

April 4, 2023

## PRE-INSPECTION REPORT

**BRIDGE NO HAM-75-1102R**

PID No. 105476



I-75 OVER WEST FORK OF MILL CREEK  
AND GALBRAITH ROAD

**INSPECTION DETAILS:**

Bridge No.:	HAM-75-1102R
Features intersected:	West Fork of Mill Creek, Galbraith Road
Locations to Inspect:	HAM-75-1102R: 2 steel pier caps (Piers 3 & 4)
No. of Inspection Days:	Anticipated 2 days
No. of Caps to Inspect:	2
Anticipated Inspection Dates:	Week of July 10 2023 (tentative)
Inspection Hours:	9 am – 3 pm
Inspection Access Equipment:	\ Bucket Truck, Ladders

**FRACTURE CRITICAL INSPECTION REQUIREMENTS:**

The inspection will consist of an In-Depth “Arms-Reach” inspection, performed in accordance with the guidelines of the current FHWA National Bridge Inspection Standards for Fracture Critical Members. To perform an effective Fracture Critical Inspection, the following tasks must be performed:

1. Determine Resource Requirements.  
*(Identify qualified inspection staff, use appropriate inspection access and inspection equipment).*
2. Identify the Fracture Critical Members.  
*(Identified in Appendix C)*
3. Develop the Inspection Procedure.  
*(Contained in this document)*
4. Prepare Follow-up Procedure.  
*(Recommendations will be made as part of this current project)*
5. Provide Quality Control/Quality Assurance for the inspection and report.  
*(Procedures outlined in this document)*
6. Develop a Periodic Inspection Plan  
*(Already in place with the Ohio Department of Transportation, District 8)*

**BRIDGE DESCRIPTION:**

The HAM-75-1102R Bridge is a six-span welded steel plate girder structure with a reinforced concrete deck that carries four lanes of Interstate I-75 northbound traffic over the West Fork of Mill Creek and Galbraith Road. The West Fork of Mill Creek passes beneath span 2 of the structure, and Galbraith Road passes beneath Spans 3 to 5 as it is skewed 60 degrees from northbound Interstate I-75. The overall length of the bridge is 507.3'. The bridge numbering system follows the convention set in the design plans (from west to east). Access to the structure will be from ladders and a bucket truck.

**FRACTURE CRITICAL MEMBER LOCATIONS:**

This structure has two fracture critical steel pier caps at Piers 3 and 4. The caps are simply supported welded box members supported on two circular reinforced concrete columns spaced 46'-10 1/2" center-to-center. The web plate heights vary from 3'-5 1/4" to 3'-10 5/8" across the lengths of the pier caps. The superstructure consists of seven welded, steel I-girders that are haunched and continuous over the pier caps. Their top flanges pass above the pier caps and their bottom flanges

pass below the pier caps. Their webs are connected to the web plates of the pier caps by fillet welds. Select fatigue prone details for the pier caps on this structure were retrofitted in 1993 (See Appendix C for the fatigue prone details).



### **INSPECTION METHODS & PLAN:**

The Collins Team will perform inspections on two fracture critical pier caps on HAM-75-1102R, as defined by the Scope of Services. The caps span Galbraith Road. The work will be performed during 2 days. The inspection will adhere to the Confined Space Entry Procedures defined herein, and in the GF safety procedures. Traffic control will be provided by A&A Safety according to the standards shown in Appendix B.

**FIELD COORDINATION** - The following entities will be involved in coordinating and performing all field work associated with the inspection of these structures.

### **COLLINS** – Field Team Contacts:

Michael Seal, P.E., CBI: Team Leader, Project Manager (614) 849-2277 (C)  
[mseal@collinsengr.com](mailto:mseal@collinsengr.com)

Matt Rogers, P.E., CBI: Team Leader (859) 630-2238 (C)  
[mrogers@collinsengr.com](mailto:mrogers@collinsengr.com)

Kevin Mitchell, CBI, Asst. Team Leader,  
[kmitchell@collinsengr.com](mailto:kmitchell@collinsengr.com)

(606) 344-3000 (C)

**ODOT (Project and Permitting Contacts)** – A right of entry permit is necessary through ODOT District 8. See Appendix A. The following ODOT personnel will be contacts.

Brandon Collett: Project Manager (513) 933-6643  
[Brandon.Collett@dot.state.oh.us](mailto:Brandon.Collett@dot.state.oh.us)

Jeff Meyer: Assistant Structures Engineer (513) 933-6630

Scott Kraus: District Work Zone Traffic Manager (513) 933-6519  
[Scott.Kraus@dot.state.oh.us](mailto:Scott.Kraus@dot.state.oh.us)

Chris Bass: Right-of-Way Use Permits (513) 933-6575  
[Christopher.Bass@dot.state.oh.us](mailto:Christopher.Bass@dot.state.oh.us)

**A&A Safety** – A&A Safety will be the traffic control subcontractor for this inspection. Refer to Appendix A for proposed maintenance of traffic schemes. Contacts are:

Don Beagle/Keith Gilbert: A&A Safety (513) 276-2153  
[donb@aaafetyinc.com](mailto:donb@aaafetyinc.com)

**TRAFFIC CONTROL**

A&A Safety will be responsible for installation of traffic control devices to close lanes of Galbraith Road. A brief description of the anticipated closures is as follows.

Galbraith Road – The interior lanes and median of Galbraith Road will be closed underneath the I-75 Bridge as well as the shoulders of Galbraith Road during daytime hours. These areas will be closed from 9 am to 3 pm each day.

**CONFINED SPACE ENTRY PROCEDURE:** See below.

**INSPECTION PLAN:**

The condition inspection of the steel box girder pier caps on HAM-75-1102R will involve a 2-day field effort to completely inspect both the interior and exterior. The exterior will be inspected from 46' bucket truck and ladders for access and the interior will be inspected by entering the box girder per the procedures outlined below. A 3-man inspection team will perform the confined space inspection. Collins will open the pier caps 1 hour prior to entering to ventilate the piers. Prior to the start of the inspection, the inspection team shall meet at the site for a safety meeting and review the details of this inspection plan.

Entry will be performed in accordance with permit-required confined space entry procedures. This includes the use of an entry permit system, pre-entry and continuous air monitoring, and designating

qualified entrants, attendants, and supervisor(s). The Project Work Plan will outline safety procedures for confined space work and contain contact information for local EMS services and for the local Hospital.

Prior to the inspection, initial air monitoring for O<sub>2</sub>, %LEL, CO, and H<sub>2</sub>S will be performed by one designated certified entrant climbing the length of the steel box girder pier caps and the certified attendant documenting the readings every 25 feet. Radios will be used for team communications during the inspection. At the conclusion of the initial entry and air monitoring, the confined space air readings will be evaluated and if no hazards exist, the space will be designated a non-permit required confined space. Members of the inspection team entering the confined space will continuously monitor the air, and the attendant will document readings in the box every 30 minutes for the duration of the work inside of the confined space.

If the monitor alarms go off during the initial entrance indicating that unsafe atmospheric conditions exist, the entrant will immediately exit the steel box girder (using a 10-minute escape pack if needed). If unsafe atmospheric conditions continue to exist, further ventilation will continue and the initial air monitoring performed again at a later time after proper ventilation. A blower and generator will be used to provide proper ventilation to the box girder, if necessary. If the atmospheric hazards cannot be removed from the confined space, the box girder will NOT be entered and the District's Project Manager will be contacted to notify and to receive further instructions.

**FOLLOW-UP PROCEDURES FOR INSPECTION FINDINGS:**

Fracture critical inspection findings shall be documented in the final inspection report.

**Quality Control/Quality Assurance**

The standard Collins Quality Control Plan will be utilized. Such steps include: completion of field task checklist prior to leaving site, team leader review of all field notes and photographs before leaving the site, either the report originator or checker will be part of the field team, the report checker will be an NBI Team Leader, the report corrector cannot be the checker, the backchecker cannot be the corrector, and the field team leader will be involved for at least one phase of the reporting process.

## APPENDIX A – RIGHT OF ENTRY PERMIT APPLICATIONS

## APPENDIX B – TRAFFIC CONTROL DETAILS

Wyoming

Lockland

HAM-75-1192R

July 30 2023 ODOT snooper Pier 5, July 2023 for RR caps.

Reading

Arlington Heights

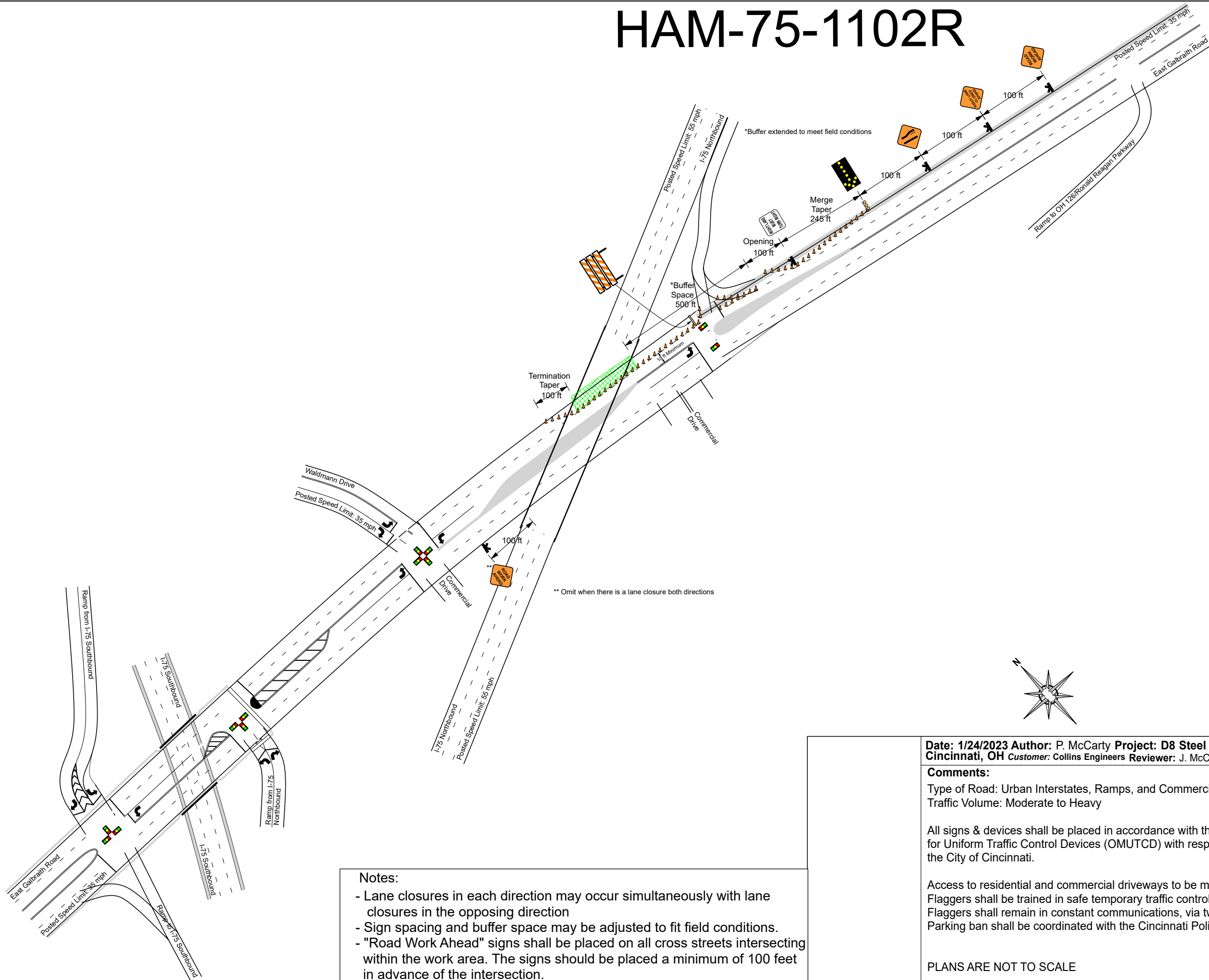
July 2023, 2 days, 2 caps

HAM-75-1102R





# HAM-75-1102R



**Notes:**

- Lane closures in each direction may occur simultaneously with lane closures in the opposing direction
- Sign spacing and buffer space may be adjusted to fit field conditions.
- "Road Work Ahead" signs shall be placed on all cross streets intersecting within the work area. The signs should be placed a minimum of 100 feet in advance of the intersection.

