2024 ROUTINE INSPECTION REPORT

BRIDGE NO: HAM-75-0022R, SFN 3108805

VAR-DISTRICT 8 Bridge Inspections

Brent Spence Approach Bridges

Cincinnati, Ohio

August 19th – September 11th, 2024

Michael Baker INTERNATIONAL

STATE OF OHIO
CORY
LARKIN
E-84081
REGISTERED
PROFESSIONAL ENGINEER

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

Digitally signed by Cory William Larkin
DN: C=US, E=cory.larkin@mbakerintl.com, O=Michael Baker International, CN=Cory William Larkin
Date: 2025.01.29 15:43:21-05'00'

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INTRODUCTION

BRIDGE DESCRIPTION

HAM-75-0022R (SFN 3108805) is a 14-span structure that carries three lanes of I-75 northbound traffic over West 3rd Street, a CSX railroad bridge, and US 50 and I- 75 ramps (see Figure 1). The original structure was constructed in 1963 and consists of a variable-width reinforced concrete deck on continuous steel plate girders (five girders in Spans 16C to 26C and six girders in Spans 27C to 29C) supported by reinforced concrete substructure units. The substructure consists of nine multi-column pier bents, five hammerhead piers, and a cantilever abutment, all with concrete pile foundations. Steel cross frames are welded to the transverse stiffeners of the girders. The structure is 1187’ long with a maximum span of 117’-0”. Selected sheets from the design plans are attached in Appendix A.

Figure 1: *Location Map*

In 2000, the bridge was partially reconstructed, which included widening the east side of the bridge in Spans 21C through 29C to connect to a new offramp to West 5th Street. New steel beams, cross frames, and reinforced concrete piers were added, as well as a new NSTM steel box pier cap at Pier 25J. The original Pier 26C was replaced with a widened pier with an NSTM steel box pier cap.

The nomenclature for this bridge follows the convention set in the design plans with spans, substructure units, and cross frames labeled from south to north and original girders labeled A through F from west to east. The retrofit beams are labeled B1 through B4 from east to west. The original substructure units are numbered from Pier 15C to Abutment C, and the retrofit substructure units are labeled from Pier 22J to Pier 26C/J. Pier 26 is referred to as 26C/J, as it carries portions of both original girders and retrofit beams. Original spans are numbered from Span 16C to Span 29C, and retrofit spans are numbered Span 23J to Span 26J.

RECENT MAINTENANCE HISTORY

2000 Retrofit

- Widened the east side of the structure from Pier 21C to Pier 26C.
- Constructed one concrete hammerhead pier at Pier 22J.
- Constructed two concrete pier bents at Piers 23J and Pier 24J.
- Constructed two steel box pier caps at Pier 25J and Pier 26C/J.

2009 Rehabilitation

- Placed micro-silica concrete overlay to deck.

2004 Rehabilitation

- Repair expansion joints.
- Replaced cross frames.
- Cleaned and replaced portions of bridge drainage.
- Installed drainage cleanouts.
- Sealing of concrete piers.
- Zone painted structural steel.

2009 Rehabilitation

- Placed micro-silica concrete overlay to non-composite portions of deck.
- Minor deck repairs.
- Sealed piers below deck expansion joints.
- Cleaned out bridge drainage.

2017 Rehabilitation

- Concrete patching at piers and fiber-reinforced polymer (FRP) wrapping at Piers 15C, 18C, and 23C.
- Replacement of deck joints at Piers 15C, 18C, 23C, 26C, and Abutment C.
- Repaired drainage and downspouts.
- Replaced existing rocker bearings with elastomeric bearings at Piers 15C, 18C, 23C, and 26C.
- Replaced cross frames below expansion joints at Piers 15C, 18C, 23C, and 26C with jacking diaphragms.
- Spot painted steel box pier caps at Piers 25J and 26J.
- Cleaned and painted all steel members below the expansion joints at Piers 15C, 18C,23C, and 26C.

INSPECTION SCOPE AND PROCEDURE

Michael Baker International, as a subconsultant to TransSystems Corporation, performed a routine element level inspection of the bridge during the days of August 19-September 11, 2024. There are NSTMs consisting of steel box caps at Piers 25J and 26C/J. OSHA compliant safety harnesses and lanyards were worn by inspectors when operating boom lifts. Interior inspections of the box pier caps were not performed during the 2024 inspection. The superstructure and piers were inspected using a 135' boom lift. Areas inaccessible from the boom lift were inspected from the ground. The wearing surface was visually inspected from the boom lift. The span over the railroad was inspected from both sides of the tracks without extending the boom lift over the railroad or otherwise fouling the tracks.

Traffic control was necessary to perform a hands-on inspection of the exterior of the pier caps. A nighttime left lane closure of the I-75 Southbound ramp to Second Street was used the night of September 9, 2024 The exterior portions of the caps were inspected from a 135' lift and the remaining exterior portions were inspected with a 24' extension ladder.

The inspections were performed in accordance with the Consultant Bridge Inspection Scope of Services. The inspection findings were recorded on bridge specific field inspection forms, and field sketches were created to document specific conditions. Inspection equipment utilized during the inspection included but was not limited to: chipping hammers, wire brushes, measuring tapes, 6 foot carpenter rules, and flashlights. Color digital photographs were taken of areas of deterioration, condition changes, typical details, and any immediate maintenance needs, if necessary.

In December of 2020, ODOT sounded the wearing surface and marked delaminations with white spray paint, and the results are included in Appendix B.

One camera was set with the improper date showing 2019.

The Team Leaders listed below have completed all FHWA requirements to be considered Team Leaders, including the FHWA Bridge Inspection Techniques for NSTMs course as required by 23 CFR 650.309(b).

INSPECTION TEAM

The inspection team members are as follows:

- Cory Larkin, PE, NBIS & NSTM Team Leader
- Shelby Wilson, PE, NBIS & NSTM Team Leader
- Gustin Cleary, EI, NBIS & NSTM Team Leader

CONDITION RATING

State and federal guidelines for evaluating the condition of bridges have been developed to promote uniformity in the inspections performed by different teams and at different times. Condition ratings are used to describe the existing, in-place bridge as compared to the as-built condition. The following table was used as a guide in evaluating the condition of the various members of the bridge.

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), 2014.
2. Manual for Bridge Element Inspection, 2nd Edition, AASHTO, 2019 (rev 2022).
3. Manual for Condition Evaluation of Bridges, 2nd Edition, AASHTO, 2011 (rev 2016).
4. Bridge Inspector's Reference Manual, U. S. Department of Transportation, 2022 (rev 2023).
5. Inspection of Fracture Critical Bridge Members, U.S. Department of Transportation, 1986.
6. National Bridge Inspection Standards, U.S. Department of Transportation, 2022.
7. Manual for Bridge Evaluation, AASHTO, 2018 (3rd edition with 2020 and 2022 Interim Revisions).
8. Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges, Federal Highway Administration, 1995 with Latest Revisions.
9. Ohio Manual of Uniform Traffic Control Devices (OMUTCD), ODOT, 2012 (rev 2011).

EXECUTIVE SUMMARY

The HAM-75-0022L Bridge is in SATISFACTORY CONDITION [6-NBIS] overall. Significant findings include:

- Isolated spalls with exposed reinforcement in the deck underside.
- One broken anchor bolt at the northeast corner of the Girder E bearing at Pier 22A (previously noted).
- Fire damage at the Abutment A backwall between Girders C and D causing a 3' long area of distortion to the bottom flange member of the end cross frame (newly noted).

The overall item ratings can be summarized in Table 1:

Bridge Condition Summary Ratings		
ITEM	**RATING**	**TYPICAL NOTES**
DECK	**6**	**Hairline cracks with efflorescence, isolated spalls with exposed reinforcement, and minor delaminations**
SUPERSTRUCTURE	**6**	**Paint failure throughout, minor surface and laminate corrosion, up to 1/8" deep section loss throughout girders**
SUBSTRUCTURE	**5**	**Isolated spalls with exposed reinforcement and hairline cracking throughout concrete units. Painted-over pitting, active corrosion, and pack rust throughout the steel box pier caps**

Table 1 – Bridge Condition Summary Ratings

INSPECTION FINDINGS

ITEM 58 – DECK SUMMARY

The deck is in SATISFACTORY CONDITION [6-NBIS] overall. The deck underside exhibits cracks with efflorescence, as well as isolated spalling, delaminations, and exposed rebar. The wearing surface has isolated hairline cracks throughout. Both railings exhibit typical hairline vertical and longitudinal cracks, as well as minor delaminations and spalls.

ELEMENT 12 – REINFORCED CONCRETE DECK

The reinforced concrete deck is in SATISFACTORY CONDITION [6-NBIS] overall. In all spans, the underside of the deck typically exhibits transverse hairline cracks with efflorescence spaced at 3’ on average and isolated spalls with exposed rebar.

- There is one exposed rebar at the edge of a concrete patch in the deck underside at Beam E near Pier 17C.
- There are spalls with exposed rebar in Span 17C, Span 19C, Span 27C, Span 28C, and Span 29C.
- There is isolated map cracking throughout the deck, with heavier cracking and efflorescence in Span 18C.
- The underside of the deck above the railroad tracks is stained with a dark layer of soot.
- There are concrete patches adjacent to the deck drains and expansion joints, as well as other locations throughout the deck; the patches are in good condition.
- Several patches are covered with plywood formwork.

Cracking with efflorescence and isolated spalls are typical throughout the deck overhang and both fascias.

- There is a 6’L x 2’W x 5” deep spall with exposed rebar on the east overhang near Pier 17C.
- A 6” diameter x 1” deep spall is present in the west overhang in Span 19C.
- A continuous set of spalls up to 1” deep are present in the east overhang of Span 19C.
- There is a 4 square foot spall with exposed rebar that is covered up with plywood in Bay 4 of Span 19C.
- A 3’ long by 2’ wide by 10” deep spall is in the west overhang of Span 22C.
- There are two 3’L x 1’W x 1 1/2” deep spalls with exposed rebar on the west overhangs at Span 23C and Span 24C.
- There is a 4’ long by 2’ wide area of delaminated concrete in the west overhang of Span 27C.
- There is a 3 square foot spall with exposed rebar in Bay 5 of Span 29C.
- There are also 3 separate spalls with exposed rebar in Bay 5 of Span 29C, accounting for 6 square feet in total.

If necessary, loose concrete debris around overhang spalls and delaminations was safely removed and secured during the inspection.

PHOTO 1. DECK SPAN 17C, OVERHANG SPALL WITH EXPOSED REINFORCEMENT

PHOTO 2. DECK SPAN 19C BAY 4, 4 SQFT SPALL W/ EXT REINFORCEMENT, COVERED BY PLYWOOD

PHOTO 3. DECK SPAN 19C & 20 C WEARING SURFACE, CONCRETE PATCH

PHOTO 4. DECK SPAN 21C WEARING SURFACE, CONCRETE PATCH

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PHOTO 5. DECK SPAN 22C, ASPHALT PATCH SHOWING WEAR

PHOTO 6. SPAN 22C CENTER LANE WEST OVERHANG, LARGE SPALL W/ EXPOSED REINFORCEMENT

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PHOTO 7. DECK OVERHANG SPAN 24C, SPALL WITH EXPOSED REINFORCEMENT

PHOTO 8. DECK UNDERSIDE SPAN 24C, WOOD FROM LEFT IN PLACE

PHOTO 9. DECK SPAN 27C, 4'LX 2'W DELAMINATED CONCRETE

PHOTO 10. WEARING SURFACE SPAN 27C CENTER LANE, 3 PATCHES, LARGEST PATCH IS VISBLY CRACKING

ELEMENT 510 – WEARING SURFACE

The wearing surface is in GOOD CONDITION [7-NBIS] overall. The wearing surface was inspected visually from the boom lift. Isolated hairline longitudinal and transverse cracks are present throughout the wearing surface in all spans. There are potholes patched with asphalt in Spans 19C and 21C. There are concrete patches in good condition in Span 18C and 27C. There are cracked concrete patches (each 3’x3') in Span 22C and 27C. The asphalt patch near the center lane in Span 22C is showing wear. The wearing surface was sounded by ODOT in December 2020, and multiple delaminated areas were found throughout the wearing surface (see Appendix B).

ELEMENT 300 – STRIP SEAL EXPANSION JOINT

The expansion joints are in SATISFACTORY CONDITION [6-NBIS] overall Expansion joints are located at Piers 15C, 18C, 23C, 26C and Abutment C. The expansion joints were visibly inspected from the boom lift. Loosely-packed debris was noted in the expansion joint at Piers 18C and 27C. There are possible tears in the right lane of Pier 27C. A 6’ long section of the joint seal has pulled out between Beams E and B3 at Pier 23C and water free flows on to the pier at this location. The joint opening measurements were not taken at deck level.

PHOTO 11. JOINT 12C

PHOTO 12. JOINT PIER 23C, STRAP AND DEBRIS HANGING FROM JOINT

PHOTO 13. JOINT PIER 23C, DEBRIS IN JOINT AND DEPRESSION WHERE DEBRIS IS HANGING THOUGH, TORN.

ELEMENT 321 – REINFORCED CONCRETE APPROACH SLAB

The reinforced concrete approach slabs are in FAIR CONDITION [5-NBIS] overall. The approach slabs are covered with an asphalt wearing surface. Transverse and longitudinal cracks are present in the asphalt wearing surface. There are map cracks and potholes near the joint. Potholes and rutting are present in the west shoulder.

APPROACH (no associated element)

The north approach is in FAIR CONDITION [5-NBIS] overall. As the south end of this bridge connects to HAM-71- 0000R, there is no south approach for this structure.

APPROACH WEARING SURFACE (no associated element)

The north approach wearing surface is in FAIR CONDITION [5-NBIS] overall. There are longitudinal and transverse cracks. Asphalt patches are present in the center lane

APPROACH GUARDRAIL (no associated element)

The north approach guardrail is in GOOD CONDITION [7-NBIS] overall with minor scrapes in isolated locations.

ELEMENT 331 – REINFORCED CONCRETE BRIDGE RAILING

The reinforced concrete bridge railings are in FAIR CONDITION [5-NBIS] overall. Vertical and transverse hairline cracks with efflorescence as well as isolated small spalls are typical throughout the railings. A horizontal crack is present in the east railing near the light post in Span 20C. There is a map cracking in the top of the west railing near Pier 23C. There is a smashed attenuator on the guardrail near Exit 1C.

PHOTO 14. BARRIER, ATTENUATOR RETROFIT

ELEMENT 815 – DRAINAGE

The bridge deck drainage is in GOOD CONDITION [7-NBIS]. At the deck level, scuppers were visibly inspected from the boom lift and no indication of significant clogging or debris accumulation was observed. The drain at Pier 16C was leaking onto the substructure during previous inspection.

ITEM 59 – SUPERSTRUCTURE SUMMARY

The superstructure is in SATISFACTORY CONDITION [6-NBIS] overall. There is surface corrosion throughout all girders with laminating corrosion and section loss in the fascia girders. The steel bearings typically exhibit surface corrosion, particularly on the fascia bearings, and several bearings have pack rust between the rockers and the masonry plates.The steel protective coating is substantially ineffective throughout much of the structure.

ELEMENT 107 – STEEL OPEN BEAMS/GIRDERS

The steel beams and girders are in SATISFACTORY CONDITION [6-NBIS] overall There is widespread freckling and minor surface corrosion throughout all original girders, most prominently on the fascia girders. The top of the bottom flange of Girder A exhibits laminating corrosion with section loss up to ¼" deep, typically near the transverse stiffeners. In Spans 17C through 23C, there is up to a 9% typical flange section loss from an original section of 16"W x 1 3/8" deep. Intermittent laminating corrosion and section loss is also present in Span 18C and Spans 19C through 23C. Laminating corrosion is initiating in the bottom flanges of Girders A-F in Span 28C with negligible section loss at this time. There is evidence of fire and associated damages to the under the structure in Span 29, Bay 3, with soot over top half of girders and associated paint failure.

The retrofit beams in Spans 23J through 26J are in good condition with isolated areas of freckling and minor surface corrosion.

PHOTO 15. GIRDER D SPAN 16C, WELD REMNANTS AND GOUGES TO BOTTOM FLANGE

PHOTO 16. GIRDER A SPAN 17C BOTTOM FLANGE, INTERMITTENT SECTION LOSS WITH LAMINAR CORROSION ON BOTTOM FLANGE OF FASCIAS

PHOTO 17. GIRDER SPAN 24, TYPICAL LAMINAR CORROSION AT STIFFENERS ON FASCIAS

ELEMENT 310/311/313 –BEARING SUMMARY

The bearings overall are in ***SATISFACTORY CONDITION [6 NBIS]***.

The new elastomeric bearings installed at Piers 15C, 18C, 23C and 26C are in GOOD CONDITION [7 NBIS].

The newer steel bearings in Spans 22J-26J (installed during the 2000 retrofit) are also in GOOD CONDITION [7 NBIS].

The original steel fixed and rocker bearings are in *SATISFACTORY CONDITION [6 NBIS]*.

The Pier Cap 25J bearings are in GOOD CONDITION [7 NBIS].

The Pier Cap 26C/J bearings are in FAIR CONDITION [5 NBIS].

Bearing A at Abutment C has been covered with fill.

ELEMENT 310 – ELASTOMERIC BEARING

The elastomeric bearings are in GOOD CONDITION [7-NBIS] overall.

The 25C pier cap bearings consist of one elastomeric pad at each column and each pad is fixed with two anchor bolts connected with nuts on the pier cap interior. The bearings have no significant deficiencies observed on the pads or anchors. No issues were noted with the anchor rods.

The 26C/J pier cap bearings consist of one elastomeric pad at each column and each pad is fixed with two anchor bolts connected with nuts on the pier cap interior.

- The south anchor bolt at the west column bearing is broken; no issues were noted with the remaining anchor bolts.
- The cap appears stable with no excessive or unanticipated movements under live load.
- A slight gap was observed with the elastomeric pads on the south end where the anchor bolt is broken, with a slight bulge on the opposite end.
- The new elastomeric bearings installed at Piers 15C, 18C, 23C and 26C have minor isolated surface corrosion on the steel bearing plates.

