2012 In-Depth Inspection Report

Elevation Looking Southwest

I-71/SR 176 Double Decked Bridge – (SR 176 Lower Deck)

CUY-00176-1334
(SFN 1805436)

Owner:
Ohio Department of Transportation
District 12
5500 Transportation Blvd.
Garfield Heights, OH 44125

Inspectors:

HDR Engineering, Inc.
9987 Carver Rd, Suite 200
Cincinnati, OH 45242

Northwest Consultants, Inc.
3220 Central Park West
Toledo, Ohio 43617

Inspection Dates: 07/30/2012 to 08/10/2012

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Inspection Dates: 07/30/2012 to 08/10/2012

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Date Submitted: January 2013

TABLE OF CONTENTS

Appendix

- **A.** Plan View with Mapped Out Deficiencies
- **B.** BR-86
- **C.** Subconsultant Report for Deck
- **D.** Labeling of Spans
- **E.** Floor Sketches
- **F.** Pier Sketches
- **G.** Daily Logs
    - HDR
    - NCI

SUMMARY

Overall, the SR 176 bridge (SFN 1805436) is rated a 6, meaning it is in satisfactory condition.

- The deck floors have areas of honeycombing, cracking, spalling, and delaminations.
- The railing has areas of spalling and cracking with efflorescence.
- Scuppers and drains are clogged.
- A portion of the drain has fallen off or is about to fall off near the seated hinges.
- The expansion joint glands show signs of minor leakage.
- Portions of the elastomeric seal joint near Pier 18BE are missing.
- There are loose bolts at a few locations along the superstructure.
- Surface corrosion exists at the seated hinges and at various locations on the superstructure.
- There are corrosion holes in the crossbracing.
- There are 6 bearings that are rocked $\geq 10°$.
- There is a bearing rocked beyond recall.
- The fatigue prone connections have surface corrosion.
- The abutments have hairline cracking.
- The piers have cracking, spalling, and delamination.
- The backwalls have cracking and spalling.
- One impact attenuator has vehicular damage.

GENERAL

HDR Engineering, Inc. performed the in-depth inspection of the I-71/SR 176 double decked bridge with the help of Northwest Consultants, Inc. The inspection was performed between July 30, 2012 and August 10, 2012. The purpose of the inspection was to fulfill the annual requirement to inspect and document the existing physical and functional conditions of the bridge and note any changes since the previous inspection. The bridge was inspected using an Aspen Aerial A75 UBIV. The substructure was inspected from the ground and with the Aspen Aerial UBIV.

All inspectors followed the guidelines and standards established by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO). The condition assessments and bridge ratings coded were in accordance with the Bridge Inspector's Reference Manual and the Ohio Department of Transportation Manual of Bridge Inspection.

Traffic control was used for the UBIV work, using multiple lane closures. Due to the amount of traffic on the bridge, the work was performed at night. In order to inspect the SR 176 bridge (lower deck), the following closures were necessary:

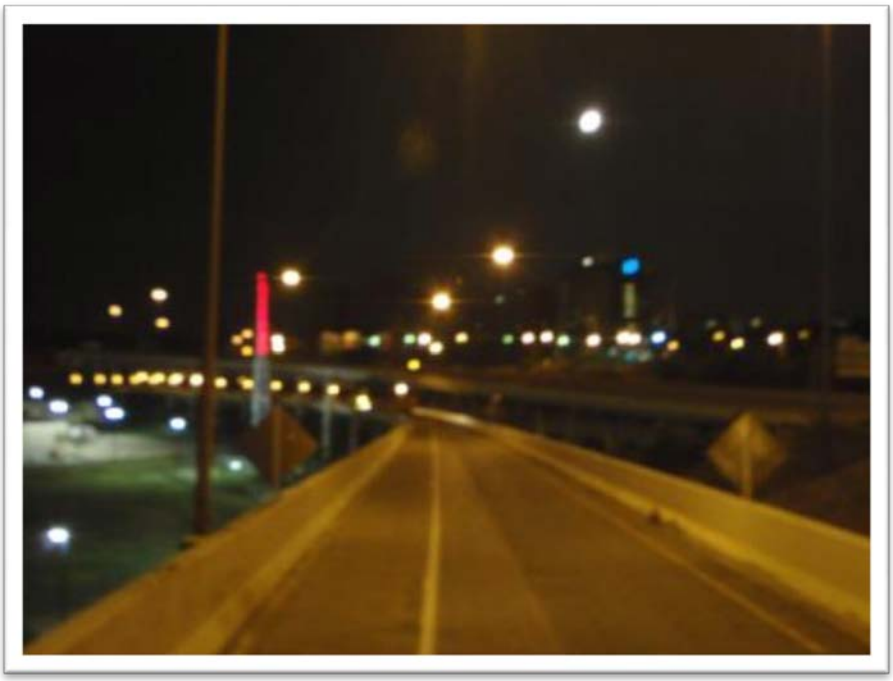
- Single right lane closure.
- Single to a double right lane closure. This allows for a right lane closure on Ramp BW.
- Ramp BE closure starting at 1:00 am.
- Left lane closure to inspect just before the ramp.

A police officer was not used during this inspection, but it is recommended on future inspections to use one. There were a couple of incidences where motorcycles felt it was okay to drive in the closed lane. The police officer would be most beneficial wherever the bucket is going to be over the roadway.

BRIDGE DESCRIPTION

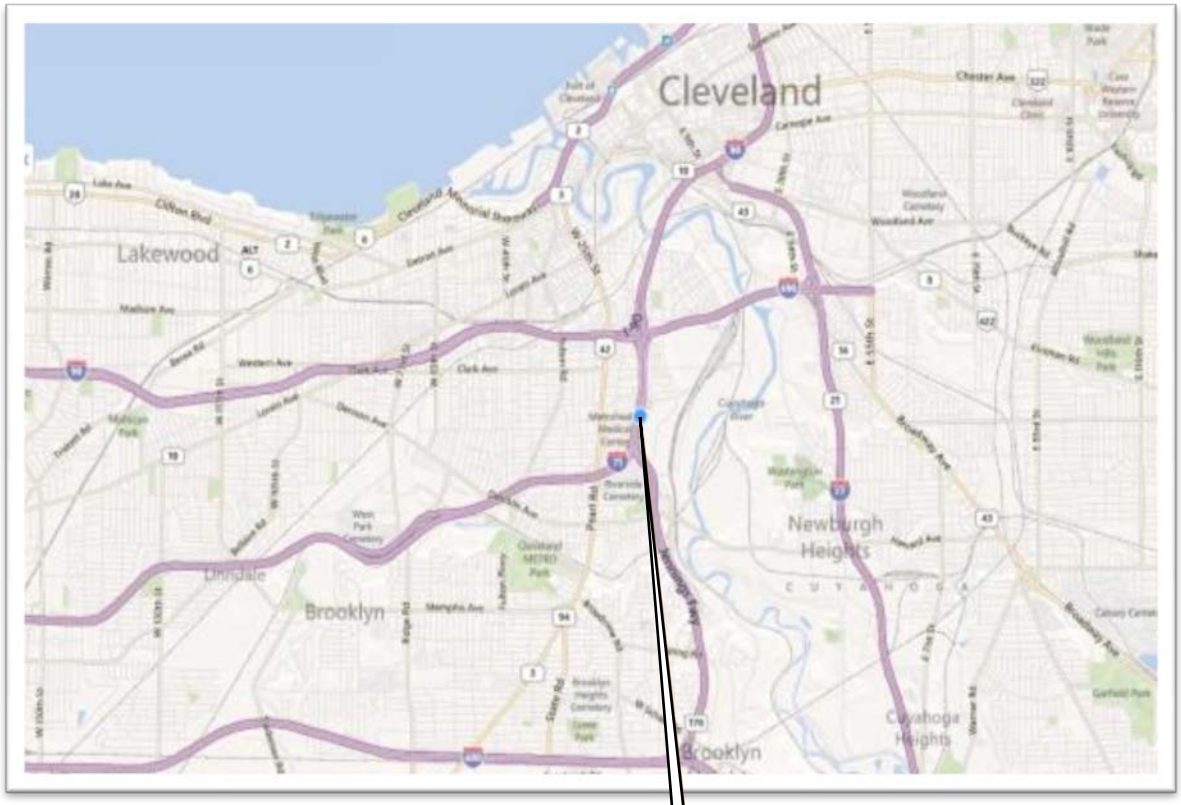
The SR 176 bridge (lower deck) is a continuous steel beam structure with a concrete substructure. There are 18 spans with a maximum span length of 79 ft and a total length of 1,073 ft. It was constructed in 1968 and has 3 lanes of traffic that decreases to two lanes on the main route and a single lane on the ramp. The bridge carries SR 176 traffic toward I-90 and W 14th St. It runs north and south. The girders and piers are called out per the bridge plans.

Elevation View Looking West



End View Looking South

LOCATION MAP



INDIVIDUAL ITEM CONDITION RATINGS

The individual items are rated on a 1-4 rating system as described below.

1 **Good** – Element limited to only minor problems, no repairs necessary.

2 **Fair** – All primary elements are sound, but have minor section loss, deterioration, cracking, spalling or scour, minor repairs, etc.

3 **Poor** – Advanced section loss, deterioration, spalling or scour; item is no longer functioning as designed (load path is significantly redistributed, fatigue cracks, wide shear cracks, local failures possible).

4 **Critical** – Support removed, corrective action or close monitoring necessary, consider partial or full closure, negative response (ex. crushing, bending) to the primary element due to structural loads.

SUMMARY CONDITION RATINGS

Member condition ratings used in this report are in accordance with Report No. FHWA-PD-96-001, *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges*, 1995, and are reproduced below. The following rating system also appears in the Bridge Inspector's Reference Manual, FHWA NHI 12-049, Revised February, 2012.

N **Not Applicable**

9 **Excellent Condition**

8 **Very Good Condition** – no problems noted.

7 **Good Condition** – some minor problems.

6 **Satisfactory Condition** – structural elements show some minor deterioration.

5 **Fair Condition** – all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.

4 **Poor Condition** – advanced section loss, deterioration, spalling or scour.

3 **Serious Condition** – 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 Condition** – 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 Condition –** 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 back in light service.

0 **Failed Condition** – out of service – beyond corrective action.

PROTECTIVE COATING SYSTEM (PCS)

9 There is no evidence of corrosion; the protective coating system (PCS) is sound, fully intact, and functioning as intended to protect the metal or concrete surfaces. No workmanship related issues.

8 Less than 1% of total surface area of the protective coating system is failed. Isolated light surface or freckled rusting along flange edges, cross frame members, end cross frames, bearings, phase or lap marks, or at bolted splices. Isolated chalking or fading or other early evidence of paint system distress. Isolated workmanship issues (painted surfaces only), surface defects less than 5% of total surface area. Workmanship defects include painted over grit, rust, mill scale, heavy paint drips, mud cracking in paint, or other related workmanship issues. No finish coat separation from intermediate coat.

7 Greater than 1% and less than 5% of the total protective coating system is failed. Light surface rusting along flange edges, cross frame members, end cross frames, bearings, phase or lap marks, or at bolted splices. Multiple workmanship issues (painted surfaces only), surface defects less than 10% of total surface area. Workmanship defects include painted over old paint, grit, rust, mill scale, heavy paint drips, mud cracking in paint, or other related workmanship issues. Finish coat separation from intermediate coat less than 10%. Chalking or fading or other early evidence of paint system distress. Candidate for zone painting (outside fascia beams or beam ends near joints).

6 Greater than 5% and less than 10% of the total protective coating system is failed. Surface or freckled rust is prevalent throughout. The paint system is no longer effective at beam ends beneath joints. There may be exposed metal, but there is no corrosion, which is causing loss of section. Peeling, cracking, or separation of any caulking material. Workmanship issues (painted surfaces only), surface defects less than 15% of total surface area. Workmanship defects include painted over old paint, grit, rust, mill scale, heavy paint drips, mud cracking in paint, or other related workmanship issues. Finish coat separation from intermediate coat greater than 10%. Candidate for zone painting (outside fascia beams or beam ends near joints).

5 Greater than 10% and less than 15% of the total protective coating system is failed. Surface or freckled rust is prevalent. The paint system is no longer effective at steel ridge bearings, beam ends near joints at abutments and piers and along outside face of fascia beams. There is exposed metal with active corrosion causing light loss of section or pitting, typically less than 1/8". Peeling, cracking, or separation of any caulking material with rust staining. Workmanship issues (painted surfaces only), surface defects greater than 20% of total surface area. Candidate for zone painting (outside fascia beams and beam ends near joints).

4 Greater than 15% and less than 20% of the total protective coating system is failed. Surface or freckled rust is prevalent. The PCS system is no longer effective. There is exposed steel throughout the structure with active corrosion. Failure of caulking on crevice corrosion. Old paint system was painted over. Candidate for total recoating.

3 Greater than 20% and less than 30% of the total protective coating system is failed. The paint system is no longer effective. There is exposed steel throughout the structure with active corrosion. Candidate for total recoating.

2 Greater than 30% and less than 40% of the total protective coating system is failed. Candidate for total recoating.

1 Greater than 40% and less than 50% of the total protective coating system is failed. Should be programmed for total recoating, or structure replacement.

0 Greater than 50% of the protective coating system has failed. Corrosion has caused section losses. Should be programmed for total recoating or structure replacement.

DECK SUMMARY SATISFACTORY

The deck is rated a 6, meaning that it is in satisfactory condition. The rating is based on the condition of the Floor which is rated 2 – Fair.

The individual items are as follows:

Item	SR 176 Rating
Floor	2 – Fair
Wearing Surface	2 – Fair
Railing	2 – Fair
Drainage	2 – Fair
Expansion Joints	2 – Fair

Floor	Fair

The underside of the deck is in fair condition. See the sketch of the floor in Appendix E. The following deficiencies were noted:

- There is hairline to narrow transverse cracking in Ramps BW and BE. Efflorescence is typical.

- One 10” diameter area of honeycombing in Span 14.
- Map cracking exists in Spans 24BE and 25BE.

- Spalling exists in Spans 11, 13, 14, 17, 18BW, 18BE, 22BE, 24BE, and 28BE.

- Delaminations exist in Spans 17, 19BE, 20BE, 23BE, 24BE, 25BE, 26BE, and 27BE.

Wearing Surface	Fair

The wearing surface is in fair condition. The following deficiencies are noted in the Supplemental Report found in Appendix C, but are reiterated here. Detailed locations and sizes are located in the deck mapping section of the Supplemental Report.

- Large areas of the deck are patched with good quality, full-depth patches.
- There are transverse cracks spaced roughly at 10 ft intervals in the positive moment regions and at 6 ft intervals in the negative moment regions.
- There are a few small, shallow spalls in random locations away from the joints (<1% deck area).
- Several spalls were found along or near constructions joints.
- Numerous locations exist where RPMs are missing.

Railing	Fair

The railing is in fair condition. The following deficiencies are noted in the Supplemental Report found in Appendix C, but are reiterated here. Deficiency locations are called out in the deck mapping section of the Supplemental Report. Deficiencies found on the exterior face were noted from the snooper inspection.

- Spalls and deteriorations exist along the large portions of the toe of the barrier, especially on the low (east) side of the structure.
- Random vertical cracks exist in both barriers.
- Longitudinal cracking with efflorescence in the rail's exterior face in Span 19BE.

Drainage	Fair

The drainage is in fair condition. The deficiencies for the drains on the deck are noted in the Supplemental Report found in Appendix C, but are reiterated here. The following deficiencies were noted:

- The drains at Piers 16 and 18BE are clogged with debris and water is not draining properly.
- The scupper pans in the top of the deck are clogged with debris in most locations. See Appendix C for details.
- Drains are clogged at the following locations.
    - Span 16, near Pier 16
    - Span 19BE, near Pier 18BE

- Corroded downspout with section loss in Span 25BE near Pier 24BE.

- Corrosion on the downspout in Span 27BE near the North Abutment AE.
- Corrosion and section loss on the downspout in Span 18BW near Pier 17.

Expansion Joints	Fair

The expansion joints are in fair condition. The deficiencies for the expansion joints are noted in the Supplemental Report found in Appendix C, but are reiterated here. Detailed findings and expansion joint measurements can be found in the Supplemental Report. The following deficiencies were noted:

- The intermediate expansion joints vary in clear spacing from 1 ⅞" to 2 ½".
- The abutment expansion joints vary in clear spacing from 1 ⅝" to 2 ⅝".
- The glands show signs of minor leakage.
- The elastomeric seal joint near Pier 13 and Pier 24BE have a portion of the sealer sticking up out of the joint with tears in the sealer visible.
- The elastomeric seal joint at Pier 24BE also has a ¼" to ½" elevated lip from one side of the joint to the other.
- The elastomeric seal joint near Pier 18BE has portions of the armor missing as well as the sealer sticking up out of the joint.
- The elastomeric seal joints are full of debris in most locations.

SUPERSTRUCTURE SUMMARY SATISFACTORY

The superstructure is rated a 6, meaning that it is in satisfactory condition. The rating is based on the condition of the Pins/Hangers/Hinges, which are rated 2 – Fair.

The individual items are as follows:

Item	SR 176 Rating
Alignment	1 – Good
Beams/Girders/Slabs	1 – Good
Diaphragms or Crossframes	2 – Fair
Bearing Devices	2 – Fair
Protective Coating System	6 – Satisfactory
Pins/Hangers/Hinges	2 – Fair
Fatigue Prone Connections	1 – Good
Live Load Response	S – Satisfactory

Alignment	Good

The alignment is in good condition. The following deficiencies were noted:

- Bottom flange of beam bent at the following locations
  - Beam D (Span 16) – 1/8” over a 1’-0” length.

  - Beam A (Span 18BW) – 1/8” over a 1’-6” length.
  - Beam A (Span 11) – 1/8” over a 10” length.

Beams/Girders/Slab	Good

The beams and girders are in good condition. The following deficiencies were noted:

- Light surface corrosion with isolated locations of moderate corrosion on the web and flanges, specifically the bottom flange.
- Surface corrosion at the seated hinges with up to 1/16" section loss.

- There is a loose bolt in the bottom cover plate of the splice in Span 18BW, Beam C.

- The end of Beam B, at the cope, in Span 7 is bent.

Diaphragms or Crossframes	Fair

The crossframes are in <u>fair</u> condition. The following deficiencies were noted:

- Corrosion holes exist at the following locations.
  - Beam F between Beams E & F in Span 18BW.
  - Beam L between Beams F & L in Span 13.

- There are angles welded to the ends of the crossbracing in order to lengthen them in Span 14 and others.
- A paint crack exists in the weld where the crossbracing is attached to the web of Beam L in Span 15. Monitor this location.

- Surface corrosion exists at various locations. Section loss in Span 18BW at seated hinges.
- There is an incomplete weld with gaps in Beam A in Span 15.

- Pack rust and 1” bowing exists at the top gusset plate in Span 18BW.

Bearing Devices	Fair

The bearing devices are in fair condition. The following deficiencies were noted:

- Surface corrosion is typical. The exterior bearings show a moderate amount of corrosion.
- Six bearings are rocked ≥10°.
  - South Abut 10°S Bearing F
  - South Abut 10°N Bearing L
  - North Abut BW 17°N Bearing E
  - Pier 28BE 10°S Bearing L
  - North Abut BE 32°S Bearing G
  - North Abut BE 15°S Bearing J

- One bearing is rocked beyond recall (Horizontal Distance > ⅓ H).
    - North Abut BE 32°S Bearing G

- The following tables list the bearing measurements.

Bearing Measurements – SR 176												
Pier/Abut	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**N**
S Abut	5°N	7°S	7°S	0°	5°S	10°S					10°N	
Pier 1												
Pier 2												
Pier 3												
Pier 4												
Pier 5												
Pier 6												
Pier 7												
Pier 8	0°	2°N	0°	0°	0°	0°					0°	
Pier 9	1°S	1°S	2°S	3°S	2°S	1°S					2°S	
Pier 10	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed					Fixed	
Pier 11	0°	0°	0°	0°	0°	0°					0°	
Pier 12	3°S	1°S	1°S	1°S	0°	2°S					0°	
Pier 13	1°S	1°S	0°	1°N	2°N	3°N					2°N	
Pier 14	2°N	2°N	0°	2°S	1°S	2°S			5°N		1°S	
Pier 15	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed			Fixed		Fixed	
Pier 16	0°	4°N	3°N	2°N	0°	0°	3°N		3°N	1°N	1°N	
Pier 17	2°S	3°S	1°S	1°S	0°	1°S	4°N		1°N	1°N	1°N	
Pier 18BW	1°N	3°N	1°N	0°	5°N	1°N						
Pier 19BW	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed						
Pier 20BW	2°N	1°N	1°N	3°N	3°N	3°N						
N Abut BW	4°N	7°N	3°N	4°N	17°N	3°S						
Pier 18BE							1°S		1°S	1°S	0°	
Pier 19BE							1°N		0°	1°S	4°N	
Pier 20BE							Fixed		Fixed	Fixed	Fixed	
Pier 21BE							Fixed		Fixed	Fixed	Fixed	
Pier 22BE							1°N		0°	1°S	1°S	
Pier 23BE							1°N		1°S	1°S	1°S	
Pier 24BE							3°N		4°N	4°N	5°N	
Pier 25BE							4°S		4°S	2°S	2°S	
Pier 26BE							Fixed		Fixed	Fixed	Fixed	
Pier 27BE							5°S		3°S	0°	1°N	
Pier 28BE							8°S	4°S	5°S	5°S	10°S	
N Abut BE							32°S	7°N	15°S	7°N	7°S	

Protective Coating System	Satisfactory

The protective coating system is rated a 6, meaning it is in satisfactory condition. The following deficiencies were noted:

- Greater than 5% and less than 10% of the total protective coating system is failed.
- Surface or freckled rust is prevalent throughout.
- Candidate for zone painting (outside fascia beams or beam ends near joints).
- Random locations of peeling paint and surface corrosion.

Pins/Hangers/Hinges	Fair

The seated hinges are in fair condition. The following deficiencies were noted:

- Surface corrosion. Heavier corrosion at the groove.

- Laminating corrosion beginning at the lower portion of the seated hinge.

Seated Hinge Measurements – SR 176										
Span	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**J**	**K**	**L**
Span 13	1 ¼" N	1 ½" N	¼" N	1 ¾" N	½" N	⅝" N				1 ¾" N
Span 18BW	¾" N	⅜" N	1" N	⅝" N	⅝" N	0"				
Span 18BE							1" N	1 ⅝" N	1 ¾" N	1 ¾" N
Span 24BE							⅜" N	2" N	2 ⅛" N	2 ¼" N

Fatigue Prone Connections	Good

The fatigue prone connections are in <u>good</u> condition. The following deficiencies were noted:

- Surface corrosion on the intersecting welds under the seated hinge.
- Surface corrosion on the welds along the bottom cover plate and at the ends.

Live Load Response	Satisfactory

The live load response is in <u>satisfactory</u> condition, which is normal. There was no excessive deflection or vibration noted under live load.

SUBSTRUCTURE SUMMARY SATISFACTORY

The substructure is rated a 6, meaning that it is in satisfactory condition. The rating is based on the condition of the Piers, which are rated 2 – Fair.

The individual items are as follows:

Item	SR 176 Rating
Abutments	1 – Good
Abutment Seats	1 – Good
Piers	2 – Fair
Pier Seats	1 – Good
Backwalls	2 – Fair
Wingwalls	1 – Good
Slope Protection	2 - Fair

Abutments	Good

The abutments are in good condition. The following deficiencies were noted (see sketches in Appendix F):

- North Abutment AE – Rust staining is evident on the breastwall.
- North Abutment BE – Some rust staining is evident on the breastwall.
- North Abutment BW – Map cracking on the breastwall.

Abutment Seats	Good

The abutment seats are in good condition. No significant deficiencies were noted.

Piers	Fair

The piers are in fair condition. The following deficiencies were noted (see sketches in Appendix F):

- Pier 8 – The pier cap has multiple cracks. The west side of the south face has cracking with a delamination. The east side of the south face has a 4’ x 3’ spall with exposed rebar. The east side of the north face has hairline cracking with a delamination.

- Pier 9 – The pier cap has multiple cracks with some rust spots and a small delamination. There is a 5’ horizontal crack with a delamination under Bearing A along with a 10” x 10” spall.

- Pier 10 – The pier cap has multiple cracks. The east side of the south face has a 2’ x 10” delamination with a 3 ft horizontal crack.
- Pier 11 – The pier cap has multiple cracks and map cracking. The east side of the south face has a 3 ½ ft horizontal crack with a delamination. The west side of the north face has a 7’ x 4” x 10” spall.
- Pier 12 – The pier cap has multiple cracks. The east column has two spalls, 4” x 3” and 16” x 3” with exposed rebar. The west column has a 6” x 2” spall with exposed rebar.
- Pier 13 – The pier cap has multiple cracks. The east side of the south face has delaminations. The east side of the north face has 6’ x 4” and 2 ½’ x 8” delaminations.

- Pier 14 – The pier cap has hairline cracking. The north side of the east column has multiple spalls with exposed rebar. The south side of the east column has three large spalls with exposed rebar; 5’ x 2 ½’, 4’ x 2 ½’, and 3 ½’ x 2’.

- Pier 15 – The pier cap has multiple cracks. The east side of the north face has a 3’ x 2’ and a 2’ x 1’ spall with exposed rebar. The east side of the south face has a 5’ x 4’ spall with exposed rebar and 4’ x 2’ and 3’ x 1’ delaminations. A 2’ x 4” spall exists on the south wall.

- Pier 16 – The pier cap has multiple cracks. There are two spalls on the east side of the south face, 3’ x 2’ and 2 ½’ x 1’. The area below Beams K and L is delaminated.

- Pier 17 – The pier cap has multiple cracks. The east column has a 1’ x 4’ spall with exposed rebar and a 3’ x 2’ spall with exposed rebar. There is also an 8” diameter area of delaminated concrete.
- Pier 18BW – The pier cap has multiple cracks. There is a 3’ x 2’ delamination on the top east face of the cap. A 1 SF spall exists on the north face.
- Pier 19BW – The pier cap has multiple cracks.
- Pier 20BW – The pier cap has multiple cracks.
- Pier 18BE – The pier cap has multiple cracks. There is a 1 SF delamination on the south face and a 1 SF spall on the north face.
- Pier 19BE – The pier cap has multiple cracks.
- Pier 20BE – The pier cap has multiple cracks.
- Pier 21BE – The pier cap has multiple cracks. The east column has a 4” x 1” spall with exposed rebar.
- Pier 22BE – The pier cap has multiple cracks. Two small spalls with exposed rebar exist on the pier cap.
- Pier 23BE – The pier cap has multiple cracks.
- Pier 24BE – The pier cap has multiple cracks. There is a 1 ½’ diameter delamination on the south side.
- Pier 25BE – The pier cap has multiple cracks.
- Pier 26BE – No significant deficiencies noted.
- Pier 27BE – No significant deficiencies noted.
- Pier 28BE – There are cracks on the north side of the pier cap.

Pier Seats	Good

The pier seats are in good condition. The following deficiencies were noted:

- There are multiple areas along the pier seat edge that are cracking or have delaminations.
- There is a 3’ x 2’ spall with exposed steel on the pier seat at Pier 16.

Backwalls	Fair

The backwalls are in fair condition. The following deficiencies were noted:

- North Abutment BW – Map cracking in the backwall.

Wingwalls	Good

The wingwalls are in good condition. No significant deficiencies were noted.

Slope Protection	Fair

The slope protection is in fair condition. The following deficiencies were noted:

- The stone slope protection shows signs of erosion.

APPROACHES SUMMARY GOOD

The approaches are rated a 7, meaning that they are in good condition.

The individual items are as follows:

Item	SR 176 Rating
Pavement	1 – Good
Approach Slabs	1 – Good
Guardrail	1 – Good
Relief Joint	1 – Good
Embankment	1 – Good

Pavement	Good

The pavement is in good condition. The following deficiencies are noted in the Supplemental Report found in Appendix C, but are reiterated here. Detailed locations and sizes are located in the deck mapping section of the Supplemental Report. The following deficiencies were noted:

- There are spalls and patches in the asphalt adjacent to the expansion joints.

Approach Slabs	Good

The approach slabs are in good condition. The following deficiencies are noted in the Supplemental Report found in Appendix C, but are reiterated here. Detailed locations and sizes are located in the deck mapping section of the Supplemental Report. The following deficiencies were noted:

- No significant deficiencies noted.

Guardrail	Good

The guardrail is in good condition. The following deficiencies are noted in the Supplemental Report found in Appendix C, but are reiterated here. Detailed locations and sizes are located in the deck mapping section of the Supplemental Report. The following deficiencies were noted:

- The impact attenuator between Pier 17 and Pier 18BW has been hit by a vehicle.

Relief Joints	Good

The relief joints are in good condition. No significant deficiencies were noted.

Embankment	Good

The embankments are in good condition. No significant deficiencies were noted.

GENERAL SATISFACTORY

The individual items are as follows:

Item	SR 176 Rating
Warning Signs	4 – Critical
Sign Supports	1 – Good
Vertical Clearance	1 – Good

Warning Signs	Critical

The warning signs are in critical condition. The following deficiencies were noted:

- There are no bridge end markers.

Sign Supports	Good

The sign supports are in good condition. The following deficiencies were noted:

- No significant deficiencies were noted.

Vertical Clearance	Good

The vertical clearance is in good condition. No significant deficiencies were noted.

RECOMMENDATIONS

1. **Immediate**
    - The portions of the drain that have broken off should be removed or reattached. It does not appear that they are able to fall past the seated hinge, but it is better to be proactive with them.
2. **Maintenance and Monitoring**
    - Clean the expansion joints from debris.
    - Tighten the loose bolt in the bottom cover plate at the splice in Span 18BW, Beam C.
    - Repair the impact attenuator between Pier 17 and Pier 18BW.

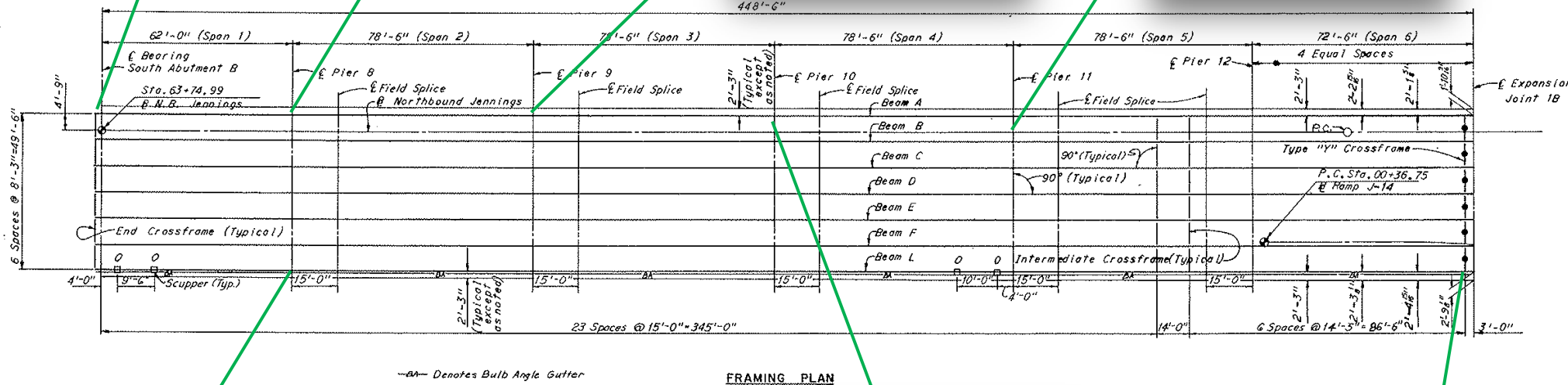
3. **Short Term**
    - Clear the drains at the following locations:
        - Span 16, Pier 16
        - Span 19BE, near Pier 18BE
    - Clear the scuppers on the deck.
    - Consider spot painting near the bearings and at the seated hinges.
    - Repair the corroded (with section loss) crossbracing in Span 18BW and 13.
    - Abrasively clean and paint the exposed rebar. Patch the spalled areas.
    - Remove the delaminated concrete then abrasively clean, paint, and patch the areas.

