

NSTM Member Inspection Report

Submitted to:



Ohio Department of Transportation, District 8
505 S. State Route 741
Lebanon, Ohio 45036

HAM-71-0248R

2025 NSTM Member Inspection Report (VAR-District 8 Bridge Inspections for Steel Pier Caps

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Submitted by:



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INTRODUCTION

Bridge Description

Bridge HAM-71-0248R is a thirteen-span, 1158.21 ft long bridge built in 1966 (see Figure 1). In spans 1 through 8 the superstructure is comprised of rolled steel beams. Spans 9 through 13 carry welded steel plate girders that frame directly into the steel pier caps at Piers 9 through 12.

Four NSTM pier caps are each supported by three concrete columns at Piers 9, 10, 11 and 12 (see Figure 2). The caps are continuous welded box members with cantilever ends up to 13' 7-1/2" in length. Nine welded plate girders frame into the box sections. The girder webs are bolted by vertical double angles to the cap webs. The top flange splice plates are bolted to the top flanges of the pier caps and of the girders on each side of the cap. The bottom flange splice plates pass through the web plates of the pier caps and are bolted to the bottom flanges of the girders on each side of the caps. Refer to Appendix A for existing pier cap plans.



Figure 1: Bridge Location Map

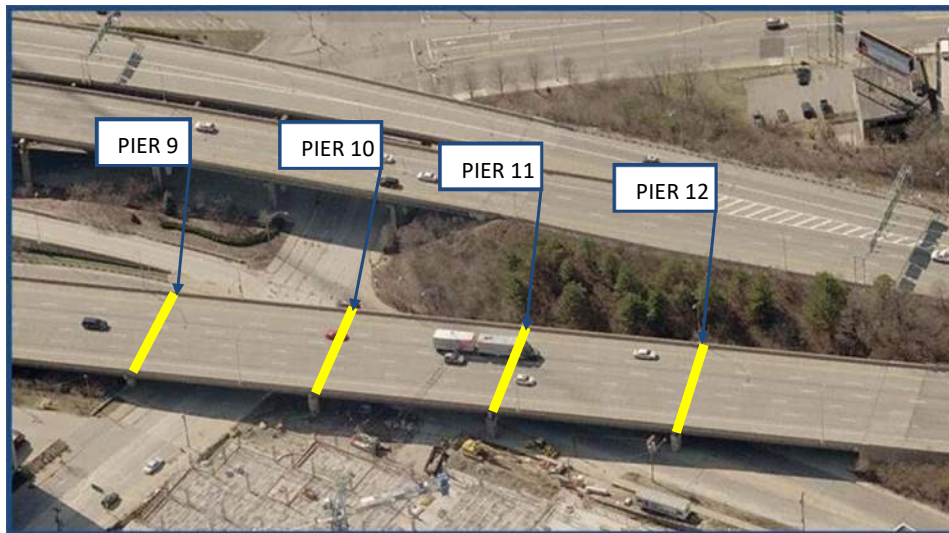


Figure 2: NSTM Pier Caps Location Map

A 2012 rehabilitation project performed the following repairs on this structure:

- Cleaning and painting the interior and exterior surfaces of all pier caps
- Removal of interior diaphragm knee braces on the caps
- Bolted retrofit of welded drainage bracket and lateral bracing gusset connections to the web plates of all pier caps
- Coping of intersecting fillet welds on the knee braces attached to the pier cap webs and girder bottom flanges
- Grinding of miscellaneous tack welds on the pier caps

- Drilling and saw-cutting of pressure relief holes in the web plates of the caps
- Replacement of the center bearing below the cap of Pier 12

A 2017 rehabilitation project performed the following repairs on this structure:

- Cleaning drainage system to the first manhole, both on structure and below ground
- Retrofit of fatigue cracks in Pier 9, 10, 11, and 12

Inspection and Access Methods

From June 9 to June 21, 2025 Gannett Fleming performed a NSTM member inspection on the HAM-71-0248R NSTM pier caps. A 46' bucket truck was used to access the NSTM pier cap interiors (Pier 9, Pier 10, Pier 11, Pier 12) and perform the "arms-length" inspection of the exteriors. Traffic control provided by A&A Safety was used to gain access to the box cap exteriors and consisted of single lane closures as follows:

Florence Avenue – One of the four lanes on Florence Avenue was closed between the hours of 8:30 AM to 4:00 PM to inspect the caps at Piers 10, 11 and 12.

Eden Park Drive – One lane of Eden Park was closed between the hours of 8:30 AM to 4:00PM to inspect the cap at Pier 9.

OSHA confined space entry procedures were followed while inspectors were working inside the pier cap. Entry was performed in accordance with complete permit-required confined space entry procedures per GF SOP #10 and 29 CFR 1910.146. This included the use of an entry permit system, pre-entry air monitoring, continuous air monitoring, the designation of qualified entrants, attendants, and supervisor(s), and available emergency response. OSHA compliant safety harnesses and lanyards were worn by inspectors when working in the lift bucket and when implementing bridge climbing techniques. The bolts securing the pier cap hatches were removed and reinstalled with an impact wrench and the hatches were sealed with exterior-grade caulking once the interior inspection was complete. Various socket sizes from ½" to 22mm were required to remove the hatch bolts.

Field measurements were taken using tape measures, calipers, and an ultrasonic thickness gauge to verify structural component dimensions. Observed deficiencies were recorded on member-specific field inspection forms. Digital photographs were taken of the fatigue prone details and other areas of interest or concern to further document the physical condition of the pier caps.

Inspection Team

The following individuals were part of the inspection team:

- Daniel E. Kent, Jr., PE, CBI Team Leader
- Matt McFadden, EIT, CBI Inspector
- Rob Parker, CBI Inspector

Condition Rating

Our inspection team utilized the rating system in the ODOT Bridge Inspection Manual to evaluate the current condition of the HAM-71-0248R pier caps. This system is summarized in the following table.

Summary Items (NBIS)	Condition	Defects
9	Excellent	Excellent Condition.
8	Very Good	No problems noted.
7	Good	Some minor problems.
6	Satisfactory	Structural elements show some minor deterioration.
5	Fair	All primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.
4	Poor	Advanced section loss, deterioration, spalling, or scour.
3	Serious	Loss of section, deterioration, spalling, or scour have 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 support. 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 put it back in light service.
0	Failed	Out of service-beyond corrective action

The inspection of this bridge was performed in accordance with the following documents:

1. Manual of Bridge Inspection, Ohio Department of Transportation (ODOT), 2025.
2. Manual for Bridge Element Inspection, AASHTO, 2019.
3. Bridge Inspector's Reference Manual, U.S. Department of Transportation, 2002 (rev 2012).
4. Inspection of Fracture Critical Bridge Members, U.S. Department of Transportation, 1986.
5. National Bridge Inspection Standards, U.S. Department of Transportation, 2004.

AASHTO National Bridge Element Quantities:

NATIONAL BRIDGE ELEMENTS RECORDING SHEET ¹									
Element	Defect	Env	Element/Defect Description	Total Qty	Units	Condition State Quantity			
						CS1	CS2	CS3	CS4
Superstructure									
PIER 9									
231		3	Steel Pier Cap	82	FT	69	13		
PIER 10									
231		3	Steel Pier Cap	86	FT	81	5		
PIER 11									
231		3	Steel Pier Cap	93	FT	88	5		
PIER 12									
231		3	Steel Pier Cap	82	FT	70	12		
515		3	Steel Protective Coating ²	11397	SQ FT	11169		228	
Substructure									
PIER 9									
205		3	Reinforced Concrete Column	2	EA	2			
PIER 10									
205		3	Reinforced Concrete Column	2	EA		1	1	
PIER 11									
205		3	Reinforced Concrete Column	2	EA	2			
PIER 12									
205		3	Reinforced Concrete Column	2	EA	2			

¹ Includes only the defects for the portions of the elements that were inspected during the NSTM inspection

² Protective Coating system total quantity is for the entire superstructure. Pier caps and associated protective coating defects are included in the overall condition state quantities.

PIER CAP 9

Pier Cap 9 is in GOOD CONDITION [7] overall (Photo 1). The condition rating has been raised in 2019 due to the designed repairs being constructed in 2017 returning the condition close to the original condition. Previously noted cracks were removed and dog bone crack arrest holes installed as specified in the repair plans in the appendix below. The interior of the cap was dry at the time of inspection. Moderate pitting of steel surfaces was found throughout the interior of the cap. The bottom flange in the interior end caps is heavily corroded.

Pier Cap 9 Interior

At the west access hatch, there is knife edging along the perforation of the hatch due to corrosion. Seven corrosion holes are present below the bottom of the perforation in the end diaphragm (Photo 2). Reactivating laminating corrosion is present along the bottom flange adjacent to the west hatch (Photo 3). There is painted over pitting and reactivating laminating corrosion on the bottom flange between the east hatch and Girder J diaphragm (Photo 4).

There was no change in the 1-1/2" L crack, and the 2- 3/4" L crack (Photo 5) in the fillet weld of the south web stiffener between the east bearing and Girder J diaphragm. The cracks do not propagate into the web plate and do not reach the end of the weld. Previously reported extension of 1-1/2" L crack to 2-1/4" L in 2023 was not observed after removing paint.

There is a 2" L tack weld on the south web between Girders H and J. Two tack welds 3" or less exist on the interior of north and south web at east bearing and south web at west bearing at the east and west bearing. There is a 1-1/4" L tack weld on the north web between the east bearing and Girder J diaphragm, west of the stiffener (Photo 6). An irregular overlapping weld exists on the north web, east of Girder F diaphragm at the stiffener (Photo 7). Overtop each bearing, the backer bars attached with tack welds have not been removed between the

diaphragms, most likely due to space constraints.

The fillet welds along the pier cap diaphragms, pier cap webs and the girder tie plates are not sufficiently coped resulting in triaxial welds (Photo 8).

After the removal of the knee braces that were welded to the pier cap top flanges adjacent to each bearing, 5" L sections of the knee braces were left in place (Photo 9).



Photo 1: Pier Cap 9 Elevation



Photo 2: West Access Hatch Opening; Knife Edging and Corrosion Holes Along the Perforation in The End Diaphragm



Photo 3: Bottom Flange Adjacent to West End; Painted Over Pitting and Reactivating Laminating Corrosion



Photo 4: Bottom Flange Adjacent to East End; Painted Over Pitting and Reactivating Laminating Corrosion



Photo 5: Girder J Diaphragm; 2-3/4" L and 1-1/2" Cracks in South Fillet Weld



Photo 6: North Web Between East End and The Girder J Diaphragm; 1-1/4" L Tack Weld



Photo 7: North Web at The Stiffener East of The Girder F Diaphragm; Irregular Weld



Photo 8: West Face of The Girder C Diaphragm, Tie Plate, and the North Web; Intersecting Welds Not Sufficiently Coped



Photo 9: East Face of Girder E Diaphragm and Top Flange; Knee Brace Remnants at The Top Flange

Pier Cap 9 Exterior

Minor surface corrosion exists along the top flange and both web plates for majority of length. At the west access hatch, two out of six anchor bolts are missing around the perimeter. These bolt holes were caulked over to provide a tight seal. Also, below the bottom edge of the perforation, three painted over pinholes, up to 1/4" diameter, were noted. At the bottom corners of the west end plate, the drain holes exhibit section loss resulting in enlarged holes, up to 1-1/2" Diameter. Active corrosion of the top flange and corrosion staining was noted above the east hatch (Photo 10).

The web plates were retrofitted with drilled stress relief holes connected by saw cuts adjacent to the welded connections of the girder bottom flange tie plates and the knee braces connecting the girder bottom flanges tie plates to the pier cap webs were coped to remove intersecting fillet welds (Photo 11). The welded connections of the drainpipe support brackets and the lower lateral bracing were removed from the web plates and replaced with bolted connections. Due to excessive coping, a 2" diameter x up to 3/16" D gouge on the north pier cap web exists at the Girder B east knee brace (Photo 12) and at the knee brace for Girder E, with minor gouges elsewhere.

A crack was previously noted on the knee brace below Girder H, however, after further investigation, the crack was determined to only be in the paint (Photo 13).

The south web at the west side of Girder C, east side of Girder G, and west side of Girder H exhibits minor corrosion staining from the bolted connection for the lateral bracing due to cracked paint and water infiltration (Photo 14). The north web on both sides of Girder B and Girder C also exhibits similar minor corrosion staining.

The exterior paint is in GOOD CONDITION [7] with active corrosion on the top flange ends and minor pitting on the top of the bottom flange on both ends (Photo 15).

The spherical bearings have minor surface rust but appear to function properly. Anchor nuts on the middle and west bearings are not seated on the base plate (Photo 16).



Photo 10: East End of Pier Cap; Active Corrosion on Top Flange and Corrosion Staining. Spall size unchanged.



Photo 11: Retrofit Dog Bone Drilled Stress Relief Holes Connected with Saw Cut and Coped Knee Braces



Photo 12: 2" L 3/16" D Gouge on North Web, At Girder B from Coping



Photo 15: Pitting Along the Top of The Bottom Flange, Knee Brace, And Web



Photo 13: Paint Crack Located in Knee Brace Below Girder E



Photo 16: West Bearing Unseated Anchor Nut on Center Column



Photo 14: South Web East of Girder G; Corrosion Staining at Bolted Connection for Lower Lateral Bracing

Pier Cap 9 Fatigue Prone Details

Fatigue Prone Detail 1

Fillet welds between diaphragms or stiffeners and web or flange plates.

Category: C

Location: All girder diaphragms and web stiffeners.

Fatigue Prone Detail 3

Tack welds, less than 2", on web and flange

Category: C

Location:

- One tack weld on the interior of the south web at the west bearing.
- Intermittent tack welds on the vertical backer bars and the interior of the web plates between the stiffeners of each bearing.

Fatigue Prone Detail 4

Tack welds, greater than or equal to 2" and less than or equal to 4", on the web plates.

Category: D

Location: One 3" tack weld on each web plate at the east bearing; one 2" weld on the south web plate between Girders H and J (3 total)

Fatigue Prone Detail 5

Fillet weld greater than 4", with a connection thickness less than 1".

Category: E

Location: 5" fillet welds connecting remaining portions of 2-3/8" Knee braces to the top flange at the diaphragms of Girders B, E, and H, and to the bottom flange at the diaphragms of Girders C, D, F, and G.

Fatigue Prone Detail 8 Intersection of fillet welds. Category: E

Location: Fillet welds of the web plates and bottom flange tie plates intersecting fillet welds between the diaphragms and both web and tie plates at Girders C, D, F, and G.

Fatigue Prone Detail 9

Drilled hole stress relief retrofit in web plates.

Category: B

Location: Both web plates on each side of all interior girder connections.

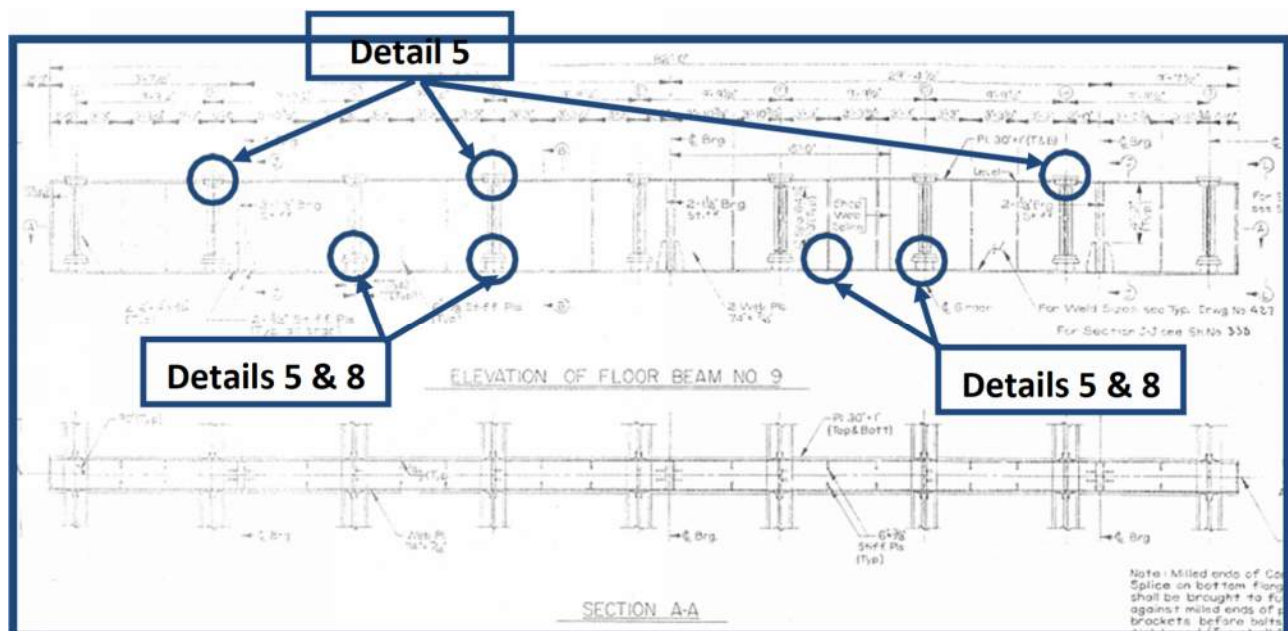


Figure 3: Plan and Elevation of Pier Cap 9

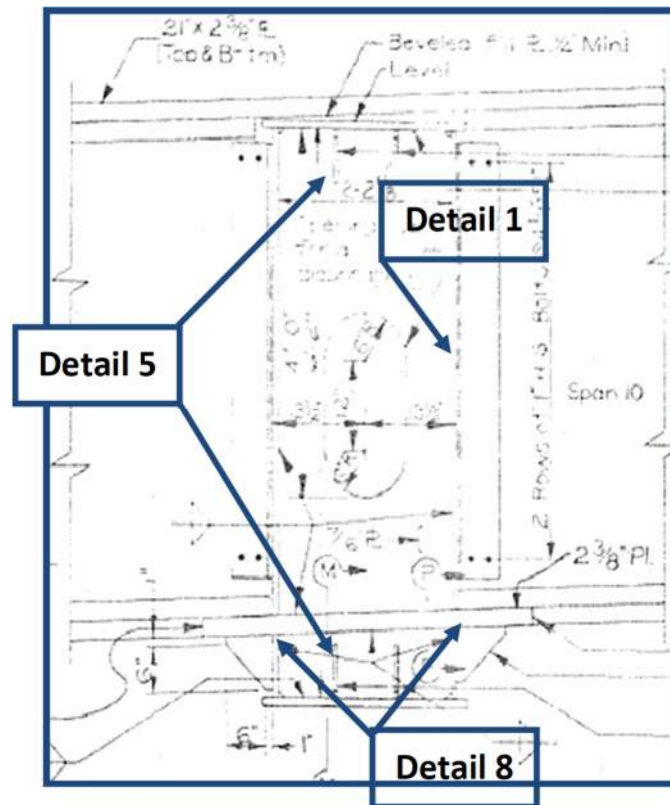


Figure 4: Section of Pier Cap 9

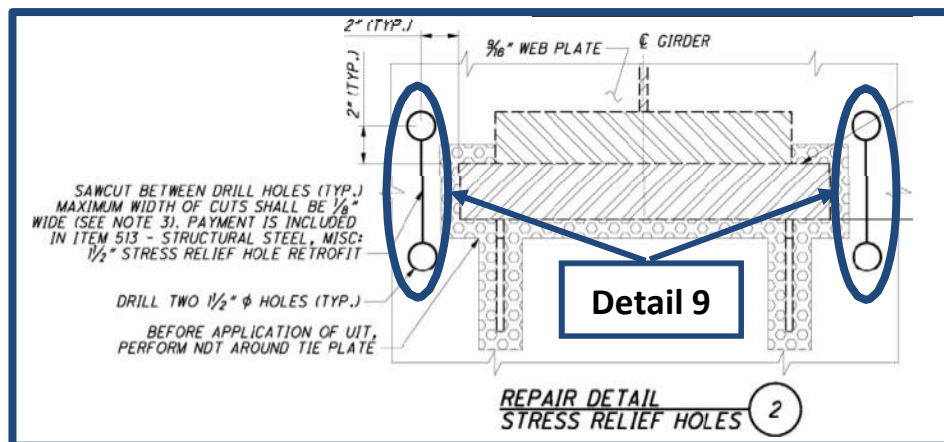


Figure 5: Web Plate Retrofit on Pier Cap 9

PIER CAP 10

Pier Cap 10 is in GOOD CONDITION [7] overall (Photo 17). The condition rating was raised in 2019 due to the designed repairs being constructed in 2017 returning the condition close to the original condition. Previously noted cracks were removed and dog bone crack arrest holes installed as specified in the repair plans in the appendix below. The interior of the cap was dry at the time of inspection. Isolated areas of moderate pitting and section loss were found on the bottom flange, end plates and lower portions of the web plates between the fascia girders and access hatches.

