



Certificate of Qualification

NUMBER

92

ISSUED

March 10, 1975

Ef. 4-2-75

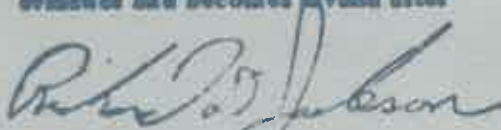
THIS CERTIFIES that **G. W. MELVIN CONTRACTING COMPANY**
1539 Walsh Ave., Columbus, Ohio 43223

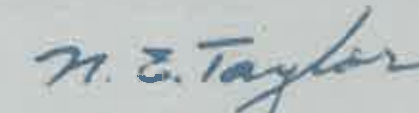
has filed with the Department of Transportation a Financial Statement and Experience Questionnaire as required under Sections 5525.02 to 5525.09 inclusive of the Revised Code of Ohio, and is hereby qualified to submit bids on State Highway Projects not to exceed \$ 900,000 less the contractual amount of all uncompleted work including non-highway work under contract at the time of submitting bid.

This Certificate limits the holder to the classification of work indicated below:

- Railroad Bridges and Construction Under Railroad Tracks
- General Contracting
- Paving
- Rigid Paving
- Flexible Paving
- Low Type Bituminous Wearing Surfaces
- Grading
- Drainage Structures
- Highway Bridges

This Certificate is subject to revision if and when a change in the financial condition of the holder is in evidence and becomes invalid after March 31, 1976.


Transportation Director


Administrator
Contractor Qualifications


This Memorandum

is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

SHIPPERS NO.

75251-1-B

RECEIVED subject to the classification and terms in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.

| | | | |
|--|---|---|--------------------|
| REQ., JOB, CONTRACT NO. 75251-1-B | | PURCHASE ORDER DATE 07 22 75 | PURCHASE ORDER NO. |
| THE POLLAK STEEL COMPANY Subsidiary of ARMCO STEEL CORPORATION P.O. BOX 15237 CINCINNATI, OHIO, 45215 AT MARION, OHIO 43302 | | MILL ORDER NO. 000170423-1032 DATED 08/05/75 | |
| FROM |  | BUYER CONTRACT 1340910838 | PAGE A3 |
| | | ACCOUNT NO. | TERMS |

FRANTZ BROS., INC. & BRIDGE
29-2.70 C.R.20 OVER MAD RIVER
VALLEY HI, OHIO

JOB SITE COPY

CON
SIGNED
T O

| | | | | |
|-----------------------------|-------------------------------|--------------------|---------------------|--------------------------------|
| SHIP MODE | FROM MARION, OHIO | ROUTE TRUCK | DEST. KAPPEL | VEHICLE IDENTIFICATION |
| DATE SHIPPED 8/26/75 | MINIMUM WEIGHT | F.O.B. | STOP OFF CHARGES | FREIGHT RATE |
| 070# | TOTAL BUNDLES - PIECES - SKID | | DUNNAGE | TOTAL WEIGHT (SUB. TO CORR.) |
| | | | | 00 180 10A 45070# |
| | | | | PREPAID OR COLLECT PPD. |

| ITEM NO. | DESCRIPTION | P/C | QUANTITY SHIPPED | MATERIAL AS COVERED BY THIS B/L HAS BEEN PLACED ON THE TRUCK SPECIFICALLY UNDER DRIVERS INSTRUCTIONS AND MUST BE PROTECTED FROM WEATHER IN TRANSIT. |
|----------|---|-----|------------------|---|
| A | FABRICATED STEEL REINFORCING BARS | | | <p>JOB SITE COPY</p> <p>Agent</p> |
| A | ASTM A 615-72 GRADE 40 COVERING: SUPERSTRUCTURE | | | |
| 001 | 45,070# | | | |
| | CERTIFIED MILL TEST: 3 CC TO CUST. | | | |
| | 24 HOUR NOTICE | | | |
| | ONE LOT REINFORCING STEEL BARS WITH A TOTAL SHIPMENT WEIGHT OF _____ THE LONGEST LENGTH ON THIS SHIPMENT IS _____ | | | |

NOTICE
 Failure To Unload This Vehicle Within The Free Time Allowed Will Result In Special Charges Which Will Be Billed By The Motor Carrier To The Person Causing The Delay.
 FREE TIME ALLOWED --- 3 HOURS
 CHARGE PER HOUR --- UP TO \$15.00

REMARKS:
90 MILES



THE POLLAK STEEL COMPANY
 Subsidiary of ARMCO STEEL CORPORATION
 GENERAL OFFICES: EVENDALE, CINCINNATI, OHIO 45215
 TELEPHONE: (513) 563-6600
 PLANT: MARION, OHIO 43302

FORM NO. PSCO-54

CUST. **FRANITZ BROS INC** PAGE **1**
 JOB **BRIDGE NO 29-2.70** JOB NO. **75251** REL. NO. **1**
 DES. **SUPERSTRUCTURE** DWG. NO. **LIST** MADE BY **ECS**

RECEIVED BY:

BENDING DIMENSIONS

CONTROL CODE VE

| GRADE | QTY. | LENGTH | MARK | TYPE | WEIGHT | A | B | C | D | E | F/R | G | H | J | K | O | BEND CLASSES |
|--|------|--------|-------|------|--------|------|-------|------|------|---|-----|---|---|---|---|---|--------------|
| 10 | 26 | | 91032 | 1 | 3067. | 1-05 | 26-00 | | | | | | | | | | 300 |
| 10 | 26 | | C1032 | 1 | 2872. | 1-05 | 24-03 | | | | | | | | | | 300 |
| 10 | 93 | 38-02 | A1032 | | 15273. | | | | | | | | | | | | |
| 10 | 68 | 24-09 | F1027 | | 7242. | | | | | | | | | | | | |
| 10 | 13 | 24-00 | D1032 | | 1343. | | | | | | | | | | | | |
| 10 | 13 | 21-06 | E1032 | | 1203. | | | | | | | | | | | | |
| 10 | 34 | 14-00 | G1027 | | 2048. | | | | | | | | | | | | |
| 10 | 32 | 10-04 | H1027 | | 1423. | | | | | | | | | | | | |
| | | | | | 34471. | | | | | | | | | | | | |
| 10 | 102 | 34-05 | M401 | | 5273. | | | | | | | | | | | | |
| 5 | 68 | 24-00 | J501 | | 1702. | | | | | | | | | | | | |
| 5 | 34 | 20-00 | K501 | | 789. | | | | | | | | | | | | |
| | | | | | 2411. | | | | | | | | | | | | |
| 4 | 204 | | M402 | 17 | 409. | | 1-00 | 1-02 | 1-00 | | | | | | | | 106 |
| 4 | 109 | 34-05 | N401 | | 2588. | | | | | | | | | | | | |
| | | | | | 2915. | | | | | | | | | | | | |
| <p>LOWEST LENGTH IN THIS RELEASE IS POTENTIALLY 30 FT 2 IN</p> | | | | | | | | | | | | | | | | | |
| <p>45,070</p> | | | | | | | | | | | | | | | | | |

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

From **ARMCO** Armco Steel Corporation
Metal Products Division

Address, Kentucky

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

At **SUMMIT, KY.** Date **9-3-75** 19 **CARRIER** **VAN'S TRANS.**

(Mail or street address of consignee—For purposes of notification only.)