**Date:** 1/24/2023 **Author:** P. McCarty **Project:** D8 Steel Pier Cap Inspections - Cincinnati, OH **Customer:** Collins Engineers **Reviewer:** J. McCarty **BridgeENumber:** HAM-75-1102

**Comments:**  
 Type of Road: Urban Interstates, Ramps, and Commercial Routes  
 Traffic Volume: Moderate to Heavy

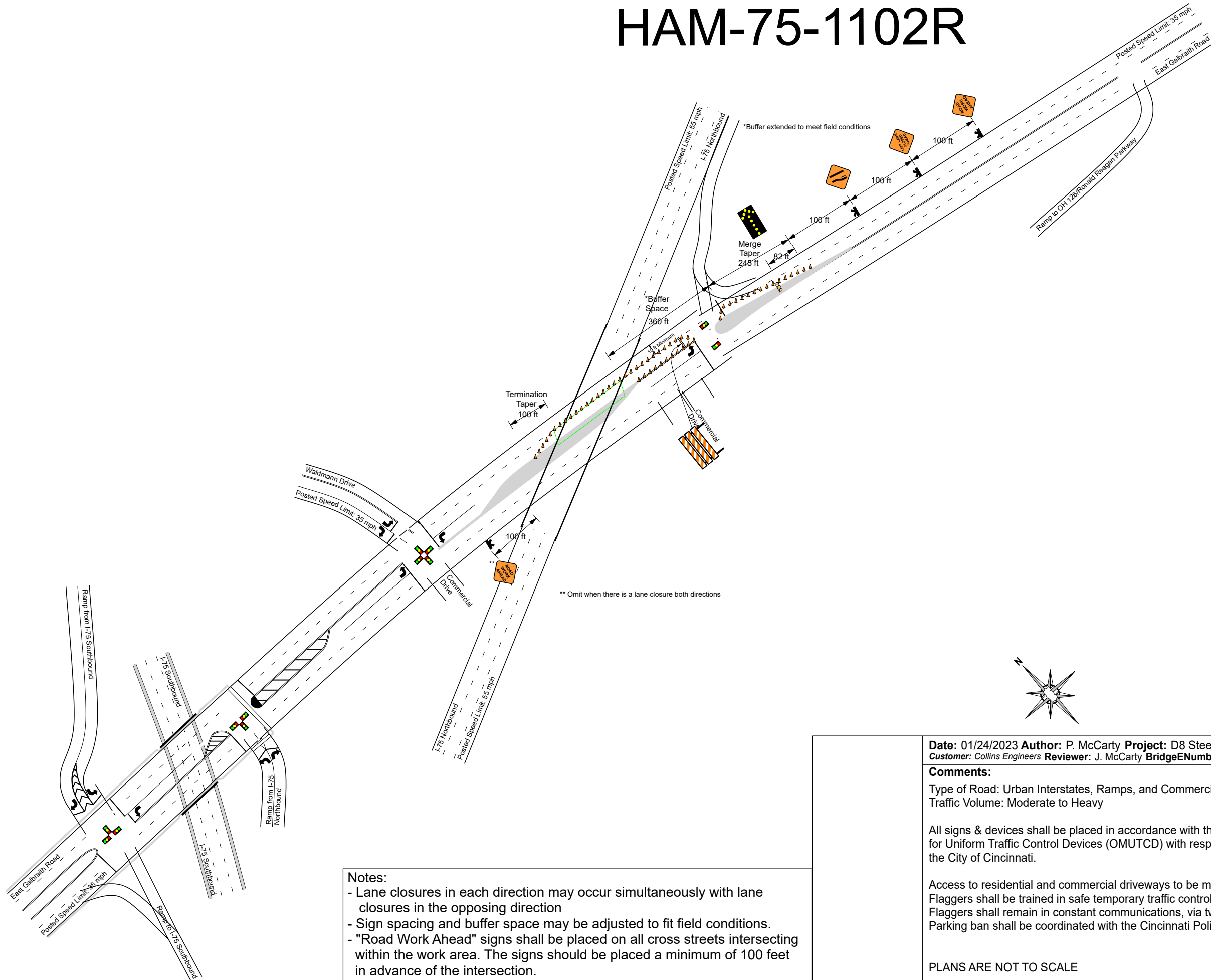
All signs & devices shall be placed in accordance with the latest provisions of Ohio Manual for Uniform Traffic Control Devices (OMUTCD) with respect to any applicable provisions from the City of Cincinnati.

Access to residential and commercial driveways to be maintained at all times. Flaggers shall be trained in safe temporary traffic control practices. Flaggers shall remain in constant communications, via two-way radio, at all times. Parking ban shall be coordinated with the Cincinnati Police Department.

PLANS ARE NOT TO SCALE

Sheet 1 of 4

# HAM-75-1102R



\*\* Omit when there is a lane closure both directions

Legend	
	Arrow Board
	Cone
	Portable Sign Stand
	Type 3 Barricade
	Work Area

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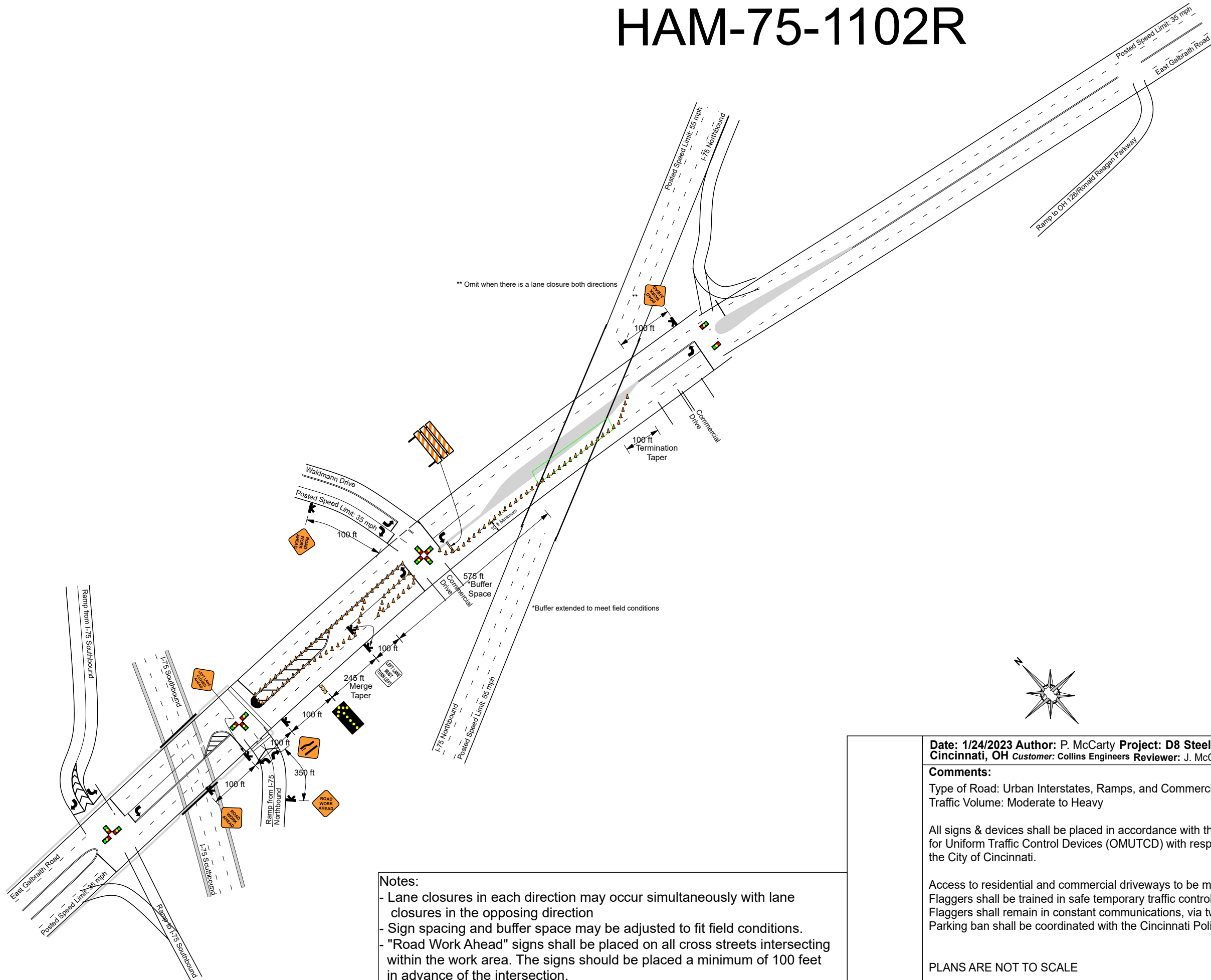
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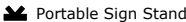


# HAM-75-1102R

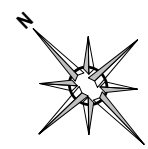


\*\* Omit when there is a lane closure both directions

\*Buffer extended to meet field conditions

**Legend**

-  Arrow Board
-  Cone
-  Portable Sign Stand
-  Type 3 Barricade
-  Work Area



**Notes:**

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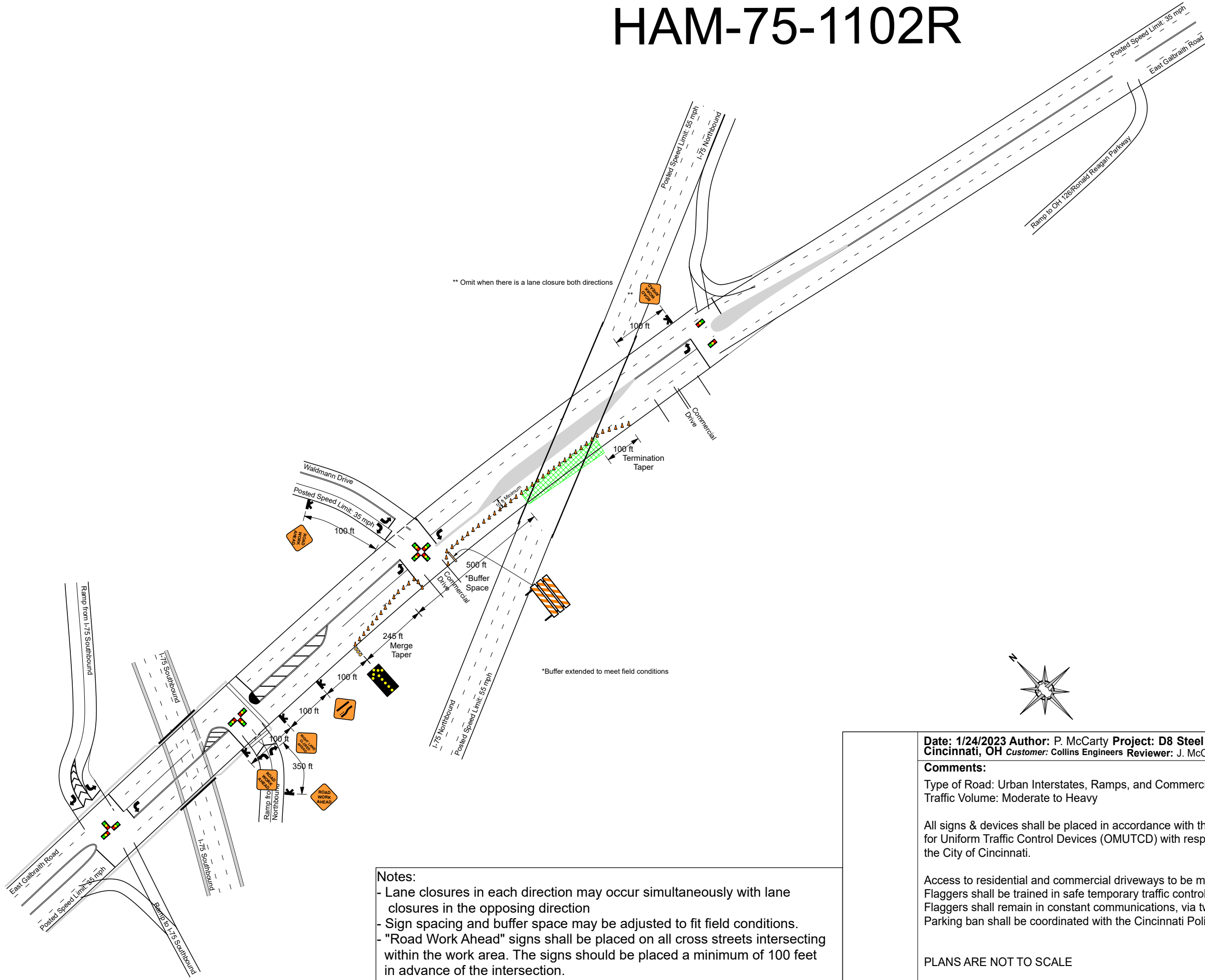
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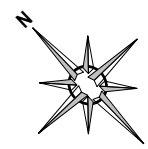
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 Flaggers shall be trained in safe temporary traffic control practices.  
 Flaggers shall remain in constant communications, via two-way radio, at all times.  
 Parking ban shall be coordinated with the Cincinnati Police Department.

# HAM-75-1102R



**Legend**

- Arrow Board
- Cone
- Portable Sign Stand
- Type 3 Barricade
- Work Area



**Notes:**

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**APPENDIX C – FATIGUE PRONE DETAILS FOR  
HAM-75-1102R**

**PIER 3 CAP/PIER 4 CAP – FATIGUE PRONE DETAILS:**

**Fatigue Prone Detail 1**

Fillet welds between girder webs or diaphragms and web 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:

- Tack welds between top flange backer bars and pier cap 3 flange and web plates between fascia girders and bearings.
- One tack weld between pier cap 3 bottom flange and each backer bar between girder 3 and the adjacent east diaphragm (2 total).
- Three tack welds on interior of pier cap 3 bottom flange between girder 4 and the adjacent east diaphragm; Four tack welds on interior of pier cap 3 bottom flange between girder 5 and the adjacent east diaphragm (7 total).
- One tack weld on interior of pier cap 4 bottom flange between girder 5 and the adjacent west diaphragm.

**Fatigue Prone Detail 4**

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

Category: D

Location: 2" tack weld on interior of pier cap 4 bottom flange between girder 2 and the adjacent east diaphragm; 2" tack weld on exterior of pier cap 4 bottom flange on west side of girder 2.