Pier Cap 10 Interior

Moderate painted over pitting and light surface corrosion is typical throughout the interior.

At each bearing, backer bars attached with tack welds have not been removed between the diaphragms, most likely due to space constraints.

Knee braces were removed from the girder diaphragms and the tension zones of the top and bottom flange plates. On the east side of the Girder E diaphragm, there are knee brace remnants on the diaphragm and top flange and an errant 5" L horizontal weld (Photo 18).

The fillet weld along the Girder C and D diaphragms, pier cap webs and bottom flange are not sufficiently coped resulting in triaxial welds along the bottom flange (Photo 19).

Repairs were made with the previously noted cracks at the Girder A diaphragm and have been recently painted.

The previously noted weld deficiencies at the Girder D diaphragm have been repaired and recently painted (Photo 20).

Gouges from tack weld removal were noted on the south web at the stiffener west of Girder B diaphragm. On the north web, west of the Girder

H diaphragm, there are four tack welds less than 1" L.

A 1 ¾" tack weld on the south web was observed on the west side of the Girder C diaphragm. A tack weld was located on the North Web between Girder C and D (Photo 21).

A mis-cut dog bone retrofit was observed in the North Web East of Girder D (Photo 22) and South Web West of Girder H.

The interior paint is in VERY GOOD CONDITION [8]. Moderate pitting was observed on the bottom flange and along the bottom of the web and end plates between both access hatches and the adjacent diaphragms (Photos 23 and 24). During previous rehabilitation, the interior surfaces of the pier cap were cleaned and painted, corrosion is active along the bottom flange and bottom of webs at both hatches.



Photo 17: Pier Cap 10 Elevation

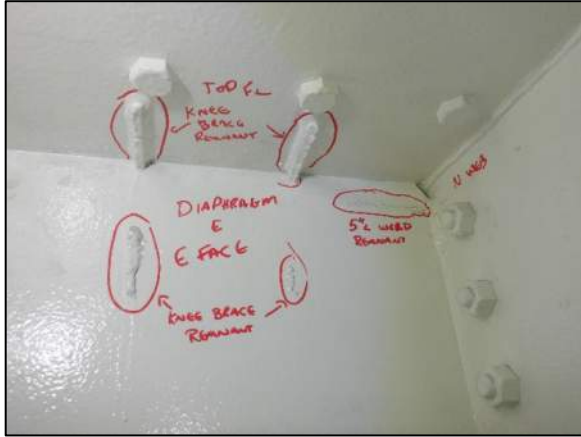


Photo 18: East Face of Girder E Diaphragms and Top Flange; Knee Brace Remnants And 5" L Weld Remnants



Photo 21: Tack Weld Between Girder C and D in North Web



Photo 19: Insufficient Cope in South Web Between Diaphragm C and D



Photo 22: Mis-Cut Dog Bone Retrofit in North Web East of Girder D



Photo 20: Underside of Bottom Flange Tie Plate, Recently Painted



Photo 23: Moderate Pitting on Bottom Flange and Bottom of Webs Between Girder J and East End Plate



Photo 24: Active Corrosion and Paint Peeling Along Bottom of Web and Bottom Flange at West End Cap

Pier Cap 10 Exterior

The exterior of the pier cap is in GOOD CONDITION [7] with no major problems. The exterior paint is in GOOD CONDITION [7]. Moderate pitting was also noticed on the west end plate around the access hatch.

As a result of the rehabilitation, the knee braces are properly coped (Photo 25) and the stress relief holes are present. On the north web at Girder A, the drilled holes and sawcut retrofit was installed 13" away from the bottom flange tie plate rendering it ineffective. It is possible that drilling the holes within 2" of the tie plate was not feasible due to the previous downspout configuration.

Painted over pitting was noted around the perimeter of the west access hatch. Light surface corrosion exists on the web plates and the edges of the bottom flange between the west bearing and Girder A; the previously noted 2' W x 8" H area of corrosion has been painted over. Above the Girder A bottom flange tie plate, the previously noted 21" W x 4" H x up to 1/4" D area of painted over section loss on the north web has not changed.

Between the south pier cap web and the east connection angle of Girder D, there is a 1" L tack weld (previously reported as 2" L), above a 3" L tack weld near the bottom two bolts of the angle. Also 1" L tack weld on connection angle of Girder G, east side. No cracks were noted at any of the tack welds.

A 4" L x 1" H area of minor gouges on the bottom flange exists on the north side of Pier 10 just below the west side of Girder B (Photo 26). Shallow painted over pitting on the top face of the west end. Minor fretting corrosion was noted between the bolted connection on the north web and lower lateral brace on the west side of Girder H and east side Girder G (Photo 27).

There is painted over pitting behind all copes and knee brace location throughout.

During a previous rehabilitation, the welded connections of the drainpipe support brackets and the lower lateral bracing were removed from the web plates and replaced with bolted connections.

A 2" tack weld was found between the south web and the east connection angle of Girder G.

Painted over section loss was noted on the North Web behind the bottom flange of Girder A (Photo 28). Rust Staining left of Girder A coming from the Deck.

The spherical bearings are in GOOD CONDITION [7] and appear to function properly.



Photo 25: Typical Coped Knee Braces



Photo 26: 4" X 1" Minor Impact Damage to North Side of Bottom Flange West of Girder B, no change.



Photo 27: Minor Fretting Corrosion Between Bolted Connection on North Web and Lower Lateral Brace on West Side of Girder H



Photo 28: Section Loss on The North Web Behind Girder A. Minor Rust Staining and Bird Debris Present

Pier Cap 10 Fatigue Prone Details

Fatigue Prone Detail 1

Fillet welds between diaphragms or stiffeners and web or flange plates.

Category: C

Location: All girder diaphragms and web stiffeners.

Fatigue Prone Detail 2

Full penetration groove weld of flange splice.

Category: B

Location: Two bottom flange splices and two top flange splices.

Fatigue Prone Detail 3

Tack welds, less than 2", on web and flange

Category: C

Location:

- Two tack welds between the bottom flange and Girder B diaphragm; three tack welds between the bottom flange and Girder C diaphragm; one tack weld on the interior of the bottom flange between Girders C and D (6 total).
- One tack weld on the interior of each web between Girders B and C; two tack welds on the interior of the north web between Girder D and the center bearing; one tack weld on the interior of each web between the center bearing and Girder E; one tack weld on the interior of the north web between Girders F and G; One tack weld on the interior of the north web between Girder H and the east bearing (8 total).
- Intermittent tack welds on the vertical backer bars and the interior of the web plates between the stiffeners of the center bearing and east bearing.

Fatigue Prone Detail 4

Tack welds, greater than or equal to 2" and less than or equal to 4", on the flange plates.

Category: D

Location: One 2" tack weld between the south web plate and the east connection angle of Girder G.

Fatigue Prone Detail 5

Fillet weld greater than 4", with a connection thickness less than 1".

Category: E

Location: 5" fillet welds connecting remaining portions of 2-3/8" Knee braces to the top flange at the diaphragms of Girder E and to the bottom flange at the diaphragms of Girders A, B, C, D, F, G and H.

Fatigue Prone Detail 8 Intersection of fillet welds. Category: E

Location:

- Fillet weld of the bottom flange and south web plate intersecting fillet welds of the south web plate and stiffeners between the west and center bearings.
- Fillet welds of the web plates and bottom flange tie plates intersecting fillet welds between the diaphragms and both web and tie plates at Girders A, B, C, D, F, G and H.
- Intersection of the horizontal and vertical fillet welds between the east edge of the Girder A bottom flange tie plate and the north web (stress relief web plate retrofit is ineffective).

Fatigue Prone Detail 9

Drilled hole stress relief retrofit in web plates.

Category: B

Location: Both web plates on each side of all girder connections.

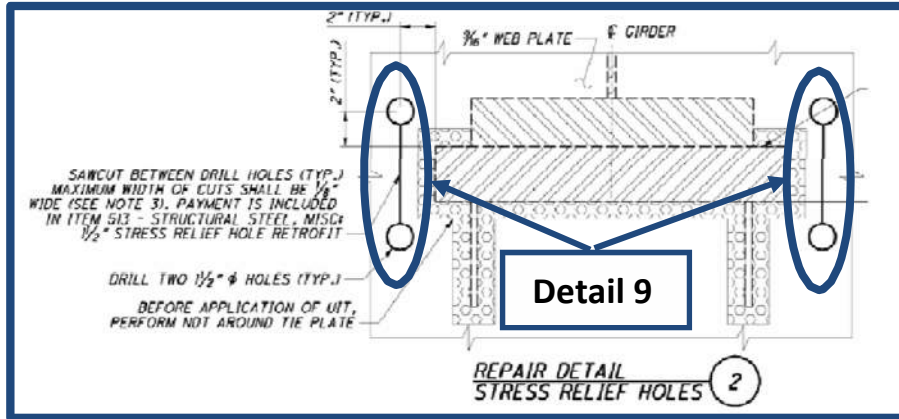


Figure 6: Web Plate Retrofit on Pier Cap 10

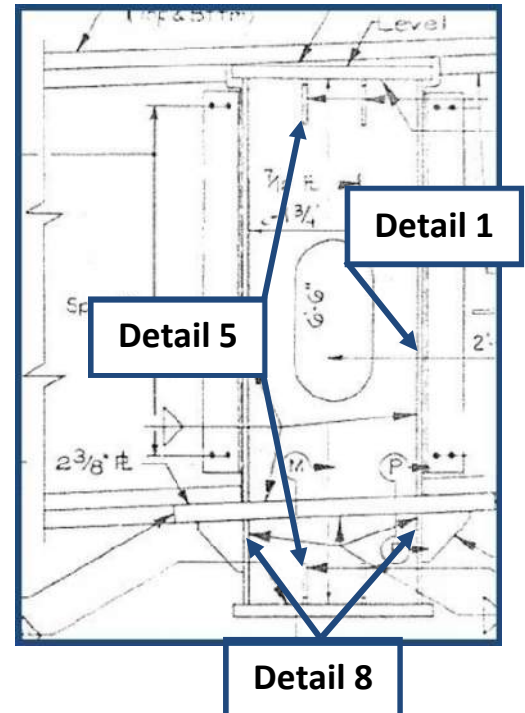


Figure 7: Section of Pier Cap 10

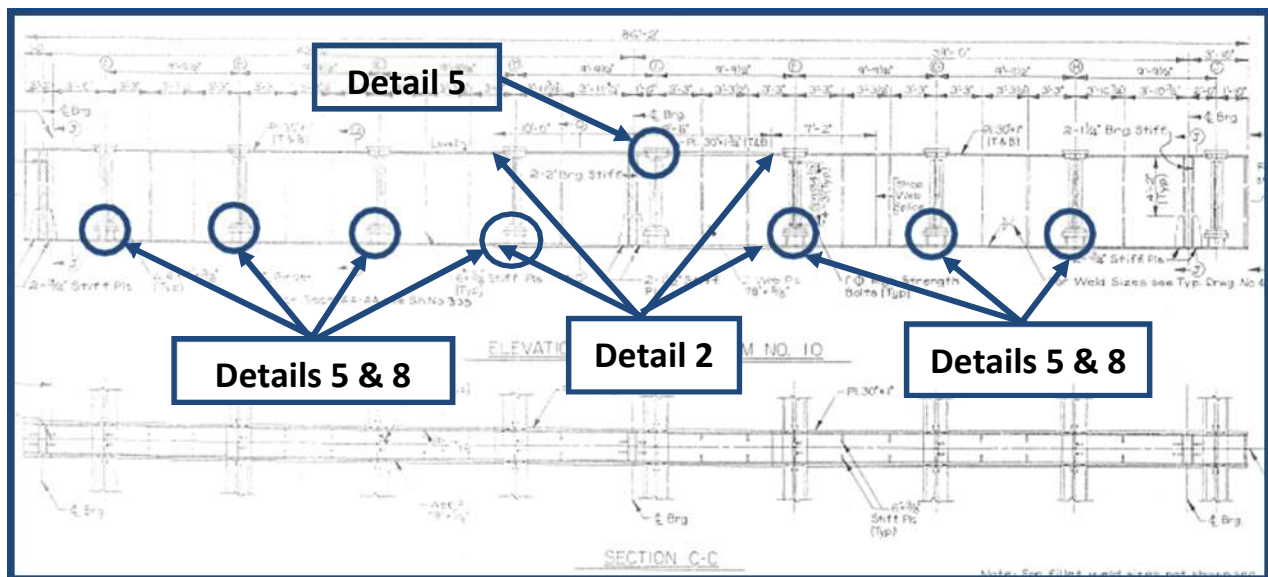


Figure 8: Plan and Elevation of Pier Cap 10

PIER CAP 11

Pier Cap 11 is in GOOD CONDITION [7] overall (Photo 29). At the time of the inspection the cap was free from moisture.

Pier Cap 11 Interior

The west access hatch was dry at the time of inspection though localized active corrosion and peeling paint along the bottom flange was observed (Photo 30).

The interior paint is in VERY GOOD CONDITION [8]. During previous rehabilitation, the interior surfaces of the pier cap were cleaned and painted.

A previous rehabilitation included the removal of the knee braces that were welded to the pier cap top and bottom flanges at each diaphragm.

Over the top of each bearing, the backer bars attached with tack welds have not been removed between the diaphragms, most likely due to space constraints.

There are two plug welds between the stiffeners on the south web between Girder H and J diaphragms (Photo 31).

On the bottom flange, there are two 2" L fillet weld remnants at the east stiffener between the west bearing and Girder A.

There are 3/4" L tack welds on the south web, west of the Girder D and Girder G diaphragms. There is a 1" L tack weld on the South Web, west of Girder C.

Intersecting fillet welds are insufficiently coped resulting in triaxial welds at the interface of the diaphragm, tie plates, and web at the following locations:

- Girders G, H, and J diaphragms: south connection (Photo 32).
- Girders E and F: (the intersection is coped under the tie plate on the south web).

- Girders B, C, and D: (the top of the tie plate on the north web and bottom of the tie plate on the south web are coped).

Repairs were made to the previously noted tack weld crack between the bottom flange and the east side of the Girder A diaphragm. This area has been painted over.

The following minor gouges were observed (assumed to be from tack weld removal):

- Two in the North Web between Girder B and Girder C.
- One in the North Web west of Girder C
- One in the North Web east of Girder D
- Two in the South Web between Girder E and F

A curved cut was noted in the dog bone retrofit in the following locations:

- North Web, west of Girder G
- North Web west of Girder H
- South Web, west of Girder F (Photo 33)
- South Web west of Girder G

A crosscut was noted in the dog bone retrofit in the South Web west of Girder B (Photo 34).



Photo 29: General Elevation Pier Cap 11



Photo 30: Peeling Paint and Active Corrosion Along Lower Flange Between Diaphragm and East Access Hatch



Photo 33: Curve in dog bone retrofit cut on South Web, West of Girder F

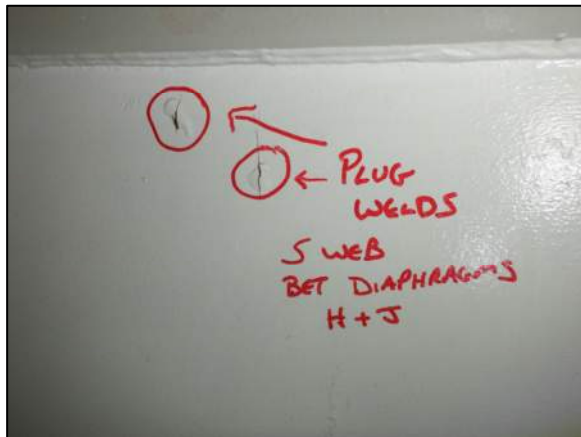


Photo 31: Plug Welds in South Web Between Girder H And J



Photo 34: Mis-cut In Dog Bone Retrofit in South Web, West of Girder B



Photo 32: Triaxial Weld Between North Web, West Face of Diaphragm J and Bottom Flange Tie Plate

Pier Cap 11 Exterior

As part of a previous rehabilitation, the knee braces are properly coped, and the stress relief holes are present. On the north web at east side of Girder A, the drilled holes and sawcut was installed 12" away from the bottom flange tie plate rendering it ineffective. It is possible that drilling the holes within 2" of the tie plate was not feasible due to the previous downspout configuration. Also, during the previous rehabilitation, the welded connections of the drainpipe support brackets and the lower lateral bracing were removed from the web plates and replaced with bolted connections. Remnants of the welded drainpipe connection still exist on 3the North Web, east of Girder J (Photo 35).



Photo 35: Remnants of Welded Drain Pipe Connection and Minor Surface Corrosion on North Web, East of Girder J

An 18" L x 3" W area of section loss, up to 7/16" D, exists in the north pier cap web just east of the web of Girder A, extending to the west side of Girder A (Photo 36).



Photo 36: Section Loss in North Web Behind Bottom Flange of Girder A

The perimeter of the east access hatch exhibits painted over pitting (Photo 37). Only two of the original six nuts remain on the west hatch. The hatch door was secured and sealed with exterior caulk.

There is no change in the north web, 3' west of Girder J, plug weld. Previously noted plug welds noted on the south web were not found from the exterior, nor the interior.

The exterior paint is in VERY GOOD CONDITION [8]. The exterior surfaces of the pier cap were cleaned and painted during a previous rehabilitation project.