PHOTO 18. ELASTOMERIC BEARING C PIER 23C

PHOTO 19. ELASTOMERIC BEARING PIER 25J

ELEMENT 311 – MOVABLE BEARING

The movable bearings are in SATISFACTORY CONDITION [6-NBIS] overall.

- The movable bearings typically exhibit surface corrosion with minor section loss, corrosion is more prominent on the fascia bearings.
- There is pack rust between the rocker and the masonry plate of Bearing A at Pier 17C, Bearing A and E at Pier 19C, Bearing E at Pier 21C, Bearings A and E at Pier 22C and Bearing E at Pier 25C with no indication of uplift
- The bearing at Abutment C, Bearing A has been covered with fill.

PHOTO 20. MOVABLE BEARING E PIER 22C

PHOTO 21. MOVABLE BEARING G PIER 23C, FRETTING RUST

PHOTO 22. MOVABLE BEARING G PIER 23C

PHOTO 23. MOVABLE BEARING A PIER 25C

ELEMENT 313 – FIXED BEARING

The fixed bearings are in SATISFACTORY CONDITION [6-NBIS] overall and exhibit surface corrosion with no measurable section loss, corrosion is more prominent on the fascia bearings.

PHOTO 24. FIXED BEARING C PIER 16C

PHOTO 25. FIXED BEARING B PIER 24C

PHOTO 26. FIXED BEARING G PIER 24C

ELEMENT 515 – STEEL PROTECTIVE COATING

The steel protective coating system is paint and is in SERIOUS CONDITION [3-NBIS] overall. The paint on the retrofit beams is in good condition, with isolated areas of freckling and minor surface corrosion. The ends of the original girders near the expansion joints at Piers 15C, 18C, 23C and 26C were cleaned and painted in 2018; the paint in these areas is in good condition. Elsewhere, the paint on the original girders has failed or is of limited effectiveness. Exposed steel with surface corrosion is widespread throughout the structure, most significantly on the bottom flange and lower web of the fascia girders. Where the paint has not failed, there is widespread chalking with complete loss of pigment, dulling, peeling and flaking. Paint failures with surface corrosion are typical throughout the original steel bearings and are present in isolated areas on the retrofit bearings at Piers 22J-26J. There is evidence of fire and paint damage to the beams in Span 29, Bay 3.

DIAPHRAGMS AND CROSS FRAMES (no associated element)

The diaphragms and cross frames are in good condition with minor surface corrosion and paint failure throughout the structure. Cross frame #6 in Span 19 is bent on the lower angle. Missing bolts is typical throughout the structure with welded retrofits at the connections.

PHOTO 27. DIAPHRAGM, RETROFIT DIAPHRAGM SPAN 24

PHOTO 28. POOR WELD QUALITY FOR DIAPHRAGM TO GIRDER G STIFFENER

ALIGNMENT (no associated element)

Alignment is in good condition without any problems in the vertical or horizontal alignment noted through visual inspection.

FATIGUE (no associated element)

The superstructure fatigue prone details are in good condition.

ITEM 60 – SUBSTRUCTURE SUMMARY

The substructure is in FAIR CONDITION [5-NBIS] overall. The substructure consists of ten reinforced concrete cap–and–column piers (Piers 15C, 21C-25C, 27C, 28C, 23J, 24J), six reinforced concrete hammerhead piers (Piers 16C-20C, 22J), two NSTM steel box pier caps on reinforced concrete columns (Piers 25J, 26C/J), and a reinforced concrete cantilever abutment. Minor hairline vertical and map cracks are typical throughout the concrete piers.

For the purposes of this report,

Element 205 - Reinforced Concrete Column refers to cap-and-column piers

Element 210 - Reinforced Concrete Pier Wall refers to hammerhead piers.

As part of the 2017 rehabilitation, concrete patching and FRP wrapping were applied to spalls and delaminations on Piers 15C, 18C, and 23C.

ELEMENT 205 – REINFORCED CONCRETE COLUMN

The reinforced concrete pier columns are in SATISFACTORY CONDITION [6-NBIS]. with minor isolated spalls and hairline cracking typical throughout. There is a 4’H x 1”D spall on the northeast corner of Column 2, Pier 21C due to vehicular impacts. There is a 2’H x 1’W x 2” deep spall with exposed rebar and a 2’H x 2’W delaminated area on Column 2 of Pier 23C near the downspout. The protective coating for the FRP on the columns of Pier 23C is peeling. Hairline map cracking is present on the columns of Piers 22C, 24C, 26C/J, and 27C. There is a 16”H x 6” W x 1/2” deep spall on the corner of Column 1 of Pier 27C.

ELEMENT 210 – REINFORCED CONCRETE PIER WALL

The reinforced concrete pier wall is in SATISFACTORY CONDITION [6-NBIS] with hairline map cracking typical throughout. A shallow spall around the armored edge is present at Pier 16C. Vertical hairline cracks are present on the east face of Pier Wall 18C. Concrete patching and FRP wrap was applied to Pier Wall 18C as part of the 2017 rehabilitation. There is a 10" W x 4"H section of FRP that is peeling and cracking on the south face of Pier 18C. Several shallow spalls with exposed reinforcing bars are present on the south and west faces of Pier 19C wall due to shallow cover.

PHOTO 29. PIER 15C NORTH FACE, TYPICAL STAINING

PHOTO 30. PIER 16C, FRONT FACE

PHOTO 31. PIER 17C, FRONT FACE

PHOTO 32. PIER 23C, SPALL IN COLUMN AND CAP

PHOTO 33. PIER 24C, FRONT FACE

ELEMENT 215 – REINFORCED CONCRETE ABUTMENT

The reinforced concrete abutment is in GOOD CONDITION [7-NBIS] with isolated hairline vertical cracks. There is map cracking in the Bay 4 backwall with efflorescence. There is a 20”W x 24”H X 1” deep spall and delamination below Bearing E. Use caution during future inspections, as several hypodermic needles were found near Abutment C.

ELEMENT 231 – STEEL PIER CAP

The steel pier caps are in FAIR CONDITION [5-NBIS].

PIER CAP 25J

The steel box pier cap 25J is in GOOD CONDITION [7-NBIS].

PIER CAP 25J EXTERIOR

The exterior of steel pier cap 25J is in GOOD CONDITION [7-NBIS]. There are isolated areas of surface corrosion throughout the pier cap exterior, particularly on the top flange at the east end and along the edges of both flanges. There are minor scrapes with surface corrosion in the bottom flange over the U.S. 50 ramp to 2nd Street. The bottom flange bearing plates at both columns exhibit surface corrosion.

The exterior steel protective coating is paint and is in *SATISFACTORY CONDITION [6-NBIS]* with isolated areas of surface corrosion and minor peeling. There is little to no paint remaining on the bearing plates over the columns.

PIER CAP 25J INTERIOR

The interior of steel pier cap 25J is in GOOD CONDITION [7-NBIS]. Transverse diaphragms are numbered 1 to 7, from west to east. During the inspection, the interior of the pier cap was dry with no indications of moisture infiltration. There are minor deformations in the top flange backer bars on both webs. There is freckling and minor surface corrosion on Diaphragms 1, 2, and 7, and at both hatch openings.

The interior steel protective coating is paint and is in *GOOD CONDITION [7-NBIS]* with isolated peeling of the topcoat along the bottom of the web plates.

PHOTO 34. PIER 25J, BACK FACE

PHOTO 35. PIER 25C, WEB IMPACT WITH ACTIVE CORROSION

PIER CAP 25J FATIGUE PRONE DETAILS

The fatigue prone details of steel pier cap 25J are in GOOD CONDITION [7-NBIS]. with no significant deficiencies noted. The fatigue prone details present include fatigue category C' and E'.

Category C': Typical interior transverse diaphragm fillet weld connection to pier cap webs and flanges.

Category E: Steel bearing pedestal to top flange fillet weld connection with length L > 4in. and a thickness t ≥ 1.0 in. parallel or transverse to the direction of primary stress 4.

Photo 1 - Category E fatigue detail - Steel bearing pedestal welded to top flange

PIER CAP 26C/J

The steel box pier cap 26C/J is in FAIR CONDITION [5-NBIS] with surface corrosion and isolated areas of minor section loss. This pier cap also supports part of the adjacent Bridge HAM-75-0030.

PIER CAP 26C/J EXTERIOR

The exterior of steel pier cap 26C/J is in FAIR CONDITION [5-NBIS]. There is minor surface corrosion throughout the exterior of the pier cap, particularly on the top flange at the ends, and along the edges of both flanges. There is a 6” diameter area of surface corrosion with pitting up to 1/4” deep in the top flange at the west end. There is laminating corrosion with section loss less than 1/16” deep on the undersides of the bearing plates at all columns. On the bottom flange at the openings there is section loss up to 1/16” on the bottom flange.

The exterior steel protective coating is paint and is in FAIR CONDITION [5-NBIS] with isolated peeling of the top coat along the bottom of the web plates.

PIER CAP 26C/J INTERIOR

The interior of steel pier cap 26C/J is in FAIR CONDITION [5-NBIS]. Transverse diaphragms are numbered 1 to 18, from west to east. At the time of the inspection, there were signs of moisture inside the pier cap near the east and west hatches, due to inadequate hatch seals. The gasket on the west hatch is pulled away from the hatch, allowing moisture to enter the pier cap. There are small rust spots on most diaphragms throughout the pier cap. There are multiple areas of corrosion and section loss within the pier cap, which are summarized in Table 2.

The interior steel protective coating is paint and is in FAIR CONDITION [5-NBIS] with isolated areas of exposed steel, section loss, paint failure, andpeeling.

Location	Defect	Stress region
Between west hatch and Diaphragm 1	Bottom flange, lower 3” of webs and diaphragm: Surface corrosion, pitting less than 1/16” deep	N/A (outside bearing)
Diaphragm 1, NE Corner	Bottom flange: 5” diameter surface corrosion, pitting less than 1/16” deep	Tension
Diaphragm 17, SW Corner	Web: 2” diameter surface corrosion with pitting less than 1/16” deep Bottom flange: 4” diameter surface corrosion with pitting less than 1/16” deep	Tension
Diaphragm 17, NW Corner	Web: 2” diameter surface corrosion	Tension
Between east hatch and Diaphragm 18	Bottom flange, lower 3” of webs and diaphragm: Laminating corrosion with section loss up to 1/8” deep	N/A (outside bearing)

Table 2: *Loss of Section Summary*

At the end of the previous inspection, inspectors applied silicone caulk to the west hatch to improve the seal and reduce moisture infiltration in the pier cap. Until the gasket is repaired, the west hatch should not be opened without reapplying the caulk.

PHOTO 36. PIER 26C/J WEB ACTIVE CORROSION

PHOTO 37. PIER 26C/J TOP FLANGE, DEBRIS AND ACTIVE CORROSION

PHOTO 38. PIER 26C/J COLUMN 3, MAP CRACKING, MINOR WIDTH

PHOTO 39. PIER 26C/J

PIER CAP 26C/J FATIGUE PRONE DETAILS

The fatigue prone details of steel pier cap 26C/J are in SATISFACTORY CONDITION [6-NBIS]. with no significant deficiencies noted. The fatigue prone details present include C', D, and E' fatigue categories.

Category C': Typical interior transverse diaphragm fillet weld connection to pier cap webs and flanges.

Category D: Hole in north web plate in Bay 17 filled with a non-high strength bolt.

Category E': Bearing plate to top flange fillet weld connection with length L > 4 in. and at thickness t ≥ 1.0 in. parallel or transverse to the direction of primary stress.

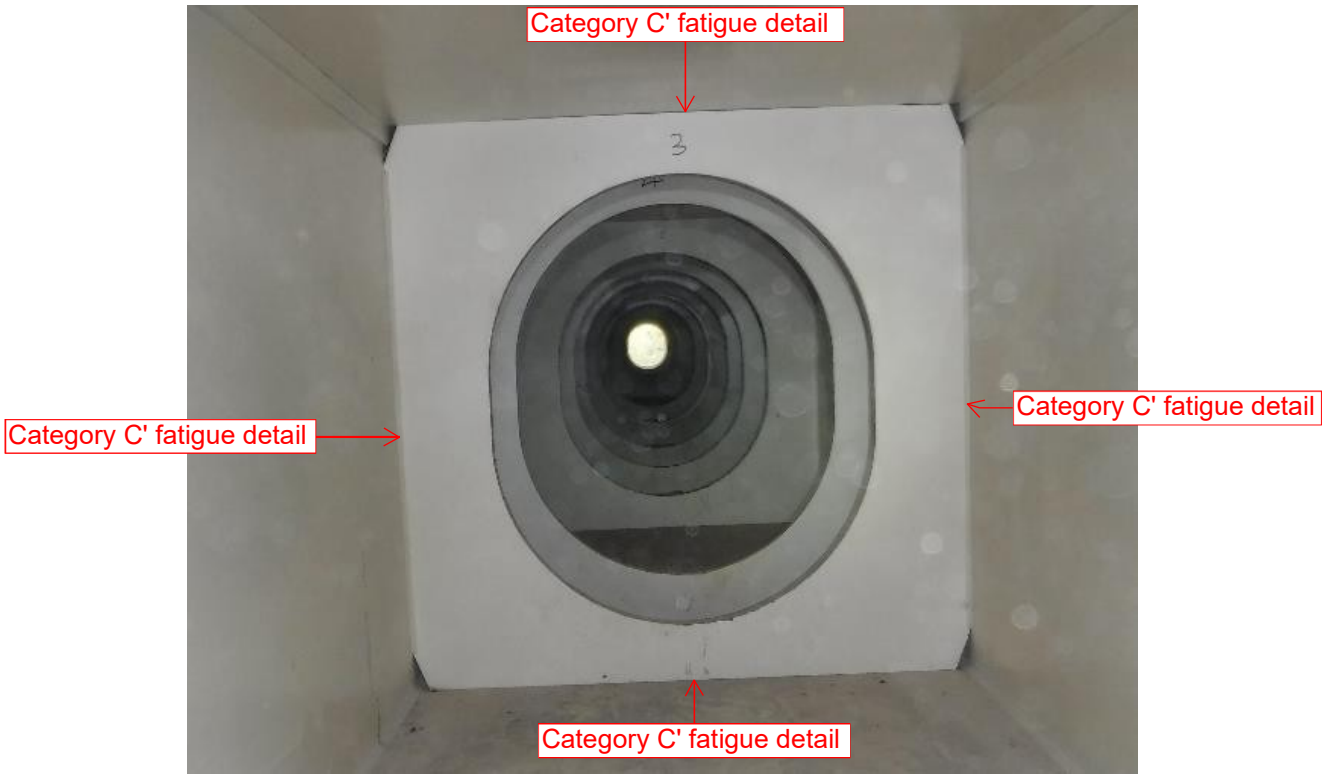


Photo 2 - Category C' fatigue detail- Diaphragm fillet welds to webs and flanges

ELEMENT 234 – REINFORCED CONCRETE PIER CAP

The reinforced concrete pier caps are in SATISFACTORY CONDITION [6-NBIS]. The original pier caps have horizontal hairline cracks near the top of most caps and vertical hairline cracks developing from the horizontal cracks. There is 16"H x 6"W x 1 ½" deep spall on the south face of Pier Cap 18C. There is a small spall at the east end of Pier Cap 28C. On Pier Cap 21C, there is map cracking 5'W x 5'H on the south face of the east cantilever and map cracking 12'W x 3'H on the north face. There is map cracking and a minor spall on the west face of Pier Cap 23C. The protective coating for the FRP is cracking and peeling on the south face of Pier Cap 23C. Moisture was present on Pier 23C due to the leaking deck joint.

PHOTO 40. PIER 28C WEST FACE

PHOTO 41. PIER 28C EAST FACE

PHOTO 42. PIER 29C WEST FACE

PHOTO 43. PIER 29C EAST FACE

ELEMENT 830 – ABUTMENT BACKWALL

The reinforced concrete abutment backwalls are in GOOD CONDITION [7-NBIS]. with isolated hairline cracks and minor efflorescence.

The patch at Bay 4 is beginning to map crack.

There is a 2’ long by 6” wide by 6” deep spall in the backwall at Bay 2, near Girder C, under the joint.

WINGWALLS (no associated element)

The reinforced concrete wingwalls are in SATISFACTORY CONDITION [6-NBIS]. Diagonal hairline cracking is typical throughout the wingwalls. Cracking with delaminations is present at the bottom of the west wingwall with efflorescence.

SLOPE PROTECTION(no associated element)

The slope protection is in GOOD CONDITION [7-NBIS] without any significant deficiencies noted

EMBANKMENT(no associated element)

The embankment is in GOOD CONDITION [7-NBIS] without any significant deficiencies noted.

SIGN/UTILITY ITEMS SUMMARY

The signs and utilities are in good condition.

SIGNS AND SUPPORTS (no associated element)

The structure-mounted sign supports are in satisfactory condition. There is one overhead sign support mounted to the railings near Pier 23C. There are no significant deficiencies noted for the support structure or the anchorage to the railings.

PHOTO 44. SIGNS, BUMPOUT OVERHANG FOR SIGN MOUNTS

PHOTO 45. SIGNS, BUMPOUT OVERHANG FOR SIGN MOUNTS

UTILITIES (no associated element)

The utilities on the structure are in good condition. The structure-mounted utilities consist of an electrical conduit attached to Pier 27C and Girder F in Span 27C, as well as several light poles mounted to the railings at deck level. There are no significant deficiencies noted.

ITEM 41 – OPERATIONAL STATUS

The bridge remains OPEN WITH NO RESTRICTIONS [A-NBIS].

CONCLUSIONS AND RECOMMENDATIONS

Based on the 2024 Routine Inspection, the HAM-71-0022R bridge is in SATISFACTORY (6) condition overall based on the NBIS rating guidelines. The overall rating is based on the condition of both the superstructure and the substructure. The AssetWise Bridge Inspection Report is included in Appendix C.