Consigned to **FRANTZ BROTHERS, RR 29-2.7 LOGAN CO., OH CO. RD. 29 AT RR**

Destination **OVER MAD RIVER OFF CO. RD. 5, N.E. OF WEST LIBERTY** State of **OHIO** County of **LOGAN**

Route **STOP-OFF # 2 WITH 52-5352, 5354**

Delivering Carrier Car Initial Car No. **1.71**

| ITEM | No. Pkgs. | GAUGE | DIAMETER | LENGTH | KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS | *WEIGHT (Sub. to Cor.) | Class or Rate | Ck. Col. |
|------|-----------|------------|--------------------|----------------|--|------------------------|---------------|----------|
| | | | | | HEL-COR PIPE, D.F.C. | | | |
| | 2 | 16 | 12" | 20' | EP Pipe, 160 lb or 200 lb or 240 lb, NOMIN 16 Gauge or heavier per the thicker than 8 Gauge | | | |
| | 1 | | | 10' | | | | |
| | 2 | | | DB-10-1 | | | | |
| | 1 | BAG | 8 1/2" X 6" | | | 802# | | |

Pipe Fittings, NOMIN. plain or galvanized, iron or steel

MAIL FREIGHT BILL TO:
Armco Steel Corporation - Metal Products Div.
General Accounting
1001 Grove St., Middletown, Ohio 45042

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading state whether it is carrier's or shipper's weight. NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

ARMCO STEEL CORPORATION—METAL PRODUCTS DIVISION Shipper

Per **N. ROSS 15111**

Permanent post-office address of shipper: 1001 Grove St., Middletown, Ohio

Per

Agent

CARRIER MUST FREIGHT BILL ON Shipper

Shipper Order Number **52-1827**

Customer Order Number **2686**

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement. The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor.)

If charges are to be prepaid write or stamp here, "To be Prepaid."

"TO BE PPD."

ARMCO

7

(Name of Carrier)

Carrier's No. _____

RECEIVE, subject to the classifications and tariffs in effect on the date of issue of this Shipping Order.

At **Jeromesville, Ohio**

Sept. 10, 19*35*

From **THE WHITAKER-MERRELL CO.**

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Freight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to FRANTZ BROS. INC. (Mail or street address of consignee—For purposes of notification only.)
 Destination PROJ.: BR 29-2.70 State OHIO County LOGAN Delivery Address *
 Route P. O. # 2684 + 2685 (To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)
 Delivering Carrier WHITAKER-MERRELL Car or Vehicle Initials _____ No. 122

| NO. PACKAGES | KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS | WEIGHT (SUBJECT TO CORR.) | CLASS OR RATE | CHECK COLUMN |
|---------------|---|---------------------------|---------------|--------------|
| | Fence Fabric - 36" 47" Barbed Wire | | | |
| | Wood Fence Posts Braces | | | |
| | Fence Anchor Rods - Galv Black | | | |
| | Steel Rods Eye Bolts Self Drilling Anchors | | | |
| | Steel Fence Posts - 7' 10' 12' | | | |
| | Fence Angles - 10' 12' | | | |
| | Internal Anchor Rods - CG139C CG139 CG138 | | | |
| | Wood Guard Rail Posts - 7x9 6x6 | | | |
| | Wood Guard rail Posts - Rectangular | | | |
| <i>26 pcs</i> | Guard Rail Cable 6'-3" <i>26</i> (12'-6" Str) 12'-6" Curve 2" A 2 1/2" B 1 1/2" Plate | | | |
| <i>4 pcs</i> | Terminals - BG209 Flared BG209C Wirearound BG209AN End Shoes | | | |
| | Approach End Posts - A B C D Blocks - A B C | | | |
| | Bridge Connectors - 1/2" x 5" 3/4" x 8" | | | |
| | 1" Galv. Brace Rod Brace Rod CG1203 Brace Plate CG1207 | | | |
| | Delimitor Posts | | | |
| | Delimitors - A1 C2 C3 Brackets - A1 C2 C3 | | | |
| | 5/16" x 1" Slotted Truss Bolts With Nuts and Washers | | | |
| | Plate Washers With Oval Hole | | | |
| <i>44 pcs</i> | Bolts - Splice 1-3/4" Hex Hd <i>34</i> <i>10</i> 10" 16" 26" 28" | | | |
| TOTAL PIECES | | | | |

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Per _____
(Signature of Consignor.)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

PREPAID

Received \$ _____
to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per _____
(The signature here acknowledges only the amounts prepaid.)

Charges Advanced:

\$ _____

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
 NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
 The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per

*Shipper's Imprint in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.

THE WHITAKER-MERRELL CO.
33 N. High St., Columbus, Ohio 43215

Shipper, Per Chuck Fort Agent must detach and retain this Shipping Order and must sign the Original Bill of Lading.

Permanent post office address of shipper

GRAYARC CO., INC., BROOKLYN, N. Y. 11237

FRANTZ BROTHERS, INC.

General Contractors



P. O. BOX 59
SIDNEY, OHIO 45365



RECEIVED
DEC 8 1975
LOGAN COUNTY
ENGINEER

December 5, 1975

Mr. Chester Kurtz
Logan County Engineer
Logan County Engineer's Office
Bellefontaine, OH 43311

Chet:

Please find below our quantities for our proposed estimate No. 2 :

| | | |
|---------------------------------|-------------------------|---------------|
| 1. Clearing and Grubbing | Lump @ \$2,000.00 | \$ 2,000.00 |
| 2. Guardrail Removed and Stored | 280 ft. @ \$1.00 | 280.00 |
| 3. Foundation Removed | Lump @ \$500.00 | 500.00 |
| 4. Embankment | 3,964 cu. yds. @ \$1.00 | 3,964.00 |
| 5. Excavation | 5,356 cu. yds. @ \$1.00 | 5,356.00 |
| 6. Guardrail | 108.84 L.F. @ \$9.00 | 979.56 |
| TOTAL COMPLETED ROADWAY | | \$13,079.56 ✓ |

EROSION CONTROL

| | | |
|----------------------------|------------------------|-------------|
| 7. Rock Channel Protection | 8 cu. yds. @ \$25.00 | 200.00 |
| 8. Dump Rock Fill | 551 cu. yds. @ \$15.00 | 8,265.00 |
| 9. Seeding Mulching | 8528 sq. yds. @ \$.25 | 2,132.00 |
| 10. Commercial Fertilizer | .77 Ton @ \$300.00 | 231.00 |
| 11. Agricultural Liming | 3.84 Ton @ \$100.00 | 384.00 |
| TOTAL COMPLETED EROSION | | \$11,212.00 |

DRAINAGE

| | | |
|--------------------------|-------------------|-------------|
| 12. 12" Conduit | 50 L.F. @ \$12.00 | 600.00 |
| 13. Aggregate Drains | 280 L.F. @ \$1.50 | 420.00 |
| TOTAL COMPLETED DRAINAGE | | \$ 1,020.00 |

PAVEMENT

| | | |
|----------------------|------------------------|-------------|
| 14. Aggregate Base | 475 cu. yds. @ \$10.50 | 4,987.50 |
| 15. Asphalt Concrete | 104 cu. yds. @ \$50.00 | 5,200.00 |
| 16. Bituminous Prime | 1047 gal. @ \$1.00 | 1,047.00 |
| TOTAL PAVEMENT | | \$11,234.50 |

4,578.40

Mr. Chester Kurtz
Logan County Engineer
Logan County Engineer's Office
Bellefontaine, OH 43311