**Fatigue Prone Detail 5**

Fillet weld greater than 4" or 12 times the connection thickness with a connection thickness less than 1".

Category: E Location:

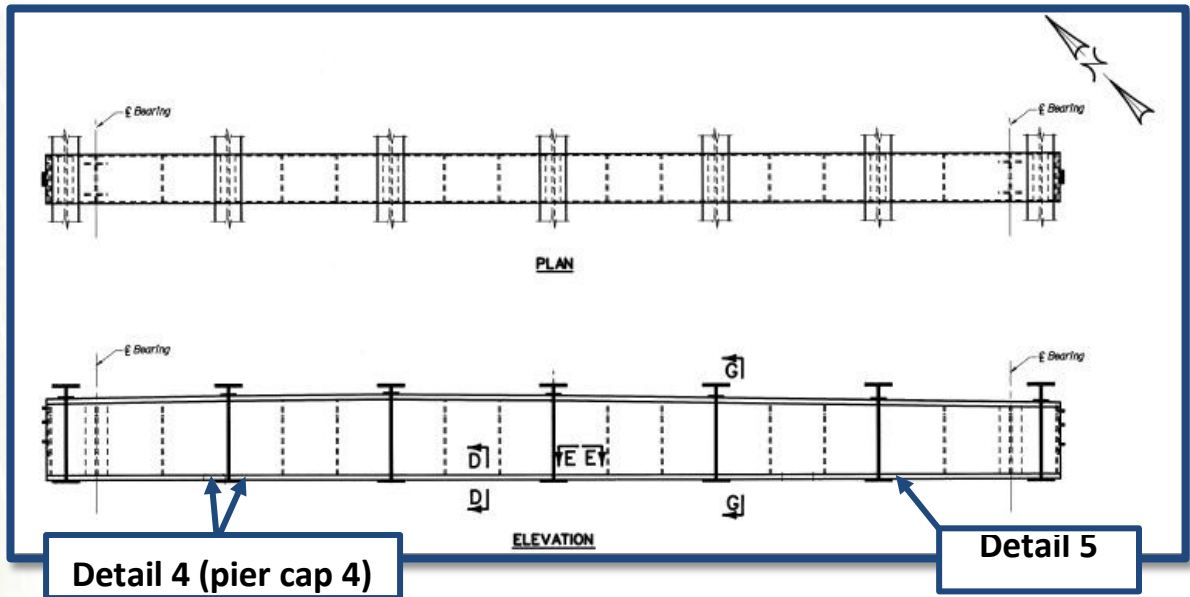
- Fillet weld between bottom flange of girder 6 and south edge of pier cap 3 bottom flange.
- 7" weld on the interior of the pier cap 4 bottom flange between girder 6 and the east bearing.

**Fatigue Prone Detail 9**

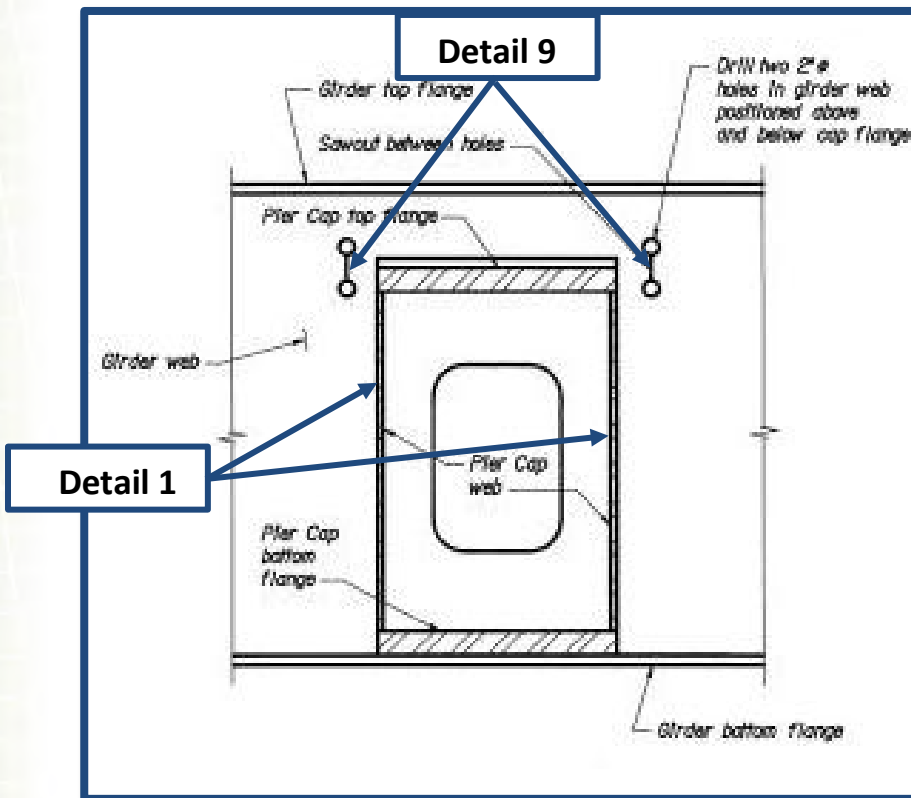
Drilled hole stress relief retrofit in girder web plates.

Category: B

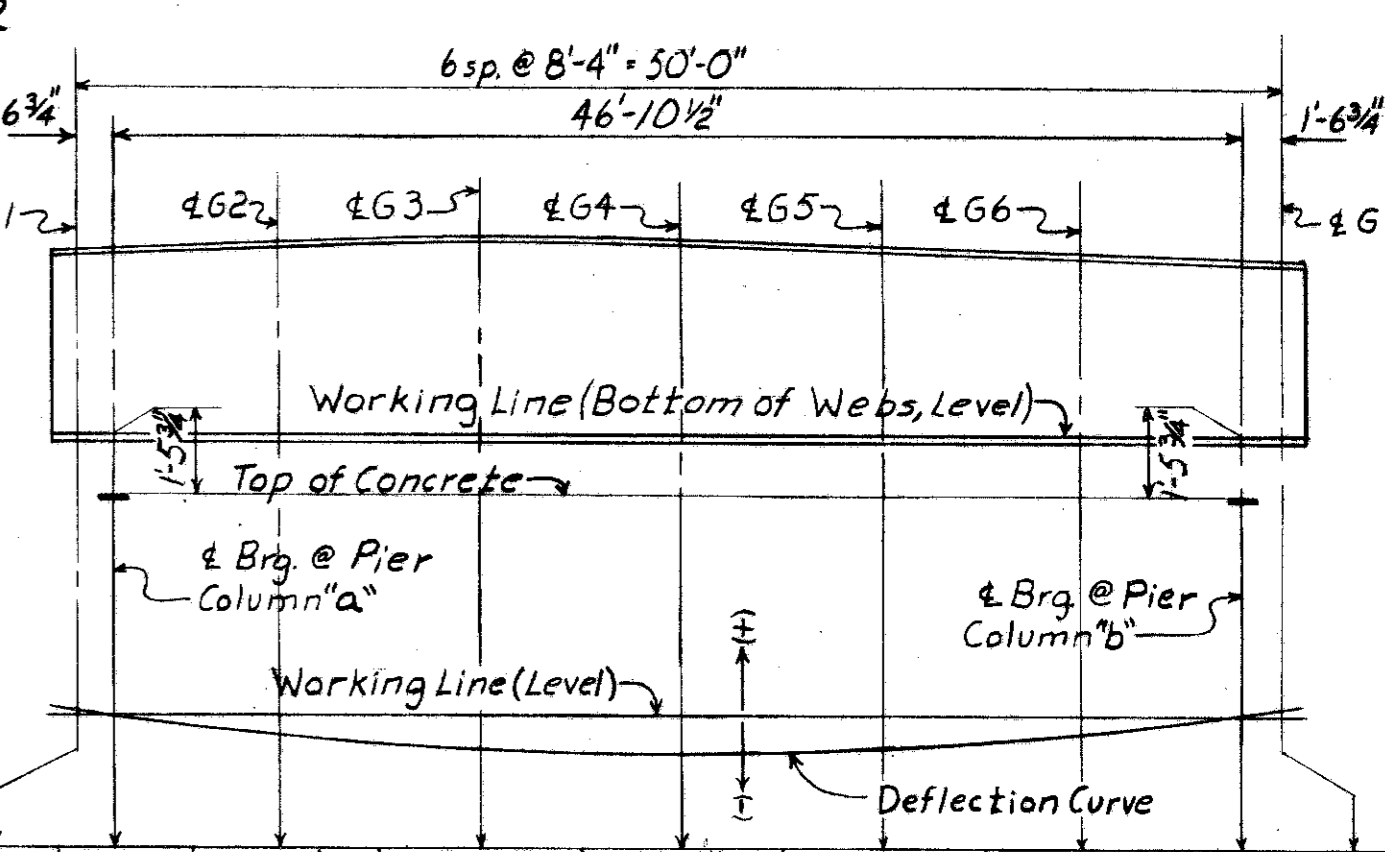
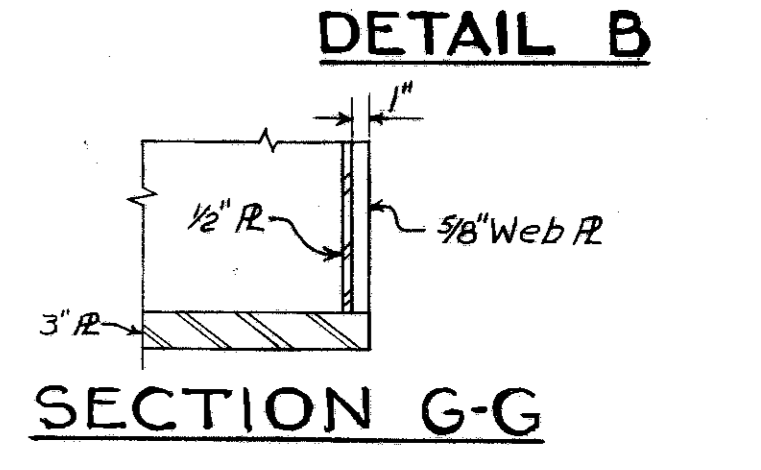
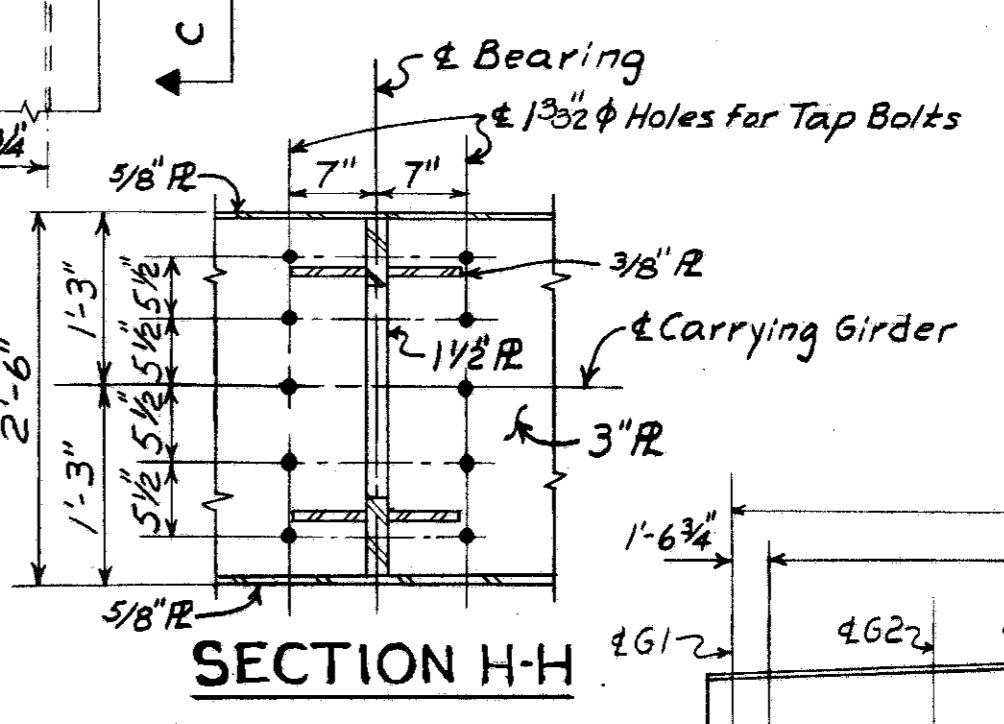
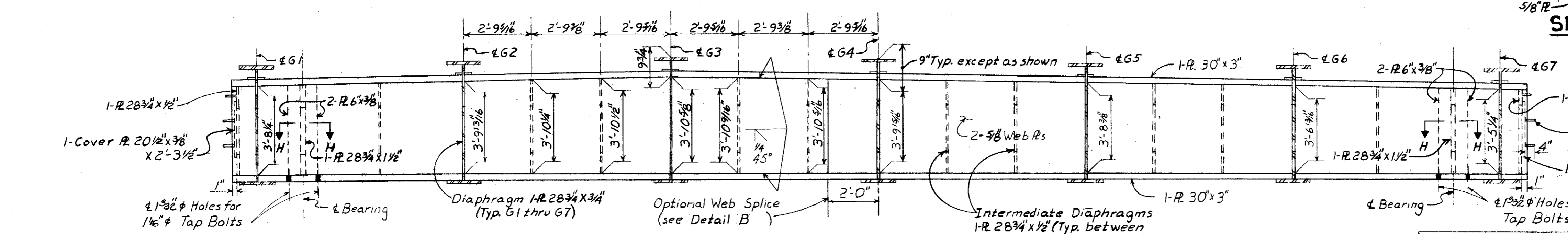
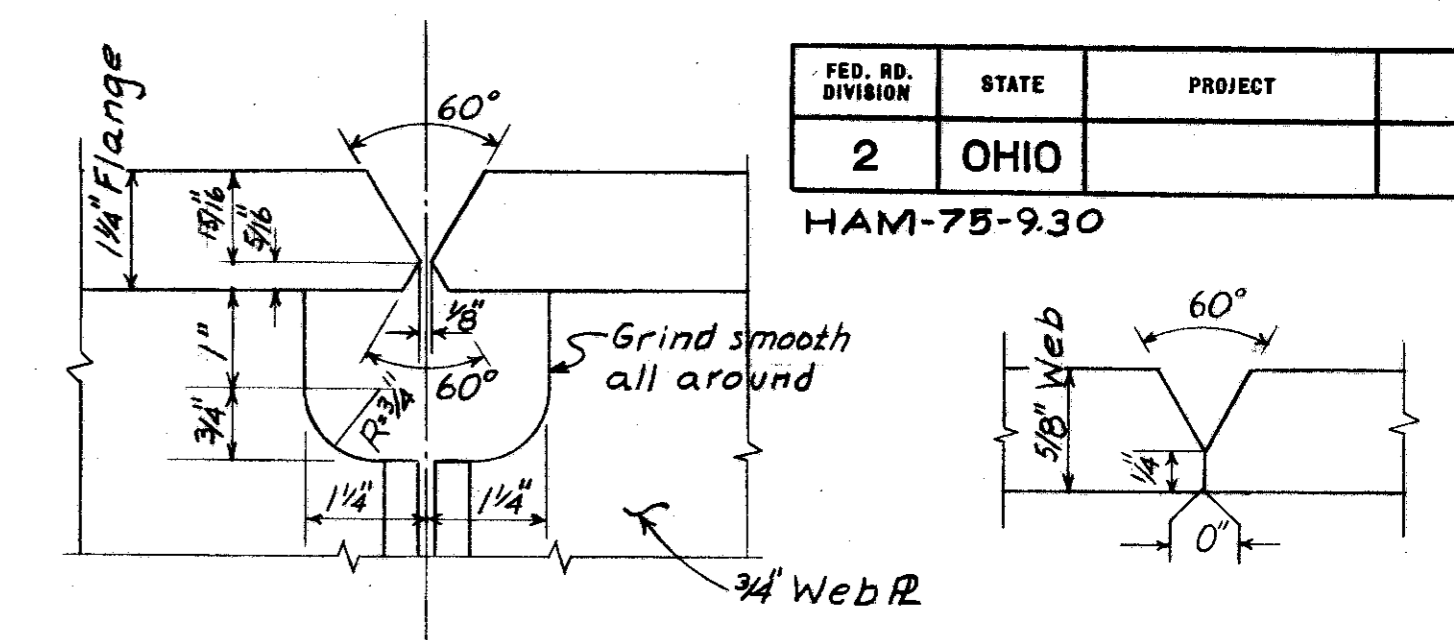
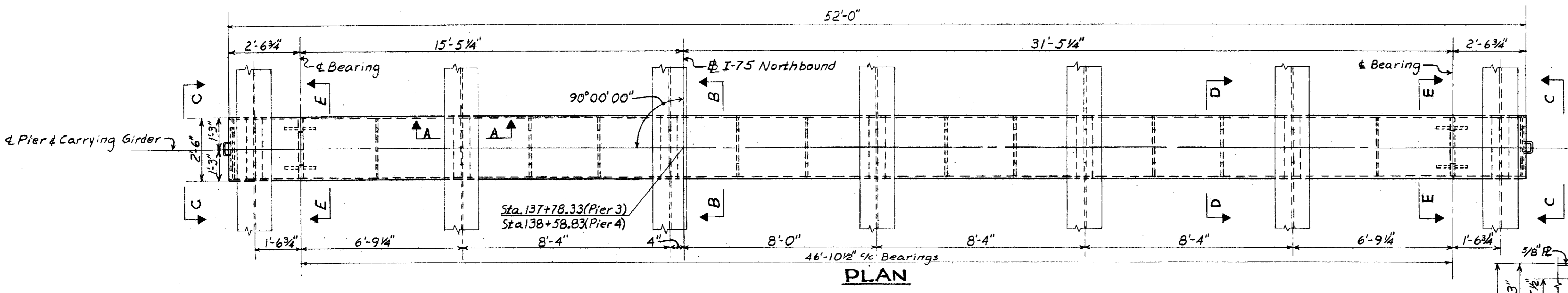
Location: All girder web plates on each side of the pier cap top flange