The spherical bearings are in GOOD CONDITION [7] and appear to function properly. Two anchor nuts on the east bearing have suffered approximately 50% section loss (Photos 38 and 39). One anchor nut on the center bearing is not tightly seated on the masonry plate.

There is a missing conduit cover on the north side, east of Girder E (Photo 40).



Photo 37: Painted Over Pitting on East Access Hatch



Photo 38: Up to 50% Section Loss of East Column, SE Anchor Nut. Section Loss Has Been Painted Over and Active Minor Surface Corrosion.



Photo 40: Missing Conduit Cover, North Side, East of Girder E.



Photo 39: Up to 50% Section Loss of East Column, NW Anchor Nut. Section Loss Has Been Painted Over and Active Minor Surface Corrosion .

Pier Cap 11 Fatigue Prone Details

Fatigue Prone Detail 1

Fillet welds between diaphragms or stiffeners and web or flange plates.

Category: C'

Location: All girder diaphragms and web stiffeners.

Fatigue Prone Detail 2

Full penetration groove weld of flange splice.

Category: B

Location: Two bottom flange splices and two top flange splices.

Fatigue Prone Detail 3

Tack welds, less than 2", on web and flange

Category: C Location:

- One tack weld on the interior of the north web between the west bearing and Girder A; one tack weld on the interior of the south web between Girders B and C (ground, but not completely removed); one tack weld on the interior of the south web between Girders E and F; one tack weld on the interior of the south web between Girders F and G; two tack welds on the interior of the south web between Girders H and J (6 total).
- Intermittent tack welds on the vertical backer bars and the interior of the web plates between the stiffeners of the center bearing

Fatigue Prone Detail 4

Tack welds, greater than or equal to 2" and less than or equal to 4", on the flange plates.

Category: D

Location: Two 2" fillet welds on the interior of the bottom flange between the west bearing and Girder A.

Fatigue Prone Detail 5

Fillet weld greater than 4", with a connection thickness less than 1".

Category: E

Location: 5" fillet welds connecting remaining portions of 2-3/8" Knee braces to the top flange at the diaphragms of Girders D and E, and to the

bottom flange at the diaphragms of Girders A, B, C, F, G, H and J.

Fatigue Prone Detail 8

Intersection of fillet welds.

Category: E

Location:

- Fillet weld of the bottom flange and north web plate intersecting fillet welds of the north web plate and stiffeners between the west bearing and Girder B and between Girders C and D.
- Fillet welds of the bottom flange and south web plate intersecting fillet welds of the south web plate and stiffeners between the west bearing and Girder A and between Girders H and J.
- Fillet welds of the web plates and bottom flange tie plates intersecting fillet welds between the diaphragms and both web and tie plates at Girders A, B, C, F, G, H, and J.
- Intersection of the horizontal and vertical fillet welds between the east edge of the girder A bottom flange tie plate and north web (stress relief web plate retrofit is ineffective).

Fatigue Prone Detail 9

Drilled hole stress relief retrofit in web plates.

Category: B

Location: Both web plates on each side of all girder connections.

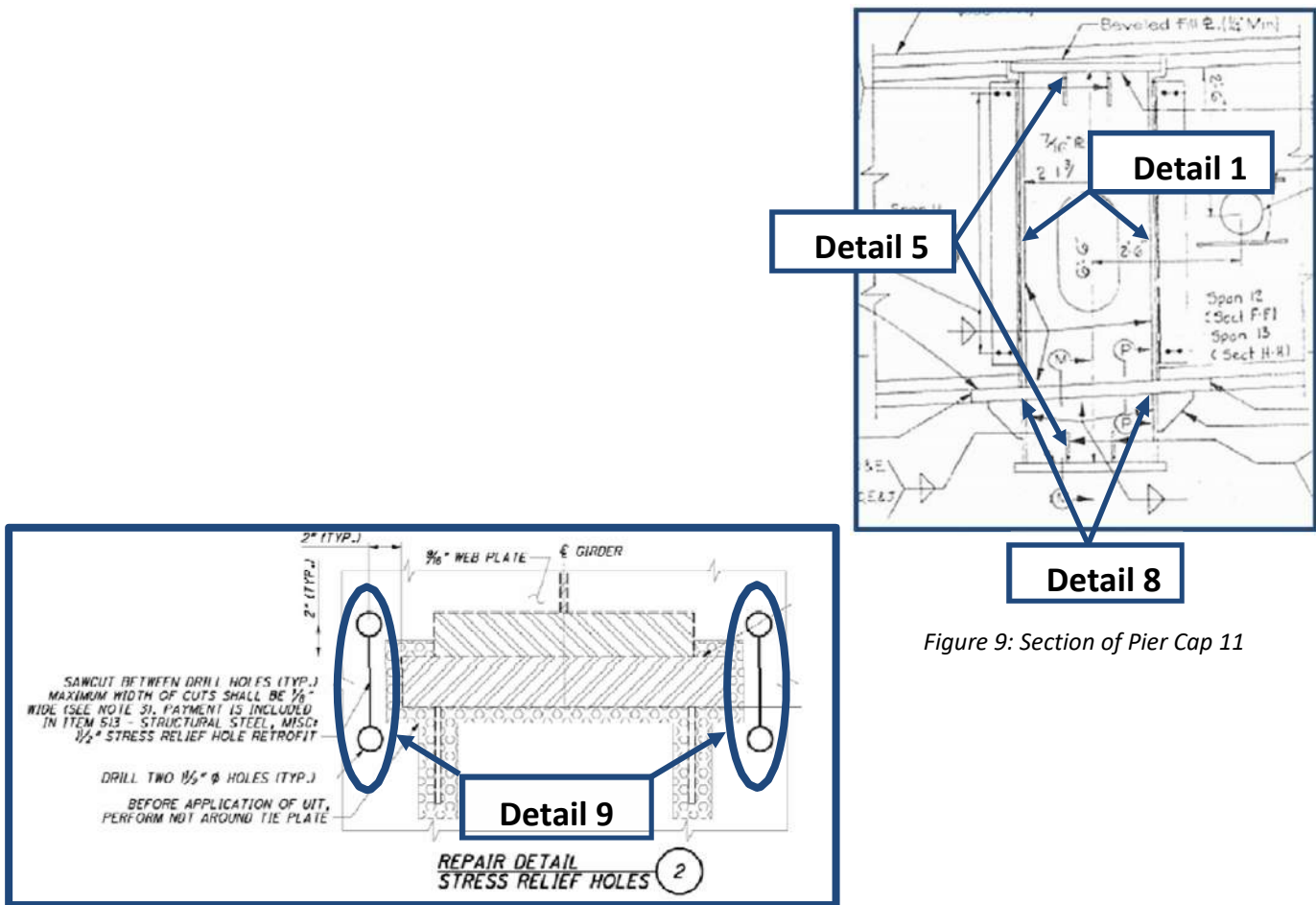


Figure 9: Section of Pier Cap 11

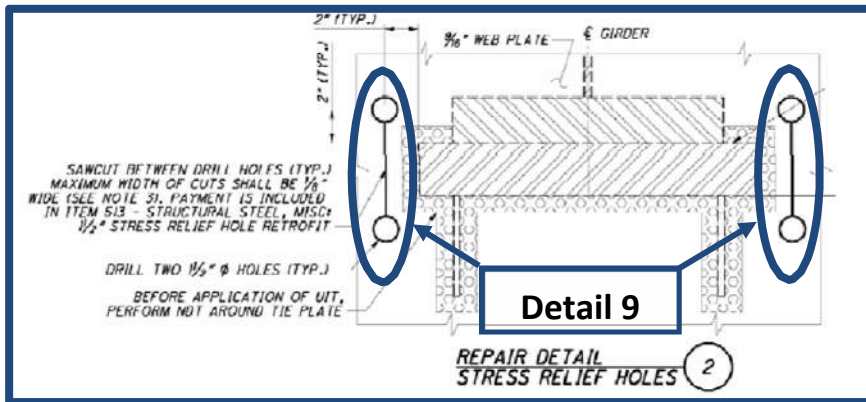


Figure 10: Web Plate Retrofit of Pier Cap 11

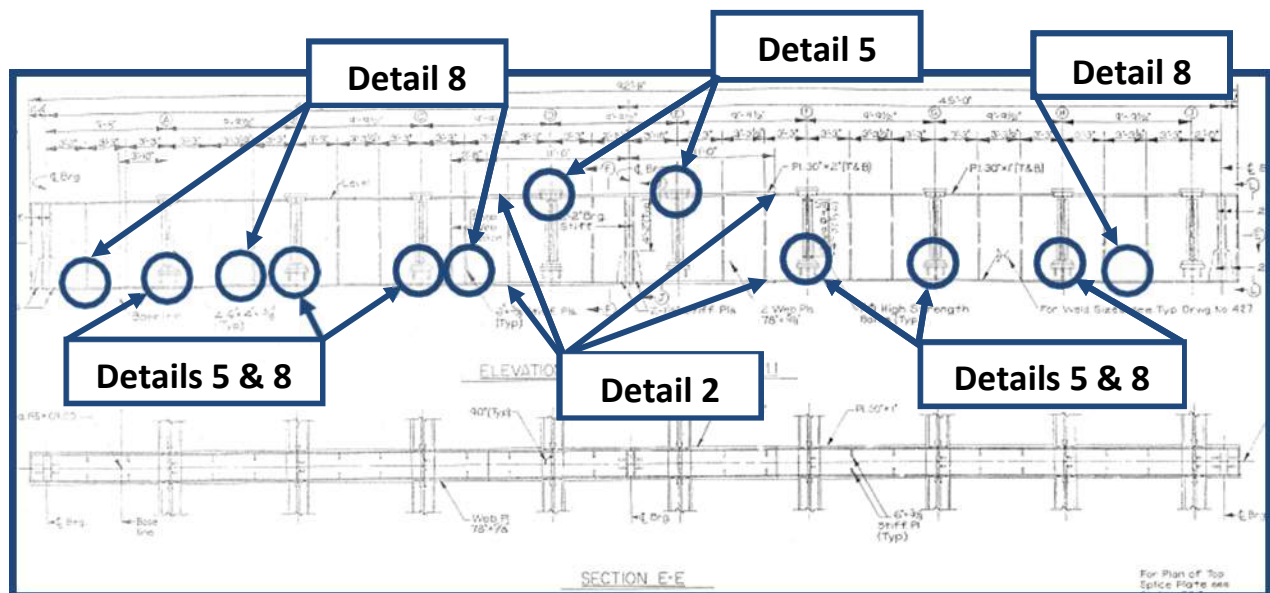


Figure 11: Plan and Elevation of Pier Cap 11

PIER CAP 12

Pier Cap 12 is in GOOD CONDITION [7] overall (Photo 41). The interior of the cap was dry at the time of inspection.

Pier Cap 12 Interior

The previous rehabilitation included the removal of the knee braces that were welded to the pier cap top and bottom flanges at each diaphragm.

5" L sections of the knee braces and weld beads were left in place on the top flange on the east side of Girder D and Girder E diaphragms (Photo 42).

Overtop each bearing, the backer bars attached with tack welds have not been removed between the diaphragms, most likely due to space constraints.

The fillet welds along the Girder F and H diaphragms, pier cap webs and the girder tie plates are not sufficiently coped resulting in triaxial welds (Photo 43).

Painted over pitting is present along the bottom flange between the access hatch and the adjacent diaphragm on both ends.

Tack welds were noted at the following locations:

- North web between the east face of the Girder F diaphragm and the bolts: two short tack welds.
- On the top flange, just west of Girder D diaphragm: 1" L tack weld.
- Over the center bearing on the west face of the west diaphragm: one short tack weld.
- Over the center bearing on the east face of the east diaphragm

There are two gouges near the top flange, and one gouge near the bottom flange, on the North Web, between Girder B and Girder C (Photo 44). There are three gouges in the North Web, between Girder D and the Center Bearing Diaphragm (Photo 45).

A mis-cut vertical cut in the dog bone retrofit was observed in the South Web, West of Diaphragm C (Photo 46).

The interior paint is in VERY GOOD CONDITION [8]. Painted over heavy pitting and isolated section loss were found on the bottom flange and along the bottom of the girder diaphragm, web, and end plates between the access hatches and fascia girder diaphragms. During previous rehabilitation, the interior surfaces of the pier cap were cleaned and painted, the lower interfaces between the web and flange at both ends of the cap have reactivating corrosion (Photo 47).

In a previous rehabilitation project, 6x6x1 rolled steel angles were bolted to the full height of both web plates on each side of the Girder E diaphragm. Additionally, 6x6x1 steel angles were bolted to both web plates on each side of the Girder E diaphragm between the pier cap bottom flange and the girder bottom flange tie plate. The same retrofit was installed on both web plates only on the west side of the Girder D diaphragm. The bolted retrofits were installed to brace the pier cap for a temporary jacking operation during replacement of the bearing plate on the center support.



Photo 41: Pier Cap 12 Elevation

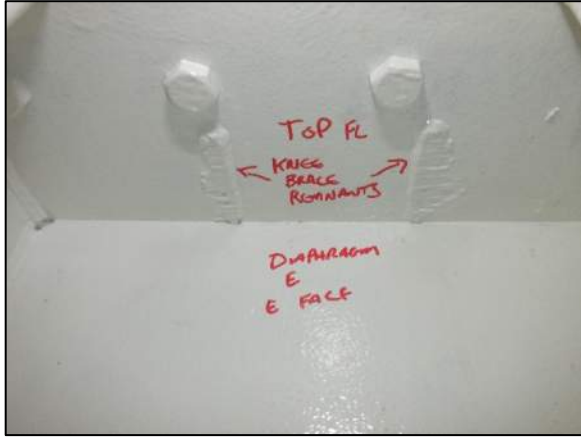


Photo 42: Typical Knee Brace Remnants

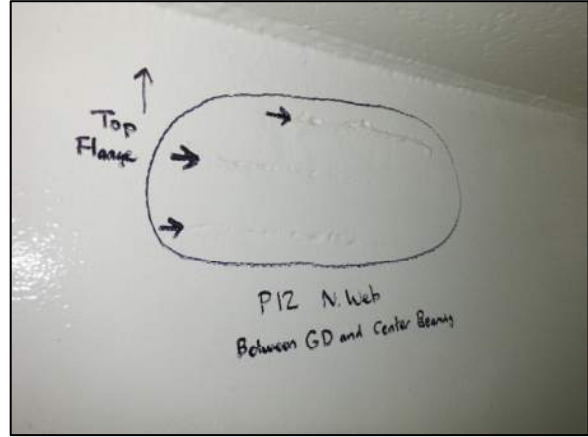


Photo 45: Three Gouges in North Web, Between Girder D and Center Bearing Diaphragm



Photo 43: Triaxial Weld Between North Web, Diaphragm H, And Bottom Flange Tie Plate



Photo 46: Mis-Cut Vertical Cut in South Web Dog Bone Retrofit, West of Girder C



Photo 44: Gouge in North Web, Near Bottom Flange, Between Girder B and Girder C



Photo 47: Typical Corrosion and Section Loss in Bottom Flange and Bottom of Web at West End Cap

Pier Cap 12 Exterior

The West access hatch is missing the middle bolt along the South edge, the top bolt and the bottom bolt on the North edge is broken. The holes have been filled with caulk to provide a tight seal (Photo 48). At the end cover plates, the bottom 1' H x Full Width sections were replaced during the previous rehabilitation. The west end plate has up to 1/8" D painted over pitting within a 6" W area around the bottom perimeter of the west access hatch.

As part of the previous rehabilitation, the knee braces are properly coped, and the stress relief holes are present. On the south web at east side Girder A, the drilled holes and sawcut was installed 12" away from the bottom flange tie plate rendering it ineffective. It is possible that drilling the holes within 2" of the tie plate was not feasible due to the previous downspout configuration. On the south pier cap web, west of Girder D, the bolt for the bottom hole is missing and the hole has been filled with caulk and painted over (Photo 49).

On the north and south face, there is active corrosion and staining noted along the top flange adjacent to Girder J (Photo 50). A 15" L x 4.5" H x up to 3/16" D area of section loss on the east side of the Girder A bottom flange on the north web, that was noted as reactivating in the 2019 report, has been painted over. A porous defect was noted in south web, just west of Girder J. During the 2025 inspection paint was removed at the bottom of knee brace fillet welds of the south web below Girder J to verify extent of potential crack propagation. Upon removing the paint, cracked weld indications were observed on the surface of weld material and no crack

propagation was observed (Photos 51 & 52). Monitor this area for activity during future inspections.

Steel bearing stiffener angles are bolted to each web on both sides of Girder E. The same retrofit has been installed on both webs on the west face of the Girder D diaphragm. It was previously reported that the bolted retrofits were installed to brace the pier cap for a temporary jacking operation during replacement of the bearing plate on the centersupport.

The spherical bearings are in GOOD CONDITION [7] and appear to function properly. There was minor corrosion to center bearing on the north side.



Photo 48: West Access Hatch; Middle Bolt Hole Filled with Caulk



Photo 49: Missing Bolt in South Web, West of Girder D; Hole Filled with Caulk and Painted Over

Girder J Knee Brace Cracked Weld Indications		
	West Knee Brace	East Knee Brace
West Face	1/4"	5/16"
Bottom Edge	3/8"	3/8"
East Face	3/16"	3/8"



*Photo 50: Rust Staining Along Top Flange of Pier
Cap at Girder J*



*Photo 51: Cracked Weld Indications on West Knee Brace
Fillet Weld*



*Photo 52: Cracked Weld Indications on East Knee Brace
Fillet Weld*

Pier Cap 12 Fatigue Prone Details

Fatigue Prone Detail 1

Fillet welds between diaphragms or stiffeners and web or flange plates. Category: C'

Location: All girder diaphragms and web stiffeners

Fatigue Prone Detail 2

Full penetration groove weld of flange splice. Category: B

Location: Two bottom flange splices and two top flange splices.

Fatigue Prone Detail 3

Tack welds, less than 2", on web and flange Category C: Location:

- Intermittent tack welds along the interior backer bars between the diaphragms at each bearing.
- One tack weld on the west face of the west interior diaphragm at the center bearing.
- One tack weld on the east face of the east interior diaphragm at the center bearing.
- One 1" L tack weld on the interior of the top flange, just west of Girder D.
- One tack weld on the interior of the south web at the bolts of the west side of the Girder F diaphragm.
- Two tack welds on the interior north web between the east face of Girder F and the bolts.

Fatigue Prone Detail 4

Tack welds, greater than or equal to 2" and less than or equal to 4", on the web plates. Category: D Location:

- One 2-1/2" L tack weld between the bottom flange and the Girder B diaphragm.
- One 2" L tack weld between the bottom flange and east face of Girder C diaphragm.
- Two 2" L tack welds between the bottom flange and west face of Girder G diaphragm.
- Two 3-1/3" L tack welds between the bottom flange and west face of Girder H diaphragm.
- One 2-1/2" L tack weld on the interior of the south web between Girders F and G.