4. **Rehabilitation**
    - None
5. **Future Inspection or Testing**
    - Note any changes to the delaminations in the floor.
    - Note any changes in the leakage at the expansion joint glands. Replace the glands if the condition worsens.
    - Note whether the missing joint armor near Pier 18BE becomes significant enough to repair.
    - Continue to note the condition of the surface corrosion on the superstructure.
    - Note any changes at the paint crack on Beam L in Span 15.
    - Continue to watch the rotation at the following bearings:
        - South Abut 10°S Bearing F
        - South Abut 10°N Bearing L
        - North Abut BW 17°N Bearing E
        - Pier 28BE 10°S Bearing L
        - North Abut BE 32°S Bearing G
        - North Abut BE 15°S Bearing J
    - Reset the bearing at the following location:
        - North Abut BE 32°S Bearing G
    - Continue to note the amount of corrosion on the fatigue prone details.
    - Note any changes to the cracking in the backwall at the North Abutment BW. The amount of cracking may lead to spalling in the near future.

I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
A

SR 176 (Lower Deck)
Spans 8 - 13



—BA— Denotes Bulb Angle Gutter

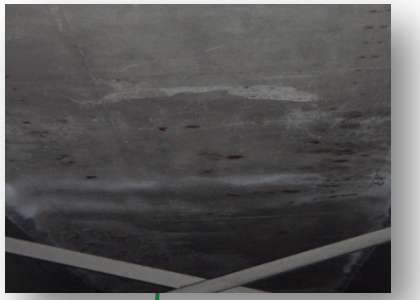
FRAMING PLAN

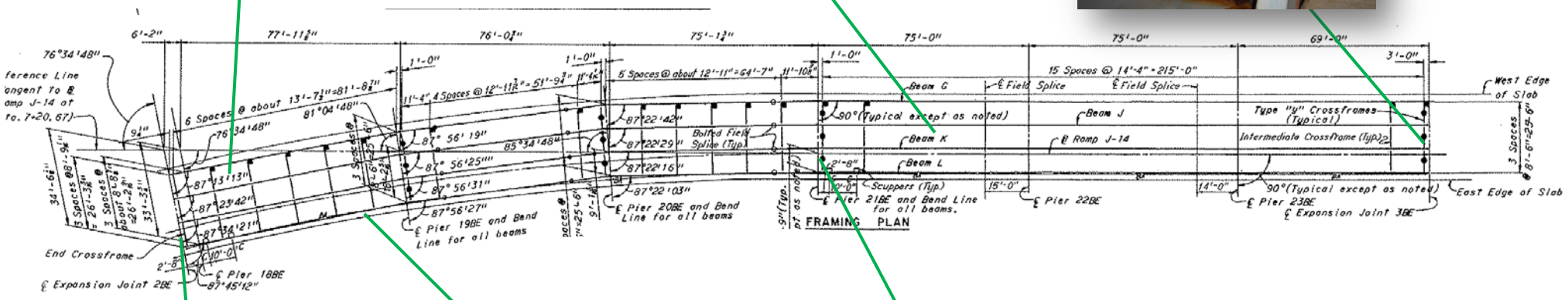
SR 176 (Lower Deck)
Spans 14 – 18BW/18BE

SR 176 (Lower Deck)
Spans 19BW – 21BW

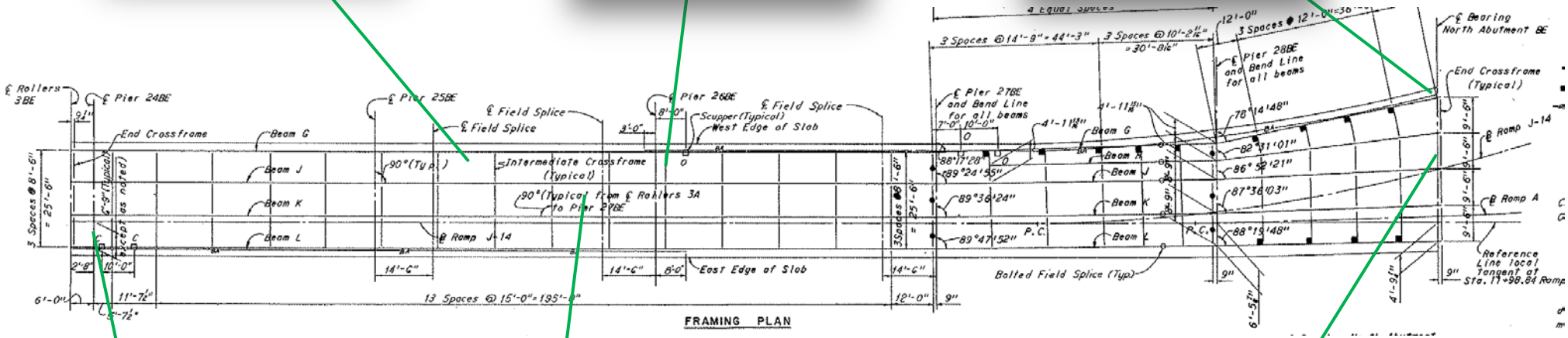
FRAMING PLAN

SR 176 (Lower Deck)
Spans 19BE – 24BE





SR 176 (Lower Deck)
Spans 25BE – 29BE



I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
B

OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE INSPECTION REPORT

STRUCTURE FILE NUMBER	CO	ROUTE	UNIT	YEAR BUILT
1 8 0 5 4 3 6	CUY	00176	1334	7/1/1968

DIST 12 BRIDGE TYPE 322 TYPE OF SERVICE 10 IR-71NB (CUY-71-1791R)

DECK			
1. Floor	2	2. Wearing Surface	2
3. Curbs, Sidewalks & Walkways		4. Median	
5. Railing	2	6. Drainage	2
7. Expansion Joints	2	**8. SUMMARY**	6
SUPERSTRUCTURE			
9. Alignment of Members	1	10. Beams/Girders/Slab	1
11. Diaphragms or Cross frames	2	12. Joists/Stringers	
13. Floorbeams		14. Floorbeam Connections	
15. Verticals		16. Diagonals	
17. End posts		18. Upper Chord	
19. Lower Chord		20. Gusset Plates	
21. Lateral Bracing		22. Sway Bracing	
23. Portals		24. Bearing Devices	2
25. Arch		26. Arch Columns or Hangers	
27. Spandrel Walls		**28. Protective Coating System (PCS)**	6
29. Pins/Hangers/Hinges	2	30. Fatigue Prone Detail (E & E')	1
31. Live Load Response *(E or S)*	S	**32. SUMMARY**	6
SUBSTRUCTURE			
33. Abutments	1	34. Abutment Seats	1
35. Piers	2	36. Pier Seats	1
37. Backwalls	2	38. Wingwalls	1
39. Fenders and Dolphins		40. Scour *(Insp Type – 1, 2, 3)*	
41. Slope Protection	2	**42. SUMMARY**	6
CULVERT			
43. General		44. Alignment	
45. Shape		46. Seams	
47. Headwall or Endwalls		48. Scour *(Insp Type - 1,2,3)*	
49. Abutments		**50. SUMMARY**	
CHANNEL			
51. Alignment		52. Protection	
53. Hydraulic Opening		**54. SUMMARY**	
APPROACHES			
55. Pavement	1	56. Approach Slabs	1
57. Guardrail	1	58. Relief Joint	1
59. Embankment	1	**60. SUMMARY**	7
GENERAL			
61. Navigation Lights		62. Warning Signs	4
63. Sign Supports	1	64. Utilities	
65. Vertical Clearance *(1, 2-change, N)*	1	66. **General Appraisal** & Operational Status	6 A

67. Inspected By, First & Last Name: Ann Griessmann

PE Number: 068177

Date: 08/10/12

68. Reviewed By, First & Last Name

PE Number

Date

69. Survey (1, 0, N)								
1	1	1	1	1	N	N	N	

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE INSPECTION REPORT

BR-86 REV 2-95

1	8	0	5	4	3	6

STRUCTURE FILE NUMBER 7

BRIDGE NUMBER CUY 00176 1334 CUYAHOGA YEAR BUILT 1968

CO ROUTE UNIT

DIST 12 BRIDGE TYPE 322 TYPE SERVICE 10 IR-71 NB (CUY-71-1791R)

For Full Report, Please See Bridge File. Curbs, Sidewalks, & Walkways do not exist so this item was removed.

DECK

FLOOR: The floor is in fair condition. There are hairline to narrow transverse cracks with efflorescence. A few areas show honeycombing and spalling with exposed rebar. There also are areas of delaminated concrete.

WEARING SURFACE: The wearing surface is in fair condition. There are areas of full-depth patches that are in good quality. There are transverse cracks spaced roughly at 10 ft intervals in the positive moment regions and at 6 ft intervals in the negative moment regions. There are isolated areas of map cracking, spalling, and deteriorated patches. Several RPMs are missing leaving shallow holes.

RAILING: The railing is in fair condition. There are several spalls along the toe of the barrier. Vertical cracks exist throughout. There are longitudinal cracks with efflorescence on the exterior face in Span 19BE. The spalling and cracking in the railing is the reason for lowering the rating to a 2, per the 2010 revision of the ODOT Manual of Bridge Inspection.

DRAINAGE: The drains are in fair condition. Several drains are clogged. The rating was raised to a 2 since the amount of scuppers clogged is up to ¼, per the 2010 revision of the ODOT Manual of Bridge Inspection.

EXPANSION JOINTS: The expansion joints are in fair condition. The glands show signs of minor leakage. Debris exists in most of the joints. The elastomeric seal joint near Piers 13 & 24BE have a portion of the sealer sticking up out of the joint with tears in the sealer visible. The elastomeric seal joint at Pier 24BE also have a ¼" to ½" elevated lip from one side of the joint to the other. The elastomeric seal joint near Pier 18BE has portions of the armor missing.

SUPERSTRUCTURE

BEAMS/GIRDERS: The beams and girders are in good condition. There is surface corrosion at various locations, especially on the bottom flange, splice bolts, and near the seated hinges. The area near the seated hinges has up to 1/16" section loss. A loose bolt exists at the splice at Beam C, Span 18BW.

DIAPHRAGMS OR CROSSFRAMES: The crossframes are in fair condition. There are locations of corrosion holes in Spans 18BW and 13. A paint crack exists in Span 15 on Beam L. There is an incomplete weld in Beam A, Span 15. Pack rust is bowing the top gusset plate 1" in Span 18BW.

BEARING DEVICES: The bearings are in fair condition. There are six bearings that are rocked ≥10°. One bearing is rocked beyond recall; North Abut BE, Bearing G.

PAINT: The paint is in satisfactory condition. There is greater than 5% and less than 10% of the total coating system has failed. Surface or freckled rust is prevalent throughout. There are random locations of peeling paint and surface corrosion.

PINS/HANGERS/HINGES: The seated hinges are in fair condition. The hinges have surface corrosion with the corrosion heavier at the groove.

FATIGUE PRONE CONNECTIONS: The fatigue prone connections are in good condition. There is surface corrosion on the welds.

LIVE LOAD RESPONSE: The live load response is in satisfactory condition.

SUBSTRUCTURE

ABUTMENTS: The abutments are in good condition. There is rust staining and map cracking. This is the reason for raising the rating to a 1. The previous deficiency noted is actually located on the backwall and that rating correlates with the problem.

PIERS: The piers are in fair condition. There are hairline to medium cracks, spalling with exposed rebar, and delaminations.

PIER SEATS: The pier seats are in good condition. There are multiple areas along the pier seat edge that are cracking.

BACKWALLS: The backwalls are in fair condition. There is map cracking at North Abut BW.

SLOPE PROTECTION: The slope protection is in good condition. The stone slope protection shows signs of erosion.

APPROACHES

PAVEMENT: The pavement is in good condition. There are spalls and patches in the asphalt adjacent to the expansion joints.

GUARDRAIL: The guardrail is in good condition. The impact attenuator between Pier 17 and Pier 18BW has been hit by a vehicle.

GENERAL

WARNING SIGNS: There are no bridge end markers.

SIGN SUPPORTS: The rating was raised to a 1 because there were no significant deficiencies noted.

VERTICAL CLEARANCE: The rating was changed to a 1 since there is a restriction for traffic on the bridge and there are no changes from last year.

I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
C

2012 Annual Inspection of the S.R. 176 Bridge
CUY-176-1331 SFN 1805436

Supplemental Report of 2012 Inspection Results

Deck

The wearing surface of the bridge deck was visually inspected with deficiencies mapped, but not sounded as part of this inspection. The wearing surface is in overall satisfactory condition, providing a smooth riding surface. Large areas of this deck have been patched with good quality, full-depth concrete patches that are behaving similar to the original deck. Transverse cracking is spaced at roughly 10' intervals in the positive moment regions, and 6' intervals in the negative moment regions. There are isolated areas of map cracking, spalling, and deteriorating patches. There are very few small, shallow spalls in random locations away from the joints but these spalls account for less than 1% of the total deck area. Most spalls were found along or near construction joints in the wearing surface. There are also numerous locations where RPMs are missing from the wearing surface. See deck mapping for more detailed locations and sizes of deficiencies.

Railing

The barriers are in satisfactory condition, and are structurally sound. There are spalls and deteriorations along large portions of the toe of the barrier, especially on the east (low) side of the structure. This may be due to the runoff sloping toward the east barrier and ponding because most of the scupper pans are full of debris. There are also some random vertical cracks in both barriers. The impact attenuator between Pier 17 and Pier 18-BW has been hit by a vehicle. See deck mapping for more detailed locations of deficiencies.

Drainage System

The drains at Piers 16 and 18-BE are clogged with debris and water is not draining properly. The scupper pans in the tops of the decks are clogged with debris in most locations. See deck mapping for more detailed locations.

Expansion Joints

The expansion joints are in satisfactory condition. The intermediate expansion joints vary in clear spacing from 1⅞" to 2½" (measured perpendicular to the joints). The abutment expansion joints vary in clear spacing from 1⅝" to 2⅝" (measured perpendicular to the joints). The glands showed signs of minor leakage. The abutment joints near Abutment B and Abutment BE and the expansion joint near Pier 18-BW are in good condition. The elastomeric seal joint near Pier 13 and Pier 24-BE have a portion of the sealer sticking up out of the joint with tears in the sealer visible. The elastomeric seal joint at Pier 24-BE also has a ¼" to ½" elevated lip from one side of the joint to the other. The elastomeric seal joint near Pier 18-BE has portions of the armor missing as well as the sealer sticking up out of the joint. The elastomeric seal joint neat Abutment BW has asphalt covering part of the joint. Spalls were found at most expansion joints. The elastomeric seal joints are also full of debris in most locations. See attached table giving expansion joint measurements and temperatures when the measurements were taken.

Recommendations

No major issues were found during the bridge inspection. It is recommended that the scuppers and downspouts be cleared of debris to avoid deterioration at the toe of barrier at the east barrier due to standing water. The expansion joints should be cleared of all debris to allow for proper expansion and contraction of the deck.

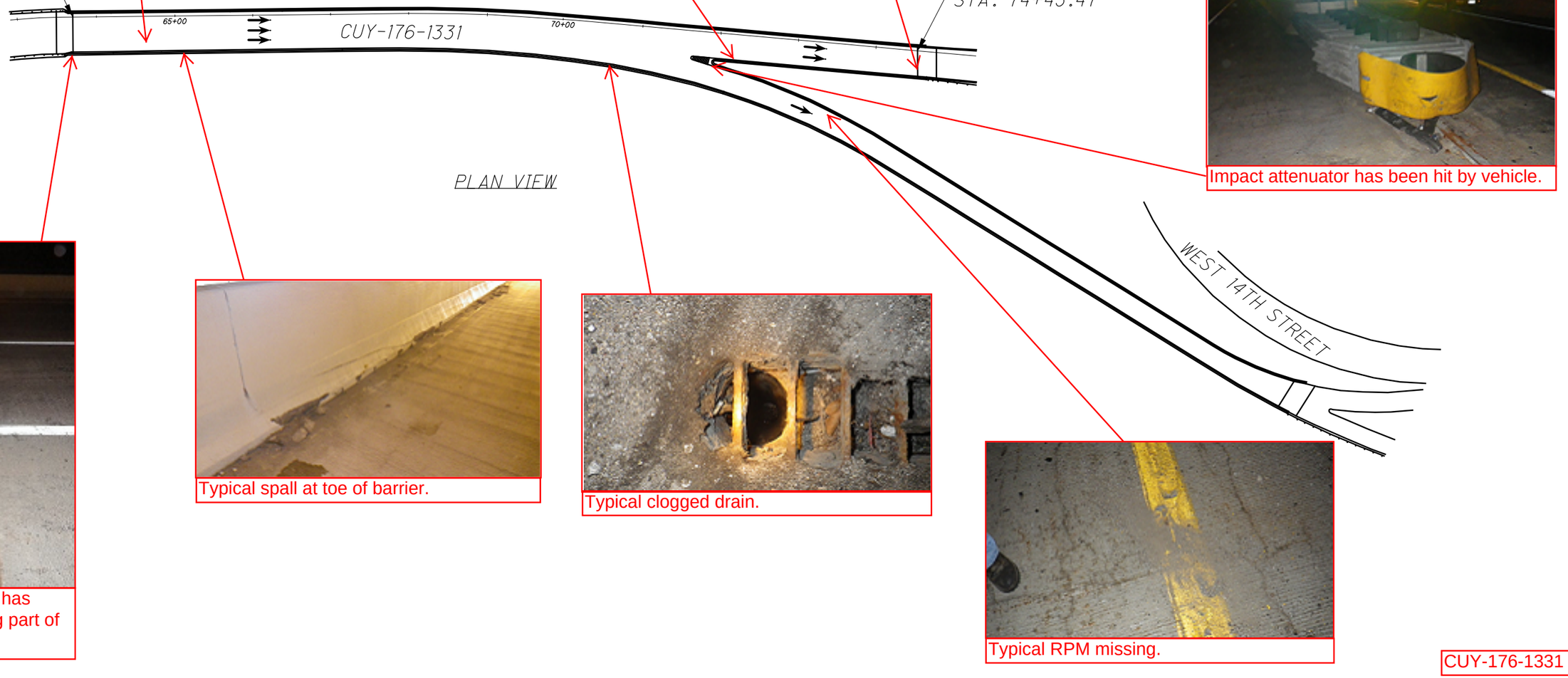
Longitudinal cracking in right shoulder.

Two holes drilled through barrier.

Elastomeric sealer missing from right portion of abutment joint.

END APPROACH SLAB
STA. 63+72.74

BEGIN APPROACH SLAB
STA. 74+45.47



PLAN VIEW

Impact attenuator has been hit by vehicle.

Abutment joint has debris covering part of joint.

Typical spall at toe of barrier.

Typical clogged drain.

Typical RPM missing.

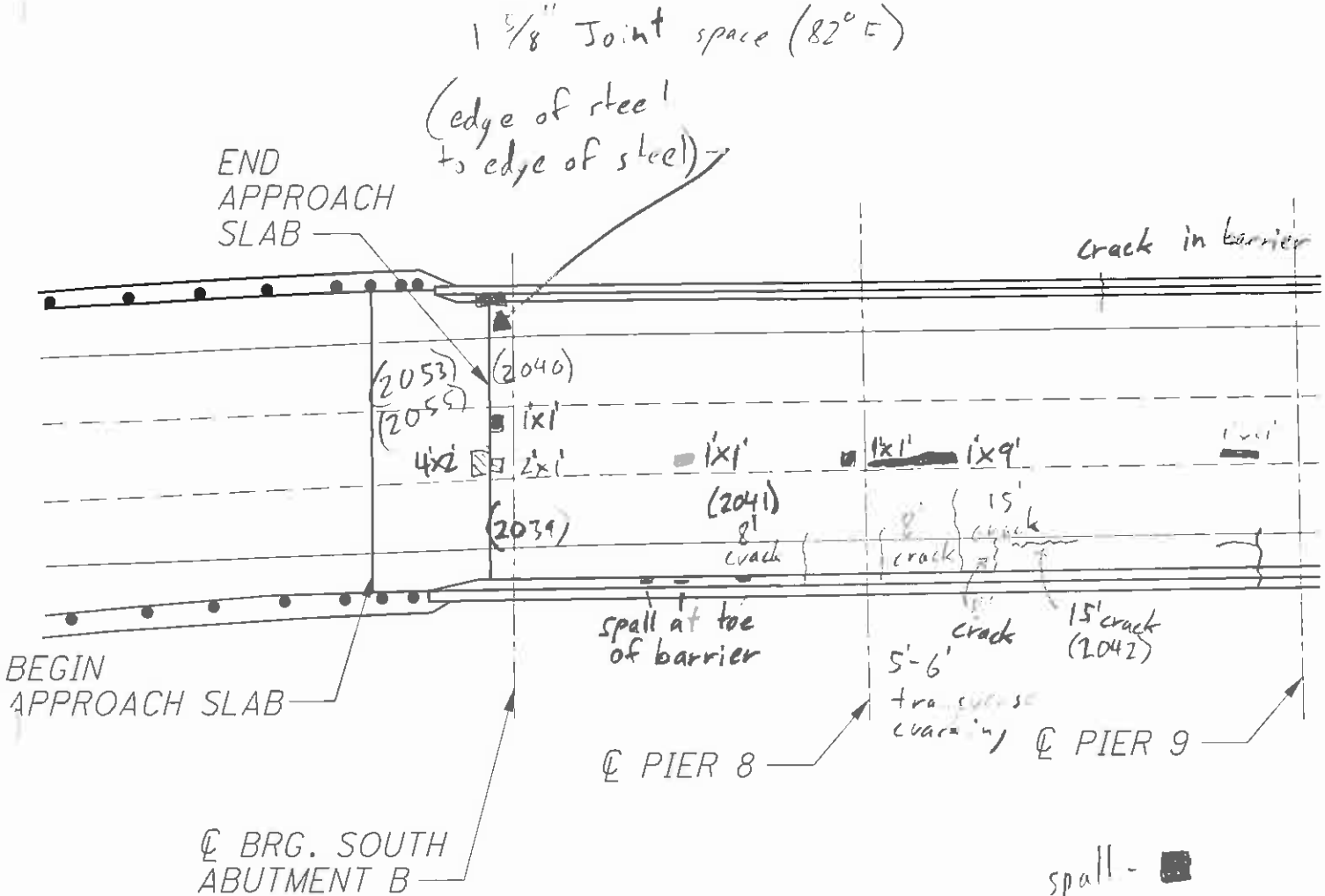
CUY-176-1331

EXPANSION JOINT MEASUREMENT TABLE

Expansion Joint	Measurement (in)	Temperature (°F)
CUY-71-1791		
South Abutment Joint A	2 7/8	85
Expansion Joint 1-A	2 1/8	85
Expansion Joint 2-A	2 1/4	85
Expansion Joint 3-AW	2 1/4	80
Expansion Joint 3-AE	2 1/2	75
North Abutment Joint AW	2 1/8	80
North Abutment Joint AE	1 1/2	75
CUY-176-1331		
South Abutment Joint B	1 5/8	82
Expansion Joint 1-B	1 3/4	82
Expansion Joint 2-BW	1 7/8	76
Expansion Joint 2-BE	1 7/8	74
North Abutment Joint BW	2 1/4	72
Expansion Joint 3-BE	2 1/2	70
North Abutment Joint BE	2 5/8	70

82° F

6' transverse spacing



spall - ■

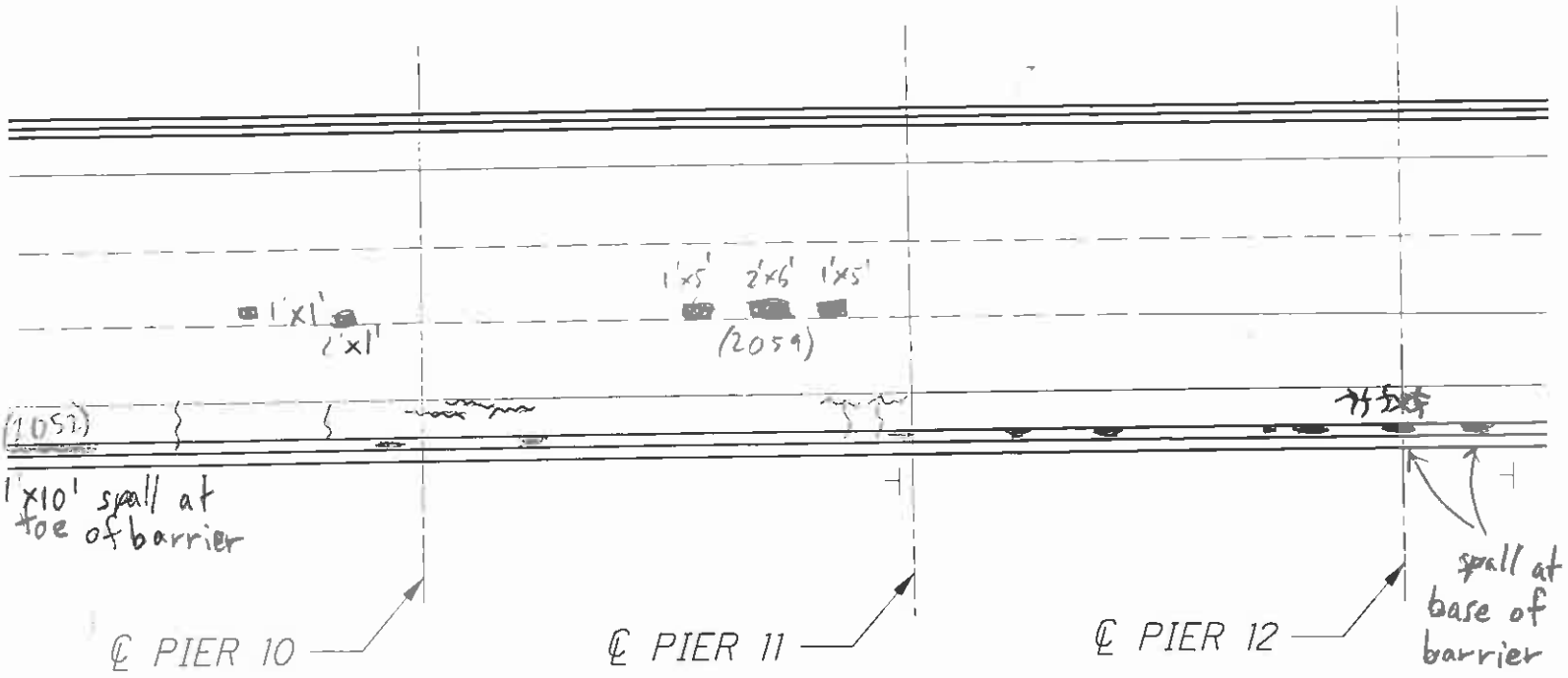
patch - ▨

(photo)

photos:

2039 - Exp. Jt.
2040 - Exp. Jt
2041 - crack transverse
2042 - longitudinal crack
2053 S Approach - good
2055 - spall 1'x9'

176 BRIDGE
PLAN VIEW
SECTION 1 OF 9



photos:

2052 - spall at toe of barrier (typ.)