*Plan and elevation of Pier Caps 3 & 4 with Fatigue Prone Details*

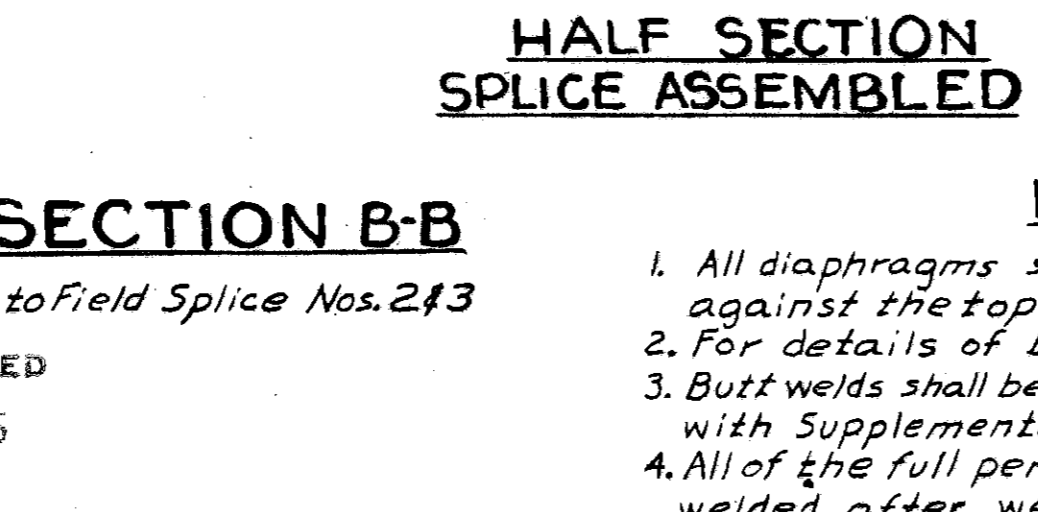
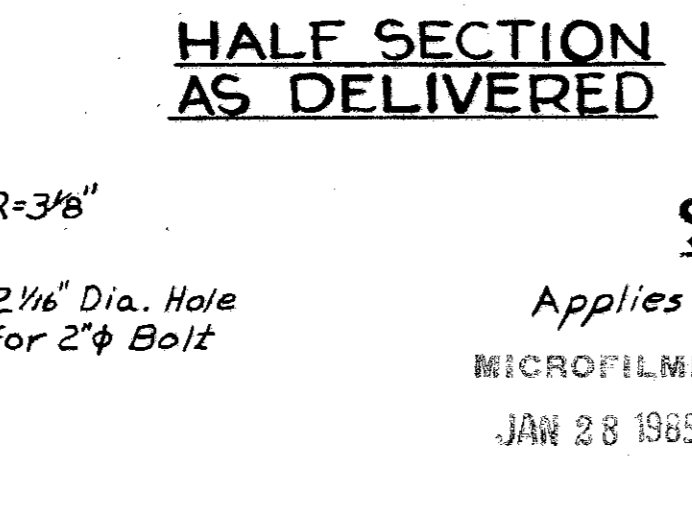
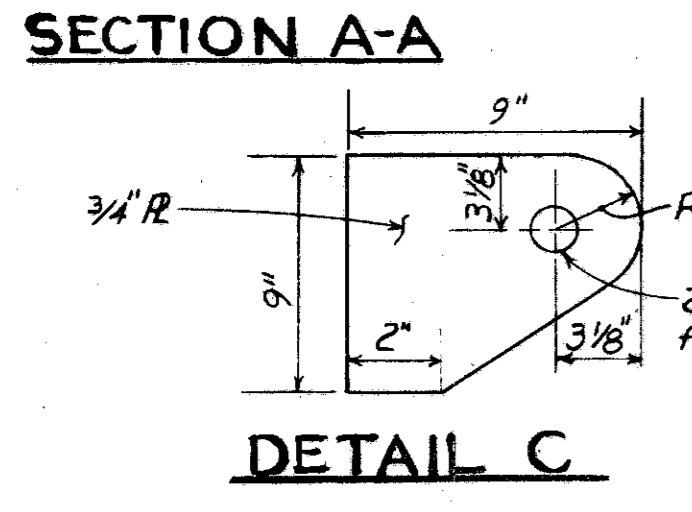
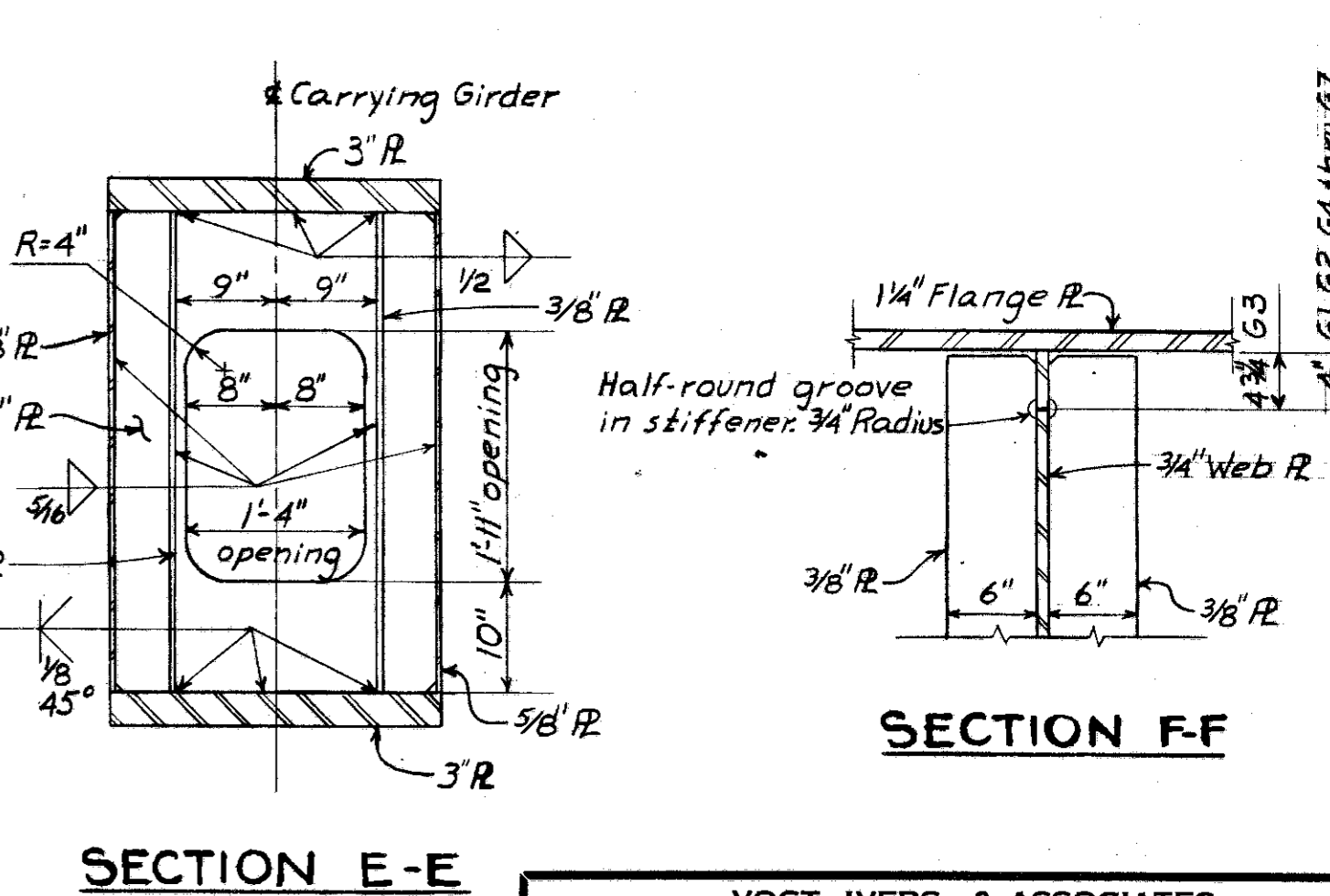
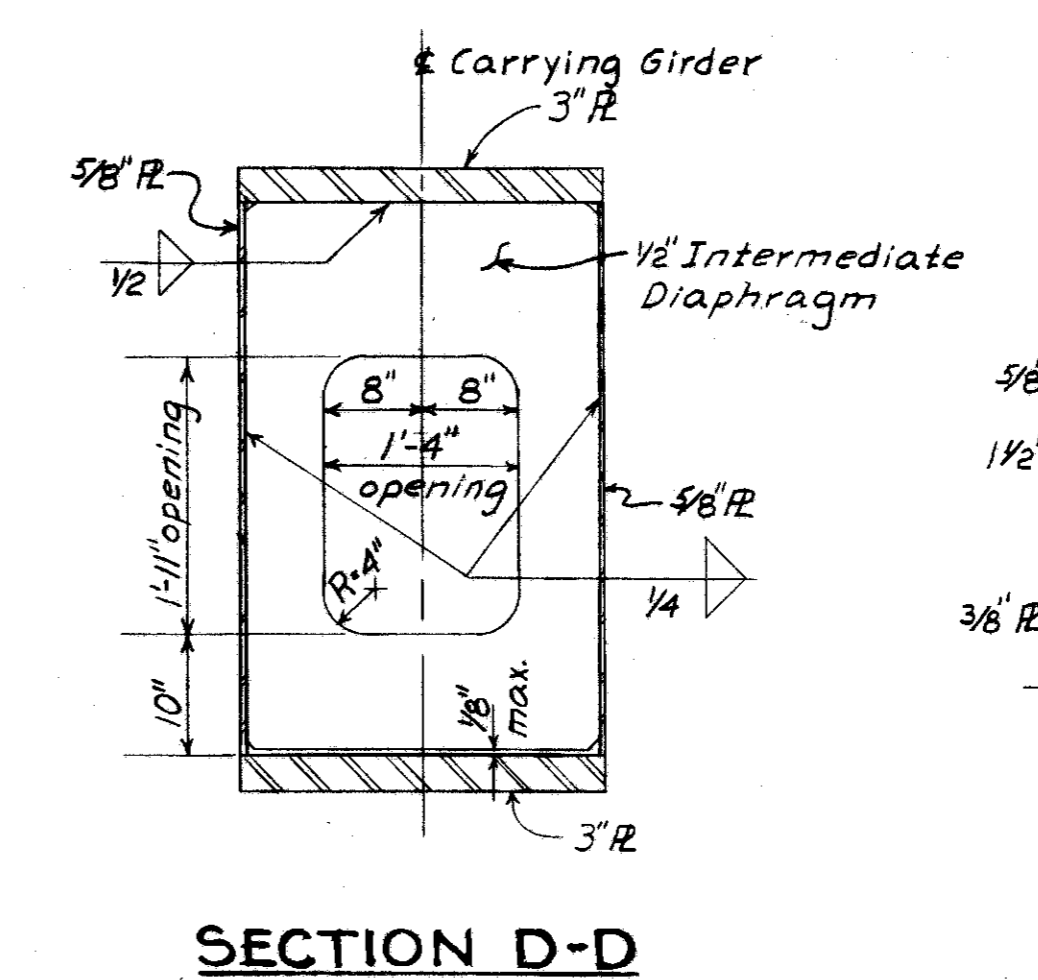
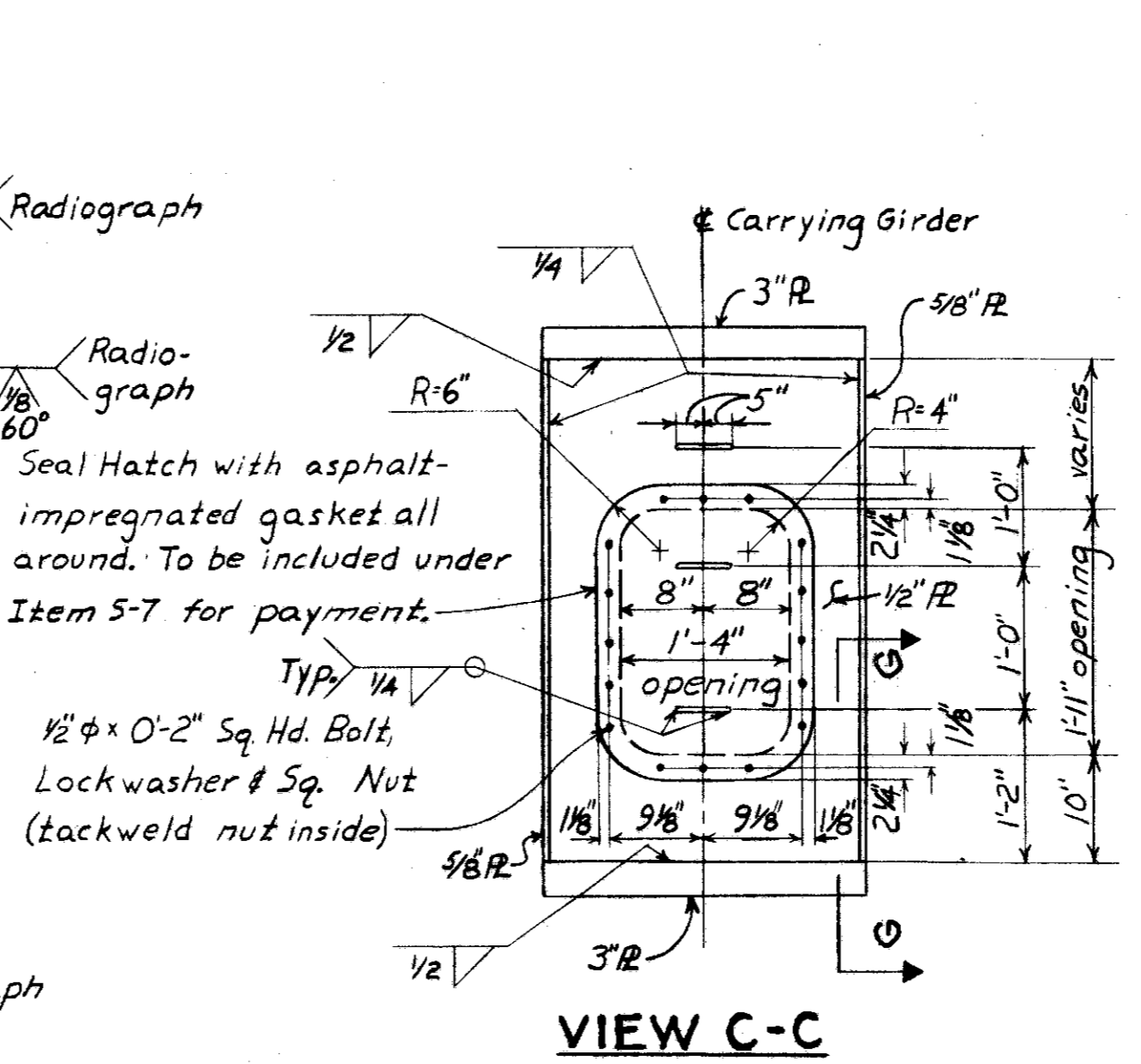
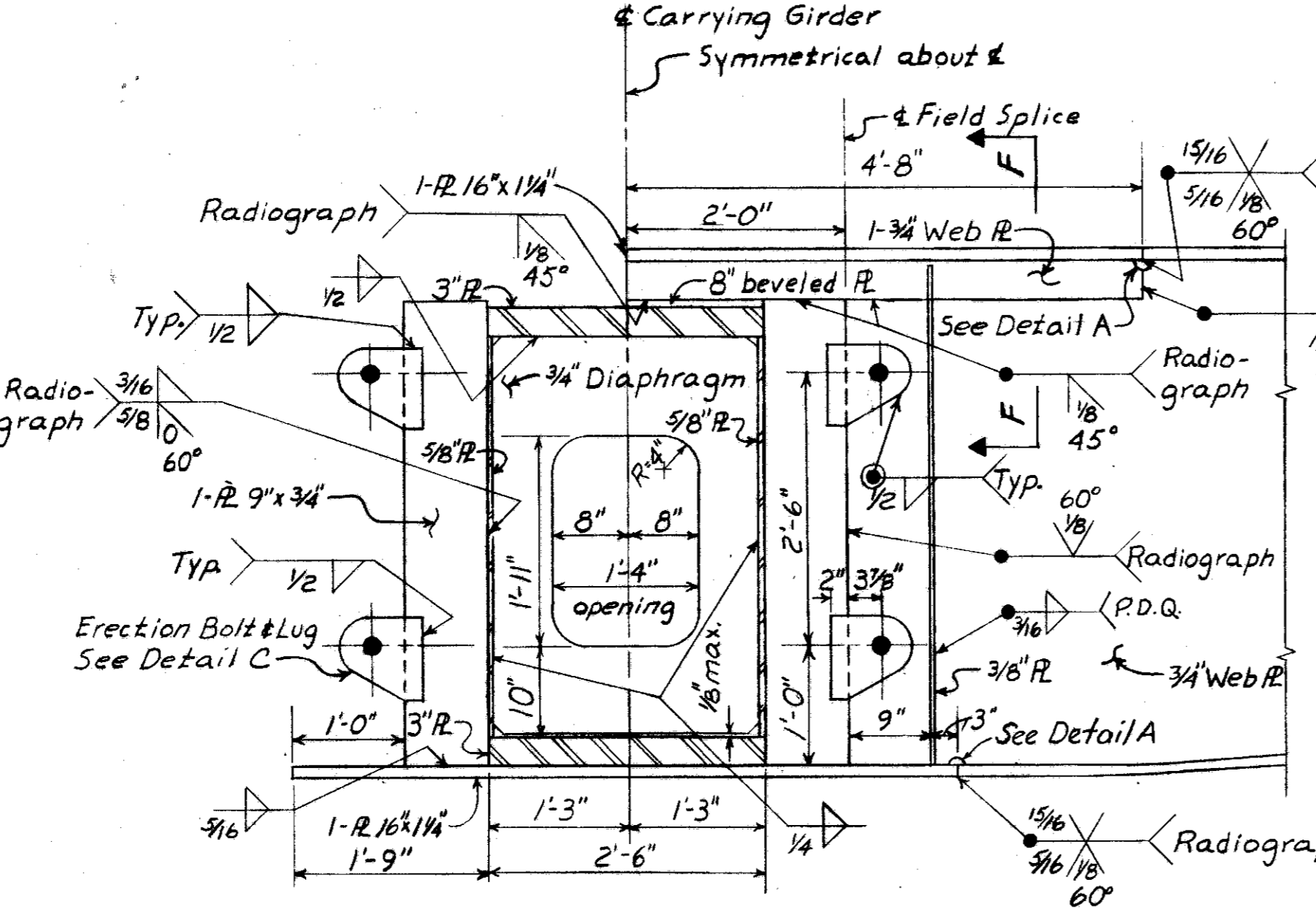
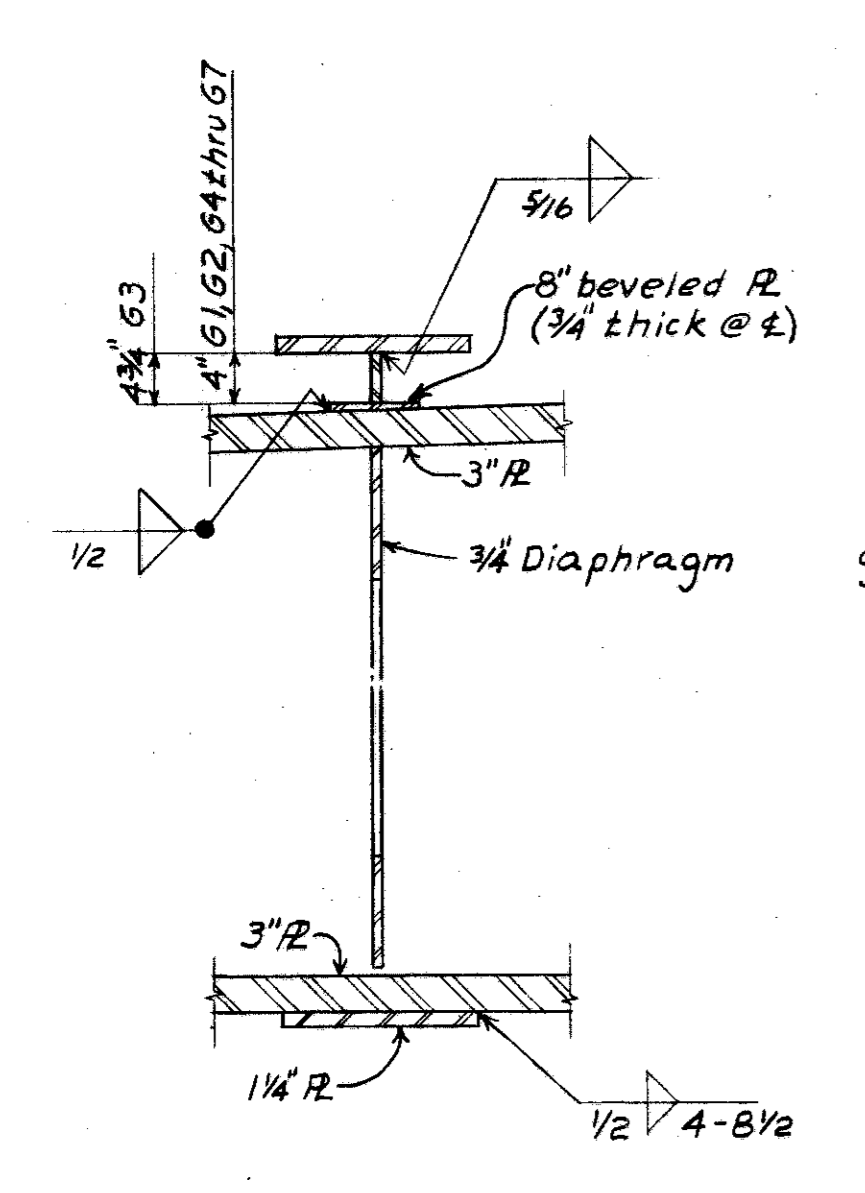


*Typical section of Pier Caps 3 & 4*



Deflection due to weight of steel	0	0	-1/16	-1/16	-1/8	-1/16	-1/16	0	0
Deflection due to remaining dead load	0	0	-1/8	-1/4	-5/16	-1/4	-1/8	0	0
Total dead load deflection	0	0	-3/16	-3/16	-7/16	-3/16	-3/16	0	0
Camber required	0	0	+3/16	+3/16	+7/16	+3/16	+3/16	0	0

♦ Weight of steel includes longitudinal girders, crossframes, etc., as well as the carrying girders.