Page2

STRUCTURE

| | | |
|--------------------------------------|---------------------------|----------------------|
| 17. Structure Removal | Lump @ \$3,000.00 | <u>\$ 3,000.00</u> |
| 18. Unclassified Excavation | 82 cu. yds. @ \$12.00 | <u>984.00</u> |
| 19. 14" Cast-In-Place Concrete Piles | 728.1 L.F. @ \$12.00 | <u>8,737.20</u> |
| 20. Reinforcing Steel | 52,441 lbs. @ \$.26 | <u>13,634.66</u> |
| 21. Superstructure Concrete | 211 cu. yds. @ \$120.00 | <u>25,320.00</u> |
| 22. Pier Caps | 12 cu. yds. @ \$180.00 | <u>2,160.00</u> |
| 23. Abutments | 42 cu. yds. @ \$120.00 | <u>5,040.00</u> |
| 24. Bridge Railing | 216.18 L.F. @ \$25.00 | <u>5,404.50</u> |
| 25. Porous Backfill | 13 cu. yds. @ \$17.00 | <u>221.00</u> |
| 26. Concrete Surface Treatment | Lump @ \$1,100.00 | <u>1,100.00</u> |
| 27. Concrete Admixture | 211 ea. @ \$1.00 | <u>211.00</u> |
| | TOTAL STRUCTURE COMPLETED | <u>\$65,812.36</u> ✓ |
| Industrial Insurance | Lump \$1,100.00 | <u>1,100.00</u> |
| Maintaining Traffic | Lump \$1,000.00 | <u>1,000.00</u> ✓ |
| | TOTAL COMPLETED TO DATE | <u>\$104,458.42</u> |
| | Less 10% Retainage | <u>10,445.84</u> |
| | Less Previous Estimate | <u>62,917.02</u> |
| | TOTAL DUE THIS ESTIMATE | <u>\$ 41,541.40</u> |

Very truly yours,

A. R. Wheeler

A. R. Wheeler, V. P.
Frantz Brothers, Inc.

mat

ESTIMATE NO. 1
BRIDGE NO. 29-2.70

September 11, 1975

The Honorable Board of
Logan County Commissioners
Court House
Bellefontaine, Ohio 43311

To: Frantz Bros., Inc.
P.O. Box 27
Sidney, Ohio 45365

| REF. NO. | ITEM NO. | DESCRIPTION | ESTIMATED QUANTITY | UNITS TO DATE | UNIT PRICE | AMOUNT |
|----------|----------|---|--------------------|---------------|------------|-------------|
| | | <u>ROADWAY</u> | | | | |
| 1 | 201 | Clearing & Grubbing | Lump | Lump | 2000. | \$2,000.00 |
| 4 | 203 | Embankment | 3964 C.Y. | 1500 C.Y. | 1.00 | 1,500.00 |
| 5 | 203 | Excavation not including Embankment Construction | 5356 C.Y. | 2500 C.Y. | 1.00 | 2,500.00 |
| | | TOTAL ROADWAY | | | | \$6,000.00 |
| | | <u>EROSION CONTROL</u> | | | | |
| 8 | 601 | Dump rock fill, Type A | 551 C.Y. | 200 C.Y. | 15.00 | 3,000.00 |
| | | TOTAL EROSION CONTROL | | | | \$3,000.00 |
| | | <u>STRUCTURE</u> | | | | |
| 17 | 202 | Structure Removed | Lump | Lump | 3000. | 3,000.00 |
| 18 | 503 | Unclassified Excavation | 82 C.Y. | 82 C.Y. | 12.00 | 984.00 |
| 19 | 507 | 14" Cast in place reinforced Concrete Piles | 840 L.F. | 728.1 | 12.00 | 8,737.20 |
| 20 | 509 | Reinforcing Steel | 52441# | 52441# | .26 | 13,634.66 |
| 21 | 511 | Class C Concrete Superstructure | 211 C.Y. | 211 C.Y. | 120.00 | 25,320.00 |
| 22 | 511 | Class C Concrete Pier Caps | 12 C.Y. | 12 C.Y. | 180.00 | 2,160.00 |
| 23 | 511 | Class C Concrete Abutments | 42 C.Y. | 42 C.Y. | 120.00 | 5,040.00 |
| 25 | 518 | Porous Back Fill | 13 C.Y. | 13 C.Y. | 17.00 | 221.00 |
| 27 | 808 | Chemical Admixture for Concrete Type A, B, or D | 211 ea. | 211 ea. | 1.00 | 211.00 |
| | | TOTAL STRUCTURE | | | | \$59,307.86 |

ESTIMATE NO. 1 (Cont.)
BRIDGE NO. 29-2.70

September 11, 1975

| REF. NO. | ITEM NO. | DESCRIPTION | ESTIMATED QUANTITY | UNITS TO DATE | UNIT PRICE | AMOUNT |
|---------------------------------------|----------|---------------------------------|--------------------|---------------|------------|------------------|
| <u>MISCELLANEOUS</u> | | | | | | |
| 28 | Special | Premium on Industrial Insurance | Lump | Lump | \$1100. | \$1,100.00 |
| 29 | 614 | Maintaining Traffic | Lump | 50% | 1000. | <u>500.00</u> |
| TOTAL MISCELLANEOUS | | | | | | \$1,600.00 |
| TOTAL TO DATE | | | | | | \$69,907.86 |
| LESS 10% RETAINAGE | | | | | | <u>-6,990.79</u> |
| TOTAL AMOUNT TO BE PAID | | | | | | \$62,917.07 |
| TOTAL AMOUNT TO BE PAID THIS ESTIMATE | | | | | | \$62,917.07 |

Correct: Michael W. Bow
Michael W. Bow
Deputy Engineer

Approved: Chester R. Kurtz
Chester R. Kurtz, P.E.
Logan County Engineer

I hereby certify that this bill is true and correct and that payment therefore has not been received.

Contractor:

Frantz Bros., Inc.
P.O. Box 27
Sidney, Ohio 45365

By:

Signature

Title of Officer Signing

RICHARD J. FRANTZ
492-6266

OFFICE
492-9145

JACQUE E. FRANTZ
492-8712

FRANTZ BROTHERS, INC.

General Contractors

P. O. BOX 59

SIDNEY, OHIO 45365



RECEIVED
SEP 8 1975
LOGAN COUNTY
ENGINEER

Mr. Chester Kurtz
Logan County Engineer
Logan County Engineer's Office
Bellefontaine, OH 43311

Chet:

Please find below our quantities for our proposed estimate No. 1:

| | | |
|---------------------------------|-------------------------|------------------------|
| 1. Clearing and Grubbing | Lump @ \$2,000.00 | 2,000 ⁰⁰ |
| 2. Guardrail Removed and Stored | 280 ft. @ \$1.00 | 0 |
| 3. Foundation Removed | Lump @ \$500.00 | 0 |
| 4. Embankment | 3,964 cu. yds. @ \$1.00 | 1500 ⁰⁰ |
| 5. Excavation | 5,356 cu. yds. @ \$1.00 | 2500 ⁰⁰ |
| 6. Guardrail | 108.84 L.F. @ \$9.00 | 0 |
| TOTAL COMPLETED ROADWAY | | \$ 6,000 ⁰⁰ |

EROSION CONTROL

| | | |
|----------------------------|-----------------------------|------------------------|
| 7. Rock Channel Protection | 8 cu. yds. @ \$25.00 | 0 |
| 8. Dump Rock Fill | 551 cu. yds. @ \$15.00(200) | 3,000 ⁰⁰ |
| 9. Seeding Mulching | 8528 sq. yds. @ \$.25 | 0 |
| 10. Commercial Fertilizer | .77 Ton @ \$300.00 | 0 |
| 11. Agricultural Liming | 3.84 Ton @ \$100.00 | 0 |
| TOTAL COMPLETED EROSION | | \$ 3,000 ⁰⁰ |

DRAINAGE

| | | |
|--------------------------|-------------------|--------------------|
| 12. 12" Conduit | 50 L.F. @ \$12.00 | 0 |
| 13. Aggregate Drains | 280 L.F. @ \$1.50 | 0 |
| TOTAL COMPLETED DRAINAGE | | \$ 0 ⁰⁰ |

