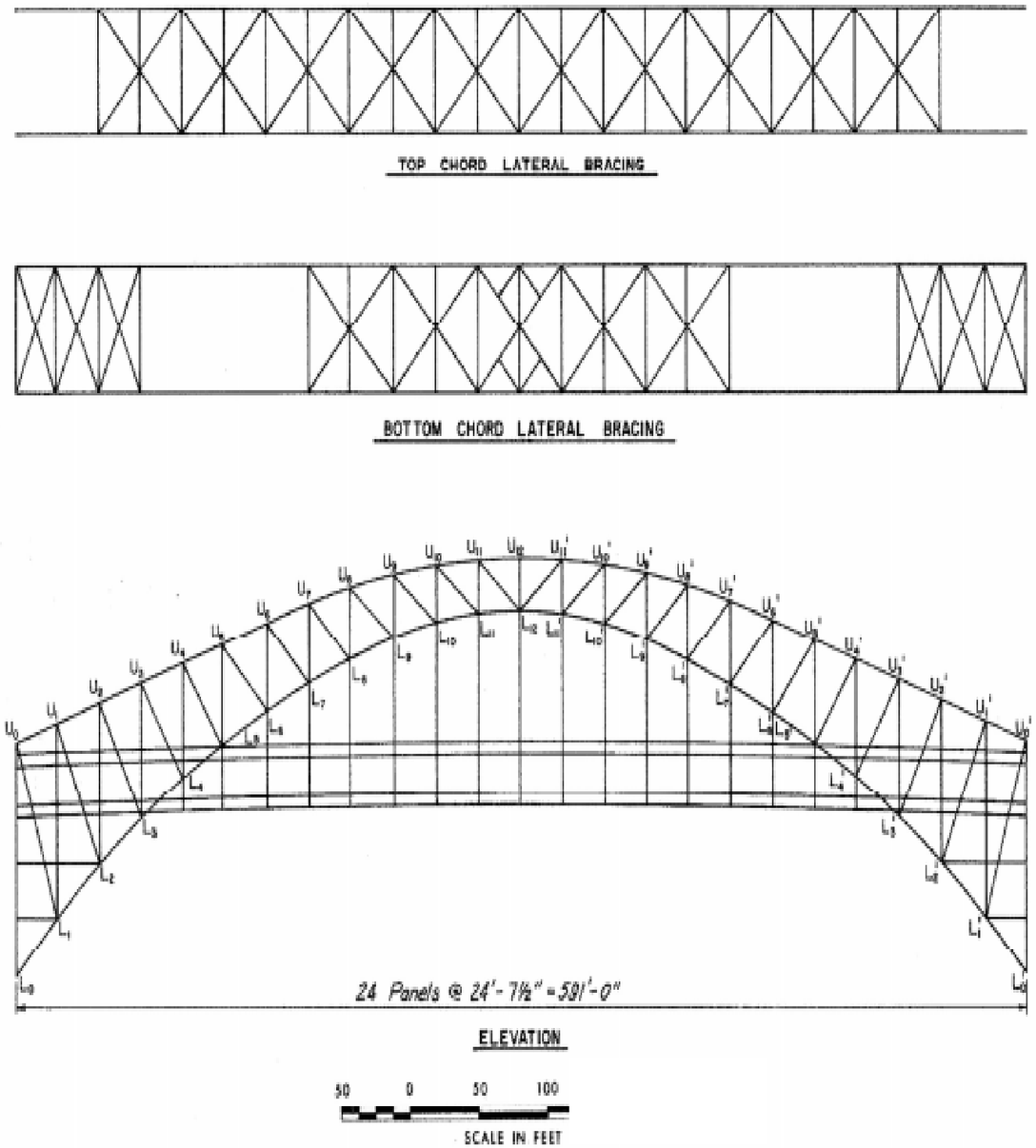






**FIGURE 1: PLAN AND ELEVATION VIEW**



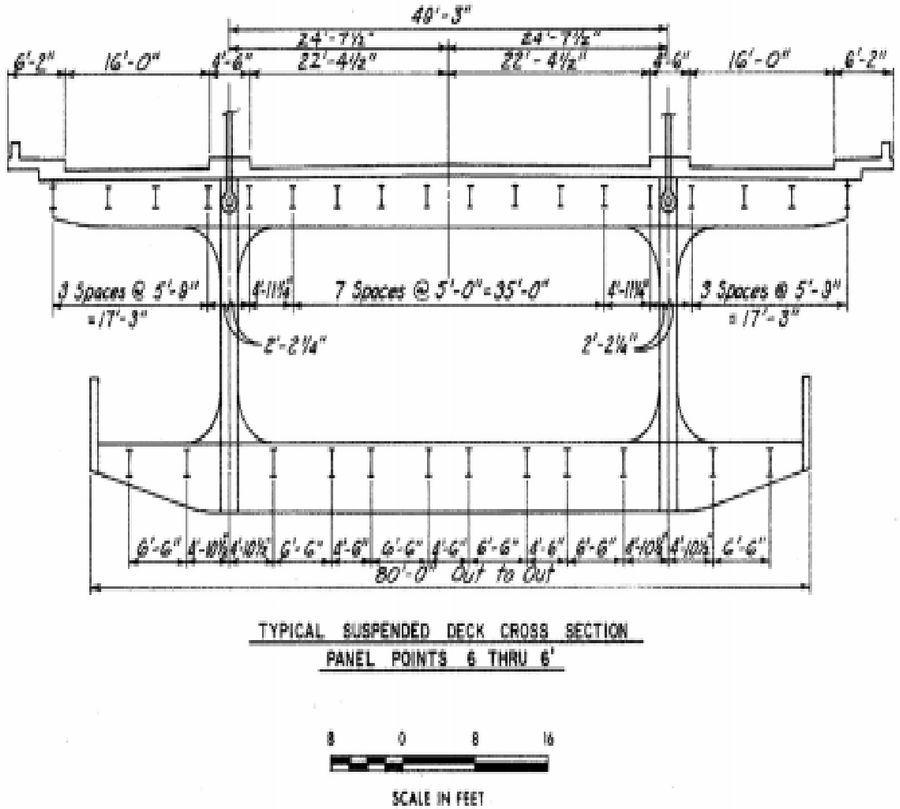




**FIGURE 2: SPAN 4 NOMENCLATURE**

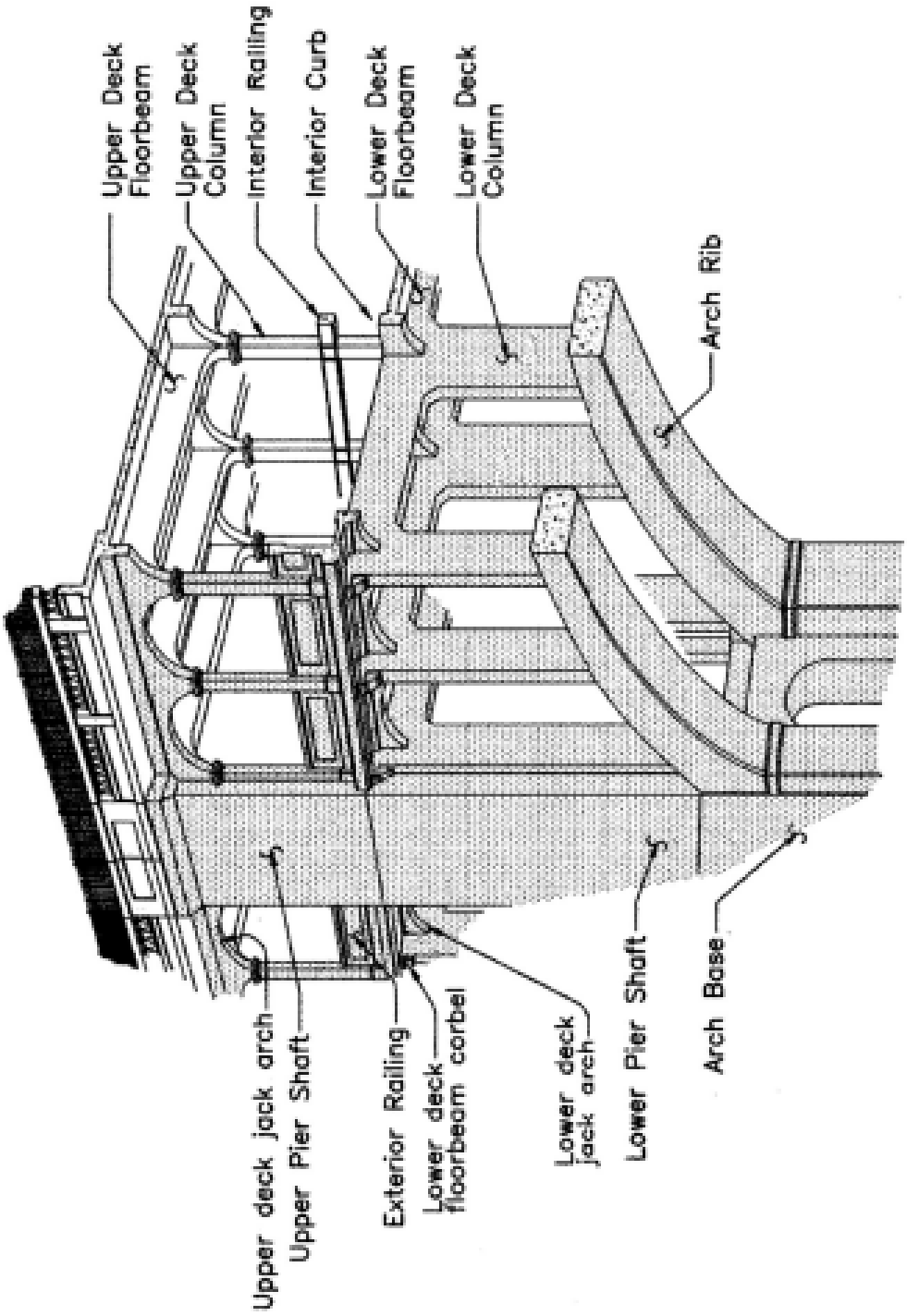
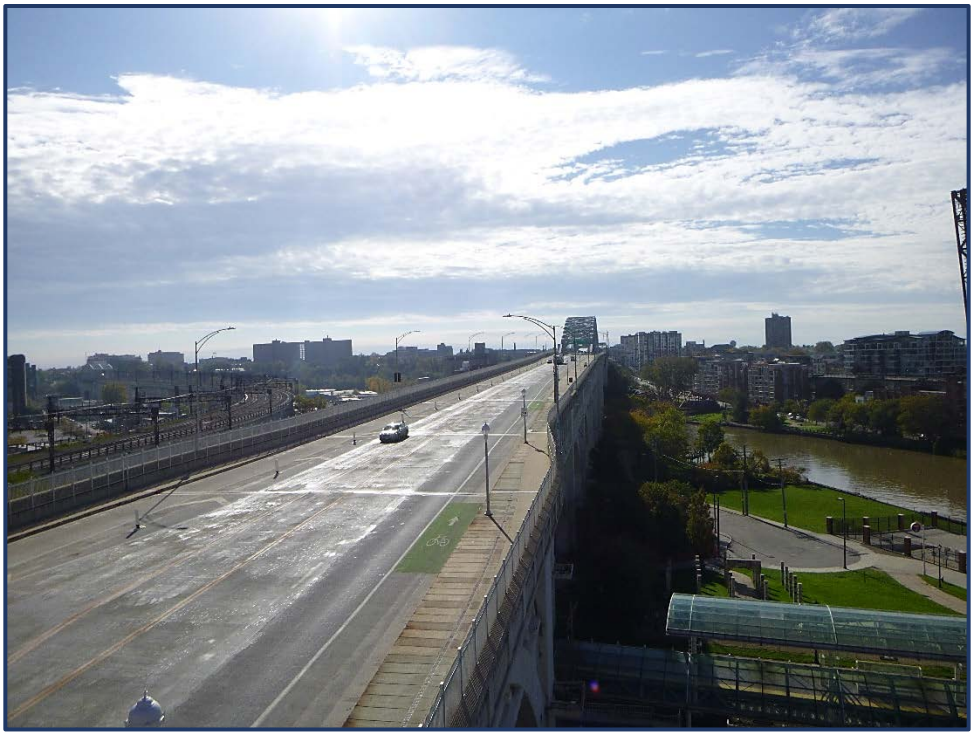



**Figure 3: Upper and Lower Deck Nomenclature, Concrete Arch Spans**

# Structure Typical Photos

West End of Bridge, Looking East



East End of Bridge, Looking West


Main Truss Span (Span 4), Looking West

South Elevation of Bridge, Looking Northwest

North Elevation of Bridge, Looking Southeast

North Elevation of Span 4, Looking South

# Construction and Maintenance History

The following is a summary of significant events in the history of the Detroit-Superior bridge:

- 1914-1917: Construction of the Detroit-Superior High Line Bridge
- November 1917: Bridge opened up to vehicular and pedestrian traffic.
- January 1918: Bridge opened up to streetcar traffic.
- 1953: Streetcar lines abandoned.
- 1967-70 Major Rehabilitation
    - Removal of the original upper deck consisting of four vehicular lanes and two 15-foot wide sidewalks.
    - Strengthening or replacement of all upper deck concrete floorbeams.
    - Span 4: Erection of new steel floorbeam cantilevers.
    - Construction of the new upper deck with six vehicular lanes and two 5-foot wide sidewalks.
- January 18, 1974: Bridge was added to the National Register of Historic Places
- November 11, 1989: Bridge was renamed the Veterans Memorial Bridge.
- 1995-97 Major Rehabilitation
    - Replacement of the upper and lower deck floors.
    - Replacement of select upper and lower concrete floorbeams, columns, jack arches and pier shafts.
    - Application of epoxy-urethane or non-epoxy sealer to most exposed concrete surfaces.
    - Span 4: Replacement of all steel hangers, Panel Points 6 through 6'.
    - Span 4: Replacement of upper deck and lower deck Floorbeams 5 through 5' and the corresponding stringers.
    - Painting of all steel superstructure components.
    - Installation of new drainage system.
    - Installation of architectural lighting.
- 2003 North Sidewalk Linear Park Conversion.
    - Conversion of vehicular traffic to two westbound and one eastbound lane between the steel trusses and one eastbound lane on the Span 4 south cantilever.
    - Widening of the north sidewalk with longitudinal trench drainage.
    - Installation of public art and benches along the modified north sidewalk.
- 2014-2018
    - Span 1A through Span 13: Patching deficient upper deck wearing surface areas.
    - Patch deficient concrete super and substructure components in West Station, Detroit Avenue Tunnel, West 25th Street Tunnel and Spans 1-3 and 5-13. (Note: In Spans 1-3 and 5-13, the patching below the lower deck was later restricted to areas adjacent to and over public areas.)
    - Span 4: Zone painting of primary and secondary truss members between upper and lower decks.

  - Installed hanger caps at hanger opening in upper deck, Panel Points 6 through 6'.
  - Repaired spalled wearing surface in Span 9.
  - Drain pipe cleanout for pedestrian tunnels in the west and east station. (This task was performed but not successful.)
  - South vehicular eastbound lane converted into bike lane.
- 2019 – 2021
  - Replacement of wearing surface with new micro silica modified concrete overlay.
  - Concrete patching and crack sealing in concrete arch spans and approach tunnels.
  - Fiber wrapping in select locations in concrete arch spans over public areas.

# Condition and Element Rating Guidelines

The table below contains the bridge inspection rating matrix established by the Federal Highway Administration (FHWA), and employed by ODOT, using a 0-Failed through 9-Excellent scale. The General Appraisal, Deck, Wearing Surface, Expansion Joint, Superstructure, Protective Coating System, Substructure, Channel and Scour rating will follow these 0 through 9 rating guidelines.

| Summary Items (NBIS) | Condition | Defect |
|---|---|---|
| 9 | Excellent | Excellent condition. |
| 8 | Very Good | No problems noted. |
| 7 | Good | Some minor problems. |
| 6 | Satisfactory | Structural elements show minor deterioration. |
| 5 | Fair | All primary structural elements are sound but may have minor section loss, crackling, spalling or scour. |
| 4 | Poor | Advanced section loss, deterioration, spalling or scour. |
| 3 | Serious | Loss of section, deterioration, spalling or scour has seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present. |
| 2 | Critical | Advanced deterioration of primary structural elements, Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure report. Unless closely monitored it may be necessary to close the bridge until corrective action is taken. |
| 1 | "Imminent Failure" | Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may be put it back in light service. |
| 0 | Failed | Out of service – beyond corrective action. |

*Manual of Bridge Inspection*, Ohio Department of Transportation (ODOT), 2014 (with 2017 & 2021 Addendums)
*Bridge Inspector's Reference Manual*, Federal Highway Administration (FHWA), 2015
*Manual for Bridge Element Inspection, 2nd Edition*, AASHTO, 2019
*National Bridge Inspection Standards*, U.S. Department of Transportation, 2004
*Inspection of Fracture Critical Bridge Members*, U.S. Department of Transportation, 1986

# Inspection Findings

Inspection findings are presented below. Findings shown in RED text indicate new findings during the 2021 inspection.

## NBI Item N58 – Deck (6, Satisfactory Condition)

The deck is in overall ***Satisfactory*** condition. There are two NBI sub-items under the deck condition:

**NBI Item N58.01 – Wearing Surface (8, Very Good Condition)**
**NBI Item N58.02 – Expansion Joints (6, Satisfactory Condition)**

The deck findings and summary of deck conditions for individual deck elements are as follows:

**Element 12 – Reinforced Concrete Deck**
The reinforced concrete deck is in **Satisfactory** condition. The deck is divided into several sections as detailed below:

Detroit Avenue Tunnel: During the 1995-1997 rehabilitation, a new reinforced concrete slab was placed on top of the original slab. The new slab was designed to support live and dead loads, with the original slab offering no structural support. The top and bottom surfaces for the new slab are not visible and assumed to be in good condition, despite the poor and critical conditions of the original tunnel slab beneath (*Photo 12-1*).

West 25th Street Tunnel: The West 25th Street tunnel ceiling is in satisfactory condition, with areas of saturation, isolated delaminated areas and some shallow spalling with exposed reinforcing

West Station: The West Station ceiling is in fair condition and has areas of spalling, cracking and efflorescence, active water infiltration, and exposed reinforcing steel (*Photo 12-2*).

Spans 1A, 1B, and 1 through 13: The upper deck floor in the main spans is in satisfactory condition. There are isolated cracks with some efflorescence, sound and unsound patches and spalls, some with exposed reinforcing (*Photo 12-3*). There are numerous areas of moisture staining, some of which have mottling (*Photo 12-4*).

East Station: The East Station ceiling is overall in good condition with scattered cracking with efflorescence.

Lower Deck: The lower deck floor is not open to vehicular or pedestrian traffic and is therefore not included as part of the element quantities. The lower deck floor is in good condition and consists of reinforced concrete with metal stay-in-place forms in Spans 1

through 3, and Spans 5 through 13. In isolated locations, the stay-in-place forms have active corrosion. In Span 4, the lower deck is an open steel grid type in middle section, and fiberglass grid in the exterior sections.

Refer to *Open Spandrel Arch Drawings* in *Appendix C* for specific deficiencies and locations.

| | Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|---|
| Detroit Ave. Tunnel | 17,950 SF | 17,950 SF | | | |
| West 25th St Tunnel | 13,750 SF | 12,450 SF | 1,100 SF | 200 SF | |
| West Station | 37,800 SF | 24,800 SF | 11,000 SF | 2000 SF | |
| Spans 1A, 1B, 1-13 | 232,250 SF | 220,538 SF | 11,612 SF | 100 SF | |
| East Station | 31,150 SF | 30,838 SF | 312 SF | | |
| Total Structure | 332,900 SF | 306,576 SF | 24,024 SF | 2300 SF | |

**Element 300 – Strip Seal Expansion Joint**

The expansion joints are overall in **Satisfactory** condition. Joints typically have sections with loose debris (*Photos 300-1*). On the sidewalks, there are locations of edge spalls along the joint armor (*Photo 300-2*). There are some scattered areas of active leakage. At the joint at Pier 10, there is a 4' long section of tearing seal in the eastbound lanes (*Photo 300-3*), and minor damage to joint armor. At Joint 1A, there is a 2' long section of broken intermittent fillet welds in the joint armor in the eastbound lanes (*Photo 300-4*). Refer to Table 1 for joint measurements and Table 2 in *Appendix B* for specific deficiencies.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 2,579 LF | 1479 LF | 1000 LF | 100 LF | |

**Element 330 – Metal Bridge Railing**

The median railings are in **Good** condition. The median railings are located along the edges of the roadway in Span 4 to protect the truss and hangers from vehicle impact.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 1366 LF | 1366 LF | | | |

**Element 331 – Reinforced Concrete Bridge Railing**

The concrete railings are in **Good** condition. The railings on the north and south side of the bridge consist of a reinforced concrete railing with an aluminum fence on top. All concrete railing is in good condition with minor cracking, staining, and isolated spalling (*Photo 331-1*). The metal fence has isolated areas of minor damage (*Photo 331-2*). Refer to Table 2 in *Appendix B* for specific deficiencies.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 5,312 LF | 5,158 LF | 150 LF | 4 LF | |

**Element 510 – Wearing Surface**

The wearing surface is in **Very Good** condition. In Spans 1A – 13 and the East Station, the wearing surface is a micro silica modified concrete, which was placed in 2019. There are isolated locations of map cracking in the concrete wearing surface (*Photos 510-1 to 510-2*). Above the Detroit Avenue Tunnel, West 25th Street Tunnel and West Station, the wearing surface is asphalt. This asphalt has areas of transverse and map cracking (*Photos 510-3*).

| | Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|---|
| Concrete | 177,255 SF | 175,255 SF | 2000 SF | | |
| Asphalt | 69,500 SF | 66,025 SF | 3475 SF | | |
| Total Structure | 246,755 SF | 241,280 SF | 5475 SF | | |

**Element 815 – Drainage**

The deck drainage is in **Fair** condition. The West Abutment south downspout and the Pier 1 south downspout are completely clogged at the base of the catch basin (*Photo 815-1*). At Pier 3, the downspout is disconnected at the base of the pier, allowing drainage on the pier face (*Photo 815-2*). The Pier 9, south catch basin concrete frame has shifted and the north catch basin cover has shifted and rotated. The north sidewalk longitudinal trench drains are filled with debris and not functioning (*Photo 815-3*). Some of the scupper inlets are fully or partially clogged (*Photo 815-4*). At Pier 5 on the North Side, and in Span 13 on the South Side (*Photo 815-5*), there is active leakage coming through the utility entrances in the deck, allowing roadway drainage onto the maintenance deck. Refer to Table 2 in *Appendix B* for specific deficiencies.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 28 EA | 20 EA | 4 EA | 2 EA | 2 EA |

**Curb/Sidewalk**
The concrete curb and sidewalk are in **Satisfactory** condition. The curbs and sidewalks have areas of cracking, delamination, and spalling (*Photos CS-1 to CS-2*). The steel curb plates have widespread surface corrosion. Refer to Table 2 in *Appendix B* for specific deficiencies.

## NBI Item N59 – Superstructure (5, Fair Condition)

The superstructure is in ***Fair*** condition. There is an NBI sub-item under the substructure condition:

### NBI Item N59.01 – Protective Coating System (6, Satisfactory Condition)

The protective coating system is in ***Satisfactory*** condition.

The superstructure findings and summaries of conditions for individual items are as follows:

**Concrete Superstructure**

**Element 110 - Reinforced Concrete Beam**
The beams are in overall **Fair** condition. This element consists of the longitudinal beams in the Detroit Avenue Tunnel, West 25th Street Tunnel, and West Station. The concrete beams have delaminations, efflorescence, and some areas of spalling with exposed reinforcing (*Photo 110-1*). Refer to Table 7 in *Appendix B* for specific deficiencies.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 7,394 LF | 6,244 LF | 1,000 LF | 150 LF | |

**Element 144 – Reinforced Concrete Arch**
The concrete arches are in **Fair** condition. This element encompasses the concrete arches and arch columns (*Photo 144-1*). The concrete arches in Spans 5 through 10, Span 13 and portions of Span 3 were patched, crack injected and then wrapped on the underside with FRP to prevent future spalling (*Photo 144-2*). Select columns were also patched. The concrete arches and columns that were not repaired typically have areas of cracking, delamination, poor patching and spalling with and without exposed reinforcing (*Photos 144-2 to 144-6*). The concrete jack arches connecting the columns below the upper and maintenance decks have spalls with exposed reinforcing steel, cracks, and delaminated areas (*Photo 144-7*).

Refer to *Open Spandrel Arch Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 8,040 LF | 6,7400 LF | 1200 LF | 100 LF | |

**Element 155 – Reinforced Concrete Floor Beam**
The concrete floorbeams in Spans 1A, 1B, 1 through 3, and Spans 5 through 13 are in **Satisfactory** condition. The floorbeams have isolated spalls with and without exposed reinforcing, cracking, delaminations, and areas of poor patching (*Photos 155-1 to 155-3*). The lower deck floorbeams tend to be in worse condition than the upper deck floorbeams, however they do not support traffic loading. The structural corbels are included in the rating of this element and exhibit similar defects as the rest of the floorbeams. The lower deck floorbeams in the East Station have the bottom mat of reinforcing steel exposed (*Photo 155-4*). This deterioration has changed little since the 1980s, but they carry no substantial live load. As part of the most recent rehabilitation, the undersides of lower deck floorbeams in Spans 5 through 10, 13 and portions of Span 3 were fiber wrapped after patching, to prevent future spalling (*Photo 155-5*).

Refer to the *Floor System Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 33,543 LF | 22,543 LF | 10,000 LF | 1000 LF | |

## Steel Superstructure (Span 4)

The load bearing components (web plates and flange angles) of the primary truss members and gusset plates are composed of nickel steel, an early high strength steel also known for its corrosion resistant properties. The original hangers, also composed of nickel steel, were replaced with 50 ksi low carbon steel. All lacing member components of the primary truss members, upper and lower deck floorbeams, lateral and longitudinal bracing and sway bracing are composed of 30 ksi carbon steel.

**Element 113 – Steel Stringer**
The stringers are in **Satisfactory** condition. There are 18 lines of stringers in the upper deck and 12 in the lower deck. The upper deck stringers have shear studs welded to the top flange providing composite action with the deck. The upper and lower deck stringers in Panels 4, 5, 5', and 4' were replaced in 1995. The upper deck stringers are in good condition with some areas of active corrosion and pitting at the ends (*Photo 113-1*). The

original curb stringers of Lines E and N have areas of painted over pitting and some corrosion holes, with some active corrosion throughout their length (*Photos 113-2 to 113-3*).

The lower deck is not open to vehicular or pedestrian traffic; the stringers are therefore not included as part of the element quantities. The stringers supporting the steel grid deck are in good condition. Stringers D, E, I and J, which support only their own dead load, have areas of painted over advanced section loss and perforations at the floorbeams and saddle bearings. Stringer K, which supports the south fiberglass pedestrian deck, has similar locations of advanced section loss (*Photo 113-4*). The rest of the stringers supporting the outer pedestrian fiberglass grid deck are in good condition.

Refer to Tables 3 & 4 in *Appendix B* and *Truss Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 10,638 LF | 10,338 LF | 200 LF | 100 LF | |

**Element 120 – Steel Truss**

The steel truss is overall in **Satisfactory** condition. There are areas of pack rust, pitting, surface corrosion, and rivet head loss, which are worse at and below the upper deck (*Photos 120-1 to 120-3*). Advanced section loss and perforations, many of which have been cleaned and painted over, are present in the batten plates and lacing bars (*Photos 120-4 to 120-5*). At the eyebar connections, there are areas of painted over and reactivated pitting in the web plates (*Photo 120-6*). Refer to T*russ Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 1182 LF | 490 LF | 500 LF | 192 LF | |

**Element 152 – Steel Floor Beam**

The steel floorbeams are in **Satisfactory** condition. The floorbeams typically have painted over perforations near the deck openings at the truss lines, with repair plates welded in place at some of these locations (*Photos 152-1 to 152-4*). Active surface corrosion is present due to ongoing water infiltration at the deck openings.

On lower deck Floorbeams 10, 12 and 11’ through 6’, there are cracks along the weld of the stiffening plates to the top flange at the north truss line (*Photo 152-5*). Some of the

cracks have increased in length from the 2020 Inspection. The cracks at Floorbeam 12 were not noted in previous inspections.

Refer to Tables 3 & 4 in *Appendix B* and *Truss Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 3,925 LF | 3,575 LF | 200 LF | 150 LF | |

**Element 161 – Steel Pin & Hanger Assembly**
The pins, hangers and hinges are in **Good** condition with no significant deficiencies noted. Minor painted over pitting was noted on some eye-bars below the upper deck (*Photo 161-1*). There is active corrosion on some of the hangers above the previous zonal painting. Refer to Tables 3 & 4 in *Appendix B* and *Truss Drawings* in *Appendix C* for specific deficiencies and locations.
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| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 30 EA | 27 EA | 3 EA | | |

**Element 162 – Steel Gusset Plates**
The truss gusset plates are in **Fair** condition. The gusset plates typically have areas of active surface corrosion. The lower chord gusset plates below the upper deck typically have painted over pitting and reactivating corrosion along the top of the lower chord (*Photos 162-1 to 162-2*). In other some locations, the gusset plates have areas of pitting and rivet head loss. Refer to *Truss Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 100 EA | 20 EA | 47 EA | 33 EA | |

**Lateral Bracing & Sway Bracing**
The lateral bracing and sway bracing is in **Satisfactory** condition with isolated areas of active surface corrosion, pack rust, and advanced section loss including perforations

(*Photo BR-1*). Refer to *Truss Drawings* in *Appendix C* for specific deficiencies and locations.

**Element 313 – Fixed Bearing**
The bearings are in **Fair** condition with some pack rust around the pins, and surface corrosion noted on the interior faces of all four bearing castings (*Photo 313-1*). The non-structural bearing pin cover plates have cracks up to 7 inches long at L0 and L0' on both trusses (*Photo 313-2*). The north pin cover at L0 on the north truss has broken off (*Photo 313-3*). There is advanced section loss of some of the anchor bolt and nuts (*Photo 313-4*).

Between the deck underside and the top of the transverse floorbeams over Piers 11 & 12, there are 3" H concrete pedestals with galvanized steel plates sitting on top and between each pedestal. In several locations, these plates are missing and no longer support the deck underside, or are have varying displacements from the bearing pedestal (*Photo 313-5*).

Refer to *Truss Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 4 EA | | 4 EA | | |

**Item 515 – Steel Protective Coating**
The protective coating system (PCS) is in **Satisfactory** condition. Areas of corrosion, peeling and failed paint are present on the main truss members below the lower deck (*Photo 515-1*). The structural steel between the upper and lower decks was repainted in 2014-2015 and is in good condition. The protective coating system above the upper deck has surface corrosion with minor rust staining.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 214,850 SF | 190,340 SF | 13,780 SF | 10,130 SF | 600 SF |

**Fatigue Prone Details**
The fatigue prone details are in **Fair** condition. Stiffening retrofit plates welded to the top flange of the lower deck floorbeams at the truss lines are classified as Category E fatigue details. Cracks in the fillet welds are present at several locations. Refer to

*Element 152 – Steel Floor Beam* above for additional details on crack locations and growth.

## NBI Item N60 – Substructure (6, Satisfactory Condition)

The substructure is in overall **Satisfactory** condition.

The substructure findings and summary of conditions for individual items are as follows:

**Element 205 – Reinforced Concrete Column**
The pier columns are in **Satisfactory** condition. This item includes the main span pier columns, columns in Spans 1A and 1B, and the columns in the subway tunnels and stations. The main span pier columns have areas of map cracking, failing patching, and delaminations (*Photos 205-1 to 205-2*). There are also a few areas of minor spalling with exposed reinforcing. The decorative arches above these columns have areas of map cracking, failing patching, delamination and spalling with exposed reinforcing. The remaining columns have areas of failing patching, delamination, and spalling with and without exposed reinforcing (*Photos 205-3 to 205-4*).

The decorative towers on the north and south faces of the piers typically have widespread cracking, delamination and spalling with and without exposed reinforcing (*Photo 205-5*). The south towers at Piers 5 through 7 are leaning away from bridge, with gaps up to 2¼-in between the top of the tower and the outside face of the upper jack arches (*Photo 205-6*). Detailed measurements of the gaps between these towers and the adjacent bridge features are given *Table 5* in *Appendix B*. No change was noted between the current measurements and those taken during the 2020 inspection.

Refer to *Table 7* in *Appendix B* and *Substructure Drawings* in *Appendix C* for specific deficiencies and locations.

| | Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|---|
| Main Span Piers | 40 EA | 25 EA | 15 EA | | |
| Spans 1A & 1B | 108 EA | 35 EA | 25 EA | 48 EA | |
| Tunnels & Stations | 365 EA | 280 EA | 60 EA | 25 EA | |
| Total Structure | 513 EA | 340 EA | 100 EA | 73 EA | |

**Element 210 – Reinforced Concrete Pier Wall**
The pier walls at Piers 1, 3 and 4 are in **Satisfactory** condition. The west face of Pier 1 is primarily covered by fill. The exposed portions of the pier walls have areas of map cracking and delamination (*Photo 210-1*). Piers 3 and 4 are located adjacent to the

Cuyahoga River. The portion of Pier 3 that is exposed to the channel has widespread areas of deep abrasion and numerous spalls (*Photo 210-2*). Piers 3 and 4 are cellular type structures, which are open on their Span 3 and 5 faces, respectively. The interiors faces of the walls have areas of delamination and spalling with exposed reinforcing (*Photo 210-3*). Refer to *Substructure Drawings* in *Appendix C* for specific deficiencies and locations.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 200 LF | 100 LF | 50 LF | 50 LF | |

**Element 215 – Reinforced Concrete Abutment**

The abutment walls are in **Satisfactory** condition. The abutment walls consist of the West and East Abutments and the walls of the Detroit Avenue and West 25th Street Tunnels. The abutments have areas of cracking with minor moisture staining, delamination and some spalling (*Photos 215-1*). Some staining appears to be superficial due to leaking deck joints above. In the tunnels, the lower 1-ft to 2-ft of the walls have widespread shallow spalling with exposed reinforcing (*Photo 215-2*). The portions of the walls in the tunnels above these areas were repaired as part of the most recent rehabilitation.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 3,459 LF | 3,159 LF | 200 LF | 100 LF | |

**Element 830 – Abutment Backwall**

The backwalls are in **Good** condition. The backwalls consist of the closure panels at the ends of the West 25$^{th}$ Street Tunnel, Detroit Avenue Tunnel, and East Station.

| Total Quantity | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|
| 263 LF | 263 LF | | | |

**Wingwalls**

The wingwalls are in **Poor** condition. The wingwalls along Spans 1A and 1B and the East Station have cracking and spalling with exposed reinforcement throughout (*Photo WW-1*). Refer to *Substructure Drawings* in *Appendix C* for specific deficiencies and locations.

**Tower B South**

A section of the rear abutment, south wingwall at Tower B has through cracks in the wall and associated footing, and the tower and cracked section of the wall are leaning to the

south (*Photo WW-2*). It has continued to show incremental movement over the past 10+ years. On the interior, the top of the tower is spalled and cracked due to contact with the soffit of the upper level sidewalk. Crack gages have been placed at several locations to monitor the movement of the section. Crack gauges located at the base of Tower B are cracked and slightly displaced. New gauges should be installed to ensure an accurate record of the tower rotation is maintained. Refer to Table 6 in *Appendix B* for detailed defect drawings and crack gage measurements.

**West and East Abutment Chambers**
The chambers below Spans 1A and 1B on the west approach and below the East Station were inspected, however, they are not included in any of the quantities within this report. Horizontal, vertical, diagonal and map cracking with efflorescence and moisture staining are present throughout all cells (*Photo AC-1*). Areas of delaminations and spalling with exposed reinforcing are present in scattered locations. The floors are typically covered in dirt and construction debris. In the west chamber, there is heavy cracking around south Tower B (see discussion above for more details), and there are crack gauges present at several other locations.

**Water Infiltration**
Standing water was noted in the pedestrian tunnel under the West Station. In the east abutment chamber, most of the lower cells are filled with standing water. The pedestrian tunnel under the East Station is also filled with standing water.

**Slope Protection**
The slope protection is in **Satisfactory** condition, with some areas of erosion and sliding material noted.

## NBI Item N61 –Channel (6, Satisfactory Condition)

The Channel is in ***Good*** condition. There is an NBI sub-item under the Channel condition:

**NBI Item N61.01.01 – Scour (7, Good Condition)**

The bridge scour is in ***Good*** condition.

The channel findings and summary of conditions for individual items are as follows:

**Alignment**
The alignment is in **Good** condition. The channel is skewed with respect to the piers, but this is an as-built condition (*Photos CH-1*).

**Protection**
The channel protection is in **Satisfactory** condition with only minor deficiencies. The west bank is vegetated with some dumped rock channel protection. The east bank is protected by a sheet pile wall.

**Hydraulic Openings**
The hydraulic opening is in **Good** condition with no major constrictions associated with the bridge.

**Navigation Lights**
The navigation lights are in **Poor** condition. None of the six lights were functioning at the time of inspection. No damage was noted to the light fixtures.

**Scour**
The scour is in **Good** condition. An underwater bridge inspection was performed on July 8, 2020. No areas of exposed foundation or significant scour holes were found in the inspection.

## Approaches

The approaches are in ***Satisfactory*** condition.

The approach findings and summary of conditions for individual items are as follows:

**Approach Wearing Surface**
The approach wearing surfaces are in **Satisfactory** condition. There are some areas of transverse and map cracking.

**Embankment**
The approach embankments are in **Fair** condition. The embankment under Spans 1 through 3 has several slope depressions (*Photo APR-1*). This embankment was primarily loose soil placed over demolition debris. Beneath this fill are two concrete struts between Pier 2 and 3 used to maintain stability during construction. The south strut is preventing portions of the fill from sliding into the Cuyahoga River. This embankment is being monitored with slope inclinometers maintained by ODOT District 12.

The embankment along the south side of Spans 1A and 1B has significant erosion for the full length. At the west end of the erosion, there is a 15’ diameter x 4’ deep erosion ditch around a manhole (*Photo APR-2*). An erosion ditch extends from the manhole towards the east typically 3’ W x 2’ D. This erosion is relatively unchanged from the 2020 inspection. Tower B South, which is in this area, is leaning due to slope instability, as previously discussed.

Refer to *Substructure Drawings* in *Appendix C* for specific deficiencies and locations.

**Guardrail**
The approach guardrails are in **Good** condition with some minor impact scrapes in the concrete rail.

**Security Items**

There are locations where the structure and structure right-of-way can be accessed by non-bridge personnel. The fence which encloses the area under Span 1 and along the south sides of Spans 1A and 1B is accessible due to an unlocked gate on the southeast end of Pier 1, and two locations where holes have been cut into the fence on the south side of Spans 1A & 1B (*Photos APR-3 to APR-5*). Due to these openings, there are multiple homeless encampments within the fenced in area. Preventative access steel mesh installed outside Span 1A near Tower A to prevent access has failed (*Photo APR-6*). Security fencing installed around Piers 2 and 3 can easily be surpassed, and there is evidence of a homeless encampment inside of Pier 3.

A chain link enclosure for the Center Street Bridge operator's vehicle on the west side of Pier 4 allows vandals to climb the fencing cover to access the Span 4 truss. From here the vandals have vandalized Pier 4 and have access to the truss lower chord and potentially the lower deck.

## Signs & Utilities

### Signs

The signs on the structure are in **Good** condition.

### Utilities

The utilities are in **Satisfactory** condition. The lower deck telephone junction chambers and supports are corroded due to saltwater infiltration through the manhole above (*Photo UT-1*). At Pier 5 on the North Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck. A utility line mounted below the top deck in the south bay is sagging and making contact with the maintenance deck in several locations (*Photo UT-2*). There is a missing electric junction box cover on the south concrete rail in Span 7 (*Photo UT-3*).

### Lighting

The lighting on the bridge is in **Fair** condition. Architectural light pole bases on the north sidewalk in Spans 5, 8 and 11 have cracked and are broken (*Photo UT-4*). Two of the architectural lights on the north sidewalk, and numerous of the taller, cobra style roadway lights are not functioning. All the exterior pier shaft light brackets have paint failure and corrosion with minor section loss present (Photo UT-5). Many of the architectural lights attached to the lower deck fascia are not functioning, and several are visually broken (*Photo UT-6*).

# Recommendations

The General Appraisal and Operating Status for the Veterans Memorial/Detroit Superior Bridge over the Cuyahoga River is in overall **5A, Fair** condition. The superstructure components are the governing element for this condition rating.

The following items are recommended by Palmer Engineering:

Immediate:

- Clean and paint areas of active corrosion on the steel truss.
- Clean and repair clogged and/or damaged drainage system components.
- Repair areas of deteriorated concrete at the arches.
- Repair and clean areas of the deteriorated substructure concrete.
- Determine a permanent repair to correct or stabilize the Tower B rotation.
- Replace the strip seal at the Pier 10 Joint.
- Repair the broken welds on Joint 1A armor.
- Repair the navigation lights that are not functioning.
- Replace missing electric junction box cover on the south concrete rail in Span 7
- Repair the embankment in Spans 1A and Span 3.
- Secure all access points to the structure, and remove the homeless encampments from Span 1 and Pier 3.

Routine:

- Monitor areas of concrete deterioration that could cause damage to vehicular and pedestrian traffic.
- Clean the expansion joints.
- Look into feasibility of draining the flooded areas of the east and west stations to gain access and perform a thorough inspection.
- Continue to monitor the rotation of the tower shafts.
- Repair non-functioning architectural lighting.

# APPENDIX A – INSPECTION PHOTOS

# DECK PHOTOS

*Photo 12-1 – Detroit Ave Tunnel, Typical Spalling of Non-structural Deck*

*Photo 12-2 – West Station, Typical Scattered Deck Spalling with Saturation and Efflorescence*

*Photo 12-3 – Main Spans, Typical Scattered Deck Spalling*

*Photo 12-4 – Main Spans, Deck Saturation with Mottling and Efflorescence*

*Photo 12-5 – View of Deck from Maintenance Deck, Span 4, Center Section*

*Photo 300-1 – Expansion Joint, Typical Debris Impaction*

*Photo 300-2 – Joint in Span 4 at PP5, Spalling and Cracking of Header at North Sidewalk Expansion Joint*

*Photo 300-3 – Pier 10 Joint, 4' Section of Seal Tearing*

*Photo 300-4 Joint 1A, 2' Section of Broken Intermittent Fillet Welds in Joint Armor*

*Photo 331-1 – South Rail, Typical Cracking and Staining*

*Photo 331-2 – South Rail Fence, Area of Damage in Span 5*

*Photo 510-1 – Map Cracking in Wearing Surface*

*Photo 510-2 – Map Cracking in Wearing Surface*


*Photo 510-3 – West Station, Areas of Cracking in Wearing Surface*

*Photo 815-1 –Pier 1, East Face, South Downspout Fully Clogged.*


*Photo 815-2 – Pier 3, South Downspout Disconnected at Outlet*

*Photo 815-3 – North Sidewalk Longitudinal Drain, Typical Clogging with Debris*

*Photo 815-4 – Span 1, South Curb Scupper Inlet Fully Clogged with Debris*

*Photo 815-5 – Span 13, Heavy Deck Drainage through Utility Manhole*

*Photo CS-1 – South Sidewalk, Typical Edge Spalling*

*Photo CS-2 – Span 4 North Sidewalk, Delamination and Cracking along Longitudinal Drain*

# SUPERSTRUCTURE PHOTOS

*Photo 110-1 – West Station, Spalling of Concrete Beam*

*Photo 144-1 – Span 9 Reinforced Concrete Arches*

*Photo 144-2 – Span 13, FRP on Underside of Concrete Arches*

*Photo 144-3 – Span 1, North Exterior Arch, Map Cracking and Delamination of Arch Rib*

*Photo 144-4 – Span 3, South Exterior Arch, Map Cracking and Delamination of Arch Rib*

*Photo 144-5 – Span 8, South Interior Arch, Spalling of Arch Column*

*Photo 144-6 – Span 7, North Interior Arch, Spalling of Arch Column*

*Photo 144-7 – Span 8, North Exterior Arch, Cracking and Delamination of Jack Arch*

*Photo 155-1 – Span 3, Lower Deck FBs, South Bay, Cracking, Delamination and Spalling with Exposed Reinforcing*

*Photo 155-2 – Span 12, Widespread Cracking, Delamination and Spalling of Lower Deck Floorbeams*

*Photo 155-3 – Span 3, Upper Deck FB 3, Center Bay, Spalling and Delamination*

*Photo 155-3 – Span 13, Upper Deck FB 6, South Bay, Spalling and Delamination*

*Photo 155-4 – East Abutment Chamber Floorbeams, Typical Spalling*

*Photo 155-5 – Span 10, FRP on Underside of Lower Deck Floorbeams*

*Photo 113-1 – Span 4, Upper Deck Stringers, Typical Surface Corrosion and Minor Pitting on Stringer Ends*

*Photo 113-2 – Span 4, Upper Deck Stinger E, Bay 4'-5', Active Pitting Corrosion and Painted over Pitting*

*Photo 113-3 – Span 4, Upper Deck Stinger E, Bay 2-3, 5” L x 2” W Perforation at FB3*

*Photo 113-4 – Span 4, Lower Deck Stringer K at FB3’, Painted over Perforations*

*Photo 120-1 – Span 4, South Truss, U0-U1, Active Pack Rust between Web Plate and Flange Angles.*

*Photo 120-1 – Span 4, North Truss, U11-U12, Active Pack Rust between Web Plate and Flange Angles.*

*Photo 120-2 – Span 4, North Truss, U1'-L2', Active Corrosion extending down from Upper Deck*

*Photo 120-3 – Span 4, South Truss, L2'-L3'', Active Corrosion and Pack Rust*

*Photo 120-4 – Span 4, South Truss, U1-L1, Painted Over Section Loss and Corrosion Hole in Lacing Bar at Deck Level*

*Photo 120-5 – Span 4, South Truss, U3-L4,, Perforations in Batten Plate, with Reactivating Corrosion*

*Photo 120-6 – Span 4, North Truss, L10, Reactivating Pitting around Hanger Pin*

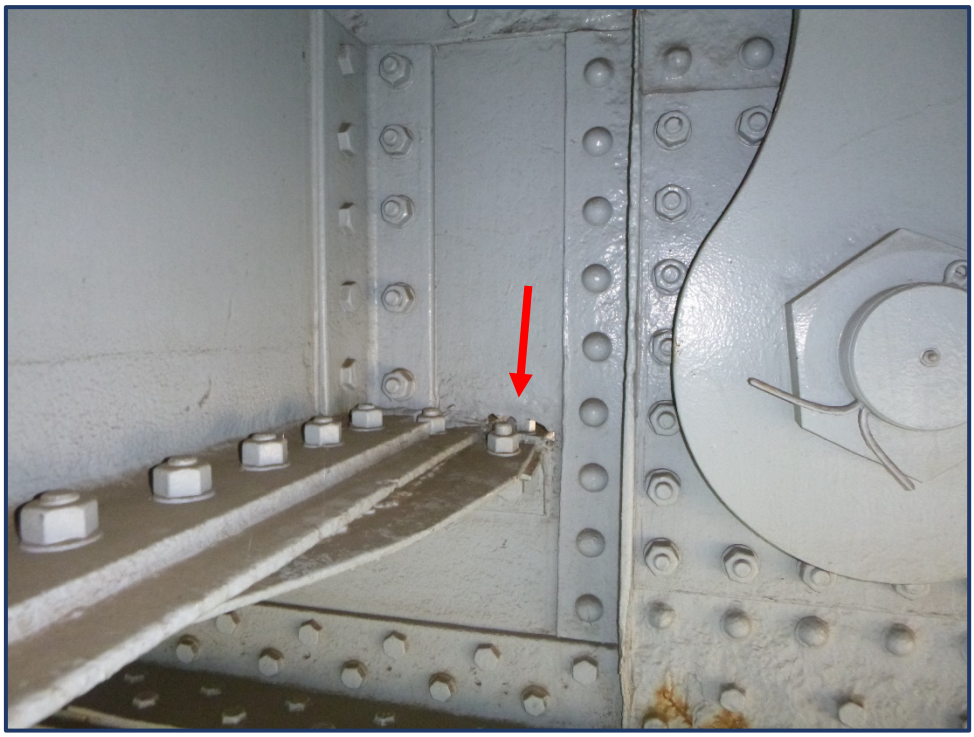


*Photo 152-1 – Span 4, Upper FB10 between North Truss & Stringer E, Area of Perforations in Web*

*Photo 152-2 – Span 4, Upper FB0', Pitting of Floorbeam and Perforations in Stiffeners.*

*Photo 152-3 – Span 4, Lower FB0, North End, Perforations and Active Corrosion of Bottom Flanges*

*Photo 152-4 – Span 4, Lower FB9 at South Truss, Pitting and Perforations*


*Photo 152-5 – Span 4, Lower FB12, North End, West Face, 5-5/8" Crack in Top Flange Stiffener Retrofit*

*Photo 161-1 – Span 4, North Truss, Hanger Connection at Lower FB4, Pitting around Pin*

*Photo 162-1 – Span 4, South Truss, L2 South Gusset Plate, Active Pitting along L1-L2*

*Photo 162-2 – Span 4, South Truss, L2' Gusset Plates, Active Pitting & Pack Rust*

*Photo BR-1 – Active Corrosion and Pack Rust on Sway Bracing Members*

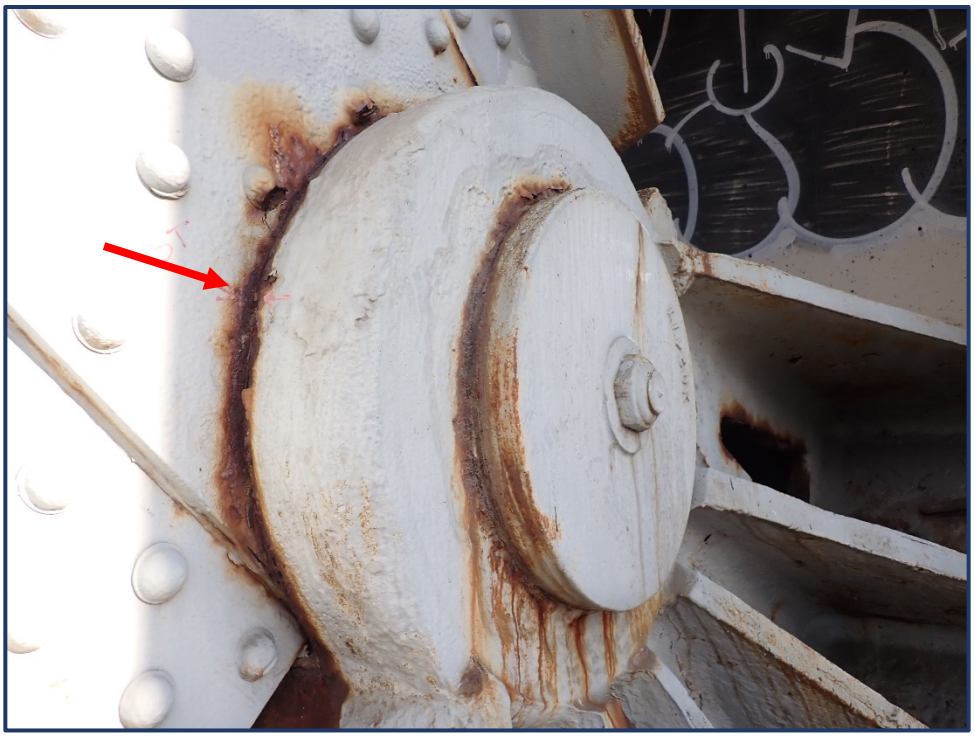


*Photo 313-1 – Span 4, South Truss, L0' Bearing, Pack Rust Around Pin*

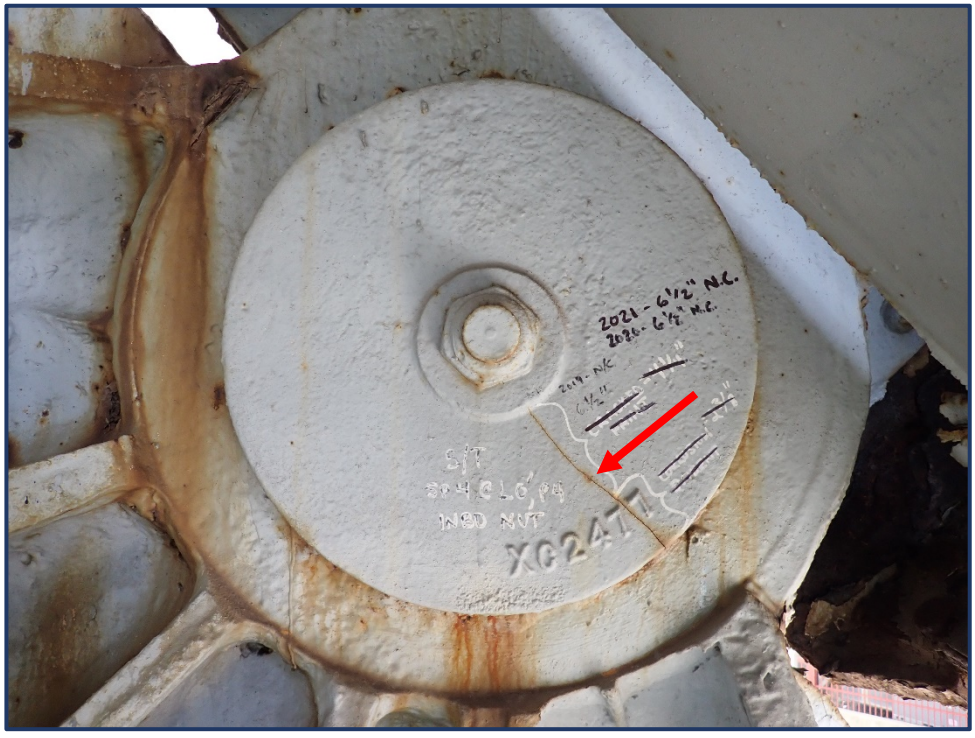



*Photo 313-2 – Span 4, South Truss, L0' Bearing, Crack in North Pin Cover Plate*

*Photo 313-3 – Span 4, North Truss, L0 Bearing, Missing Pin Cover Plate*

*Photo 313-4 – Span 4, South Truss, L0' Bearing, Anchor Bolt & Nut Section Loss*

*Photo 313-5 – Pier 11, Slab/Floorbeam Bearing Plates between Ribs C & D, Movement of Bearing Plates*

*Photo 515-1 – Span 4, Peeling Paint and Surface Corrosion Below Upper Deck*

# SUBSTRUCTURE PHOTOS

*Photo 205-1 – Pier 7, West Face*

*Photo 205-2 – Pier 11, West Face*

*Photo 205-3 – Span 1A, Typical Column Spalling with Exposed Reinforcing*

*Photo 205-4 – West Station, Column Spalling with Exposed Reinforcing*

*Photo 205-5 – Pier 5, South Tower, Widespread Delamination and Spalling with Exposed Reinforcing*

*Photo 205-6 – Pier 6, South Tower Leaning Away from Bridge at Top*

*Photo 210-1 – Pier 4, West Face, Typical Map Cracking in Lower Portion*

*Photo 210-2 – Pier 3, Southeast Corner, Spalling at Waterline*

*Photo 210-3 – Pier 4, Typical Spalling of Interior Face of Pier Walls*


*Photo 215-1 – West Station, Spalling with Exposed Reinforcing on Walls*

*Photo 215-2 – Detroit Ave. Tunnel, Typical Spalling on Lower Portions of Walls*


*Photo WW-1 – Span 1A South Wingwall, Area of Spalling with Exposed Reinforcing*

*Photo WW-2 – West Abutment Chamber, Crack Through Footing at Tower B*

*Photo AC-1 – West Abutment Chamber, Typical Cracking with Staining and Shallow Spalling*

# CHANNEL PHOTOS

*Photo CH-1 – Downstream Channel, Looking South*

# APPROACH PHOTOS

*Photo APR-1 – Erosion of Embankment on West Side of Pier 3*

*Photo APR-2 – Erosion Hole and Channel on South Side of Span 1A*

*Photo APR-3 – Open Fence at Southeast Corner of Pier 1*

*Photo APR-4 – Hole Cut in Vandal Fence Fabric at South Corner of West Abutment*

*Photo APR-5 – Hole Cut in Vandal Fence Fabric at South Corner of Span 1A*

*Photo APR-6 – Failed Preventive Access Steel Mesh on South Side of Span 1A*

# UTILITY PHOTOS

*Photo UT-1 – Deteriorated Lower Deck Utility Junction Chamber Support.*

*Photo UT-2 – Sagging Utility Line on Maintenance Deck*

*Photo UT-3 – Missing Electric Junction Box Cover, South Railing, Span 7*

*Photo UT-4 – Broken Light Pole Base Cover on North Sidewalk*

*Photo UT-5 – Typical Corrosion and Minor Section Loss on Tower Light Brackets*

*Photo UT-6 – Broken Architectural Light, Span 8 North Fascia*

# APPENDIX B – DETAILED INSPECTION FINDING TABLES

| Table 1: Strip Seal Joint Measurements | | | | | | |
|---|---|---|---|---|---|---|
| **Date:** | **2021** | | | **2020** | | |
| | **Temperature: 70°F** | | | **Temperature: 60°F** | | |
| **Joint Location** | **Joint opening measurements** | | | **Joint opening measurements** | | |
| | **Left side** | **Center** | **Right Side** | **Left side** | **Center** | **Right Side** |
| Tower A | 1-3/4" | 3/8" | 1-1/4" | 1-5/8" | 1/4" | 1" |
| Tower B | 1-7/8" | 1-7/8" | 2-1/4" | 1-3/4" | 1-3/4" | 2-1/2" |
| West Abutment | 1-5/8" | 1-3/4" | 2-1/8" | 1-3/4" | 1-3/4" | 2-1/2" |
| Pier 1 | 1-3/8" | 1-1/2" | 2" | 1-7/8" | 1-3/4" | 2-1/4" |
| Pier 2 | 1-1/2" | 1-5/8" | 1-7/8" | 1-3/4" | 1-7/8" | 2-1/8" |
| Pier 3 West | 1-7/8" | 2" | 2-1/4" | 2-1/8" | 2-1/4" | 2-1/2" |
| Pier 3 East | 1-1/8" | 1-1/8" | 1-1/2" | 1-1/2" | 1-7/8" | 1-5/8" |
| Span 4 at PP5 | 1-1/2" | 1-3/8" | 2" | 1-1/4" | 1-3/8" | 2-1/8" |
| Span 4 at PP5' | 1-7/8" | 1-5/8" | 2" | 2-1/8" | 1-3/4" | 2" |
| Pier 4 West | 1-1/2" | 1-1/4" | 1-5/8" | 1-1/2" | 1-3/8" | 1-3/4" |
| Pier 4 East | 2-3/8" | 2-1/4" | 2-3/8" | 2-3/8" | 2-3/8" | 2-1/2" |
| Pier 5 | 1-1/2" | 1-1/2" | 1-7/8" | 1-3/4" | 1-5/8" | 2" |
| Pier 6 | 1-3/4" | 1-5/8" | 2" | 2" | 1-3/4" | 2-1/4" |
| Pier 7 | 1-3/4" | 1-5/8" | 2" | 1-7/8" | 1-3/4" | 2-1/4" |
| Pier 8 | 1-7/8" | 1-7/8" | 2-1/8" | 2" | 2" | 2-1/4" |
| Pier 9 | 1-3/4" | 1-3/4" | 2" | 2" | 1-7/8" | 2-1/8" |
| Pier 10 | 1-3/4" | 1-7/8" | 2-1/8" | 1-7/8" | 2" | 2-1/4" |
| Pier 11 | 2" | 1-7/8" | 2" | 2" | 2" | 2-1/8" |
| Pier 12 | 2" | 2" | 2-3/8" | 2-1/8" | 2-1/4" | 2-1/8" |
| East Abutment | 1-5/8" | 1-5/8" | 1-3/4" | 1-3/4" | 1-3/4" | 1-3/4" |

* Measurements taken between face of armor

| Table 2: Top of Deck Deficiencies | | |
|---|---|---|
| **Unit** | **Span** | **Defect Description** |
| Sidewalk | 1A | South Sidewalk has a 4’ L x 4” W x 1” D spall. |
| Joint | 1A | Joint between the west approach and Span 1A is partially filled with debris. The joint is nearly closed in the center and open in the shoulders. There is a 2' long section of broken intermittent field welds on the ojint armor in the eastbound lane. |
| Joint | 1A | Joint between Spans 1A and 1B has up to 1/8" D gouges in the north half of the joint armor. |
| Concrete Railing | 1A | South railing at Tower A has 7/8" vertical misalignment. |
| Concrete Railing | 1B | South railing at Tower B has 1/2" vertical misalignment. |
| Drainage | 1 | South shoulder near the West Abutment has a clogged scupper. |
| Sidewalk | 3 | 8' L x 9" W crack and delamination in the south sidewalk near Pier 3 West. |
| Sidewalk | 4 | 2' L x 14" W x 2" D spall in the north sidewalk at the Pier 3 west joint. |
| Curb | 4 | Random spalling along the curbs, full length of span. |
| Concrete Railing | 4 | North and south concrete railing have spalls up to 2’-0” H x 9” W x 4” D along the joint where the utility conduits are exposed. |
| Sidewalk | 4 | FW x up to 12” L spalling and delaminated concrete on both sides on the North Sidewalk joint header at the Pier 3 east joint. |
| Sidewalk | 4 | North Sidewalk has intermittent spalling over FL x 18” W x up to 1- 1/2” D with cracking and delamination typical along the longitudinal drain. Longitudinal drains are fully clogged. |
| Sidewalk | 4 | Intermittent spalling and cracking along either side of joint at Panel Point 5’ in the north sidewalk up to 1/2” D. |
| Sidewalk | 4 | Intermittent spalling along either side of joint at Panel Point 5 in the north sidewalk up to 1/2” D. |
| Sidewalk | 4 | North sidewalk has intermittent spalling over a 50’ L x 18” W x up to 1-1/2” D. |
| Sidewalk | 4 | 30' L x 2" D spall around the longitudinal drain on the north sidewalk near the pier 3 east joint. |
| Curb | 4 | Typical spalling in Right Truss curb up to 3” D. |
| Sidewalk | 4 | 5' L x 6" W x 2" D spall in South Sidewalk at Panel Point 2. |
| Sidewalk | 4 | 2’-7” L x 6” W x up to 2” D spall in South Sidewalk at Panel Point 5. |
| Sidewalk | 4 | 2’-4” L x 8” W x 2” D spall in South Curb at Panel Point 8. |
| Sidewalk | 4 | 2’-5” L x 6” W x 1-1/2” D spall in South Sidewalk at Panel Point 9. |
| Sidewalk | 4 | 2' L x 7” W x 2” D spall in South Sidewalk at Panel Point 10. |
| Sidewalk | 4 | 2’ L x 19” W x 2” D spall in South Sidewalk at Panel Point 10'. |
| Sidewalk | 4 | 7' L x Full Width Delamination on South Sidewalk at Panel Point 4'. |
| Sidewalk | 4 | 2’-8” L x 7” W x 1-1/2” D spall in South Sidewalk at Panel Point 1'. |
| Sidewalk | 4 | 2’-4” L x 6” W x 2” D spall in South Sidewalk at Panel Point 1'. |
| Lighting | 4 | Base of light pole is broken at Pier 4 west. |
| Lighting | Pier 4 | Base of light pole on north sidewalk over Pier 4 is broken. |
| Sidewalk | Pier 4 | 3'-0" L x 13" W x 1-1/2" D spall in the north sidewalk near the pier 4 east joint. |
| Vandal Protection Fence | 5 | South vandal protection fence, top of rail is bent outward 2' L. |

| Table 2: Top of Deck Deficiencies | | |
|---|---|---|
| **Unit** | **Span** | **Defect Description** |
| Sidewalk | 6 | 5' L x 13" W x 2" D spall in the North sidewalk. |
| Sidewalk | 7 | 2' L x 8" W - 1-1/2" D spall in South Sidewalk. |
| Sidewalk | 7 | 2'-4" L x 6" W x 1-1/2" D spall in South Sidewalk. |
| Sidewalk | 7 | 15' L x 25' W delamination in the South Sidewalk. |
| Vandal Protection Fence | 7 | South vandal protection fence has damage over a 4’ Length. |
| Lighting | 7 | Missing pullbox cover on the South side. |
| Drainage | 7 | There is a missing drain cover on the longitudinal drain near Pier 6. |
| Sidewalk | Pier 7 | 15' L x 4' W delamination with edge spalling in the south sidewalk. |
| Vandal Protection Fence | 8 | South vandal protection fence has collision damage over a 6’ L section (entire single section) with one cracked/broken main vertical. |
| Lighting | 8 | Decorative base of light pole on north sidewalk is broken. |
| Curb | 9 | 2’-8” L x 7” W x 1-1/2” D spall in south sidewalk at top of curb. |
| Joint | 10 | 4' L section of torn joint seal in EB Lanes |
| Vandal Protection Fence | 10 | South vandal protection fence has impact damage over a 2’ Length. |
| Lighting | 11 | Base of light pole on north sidewalk is broken. |
| Sidewalk | 12 | 2'-9" L x 6" W x 2"D spall in the south sidewalk. |
| Longitudinal Drains | All | Longitudinal Drains in North Sidewalk are fully are partially clogged almost entire length. |
| Concrete Railing | All | Scattered vertical cracks with leakage. |
| Joint | All | Debris is in the joints for 50% of their length. |
| Joint | west appr. | Full width crack in the approach end of the joint armor at the roadway centerline. |

| TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| FB | UD | FB0 | Painted over section loss to the north knee brace for the upper deck floorbeam. |
| FB | LD | FB0 | There are large perforations and areas of up to 100% section loss on the top and bottom angles on the west and east faces of the north end of the floorbeam cantilever. There are areas of active corrosion and up to 1/8" D pitting on the floorbeam web at this location on the west face of the floorbeam cantilever web. There are corrosion holes in the transverse stiffeners at the north cantilever measuring 6" H x Full Width. The rivets and bolts have 50-75% section loss at the north end of the floorbeam cantilever. |
| FB | LD | FB1 | Painted over 10% section loss to the top and bottom east flanges of the lower deck floorbeam. |
| Stringer | UD | PP2-3 | Numerous corrosion holes in the bottom north flange of Stringer "E". |
| Stringer | UD | PP2-3 | 5" L x 2" W corrosion hole on the bottom flange of Stringer "E" near FB3. |
| FB | LD | FB3 | End 3’ L on both sides have up to 5/16” D painted over pitting on the webs and bottom flanges with several perforations on the ends of the bottom flanges. |
| Eyebar | LD | FB4 | Bottom head of east eye bar has up to 3/16” D painted over pitting around the pin. Stiffening plates on floorbeam web behind the eyebar head have 18" H x 20" W corrosion holes on the west and east faces. |
| FB | UD | FB10 | There is a 4” W x 1-1/8” H hole in the floorbeam web north of Stringer "E". |
| FB | UD | FB10 | There is a 8” W x 1.5” H hole in the floorbeam web south of Stringer "E". |
| FB | LD | FB10 | 8.5” L x 1-1/2" W crack along the weld of stiffening plate welded to floorbeam top flange, east face of floorbeam at L10. |
| FB | UD | FB12 | 7-1/4” W x 4” H corrosion hole in the floorbeam web north of Stringer "E". |
| FB | UD | FB12 | 9” W x 1” H hole in the floorbeam web south of Stringer "E". |
| FB | LD | FB12 | 5-5/8" L crack on the top flange stiffener plate on the west face. |
| FB | UD | FB11' | 3-1/2” W x 2-1/2” H hole in the floorbeam web north of Stringer "E". |
| FB | UD | FB11' | 1” W x 2” H hole in the floorbeam web south of Stringer "E". |
| FB | LD | FB11' | 4-3/4” crack along weld of stiffening plate welded to floorbeam top flange, west face of floorbeam. |
| FB | UD | FB10' | There is a 7” W x 2-1/4” H and a 4-1/4” diameter corrosion hole in the floorbeam web north of Stringer "E". |
| FB | UD | FB10' | There is a 7” W x 1-1/4” H hole in the floorbeam web south of Stringer "E". |
| FB | LD | FB10' | 2” long longitudinal crack and a 1- 7/8” long transverse crack along weld of stiffening plate welded to floorbeam top flange, west face of floorbeam. |
| FB | LD | FB9' | 3" crack on the top flange stiffener plate on the west face. |
| FB | UD | FB8' | 5-1/2” W x 11-1/2” H corrosion hole in the floorbeam web north of the first interior stringer from the panel point with adjacent advanced painted over pitting. |
| FB | UD | FB8' | 20" W x 2" H corrosion hole in the floorbeam web south of the first interior stringer from the north truss. 1-3/4" tear in the stiffener between stringers 6-7 due to construction damage. |

| TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| FB | LD | FB8' | 3" crack in the top flange stiffener plate weld on the west face of the floorbeam adjacent to the end of the north knee brace due to section loss and corrosion. There is up to 5/16" D painted over section loss to the floorbeam web and flanges near the north truss. There is one 1-1/2" Dia. hole in the west bottom flange below the first interior stringer, and a 3" H x Full Width hole in the bottom of the transverse stiffener. South of the north truss, there are 7 rivet heads that have up to 100% section loss between the west bottom flange and the bottom flange cover plate. |
| FB | LD | FB7' | 2’ H X 2’ W area of average 1/4” D painted pitting with two corrosion holes in the web of the floorbeam between the strut and stringer, west face. There are three 1" Dia, perforations in the west bottom flange between the north truss and the first interior stringer. The west face of the bottom flange cover plate near the north truss has 4 rivet heads with 100% section loss, and 10 rivet heads with 50-75% section loss. |
| FB | LD | FB7' | There are several cracks in the welds between the East top flange of the floorbeam and the welded retrofit angle: 4-1/4", 5", and 1-3/4"cracks along the east edge; 2-5/8" crack along the north edge. These cracks are due to advanced section loss of the retrofit angle. Up to 1/4" D pitting in the top of the east bottom flanges at the north truss. |
| FB | UD | FB6' | Up to 1/8” D painted over pitting on the west eyebar face around the lower portion of the pin. There is a 6-1/2” L x 1-1/2” H corrosion hole in the floorbeam web north of the first interior stringer from the panel point. |
| FB | LD | FB6' | The floorbeam has active corrosion and 1/16" D pitting on the top and bottom flanges between the north and south trusses. There are welded repair plates on the web at the north truss. On one of these, there is a 10" L cracked perimeter along the weld to the floorbeam top flange, west face of floorbeam due to 100% section loss of the repair plate. 2-11/16" L paint crack in the vertical weld to the knee brace. At the north truss, the web and flanges have 1/8" to 3/16" D painted over pitting. The north cantilever is in a similar condition and has isolated areas of active corrosion. |
| FB | UD | FB4' | Painted over corrosion holes (up to 3" Dia.) in the web just south of the north truss with painted over pitting below the upper deck lateral bracing gusset plate. |

| TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| FB | LD | FB4' | The floorbeam web has painted over pitting up to 1/4" D, worst around the stringers, connection, and lateral bracing, with isolated pitting on the welded repair plate. The west eyebar head has painted over pitting 1/8" to 3/16" D for 6" L around the nut. Additional web plates behind the eyebar have up to 100% section loss in the bottom flange. The north cantilever has small areas of 100% section loss in the bottom flange and transverse stiffener base. Isolated areas of active corrosion with minor laminated pack rust in the bottom flanges and web along the bottom flanges. The west bottom flange is missing for 15" L on the south side of the truss with up to 90% loss of rivet heads in O.L. (?) between the truss and center of the deck. The east eyebar head has isolated painted over pitting up to 1/16" D. The pin behind the eyebar has laminated pack rust up to 3/16" T with associated pitting 1/16" to 1/8" D (some active). The web plates behind the pin have up to 3/8" painted over pitting with 100% section loss. The east bottom flange on the south side of the truss is missing for 24" L. There are numerous painted over corrosion holes within the bottom flange of the floorbeam adjacent to the sway bracing connection. Areas of reactivated surface corrosion were noted throughout the top and bottom flanges. The sway bracing on the east side also has reactivated surface corrosion in the end 6'. |
| SWAY | LD | LD3' | The majority of the original steel components at the lower deck connection above L3' have areas of painted over pitting with corrosion holes and knife edging. |
| FB | LD | FB3' | The north end of the floorbeam cantilever web and bottom flanges have up to 5/16" D pitting with a 1/4" Dia. perforation in the web and a 5" L x 1" W perforation in the west bottom flange. In the north catwalk framing, the south stringer at the west face of FB 3' has a 4" L x 3" W perforation in the web and a 8" L x 3" W perforation in the bottom flange. |
| FB | LD | FB2' | There is 5/16" D painted over pitting with a 1" Dia. hole in the west face of the floorbeam web just south of the north truss along the stringer. There is 100% section loss to the top flange angles over 2' L area with loss of 7 consecutive rivet heads in the same location. Bolts for the lateral bracing connection have up to 50% section loss.<br>At the north cantilever: The bottom and top flanges on both faces have isolated corrosion holes up to 6" L; The transverse stiffener on the west bottom flange has a 4" Dia. corrosion hole; The webs have up to 1/4" D painted over section loss around connections and along horizontal surfaces; The webs have welded repair plates below the walkway; Internal diaphragms between knee braces have isolated 100% section loss and the horizontal diaphragm is nearly gone; Sidewalk stringer has areas of 100% section loss at the connection to the floorbeam. |
| FB | LD | FB1' | At the north cantilever: There is a 1" Dia. corrosion hole in the north end of the bottom flange with up to 3/16" D pitting throughout the bottom flange and the bottom of the web, and up to 75% section loss to 3 rivets; The cantilever end plate has up to 1" Dia. perforations with pitting; The bottom batten plate at the north end has pack rust, pitting, and perforations.<br>At the Level 3 Strut: The north connection plate for the Level 3 horizontal strut has a 6" x 6" perforation with multiple other perforations at the L1'-U1' connection.<br>At the north catwalk: The south bottom bracing connection plate for the catwalk has a 10" L x 1" W perforation. |

| TABLE 3: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR NORTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| FB | UD | FB0' | The upper deck floorbeam has typically up to 1/8" D painted over pitting throughout the bottom flange angles and cover plates near the north truss line and throughout the north cantilever. Several transverse stiffeners on the east face of the floorbeam have up to 6" H x Full Width areas of 100% painted over section loss. |
| FB | LD | FB0' | The lower deck floorbeam has typical painted over pitting up to 1/8” D.<br>At the north canilever: There is 100% section loss to the west bottom flange over a 6' length with some reactivating corrosion; The west floorbeam top flange adjacent to the L0'N - U0'N vertical has up to 100% painted over section loss for a 3' length; The east floorbeam bottom flange has up to 100% section loss over an 8' length with active corrosion; The north end of the web has multiple perforations (one 4" Dia. and numerous 1/2" Dia. holes) in the web; One high-strength bolt is missing in the top flange.<br>At the north Level 3 strut: Active corrosion with areas of 100% section loss up to 4" L x 2" W area present in the angles and lacing bars; The north vertical connection plate at L0'-U1' has 100% section loss on top of the strut.<br>Below the center deck (?), there is painted over pitting with negligible section loss on the west face. |
| | | | |

| TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| FB | UD | TYP. | The transverse stiffeners on the north and south sides of the eyebars have 100% section loss at the bottom. |
| FB | UD | U0 | Exterior and interior west knee brace has an 18” L x up to 4” W area of painted over corrosion holes. The west web plates also have up to 18” H x 12” W L-shaped painted over corrosion holes in the upper corners. |
| Stringer | UD | FB0 | 2" L x 1" W corrosion hole |
| FB | LD | FB0 | End 3’ of the web has painted over corrosion holes. |
| FB | LD | L2 | The south diagonal floorbeam support has four 1-1/2" D holes over a 6" D area in the web near the L2 connection. Bottom flanges have areas of 100% section loss x Full W x 20" L. Internal diaphragm plate between lateral bracing connection plates has widespread corrosion holes (nearly gone.) |
| Stringer | LD | FB3 | Second stringer from the south, east face of LDFB3 has a 12” L x 3” H area of painted over pitting with a 6” L x 3” H corrosion hole in the bottom of the web. The north bottom flange has a 10” L x 4” W corrosion hole at the end. |
| FB | LD | FB3 | The east face bottom flange at the L3 connection has a 10” L x 4” W hole. |
| Eyebar | LD | LD4 | UD4-LD4 east eyebar has up to 1/4” D painted over pitting along the south half of the pin nut for 2” W. |
| FB | LD | FB8 | The east bottom flange has a 6" x 6" corrosion hole on the south side of the south truss with up to 100% section loss on 8 adjacent bottom flange vertical leg rivet heads. There are small holes in the ends of the knee braces over the floorbeam. |
| Hanger | LD | LD9 | LD9 has painted over corrosion holes above the floorbeam top flange. There is advanced section loss with a 1/2" Dia. hole in the web. The east bottom flange is gone for 15" L on each side of the truss. The west bottom flange has a 4" Dia. hole in the south side. |
| FB | LD | FB10 | There is a 1" L x 1/2" H corrosion hole in the web on the north side of the south truss. There are corrosion holes up to 6" L at the ends of the knee braces over the floorbeam. There is a 15" L x 2" W corrosion hole along the edge of the east top flange south of the south truss. |
| Stringer | LD | LD10 | Second stringer from the south, west and east face of FB10 has a 12” L x 2” W painted over hole at the end of both south and north top flanges. |
| Vertical Hanger | LD | LD12 | LD12 has painted over corrosion holes between the flanges and 4' below the upper floorbeam bottom flanges/ |
| FB | LD | FB11 | There is a 3" downward impact deformation on the east face of the longitudinal stiffener gusset plate. The east bottom flange is gone for 30" L on the north side of the south truss, and an 8" L x 3" W portion is gone on the south side of the truss. The west bottom flange has several corrosion holes up to 3" x 1-1/2" on the south side of the truss. |

| TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| Stringer | LD | LD11 | Second stringer from the south, west face of FB11 has a 12” L x 3” W painted over corrosion hole at the end of both south and north top flanges. |
| Stringer | LD | LD12 | Second stringer from the south, west and east face of FB12 has a 12” L x 1” W painted over corrosion hole at the end of both south and north top flanges. |
| FB | LD | FB11' | The east bottom flanges are gone on the north (30" L) and south (12" L) sides of the south truss. The east top flange has several corrosion holes up to 4" Dia. over a 15" length on the south side of the south truss. There is up to 90% rivet head loss in the top flange cover plate. |
| FB | UD | FB11' | At the east face, there is a 2" Dia. corrosion hole in the transverse stiffener on the south side of the eyebar near the top. |
| Stringer | LD | LD11' | Second stringer from the south, west face of FB11' has a 12” L x 3” W painted over corrosion hole at the end of both south and north top flanges. |
| Stringer | LD | LD11' | The south stringer, east face of FB11' has a 12” L x 2” H area of pitting with a 2” Diameter corrosion hole on the web |
| FB | LD | FB10' | The east bottom flange on the south side of the south truss has several 1/2" Dia. corrosion holes. The web has painted over pitting up to 1/4" D neat the truss. Numerous rivet heads on the west bottom flange on the north side of the south truss have up to 75% section loss. |
| Stringer | LD | LD10' | Second stringer from the south at FB10' on the east face has a 12" L x 2" W painted over corrosion hole at the end of both south and north top flanges. |
| FB | LD | FB9' | The west bottom flange on the north side of the south truss is gone for 20" L. The adjacent transverse stiffener has 100% section loss for the bottom 6". |
| Stringer | LD | FB8' | Second stringer from the south, west face of FB8’ has a 6” L x 3” W painted over corrosion hole on the south top flange. The east face of FB8' has a 1" L x 1/2" W painted over corrosion hole on the north top flange. |
| FB | LD | FB8' | There are two 1" Dia. corrosion holes in the floorbeam web on the north side of the south truss. The web and flanges have isolated painted over pitting (typ. up to 3/16" D) near the south truss. |
| FB | LD | FB7' | There is a 14" long section of the west bottom flange that is missing in the south cantilever. A 5" L x 1" H corrosion hole is present in the floorbeam web of the north side of the south truss. There is 100% section loss at the base of the stiffener below the adjacent stringer. There is a 10" L x 8" W hole in the top flange cover plate. |
| Stringer | LD | FB7' | Second stringer from the south, west and east face of FB7' has 5" L x 1" W painted over corrosion holes on both north and south top flanges. |
| FB | LD | FB6' | There is a 1" Dia. corrosion hole in the web on the north side of the south truss, and isolated painted over pitting up to 1/8" D. |
| ~~Eyebar~~ | ~~LD~~ | ~~UD5'~~ | ~~The eyebar heads have painted over pitting around the full perimeter of the pin nut.~~ |
| FB | LD | FB3' | There are multiple corrosion holes up to 6" Dia. in the east bottom flange of the south cantilever. |