Fatigue Prone Detail 5

Fillet weld greater than 4", with a connection thickness less than 1". Category: E

Location:

- 5" fillet welds connecting remaining portions of 2-3/8" knee braces to the top flange at the Girder D and E diaphragms, and to the bottom flange at the Girder B, C, F, G, and H diaphragms.
- 6" weld on the interior of the south web between Girder D and the center bearing.

Fatigue Prone Detail 8

Intersection of fillet welds. Category: E

Location:

- The fillet welds intersect at the bottom flange, web plates, and the diaphragms or stiffeners between the west bearing and Girder D, and between Girder E and the east bearing.
- The fillet welds intersect at the north web, the bottom flange tie plates, and the diaphragms at Girders F and H.

Fatigue Prone Detail 9

Drilled hole stress relief retrofit in web plates.

Category: B

Location: Both web plates on each side of all interior connections.

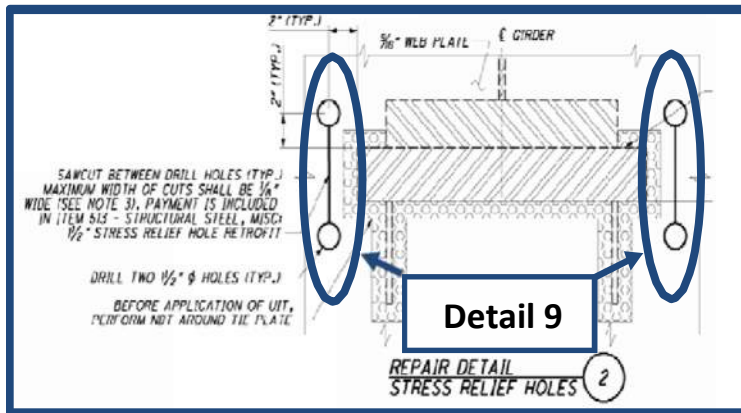


Figure 12: Web Plate Retrofit of Pier Cap

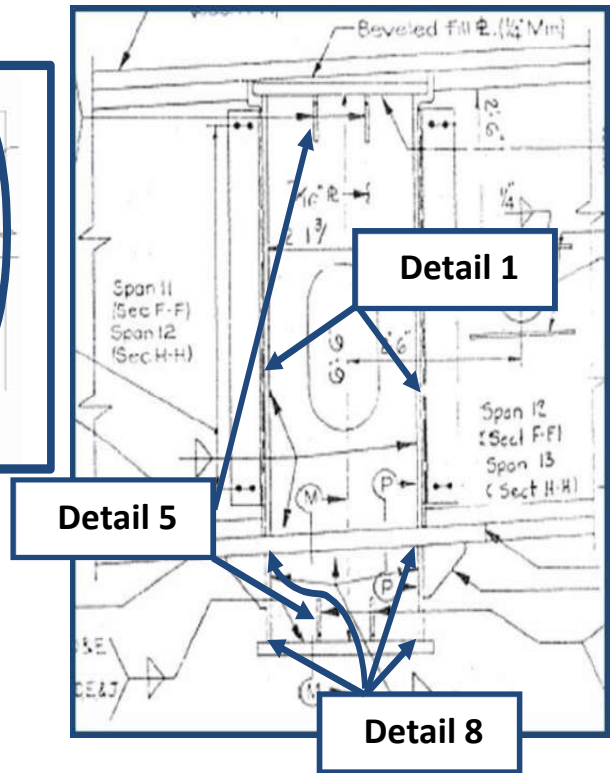


Figure 13: Section of Pier Cap 12

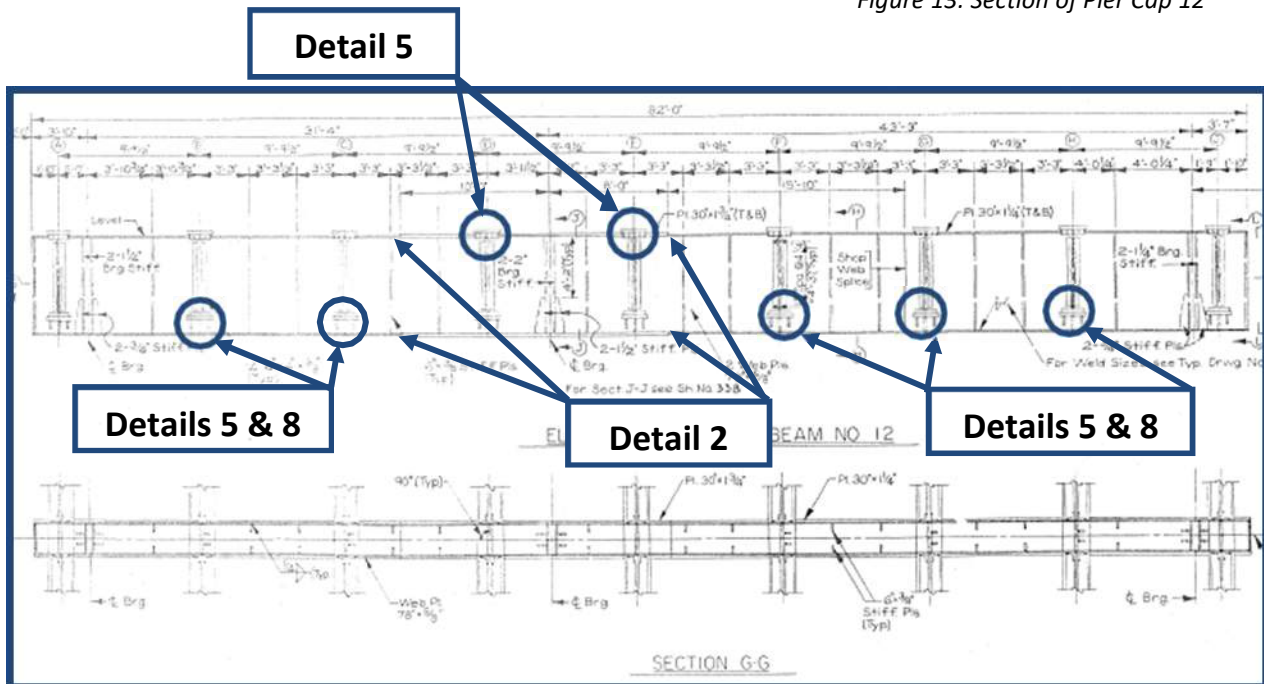


Figure 14: Plan and elevation of Pier Cap 12

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this inspection, the NSTM pier caps and associated fatigue prone details of Bridge No. HAM-71-0248R are in GOOD CONDITION [7] overall. The condition rating has been raised in 2019 due to designed repairs being constructed in 2017 returning the condition close to the original condition. Previously noted cracks were removed and dog bone crack arrest holes installed as specified in the repair plans in the appendix below. The recommendations for maintenance of the pier caps are presented in the following four categories:

Priority Repairs (Within 1 Year Period)

Work which should be performed as soon as possible to address deficiencies which affect the capacity of the structure or public safety.

Rehabilitation/Evaluation (Within 5 Year Period)

Recommendations for large-scale deficiencies which are extensive in nature and require engineering analysis.

Maintenance (Within 2-4 Month Period)

Recommendations that are minor in nature and can be performed by maintenance personnel or through small maintenance repair contracts.

Monitoring (As Recommended)

Regular field observations of deficiencies which are not currently in need of repair but will require corrective action if deterioration continues.

Pier Cap 9 - Recommendations:

Priority Repairs:	Replace missing bolts in hatch connections.
Rehabilitation/Evaluation:	Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.
Maintenance:	Tighten backed off nuts at the pier cap bearings.
Monitoring:	Continue to monitor fatigue prone details and inspect the cracked web stiffener fillet weld at a 12-month cycle. Clean and paint top flange at hatch locations

Pier Cap 10 - Recommendations:

Priority Repairs:	Remove remaining knee braces from the flange plates and grind out the welds to a smooth finish on the base metal.
Rehabilitation/Evaluation:	Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.

Maintenance: Tighten backed off nuts at the pier cap bearings. Re-drill retrofit dog bone holes at Girder A to be in an effective location.

Monitoring: Continue to monitor fatigue prone details at a 24-month cycle.

Pier Cap 11 - Recommendations:

Priority Repairs: Replace missing bolts in hatch connections.

Rehabilitation/Evaluation: Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.

Maintenance: Replace deteriorated nut at the east bearing and tighten the backed off nut at the center bearing. Clean and paint over active corrosion on lower flange at pier cap hatches. Re-drill retrofit dog bone holes at Girder A to be in an effective location.

Monitoring: Continue to monitor fatigue prone details at a 24-month cycle.

Pier Cap 12 - Recommendations:

Priority Repairs: Remove the caulk and install a bolt in the stress relief holes at Girder D.

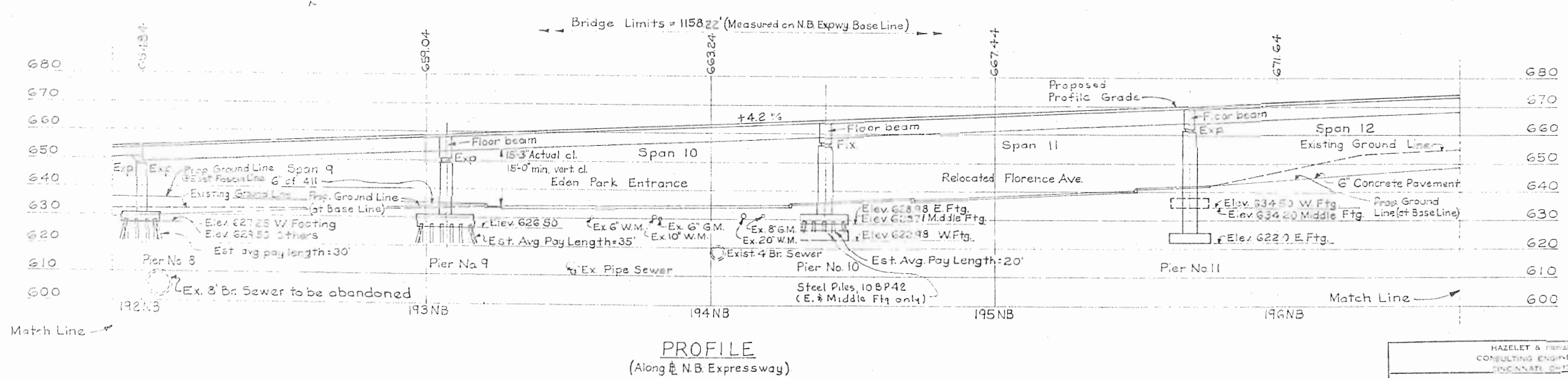
Rehabilitation/Evaluation: Consider retrofits of Category E details of intersecting welds. Simple drilled and ground retrofit at intersection recommended.

Maintenance: Re-drill retrofit dog bone holes at Girder A to be in an effective location. Repaint areas where paint was chipped away to confirm false crack.

Monitoring: Continue to monitor fatigue prone details at a 24-month cycle.

APPENDIX A

EXISTING PIER PLANS



HAZELET & FIRM
CONSULTING ENGINEERS
CINCINNATI, OHIO

SITE PLAN

BRIDGE No. HAM-71-0224
OVER EDEN PARK ENTRANCE
AND FLORENCE AVE.

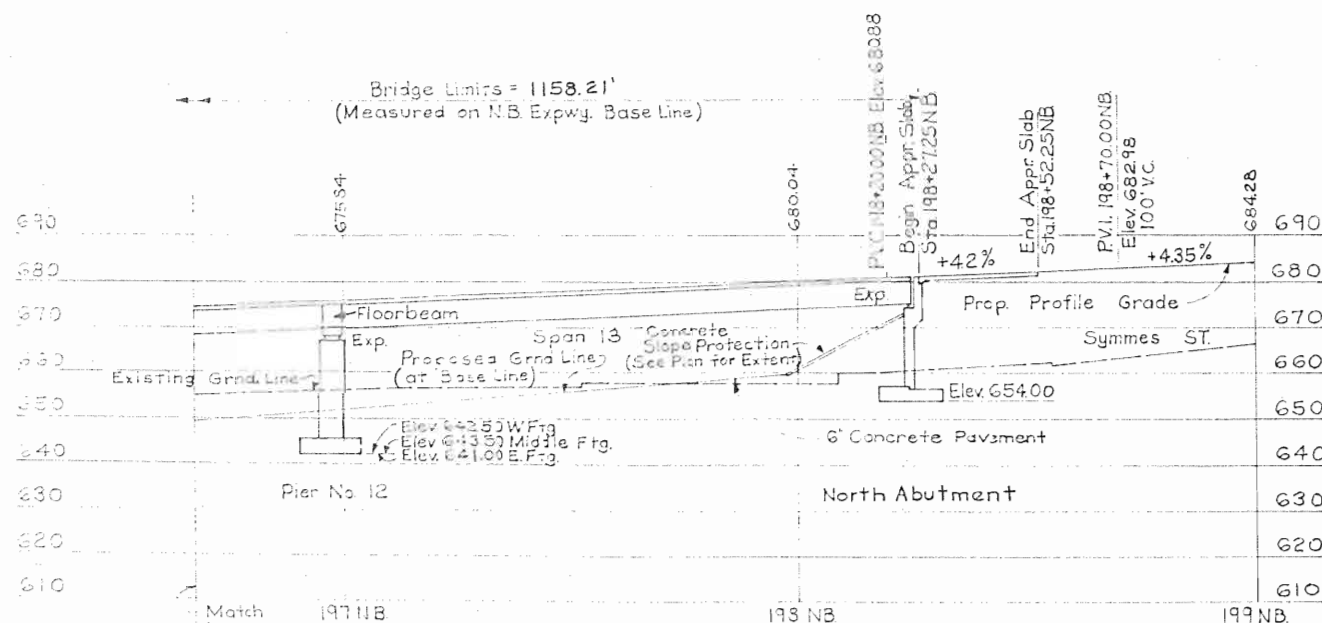
H&E BRIDGE No. 19 SHEET 2 of 3

DATE	DESIGN	CHECK	APPROVE
	CTM		

SFN 3106802



CURVE DATA	
Curve No. 7NB PI Sta. = 187+35.83NB $\Delta = 9^{\circ}07'00''$ L=911.87' D = 1'00'00" T=456.80 R = 5729.58'	Curve No. 4RB PI Sta. = 193+36.59RB $\Delta = 13^{\circ}33'07''$ L=180.69' D = 7'30'00" T=90.77' R = 763.94'
Curve No. 5RB PI Sta. = 197+75.42RB $\Delta = 5^{\circ}14'32''$ L=349.48' D = 1'30'00" T=174.86' R = 3819.72'	Curve No. 3RC PI Sta. = 189+75.07RC $\Delta = 14^{\circ}45'46''$ L=310.80' D = 4'45'00" T=156.26' R = 1206.23'
Curve No. 4RD PI Sta. = 189+31.17RD $\Delta = 7^{\circ}56'28''$ L=560.55' D = 1'-25" T=283.72' R = 4044.41'	Curve No. 1RE PI Sta. = 185+99.85RE $\Delta = 7^{\circ}13'37''$ L=412.97' D = 1'45'00" T=206.76' R = 3274.05'
Curve No. 2RE PI Sta. = 192+88.79RE $\Delta = 20^{\circ}10'07''$ L=201.69' D = 10'00'00" T=101.90' R = 572.96'	Curve No. 2EP PI Sta. = 15+41.95EP $\Delta = 63^{\circ}24'22''$ L=456.63' D = 13'40'00" T=253.93' R = 419.24'



PROFILE
(Along N.B. Expressway)

PROPOSED STRUCTURE

Type: Continuous steel beams (Spans 1 through 8) and continuous plate girders (Spans 9 through 13) with reinforced concrete deck and substructure.

Spans: 66'-0" (Spans 1 through 8) 107'-0" (Span 9) 134'-0" (Span 10) 128'-0" (Spans 11 through 13)

Roadway: Varies, see plan; 80 min f/f parapet

Skew: 0° (measured from forward tangent)

Load Frequency: CF=2000 (S7) Adequate for AASHO alternate loading.

Wearing Surface: 1" Monolithic Concrete

Approach Slab: AS-1-54 (25'-0" Long)

Alignment: See plan.

Superelevation: Varies, see plan.

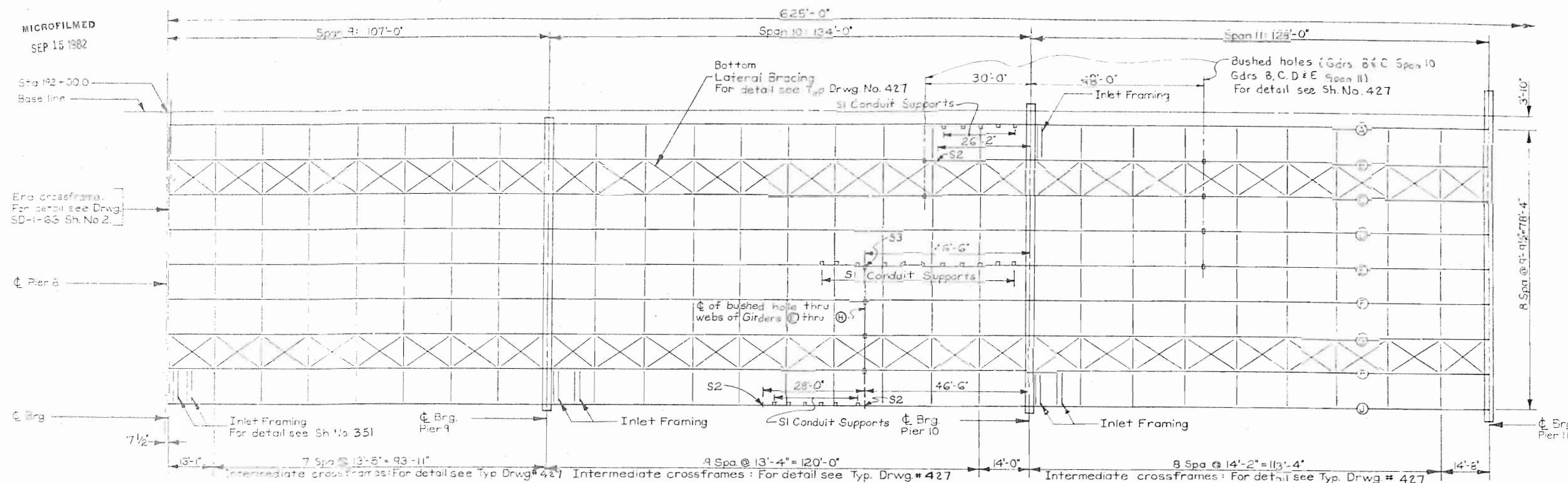
SFN 3106802

SITE PLAN

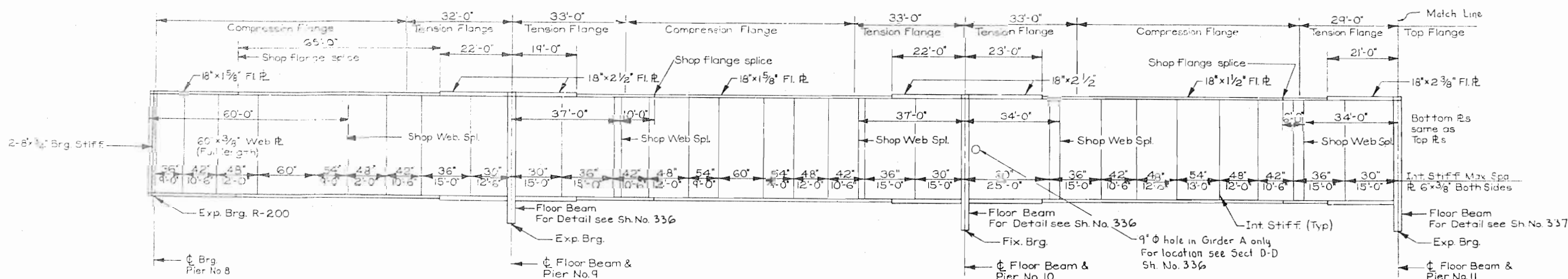
BRIDGE No. HAM-71-0224
OVER EDEN PARK ENTRANCE
AND FLORENCE AVE.