Repair & Maintenance Recommendations

To properly maintain this structure, recommendations have been divided into four categories: Priority, Maintenance, Rehabilitation and Monitor.

- Priority: Repairs that should be completed as soon as possible to address an immediate safety hazard.
- Maintenance: On-going maintenance items that can be accomplished by an ODOT maintenance crew.
- Rehabilitation: Are repairs that are not immediate concerns but should be addressed in the next rehabilitation contract.
- Monitor: Are items that should be investigated and documented in subsequent inspections

Priority:

Superstructure
- Remove pack rust from rocker bearings.
- Replace broken anchor bolt inside Pier Cap 26C/J at the west column bearing.

Substructure
- Replace hatch seals on Pier Cap 26C/J.

Rehabilitation:

Deck
- Clean debris from the expansion joints.

Approach
- Seal cracks in north approach wearing surface.

Maintenance:

Deck
- Repair spalls in the deck underside and overhangs.
- Repair the section of failed joint at Pier 23C.
- Repair spalls and delaminations in concrete wearing surface.
- Repair spalls and delaminations in railing and seal railing.

Superstructure
- Clean and paint steel that has not been recently painted.

Substructure
- Repair spalls and delaminations in substructure concrete.
- Clean and paint steel.

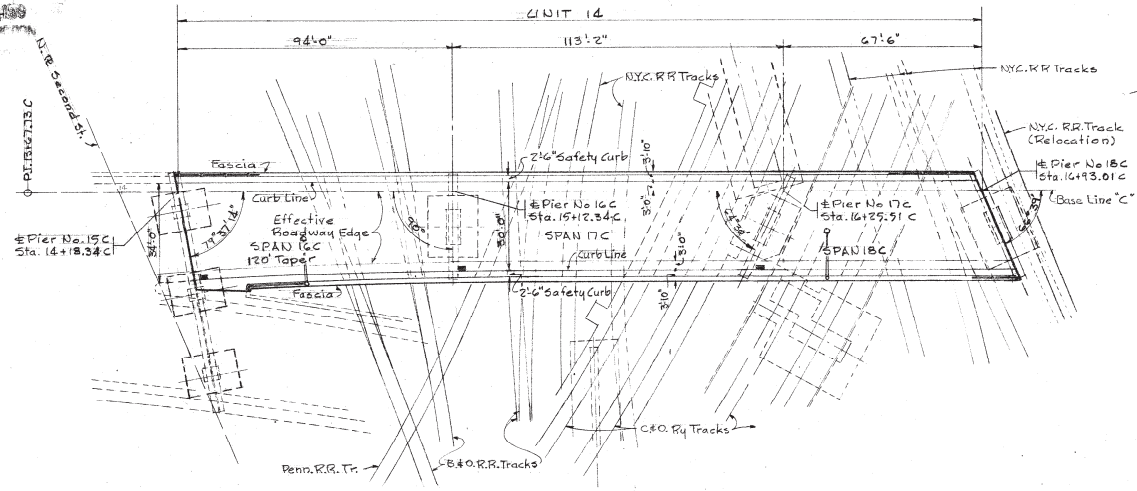
Monitor: **None**

Appendix A – Selected Plan Sheets

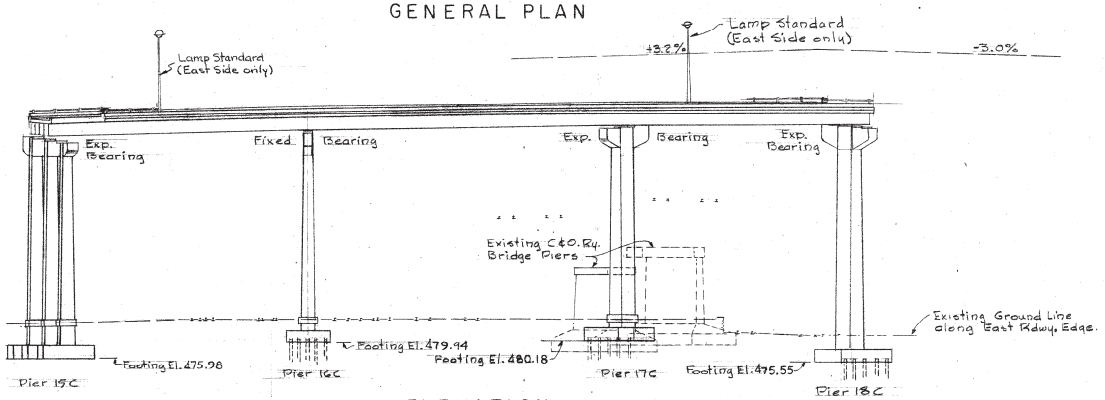
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

92

HAM-25-0.04



GENERAL PLAN



ELEVATION

For Railing & Lighting Details See Sh. No. 260
For General Notes see Sheet No. 97
For Estimate of Quantities see Sheet No. 97

HAM-75-0022R
SPANS 16C-18C

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

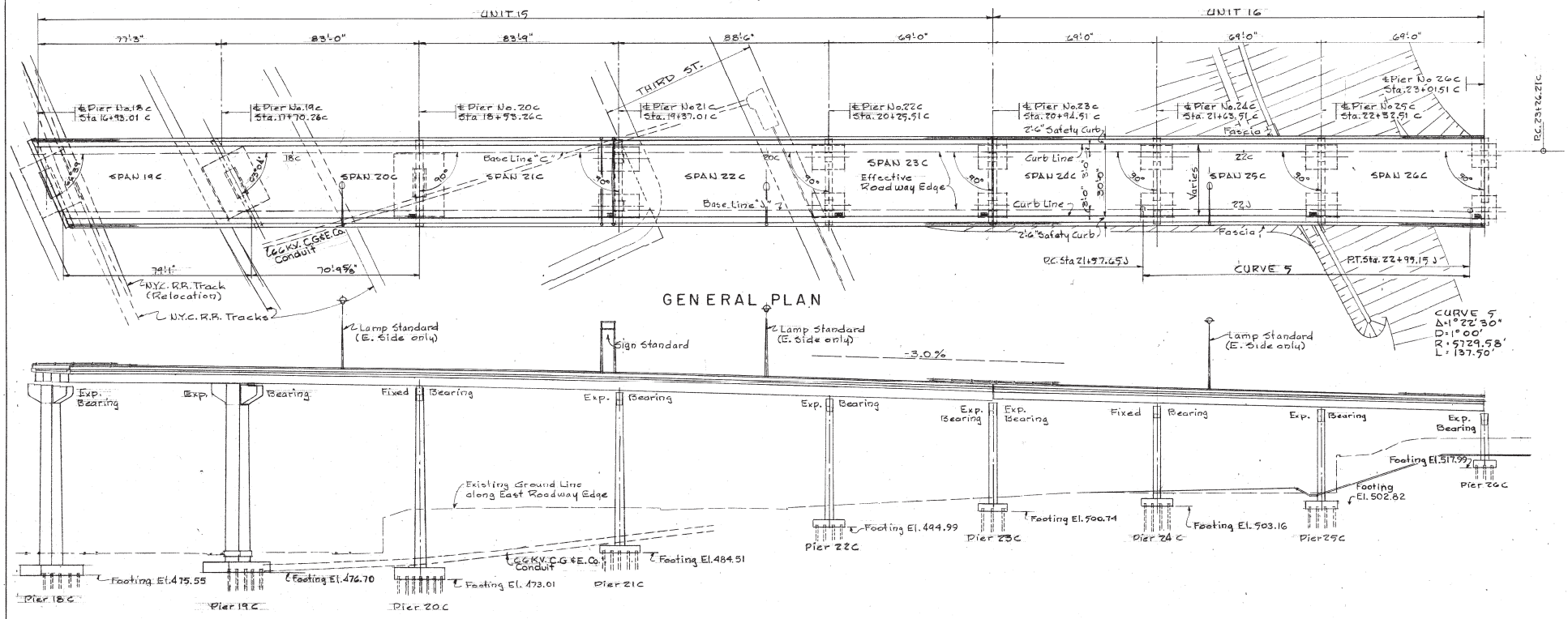
GENERAL PLAN & ELEVATION
UNIT 14

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	J.C.D. 9-4-59		G.J.T. 9-23-60	11-1-60 10-13-60	

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

93

HAM-25-0.04



GENERAL PLAN

ELEVATION

For Railing & Lighting Details See Sheets 260 & 261
For General Notes see Sheet 97
For Estimate of Quantities See Sheet 97

HAM-75-0022R
SPANS 19C-26C

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

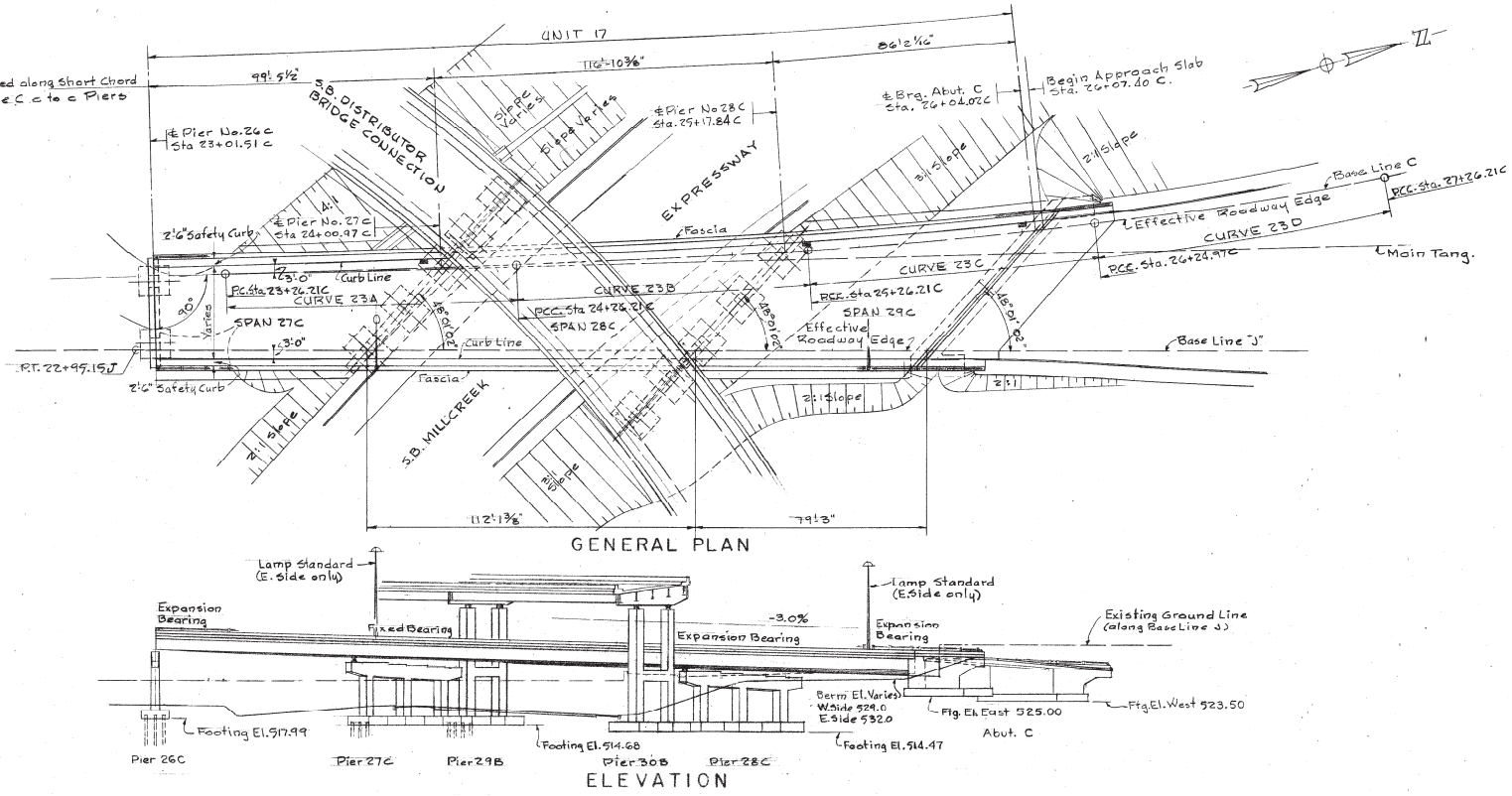
GENERAL PLAN & ELEVATION
UNITS 15 & 16

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	J.C.D. 9-8-59		G.J.T. 9-23-60	W.A.S. 10-13-60	

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

94

HAM-25-0.04



GENERAL PLAN

ELEVATION

CURVE 23A	CURVE 23B
Δ = 0°25'	Δ = 2°04'34"
D = 0°25'	D = 2°04'34"
R = 13,750.99'	R = 2,759.77'
L = 100.0'	L = 100.0'

CURVE 23C	CURVE 23D
Δ = 2°53'04"	Δ = 4°37'22"
D = 2°55'14"	D = 4°33'58"
R = 1,961.81'	R = 1,254.81'
L = 98.76'	L = 101.24'

ALIGNMENT NOTE
See Sheet 85

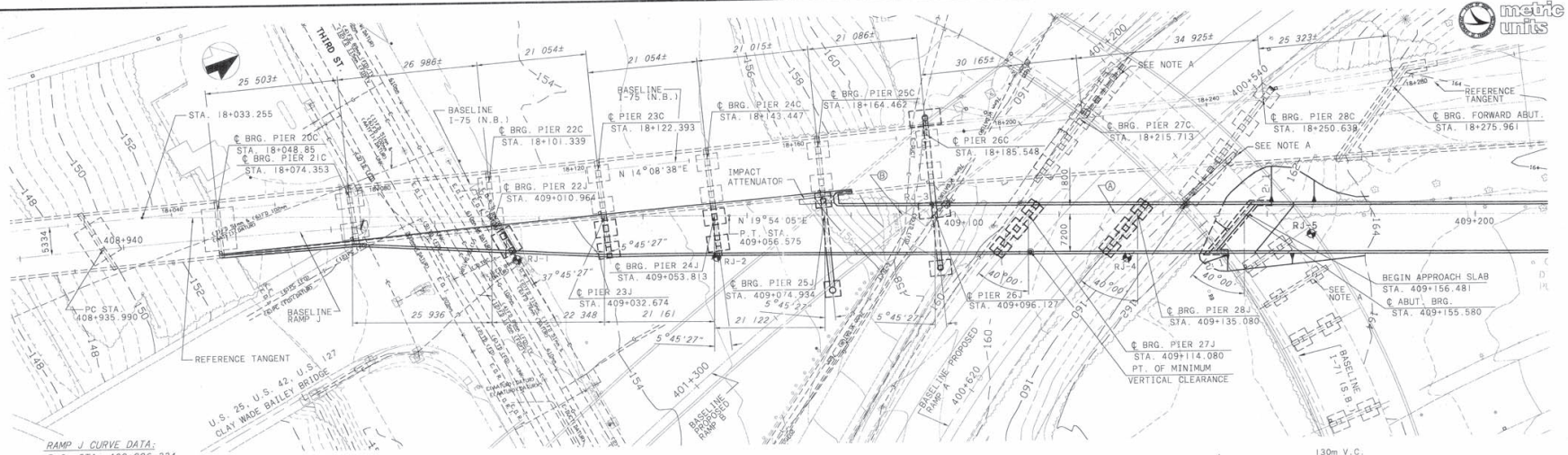
For Railing & Lighting Details See Sheet No. 261
For General Notes See Sheet No. 97
For Estimate of Quantities See Sheet No. 97

HAM-75-0022R
SPANS 27C-29C

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

GENERAL PLAN & ELEVATION
UNIT 17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	J.C.D. 9-16-59		G.J.T. 9-26-60	W.H.S. 10-13-60	



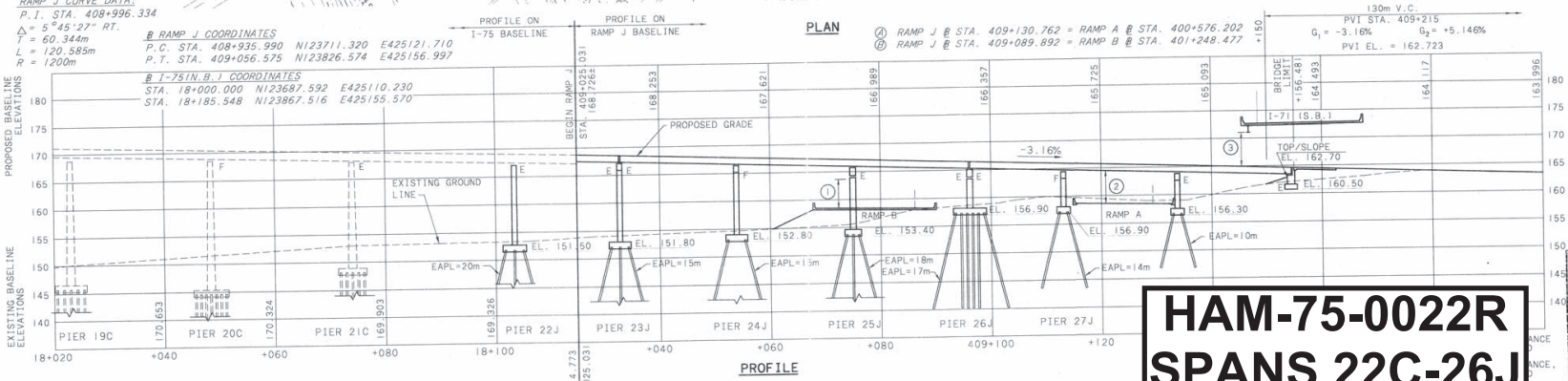
RAMP J CURVE DATA:
P.I. STA. 408+996.334
△ = 5°45'27" RT.
T = 60.344m
L = 120.585m
R = 1200m

℄ RAMP J COORDINATES
P.C. STA. 408+935.990 N123711.320 E425121.710
P.T. STA. 409+056.575 N123826.574 E425156.997

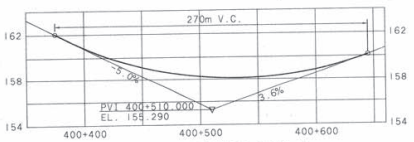
℄ I-75(N.B.) COORDINATES
STA. 18+000.000 N123687.592 E425110.230
STA. 18+185.548 N123867.516 E425155.570

PLAN

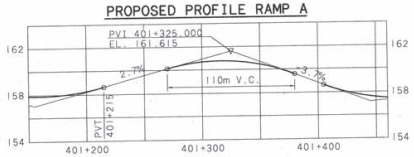
Ⓐ RAMP J ℄ STA. 409+130.762 = RAMP A ℄ STA. 400+576.202
Ⓑ RAMP J ℄ STA. 409+089.892 = RAMP B ℄ STA. 401+248.477



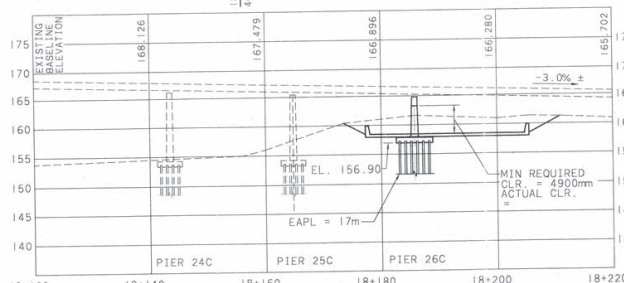
PROFILE



PROPOSED PROFILE RAMP A



PROPOSED PROFILE RAMP B



PROFILE
ALONG BASELINE EXISTING I-75 (N.B.)