PAVEMENT

| | | |
|----------------------|------------------------|--------------------|
| 14. Aggregate Base | 475 cu. yds. @ \$10.50 | 0 |
| 15. Asphalt Concrete | 104 cu. yds. @ \$50.00 | 0 |
| 16. Bituminous Prime | 911 gal. @ \$1.00 | 0 |
| TOTAL PAYMENT | | \$ 0 ⁰⁰ |

1047 Gal.

208 Ton

Mr. Chester Kurtz
 Logan County Engineer
 Logan County Engineer's Office
 Bellefontaine, OH 43311

RECEIVED
 SEP 8 1975
 LOGAN COUNTY
 ENGINEER

Page2

STRUCTURE

| | | |
|--------------------------------------|----------------------------------|-------------------------------|
| 17. Structure Removal | Lump @ \$3,000.00 | 3,000 ⁰⁰ |
| 18. Unclassified Excavation | 82 cu. yds. @ \$12.00 | 984 ⁰⁰ |
| 19. 14" Cast-In-Place Concrete Piles | 728.1 L.F. @ \$12.00 | 8737 ²⁰ |
| 20. Reinforcing Steel | 52,441 lbs. @ \$.26 | 13,634 ⁵⁰ |
| 21. Superstructure Concrete | 211 cu. yds. @ \$120.00 | 25,320 ⁰⁰ |
| 22. Pier Caps | 12 cu. yds. @ \$180.00 | 2,160 ⁰⁰ |
| 23. Abutments | 42 cu. yds. @ \$120.00 | 5,040 ⁰⁰ |
| 24. Bridge Railing | 216.18 L.F. @ \$25.00 | 0 |
| 25. Porous Backfill | 13 cu. yds. @ \$17.00 | 221 ⁰⁰ |
| 26. Concrete Surface Treatment | Lump @ \$1,100.00 | 0 |
| 27. Concrete Admixture | 211 ea. @ \$1.00 | 211 ⁰⁰ |
| | TOTAL STRUCTURE COMPLETED | 59,307⁸⁰ |
| 28. Industrial Insurance | Lump \$1,100.00 | 1,100 ⁰⁰ |
| 29. Maintaining Traffic | Lump \$1,000.00 | 500 ⁰⁰ |
| | TOTAL COMPLETED TO DATE | 69,907⁸⁰ |
| | Less 10% Retainage | 6,990 ⁷⁸ |
| | Less Previous Estimate | 0 |
| | TOTAL DUE THIS ESTIMATE | \$ 62,917⁰² |

Very truly yours,

A. R. Wheeler

A. R. Wheeler, V. P.
 Frantz Brothers, Inc.

mat

ERIKSSON ENGINEERING LIMITED

1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731

May 29, 1975

Mr. Chester R. Kurtz
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio 43311

Re: Co. Rd. 29
E.E. 3182

Dear Chester:

We are hereby sending you 10 copies of a supplemental specification for the Sinmast Deep Conservation to be applied on the Bridge 29 - 2.70. I am sure you are aware that a strict control of the workmanship will be required when this material is applied. The contractor tends to be generous in cases like this, thinking it is better to apply more to be safe.

If you need additional copies, please call.

Very truly yours,

ERIKSSON ENGINEERING LTD.



Carl E. Eriksson, P.E.

CEE:jt

W/Encls.

RECEIVED

JUN 2 1975

**LOGAN COUNTY
ENGINEER**

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION 808
CHEMICAL ADMIXTURES FOR CONCRETE

November 14, 1969

808.01 Description. This work consists of furnishing and incorporating Type A water-reducing, Type B retarding or Type D water-reducing and retarding admixtures in 511 concrete for bridge superstructure.

808.02 Use. When an air temperature of 60 degrees F or higher prevails at time of placing concrete in a bridge superstructure (over a 20-foot span), the Contractor shall add an approved admixture to the concrete mix. Only admixtures approved by the Director may be used.

808.03 Type. The admixture shall be furnished in liquid or powder form; however, it shall be added in liquid form. It shall be Type A, B or D, ASTM C 494 conforming to the respective physical requirements of Table 1 except that the relative durability shall be not less than 90.

808.04 Acceptance. The producer of the admixture shall furnish the Department's Laboratory two copies of test data from a recognized laboratory showing that the admixture meets the requirements specified herein. A recognized laboratory shall be a laboratory of any State Highway Department, DPR, or any cement or concrete laboratory regularly inspected by the Cement and Concrete Reference Laboratory of ASTM.

The test data shall be obtained and reported in accordance with ASTM C 494.

808.05 Procedure. All concrete mixes containing the admixture shall be produced using cement of the same brand and source. The fine aggregate shall be from one source, and coarse aggregate from one source. The Contractor shall notify the Laboratory of the admixture, cement and aggregates he will use at least 60 days before the date of proposed use. If the Department has had no prior experience with the proposed admixture cement-aggregate combination, it may be necessary to make tests to determine whether or not the admixture can be approved. When this is done, the necessary samples of the materials to be used shall be furnished by the Contractor.

The admixture in liquid form, shall be batched accurately by means of a visual volumetric device in quantities recommended by the admixture producer and approved by the Engineer. The admixture shall be introduced into the mix in a manner that will prevent it from coming in direct contact with the dry cement or the air-entraining admixture.

The admixture shall be delivered in the manufacturer's original container labeled to show the names of the manufacturer and the content. Tests will be made on each shipment of admixture to be used by the Contractor.

The approved status of an admixture is dependent on satisfactory performance on the job. Tests to determine the rate of hardening and the compressive strength of the concrete may be made at any time during the progress of the work.

808.06 Measurement. The quantity of admixture shall be the number of units of approved material furnished and incorporated into the specified concrete.

A unit of admixture shall be the material required for acceptably treating one cubic yard of 511 concrete.

808.07 Payment. Payment for accepted quantities, complete in place, will be made at contract price for:

| Item | Unit | Description |
|------|-------|---|
| 808 | Units | Type A Water-reducing admixture |
| 808 | Units | Type B Retarding admixture |
| 808 | Units | Type D Water-reducing and retarding admixture |

ALLOWAY TESTING, INC.

2623 SHAWNEE ROAD - LIMA, OHIO 45806
 TELEPHONE (419) 991-0262

CONCRETE CYLINDER TEST REPORT

Lab. No. 5091
 Date _____
 P.O.No. _____

Client: Ohio Ready Mix

Project: County bridge job on 29
 Location: _____
 Contractor: _____

| | | | | | |
|----------------------|---------------------|--------------------|-----------|---------------------|--------------|
| AGGREGATE: | | CONCRETE: | | FIELD TESTS: | |
| Type | <u>1</u> | Mix, sks/cu.yd. | <u>6½</u> | Air Temp. | <u>82</u> |
| Brand | <u>Southwestern</u> | Batch Size, cu.yd. | _____ | Concrete Temp. | _____ |
| AGGREGATES: | | Water, gal/sk | _____ | Slump, inches | <u>3</u> |
| Size | <u>57 L/S</u> | Mixing Method | _____ | Air Content, % | <u>6</u> |
| Type | <u>Nat. sand</u> | Mixing Time | _____ | Time of Test | <u>12:30</u> |
| Source | _____ | Supplier | _____ | Made By | _____ |
| ADDITIONAL MIXTURES: | <u>WR & air</u> | Delivery No. | _____ | | _____ |

Results of Compressive Strength Tests

| Cylinder No. | A | B | C | | | |
|--------------------|---------|---------|---------|--|--|--|
| Date Made | 9-2-75 | - | - | | | |
| Date Rec'd. | 9-8-75 | - | - | | | |
| Date Tested | 9-9-75 | 9-30-75 | 9-30-75 | | | |
| Age at Test | 7 | 28 | 28 | | | |
| Cured | job | job/wet | job/wet | | | |
| Weight, lbs. | 28.25 | 28.50 | 28.38 | | | |
| Diameter, in. | 6.0 | - | - | | | |
| Length, in. | 12.0 | - | - | | | |
| Area, sq. in. | 28.3 | - | - | | | |
| Total Load, lbs. | 119,500 | 154,000 | 133,000 | | | |
| Strength, psi | 4225 | 5445 | 4705 | | | |
| Fracture | cone | cone | cone | | | |
| Defects | nil | nil | nil | | | |
| Specified Strength | 4000-28 | | | | | |

Remarks: _____

RECEIVED
 OCT 6 1975
 LOCAL OFFICE

Distribution:
 ORM 2

This is to certify that the material described above has been tested in compliance with specified requirements and results are as shown.