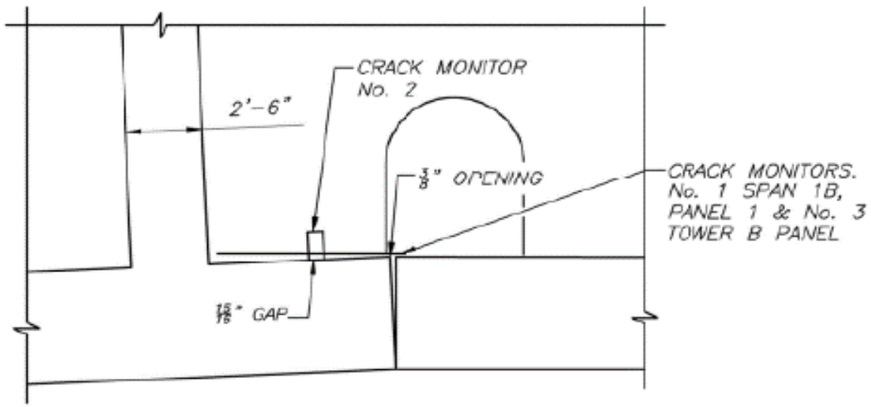
| TABLE 4: FLOORBEAM DEFICIENCIES IN UPPER & LOWER DECK NEAR SOUTH TRUSS | | | |
|---|---|---|---|
| **Member Type** | **Upper/ Lower Deck** | **Member** | **Deficiency** |
| Stringer | LD | LD3' | The stringer to floorbeam bearing on the west side of the floorbeam has painted over pack rust, missing anchor bolt and corrosion holes. This note is typical at the south truss. The stringer adjacent to the south truss vibrates under live load due to 100% section loss of the bottom flange. There is no connection of the stringer to the bearing assembly. The lower floorbeam bottom flange below has a 6" corrosion hole. |
| Bracing | LD | LD3' | Typical corrosion holes along the bottom 6” portions of vertical bracing connections to floorbeam flanges at the vertical connection |
| Sway Bracing | LD | LD3' | The majority of the original steel components at the lower deck connection above L3’ have areas of painted over pitting with corrosion holes and knife edging. |
| FB | LD | FB2' | The web has 3/16" D painted over pitting around the strut connection, and isolated corrosion holes up to 6" L x 4" W in the bottom flanges. |
| FB | UD | FB1' | The upper knee braces at the vertical connection have 100% section loss and/or knife-edging in the webs and flanges. |
| FB | UD | FB0' | There is a 1/4" painted over section loss with one 3/4" Dia. corrosion hole north of the south truss in the web between the lateral bracing connection plates. |
| FB | UD | FB0' | Transverse stiffeners have widespread corrosion holes and section loss north of the south truss on the east face. The upper knee braces at the vertical connection have 100% section loss and/or knife-edging in the webs and flanges. |

| Table 5: Upper Pier Shaft Rotation Measurements | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Location | | | | | | | | | |
| | 5* | | 5 at Lower Deck** | | 6* | | 6 at Lower Deck** | | 7* | |
| | East Side | West Side | East Side | West Side | East Side | West Side | East Side | West Side | East Side | West Side |
| 2018 | 14-11/16" | 15-1/8" | | | 16" | 16" | | | 15" | 14-13/16" |
| 2019 | 14-11/16" | 15-1/8" | 0" | 0" | 16-1/8" | 16-1/8" | 13/16" | 1" | 15" | 14-13/16" |
| 2020 | 14-11/16" | 15-1/8" | 0" | 0" | 16-1/8" | 16-1/8" | 13/16" | 1" | 15" | 14-13/16" |
| 2021 | 14-11/16" | 15-1/8" | 0" | 0" | 16-1/8" | 16-1/4" | 3/4" | 1" | 15" | 14-13/16" |

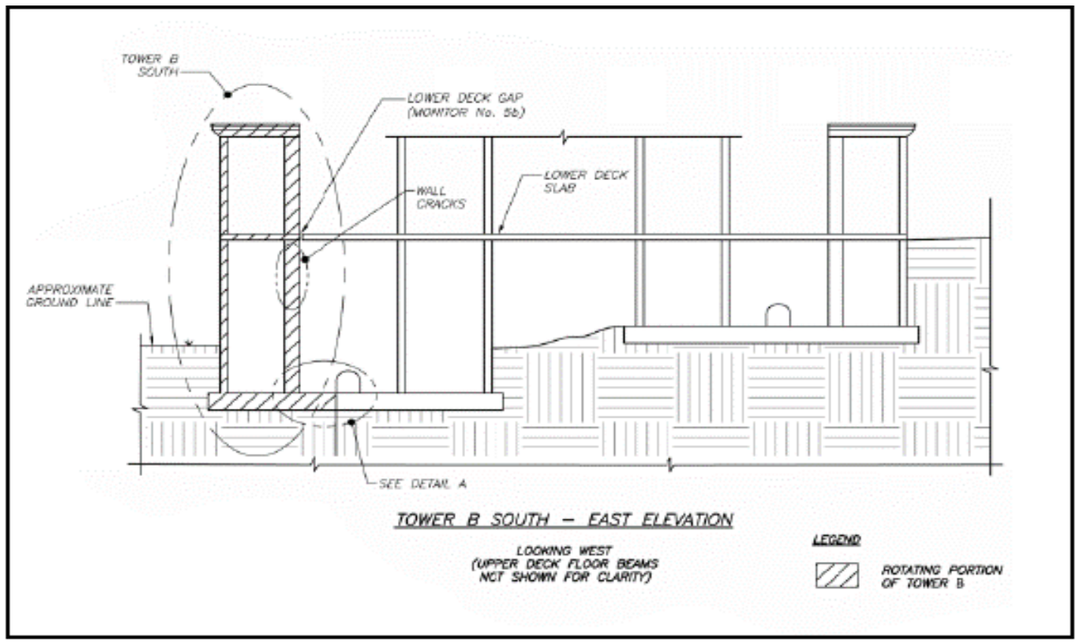
* Measurements taken 3' above approximate top of strut wall.

** Measurements taken 6" from east and west edges of the shafts.

| Table 6: Crack Gage Measurements - Tower B South | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date | No. 5B Tower B at Lower Deck | | No. 1 | | No. 2 | | No. 3 | |
| | V (mm) | H (mm) | V (mm) | H (mm) | V (mm) | H (mm) | V (mm) | H (mm) |
| 5/17/07 | --- | --- | | | | | | |
| 4/16/13 | --- | --- | | | | | | |
| 10/3/14 | 6.0 | 2.0 | | | | | | |
| 8/16/15 | 8.0 | 2.0 | | | | | | |
| 9/14/16 | 11.0 | 2.0 | | | | | | |
| 11/27/17 | | | | | | | | |
| 10/22/18 | | | | | | | | |
| 11/18/19 | | | | | 4.8 | 2.0 | | |
| 10/22/20 | | | 4.0 | 1.0 | 5.0 | 1.0 | 0.5 | 5.0 |
| 10/29/21 | | | 4.8 | 1.2 | 6.0 | 0.3 | 0.5 | 7.0 |

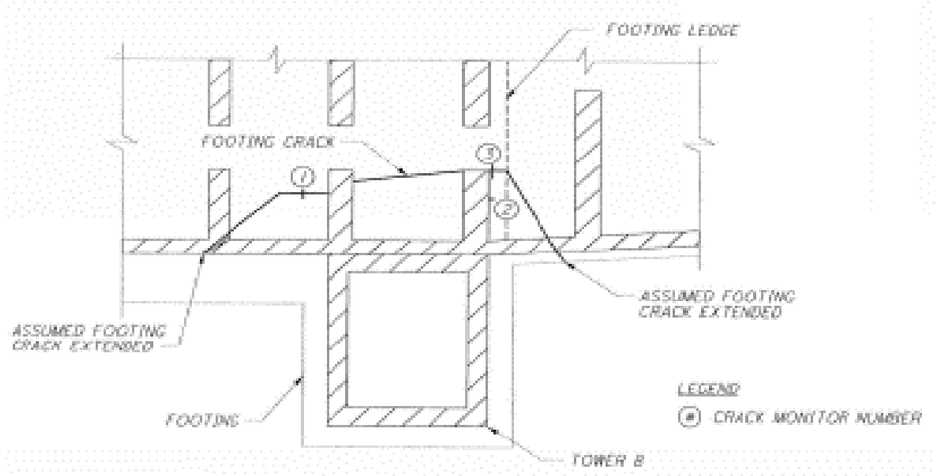



DETAIL A



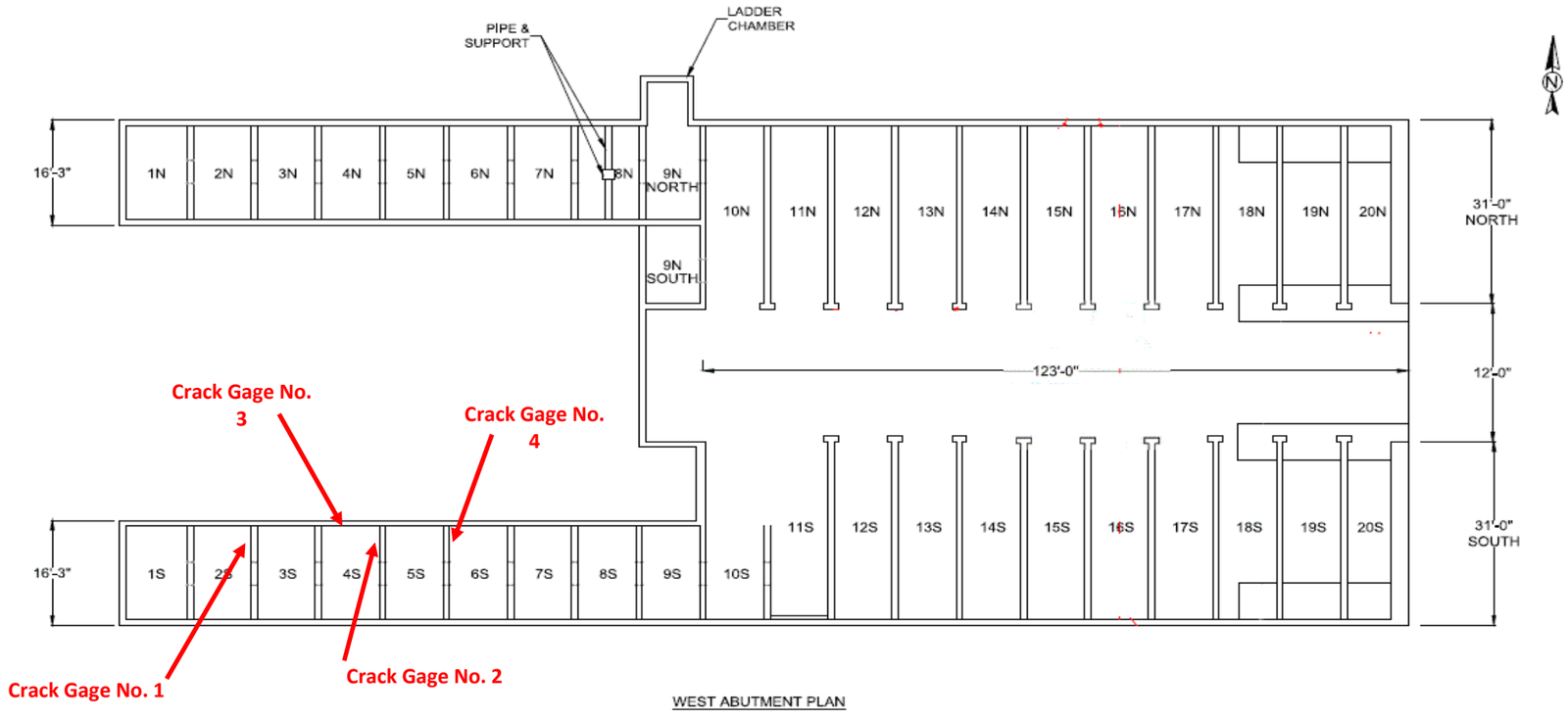

TOWER B SOUTH – EAST ELEVATION

LOOKING WEST
(UPPER DECK FLOOR BEAMS NOT SHOWN FOR CLARITY)




PLAN VIEW

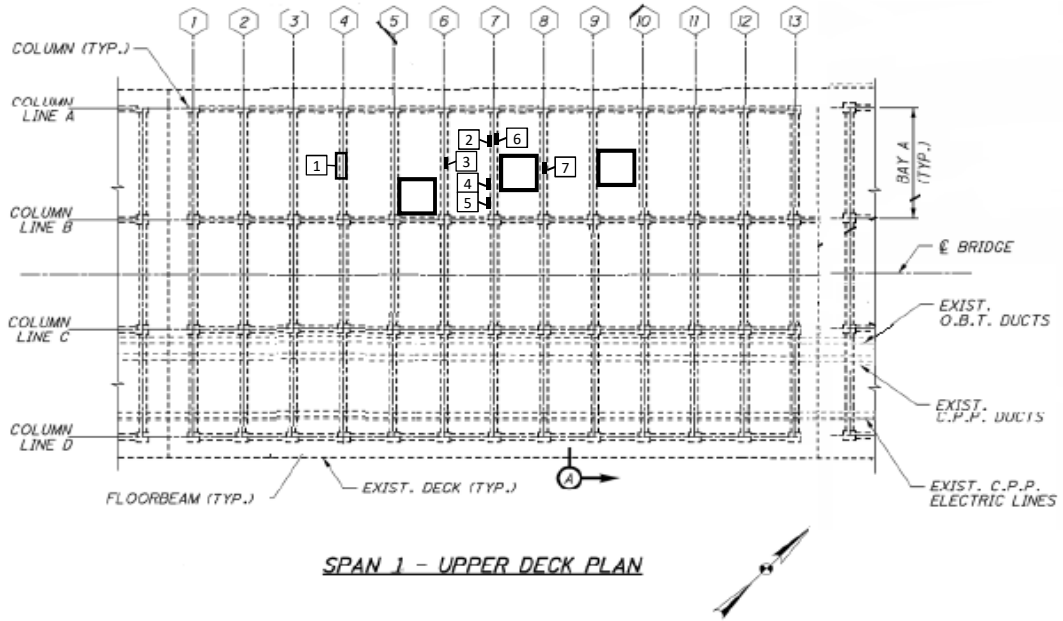
| Table 6: Crack Gage Measurements - Span 1A Cellular Construction South Wall | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date | No. 1 | | No. 2 | | No. 3 | | No. 4 | |
| | V (mm) | H (mm) | V (mm) | H (mm) | V (mm) | H (mm) | V (mm) | H (mm) |
| 5/17/07 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4/16/13 | 2.0 | 1.0 | 2.5 | 0.3 | 0.0 | 0.0 | 0.8 | 0.2 |
| 10/3/14 | 2.3 | 1.0 | 3.0 | 0.6 | 0.0 | 0.0 | 0.8 | 0.2 |
| 8/16/15 | 2.8 | 1.1 | 4.5 | 0.8 | 0.0 | 0.0 | 0.9 | 0.5 |
| 9/14/16 | 3.0 | 1.1 | 4.8 | 0.8 | 0.0 | 0.0 | 1.0 | 0.5 |
| 11/27/17 | | | | | | | | |
| 10/22/18 | | | | | | | 1.1 | 1.0 |
| 11/18/19 | | | | | | | 1.3 | 1.0 |
| 10/22/20 | | | | | 0.0 | 0.0 | 1.5 | 1.0 |
| 10/29/21 | 6.0 | 1.3 | 6.0 | 1.0 | 0.0 | 0.00 | 1.5 | 1.0 |

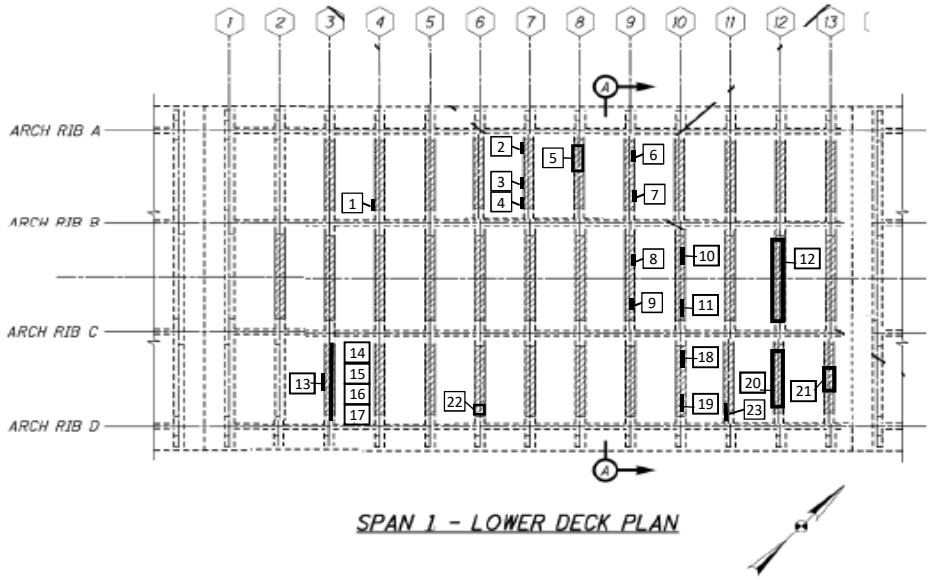



WEST ABUTMENT PLAN

| Table 7: West Station - Columns and Jack Arches | | | | |
|---|---|---|---|---|
| **Member Type** | **Column Row** | **Column #** | **Face** | **Defect Description** |
| Column | A | 6 | NE | Northeast corner, east face delaminated for 5' height |
| Column | A | 8 | N | North face of column delaminated for full height |
| Column | A | 11 | N | Whole north face delaminated by the full height |
| Column | A | 12 | ALL | All faces delaminated or spalled, east face spalled up to 6" deep by full width with ECR |
| Column | A | 13 | NW | Northwest corner spalled 5' high x up to 12" +/- wide @ top |
| Column | A | 17 | ALL | Spalls and delamination, also incomplete repair 4' high maximum x full width |
| Column | A | 18 | NW | Northwest corner of column, full height x 6" wide delamination |
| Jack Arch | A | 17,19 | N | North face of A17-A19 jack arch spalled and delaminated with ECR |
| Column | A | 20 | N,E | 4' high x full width spall in north face, east face full width x 1' high spall - incomplete |
| Jack Arch | A | 21,22 | S | Wall: west, 4' x full height spalled with ECR, lower 3' x 3' @ A22 delamination and spall |
| Jack Arch | A | 22,23 | S | Full width x full height of wall spalled with ECR |
| Jack Arch | A | 23,24 | N | Jack arch, north face, delamination for whole length |
| Jack Arch | B | 9, 10 | S | 6' high x 3' +/- wide spall x 4" deep with ECR, Jack arch spalled 4' long x 1' high with ECR |
| Column | B | 10 | S | 6' high x 3' +/- wide spall x 4" deep with ECR, Jack arch spalled 4' long x 1' high with ECR |
| Jack Arch | B | 12,13 | S | Underside of B12-B11 jack arch spalled/delaminated for 4' ± length. North face of arch |
| Jack Arch | B | 13,14 | S | Jack arch delaminated for whole length +/- |
| Jack Arch | B | 14,15 | S | Jack arch spalled / delaminated @ both ends |
| Column | B | 20 | ALL | Spalls @ all faces of the column |
| Jack Arch | B | 20,21 | S | Jack arch spalled for 4' near B21, south face |
| Column | B | 24 | SE | 3' high x full width each face, southeast corner and south face spalled with ECR, 3" deep. |
| Column | B | 28 | SE | Southeast corner spalled 2' high x 2' wide x 2"+/- deep with ECR |
| Column | B | 29 | SW | South and west faces spalled with ECR, full width south face, 1' west face x 2'-6" +/- high |
| Column | C | 10 | N/E | 8' high x 3' +/- wide spall with ECR x 4" +/- deep |
| Column | C | 12 | NE | 8' high x 4" deep x full width spall |
| Column | C | 15 | ALL | Spalled up to 8" deep for most of column |
| Jack Arch | C | 16,17 | ALL | C16-C17 jack arch spalled with ECR at center of arch through the whole width of arch |
| Jack Arch | C | 16-17 | S | South face of jack arch, spalled with ECR, full length |
| Column | C | 18 | S | Southeast corner spalled, 4' high x 3' +/- wide with ECR |
| Column | C | 23 | S | 4' high x full width spall with ECR 3" +/- deep |
| Column | C | 29 | NE | North end east face delaminated with spalls 5' ± high |
| Column | C | 30 | N,W,S | Typical delamination / spalls @ all 3 faces |
| Column | D | 11 | NW | Northwest corner delaminated and spalled, 6' high x 1' wide |
| Column | D | 13 | W | West face, full height spalled with ECR |
| Column | D | 18 | NE | North and east faces delaminated / spalled, 3' high x full width |
| Column | D | 20 | N | Bottom 2' spall with ECR, north face, 1' wide x 1" deep |
| Column | D | 24 | S | South face, 3' high x full width spall with ECR, 3" deep |
| Column | D | 23 | ALL | Entire bottom 3' spalled with ECR, all faces, up tp 4" +/- deep |
| Column | D | 26 | ALL | Top 4' of column spalled or delaminated with ECR |
| Column | D | 27 | N,S | Top 3' delaminated on north and south faces by the full width |
| Column | D | 30 | ALL | Delaminated or spalled, top 5' +/- all faces |
| Jack Arch | E,F | 22-27 | ALL | Lines E/F from columns 22-27, there are 6 columns with 3' high x 3" deep spalls with ECR |
| Jack Arch | G4-H3<br>H4-H5 | G4-G5<br>H4-H5 | N/S | Jack arches delaminated and spalled full length of south side of G4/H5 and north side H4-H5 |

# APPENDIX C – OPEN SPANDREL ARCH, TRUSS, FLOOR SYSTEM, AND SUBSTRUCTURE DRAWINGS AND DEFICIENCIES



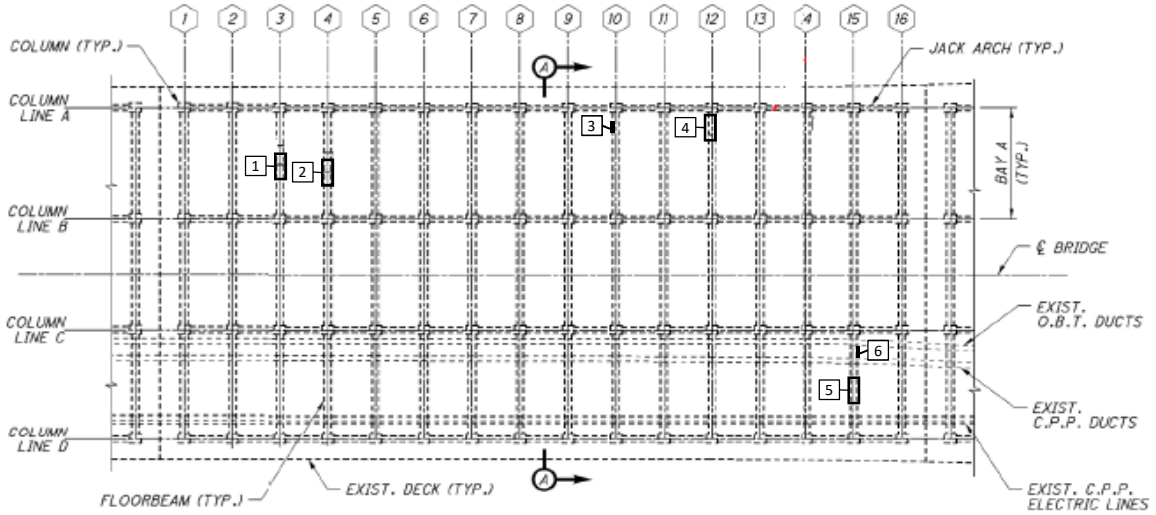

| SPAN 1, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Delamination - 2.25 SF |
| 2 | Two delaminations, total 2.5 SF |
| 3 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 4 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 5 | Delamination - 3 SF |
| 6 | Spall w/ exp. Reinf. - 2 SF, 2" D |
| 7 | Spall w/ exp. Reinf. - 1.5 SF, 2" D |

**General Findings:**

☐ = Area of Moisture Staining with efflorescence

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.

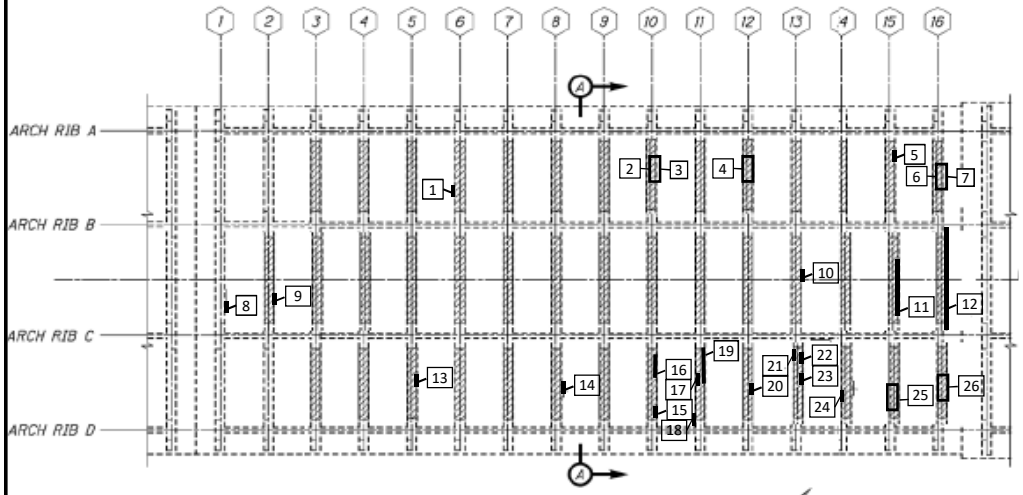
| SPAN 1, LOWER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Delamination - 6 SF |
| 2 | Map cracking, 8' L |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination - 12 SF |
| 6 | Delamination - 8 SF |
| 7 | Delamination - 2 SF |
| 8 | 6' L crack with rust staining |
| 9 | Delamination - 1 SF |
| 10 | Delamination - 18 SF |
| 11 | Delamination - 4 SF |
| 12 | Delamination - Full L x Full W |
| 13 | Delamination - 20 SF |
| 14 | Spall w/ exp. Reinf. - 4 SF |
| 15 | Delamination - 9 SF |
| 16 | Delamination - 12 SF |
| 17 | Delamination - 4 SF |
| 18 | Delamination - 4 SF |
| 19 | Delamination - 12 SF |
| 20 | Delamination - 20 SF |
| 21 | Delamination - 2 SF |
| 22 | Delamination - 1 SF |
| 23 | Delamination - 6 SF |




SPAN 2 – UPPER DECK PLAN

SPAN 2, UPPER DECK DEFICIENCIES

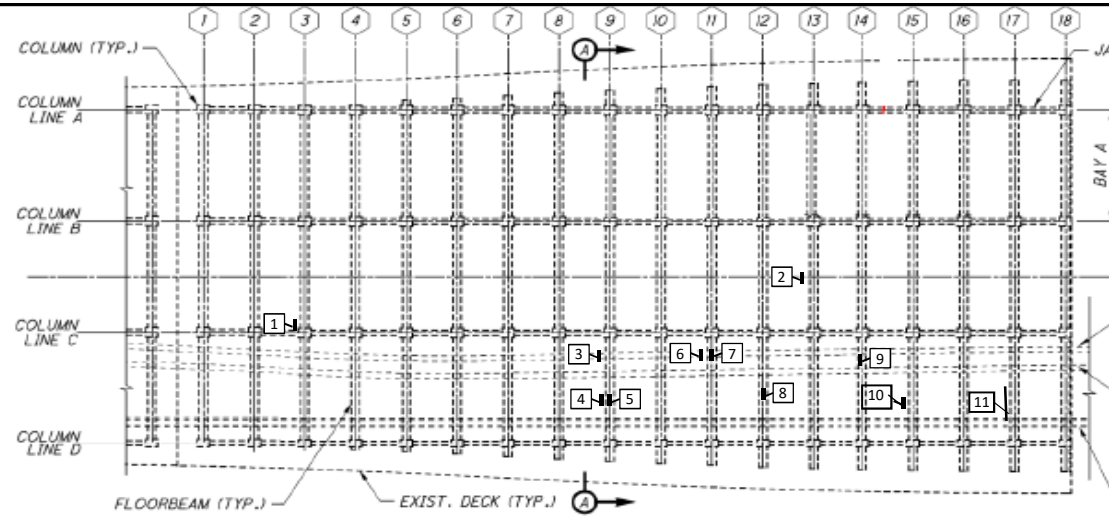
| # | DEFECT |
|---|---|
| 1 | Spall w/ exp. Reinf. - 2 SF |
| 2 | Delamination - 3 SF |
| 3 | Spall - 1 SF, 1" D |
| 4 | Spall - 1 SF |
| 5 | Delam. With Spall - 0.75 SF |
| 6 | Delamination - 0.25 SF |




SPAN 2 – LOWER DECK PLAN

SPAN 2, LOWER DECK DEFICIENCIES

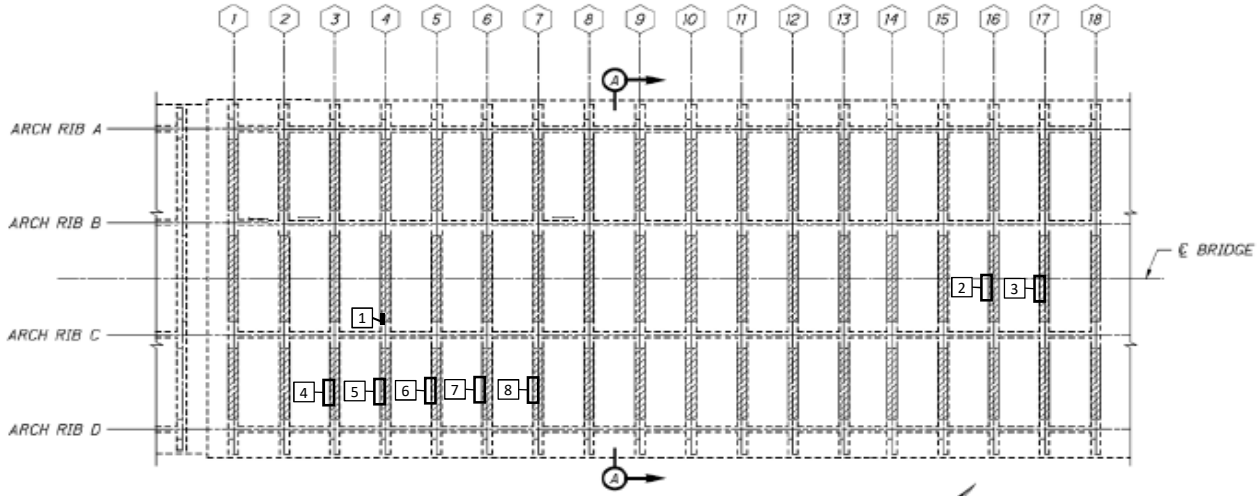
| # | DEFECT |
|---|---|
| 1 | Delamination - 4 SF |
| 2 | Delamination - 5 SF |
| 3 | Spall w/ exp. Reinf - 6 SF |
| 4 | Delamination - 4 SF |
| 5 | Delamination - 27 SF |
| 6 | Delamination w/ Spall w/ exp. Reinf - 8 SF |
| 7 | Delamination - 4 SF |
| 8 | Delamination w/ Spall w/ exp. Reinf - 4 SF |
| 9 | Spall w/ exp. Reinf - 1 SF |
| 10 | Spall w/ exp. Reinf - 1 SF |
| 11 | Delamination - 24 SF |
| 12 | Delamination - 80 SF |
| 13 | Delamination - 18 SF |
| 14 | Delamination w/ Spall w/ exp. Reinf - 8 SF |
| 15 | Delamination - 12 SF |
| 16 | Delamination w/ Spall w/ exp. Reinf - 15 SF |
| 17 | Delamination w/ Spall w/ exp. Reinf - 12 SF |
| 18 | Delamination - 12 SF |
| 19 | Delamination w/ Spall w/ exp. Reinf. - 24 SF |
| 20 | Delmationation 30 SF<br>Spall w/ exp. Reinf - 4 SF |
| 21 | Delamination - 18 SF |
| 22 | Delamination - 14 SF |
| 23 | Delamination - 8 SF |
| 24 | Delamination - 14 SF |
| 25 | Delamination - 6 SF |
| 26 | Delamination - 26 SF |




SPAN 3 – UPPER DECK PLAN

SPAN 3, UPPER DECK DEFICIENCIES

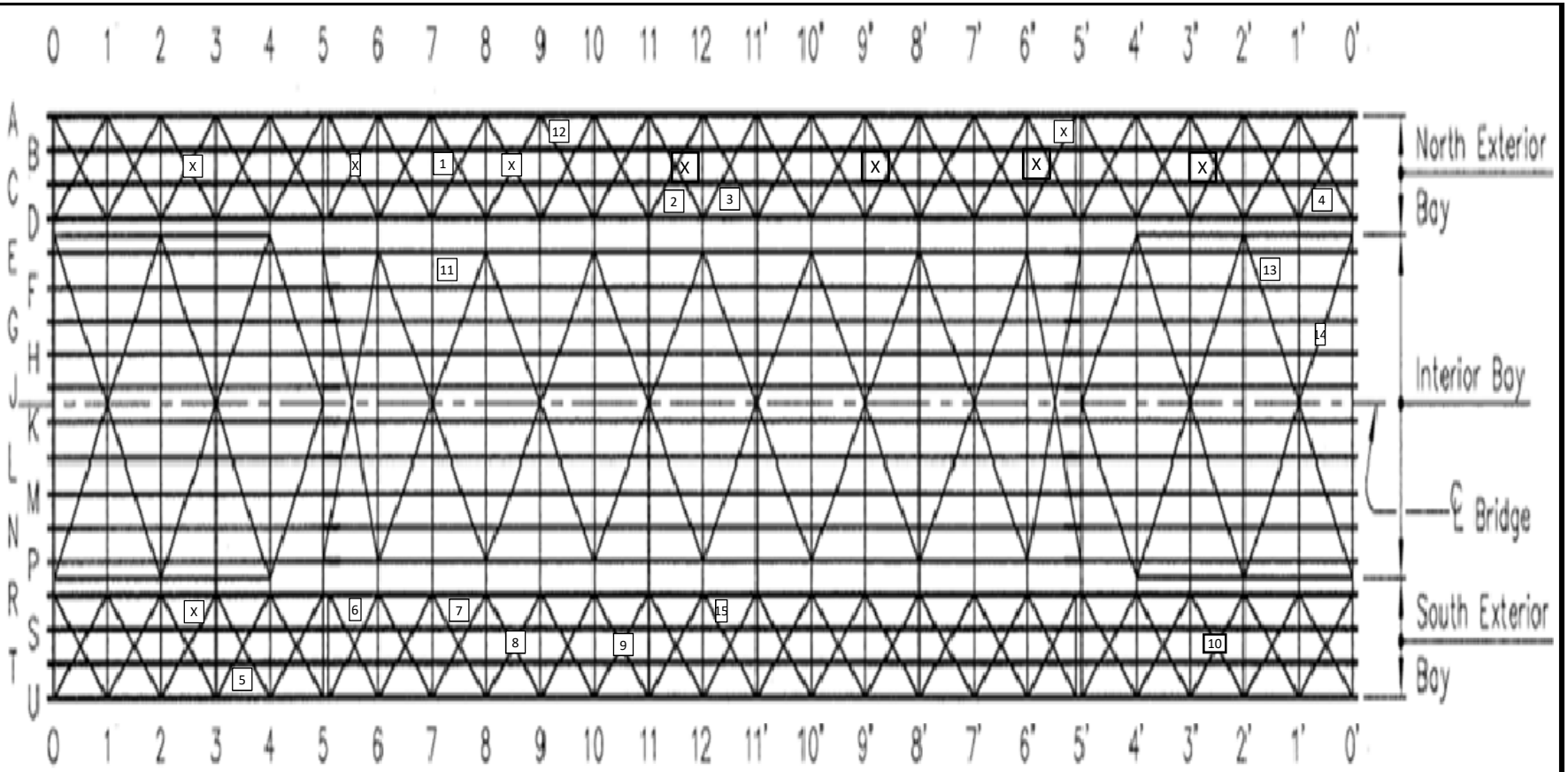
| # | DEFECT |
|---|---|
| 1 | Spall w/ exp. Reinf - 12 SF, 2.5" D |
| 2 | Delamination - 2 SF |
| 3 | Spall w/ exp. Reinf - 0.5 SF, 1.5" D |
| 4 | Delamination - 3.75 SF |
| 5 | Delamination w/ small spall - 12 SF |
| 6 | Delamination - 10 SF |
| 7 | Spall - 0.5 SF, 1" D |
| 8 | Spall w/ exp. Reinf. - 20 SF, 3" D |
| 9 | Spall - 9 SF, 2" D |
| 10 | Delamination - 20 SF |
| 11 | Spall w/ exp. Reinf - 3 SF and Delamination 16 SF |



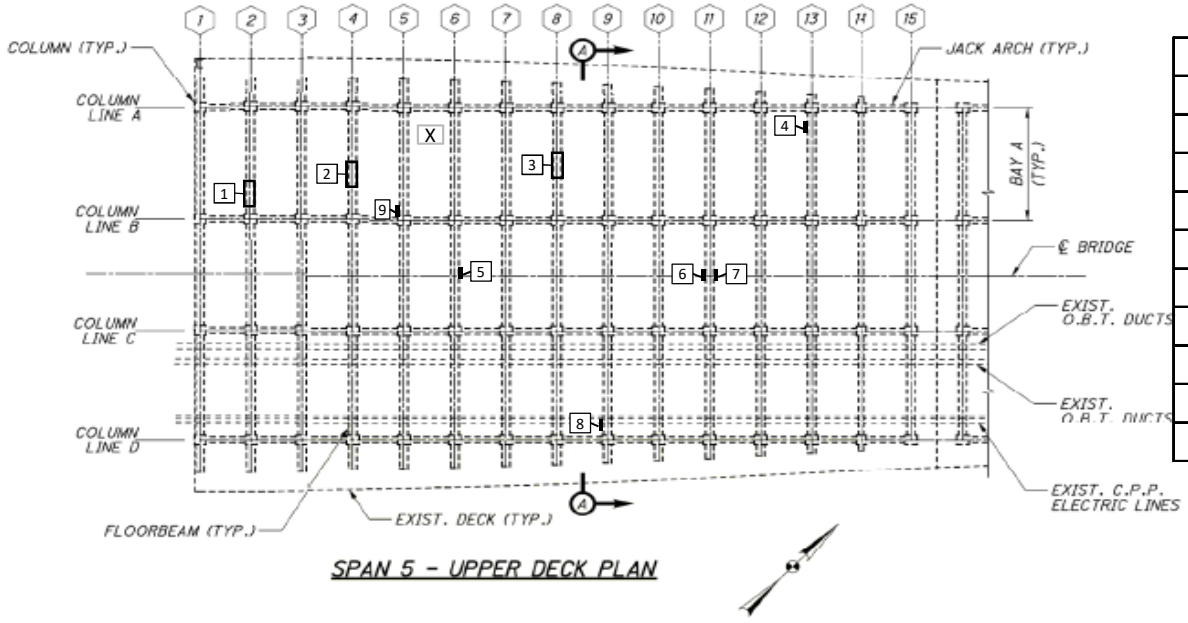

SPAN 3 – LOWER DECK PLAN

SPAN 3, LOWER DECK DEFICIENCIES

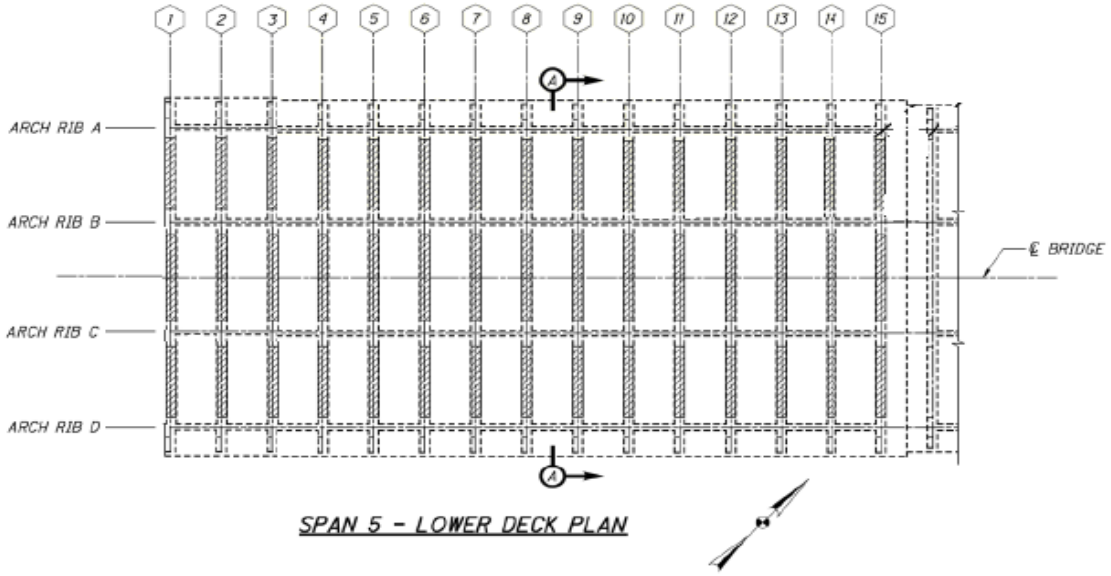
| # | DEFECT |
|---|---|
| 1 | Spall w/ exp. Reinf - 1 SF |
| 2 | Delamination - 4 SF |
| 3 | Delamination - 12 SF |
| 4 | Delamination - 8 SF |
| 5 | Delamination - 8 SF |
| 6 | Delamination - 20 SF |
| 7 | Spall w/ exp. Reinf - 24 SF |
| 8 | Delamination - 35 SF |




| SPAN 4, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exposed Reinforcement - 1 SF |
| 2 | Spall w/ exposed Reinforcement - 2 SF |
| 3 | Spall w/ exposed Reinforcement - 1 SF |
| 4 | Spall w/ exposed Reinforcement - 1 SF |
| 5 | Delamination - 4 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 1 SF (1/2" D) |
| 9 | Delamination - 9 SF |
| 10 | Spall w/ exposed Reinforcement - 6 SF |
| 11 | Spall w/ exposed Reinforcement - 1 SF |
| 12 | Spall - 1 SF |
| 13 | Spall w/ exposed Reinforcement - 2 SF |
| 14 | Spall w/ exposed Reinforcement - 2 SF |




SPAN 5 – UPPER DECK PLAN



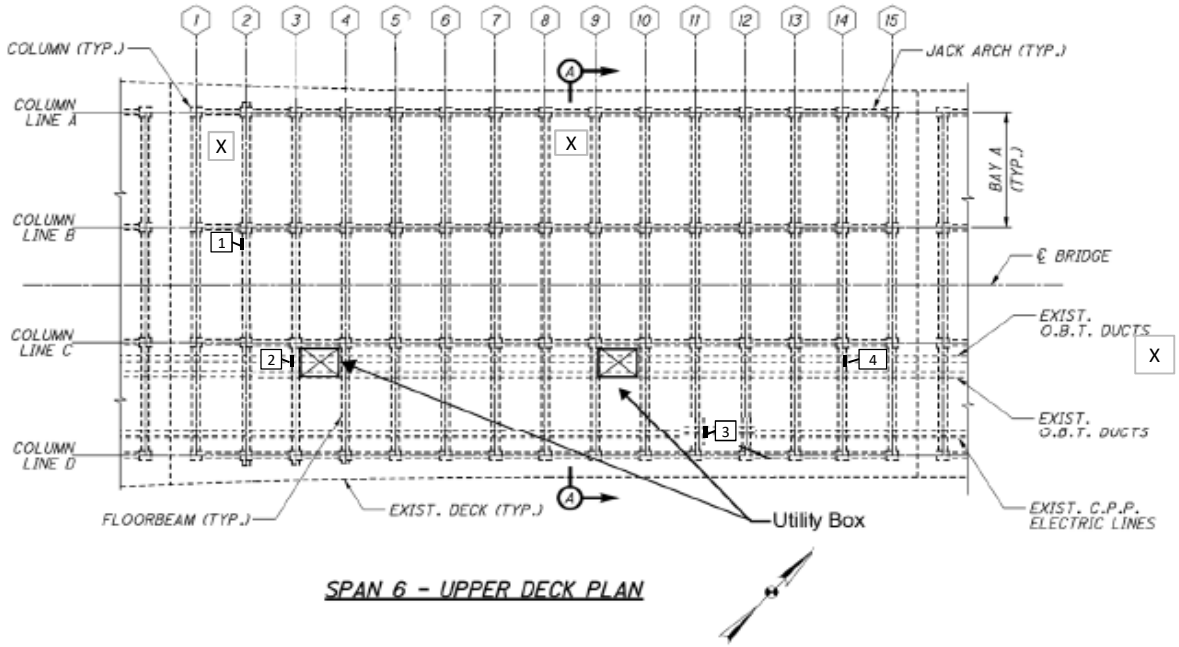

SPAN 5 – LOWER DECK PLAN

| SPAN 5, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exp. Reinf. - 3 SF |
| 2 | Delamination - 2 SF |
| 3 | Spall - 1 SF |
| 4 | Delamination - 9 SF |
| 5 | Spall w/ exp. Reinf. - 4 SF, 2" D |
| 6 | Spall w/ exp. Reinf. - 9 SF, 2.5" D |
| 7 | Spall - 6 SF |
| 8 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 9 | Delamination - 3 SF |

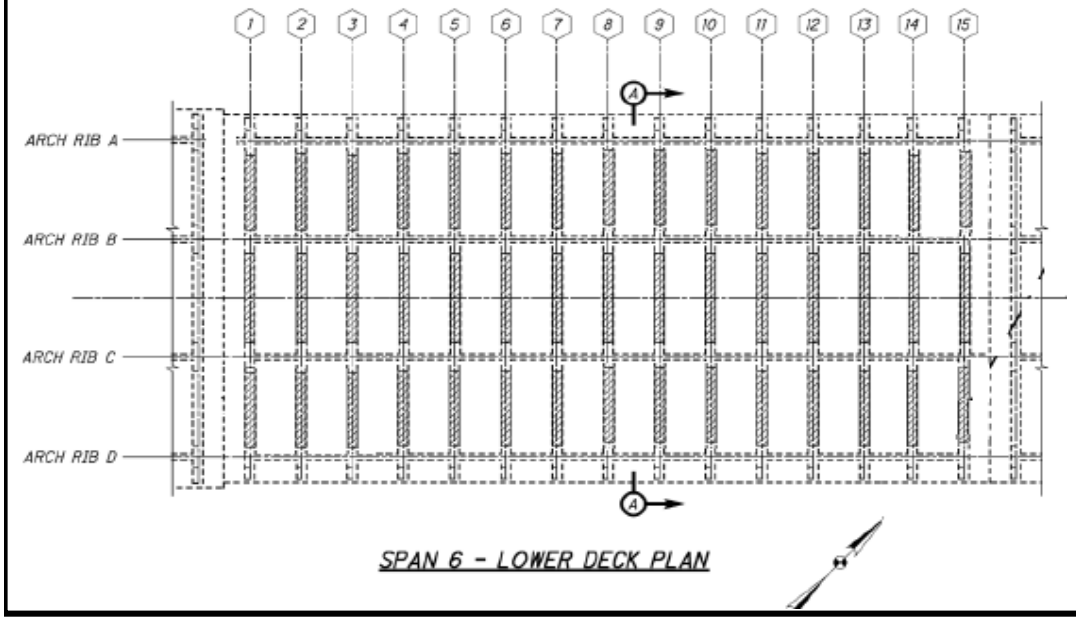
**General Findings for Upper Deck:**

In Bay B, there are numerous vertical hairline cracks wih efflorescence. Some cracks have been epoxy injected with 3-ft to 5-ft spacing.

[X] = Area of Moisture Staining around the deck drain




SPAN 6 - UPPER DECK PLAN

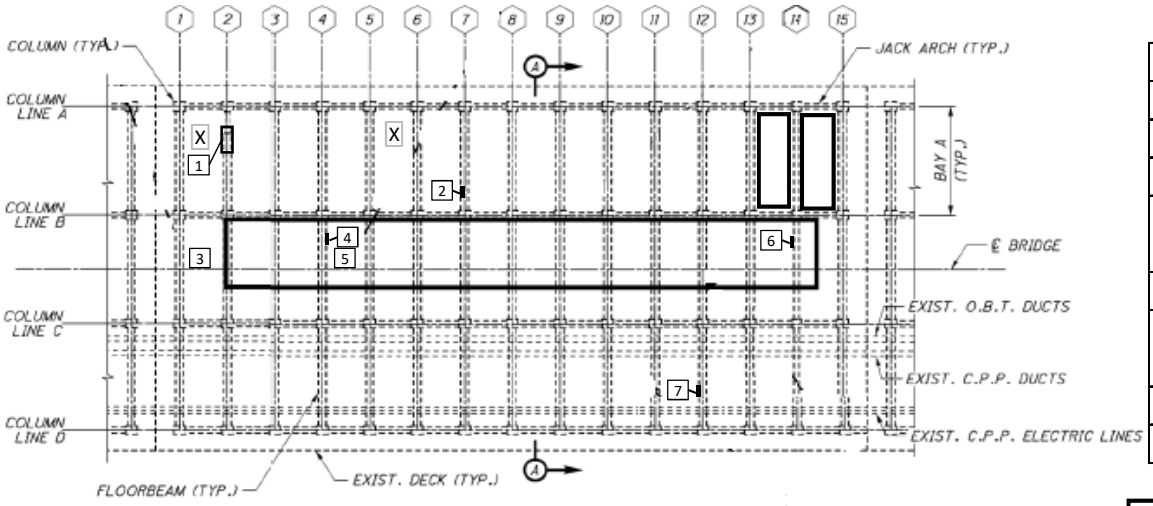



SPAN 6 - LOWER DECK PLAN

| SPAN 6, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exp. Reinf. - 9 SF, 4" D |
| 2 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 3 | Delamination - 6 SF |
| 4 | Spall w/ exp. Reinf. - 1 SF, 1" D |

**General Findings:**

X = Area of Moisture Staining around the deck drains




SPAN 7 – UPPER DECK PLAN

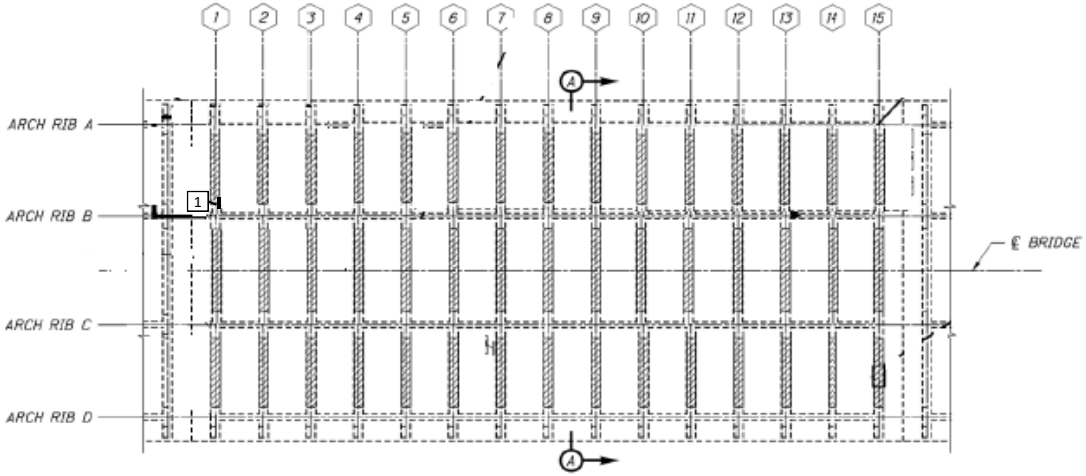
| SPAN 7, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Delamination - 1 SF |
| 2 | Delamination - 1 SF |
| 3 | 4' L Hairline crack w/ effloresence (eff.) and moisture staining |
| 4 | Spall w/ exp. Reinf. - 1 SF |
| 5 | 9 SF area of hairline cracking w/ eff. and active leakage |
| 6 | Spall - 4 SF, 1" D |
| 7 | Delamination - 5 SF |

**General Findings:**

☐ = Area of Moisture Staining with efflorescence

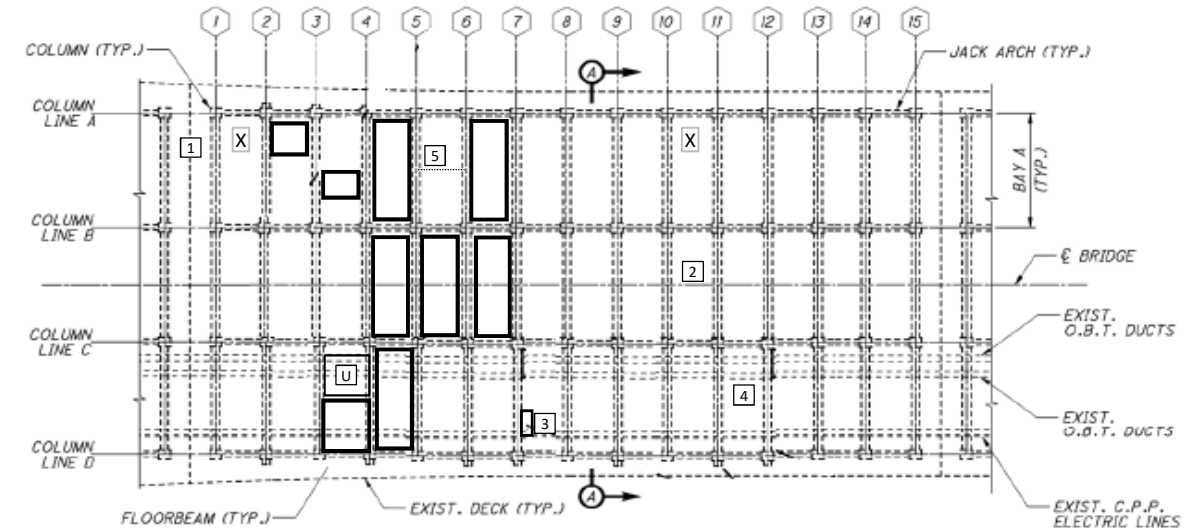
X = Area of Moisture Staining around the deck drains

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.

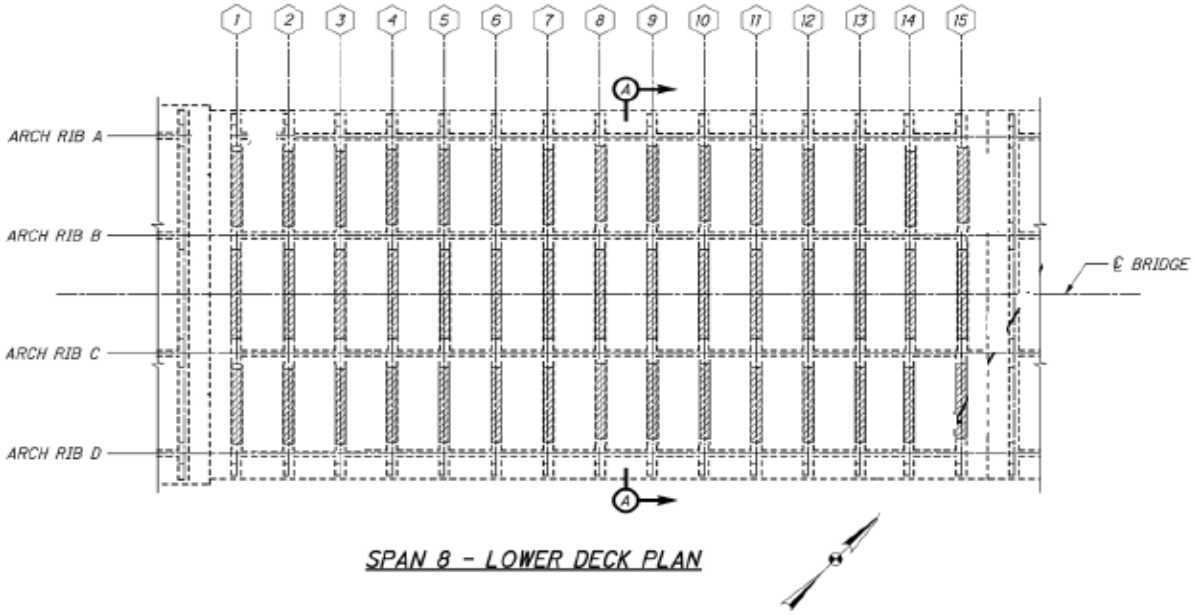



SPAN 7 – LOWER DECK PLAN

| SPAN 7, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exp. Reinf. - 3 SF |




SPAN 8 – UPPER DECK PLAN




SPAN 8 – LOWER DECK PLAN

| SPAN 8, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | 1 LF leaking at the deck joint |
| 2 | Spall w. exp. Reinf. - 3 SF, 2" D |
| 3 | Cracking w/ efflorescence - 4 SF |
| 4 | Spall w. exp. Reinf. - 7 SF |

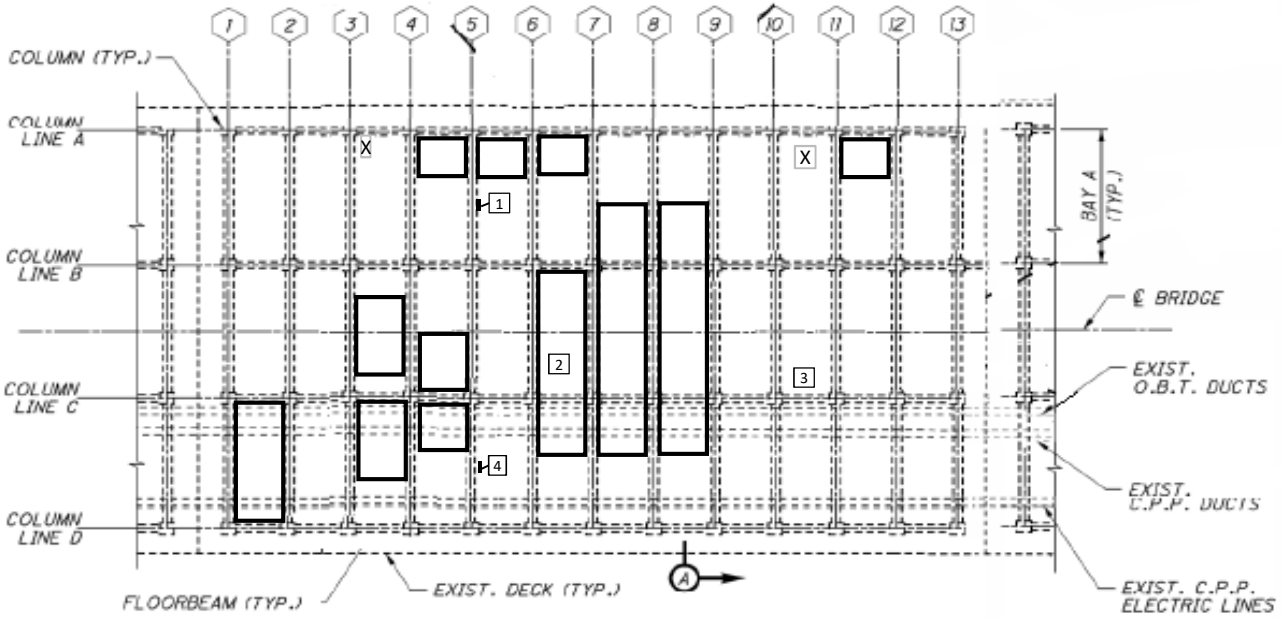
**General Findings:**

= Area of Moisture Staining with efflorescence

X = Area of Moisture Staining around the deck drains

U = Utility box location

Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.