NOTE A: FUTURE PROPOSED PIER [illegible] OF I-71 (S.B.). UNDER SEPERATE CONTRACT.

EAPL DENOTES ESTIMATED AVERAGE PILE LENGTH

⊠ DENOTES BORING LOCATION

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

EXISTING STRUCTURE (I-75 N.B.)

TYPE: CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 28 652, 34 495, 20 524, 23 500, 25 300
25 503, 26 986, 21 054, 21 054, 21 015
21 086, 30 165, 34 925, 25 323 ALL±
STRUCTURE FILE NO.: 3111709
ROADWAY: 10 465± TOE/TOE PARAPET SKEW: VARIES
ORIGINAL DESIGN LOADING: CF2000 (57)
WEARING SURFACE: CONCRETE
SUPERELEVATION: 0.016 AND VARIES
APPROACH SLABS: 7620±
YEAR BUILT: 1963

PROPOSED STRUCTURE (RAMP J)

TYPE: COMPOSITE CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 25 936, 22 348, 21 161, 21 122
21 193, 17 953, 21 000, 20 500
c/c PIERS ALONG REFERENCE LINE
ROADWAY: 9000 TOE/TOE PARAPET SKEW: VARIES
DESIGN LOADING: HS20-44 (CASE II) AND ALT. MILITARY
WEARING SURFACE: CONCRETE
CROWN: 0.016 (ONE-WAY)
APPROACH SLAB: AS-1-81M, 7600 LONG
ALIGNMENT: CURVED AND TANGENT
CURRENT ADT: NA
DESIGN YEAR ADT (2020): 11 000
DESIGN YEAR ADTT (2020): 440
LATITUDE: 39°05'50"
LONGITUDE: 84°31'13"

HAM-75-0022R
SPANS 22C-26J

FINAL FOR CONSTRUCTION

SITE PLAN
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

HAMILTON COUNTY
STA. 409+025.031
STA. 409+156.481

DESIGNED MPB
DRAWN JB/AAA
CHECKED RMK/JB
REVISED RMK 7/8/98
STRUCTURE FILE NUMBER

1/55

534
588

SITEPLO2.DWG 4-30-98

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

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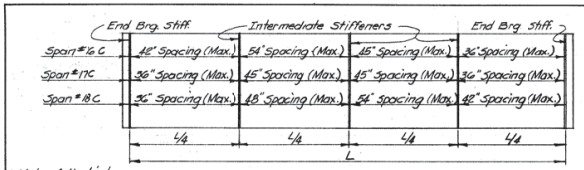
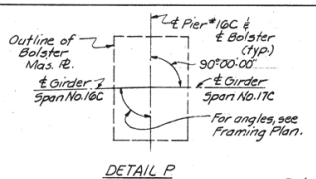
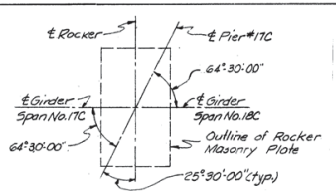


INTERMEDIATE STIFFENER SPACING

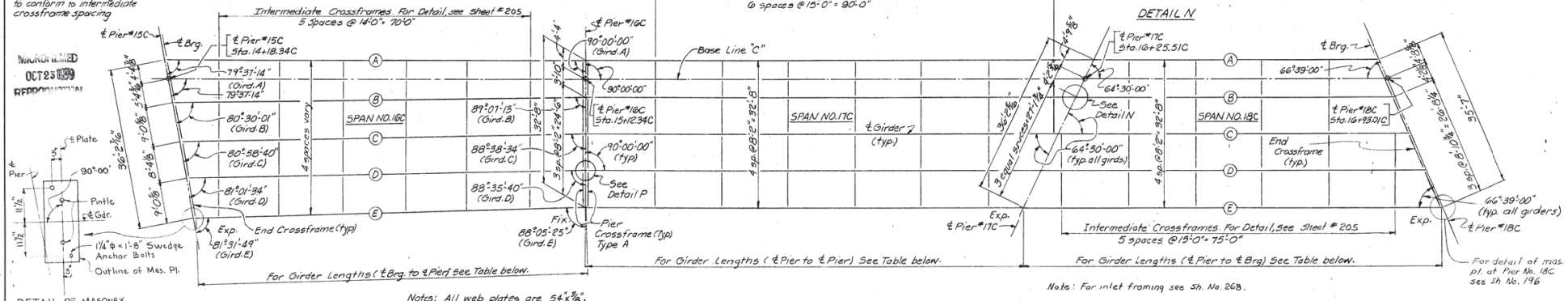
Note: Adjust intermediate stiffener spacing to conform to intermediate crossframe spacing



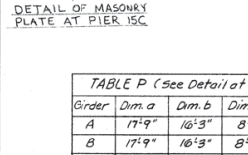
DETAIL P



DETAIL N



Note: For inlet framing see Sh. No. 268.

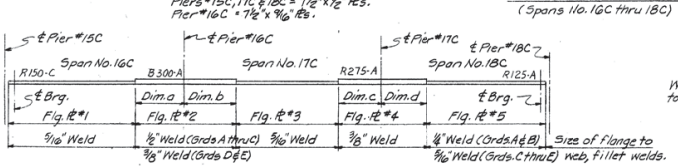


DETAIL OF MASONRY PLATE AT PIER 15C

Notes: All web plates are 54"x⅜".
All intermediate stiffeners are 4"x⅜".
End bearing stiffeners are as follows:
Piers #15C, 17C & 18C = 7½"x½" Prs.
Pier #16C = 7⅛"x 9/16" Prs.

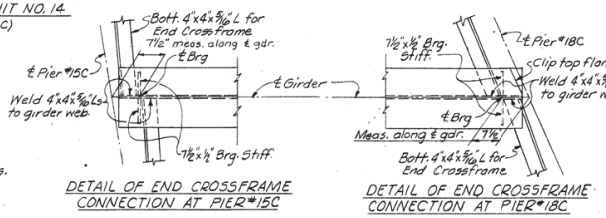
FRAMING PLAN UNIT NO. 14.

(Spans No. 16C thru 18C)



Notes: For flange plate sizes for Pl #1 thru #5, see Table O, below.
For dimensions a thru d, see Table P, left.

DETAIL OF FLANGE PLATES AND WELDS



DETAIL OF END CROSSFRAME CONNECTION AT PIER #15C

DETAIL OF END CROSSFRAME CONNECTION AT PIER #18C

Note: Work these details with "Plan of Expansion Joint", Sheet No. 215

TABLE P (See Detail at right.)				
Girder	Dim. a	Dim. b	Dim. c	Dim. d
A	17'-9"	16'-3"	8'-6"	24'-0"
B	17'-9"	16'-3"	8'-6"	24'-0"
C	15'-6"	16'-0"	11'-3"	18'-6"
D	13'-0"	16'-6"	14'-0"	19'-0"
E	13'-0"	16'-6"	14'-0"	19'-0"

TABLE Q		
Dim. to raise girds. for welding.		
Girder	Span #16C	Span #18C
A	3⅜"	1¾"
B	3"	1⅜"
C	2¾"	2⅛"
D	2½"	2¼"
E	2¼"	2⅜"

Note: Convexity includes variations due to vertical curvature, superelevation and horizontal curvature.

TABLE O (See Detail above)					
Girder	Flg. Pl #1	Flg. Pl #2	Flg. Pl #3	Flg. Pl #4	Flg. Pl #5
A	16"x1⅜"	16"x2⅜"	16"x1⅜"	16"x1¾"	16"x¾"
B	do	do	16"x1⅜"	do	16"x¾"
C	do	16"x2⅜"	16"x1¼"	16"x1¾"	16"x1"
D	do	16"x2⅛"	16"x1⅛"	16"x1⅜"	16"x1¼"
E	16"x1⅜"	16"x2⅛"	16"x1⅛"	16"x1⅜"	16"x1¼"

TABLE OF GIRDER LENGTHS			
Girder	Span No.16C	Span No.17C	Span No.18C
A	94'-2"	115'-2⅜"	62'-11¼"
B	92'-5⅛"	111'-4⅛"	70'-4⅜"
C	90'-9⅛"	107'-5⅜"	77'-9⅜"
D	89'-9⅜"	105'-6⅜"	85'-2⅜"
E	87'-8⅜"	99'-7⅛"	92'-7⅛"

DEFLECTION AND CAMBER

SPAN	SPAN NO. 16C										SPAN NO. 17C										SPAN NO. 18C									
GIRDER	A		B		C		D		E		A		B		C		D		E		A		B		C		D		E	
LOCATION	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾	¼	½	¾
Deflection due to weight of steel	1/16"	1/8"	1/16"	1/8"	1/8"	1/16"	1/8"	3/16"	1/16"	1/8"	1/8"	1/16"	1/8"	1/8"	1/16"	1/8"	1/8"	1/16"	1/16"	0	1/16"	0	-1/16"	0	0	0	0	1/8"	0	1/16"	1/16"	1/16"
Deflection due to remaining Dead Load	1/8"	5/16"	1/4"	7/16"	9/16"	1/4"	7/16"	1/2"	5/16"	7/16"	1/2"	5/16"	7/16"	1"	11/16"	3/8"	11/16"	7/16"	5/16"	5/16"	1/4"	7/16"	1/4"	7/16"	1/2"	9/16"	5/16"	1/8"	5/16"	1/4"	3/16"	1/8"
Convexity (See note above)	1"	1⅛"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"	1⅛"	1"	1"
Sum of deflection and convexity	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"	1⅜"	1⅛"	1⅛"
Required Camber	2⅛"		2⅛"		2⅛"		2⅛"		2⅛"		3⅜"		2⅞"		2⅝"		2¼"		2"		1"		1"		1⅜"		1¾"		2¼"	

Girder web plates shall be cut to a parabolic crown.

GIRDER SPLICE WELDING PROCEDURE

1. Raise the ends of girders of Span #16C at Pier #15C, and ends of girders of Span #18C at Pier #18C; the dimensions shown for each span in Table Q.
2. Butt-weld girder flanges and webs at Piers #16C & 17C, using the following welding sequence:
   Make two passes on each flange, then two on the web; repeat using one pass at each location until welds are completed.
3. Weld all Pier Crossframes at Pier #16C into place.
4. Lower the girders of Spans #16C & 18C into final positions.

HAM-75-0022R
SPANS 16C-18C

Notes:
For Details of End Crossframes see Sheet # 215
For Details of Pier Crossframes, see Sheet # 205
For Details of Intermediate & Bearing Stiffeners, see Sheet # 205
For Rocker & Bolster Details, see Sheet # 206
For Typical Girder Elevation, see Sheet # 205

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
UNIT NO. 14.

DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	REVISED
REL	REL 4-28-60		JHO 8/2/60	N.A.B. 10-14-60	

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

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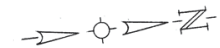
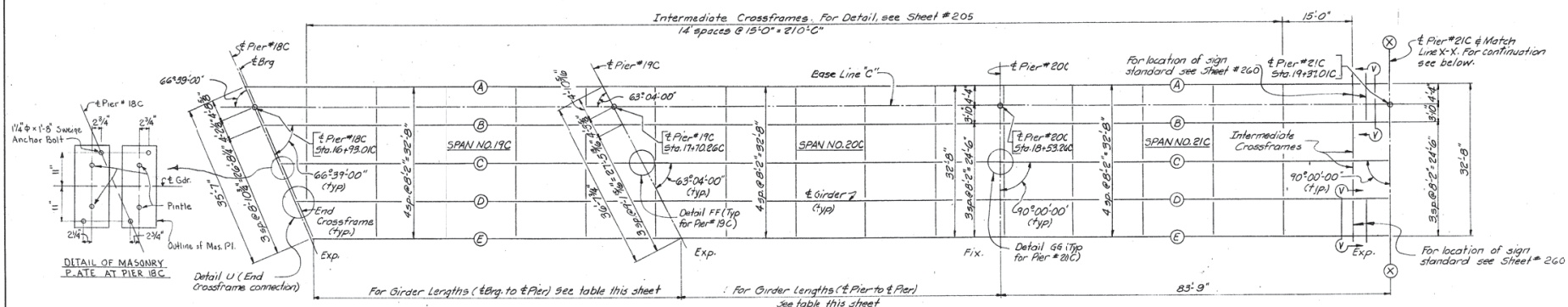
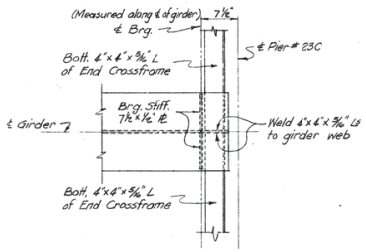
HAM-25-0.04

UNCLASSIFIED
OCT 25 1960
REPRODUCTION

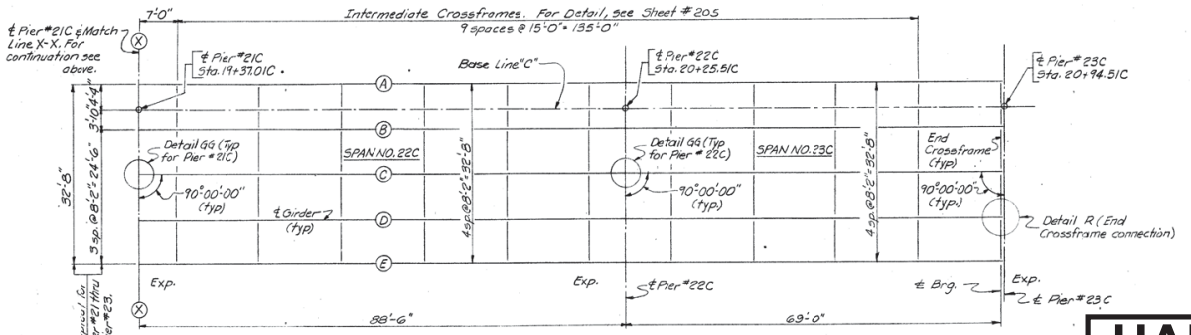




Note: For inlet framing see Sh. No. 268.



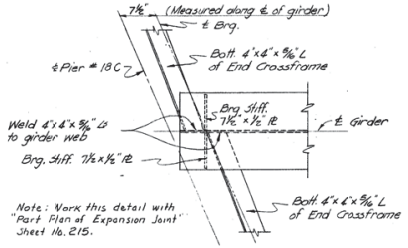
DETAIL R
(End Crossframe connection @ Pier # 23C, Span 23C)



GIRDER LENGTHS		
Girder	Span # 19C	Span # 20C
A	76'-3½"	85'-2⅞"
B	76'-11"	81'-0⅝"
C	77'-6½"	76'-10⅜"
D	78'-2"	72'-9"
E	78'-9½"	68'-7⅞"

Note: Web Pl. 48"x⅜" For Flg. Pl's see table below.
Brg. Stiff. 7½"x⅜" Pl's Intermediate Stiff. 6"x⅜" Pl's
For bearing details see Sheet No. 206
For Typical Girder Elevation see Sheet No. 205
For End Crossframe detail see Sheet No. 215
For Detail GG, See Sheet No. 197

FRAMING PLAN - UNIT NO. 15
(Spans No. 19C thru 23C)



Note: Work this detail with "Part Plan of Expansion Joint" Sheet No. 215.