H&E BRIDGE No. 19 SHEET 3 of 3

MICROFILMED
SEP 15 1982



FRAMING PLAN

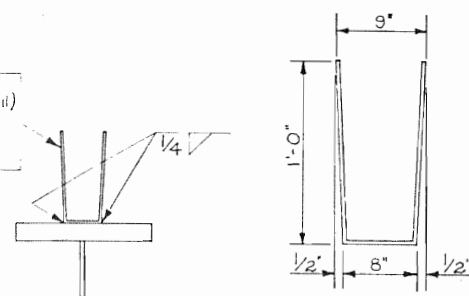


GIRDER ELEVATION

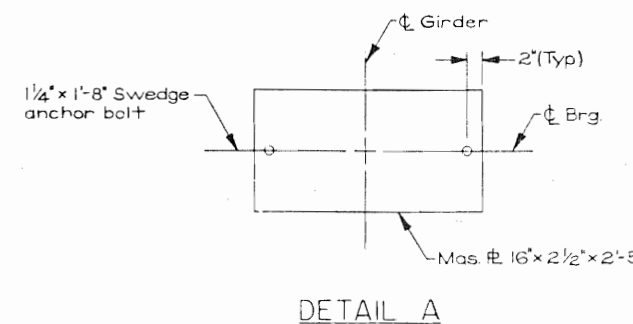
For bearing detail R-200 see Std. Drwg. RB-1-55 except masonry plates modified as shown on Detail A.
For detail of roadway end dam at Pier No. 8 see Sh. No. 339.
For bearing details at piers 9, 10, & 11 see Sh. No. 335.
For Deflection and Camber Diagram see Sh. No. 338.

NUMBER OF ANCHOR BARS REQUIRED					
GIRDER	SPAN 9	SPAN 10	SPAN 11	SPAN 12	SPAN 13
A	18	22	0	0	0
B	8	22	21	21	21
C	8	22	21	21	21
D	8	22	21	21	21
E	8	22	21	21	21
F	18	22	21	21	21

1" x 1/4" Anchor Bars
Spa. @ 6'-0" (see detail)
(Included with Item
513 for payment)
(Total 555. See box.)



ANCHOR BAR DETAIL



DETAIL A

FED. RD. DIST.	STATE	PROJECT	SHEET NO.
2	OHIO		334 460

HAMILTON COUNTY
HAM-71-2.08



Note:
For Beam Clamp Details see Sh. 220.
For Details of Conduit and Junction Box Supports see Sh. 220.
Conduit and Junction Box Supports must be fastened to the stiffeners or web on the east side of Girder A and on the west side of Girders B, E, and J.
Required: Conduit Support Type S1-22
Junction Box Support Type S2-3
Junction Box Support Type S3-1
Beam Clamp Type C1-4
See Sheet 220 for details of Detector Hanger Bars.

SFN 3106802

Work this Sheet with Typ. Drawing No. 427

HAZLET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS

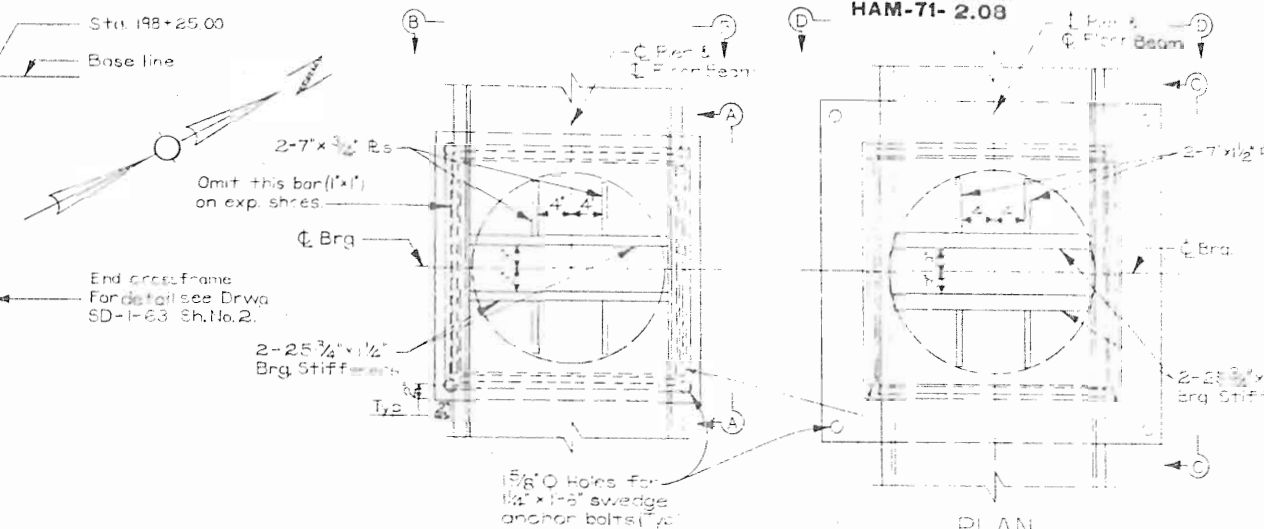
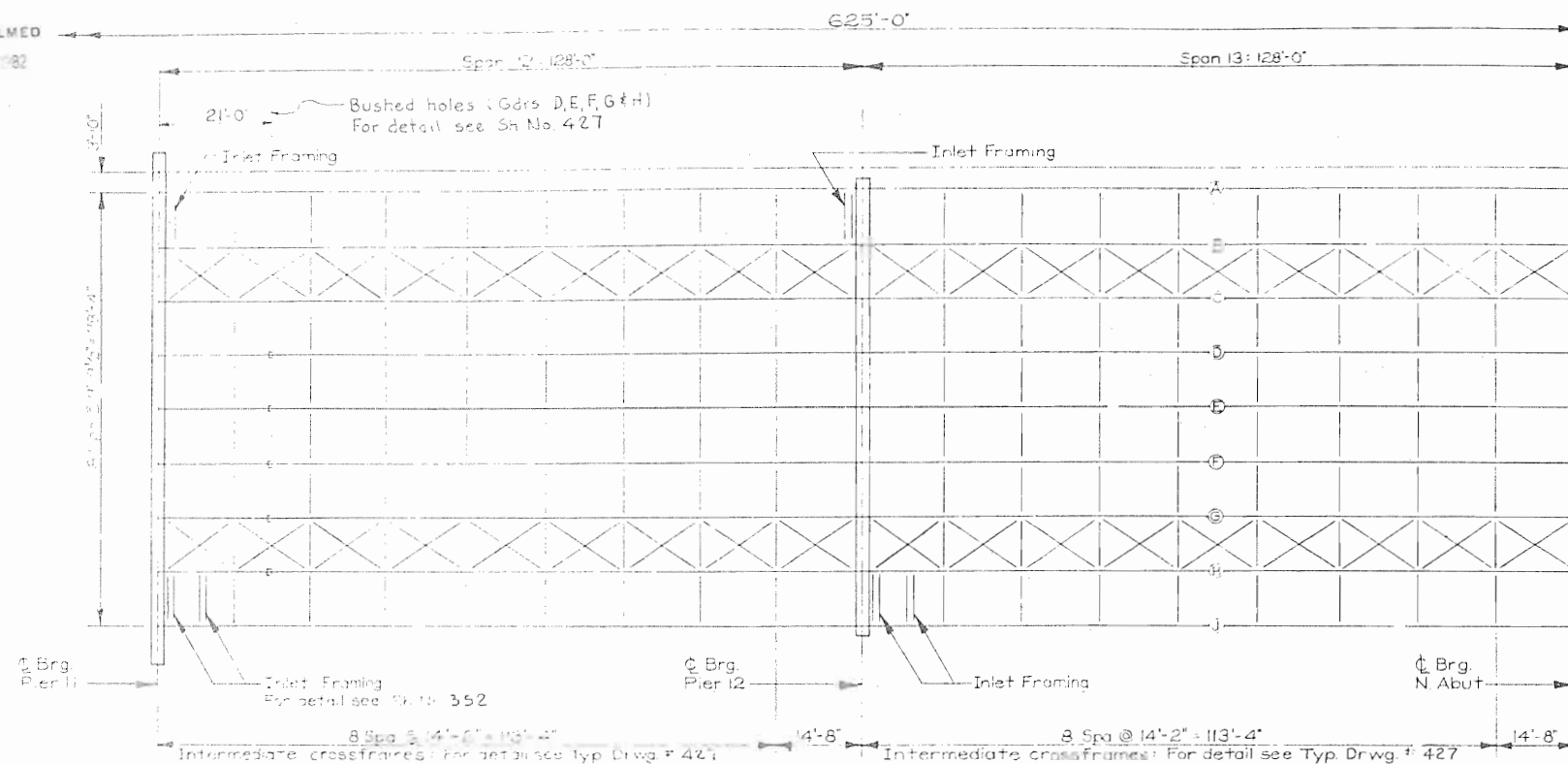
UNIT 3

BRIDGE No. HAM-71-0224

H&E BRIDGE NO. 19

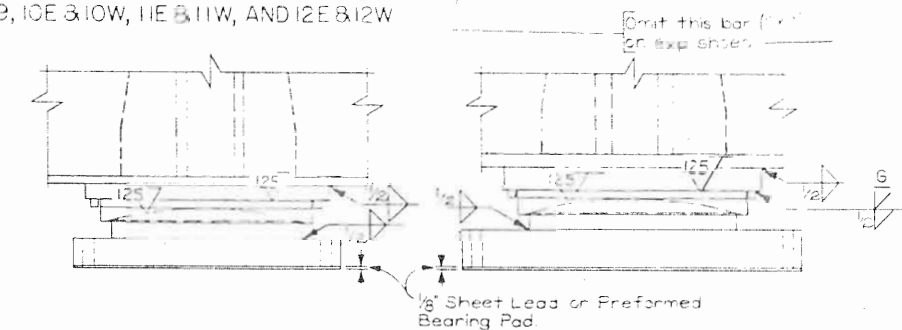
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISION
MKK			JHS 4/10/65	8-30-65	

HAMILTON COUNTY
HAM-71- 2.08



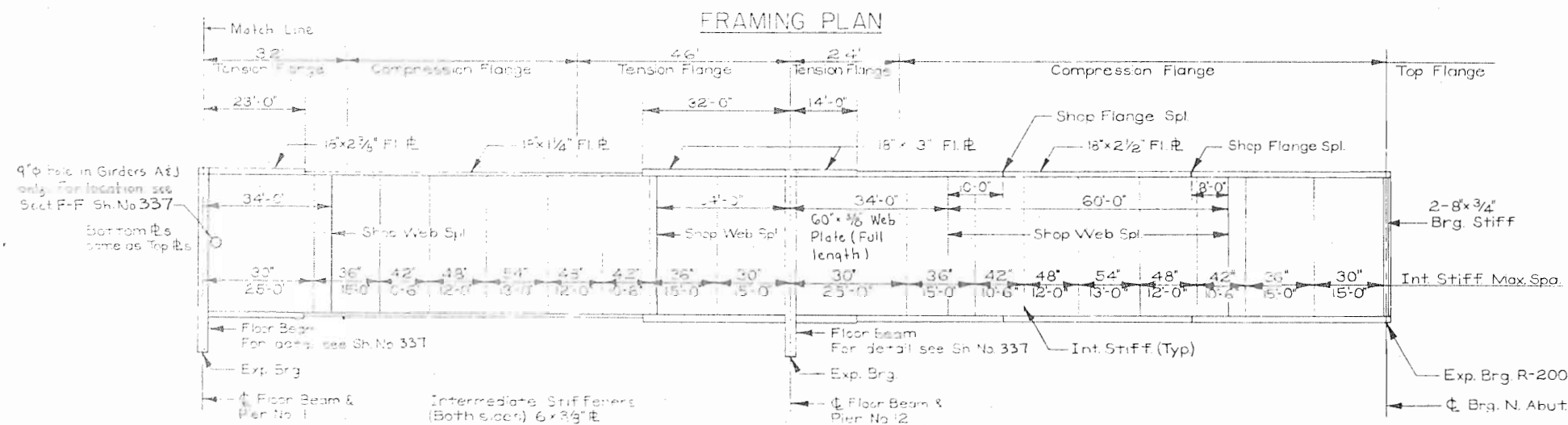
PLAN
BEARING DETAILS AT PIERS
9, 10E & 10W, 11E & 11W, AND 12E & 12W

PLAN
BEARING DETAILS AT PIERS
10C, 11C, & 12C

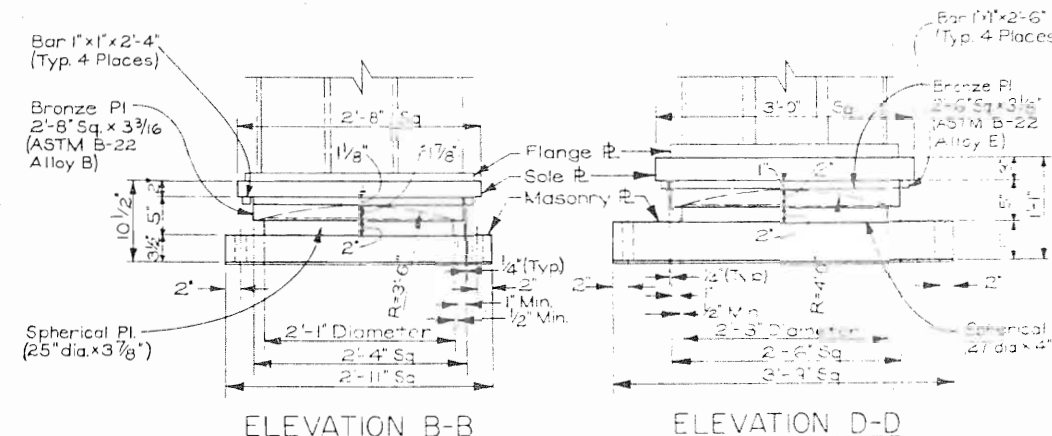


ELEVATION A-A

ELEVATION C-C



GIRDER ELEVATION



ELEVATION B-B

ELEVATION D-D

For bearing detail R-200 see Std. Drwg. RB-1-55 except masonry plates
modified as shown on Detail A, Sh. No. 334
For detail of roadway end abut at N Abut see Sh. No. 339
For treatment of end of bridge at N Abut see Std. Drwg. No. CD-1-63 Sh.
No. 2, "Longitudinal Section"

Notes: For Specifications for Self Lubricating Bronze Bearing Plates see Standard Drawing FSB-1-62.