SPAN 9 – UPPER DECK PLAN

**General Findings:**

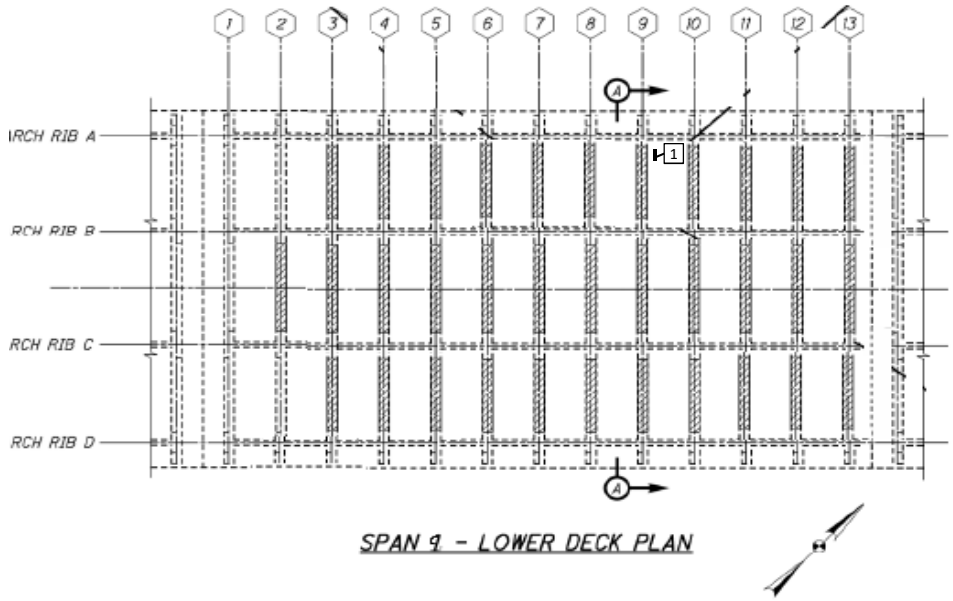
□ = Area of Moisture Staining with efflorescence

X = Area of Moisture Staining around the deck drains

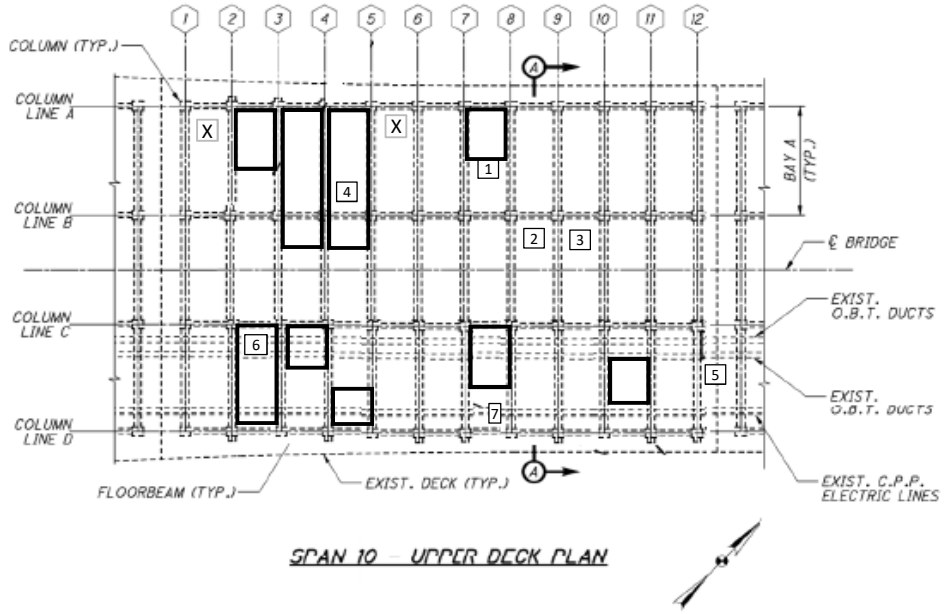
Bay B floorbeams have hairline vertical cracks spaced about 3' apart. Some have light efflorescence.

| SPAN 9, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Delamination - 1 SF |
| 2 | Spall - 4 SF, 2.5" D |
| 3 | Spall w/ exp. Reinf. - 01 SF, 1.5" D |
| 4 | Delamination - 4 SF |

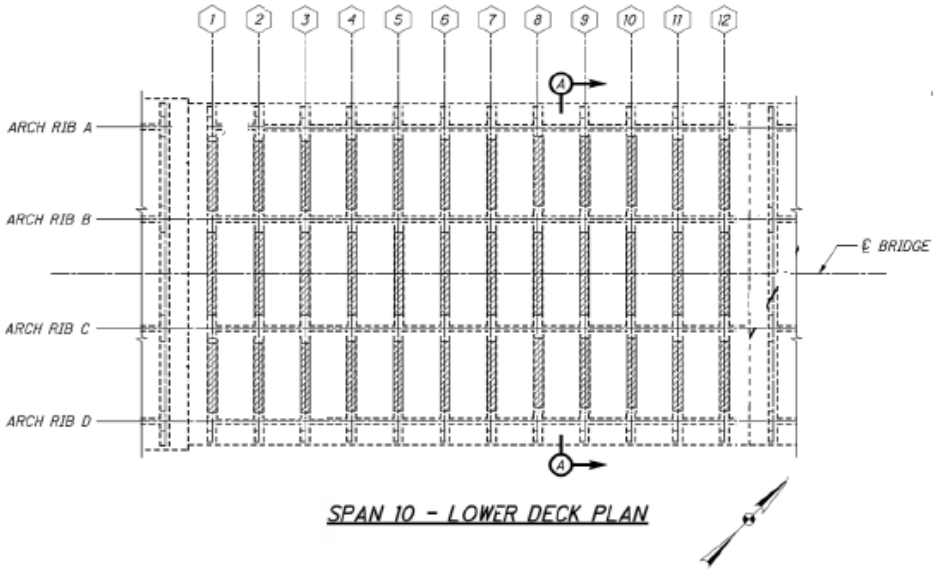
| SPAN 9, LOWER DECK DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination |




SPAN 9 - LOWER DECK PLAN




SPAN 10 – UPPER DECK PLAN



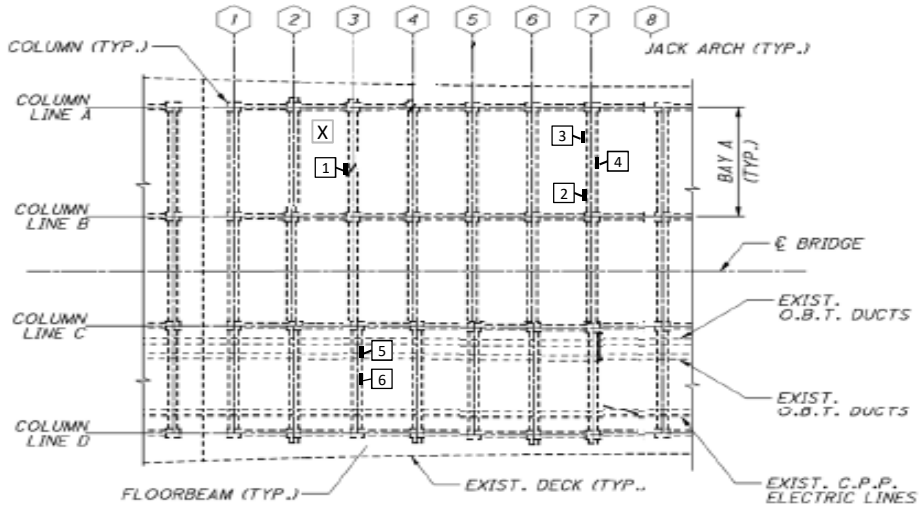

SPAN 10 – LOWER DECK PLAN

| SPAN 10 - UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 2 | Spall w/ exp. Reinf. - 3 SF, 2" D |
| 3 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 4 | Delamination, 12 SF |
| 5 | 3-ft of leaking from hole in Joint 3 |
| 6 | Delamination w/ Efflorescence - 1 SF |
| 7 | Crack w/ Efflorescence for 1/2 Span |

**General Findings:**

☐ = Area of Moisture Staining with efflorescence

X = Area of Moisture Staining around the deck drains

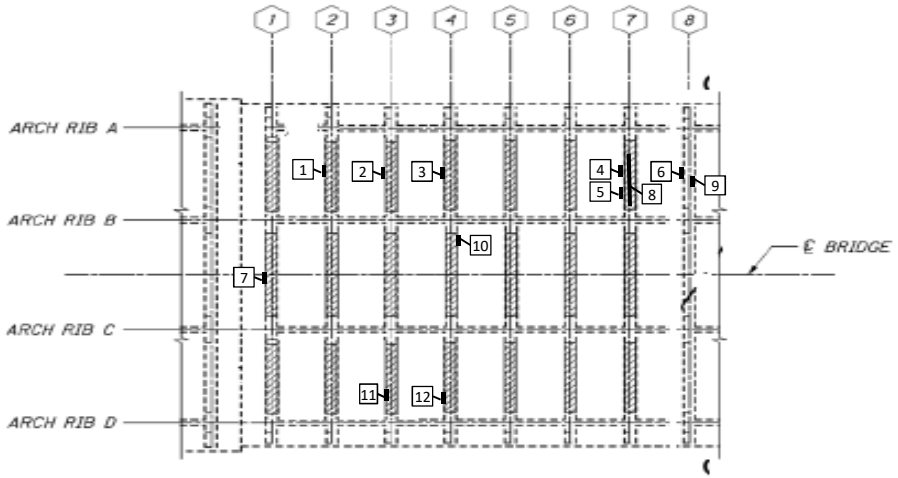



**SPAN 11 -- UPPER DECK PLAN**

| SPAN 11, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exp. Reinf. - 8 SF, 1" D |
| 2 | Spall w/ exp. Reinf. - 2 SF, 1" D |
| 3 | Spall w/ exp. Reinf. - 1 SF |
| 4 | Spall w/ exp. Reinf. - 2 SF, 1" D |
| 5 | Delamination - 1 SF |
| 6 | Delamination - 2 SF |

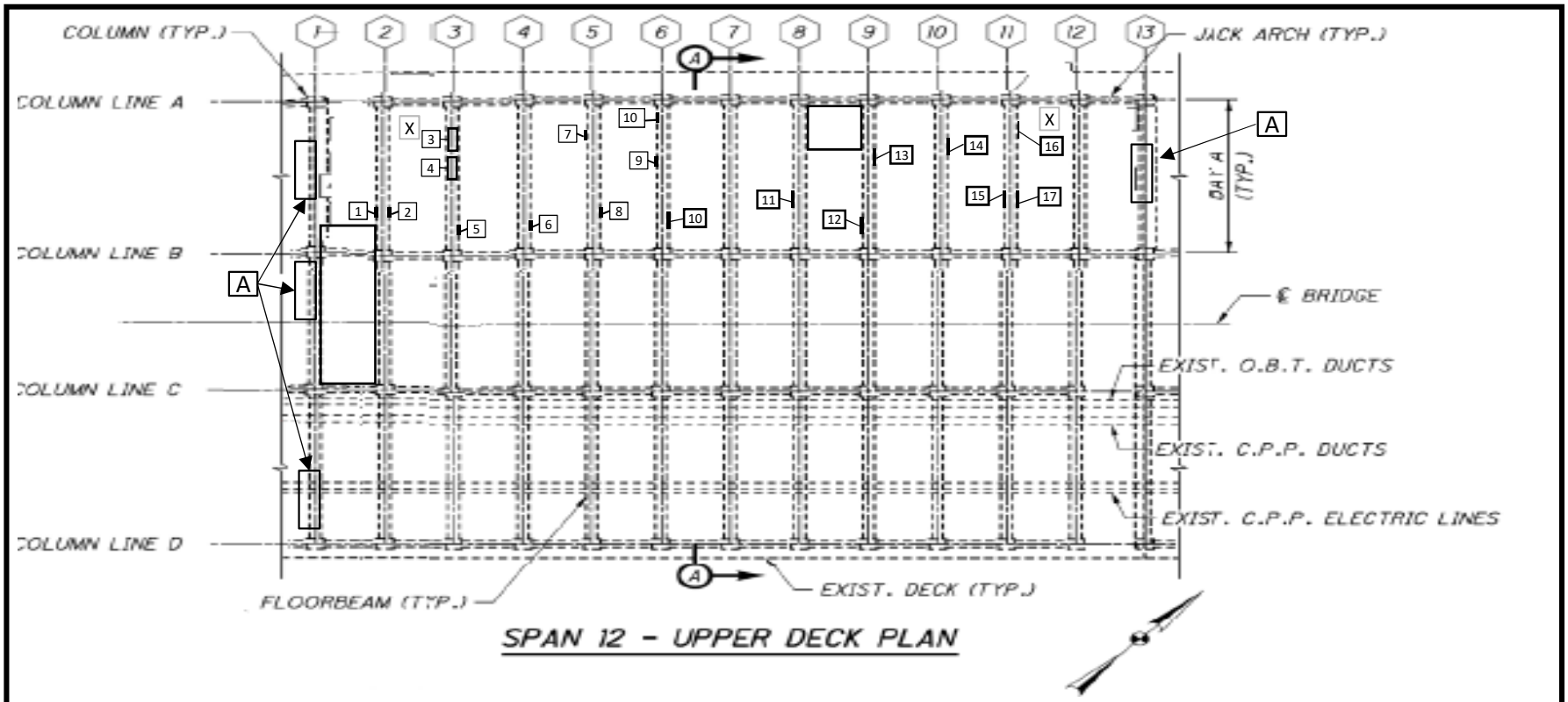
**General Findings:**

X = Area of Moisture Staining around the deck drains




**SPAN 11 - LOWER DECK PLAN**

| SPAN 11, LOWER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Delamination w/ Spalling - 4 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 1 SF |
| 5 | Spall w/ exp. Reinf. - 1 SF |
| 6 | Delamination - 4 SF |
| 7 | Spall w/ exp. Reinf. - 3 SF, 2" D |
| 8 | Crack - 8 LF |
| 9 | Delamination - 1 F |
| 10 | Delamination - 2 SF |
| 11 | Delamination - 6 SF |
| 12 | Delamination - 4 SF |

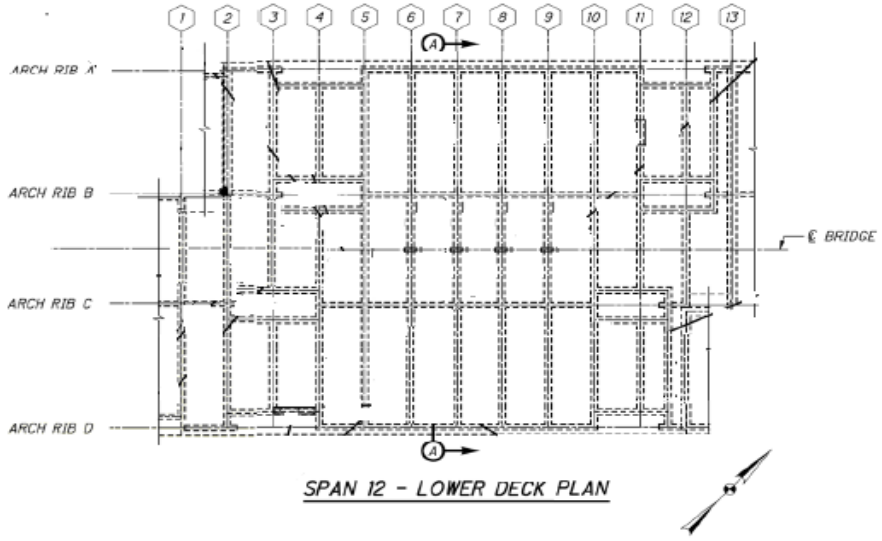



| SPAN 12 - UPPER DECK DEFICIENCIES | | | |
|---|---|---|---|
| # | DEFECT | # | DEFECT |
| 1 | Delamination - 1 SF | 10 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delamination - 1 SF | 11 | Spall w/ exp. Reinf. - 1 SF |
| 3 | Delamination - 4 SF | 12 | Spall w/ exp. Reinf. - 2 SF, 1" D |
| 4 | Delamination - 3 SF | 13 | Spall w/ exp. Reinf. - 3 SF, 1" D |
| 5 | Delamination - 3 SF | 14 | Spall w/ exp. Reinf. - 13 SF |
| 6 | Spall w/ exp. Reinf. - 1 SF | 15 | Delamination - 6 SF |
| 7 | Spall w/ exp. Reinf. - 1 SF | 16 | Delamination - 1 SF |
| 8 | Delamination - 6 SF | 17 | Spall w/ exp. Reinf - 1 SF |
| 9 | Delamination - 27 SF | | |

X = Area of Moisture Staining around the deck drains

☐ = Area of Moisture Staining with efflorescence

See the next sheet for note A



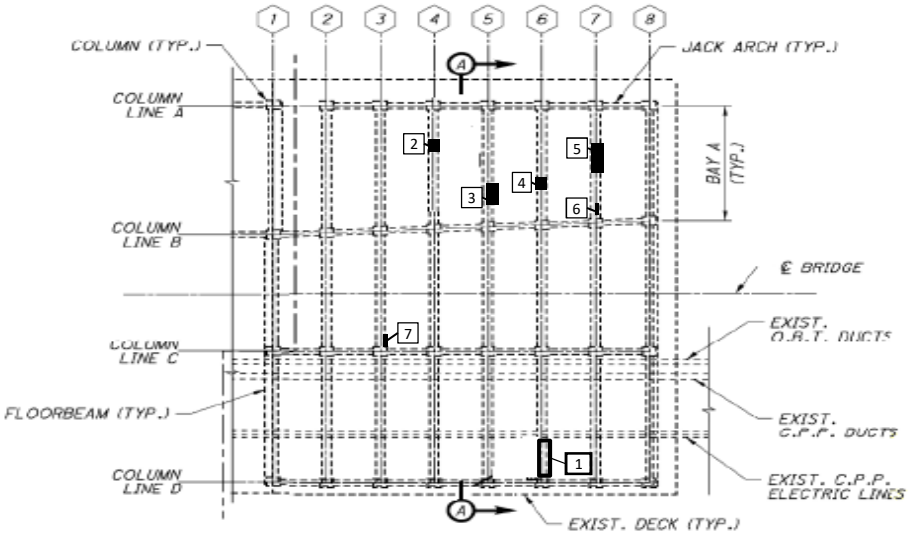

SPAN 12 - LOWER DECK PLAN

| SPAN 12, LOWER DECK DEFICIENCIES | | | | |
|---|---|---|---|---|
| FB # | Defect | Bay A (sf) | Bay B (sf) | Bay C (sf) |
| 1 | Delamination | | 0 | 0 |
| | Spall w/ exp. Reinf. | | 0 | 0 |
| 2 | Delamination | 4 | 19 | 13 |
| | Spall w/ exp. Reinf. | 5 | 14 | 5 |
| 3 | Delamination | 1 | 3 | 0 |
| | Spall w/ exp. Reinf. | 0 | 0 | 0 |
| 4 | Delamination | 6 | 6 | 33 |
| | Spall w/ exp. Reinf. | 6 | 2 | 16 |
| 5 | Delamination | 8 | 0 | 17 |
| | Spall w/ exp. Reinf. | 16 | 0 | 5 |
| 6 | Delamination | 94 | 0 | 12 |
| | Spall w/ exp. Reinf. | 0 | 1 | 1 |
| 7 | Delamination | 2 | 0 | 0 |
| | Spall w/ exp. Reinf. | 0 | 0 | 0 |
| 8 | Delamination | 2 | 11 | 4 |
| | Spall w/ exp. Reinf. | 2 | 2 | 1 |
| 9 | Delamination | 22 | 19 | 45 |
| | Spall w/ exp. Reinf. | 0 | 0 | 2 |
| 10 | Delamination | 14 | 0 | 8 |
| | Spall w/ exp. Reinf. | 32 | 0 | 0 |
| 11 | Delamination | 4 | 0 | 8 |
| | Spall w/ exp. Reinf. | 7 | 2 | 0 |
| 12 | Delamination | 10 | 4 | 20 |
| | Spall w/ exp. Reinf. | 8 | 0 | 2 |
| 13 | Delamination | 0 | 0 | |
| | Spall w/ exp. Reinf. | 0 | 0 | |

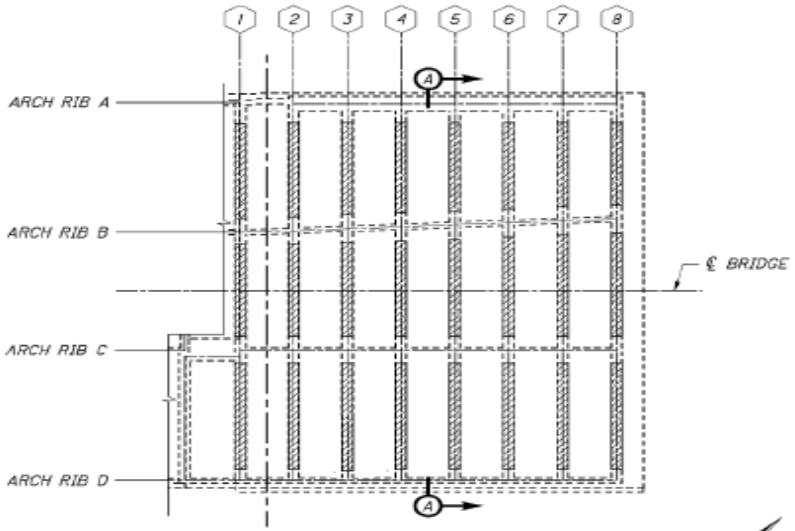
## SPAN 12 - UPPER DECK FINDINGS:

Note A: Between the deck underside and the top of the transverse floorbeam overs Piers 11 and 12, there are 3" H concrete pedastals with galvanized steel plates sitting on top and between each pedestal. In several locations these plates are missing and no longer support the deck underside, or have displaced from the bearing pedestal. See Table below for locations and description of displaced plates.

| Joint | Location | Description |
|---|---|---|
| Pier 11 | Ribs A-B | One plate missing and one displaced 4" east |
| | Ribs B-C | Two plates missing and two plate displaced up to 2" west |
| | Ribs C-D | Six plates displaced up to 6.5" west |
| Pier 12 | Ribs A-B | One plate missing and two displaced up to 1" east |

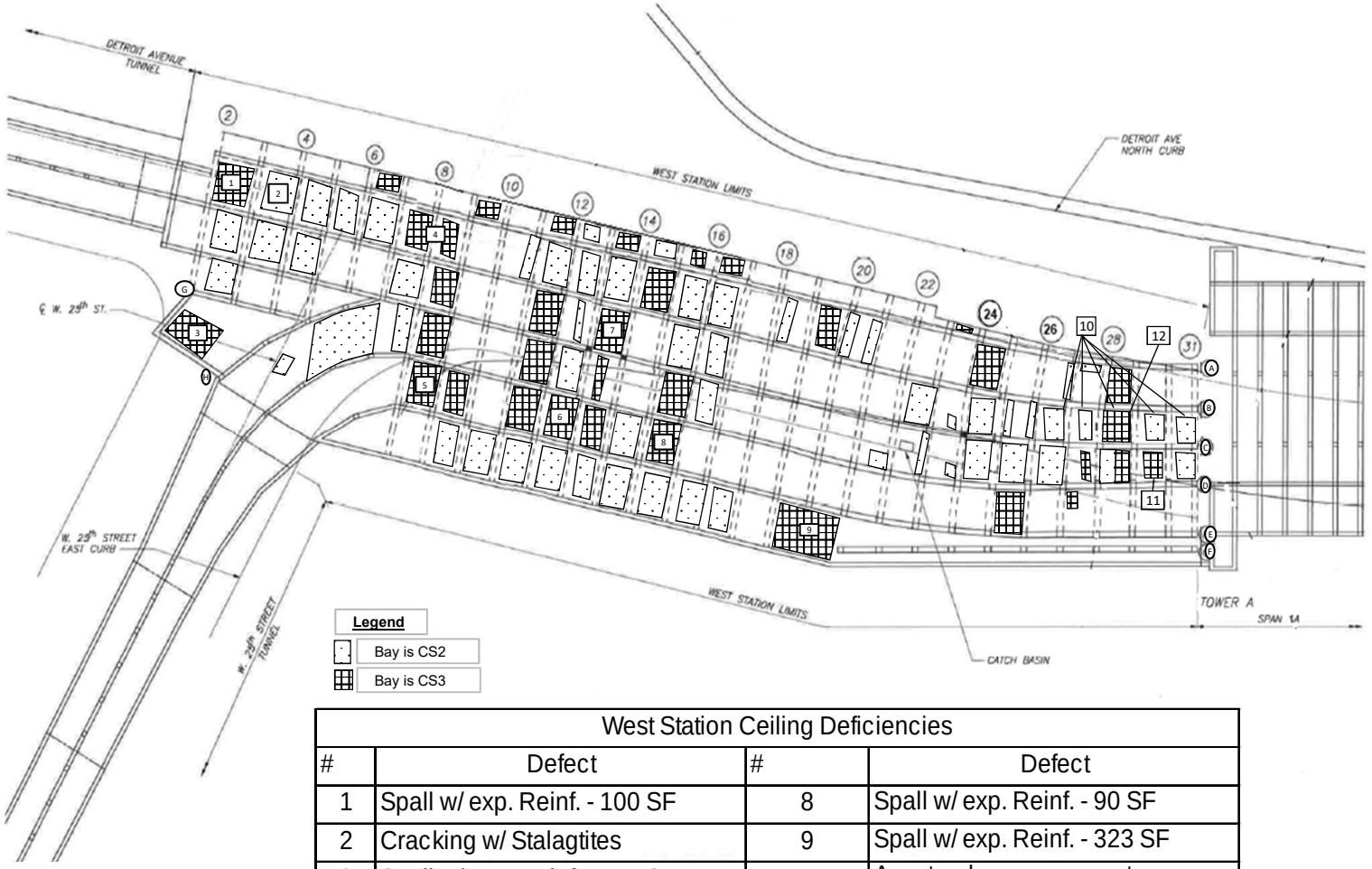



SPAN 13 – UPPER DECK PLAN

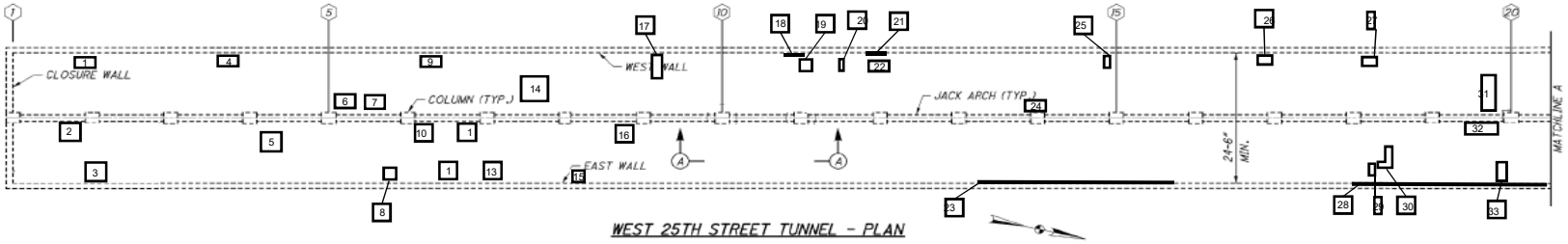



SPAN 13 – LOWER DECK PLAN

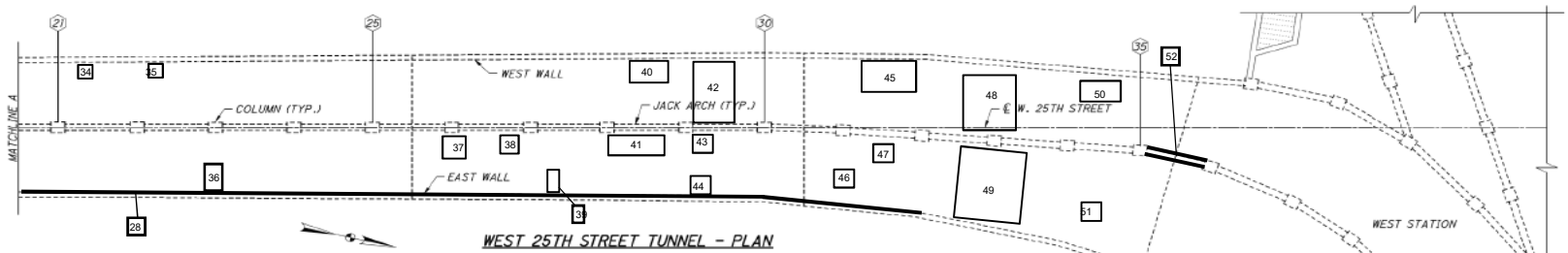
| SPAN 13, UPPER DECK DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Delamination w/ Spalling w/ exp. Reinf. - 24 SF, 4" D |
| 2 | Incomplete Sawcut Repair Location w/ exp. Reinf. (I.S.R.) - 4 SF |
| 3 | I.S.R. - 6 SF |
| 4 | I.S.R. - 3 SF |
| 5 | I.S.R. - 8 SF |
| 6 | I.S.R. - 2 SF |
| 7 | I.S.R. - 1 SF |




| West Station Ceiling Deficiencies | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Spall w/ exp. Reinf. - 100 SF | 8 | Spall w/ exp. Reinf. - 90 SF |
| 2 | Cracking w/ Stalagtites | 9 | Spall w/ exp. Reinf. - 323 SF |
| 3 | Spall w/ exp. Reinf. - 144 SF | 10 | Area typ. has numerous transverse and longitudinal cracking w/ heavy efflorescence and delam. |
| 4 | Spall w/ exp. Reinf - 196 SF | | |
| 5 | Areas of spalling w/ exp. Reinf, cracking & efflorescence | 11 | Spall w/ exp. Reinf. - 100 SF |
| 6 | Spall w/ exp. Reinf. - 169 SF, similar for adjacent C11/12 - D11/12 bay | 12 | Spall w/ exp. Reinf. - 181 SF, similar for adjacent A28/29 - B28/29 bay |
| 7 | Spall w/ exp. Reinf. - 82 SF. Rebar has heavy section loss & one bar severed | | |



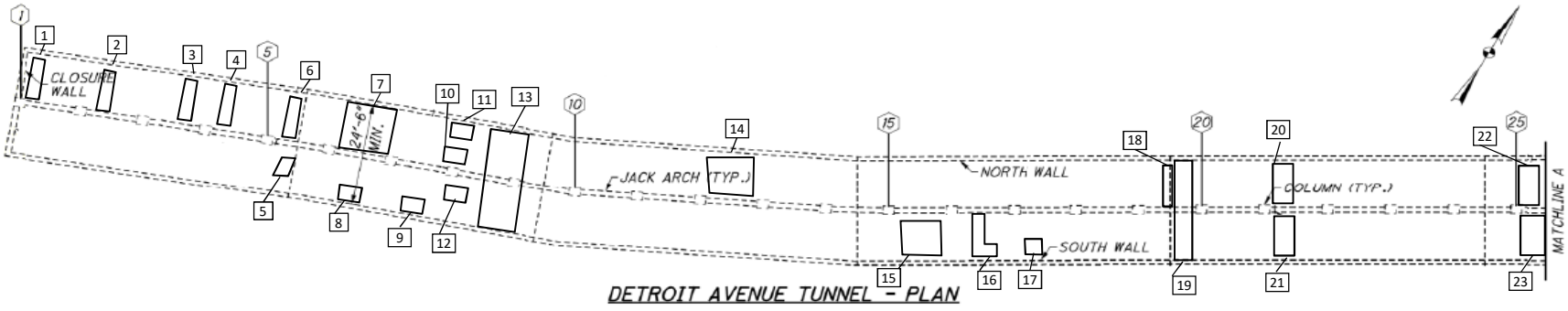

WEST 25TH STREET TUNNEL - PLAN



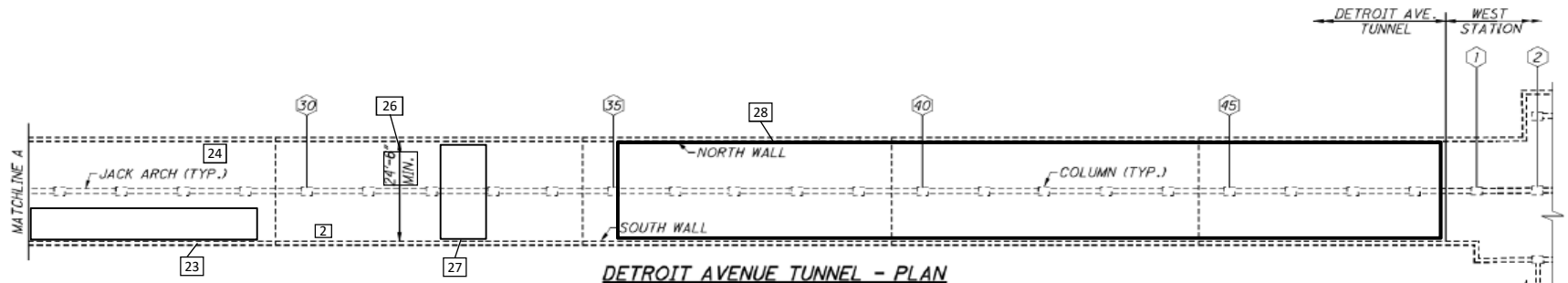

WEST 25TH STREET TUNNEL - PLAN

| W 25TH STREET TUNNEL CEILING DEFICIENCIES | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | SF | # | SF | # | SF | # | SF |
| 1 | **12** | 15 | **4** | 33 | **10** | 47 | **4** |
| 2 | **42** | 16 | **16** | 34 | **1** | 48 | **168** |
| 3 | **30** | 17 | **24** | 35 | **2** | 49 | **300** |
| 4 | **21** | 19 | **4** | 36 | **15** | 50 | **28** |
| 5 | **6** | 20 | **1** | 37 | **15** | 51 | **16** |
| 6 | **3** | 22 | **15** | 38 | **9** | | |
| 7 | **1** | 24 | **12** | 39 | **8** | | |
| 8 | **4** | 25 | **2** | 40 | **54** | | |
| 9 | **20** | 26 | **2** | 41 | **45** | | |
| 10 | **35** | 27 | **6** | 42 | **77** | | |
| 11 | **16** | 29 | **2** | 43 | **9** | | |
| 12 | **25** | 30 | **3** | 44 | **9** | | |
| 13 | **25** | 31 | **33** | 45 | **40** | | |
| 14 | **30** | 32 | **5** | 46 | **2** | | |

| W 25TH STREET TUNNEL DEFICIENCIES | |
|---|---|
| # | Comments |
| 18 | Bottom of wall - 2 SF |
| 21 | Bottom of wall - 18 SF |
| 23 | Bottom of wall - 60 SF |
| 28 | Bottom of wall - 2.5' high spalling from columns 18-32 |
| 52 | Top of arch full length, both faces |
| 53 | Wall - Full Height x 4' |
| | |
| | |
| | |
| | |

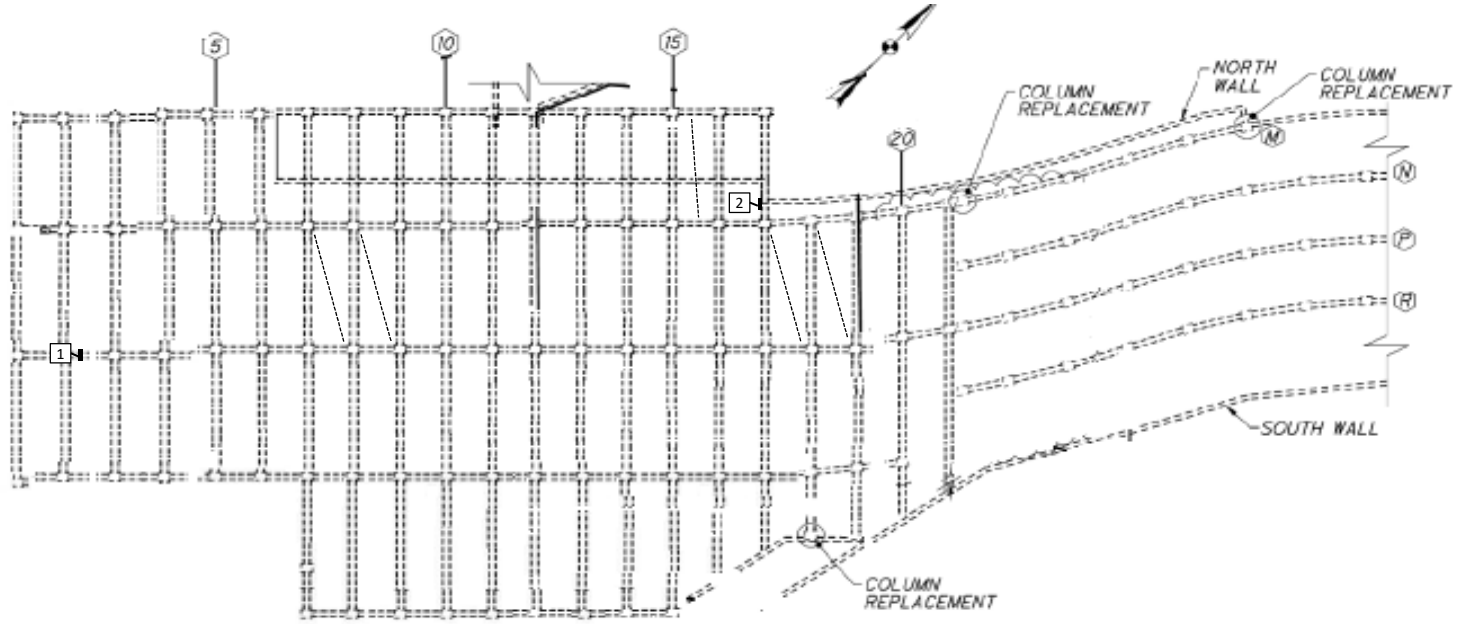



DETROIT AVENUE TUNNEL - PLAN



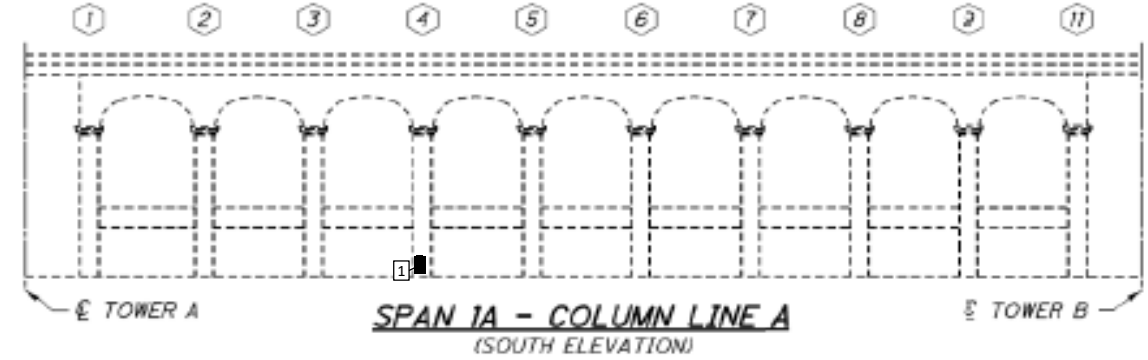

DETROIT AVENUE TUNNEL - PLAN

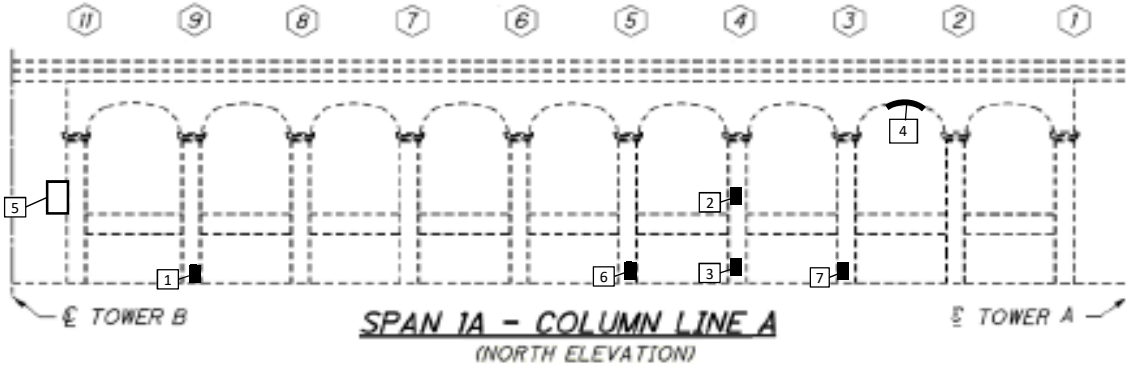
| Detroit Avenue Tunnel Ceiling Deficiencies | | | | | |
|---|---|---|---|---|---|
| # | Defect | 10 | Cracking w/ efflorescence - 3 SF | 20 | Spall w/ exp. Rebar - 96 SF |
| 1 | Spall w/ exp. Rebar - 50 SF | 11 | Spall w/ exp. Rebar - 12 SF | 21 | Spall w/ exp. Rebar - 48 SF |
| 2 | Cracking w/ efflorescence & stalagtites & seepage - 66 SF | 12 | Spall w/ exp. Rebar - 12 SF | 22 | Cracking - 36 SF |
| 3 | Spall w/ exp. Rebar - 44 SF | 13 | Several spalls w/ exp. Rebar - 10 SF | 23 | Spall w/ exp. Rebar w/ seepage & rust staining - 192 SF. Also Delamination w/ cracking - 76 SF |
| 4 | Cracking w/ efflorescence & stalagtites & seepage - 30 SF | 14 | Spall w/ exp. Rebar - 120 SF | 24 | Spall w/ exp. Rebar - 50 SF |
| 5 | Spall w/ exp. Rebar - 6 SF | 15 | Spall w/ efflorescence & heavy rust staining - 96 SF | 25 | Spall w/ exp. Rebar - 2 SF |
| 6 | Cracking w/ efflorescence - 30 SF | 16 | Spall w/ exp. Rebar - 36 SF | 26 | Spall w/ exp. Rebar - 80 SF |
| 7 | Spall w/ exp. Rebar - 180 SF | 17 | Spall w/ exp. Rebar - 5 SF | 27 | Spall w/ exp. Rebar - 196 SF |
| 8 | Spall w/ exp. Rebar - 24 SF | 18 | Transverse & longitudinal cracks in the joint header. Joint is leaking. | 28 | From C35-48, app. 50% of the ceiling is Spall w/ exp. Rebar (2390 SF) and 20% is cracking w/ seepage (956 SF). |
| 9 | Spall w/ exp. Rebar - 35 SF | 19 | Area of cracking, spalling, delamination w/ eff. & exp. Rebar - 150 SF | | |




EAST STATION & SUBWAY - PLAN

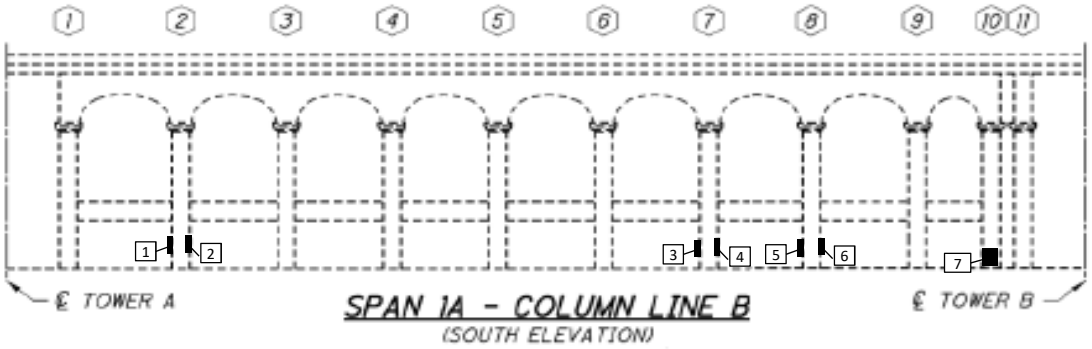
| EAST STATION & SUBWAY DEFICIENCIES | |
|---|---|
| # | DEFECT |
| 1 | Spall w/ exp. Reinf. - 1 SF, 1" D (underside of arch) |
| 2 | Spall - 24 SF (in wall) and Spall - 6 SF (in btm of FB) |



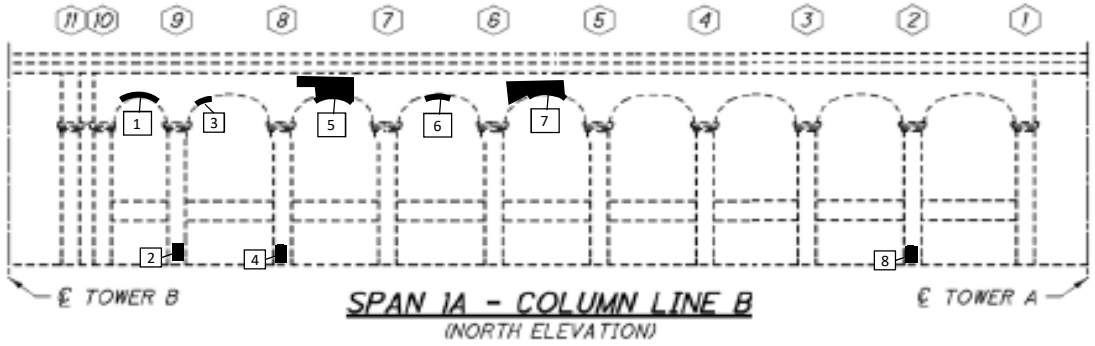




| SPAN 1A - COLUMN LINE A (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |

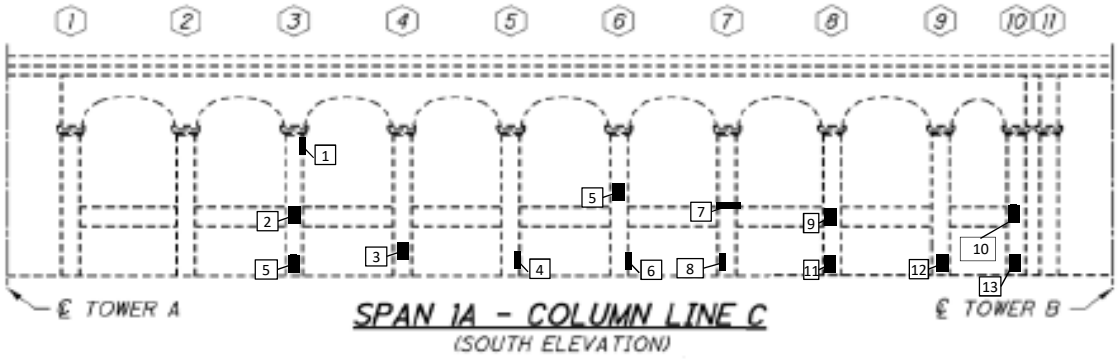
| SPAN 1A - COLUMN LINE A (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 7 SF, 1.5" D |
| 2 | Delamination - 5 SF |
| 3 | Delamination/Spall - 4 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination - 4 SF |
| 6 | Spall - 2 SF |
| 7 | Delamination - 2 SF |



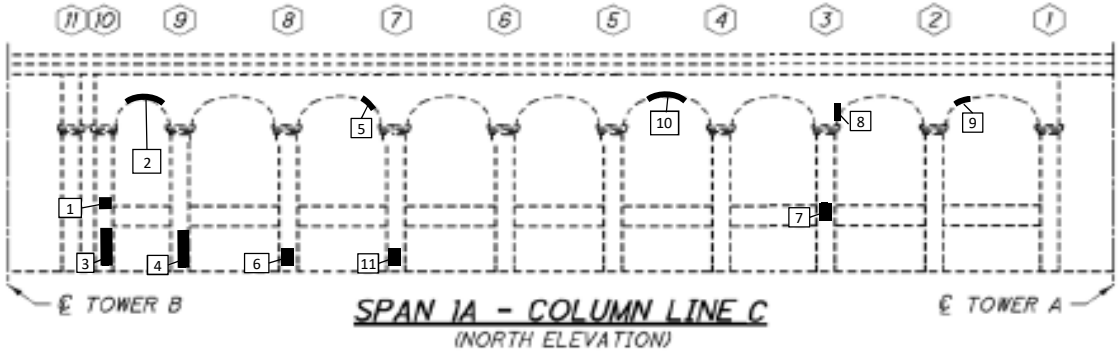

| SPAN 1A - COLUMN LINE B (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF |
| 3 | Spall w/ exp. Reinf - 1 SF |
| 4 | Spall w/ exp. Reinf - 1 SF |
| 5 | Spall w/ exp. Reinf. - 2 SF |
| 6 | Spall w/ exp. Reinf. - 2 SF |
| 7 | Spall w/ exp. Reinf. - 3 SF |




| SPAN 1A - COLUMN LINE B (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 3 SF |
| 3 | Spall - 1 SF |
| 4 | Delamination - 1.5 SF |
| 5 | Spall w/ exp. Reinf. - 8 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 18 SF with 3 SF spall |
| 8 | Delamination - 2 SF |



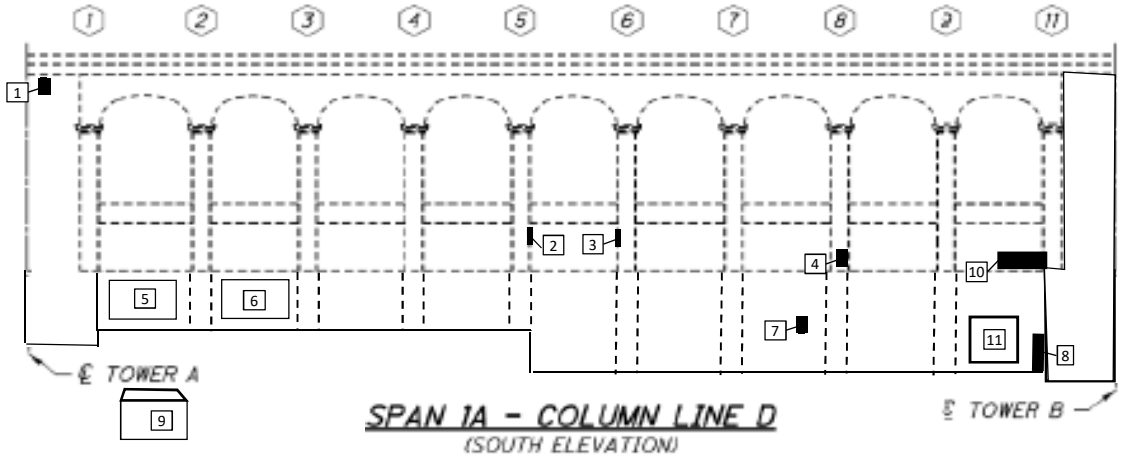

SPAN 1A - COLUMN LINE C
(SOUTH ELEVATION)




SPAN 1A - COLUMN LINE C
(NORTH ELEVATION)

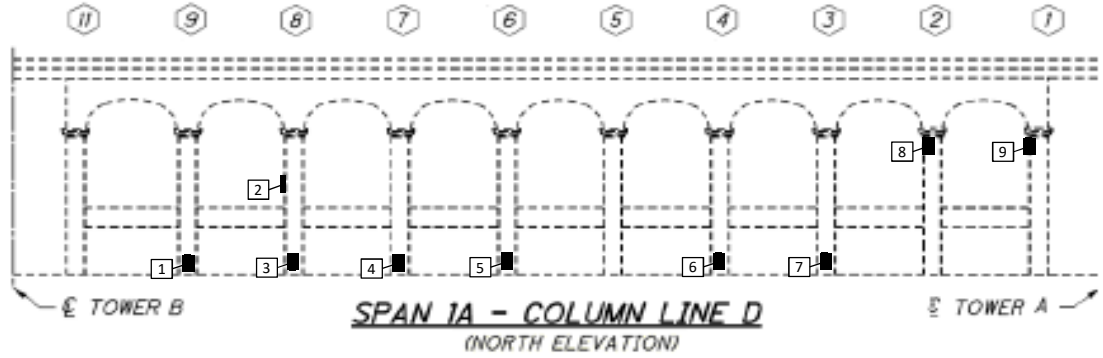
| SPAN 1A - COLUMN LINE C (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 3 SF |
| 4 | Spall w/ exp. Reinf. - 8 SF |
| 5 | Spall with exp. Reinf. - 2 SF |
| 6 | Delamination - 2 SF |
| 7 | Spall w/ exp. Reinf. - 1 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 1 SF |
| 10 | Spall w/ exp. Reinf. - 1 SF |
| 11 | Spall w/ exp. Reinf. - 4 SF |
| 12 | Spall w/ exp. Reinf. - 6 SF |
| 13 | Delamination - 3 SF |

| SPAN 1A - COLUMN LINE C (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delam. and Spall w/ exp. Reinf. - 8 S |
| 3 | Spall w/ exp. Reinf. - 6 SF, 6" D |
| 4 | Spall w/ exp. Reinf. - 6 SF |
| 5 | Delamination - 2 SF |
| 6 | Spall w/ exp. Reinf. - 3 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 1 SF |
| 10 | Spall w/ exp. Reinf. - 1 SF |



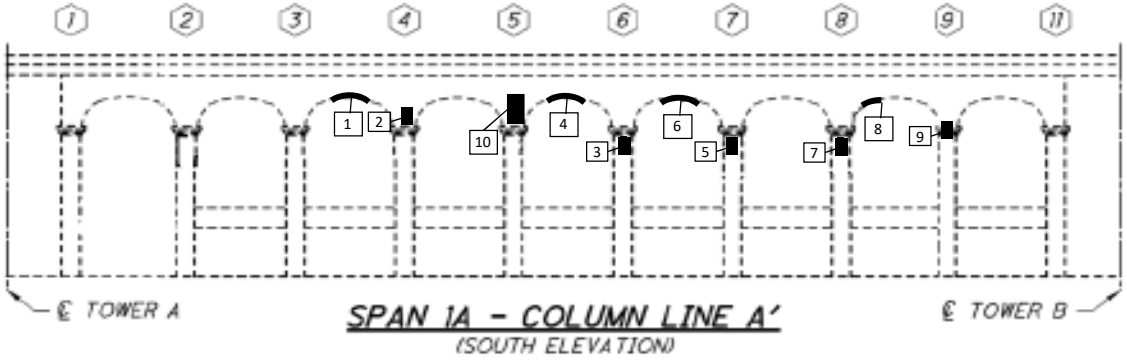

SPAN 1A - COLUMN LINE D
(SOUTH ELEVATION)

| SPAN 1A - COLUMN LINE D (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Face of cap has a 1'-4" W x Full H x 6" D spall |
| 2 | Delamination - 6 SF |
| 3 | Spall w/ exp. Reinf. - 3 SF |
| 4 | Delamination - 4 SF |
| 5 | Spall w/ exp. Reinf. - 16 SF, within a Delamination - 42 SF |
| 6 | Delamination - 24 SF |
| 7 | Delamination - 6 SF |
| 8 | Spall - 5 SF, 8" D |
| 9 | Embankment along the south side of Span 1A has signficant erosion for the full length. At the west end, there is a 15' Diameter x 4' D erosion ditch around the manhole. An erosion ditch extends from the manhole towards the east typ. 3' W x 2' D. |

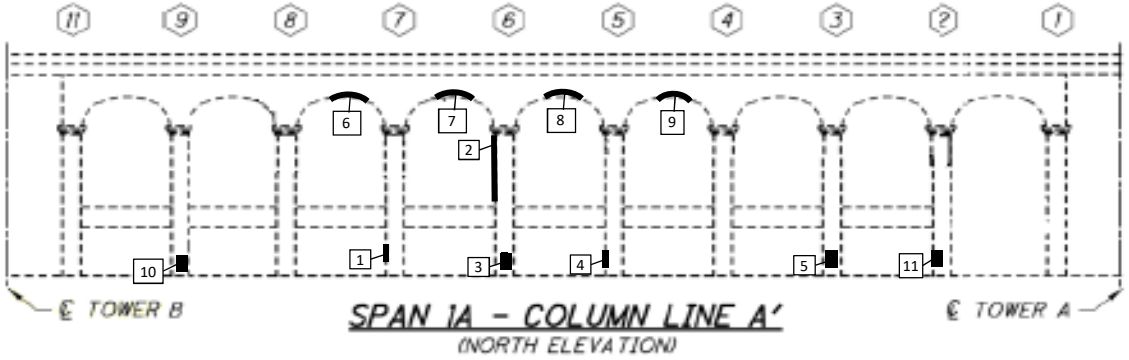



SPAN 1A - COLUMN LINE D
(NORTH ELEVATION)

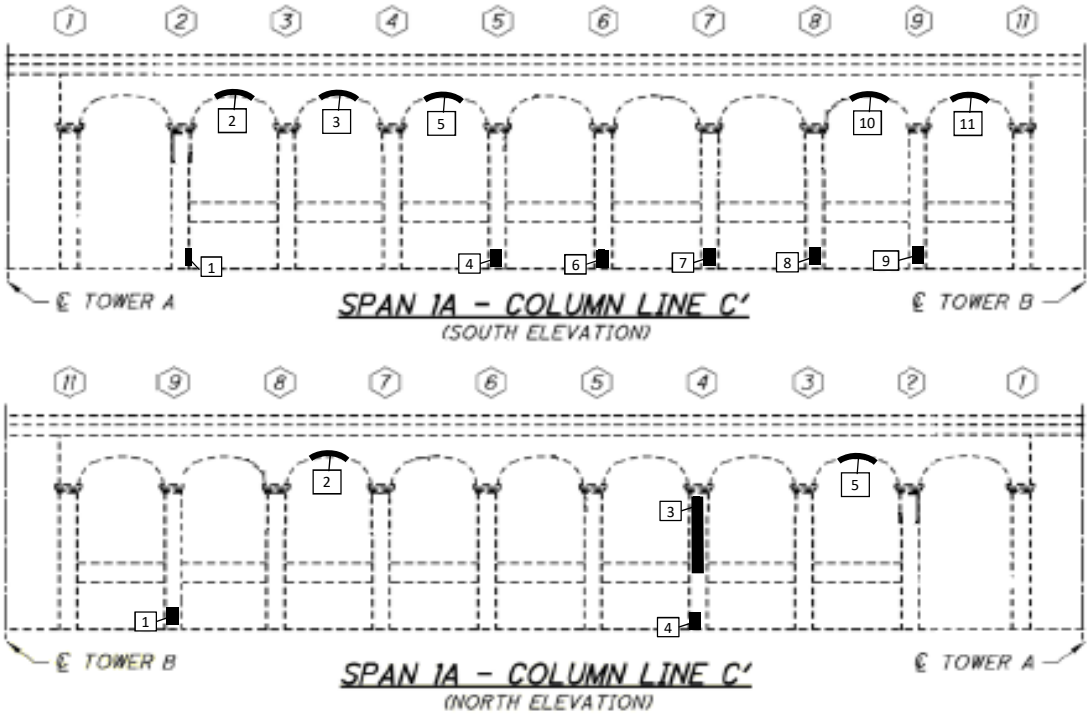
| SPAN 1A - COLUMN LINE D (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf - 7 SF |
| 2 | Delamination - 1 SF |
| 3 | Spall w/ exp. Reinf - 6 SF |
| 4 | Spall w/ exp. Reinf - 6 SF |
| 5 | Spall w/ exp. Reinf - 4 SF |
| 6 | Spall w/ exp. Reinf. - 8 SF |
| 7 | Delamination - 6 SF |
| 8 | Delamination - 6 SF |
| 9 | Delamination - 6 SF |




| SPAN 1A - COLUMN LINE A' (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 4 SF |
| 3 | Spall w/ exp. Reinf. - 3 SF |
| 4 | Spall w/ exp. Reinf. - 6 SF |
| 5 | Spall w/ exp. Reinf. - 9 SF |
| 6 | Spall w/ exp. Reinf. - 4 SF |
| 7 | Spall w/ exp. Reinf. - 6 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 2 SF |
| 10 | Spall w/ exp. Reinf. - 6 SF |

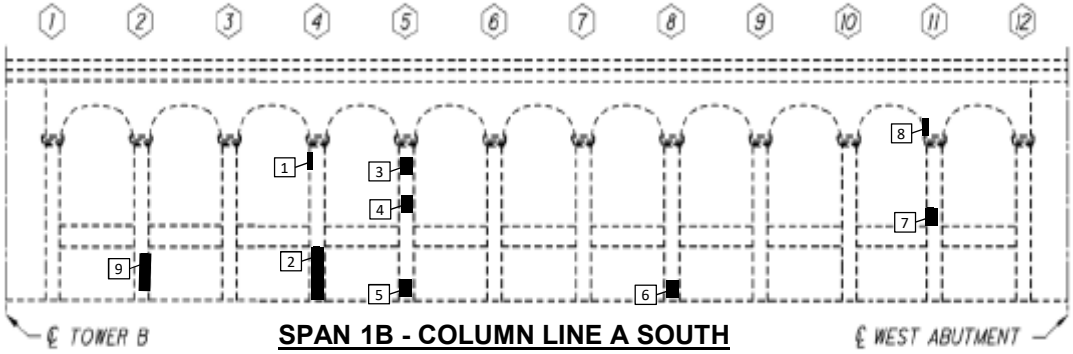



| SPAN 1A - COLUMN LINE A' (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination - 5 SF |
| 3 | Delaminaiton - 3 SF |
| 4 | Delamination - 3 SF |
| 5 | Delamination - 2 SF |
| 6 | Spall w/ exp. Reinf. - 5 SF |
| 7 | Spall w/ exp. Reinf. - 3 SF |
| 8 | Spall w/ exp. Reinf. - 3 SF |
| 9 | Spall w/ exp. Reinf. - 6 SF |
| 10 | Delamination - 3 SF |
| 11 | Spall w/ exp. Reinf. - 2 SF |

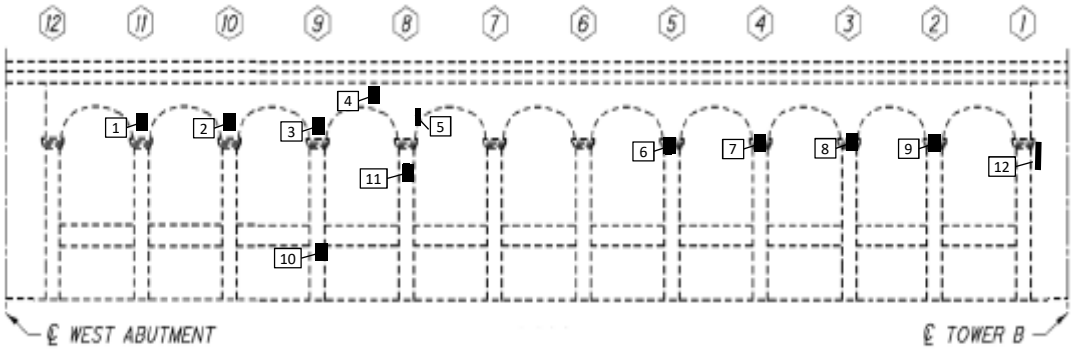



| SPAN 1A - COLUMN LINE C' (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 2 SF |
| 2 | Spall w/ exp. Reinf. - 6 SF |
| 3 | Spall w/ exp. Reinf. - 2 SF |
| 4 | Spall - 6.5 SF, 3" D |
| 5 | Spall w/ exp. Reinf. - 4 SF |
| 6 | Spall w/ exp. Reinf. - 3 SF |
| 7 | Spall w/ exp. Reinf. - 4 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 4 SF |
| 10 | Spall w/ exp. Reinf. - 3 SF |
| 11 | Spall w/ exp. Reinf. - 3 SF |

| SPAN 1A - COLUMN LINE C' (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 4 SF |
| 2 | Delamination - 1 SF |
| 3 | Spalling w/ exp. Reinf. And Delamination - 17 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 2 SF |




**SPAN 1B - COLUMN LINE A SOUTH ELEVATION**



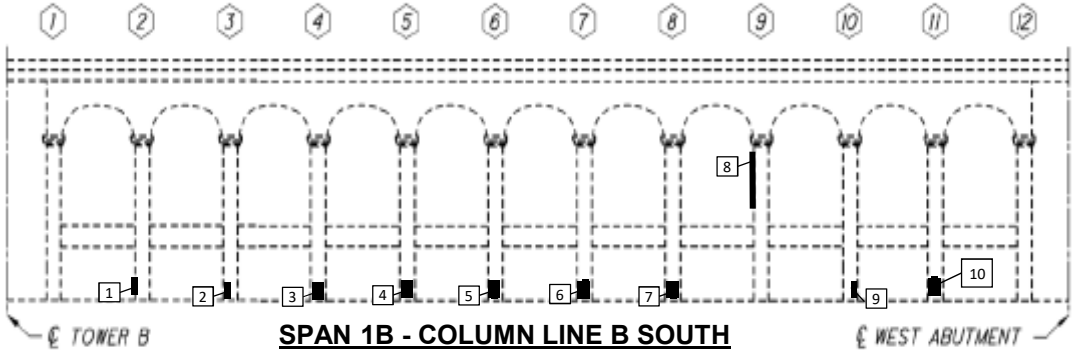

**SPAN 1B - COLUMN LINE A NORTH ELEVATION**

SPAN 1B - COLUMN LINE A (SOUTH ELV.) DEFICIENCIES

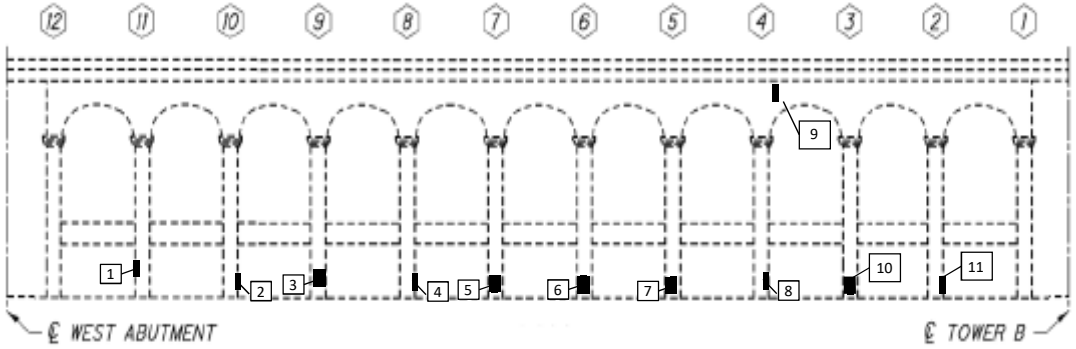
| # | Defect |
|---|---|
| 1 | Delamination - 2 SF |
| 2 | Spall w/ exp. Reinf. - 8 SF |
| 3 | Delamination - 4 SF |
| 4 | Delamination - 2 SF |
| 5 | Spall w/ exp. Reinf. - 8 SF |
| 6 | Delamination - 5 SF |
| 7 | Spall w/ exp. Reinf. - 4 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 4 SF |

SPAN 1B - COLUMN LINE A (NORTH ELV.) DEFICIENCIES

| # | Defect |
|---|---|
| 1 | Delamination - 2 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF (on bracke |
| 3 | Spall w/ exp. Reinf. - 2 SF (on bracke |
| 4 | Delamination - 1 SF |
| 5 | Spall w/ exp. Reinf. - 2 SF |
| 6 | Delamination - 2 SF |
| 7 | Spall w/ exp. Reinf. - 2 SF |
| 8 | Delam. - 2 SF (underside of bracket) |
| 9 | Spall w/ exp. Reinf. - 1 SF, 3" D |
| 10 | Spall w/ exp. Reinf. - 1 SF |
| 11 | Delamination - 1 SF |
| 12 | Spall w/exp. Reinf. 3 SF, 4" D |




**SPAN 1B - COLUMN LINE B SOUTH ELEVATION**



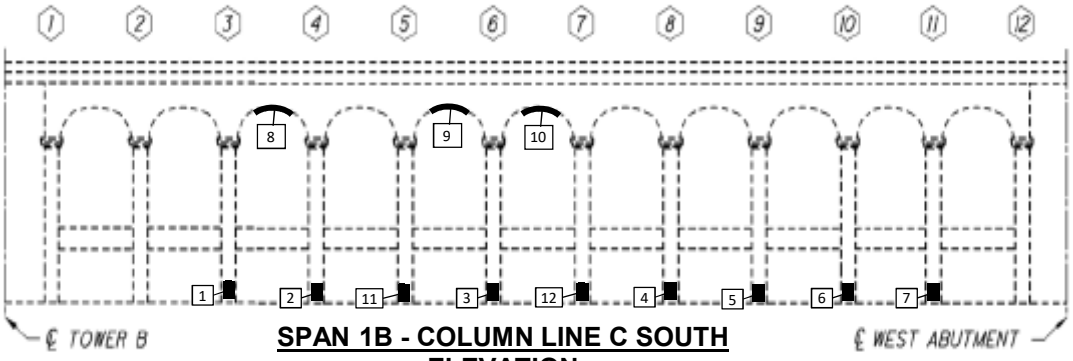

**SPAN 1B - COLUMN LINE B NORTH ELEVATION**

SPAN 1B - COLUMN LINE B (SOUTH ELV.) DEFICIENCIES

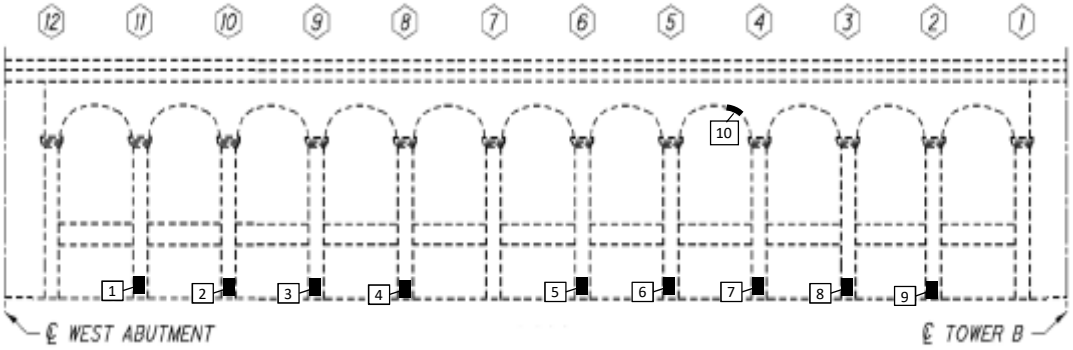
| # | Defect |
|---|---|
| 1 | Spall w/ exp. Reinf - 1 SF |
| 2 | Spall w/ exp. Reinf. - 4 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 4 SF |
| 5 | Spall w/ exp. Reinf. - 5 SF |
| 6 | Spall w/ exp. Reinf. - 3 SF |
| 7 | Delamination - 6 SF |
| 8 | Delamination - 6 SF |
| 9 | Spall w/ exp. Reinf. - 2 SF |
| 10 | Delamination - 4 SF |

SPAN 1B - COLUMN LINE B (NORTH ELV.) DEFICIENCIES

| # | Defect |
|---|---|
| 1 | Spall w/ exp. Reinf. - 4 SF |
| 2 | Spall w/ exp. Reinf. - 4 SF |
| 3 | Spall w/ exp. Reinf. - 5 SF |
| 4 | Delamination - 6 SF |
| 5 | Spall w/ exp. Reinf. - 4 SF |
| 6 | Delamination - 4 SF |
| 7 | Spall w/ exp. Reinf. - 5 SF |
| 8 | Spall w/ exp. Reinf. - 4 SF |
| 9 | Delamination - 3 SF |
| 10 | Spall w/ exp. Reinf. - 8 SF |
| 11 | Spall w/ exp. Reinf. - 2 SF |




**SPAN 1B - COLUMN LINE C SOUTH ELEVATION**



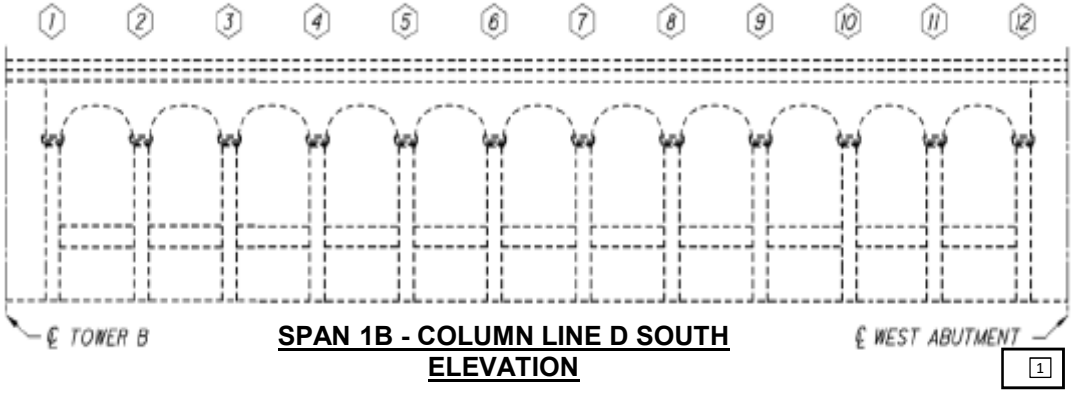

**SPAN 1B - COLUMN LINE C NORTH ELEVATION**

SPAN 1B - COLUMN LINE C (SOUTH ELV.) DEFICIENCIES

| # | Defect |
|---|---|
| 1 | Spall w/ exp. Reinf. - 4 SF |
| 2 | Spall w/ exp. Reinf. - 5 SF |
| 3 | Spall w/ exp. Reinf. - 6 SF |
| 4 | Delamination - 4 SF |
| 5 | Spall w/ exp. Reinf. - 6 SF |
| 6 | Delamination - 6 SF |
| 7 | Spall w/ exp. Reinf. - 3 SF |
| 8 | Delamination - 2 SF |
| 9 | Spall w/ exp. Reinf. - 2 SF |
| 10 | Spall w/ exp.Reinf. - 4 SF |
| 11 | Delamination - 2 SF |
| 12 | Delamination - 15 SF |

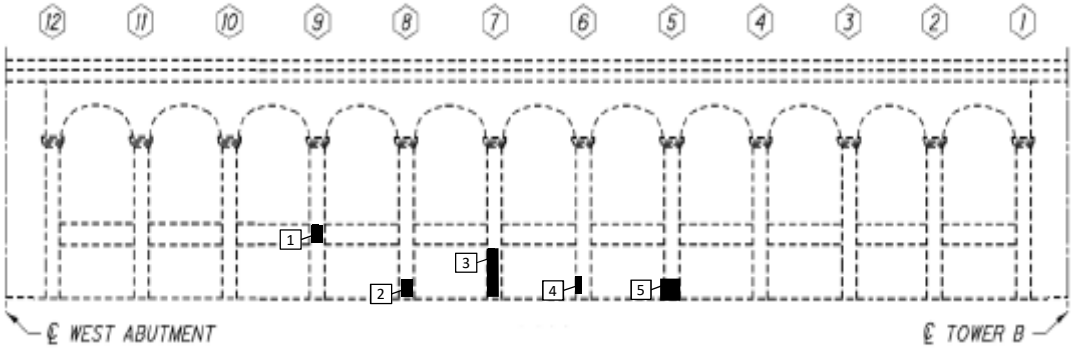
SPAN 1B - COLUMN LINE C (NORTH ELV.) DEFICIENCIES

| # | Defect |
|---|---|
| 1 | Delamination - 4 SF |
| 2 | Delamination - 4 SF |
| 3 | Delamination - 4 SF |
| 4 | Delamination - 4 SF |
| 5 | Spall w/ exp. Reinf. - 4 SF |
| 6 | Delamination - 6 SF |
| 7 | Delamination - 2 SF |
| 8 | Spall w/ exp. Reinf. - 4 SF |
| 9 | Delamination - 4 SF |
| 10 | Spall - 2 SF |



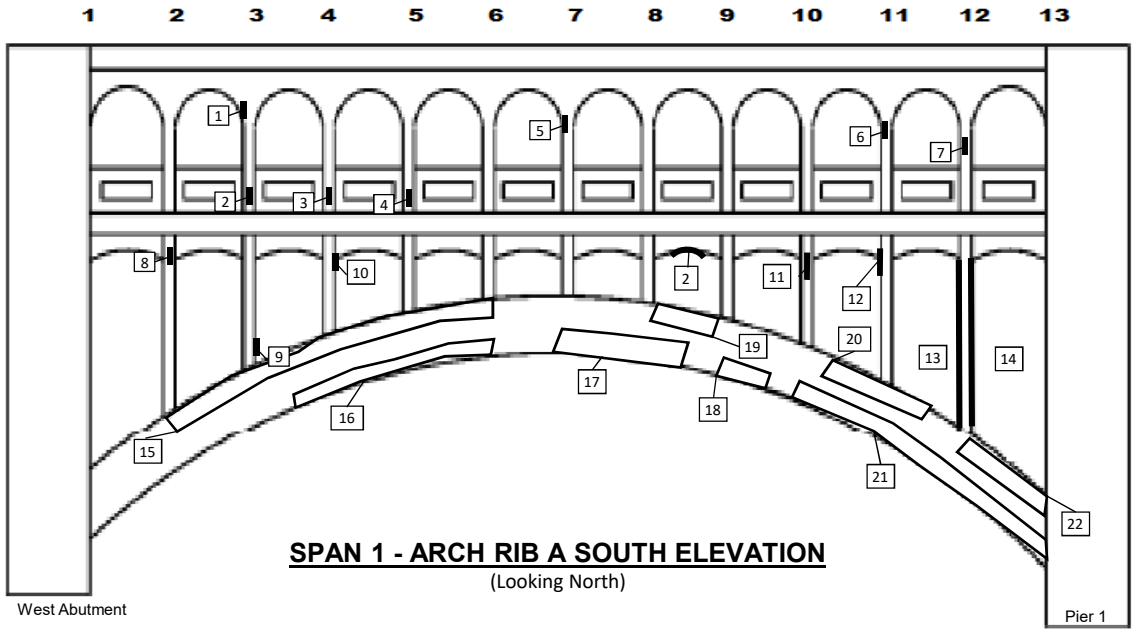

**SPAN 1B - COLUMN LINE D SOUTH ELEVATION**

| SPAN 1B - COLUMN LINE D (SOUTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination and spalling - 60 SF |