DETAIL U
(End Crossframe connection @ Pier # 18C, Span # 19C)

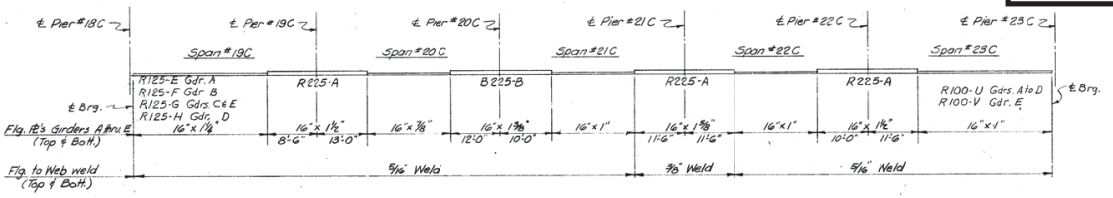


TABLE OF FLANGE PLATES AND WELD SIZE

HAM-75-0022R
SPANS 19C-23C

Work this sheet with Sheet No. 197

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

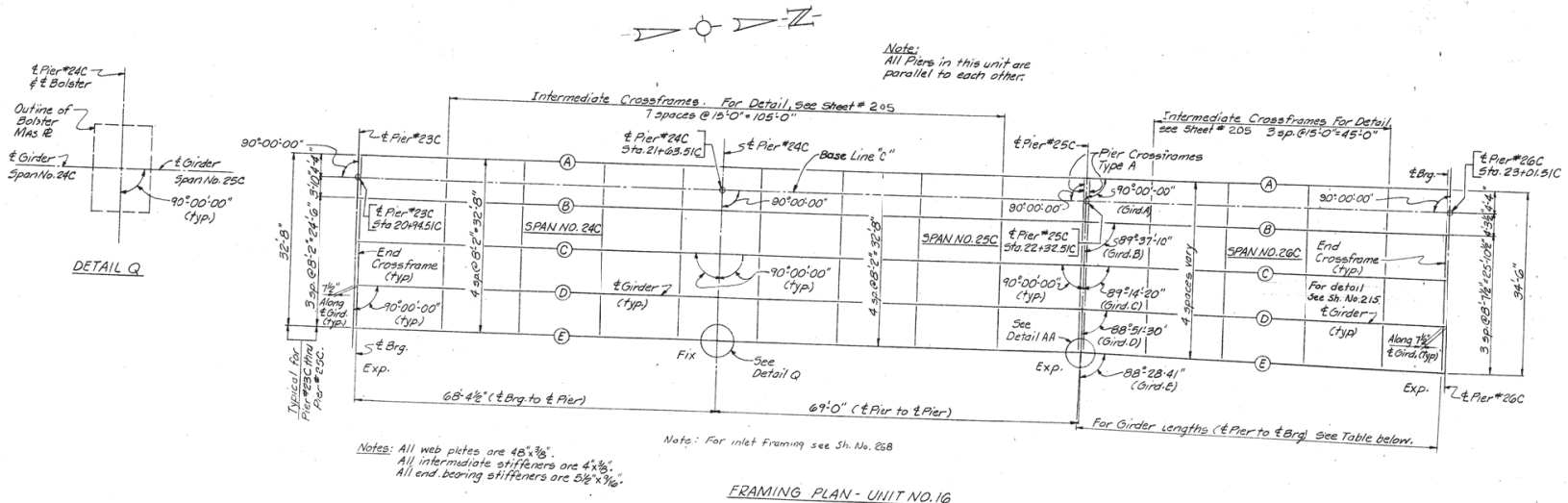
STRUCTURAL STEEL DETAILS
UNIT NO. 15.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
RCF	REL		JHO 8/1160	A.H.E. 10-14-60	

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

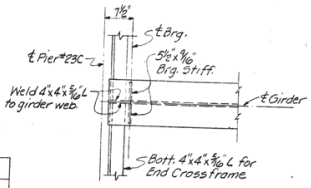
198

HAM-25-0.04



Notes: All web plates are 48"x⅜".
All intermediate stiffeners are 4"x⅜".
All end bearing stiffeners are 5½"x⅞".

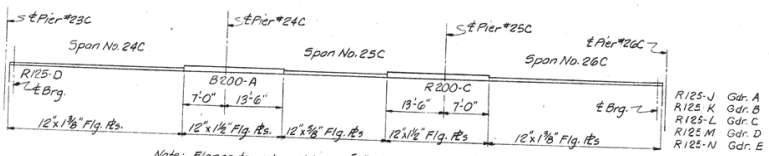
FRAMING PLAN - UNIT NO. 16
(Spans No. 24C thru 26C)



DETAIL OF END CROSSFRAME CONNECTION AT PIER# 23C

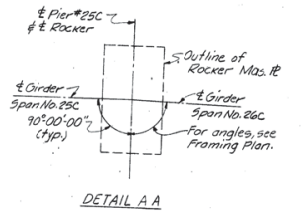
Note: Work this detail with "Part Plan of Expansion Joint," Sheet No. 215.

GIRDER LENGTHS	
SPAN NO. 26C	
Girder	Length
A	68'-4½"
B	68'-4½"
C	68'-4⅞"
D	68'-4⅞"
E	68'-4⅞"

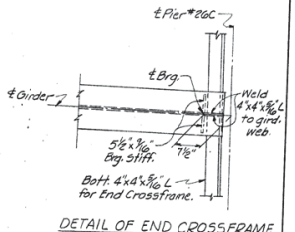


Note: Flange to web welds are ⅝" fillet welds throughout.

DETAIL OF FLANGE PLATES AND DIMENSIONS



DETAIL A A



DETAIL OF END CROSSFRAME CONNECTION AT PIER# 26C

Note: Work this detail with Part Plan of Expansion Joint," Sheet No. 215

HAM-75-0022R
SPANS 24C-26C

DEFLECTION AND CAMBER									
SPAN	SPAN NO. 24C			SPAN NO. 25C			SPAN NO. 26C		
GIRDER	A thru E			A thru E			A thru E		
LOCATION	¼	½	¾	¼	½	¾	¼	½	¾
Deflection due to weight of steel	1/16"	1/8"	1/16"	0	0	0	1/16"	1/8"	1/16"
Deflection due to remaining Dead Load	9/16"	5/16"	9/16"	1/16"	1/8"	1/16"	3/16"	5/16"	5/16"

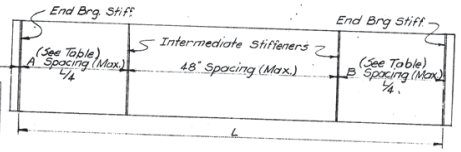
Girders for Unit # 16 shall not be cambered

GIRDER SPLICE WELDING PROCEDURE

1. Raise the ends of girders of Span # 26C at Pier # 26C 1", and ends of girders of Span # 24C at Pier # 23C - 1".
2. Butt-weld girder flanges and webs at Piers # 24C & 25C, using the following welding sequence:
   Make two passes on each flange, then two on the web; repeat using one pass at each location until welds are completed.
3. Weld all Pier Crossframes at Pier # 25C into place.
4. Lower the girders of Spans # 24C & 26C into final positions.

All girders (Unit # 16)

INTERMEDIATE STIFFENER SPACING		
Span	A	B
24C	42"	39"
25C	42"	42"
26C	39"	42"



Note: Adjust intermediate stiffener spacing to conform to intermediate crossframe spacing.

INTERMEDIATE STIFFENER SPACING

Notes:
For Details of Crossframes, see Sheet # 205
For Details of Intermediate & Bearing Stiffeners, see Sheet # 205
For Rocker & Bolster Details, see Sheet # 206
For Typical Girder Elevations, see Sheet # 205
For Details of End Crossframes, see Sh # 215

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

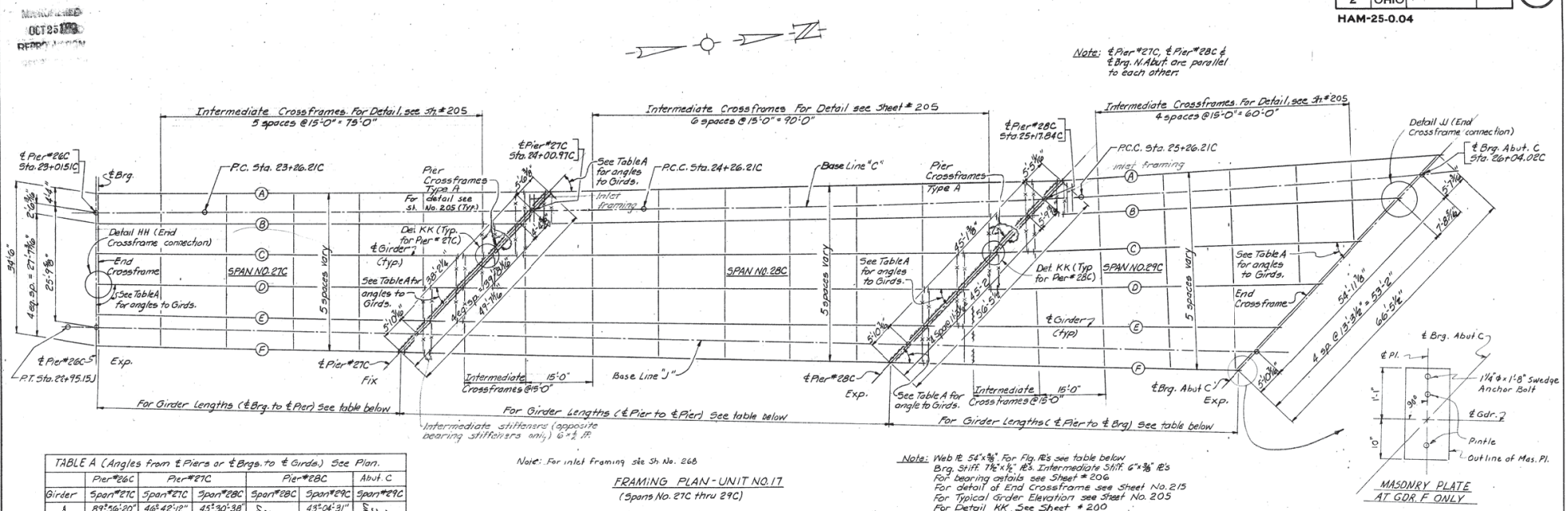
STRUCTURAL STEEL DETAILS
UNIT NO. 16

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
RCF	DEI				

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

199

HAM-25-0.04



Note: For inlet framing see Sh. No. 268

FRAMING PLAN - UNIT NO. 17
(Spans No. 27C thru 29C)

Note: Web ℔ 54"x 3/8". For Flg. ℔'s see table below
Brg. Stiff. 7 1/2" x 1/2" ℔'s. Intermediate Stiff. 6" x 3/8" ℔'s
For bearing details see Sheet # 206
For detail of End Crossframe see Sheet No. 215
For Typical Girder Elevation see Sheet No. 205
For Detail KK, See Sheet # 200

TABLE A (Angles from ℄ Piers or ℄ Brgs. to ℄ Girds.) See Plan.

	Pier #26C	Pier #27C		Pier #28C		Abut. C
Girder	Span #27C	Span #27C	Span #28C	Span #28C	Span #29C	Span #29C
A	89°-56'-20"	46°-42'-12"	45°-30'-38"	Same as shown for Span #27C	43°-04'-31"	Same as shown for Span #29C.
B	89°-44'-56"	46°-53'-29"	45°-59'-45"		43°-59'-49"	
C	89°-31'-59"	47°-06'-33"	46°-29'-18"		44°-57'-04"	
D	89°-16'-41"	47°-21'-40"	46°-59'-18"		45°-56'-15"	
E	88°-58'-52"	47°-39'-36"	47°-29'-56"		46°-57'-36"	
F	88°-37'-27"	48°-01'-02"	48°-01'-02"		48°-01'-02"	

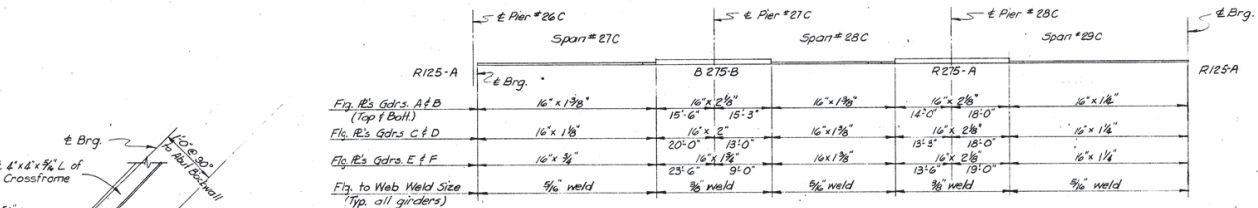
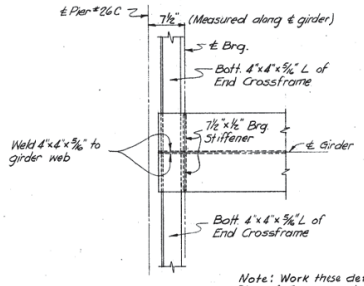
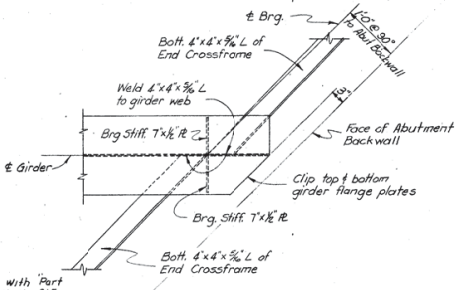


TABLE OF FLANGE PLATES AND WELD SIZES



DETAIL HH
(End Crossframe connection)
(at Pier #26C, Span 27C)



DETAIL JJ
(End Crossframe connection)
(at Abutment C)

Note: Work these details with "Part Plan of Expansion Joint," Sh. No. 215.

GIRDER LENGTHS			
Girder	Span # 27C	Span # 28C	Span # 29C
A	102'-7 9/16"	116'-9 1/8"	86'-3 3/16"
B	95'-9 1/8"	115'-10 3/8"	84'-9 3/16"
C	89'-0 3/16"	114'-10 3/16"	83'-4 1/16"
D	82'-2 3/16"	113'-11 5/8"	81'-11 1/16"
E	75'-4 1/16"	113'-0 1/16"	80'-7 1/8"
F	68'-7 1/16"	112'-1 3/8"	79'-3 1/8"

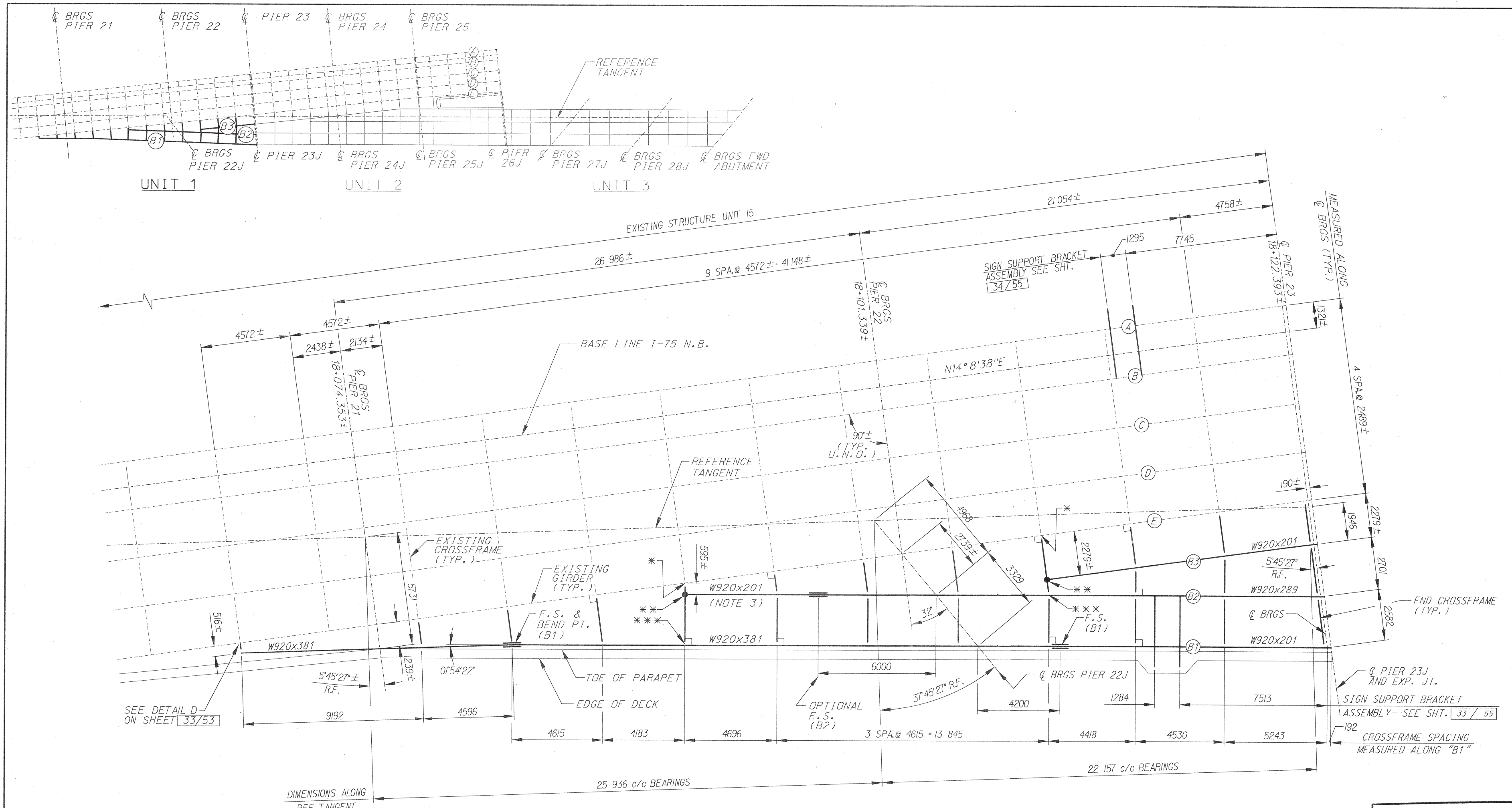
Work this sheet with Sheet # 200

HAZELET & ERDAL
CONSULTING ENGINEERS
CINCINNATI, OHIO

STRUCTURAL STEEL DETAILS
UNIT NO. 17.

DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	REVISED
RCF	REL+JC 7-13-60		JHO 8/11/60	W.A.T. 10-14-60	

HAM-75-0022R
SPANS 27C-29C



FRAMING PLAN
(UNIT 1)

HAM-75-0022R
SPANS 22C-23J

FINAL FOR CONSTRUCTION

NOTES:
1. STRUCTURAL STEEL SHALL BE ASTM A572. LEVEL 3 FABRICATION.
2. SEE SHEET 48/55 FOR BEARING DETAILS.
3. USE W920x289 FULL LENGTH OF "B2" IF OPTIONAL FIELD SPLICE IS NOT USED.