2059 - large spall

spall -

patch -

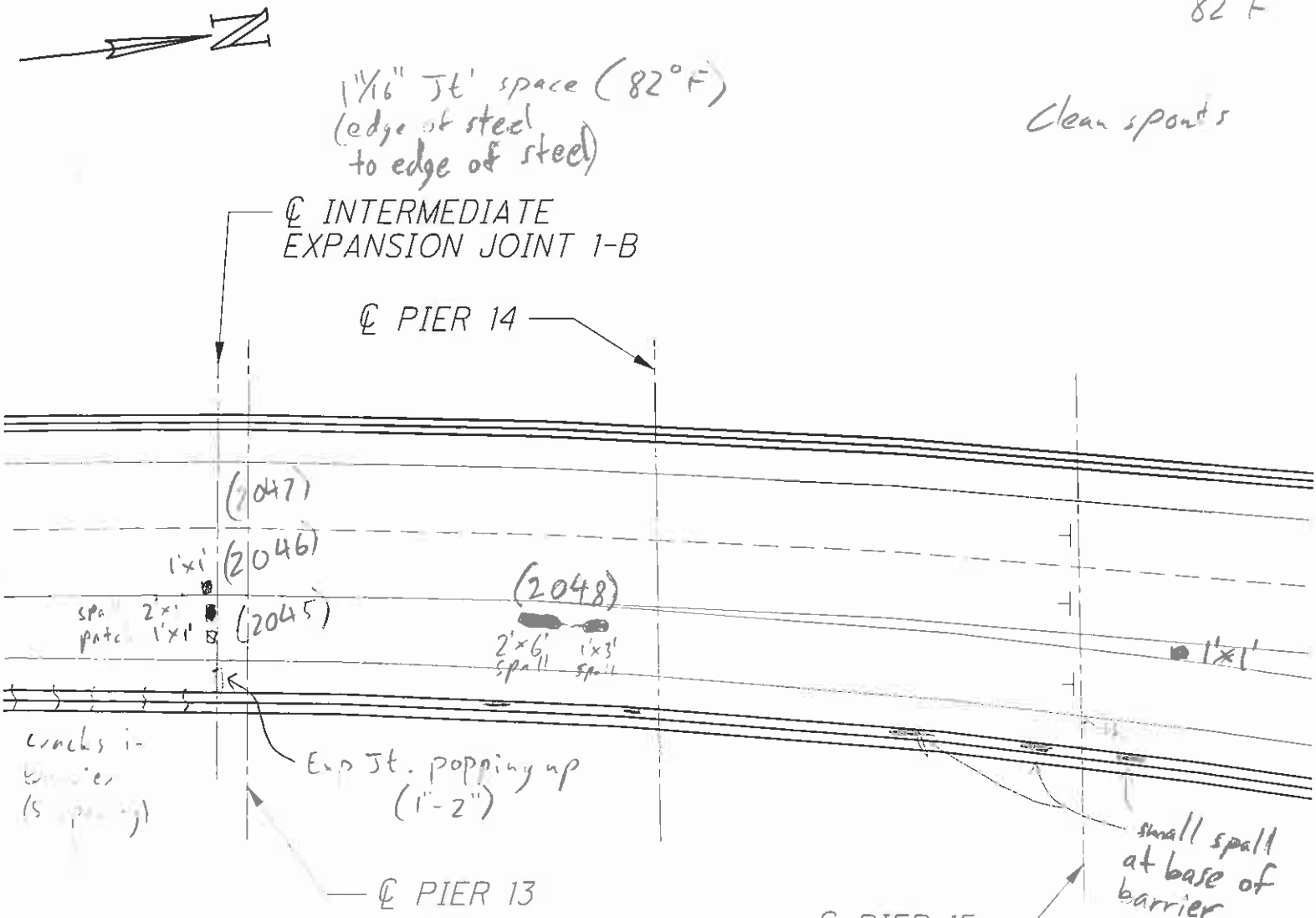
minor map cracking -
(photo)

176 BRIDGE
PLAN VIEW
SECTION 2 OF 9

82° F

1 1/16" Jt' space (82° F)
(edge of steel
to edge of steel)

Clean spalls

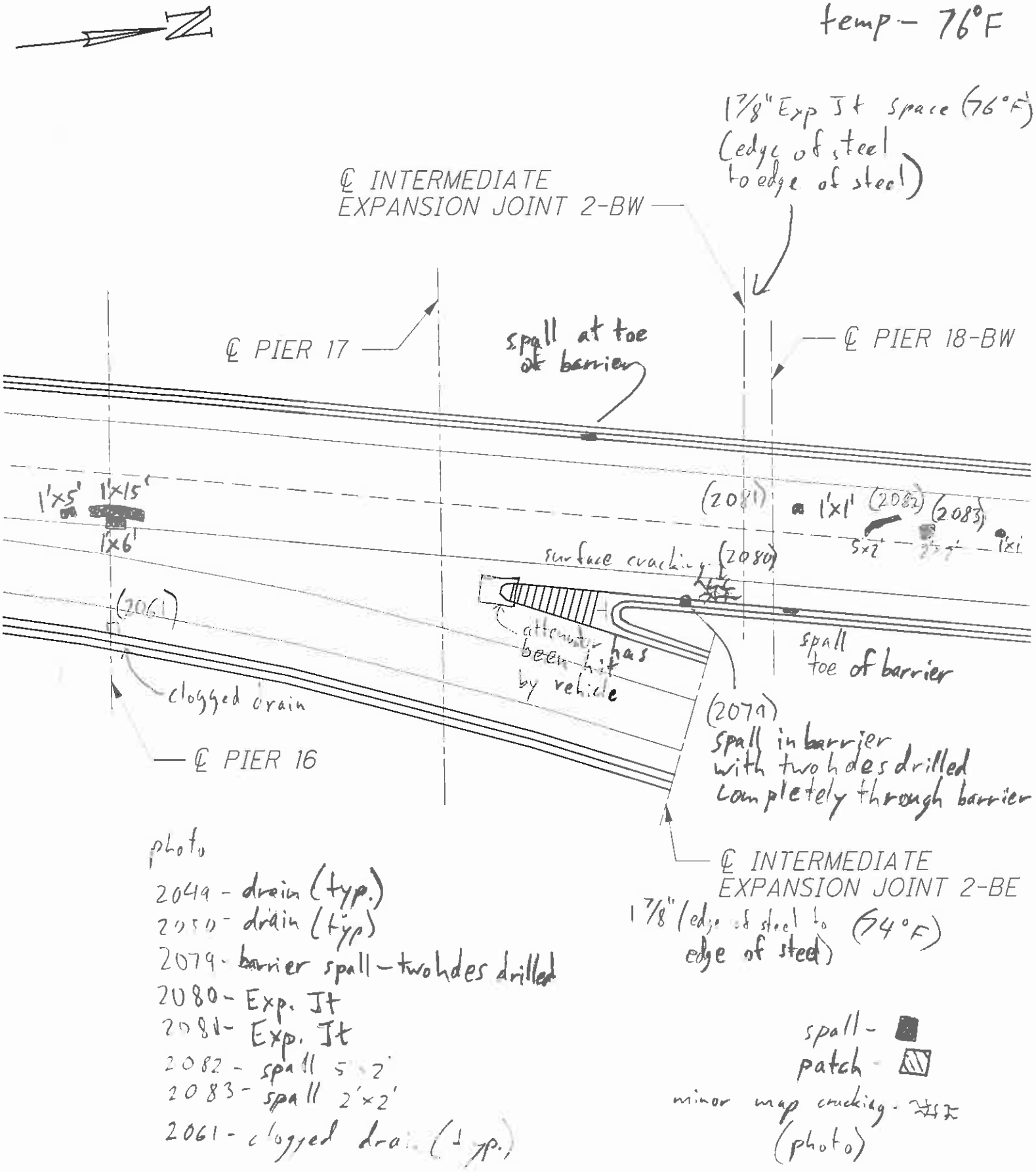


Photos:

2045 - Exp Jt
2046 - Exp Jt
2047 - Exp Jt
2048 - spall 2'x6', 1'x3'

spall -
patch -
minor map cracking -
(photo)

176 BRIDGE
PLAN VIEW
SECTION 3 OF 9



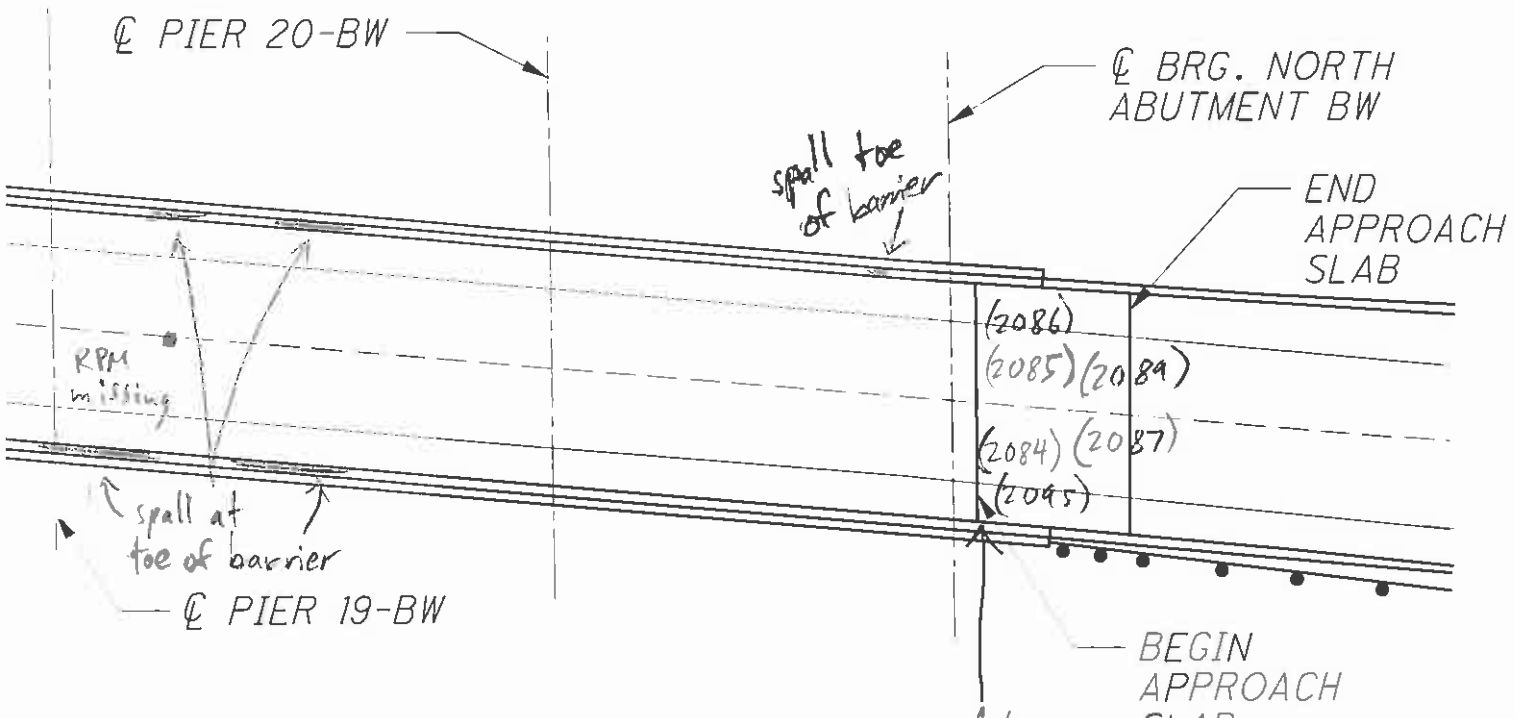
photo

2049 - drain (typ.)
2050 - drain (typ)
2079 - barrier spall - two holes drilled
2080 - Exp. Jt
2081 - Exp. Jt
2082 - spall 5'x2'
2083 - spall 2'x2'
2061 - clogged drain (typ.)

spall - ■
patch - ▨
minor map cracking - ≋
(photo)

176 BRIDGE
PLAN VIEW
SECTION 4 OF 9

temp - 72° F



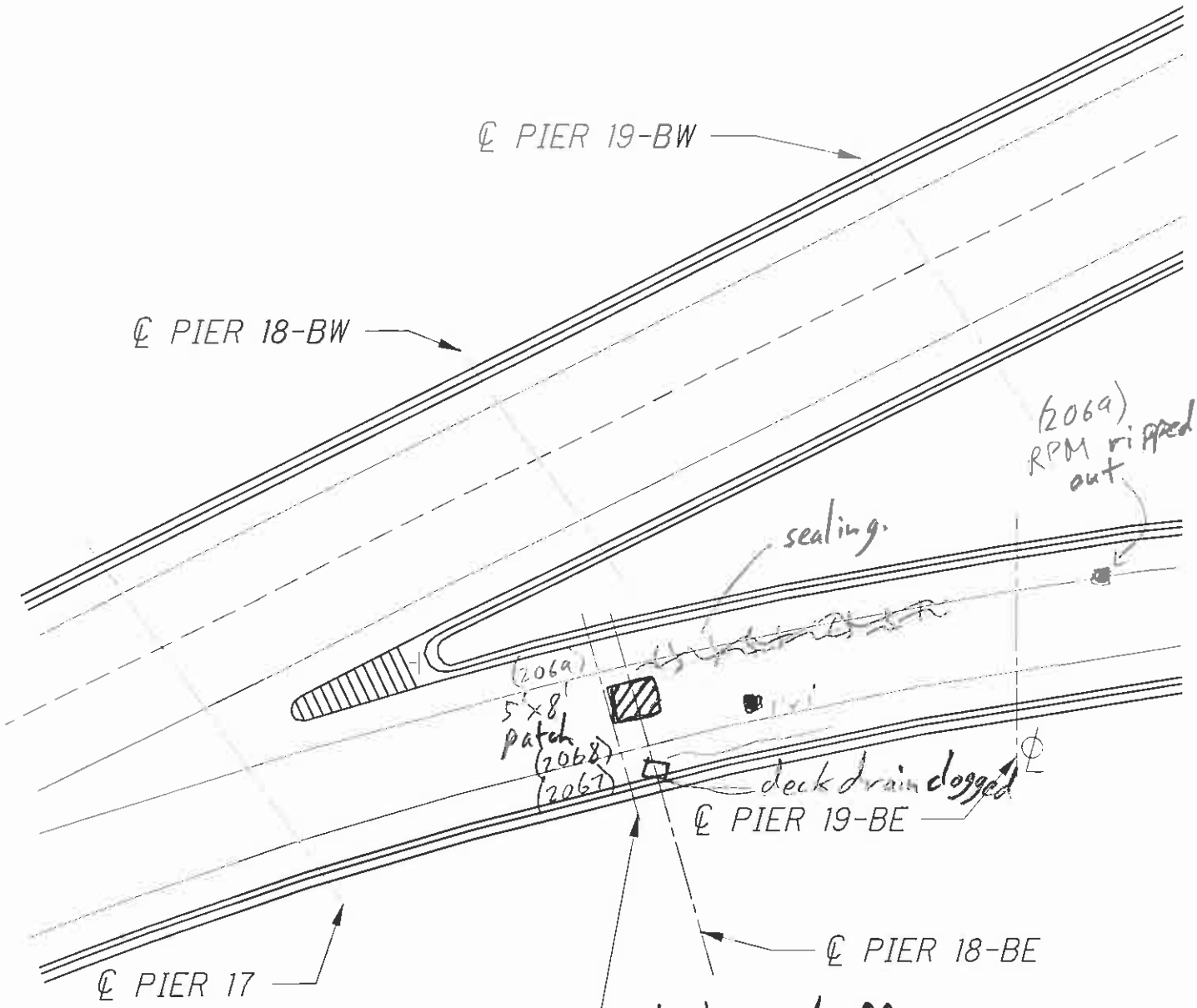
Photos:

2084 - Exp Jt
2085 - Exp Jt
2086 - Exp Jt
2087 - App Slab
2089 - App Slab
2095 - Exp Jt

spall -
patch -
minor map cracking - ≈1% (photo)

176 BRIDGE
PLAN VIEW
SECTION 5 OF 9

74° F

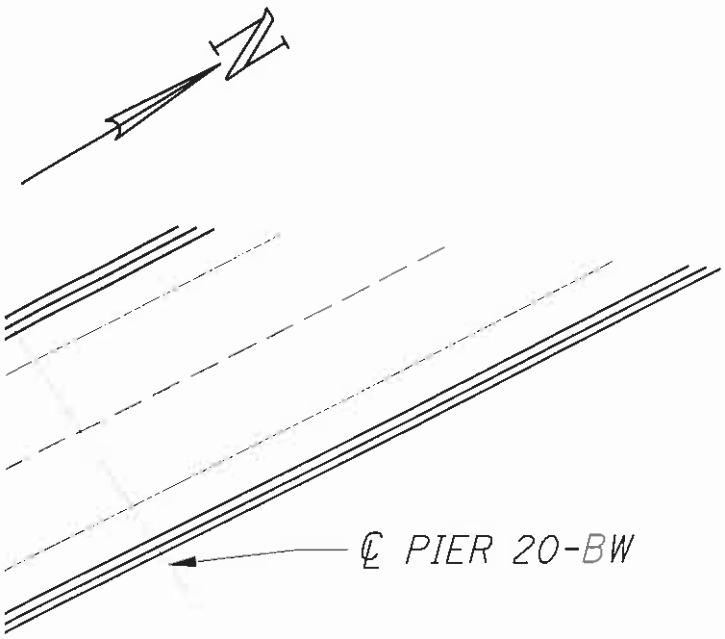


photos:

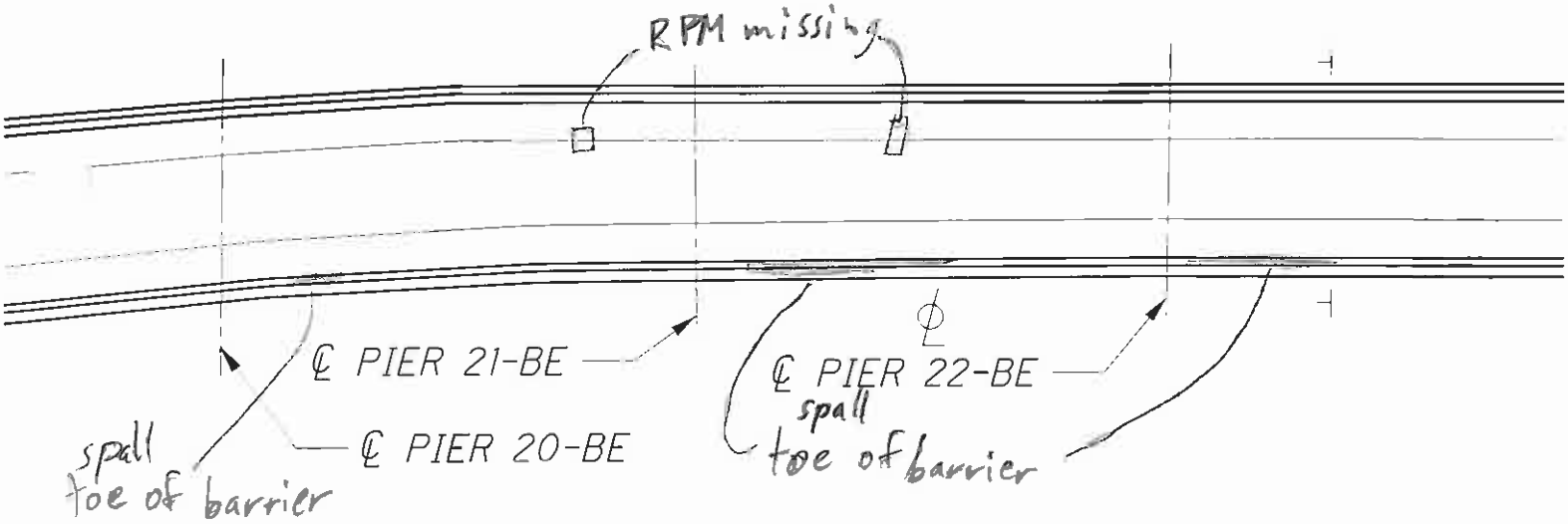
2067 - Exp Jt
2068 - Exp Jt
2069 - Exp Jt
206a - RPM missing

spall -
patch -
minor map cracking - ~~###~~
(photo)

176 BRIDGE
PLAN VIEW
SECTION 6 OF 9

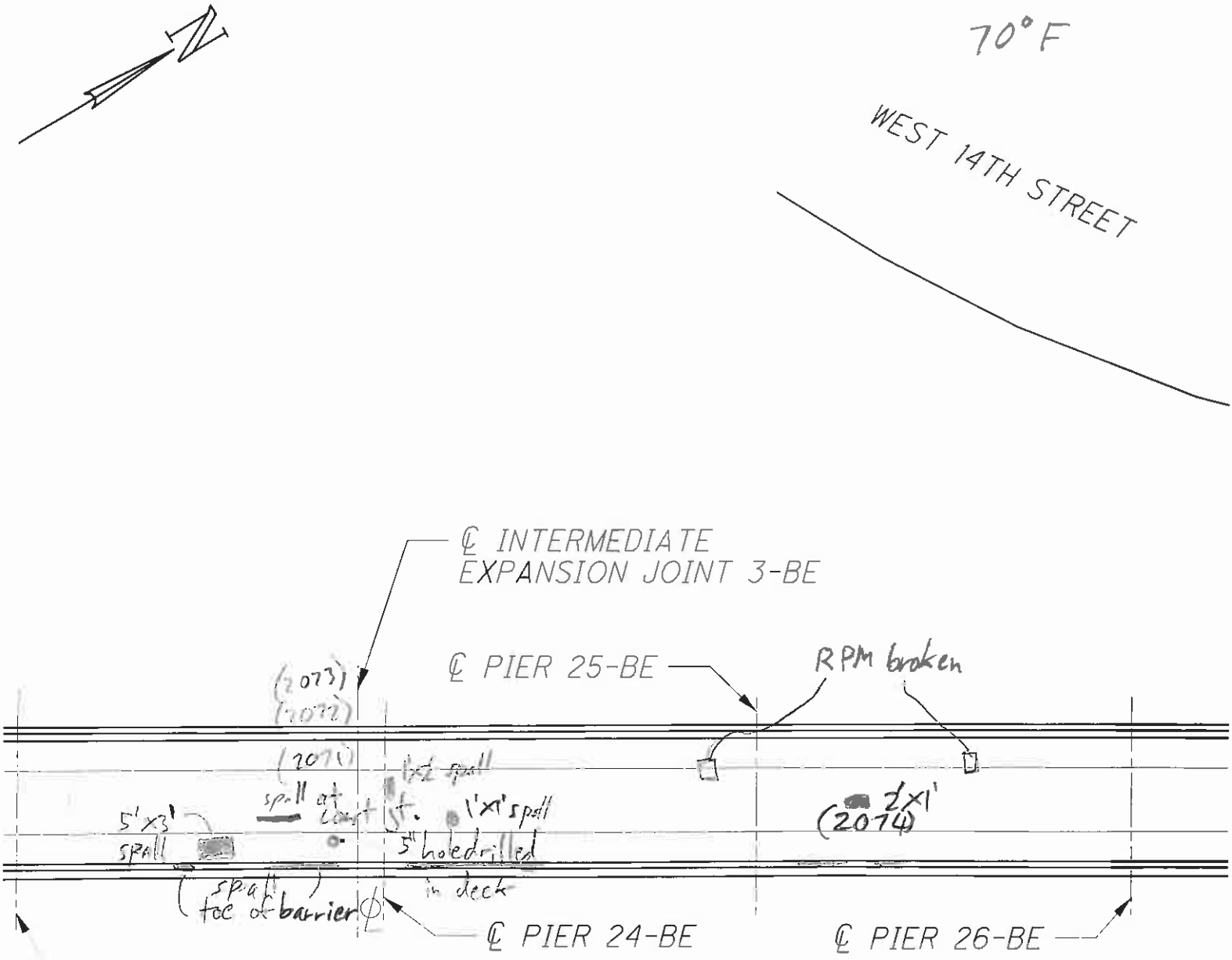


toe of barrier has many spalls



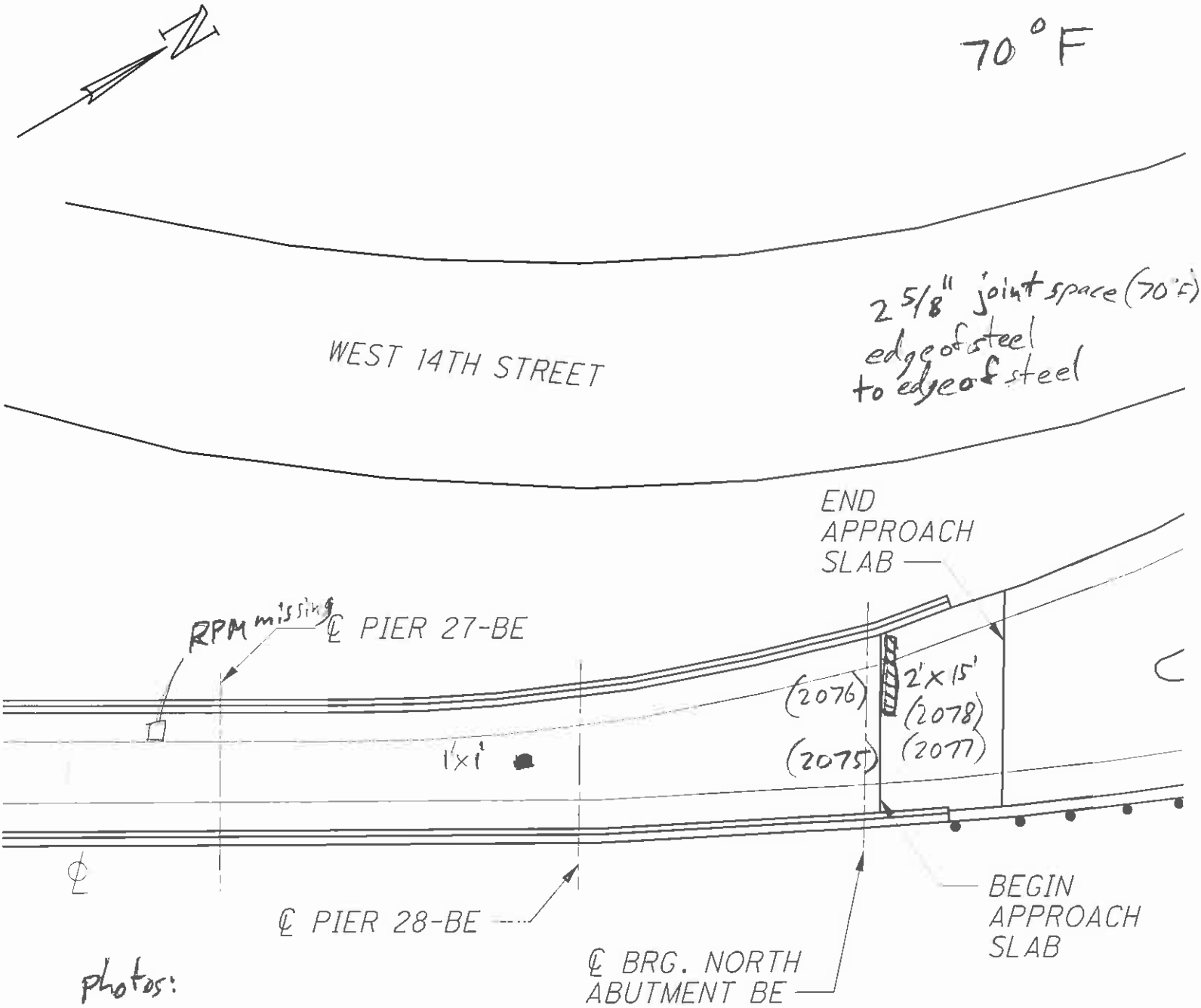
spall - ■

176 BRIDGE
PLAN VIEW
SECTION 7 OF 9



2071. Exp. Jt
2072. Exp Jt
2073. Exp Jt
2074. spall 2'x1'

176 BRIDGE
PLAN VIEW
SECTION 8 OF 9



photos:

2075 - Exp Jt
2076 - Exp Jt
2077 - App Slab
2078 - App Slab

Construction joint in center of lane is starting to deteriorate

spall - ■
patch - ▨
(photo)

176 BRIDGE
PLAN VIEW
SECTION 9 OF 9

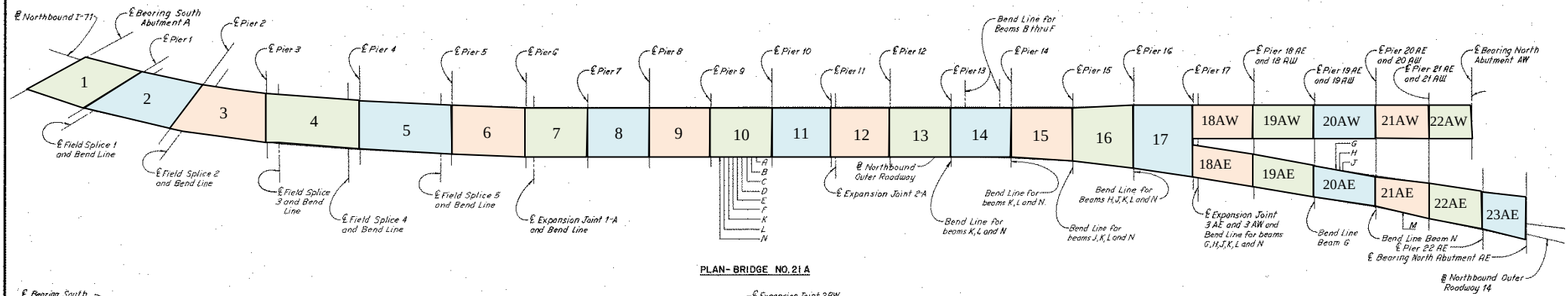
I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
D

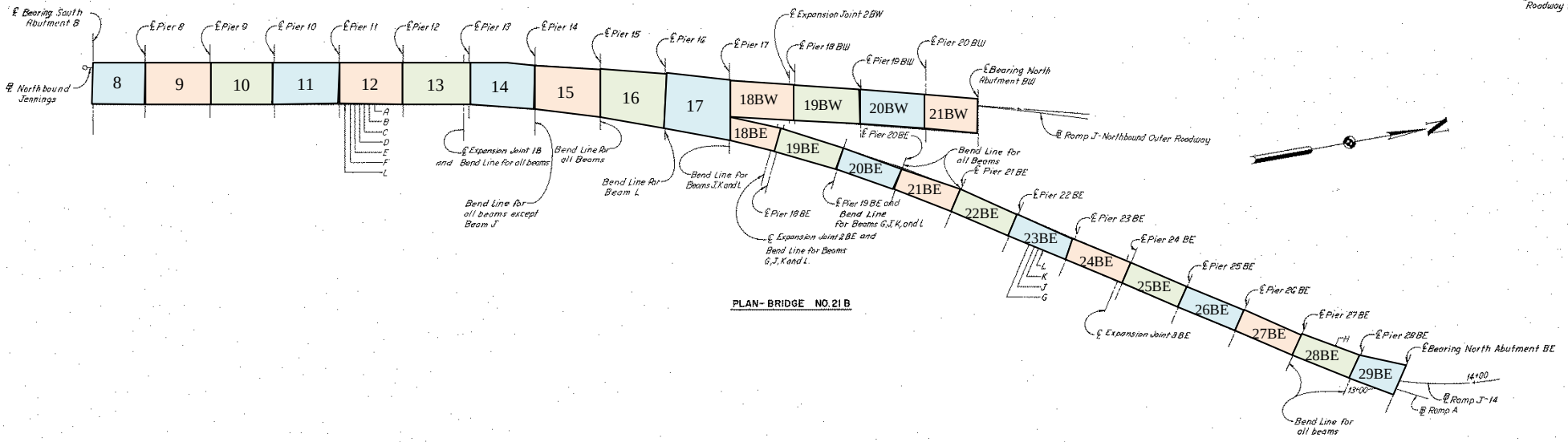
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

408
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76



PLAN - BRIDGE NO. 21 A



PLAN - BRIDGE NO. 21 B

H.N.T.B. BRIDGE NOS. 21 A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SCHEMATIC FRAMING PLAN

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

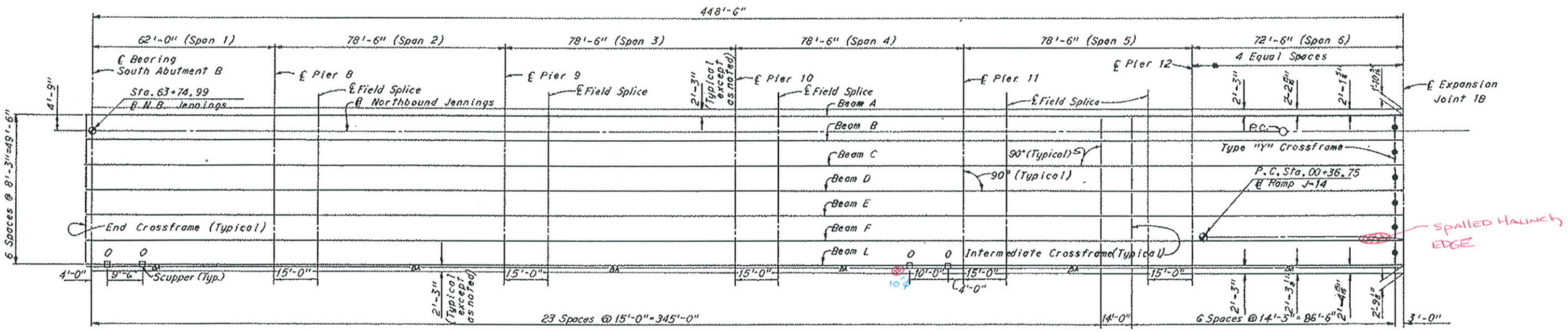
BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
J.M.C.		JMC	RWP	
DATE 12-11-64	DATE	DATE 12-15-64	DATE 12-22-64	SHEET 408