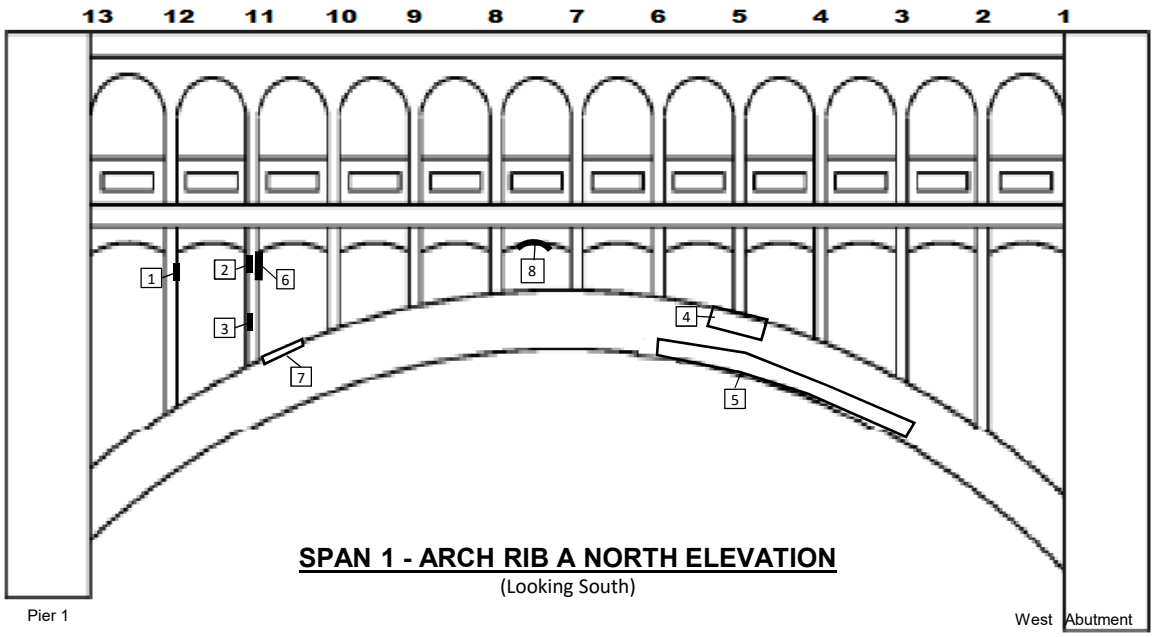



**SPAN 1B - COLUMN LINE D NORTH ELEVATION**

| SPAN 1B - COLUMN LINE D (NORTH ELV.) DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Spall w/ exp. Reinf. - 4 SF |
| 3 | Spall w/ exp. Reinf. - 10 SF |
| 4 | Spall w/ exp. Reinf. - 2 SF |
| 5 | Delamination - 6 SF |



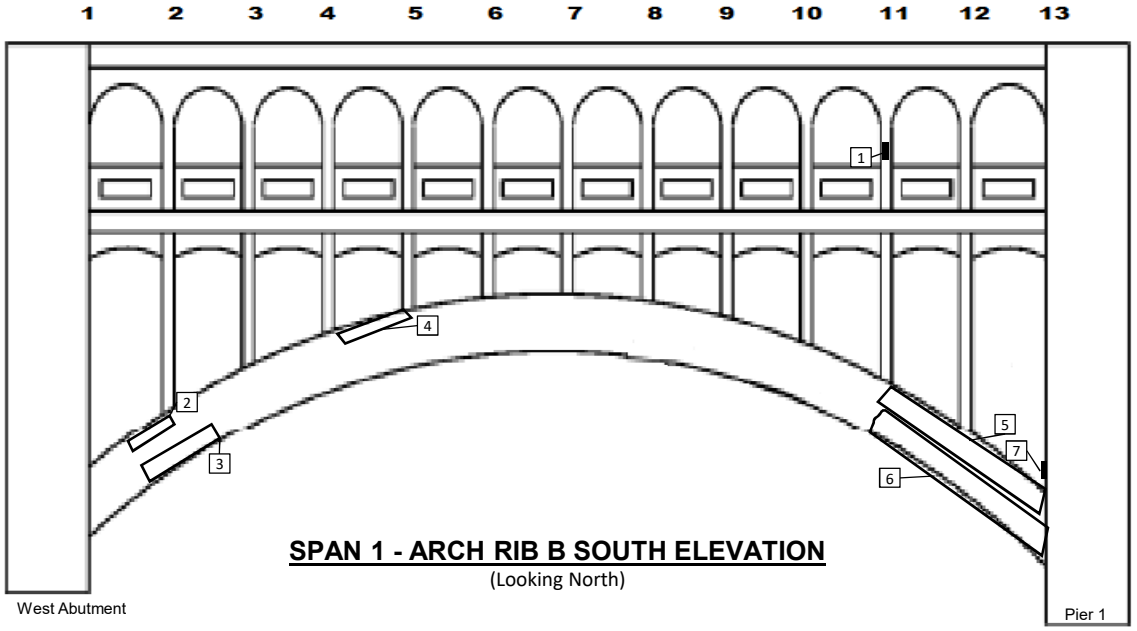

**SPAN 1 - ARCH RIB A SOUTH ELEVATION**
(Looking North)




**SPAN 1 - ARCH RIB A NORTH ELEVATION**
(Looking South)

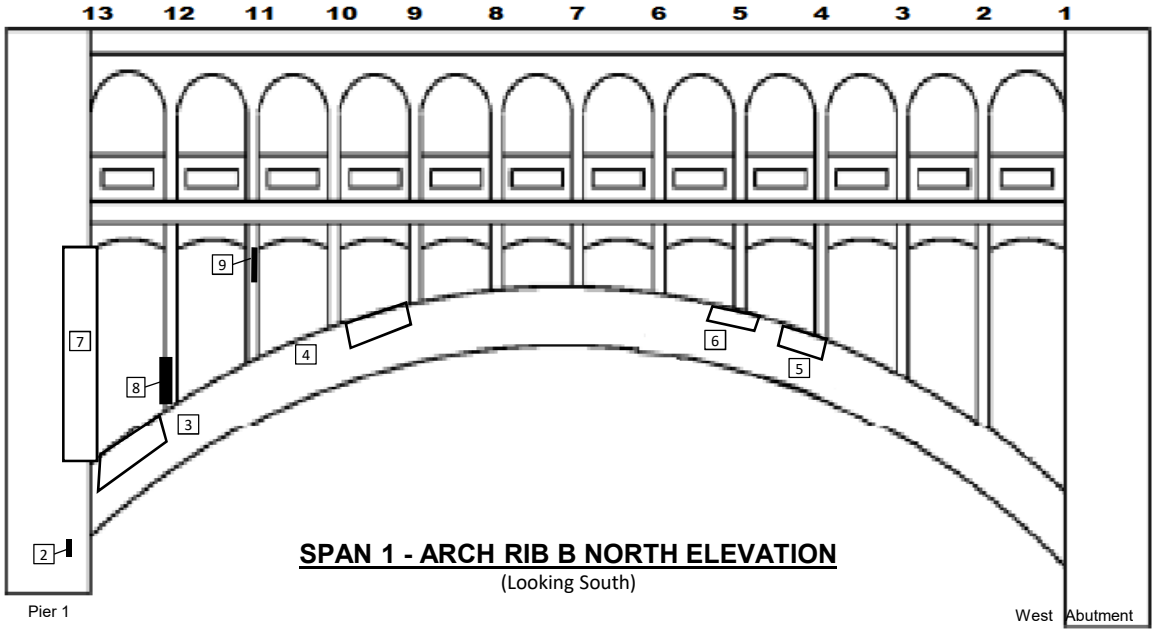
| SPAN 1 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall - 0.75 SF, 1.5" D |
| 2 | Delamination - 2.25 SF |
| 3 | Spall w/ exp. Reinf - 3 SF, 1" D |
| 4 | Delamination - 2.25 SF |
| 5 | Spall w/ exp. Reinf - 0.5 SF, 1" D |
| 6 | Delamination - 0.75 SF |
| 7 | Delamination - 1.5 SF |
| 8 | Delamination - 8 SF |
| 9 | Delamination - 2 SF |
| 10 | Delamination - 3 SF |
| 11 | Delamination - 6 SF |
| 12 | Delamination - 3 SF |
| 13 | Delamination - 1' W x Full Height |
| 14 | Delamination - 1' W x Full Height |
| 15 | Delamination w/ map cracking - 60 SF |
| 16 | Delamination - 20 SF |
| 17 | Delamination - 27 SF |
| 18 | Delamination - 8 SF |
| 19 | Delamination - 12 SF |
| 20 | Delamination w/ map cracking - 16 SF |
| 21 | Delamination w/ map cracking - 40 SF |
| 22 | Delamination - 24 SF |
| 23 | Delamination - 4 SF |

| SPAN 1 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Spall - 4 SF |
| 3 | Spall - 7.5 SF |
| 4 | Delamination w/ map cracking - 24 SF |
| 5 | Delamination w/ map cracking - 45 SF |
| 6 | Delamination - 6 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 2 SF |



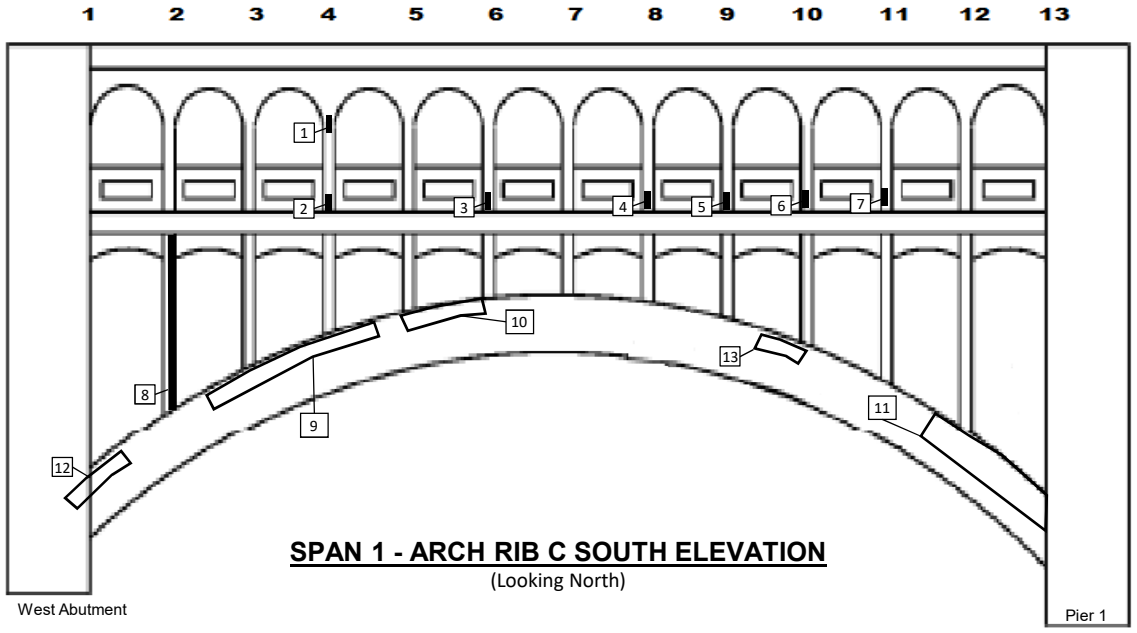

**SPAN 1 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 1 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 6 SF |
| 4 | Delamination - 4 SF |
| 5 | Delamination - 40 SF |
| 6 | Delamination - 30 SF |
| 7 | Delamination - 1 SF |




**SPAN 1 - ARCH RIB B NORTH ELEVATION**
(Looking South)

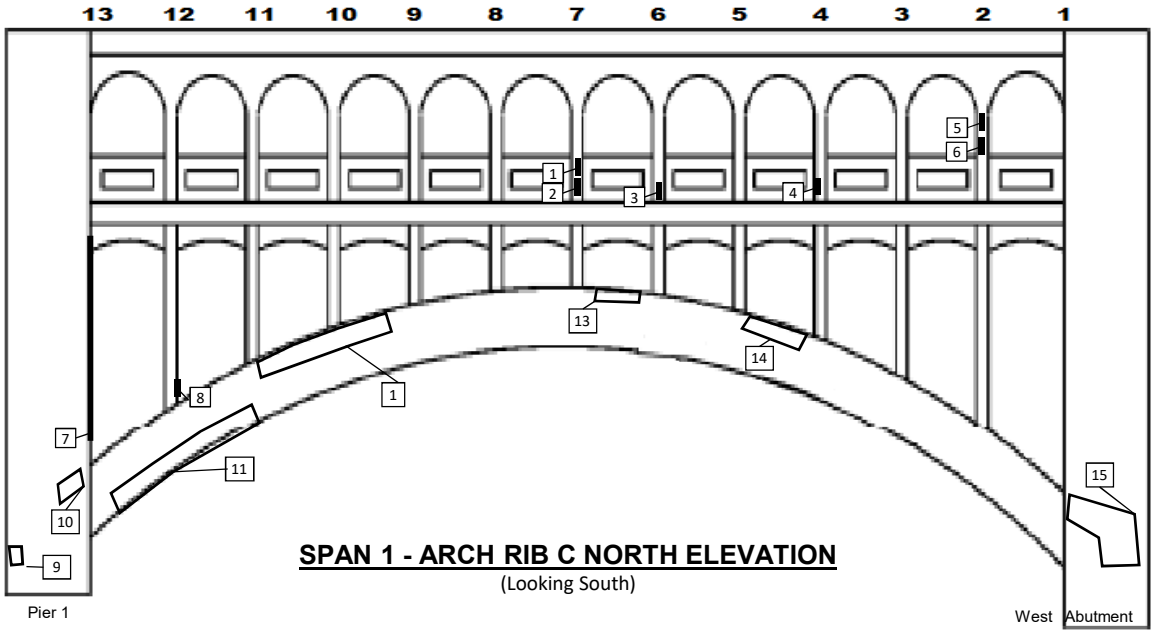
| SPAN 1 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - Full H x Full W |
| 2 | Delamination - 2 SF |
| 3 | Map Cracking - 10' L |
| 4 | Delamination - 8 SF |
| 5 | Delamination - 5 SF |
| 6 | Delamination - 2 SF |
| 7 | Delam. - FH and extends 1' back each face |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 3 SF |




**SPAN 1 - ARCH RIB C SOUTH ELEVATION**
(Looking North)

SPAN 1 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES

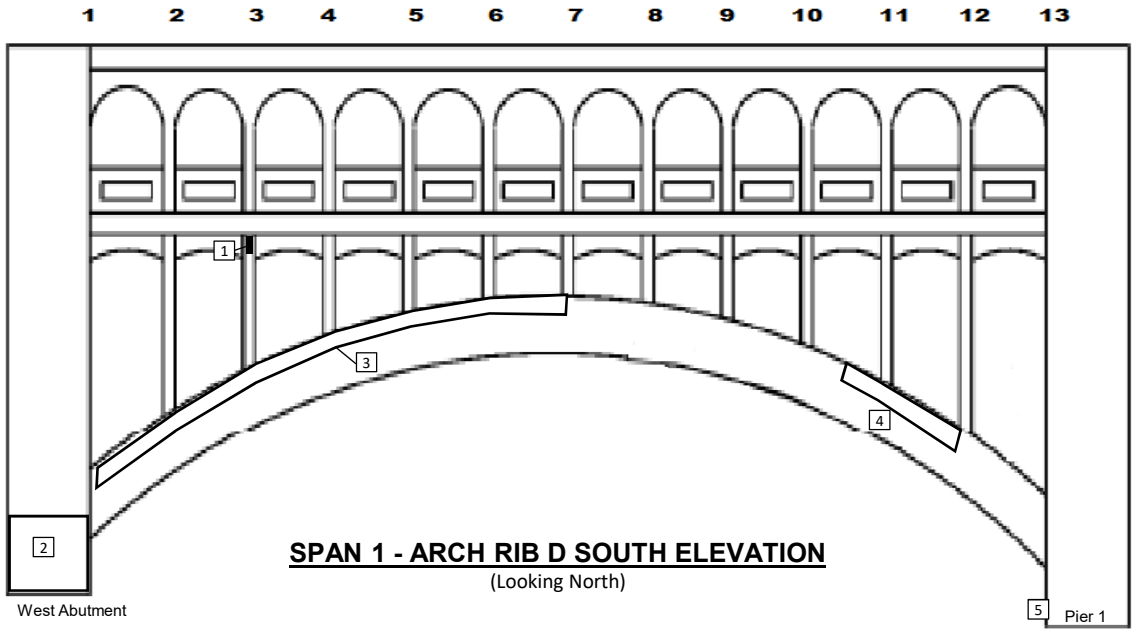
| # | Defect |
|---|---|
| 1 | Delamination - 0.5 SF |
| 2 | Delamination - 3 SF |
| 3 | Delamination - 0.5 SF |
| 4 | Delamination - 1.5 SF |
| 5 | Delamination - 0.5 SF |
| 6 | Delamination - 1.5 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - Full W x Full H |
| 9 | Delamination - 18 SF and Spall w/ exp. Reinf - 1 SF |
| 10 | Delamination - 10 SF |
| 11 | Map cracking - 45 SF |
| 12 | Delamination - 5 SF |
| 13 | Delamination - 2 SF |



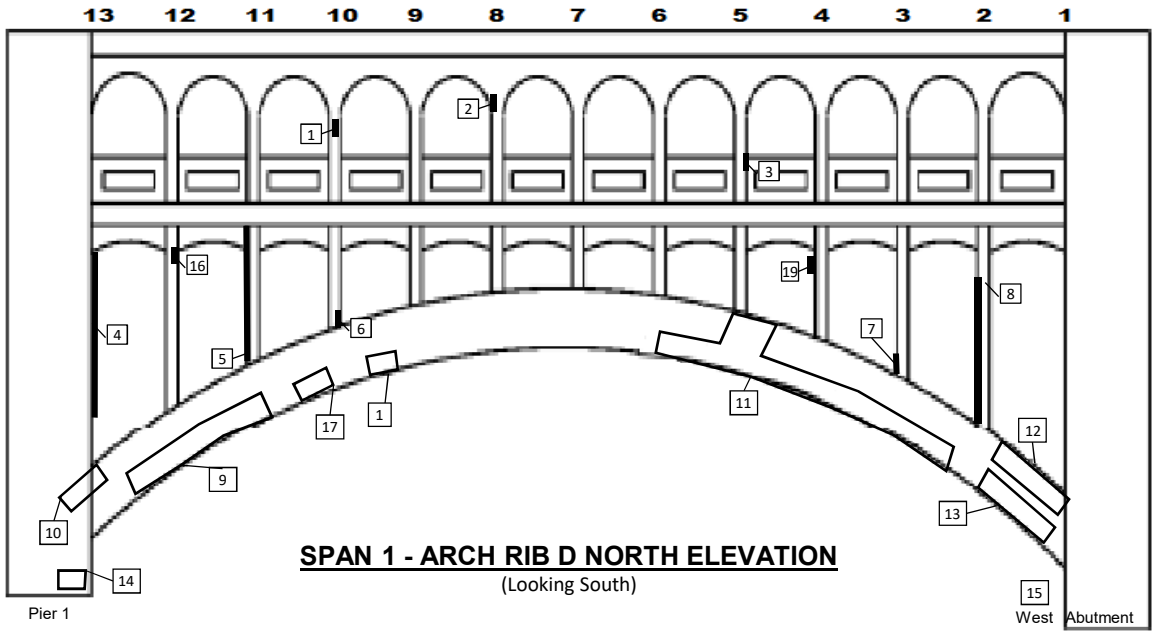

**SPAN 1 - ARCH RIB C NORTH ELEVATION**
(Looking South)

SPAN 1 - ARCH RIB C NORTH ELEVATION DEFICIENCIES

| # | Defect |
|---|---|
| 1 | Delamination - 2.25 SF |
| 2 | Delamination - 0.75 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 3 SF |
| 5 | Delamination - 4.5 SF |
| 6 | Delamination - 3.75 SF |
| 7 | Delamination - 1' W x Full Height |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 9 SF |
| 10 | Delamination - 5 SF |
| 11 | Delamination - 14 SF |
| 12 | Delamination - 20 SF |
| 13 | Delamination - 2 SF |
| 14 | Delamination - 24 SF with 1/2" crack |
| 15 | Delamination - 18 SF |




**SPAN 1 - ARCH RIB D SOUTH ELEVATION**
(Looking North)



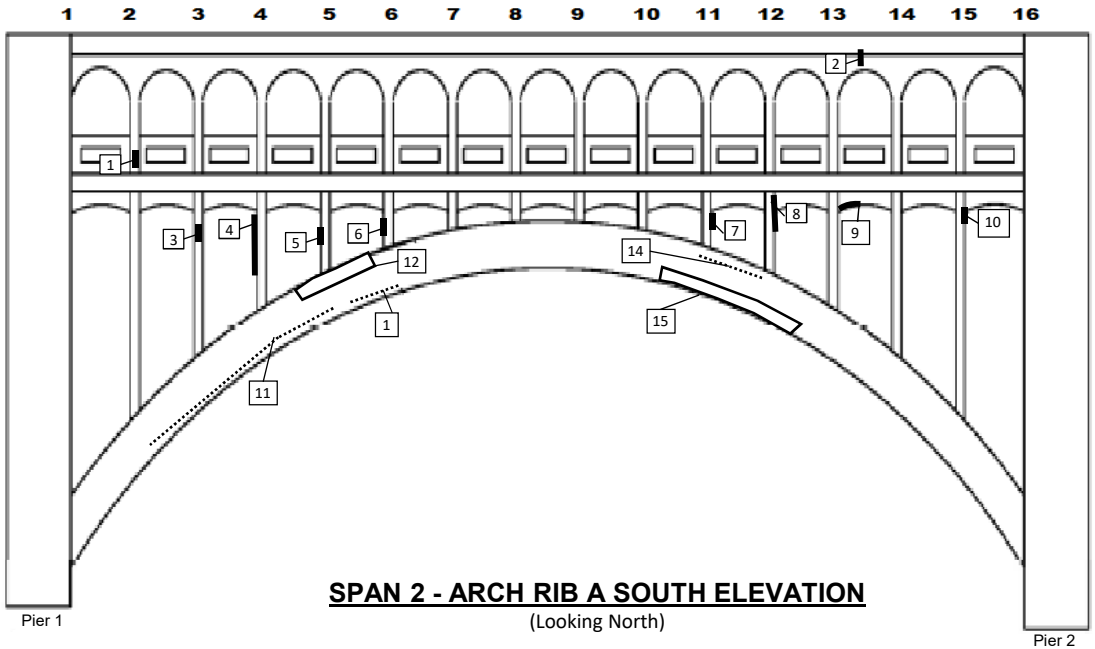

**SPAN 1 - ARCH RIB D NORTH ELEVATION**
(Looking South)

SPAN 1 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES

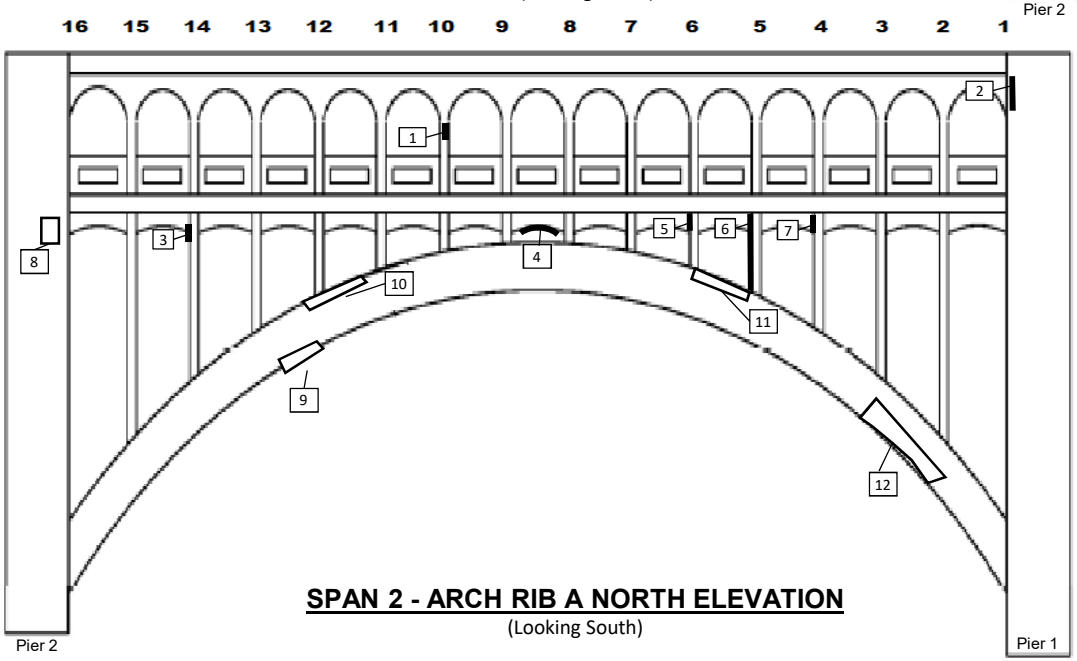
| # | Defect |
|---|---|
| 1 | Delamination - 3 SF |
| 2 | Spall - 48 SF, 3" D @ base of abutment |
| 3 | Delamination - 60 SF |
| 4 | Delamination - 15 SF |
| 5 | Slope inclinometer 15' from pier column |

SPAN 1 - ARCH RIB D NORTH ELEVATION DEFICIENCIES

| # | Defect |
|---|---|
| 1 | Delamination - 1.5 SF |
| 2 | Spall - 0.25 SF, 1" D |
| 3 | Delamination - 6 SF |
| 4 | Delamination - 30 SF |
| 5 | Delamination - 1' W x Full Height |
| 6 | Delamination - 5 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 6 SF |
| 9 | Delamination w/ map cracking - 15 SF |
| 10 | Delamination - 4 SF |
| 11 | Delamination w/ map cracking - 80 SF |
| 12 | Delamination w/ map cracking - 24 SF |
| 13 | Delamination - 8 SF |
| 14 | Delamination - 8 SF |
| 15 | Downspout and scupper 100% clogged |
| 16 | Delamination - 2 SF |
| 17 | Delamination - 4 SF |
| 18 | Delamination - 5 SF |
| 19 | Delamination - 2 SF |



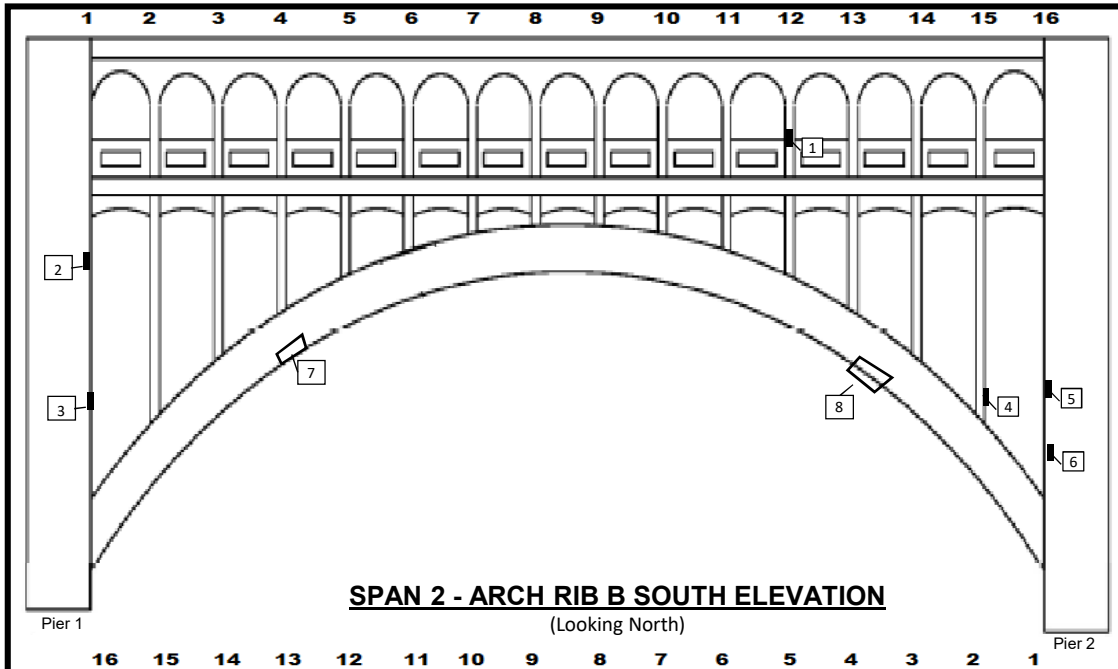

**SPAN 2 - ARCH RIB A SOUTH ELEVATION**
(Looking North)




**SPAN 2 - ARCH RIB A NORTH ELEVATION**
(Looking South)

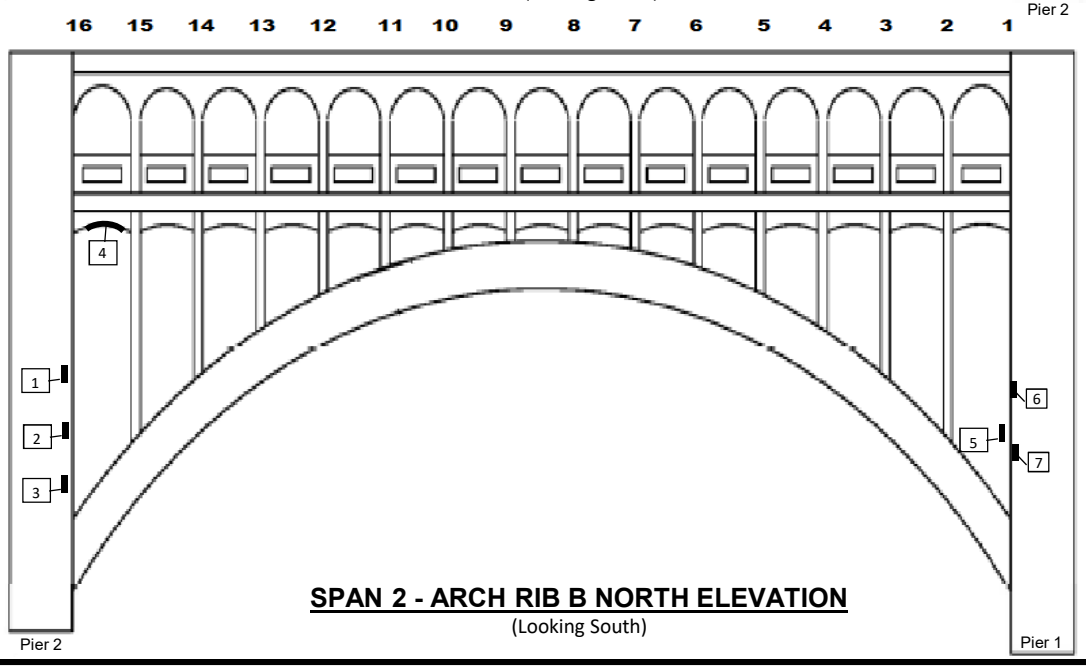
| RIB A SOUTH ELEV. DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination - 5 SF |
| 3 | Spall w/ exp. Reinf. - 6 SF |
| 4 | Spall w/ exp. Reinf. - 14 SF |
| 5 | Delamination - 2 SF |
| 6 | Delamination - 6 SF |
| 7 | Delamination - 1 SF |
| 8 | Spall w/ exp. Reinf. - 8 SF |
| 9 | Delamination w/ Spall w/ exp. Reinf. - 12 SF |
| 10 | Delamination - 3 SF |
| 11 | 25' L x up to 1/8" W crack |
| 12 | Delamination - 8 SF |
| 13 | 5' L x 1/16" W crack |
| 14 | 15' L crack w/ efflorescence |
| 15 | Delamination - 28 SF |

| RIB A NORTH ELEV. DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delamination - 4 SF (on pier tower) |
| 3 | Delamination - 4 SF |
| 4 | Delamination - 5 SF |
| 5 | Delamination - 2 SF |
| 6 | Delamination - 4 SF |
| 7 | Delamination - 6 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 4 SF (underside of arch) |
| 10 | Delamination - 6 SF |
| 11 | Delamination - 3 SF |
| 12 | Delamination w/ Spall - 10 SF |



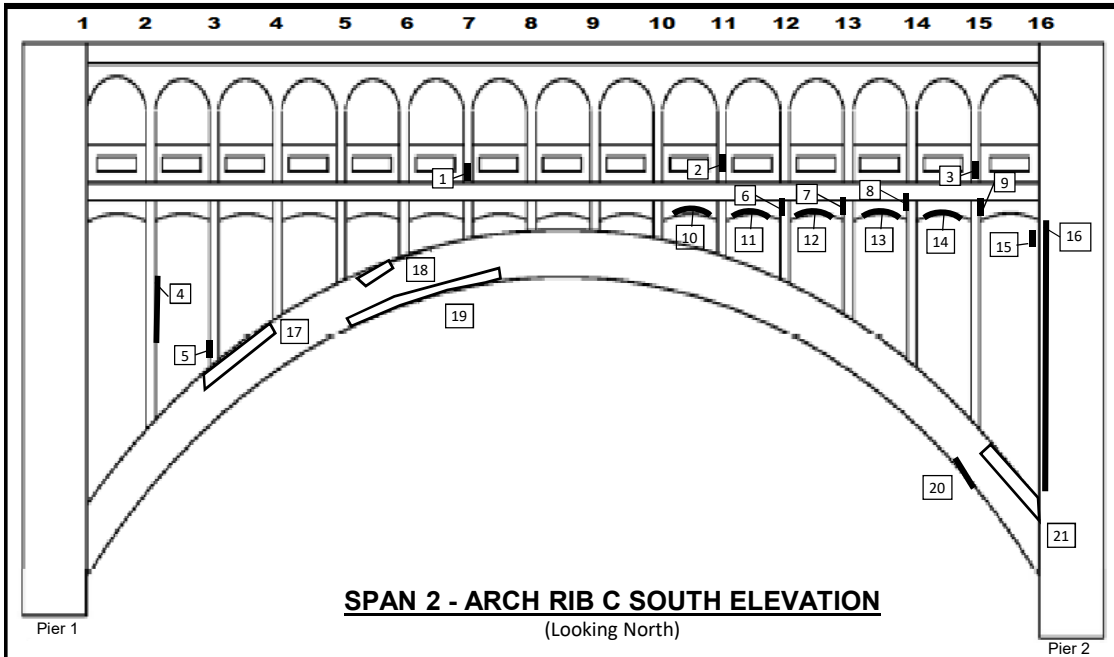

**SPAN 2 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 2 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall - 0.5 SF, 1.5" D |
| 2 | Delamination - 6 SF |
| 3 | Delamination - 4 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 14 SF |
| 6 | Delamination - 2 SF |
| 7 | Spall w/ exp. Reinf. - 2 SF |
| 8 | Delamination - 8 SF |

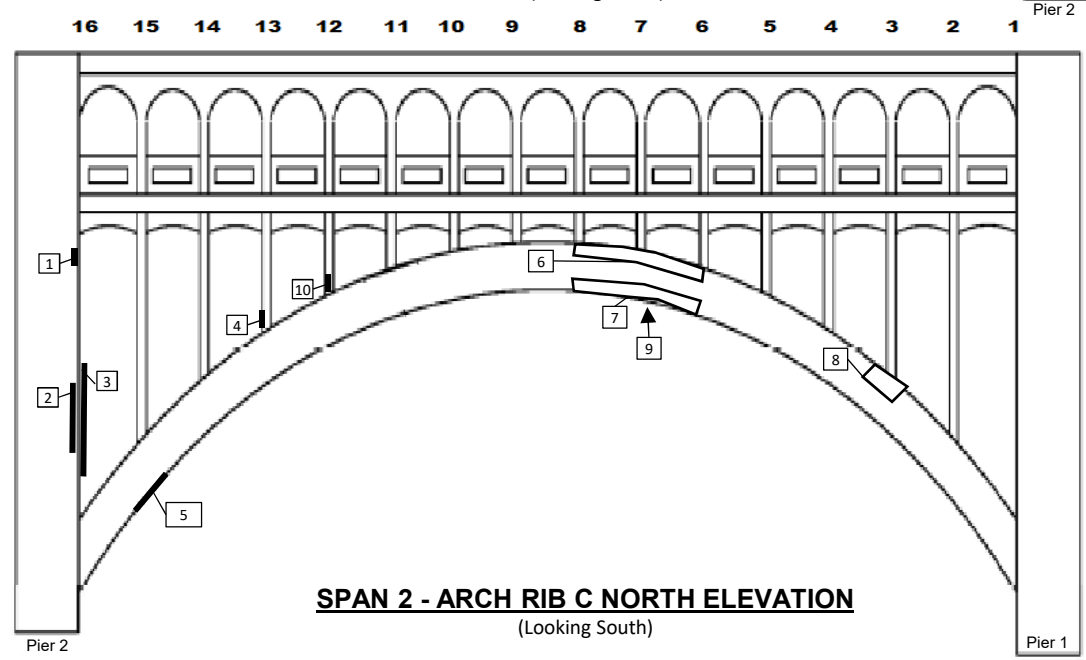



**SPAN 2 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 2 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 4 SF |
| 2 | Spall w/ exp. Reinf. - 4 SF |
| 3 | Delamination - 12 SF |
| 4 | Delamination - 2 SF |
| 5 | Spall w/ exp. Reinf. - 5 SF |
| 6 | Delamination - 6 SF |
| 7 | Delamination - 3 SF |



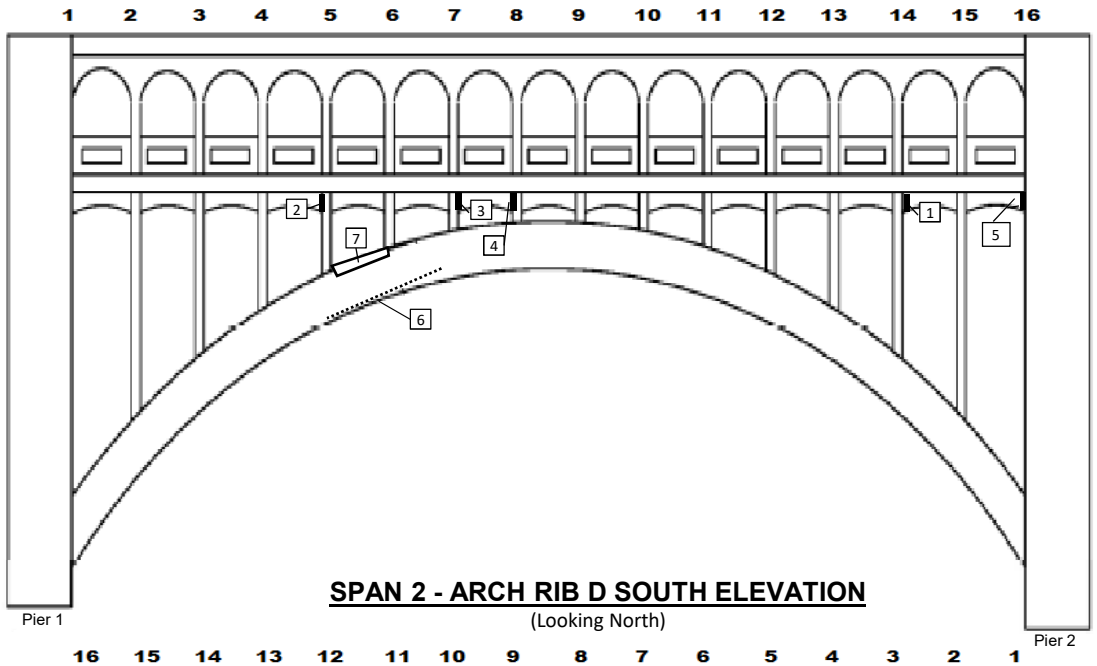

**SPAN 2 - ARCH RIB C SOUTH ELEVATION**
(Looking North)




**SPAN 2 - ARCH RIB C NORTH ELEVATION**
(Looking South)

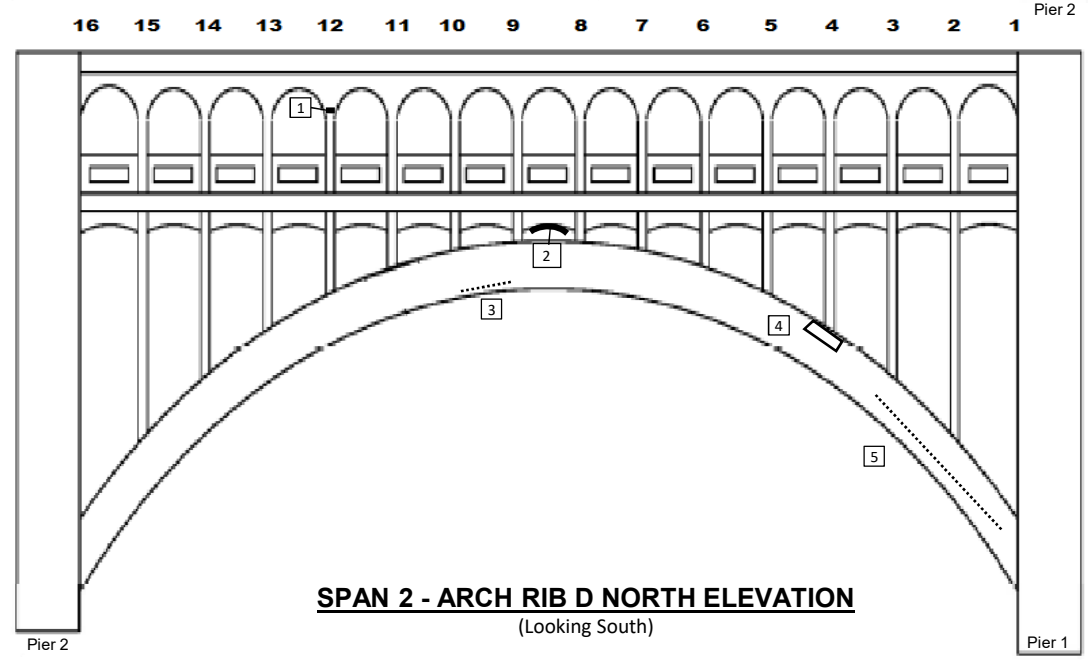
| RIB C - SOUTH ELEV DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Spall w/ exp. Reinf. - 2 SF |
| 3 | Delamination - 6 SF |
| 4 | Delamination - 8 SF |
| 5 | Delamination - 1 SF |
| 6 | Spall w/ exp. Reinf. - 2 SF |
| 7 | Spall w/ exp. Reinf. - 1 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 3 SF |
| 10 | Spall - 2 SF |
| 11 | Delamination - 3 SF |
| 12 | Delamination - 5 SF (underside) |
| 13 | Delamination - 2 SF |
| 14 | Delamination - 4 SF |
| 15 | Delamination - 5 SF |
| 16 | Delamination - 30 SF |
| 17 | Delamination - 15 SF |
| 18 | Delamination - 14 SF |
| 19 | Delamination - 15 SF w/ 1/8" W crack |
| 20 | Delamination - 4 SF (underside of arch) |
| 21 | Delamination - 6 SF |

| RIB C - NORTH ELEV DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 12 SF |
| 2 | Delamination - 20 SF |
| 3 | Delamination - 35 SF |
| 4 | Spall w/ exp. Reinf. - 2 SF |
| 5 | Delamination - 4 SF (underside of arch) |
| 6 | Delamination - 10 SF |
| 7 | Delamination - 6 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 5 SF (underside of arch) |
| 10 | Spall w/ exp. Reinf. - 1 SF |



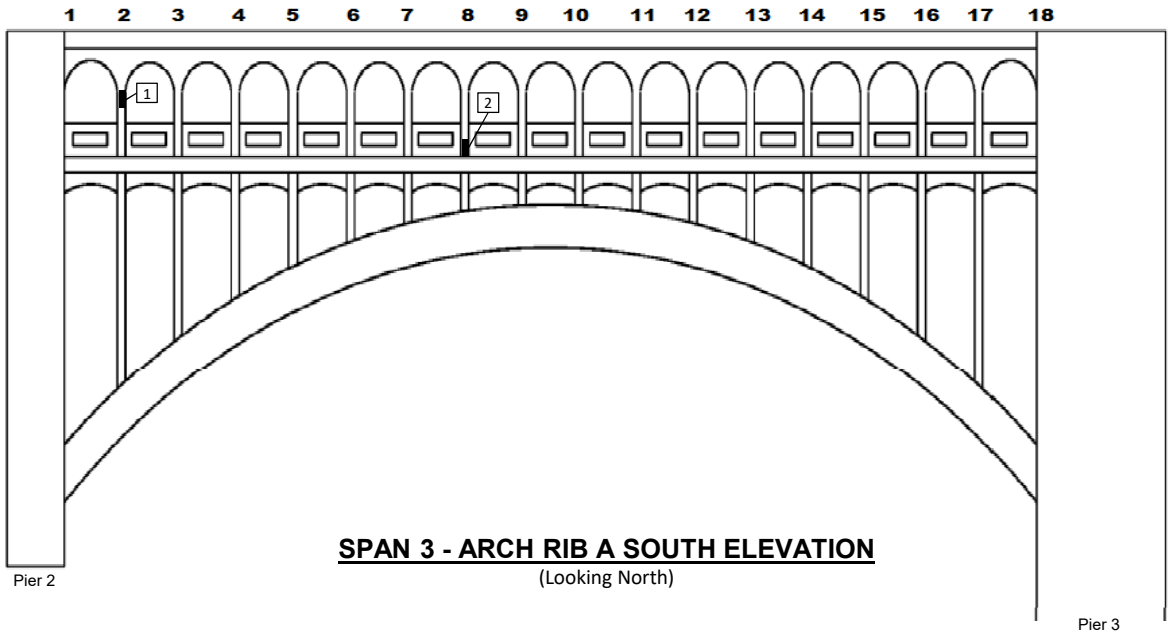

**SPAN 2 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 2 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination w/ Spall w/ exp. Reinf. - 9 SF |
| 6 | 15' L x 1/16" W crack |
| 7 | Delamination - 5 SF |



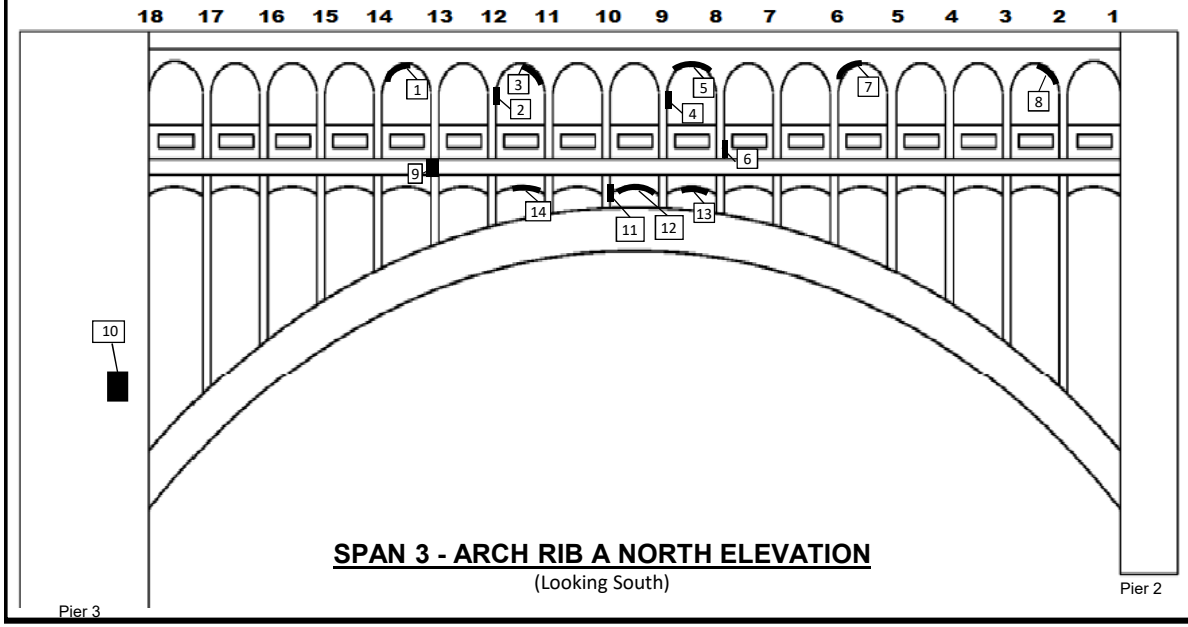

**SPAN 2 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 2 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 0.75 SF, 6" D |
| 2 | Map cracking - 6 LF |
| 3 | 6' L x 1/16" W crack |
| 4 | Delamination - 3 SF |
| 5 | 25' L x 1/16" W crack |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |



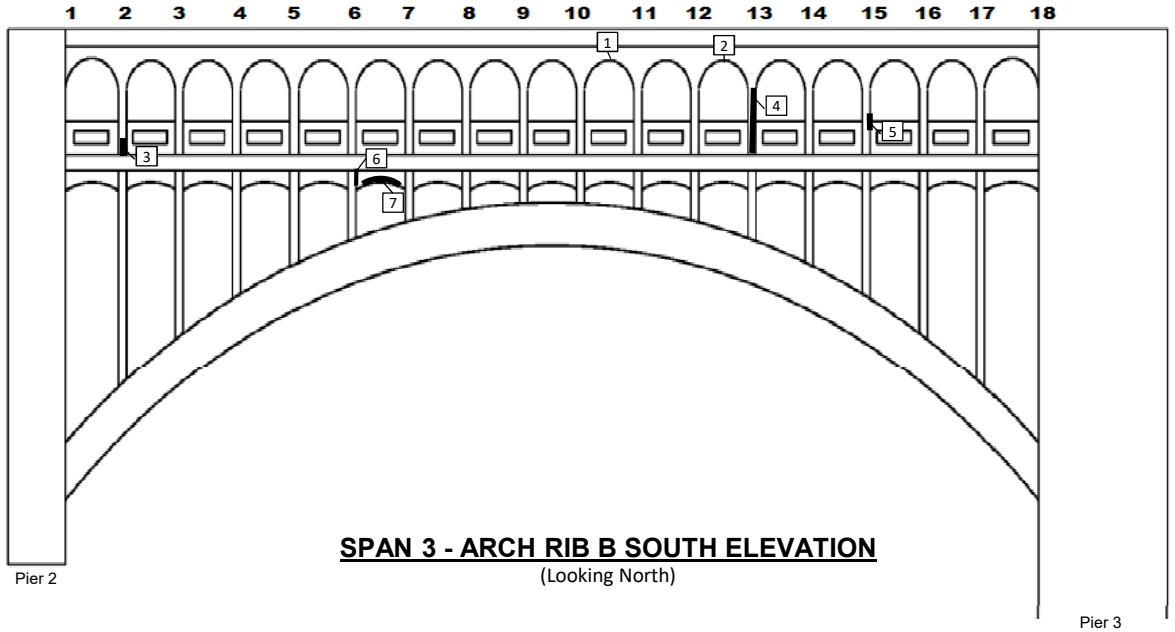

**SPAN 3 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

| SPAN 3 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 6 SF |



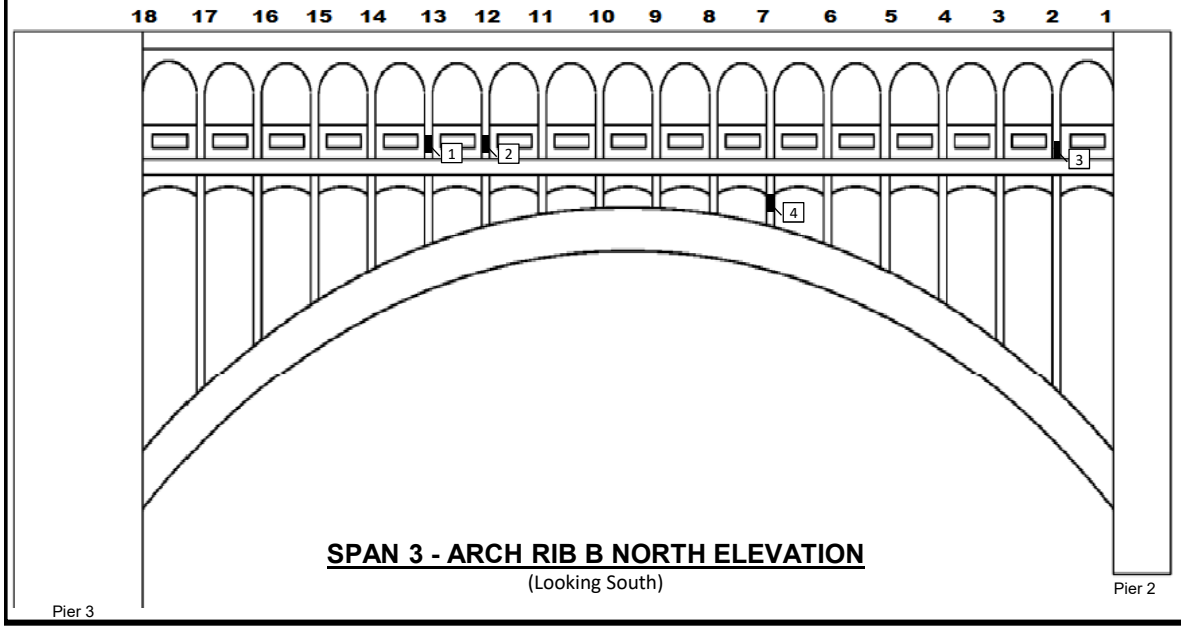

**SPAN 3 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 3 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 6 SF |
| 3 | Delamination - 2 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 8 SF |
| 6 | Delamination - 2 SF |
| 7 | Delamination - 8 SF |
| 8 | Delamination - 1 SF |
| 9 | Broken lighting fixture |
| 10 | Spall - 5 SF, 1.5" D |
| 11 | Delamination - 1 SF |
| 12 | Delamination - 4 SF |
| 13 | Delamination - 4 SF |
| 14 | Delamination - 2 SF |



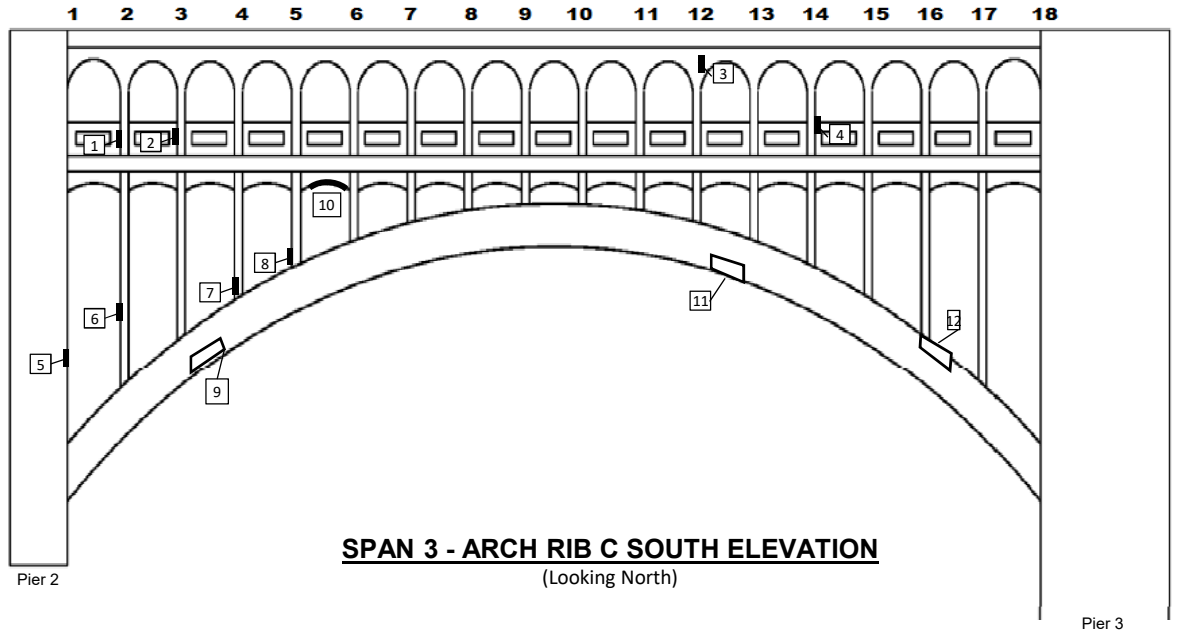

**SPAN 3 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 3 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Jack arch is cracked w/efflorescence |
| 2 | Jack arch is cracked w/efflorescence |
| 3 | Delamination - 2.25 SF |
| 4 | Delamination - 10 SF |
| 5 | Delamination - 1 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 2 SF |



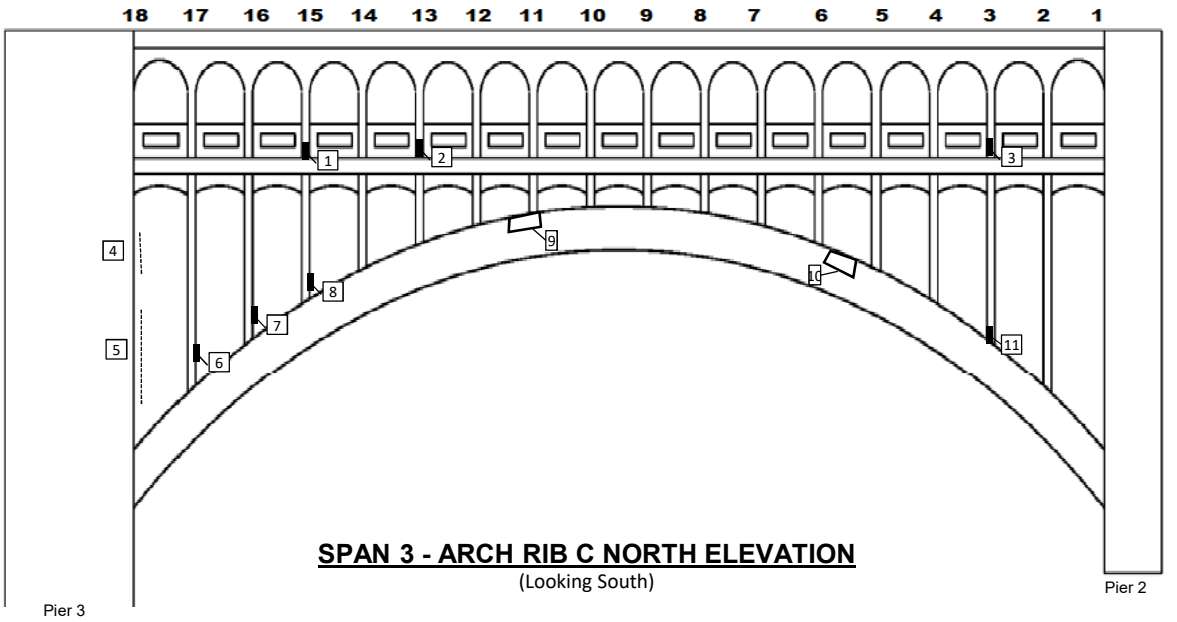

**SPAN 3 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 3 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf - 0.5 SF |
| 2 | Spall - 1 SF, 2" D |
| 3 | Spall - 1 SF, 2" D |
| 4 | Delamination - 2 SF |



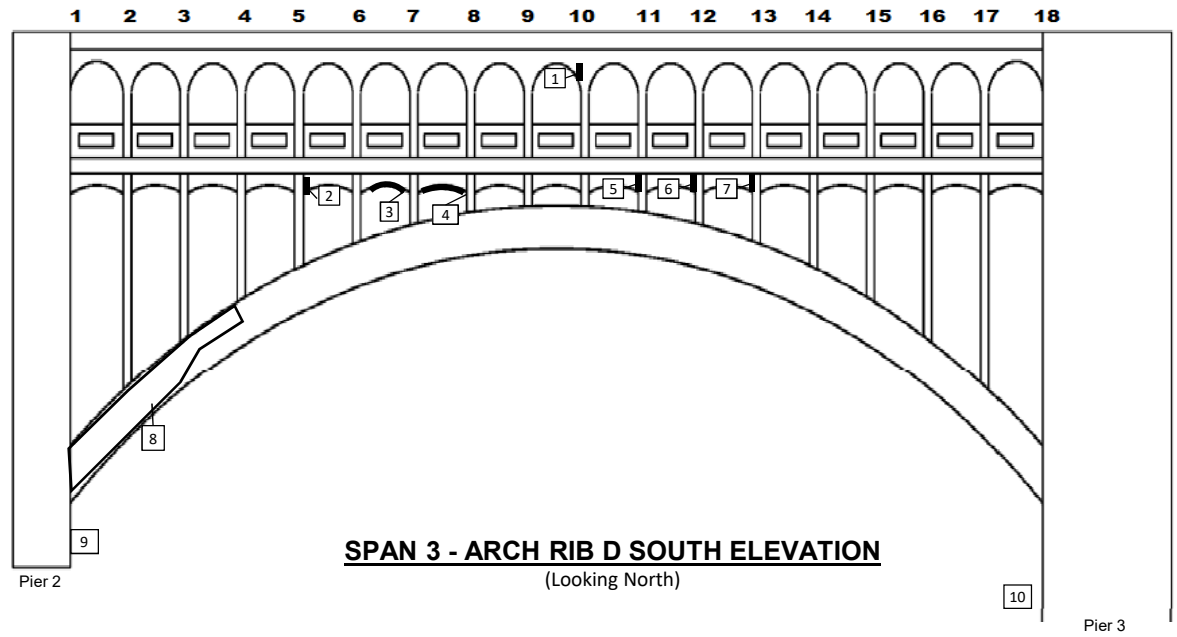

**SPAN 3 - ARCH RIB C SOUTH ELEVATION**
(Looking North)

| SPAN 3 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall - 2 SF, 3" D |
| 2 | Delamination - 1 SF |
| 3 | Spall w/ exp. Reinf. - 2 SF, 3" D |
| 4 | Spall - 0.25 SF, 2.5" D |
| 5 | Delamination - 12 SF |
| 6 | Delamination - 4 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 8 SF |
| 10 | Delamination - 4 SF |
| 11 | Delamination - 10 SF |
| 12 | Delamination - 4 SF |



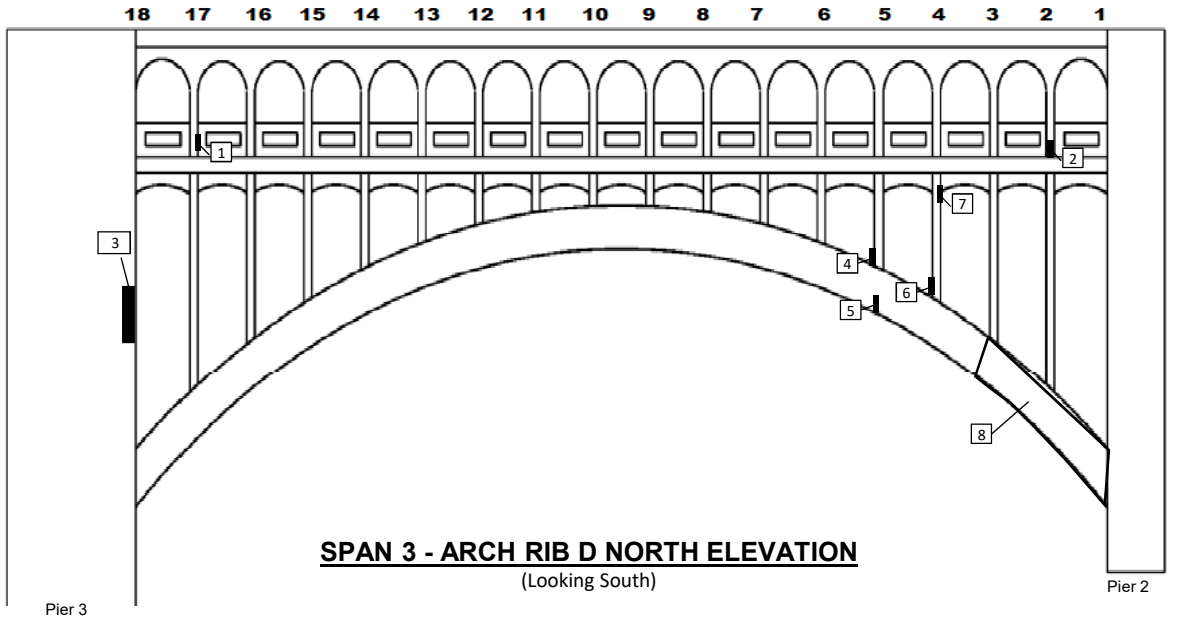

**SPAN 3 - ARCH RIB C NORTH ELEVATION**
(Looking South)

| SPAN 3 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2.25 SF |
| 2 | Delamination - 2.25 SF |
| 3 | Delamination - 1.25 SF |
| 4 | 5' L x 1/4" crack |
| 5 | 15' L x 1/4" crack |
| 6 | Delamination - 2 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 1 SF |
| 9 | Spall w/ exp. Reinf. - 2 SF |
| 10 | Delamination - 1 SF |
| 11 | Delamination - 2 SF |



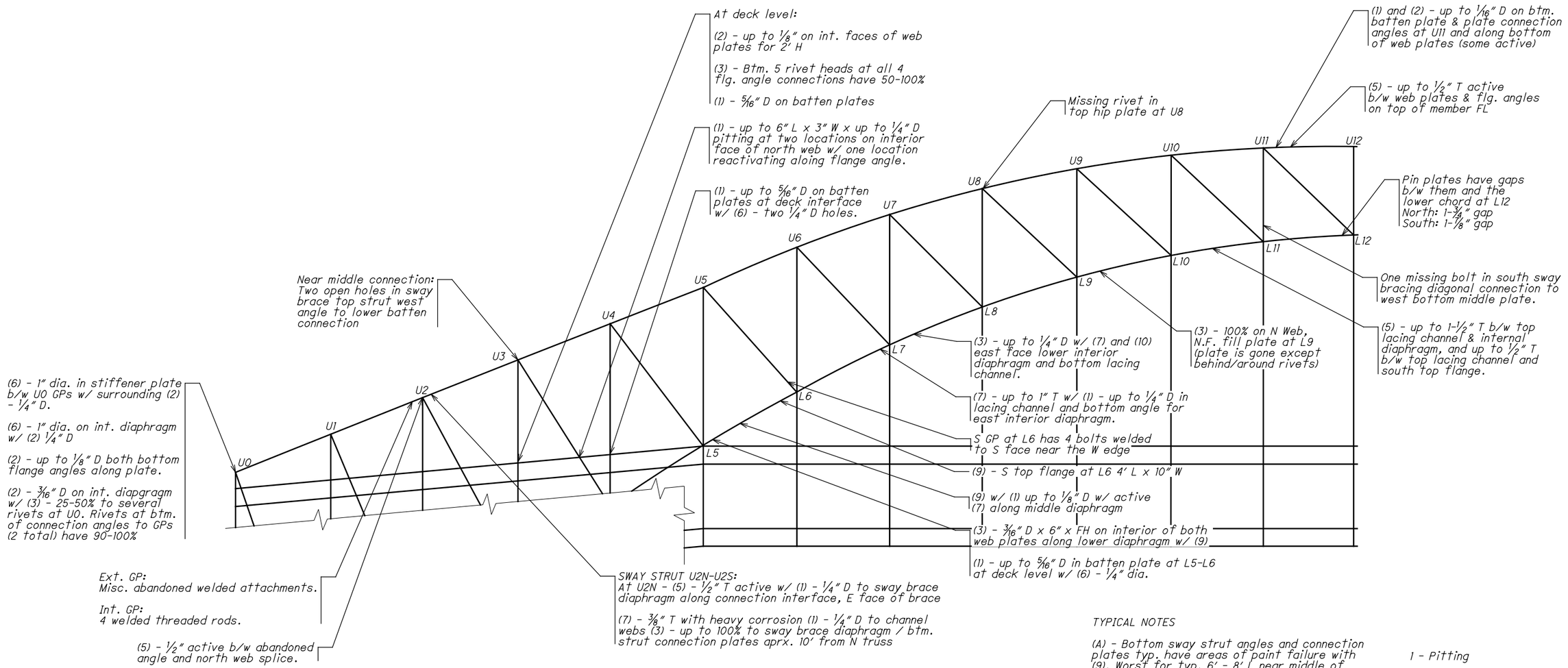

**SPAN 3 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 3 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination - 3 SF |
| 3 | Spall w/ exp. Reinf. - 8 SF |
| 4 | Spall w/ exp. Reinf. - 16 SF |
| 5 | Delamination - 4 SF |
| 6 | Delamination - 4 SF |
| 7 | Delamination - 6 SF |
| 8 | Delamination - 132 SF |
| 9 | 10" diameter tree growing against bottomside of arch |
| 10 | Base of pier has 1" D abrasion for 1' above the w aterline. Embankment is steep and erodible despite placement of rubble rip rap. |




**SPAN 3 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 3 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf - 1.5 SF, 2" D |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 5 SF |
| 4 | Delamination - 2 SF |
| 5 | Spall w/ exp. Reinf. - 2 SF, 2" D |
| 6 | Delamination - 2 SF |
| 7 | Delamination - 6 SF |
| 8 | Map Cracking w/ moisture staining and some delamination - 24' L |




NORTH TRUSS ELEVATION

(ABOVE DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

(E) - Isolated lacing channels have minor impact deformations in their flanges.

(F) - Isolated active (5) - up to 3/8" b/w sway bracing components and/or connections.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion
10 - Standing Water

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|---|---|---|
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(1) - Both btm. web plates up to 4" L x FH x ¼" D at lower int. diaphragm & 3" L x 3/16" D along middle int. diaphragm.

(5) - active up to ⅜" T b/w L.C. top flg. angles & lacing channels at several locations.

(7) - active along FH of vert at lacing bar connections, lower deck and lower strut connection

(1) - ¼" D & (6) 2" dia. on lower int. diaphragm

(9) - reactivating over a 20' L along lacing bars webs due to leaking joint w/ (1) moderate to lacng bars w/ (6) - 2" dia. on E face of lacing bar and (5) - up to ½" T active b/w lacing bars & flg. angles

(6) - W face of batten plate has four up to 1-½" dia.

(8) - moderate on vert t/o from leaking deck joint above.

(1) - int. face web plates have up to 1#16" D

(3) - multiple rivet heads exhibit 25-50% w/ isolated 75% at lower chord.

(3) - Two rivet heads at SW Interior connection angle at L0 exhibit 100%.

W face batten plate has four (6) - up to 1-½" dia.

SWAY STRUT L1N-L1S: (6) - btm. W angle leg at L1N has 12" L x 4" H hole at bottom chord bracing connection to truss

(1) - ¼" D on middle int. diaphragm

(1) w/ (9) - ¼" D x 4" L on int. faces of both web plates along middle int. diaphragm over FH

L0 N GP:
(7) - up to 2" H x 1#2" T along LC on N face w/ (3) - up to 1#16" D.

L0 S GP:
(1) w/ 9) - up to 5" H x 1#4" D w/ isolated up to 5#16" D along the LC on S face.

(3) w/ (7) - 1#16 to 1#8" D on interior faces of both GPs along the vertical and LC interfaces.

L0 BEARING:

N face of pin end cover completely broken off & laying on BRG casting below. Exposed pin end exhibts (7/8).

(5) - active 1#2" T b/w pin nut & pin plate w/ (1) 1#16" D on pin plate

(9) - moderate to heavy on BRG assemby / thrust block w (1) - up to 3#16" D t/o

(3) - NE & SE anchor bolts have up to 100% to tops of bolt & nuts

(1) - up to 2" W x FH x ¼" D on interior of both web plates along lower interior diaphragm. Lower interior diaphragm has (1) - ¼" D and one (6) - 1" dia.

L1 N GP:

(2) - 2-½" H x 3/16" D on N face along LC.

(1) w/ (9) - up to 2" x ¼" D and (7) on S face along LC.

(9) and minor (7) - up to 1" H along horizontal strut.

L1 S GP

(1) w/ (9) - 3" x ¼" D on S face along LC w/ isolated area of 12" L x 3" W x up to ⅜" D at W end.

(2) w/ (7) and (9) - 1-½" H x ⅛" D on N face along LC.

(9) and (7) - up to 1" H along horizontal strut.

(3) - W batten plate has a 1' H x FW area of 100%.

(6) - 1-½" dia. to lower lacing bar at L2

(6) - 2" dia. in upper interior diaphragm.

(1) - up to ¼" D at top batten plate at L3

(1) - both web plates have 1#4" D along FH of lower chord at middle int. diaphragm w/ 1#4" t/o the diapgragm

(1) w/ (9) - ¼" D w/ a (6) 1" dia. on top batten plate at L2

(1) - Both web plates have 3" W x FH x 3/16" D on L.C. w/ (7) at lower interior diaphragm

L2 N GP:

(1) w/ (7) - 2' L x 3" H x ⅛" D at L.C. interface on S face & 2' L x 3" H x 5/16" on N face.