ALLOWAY TESTING INC.

per F. E. Alloway

Wimsatt Building Company, Inc.

503 PROGRESS ROAD, WEST CARROLLTON, OHIO 45449



July 22, 1975

Chester Kurtz P.E.
County Engineer
Logan County
P.O. Box 427
Bellefontaine, Ohio 43311

Re: Bridge No. 29-2.70
Bid Date: July 7

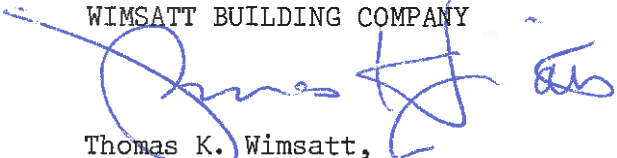
Dear Sir,

We would appreciate a tabulation of Bids received for the Subject Job at your earliest convenience.

Also, if an award has been made to the Low Bidder, when may we expect our Certified Check to be returned.

Very truly yours,

WIMSATT BUILDING COMPANY


Thomas K. Wimsatt,
President

RECEIVED

JUL 24 1975

LOGAN COUNTY
ENGINEER



CONTRACTORS DATA REPORT[®]

SERVING THE CONSTRUCTION INDUSTRY NATIONWIDE WITH TABULATED BID RESULTS & PRE-BID INFORMATION

P.O. BOX 310
ALLEN PARK, MICHIGAN 48101

*Co. Commrs of Logan Co.
Bellefontaine, Ohio*

Request For Tabulation Of Bids

WILL YOU KINDLY MAIL THE "BID TABULATION" -- (ITEMS / QUANTITIES / UNIT PRICES / AND BIDDERS) ON THE PROJECT DESCRIBED BELOW AND LET THRU YOUR OFFICE OR DEPARTMENT ON DATE LISTED:

PROJECT: *Co Rd 29 in Monroe township Impmt.*

DATE BIDS RECEIVED: *July 7*

THIS INFORMATION FOR PUBLICATION IN MONTHLY LISTINGS OF TABULATED BID RESULTS FOR CONTRACTORS -- ENGINEERING FIRMS -- PUBLIC WORKS DEPARTMENTS AND OFFICIALS IN YOUR AREA. PLEASE MAIL BID TO ABOVE ADDRESS.

RECEIVED

JUL 21 1975

LOGAN COUNTY
ENGINEERS

July 22, 1975

Frantz Brothers, Inc.
P.O.Box 59
Sidney, Ohio 45365

Gentlemen:

Please find enclosed your "Certified Check" in the amount of \$1,000.00 furnished with your proposal on Bridge 29-2.70.

Thank you for participating.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

Att: check

C
O
P
Y

July 22, 1975

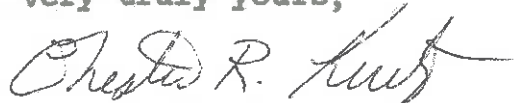
Wimsatt Building Company
503 Progress Road
West Carrollton, Ohio 45449

Gentlemen: '

Please find enclosed your "Certified Check" in the amount of \$1,000.00 furnished with your proposal on Bridge 29-2.70.

Thank you for participating.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

Att: check

P.S. Also please find enclosed check in the amount of \$25.00. This is the return for deposit on plans.

C
O
P
Y

July 22, 1975

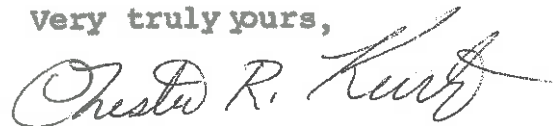
Iberia Earthmoving Service, Inc.
Iberia, Ohio 43325

Gentlemen:

Please find enclosed your "Bid or Proposal Bond"
in the amount of \$1,000.00 furnished with your proposal on
Bridge 29-2.70.

Thank you for participating.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

att: Bond

C
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P
Y

July 22, 1975

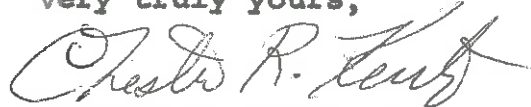
G. W. Melvin Contracting Co.
1539 Walsh Avenue
Columbus, Ohio 43223

Dear Mr. Melvin:

Please find enclosed your "Certified Check" in the amount of \$1,000.00 furnished with your proposal on Bridge 29-2.70.

Thank you for participating.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

Att: check

C
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Y

July 22, 1975

Wren Reese, Inc.
Box 349
Napoleon, Ohio 43545

Gentlemen:

Please find enclosed your "Bid Bond" in the amount of \$1,000.00 furnished with your proposal on Bridge 29-2.70.

Thank you for participating.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

Att: Bond

C
O
P
Y

FILE COPY

Phone 464-3961

**NORTHWOOD
STONE & ASPHALT CO.**

R. F. D. 2, Belle Center, Ohio 43310

Date 11-12-1972
Sold to FRANTZ BROS
Address _____
P. O. No. _____ Route CR 27-53-2
Delivered at _____

A.T. 1047 GAL

| | SIZE |
|-----------------------------|----------------|
| Tons | |
| Batches | <u>MC-30</u> |
| Gross <u>26300</u> | |
| Tare <u>18300</u> | Stone _____ |
| Net <u>26300</u> | Asphalt _____ |
| <u>8000</u> | Tax _____ |
| | Delivery _____ |
| Miles _____ | Total _____ |

Truck No. _____

Weigher M. N.

Driver Garlin

256873

County of Clark

OFFICE OF COUNTY ENGINEER

ROGER F. BORCHERS, P.E.
COUNTY ENGINEER
SPRINGFIELD, OHIO 45505

October 23, 1975

Mr. George W. Zupp
225 S. Park Street
Bellefontaine, Ohio 43311

Dear Sir:

There are many factors that determine the cost of any type structure or the total cost of a project of any type.

These cost factors are; design, site location, structural material requirement, season of year, construction time limit, stream channelization, roadway improvement and availability of materials such as gravel, concrete steel and fabricated structural members. Last and most important is condition of the economy and availability of contract work.

The County Line Road bridge in Clark and Champaign Counties was contracted for the bridge only and both counties will use their own work forces and equipment for roadway improvement.

The design of the total structure is simple and exceeds the load requirements for highway bridges. The concrete beams are manufactured in Columbus, Ohio using Ohio State Standards for materials and are delivered to the job site and unloaded onto the waiting piers and abutments.

The contractor's bid for building this bridge is \$76,994.25 and our Engineers estimated cost for the bridge structure was approximately \$176,000.00. If we had included the approach work which is a simple work project, the engineers estimated cost would have been approximately \$225,000.00.

This startling saving in cost has occurred recently because contractors have not had public works projects to bid on, and suppliers have not had the demand for their materials.

We took bids on 4 different types of bridges and the two counties choose the lowest bid.