I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
E



— BA — Denotes Bulb Angle Gutter

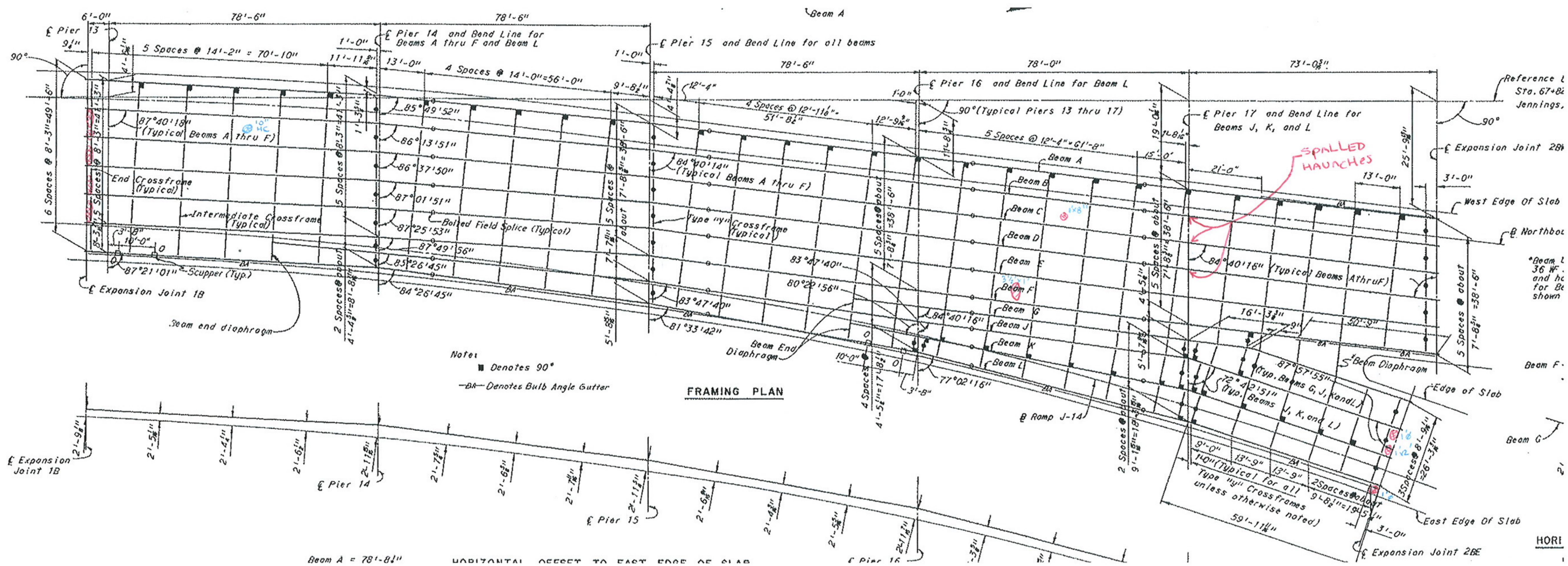
FRAMING PLAN

SPALLED AREA

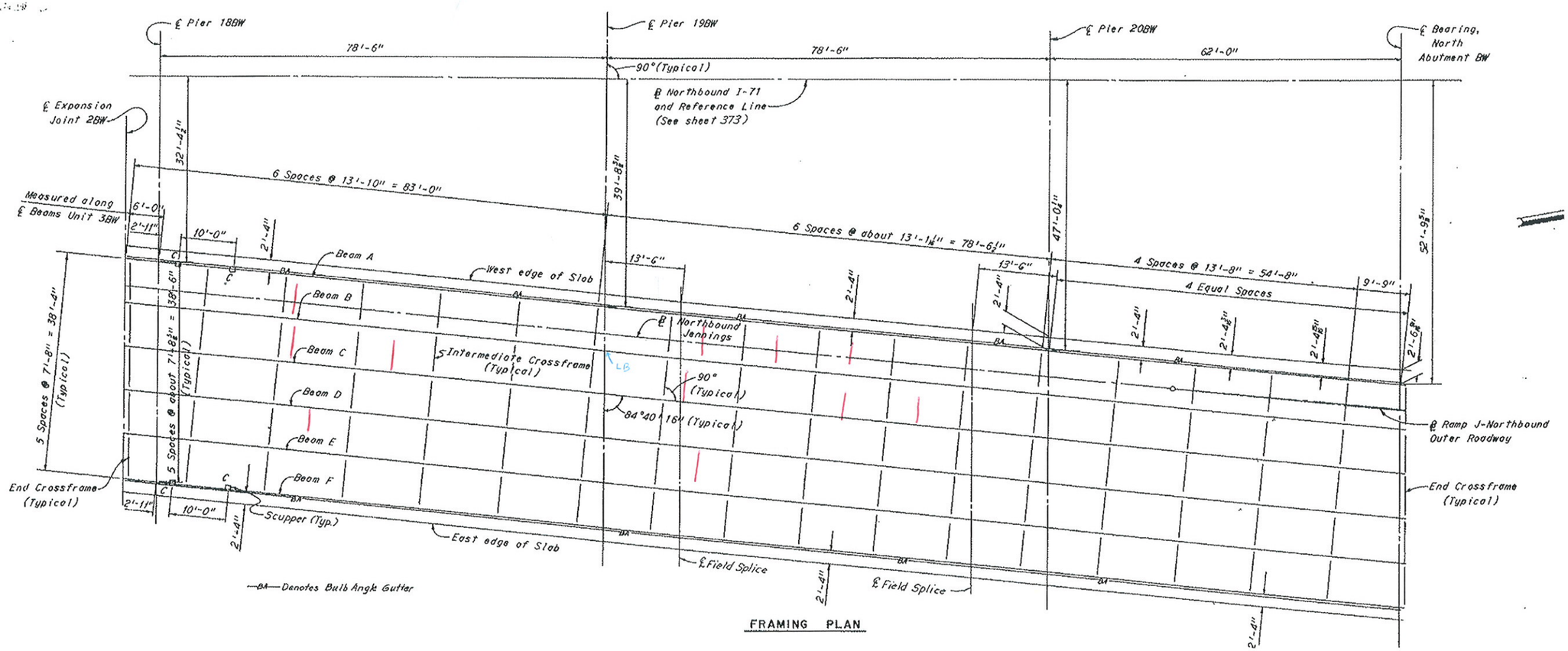
DELAMINATION

HC = Honeycomb

LB = Loose Bolt



FRAMING PLAN
Beam A
℄ Pier 13
℄ Pier 14 and Bend Line for Beams A thru F and Beam L
℄ Pier 15 and Bend Line for all beams
℄ Pier 16 and Bend Line for Beam L
℄ Pier 17 and Bend Line for Beams J, K, and L
Reference L
℄ Expansion Joint 2BW
West Edge Of Slab
5 Spaces @ 14'-2" = 70'-10"
4 Spaces @ 14'-0"=56'-0"
4 Spaces @ 12'-11⅛" = 51'-8½"
5 Spaces @ 12'-4" = 61'-8"
78'-6"
78'-6"
78'-6"
78'-0"
73'-0⅜"
87°40'18" (Typical Beams A thru F)
End Crossframe (Typical)
Intermediate Crossframe (Typical)
Bolted Field Splice (Typical)
84°40'14" (Typical Beams A thru F)
Type "y" Crossframe (Typical)
90°(Typical Piers 13 thru 17)
84°40'16" (Typical Beams A thru F)
SPALLED HAUNCHES
Beam B
Beam C
Beam D
Beam E
Beam F
Beam G
Beam J
Beam K
Beam L
Scupper (Typ.)
℄ Expansion Joint 1B
Beam end diaphragm
Beam End Diaphragm
Beam Diaphragm
Edge of Slab
East Edge Of Slab
℄ Expansion Joint 2BE
℄ Ramp J-14
Type "y" Crossframes unless otherwise noted)
59'-11⅞"
Note:
■ Denotes 90°
—BA— Denotes Bulb Angle Gutter
℄ Expansion Joint 1B
℄ Pier 14
℄ Pier 15
℄ Pier 16
Beam A = 78'-8¼"
HORIZONTAL OFFSET TO EAST EDGE OF SLAB



FRAMING PLAN

LB = LOOSE BOLT

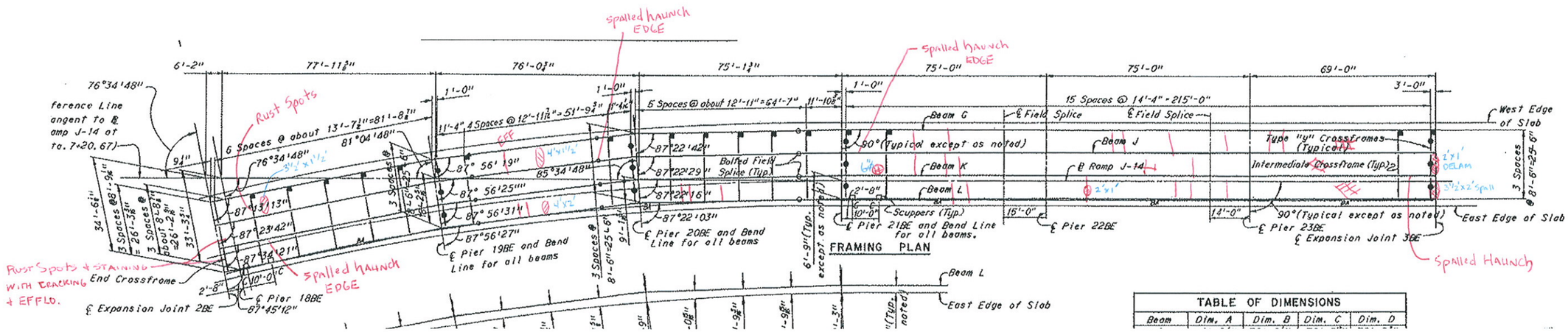
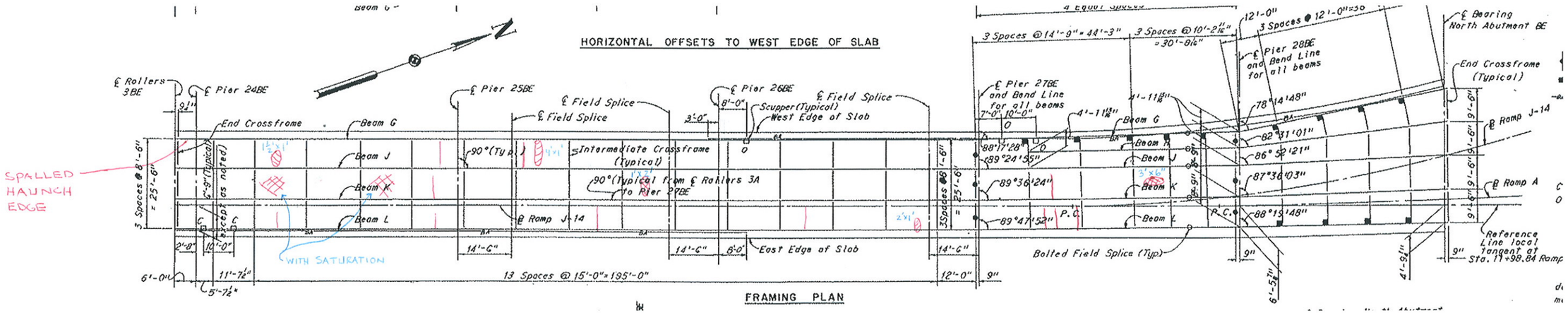


TABLE OF DIMENSIONS				
Beam	Dim. A	Dim. B	Dim. C	Dim. D

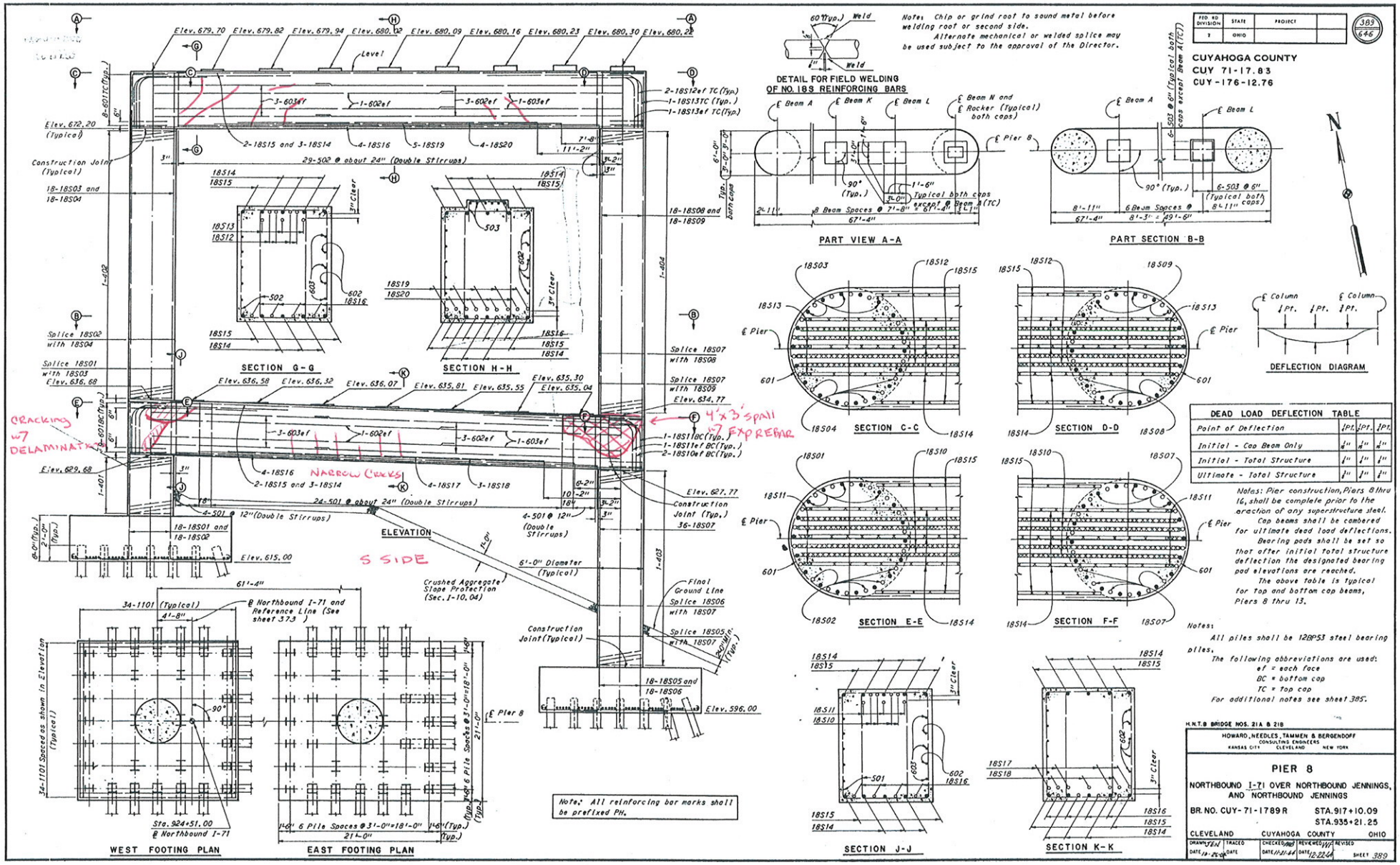
HORIZONTAL OFFSETS TO WEST EDGE OF SLAB



FRAMING PLAN

I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
F



DEAD LOAD DEFLECTION TABLE	℄ Pt.	℄ Pt.	℄ Pt.
Point of Deflection			
Initial - Cap Beam Only	1/4"	1/4"	1/4"
Initial - Total Structure	1"	1"	1"
Ultimate - Total Structure	1"	1"	1"

Notes: Pier construction, Piers 8 thru 16, shall be complete prior to the erection of any superstructure steel.

Cap beams shall be cambered for ultimate dead load deflections.

Bearing pads shall be set so that after initial total structure deflection the designated bearing pad elevations are reached.

The above table is typical for top and bottom cap beams, Piers 8 thru 13.

Notes:

All piles shall be 12BP53 steel bearing piles.

The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap

For additional notes see sheet 385.

FED. RD. DIVISION	STATE	PROJECT	
7	OHIO		

383 646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

H.N.T.B. BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

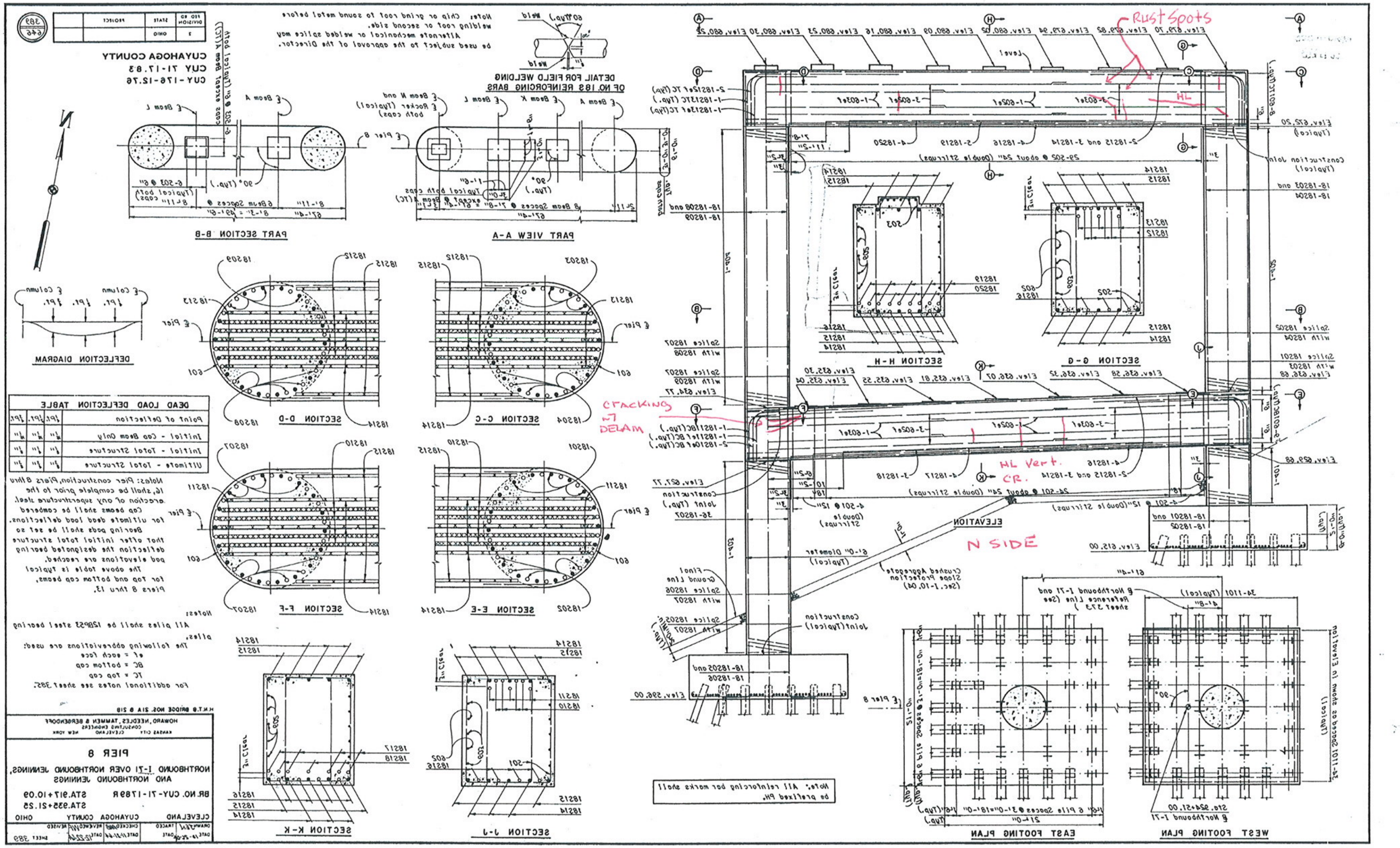
PIER 8

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

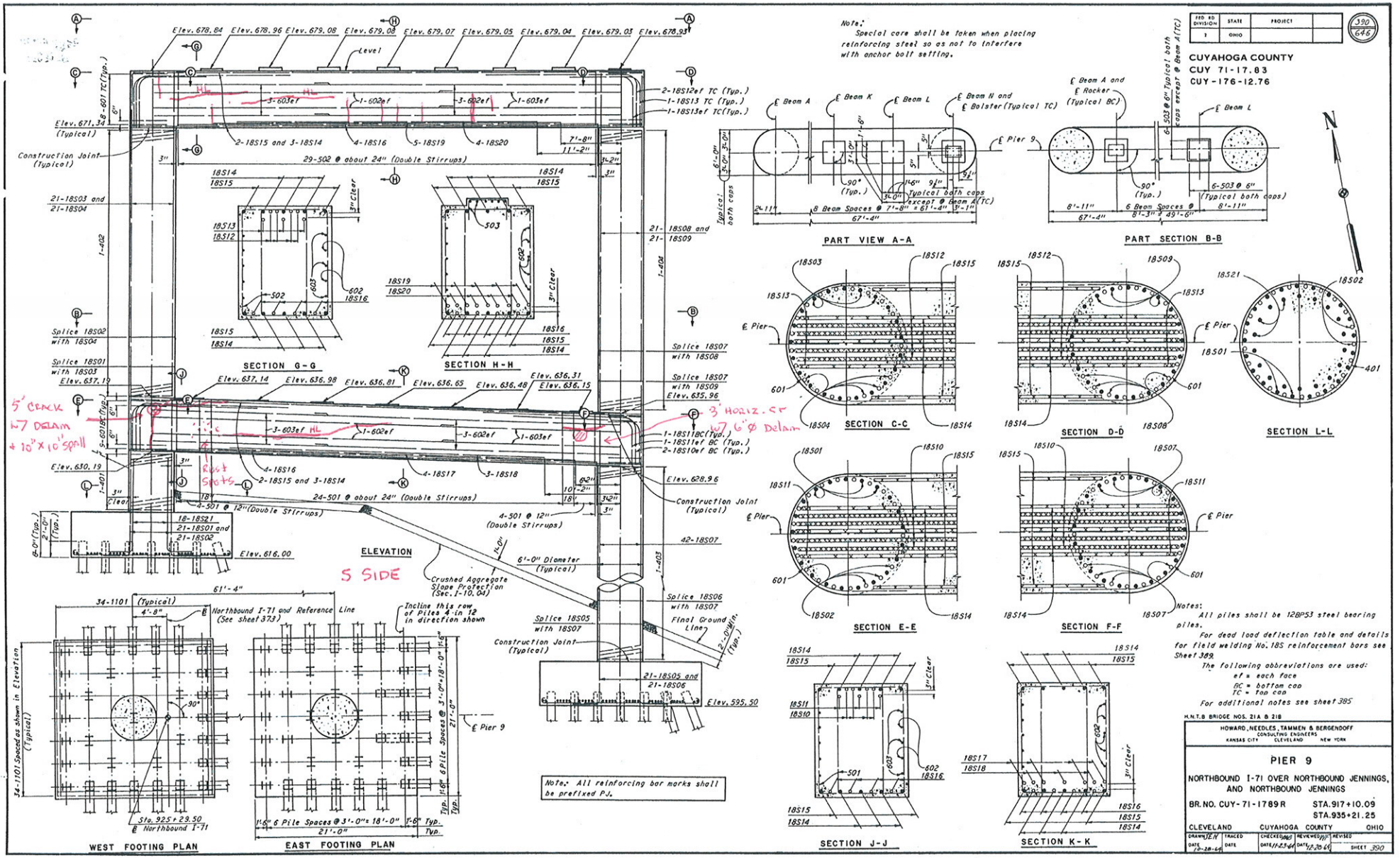
BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 12-20-64	DATE	DATE 12-21-64	DATE 12-22-64	SHEET 389



389 / 646
FED RD DIVISION 3 | STATE OHIO | PROJECT
CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76
Notes: Chip or grind root to sound metal before welding root or second side.
Alternate mechanical or welded splice may be used subject to the approval of the Director.
DETAIL FOR FIELD WELDING OF NO. 18S REINFORCING BARS
PART SECTION B-B
PART VIEW A-A
DEFLECTION DIAGRAM
DEAD LOAD DEFLECTION TABLE
Point of Deflection
Initial - Cap Beam Only
Initial - Total Structure
Ultimate - Total Structure
Notes: Pier construction, Piers 8 thru 16, shall be complete prior to the erection of any superstructure steel.
Cap beams shall be cambered for ultimate dead load deflections.
Bearing pads shall be set so that after initial total structure deflection the designated bearing pad elevations are reached.
The above table is typical for top and bottom cap beams, Piers 8 thru 13.
Notes:
All piles shall be 12BP53 steel bearing piles.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see sheet 385.
H.N.T.B BRIDGE NOS. 21A & 21B
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK
PIER 8
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789 R
STA. 917+10.09
STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
SHEET 389
SECTION D-D
SECTION C-C
SECTION F-F
SECTION E-E
SECTION K-K
SECTION J-J
SECTION H-H
SECTION G-G
ELEVATION
EAST FOOTING PLAN
WEST FOOTING PLAN
Note: All reinforcing bar marks shall be prefixed PH.
Elev. 680.25
Elev. 680.30
Elev. 680.23
Elev. 680.16
Elev. 680.09
Elev. 680.02
Elev. 679.94
Elev. 679.82
Elev. 679.70
Elev. 672.20
Elev. 635.30
Elev. 635.04
Elev. 635.55
Elev. 635.81
Elev. 636.07
Elev. 636.32
Elev. 636.58
Elev. 636.68
Elev. 634.77
Elev. 629.68
Elev. 627.77
Elev. 615.00
Elev. 596.00
29-502 @ about 24" (Double Stirrups)
24-501 @ about 24" (Double Stirrups)
6'-0" Diameter (Typical)
Crushed Aggregate Slope Protection (Sec. I-10.04)
Construction Joint (Typical)
Final Ground Line
Sta. 924+51.00
℄ Northbound I-71
34-1101 (Typical)
21'-0"
61'-4"
67'-4"
Rust Spots
HL
CRACKING w/ DELAM
HL Vert. CR.
N SIDE



FED. RD. DIVISION	STATE	PROJECT	
3	OHIO		

390
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

Notes:
All piles shall be 12BP53 steel bearing piles.
For dead load deflection table and details for field welding No. 18S reinforcement bars see Sheet 382.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see sheet 385

H.N.T.B. BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

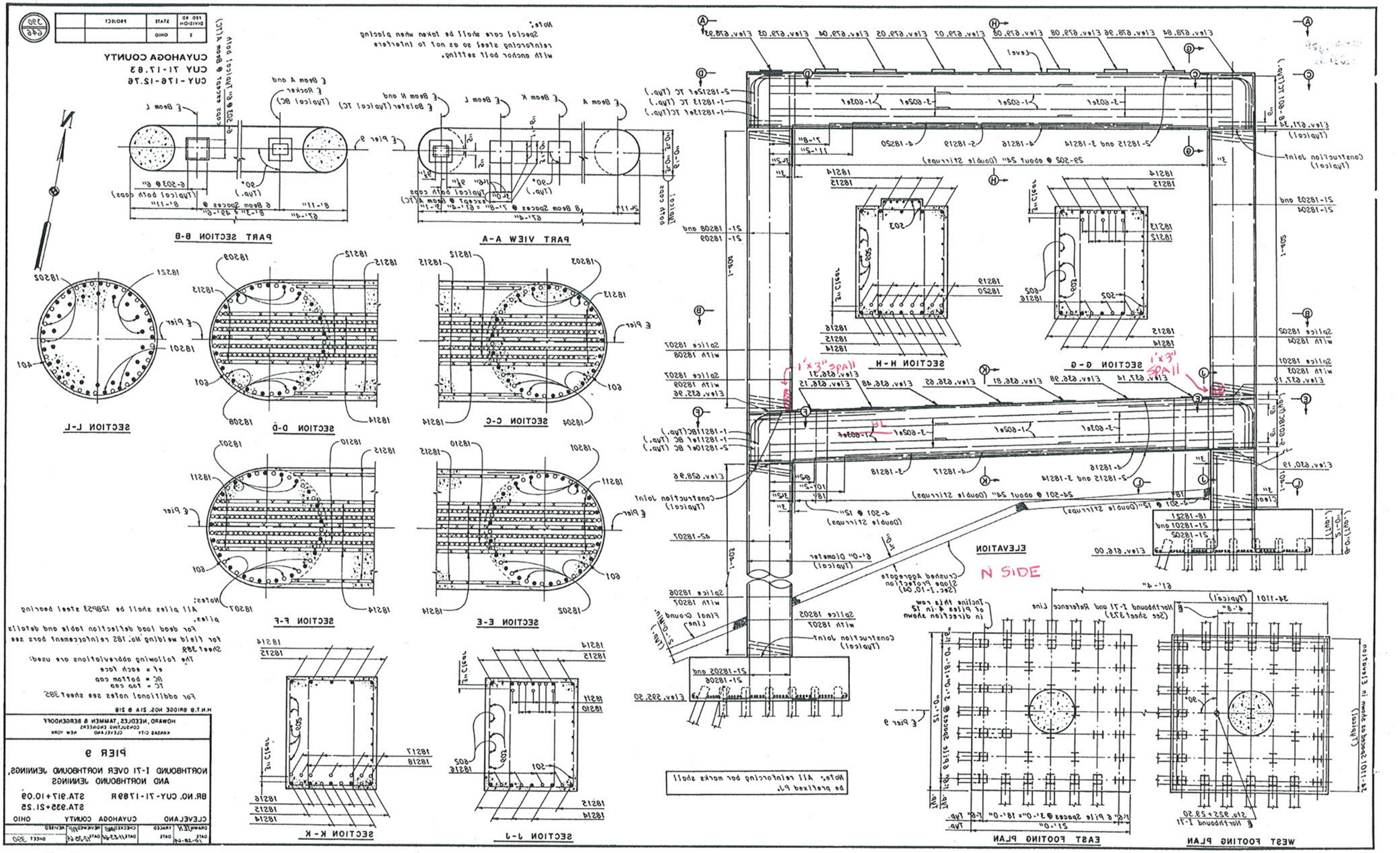
PIER 9

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

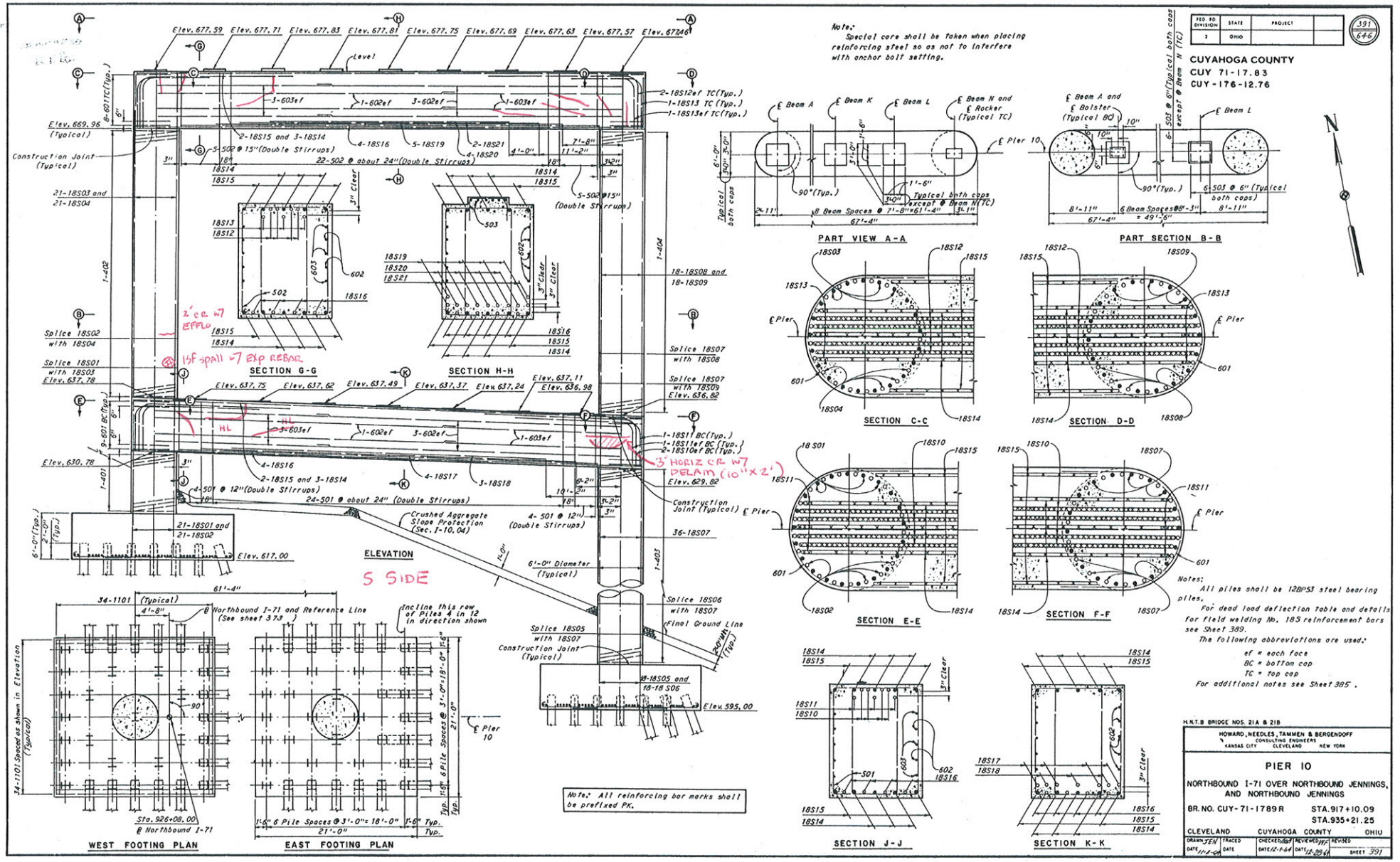
BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN JEN	TRACED	CHECKED	REVIEWED	REVISED
DATE 12-20-64	DATE	DATE 12-23-64	DATE 12-30-64	SHEET 390



CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76
Note: Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.
PART SECTION B-B
PART VIEW A-A
SECTION L-L
SECTION D-D
SECTION C-C
SECTION F-F
SECTION E-E
SECTION K-K
SECTION J-J
SECTION H-H
SECTION G-G
ELEVATION
N SIDE
1'x3" Spall
1'x3" SPALL
EAST FOOTING PLAN
WEST FOOTING PLAN
Construction Joint (Typical)
Crushed Aggregate Slope Protection (Sec. I-10.04)
6'-0" Diameter (Typical)
Final Ground Line
Elev. 595.50
Elev. 616.00
Note: All reinforcing bar marks shall be prefixed P4.
Notes:
All piles shall be 12BP53 steel bearing piles.
For dead load deflection table and details for field welding No. 18S reinforcement bars see Sheet 389.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = Top cap
For additional notes see sheet 385.
H.N.T.B. BRIDGE NOS. 21A & 21B
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
PIER 9
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789R
STA. 917+10.09
STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
SHEET 390



FED. RD. DIVISION	STATE	PROJECT	
3	OHIO		

391
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

Notes:
All piles shall be 12BP53 steel bearing piles.
For dead load deflection table and details for field welding Mk. 18S reinforcement bars see Sheet 389.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see Sheet 395.