L2 S GP:

(1) w/ (7) - 30" L x 4" H x ⅜" D at L.C. interface on S face & 2' L x 3" H x 1/16" on N face. (2) - 1" H x ⅛" D with (7) on S face along horiz. strut. Original plate ¾" T

Multiple (6) - up to 3" dia. in west and east batten plates.

Several lacing bars have (6) - up to 1" dia. and one has 100% section loss.

LC top glange splice plates have areas of (4) - up to 3/16" D.

South top flange splice plate has (1) - up to ¼" D and 8 rivets w/ 50% - 95% rivet head loss.

North Gusset Plate:
(2) - 3" H x 3/16" D on north face along LC.
Active (1) - 2" H x 3/16" D w/ (7) on south face near east end.

South Gusset Plate:
(2) - 3" x 3/16" D on both faces along LC. Pitting on north face at east end has reactivated w/ minor (7).

(6) - 1" dia. at upper int. diaphragm

(8) - moderate at E end of L.C. below the deck with rust staining due to water leakage from above the deck

(5) - active 1" T on top batten plates at W & E ends b/w plates & top flg. angles. Also have areas of (1) - 5/16" D

(6) - 15" L x 2" H area on btm. of lower int. diaphragm

(1) - Up to ⅛" D w/ (7) on interior faces of both web plates at lower and middle internal diaphragms.

(6) - 4" dia. on E web of vert. within confines of L.C. GPs.

L3 S GP:

(2) - 32" H x 2" W x up to 3/16" D along W edge of FB connection angle and 41" H x 6" W x ⅜" D along E edge.

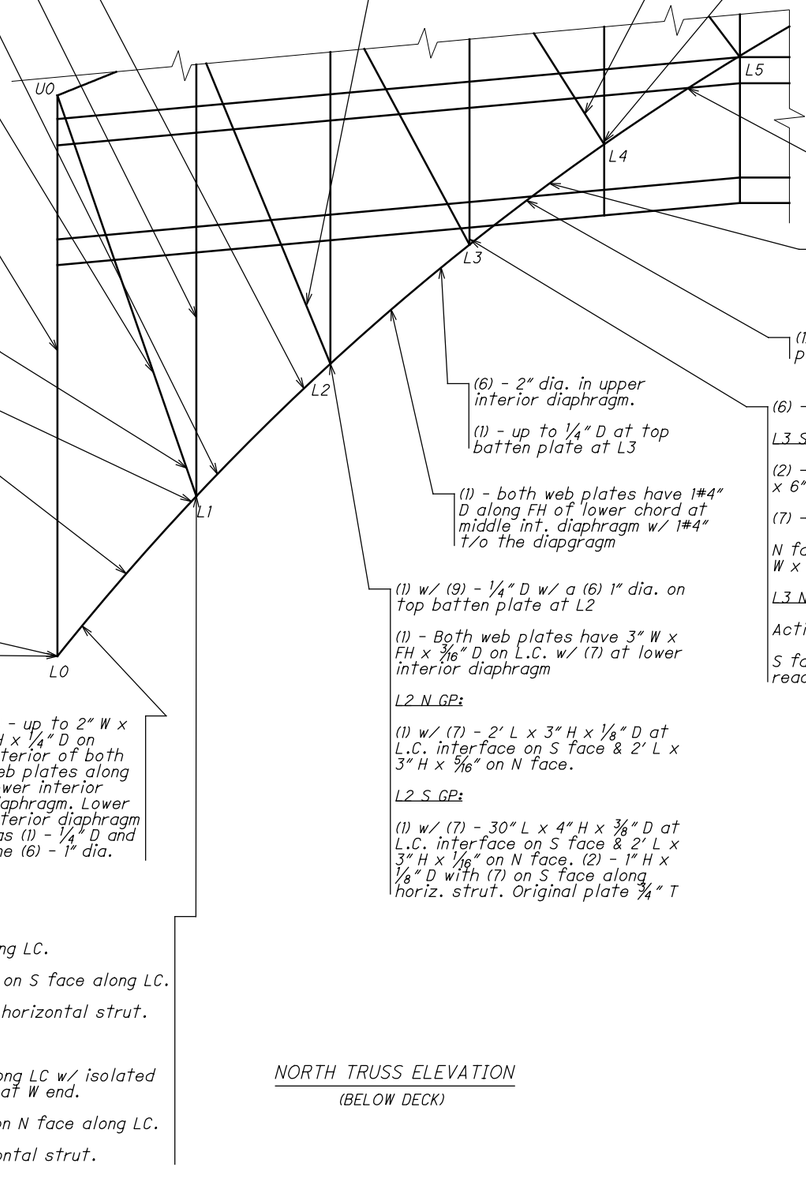
(7) - active w (1) up to 5/16" D along L.C. inerface on S face of S GP at W end.

N face has (7) - 6" H w/ (3) - up to ⅛" D along W edge and an area 12" L x 3" W x 3/16" D of reactivated (1) w/ (7) along the east edge.

L3 N GP:

Active (1) - 2" H x up to 3/16" D w/ (7) along W side of plate on N face.

S face has (7) - 4" W w/ (3) - up to ⅛" D along W side of plate and reactivating (1) - 2" W x 12" L x ⅛" D along E side.




NORTH TRUSS ELEVATION
(BELOW DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion
10 - Standing Water

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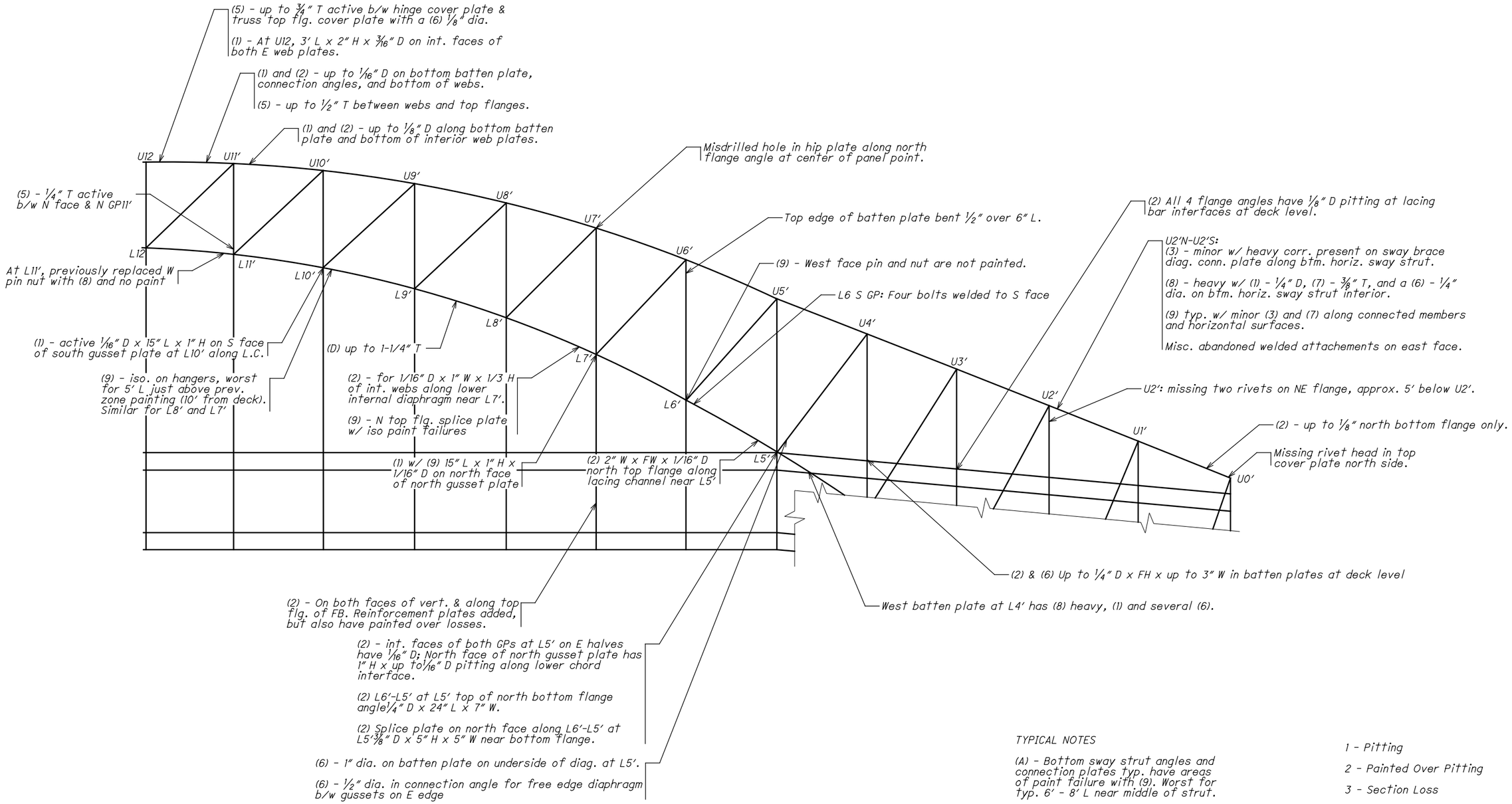


NORTH TRUSS ELEVATION
(ABOVE DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
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(1) - 3" W x up to ⅛" D on both web plates along height of middle int. diaphragm w/ (7).

(1) - middle & W end interior diaphragms have 5/16" D w/ (6) - 2" dia.

(1) - top batten plates at W and E ends up to ⅜" D.

L2'-L1' at L2':
(1) - 5/16" D in top batten plate w/ welded repair plate. One lacing channel has (6) - 2" dia.

L1'S-L2'N near L2'N:
Lateral brace member w/ (1) - up to ¼" D on flange angles, areas of moderate (9) at connecting elements, and one lacing bar w/ (3) - 75% due to (6).

L2'N-L2'S:
West bottom flange angle of sway strut has heavy (9) w/ (7) - up to ¾" T and (3) - up to ¼" D along length.

L2' N Gusset Plate:
North face - (1) 5/16" D x 5" H x FL at lower chord.
South face - (1) 3/16" D x 3" H along lower chord east half.

L2' S Gusset Plate:
South Face:
(1) - up to ⅛" D x 1" H along horizontal strut, east end.
(1) - up to ¼" D x 3" H along lower chord.
Freckling up to 1/16" D t/o.

L2'-L3':
(1) w/ (9) - ⅛" D x FH x up to 4" H at lower interior diaphragm, worst at bottom.

L2'-L3':
(1) - up to ¼" D w/ (6) one 1"-dia in the top batten plate.
(1) - up to ¼" D w/ (6) - 2"-dia. in the east end internal diaphragm.

L3'-U3' AT L3':
(1) - 15" H x ⅛" D over a 15" L on both web plates. Six rivets per plate have between 50-90% head loss. (1 & 6) - bottom two lacing barson N & S faces.
(1) - flg. angles at lacing bar connection have ⅛" D

(6) - up to 6" dia. on top and bottom batten plates at L4' w/ (6) - up to 1" dia. in lacing bars.

(2) - within vert. web plates at eyebar connection, & ¼" D on vert. batten plates w/ a (6) - ¼" dia.

(1) - W & E top batten plates have up to ¼" D at L4'.

(8) - moderate for a 6' L at west end of L.C. where water from deck drains

(6) - 6"-dia. in top and bottom batten plates L3'-U2' at L3'.

(3) - two lacing bars missing and/or broken due to s.l. at L2'.

(2) - 2" W x FH x ⅛" D interior faces of both web plates at middle internal diaphragm.

(3) - one lacing bar has 100% w/ two others having (6) 2" dia. & up to (5) - ½" T active at flange connections

(6) - int. diaphragm at L1' has 12" L x 12" W and 2" L x 1" W.

(6) - Batten plate below the deck upper strut has two 12" L x 3" W

(6) - ½" dia. in E face of batten plate at L1'.

(8) - minor, with paint failure & areas of (7), typical on rivets and bolts.

L0'S - L1'N - Lateral bracing from middle to L1'N has moderate (9), active (5) - up to ½" T, and (1) - up to ¼" D on flange angles at connecting elements. One diagonal also has a (6) - 1" dia.

(7) - At L0', interior faces of both webs have ¼" T w/ (1) up to 1/16" D over a 5' H.

Vertical angles and legs have (1) - up to 3/16" D along GP interface.

(3) - For 36" L, interior of L0'-L1' at L0', SE interior angle at top has one rivet head with 100%, and 2 rivet heads with 90%. NE and NW angles have several rivet heads w/ 50% - 75% near the bearing.

Bottom horizontal sway strut has (8) and paint failure along bottom W flange angle over its length.

L0' S GP:
(2) - 36" L x 3-½" H x 5/16" D on interior face along LC interface.
(9) w/ (7) and (3) - up to 1/16" D.

L0' N GP:
(1) - Active area FL x 1" H x 1/16" D on N face.
(2) - 36" L x 3-½" H x 5/16" D on interior face along LC interface.

On L0' OB pin cover plate:
6-¾" L crack in OB face & 1-¼" L crack on top.

On L0' IB pin cover plate:
6-¾" L crack in IB face & 1-½" L crack on top

(5) - 1" T active b/w BRG and pin plates at L0'.

(7) - heavy rust flakes (7) debris accumulation on BRG thrust block.

Thrust block exhibts:
moderate (8), (7) - up to 3#8" T, (1) - areas of up to 1#8" D.

(3) w/ (9) - edges of thrust block stiffeners up to 3#8" D

(3) - NW &SW AB nuts 100% to nut and top of AB at L0' and 5% to SE and NE anchor bolt nuts.

Lower chord top flange splice plates on top face of top flanges have (2) - up to ¼" D w/ (3) - 50% - 90% to multiple rivet heads. Bottom flange angles for lower chord adjacent to splice angles have (1) - up to ¼" D on their horizontal legs.

L4' N Gusset Plate:
Both faces:
(2) - up to 3/16" D x 4" H along lower chord.

L3' S Gusset Plate:
Both faces:
(2) - up to ¼" D x 4" H along lower chord.

L3' N Gusset Plate:
Both faces:
East end - (7) - up to ¼" T along lower chord.
West end - (2) - up to 3/16" D x 3" H along lower chord.

L3' S Gusset Plate:
Both faces:
East end - (7) w/ (3) - up to ⅛" T
North face:
West end - (1) - ¼" D x 5" H along lower chord
South face:
West end - (2) - 5/16" D x 5" H along lower chord (1/16" T remaining)

(6) - 6" dia. in diaphragm plate in middle of L.C. & moderate (8) FH w/ (1) - ⅛" D x FH x 3" W on interior of both web plates.

(6) - 6" dia. in diaphragm plate in middle of L.C. & moderate (8) FH w/ (1) - ⅛" D x FH x 3" W on interior of both web plates.

L1' S Gusset Plate N Face:
(1) w/ (9) - 3/16" D x up to 2" H along lower chord.
Original thickness - ¾" T.

L1' S Gusset Plate S Face:
(1) w/ (9) - 3/16" D x up to 1½" H at east end along lower chord.
(1) w/ (9) - ¼" D x up to 2¼" H at west end along lower chord.
Frecking up to ¼"-dia. x 1/16" D throughout

L1' N Gusset Plate N Face:
(1) w/ (9) - 3/16" D x up to 3" H at east end along lower chord.
(1) w/ (9) - ¼" D x up to 2½" H at west end along lower chord
Frecking up to ¼" W x ½" H x 1/16" D throughout.

L1' N Gusset Plate S Face:
(1) w/ (9) - ¼" D x up to 4" H along lower chord.
Original thickness - ¾" T.

(1) w/ (9) - FH x 3" W x up to ⅛" D on the interior face of both web plates along lower interior diaphragm.

L1'S - L1'N: Moderate (9) and paint failure w/ (10) on W bottom flange angle over length.

L2' - L1' @ L1': Top batten plate has (1) - up to 5/16" D. Interior diaphragm has several (6) - up to 1" dia. w/ (1).

(6) - 10" L x 2" W and 2" L x ½" H in upper interior diaphragm.

L1' - L0' at L1': Top batten plate w/ (1) - up to 3/16" D

(1) w/ (9) - FH x 2" W x ¼" D on interior of both LC web plates at middle interior diaphragm w/ (1) - ¼" D on interior diaphragm.

(1) w/ (9) - FH x 1" W x 3/16" D on interior of both LC web plates at lower interior diaphragm w/ (1) - up to ¼" and one (6) - ½" dia.

(8) w/ (7) - minor to moderate, with paint failure & (1) - 1/16" D to btm. flg. angles & btm. of web plates on interior of L.C. at L0'

L5' L4' L3' L2' L1' L0' U0'

NORTH TRUSS ELEVATION
(BELOW DECK)

TYPICAL NOTES

(A) - Bottom sway strut angles and connection plates typ. have areas of paint failure with (9). Worst for typ. 6' - 8' L near middle of strut.

(B) - Small areas of (9) and paint failure typ. on truss.

(C) - Typ. (9) with (7) and (1) - up to 1/4" D at bottom bracing channel and bottom angle for interior diaphragm at L.C. interior diaphragms.

(D) - (5) - 1" T b/w top channel lacing and middle interior diaphragm.

(E) - Typ. (9) w/ minor (3) and (7) along connected members and horizontal surfaces.

(F) - Misc. abandoned welded attachements on east face.

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

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|---|---|---|---|
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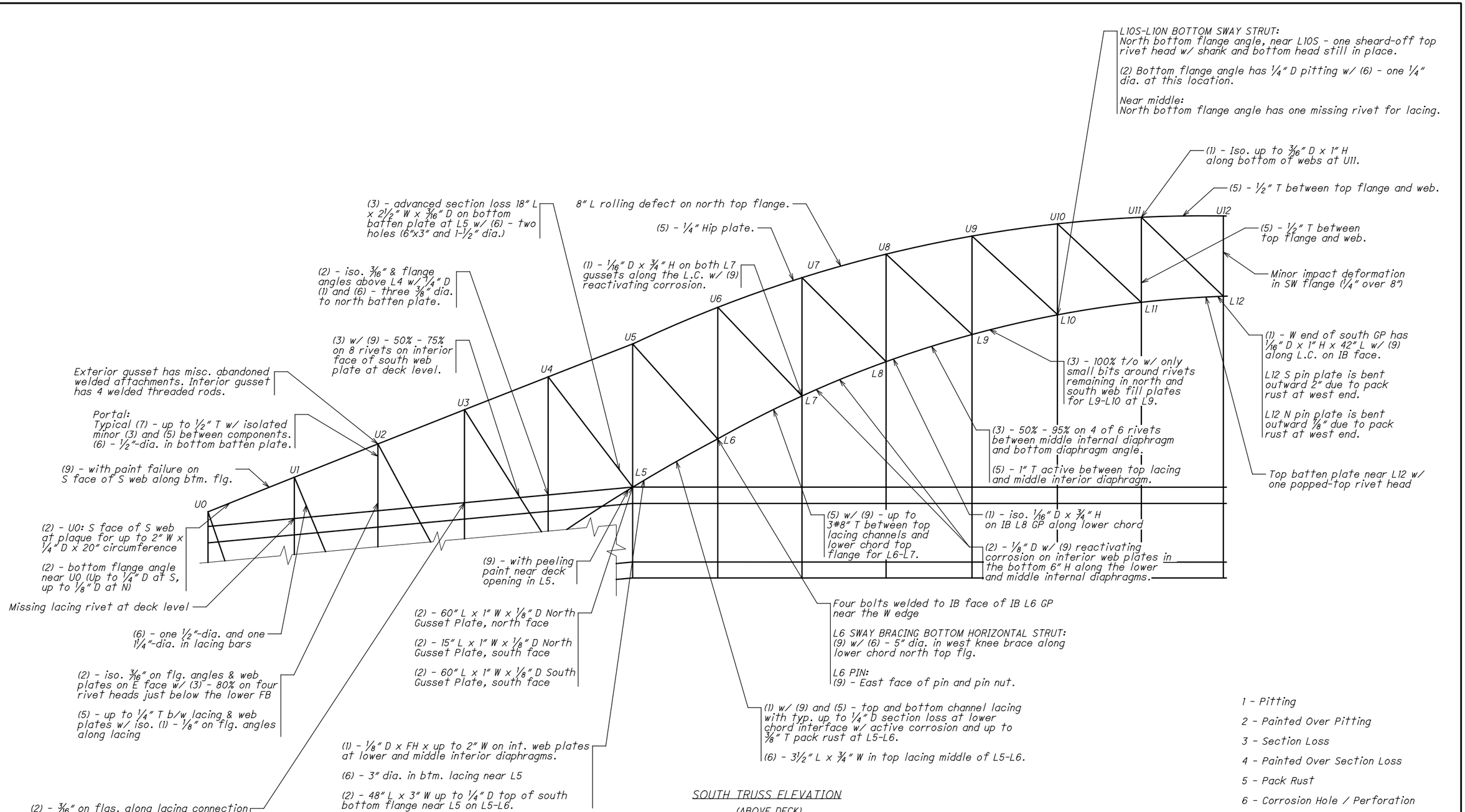


SOUTH TRUSS ELEVATION

(ABOVE DECK)

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

TYPICAL NOTES

1. Uphill transverse angles have debris ausing pitting and perforations of the diaphragm plates and transverse angles on lower chord between L0 to L5.
2. Typical small locations of paint failure and active surface corrosion throughout with areas of minor (<1/16" D) section loss along connecting elements.
3. Tyical active corrosion and up to 1/4" D pitting on interior diaphragm and angles for lower chord members.

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(3) - 100% loss on several north face lacing bars.

(2) - iso. 3/16" on flg. angles & web plates on E face w/ (3) - 80% on four rivet heads just below the lower FB

(5) - up to 1/4" T b/w lacing & web plates w/ iso. (1) - 1/8" on flg. angles along lacing

(9) - w/ peeling paint and failed paint near top

(5) - up to 3/4" T b/w flg. angles & lacing with lacing deformed

(1) - isolated 1/8" to 3/16" along flg. angles at iso. lacing bars

Vertical has (8 & 9)

(5) - up to 1/4" T b/w webs & flanges. 3/4" at lacing bars w/ iso 1/8" D pitting in flg. angles along the lacing

(1) - isolated 1/8" D on the interior web plates (worst near L0)

(1) - Up to 1/8" D on flanges and webs.

(5) - Up to 5/8" T between lacing and flanges.

(6) - second top transv. lacing channel from L0 has a 5" H x 3/4" W and a 1/2" dia. Fourth lacing channel from L0 has a 6" L x 2" W

L0 IB PIN PLATE:
(SEE SKETCH)
There is a 5 3/4" L crack with a 4 3/4" L crack propagates off of the other crack, which extends to the end of the plate. There is also a 3 3/8" L crack extending from the nut at 10 o'clock, and a new 3 1/2" L paint crack extending from the nut at 1:30.

L0 OB PIN PLATE:
has a 7" L vertical crack extending upward from the nut and a 1 3/4" L vertical crack extending downward from the nut. This crack may be continuing beyond the current end point, but unable to verify due to extensive surface corrosion.

BEARING:
(8) - moderate to advanced t/o thrust block w/ peeling paint and (7).
(5) - up to 1" T b/w BRG behind pin & L.C.
(3) - 3 of 6 AB nuts in thrust block have 90% (other bolts have 10%)

L0 N Gusset:
8 rivet heads w/ (3) - up to 90% on U0-L0 connection.

North face - (7) w/ (1) - up to 1/8" D x 6"H x 45" L along lower chord.

South face - isolated (1) - 1/16" D along vertical.

L0 S gusset:
South face - (7) w/ (1) - up to 1/8" D x 3" H x 60" L along lower chord.

North face - (1) - up to 1/4" D x 2" H x 30" L along diaphragm, and 3/16" D x 6" H x 2" W along vertical.

West sway brace connection plate bowed at strut up to 5/8" due to pack rust.

Sway strut has (9) throughout interior faces.

Top later brace connection plate w/ impact dent 1/4" over 10".

Sheared bolt on top 3rd lacing channel connection along top flg. Also a fractured bolt in end of batten plate at L0.

(6) - Four small holes up to 1" dia in diaphragm near L1.

3 3/8" Crack (5/8" Propagation)

3 1/2" Paint crack (New)

4 3/4" Crack (N.C.)

5 3/4" Crack (N.C.)

South Truss L0 Bearing

North Pin Cover Plate
(Not to scale)

Cantilever brace:
(1) - 1/4" D in web w/ (6) - four up to 2"-dia.

U0

L0

L1

L2

L3

L4

L5

(2) - 3/16" on flgs. along lacing

(6) - Three 6" dia. on top batten plate.

(1) - up to 3/16" D x FW on inside faces of vert. along top of the lower FB w/ up to 90% rivet head loss.

(6) - Two 2"-dia. in lower batten plate.

(6) - numerous holes t/o btm. batten plate at L4.

(9) - with peeling paint near deck opening in L5.

(1) - 1/8" D on int. web plates

(6) - 3" dia. in btm. lacing near L5

L4 GPs, BOTH:
(2) - up to 3/16" x 2" H x FL on ext. face along L.C., iso. 1/4" D x 2" H x 4" L on int. face along L3L4.

Isolated 1/4" D x 2" H x 10" L on int. faces along L4L5.

Six plug welds, 3 on each half, on each gusset plate.

(2) - 1/4" D on north top flange splice plate.

(1) - 5/16" D x FH, N int. web plate
3/16" D x 12" H on S int. web plate

(5) - up to 1" T b/w batten plates & top flange

(1) - up to 3/16" D on top flg. angles along lacing.

L3, BOTH GPs:
(1) - up to 3/16" D along lower chords on ext. faces and (8). (1) - 3/16" avg. on int. faces except S face of N plate along L3-L4, which is 5/16" (1/4" remaining).

L3, IB GP has:
(2) - three areas of up to 1/4" D x 3" W x 8" H on N face along W face of the vertical.

(6) - East face stiffening diaphragm has a 4" dia.

(1) - Up to 1/4" D south top flange splice

(1) - N int. web plate has 4" L x Iso. FH x 1/16" D active along int. diaphragm near L2. S int. web plate has 1/4" D at this location.

(5) - up to 5/8" T b/w top batten plates & flanges

L1 GPs, BOTH:

(7) - FL x 3" H x 1/4" D of L0L1 along struts on ext. faces. (1) - 12" L x 2" H x 1/8" D on inside faces along L0L1.
(2) - 3" H x 1/4" D along L1L2 on ext. faces and up to 12" on vert. Inside faces along L1-L2 have (1) - (1/8" on N, 1/4" on S)
(2) - 1/4" on south top flange splice plate.
(6) - 2"-dia. on edge stiffening diaphragm on east end.

(1) - 1/4" D x 4"L x FH in webs along interior diaphragm.

(3) - 100% btm. lacing channel vert. legs adj. to L.C. web plates

(3) - top batten plate at L1 has 12" W x 3" L x 100% along bottom edge, (6) - 1" dia. and advanced s.l. t/o.

(1) - along int. diaphragms:
N int plate: 3" L x FH x 1/4" D
S int plate: 4" L x 1/2H x 1/4" D

(6) - two up to 2"-dia. in interior diaphragm

(2) - up to 1/8" on web plates

L2 IB (N) GP:
(1) - 1/8" D top of diagonal, S face
(1) - above L1-L2 has
24" L x 2" H x 3/16" D on S face
30" L x 3" H x 1/4" D on N face
(1) - above L2-L3 has
24" L x 2" H x 1/4" D on both faces
(1/4" remaining)

L2 OB (S) GP:
(1) - above L1-L2 has
30" L x 4" H x 3/8" D on S face
(active, 1/4" remaining on original 3/4" T over this area)
(1) - above L2-L3 has
30" L x 3" H x 1/4" D on S face
24" L x 2" H x 1/8" D on N face

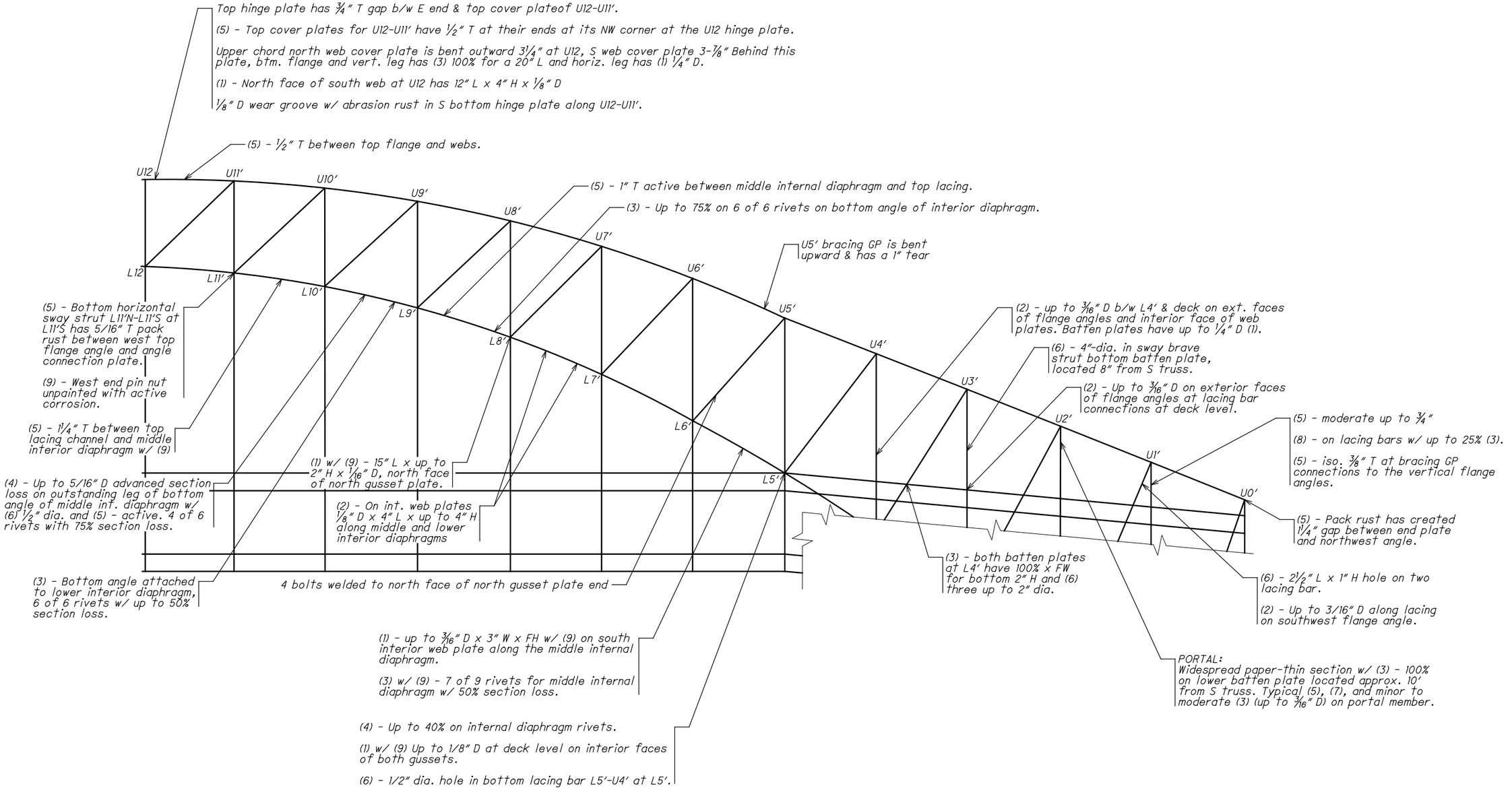
(6) - West edge stiffener has 1"-dia. and 4"-dia. holes in N conn. angle

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

SOUTH TRUSS ELEVATION
(BELOW DECK)

Uphill transverse angles have debris causing pitting and perforations of the diaphragm plates and transverse angles on lower chord between L0 to L5.

| | | |
|---|---|---|
| NOT TO SCALE | Palmer ENGINEERING | DETROIT-SUPERIOR BRIDGE<br>CUY-6-14.56 |
| DATE<br>OCT 2021 | | SPAN 4 SOUTH TRUSS ELEVATION — PAGE C-6 |




SOUTH TRUSS ELEVATION
(ABOVE DECK)

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

TYPICAL NOTES

1. BOTTOM 2 RIVETS AT DECK LEVEL FOR ALL WEST FLANGE ANGLES HAVE 75% - 90% SECTION LOSS.

| | | |
|---|---|---|
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| DATE<br>OCT 2021 | | SPAN 4 SOUTH TRUSS ELEVATION — PAGE C-7 |

L3′ GPs, BOTH:

(1) - 1/4″ on ext faces along top of L3′L2′ & L4′L3′. (1) - 1/8″ x 2″ H x 20″ L on int. faces along L.C. at both ends

L3′ IB GP:
(2) - 3/16″ on N face along vertical.

(6) - W edge stiffening diaphragm & conn. angles have several up to 1-1/2″

L4 GPs, BOTH:
(1) - 5/16″ x 3″ H along top of L4′L3′
(1) - 1/4″ on all faces along top of L5′L4′ (apx. 7/16″ remaining for 10″ L where chord is on both faces, 9/16″ remaining where chord on outside face only)

L4 IB GP:
(1) - 1/8″ x 2″ H x 4″ L on N face along top of L4′L3′.

L4 OB GP:
(1) - 1/16″ x 2″ H x 4″ L on S face along top of L4′L3′.

(3) - advanced, vert truss to lower FB knee braces. Btms. of connection angles have 100% x 8″ H.

(6) - Bottom batten plate has two 4″-dia. holes, lacing bar has one 1/2″-dia. hole.

(8) - moderate with widespread peeling paint to components below the lower deck w/ (5) up to 3/8″ T b/w lacing bars.

Numerous replaced lacing bars at the lower deck connection to the vertical.

(2) - t/o lower FB connection and missing batten plates.

(7) - int. web plates up to 1/4″ T

(6) - 4″ x 1″ Cantilever brace connection, west face.

(3) - 100% on lower batten plate along the lower 12″ & additional 6″ x 4″ hole.
Upper batten plate is almost 100% gone w/ five lacing bars with (6) 2-4″ in dia.

(1) - 3/16″ D x 3″ L x 1/2 Height on int. web plates along int. diaphragms.

(2) - iso. 1/8″ D on int. web plates and 3/16″ on top flg. angle splice plates at L4′.

(8) - moderate w/ iso. (6) up to 5″ dia. noted t/o the L.C. diaphragm plates.

(1) - 1/4″ D x 3″ L x 3/4 Height on int. web plates along int. diaph.

Isolated lacing channels replaced.

(6) - 3″-dia. in L2′-L1′ top batten plate at L1′.

(7) w/ (1) - up to 1/8″ D x 5″ H along bottom of L1′ N web splice.

Paint peeling w/ iso. (9) over Full Length.

(8) - moderate
(7)
(1) - 1/4″ D x 2″ L x FH interior web along internal diaphragm.

L2′ GPs, BOTH:
(7) - active along lower chords.
(1) - 1/8″ x 3″ H on both faces along L2′L1′.

L2′ IB GP:
(1) - 1/4″ x 4″ H x 30″ L on N face along L3′L2′.
(2) - 1/8″ x 3″ H x 20″ L on S face along L3′L2′

L2′ OB GP:
(1) - 3/8″ x 3″ H x 10″ L on N face along L2′L1′.
(1) - 1/8″ x 2″ H x 20″ L on N face along L3′L2′.
(1) - isolated 1/8″ on OB face along FL

(3) - iso. areas of advanced (3/16″ D x 4″ W) on int. web plates around the rivets & adj. to lacing.

(5) - 1/4″ b/w angles & web plates

(1) - up to 3/16″ D on flg. angles along lacing.

Lacing bars deofrmed due to pack rust up to 3/4″ T b/w lacing & flanges

(3) - up to 100% on lower L1′ batten plate along lower 18″

(3) - Lower 2 lacing bars have 75% at the conn. to the flgs. and one has a 2″ dia. (6) on W face.

(1) - 1/8″ (Iso. 3/16″) D x FW on flg. angles along lacing.

Heavy debris in panels at strut.

L1′ GPs, BOTH:
(9) w/ (1) - up to 3/16″ x 2″ H along strut connections and along lower chord on outside faces over FL.
(1) - 3/16″ x 4″ H x 16″ L on inside faces along L1′-L0′.
(1) - active 3/16″ x 3″ H x 20″ L on inside faces along L2′L1′

(6) - Two 2″ dia. holes in west edge stiff. diaph.

Non-structural BRG pin cover plates:
6-1/2″ L crack on both faces.

Moderate debris build up t/o BRG thrust block.

(5) - active 1″ T b/w L.C. & BRG full perimeter of the pin

(2) - up to 3/16″ D on BRG casting around pin nut.

(3) - iso. moderate to advanced on BRG casting w/ some areas of (7 & 9)

(8) - moderate w/ iso. (7) & (6) t/o the L.C. diaphragm plates.

(1) - 3/16″ D x FW on top face of N top flg. within limits of L0′ GP plus 3/16″ D x 3″H on the vertical leg w/ 100% rivet head loss.

(2) - int. web plates have 1/4″ D reactivating x Fh x 2″ L along internal diaphs.

(6) - Int. diaph. at L1′ has FW x 4″ H hole along btm. angle

(6) - Btm. lacing channels have iso. holes up to 2″ dia.

(6) - 2″-dia. in top lacing at middle diaphragm.

L0′ GPs, BOTH:
(7) at base of interior.

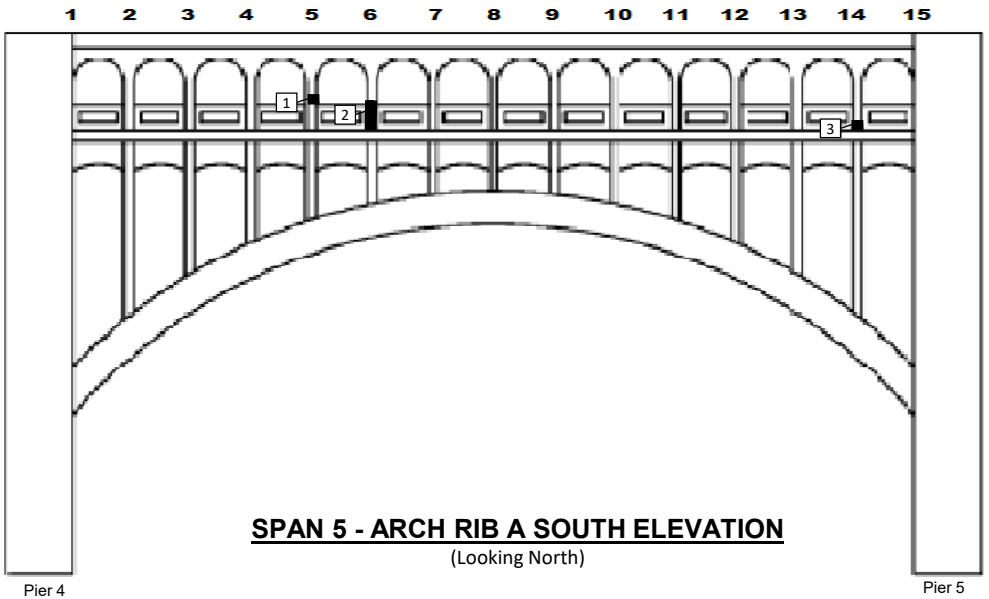
L0′ N GP:
(1) - 3/16″ D x 5″ H x 41″ L along lower chord.

L5′ L4′ L3′ L2′ L1′ L0′

1 - Pitting
2 - Painted Over Pitting
3 - Section Loss
4 - Painted Over Section Loss
5 - Pack Rust
6 - Corrosion Hole / Perforation
7 - Laminar Corrosion
8 - Surface Corrosion
9 - Active Corrosion

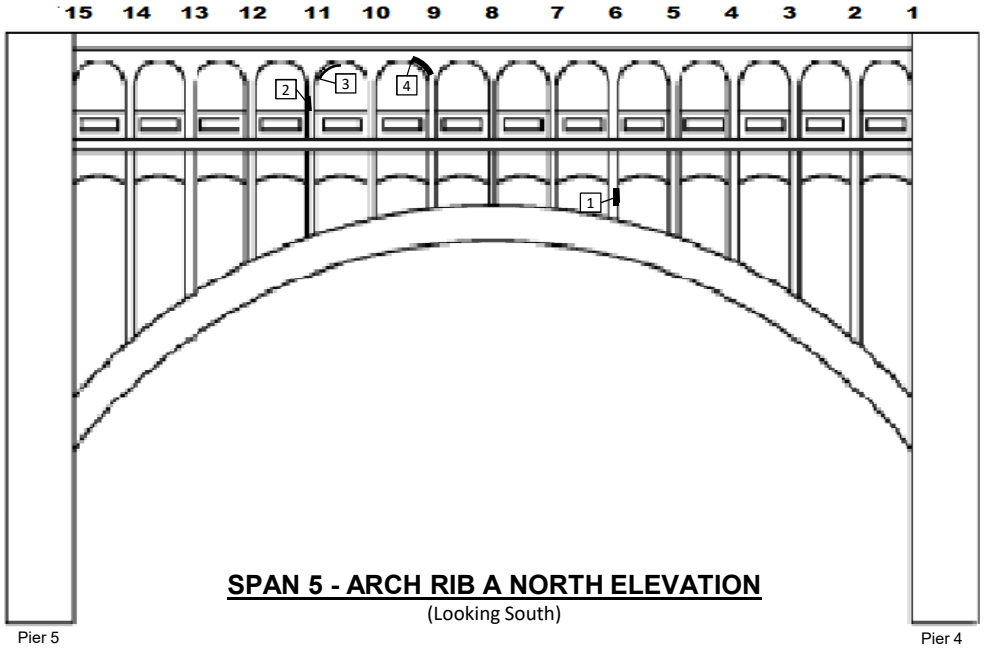
## SOUTH TRUSS ELEVATION
(BELOW DECK)

| | | | |
|---|---|---|---|
| NOT TO SCALE | Palmer ENGINEERING | DETROIT-SUPERIOR BRIDGE CUY-6-14.56 | |
| DATE OCT 2021 | | SPAN 4 SOUTH TRUSS ELEVATION | PAGE C-8 |



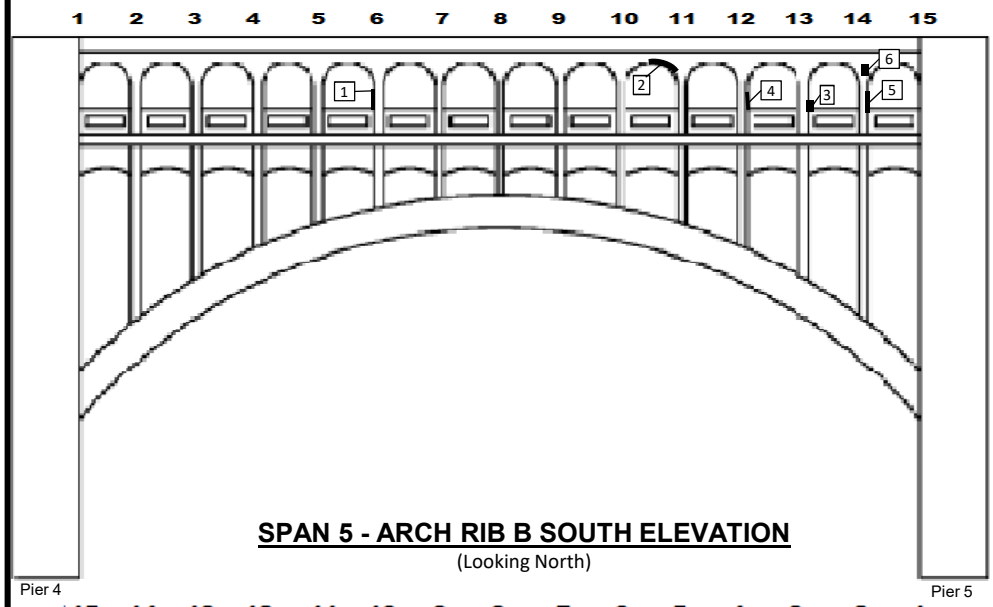

**SPAN 5 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

| SPAN 5 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 2 SF |



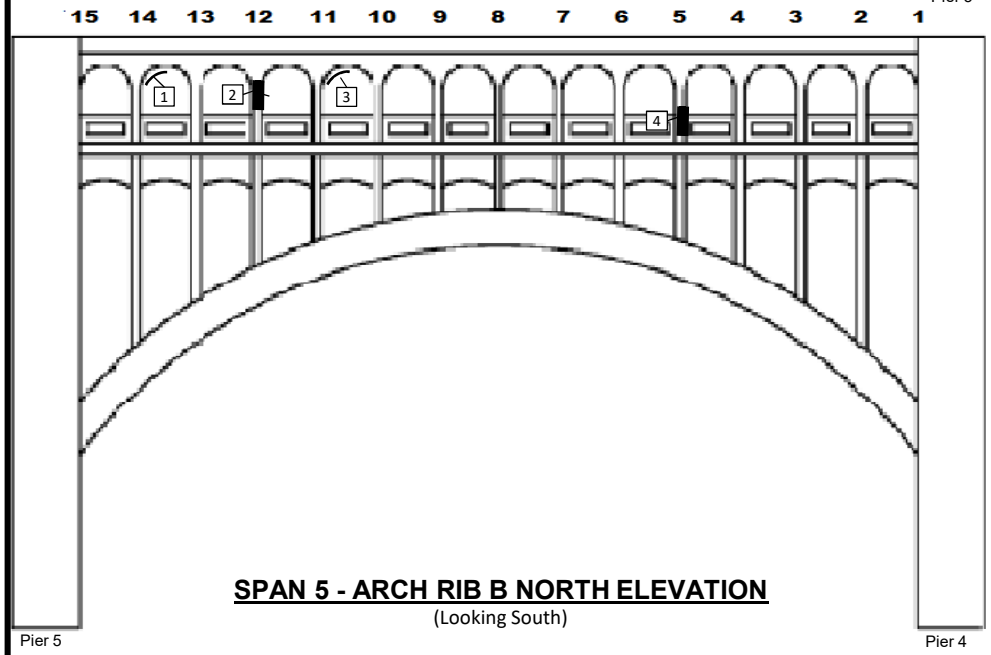

**SPAN 5 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 5 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 2 SF |



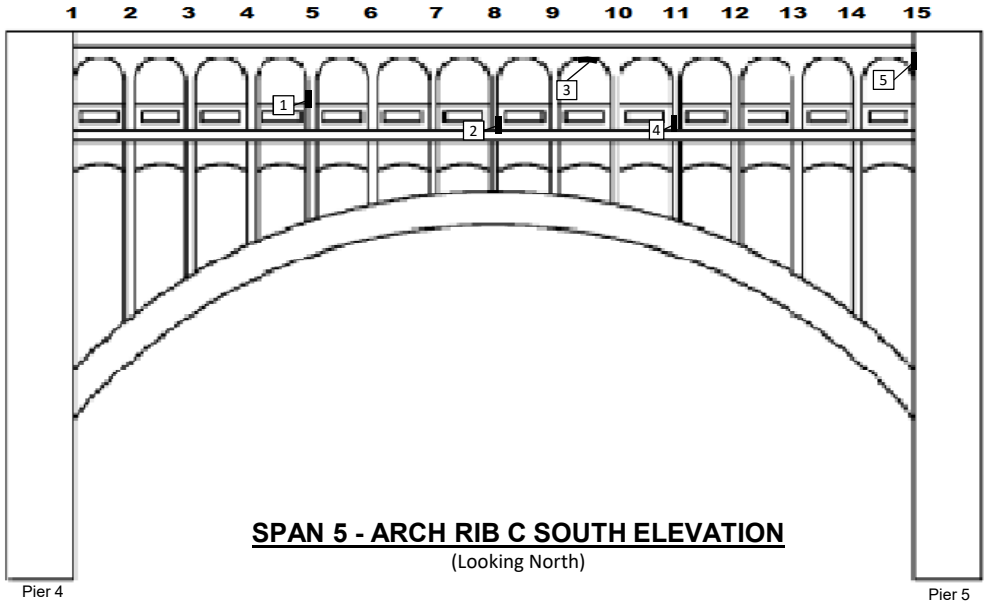

**SPAN 5 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 5 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall - 1 SF, 3" D |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 2 SF |
| 5 | Spall w/ exp. Reinf - 3 SF, 2" D |
| 6 | Delamination - 2 SF |
| | |



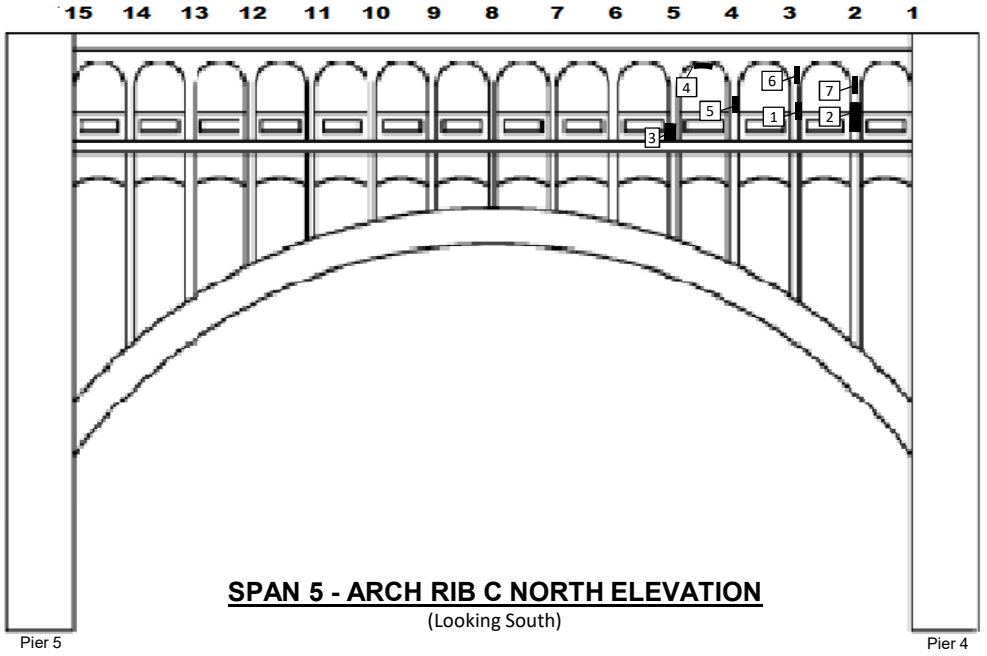

**SPAN 5 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 5 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Spall w/ exp. Reinf. - 4 SF |
| 3 | Spall w/ exp. Reinf. - 2 SF |
| 4 | Delamination - 3 SF |



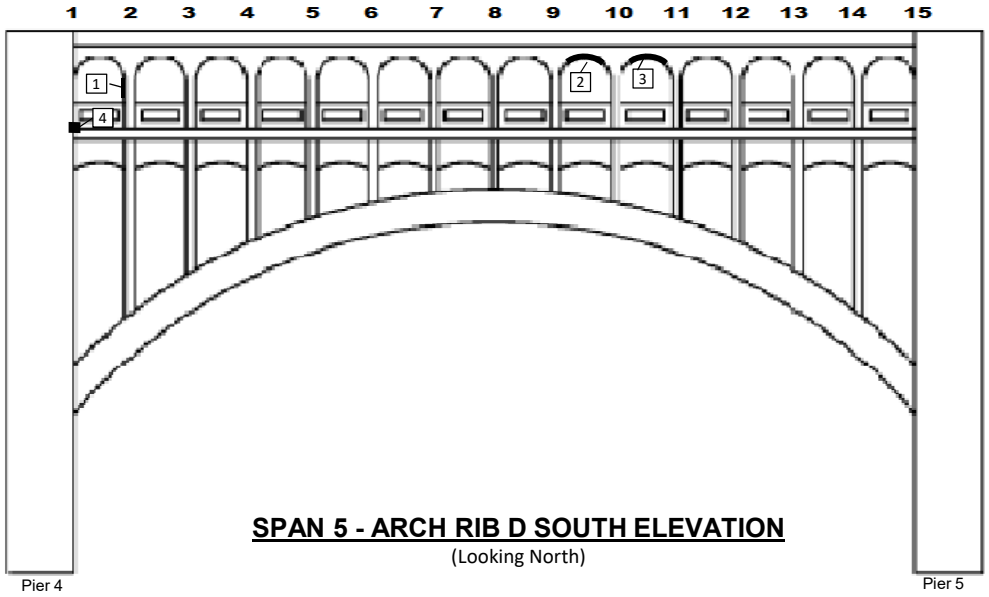

**SPAN 5 - ARCH RIB C SOUTH ELEVATION**
(Looking North)

| SPAN 5 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delamination w/ Spall w/ exp. Reinf. - 4 SF |
| 3 | Spall w/ exp. Reinf. - 1 SF |
| 4 | Delamination - 4 SF |
| 5 | Spall w/ exp. Reinf. - 2 SF |



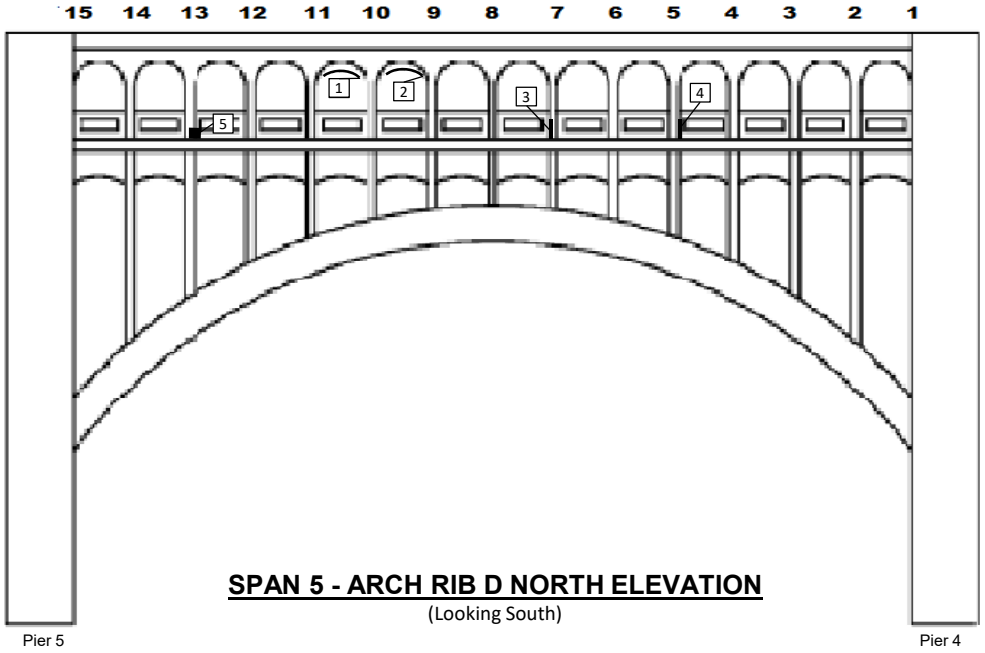

**SPAN 5 - ARCH RIB C NORTH ELEVATION**
(Looking South)

| SPAN 5 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 2 | Spall w/ exp. Reinf. - 1 SF, 1.5" D |
| 3 | Delamination - 2 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 2 SF |
| 6 | Delamination - 3 SF |
| 7 | Delamination - 5 SF |



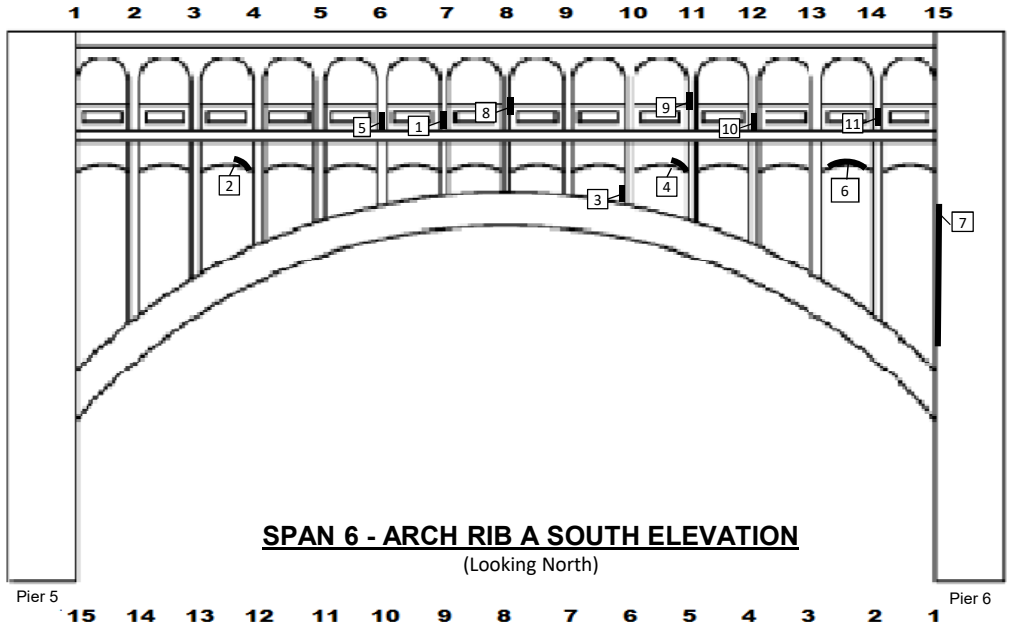

**SPAN 5 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 5 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 6 SF |
| 4 | Incomplete Repair - 3 SF |



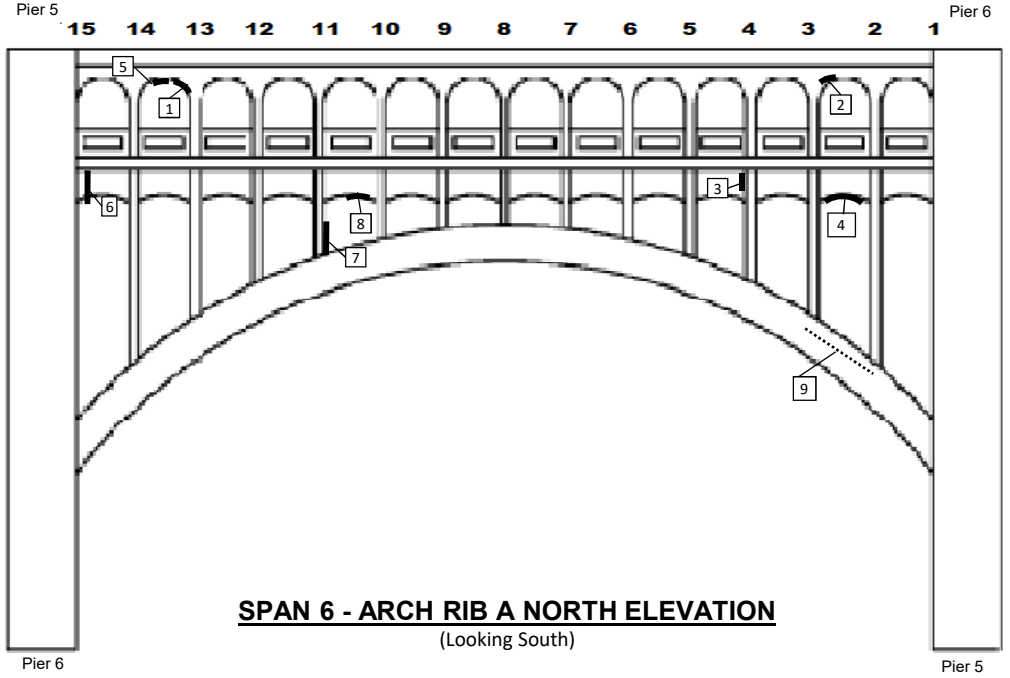

**SPAN 5 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 5 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 6 SF |
| 2 | Delamination - 5 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 3 SF |
| 5 | Delamination - 1 SF |



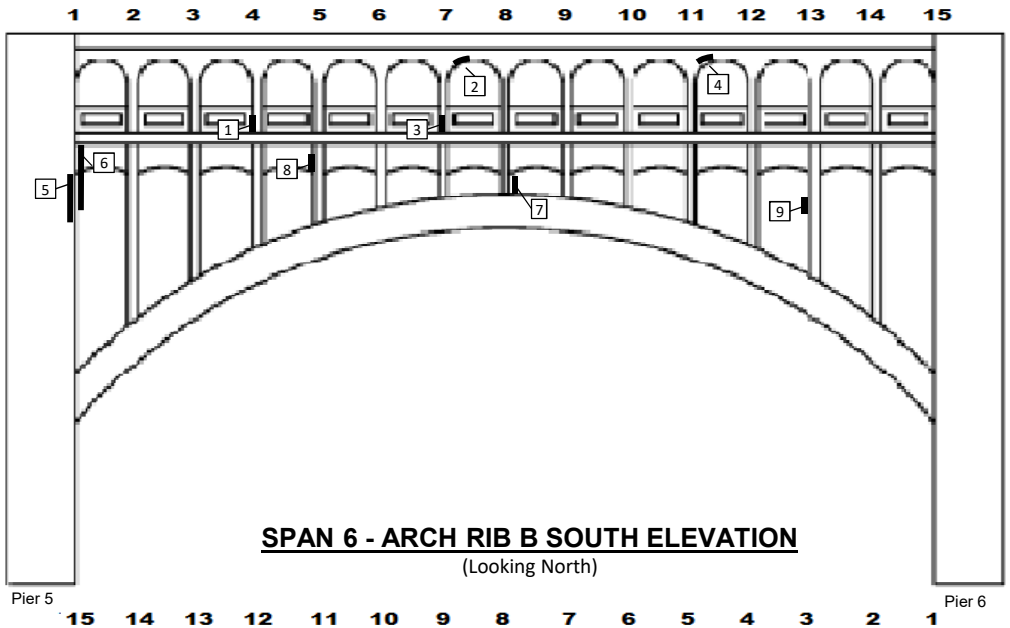

**SPAN 6 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

| SPAN 6 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination - 5 SF |
| 3 | Spall - 4 SF |
| 4 | Map Cracking - 2 SF |
| 5 | Delamination - 1 SF |
| 6 | Delamination - 2 SF |
| 7 | Delamination - 20 SF |
| 8 | Delamination - 1 SF |
| 9 | Delamination - 1 SF |
| 10 | Delamination - 1 SF |
| 11 | Delamination - 2 SF |



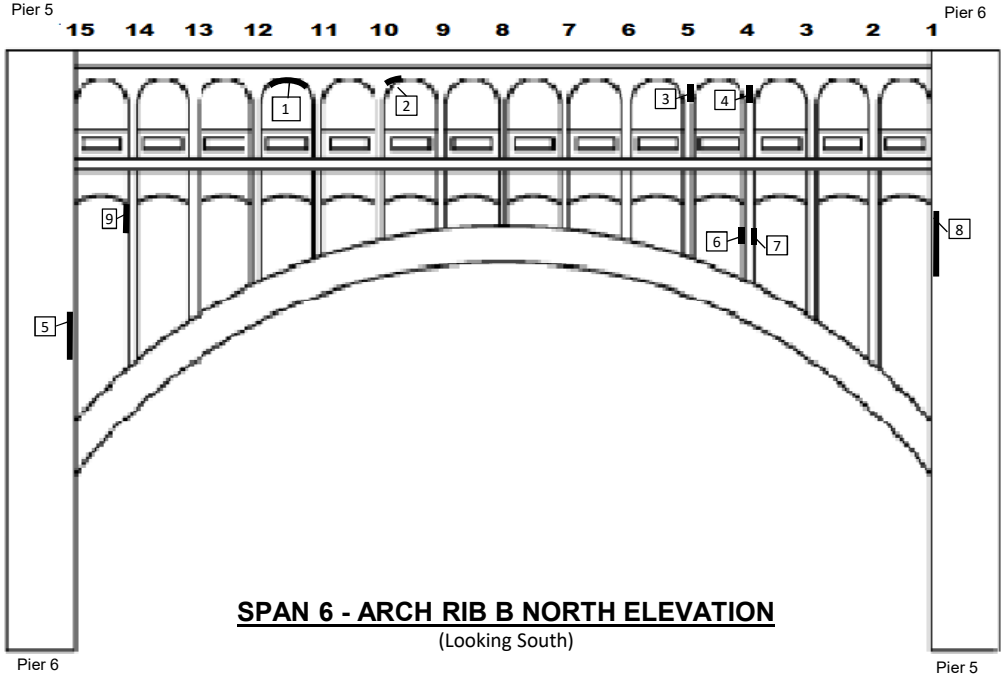

**SPAN 6 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 6 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 6 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 1 SF |
| 6 | Delamination - 3 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 2 SF |
| 9 | 9' L x 1/16" W Crack |



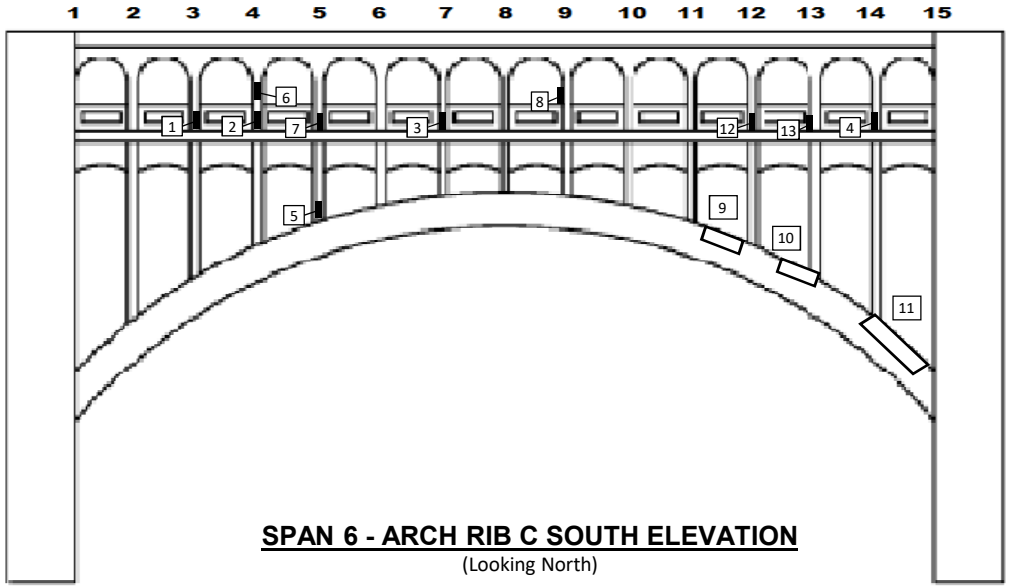

**SPAN 6 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 6 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 4 SF |
| 3 | Delamination - 3 SF |
| 4 | Spall - 4 SF, 4" D |
| 5 | Delamination - 16 SF |
| 6 | Delamination - 5 SF |
| | Spall w/ exp. Reinf. - 15 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 4 SF |
| 9 | Spall w/ exp. Reinf. - 16 SF |

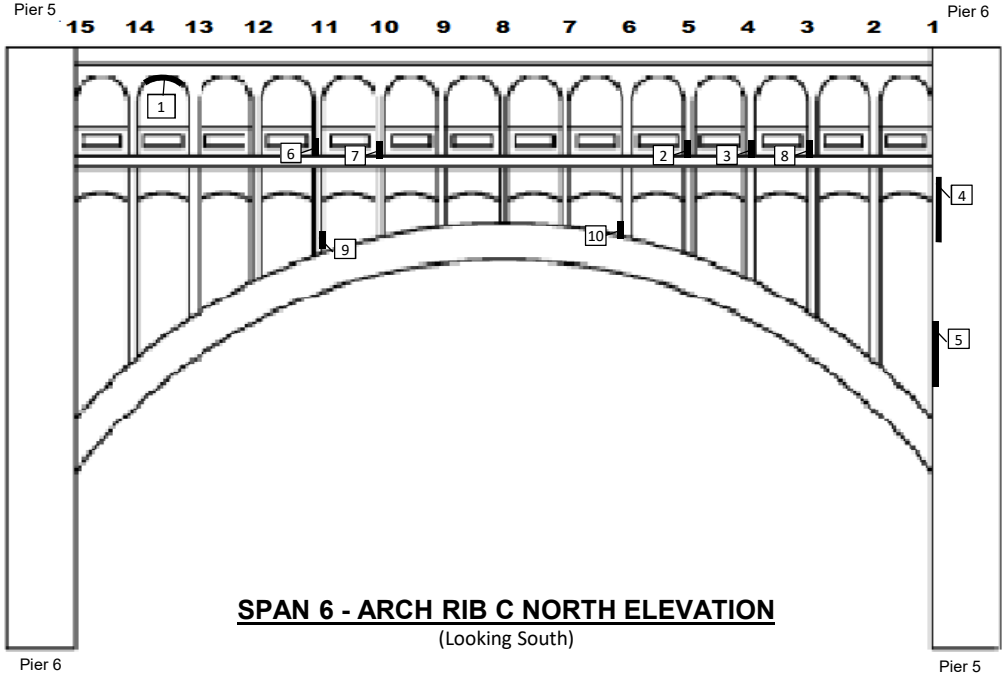



**SPAN 6 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 6 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 24 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF |
| 3 | Delamination - 4.5 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 8 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 8 SF |
| 9 | Spall w/ exp. Reinf. - 2 SF |



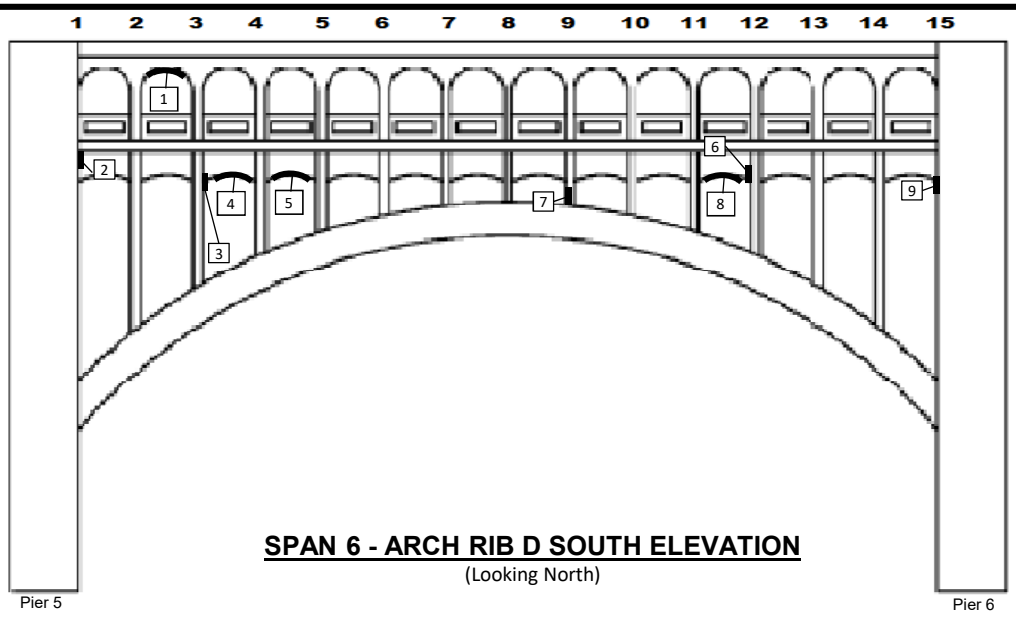

**SPAN 6 - ARCH RIB C SOUTH ELEVATION**
(Looking North)



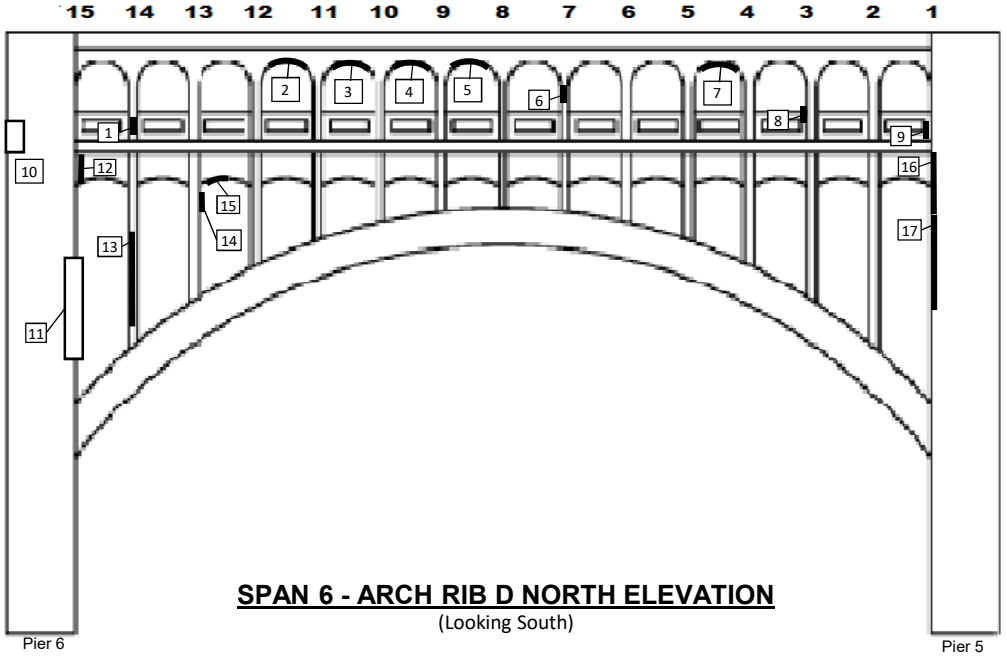

**SPAN 6 - ARCH RIB C NORTH ELEVATION**
(Looking South)

| SPAN 6 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 2 SF, 2" D |
| 2 | Spall w/ exp. Reinf. - 1 SF, 3" D |
| | Delamination - 9 SF |
| 3 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 4 | Delamination - 3 SF |
| 5 | Spall w/ exp. Reinf. - 1 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 4 SF |
| 8 | Delamination - 1 SF |
| 9 | Delamination - 12 SF |
| 10 | Delamination - 10 SF |
| | Delamination - SF (topside of arch) |
| 11 | Delamination - 20 SF |
| 12 | Delamination - 2 SF |
| 13 | Delamination - 1 SF |

| SPAN 6 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF |
| 3 | Delamination - 4 SF |
| 4 | Spall w/ exp. Reinf. - 10 SF |
| 5 | Spall w/ exp. Reinf. - 15 SF |
| 6 | Delamination w/ Spall w/ exp. Reinf - 3 SF |
| 7 | Delamination - 3 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 1 SF |