Work this Sheet with Typ. Crwa No 427

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS

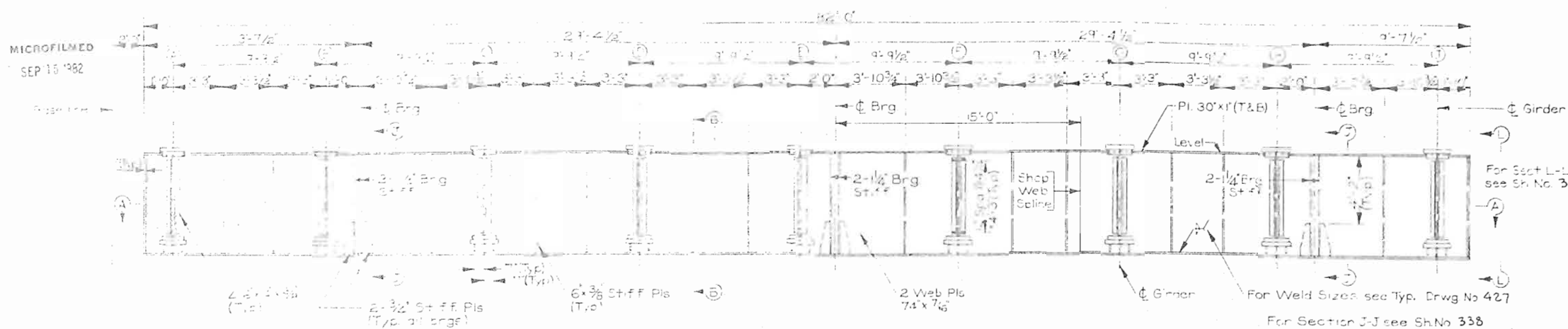
22

BRIDGE No HAM 7: 0224

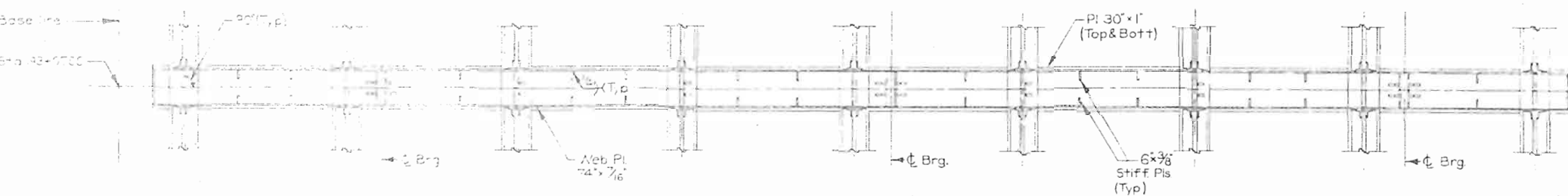
H&E BRIDGE NO 19

ORGANIZATION	PROJECT	TITLE	CHIEF	REVIEW DATE	REV.
MRK			JHO CHOLE	NAZ. 8-30-65	

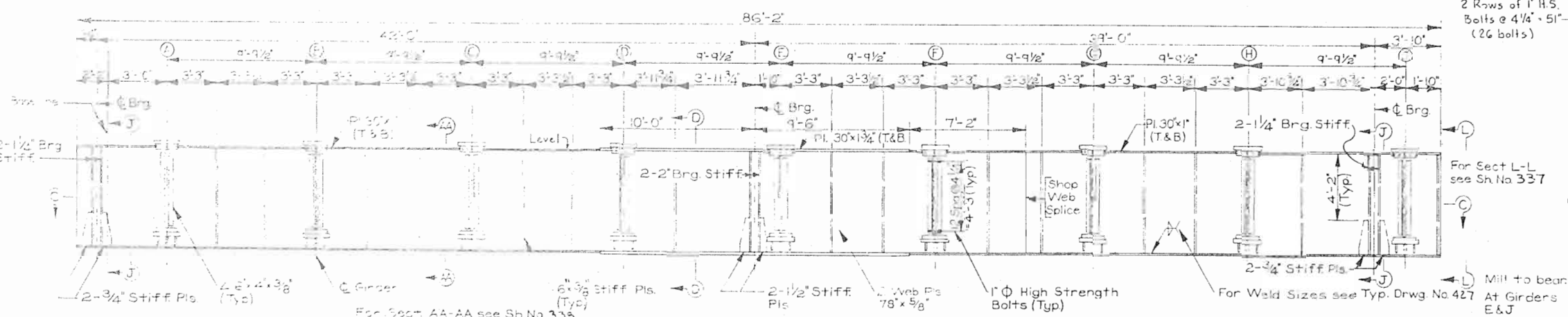
SFN 3106802



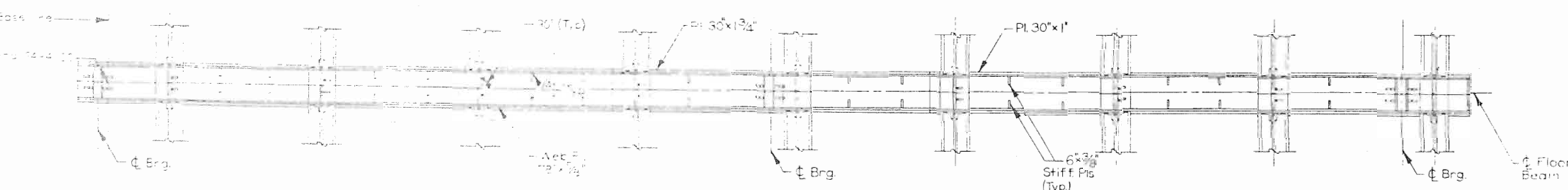
ELEVATION OF FLOOR BEAM NO. 9



SECTION A-A



ELEVATION OF FLOOR BEAM NO. 10



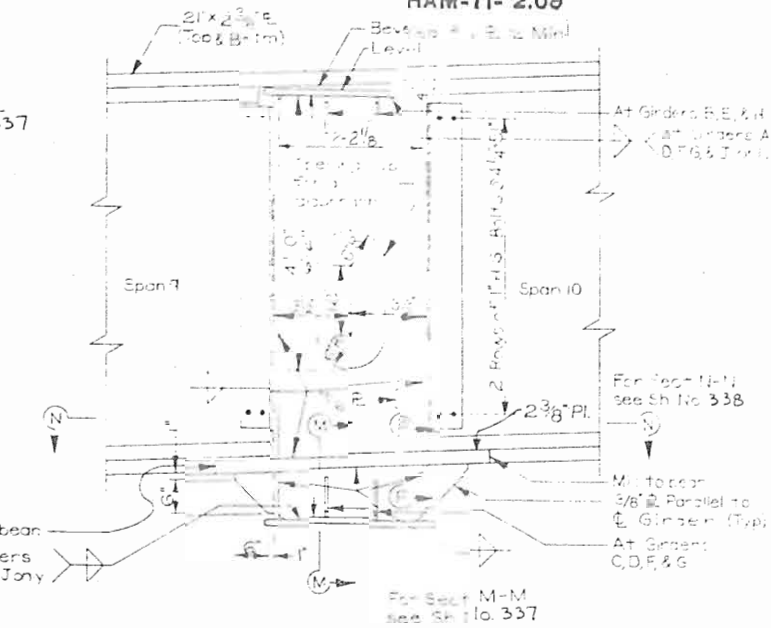
SECTION C-C

Note: For fillet weld sizes not shown see
"TABLE OF FILLET WELD SIZES," Sh. No. 427

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

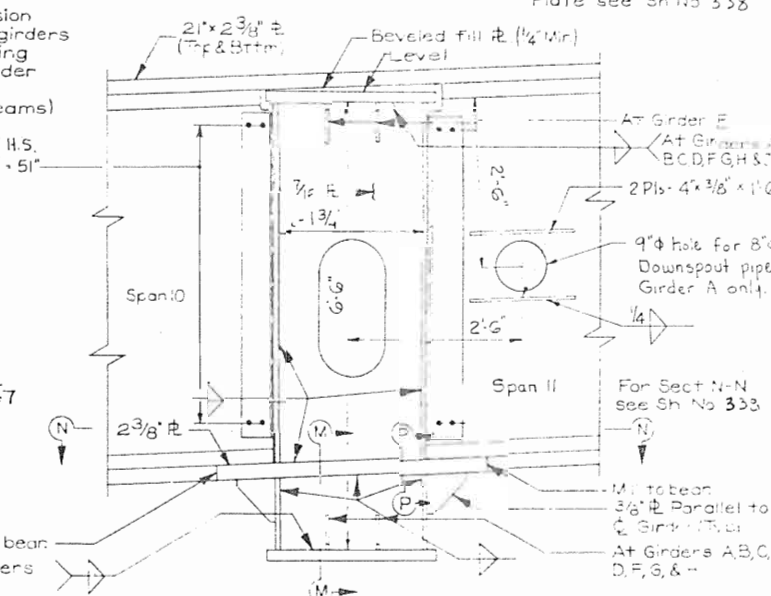
33
46

HAMILTON COUNTY
HAM-71- 2.00



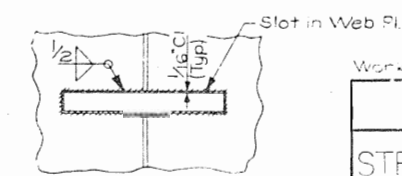
SECTION B-B

For Plan of Top Splice
Plate see Sh No 338



SECTION D D

For Sect M-M
see Sh No. 337



SECTION P-P

Work this sheet with Sheet 337

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS

UNIT 3

BRIDGE No. HAM.-71-0224

H&E BRIDGE NO. 19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BY	REMARKS
MKK	G		NO 4/10/65	H.A.Z. 8.32-65	

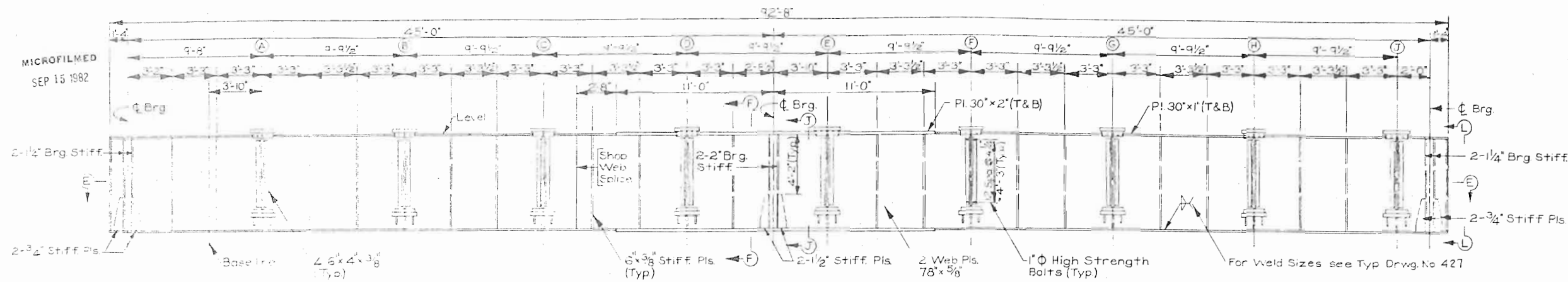
MICROFILMED
SEP 15 1982

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

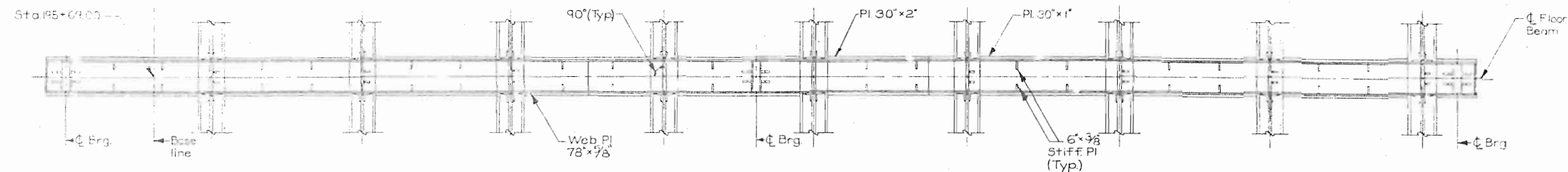
337

460

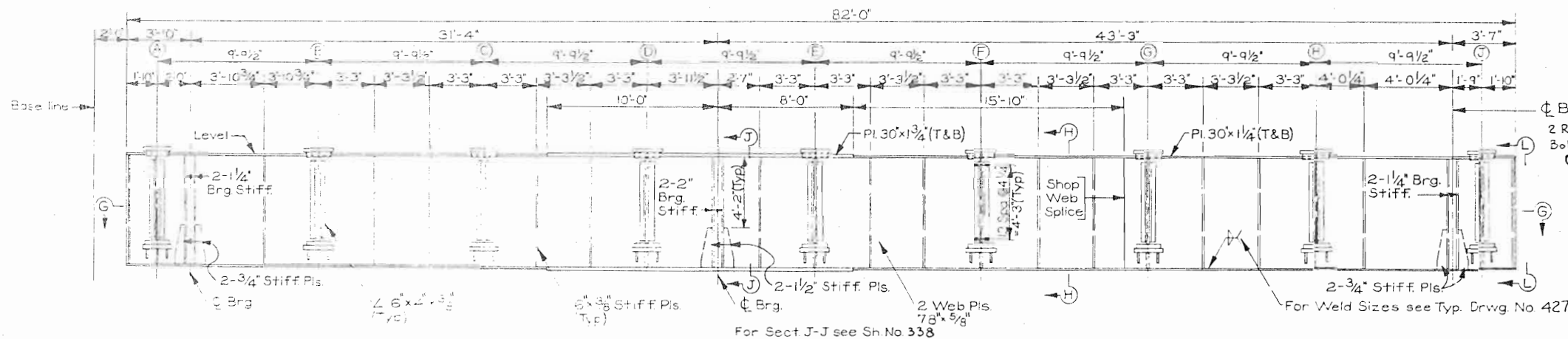
HAMILTON COUNTY
HAM-71- 2.08



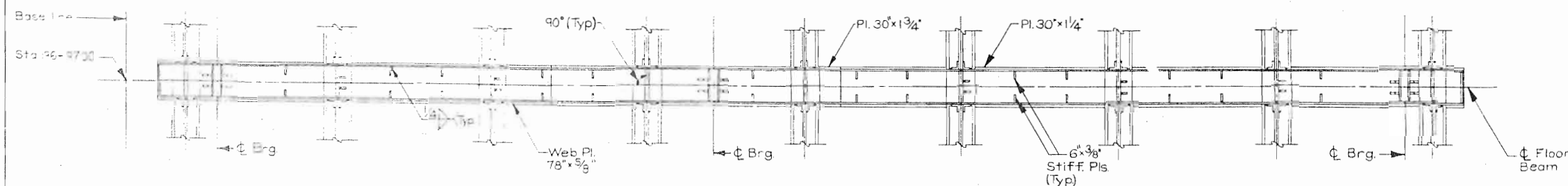
ELEVATION OF FLOOR BEAM NO. 11



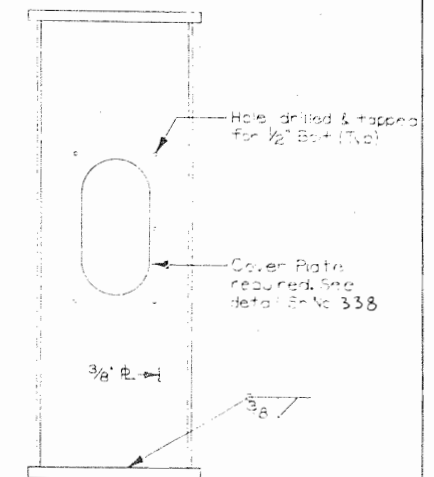
SECTION E-E



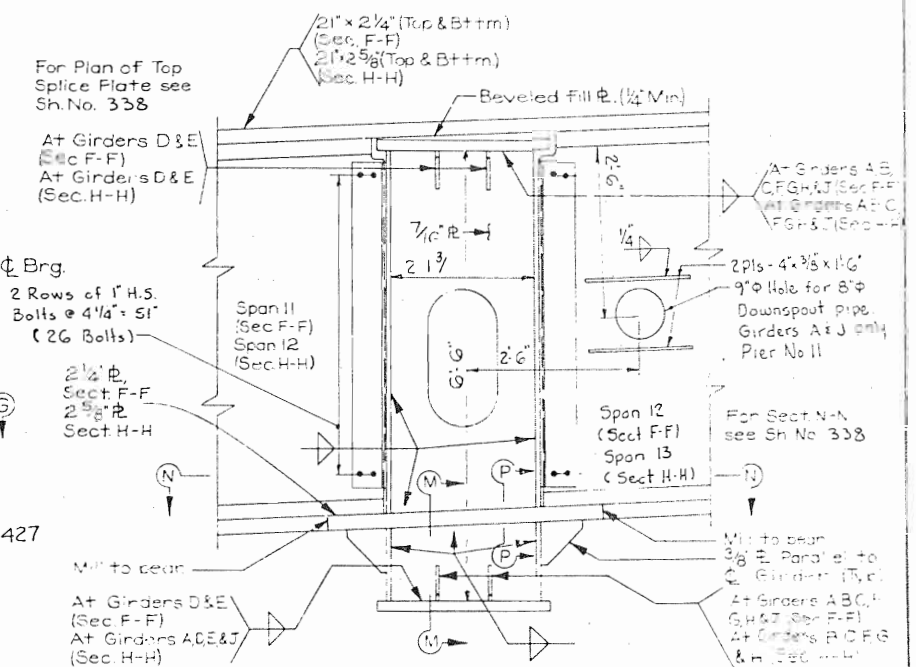
ELEVATION OF FLOOR BEAM NO 12



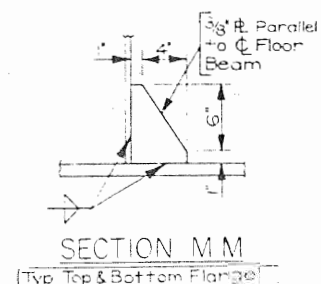
SECTION G-G



SECTION L-L
Typ. @ ends of Floor Beams



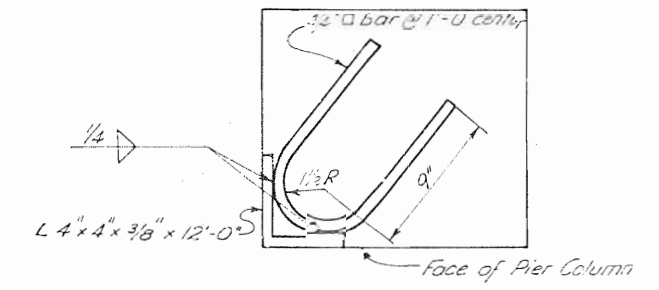
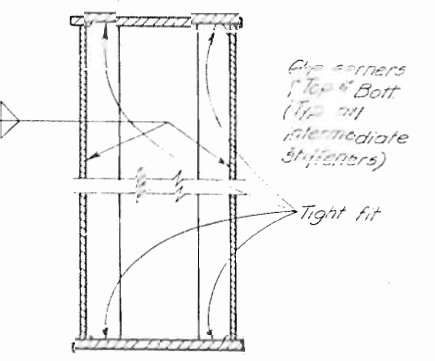
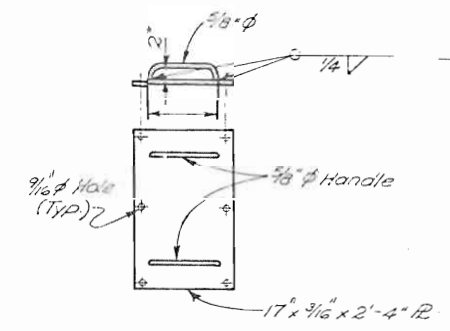
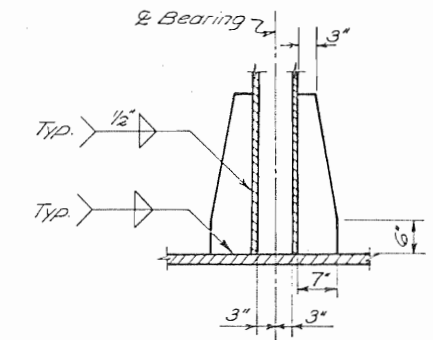
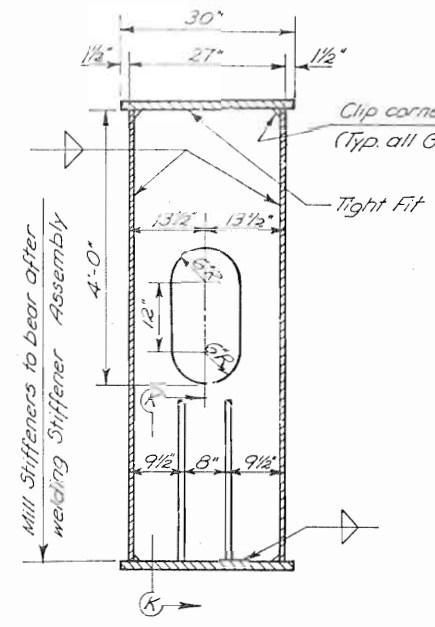
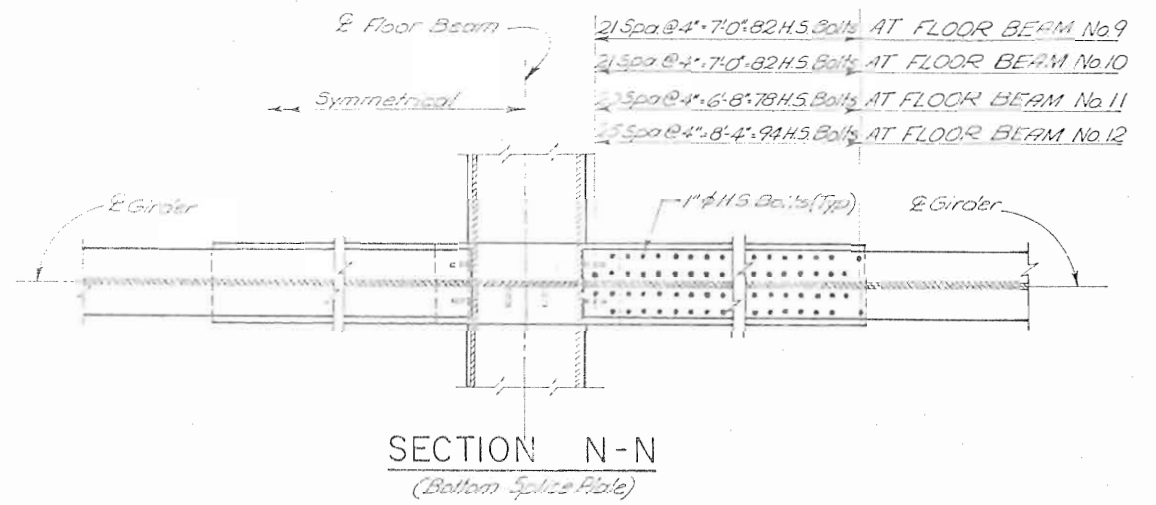
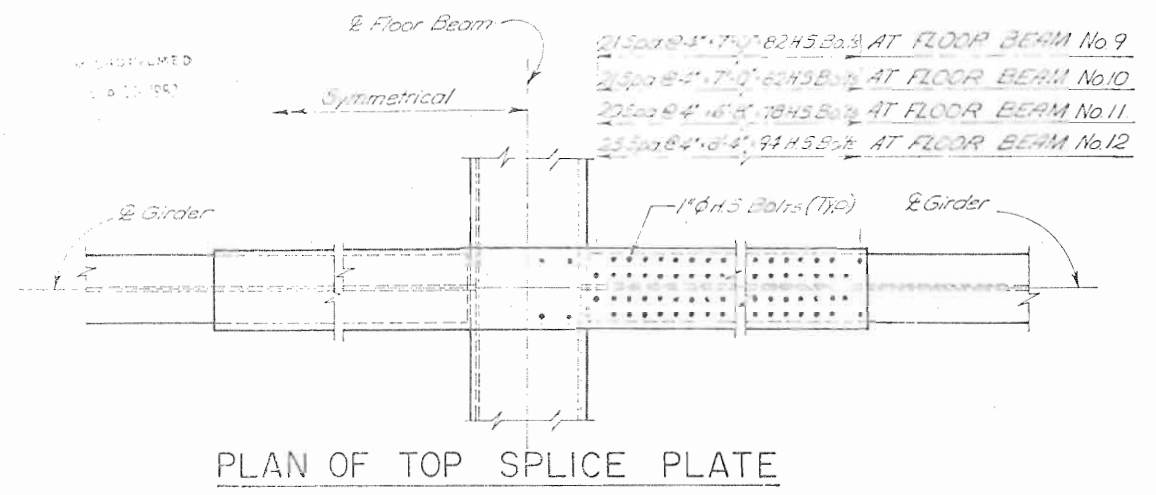
SECTION F-F & SECTION H-H