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 10

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

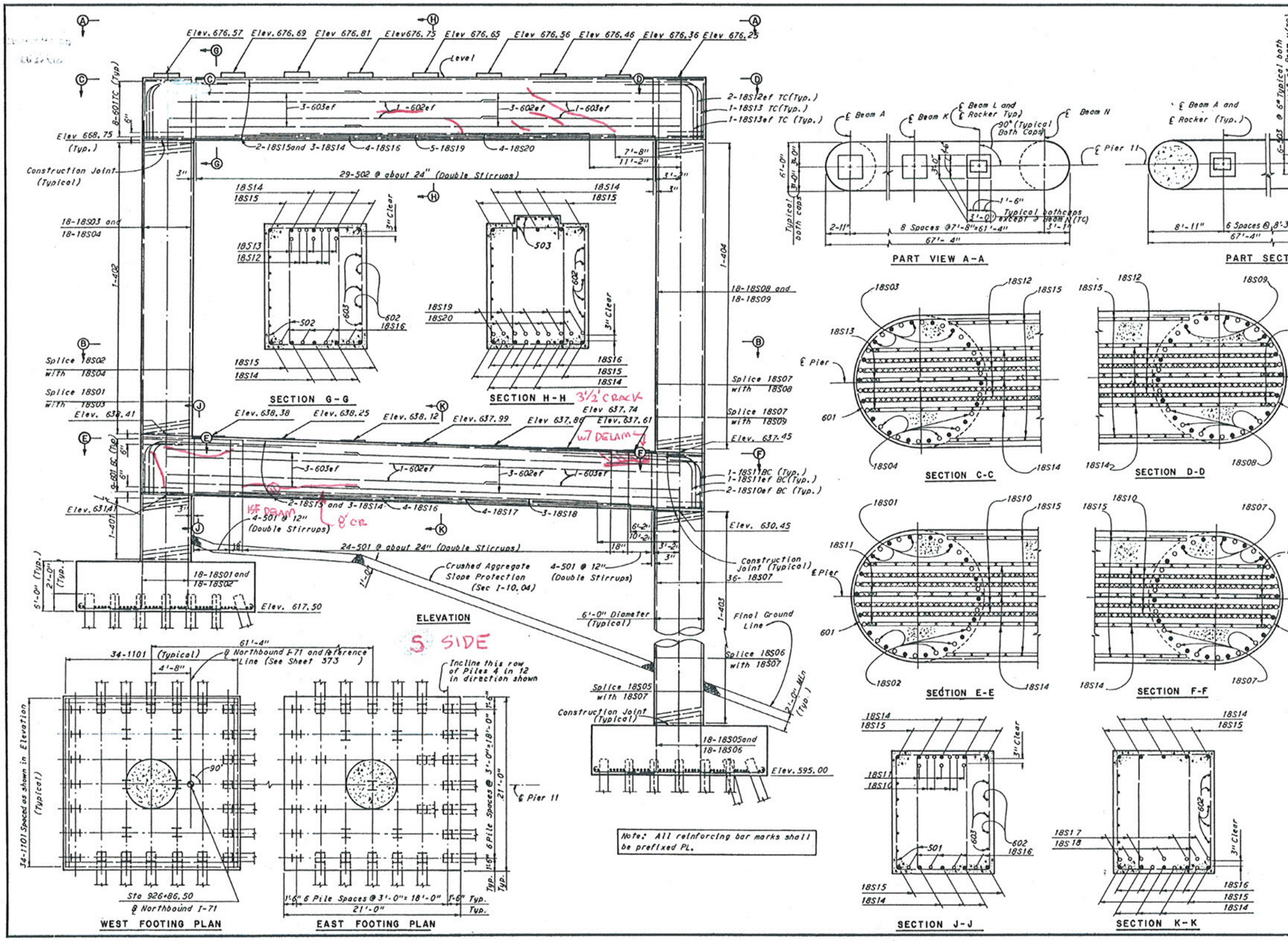
DRAWN	TRACED	CHECKED	REVIEWED	REVISED	SHEET
JEN					391
DATE 11-2-64	DATE	DATE 12-1-64	DATE 12-28-64		

8"x1" spall w/ EXP. REBAR

FED. RD. DIVISION	STATE	PROJECT
3	OHIO	

392
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76



Notes:
All piles shall be 12BP53 steel bearing piles.
For dead load deflection table and details for field welding No. 18S reinforcement bars see Sheet 389.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see Sheet 383.

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 11

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

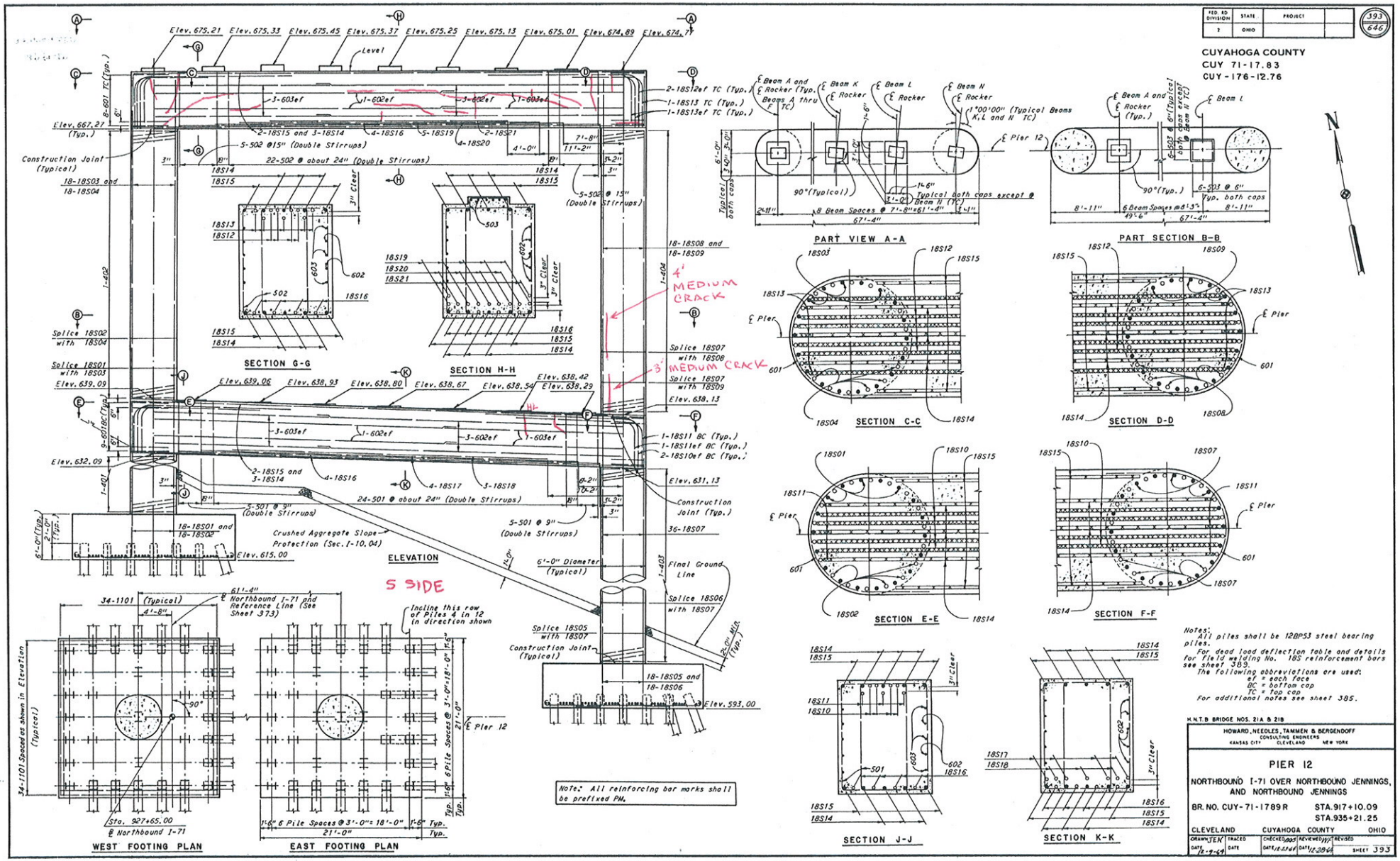
DRAWN JEN DATE 11-10-64 | TRACED DATE | CHECKED DATE 12-3-64 | REVIEWED DATE 12-28-64 | REVISED | SHEET 392

Spalls w/ Exp Rebar
Alligator cracking
3" x 1 1/2" Spall w/ Exp Rebar
Map Cracking
Rust Stain
Map Cracking
7" x 4" x 10" Spall
ELEVATION
N SIDE
PART SECTION B-B
PART VIEW A-A
SECTION D-D
SECTION C-C
SECTION F-F
SECTION E-E
SECTION K-K
SECTION J-J
SECTION H-H
SECTION G-G
EAST FOOTING PLAN
WEST FOOTING PLAN
CUYAHOGA COUNTY
CUY 71-17.83
CUY-171-15.76
PIER II
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS,
NORTHBOUND JENNINGS
BR. NO. CUY-71-1788R
STA.317+10.09
STA.335+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FED. RD DIVISION	STATE	PROJECT	
7	OHIO		

393
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76



Notes:
All piles shall be 12BP53 steel bearing piles.
For dead load deflection table and details for field welding No. 18S reinforcement bars see sheet 389.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see sheet 385.

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 12

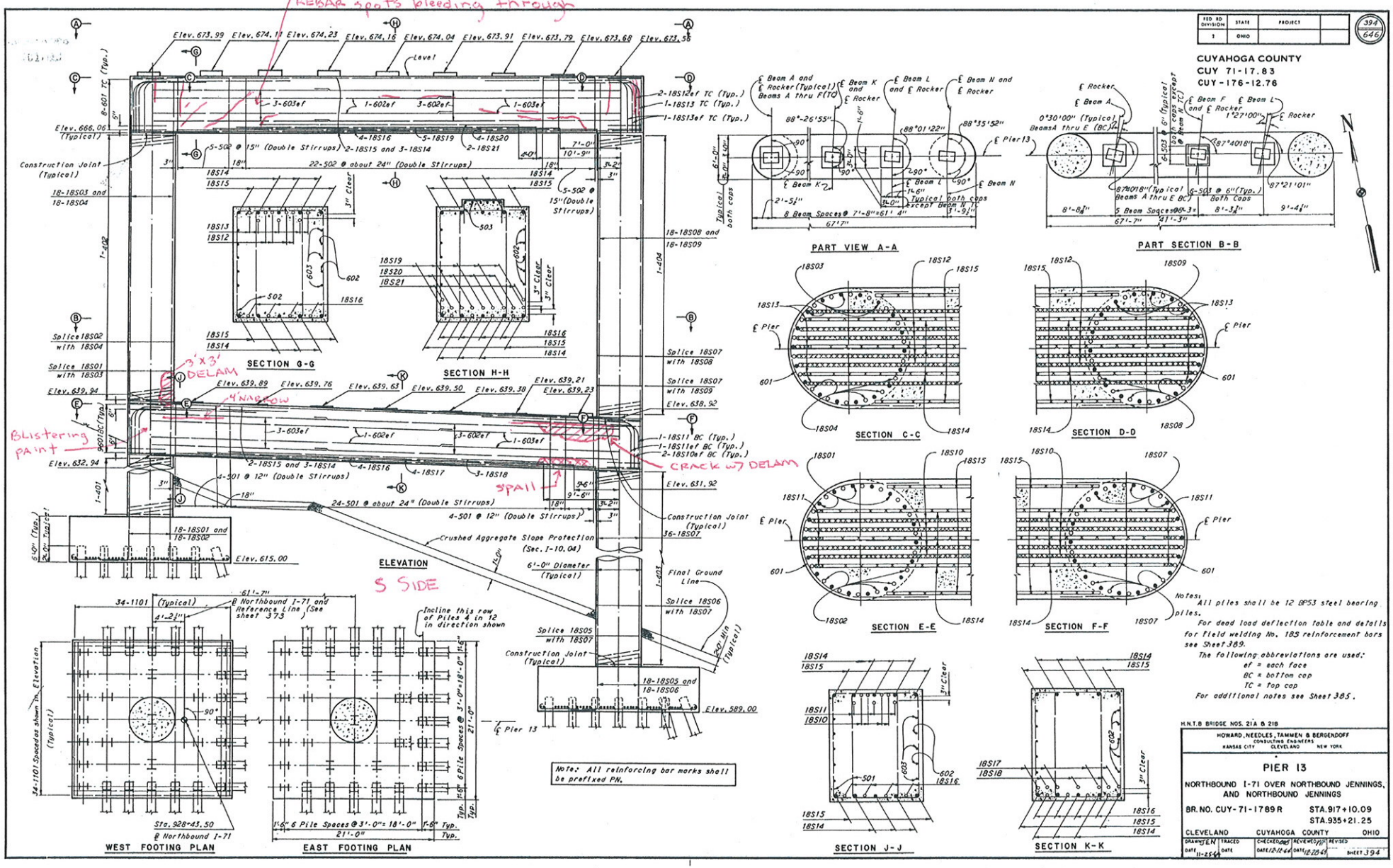
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN JEK	TRACED	CHECKED DGS	REVIEWED JJ	REVISED
DATE 12-9-69	DATE	DATE 12-22-69	DATE 12-29-69	SHEET 393

spalled corner of pedestal
PEELING PAINT
16"x3" spall w/ EXP REBAR
6"x2" spall w/ Exp REBAR
4"x3" spall
N SIDE
ELEVATION
SECTION H-H
SECTION G-G
PART VIEW A-A
PART SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
SECTION K-K
SECTION L-L
EAST FOOTING PLAN
WEST FOOTING PLAN
Note: All reinforcing bar marks shall be prefixed PM.
PIER 12
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
CUYAHOGA COUNTY OHIO
CUY-71-17.83
CUY-176-12.76



FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

394
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

M.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

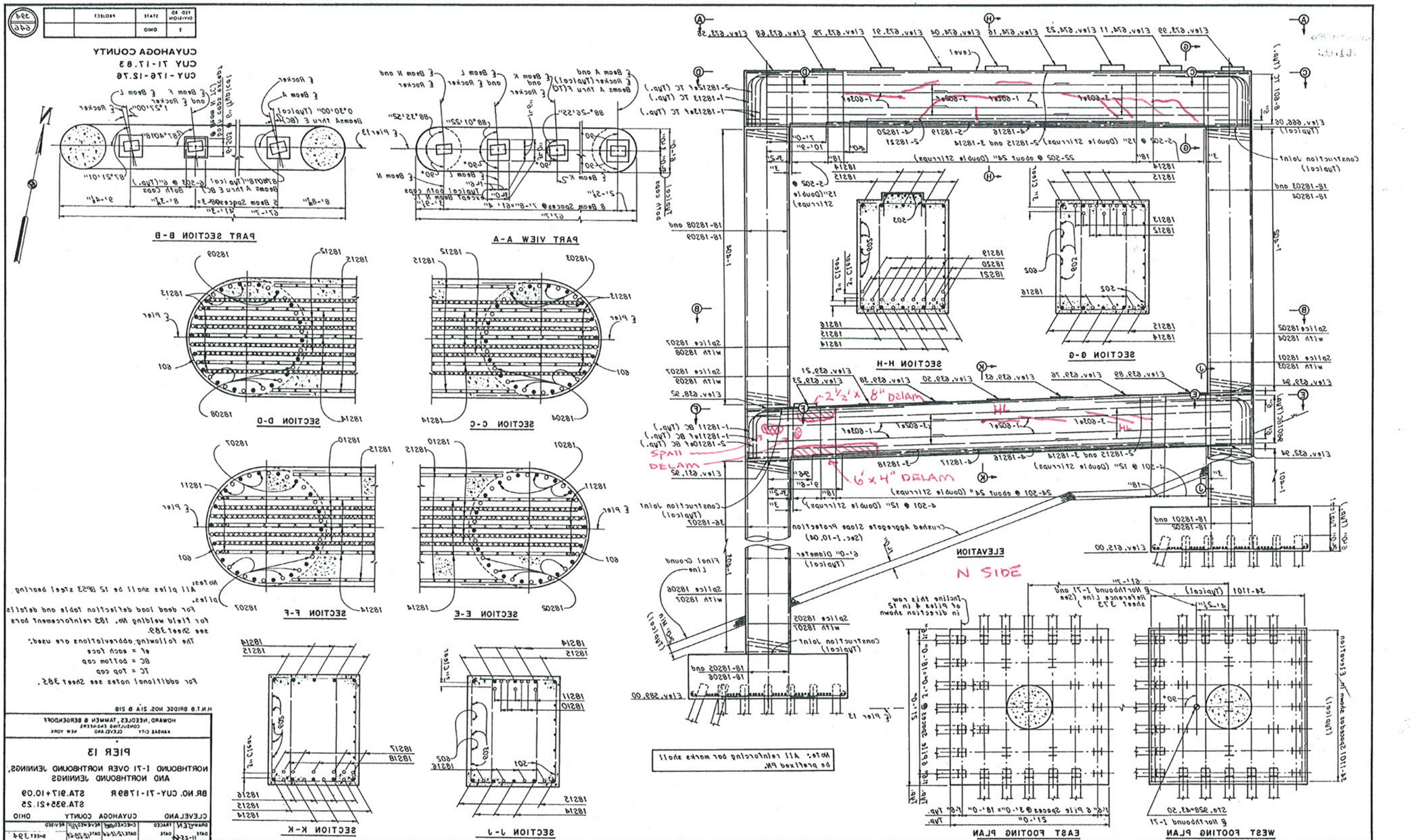
PIER 13

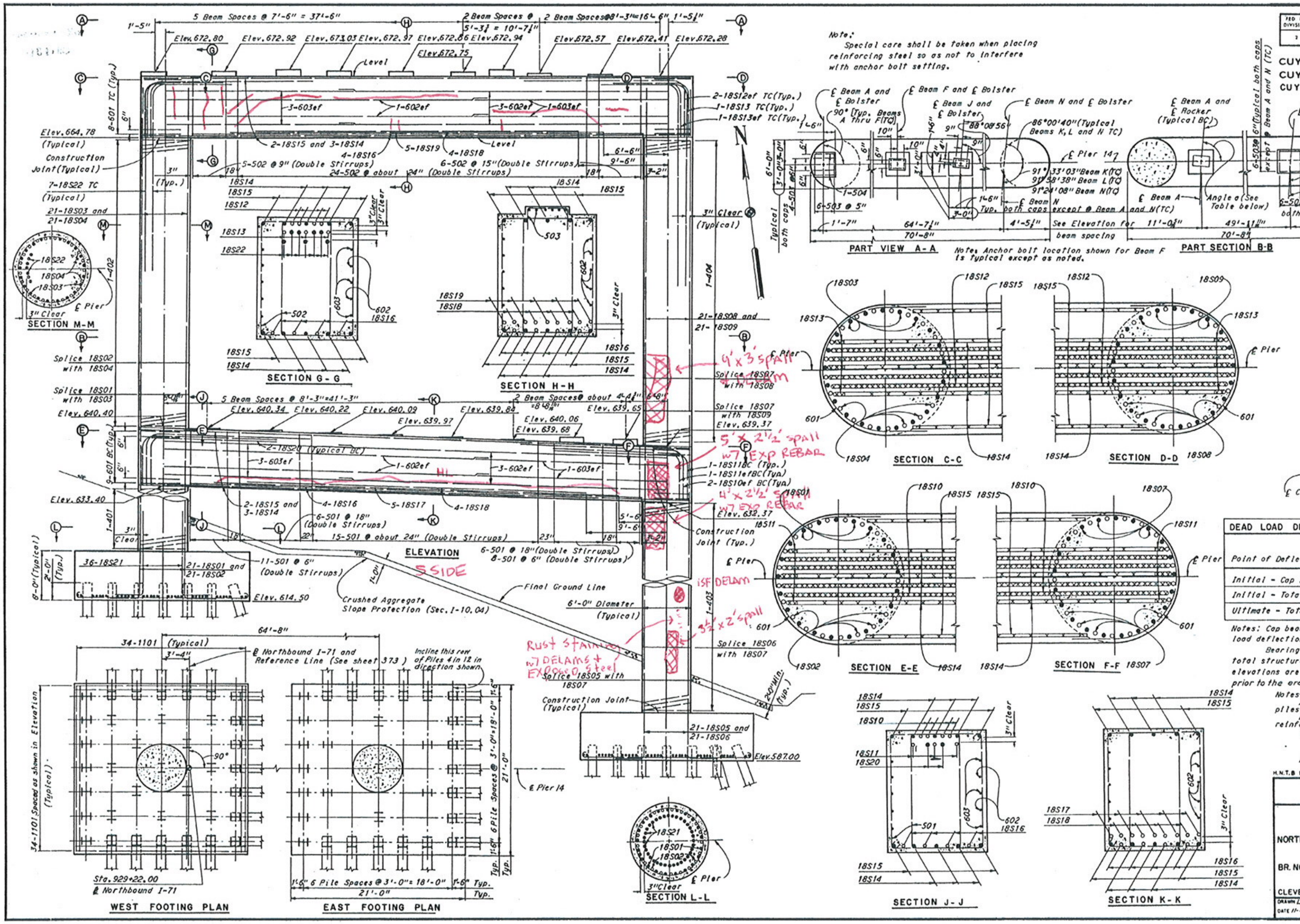
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN EN DATE 11-25-64	TRACED DATE	CHECKED DATE 12-12-64	REVIEWED DATE 12-20-64	REVISED DATE	SHEET 394


CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76
PART SECTION B-B
PART VIEW A-A
SECTION D-D
SECTION C-C
SECTION F-F
SECTION E-E
SECTION K-K
SECTION J-J
SECTION H-H
SECTION G-G
ELEVATION
EAST FOOTING PLAN
WEST FOOTING PLAN
Notes:
All piles shall be 12 BP53 steel bearing piles.
For dead load deflection table and details for field welding No. 18S reinforcement bars see Sheet 389.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see Sheet 385.
Note: All reinforcing bar marks shall be prefixed PN.
H.N.T.B BRIDGE NOS. 21A & 21B
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
PIER 13
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789 R
STA. 917+10.09
STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
2½" x 8" DELAM
SPALL
DELAM
6' x 4" DELAM
HL
N SIDE



Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.

FED RD DIVISION	STATE	PROJECT
3	OHIO	

395 / 646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

BEAM AND ROCKER LOCATION BC		
Beam	Angle a	Angle b
A	85°49'52"	92°19'42"
B	86°13'51"	92°19'42"
C	86°37'50"	92°19'42"
D	87°01'51"	92°19'42"
E	87°25'53"	92°19'42"
F	87°49'56"	92°19'42"
J	87°26'45"	92°33'15"
L	84°26'45"	92°38'59"

Note: All reinforcing bar marks shall be prefixed PP.

DEAD LOAD DEFLECTION TABLE			
	Both Caps		
Point of Deflection	[illegible]	[illegible]	[illegible]
Initial - Cap Beam Only	[illegible]	[illegible]	[illegible]
Initial - Total Structure	[illegible]	[illegible]	[illegible]
Ultimate - Total Structure	[illegible]	[illegible]	[illegible]

Notes: Cap beams shall be cambered for ultimate dead load deflections.
Bearing pads shall be set so that after initial total structure deflection the designated bearing pad elevations are reached. Pier construction shall be complete prior to the erection of any superstructure steel.

Notes:
All piles shall be 12BP53 steel bearing piles.
For details for field welding No. 18S reinforcement bars see sheet 389.
The following abbreviations are used:
ef = each face
BC = bottom cap
TC = top cap
For additional notes see sheet 385.

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 14

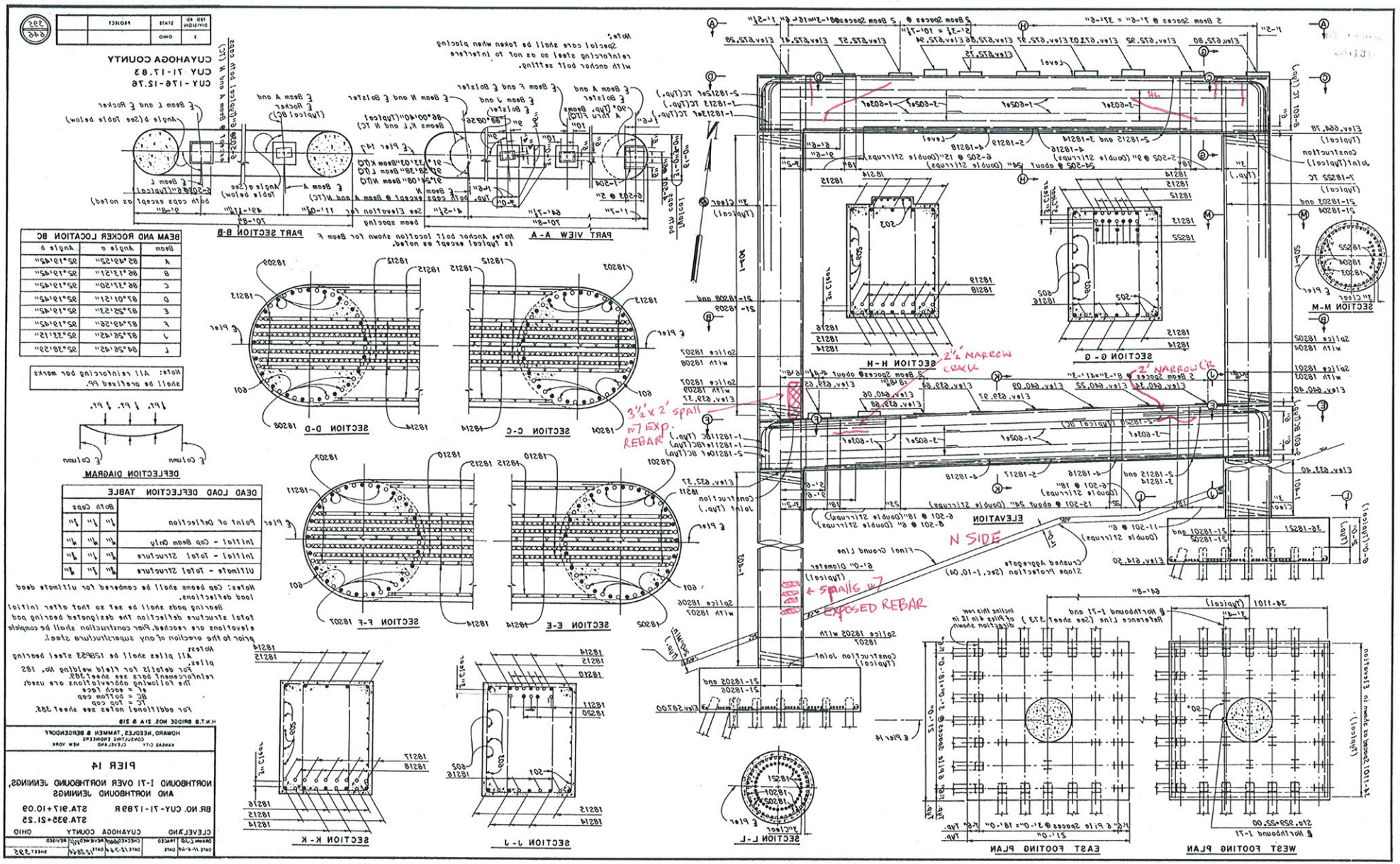
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789 R STA.917+10.09 STA.935+21.25

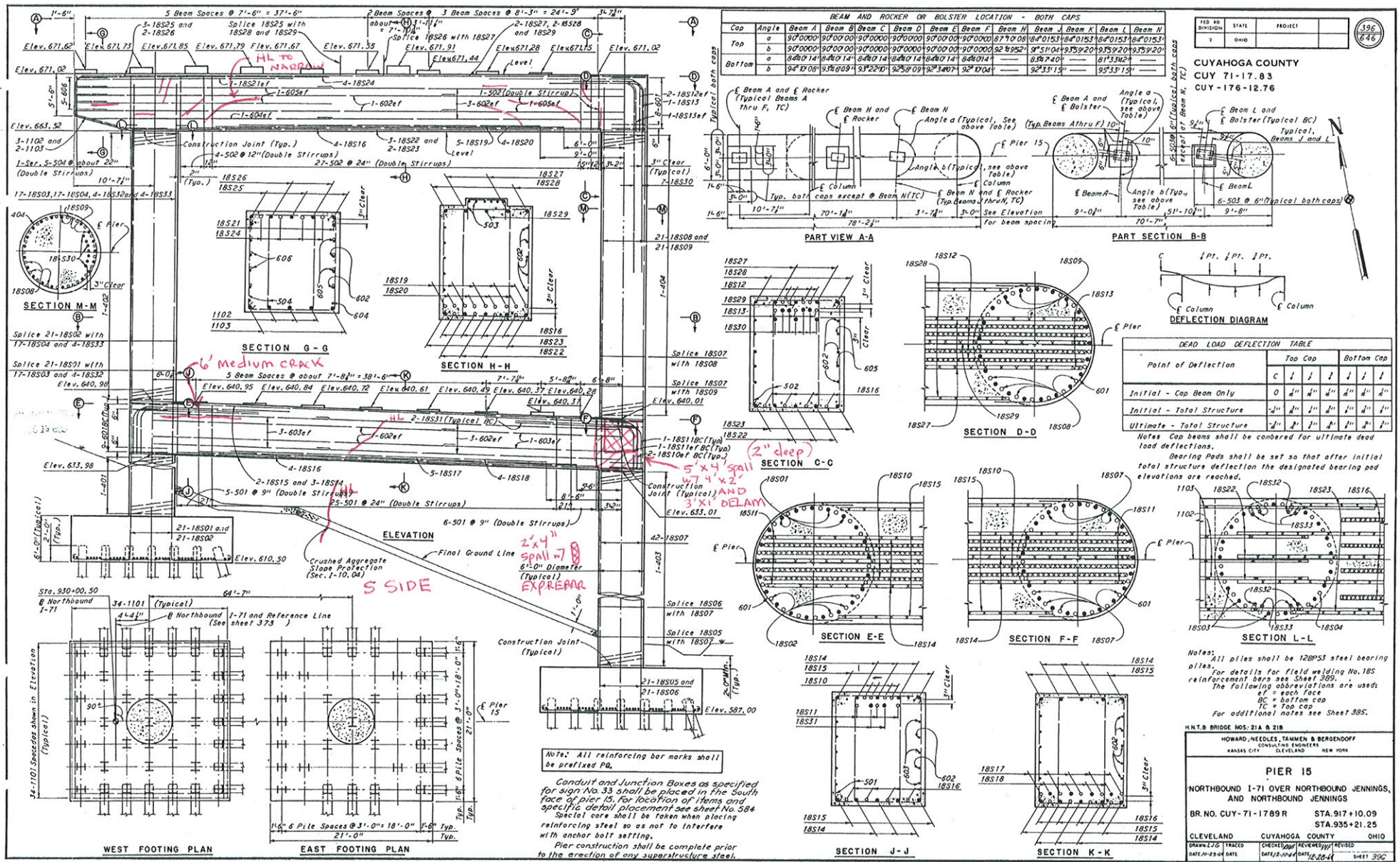
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN LJG	TRACED	CHECKED [illegible]	REVIEWED WF	REVISED
DATE 11-4-64	DATE	DATE 12-7-64	DATE 12-28-64	SHEET 395

PORTION BELOW the SR 176 PIER CAP IS A WALL TYPE. PLANS NOT ACCURATE.