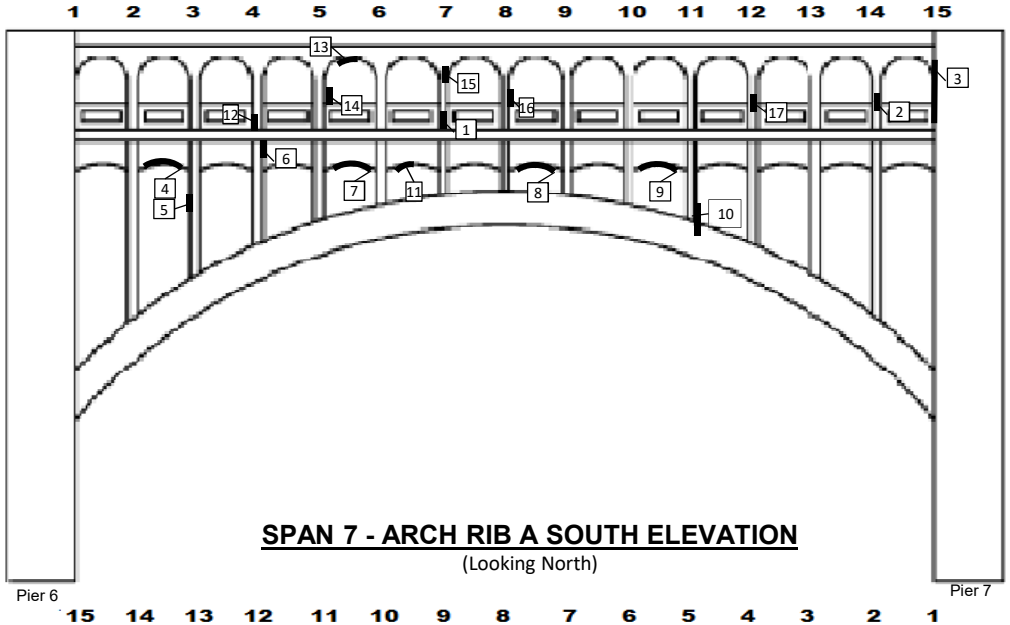

**SPAN 6 - ARCH RIB D SOUTH ELEVATION**
(Looking North)



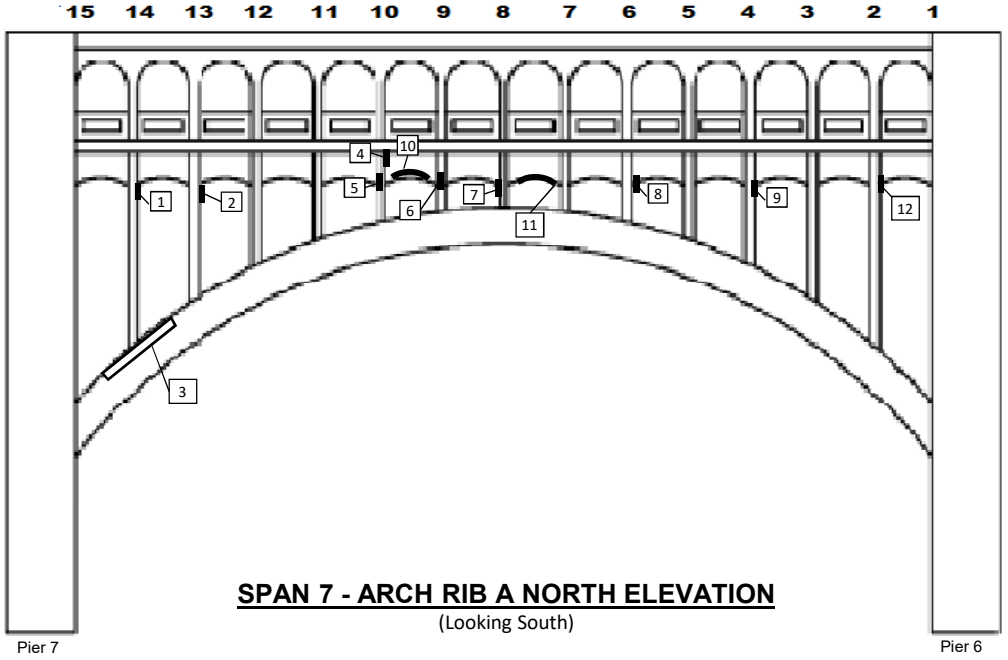

**SPAN 6 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 6 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Spall w/ exp. Reinf. - 5 SF, 4" D |
| 3 | Spall w/ exp. Reinf. - 1 SF |
| 4 | Delamination - 4 SF |
| 5 | Delamination - 1 SF |
| 6 | Spall - 1 SF |
| 7 | Delamination - SF |
| 8 | Delamination - 1 SF |
| 9 | Delamination - 6 SF |

| SPAN 6 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 5 SF, 2.5" D |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 10 SF |
| 4 | Delamination - 4 SF |
| 5 | Delamination - 4 SF |
| 6 | Delamination - 5 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination & Cracking - 10 SF |
| 10 | Spall - 1.5 SF, 4" D |
| 11 | Spall w/ exp. Reinf. - 6 SF |
| 12 | Delamination - 4 SF |
| 13 | Delamination w/ Spall w/ exp. Reinf. - 8 SF |
| 14 | Spall w/ exp. Reinf. - 1 SF |
| 15 | Spall w/ exp. Reinf. - 1 SF |
| 16 | Spall w/ exp. Reinf. - 5 SF, 3" D |
| 17 | Delamination - 6 SF |



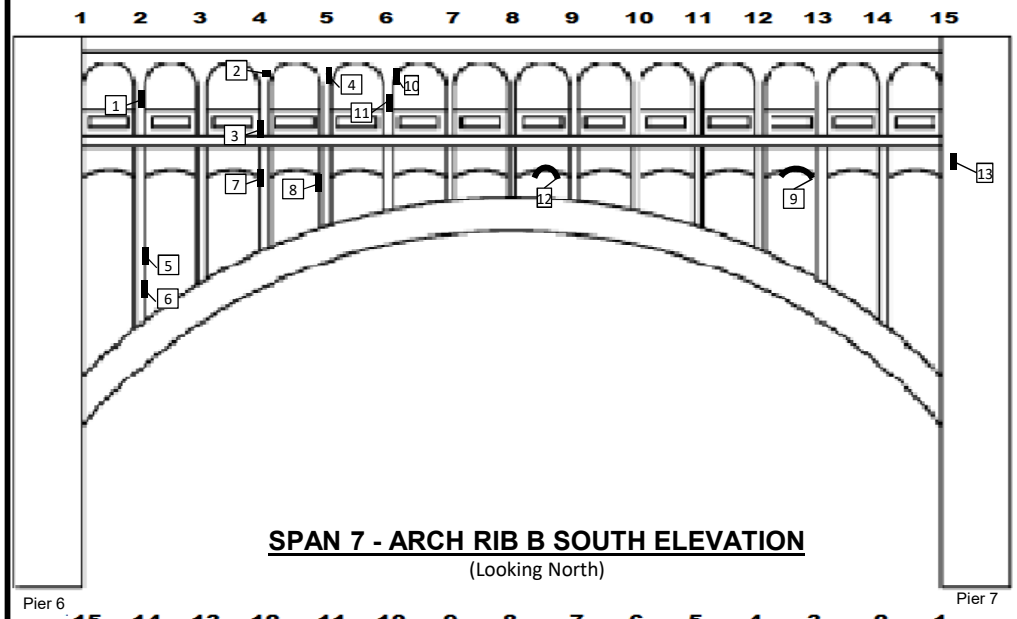

**SPAN 7 - ARCH RIB A SOUTH ELEVATION**
(Looking North)



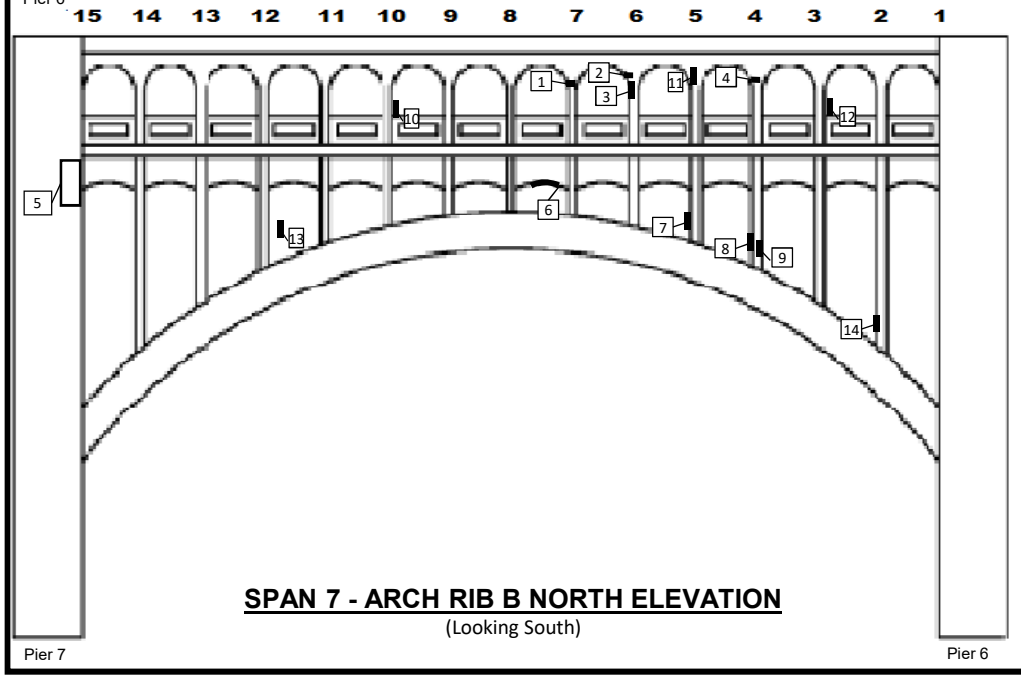

**SPAN 7 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 7 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall - 3 SF, 1" D |
| 2 | Delamination - 3 SF |
| 3 | Delamination - 40 SF (behind drain pipe) w/ 1/4" W crack on edge of delamination |
| 4 | Delamination - 4 SF |
| 5 | Delamination - 8 SF |
| 6 | Delamination - 5 SF |
| 7 | Delamination - 3 SF |
| 8 | Delamination - 8 SF |
| 9 | Spall w/ exp. Reinf - 6 SF |
| 10 | Delamination - 2 SF |
| 11 | Delamination - 1 SF |
| 12 | Spall w/ exp. Reinf. - 1 SF |
| 13 | Spall w/ exp. Reinf. - 1 SF |
| 14 | Spall w/ exp. Reinf. - 1 SF |
| 15 | Void - 6" x 6" x 6" |
| 16 | Delamination - 1 SF |
| 17 | Delamination - 1 SF |

| SPAN 7 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf - 2 SF |
| 2 | Spall w/ exp. Reinf - 1 SF |
| 3 | 20' L - 1/16" W crack |
| 4 | Spall w/ exp. Reinf - 1 SF |
| 5 | Delamination - 1 SF |
| 6 | Spall w/ exp. Reinf - 1 SF |
| 7 | Spall w/ exp. Reinf - 1 SF |
| 8 | Spall w/ exp. Reinf - 1 SF |
| 9 | Delamination - 4 SF |
| 10 | Delamination - 6 SF |
| 11 | Delamination - 6 SF |
| 12 | Delamination - 1 SF |



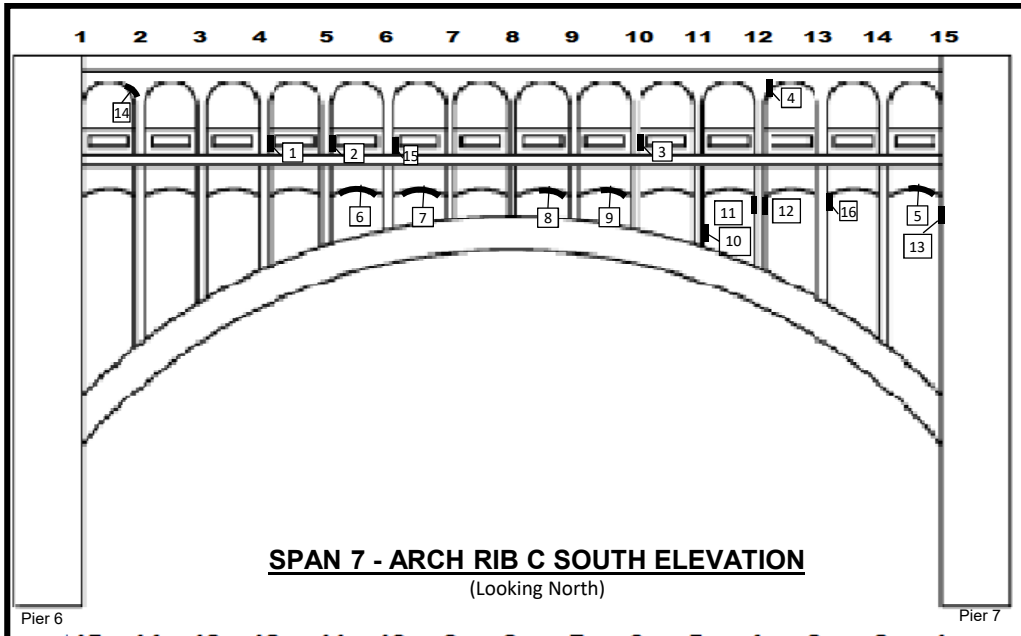

**SPAN 7 - ARCH RIB B SOUTH ELEVATION**
(Looking North)



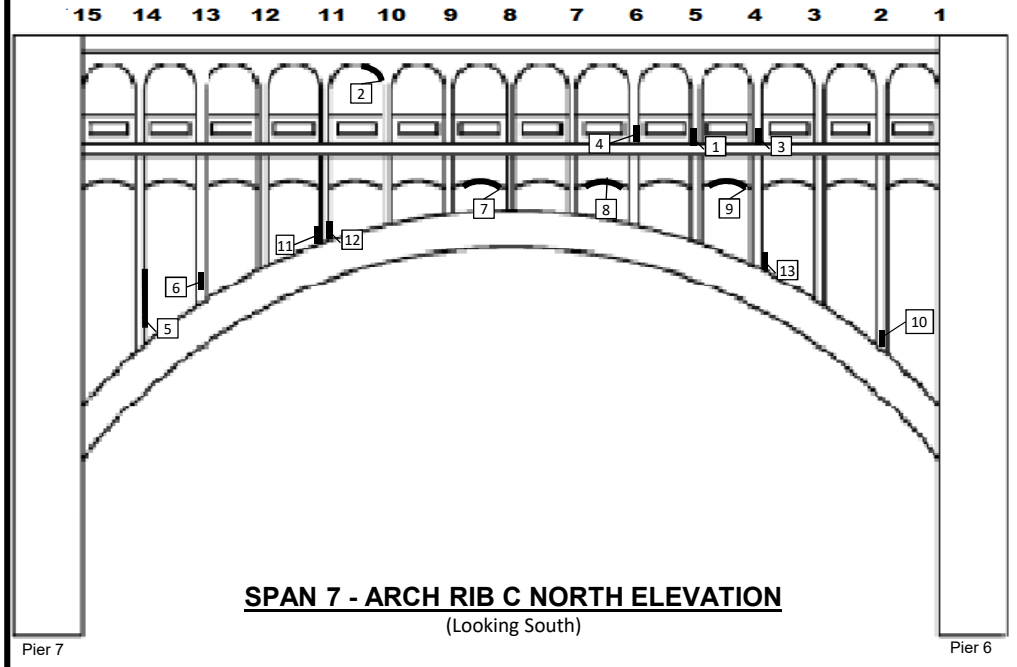

**SPAN 7 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 7 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf - 6 SF, 2" D |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 2 SF |
| 5 | Spall w/ exp. Reinf - 3 SF |
| 6 | Delamination - 1 SF |
| 7 | Spall w/ exp. Reinf - 4 SF |
| 8 | Spall w/ exp. Reinf - 2 SF |
| 9 | Spall w/ exp. Reinf - 1 SF |
| 10 | Delamination - 1 SF |
| 11 | Delamination - 1 SF |
| 12 | Delamination - 1 SF |
| 13 | Delamination - 2 SF |

| SPAN 7 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Full W x Full H x Full D - Delamination |
| 2 | Delamination - 4 SF |
| 3 | Delamination - 5 SF |
| 4 | Spall - 4 SF |
| 5 | Spall - 6 SF (inside face) |
| 6 | Spall w/ exp. Reinf - 3 SF |
| 7 | Spall w/ exp. Reinf - 3 SF |
| 8 | Delamination - 5 SF |
| 9 | Delamination - 4 SF |
| 10 | Delamination - 2 SF |
| 11 | Delamination - 2 SF |
| 12 | Spall w/ exp. Reinf - 6 SF |
| 13 | Spall w/ exp. Reinf - 1 SF |
| 14 | Spall w/ exp. Reinf - 2 SF |



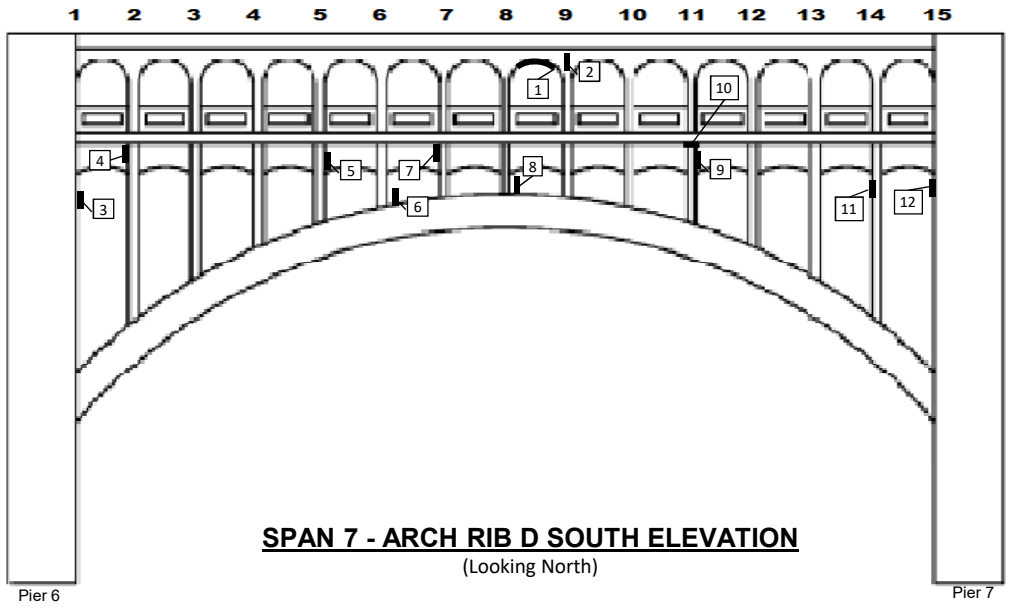

**SPAN 7 - ARCH RIB C SOUTH ELEVATION**
(Looking North)




**SPAN 7 - ARCH RIB C NORTH ELEVATION**
(Looking South)

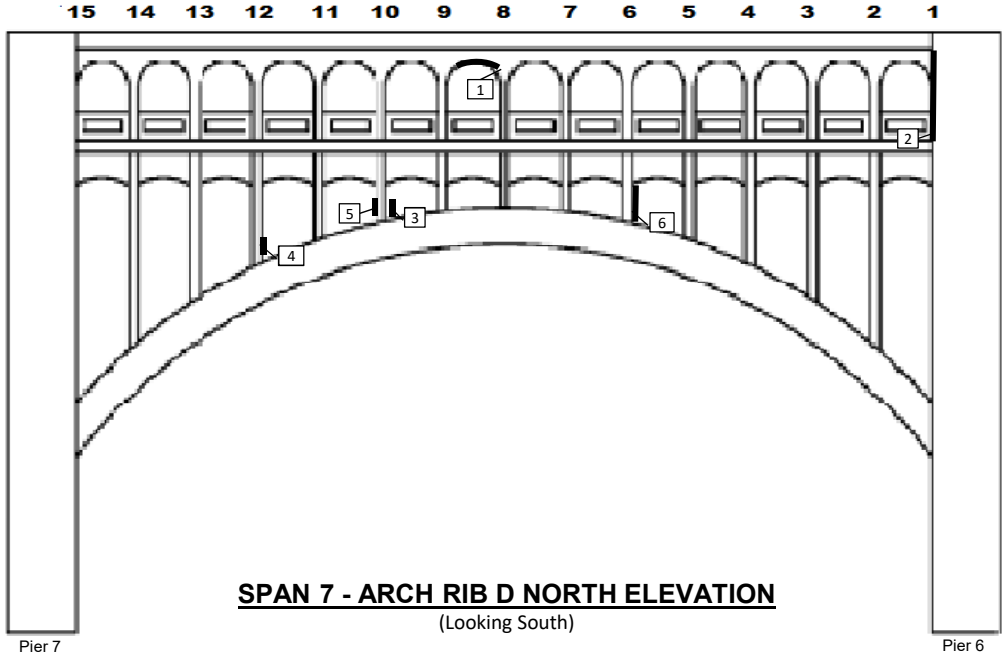
| SPAN 7 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination w/ Spall w/ exp. Reinf. - 5 SF, 3" D |
| 3 | Delamination - 2 SF |
| 4 | Spall w/ exp. Reinf - 2 SF, 2" D |
| 5 | Delamination - 6 SF |
| 6 | Delamination - 6 SF |
| 7 | Delamination - 4 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 4 SF |
| 10 | Delamination - 1 SF |
| 11 | Delamination - 4 SF |
| 12 | Spall w/ exp. Reinf. - 1 SF |
| 13 | Delamination - 6 SF |
| 14 | Delamination - 2 SF |
| 15 | Delamination - 2 SF |
| 16 | Delamination - 1 SF |

| SPAN 7 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Spall w/ exp. Reinf - 4 SF, 3" D |
| 3 | Delamination - 2 SF |
| 4 | Delamination w/ Spall w/ exp. Reinf - 2 SF, 1.5" D |
| 5 | Delamination - 20 SF |
| 6 | Delamination - 2 SF |
| 7 | Delamination - 10 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 3 SF |
| 10 | Delamination - 3 SF |
| 11 | Delamination - 1 SF |
| 12 | Delamination - 1 SF |
| 13 | Spall w/ exp. Reinf. - 1 SF |



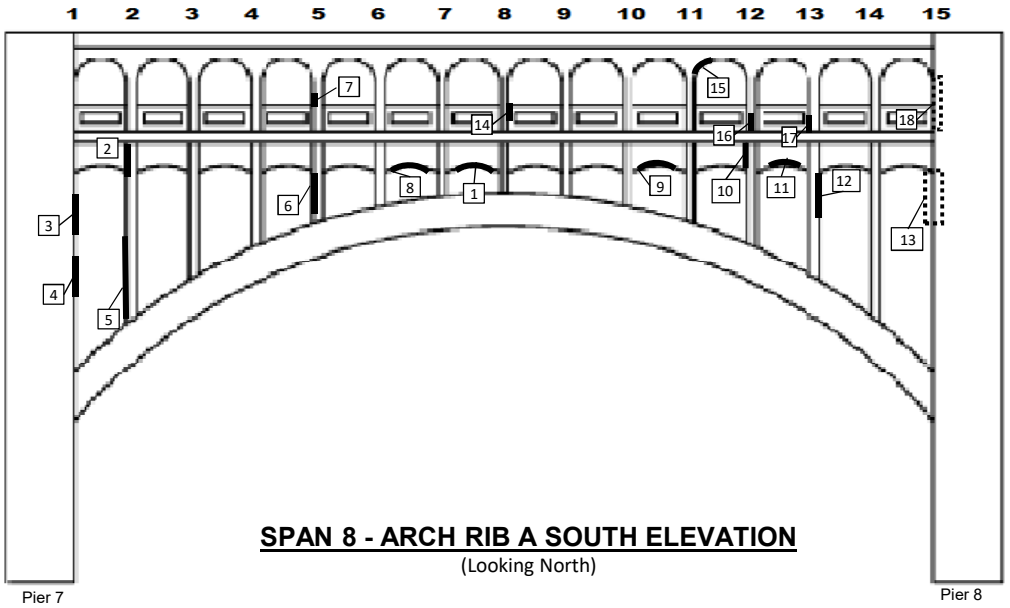

**SPAN 7 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 7 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 4 SF |
| 2 | Delamination - 5 SF |
| 3 | Delamination - 4 SF |
| 4 | Delamination w/ Spall w/ exp. Reinf. - 12 SF |
| 5 | Delamination - 3 SF |
| 6 | Delamination - 2 SF |
| 7 | Delamination - 3 SF |
| 8 | Spall w/ exp. Reinf - 1 SF |
| 9 | Delamination - 3 SF |
| 10 | Delamination - 6 SF |
| 11 | Delamination - 6 SF |
| 12 | Delamination - 4 SF |

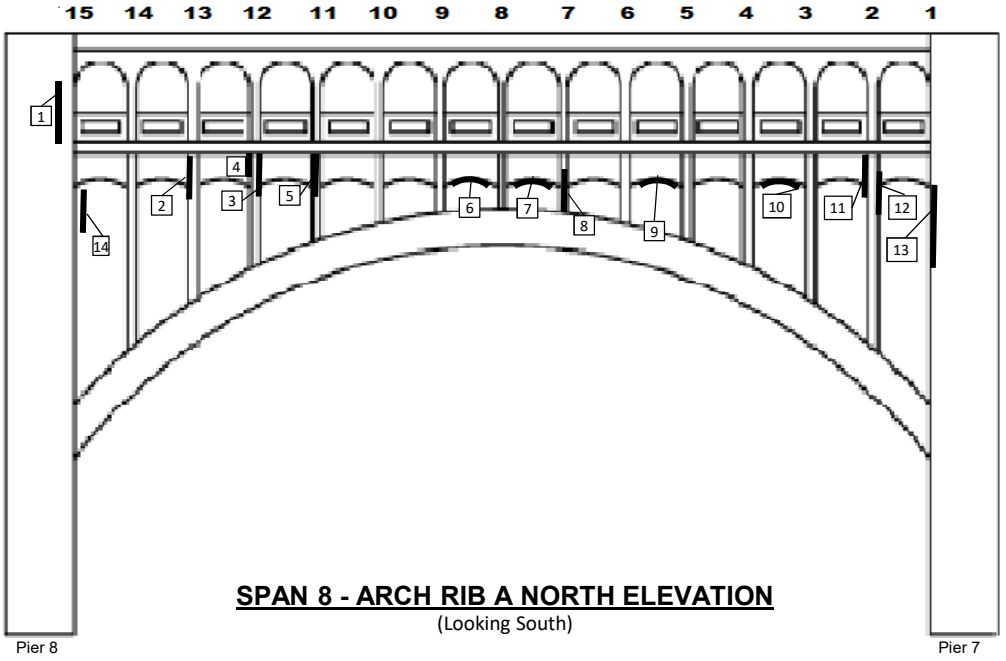



**SPAN 7 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 7 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 4 SF |
| 2 | 5' Tall x Full Depth x 1/8" W crack |
| 3 | Spall w/ exp/ Reinf. - 1 SF |
| 4 | Delamination - 1 SF |
| 5 | Spall w/ exp. Reinf. - 1 SF |
| 6 | Delamination - 6 SF |



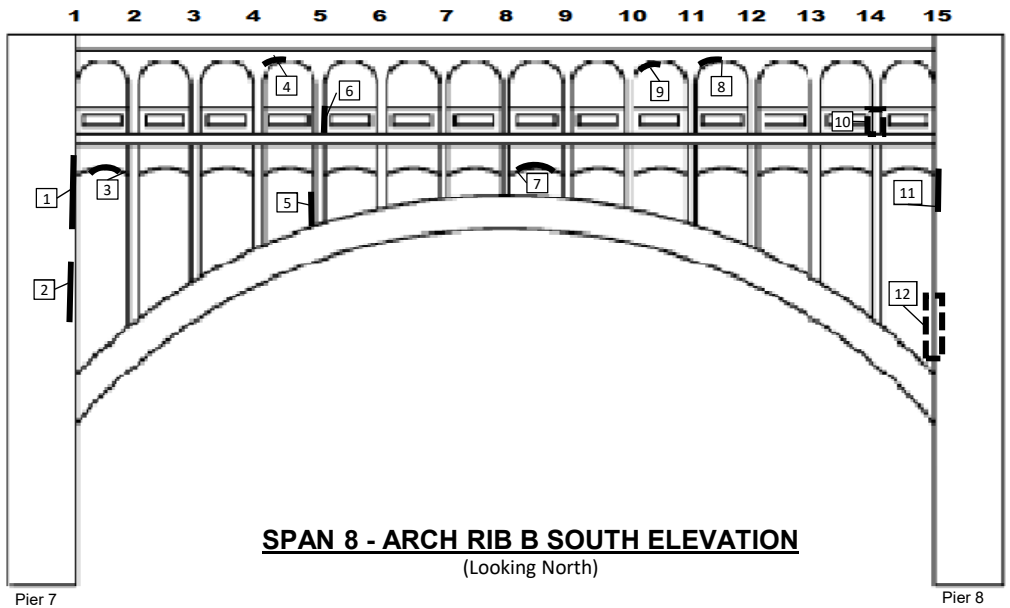

**SPAN 8 - ARCH RIB A SOUTH ELEVATION**
(Looking North)



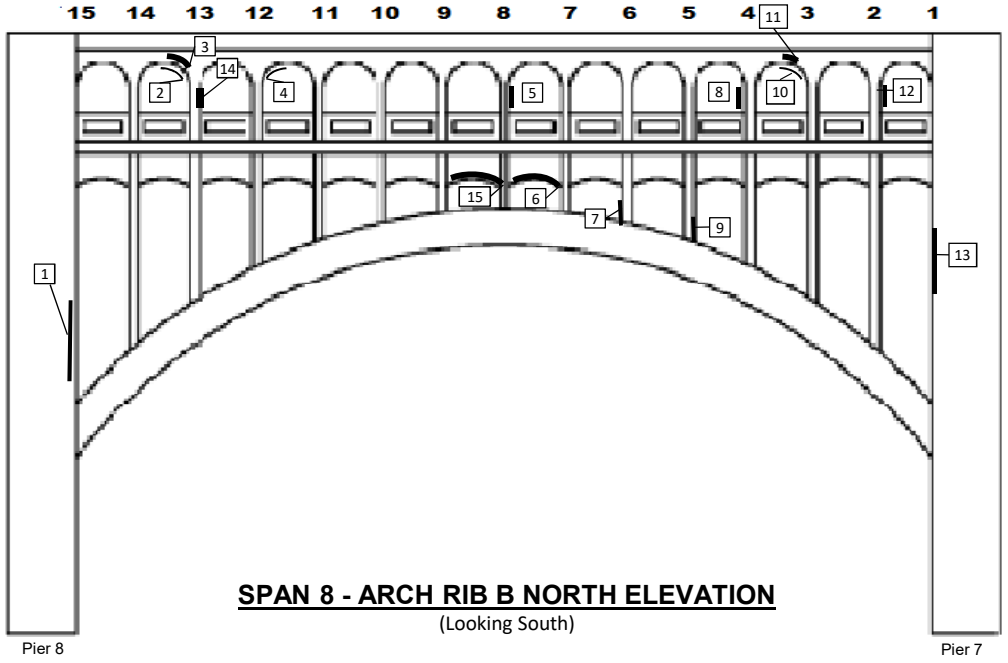

**SPAN 8 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 8 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination - 4 SF |
| 3 | Spall w/ exp. Reinf. - 4 SF |
| 4 | Delamination - 2 SF |
| 5 | Spall w/ exp. Reinf. - 20 SF |
| 6 | Delamination - 1 SF |
| 7 | Spall - 1 SF, 2.5" D |
| 8 | Delamination - 1 SF |
| 9 | Delamination - 2 SF |
| 10 | Delamination - 9 SF |
| 11 | Map Cracking - 1 SF |
| 12 | Delamination - 22 SF |
| 13 | Delamination - 35 SF |
| 14 | Delamination - 1 SF |
| 15 | Delamination - 1 SF |
| 16 | Delamination - 2 SF |
| 17 | Delamination - 1 SF |
| 18 | Delamination - 10 SF (behind drain pipe) w/ 1/8" W crack on edge of delamination |

| SPAN 8 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spalling w/ exp. Reinf. - 6 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 6 SF |
| 4 | Spalling w/ exp. Reinf. - 1 SF |
| 5 | Delamination - 8 SF |
| 6 | Delamination - 4 SF |
| 7 | Delamination - 6 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 3 SF |
| 10 | Delamination - 4 SF |
| 11 | Delamination - 6 SF |
| 12 | Delamination - 6 SF |
| 13 | Delamination w/ Spall w/ exp. Reinf. - 8 SF |
| 14 | Spall w/ exp. Reinf. - 1 SF |



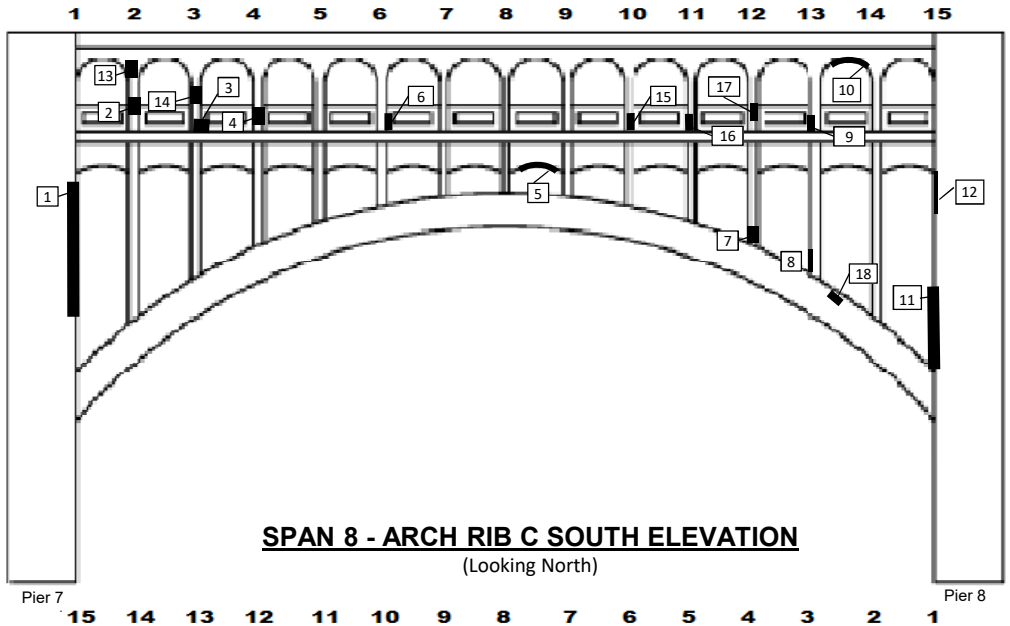

**SPAN 8 - ARCH RIB B SOUTH ELEVATION**
(Looking North)



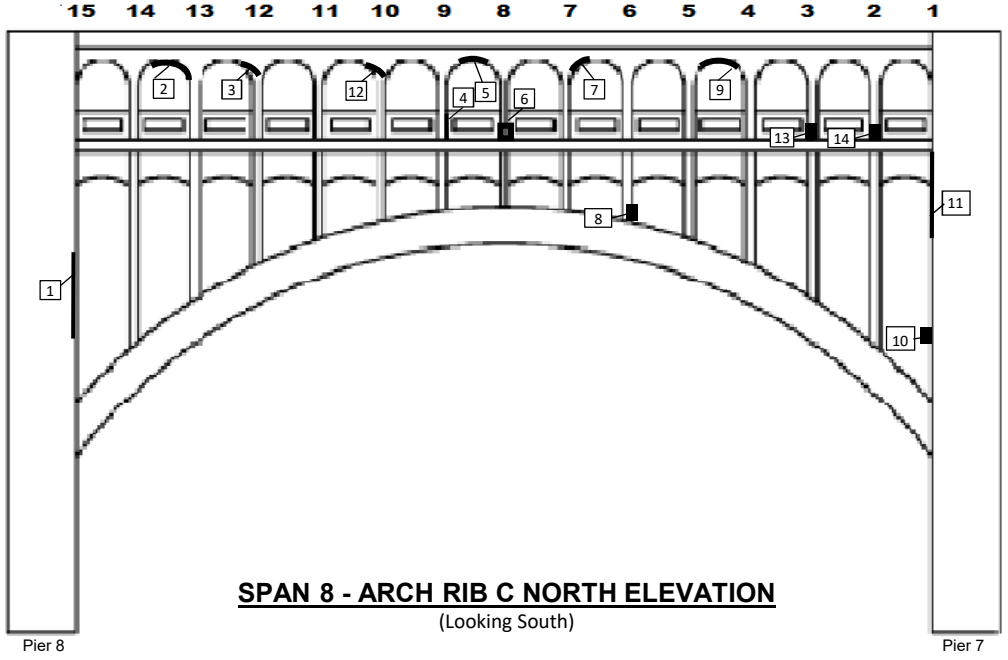

**SPAN 8 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 8 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 9 SF |
| 2 | Delamination - 8 SF |
| 3 | Delamination - 4 SF |
| 4 | Spall w/ exp. Reinf. - 1 SF, 3" D |
| 5 | Spall w/ exp. Reinf. - 2 SF |
| 6 | Delamination - 2 SF |
| 7 | Spall w/ exp. Reinf. - 4 SF |
| 8 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 9 | Spall w/ exp. Reinf. - 1 SF |
| 10 | Delamination - 6 SF |
| 11 | Delamination - 10 SF |
| 12 | Spall w/ exp. Reinf - 15 SF |

| SPAN 8 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 12 SF |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 2 SF |
| 4 | Spall w/ exp. Reinf - 1 SF, 5" D |
| 5 | Delamination - 3 SF |
| 6 | Delamination - 4 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 5 SF |
| 9 | Delamination - 1 SF |
| 10 | Delamination - 1 SF |
| 11 | Spall w/ exp. Reinf - 1 SF |
| 12 | Spall w/ exp. Reinf - 5 SF |
| 13 | Delamination - 10 SF |
| 14 | Delamination w/ Spall w/ exp. Reinf. - 4 SF |
| 15 | Delamination - 6 SF |



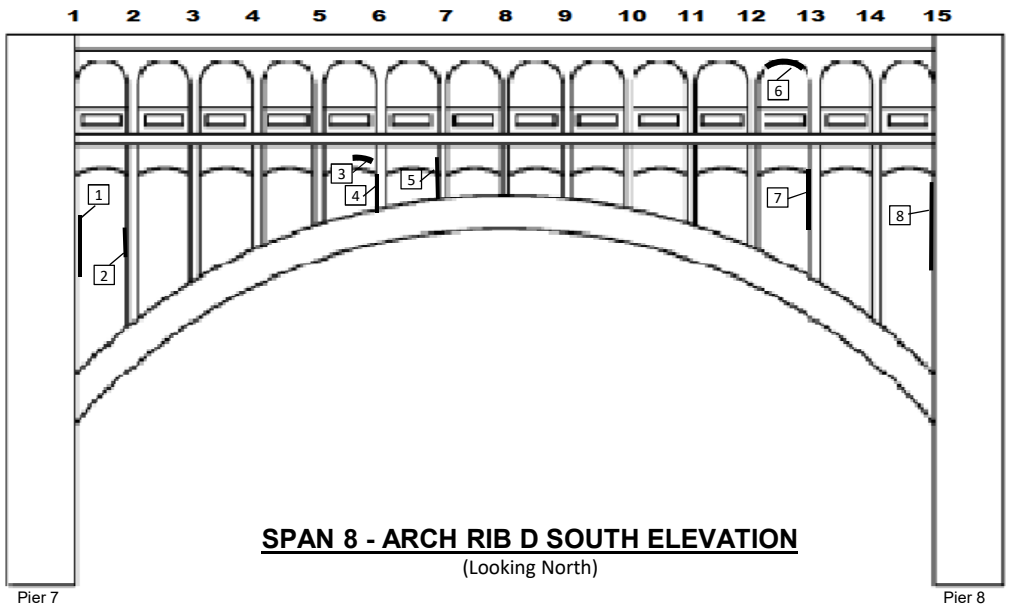

**SPAN 8 - ARCH RIB C SOUTH ELEVATION**
(Looking North)




**SPAN 8 - ARCH RIB C NORTH ELEVATION**
(Looking South)

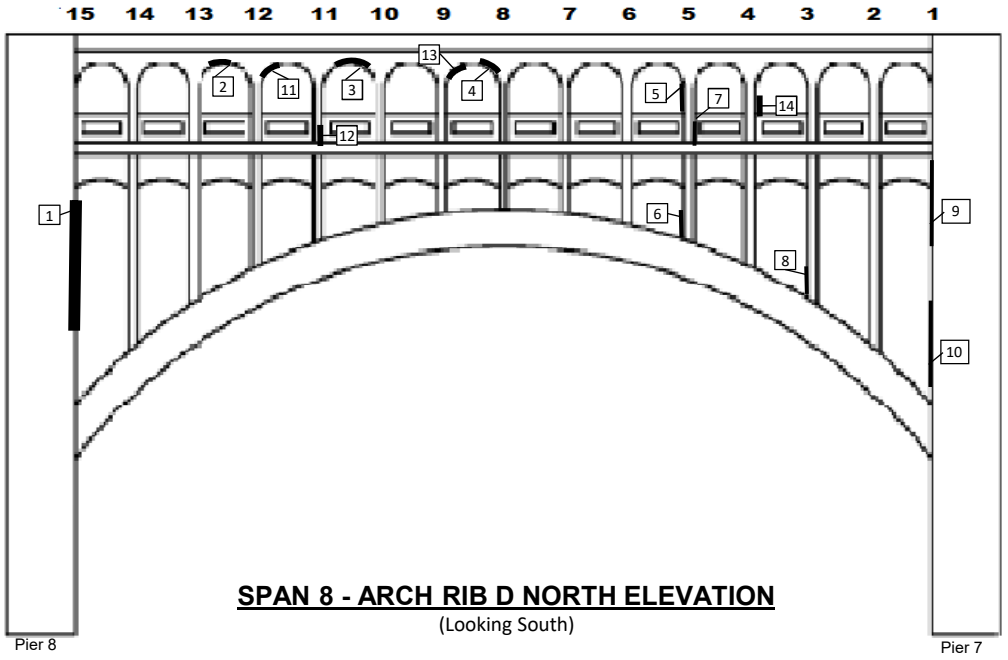
| SPAN 8 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf - 175 SF |
| 2 | Spall w/ exp. Reinf - 1 SF, 2" D |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 3 SF |
| 5 | Delamination - 6 SF |
| 6 | Delamination w/ Spall w/ exp. Reinf. - 5 SF |
| 7 | Spall w/ exp. Reinf - 1 SF, 2" D |
| 8 | Delamination - 2 SF |
| 9 | Core sample location |
| 10 | Spall w/ exp. Reinf - 3 SF, 2" D |
| 11 | Delamination - 40 SF |
| 12 | Delamination - 12 SF |
| 13 | Delamination - 1 SF |
| 14 | Spall w/ exp. Reinf. - 1 SF |
| 15 | Delamination - 2 SF |
| 16 | Delamination - 2 SF |
| 17 | Spall w/ exp. Reinf. - 1 SF |
| 18 | Spall - 1 SF |

| SPAN 8 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 15 SF |
| 2 | Spall w/ exp. Reinf. - 4 SF, 0.5" D |
| 3 | Spall w/ exp. Reinf. - 1 SF, 4" D |
| 4 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 5 | Spall w/ exp. Reinf. - 1 SF, 1.5" D |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 2 SF |
| 8 | Spall w/ exp. Reinf. - 1 SF |
| 9 | Delamination - 2 SF |
| 10 | Delamination - 4 SF |
| 11 | Spall w/ exp. Reinf - 20 SF |
| 12 | Delamination - 1 SF |
| 13 | Delamination - 1 SF |
| 14 | Delamination - 5 SF |



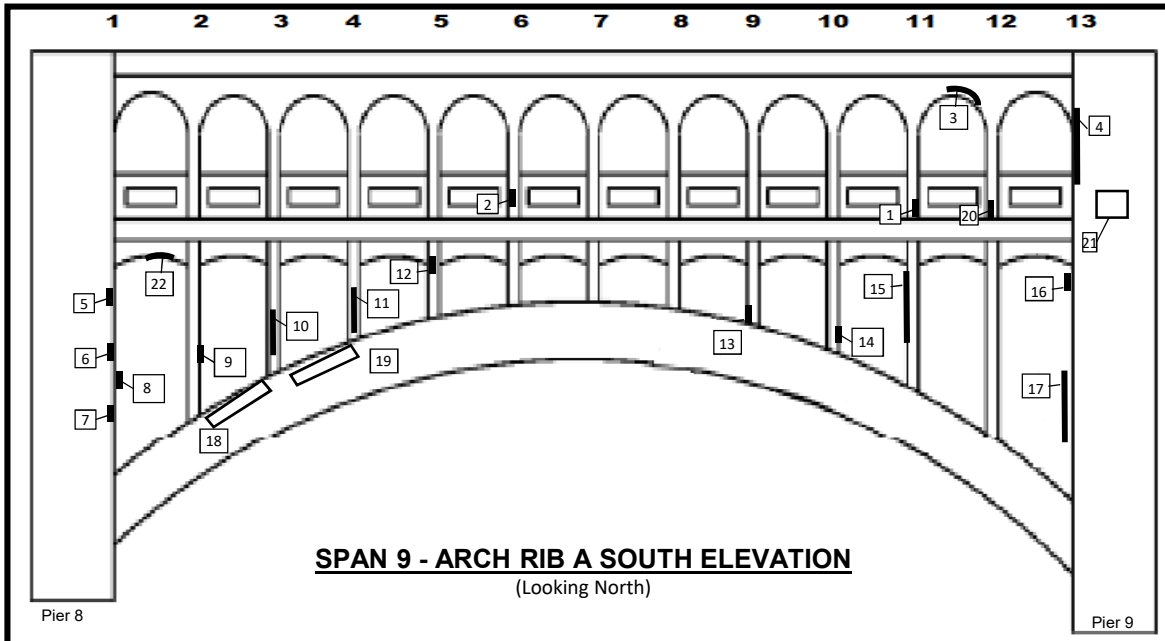

**SPAN 8 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 8 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 12 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF |
| 3 | Spall w/ exp. Reinf. - 4 SF |
| 4 | Delamination - 12 SF |
| 5 | Delamination - 12 SF |
| 6 | Delamination - 6 SF |
| 7 | Delamination w/ Spall w/ exp. Reinf - 20 SF |
| 8 | Delamination w/ some Spalling - 23 SF |



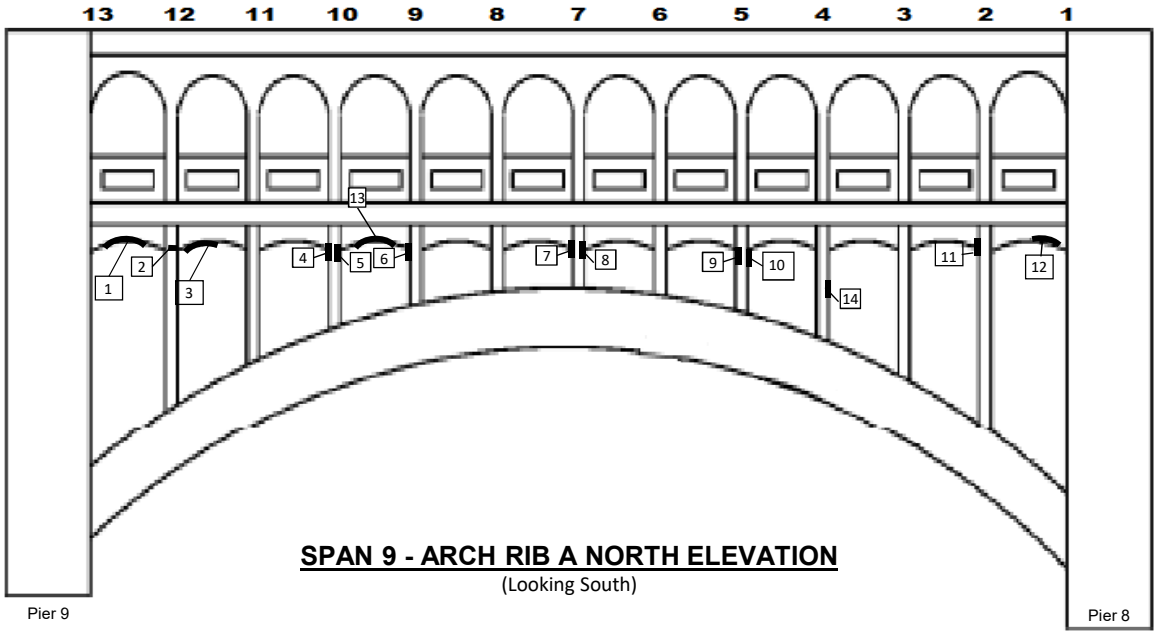

**SPAN 8 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 8 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 60 SF |
| 2 | Delamination - 3 SF |
| 3 | Delamination - 4 SF |
| 4 | Delamination - 4 SF |
| 5 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 3 SF |
| 8 | Delamination - 1 SF |
| 9 | Delamination - 12 SF |
| 10 | Delamination - 4 SF |
| 11 | Spall - 1 SF |
| 12 | Delamination - 4 SF |
| 13 | Delamination - 1 SF |
| 14 | Delamination - 2 SF |



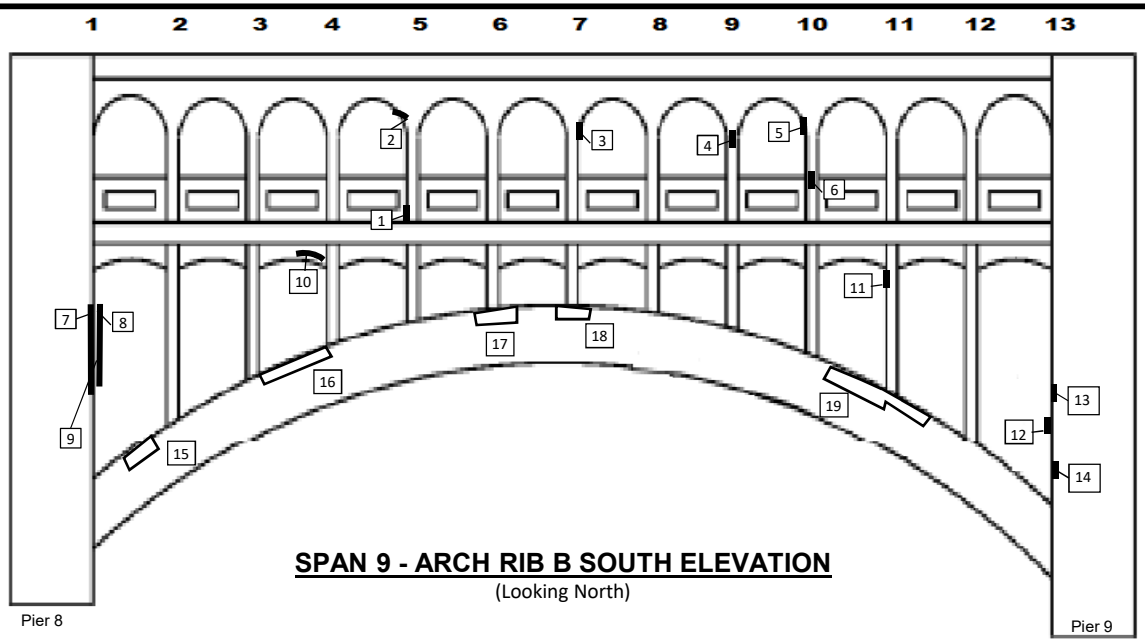

**SPAN 9 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

| SPAN 9 - RIB A SOUTH ELEVATION DEFICIENCIES | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Delamination - 1 SF | 10 | Delamination - 43 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF, 1" D | 11 | Delamination - 9 SF |
| | | 12 | Delamination - 8 SF |
| 3 | Delamination - 8 SF | 13 | Delamination - 1 SF |
| 4 | Delamination - 12 SF (behind drain pipe) w/ up to 1/4" W crack on edge of delamination | 14 | Delamination - 2 SF |
| | | 15 | Delamination - 10 SF |
| | | 16 | Delamination - 4 SF |
| | | 17 | Delamination - 30 SF |
| 5 | Delamination - 14 SF | 18 | Delamination - 16 SF |
| 6 | Delamination - 5 SF | 19 | Delaminaiton - 18 SF |
| 7 | Delamination - 10 SF | 20 | Delamination - 4 SF |
| 8 | Delamination - 5 SF | 21 | Delamination - 4 SF |
| 9 | Delam. w/ Spall - 4 SF | 22 | Delamination - 4 SF |



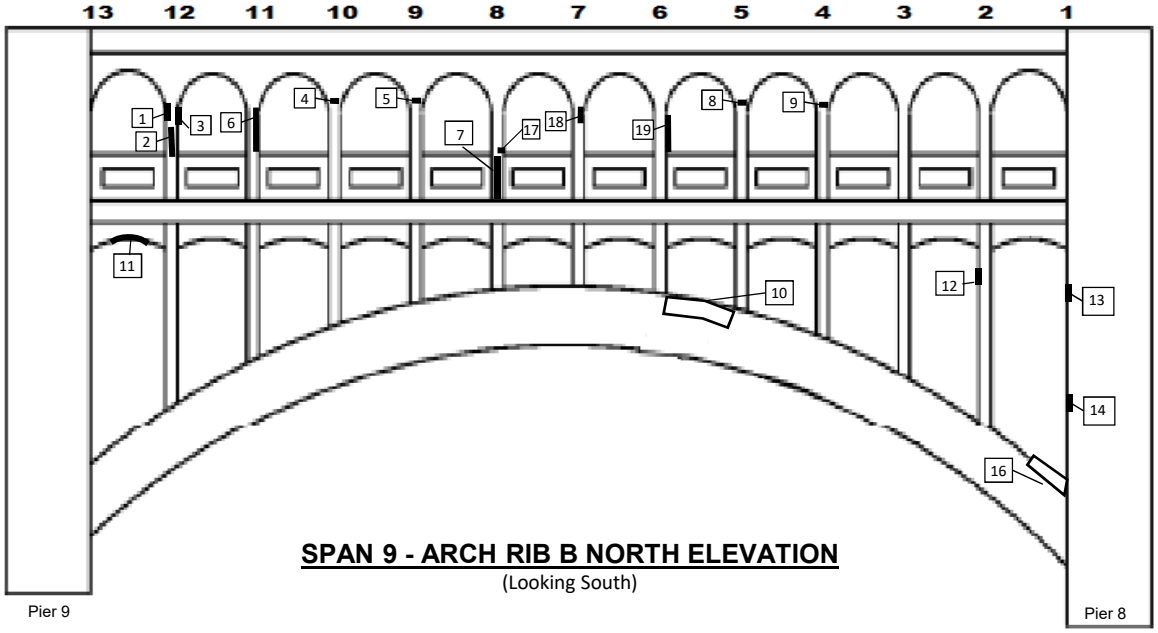

**SPAN 9 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 9 - RIB A NORTH ELEVATION DEFICIENCIES | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Delam. w/ Spall w/ exp. Reinf. - 4 SF | 10 | Delamination - 2 SF |
| | | 11 | Delamination - 4 SF |
| 2 | Delam. w/ Spall w/ exp. Reinf - 4 SF | 12 | Delam. w/ Spall w/ exp. Reinf. - 5 SF |
| 3 | Delamination - 2 SF | 13 | Delamination - 1 SF |
| 4 | Delam. w/ Spall w/ exp. Reinf. - 2 SF | 14 | Delamination - 1 SF |
| 5 | Delamination - 1 SF | | |
| 6 | Spall - 2 SF | | |
| 7 | Spall w/ exp. Reinf. - 3 SF | | |
| 8 | Delamination - 2 SF | | |
| 9 | Delamination - 3 SF | | |



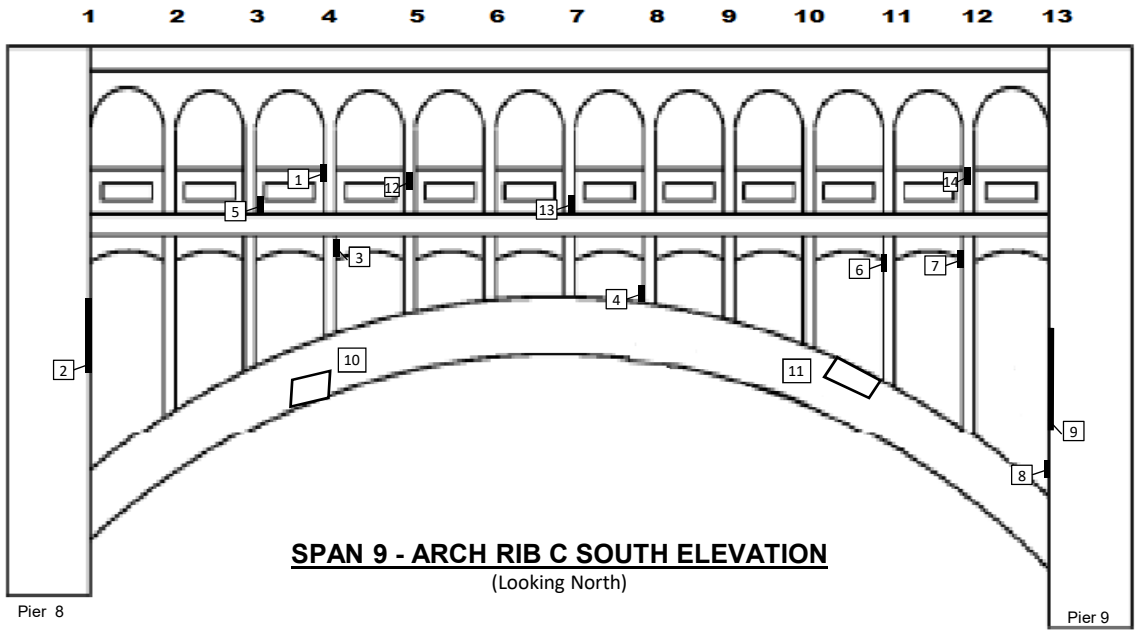

**SPAN 9 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 9 - RIB B SOUTH ELEV. | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Spall w/ exp. Reinf - 1 SF, 1" D | 9 | Delamination - 30 SF (south face of column) |
| 2 | Spall w/ exp. Reinf - 2 SF, 4" D | 10 | Spall w/ exp. Reinf. - 3 SF |
| 3 | Delam. w/ Spall - 2 SF | 11 | Delamination - 3 SF |
| 4 | Delam w/ Spall - 6 SF w/ 1/4" crack | 12 | Spall w/ exp. Reinf - 4 SF |
| 5 | Delamination - 2 SF | 13 | Delamination - 12 SF |
| 6 | Delamination - 2 SF | 14 | Delamination - 10 SF |
| 7 | Delamination - 40 SF (west face of column) | 15 | Delamination - 2 SF |
| | | 16 | Delamination - 5 SF |
| 8 | Delamination - 28 SF (east face of column) | 17 | Delamination - 3 SF |
| | | 18 | Delamination - 4 SF |
| | | 19 | Delamination - 9 SF |



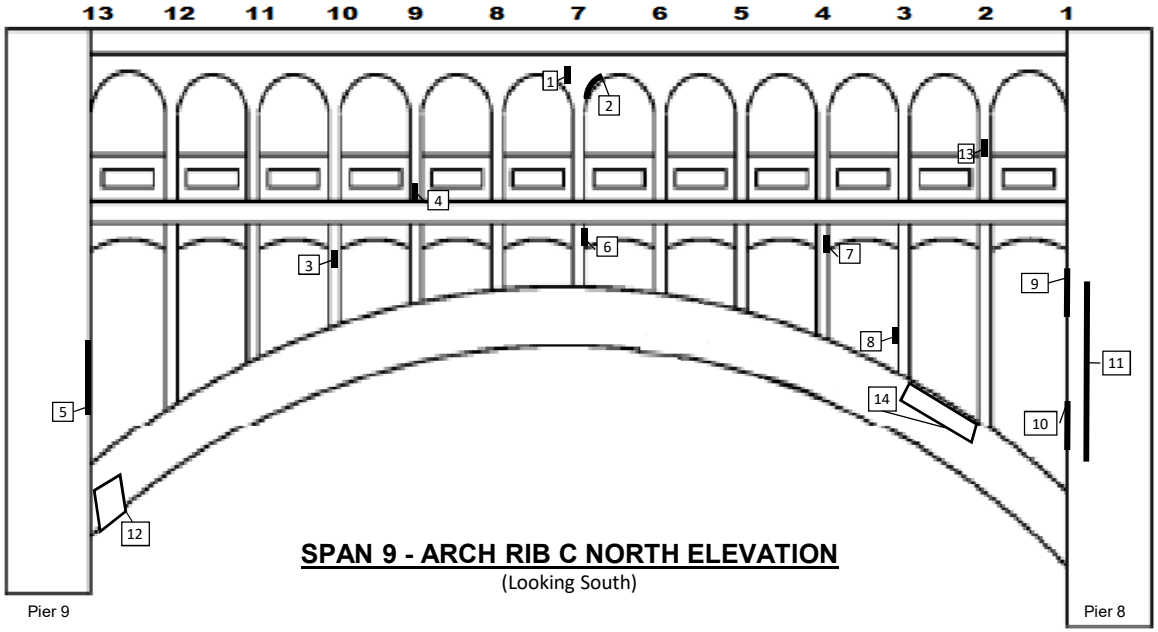

**SPAN 9 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 9 - RIB B SOUTH ELEV. | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Spall w/ exp. Reinf. - 3 SF | 13 | Delamination - 6 SF |
| | | 14 | Delamination - 12 SF |
| 2 | Delamination - 9 SF | 15 | Delamination - 2 SF |
| 3 | Delamination - 5 SF | 16 | Delamination - 2 SF |
| 4 | Delamination - 4 SF | 17 | Spall w/ exp. Reinf. - 2 SF |
| 5 | Delamination - 3 SF | | |
| 6 | Delamination - 8 SF | 18 | Spall w/ exp. Reinf. - 2 SF |
| 7 | Delamination - 8 SF | | |
| 8 | Delamination - 4 SF | 19 | Delamination - 4 SF |
| 9 | Delamination - 3 SF | | |
| 10 | Delamination - 8 SF | | |
| 11 | Delamination - 4 SF | | |
| 12 | Delamination - 5 SF | | |



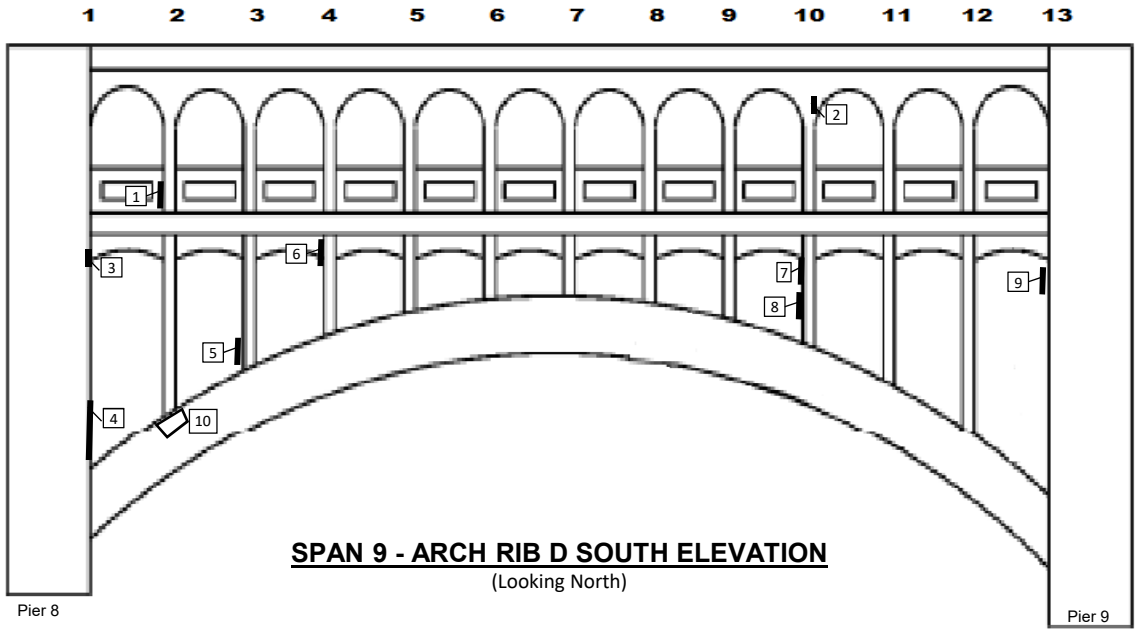

**SPAN 9 - ARCH RIB C SOUTH ELEVATION**
(Looking North)

| SPAN 9 - RIB C SOUTH ELEV. | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Delamination - 24 SF |
| 3 | Spall w/ exp. Reinf. - 2 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination - 1 SF |
| 6 | Delamination w/ spalling - 3 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 4 SF |
| 9 | Delamination - 20 SF |
| 10 | Delamination - 3 SF |
| 11 | Delamination - 3 SF |
| 12 | Delamination - 1 SF |
| 13 | Delamination - 3 SF |
| 14 | Delamination - 2 SF |



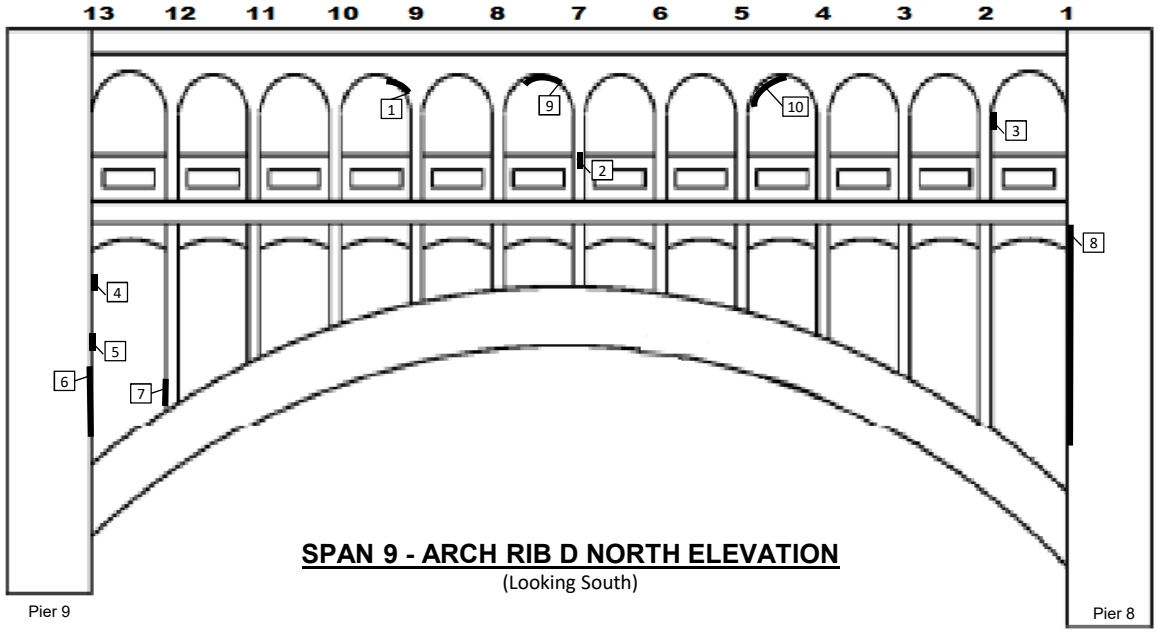

**SPAN 9 - ARCH RIB C NORTH ELEVATION**
(Looking South)

| SPAN 9 - RIB C NORTH ELEV. | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 2 | Spall w/ exp. Reinf. - 1 SF, 2" D |
| 3 | Spall w/ exp. Reinf. - 1 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination - 1 SF |
| 6 | Delamination - 4 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 2 SF |
| 9 | Delamination - 12 SF (East face Col. 1) |
| 10 | Spall w/ exp. Reinf - 4 SF (East face Col. 1) |
| 11 | Delamination - 40 SF (West face Col. 1) |
| 12 | Map cracking - 6 SF |
| 13 | Delamination - 2 SF |
| 14 | Delamination - 15 SF |



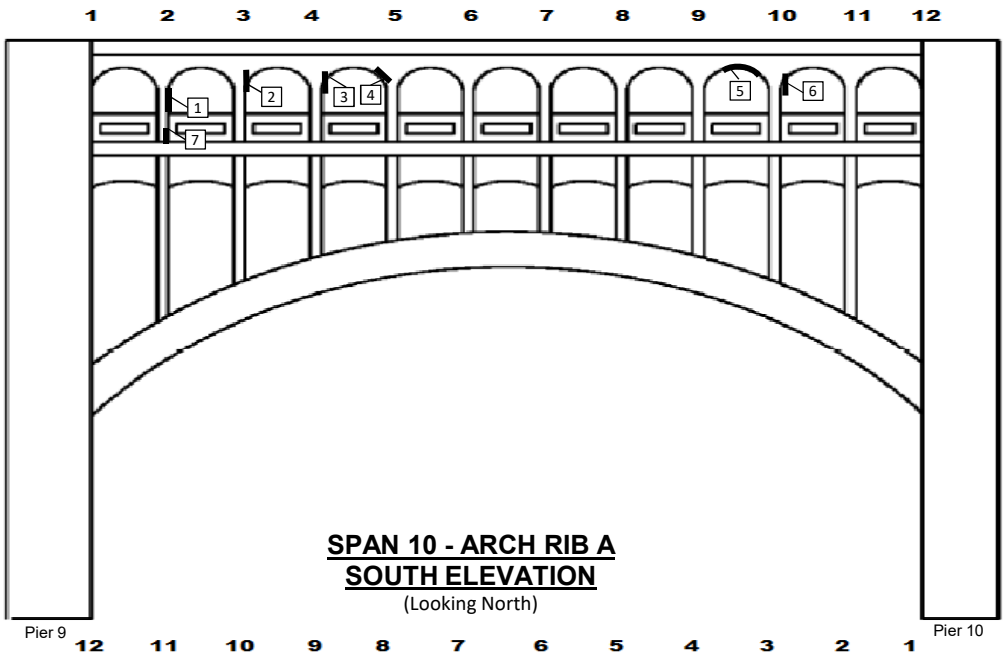

**SPAN 9 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 9 - ARCH RIB D SOUTH ELEVATION | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Spall w/ exp. Reinf - 1 SF |
| 3 | Delamination - 4 SF |
| 4 | Spall w/ exp. Reinf - 28 SF |
| 5 | Delamination - 1 SF |
| 6 | Delamination - 5 SF |
| 7 | Spall w/ exp. Reinf - 1 SF |
| 8 | Delamination - 1 SF |
| 9 | Delamination - 6 SF |
| 10 | Delamination - 3 SF |