LEGEND:
F.S. = FIELD SPLICE
BRGS = BEARINGS
(X) = BEAM LINE DESIGNATION
U.N.O. = UNLESS NOTED OTHERWISE
= BEAM SUPPORT DIAPHRAGM

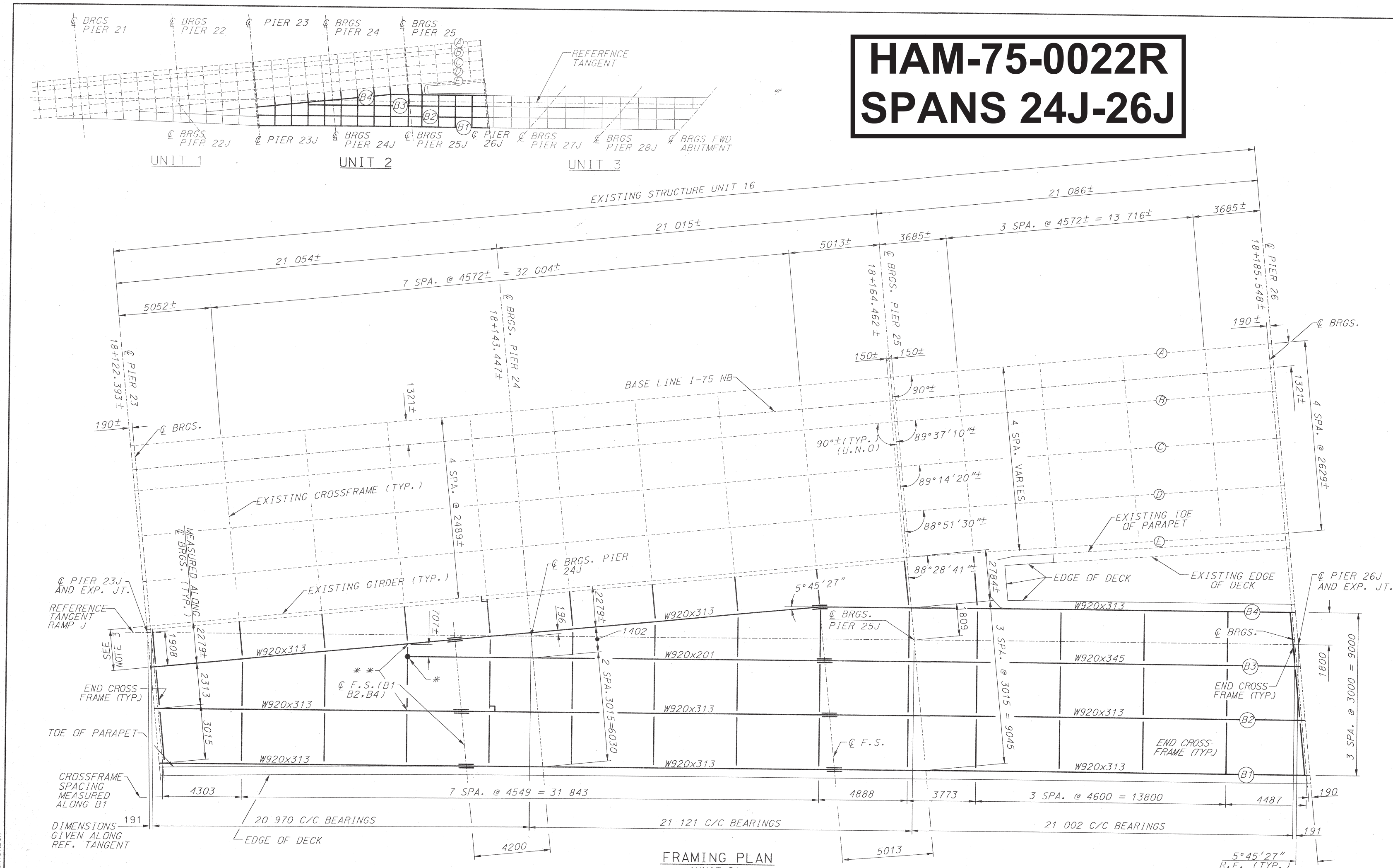
ROCKER BEARINGS			
BEAM	PIER 21	PIER 22J	PIER 23J
B3	–	–	R575A
B2	–	R1100	R575B
B1	R1000	R1100	R575C

* = SEE DIAPHRAGM CONNECTION DETAIL C ON SHEET 32/55.
** = SEE DIAPHRAGM CONNECTION DETAIL B ON SHEET 32/55.
*** = SEE DIAPHRAGM CONNECTION DETAIL A ON SHEET 32/55.

FRAMING PLAN - UNIT 1

P:/PR21442/CADD/BRDGSHTS/SHT31.DGN

HAM-75-0022R
SPANS 24J-26J



FRAMING PLAN
(UNIT 2)

ROCKER & BOLSTER BEARINGS				
BEAM	PIER 23 J	PIER 24 J	PIER 25 J	PIER 26 J
B4	R575	B1000	R1000A	R675A
B3	---	B775	R1225A	R675B
B2	R675	B1225	R1225B	R675C
B1	R675	B1225	R1225	R675D

* = SEE DIAPHRAGM CONNECTION DETAIL B ON SHEET 32/55.

* * = SEE DIAPHRAGM CONNECTION DETAIL A ON SHEET 32/55.

NOTES:

1. STRUCTURAL STEEL SHALL BE ASTM A572M LEVEL 3 FABRICATION.
2. SEE SHEET 48/55 FOR BEARING DETAILS.
3. CROSSFRAMES IN THIS BAY SHALL NOT BE WELDED UNTIL AFTER STAGE 1 DECK PLACEMENT.

LEGEND:

F.S. = FIELD SPLICE
BRGS. = BEARINGS
(X) = BEAM LINE DESIGNATION
U.N.O. = UNLESS NOTED OTHERWISE
●— = BEAM SUPPORT DIAPHRAGM

FINAL FOR CONSTRUCTION

BURGESS & NIPLE ENGINEERS ARCHITECTS

DESIGNED	DRAWN	REVIEWED	DATE
JCS	AAA	RMK	7/8/98
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TMB			

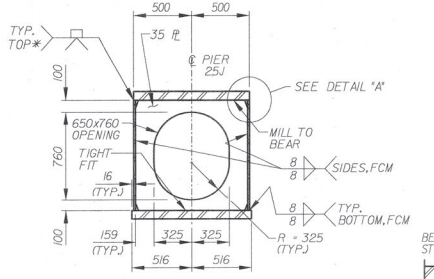
FRAMING PLAN - UNIT 2
BRIDGE NO. 1 RAMP J

FORT WASHINGTON WAY CONTRACT NO. 6

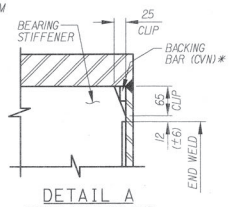
23/55

556/588

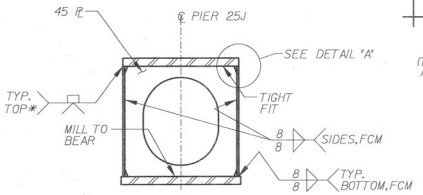
P:\PR0442\CADD\BROGSHTS\SHT37.DGN



BEARING STIFFENER TYPE 1

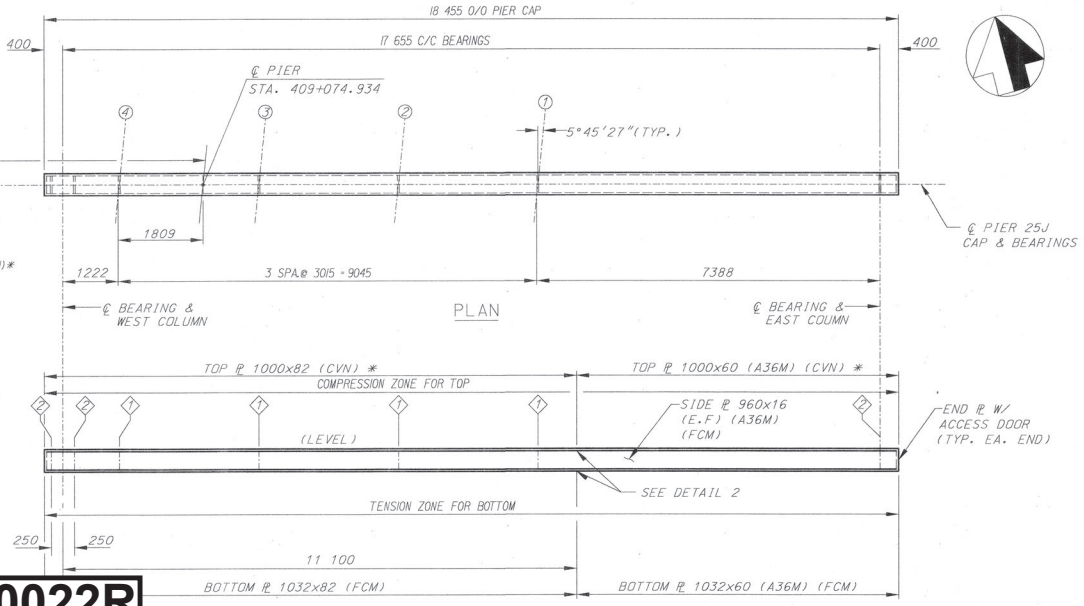


DETAIL A
(TYPICAL DIAPHRAGM CLIP AND WELD TERMINATION. TOP SHOWN, BOTTOM SIMILAR)



BEARING STIFFENER TYPE 2

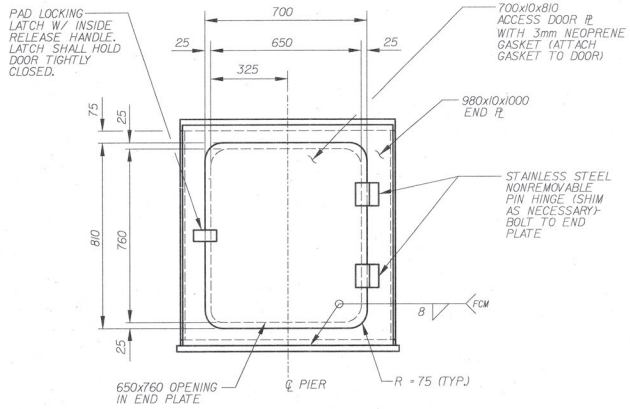
FOR DETAILS SHOWN BUT NOT NOTED, SEE TYPE 1 STIFFENER DETAIL.



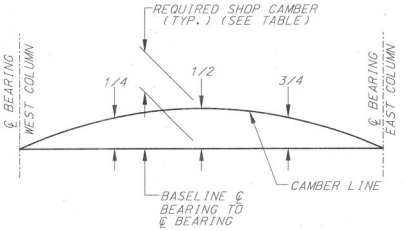
ELEVATION

* - FABRICATOR MAY SUBSTITUTE 1032mm WIDE TOP PLATE ATTACHED TO WEBS WITH DOUBLE 8mm FILLET WELDS AT EACH WEB ℝ IN PLACE OF 1000mm WIDE TOP PLATE WITH FULL PENETRATION WELDS AND BACKING BAR.

HAM-75-0022R
PIER 25J

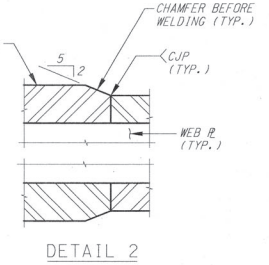


END PLATE WITH ACCESS DOOR DETAIL



CAMBER DIAGRAM

DEFLECTION AND CAMBER (mm)			
STEEL CAP			
POINT	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF CAP	2	2	2
DEFLECTION DUE TO REAINING D.L.	19	27	19
REQUIRED SHOP CAMBER	21	29	21



DETAIL 2

LEGEND:
- Ⓧ = BEAM LINE DESIGNATION
- ◇ = INDICATES BEARING STIFFENER TYPE

FCM = FRACTURE CRITICAL MEMBER

NOTES:
1. ALL STRUCTURAL STEEL THIS SHEET SHALL BE A572M GR345 UNLESS OTHERWISE NOTED.
2. CAP BOTTOM & SIDE PLATES ARE FRACTURE CRITICAL COMPONENTS AND SHALL CONFORM TO THE PROVISIONS OF CHAPTER 12 OF ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND THE WELDING REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863.23. CHARPY V-NOTCH IMPACT TEST REQUIREMENTS SHALL MEET OR EXCEED THE FCM VALUES FOR ZONE 2.
3. INTERIOR SURFACES OF BOX SHALL BE PRIME PAINTED WITH A WHITE PAINT PRIOR TO WELDING OF FINAL BOX FLANGE.

FINAL FOR CONSTRUCTION

PIER 25J STEEL BOX GIRDER CAP
BRIDGE NO.: 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO.: 6

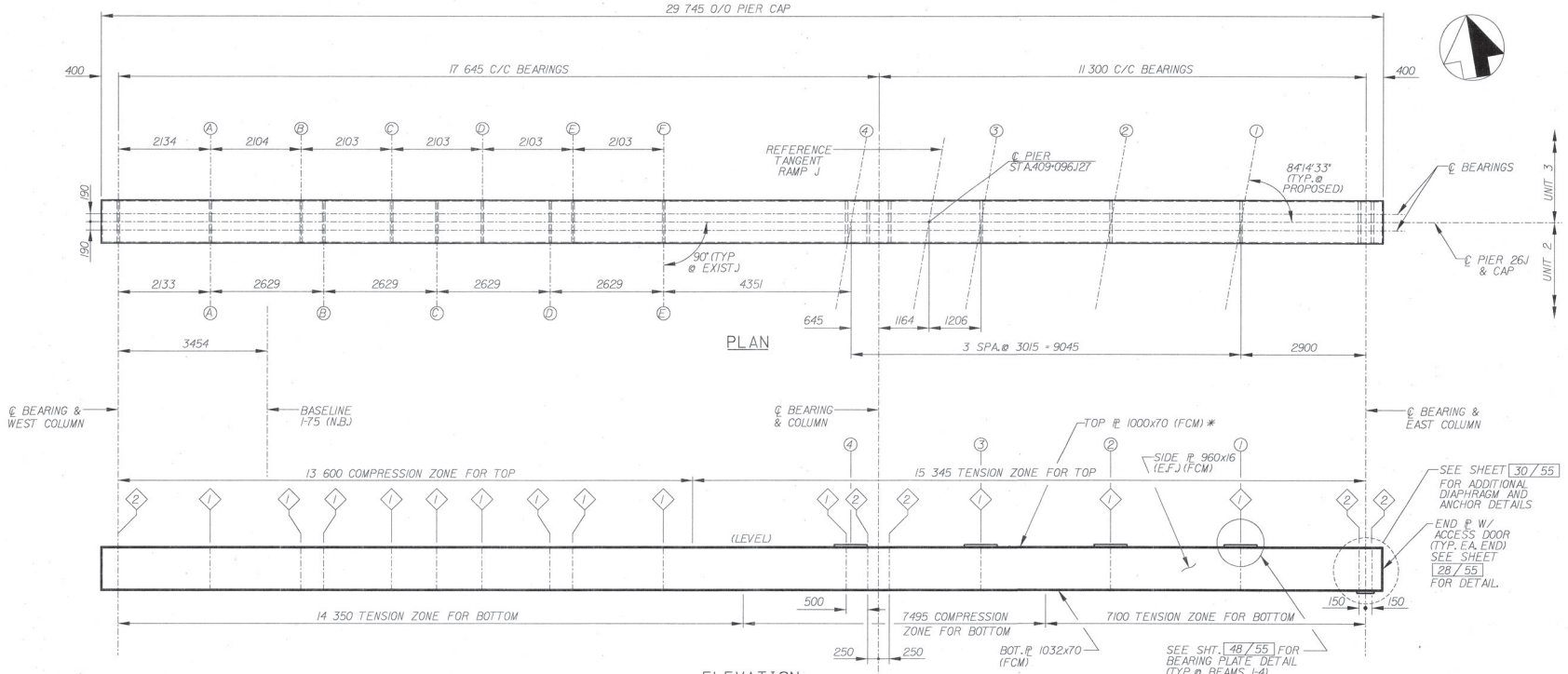
28 / 55

561
588

DESIGNED MJM | DRAWN DEP | CHECKED CAS | REVIEWED RMK | DATE 7/8/98 | REVISED | STRUCTURE FILE NUMBER

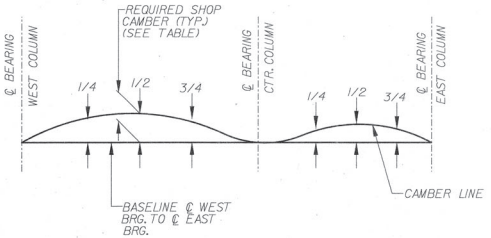
BURGESS & NIPLE ENGINEERS ARCHITECTS

P:\PR214442\CAD\BRIDGSHTS\SH720.DGN



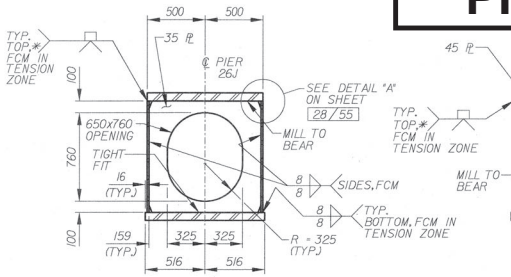
HAM-75-0022R
PIER 26J

FINAL FOR CONSTRUCTION



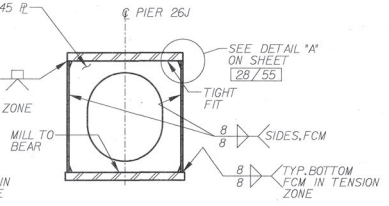
CAMBER AND BLOCKING DIAGRAM

DEFLECTION AND CAMBER (mm)						
STEEL CAP	SPAN 1			SPAN 2		
POINT	1/4	1/2	3/4	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF CAP	1	1	1	0	0	0
DEFLECTION DUE TO REMAINING D.L.	13	16	9	1	1	0
REQUIRED SHOP CAMBER	14	17	10	1	1	0



BEARING STIFFENER TYPE 1

* - FABRICATOR MAY SUBSTITUTE 1032mm WIDE TOP PLATE ATTACHED TO WEBS WITH DOUBLE 8mm FILLET WELDS AT EACH WEB ℙ IN PLACE OF 1000mm WIDE TOP PLATE WITH FULL PENETRATION WELDS AND BACKING BAR.