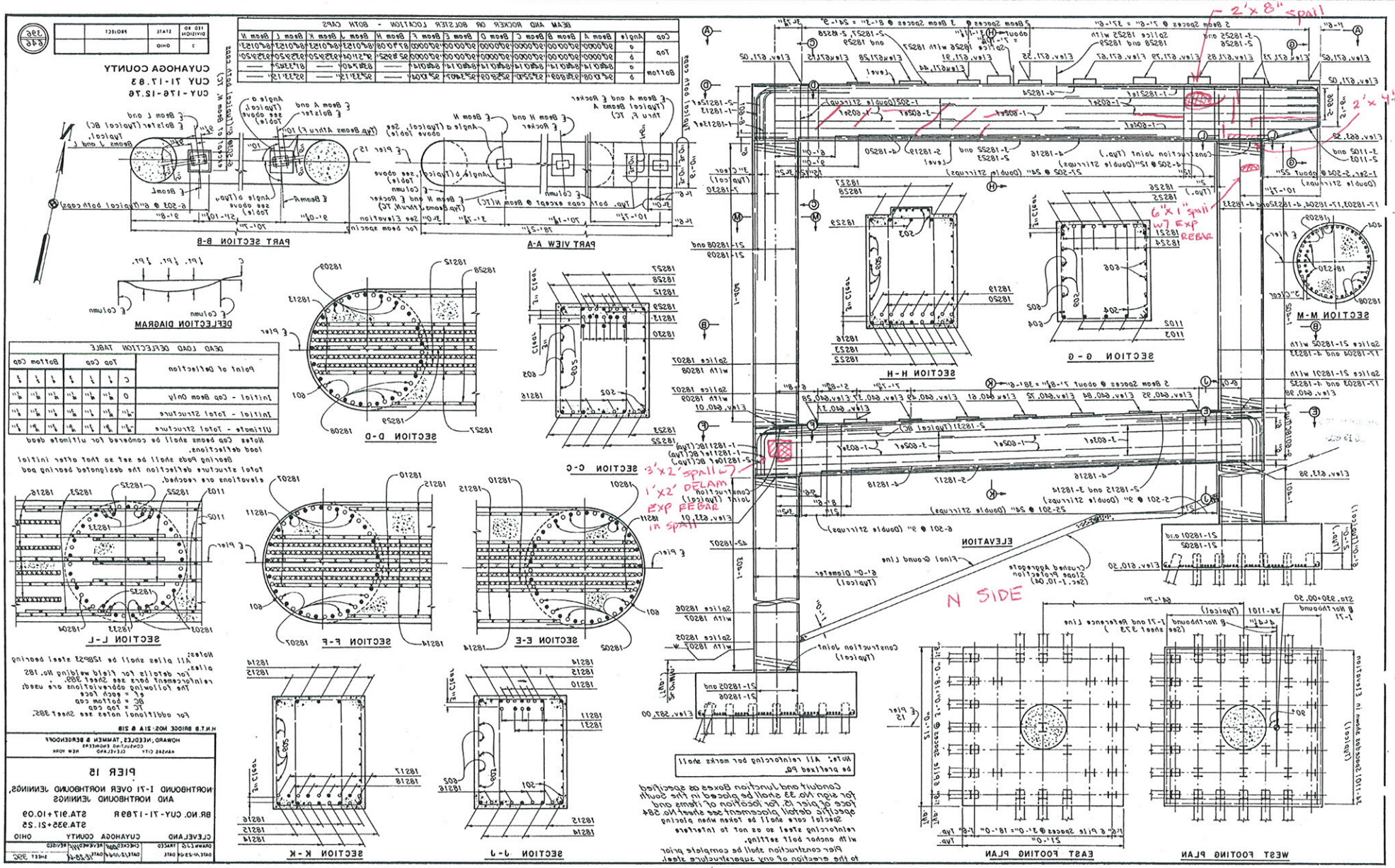


PORTION BELOW THE SR 176 PIER CAP IS A WALL TYPE. PLANS NOT ACCURATE.

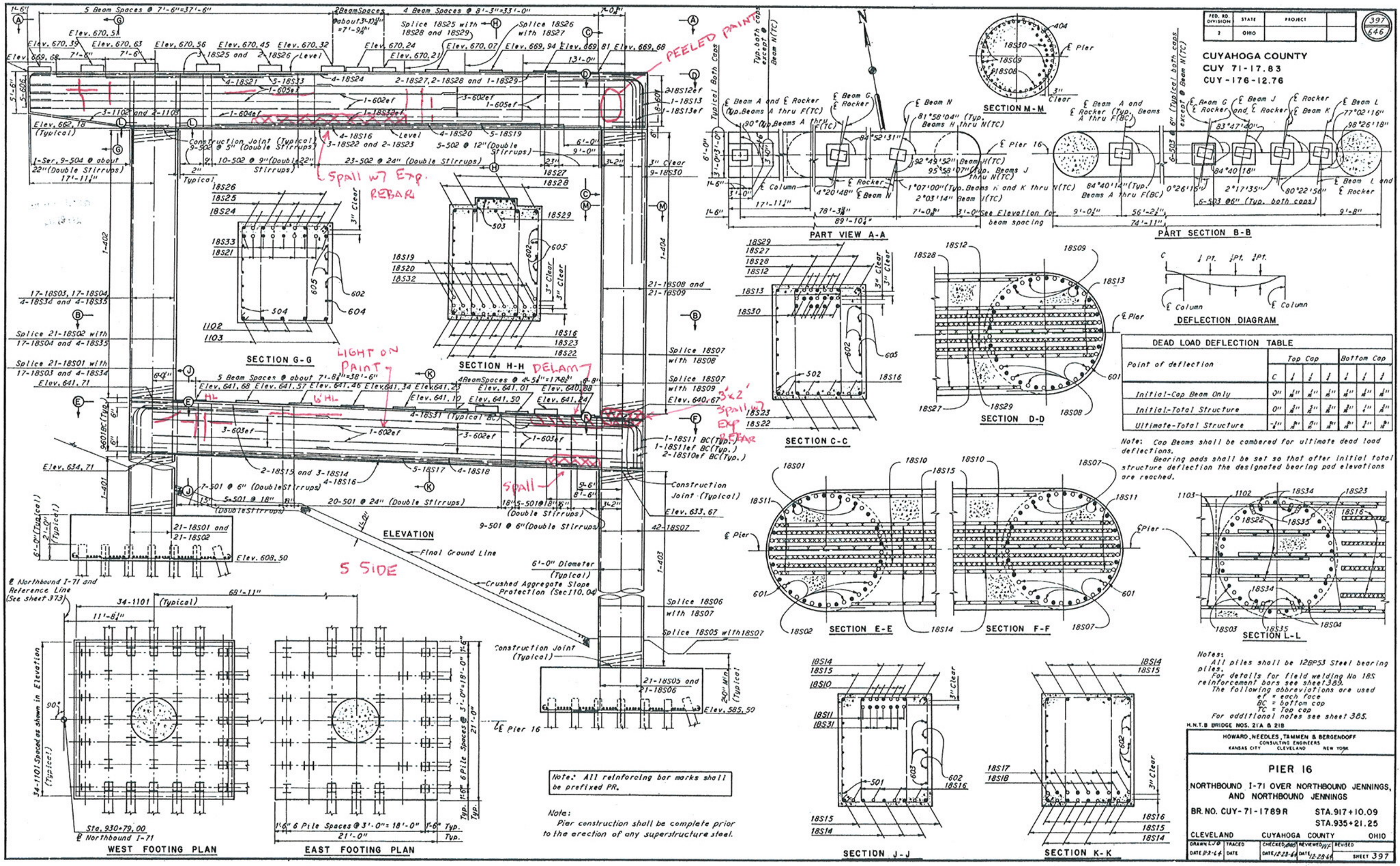


PORTION BELOW SR 176 PIER CAP IS WALL TYPE. PLANS NOT ACCURATE.

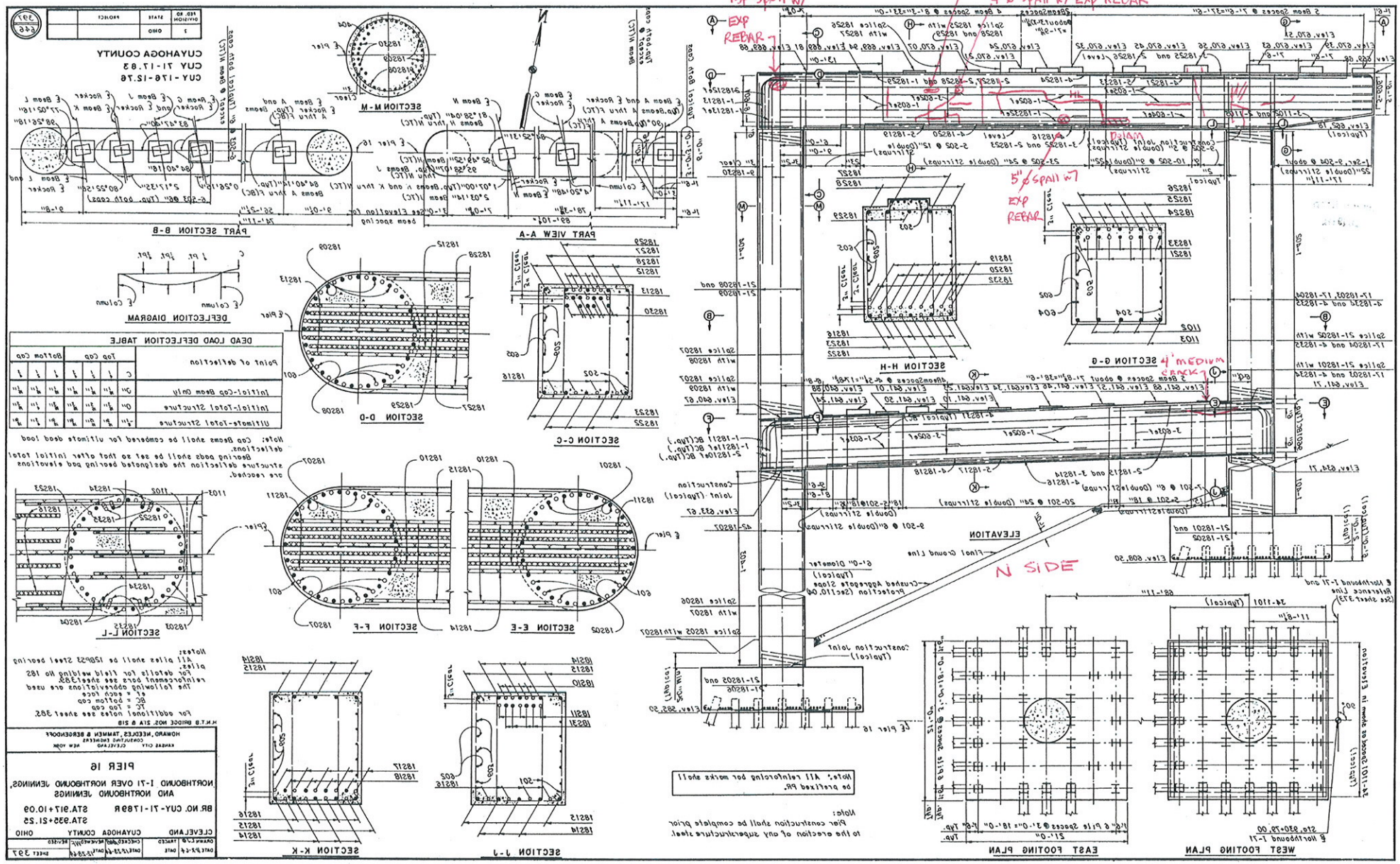
SIGNAGE ATTACHED TO PIER



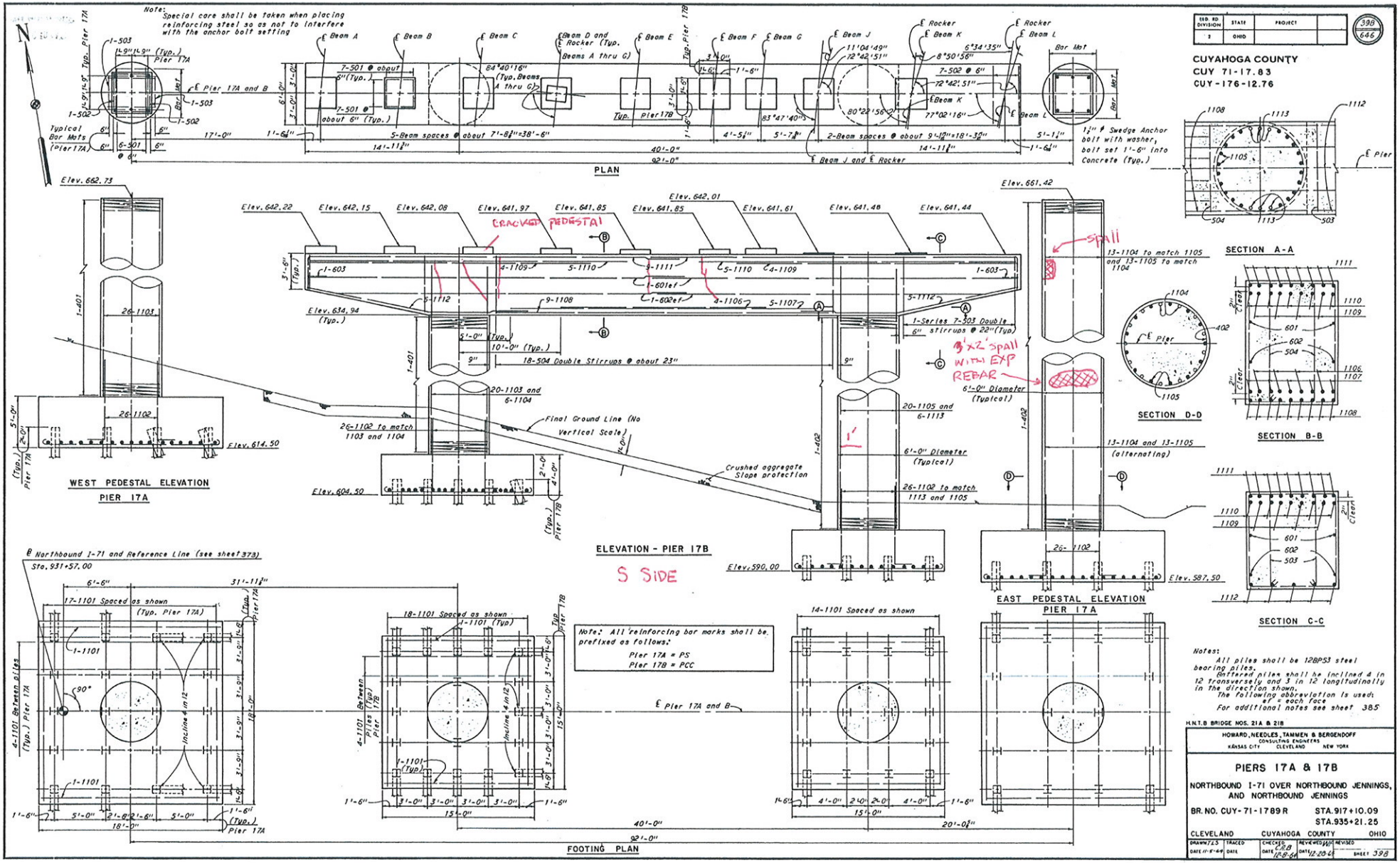
PORTION BELOW SR 176 PIER CAP IS WALL TYPE. PLANS ARE NOT ACCURATE.



PORTION BELOW SR 176 PIER CAP
IS WALL TYPE. PLANS NOT ACCURATE.



PORTION OF SR176 PIER CAP IS WALL TYPE. PLANS NOT ACCURATE.



SED. RD. DIVISION	STATE	PROJECT
2	OHIO	

398
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

Notes:
All piles shall be 12BP53 steel bearing piles.
Battered piles shall be inclined 4 in 12 transversely and 3 in 12 longitudinally in the direction shown.
The following abbreviation is used: ea = each face
For additional notes see sheet 385

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 17A & 17B

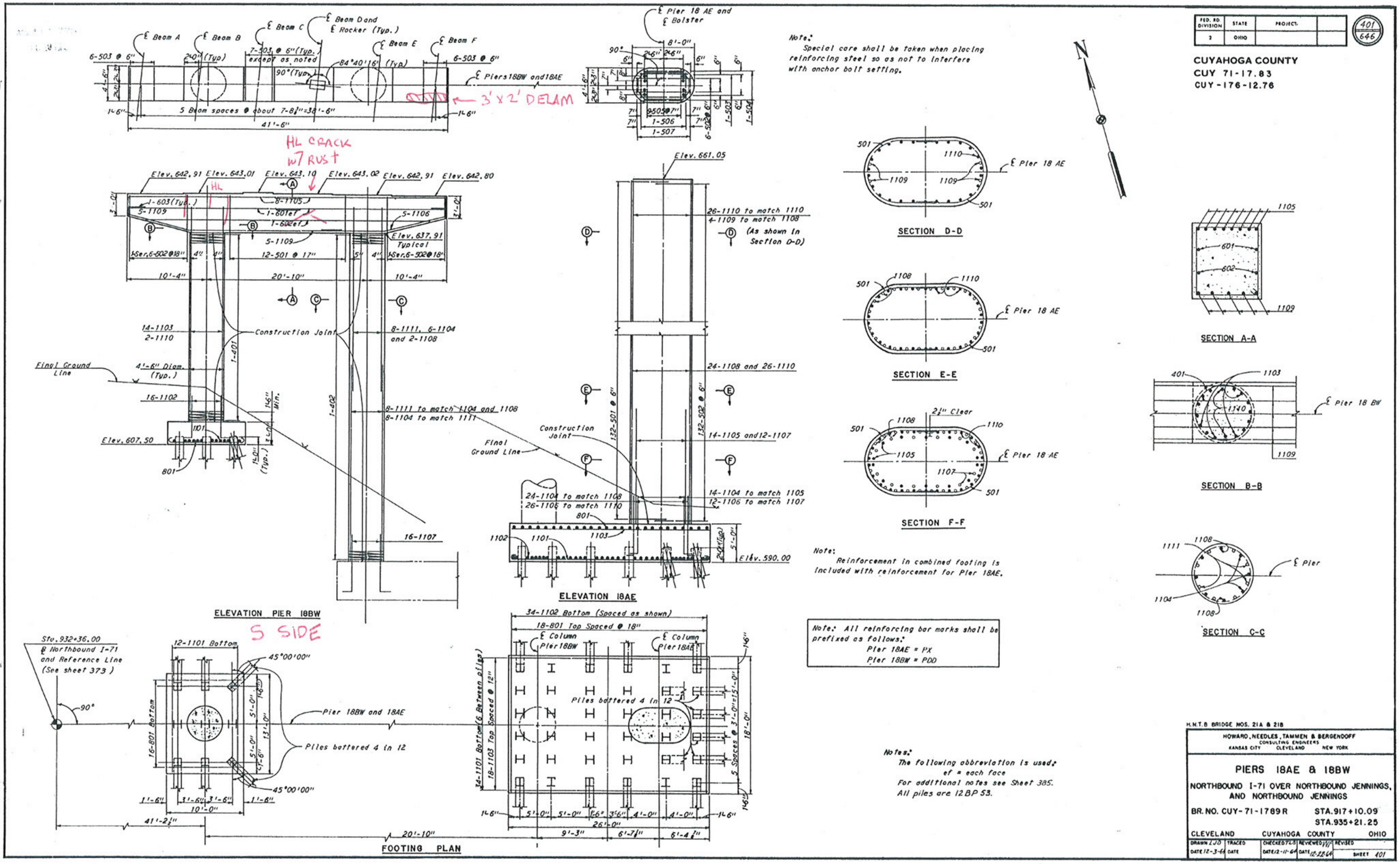
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

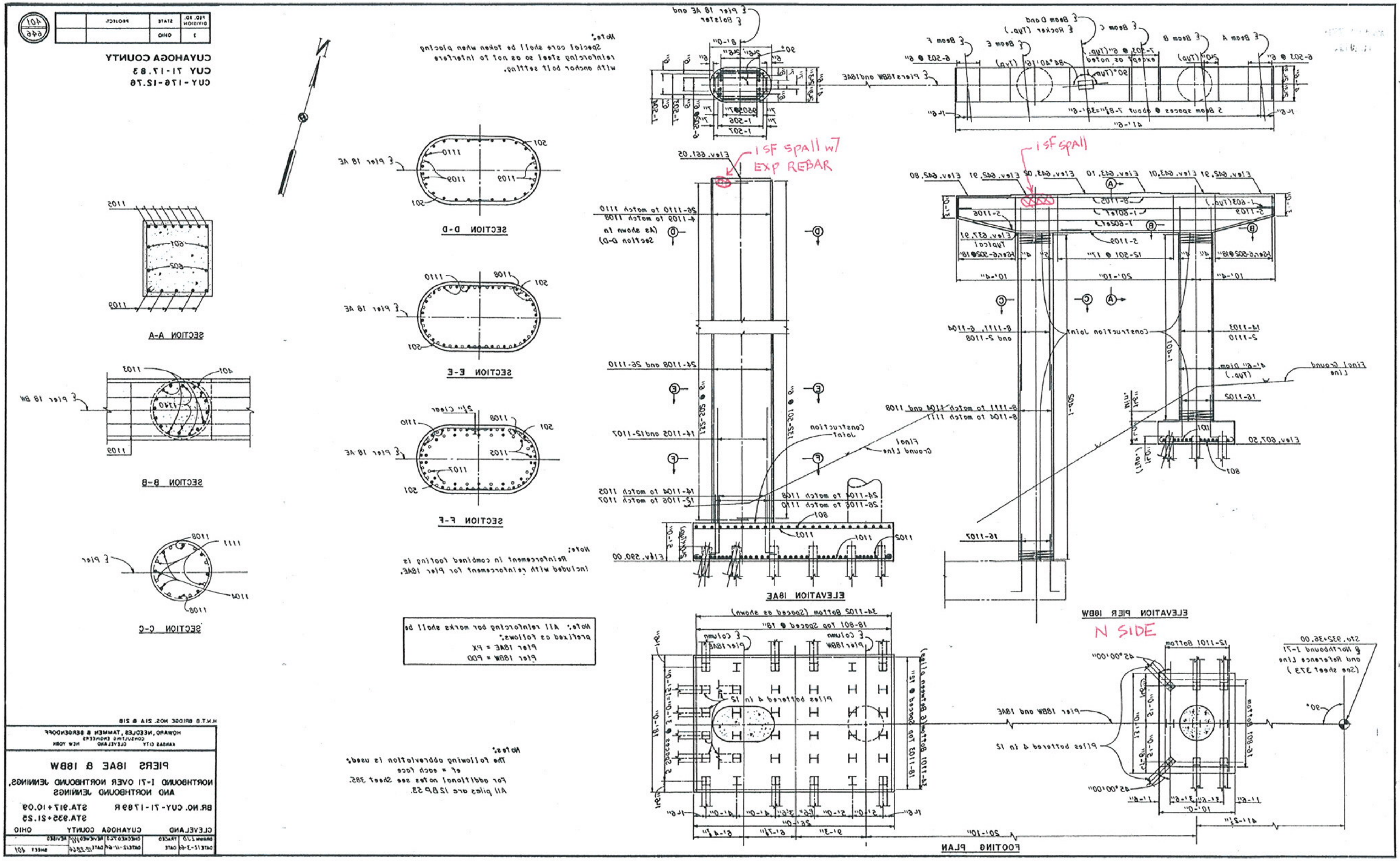
CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN 7.25	TRACED	CHECKED	REVIEWED	REVISED
DATE 11-6-69	DATE	DATE 12-8-69	DATE 12-20-69	SHEET 398

PLAN
WEST PEDESTAL ELEVATION
PIER 17A
SECTION A-A
SECTION D-D
SECTION B-B
SECTION C-C
EAST PEDESTAL ELEVATION
PIER 17A
ELEVATION - PIER 17B
N SIDE
FOOTING PLAN
8" Ø DELAM
4'x1'Spall w/ EXP REBAR
5'
3'
HL
CUYAHOGA COUNTY
CUY-71-17.83
CUY-176-12.76
PIERS 17A & 17B
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789R
STA.917+10.09
STA.939+21.29
CLEVELAND CUYAHOGA COUNTY OHIO
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
KANSAS CITY CLEVELAND NEW YORK



FED. RD. DIVISION 3
STATE OHIO
PROJECT
401
646
CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.
3'x2' DELAM
HL CRACK w/ RUST
HL
S SIDE
5 Beam spaces @ about 7-8½"=38'-6"
41'-6"
Elev. 642.91
Elev. 643.01
Elev. 643.10
Elev. 643.02
Elev. 642.91
Elev. 642.80
Elev. 661.05
Elev. 607.50
Elev. 590.00
Final Ground Line
Construction Joint
SECTION D-D
SECTION E-E
SECTION F-F
SECTION A-A
SECTION B-B
SECTION C-C
ELEVATION PIER 18BW
ELEVATION 18AE
FOOTING PLAN
Note:
Reinforcement in combined footing is included with reinforcement for Pier 18AE.
Note: All reinforcing bar marks shall be prefixed as follows:
Pier 18AE = PX
Pier 18BW = PDD
Notes:
The following abbreviation is used:
ef = each face
For additional notes see Sheet 385.
All piles are 12 BP 53.
Sta. 932+36.00
℄ Northbound I-71 and Reference Line
(See sheet 373)
Pier 18BW and 18AE
Piles battered 4 in 12
H.N.T.B. BRIDGE NOS. 21A & 21B
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
PIERS 18AE & 18BW
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789R
STA. 917+10.09
STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
SHEET 401


CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76
FED. RD. DIVISION 3 STATE OHIO PROJECT
401 / 646
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
℄ Pier 18 AE
℄ Pier 18 BW
℄ Pier 18 AE and ℄ Bolster
℄ Piers 18BW and 18AE
℄ Beam A
℄ Beam B
℄ Beam C
℄ Beam D and ℄ Rocker (Typ.)
℄ Beam E
℄ Beam F
5 Beam spaces @ about 7-8¾"=38'-6"
41'-6"
1 SF spall w/ EXP REBAR
1 SF spall
Elev. 661.05
26-1110 to match 1110
4-1109 to match 1108
(As shown in Section D-D)
24-1108 and 26-1110
14-1105 and 12-1107
135-205 @ 8"
135-201 @ 8"
Construction Joint
Final Ground Line
14-1104 to match 1105
12-1106 to match 1107
24-1104 to match 1108
26-1106 to match 1110
Elev. 590.00
ELEVATION 18AE
Elev. 642.80
Elev. 642.91
Elev. 643.02
Elev. 643.10
Elev. 643.01
Elev. 637.91 Typical
12-501 @ 17"
10'-4"
20'-10"
8-1111, 6-1104 and 2-1108
14-1103
2-1110
4'-6" Diam. (Typ.)
16-1102
16-1107
8-1111 to match 1104 and 1108
8-1104 to match 1111
Elev. 607.50
ELEVATION PIER 18BW
N SIDE
Note:
Reinforcement in combined footing is included with reinforcement for Pier 18AE.
Note: All reinforcing bar marks shall be prefixed as follows:
Pier 18AE = PX
Pier 18BW = PDD
34-1102 Bottom (Spaced as shown)
18-801 Top Spaced @ 18"
℄ Column Pier 18AE
℄ Column Pier 18BW
Piles battered 4 in 12
18-1103 Top Bottom (Spaced @ 12" Between piles)
26'-0"
12-1101 Bottom
45°00'00"
16-801 Bottom
Pier 18BW and 18AE
Sta. 932+36.00
℄ Northbound I-71 and Reference Line (See sheet 373)
90°
41'-2¼"
20'-10"
FOOTING PLAN
Notes:
The following abbreviation is used:
ef = each face
For additional notes see Sheet 385.
All piles are 12BP53.
H.N.T.B BRIDGE NOS. 21A & 21B
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK
PIERS 18AE & 18BW
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789R STA. 917+10.09 STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
DATE 12-3-64
DATE 12-11-64
DATE 12-22-64
SHEET 401

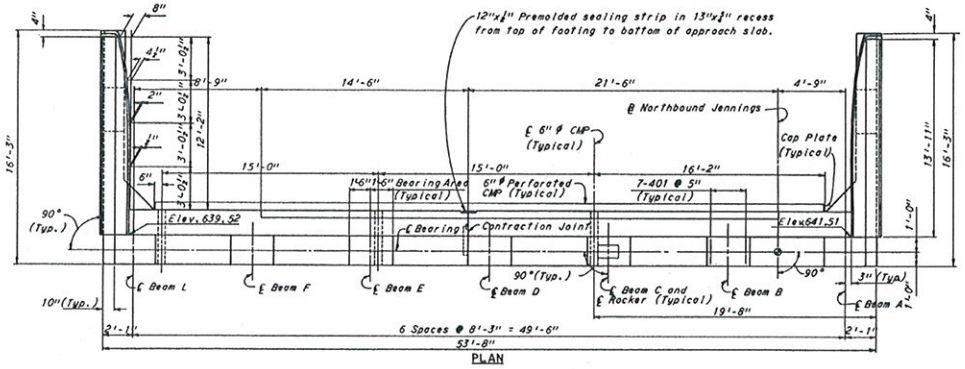
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

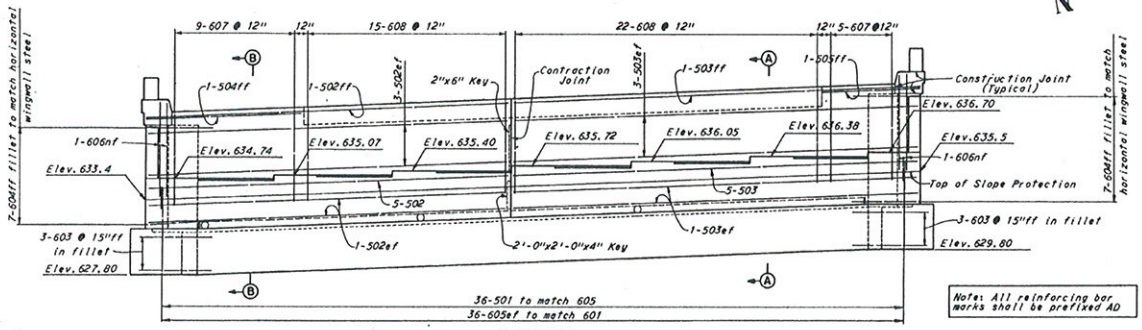
379
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

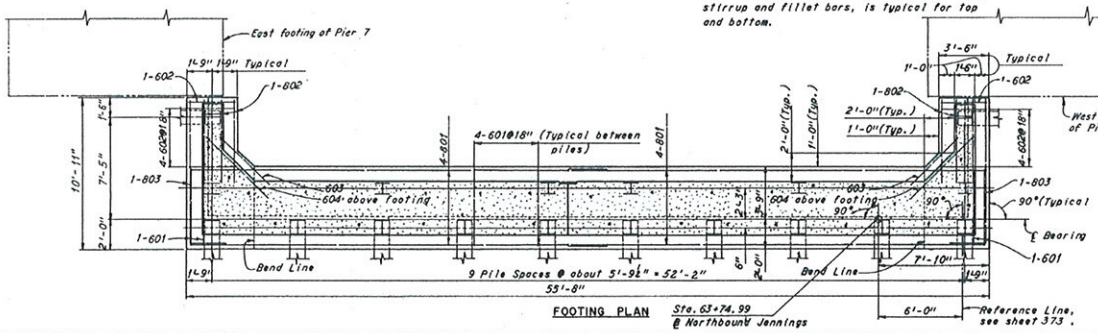
Note: Elevations along backwall are given to top of 8x4x1 angle of the end dam.

Note: Curb transition details are typical for both wingwalls.