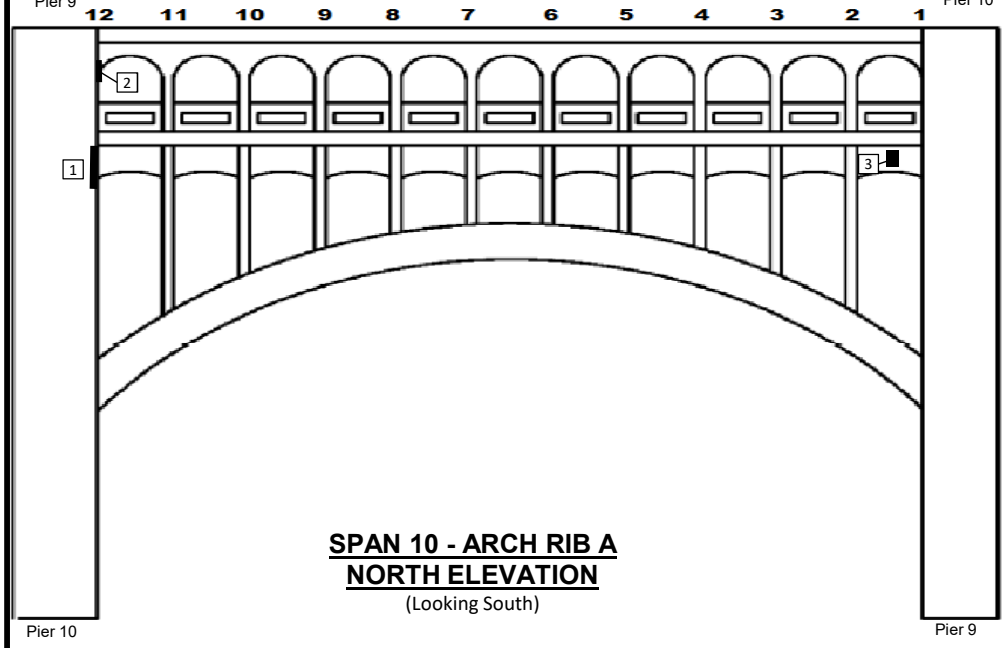

**SPAN 9 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 9 - RIB D NORTH ELEVATION | |
|---|---|
| # | Defect |
| 1 | Delamination - 4 SF |
| 2 | Delamination - 4 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 6 SF |
| 6 | Spall w/ exp. Reinf. - 20 SF |
| 7 | Delamination - 2 SF |
| 8 | Delamination - 50 SF |
| 9 | Delamination - 1 SF |
| 10 | 1/16" W through-crack |



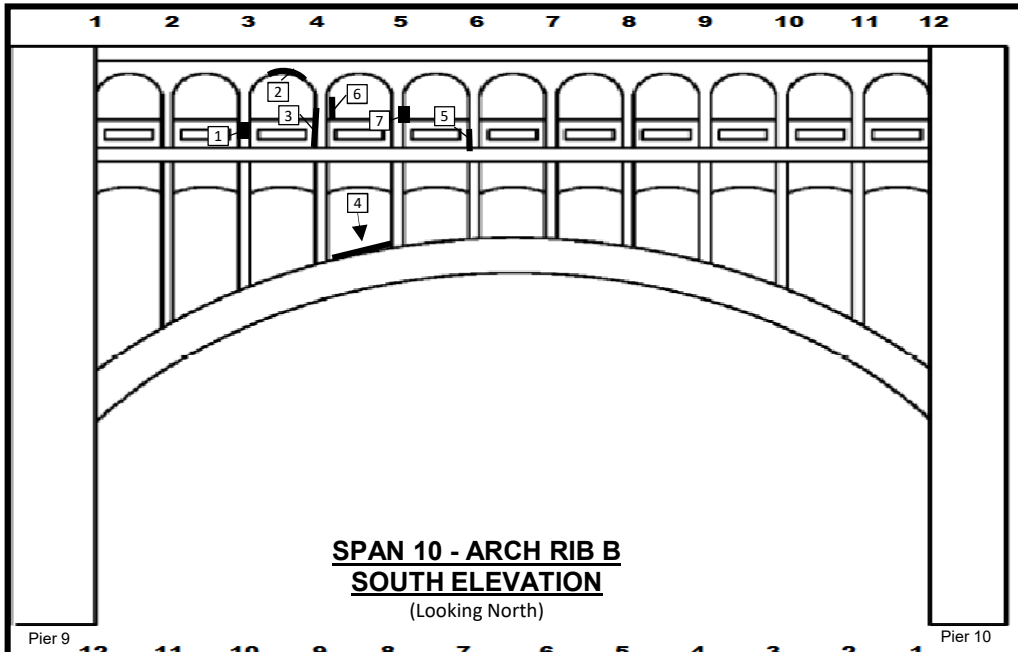

**SPAN 10 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

| SPAN 10 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF (Behind Utility Conduit) |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 5 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination - 2 SF |
| 6 | Delamination - 3 SF |
| 7 | Delamination - 2 SF |



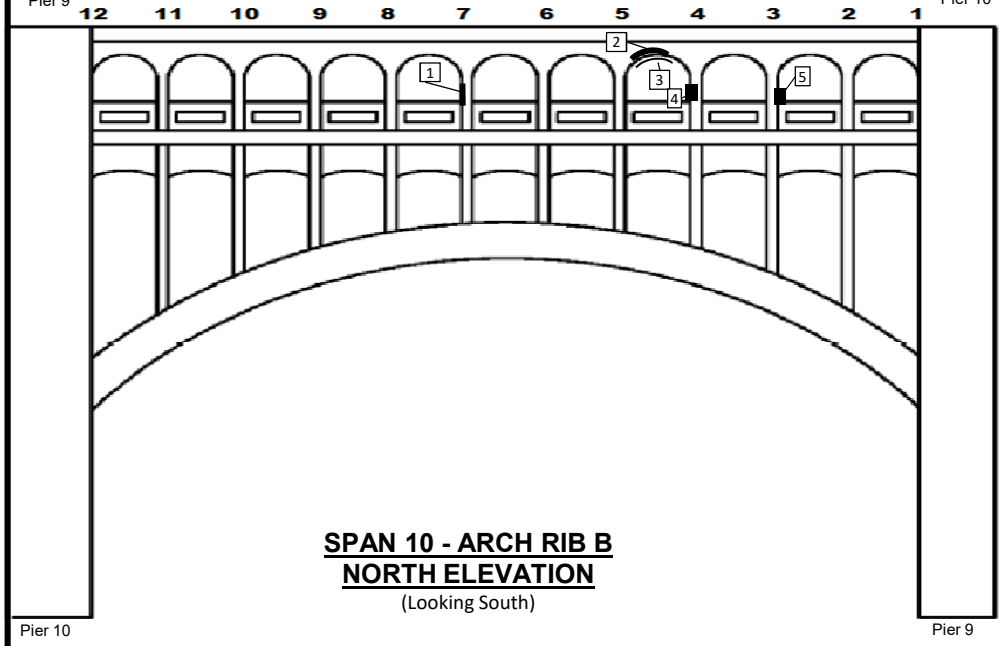

**SPAN 10 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 10 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 4 SF |
| 2 | Delamination - 3 SF |
| 3 | Delamination - 1 SF |



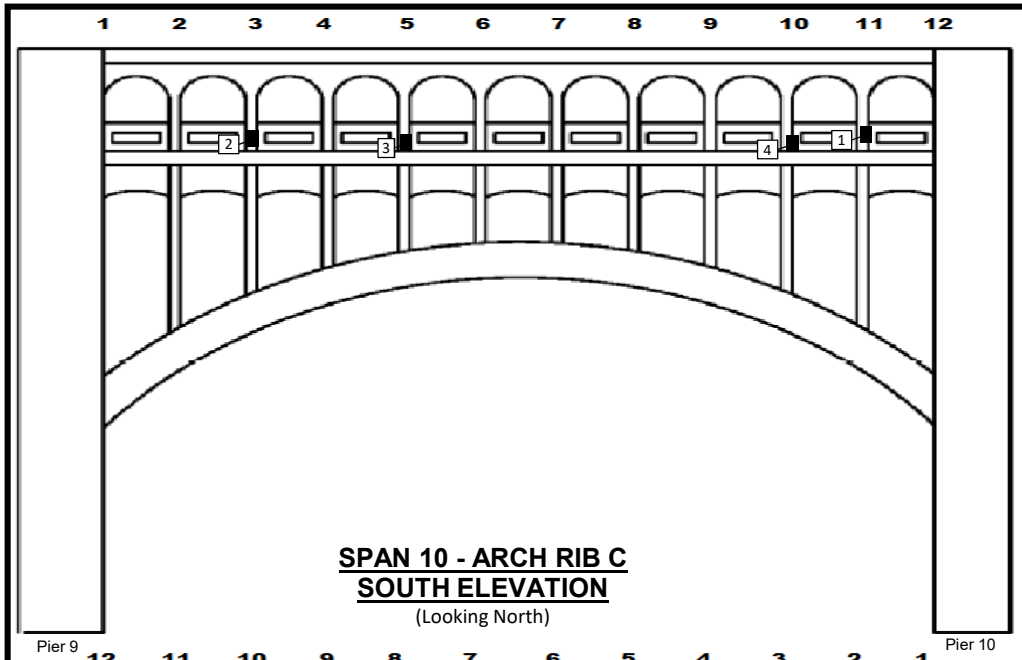

**SPAN 10 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 10 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 2 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 1 SF |



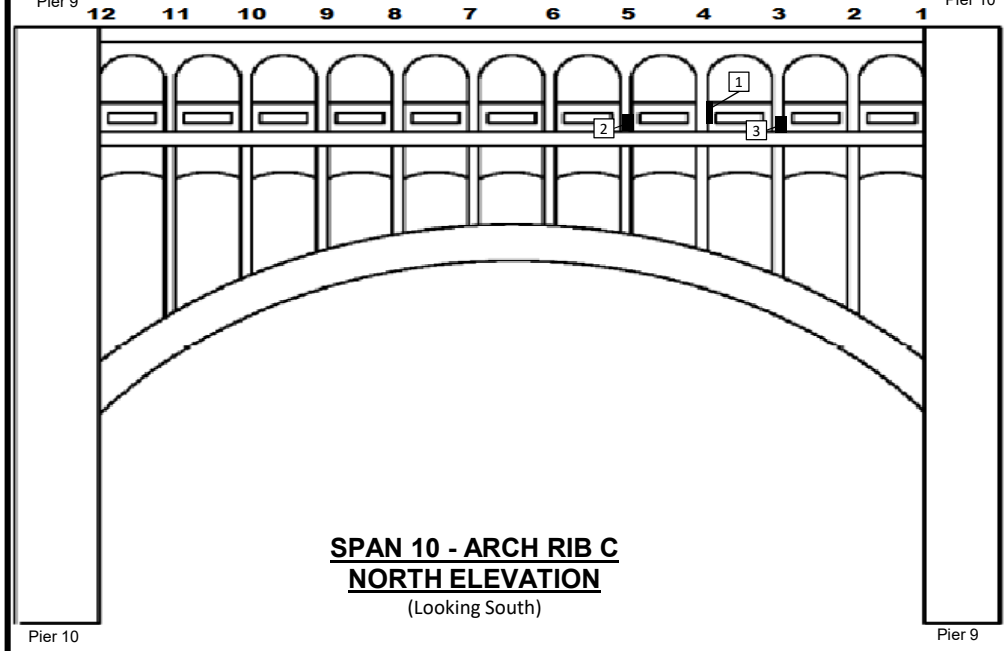

**SPAN 10 - ARCH RIB B NORTH ELEVATION**
(Looking South)

| SPAN 10 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Delamination - 6 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 2 SF |
| 5 | Delamination - 3 SF |



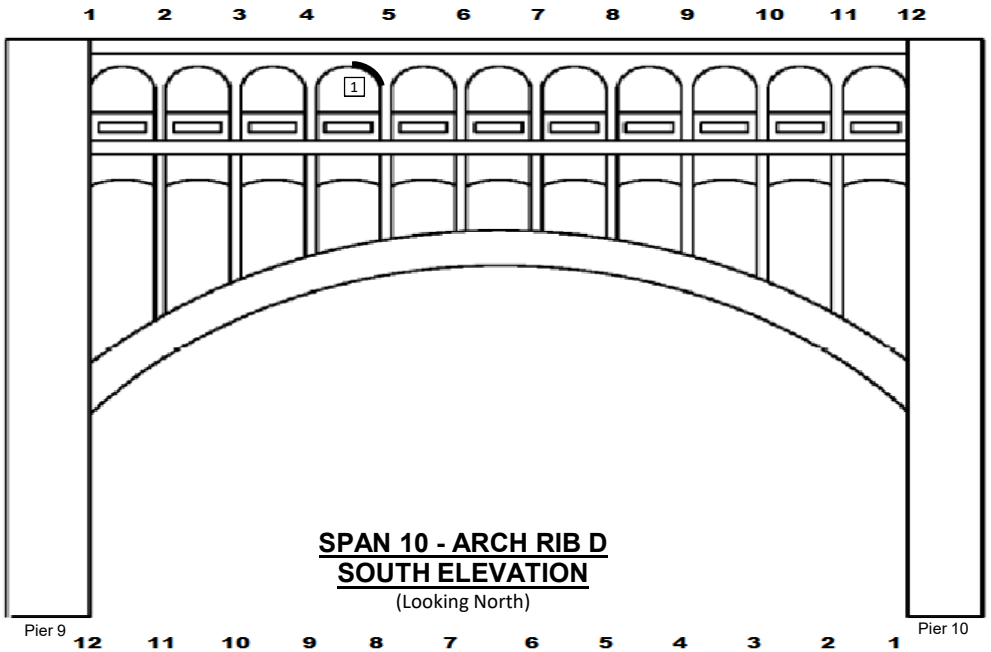

**SPAN 10 - ARCH RIB C SOUTH ELEVATION**
(Looking North)

| SPAN 10 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Delamination w/ Spall w/ exp. Reinf. - 6 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 2 SF |



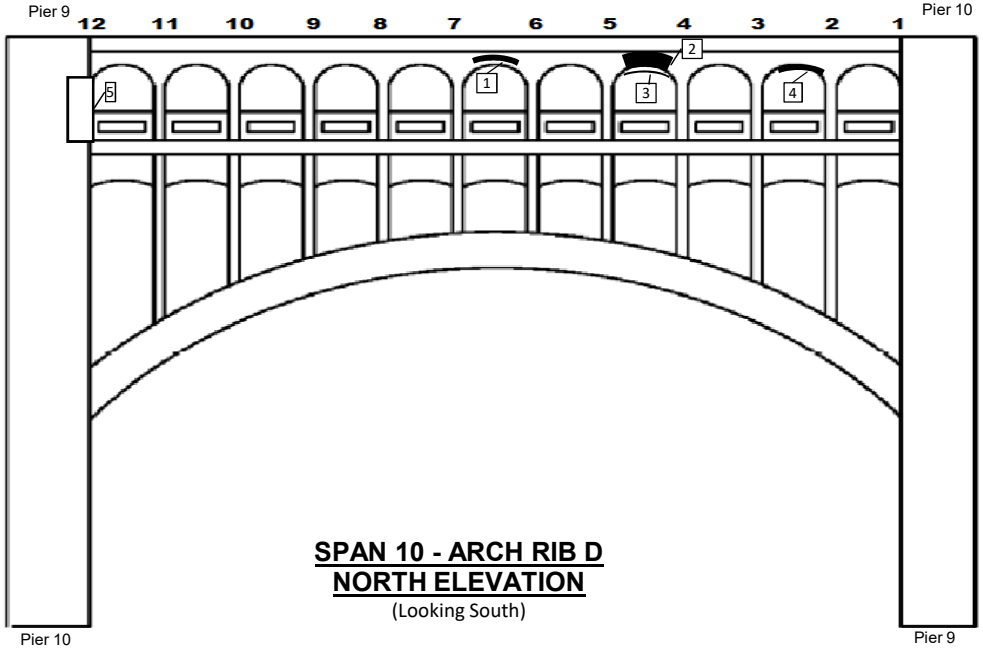

**SPAN 10 - ARCH RIB C NORTH ELEVATION**
(Looking South)

| SPAN 10 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Spall w/ exp. Reinf. - 3 SF |
| 3 | Delamination - 2 SF |



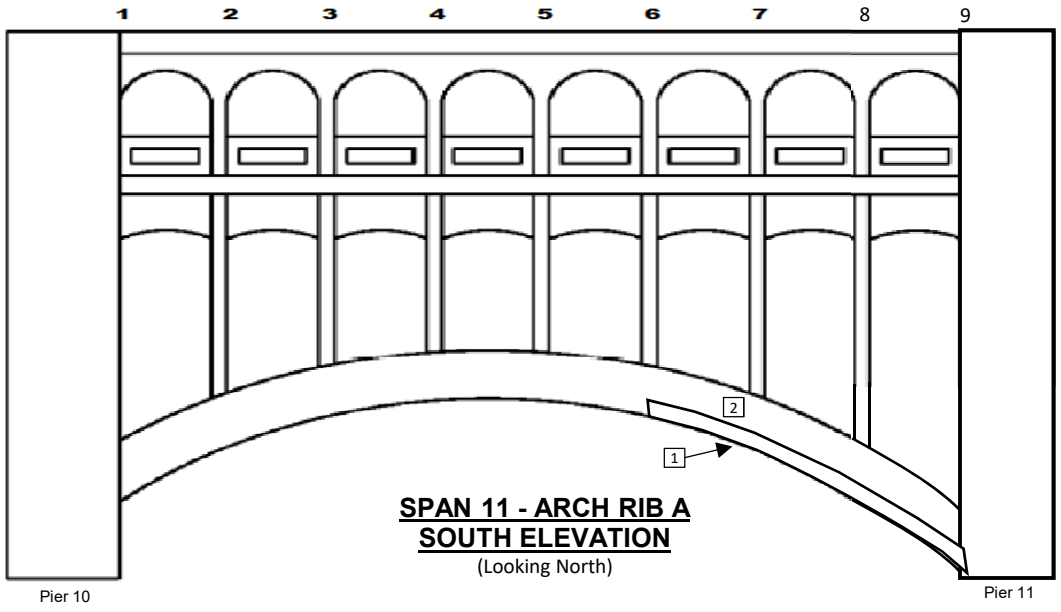

**SPAN 10 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 10 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 6 SF |



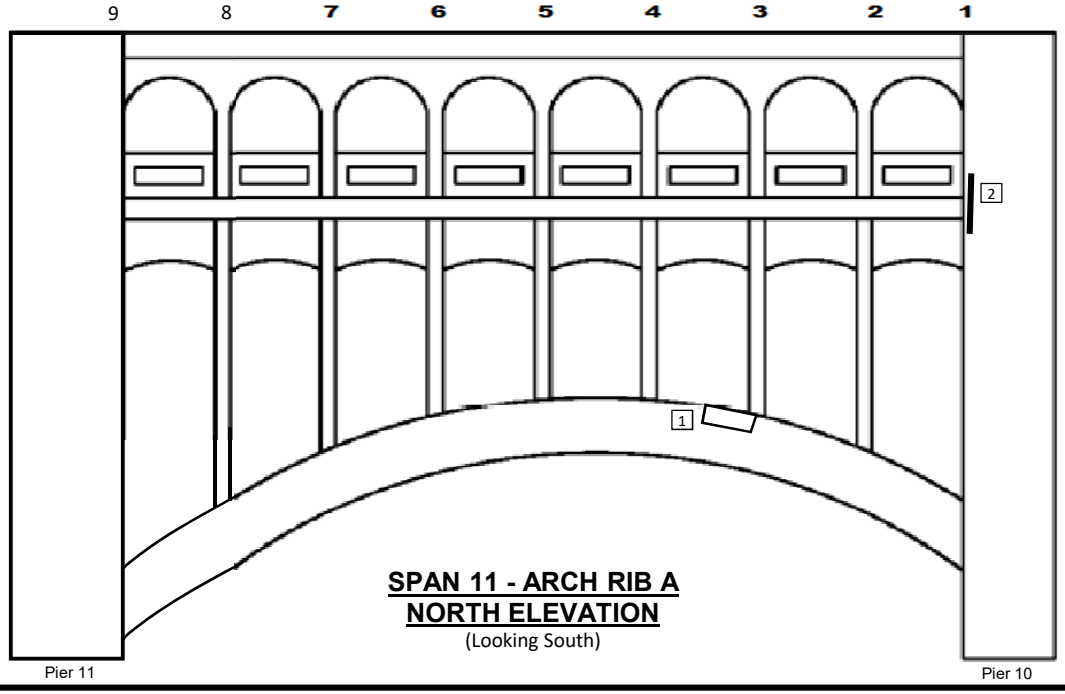

**SPAN 10 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 10 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 5 SF |
| 2 | Delamination - 24 SF |
| 3 | Delamination - 18 SF |
| 4 | Delamination - 3 SF |
| 5 | Delamination - 45 SF (Behind drain pipe) |



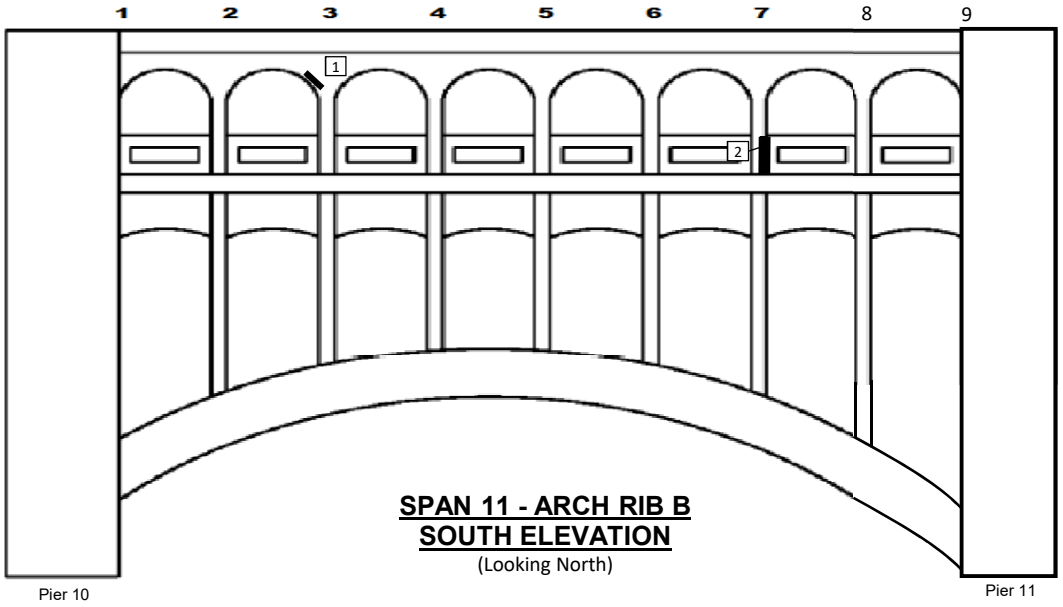

**SPAN 11 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

| SPAN 11 - ARCH RIB A SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Crack on south face extedning from pier 11 to column 6 |
| 2 | Delamination with cracking - 60 SF |



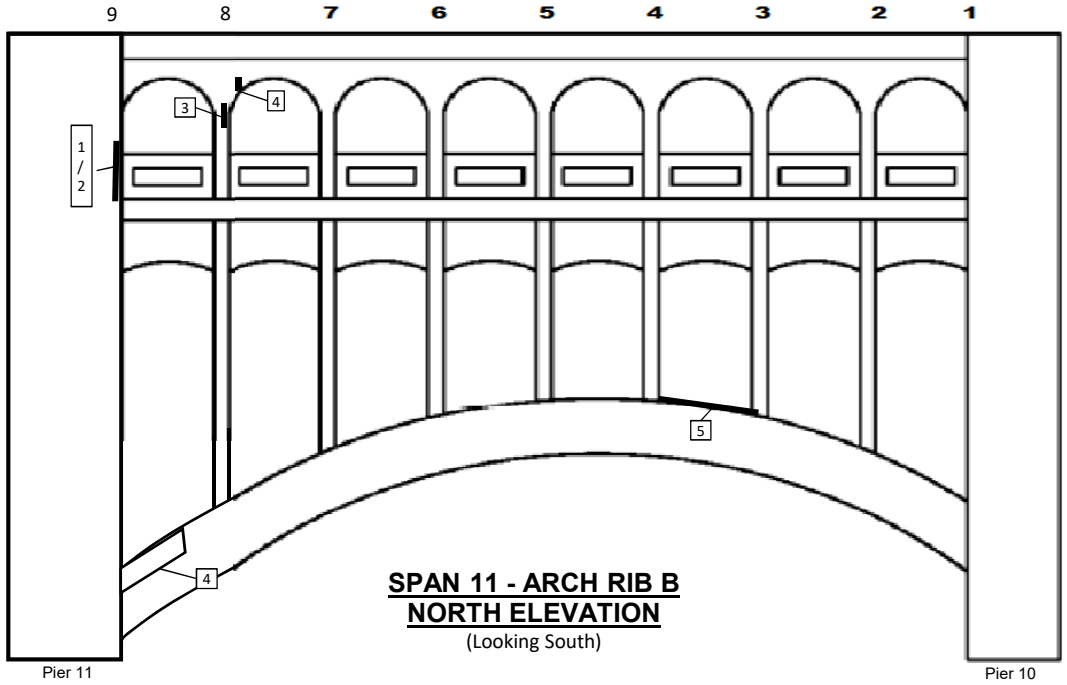

**SPAN 11 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 11 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 6 SF |
| 2 | Delamination - 12 SF |



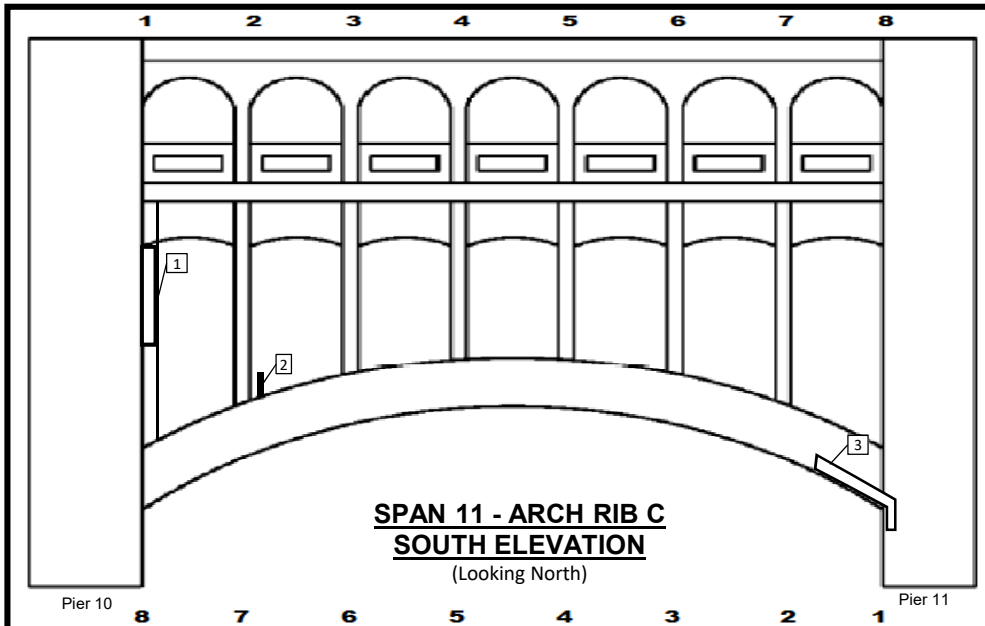

**SPAN 11 - ARCH RIB B SOUTH ELEVATION**
(Looking North)

| SPAN 11 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Spall w/ exp. Reinf. - 1 SF, 3" D |

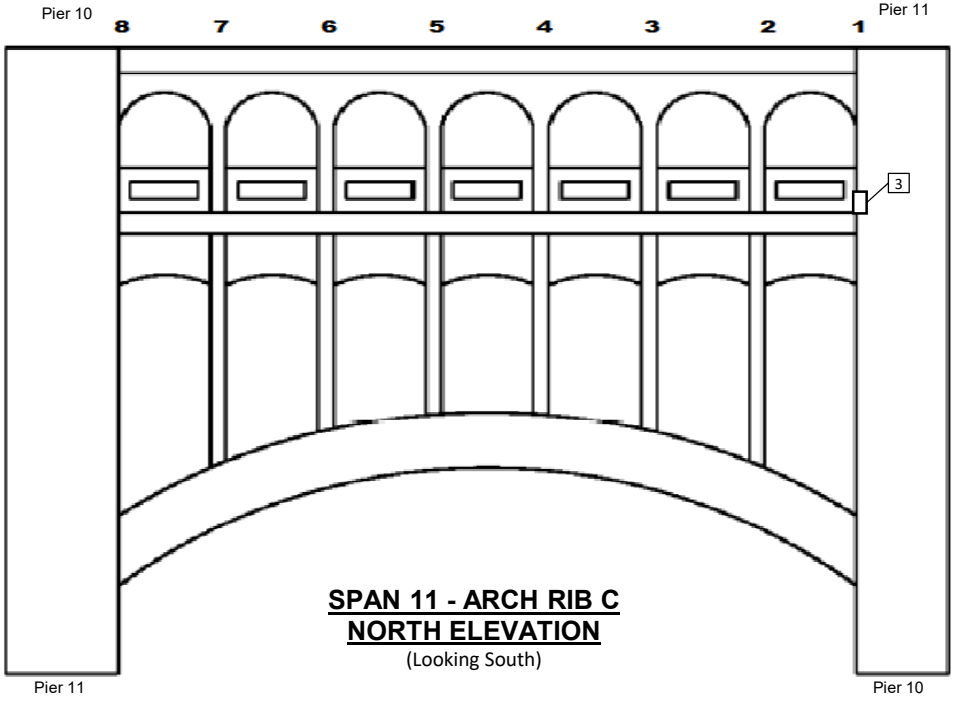



**SPAN 11 - ARCH RIB B NORTH ELEVATION**
(Looking South)

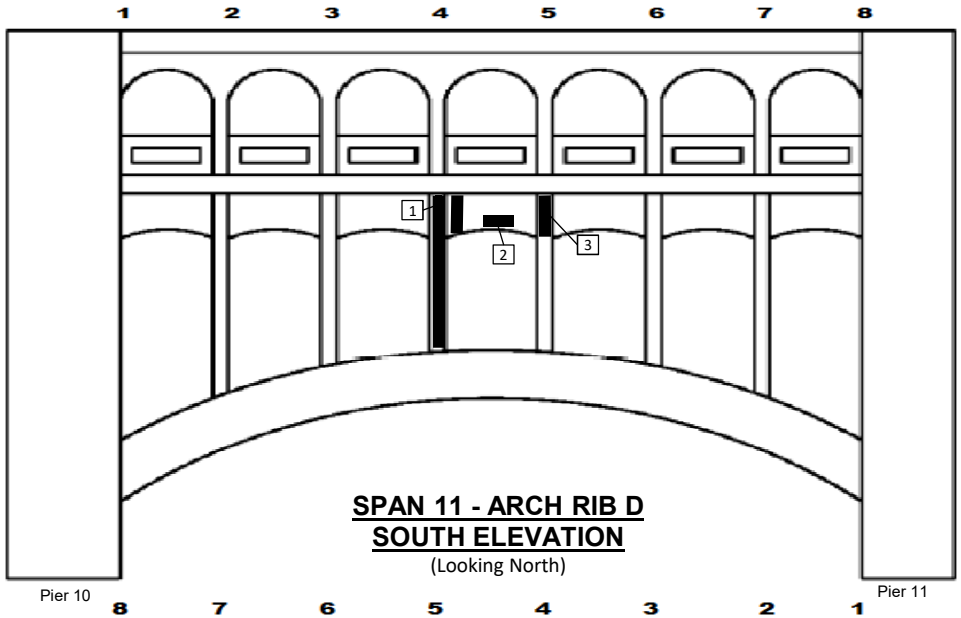
| SPAN 11 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp Reinf. - 1 SF, 3" D |
| 2 | Delamination - 35 SF |
| 3 | Delamination - 3 SF |
| 4 | Spall - 3 SF, 3" D |
| 5 | Delamination - 6 SF |
| 6 | Delamination - 4 SF |



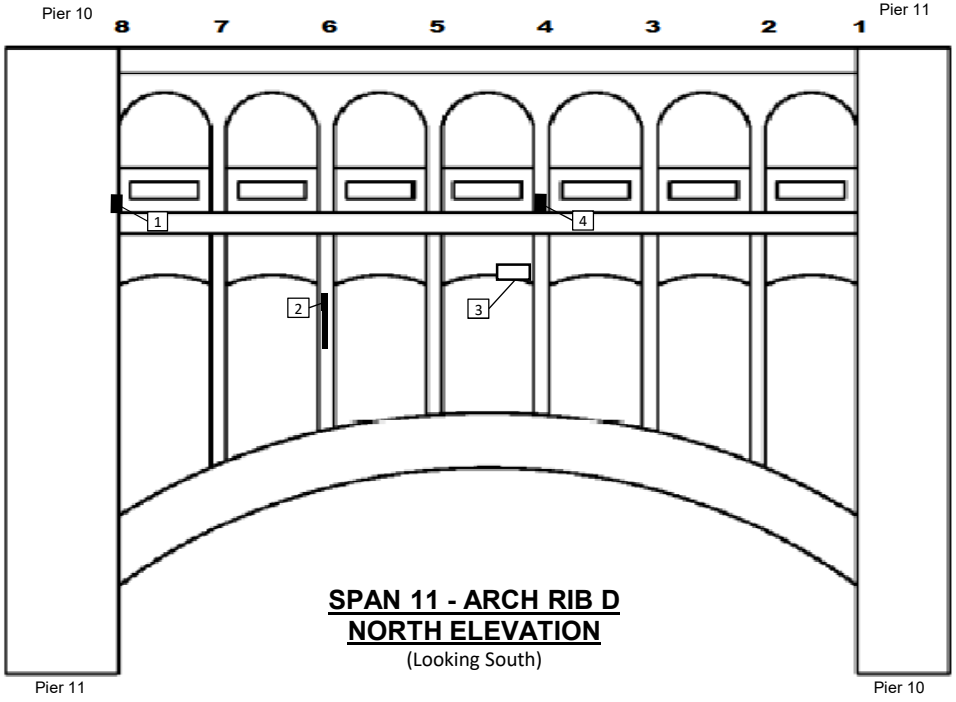

| SPAN 11 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 8 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 6 SF |



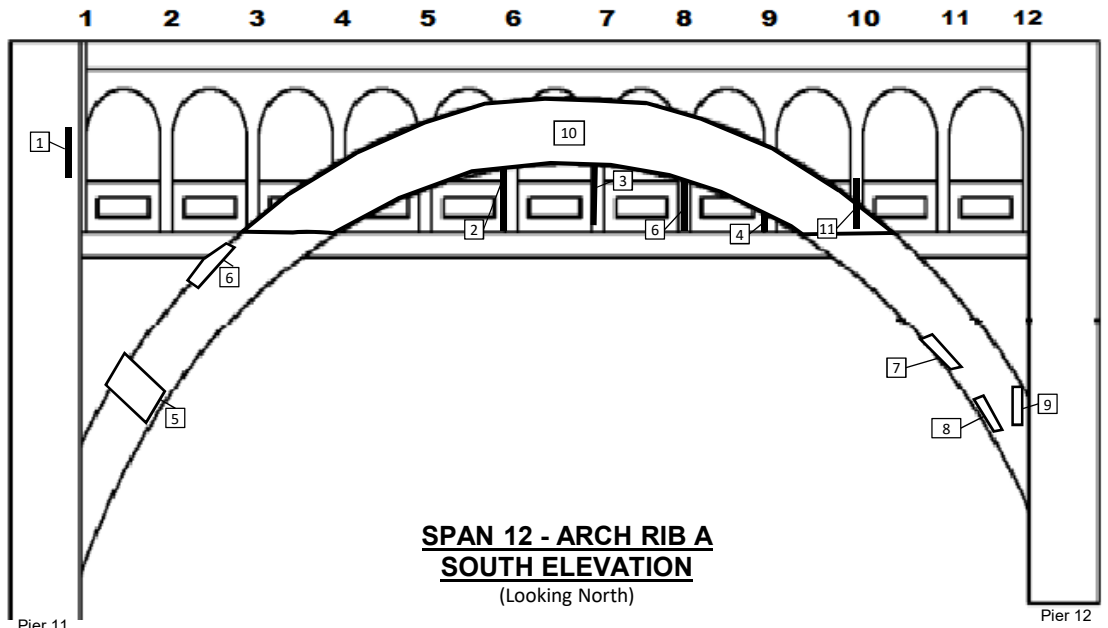

| SPAN 11 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Incomplete repair location (no reinf. exp.) - 1 SF |



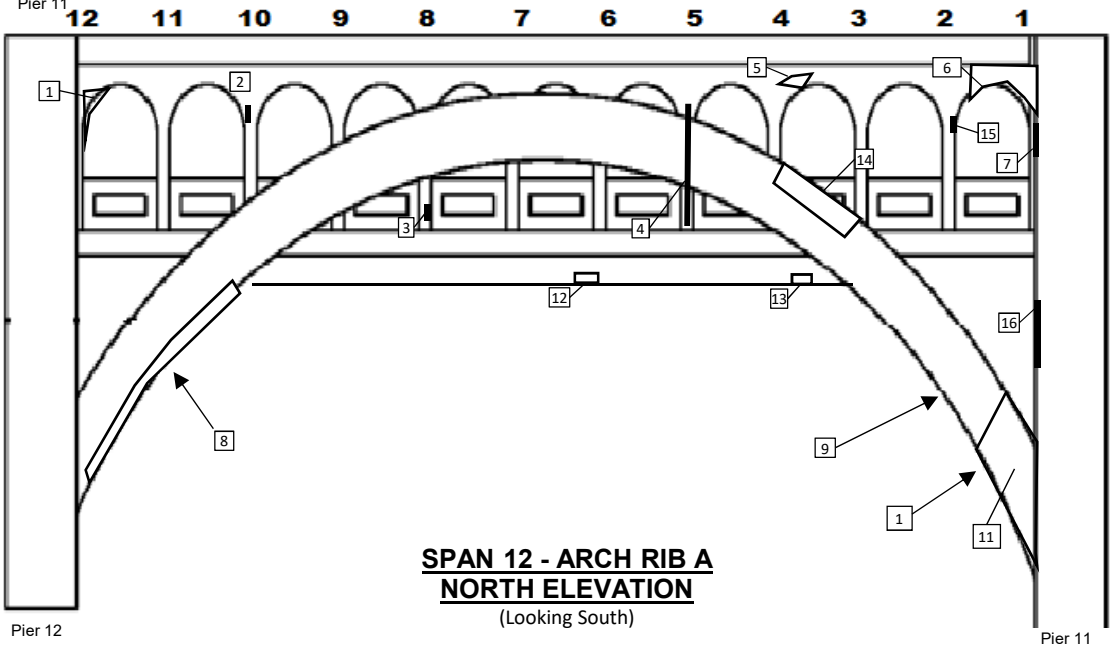

| SPAN 11 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 1.5' W x Full H, 6" D |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 2 SF |




| SPAN 11 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 2 SF |
| 3 | Delamination - 3 SF |
| 4 | Delamination - 2 SF |




**SPAN 12 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

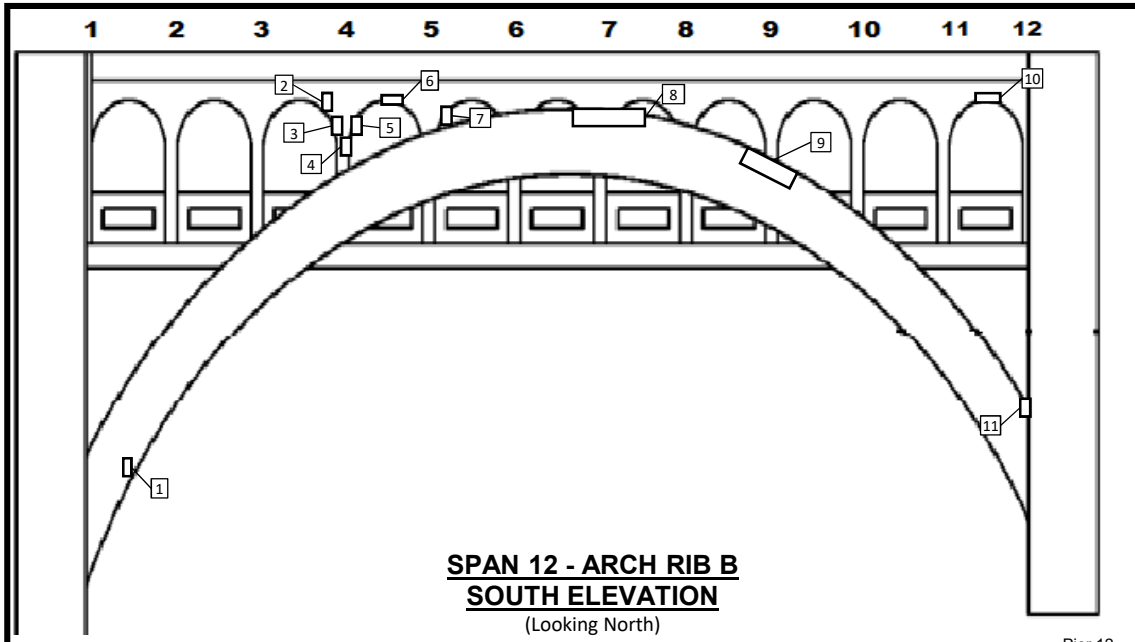



**SPAN 12 - ARCH RIB A NORTH ELEVATION**
(Looking South)

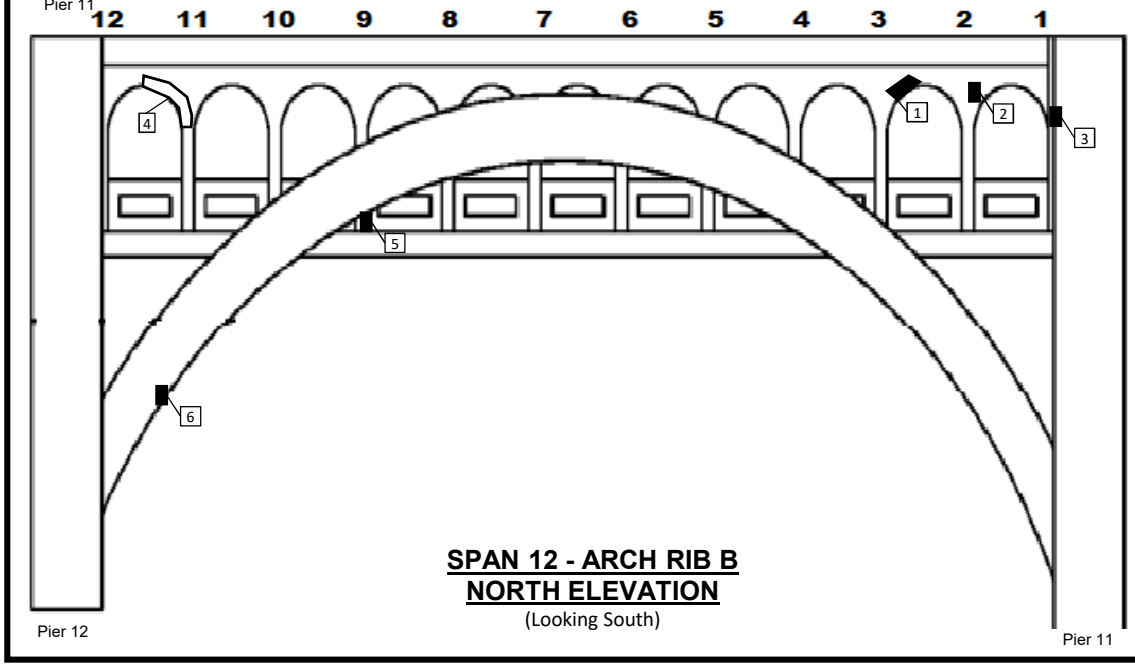
**Note:** All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete.

| SPAN 12 - RIB A SOUTH ELEVATION DEFICIENCIES | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Spall w/ exp. Reinf. - 3 SF, 4" D | 7 | Delamination - 2 SF |
| | | 8 | Delamination - 3 SF |
| 2 | Delamination w/ 1/8" W Crack - 10 SF | 9 | Delamination - 1 SF |
| 3 | Delamination w/ up to 1/2" W Crack - 15 SF | 10 | South face of arch is delaminated (90%) with widespread cracking near the bases. 1/2" W crack in the delaminated surface. |
| 4 | Delamination - 8 SF | | |
| 5 | Delamination - 10 SF | | |
| 6 | Delamination - 6 SF | | |
| | | 11 | Delamination - 4 SF |

| SPAN 12 - RIB A NORTH ELEVATION DEFICIENCIES | | | |
|---|---|---|---|
| # | Defect | # | Defect |
| 1 | Spall w/ exp. Renf - 12 SF, 6" D | 9 | Delamination - 5 SF (U.o.A) |
| 2 | Spall w/ exp. Reinf - 1 SF, 2" D | 10 | Delamination - 18 SF (U.o.A) |
| 3 | Spall w/ exp. Reinf - 1 SF, 2" D | 11 | Delamination - 20 SF |
| | | | Spall - 2 SF |
| 4 | Delamination - 8 SF | 12 | Spall - 1 SF |
| 5 | Spall w/ exp. Reinf - 1 SF, 2" D | 13 | Spall - 1 SF |
| | | 14 | Delamination - 15 SF |
| 6 | Entire face of arch is spalling and delaminated, up to 3" D | 15 | Spall w/ exp. Reinf. - 1 SF |
| 7 | Spall - 8 SF, 4" D (on pier) | 16 | Delamination w/ Spall w/ exp. Reinf. - 4 SF (on pier) |




**SPAN 12 - ARCH RIB B**
**SOUTH ELEVATION**
(Looking North)

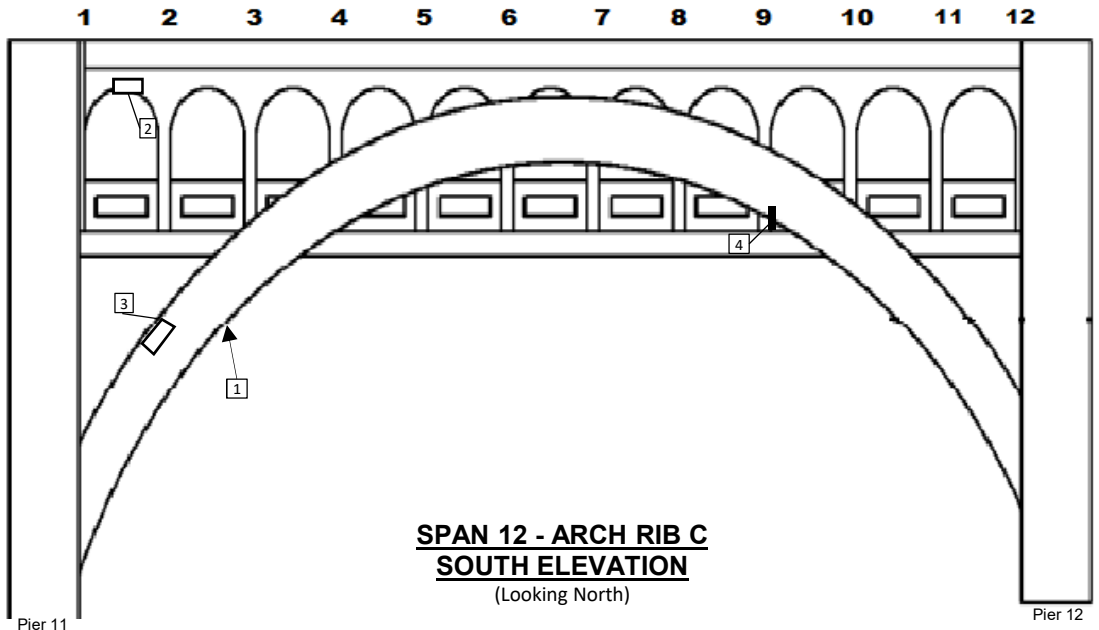



**SPAN 12 - ARCH RIB B**
**NORTH ELEVATION**
(Looking South)

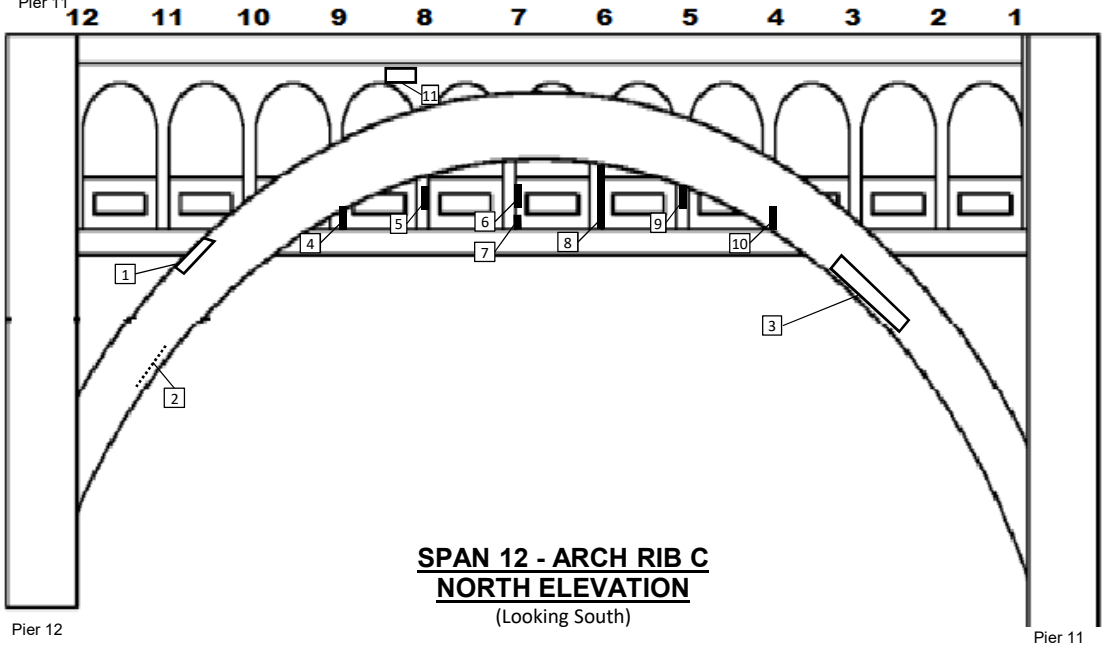
**Note:** All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete.

| SPAN 12 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1 SF |
| 2 | Incomplete Sawcut Repair (I.S.R.) Location - 1 SF |
| 3 | I.S.R. - 1 SF |
| 4 | I.S.R. - 1 SF |
| 5 | I.S.R. - 1 SF |
| 6 | I.S.R. - 1 SF |
| 7 | I.S.R. - 1 SF |
| 8 | I.S.R. - 4 SF |
| 9 | I.S.R. - 3 SF |
| 10 | I.S.R. - 4 SF |
| 11 | Delamination - 1 SF |

| SPAN 12 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 1.5 SF |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 1 SF |
| 4 | Delamination - 1 SF |
| 5 | Delamination - 9 SF |
| 6 | Delamination - 6 SF |




**SPAN 12 - ARCH RIB C SOUTH ELEVATION**
(Looking North)

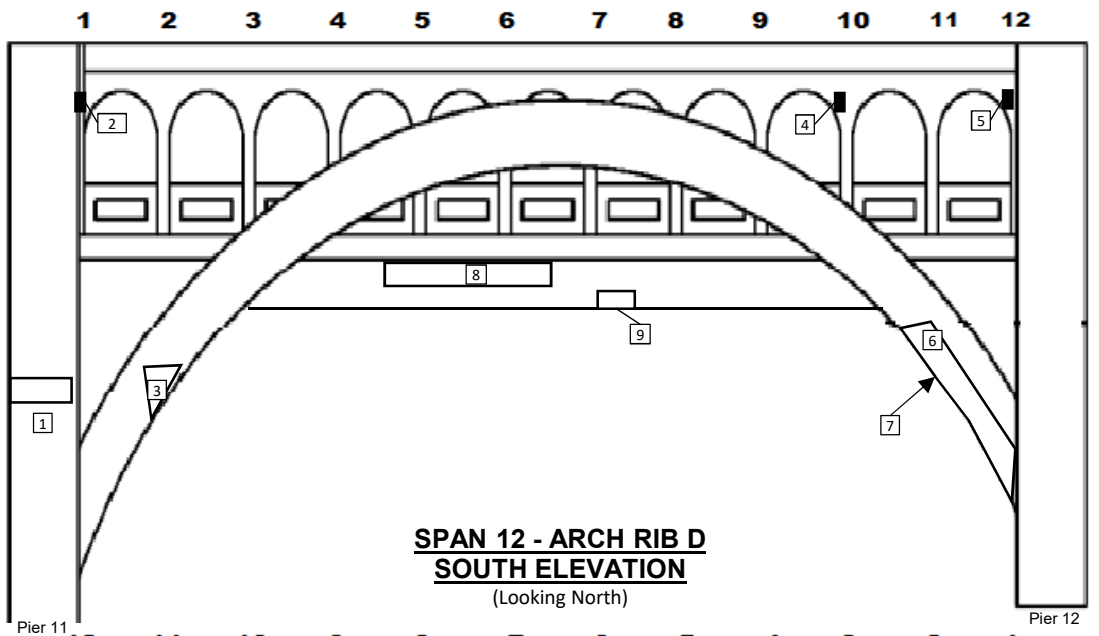



**SPAN 12 - ARCH RIB C NORTH ELEVATION**
(Looking South)

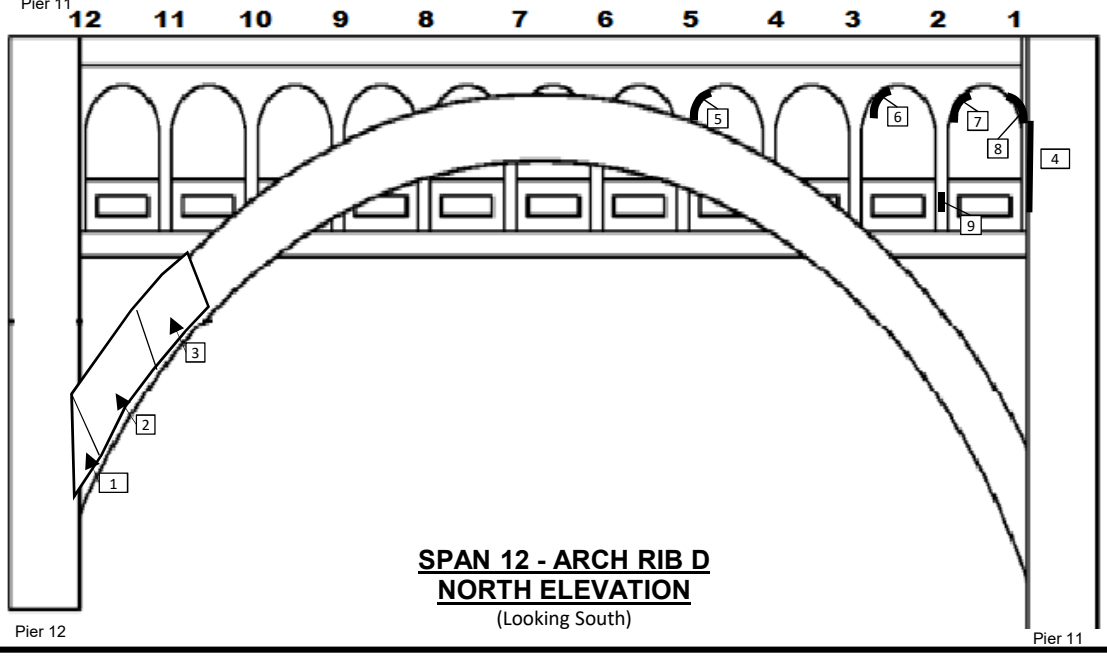
**Note:** All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete. Map cracking typical.

| SPAN 12 - ARCH RIB C SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 5 SF (underside) |
| 2 | Incomplete Sawcut Repair Location (I.S.R.) w/ exp. Reinf. - 3 SF |
| 3 | Delamination - 2 SF |
| 4 | I.S.R. w/ exp. Reinf. - 5 SF (entire face is exposed) |

| SPAN 12 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | 5' L 1/16" Crack w/ Delamination |
| 3 | Delamination - 6 SF |
| 4 | Delamination - 8 SF |
| 5 | Delamination - 4 SF |
| 6 | Delamination 8 SF |
| 7 | I.S.R. w/ exp. Reinf. - 2 SF |
| 8 | Delamination - 10 SF |
| 9 | Delamination - 6 SF |
| 10 | Delamination - 5 SF |




**SPAN 12 - ARCH RIB D**
**SOUTH ELEVATION**
(Looking North)

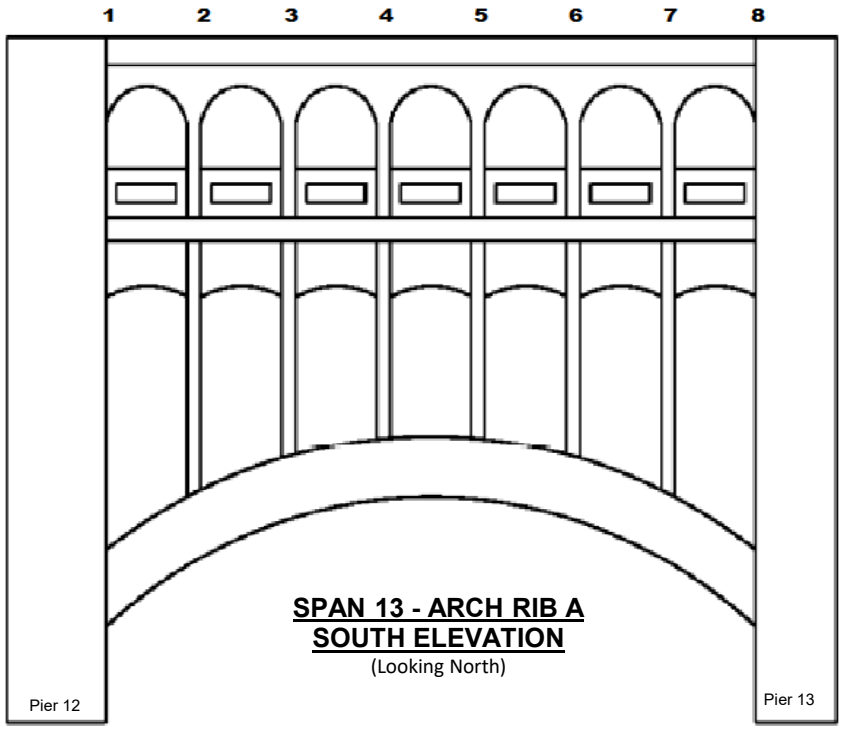



**SPAN 12 - ARCH RIB D**
**NORTH ELEVATION**
(Looking South)

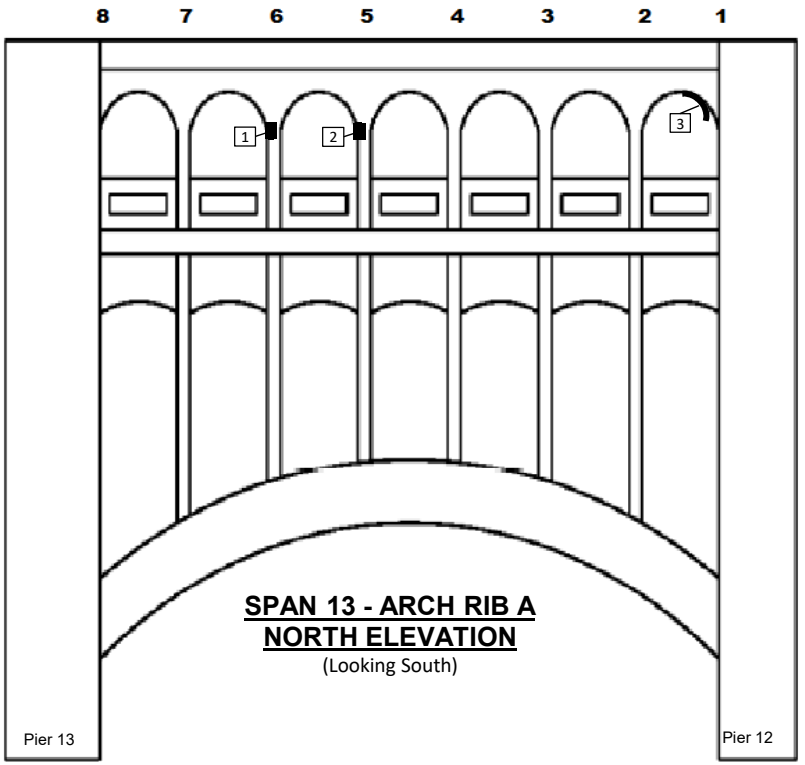
**Note:** All concrete encased steel hangers sound delaminted due to only 4"± cover between steel hanger and outside face of concrete. Map cracking typical.

| SPAN 12 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Map Cracking - 4' H x Full Width |
| 2 | Delamination - 2 SF |
| 3 | Map Cracking - 18 SF |
| 4 | Spall w/ exp. Reinf. - 1 SF, 1" D |
| 5 | Spall w/ exp. Reinf. - 1 SF, 6" D |
| 6 | Map Cracking w/ Delamination - 29' L x 2' H |
| 7 | Map Cracking - 20' L x Full Width (underside) |
| 8 | Delamination - 8 SF |
| 9 | Spall - 2 SF |

| SPAN 12 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 3 SF |
| 2 | Map Cracking - 20 LF |
| 3 | Delamination - 30 SF |
| 4 | Spall w/ exp. Reinf. - 6 SF |
| 5 | Delamination - 3 SF |
| 6 | Delamination - 1 SF |
| 7 | Delamination - 1 SF |
| 8 | Delamination - 2 SF |
| 9 | Spall w/ exp. Reinf. - 1 SF |

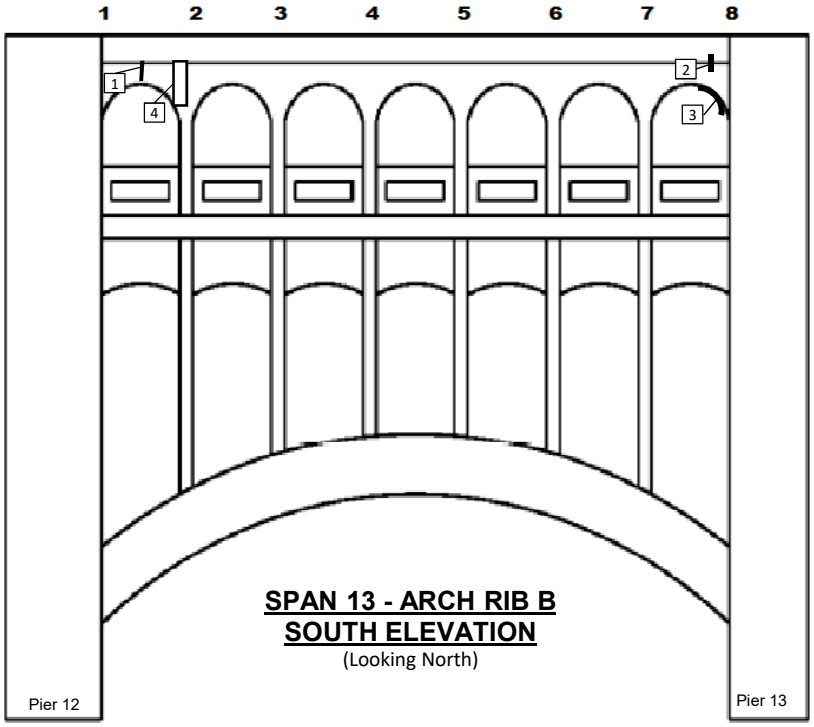



**SPAN 13 - ARCH RIB A SOUTH ELEVATION**
(Looking North)

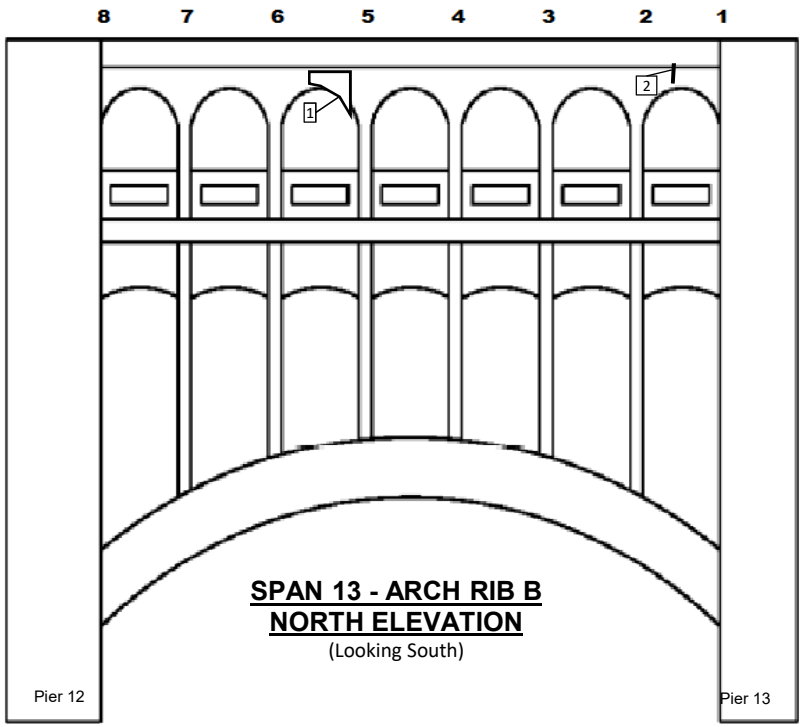



**SPAN 13 - ARCH RIB A NORTH ELEVATION**
(Looking South)

| SPAN 13 - ARCH RIB A NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 1 SF |
| 3 | Half width 1/16" crack |



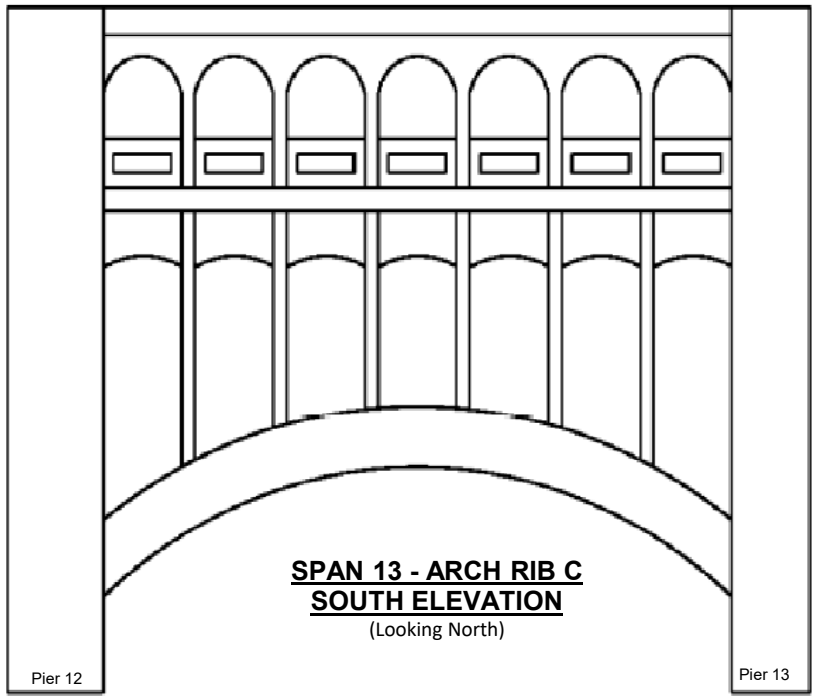

**SPAN 13 - ARCH RIB B**
**SOUTH ELEVATION**
(Looking North)



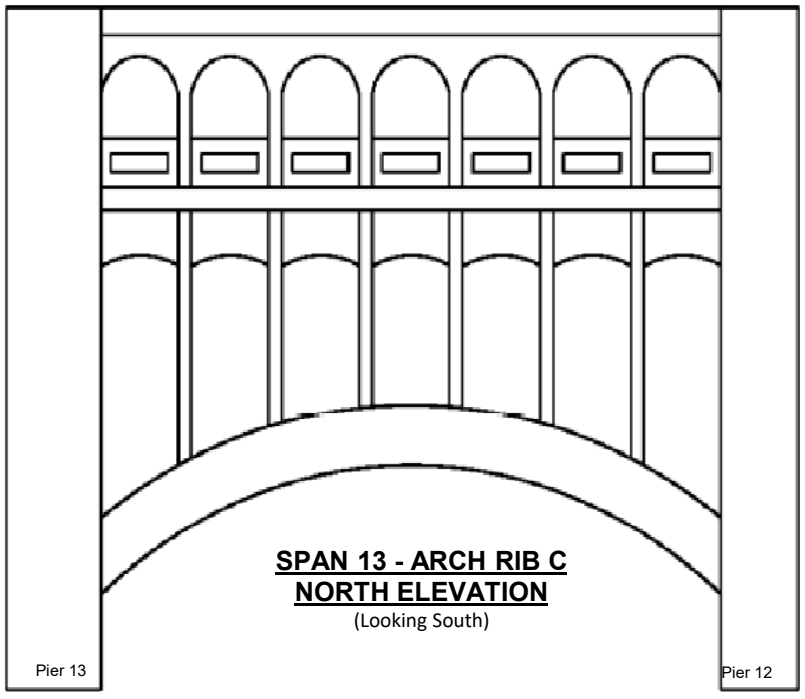

**SPAN 13 - ARCH RIB B**
**NORTH ELEVATION**
(Looking South)

| SPAN 13 - ARCH RIB B SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Full Height 1/8" W crack |
| 2 | Delamination - 4 SF |
| 3 | Delamination - 1 SF |
| 4 | Incomplete Sawcut Repair Location w/ exp. Reinf. (I.S.R.) - 2 SF |

| SPAN 13 - ARCH RIB B NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | I.S.R. - 2 SF |
| 2 | Full Height 1/8" W crack |

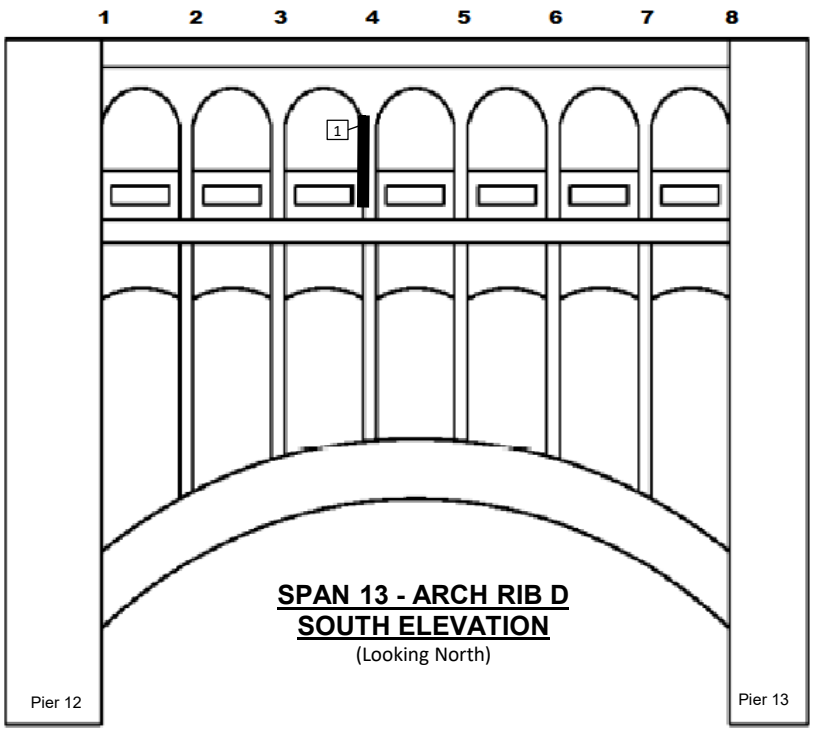



**SPAN 13 - ARCH RIB C**
**SOUTH ELEVATION**
(Looking North)



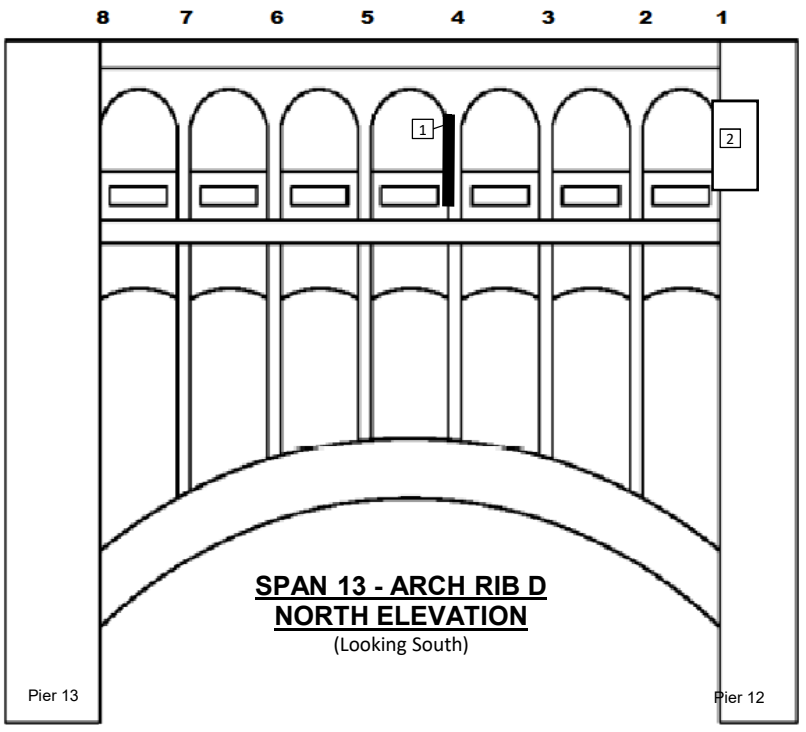

**SPAN 13 - ARCH RIB C**
**NORTH ELEVATION**
(Looking South)

| SPAN 13 - ARCH RIB C NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Incomplete Sawcut Repair Location w/ exp. Reinf. (I.S.R.) - 4 SF |