- NOTES**
- All diaphragms shall be vertical, and have contact bearing against the top flange.
  - For details of bearings, see Sheet 306.
  - Butt welds shall be radiographically examined in accordance with Supplemental Specification No. S-307, dated 8-23-60.
  - All of the full penetration welds shall be back-gouged and welded after welding far side.

- Butt welds on girder flange plates shall be ground flush, the finish grinding being parallel to the & of girder.
- For additional NOTES, see Sheet 303.

VOGT, IVERS, & ASSOCIATES  
ENGINEERS ARCHITECTS  
CINCINNATI CHICAGO

**CARRYING GIRDERS  
AT PIERS 3 & 4**

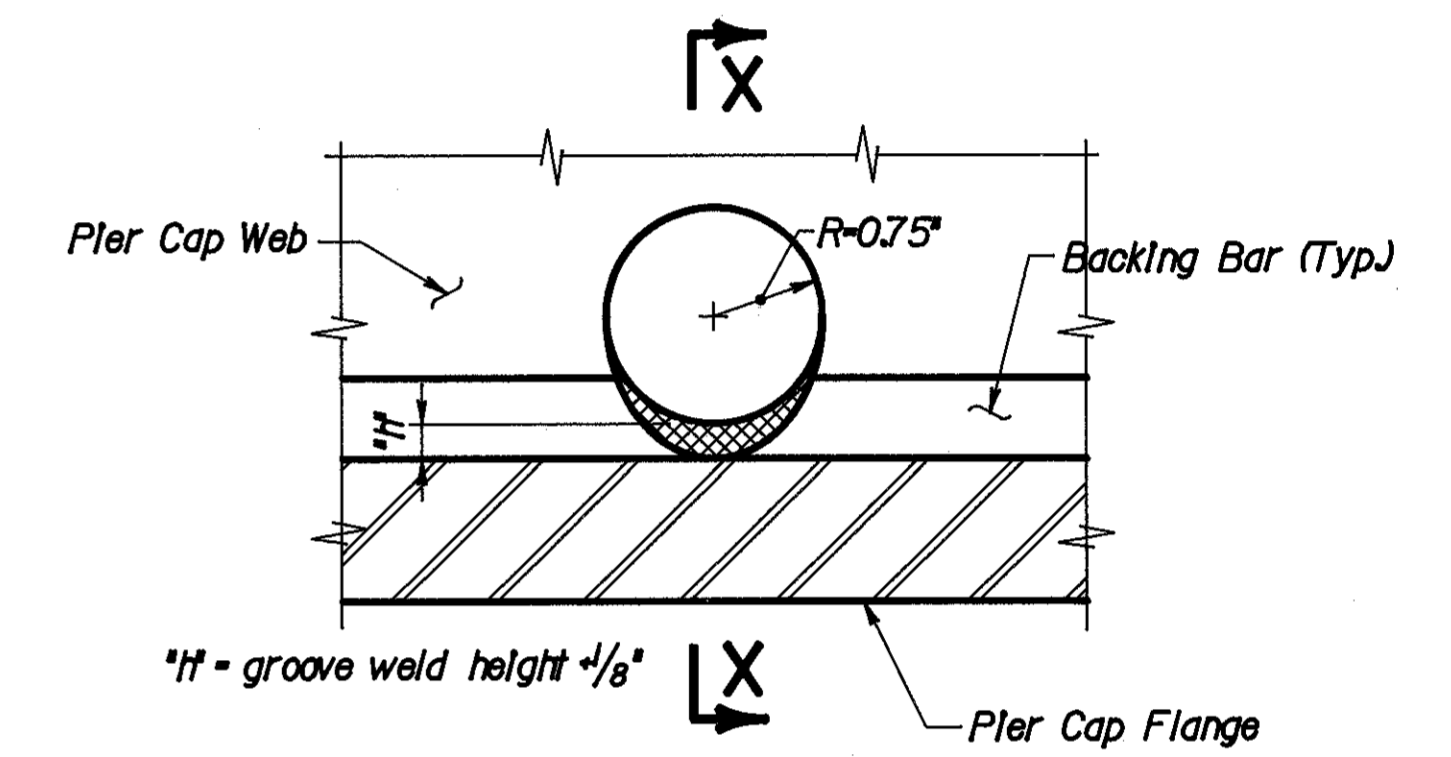
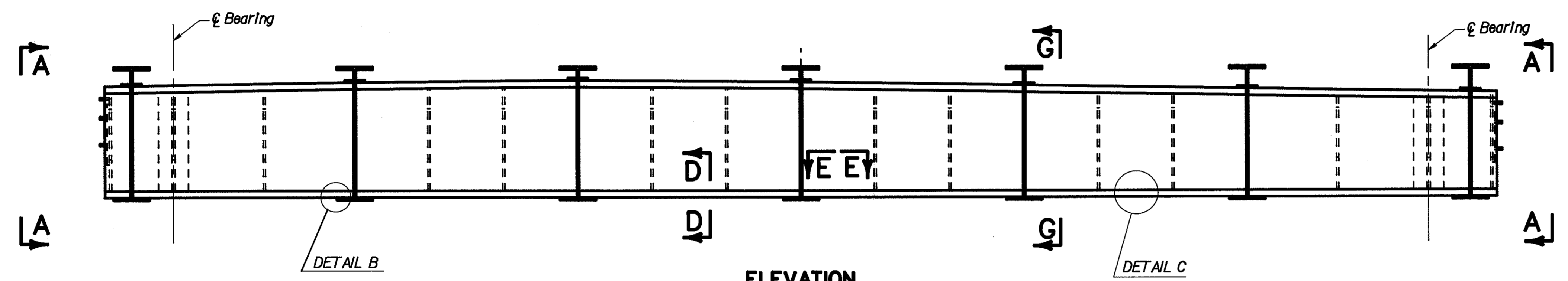
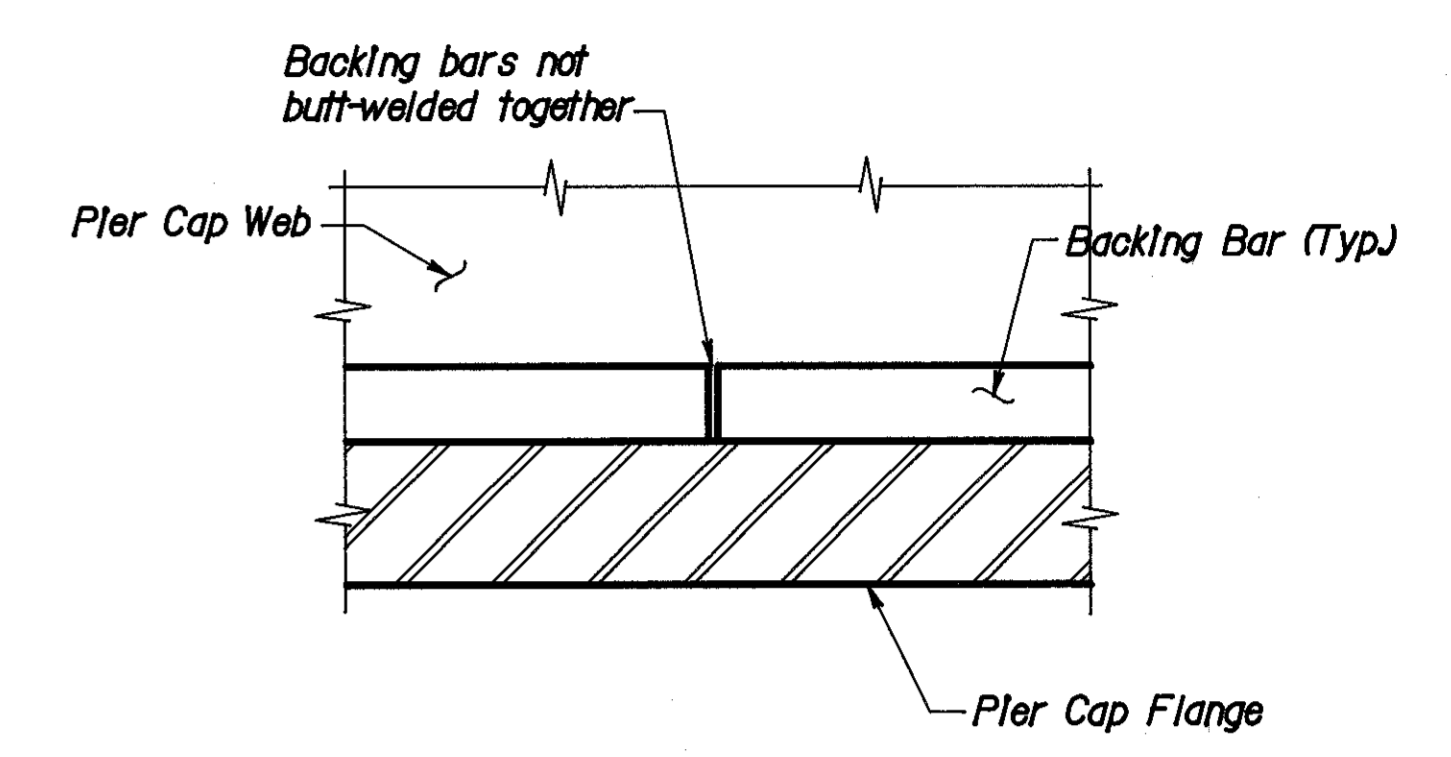
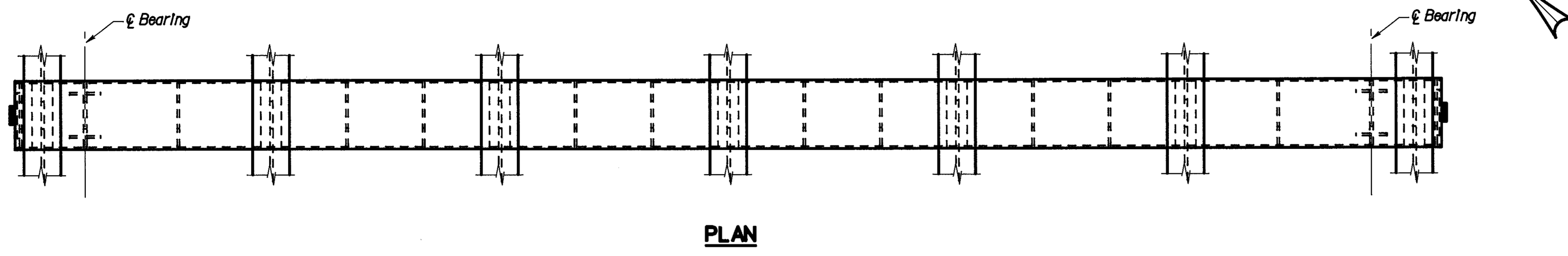
BRIDGE NO. HAM-75-1056  
NORTHBOUND I-75 OVER WEST FORK  
OF MILL CREEK AND GALBRAITH ROAD  
HAMILTON COUNTY STA. 135+0708 to  
STA. 140+14.08