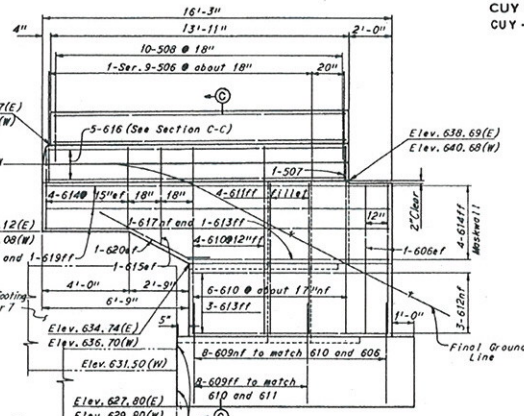




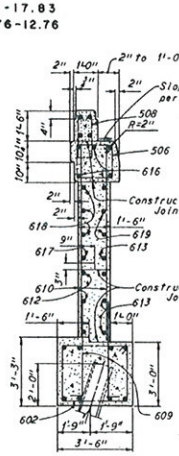
Note: All reinforcing bar marks shall be prefixed AD

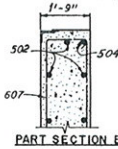


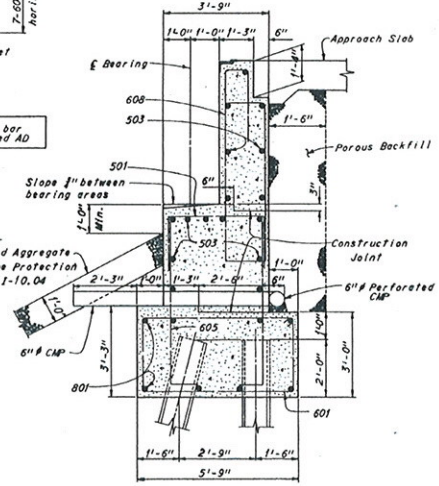
Note: In footing plan all reinforcement, excluding stirrup and fillet bars, is typical for top and bottom.



*Preformed Expansion Joint Filler to be included with "Item S-1" for payment.







Crushed Aggregate Slope Protection Sec. 1-10.04

Notes: All piles shall be 12aPS3 steel bearing piles.
All battered piles shall be inclined 3 in 12 in the direction shown.
For Reinforcement Schedule and Bar Bending Diagrams see sheet 451.
For longitudinal reinforcement in the parapets see sheet 445
For roadway end dam details see Ohio Standard Drawing 30-1-63, sheets 2 and 4 of 4.
For railing details, see Ohio Standard Drawings AR-1-57.
Longitudinal footing reinforcement shall be field bent at bend lines as required.
Field bending of reinforcement shall be included in "Item S-4, Reinforcing Steel" for payment.
The following abbreviations are used:
nf = near face ef = each face
ff = far face

H.N.T.B BRIDGE NOS. 21A & 21B

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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTH ABUTMENT - B

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

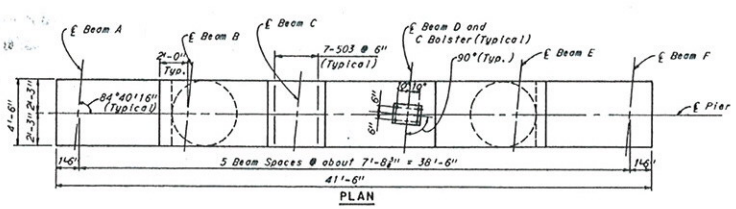
BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

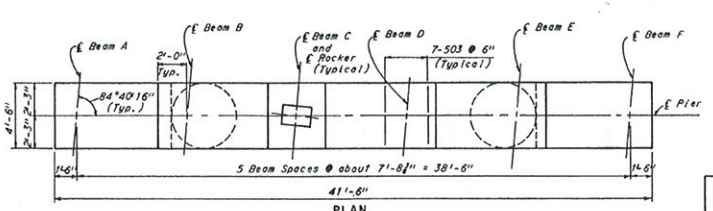
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 12-16-66	DATE	DATE 12-19-66	DATE 12-22-66	SHEET 379

FED. RD. DIVISION	STATE	PROJECT		403 646
2	OHIO			

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

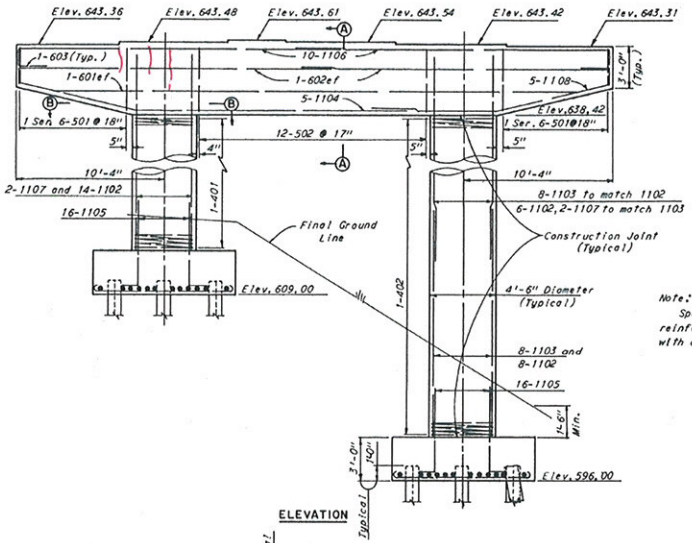


PLAN



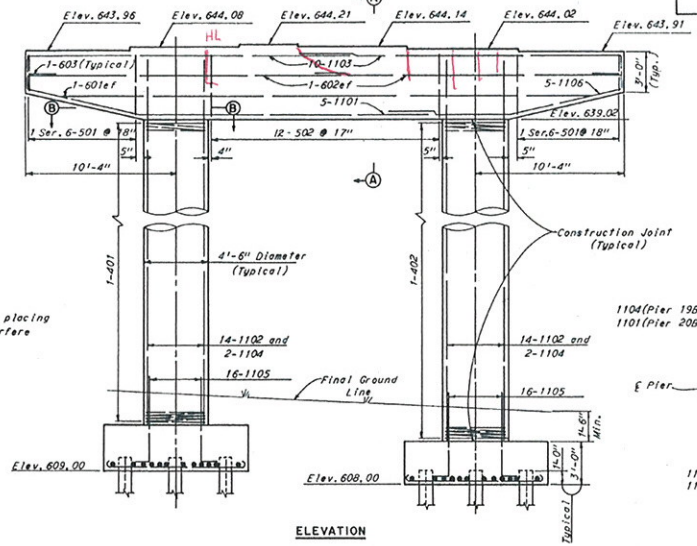
PLAN

Note: All reinforcing bar marks shall be prefixed as follows:
Pier 19BW = PEE
Pier 20BW = PFF

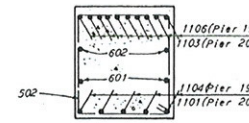


ELEVATION

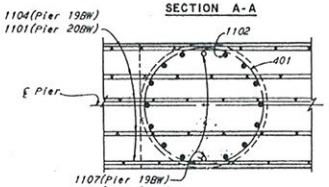
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.



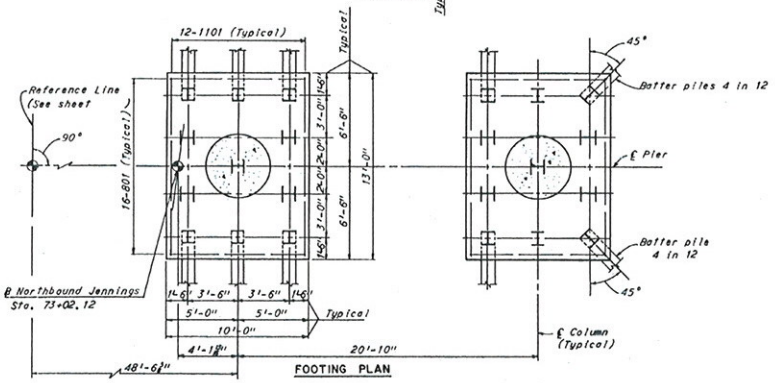
ELEVATION



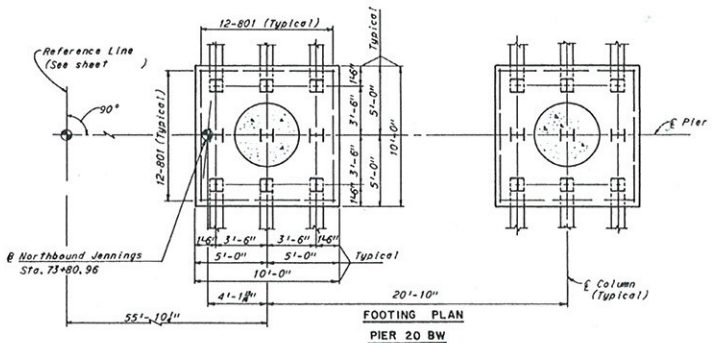
SECTION A-A



SECTION B-B



FOOTING PLAN
PIER 19 BW



FOOTING PLAN
PIER 20 BW

Notes:
All piles are 12BP53.
The following abbreviation is used:
ef = each face
For additional notes see Sheet 385.

H.M.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 19BW & 20BW

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 8-19-64	DATE	DATE 12-16-64	DATE 12-22-64	SHEET 403

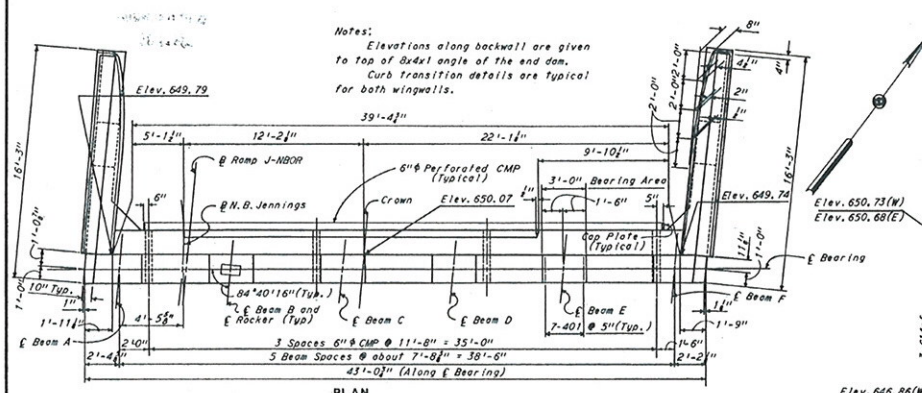
S SIDE

CUYAHOGA COUNTY
CUY TI-17.83
CUY-178-15.76
PLAN
ELEVATION
SECTION A-A
SECTION B-B
FOOTING PLAN
PIER 20 BW
PIER 19 BW
PIERS 19BW & 20BW
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-17.89R
STA.317+10.09
STA.335+21.25
CLEVELAND
CUYAHOGA COUNTY
OHIO
N SIDE

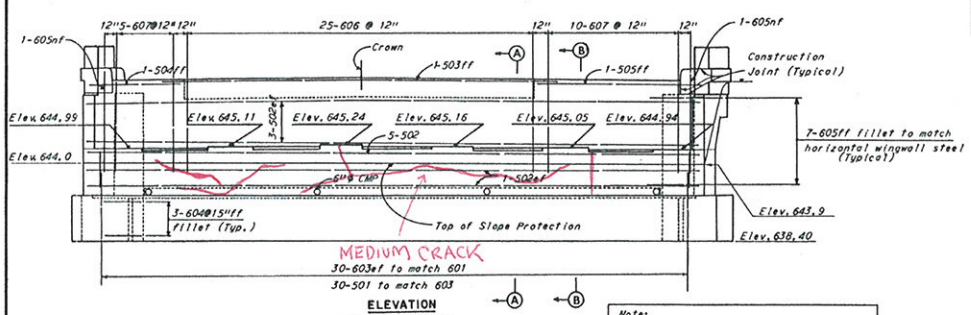
FED. RD DIVISION	STATE	PROJECT	
3	OHIO		

380
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

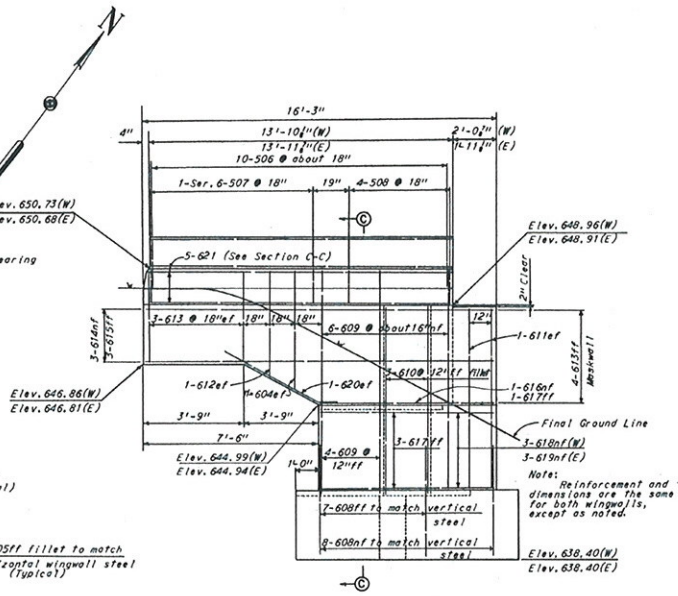


PLAN

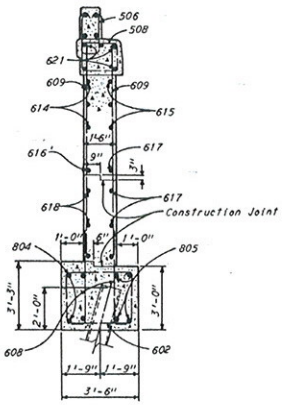


ELEVATION
(Piles not shown)

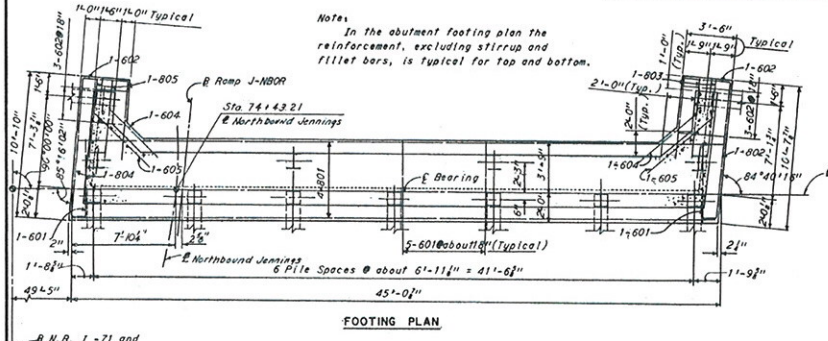
Note:
All Reinforcing Bar Marks shall be prefixed AE.



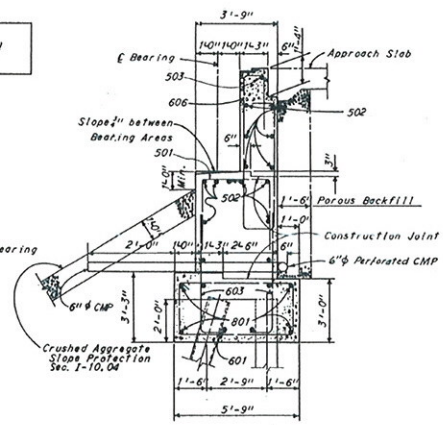
WINGWALL ELEVATION
(Piles not shown)



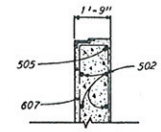
SECTION C-C
(West Wingwall shown)



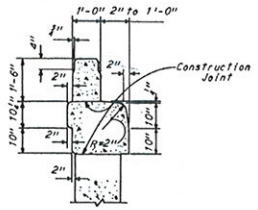
FOOTING PLAN



SECTION A-A



PART SECTION B-B



TYPICAL CURB DETAIL
(Reinforcement and Type "A" Railing not shown)

Notes:
All piles shall be 12 PB 53 steel bearing piles.
The following abbreviations are used:
nf = near face
ff = far face
ef = each face
(W) = West
(E) = East
For additional notes see Sheet 379

H.N.T.B. BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

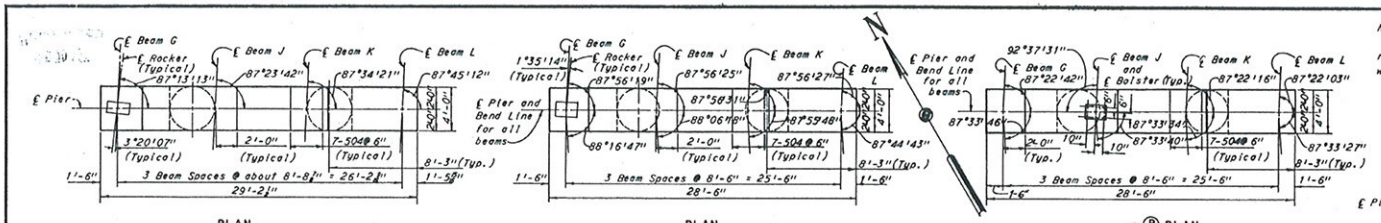
NORTH ABUTMENT - B.W

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

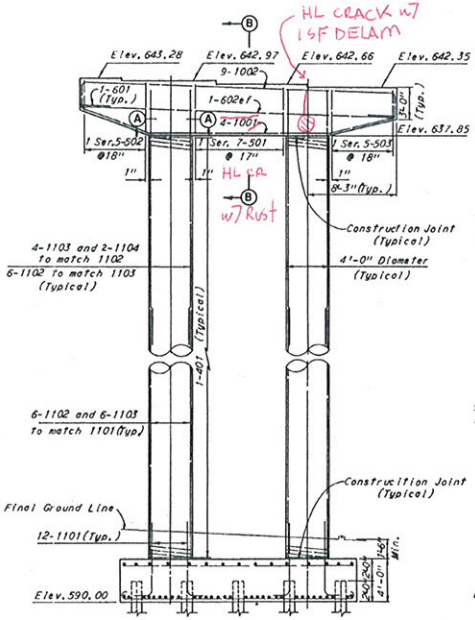
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 9-1164	DATE	DATE 10-2164	DATE 12-2264	SHEET 390



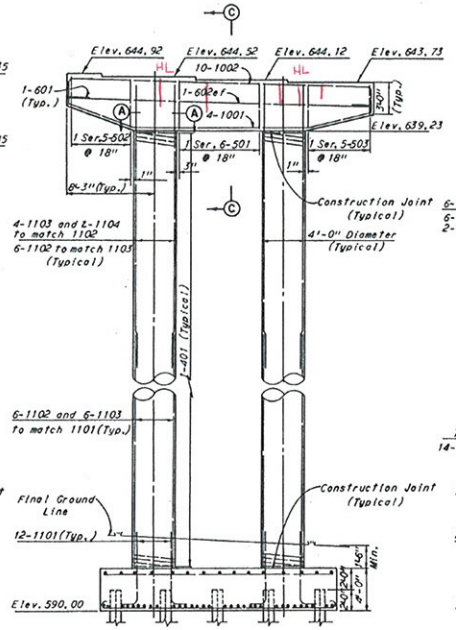
PLAN

PLAN

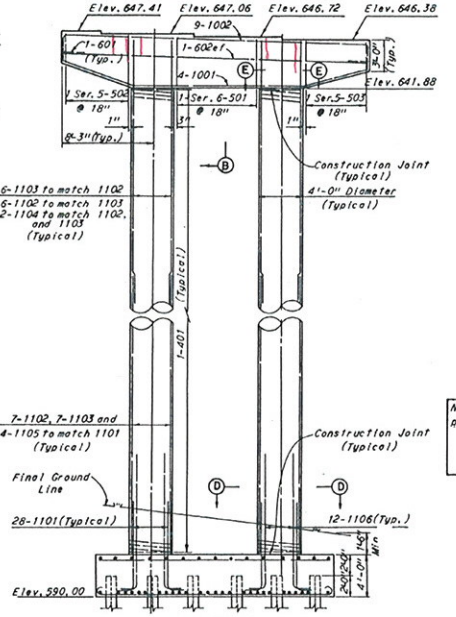
PLAN



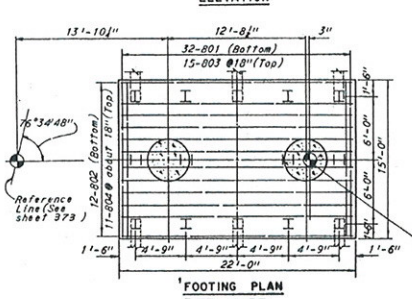
ELEVATION



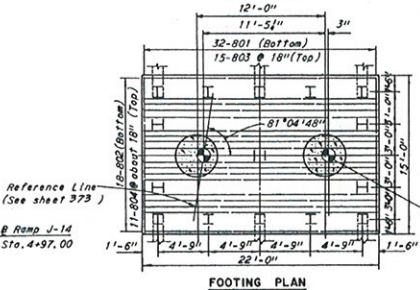
ELEVATION



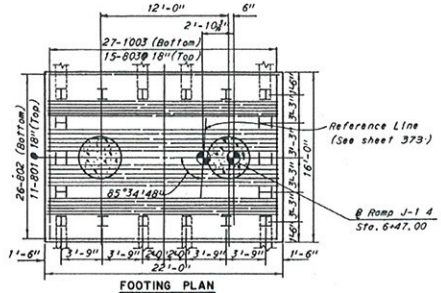
ELEVATION



FOOTING PLAN
PIER 18 BE

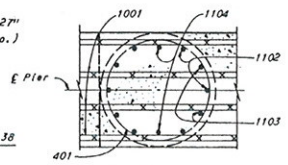


FOOTING PLAN
PIER 19 BE

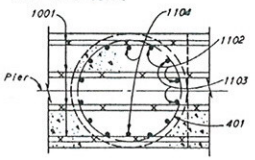


FOOTING PLAN
PIER 20 BE

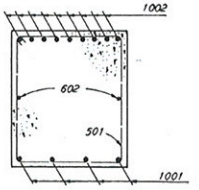
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.



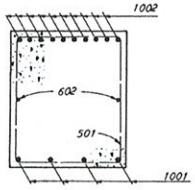
SECTION A-A



SECTION E-E

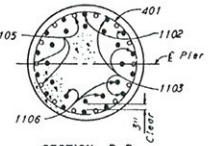


SECTION B-B



SECTION C-C

Note: All reinforcing bar marks shall be prefixed as follows:
Pier 18BE = PGG
Pier 19BE = PHH
Pier 20BE = PJJ



SECTION D-D

Notes:
The following abbreviation is used:
ef = each face
For additional notes see Sheet 395
All piles are 12 BP 53.

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

404 646

CUYAHOGA COUNTY
CUY-71-17.83
CUY-176-12.76

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 18BE, 19BE, 20BE

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

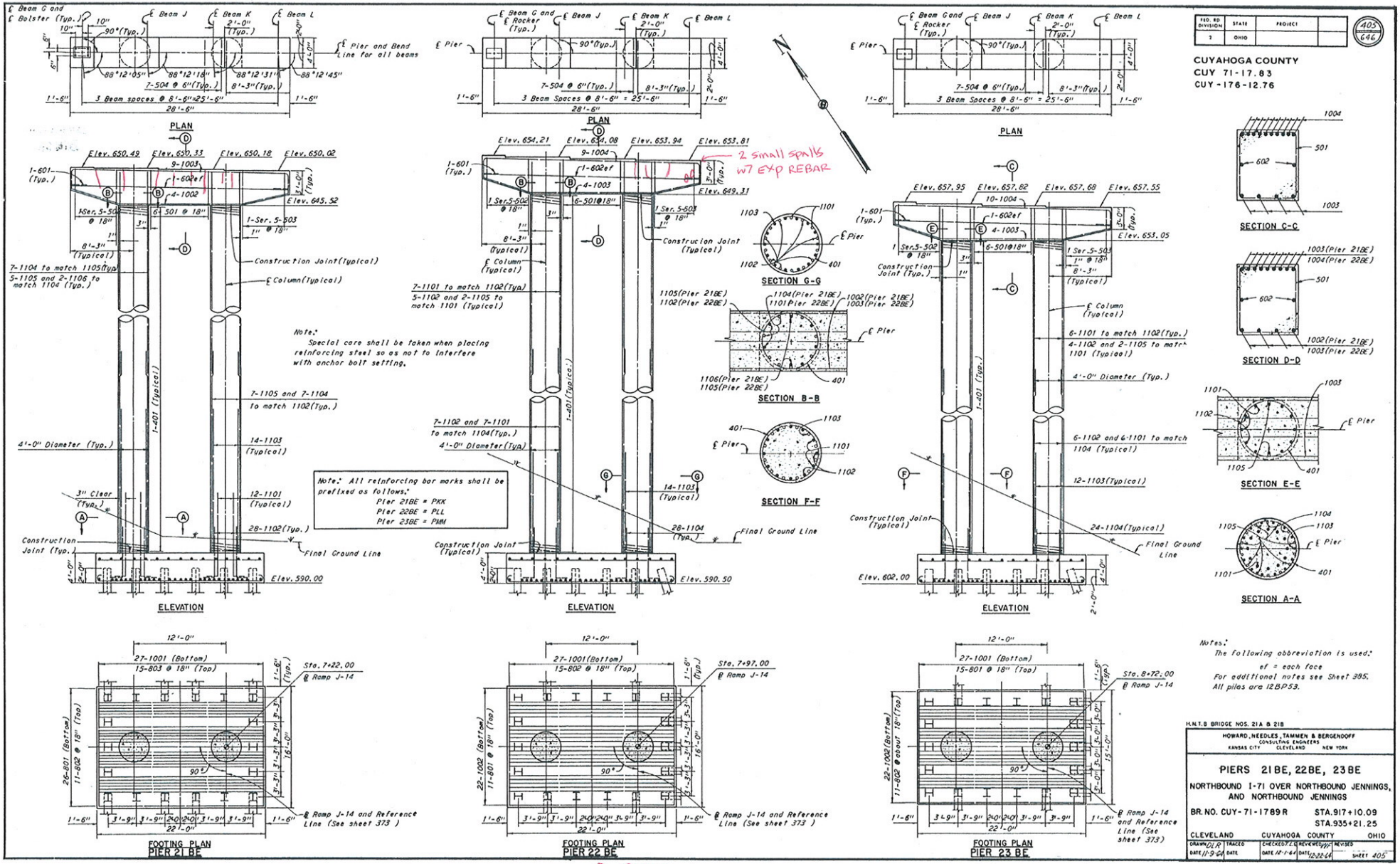
BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

Drawn DLP	Traced	Checked FLS	Reviewed	Revised
Date 11-56	Date	Date	Date 12-2265	Sheet 404

S SIDE

1st Spall
N SIDE



FED. RD. DIVISION	STATE	PROJECT
3	OHIO	

405
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

Notes:
The following abbreviation is used:
ef = each face
For additional notes see Sheet 395.
All piles are 12BP53.

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 21BE, 22BE, 23BE

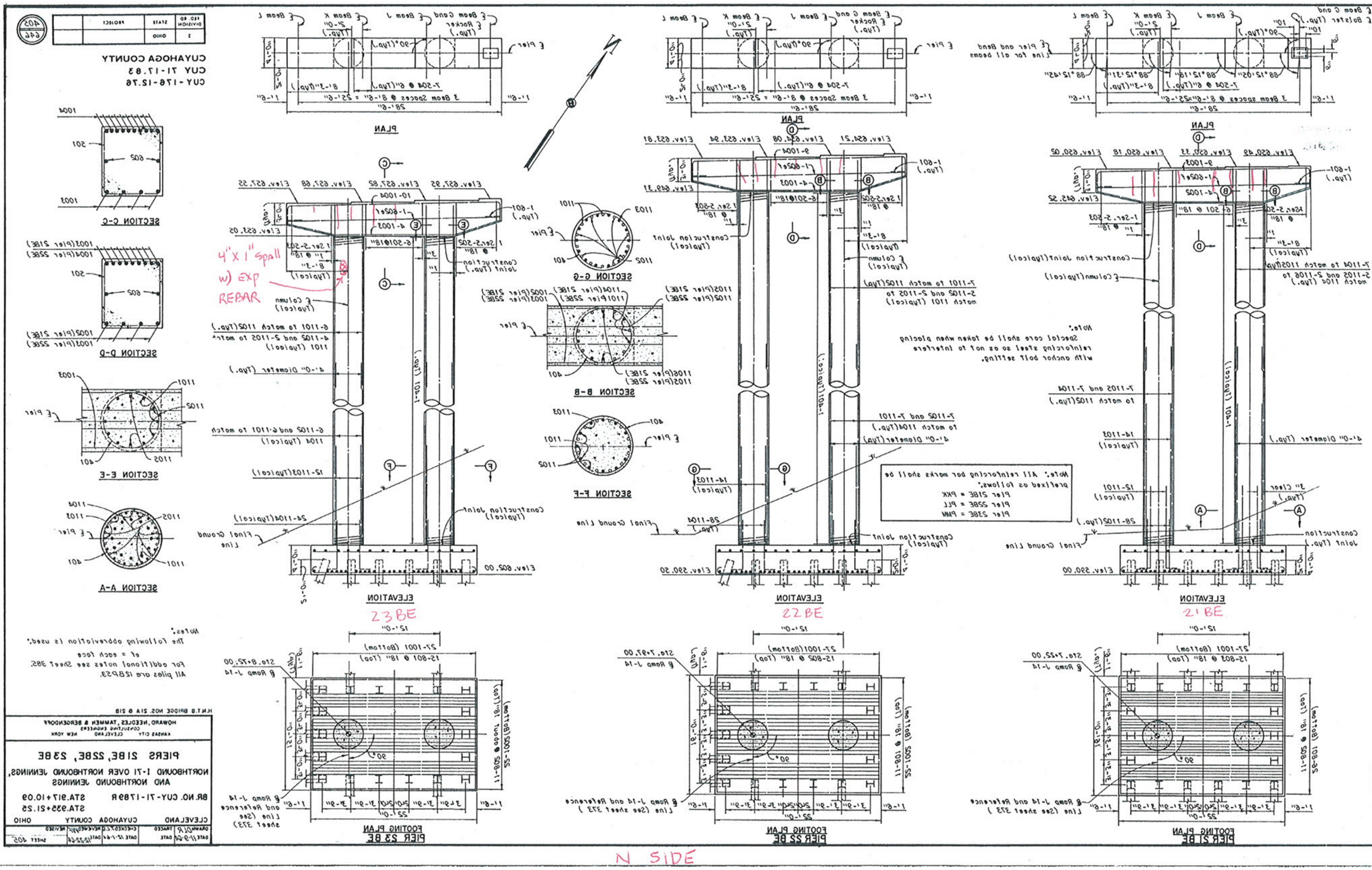
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

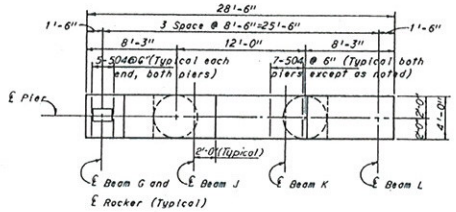
BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

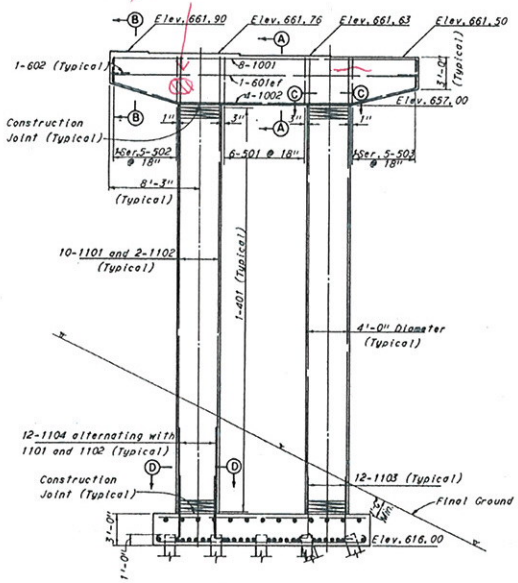
DRAWN D.L.R	TRACED	CHECKED T.L.S	REVIEWED	REVISED
DATE 11-9-64	DATE	DATE 12-1-64	DATE 12-22-64	SHEET 405

S SIDE

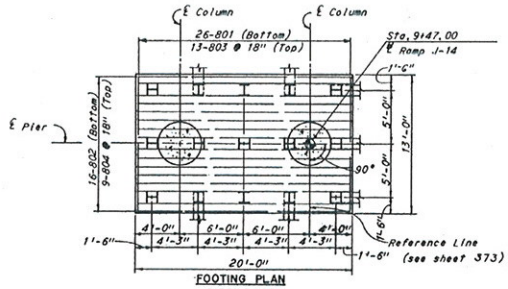

CUYAHOGA COUNTY
CUY-71-17.83
CUY-176-12.76
SECTION C-C
SECTION D-D
SECTION E-E
SECTION A-A
PLAN
ELEVATION
SECTION G-G
SECTION B-B
SECTION F-F
FOOTING PLAN
PIER 23 BE
PIER 22 BE
PIER 21 BE
3 Beam Spaces @ 8'-6" = 25'-6"
28'-6"
4'-0" Diameter (Typ.)
Final Ground Line
Construction Joint (Typical)
Elev. 590.00
Elev. 590.50
Elev. 602.00
Note: Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.
Note: All reinforcing bar marks shall be prefixed as follows:
Pier 21BE = PKK
Pier 22BE = PLL
Pier 23BE = PMM
Notes:
The following abbreviation is used:
ef = each face
For additional notes see Sheet 385.
All piles are 12BP53.
H.N.T.B. BRIDGE NOS. 21A & 21B
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
PIERS 21BE, 22BE, 23BE
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
SHEET 405
4" x 1" Spall w/ Exp REBAR
23BE
22BE
21BE
N SIDE



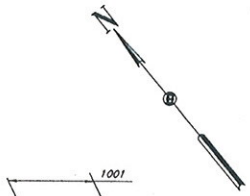
PLAN



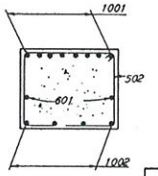
ELEVATION



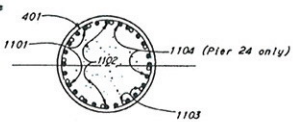
FOOTING PLAN
PIER 24BE



SECTION A-A



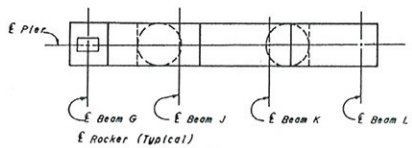
SECTION B-B



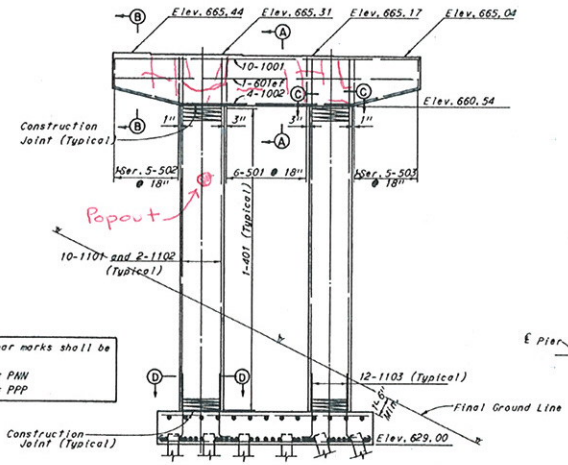
SECTION C-C
(Both Piers)

Note: All reinforcing bar marks shall be prefixed as follows:
Pier 24BE = PNN
Pier 25BE = PPP

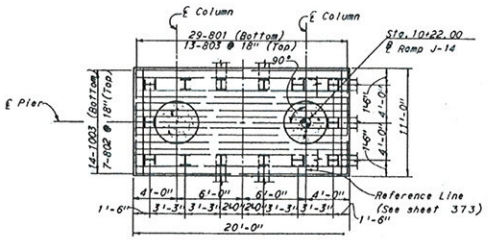
Note:
All dimensions in Pier 24 are typical for Pier 25 except as noted.