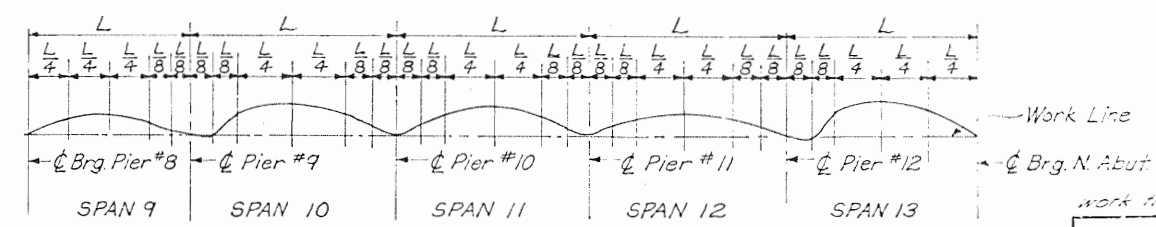
SECTION M M
(Typ Top & Bottom Flange)

HAZELET & ERDAL CONSULTING ENGINEERS CINCINNATI, OHIO				
STRUCTURAL STEEL DETAILS UNIT 3 BRIDGE No. HAM.-71-0224 H&E BRIDGE NO. 19				
DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE
M.K.K.			JHD 4/10/65	N.A.B. 8-7-65
			REVISED	

SFN 3106802



		DEFLECTION AND CAMBER																							
GIRDER		Span 9				Span 10				Span 11				Span 12				Span 13							
		1/4	1/2	3/4	1	1/4	1/2	3/4	1	1/4	1/2	3/4	1	1/4	1/2	3/4	1	1/4	1/2	3/4	1				
A & J	Deflection due to weight of steel	3/8	9/16	3/4			1	1 1/8	1			7/8	1 1/4	7/8			7/8	1 1/4	7/8		3/4	1	3/4		
	Deflection due to remaining dead load	1/2	9/16	1/4			3/8	3/8	3/8			1/4	3/8	3/8			1/8	1/4	1/16		9/16	1 1/8	7/8		
	Adjustment required for vertical curve	0	0	0			0	0	0			0	0	0			0	0	0		0	0	0		
	Required shop Camber	7/8	1 1/8	3/4	1/4	1 1/8	1 1/8	2	1 1/8	9/8	7/8	1 1/8	1 1/4	1 1/8	1/2	3/4	1	1 1/2	1 1/8	1/2	7/8	1 1/8	2 1/8	1 5/8	
B thru H	Deflection due to weight of steel	3/8	9/16	3/4			1	1 1/8	1			7/8	1 1/4	7/8			7/8	1 1/4	7/8		3/4	1	3/4		
	Deflection due to remaining dead load	1/2	9/16	1/4			3/8	3/8	3/8			1/4	3/8	3/8			1/8	1/4	1/16		9/16	1 1/8	7/8		
	Adjustment required for vertical curve	0	0	0			0	0	0			0	0	0			0	0	0		0	0	0		
	Required shop Camber	1 1/8	1 1/4	1 1/8	1/4	1 1/8	1 1/8	2 1/8	1 1/8	9/8	7/8	1 1/8	1 1/4	1 1/8	1/2	3/4	1	1 1/2	1 1/8	1/2	7/8	1 1/8	2 1/8	1 5/8	



Camber girders by cutting webs to a smooth curve (To ordinates indicated in box)

Minus sign in table indicates camber ordinates measured below chord. No sign indicates camber ordinates measured above chord.

work this sheet with sheet No 336 & 337

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS

BRIDGE NO. HAM-71-0224

H & E BRIDGE NO. 19

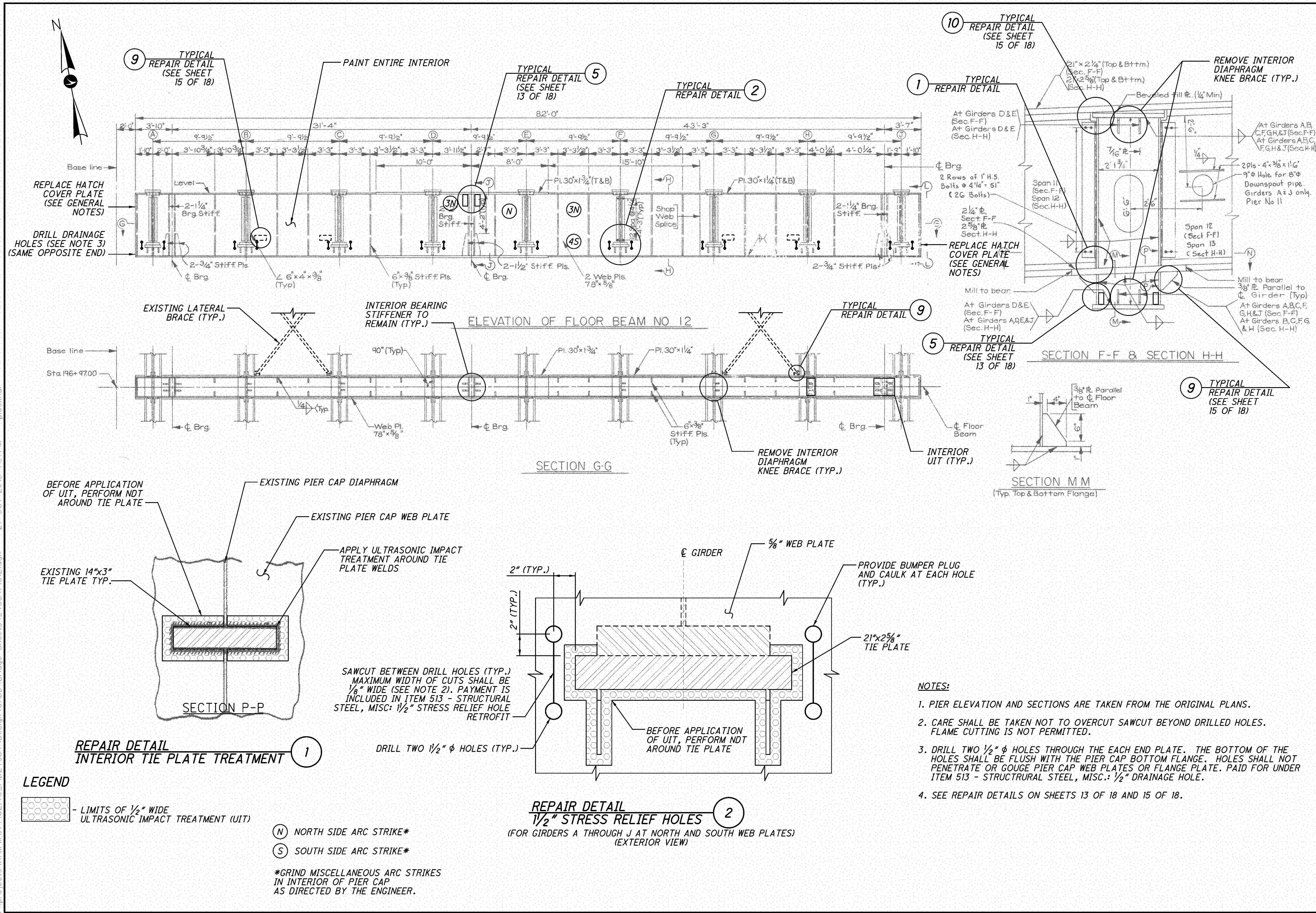
DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE
H. A. S.	B. Sch.	J.H.D.			8-20-65

SFN 3106802

APPENDIX B

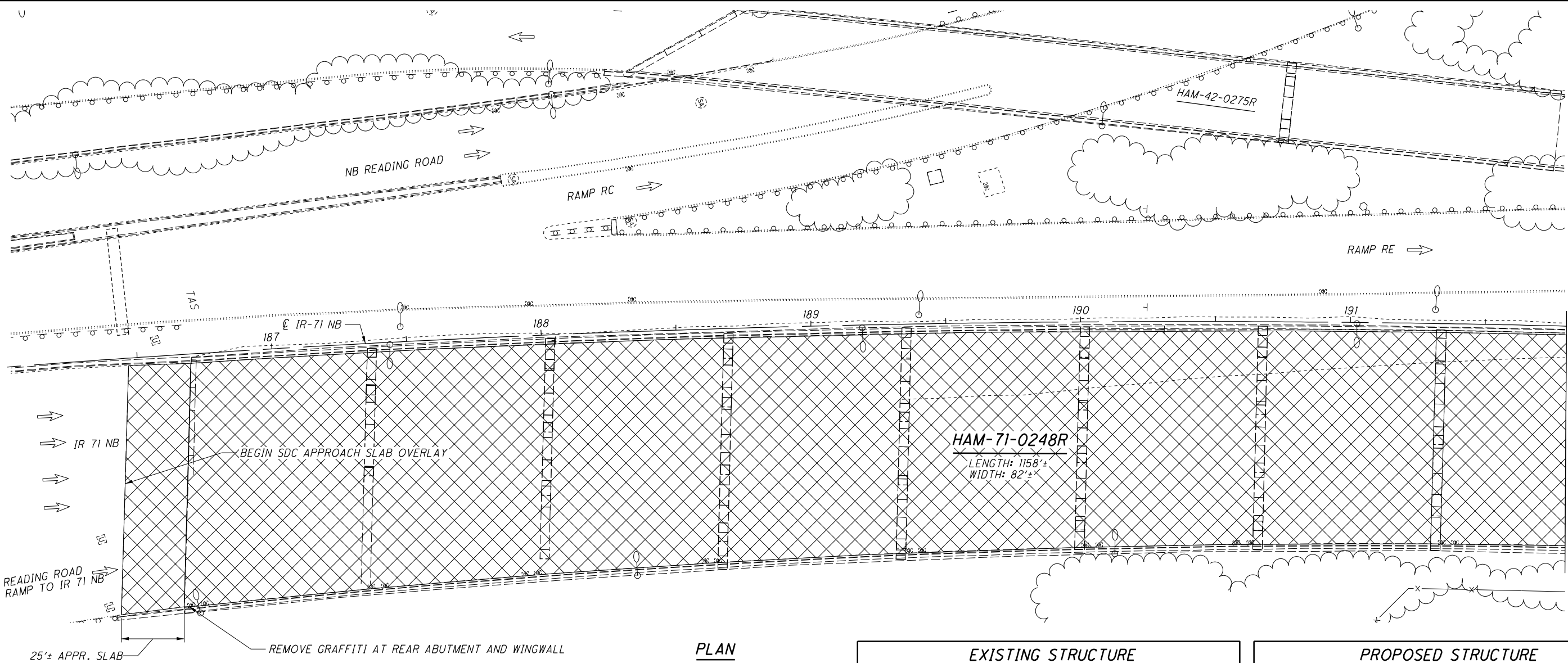
REHABILITATION PLANS

I:\projects\HAM\071\02.43_P1024954\Design\CADD\Bridge_Sheets\24954P1012.dgn 27-OCT-2010 1:37PM plockhar



DESIGN AGENCY	STATE OF OHIO
DATE	06-08-10
REVIEWED	SCS
DRAWN	P.J.L.
DESIGNED	P.J.L.
CHECKED	CAH
BRIDGE NO.	HAM-71-0248R
OVER	EDEN PARK ENTRANCE AND FLORENCE DRIVE
PIER	12
REPAIR	DETAILS
STRUCTURE FILE NUMBER	3106802
PID No.	24954
8	14
12	18

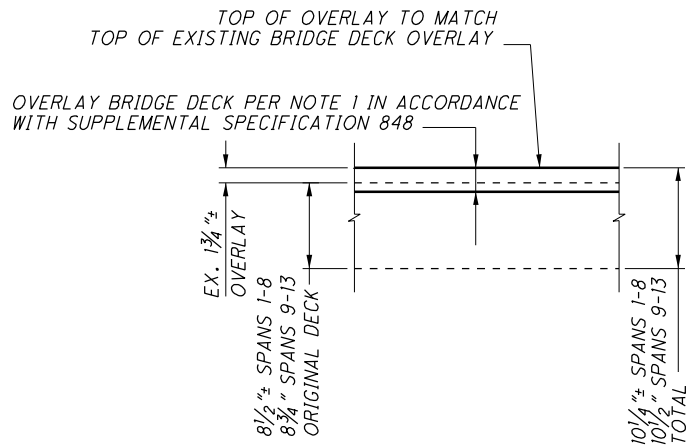
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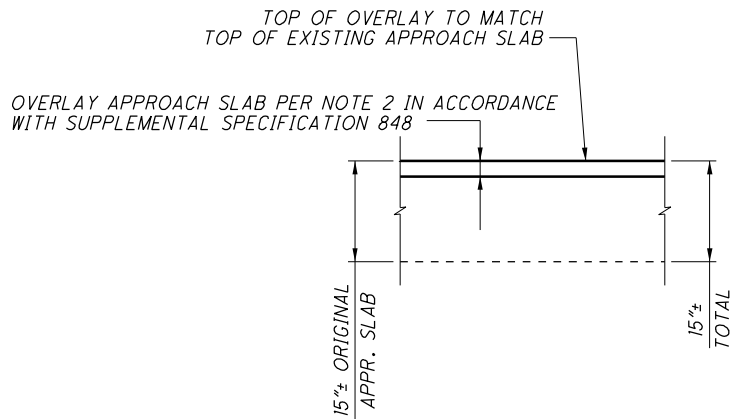
PLAN

LEGEND

SUPERPLASTICIZED DENSE CONCRETE (SDC) OVERLAY



DECK SLAB OVERLAY DETAIL



APPROACH SLAB OVERLAY DETAIL

EXISTING STRUCTURE

TYPE: CONTINUOUS ROLLED BEAM AND WELDED PLATE GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 66'-0"± (SPANS 1 THRU 8), 107'-0"± (SPAN 9), 134'-0"± (SPAN 10) AND 128'-0"± (SPAN 11 THRU 13)

ROADWAY: VARIES, 80'-0"± MIN. F/F PARAPET

LOADING: C.F. = 2000 (57)

SKEW: 0°

APPROACH SLABS: AS-1-54 (25'-0" LONG)

ALIGNMENT: VARIES

SUPERELEVATION: VARIES

STRUCTURAL FILE NUMBER: 3106802

DATE BUILT: 1972

PROPOSED WORK:

1. REMOVE EXISTING 1 3/4" LATEX MODIFIED CONCRETE (LMC) WEARING SURFACE AND 1" OF THE ORIGINAL DECK USING HYDRODEMOLITION AND REPLACE WITH 2 3/4" THICK SUPERPLASTICIZED DENSE CONCRETE (SDC).
2. REMOVE 1 3/4" OF THE ORIGINAL APPROACH SLAB AND TOP OF BACKWALL USING HYDRODEMOLITION AND REPLACE WITH 1 3/4" OF SUPERPLASTICIZED DENSE CONCRETE (SDC).
3. CLEAN EXISTING DRAINAGE SYSTEM TO THE FIRST MANHOLE, BOTH ON THE STRUCTURE AND BELOW GROUND.
4. PRESSURE WASH BEAM SEATS, BACKWALLS, AND STRUCTURAL STEEL WITHIN 10 FEET OF ABUTMENT EXPANSION JOINTS.
5. REMOVE GRAFFITI AT REAR ABUTMENT AND WINGWALL. RESEAL ABUTMENT FACE WITH EPOXY URETHANE SEALER (SEE GENERAL NOTES).
6. RETROFIT FATIGUE CRACKS IN PIER 9, 10, 11 & 12 STEEL PIER CAPS.
7. ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLANS AND NOTES.