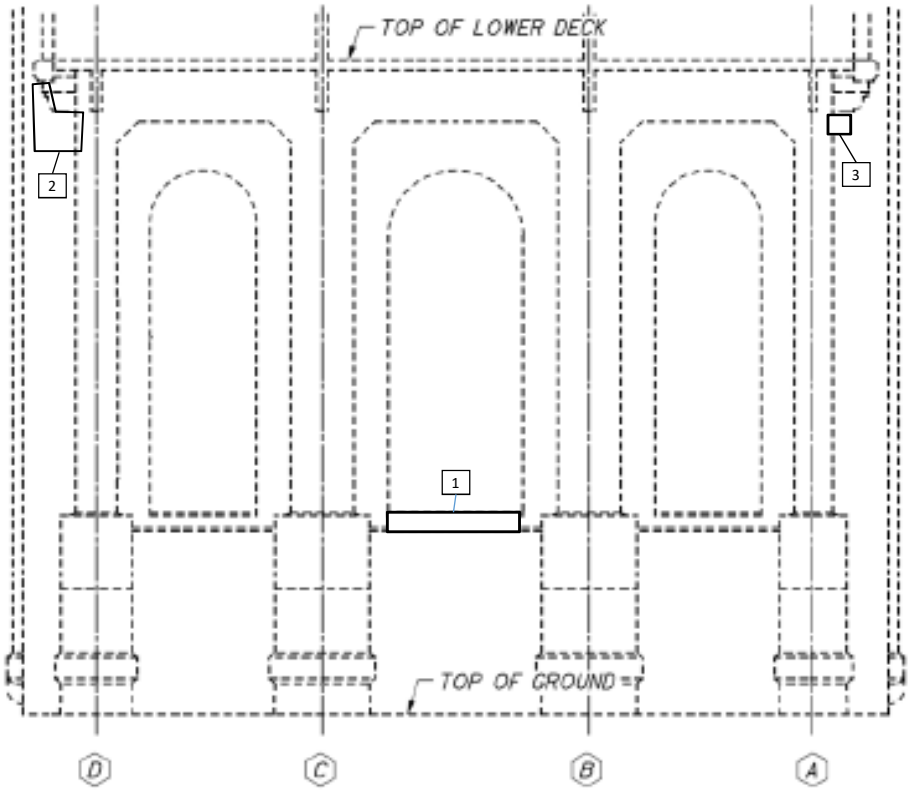

**SPAN 13 - ARCH RIB D SOUTH ELEVATION**
(Looking North)

| SPAN 13 - ARCH RIB D SOUTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Delamination - 12 SF |



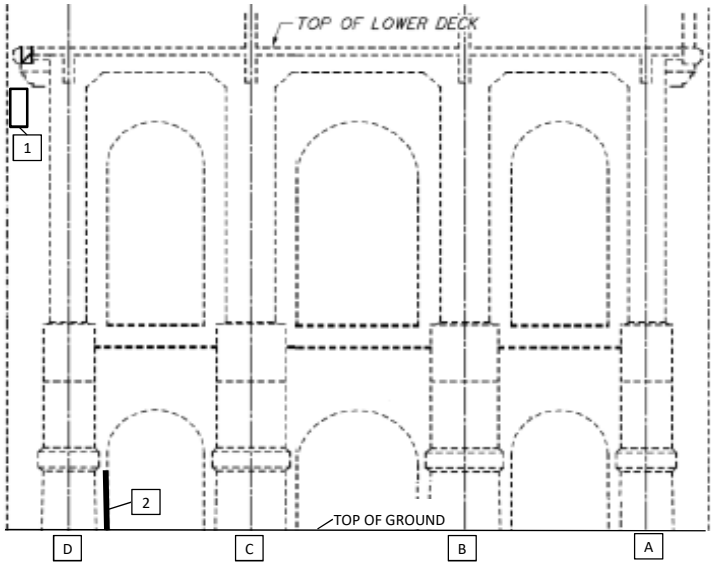

**SPAN 13 - ARCH RIB D NORTH ELEVATION**
(Looking South)

| SPAN 13 - ARCH RIB D NORTH ELEVATION DEFICIENCIES | |
|---|---|
| # | Defect |
| 1 | Spall w/ exp. Reinf. - 8 SF, 2.5" D |
| 2 | Delamination w/ up to 1/8" crack near column 1 - 45 SF |



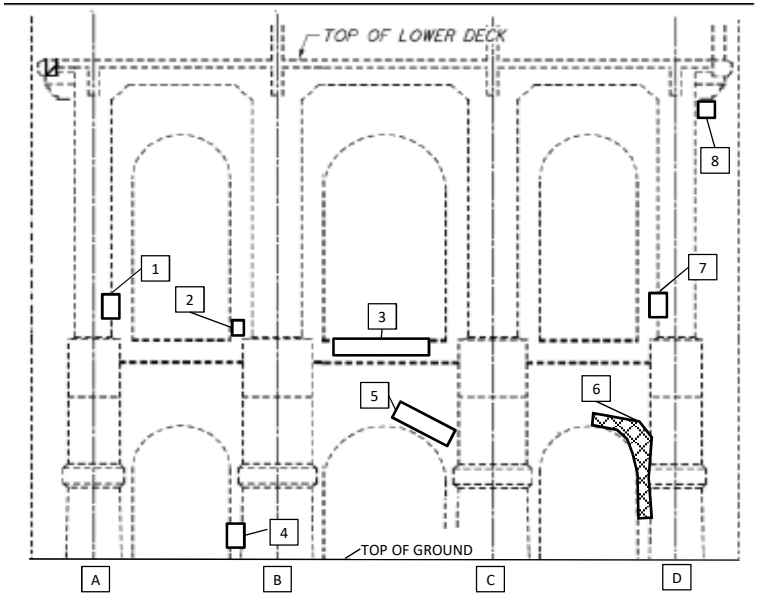

PIER 1 - EAST ELEVATION

| Pier 1 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 8 SF |
| 2 | Spall w/ exp. Reinf. - 9 SF, 8" Deep |
| 3 | Spall w/ exp. Reinf. - 2 SF |



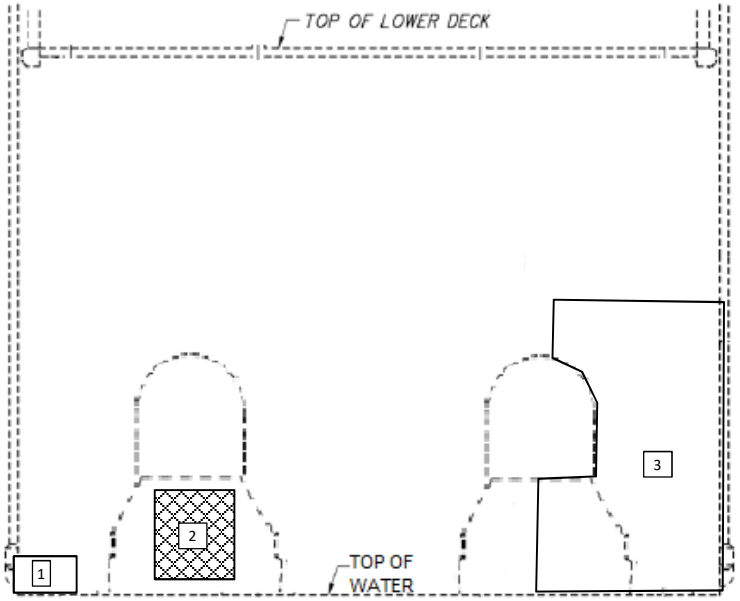

*PIER 2 - EAST ELEVATION*

| Pier 2 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Spall - 6 SF |
| 2 | Map Cracking - 15 SF (inside face) |

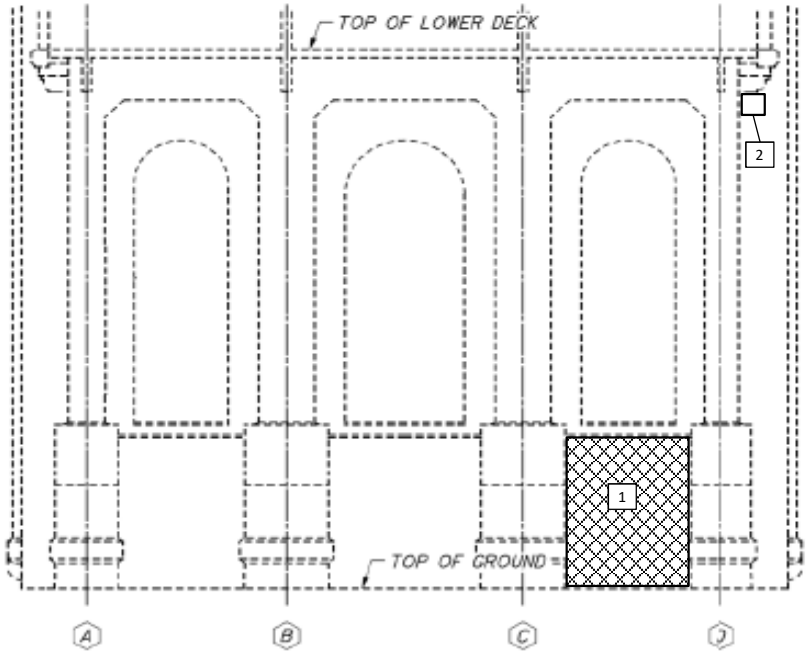



*PIER 2 - WEST ELEVATION*

| Pier 2 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 4 SF (south inner face) |
| 2 | Delamination - 1 SF |
| 3 | Delamination - 20 SF |
| 4 | Delamination - 4 SF |
| 5 | Delamination - 10 SF |
| 6 | Map Cracking |
| 7 | Delamination - 9 SF (north inner face) |
| 8 | Spall w/ exp. Reinf. - 4 SF, 4" Deep |



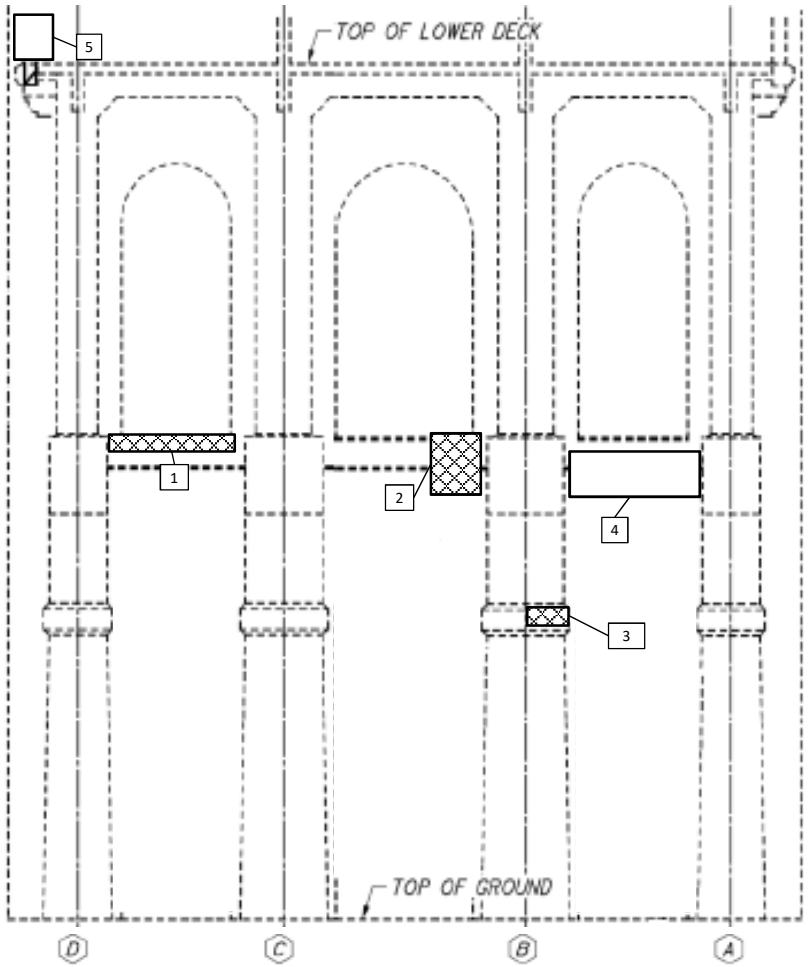

PIER 3 – EAST ELEVATION




PIER 3 – WEST ELEVATION

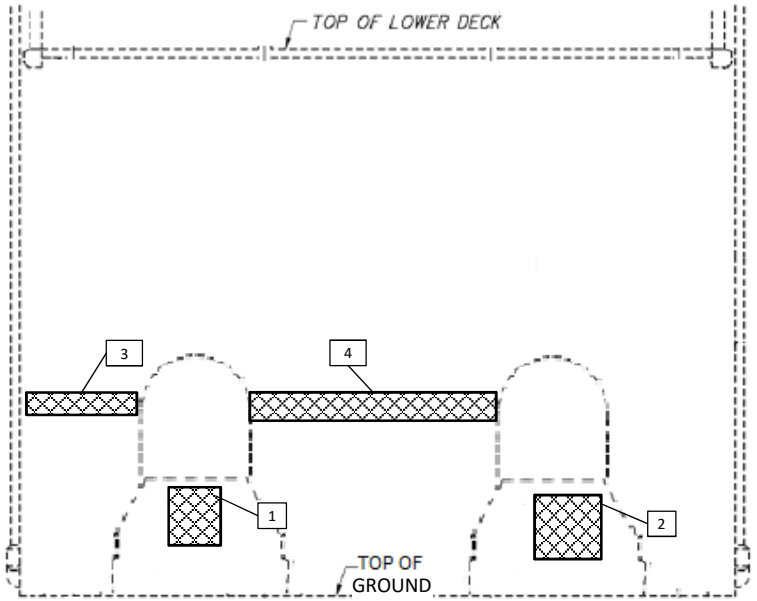
| Pier 3 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Corner Spall |
| 2 | Map Cracking - 144 SF |
| 3 | Vine growth covering concrete |

| Pier 3 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking |
| 2 | Spall - 1 SF |



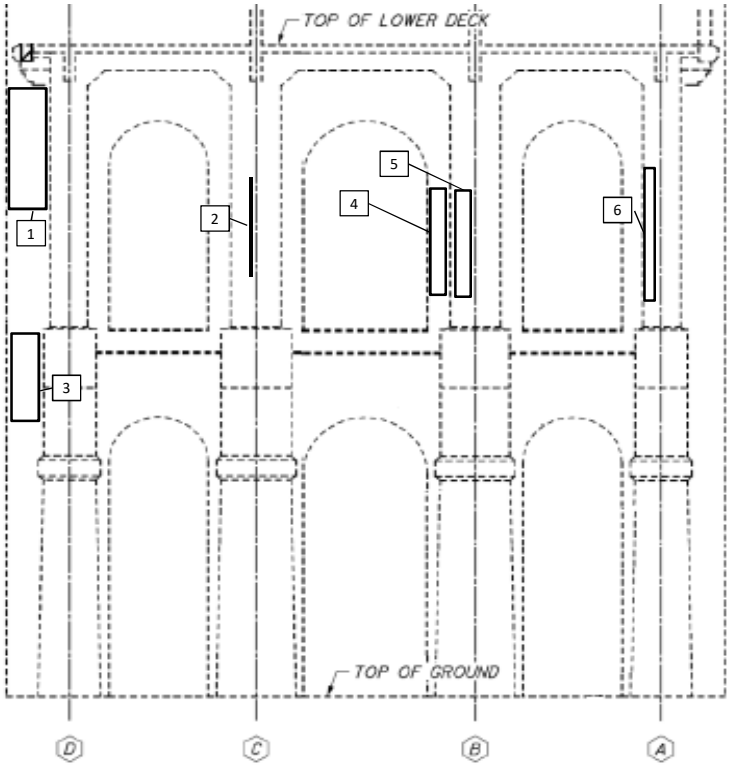

PIER 4 – EAST ELEVATION

| Pier 4 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking - 32 SF |
| 2 | Map Cracking - 16 SF |
| 3 | Map Cracking - 30 SF |
| 4 | Delamination - 32 SF |
| 5 | Incomplete Repair - 2 SF |

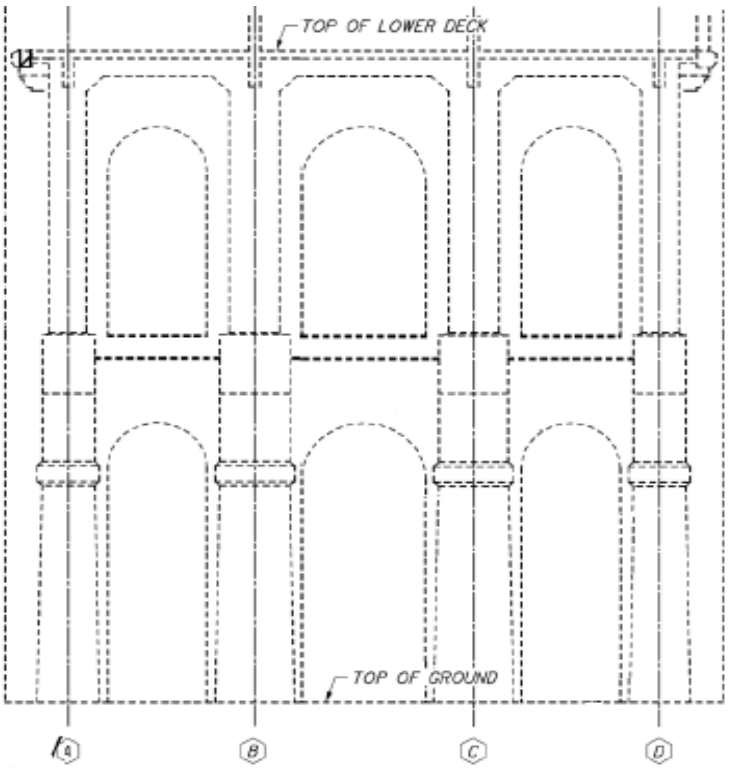



PIER 4 – WEST ELEVATION

| Pier 4 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking - 144 SF |
| 2 | Map Cracking - 144 SF |
| 3 | Map Cracking - 20 SF |
| 4 | Map Cracking and Delamination - 170 SF |

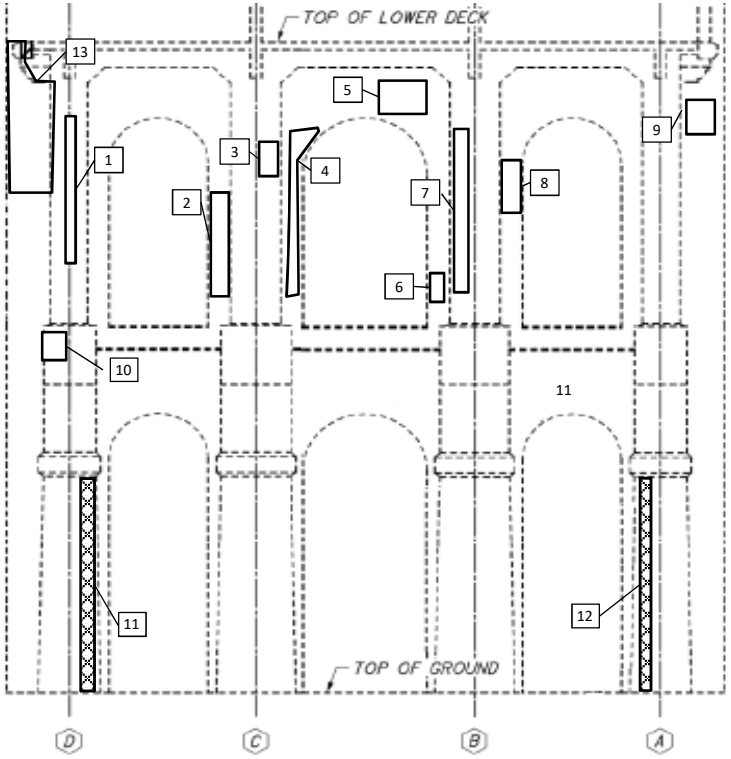



PIER 5 – EAST ELEVATION



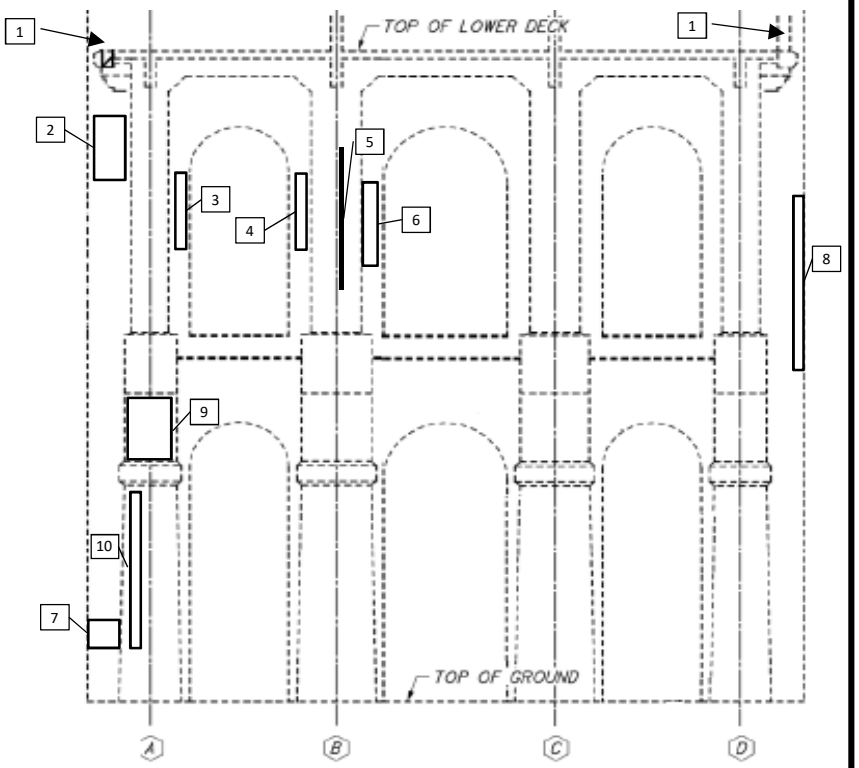

PIER 5 – WEST ELEVATION

| Pier 5 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 40 SF and Spall w/ exp. Reinf. - 5 SF, 8" D |
| 2 | Delamination w/ heavy cracking - 40 SF |
| 3 | Spall w/ exp. Reinf. - 30 SF, 6" D |
| 4 | Delamination - 70 SF |
| 5 | Delamination - 35 SF |
| 6 | Delamination - 20 SF |



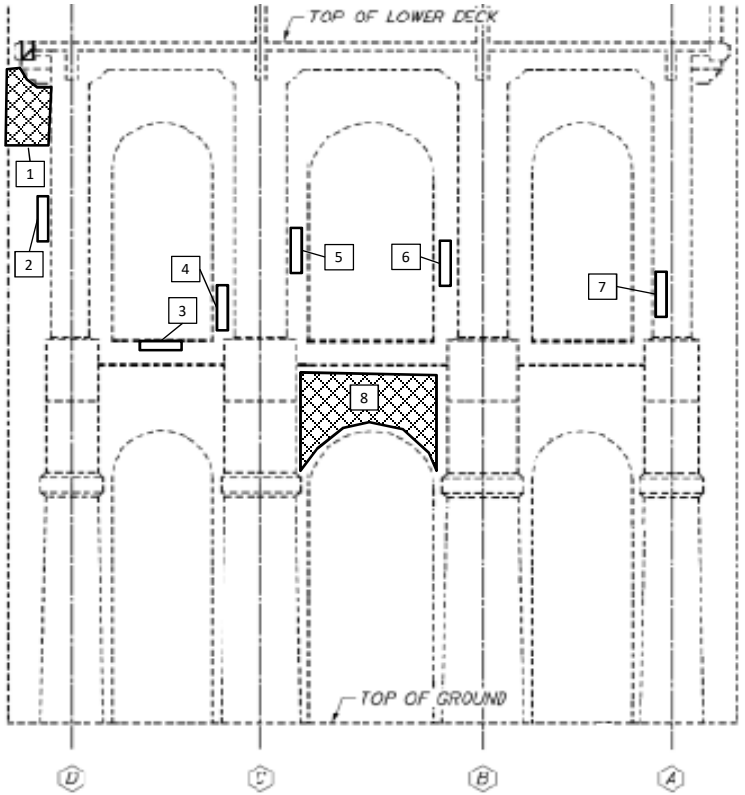

PIER 6 - EAST ELEVATION

| Pier 6 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 30 SF |
| 2 | Delamination - 80 SF |
| 3 | Delamination - 5 SF |
| 4 | Delamination - 20 SF |
| 5 | Delamination - 10 SF |
| 6 | Delamination - 20 SF |
| 7 | Delamination - 35 SF |
| 8 | Delamination - 15 SF |
| 9 | Delamination - 20 SF w/ Spall - 3 SF |
| 10 | Spall - 15 SF, 6" D |
| 11 | Map Cracking - 60 SF (inside face) |
| 12 | Map Cracking - 60 SF |
| 13 | Delamination w / Spall w / exp. Reinf. - 40 SF |



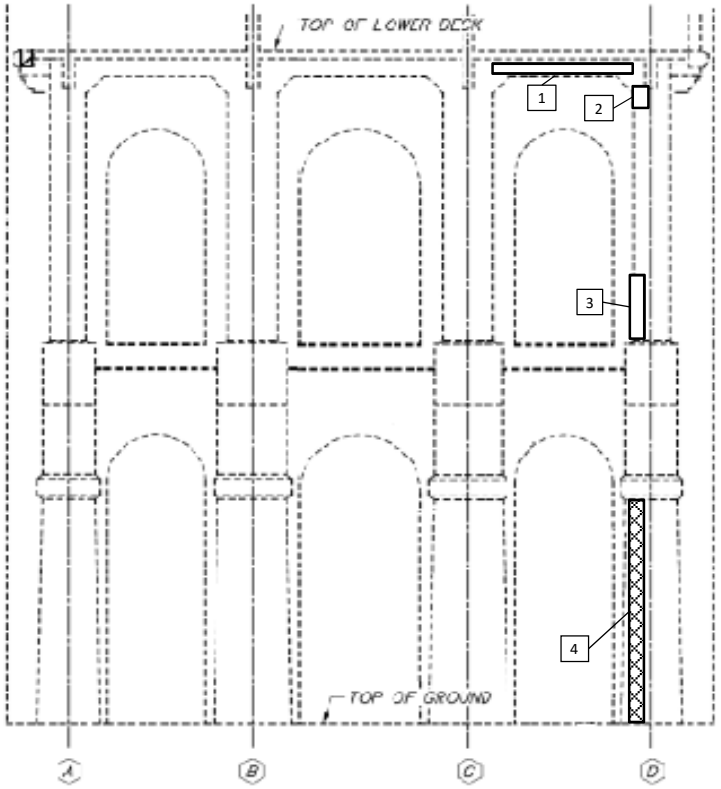

PIER 6 - WEST ELEVATION

| Pier 6 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | The top West Pylon is pulling aw ay 3/4". The top East Pylon is pulling aw ay 2-1/4". |
| 2 | Spall - 5 SF, 7" D |
| 3 | Delamination - 15 SF |
| 4 | Delamination - 15 SF |
| 5 | Delamination - 30 SF (south face) |
| 6 | Delamination - 50 SF |
| 7 | Spall - 3 SF |
| 8 | Delamination and Spalling - 210 SF |
| 9 | Delamination - 12 SF |
| 10 | 20' L x 1/8" crack (outside face) |



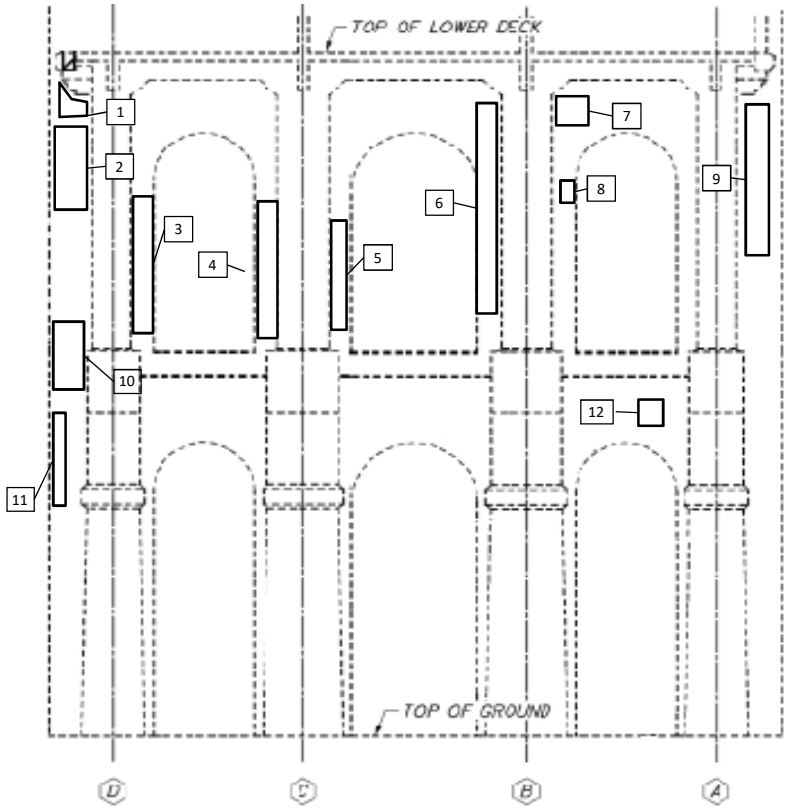

PIER 7 – EAST ELEVATION

| Pier 7 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking - 30 SF |
| 2 | Delamination w/ some spalling - 7 SF |
| 3 | Delamination - 8 SF |
| 4 | Spall w/ exp. Reinf. - 3 SF |
| 5 | Delamination - 4 SF |
| 6 | Delamination - 15 SF |
| 7 | Spall w/ exp. Reinf. - 3 SF |
| 8 | Map Cracking w/ some delamination - 30 SF |



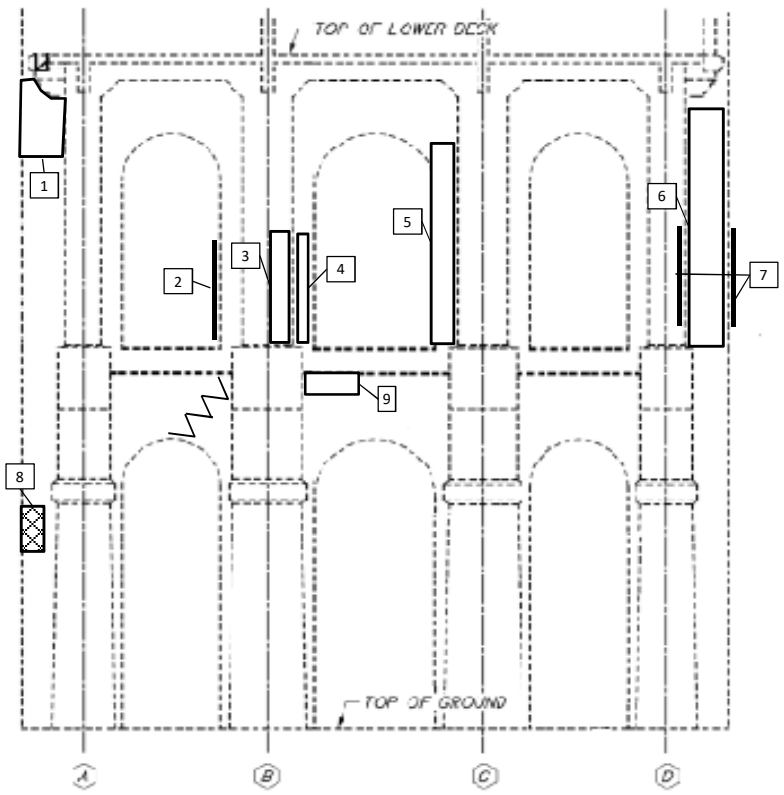

PIER 7 – WEST ELEVATION

| Pier 7 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 20 SF |
| 2 | Delamination - 15 SF |
| 3 | Delamination - 10 SF |
| 4 | Map Cracking w/ Delamination - 60 SF |



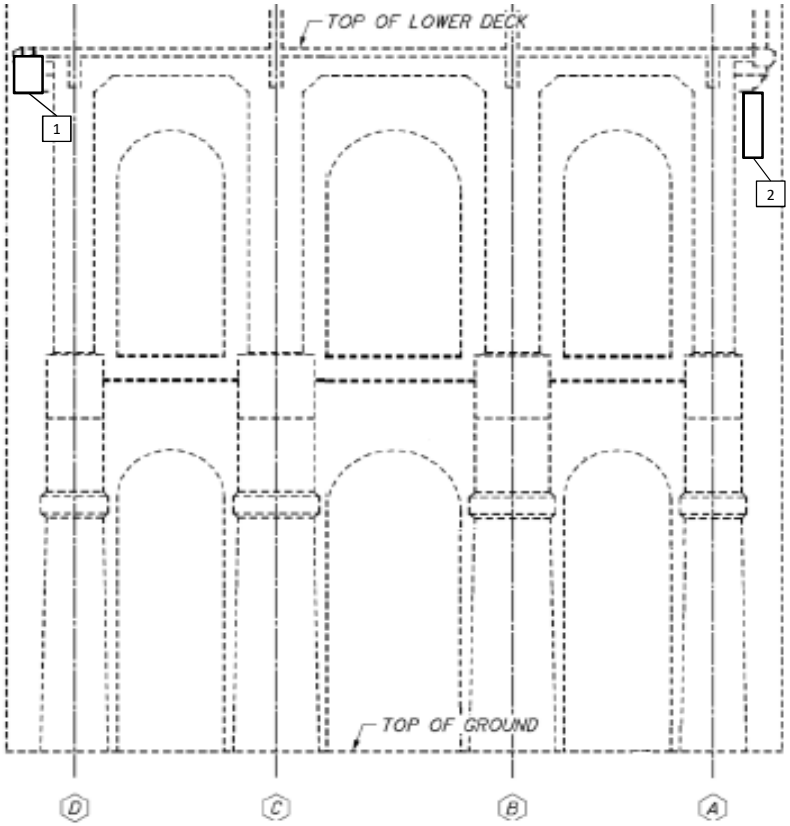

PIER 8 – EAST ELEVATION

| Pier 8 - East Elevation Deficiencies | | | |
|---|---|---|---|
| # | Deficiency | # | Deficiency |
| 1 | Spall w/ exp. Reinf. - 9 SF | 9 | Delamination - 30 SF |
| 2 | Delamination - 42 SF | 10 | Delamination - 21 SF |
| 3 | Delamination - 75 SF | 11 | Delamination w/ some spalling - 10 SF |
| 4 | Delamination - 100 SF | | |
| 5 | Delamination - 40 SF | 12 | Delamination - 4 SF |
| 6 | Delamination - 50 SF | | |
| 7 | Delamination - 9 SF | | |
| 8 | Delamination - 2 SF | | |



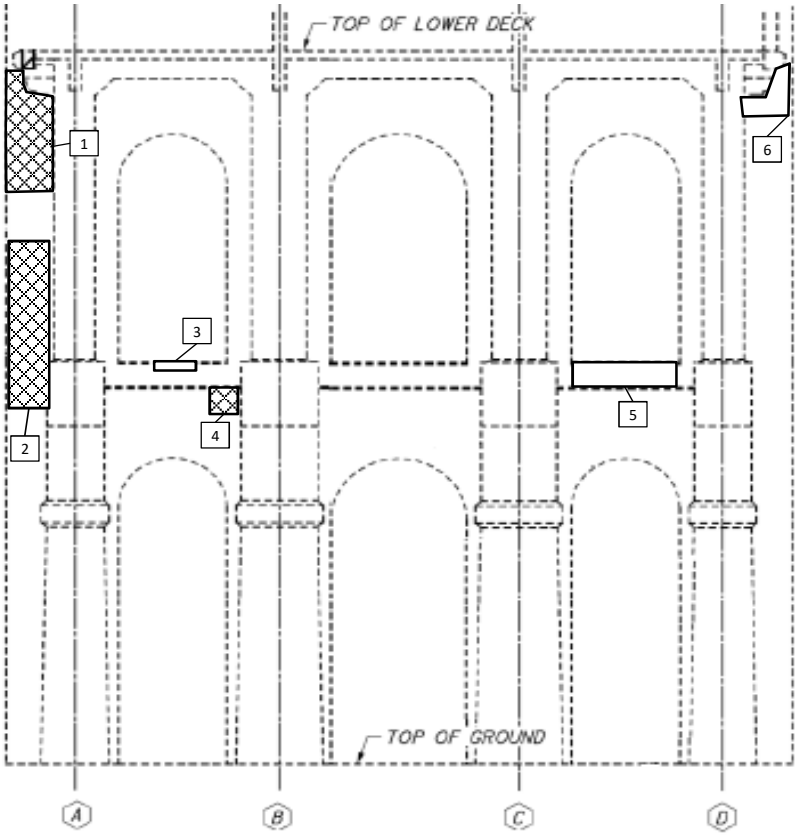

PIER 8 – WEST ELEVATION

| Pier 8 - West Elevation Deficiencies | | | |
|---|---|---|---|
| # | Deficiency | # | Deficiency |
| 1 | Delamination - 32 SF | 8 | Map Cracking - 10 SF |
| 2 | Delamination - 15 SF | 9 | Delamination - 4 SF |
| 3 | Delamination - 30 SF | | |
| 4 | Delamination - 35 SF | | |
| 5 | Delamination - 60 SF | | |
| 6 | Delamination w/ some spalling - 68 SF | | |
| 7 | Delamination - 9 SF | | |



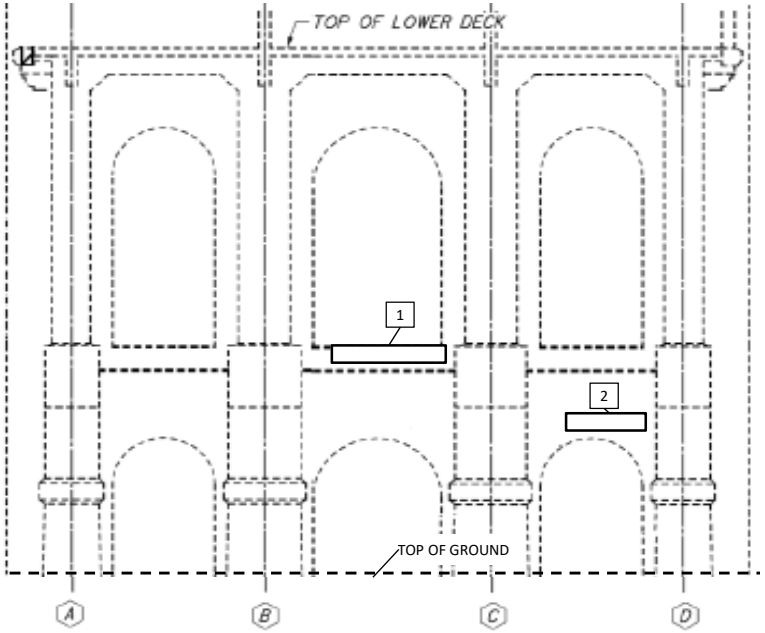

PIER 9 – EAST ELEVATION

| Pier 9 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 2 SF |
| 2 | Delamination - 3 SF |



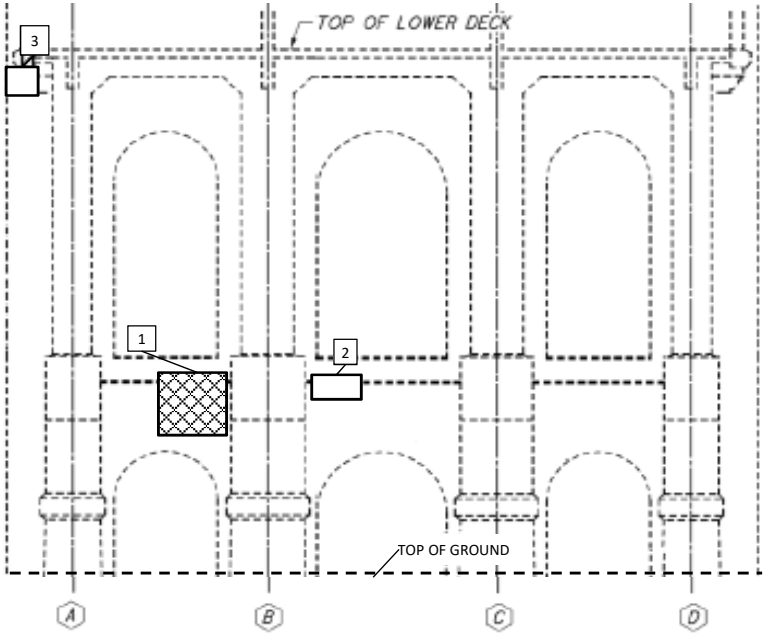

PIER 9 – WEST ELEVATION

| Pier 9 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking - 34 SF |
| 2 | Map Cracking w/ Rust Staining - 24 SF |
| 3 | Delamination - 1 SF |
| 4 | Map Cracking - 9 SF |
| 5 | Delamination - 20 SF |
| 6 | Spalling - 20 SF |



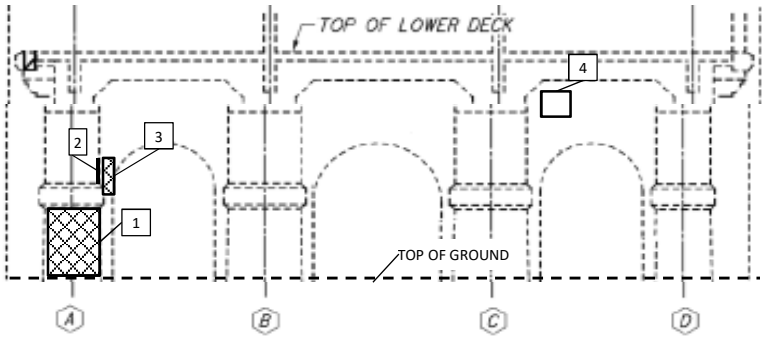

PIER 10 – WEST ELEVATION

| Pier 10 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Delamination - 10 SF |
| 2 | Delamination - 21 SF |
| 3 | Spall - 5 SF |




PIER 10 – EAST ELEVATION

| Pier 10 - East Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking - 30 SF |
| 2 | Delamination - 3 SF |
| 3 | Spall - 2 SF |




*PIER 11 - WEST ELEVATION*

| Pier 11 - West Elevation Deficiencies | |
|---|---|
| # | Deficiency |
| 1 | Map Cracking - 30 SF |
| 2 | Map Cracking - 6 SF |
| 3 | Delamination and Map Cracking - 10 SF |
| 4 | Delamination - 2 SF |

# APPENDIX D – ASSETWISE BRIDGE INSPECTION FIELD REPORT

# Ohio Bridge Inspection Summary Report

# CUY-00006-1456 _(1800930)

| | | | |
|---|---|---|---|
| 2: District | District 12 16000 - CLEVELAND (CUY county) | 5A: Inventory Route | 1 00006 |
| 21: Major Maint A/B | 01 - State Highway Agency / | 7: Facility On | USR 6 |
| 225 Routine Main A/B | 04 - City or Municipal Highway Agency / | 6: Feature Ints | CUY. RIVER & RTA |
| 221 Inspection A/B | 01 - State Highway Agency / 01 | 9: Location | DETROIT/SUPERIOR BRIDGE |
| 220: Inv. Location | DISTRICT 12 | Lat, Lon | 41.49193438201303 ,-81.70618648755347 |

## Condition

| | |
|---|---|
| **58: Deck** | **6 - Satisfactory Condition** |
| 58.01 Wearing Surface | 8 - Very Good (isolated or minor problems) |
| 58.02 Joint | 6- Satisfactory (isolated leaking) |
| **59: Superstructure** | **5 - Fair Condition** |
| 59.01 Paint & PCS | 6 - Satisfactory (5-10% corr.) |
| **60: Substructure** | **6 - Satisfactory Condition** |
| **61: Channel** | **6** |
| **61.01 Scour** | **7 - Good** |
| **62: Culverts** | **N - Not Applicable** |
| **67.01 GA** | **5** |

## Appraisal

| | |
|---|---|
| Sufficiency Rating | 65.6 SD/FO 2 - FO |
| 36: Rail, Tr, Gd, Term Std | 1 N 1 0 |
| 72: Approach Alignment | 8 - Equal to present desirable criteria |
| 113: Scour Critical | 8 - Stable for scour conditions |
| 71: Waterway Adequacy | 8 - Bridge Above Approaches |

## Geometric

| | |
|---|---|
| 48: Max Span Length (ft) | 591.0 |
| 49: Structure Length (ft) | 2656.0 |
| 52: Deck Width, Out-To-Out (ft) | 85.2 |
| 424: Deck Area (sf) | 226291.2 |
| 32: Appr Roadway Width (ft) | 84.0 |
| 51: Road Width, Curb-Curb (ft) | 72.0 |
| 50A: Curb/SW Width: Left (ft) | 5 |
| 50A: Curb/SW Width: Right (ft) | 5 |
| 34: Skew (deg) | 0 |
| 33: Bridge Median | 3 - Closed median with non-mountable barriers |
| 54B: Min Vert Underclearance (ft) | 30 |
| 336A: Min Vert Clrnce IR Cardinal (ft) | 14 |
| 336B: Min V Clr IR Non-Cardinal (ft) | 0 |
| 578: 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 (%) | 110 |
| 704: Analysis Date | 12/09/2019 |
| 63: Analysis Method | 6 - Load Factor (LF) rating reported by rating factor (RF) method using MS18 loading. |

## Structure Type

| | |
|---|---|
| 43: Bridge Type | 3 - Steel<br>12 - Arch - Thru<br>N- Not Applicable |
| 45: Spans Main / Approach | 1 / 12 |
| 107: Deck Type | 1 - Concrete Cast-in-Place |
| 408: Composite Deck | Y - Composite Construction |
| 414A Joint Type 1 | 8 - Elastomeric Strip Seal |
| 414B: Joint Type 2 | 3 - Compression Seal |
| 108A: Wearing Surface | 1 - Monolithic Concrete (concurrently placed with structural deck)<br>N- Not Applicable |
| 422: WS Date | 11/15/1996 |
| 423: WS Thick (in) | 1.0 |
| 482: Protective Coating | 5 - Paint System OZEU |
| 483: PCS Date | 07/15/1997 |
| 453: Bearing Type 1 | 8 - Fixed Arch-Rib |
| 455: Bearing Type 2 | 3 - Sliding (Bronze) |
| 528: Foundn: Abut Fwd | 4 - Spread Footing (on soil) |
| 533: Foundn: Abut Rear | 4 - Spread Footing (on Soil) |
| 536: Foundn: Pier 1 | N - None (Such as most Culverts) |
| 539: Foundn: Pier 2 | N - None (Such as most Culverts) |

## Age and Service

| | |
|---|---|
| 27: Year Built/ 106 Rehab | 1917 / 1997 |
| 42A: Service On | 5 - Highway-pedestrian |
| 42B: Service Under | 7 - Railroad - waterway |
| 28A: Lanes on | 06 |
| 28B: Lanes Under | 00 |
| 19: Bypass Length | 2 |
| 29: ADT | 20094 |
| 109: % Trucks (%) | 1 |

## Inspections

| | | *Months* | |
|---|---|---|---|
| 90: Routine Insp. | | 12 | 10/29/2021 |
| 92A: FCM Insp. | Y | 24 | 10/05/2020 |
| 92B: Dive Insp. | Y | 60 | 07/08/2020 |
| 92C: Special Insp. | N | 0 | |
| 92D: UBIT Insp. | N | 0 | 12/23/2016 |
| 92E: Drone Insp. | | | |

Inspector Rufener,Justin

**Inspector:** Justin Rufener **Structure Number:** 1800930

**Inspection Date:** 10/29/2021 **Facility Carried:** USR 6

**Bridge Inspection Report**

## Element Inspection

| | Environment | Total Quantity | Units | Condition State 1 | Condition State 2 | Condition State 3 | Condition State 4 |
|---|---|---|---|---|---|---|---|
| **12 - Reinforced Concrete Deck** | 3 - Mod. | 332900 | sq. ft. | 306576 | 24024 | 2300 | 0 |
| | CS2: Areas of minor cracking with efflorescence, patching, delamination and saturation<br><br>CS3: Areas of spalling with and without exposed reinforcing. | | | | | | |
| 510 - Wearing Surfaces | | 246755 | sq. ft. | 241280 | 5475 | 0 | 0 |
| | CS2: Areas of map cracking. Moderate transverse cracks in asphalt wearing surface. | | | | | | |
| **110 - Reinforced Concrete Open Girder/Beam** | 3 - Mod. | 7394 | ft. | 6244 | 1000 | 150 | 0 |
| | CS2: Areas of delamination and efflorescence.<br><br>CS3: Areas of spalling with exposed reinforcement. | | | | | | |
| **113 - Steel Stringer** | 3 - Mod. | 10638 | ft. | 10338 | 200 | 100 | 0 |
| | CS2: Areas of active corrosion.<br><br>CS3: Areas of active and painted over minor pitting. Isolated moderate section loss with corrosion holes. | | | | | | |
| 515 - Steel Protective Coating | | 101200 | sq. ft. | 95640 | 5060 | 500 | 0 |
| | CS2: Areas of surface dulling and loss of effectiveness (substantially effective)<br><br>CS3: Isolated areas of limited effectiveness | | | | | | |
| **120 - Steel Truss** | 3 - Mod. | 1182 | ft. | 490 | 500 | 192 | 0 |
| | CS2: Areas of active surface corrosion<br><br>CS3: Areas of active and painted over pitting, pack rust, and rivet head loss. | | | | | | |
| 515 - Steel Protective Coating | | 60700 | sq. ft. | 44930 | 6070 | 9100 | 600 |
| | CS2: Areas of surface dulling, loss of effectiveness (substantially effective), and peeling topcoat<br><br>CS3: Areas of limited effectiveness and peeling paint. | | | | | | |
| **144 - Reinforced Concrete Arch** | 3 - Mod. | 8040 | ft. | 6740 | 1200 | 100 | 0 |
| | CS2: Areas of minor to moderate cracking, poor patching and delamination on Columns and Arch<br><br>CS3: Areas of spalling with and without exposed reinforcing on Columns and Arch | | | | | | |
| **152 - Steel Floor Beam** | 3 - Mod. | 3925 | ft. | 3575 | 200 | 150 | 0 |
| | CS2: Areas of active surface corrosion<br><br>CS3: Areas of active and painted over pitting, and painted over perforations at deck openings. | | | | | | |

**Inspector:** Justin Rufener **Structure Number:** 1800930

**Inspection Date:** 10/29/2021 **Facility Carried:** USR 6

**Bridge Inspection Report**

## Element Inspection

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 515 - Steel Protective Coating | | 52950 | sq. ft. | 49770 | 2650 | 530 | 0 |
| | CS2: Areas of surface dulling and loss of effectiveness (substantially effective)<br><br>CS3: Isolated areas of limited effectiveness | | | | | | |
| **155 - Reinforced Concrete Floor Beam** | 3 - Mod. | 33543 | ft. | 22543 | 10000 | 1000 | 0 |
| | CS2: Areas of minor to moderate cracking, poor patching and delamination<br><br>CS3: Areas of spalling with and without exposed reinforcing | | | | | | |
| **161 - Steel Pin and Pin & Hanger Assembly or both** | 3 - Mod. | 30 | each | 27 | 3 | 0 | 0 |
| | CS2: Minor painted over pitting on several eyebars below upper deck. | | | | | | |
| **162 - Steel Gusset Plate** | 3 - Mod. | 100 | each | 20 | 47 | 33 | 0 |
| | CS2: Areas of active surface corrosion<br><br>CS3: Areas of active and painted over pitting and rivet head loss | | | | | | |
| **205 - Reinforced Concrete Column** | 3 - Mod. | 513 | each | 340 | 100 | 73 | 0 |
| | CS2: Locations of map cracking, failing patches and delaminations.<br><br>CS3: Location of spalling with and without exposed reinforcing | | | | | | |
| **210 - Reinforced Concrete Pier Wall** | 3 - Mod. | 200 | ft. | 100 | 50 | 50 | 0 |
| | CS2: Areas of map cracking and delamination<br><br>CS3: Deep spalls at base of Pier 3. Interior faces of Piers 3 & 4 have areas of spalling with exposed reinforcing. | | | | | | |
| **215 - Reinforced Concrete Abutment** | 3 - Mod. | 3459 | ft. | 3159 | 200 | 100 | 0 |
| | CS2: Areas of cracking with staining and delamination<br><br>CS3: Areas of spalling | | | | | | |
| **300 - Strip Seal Expansion Joint** | 3 - Mod. | 2579 | ft. | 1479 | 1000 | 100 | 0 |
| | CS2: Areas of minor leakage and debris impaction.<br><br>CS3: Areas of active leakage and broken welds in joint armor. | | | | | | |
| **313 - Fixed Bearing** | 3 - Mod. | 4 | each | 0 | 4 | 0 | 0 |
| | CS3: Pack rust around pins. | | | | | | |
| **330 - Metal Bridge Railing** | 3 - Mod. | 1366 | ft. | 1366 | 0 | 0 | 0 |
| **331 - Reinforced Concrete Bridge Railing** | 3 - Mod. | 5312 | ft. | 5208 | 100 | 4 | 0 |
| | CS2: Areas of minor cracking with staining.<br><br>CS3: Isolated spalling | | | | | | |
| **815 - Drainage** | 3 - Mod. | 28 | each | 20 | 4 | 2 | 2 |
| | CS2: Several partially plugged scuppers.<br><br>CS3: Several plugged downspouts<br><br>CS4: Several fully plugged scupper inlets | | | | | | |

**Inspector:** Justin Rufener **Structure Number:** 1800930

**Inspection Date:** 10/29/2021 **Facility Carried:** USR 6

**Bridge Inspection Report**

## Element Inspection

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **830 - Abutment Backwall** | 3 - Mod. | 263 | ft. | 263 | 0 | 0 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ODOT District: | District 12 | **CUY-00006-1456 _(1800930)** | | | | Date Built: | 07/01/1917 |
| Major Maint: | 01 - State Highway Agency | Facility Carried: | USR 6 | Traffic On: | 5 - Highway-pedestrian | Rehab Date: | 01/01/1997 |
| Routine Maint: | 04 - City or Municipal Highway Agency | Feature Inters: | CUY. RIVER & RTA | Traffic Under: | 7 - Railroad - waterway | Insp. Resp A: | 01 - State Highway Agency |
| FIPS Code: | 16000 - CLEVELAND (CUY county) | Location: | DISTRICT 12 | DETROIT/SUPERIOR BRIDGE | | Insp Resp B: | 01 - State Highway Agency |
| Inspector | Rufener,Justin | Inspection Date | 10/29/2021 | Reviewer | Rufener,Justin | | |

# Inspector Comments - Deck and Approach

## Deck

### Element 12 – Reinforced Concrete Deck (SF)

The reinforced concrete deck is in Satisfactory condition.
The deck is divided into several sections as detailed below:

Detroit Avenue Tunnel: During the 1995-1997 rehabilitation a new reinforced concrete slab was placed on top of the original slab. The new slab was designed to support live and dead loads, with the original slab offering no structural support. The top and bottom surfaces for the new slab is not visible and assumed to be in good condition despite the poor and critical conditions of the original tunnel slab beneath.

West 25th Street Tunnel: The West 25th Street tunnel ceiling is in satisfactory condition, with areas of saturation, isolated delaminated areas and some shallow spalling with exposed reinforcing.

West Station: The West Station ceiling is in fair condition and has areas of spalling, cracking and efflorescence, active water infiltration, and exposed reinforcing steel.

Spans
1A, 1B, and 1 through 13: The upper deck floor in the main spans is in satisfactory condition. There are isolated cracks with some efflorescence, sound and unsound patches and spalls, some with exposed reinforcing. There are numerous areas of moisture staining, some of which have mottling.

East
Station: The East Station ceiling is overall in good condition with scattered cracking with efflorescence.

Lower Deck: The lower deck floor is not open to vehicular or pedestrian traffic is therefore not included as part of the element quantities. The lower deck floor is in good condition and consists of reinforced concrete with metal stay-in-place forms in Spans 1 through 3, and Spans 5 through 13. In isolated locations, the stay-in-place forms have active corrosion. In Span 4, the lower deck is an open steel grid type in middle section, and fiberglass grid in the exterior sections.

See the inspection report for additional details.

### Element 300 – Strip Seal Expansion Joint (LF)

The expansion joints are overall in Satisfactory condition. Joints typically have sections with loose debris and edge spalls along the joint armor. There are some areas of tearing in the joint seals accompanied by active leakage, and minor damage to joint armor. See the inspection report for additional details.

### Element 330 – Metal Bridge Railing (LF)

The median railings

are in **Good** condition. The median railings are located along the edges of the roadway in Span 4 to protect the truss and hangers from vehicle impact.

**Element 331 – Reinforced Concrete Bridge Railing (LF)**

The concrete railings are in Good condition. The railings on the north and south side of the bridge consist of a reinforced concrete railing with an aluminum fence on top. All concrete railing is in good condition with minor cracking, staining, and isolated spalling. The fence has isolated areas of minor damage. See the inspection report for additional details.

**Element 510 – Wearing Surface (SF)**

The wearing surface is in Good condition. In Spans 1A – 13 and the East Station the wearing surface is a micro silica modified concrete, which was placed in 2019. There are isolated locations of map cracking in the concrete wearing surface. Above the Detroit Avenue Tunnel, West25th Street Tunnel and West Station, the wearing surface is asphalt. The asphalt has areas of transverse and map cracking. See the inspection report for additional details.

**Element 815 – Drainage (EA)**

The deck drainage is in Fair condition. The West Abutment south downspout and Pier 1 south downspout are completely clogged at the base of the catch basin. At Pier 3 the downspout is disconnected at the base of the pier, allowing drainage on the pier face. The Pier 9, South Catch Basin concrete frame has shifted and the north catch basin cover has shifted and rotated. The north sidewalk longitudinal trench drains are filled with debris and not functioning. Some of the scupper inlets are fully or partially clogged. At Pier 5 on the North Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck, allowing roadway drainage onto the maintenance deck. See the inspection report for additional details.

**Curb/Sidewalk**

The concrete curb and sidewalk are in Satisfactory condition. The curbs and sidewalks have areas of cracking, delamination, and spalling. The steel curb plates have widespread surface corrosion. See the inspection report for additional details.

**Lighting**

The lighting on the bridge is in **Fair** condition. Architectural light pole bases on the north sidewalk in Spans 5, 8 and 11 have cracked and are broken. Two of the architectural lights on the north sidewalk, and numerous of the taller, cobra style roadway lights are not functioning. All of the exterior pier shaft light brackets have paint failure and corrosion with minor section loss present. Many of the architectural lights attached to the lower deck fascia are not functioning, and several are visually broken.

**Signs**

The signs on the structure are in Good condition.

**Approach**

## Approach Wearing Surface

The approach wearing surfaces are in Satisfactory condition. There are some areas of transverse and map cracking.

## Embankment

The approach embankments are in Fair condition. The embankment under Spans 1 through 3 has several slope depressions. This embankment was primarily loose soil placed over demolition debris. Beneath this fill is are two concrete struts between Pier 2 and 3 used to maintain stability during construction. The south strut is preventing portions of the fill from sliding into the Cuyahoga River. This embankment is being monitored with slope inclinometers maintained by ODOT District 12. See the inspection report for additional details.

The embankment along the south side of Spans 1A and 1B has significant erosion for the full length. At the west end of the erosion, there is a 15' diameter x 4' deep erosion ditch around a manhole. An erosion ditch extends from the manhole towards the east typically 3' W x 2' D. This erosion is relatively unchanged from the 2020 inspection. Tower B South, which is in this area, is leaning due to slope instability, as previously discussed. See the inspection report for additional details.

## Guardrail

The approach guardrails are in Good condition with some minor impact scrapes in the concrete rail.

## Security Items

There are locations where the structure and structure right-of-way can be accessed by non-bridge personnel. The fence which encloses the area under Span 1 and along the south sides of Spans 1A and 1B is accessible due to an unlocked gate on the southeast end of Pier 1, and two locations where holes have been cut into the fence on the south side of Spans 1A & 1B. Due to these openings, there are multiple homeless encampments within the fenced in area. Preventative access steel mesh installed outside Span 1A near Tower A to prevent access has failed. Security fencing installed around Piers 2 and 3 can easily be surpassed, and there is evidence of a homeless encampment inside of Pier 3.

A chain link enclosure for the Center Street Bridge operator's vehicle on the west side of Pier 4 allows vandals to climb the fencing cover to access the Span 4 truss. From here the vandals have vandalized Pier 4 and have access to the truss lower chord and potentially the lower deck.

# Inspector Comments - General Appraisal

### Superstructure

## Element 110 - Reinforced Concrete Beam (LF)

The beams are in overall Fair condition. This element consists of the longitudinal beams in the Detroit Avenue Tunnel, West 25th Street Tunnel, and West Station. The concrete beams have delaminations, efflorescence, and some areas of spalling with exposed reinforcing. See the inspection report for additional details.

## Element 144 – Reinforced Concrete Arch (LF)

The concrete arches are in Fair condition. This element encompasses the concrete arches and arch columns. The concrete arches in Spans 5 through 10, Span 13 and portions of Span 3 were patched, crack injected and then wrapped on the underside with FRP to prevent future spalling. Select columns were also

patched. The concrete arches and columns that were not repaired typically have areas of cracking, delamination, poor patching and spalling with and without exposed reinforcing. The concrete jack arches connecting the columns below the upper and maintenance decks have spalls with exposed reinforcing steel, cracks, and delaminated areas.

See the
inspection report for additional details.

**Element 155 – Reinforced Concrete Floor Beam (LF)**

The concrete floorbeams in Spans 1A, 1B, 1 through 3, and Spans 5 through 13 are in Satisfactory condition. The floorbeams have isolated spalls with and without exposed reinforcing, cracking, delaminations, and areas of poor patching. The lower deck floorbeams tend to be in worse condition than the upper deck floorbeams. The structural corbels are included in the rating of this element exhibit similar defects as the rest of the floorbeams. The lower deck floorbeams in the East Station have the bottom mat of reinforcing steel exposed. This deterioration has changed little since the 1980s, but they carry no substantial live load. As part of the most recent rehabilitation, the undersides of lower deck floorbeams in Spans 5 through 10, 13 and portions of Span 3 were fiber wrapped after patching, to prevent future spalling.

See the
inspection report for additional details.

**Element 113 – Steel Stringer (LF)**

The stringers are in Satisfactory condition. There are 18 lines of stringers in the upper deck and 12 in the lower deck. The upper deck stringers have shear studs welded to the top flange providing composite action with the deck. The upper and lower deck stringers in Panels 4, 5, 5', and 4' were replaced in 1995. The upper deck stringers are in good condition. The original curb stringers of Lines E and N have areas of painted over pitting, with some active corrosion.

The lower deck is not open to vehicular or pedestrian traffic the stringers are therefore not included as part of the element quantities. The stringers supporting the steel grid deck are in good condition. Stringers D, E, I and J, which support only their own dead load, often have painted over advanced section loss and perforations at the floorbeams and saddle bearings. Stinger K, which supports the south fiberglass pedestrian deck has a similar locations of advanced section loss. The rest of the stringers supporting the outer pedestrian fiberglass grid deck are in good condition.

See the inspection report for additional details.

**Element 120 – Steel Truss (LF)**

The steel truss is overall in **Satisfactory** condition. There are areas of pack rust, pitting and surface corrosion, mainly at and below the upper deck. Perforations, many of which have been cleaned and painted over are present in the diaphragm plates and lacing bars. At the eyebar connections there are areas of painted over pitting in the web plates.

See the
inspection report for additional details.

**Element 152 – Steel Floor Beam (LF)**

The steel floorbeams are in **Satisfactory** condition. The floorbeams typically have painted over perforations near the deck openings at the truss lines, with repair plates welded in place at some of these locations. Active surface corrosion is present at due to ongoing water infiltration at the deck openings.

On lower deck floorbeams 10, 12 and 11' through 6' there are cracks along the weld of the stiffening plates to the top flange at the north truss line. Some of the crack lengths have changed in length from the 2020 Inspection. The cracks at Floorbeam 12 were not noted in previous inspections.

See the
inspection report for additional details.

**Element 161 – Steel Pin & Hanger Assembly (EA)**

The pins, hangers and hinges are in **Good** condition with no significant deficiencies noted. Minor painted over pitting was noted on some eye-bars below the upper deck. There is active corrosion on some of the hangers above the previous zonal painting. See the inspection report for additional details.

**Element 162 – Steel Gusset Plates (EA)**

The truss gusset plates are in **Fair** condition. The gusset plates typically have areas of active surface corrosion. The lower chord gusset plates below the upper deck typically have painted over pitting and reactivating corrosion along the top of the lower chord. At North Truss L2, the north gusset plate has 2' L x 3" H x up to 1/8" D reactivating pitting at the lower chord interface on the south face and 2' L x up to 3" H x up to 5/16" D pitting on the north face. The south gusset plate has 30" L x up to 4" H x up to 3/8" D pitting on the south face with reactivating corrosion and 2' L x up to 3" H x up to 1/16" D pitting on the north face. At the North Truss L3, the gusset plates have pitting up to 3/16" D. In other scattered locations, the gusset plates have areas of pitting. See the inspection report for additional details.

**Lateral Bracing & Sway Bracing**

The lateral bracing and sway bracing is in **Satisfactory** condition with isolated areas of active surface corrosion, pack rust, and advanced section loss including perforations. See the inspection report for additional details.

**Element 313 – Fixed Bearing (EA)**

The bearings are in
Fair condition with some pack rust around the pins, and surface corrosion noted on the interior faces of all four bearing castings. The non-structural bearing pin cover plates have cracks up to 7 inches long at L0 and L0' on both trusses. The north pin cover at L0 on the north truss has fallen off. There is advanced section loss of some of the anchor bolt and nuts

Between the deck underside and the top of the transverse floorbeams over Piers 11 & 12, there are 3" H concrete pedestals with galvanized steel plates sitting on top and between each pedestal. In several locations these plates have moved and in some cases are no longer support the

deck underside. See the
inspection report for additional details.

**Item 515 – Steel Protective Coating (SF)**

The protective coating system (PCS) is in **Satisfactory** condition. Areas of corrosion, peeling and failed paint are present on the main truss members below the lower deck. The structural steel between the upper and lower decks was repainted in 2014-2015 and is in good condition. The protective coating system above the upper deck has areas of fading and surface corrosion with minor rust staining.

# Fatigue Prone Details

The fatigue prone details are in **Fair** condition. Stiffening retrofit plates welded to the top flange of the lower deck floorbeams at the truss lines are classified as Category E fatigue details. Cracks in the fillet welds are present at several locations. Refer to *Element 152 – Steel Floor Beam* above for additional details on crack locations and growth.

**Utilities**

The utilities are in Satisfactory condition. The lower deck telephone junction chambers and supports are corroded due to saltwater infiltration through the manhole above. At Pier 5 on the North Side, and in Span 13 on the South Side, there is active leakage coming through the utility entrances in the deck. A utility line mounted below the top deck in the south bay is sagging and making contact with the maintenance deck in several locations. There is a missing electric junction box cover on the south concrete rail in Span 7.

## Substructure

**Element 205 – Reinforced Concrete Column (EA)**

The pier columns are in Satisfactory condition. This item includes the main span pier columns, columns in Spans 1A and 1B, and the columns in the subway tunnels and stations. The main span pier columns have areas of map cracking, failing patching, and delamination. There are also a few areas of minor spalling with exposed reinforcing. The decorative arches above these columns have areas of map cracking, failing patching, delamination and spalling with exposed reinforcing. The remaining columns have areas of failing patching, delamination, and spalling with and without exposed reinforcing.

The decorative towers on the north and south faces of the piers typically have widespread cracking, delamination and spalling with and without exposed reinforcing. The south towers at Piers 5 through 7 are leaning away from bridge, with gaps up to 2¼-in between the top of the tower and the outside face of the upper jack arches. Detailed measurements of the gaps between these towers and the adjacent bridge features are given Table 5 in Appendix B. No change was noted between the current measurements and those taken during the 2020 inspection.

See the inspection report for additional details.

**Element 210 – Reinforced Concrete Pier Wall (LF)**

The pier walls at Piers 1, 3 and 4 are in Satisfactory condition. The west face of Pier 1 is primarily covered by fill. The

exposed portions of the pier walls have areas of map cracking and delamination. Piers 3 and 4 are located adjacent to the Cuyahoga River. The portion of Pier 3 that is exposed to the channel has widespread areas of deep abrasion and numerous spalls. Piers 3 and 4 are cellular type structures, which are open on their Span 3 and 5 faces, respectively. The interiors faces of the walls have areas of delamination and spalling with exposed reinforcing. See the inspection report for additional details.

**Element 215 – Reinforced Concrete Abutment (LF)**

The abutment walls are in Satisfactory condition. The abutment walls consist of the West and East Abutments and the walls of the Detroit Avenue and West25th Street Tunnels. The abutments have areas of cracking with minor moisture staining, delamination and some spalling. Some staining appears to be superficial due to leaking deck joints above. In the tunnels, the lower 1-ft to 2-ft of the walls have widespread shallow spalling with exposed reinforcing. The portions of the walls in the tunnels above these areas were repaired as part of the most recent rehabilitation. . See the inspection report for additional details.

**Element**
**830 – Abutment Backwall (LF)**

The backwalls are in Good condition. The backwalls consist of the closure panels at the ends of the West 25th Street Tunnel, Detroit Avenue Tunnel, and East Station.

**Wingwalls**

The wingwalls are in Poor condition. The wingwalls along Spans 1A and 1B and the East Station have cracking and spalling with exposed reinforcement throughout. See the inspection report for additional details.

# Tower B South

A section of the rear abutment, south wall at Tower B has through cracks in the wall and associated footing, and is leaning to the south. It has continued to show incremental movement over the past 10+ years. On the interior, the top of the tower is spalled and cracked due to contact with the soffit of the upper level sidewalk. Crack gages have been placed at several locations to monitor the movement of the section. Crack gauges located at the base of Tower B are cracked and slightly displaced. New gauges should be installed to ensure an accurate record of the tower rotation is maintained. See the inspection report for additional details.

**West and East Abutment Chambers**

The chambers below Spans 1A and 1B on the west approach and below the East Station were inspected, however, they are not included in any of the quantities within this report. There are large spalls and delaminations throughout the chambers with exposed and corroded reinforcing on the walls and ceilings of most of the cells. Horizontal, vertical, diagonal and map cracking with efflorescence and moisture staining are also present throughout all cells. The floors are typically covered in dirt and construction debris. In the west chamber this is heavy cracking around south Tower B (see discussion above for more details).

**Water Infiltration**

Standing water was noted in the pedestrian tunnel under the West Station. In the east abutment chamber, most of the lower cells are filled with standing water. The pedestrian tunnel under the East Station is also filled with standing water. Holes drilled in the east abutment to drain some of the standing water had a steady flow of water at the time of inspection.

**Slope**

### Protection

The slope protection is in Satisfactory condition, with some areas of erosion and sliding material noted.

## Culvert

# Inspector Comments - Waterway

## Waterway Adequacy

## Channel

### Alignment

The alignment is in Good condition. The channel is skewed with respect to the piers, but this is an as-built condition.

### Protection

The channel protection is in Satisfactory condition with only minor deficiencies. The west bank is vegetated with some dumped rock channel protection. The west bank is protected by a sheet pile wall.

### Hydraulic Openings

The hydraulic opening is in Good condition with no major constrictions associated with the bridge.

### Navigation Lights

The navigation lights are in Poor condition. None of the six lights were functioning at the time of inspection. No damage was noted to the light fixtures.

### Scour

The scour is in Good condition. An underwater bridge inspection was performed on July 8, 2020. No areas of exposed foundation or significant scour holes were found in the inspection. See the underwater inspection report for additional details.

## Scour Critical