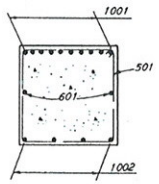
PLAN



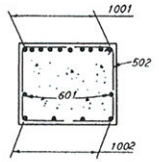
ELEVATION



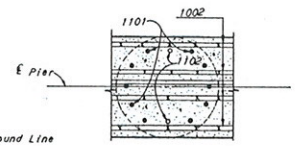
FOOTING PLAN
PIER 25BE



SECTION A-A



SECTION B-B



SECTION D-D
(Both Piers)

Notes:
All piles are 12BP53.
The following abbreviation is used:
ef = each face
For additional notes see Sheet 395.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

406
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

H.N.T.B. BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 24BE & 25BE

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN RLS	TRACED	CHECKED JJG	REVIEWED	REVISED
DATE 8-31-64	DATE	DATE 11-14-64	DATE 12-22-64	SHEET 406

5 SIDE

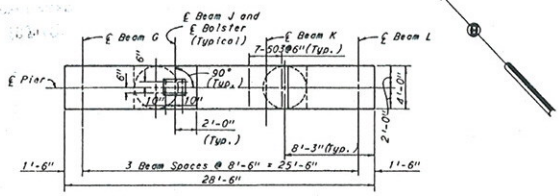
MEDIUM CRACK
Spall w/ EXP REBAR
HL MAP CRACKING
N SIDE

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

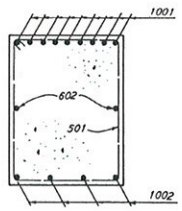
407
646

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

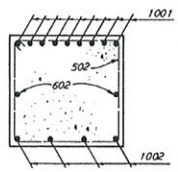
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.



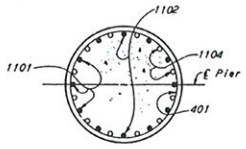
PLAN



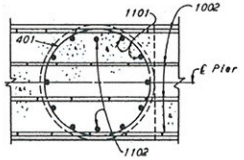
SECTION D-D



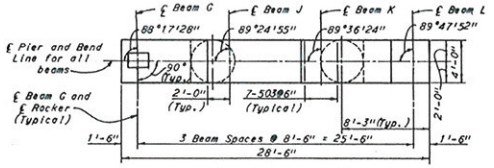
SECTION C-C



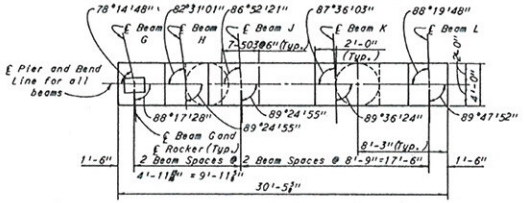
SECTION A-A



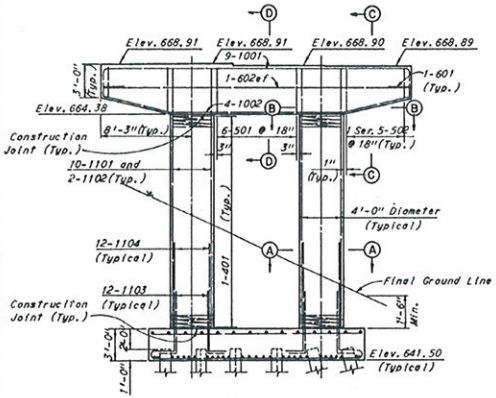
SECTION B-B



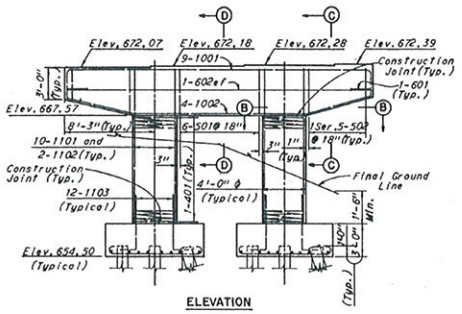
PLAN



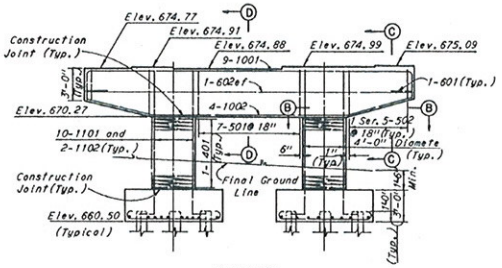
PLAN



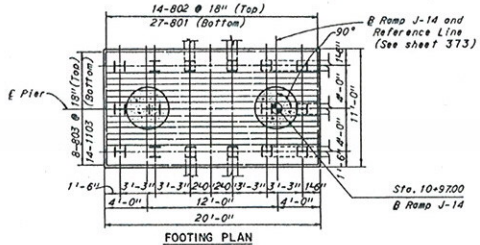
ELEVATION



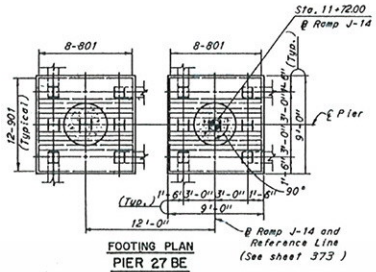
ELEVATION



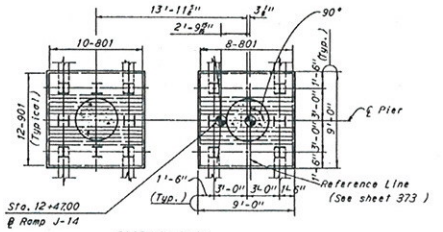
ELEVATION



FOOTING PLAN
PIER 26BE



FOOTING PLAN
PIER 27BE



FOOTING PLAN
PIER 28BE

Note: All reinforcing bar marks shall be prefixed as follows:
Pier 26BE = PQQ
Pier 27BE = PRR
Pier 28BE = PSS

Notes:
All piles are 12BP53.
The following abbreviation is used:
ef = each face
For additional notes see Sheet 385.

H.N.T.B BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 26BE, 27BE, 28BE

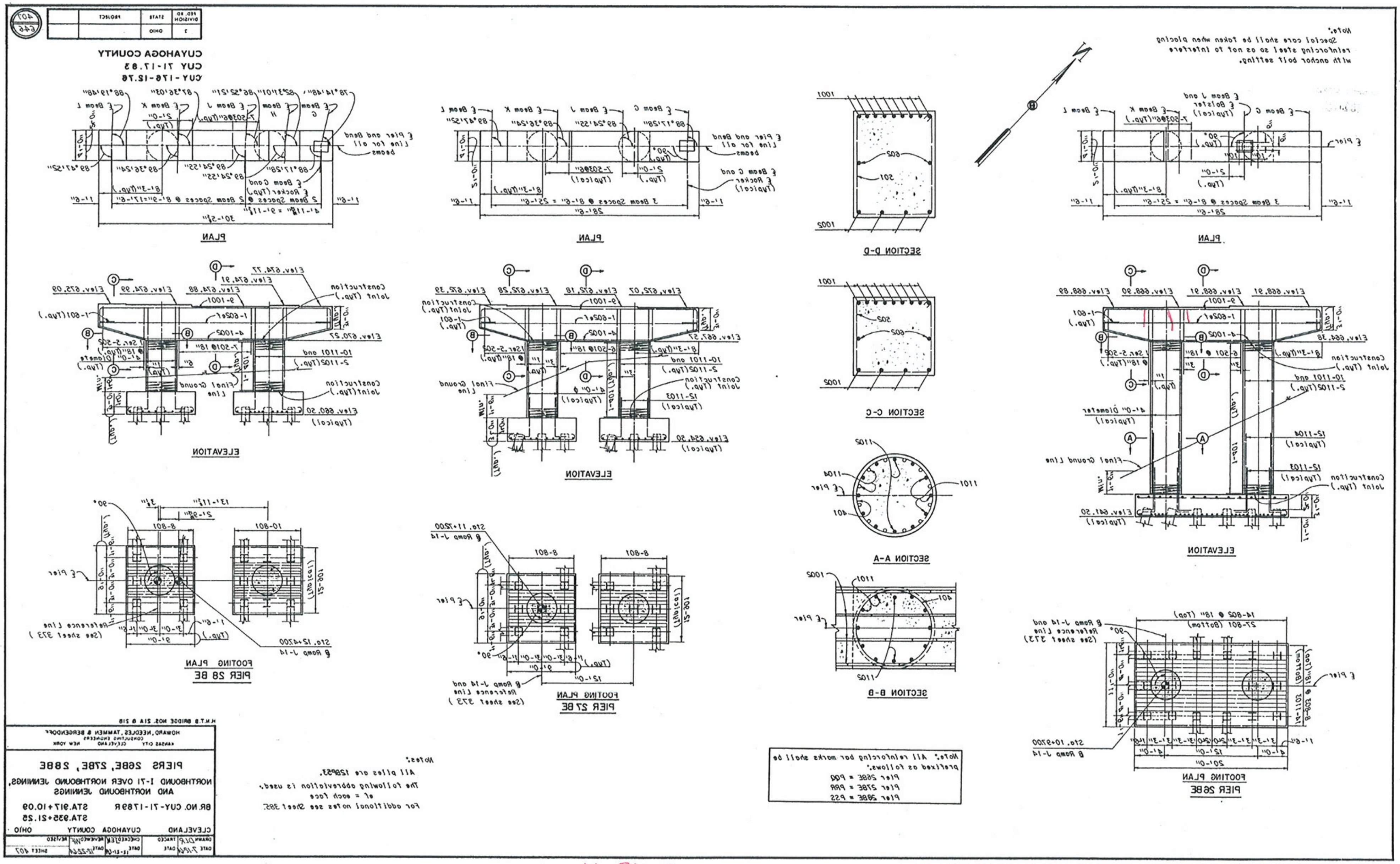
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DLR		EK	MF	
DATE 7-1-04	DATE	DATE 11-21-04	DATE 12-22-04	SHEET 407

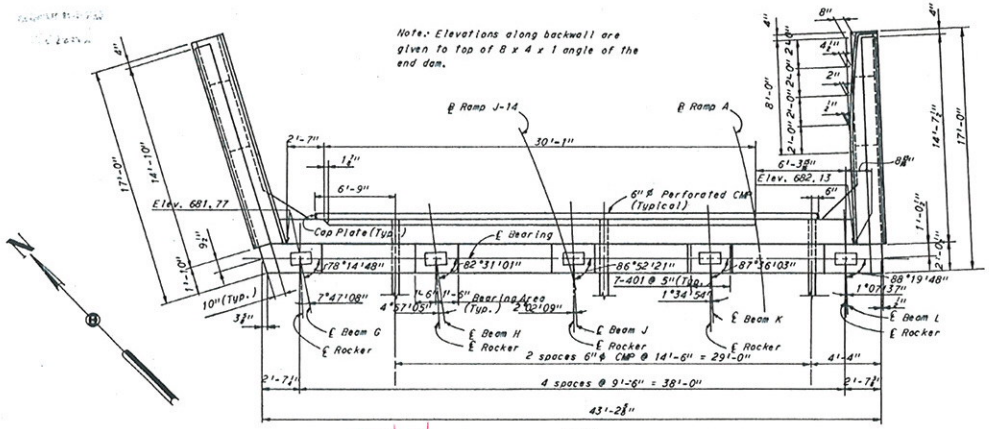
S SIDE

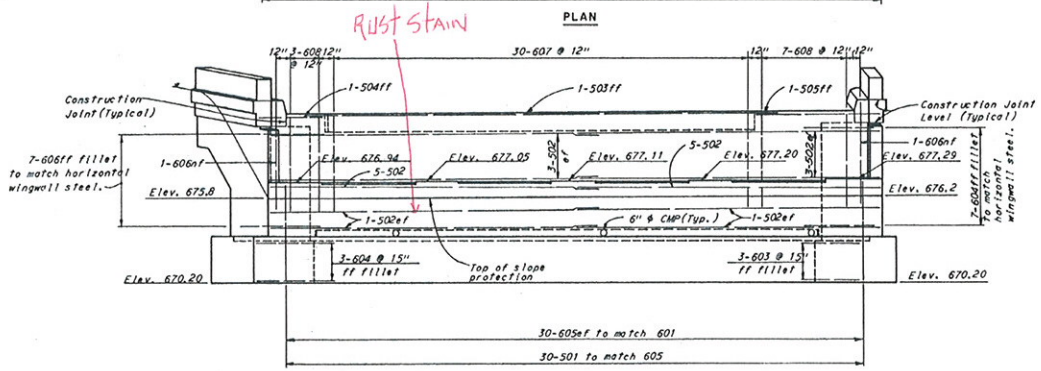

CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76
PLAN
ELEVATION
SECTION D-D
SECTION C-C
SECTION A-A
SECTION B-B
FOOTING PLAN
PIER 28 BE
PIER 27 BE
PIER 26 BE
Notes:
All piles are 12BP53.
For additional notes see Sheet 385.
Note: All reinforcing bar marks shall be prefixed as follows:
Pier 26BE = P00
Pier 27BE = P88
Pier 28BE = P55
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
PIERS 26BE, 27BE, 28BE
NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS
BR. NO. CUY-71-1789R STA. 917+10.09
STA. 935+21.25
CLEVELAND CUYAHOGA COUNTY OHIO
SHEET 407

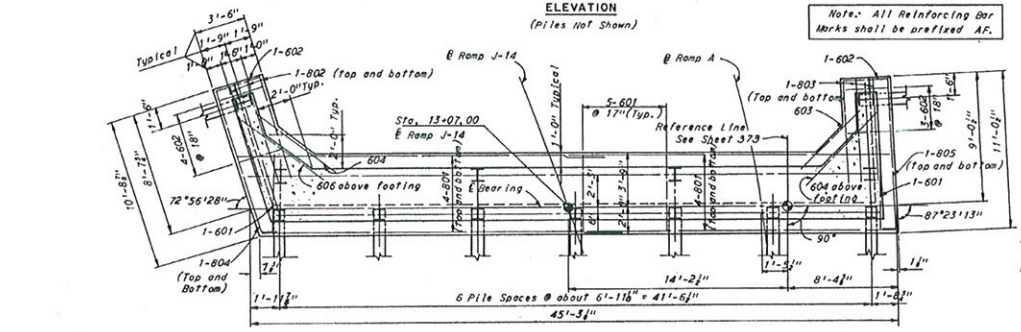
N SIDE

FED. RD. DIVISION	STATE	PROJECT		381
3	OHIO			646

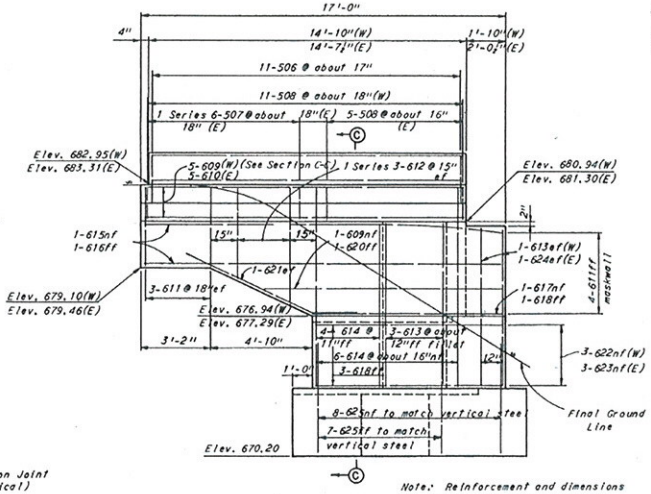
CUYAHOGA COUNTY
CUY 71-17.83
CUY-176-12.76

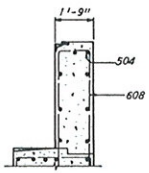


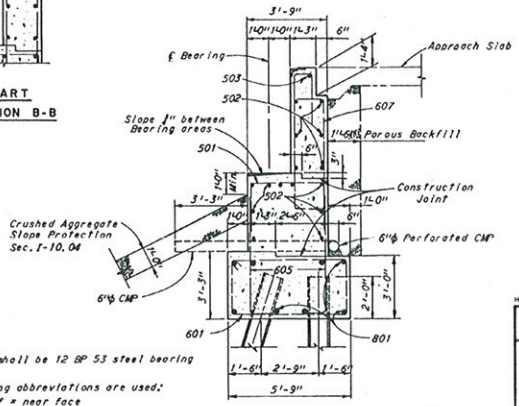


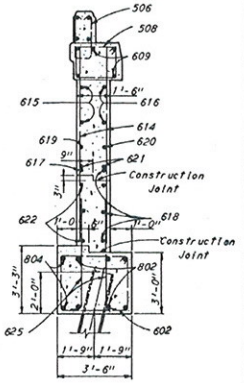


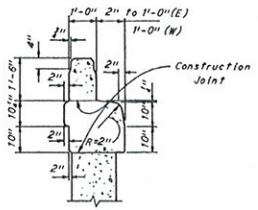
Note: All Reinforcing Bar Marks shall be prefixed AF.











Notes:
All piles shall be 12 BP 53 steel bearing piles.
The following abbreviations are used:
nf = near face
ff = far face
ef = each face
(W) = West
(E) = East
For additional notes see Sheet 379.

H.N.T.B. BRIDGE NOS. 21A & 21B

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTH ABUTMENT - BE

NORTHBOUND I-71 OVER NORTHBOUND JENNINGS, AND NORTHBOUND JENNINGS

BR. NO. CUY-71-1789 R STA. 917+10.09
STA. 935+21.25

CLEVELAND	CUYAHOGA COUNTY	OHIO
DRAWN EN DATE 7-64	TRACED DATE	CHECKED DATE 7-64	REVIEWED DATE 10-26-64	REVISED	SHEET 381

I-71/SR 176 Double Decked Bridge (SR 176 Lower Deck)
2012 In-Depth Bridge Inspection

APPENDIX
G

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 07/29/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the lower deck using an A75 UBIV. Inspected the substructure from the ground and from the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	7:00 pm	4:30 am	8.0	1.5
Michael Sondles - HDR	EI	7:00 pm	4:30 am	8.0	1.5
Mike Jennings – N.E. Bridge Contractors, Inc.		7:00 pm	4:30 am	8.0	1.5
A&A Safety – 2 traffic control personnel		6:00 pm	5:00 am	8.0	3.0

2) Equipment

A-Consultant Owned, **B**-Consultant Rented, **C**-ODOT Owned, **D**-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	9.5	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	9.5		Rental Car				
B	9.5	0		UBIV	A75			

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single RT lane on SR 176		NB	3	7:00 pm	4:30 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 07/30/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the lower deck and Ramp BE using an A75 UBIV. Inspected the substructure from the ground and from the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	8:00 pm	4:00 am	8.0	
Michael Sondles - HDR	EI	8:00 pm	4:00 am	8.0	
Mike Jennings – N.E. Bridge Contractors, Inc.		8:00 pm	4:00 am	8.0	
A&A Safety – 2 traffic control personnel		7:00 pm	5:00 am	8.0	2.0

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	8	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	8		Rental Car				
B	8	0		UBIV	A75			

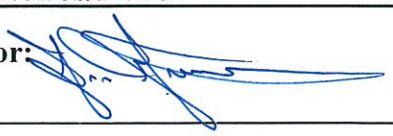
3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single RT lane on SR 176; Closed Ramp BE at 1:00 am		NB	3	8:00 pm	4:00 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor: 

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 07/31/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the lower deck, Ramp BW, and Ramp BE using an A75 UBIV. Inspected the substructure from the ground and from the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	8:00 pm	4:30 am	8.0	0.5
Michael Sondles - HDR	EI	8:00 pm	4:30 am	8.0	0.5
Mike Jennings – N.E. Bridge Contractors, Inc.		8:00 pm	4:30 am	8.0	0.5
A&A Safety – 2 traffic control personnel		7:00 pm	5:00 am	8.0	2.0

2) Equipment

A-Consultant Owned, **B**-Consultant Rented, **C**-ODOT Owned, **D**-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	8.5	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	8.5		Rental Car				
B	8.5	0		UBIV	A75			

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Double RT lane on SR 176; Closed Ramp BE at 1:00 am		NB	2 & 3	8:00 pm	4:30 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor: 

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 08/01/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the upper deck using an A75 UBIV. Inspected the substructure from the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	7:30 pm	4:00 am	8.0	0.5
Michael Sondles - HDR	EI	7:30 pm	4:00 am	8.0	0.5
Mike Jennings – N.E. Bridge Contractors, Inc.		7:30 pm	4:00 am	8.0	0.5
A&A Safety – 2 traffic control personnel		7:00 pm	5:00 am	8.0	2.0

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	8.5	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	8.5		Rental Car				
B	8.5	0		UBIV	A75			

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single LT lane on I-71; Single LT lane on SR 176		NB	1	7:30 pm	4:00 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 08/02/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the upper deck and Ramp AW using an A75 UBIV. Inspected the substructure from the ground and using the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	7:30 pm	4:30 am	8.0	1.0
Michael Sondles - HDR	EI	7:30 pm	4:30 am	8.0	1.0
Mike Jennings – N.E. Bridge Contractors, Inc.		7:30 pm	4:30 am	8.0	1.0
A&A Safety – 2 traffic control personnel		7:00 pm	5:00 am	8.0	2.0

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	9	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	9		Rental Car				
B	9	0		UBIV	A75			

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single LT lane on I-71; Single LT lane on SR 176		NB	1	7:30 pm	4:30 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 08/05/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the upper deck using an A75 UBIV. Inspected the substructure from the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	7:30 pm	5:00 am	8.0	1.5
Michael Sondles - HDR	EI	7:30 pm	5:00 am	8.0	1.5
Mike Jennings – N.E. Bridge Contractors, Inc.		7:30 pm	5:00 am	8.0	1.5
A&A Safety – 2 traffic control personnel		7:00 pm	5:30 am	8.0	2.5

2) Equipment

A-Consultant Owned, **B**-Consultant Rented, **C**-ODOT Owned, **D**-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	9.5	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	9.5		Rental Car				
B	9.5	0		UBIV	A75			

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single RT lane on I-71; Double RT lane on SR 176; Closed Ramp BE at 1:00 am		NB	3/(2 & 3)	7:30 pm	5:00 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 08/06/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the upper deck and Ramp AE using an A75 UBIV. Inspected the substructure from the ground and using the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	7:30 pm	3:30 am	8.0	
Michael Sondles - HDR	EI	7:30 pm	3:30 am	8.0	
Mike Jennings – N.E. Bridge Contractors, Inc.		7:30 pm	3:30 am	8.0	
A&A Safety – 2 traffic control personnel		7:00 pm	4:00 am	8.0	1.0

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	8	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	8		Rental Car				
B	8	0		UBIV	A75			

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single RT lane on I-71; Double RT lane on SR 176. Single RT lane on I-71; Ramp under Span 3		NB	3/(2 & 3) 3/(1)	7:30 pm	3:30 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	**County/Route/Section:** CUY/00071/1791 CUY/00176/1334	**Date:** 08/07/12
SFN: 1805371/1805436	**BRIDGE NAME:** I-71/SR 176 BRIDGES	
Contractor: HDR, Inc.	**Sub-Contractor:** Northwest Consulting, Inc.	
Description of Work: (use back for detail) Inspected the upper deck using an A75 UBIV. Inspected the substructure from the ground and using the A75 UBIV.		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
Ann Griessmann – HDR	PE	8:00 pm	4:00 am	8.0	
Michael Sondles - HDR	EI	8:00 pm	4:00 am	8.0	
Mike Jennings – N.E. Bridge Contractors, Inc.		8:00 pm	4:00 am	8.0	
A&A Safety – 2 traffic control personnel		7:00 pm	5:00 am	8.0	2.0

2) Equipment

A-Consultant Owned, **B**-Consultant Rented, **C**-ODOT Owned, **D**-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.
A	8	0	2009	2 Harnesses, lanyards, hand tools, helmets, gloves	Yates/ Miller			
B	1.0	8		Rental Car				
B	8	0		UBIV	A75			

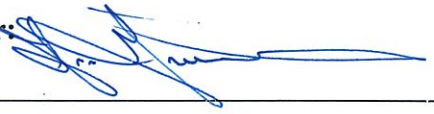
3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
Single RT lane on I-71; Single RT lane on SR 176; Single RT lane under Span 2, then Single LT lane under Span 2		NB	3/(1 & 2 under Sp 2)	8:00 pm	4:00 am
Local Law Enforcement notified?	Yes	Officer:			

4) Material

Quantity	Unit	Description
1		Binders for field notes
2		Paint Sticks

5) Signatures/Date

Contractor: 

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:

Daily Work Activities Report

PID No: 87600	County/Route/Section: CUY-71-1791 ; CUY-176-1331	Date: 7/30/12
SFN: 1805371/1805436	BRIDGE NAME: I-71 OVER SR-176	
Contractor: NORTHWEST CONSULTANTS	Sub-Contractor:	
Description of Work: (use back for detail) DECK INSPECTION (SR-176)		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
JON DRUMMOND	PE	7:00 P	12:00 A	5.0	
JACK EBERT	EI	7:00 P	12:00 A	5.0	

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
(BY HDR)					
Local Law Enforcement notified?		Officer:			

4) Material

Quantity	Unit	Description

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	County/Route/Section: CUY-71-1791 ; CUY-176-1331	Date: 7/31/12
SFN: 1805371/1805436	BRIDGE NAME: I-71 OVER SR-176	
Contractor: NORTHWEST CONSULTANTS	Sub-Contractor:	
Description of Work: (use back for detail) DECK INSPECTION (SR-176)		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
JON DRUMMOND	PE	12:00A	3:00A	3.0	
JACK EBERT	EI	12:00A	3:00A	3.0	
		8:00P	12:00A	4.0	

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
(BY HDR)					
Local Law Enforcement notified?		Officer:			

4) Material

Quantity	Unit	Description

5) Signatures/Date

Contractor: Jon Drummond

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:

Daily Work Activities Report

PID No: 87600	County/Route/Section: CUY-71-1791 ; CUY-176-1331	Date: 8/1/12
SFN: 1805371/1805436	BRIDGE NAME: I-71 OVER SR-176	
Contractor: NORTHWEST CONSULTANTS	Sub-Contractor:	
Description of Work: (use back for detail) DECK INSPECTION (SR-176)		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
JON DRUMMOND	PE				
JACK EBERT	EI	12:00A	4:00A	4.0	

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
(BY HDR)					
Local Law Enforcement notified?		Officer:			

4) Material

Quantity	Unit	Description

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	County/Route/Section: CUY-71-1791 ; CUY-176-1331	Date: 8/2/12
SFN: 1805371/1805436	BRIDGE NAME: I-71 OVER SR-176	
Contractor: NORTHWEST CONSULTANTS	Sub-Contractor:	
Description of Work: (use back for detail) DECK INSPECTION (I-71)		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
JON DRUMMOND	PE	7:00 P	12:00 A	5.0	
JACK EBERT	EI				

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
(BY HDR)					
Local Law Enforcement notified?		Officer:			

4) Material

Quantity	Unit	Description

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant

Consultant Contract Bridge Inspection:
Daily Work Activities Report

PID No: 87600	County/Route/Section: CUY-71-1791 ; CUY-176-1331	Date: 8/3/12
SFN: 1805371/1805436	BRIDGE NAME: I-71 OVER SR-176	
Contractor: NORTHWEST CONSULTANTS	Sub-Contractor:	
Description of Work: (use back for detail) DECK INSPECTION (I-71)		

1) Labor

Name	Class	From	To	Regular Hrs	OT Hrs
JON DRUMMOND	PE	12:00A	4:00A	4.0	
JACK EBERT	EI				

2) Equipment

A-Consultant Owned, B-Consultant Rented, C-ODOT Owned, D-ODOT Rented

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/ Elect	Equip No.

3) Maintenance of Traffic

Location Description:		Direction	Lane No.	Time on	Time off
(BY HDR)					
Local Law Enforcement notified?		Officer:			

4) Material

Quantity	Unit	Description

5) Signatures/Date

Contractor:

ODOT:

Original to ODOT File, Copy to Consultant