PROPOSED STRUCTURE

TYPE: CONTINUOUS ROLLED BEAM AND WELDED PLATE GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 66'-0"± (SPANS 1 THRU 8), 107'-0"± (SPAN 9), 134'-0"± (SPAN 10) AND 128'-0"± (SPAN 11 THRU 13)

ROADWAY: VARIES, 80'-0"± MIN. F/F PARAPET

LOADING: C.F. = 2000 (57)

SKEW: 0°

APPROACH SLABS: AS-1-54 (25'-0" LONG)

ALIGNMENT: VARIES

SUPERELEVATION: VARIES

COORDINATES: LATITUDE 39°6'58" N
LONGITUDE 84°29'59" W

HAM-71-1.97
PID No. 82975

1 / 4

270
292

GENERAL PLAN -1
HAM-71-0248R
I-71 NB OVER EDEN PARK ENTRANCE AND FLORENCE AVE

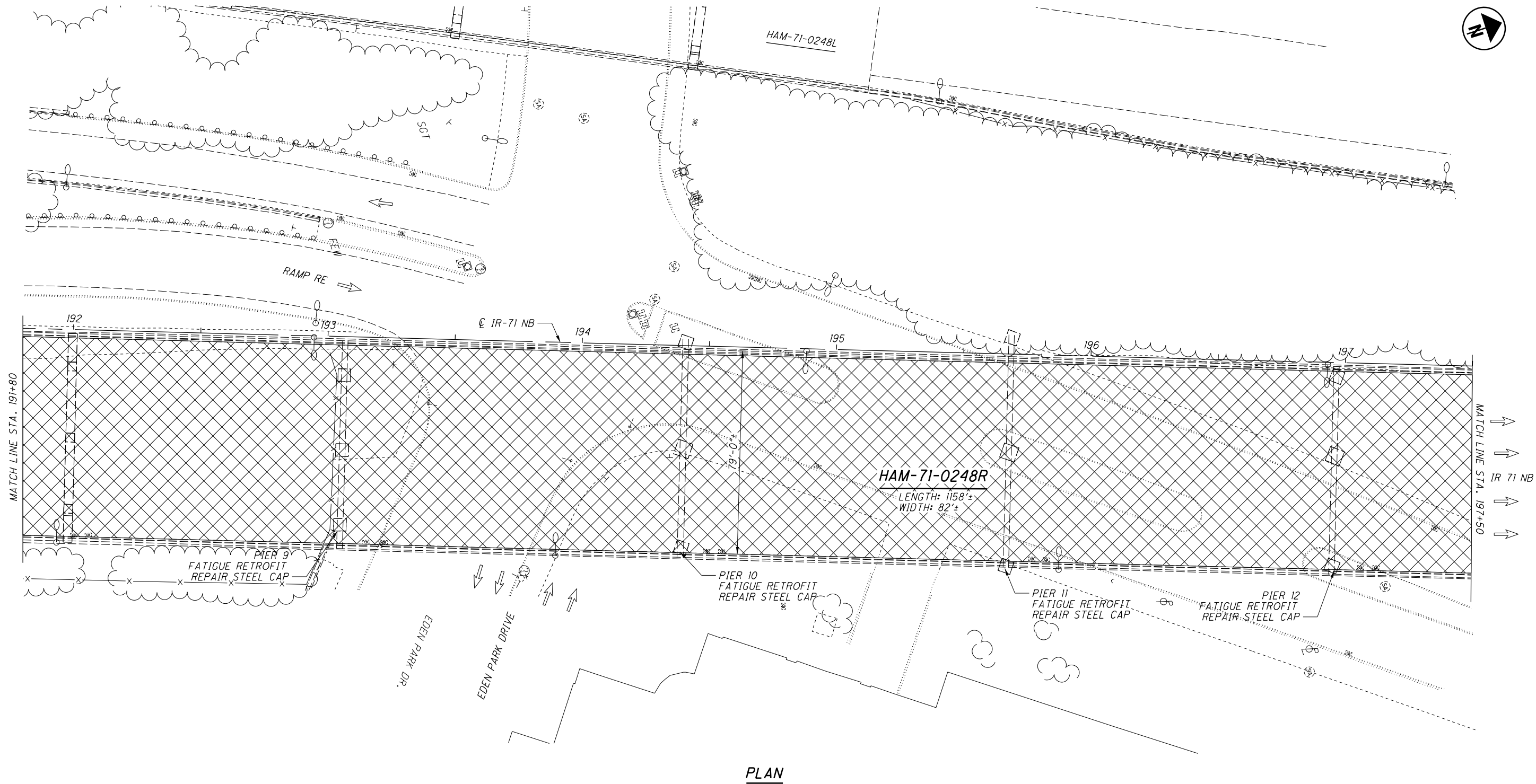
DESIGN AGENCY
BURGESS & NIPLE
312 PLUM ST. CINCINNATI OH

DATE
8/31/2016
REVIEWED
JSB
STRUCTURE FILE NUMBER
3106802

DRAWN
SJA
CHECKED
SJA
REVIS
XXX
XAC



P:\PR54860\HAM\82975\Design\Structures\HAM071_0248R\Sheets\071_0248R_SG002.dgn Sheet 9/8/2016 10:10:22 AM ansin



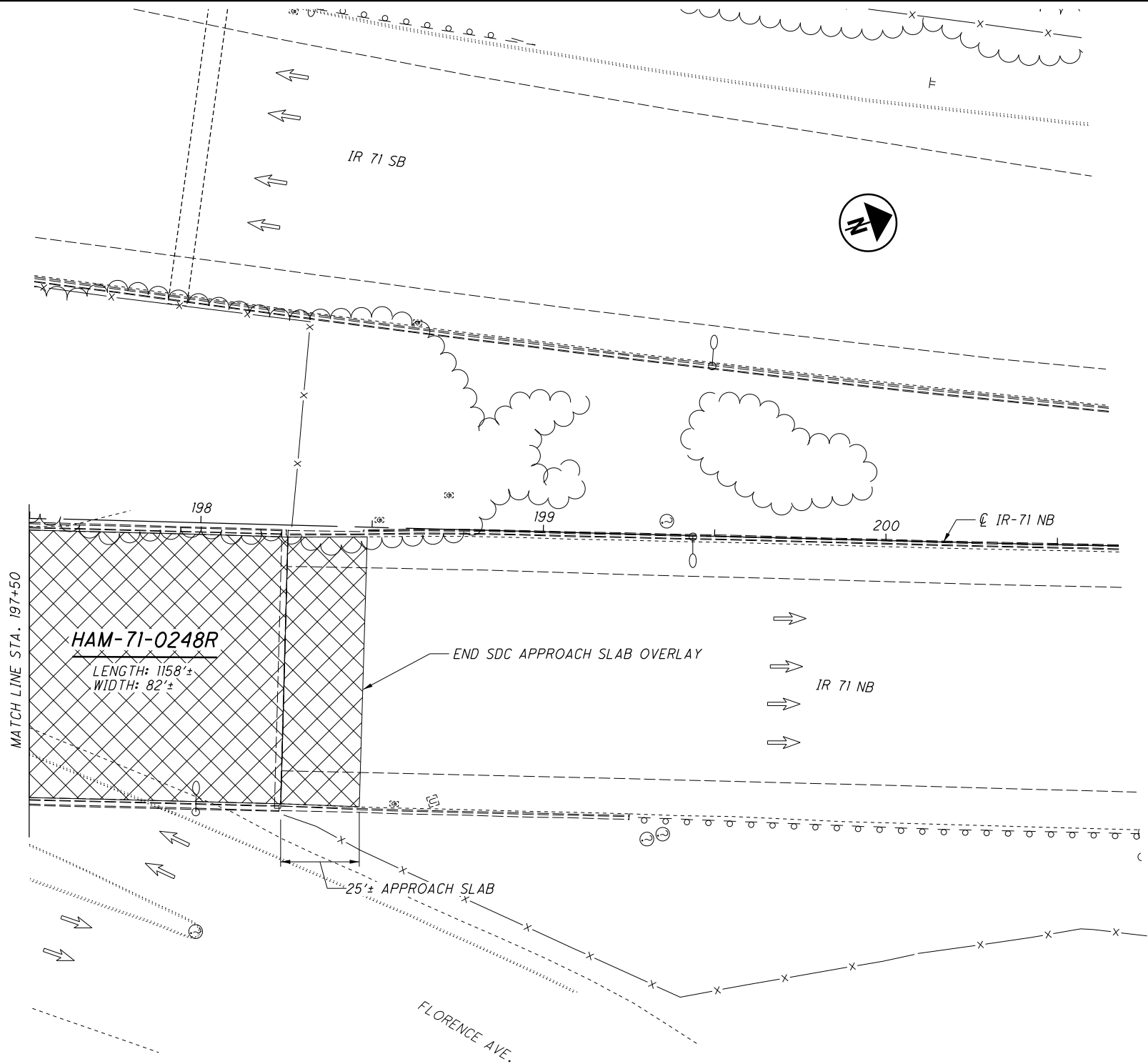
PLAN

LEGEND



SUPERPLASTICIZED DENSE CONCRETE (SDC) OVERLAY

HAM-71-1.97 PID No. 82975	GENERAL PLAN -2 HAM-71-0248R I-71 NB OVER EDEN PARK ENTRANCE AND FLORENCE AVE				DESIGNED SJA	DRAWN SJA	REVIEWED JSB	DATE 8/31/2016	DESIGN AGENCY BURGESS & NIPLE 312 PLUM ST. CINCINNATI OH
					CHECKED XAC	REVISED XXX	STRUCTURE FILE NUMBER 3106602		



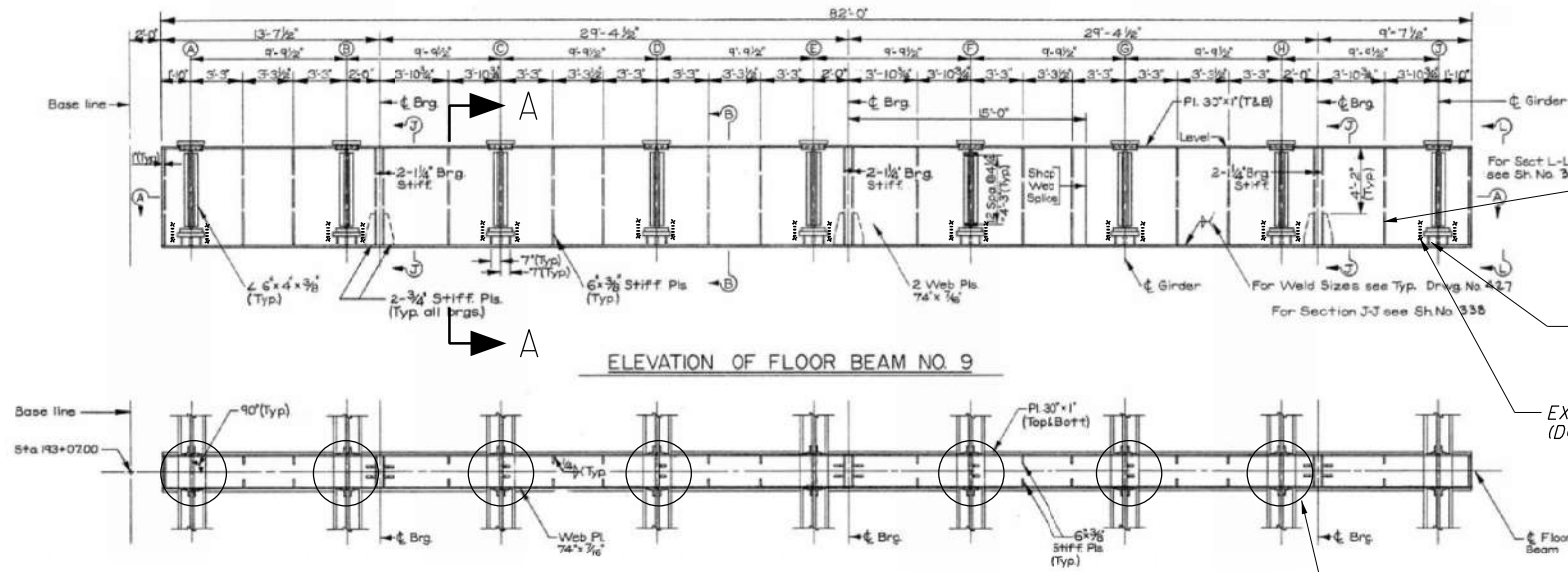
PLAN

LEGEND



SUPERPLASTICIZED DENSE CONCRETE (SDC) OVERLAY

HAM-71-1.97 PID No. 82975	GENERAL PLAN -3 HAM-71-0248R I-71 NB OVER EDEN PARK ENTRANCE AND FLORENCE AVE				DESIGN AGENCY BURGESS & NIPLE 312 PLUM ST. CINCINNATI OH	
	3 / 4	272 292	DESIGNED SJA CHECKED XAC	DRAWN SJA REVISED XXX	REVIEWED JSB STRUCTURE FILE NUMBER 3106802	DATE 8/31/2016



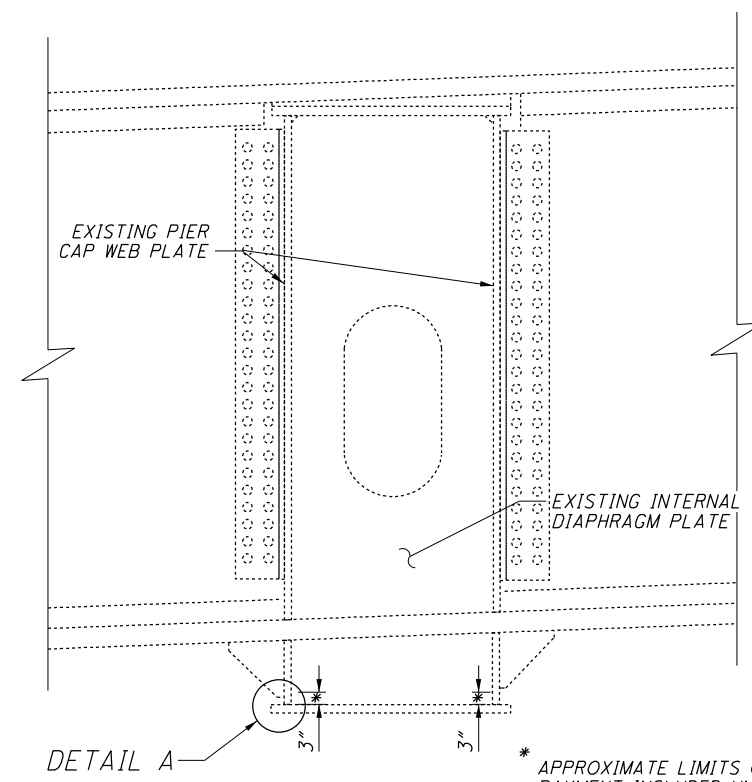
PIER CAP ELEVATION
PIER 9 SHOWN
PIERS 10, 11 AND 12 SIMILAR

REMOVE AND REPLACE TWO CRACKS IN THE SOUTH WEB STIFFENER FILLET WELD ON PIER CAP 9. PAYMENT SHALL BE INCLUDED WITH ITEM 513-STRUCTURAL STEEL, MISC.: FILLET WELD CRACK RETROFIT. SEE GENERAL NOTES FOR REPAIR PROCEDURE.

ITEM 513-STRUCTURAL STEEL, MISC.: 2" STRESS RELIEF HOLE RETROFIT TYPICAL AT ALL EXISTING STRESS RELIEF RETROFIT LOCATIONS (DOG-BONE REPAIRS) DONE PREVIOUSLY.

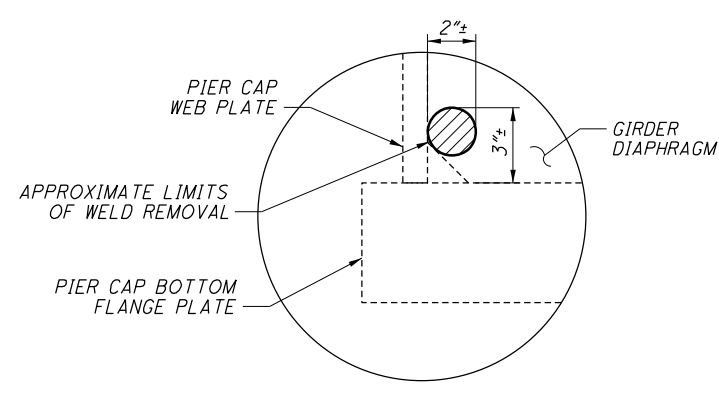
EXISTING STRESS RELIEF RETROFIT LOCATIONS (DOG-BONE REPAIRS) DONE PREVIOUSLY.

REMOVE FILLET WELDS THAT ATTACH THE REMAINS OF KNEE BRACES TO THE BOTTOM FLANGE PLATE OF PIER CAP 10 AT THE DIAPHRAGMS OF GIRDERS A, B, C, D, F, G AND H (2 KNEE BRACE ATTACHMENTS AT EACH DIAPHRAGM) IN ACCORDANCE WITH ITEM 513 -STRUCTURAL STEEL, MISC.: GRINDING PER FOOT, AS PER PLAN

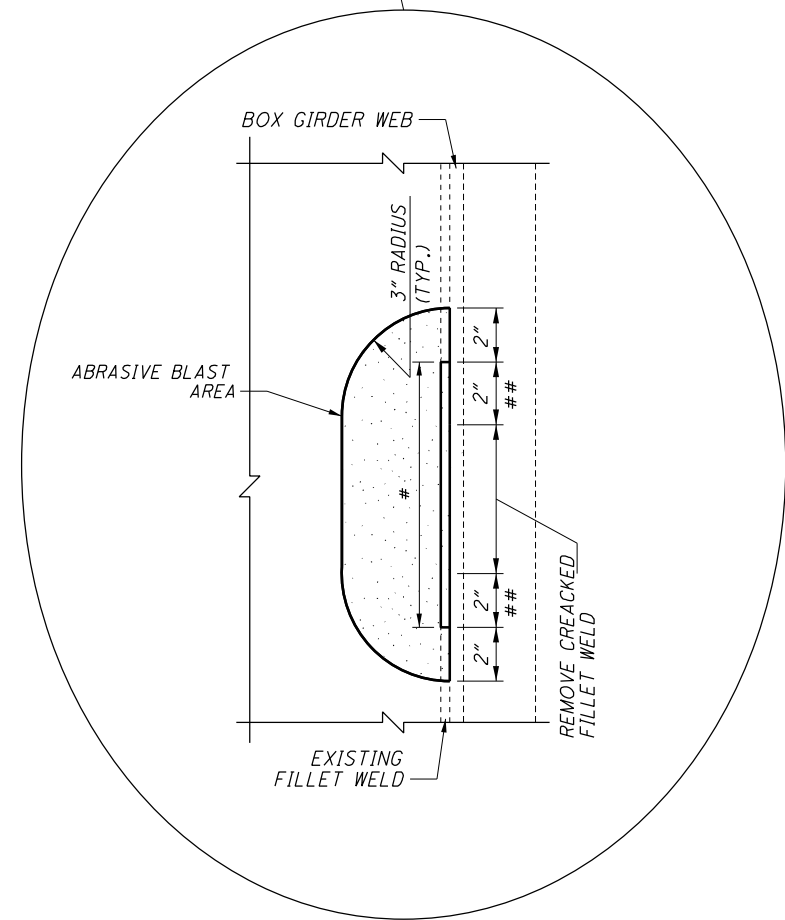


SECTION A-A

APPROXIMATE LIMITS OF WEB PLATE WELD REMOVAL. PAYMENT INCLUDED UNDER ITEM 513-STRUCTURAL STEEL, MISC.: 2" STRESS RELIEF HOLE RETROFIT.



DETAIL A



FILLET WELD CRACK RETROFIT DETAILS
(INSIDE ELEVATION)

= PROVIDE NEW FILLET WELD
= REMELT EXISTING FILLET WELD AND INCORPORATE IN THE NEW WELD

ITEM 513-STRUCTURAL STEEL, MISC.: 2" STRESS RELIEF HOLE RETROFIT

PERFORM THE REPAIRS DESCRIBED BELOW AT PIERS 9-12.

PIER 9 - 18 LOCATIONS
PIER 10 - 20 LOCATIONS
PIER 11 - 16 LOCATIONS
PIER 12 - 18 LOCATIONS

SEE GENERAL NOTES FOR REPAIR PROCEDURE:



8890 Lyra Road, Suite 110
Columbus, OH 43240