The bridge being constructed on County Line Road is one of the best structural buys in the whole United States today. Again I want to stress that the cost of one project cannot be used to judge the cost of another project.

Sincerely,



MARK E. WEDDLE P.S.
CLARK COUNTY BRIDGE ENGINEER

RECEIVED

OCT 27 1975

LOGAN COUNTY
ENGINEER

225 S. Park Street
Bellefontaine, Ohio 43311

October 14, 1975

Clark County Engineer
4075 Laybourne Road
Springfield, Ohio 45505


Dear Sir;

I am interested in knowing the cost of the bridge replaced over the Mad River on County Line Road. My reason for this request is solely to satisfy an argument over a similar structure placed in my own county. I only wish to compare costs as I feel the Logan County structure is over-priced. I realize that land acquisition can play a large part in arriving at total costs, and this can vary a great deal. Also a good deal of stream channelization was done in Logan County that appears will not be done at County Line. At least your stakes seem to bear this out.

Any and all information will be for my use only and is not to be used to embarrass or criticize any one.

Addressed Postal Card enclosed for your convenience in answering.

Respectfully


George W. Zupp

RECEIVED

OCT 27 1975

LOGAN COUNTY
ENGINEER



Ohio Department of Transportation
25 South Front Street
James A. Rhodes, Governor
Columbus, Ohio 43215
Richard D. Jackson, Director

REPLY TO
OHIO DIVISION OF HIGHWAYS, TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223
January 17, 1975

Office of County Engineer
Chester R. Kurtz, County Engineer
Bellevontaine, Ohio 43311
Attention Mr. Chester Kurtz

File: 203-1.2
Logan

Re: Structure Foundation Investigation
LOG-
County Road 29 over Mad River

Dear Mr. Kurtz:

Transmitted herewith are the results of the foundation investigation made for the County Road 29 structure over Mad River, on Project LOG-County Road 29 - 2.70.
The reproduced tracings of this report are being sent to the Consultant.

Very truly yours,

F. M. Williams, P.E.
Bureau of Testing

F. M. Williams
Per: R. E. Calvin, P.E.
Foundation Exploration Section

REC:sm
Encl.
cc: R. B. Pfeiffer, Attn: Ray Grover
Eriksson Engineering, Ltd., Attn: Carl E. Eriksson
R. E. Calvin (4)

RECEIVED

JAN 20 1975
BOSSON COUNTY ENGINEERS

SUPPLEMENTAL SPECIFICATION
FOR THE CONSTRUCTION OF
BRIDGE NO. 29-2.70
LOGAN COUNTY

SPECIFICATIONS FOR SINMAST DEEP CONSERVATION

I. GENERAL:

The scope of this contract shall include all labor, materials, and equipment as shown on the drawings or herein specified. The materials placed--its qualities, color, and properties-- shall be at least equal to what has been specified herein. The product specified is SINMAST DEEP CONSERVATION, Product No. 1, manufactured by SINMAST OF AMERICA, INC., 1200 Greenleaf Avenue, Elk Grove Village, Illinois, 60007, and supplied by authorized, factory-trained Dealers.

The contractor shall select a supplier of the materials before submitting a bid for this work.

II. MATERIALS:

A. Penetrating Sealer

The penetrating sealer shall be a two-component, modified epoxy system, consisting of a modified resin, curing agents and a select blend of aromatic solvents.

1. Component A (modified epoxy resins) shall be a blend of select grades of aromatic solvents with fast evaporation qualities, a modified epoxy resin blend containing special modified Bisphenol A intermediates and shall meet the following requirements:

| | |
|---|-----------|
| Weight per gallon, lbs. | 7.15-7.35 |
| Viscosity at 25°C, Average cps. | 2.4* |
| Specific gravity. | 0.86-0.88 |
| Color | Clear |

Brookfield Model LVF:
*Spindle #1, 60 rpm
**Spindle #2, 60 rpm

III. APPLICATION:

A. Determine rate of application by applying Sinmast Deep Conservation over a test area. Mark off three areas for one square foot each. Two coats will be required for proper application. Normally the first coat will be the lightest application rate and the second will be a heavier coat (more solids are being applied per square foot on the second application). Remember that a film should never develop on the surface of the concrete. If a film develops the material is being applied too thick and the rate of application should be reduced. Brush the Sinmast Deep Conservation over the test area. After applying the first coat, the second may be applied when the solvent has evaporated from the surface. As a guide only, the following general specifications for highway concrete will normally require two applications at the approximate rates shown below. Please remember the application rates are determined by the porosity of the concrete and each job must be individually determined.

TYPICAL HIGHWAY CONCRETE SPECIFICATIONS

Compressive Strength 5,000-6,000 psi

PROPERTIES OF PLASTIC CONCRETE

Slump 3" to 4"
Air Content 4.75 to 6.0%

FIRST APPLICATION OF SINMAST DEEP CONSERVATION

1 gallon per 200-300 sq. ft.

SECOND APPLICATION OF SINMAST DEEP CONSERVATION

1 gallon per 75-125 sq. ft.

The following figures will assist you in determining the correct application rates. A one-inch brush will normally hold about ten grams of Sinmast Deep Conservation. Figures are approximate; however, will enable you to determine proper application of each coating.

| <u>SQ. FT. PER GALLON</u> | <u>GRAMS PER SQ. FT.</u> |
|---------------------------|--------------------------|
| 50 | 68.0 |
| 75 | 45.3 |
| 100 | 34.0 |
| 125 | 27.2 |
| 150 | 22.6 |
| 175 | 19.4 |
| 200 | 17.0 |
| 250 | 13.6 |
| 300 | 11.3 |
| 350 | 9.7 |
| 400 | 8.5 |

B. NEW CONCRETE APPLICATIONS

Normally no blasting or grinding of the surface to be treated will be necessary, however, if laitence is weak or spalling has occurred the surfaces should be thoroughly cleaned down to solid concrete. Wash all debris and dirt from the concrete with clean water or blow clean with an air blast. Allow to dry before applying material.

C. After rates of application have been determined the Sinmast Deep Conservation may be applied by power spray equipment, rollers, or brushes.

D. Traffic may drive over treated surface as soon as solvents have evaporated or concrete looks dry.

LOGAN COUNTY ENGINEER

By: MIKE BOU

GENERAL ESTIMATE SHEET

Project 29-2.70

150 FOOTING

for FINAL ESTIMATE Date 6/5/75

Sheet 2 of 2

| ITEM | APPROXIMATE QUANTITIES | UNIT | DESCRIPTION | UNIT COST | TOTAL COST | P.O. | STOCK | ACCT | REMARKS |
|---------|------------------------|------|--|-----------|---------------|------|-------|------|---------|
| 511 | 211 | C.Y. | CLASS C CONCRETE SUPERST | 240.00 | 56640.00 | | | | |
| 511 | 12 | C.Y. | CLASS C CONCRETE PIER CAPS | 2300.00 | 27600.00 | | | | |
| 511 | 42 | C.Y. | CLASS C CONCRETE ABUTMENTS | 180.00 | 7560.00 | | | | |
| 517 | 216.18 | L.F. | RAILWG (DEEP BEAM RAIL WITH STEEL POSTS & BOLTS) | 15.00 | 3242.70 | | | | |
| 518 | 13 | C.Y. | POROUS TRAC FILL | 14.00 | 182.00 | | | | |
| SPECIAL | LUMP | LUMP | CONCRETE SURFACE TREATMENT | 500.00 | 500.00 | | | | |
| 808 | 211 | UNIT | CONCRETE TYPE ABORD. CHEMICAL ADMIXTURE FOR | 1.50 | 316.50 | | | | |
| SPECIAL | LUMP | LUMP | PREMIUM ON INDUSTRIAL INSULATION | 1200.00 | 1200.00 | | | | |
| 619 | LUMP | LUMP | MAINTAINING TRAFFIC | 400.00 | 400.00 | | | | |
| | | | | Total | \$ 150,534.82 | | | | |

SUPPLEMENTAL SPECIFICATION
FOR THE CONSTRUCTION OF
BRIDGE NO. 29-2.70
LOGAN COUNTY

SPECIFICATIONS FOR SINMAST DEEP CONSERVATION

I. GENERAL:

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The contractor shall select a supplier of the materials before submitting a bid for this work.