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RKS	GRH		RLS	JAD	7-23-64	

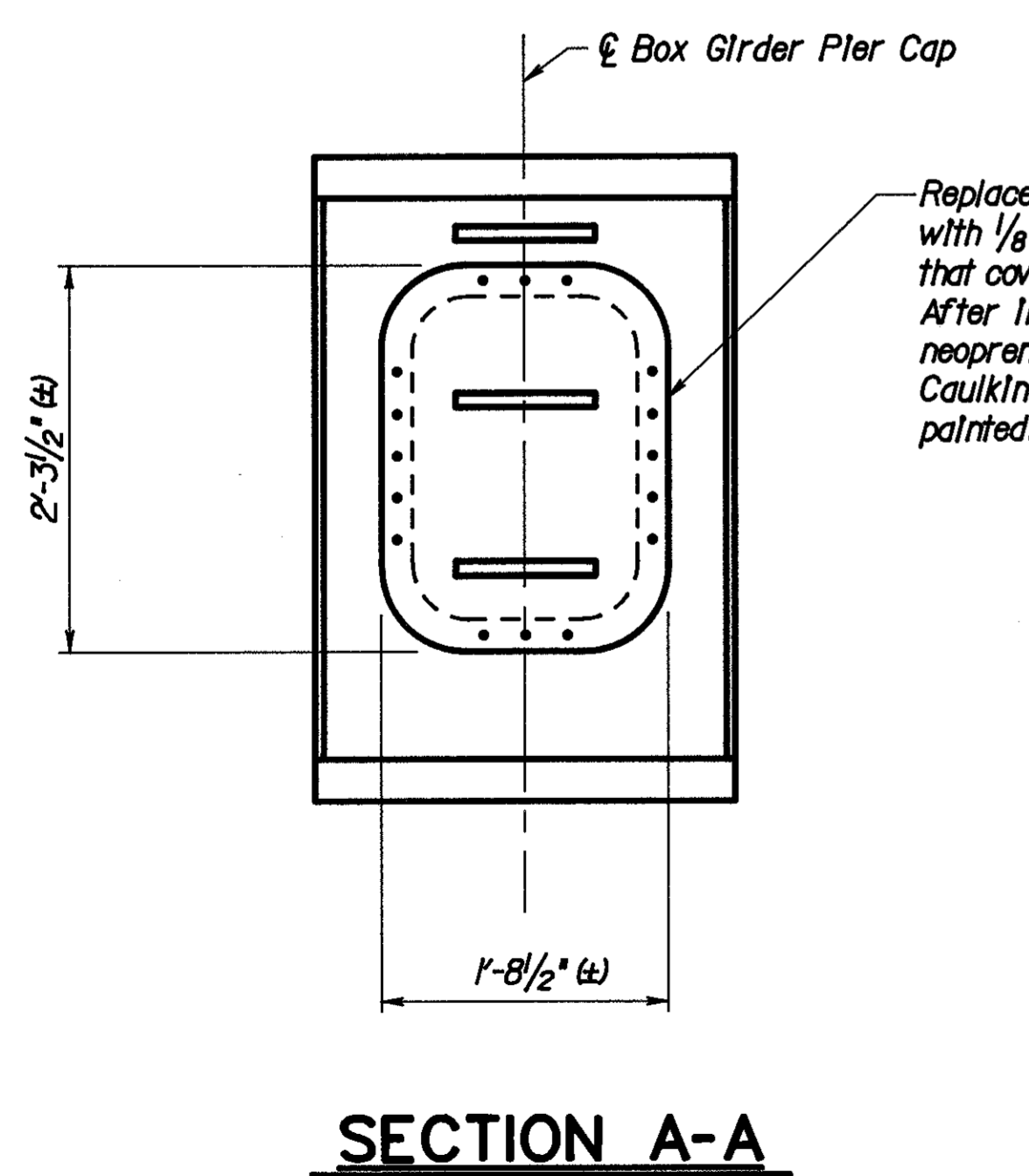
MICROFILMED  
JAN 28 1965



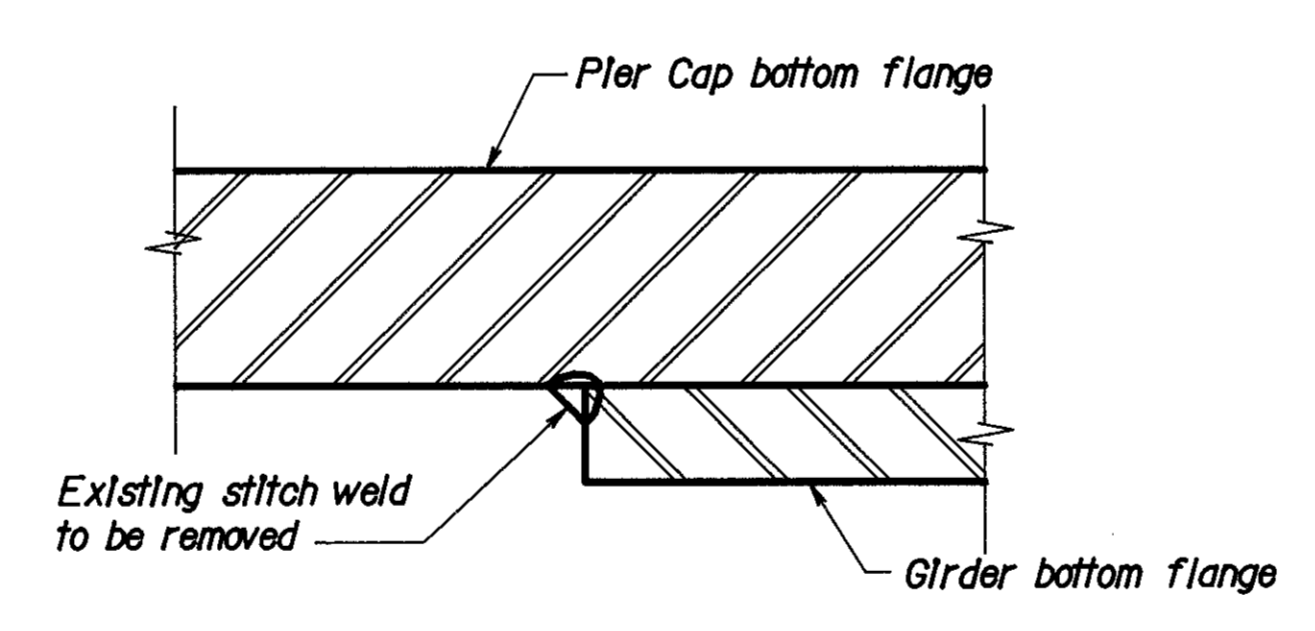
**HAMILTON COUNTY  
HAM-75-9.75**



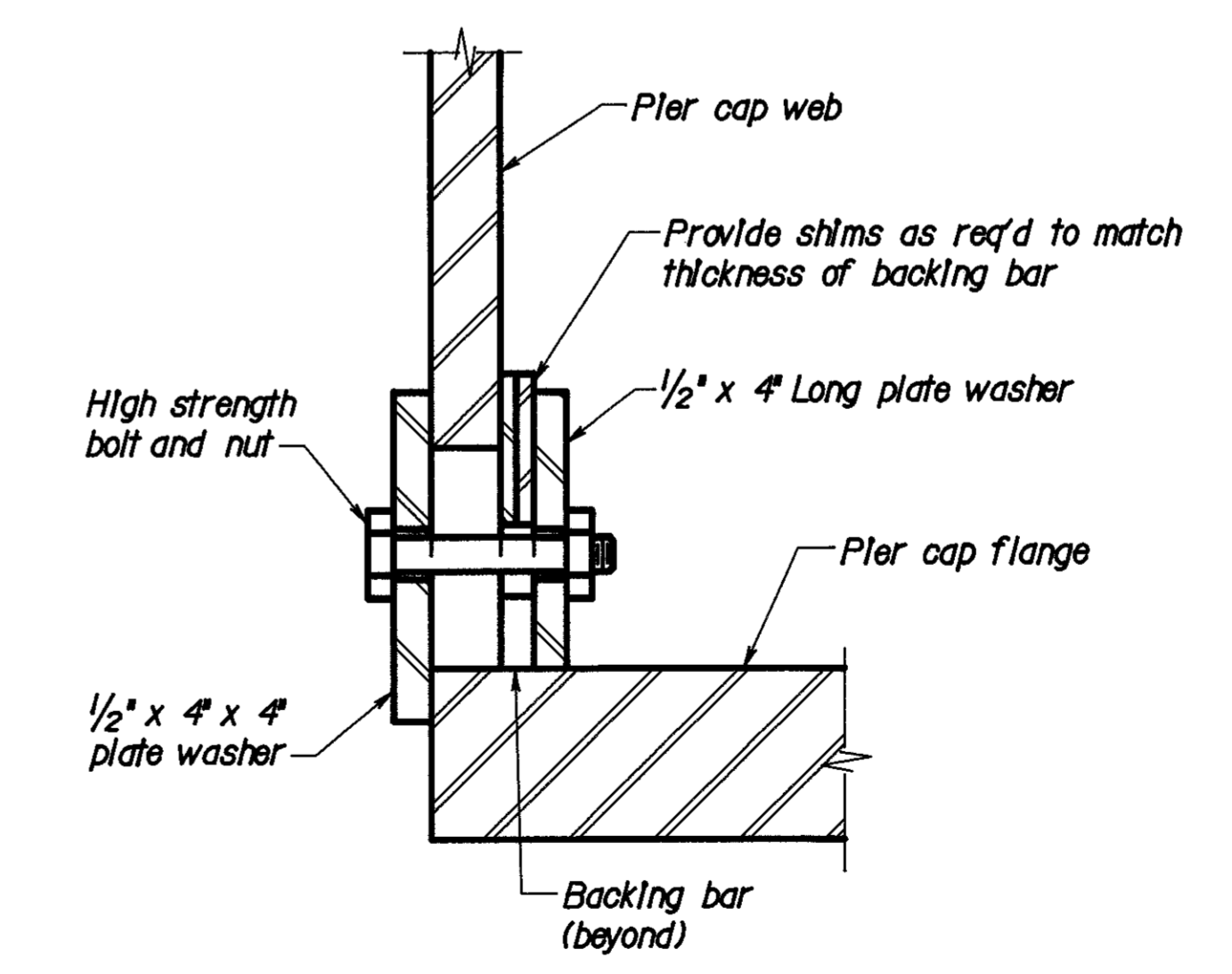
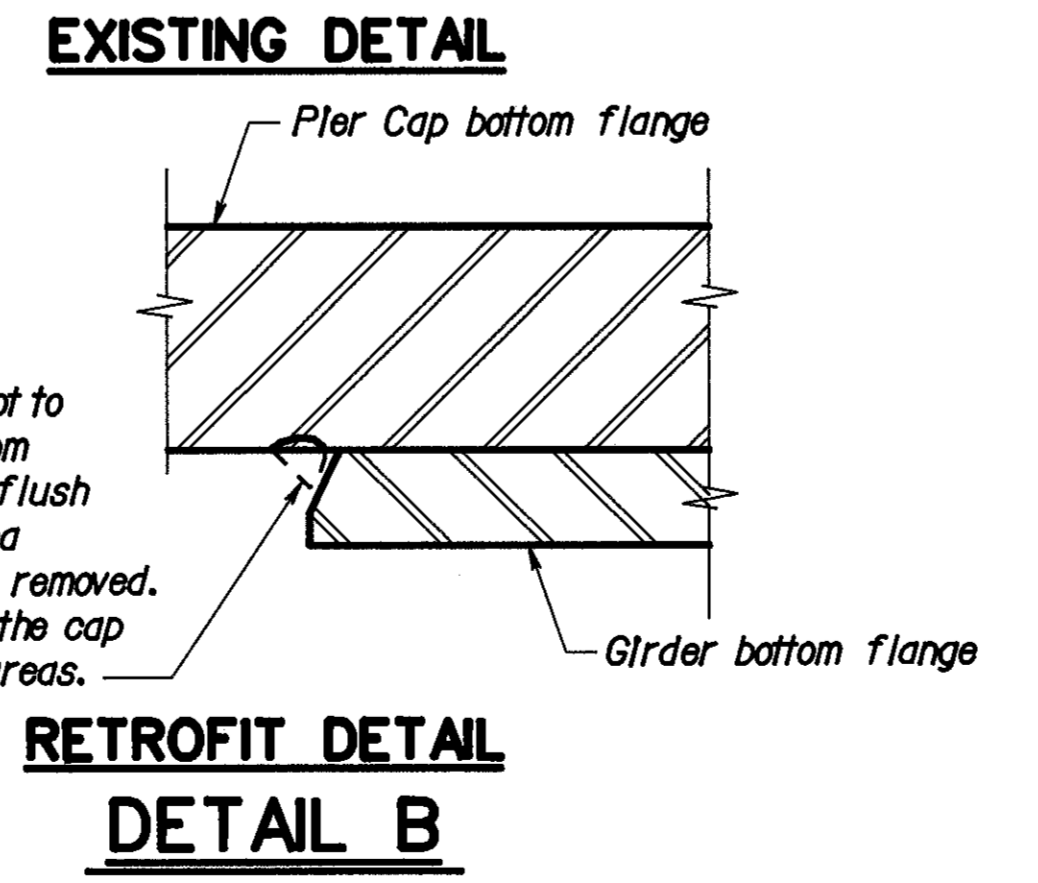
- PROCEDURE**
1. Drill  $1/2"$  hole through web and backing bar.
  2. Remove crosshatched area by grinding. Final surfaces shall be smooth.
  3. Perform magnetic particle and/or dye penetrant tests of the remaining metal in the presence of the Engineer.



Replace existing asphalt-impregnated gasket with  $1/8"$  thick neoprene closed cell sponge that covers the full face of the hatch cover. After installation of the hatch cover, apply neoprene caulking around access hatch cover. Caulking should be applied to bare steel and painted.



Chip away existing welds being careful not to gouge or remove any of the pler cap bottom flange. Grind away girder bottom flange flush with cap bottom flange until all fused area between cap and girder bottom flange is removed. Grind flush any weld material present on the cap bottom flange. Clean and paint repaired areas.