BEARING STIFFENER TYPE 2

FOR DETAILS SHOWN BUT NOT NOTED, SEE TYPE 1 STIFFENER DETAIL.

LEGEND:

(X) - BEAM LINE DESIGNATION

(X) - INDICATES BEARING STIFFENER TYPE

FCM - FRACTURE CRITICAL MEMBER

NOTES:

1. ALL STRUCTURAL STEEL THIS SHEET SHALL BE ASTM A36M, LEVEL 6 FABRICATION UNLESS OTHERWISE NOTED.
2. CAP TOP, BOTTOM & SIDE PLATES ARE FRACTURE CRITICAL COMPONENTS AND SHALL CONFORM TO THE PROVISIONS OF CHAPTER 12 OF ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND THE WELDING REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863.23. CHARPY V-NOTCH IMPACT TEST REQUIREMENTS SHALL MEET OR EXCEED THE FCM VALUES FOR ZONE 2.
3. INTERIOR SURFACES OF BOX SHALL BE PRIME PAINTED WITH WHITE PAINT PRIOR TO WELDING OF FINAL BOX FLANGE.

PIER 26J STEEL BOX GIRDER CAP
BRIDGE NO. 1
RAMP J

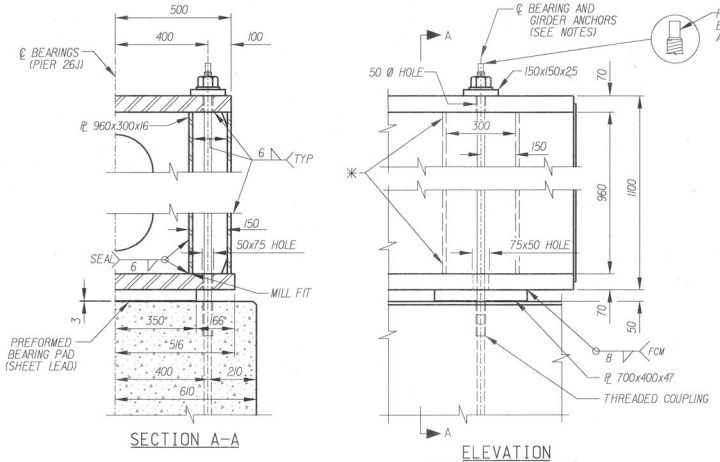
FORT WASHINGTON WAY
CONTRACT NO. 6

29 / 55

562
588

DESIGNED MJM
DRAWN DEP
CHECKED CAS
REVISED
REVISED RMK 7/8/98
STRUCTURE FILE NUMBER

P:\PROJ\442\CAD\BRIDGE\STS\SHT22.DGN



SECTION A-A

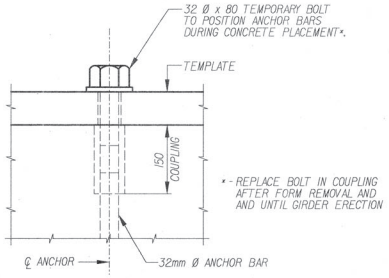
ELEVATION
EAST COLUMN GIRDER ANCHOR

* - SEAL CORNER CLIPS WITH SEALANT PER FED.SPEC.TT-S-00230C, TYPE 2 (TYP.)

PLAN
(PIER 26J EAST COLUMN)

ANCHOR RODS
CAST-IN-PLACE
(2 REQUIRED)

HAM-75-0022R
PIER 26J



SECTION B-B

FINAL FOR CONSTRUCTION

NOTE

GIRDER ANCHORS: PROVIDE 2-32mm ø ANCHOR RODS FOR THE EAST COLUMN OF PIER 26J. THESE ANCHORS INCLUDE 2-150x150x25 SQUARE WASHERS, 2 ROUND WASHERS, 2-THREADED COUPLINGS WITH 2-32mm ø CAST-IN-PLACE ANCHOR RODS AND 2-32x80 TEMPORARY BOLTS TO SECURE CAST-IN-PLACE ANCHOR RODS IN POSITION DURING PLACEMENT OF CONCRETE. MATERIALS FOR ANCHORS AND HARDWARE SHALL CONFORM TO ASTM A325M, TYPE 3 SPECIFICATIONS. COUPLING SHALL BE SUITABLE TO DEVELOP THE FULL STRENGTH OF THE ANCHOR BOLTS. USE FORM TEMPLATE TO POSITION ANCHOR BAR IN PROPER POSITION DURING CONCRETE PLACEMENT. AFTER REMOVAL OF TEMPLATE, PLACE TEMPORARY BOLTS INTO EXPOSED COUPLINGS UNTIL THEY ARE REPLACED BY PERMANENT ANCHOR BARS DURING GIRDER ERECTION.

AFTER GIRDER ERECTION AND BEFORE RELEASING AND REMOVING TEMPORARY SUPPORTS UNDER THE EXISTING STRUCTURE, BOLTS SHOULD BE TIGHTENED. TO TIGHTEN, TURN NUTS UNTIL STEEL IS FULLY COMPACTED IN BEARING PLATE. THEN TURN NUTS 2/3 TURN RELATIVE TO ROD.

INCLUDE ALL MATERIALS, LABOR AND EQUIPMENT TO PLACE AND STRESS GIRDER ANCHORS WITH STRUCTURE LUMP SUM BID PAYMENT. ANCHORS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH CMS 711.02.

BURGESS & NIPLE ENGINEERS ARCHITECTS

DESIGNED MPB | CHECKED TAB | DRAWN AAA | REVISED | REVIEWED RMK | DATE 7/8/99 | STRUCTURE FILE NUMBER

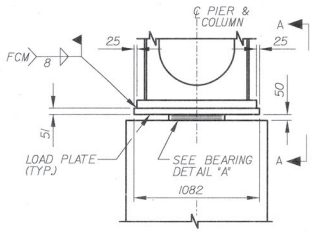
PIER 26 EAST COLUMN BEARING ANCHOR DETAILS
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

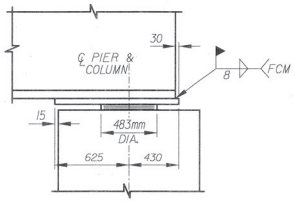
30 / 55

563
588

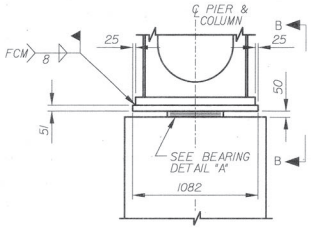
P:\PR2442\CADD\BRDGSHTS\SHT22A.DGN



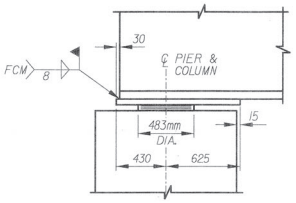
PIER 25J EAST COLUMN DETAIL
(BEARING DETAIL)



VIEW A-A

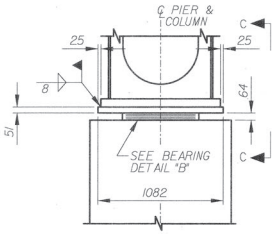


PIER 26J WEST COLUMN DETAIL
(BEARING DETAIL)

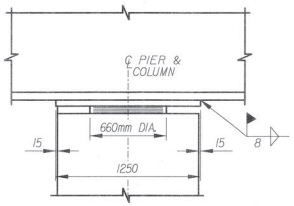


VIEW B-B

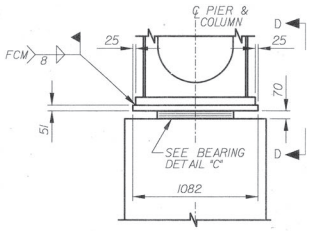
HAM-75-0022R
PIERS 25J-26J



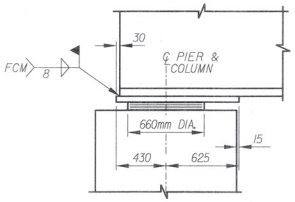
PIER 26J MIDDLE COLUMN
(BEARING DETAIL)



VIEW C-C



PIER 25J WEST COLUMN
(BEARING DETAIL)



VIEW D-D

ELASTOMERIC BEARINGS:

ELASTOMERIC BEARINGS SHALL COMPLY WITH 5.6 AND ARTICLES 18.4.5.1 THROUGH 18.5.6.2 OF SECTION 18, BEARING DEVICES, DIVISION II, CONSTRUCTION OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. BEARINGS SHALL BE GRADE 3, 60 DUROMETER ELASTOMER, AND SHALL BE SUBJECTED TO THE LOAD TESTING REQUIREMENTS OF ARTICLE 18.7.4.5 CORRESPONDING TO DESIGN BY ARTICLE 14.6.5. PAYMENT FOR TESTING SHALL BE INCLUDED IN THE STRUCTURE LUMP SUM BID.

BEARING REPOSITIONING:

IF STEEL PIER CAPS ARE PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 27°C OR LOWER THAN 4°C, AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 15°C ±5°C, THE STEEL PIER CAPS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 15°C ±5°C.

LOAD PLATE:

THE STEEL LOAD PLATE SHALL BE THE SAME MATERIAL AS THE ATTACHED STRUCTURAL STEEL AND BE SIMILARLY CLEANED AND COATED. PAINTING SHALL BE DONE IN THE SHOP, EXCEPT THE EDGES TO BE WELDED SHALL BE MASKED OFF. PAINTING SHALL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.

THE STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 150°C AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

DESIGN LOADING:

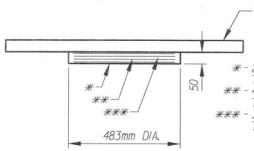
BEARINGS ARE DESIGNED FOR THE FOLLOWING LOADS:

PIER NO.	PIER 25J		PIER 26J	
COLUMN LOCATION	WEST	EAST	WEST	MIDDLE
DEAD LOAD (kN)	2015	979	1112	2831
LIVE LOAD w/o IMPACT (kN)	512	334	535	728
TOTAL DESIGN LOAD (kN)	2527	1313	1647	3559

BEARING LOCATIONS (25 W, 26 M, TYP.) SHALL BE CLEARLY MARKED ON THE BEARINGS PRIOR TO SHIPMENT.

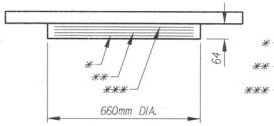
LEGEND:

DIA. = DIAMETER



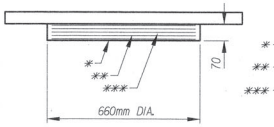
*- 2 EXTERNAL ELASTOMER LAYERS THICKNESS = 6.8mm
**- 4 INTERNAL STEEL LAMINATES THICKNESS = 1.9mm
***- 3 INTERNAL ELASTOMER LAYERS THICKNESS = 9.5mm

BEARING DETAIL A
(PIER 25J EAST COLUMN AND PIER 26J WEST COLUMN)



*- 2 EXTERNAL ELASTOMER LAYERS THICKNESS = 9.0mm
**- 4 INTERNAL STEEL LAMINATES THICKNESS = 1.9mm
***- 3 INTERNAL ELASTOMER LAYERS THICKNESS = 12.7mm

BEARING DETAIL B
(PIER 26J MIDDLE COLUMN)



*- 2 EXTERNAL ELASTOMER LAYERS THICKNESS = 8.0mm
**- 5 INTERNAL STEEL LAMINATES THICKNESS = 1.9mm
***- 4 INTERNAL ELASTOMER LAYERS THICKNESS = 11.0mm

BEARING DETAIL C
(PIER 25J WEST COLUMN)

FINAL FOR CONSTRUCTION

BURGESS & NIPLE ENGINEERS ARCHITECTS

DESIGNED DWF | DRAWN AAA | CHECKED EMC | REVIEWED RMK 7/8/98 | DATE | REVISED | STRUCTURE FILE NUMBER

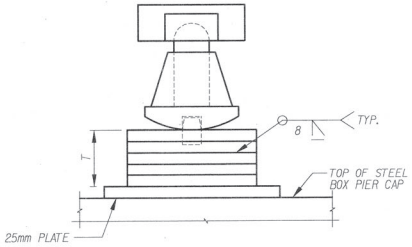
BEARING DETAILS
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

47 / 55
580
588

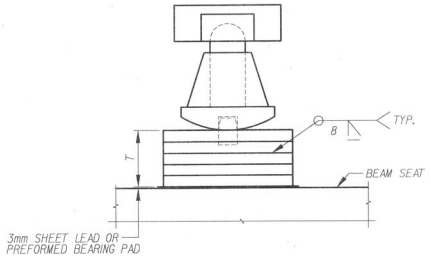
PLPRZ1442/CADD/BRDSHTS/SHT50.DGN

HAM-75-0022R
PIER 26J



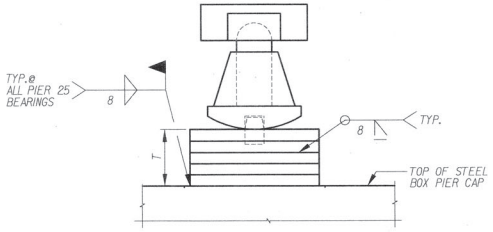
BASE PLATE THICKNESS DETAIL
(PIER 26J)

BEARING	R575D	R575E	R575F	R575G
DIMENSION "T"	282	224	171	113
BEARING	R675A	R675B	R675C	R675D
DIMENSION "T"	218	180	103	45



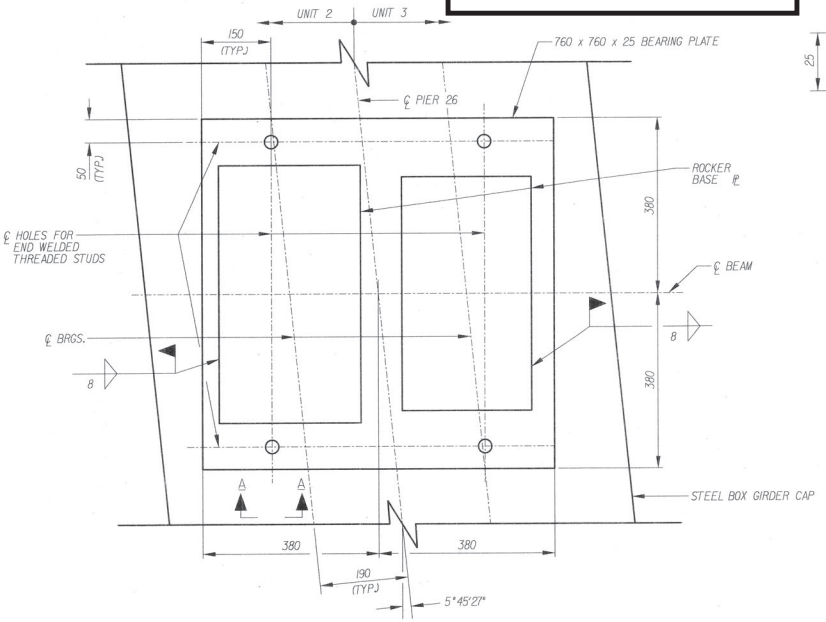
BASE PLATE THICKNESS DETAIL
(PIER 23)

BEARING	R575A	R575B	R575C
DIMENSION "T"	78	79	87

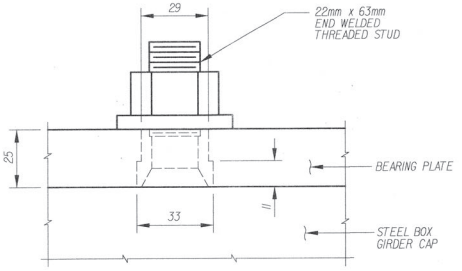


BASE PLATE THICKNESS DETAIL
(PIER 25)

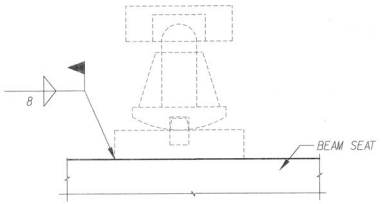
BEARING	R1000A	R1225A	R1225B
DIMENSION "T"	298	205	127



BEARING PLATE DETAIL
(PIER 26J)
(4 REQUIRED)



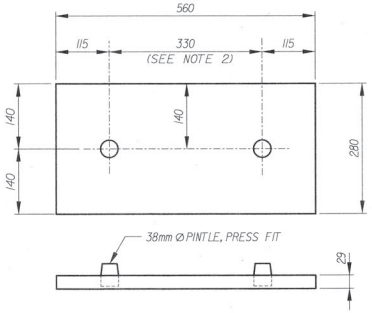
VIEW A



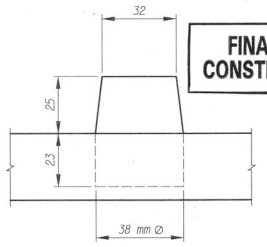
BASE PLATE WELDING DETAIL
(EXISTING GIRDERS @ PIER 26)

NOTES:

1. ROCKERS AND BOLSTERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING RB-I-55M, EXCEPT THAT DIMENSION "T" SHALL BE AS SHOWN IN THE TABLE ON THIS SHEET FOR BEARING DESIGNATIONS WITH A LETTER SUFFIX. BASE PLATES MAY BE ONE SINGLE PLATE OR MULTIPLE LAYERS WELDED TOGETHER AS SHOWN.
2. CONTRACTOR SHALL VERIFY EXISTING PINTLE SPACING PRIOR TO FABRICATION OF REPLACEMENT BASE PLATE.