II. MATERIALS:

A. Penetrating Sealer

The penetrating sealer shall be a two-component, modified epoxy system, consisting of a modified resin, curing agents and a select blend of aromatic solvents.

1. Component A (modified epoxy resins) shall be a blend of select grades of aromatic solvents with fast evaporation qualities, a modified epoxy resin blend containing special modified Bisphenol A intermediates and shall meet the following requirements:

| | |
|---|-----------|
| Weight per gallon, lbs. | 7.15-7.35 |
| Viscosity at 25°C, Average cps. | 2.4* |
| Specific gravity. | 0.86-0.88 |
| Color | Clear |

Brookfield Model LVF:

*Spindle #1, 60 rpm

**Spindle #2, 60 rpm

2. Component B (Curing Agent) shall be a propriety mixed polyamide and shall meet the following requirements:

Weight per gallon, lbs. 8.08-8.28
Viscosity at 25°C, Average cps. 200.0**
Specific gravity. 0.97-0.99
Color Dark Brown

3. Special Note

No plasticizers, flexibilizers, oils or diluents that remain unreactive in the resin or curing agents are permitted in the formulation.

4. Mixing of Components A and B

Add Component B into Component A and blend until evenly mixed.

Ratio of product mixtures: Component A 90%, and Component B 10%, all measurements by weight.

5. Properties of Mixed Product

Weight per gallon, lbs. 7.24-7.44
Viscosity at 25°C, Average cps. 3.2**
Specific gravity. 0.87-0.89
Solids by weight. 15%
Color Clear
Potlife 25°C, (77°F). 6 Hours Plus
Flexibility No breaking or cracking of film with normal concrete movements.

Film. No film shall be present on surface of the concrete.

Clare None
Skid Properties No change from existing conditions prior to application, unless sand is added.
Gel Time 1-2 hours after application

Traffic allowed over treated concrete as soon as solvents evaporate from surface, 15-45 minutes. Workable temperatures down to +50°F. (-15°C.).

6. Packaging and Marking

Each container shall be clearly marked with product name, component designation ("A" or "B"), manufacturer's name, batch number, and ratio of component mixtures. Container sizes: 6½ and 55 gallon drums.

III. APPLICATION:

A. Determine rate of application by applying Sinmast Deep Conservation over a test area. Mark off three areas one square foot each. Two coats will be required for proper application. Normally the first coat will be the lightest application rate and the second will be a heavier coat (more solids are being applied per square foot on the second application). Remember that a film should never develop on the surface of the concrete. If a film develops the material is being applied too thick and the rate of application should be reduced. Brush the Sinmast Deep Conservation over the test area. After applying the first coat, the second may be applied when the solvent has evaporated from the surface. As a guide only, the following general specifications for highway concrete will normally require two applications at the approximate rates shown below. Please remember the application rates are determined by the porosity of the concrete and each job must be individually determined.

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- C. After rates of application have been determined the Sinnmast Deep Conservation may be applied by power spray equipment, rollers, or brushes.
- D. Traffic may drive over treated surface as soon as solvents have evaporated or concrete looks dry.

SUPPLEMENTAL SPECIFICATION
FOR THE CONSTRUCTION OF
BRIDGE NO. 29-2.70
LOGAN COUNTY

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|---|-----------|
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| Specific gravity. | 0.86-0.88 |
| Color | Clear |

Brookfield Model LVF:
*Spindle #1, 60 rpm
**Spindle #2, 60 rpm

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Weight per gallon, lbs. 8.08-8.28
Viscosity at 25°C, Average cps. 200.0**
Specific Gravity. 0.97-0.99
Color Dark Brown

3. Special Note

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4. Mixing of Components A and B

Add Component B into Component A and blend until evenly mixed.

Ratio of product mixtures: Component A 90%, and Component B 10%, all measurements by weight.

5. Properties of Mixed Product

Weight per gallon, lbs. 7.24-7.44
Viscosity at 25°C, Average cps. 3.2**
Specific gravity. 0.87-0.89
Solids by weight. 15%
Color Clear
Potlife 25°C, (77°F) 6 Hours Plus
Flexibility No breaking or cracking of film with normal concrete movements.
Film No film shall be present on surface of the concrete.

Glare None
Skid Properties No change from existing conditions prior to application, unless sand is added.

Gel Time 1-2 hours after application

Traffic allowed over treated concrete as soon as solvents evaporate from surface, 15-45 minutes.
Workable temperatures down to +50F. (-15°C).

6. Packaging and Marking

Each container shall be clearly marked with product name, component designation ("A" or "B"), manufacturer's name, batch number, and ratio of component mixtures. Container sizes: 6½ and 55 gallon drums.

III. APPLICATION:

A. Determine rate of application by applying Sinmast Deep Conservation over a test area. Mark off three areas one square foot each. Two coats will be required for proper application. Normally the first coat will be the lightest application rate and the second will be a heavier coat (more solids are being applied per square foot on the second application). Remember that a film should never develop on the surface of the concrete. If a film develops the material is being applied too thick and the rate of application should be reduced. Brush the Sinmast Deep Conservation over the test area. After applying the first coat, the second may be applied when the solvent has evaporated from the surface. As a guide only, the following general specifications for highway concrete will normally require two applications at the approximate rates shown below. Please remember the application rates are determined by the porosity of the concrete and each job must be individually determined.

TYPICAL HIGHWAY CONCRETE SPECIFICATIONS

Compressive Strength 5,000-6,000 psi

PROPERTIES OF PLASTIC CONCRETE

Slump 3" to 4"
Air Content 4.75 to 6.0%

FIRST APPLICATION OF SINMAST DEEP CONSERVATION

1 gallon per 200-300 sq. ft.

SECOND APPLICATION OF SINMAST DEEP CONSERVATION

1 gallon per 75-125 sq. ft.

The following figures will assist you in determining the correct application rates. A one-inch brush will normally hold about ten grams of Sinmast Deep Conservation. Figures are approximate; however, will enable you to determine proper application of each coating.

| <u>SQ. FT. PER GALLON</u> | <u>GRAMS PER SQ. FT.</u> |
|---------------------------|--------------------------|
| 50 | 68.0 |
| 75 | 45.3 |
| 100 | 34.0 |
| 125 | 27.2 |
| 150 | 22.6 |
| 175 | 19.4 |
| 200 | 17.0 |
| 250 | 13.6 |
| 300 | 11.3 |
| 350 | 9.7 |
| 400 | 8.5 |

B. NEW CONCRETE APPLICATIONS

Normally no blasting or grinding of the surface to be treated will be necessary, however, if laitence is weak or spalling has occurred the surfaces should be thoroughly cleaned down to solid concrete. Wash all debris and dirt from the concrete with clean water or blow clean with an air blast. Allow to dry before applying material.

- C. After rates of application have been determined the Sinmast Deep Conservation may be applied by power spray equipment, rollers, or brushes.
- D. Traffic may drive over treated surface as soon as solvents have evaporated or concrete looks dry.