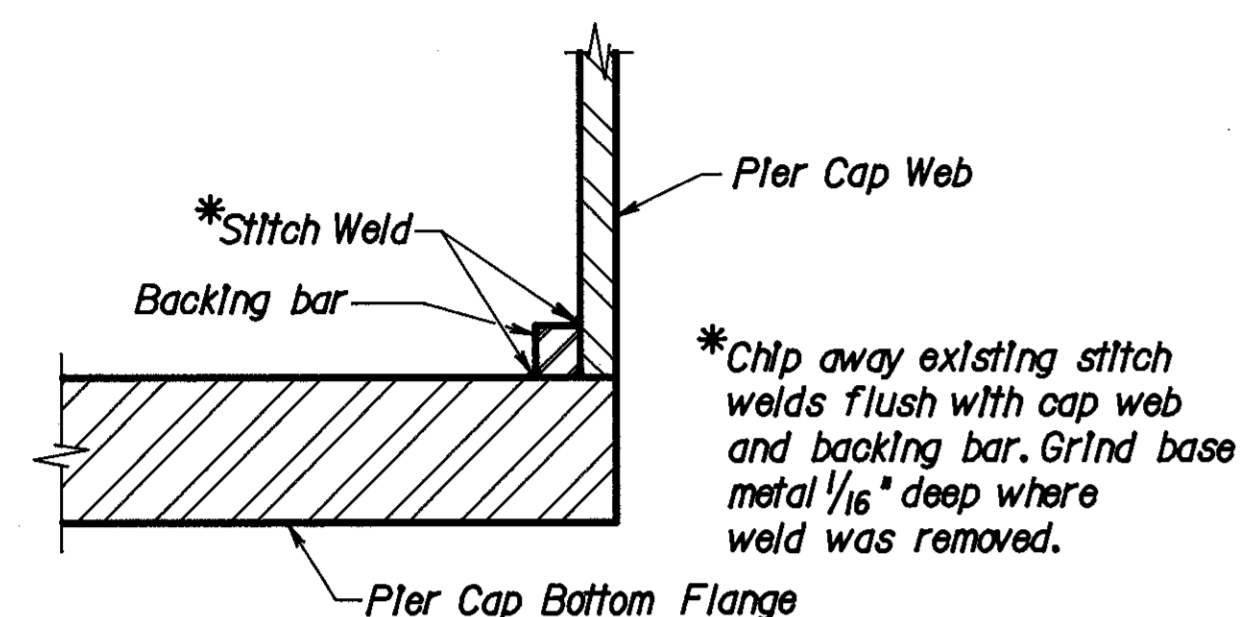
- NOTES**
1. Remove all debris, bird droppings, and nesting material from top of pier caps and bottom flange of girders.
  2. Grind scratches from collision damage on bottom flange of girders in vicinity of pier caps.
  3. Remove soil and debris from inside of cap at pier No. 4. Open hatches to allow moisture to evaporate.
  4. For Sections D-D, E-E and G-G, see sheet 28/105

LOCKWOOD, JONES & BEALS CONSULTING ENGINEERS DAYTON, OHIO				27/105
<b>STEEL PIER CAP REPAIR DETAILS AT PIERS 3 &amp; 4</b>				
BRIDGE NO. HAM-75-1102R NORTHBOUND I-75 OVER WEST FORK OF MILL CREEK & GALBRAITH RD.				
DESIGNED	CHECKED	DRAWN	CHECKED	REVIEWED DATE
B&N	B&N	MJZ	DFS	HDJ 12/92
				REVISED

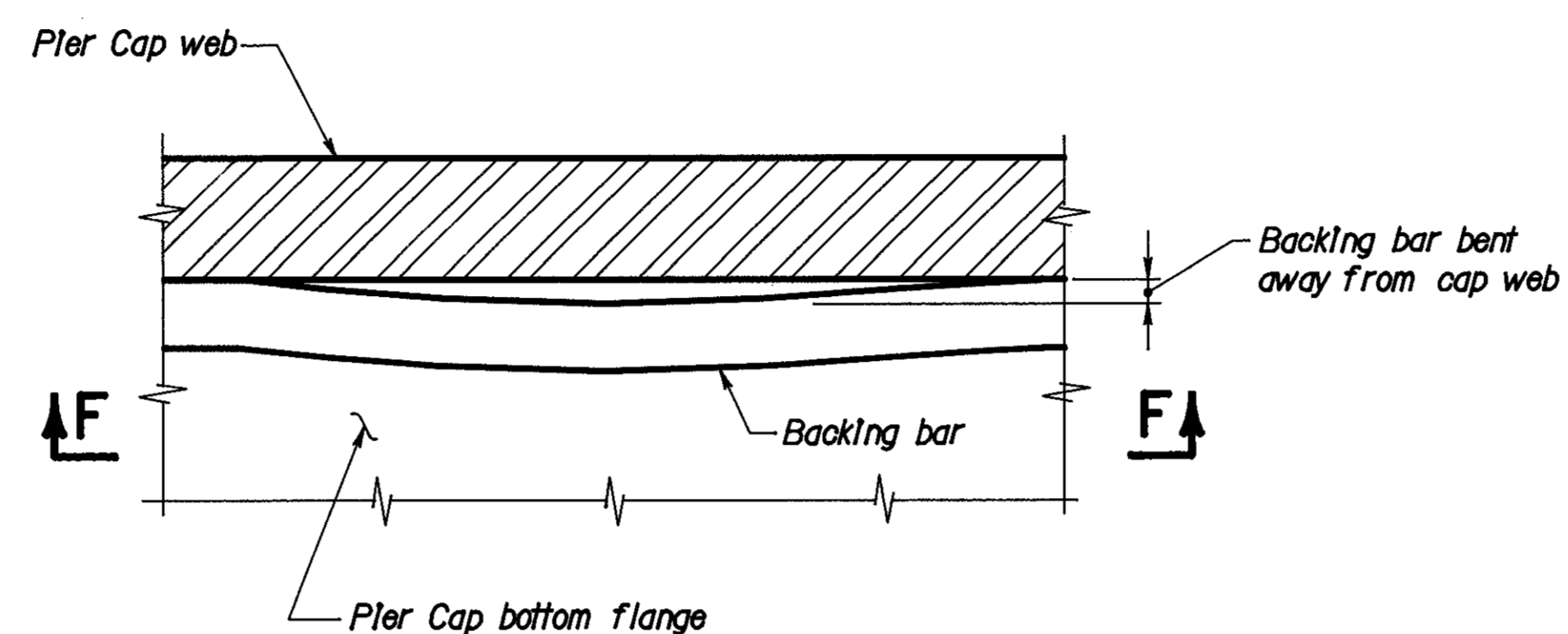
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

261  
338

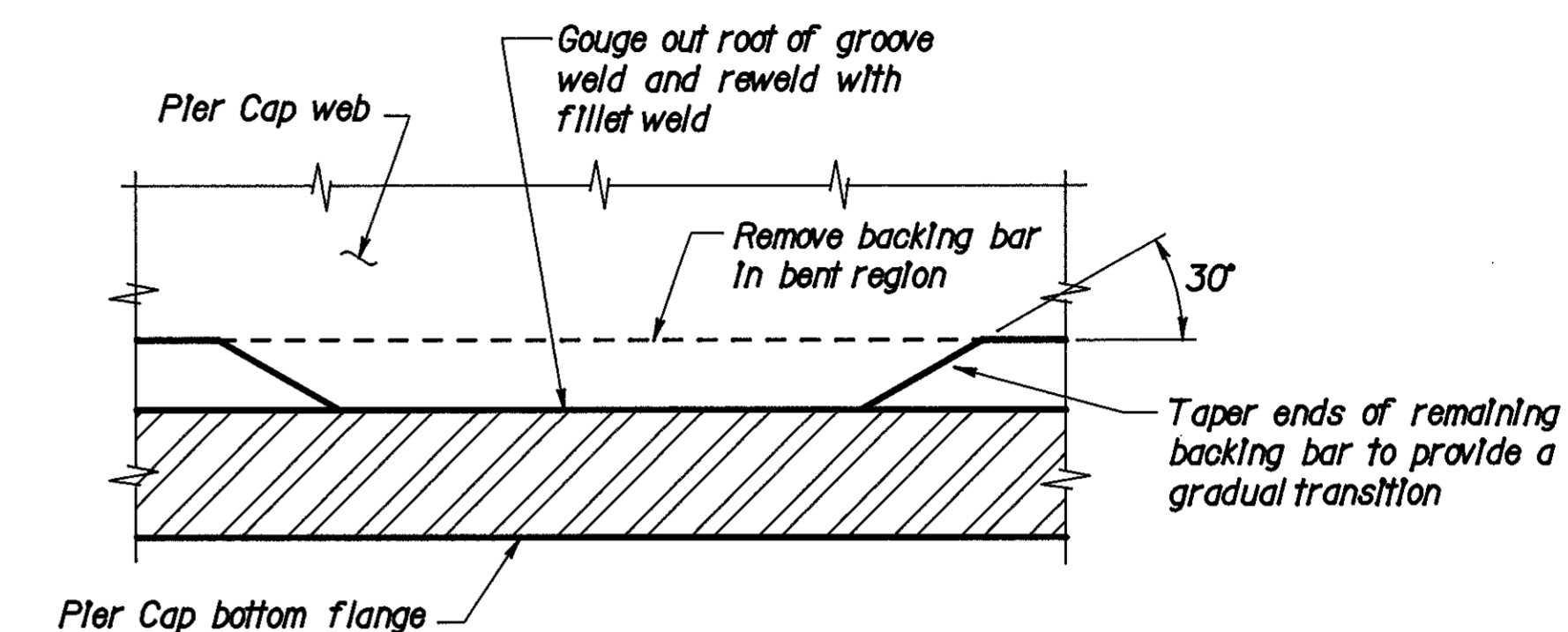
HAMILTON COUNTY  
HAM-75-9.75



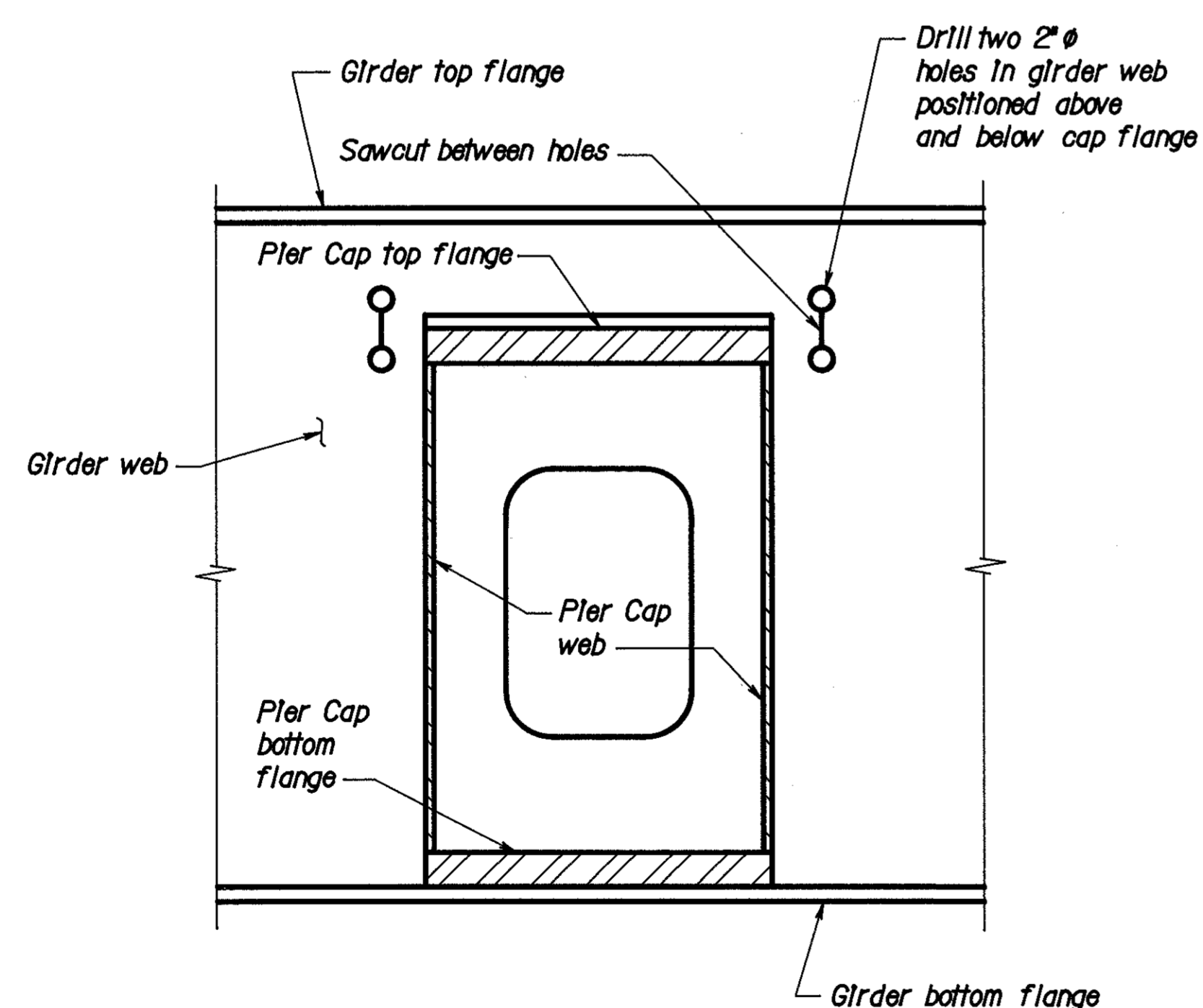
**SECTION D-D**



**EXISTING DETAIL SECTION E-E**



**RETROFIT DETAIL SECTION F-F**



**SECTION G-G**  
TYPICAL AT ALL GIRDER TO  
PIER CAP CONNECTIONS

LOCKWOOD, JONES & BEALS  
CONSULTING ENGINEERS  
DAYTON, OHIO 28/105

**STEEL PIER CAP REPAIR  
DETAILS AT PIERS 3 & 4**

BRIDGE NO. HAM-75-1102R  
NORTHBOUND I-75 OVER WEST FORK  
OF MILL CREEK & GALBRAITH RD.

DESIGNED	CHECKED	DRAWN	CHECKED	REVIEWED DATE	REVISED
B&N	B&N	MJZ	DFS	HDJ 12/92	