BASE PLATE
(FOR EXISTING BEARINGS AT GIRDER A, PIER 26, 2 REQUIRED)



PINTLE DETAIL

FINAL FOR CONSTRUCTION

BEARING DETAILS II
BRIDGE NO. 1
RAMP J

FORT WASHINGTON WAY
CONTRACT NO. 6

DESIGNED BES
DRAWN BES
CHECKED RMK
REVIEWED RMK 7/8/98
DATE
STRUCTURE FILE NUMBER
REVISED

48 / 55
581
588

P:\PROJ\440\CADD\BRIDGE\HTDSSHT50A.DGN

Appendix B – AssetWise Bridge Inspection Report

Ohio Bridge Inspection Summary Report — HAM-00075-0022R_(3108805)

2: District	District 08	15000 - CINCINNATI (HAM county)	
5A: Inventory Route	1	00075	
21: Major Maint A/B	01 - State Highway Agency	/	
225 Routine Main A/B	01 - State Highway Agency	/	
221 Inspection A/B	01 - State Highway Agency	/	
220: Inv. Location	DISTRICT 08		
7: Facility On	NB IR 75		
6: Feature Ints	2RR;TH ST*E;US42D;US50*E		
9: Location	.2 MI N OF OH-KY LINE		
Lat, Lon	39.096002116605405 ,-84.52204538424165		

Condition

58: Deck	**6 - Satisfactory Condition**
58.01 Wearing Surface	7 - Good (1% distress)
58.02 Joint	6- Satisfactory (isolated leaking)
59: Superstructure	**6 - Satisfactory Condition**
59.01 Paint & PCS	3 - Serious PCS (20-30% corr.)
60: Substructure	**5 - Fair Condition**
61: Channel	**N**
61.01 Scour	**N - Not Applicable**
62: Culverts	**N - Not Applicable**
67.01 GA	**5**

Appraisal

Sufficiency Rating	62.0 SD/FO 2 - FO
36: Rail, Tr, Gd, Term Std	1 1 1 1
72: Approach Alignment	8 - Equal to present desirable criteria
113: Scour Critical	N - Not over waterway
71: Waterway Adequacy	N - Not Applicable

Geometric

48: Max Span Length (ft)	117.0
49: Structure Length (ft)	1187.0
52: Deck Width, Out-To-Out (ft)	36.0
424: Deck Area (sf)	42732
32: Appr Roadway Width (ft)	30.0
51: Road Width, Curb-Curb (ft)	33.0
50A: Curb/SW Width: Left (ft)	0
50A: Curb/SW Width: Right (ft)	0
34: Skew (deg)	48
33: Bridge Median	0 - No median
54B: Min Vert Underclearance (ft)	14.5
336A: Min Vert Clrnce IR Cardinal (ft)	15.833
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 (%)	100
704: Analysis Date	07/01/2013
63: Analysis Method	6 - Load Factor (LF) rating reported by rating factor (RF) method using MS18 loading.

Structure Type

43: Bridge Type	4 - Steel continuous 02 - Stringer/Multi-beam or Girder N- Not Applicable
45: Spans Main / Approach	14 / 0
107: Deck Type	1 - Concrete Cast-in-Place
408: Composite Deck	U - Unknown
414A Joint Type 1	8 - Elastomeric Strip Seal
414B: Joint Type 2	N - None
108A: Wearing Surface	2 - Integral Concrete (separate non-modified layer of concrete added to structural deck) 1- Super Plasticized
422: WS Date	07/01/2007
423: WS Thick (in)	2.8
482: Protective Coating	4 - Paint System B
483: PCS Date	01/01/1977
453: Bearing Type 1	2 - Rockers & Bolsters
455: Bearing Type 2	C - Elastomeric (laminated)
528: Foundn: Abut Fwd	2 - Cast-in-Place Reinforced Concrete Piles (Other diameter)
533: Foundn: Abut Rear	N - None (such as most Culverts)
536: Foundn: Pier 1	2 - Cast-in-Place Reinforced Concrete Piles (Other diameter)
539: Foundn: Pier 2	A - Cast-in-Place Reinforced Concrete Piles (12" diameter)

Age and Service

27: Year Built/ 106 Rehab	1963 / 0000
42A: Service On	1 - Highway
42B: Service Under	4 - Highway - railroad
28A: Lanes on	03
28B: Lanes Under	06
19: Bypass Length	0
29: ADT	40554
109: % Trucks (%)	16

Inspections

		Months	
90: Routine Insp.		12	09/11/2024
92A: FCM Insp.	Y	24	09/22/2023
92B: Dive Insp.	N	0	
92C: Special Insp.	N	0	
92D: UBIT Insp.	N	0	
92E: Drone Insp.	N	0	

Inspector Larkin,Cory

Inspector:	Larkin,Cory	**Structure Number:**	3108805
Inspection Date:	09/11/2024	**Facility Carried:**	NB IR 75

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12 - Reinforced Concrete Deck	3 - Mod.	51206	sq. ft.	24615	25715	872	4
	CS2: -There are hairline transverse cracks with efflorescence spaced at approximately 36" in underside of deck. -There is hairline map cracking throughout, with heavier cracking and efflorescence in Span 18C. -There are patches covered with plywood in several locations. CS3: -There are multiple isolated spalls up to 1 1/2" deep with exposed rebar throughout. -There is a 2'x1'x2" spall with exposed rebar and a 2'x2'x3" spall with exposed rebar in span 15C. -There is a 6' long x 2' wide x up to 5" deep spall with 5 transverse, 2 longitudinal, and 3 railing bars exposed at the east overhang on Span 17C. -A continuous set of spalls up to 1" deep are present in the east overhang of Span 19C. -There are spalls with exposed rebar up to 3'L x 2'W x 3" in the west overhangs of Span 23C - 24C. -There are 4' x 4' full depth patches at drainage downspout locations that are partially delaminated and have exposed reinforcement. -There are four spalls, 2" deep with exposed rebar, totaling 16SF in Span 29C. CS4: -There is 4'L x 2'W delaminated concrete in west overhang of Span 27C.						
510 - Wearing Surfaces		41661	sq. ft.	28859	12498	300	4
	CS2: -There are isolated hairline longitudinal and transverse cracks throughout the wearing surface in all spans. -There are potholes patched with asphalt in Spans 19C, 20C, 21C, and 27C. -There are concrete patches in good condition in Spans 18C, 19C, 20C, and 27C. -The wearing surface was sounded by ODOT in December 2020, and multiple delaminated areas were found. CS3: -There is 3'x3' cracked concrete patch in Span 27C. CS4: -There is a failed 2'x2' patch in the center lane of Span 22C which has developed into a 3" deep pothole.						

Inspector: Larkin,Cory
Inspection Date: 09/11/2024

Structure Number: 3108805
Facility Carried: NB IR 75

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
107 - Steel Open Girder/Beam	3 - Mod.	7238	ft.	1235	5560	443	0
	CS2: -There is isolated freckling and minor surface corrosion on the retrofit beams in Spans 23J-26J. -There is widespread freckling and minor surface corrosion throughout all original girders, most prominently on the fascia girders. -There is initiation of laminating corrosions in the bottom flanges of Girders A-F in Span 28C with negligible section loss. -There is evidence of fire and associated soot and damages to the beams in Span 29, bay 3. CS3: -The top of the bottom flange of Girder A in Spans 17C through 23C exhibits laminating corrosion with section loss up to 1/4" deep, typically near the transverse stiffeners. -In the bottom flange of Girder A, Span 17C near midspan, there is section loss 8"W x 1/4" (9% flange loss). -There are painted-over gouges up to 5" long and 1/8" deep on the bottom flange of Girder D in Span 16C near Pier 15C. -There is painted-over pitting on the web and stiffeners behind the bearings of the girders at Pier 18C. -There is isolated pitting in the web and transverse stiffeners of Girder A.						
515 - Steel Protective Coating		88957	sq. ft.	20760	31580	22684	13933
	CS2: -The paint on the original girders is peeling, chalking and flaking throughout except the 10' of the girder ends near the expansion joints at Pier 15C, 18C, 23C and 26C which were cleaned and painted in 2018. -The paint on the retrofit beams has isolated areas of freckling and minor surface corrosion. CS3: -There is widespread exposure of the primer coat throughout the original girders. Paint on the original girders is either ineffective or of limited effectiveness. CS4: -There are widespread areas of paint failure, exposed bare metal, and surface corrosion throughout the original girders. -There is evidence of fire and paint damage to the beams in Span 29, Bay 3.						
205 - Reinforced Concrete Column	3 - Mod.	29	each	19	5	5	0
	CS2: -There are minor isolated spalls and hairline cracking throughout. -There is a 6" diameter shallow spall on the corner of Column 1 of Pier 23J. -There are concrete patches wrapped in FRP on the columns of Piers 15C, 18C, and 23C. CS3: -There is a 4'H x 1"D spall on the northeast corner of Column 2, Pier 21C due to vehicular impacts. -There is a 2'H x 1'W x 2" deep spall with exposed rebar on Column 2 of Pier 23C. -There is 2'H x 2'W delaminated area on Column 2 of Pier 23C near the downspout support. -There is a 16"H x 6" W x 1/2" deep spall on the corner of Column 1 of Pier 27C.						

Inspector: Larkin,Cory
Inspection Date: 09/11/2024

Structure Number: 3108805
Facility Carried: NB IR 75

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
210 - Reinforced Concrete Pier Wall	3 - Mod.	66	ft.	48	15	3	0
	CS2: -There is hairline cracking throughout the pier walls. -There are concrete patches wrapped in FRP on Pier Wall 18C. -There are several shallow spalls with exposed reinforcing bars present on the south and west faces of Pier 19C due to shallow cover. -There is a shallow spall around the armored edge at Pier 16C. CS3: -The protective coating for the FRP on the south face of Pier 18C is peeling and cracking.						
215 - Reinforced Concrete Abutment	3 - Mod.	74	ft.	72	0	2	0
	CS3: -There is a 20”W x 24”H X 1” deep spall and delamination below Bearing E.						
231 - Steel Pier Cap	3 - Mod.	156	ft.	123	30	3	0
	Pier Cap 25J: CS2: -There are isolated areas of surface corrosion throughout the pier cap exterior, particularly on the top flange at the east end and along the edges of both flanges. -There are minor scrapes with surface corrosion in the bottom flange over the U.S. 50 ramp to 2nd Street (Pier Cap 25J). -The bottom flange bearing plates at both columns exhibit surface corrosion (Pier Cap 25J). -There are minor deformations in the top flange backer bars at both webs (Pier Cap 25J -2021 Inspection). -There are minor rust spots on diaphragms 1,2, and 7, and both hatch openings (Pier Cap 25J). Pier Cap 26C/J: CS2: -There are areas of moderate corrosion with pitting less than 1/16" to bottom of web and bottom flange at diaphragms 1 and 17 (Pier Cap 26C/J). -There are small rust spots on most diaphragms (Pier Cap 26C/J). -There is surface corrosion with pitting less than 1/16” deep in the west end bay (Pier Cap 26C/J). -There is laminating corrosion with section loss less than 1/16” deep on the undersides of the bearing plates at all columns (Pier Cap 26C/J). CS3: -There is a 6” diameter area of surface corrosion with pitting up to 1/16” deep in the top flange at the west end (Pier Cap 26C/J). -The south anchor bolt at the west column bearing is broken inside the cap (Pier Cap 26C/J Bearing). -There is laminating corrosion with section loss up to 1/16” in the bottom flange, webs and diaphragms in the east end bay (Pier Cap 26C).						
515 - Steel Protective Coating		4347	sq. ft.	4193	44	88	22
	CS2: -Surface dulling and localized light rust is present throughout the caps. CS3: -There are isolated areas of surface corrosion and minor peeling. CS4: -There is little to no paint remaining on the bearing plates over the columns.						

Inspector: Larkin,Cory
Inspection Date: 09/11/2024

Structure Number: 3108805
Facility Carried: NB IR 75

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
234 - Reinforced Concrete Pier Cap	3 - Mod.	656	ft.	465	189	2	0
	CS2: -The original pier caps have horizontal hairline cracks near the top of most caps and vertical hairline cracks developing from the horizontal cracks. -There is a small spall at the east end of Pier Cap 28C. -There is map cracking- 5'W x 5'H on the south face and 12'W x 3'H on the north face of the east cantilever at Pier Cap 21C. -There is map cracking and a minor spall on the west face of Pier Cap 23C. -The FRP is cracking and peeling on the south face of Pier Cap 23C. CS3: -There is a 16"H x 6"W x 1.5"D spall on the south face of Pier Cap 18A.						
300 - Strip Seal Expansion Joint	3 - Mod.	288	ft.	254	30	0	4
	CS2: -Loosely-packed debris was noted in the expansion joint at Pier 18C. CS4: -A 4' long section of the joint seal has pulled out between Beams E and B3 at Pier 23C and water free flows on to the pier at this location.						
310 - Elastomeric Bearing	3 - Mod.	41	each	35	5	1	0
	CS2: -The restraining rods of the Span 18C bearings at Pier 18C are slightly bent. CS3: -The south anchor bolt at the west column bearing for Pier 26J/C is broken. A slight gap was observed with the elastomeric pads on the south end where the anchor bolt is broken, with a slight bulge on the opposite end.						
311 - Movable Bearing	3 - Mod.	50	each	0	41	9	0
	CS2: -The newer steel rocker bearings in Spans 22J-26J (installed during the 2000 retrofit) have isolated surface corrosion and minor abrasion dust. -The original steel rocker bearings exhibit surface corrosion with no measurable section loss, particularly on the fascia bearings. CS3: -There is active pack rust between the rocker and the masonry plate of Bearing A at Pier 17C, Bearing A and E at Pier 19C, Bearing E at 20C, Bearing E at Pier 21C, Bearing A and E at Pier 22C and Bearing E at Pier 25C with no indication of uplift. -Bearing A at Abutment C has been covered with fill.						
515 - Steel Protective Coating		50	sq. ft.	0	19	26	5
	CS2: -The paint on the rocker bearings is dulling. -Light freckled rust is present throughout the bearings. CS3: -There is loss of pigment throughout the bearings. CS4: -There is paint failure with surface corrosion and exposed bare metal on fascia bearings.						
313 - Fixed Bearing	3 - Mod.	25	each	0	25	0	0
	CS2: -The newer steel bearings in Spans 22J-26J have isolated surface corrosion and minor abrasion dust. -The original steel fixed bearings exhibit surface corrosion with no measurable section loss, particularly on the fascia bearings.						
515 - Steel Protective Coating		25	sq. ft.	0	19	3	3

Inspector: Larkin,Cory
Inspection Date: 09/11/2024

Structure Number: 3108805
Facility Carried: NB IR 75

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	CS2: -The paint on the fixed bearings is dulling. -Light and initiated freckled rust is present throughout the bearings. CS3: -There is loss of pigment on several bearings. CS4: -There is paint failure with surface corrosion and exposed bare metal on several fascia bearings.						
321 - Reinforced Concrete Approach Slab	3 - Mod.	1539	sq. ft.	1539	0	0	0
	The North approach is covered with an asphalt wearing surface.						
331 - Reinforced Concrete Bridge Railing	3 - Mod.	2490	ft.	0	2470	20	0
	CS2: -There are vertical and transverse hairline cracks with efflorescence throughout. -A horizontal crack is present in the east railing near the light post in Span 20C. -There is a map cracking in the top of the west railing near Pier 23C. CS3: -There are isolated spalls throughout.						
815 - Drainage	3 - Mod.	15	each	14	0	1	0
	CS3: The drain at Pier 16C was leaking onto the substructure at the cap.						
830 - Abutment Backwall	3 - Mod.	74	ft.	52	19	3	0
	CS2: -There are isolated hairline cracks throughout. -There is map cracking in Bay 4 with efflorescence.						

ODOT District: District 08

HAM-00075-0022R_(3108805)

Date Built: 07/01/1963

Major Maint: 01 - State Highway Agency | Facility Carried: NB IR 75 | Traffic On: 1 - Highway | Rehab Date:

Routine Maint: 01 - State Highway Agency | Feature Inters: 2RR;TH ST*E;US42D;US50*E | Traffic Under: 4 - Highway - railroad | Insp. Resp A: 01 - State Highway Agency

FIPS Code: 15000 - CINCINNATI (HAM county) | Location: DISTRICT 08 .2 MI N OF OH-KY LINE | Insp Resp B:

Inspector Larkin,Cory | Inspection Date 09/11/2024 | Reviewer Not Approved

Inspector Comments - Deck and Approach

Deck

Bridge Wearing Surface
Bridge wearing surface was visually inspected from the boom lift.

Bridge Railing
Bridge railings were visually inspected from the boom lift.

Expansion Joint
The expansion joints were inspected visually from the boom lift.

Approach

Approach Wearing Surface
The north approach wearing surface was repaved in 2022.

Approach Embankment
No significant problems were noted.

Approach Guardrail
Surface rust and minor scrapes were noted in isolated locations on approach guardrail.

Inspector Comments - General Appraisal

Superstructure

Diaphragm/X-Frames
Minor surface corrosion, freckled rust and paint failures typical throughout original crossframe members. Crossframe 6 between girders C and D in Span 21C and Crossframe 1 between Girders A and B over Pier 28C exhibit up to 1 1/2" downward deformation of bottom strut angle. Crossframes at expansion joint locations were replaced with jacking frames.

Bearing Devices
Original steel rocker bearings were replaced with elastomeric bearings at Piers 15C, 18C, 23C, and on the original structure portion of Pier cap 26J.

Fatigue
No deficiencies noted.

Signs
There is one overhead sign support mounted to the railings near Pier 23C. No significant deficiencies noted for the support structure or the anchorage to the railings. Complete inspection of overhead sign

structure was outside the scope of this inspection.

Utilities
The structure-mounted utilities consist of an electrical conduit attached to Pier 27C and Girder F in Span 27C, as well as several light poles mounted to the railings at deck level.

Substructure

Reinforced Concrete Abutment Walls
Use caution during future inspections, as several needles were found Abutment C.

Reinforced Concrete Pier Caps
The protective coating for the FRP is cracking and peeling on the south face of Pier Cap 23C.

Reinforced Concrete Pier Columns/Bents
The protective coating for the FRP on the columns of Piers 23C is peeling.

Wingwalls
Diagonal hairline cracking is typical throughout the wingwalls. Cracking with efflorescence and delaminations are present at the bottom of the west wingwall.

Slope Protection
No significant problems noted.

Culvert

N/A

Inspector Comments - Waterway

Waterway Adequacy

N/A

Channel

N/A

Scour Critical

N/A