Ohio Department of Transportation

25 South Front Street, P. O. Box 899
James A. Rhodes, Governor

Columbus, Ohio 43216
Richard D. Jackson, Director

June 16, 1975

Mr. Chester R. Kurtz, P.E.
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio 44311


RE: LOGAN COUNTY
BRIDGE NUMBER 29-2.70

Dear Mr. Kurtz:

Plans for Bridge Number 29-2.70, County Highway Number 29 over the Mad River in Monroe Township, Logan County, Ohio, submitted in accordance with Section 5543.02 of the Revised Code of Ohio, are approved.

One signed set of plans is being returned to you.

Very truly yours,


Richard D. Jackson, P.E.
Director of Transportation

RDJ:ae



UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Box 259, East Liberty, OH 43319

June 23, 1975

Chester Kurtz
Logan County Engineer
Tidewater Road, R#4
Bellefontaine, OH 43311

Dear Chet,

The Top of Ohio RC&D Recreation and Tourism Committee reviewed the proposed bridge and road relocation on Logan County Highway 29 at C. H. 5 and across Mad River today. Mr. Stephen Jacks, ODNR, Div. of Wildlife Game Protector, met with the committee.

The committee is receptive to your idea of using available area for a fishermen's parking lot on county-owned land after the road and bridge improvement is completed. The committee is willing to provide the local leadership to implement the plan.

On sheet 4 of 19 of the 29 - 2.70 bridge plan for Monroe Twp., Logan County, the area of existing road to remain undisturbed from C. H. 5 (0 + 00 to 1 + 00) measures approximately .075 acre (3,267 sq. ft.) and the remaining area available for parking would be approximately .35 acre (15,246 sq. ft.) for a total of approximately .42 acre.

We discussed borrow and fill materials in the area, posts, seeding, plantings, policing, litter control, scheduling, ownership, possible agreement needs, and an adequate surface for the lot.

Mr. Jacks agreed to contact ODNR personnel concerning the plans and seek assistance concerning more ideas and materials.

The committee looks forward to guidance and counsel for moving ahead with the project from you and the ODNR Division of Wildlife.

Sincerely,

Walter F. Cooper

Walter F. Cooper,
Project Coordinator
Top of Ohio RC&D

cc: Stephen Jacks, ODNR Div. of Wildlife, Russells Point, OH
Eric Angle, ODNR Div. of Wildlife, 1500 Dublin Rd.,
Columbus, OH

RECEIVED

JUN 26 1975

LOGAN COUNTY
ENGINEER



MAILING LIST

Proposal
Project: Br. 29-2.70
Letting - July 7, 1975

Frantz Brothers
Box 59
Sidney, Ohio 45365

Iberia Earth Moving Service, Inc.
Iberia, Ohio 43325

Grover Melvin
1539 Walsh Avenue
Columbus, Ohio 43223

Wren Reese
Napoleon, Ohio 43545

Wyandot Blacktop Co., Inc.
1465 North Main
Marion, Ohio 43302



STATE OF OHIO
DEPARTMENT OF INDUSTRIAL RELATIONS
 Division of Women and Minors and Minimum Wage
 PREVAILING WAGE SECTION

2323 West Fifth Avenue, Room 2390

P.O. Box 825
 Columbus, Ohio 43216

(614) 466-4340

June 17, 1975

JAMES A. RHODES
 Governor

HELEN W. EVANS
 Director

SAM J. McADOW
 Deputy Director

THOMAS W. JOHNSON
 Chief of Division

Chester R. Kurtz, P. E.
 Logan County Engineer
 Bellefontaine, Ohio 43311

RE: Logan County Bridge Project
Br. 29-2.70 - LOGAN COUNTY

In order to facilitate the administration of Chapter 4115 of the Revised Code, and to achieve the purposes of said chapter, the department of industrial relations is asking that the public authority furnish specific information regarding the above named project. Fill in the following information and return one copy of the form to this office as soon as information is available after bids have been opened. In lieu of filing this form, you may furnish this office with a copy of the complete bid tabulation for this project, indicating to whom project was awarded and the date that it was awarded.

LIST ALL BIDDERS

AMT. OF BID

Date and to whom contract was awarded _____

Date

Name

Address

The above named project will begin approximately _____

and will be completed approximately _____,

 Signature of Public Authority or His Agent

Address

Please return one copy to this office



STATE OF OHIO
DEPARTMENT OF INDUSTRIAL RELATIONS
 Division of Women and Minors and Minimum Wage
 PREVAILING WAGE SECTION

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 Director

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 Deputy Director

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June 17, 1975

Chester R. Kurtz, P. E.
 Logan County Engineer
 Bellefontaine, Ohio 43311

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Date and to whom contract was awarded _____

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Name

Address

The above named project will begin approximately _____

and will be completed approximately _____.

 Signature of Public Authority or His Agent

 Address

Please return one copy to this office

COPY

June 17, 1975

Ohio Contractors Association
41 South High Street, Suite 100
Columbus, Ohio 43215

Gentlemen:

Re: Bid Notice Advertising

Please place the attached bid notice in the Bid
Reporting Service for June 23 and June 30, 1975.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/MB/ed



OHIO CONTRACTORS Association

THE NEIL HOUSE MOTOR HOTEL
COLUMBUS, OHIO 43215 • 228-6831
LONG DISTANCE TELEPHONE 800 282-1388

TO: Consulting Engineers, Architects, Service Directors, and County Engineers

SUBJECT: Bid Reporting Service Announced

Gentlemen:

The Ohio Contractors Association is initiating a new service — the weekly publication of an “ADVERTISEMENT FOR BIDS” bulletin — to its membership (highway, heavy, sewer, waterline, and building contractors).

Contained in the bulletin will be formal advertising notices inviting bids on all types of construction work. The bulletin will be distributed state-wide to the Association’s more than 1,000 members every Monday. Copy deadline will be 12:00 Noon on Wednesday. First publication of the new bulletin will be June 16 with copy deadline on June 11.

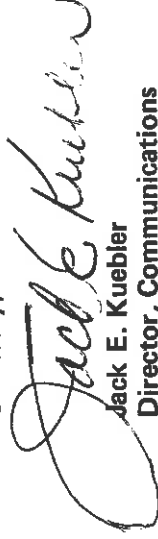
Advertising can be placed at the rate of \$5.00 per column inch (8 point type, 7 lines per inch) by forwarding the formal advertising notice to the Ohio Contractors Association, 41 South High Street, Suite 100, Columbus, Ohio, 43215. Invoice for payment of advertising will be billed by the Association after the notice appears the required length of time.

Consulting engineers, architects, city service directors, and county engineers are urged to take advantage of this service provided by OCA. The Association also desires to have the results of bids after contracts are let. These can be mailed to OCA at the above address. No charge will be made for placement of bid results.

The Environmental Protection Agency, both Federal and State, has indicated that funding for this type of state-wide notification will meet the requirements of formal advertising (Sec. 35.938-4, water pollution control, construction grants for waste treatment works).

We look forward to providing this service to your company or agency. Should you have any questions, please call on our toll free Ohio WATS line, 800-282-1388.

Sincerely,



Jack E. Kuebler
Director, Communications

RECEIVED

MAY 30 1975



JEK:jc

June 12, 1975

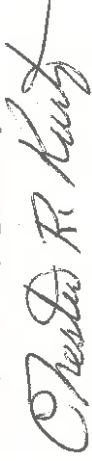
Mr. Robert B. Pfeifer
Engineer of Bridges
Bureau of Bridges
Ohio Department of Transportation
25 South Front Street
Box 899
Columbus, Ohio 43216

Dear Mr. Pfeifer:

Re: Logan County Br. 29-2.70
Construction Plans

In accordance with O.R.C. Section 5543.02 we have enclosed 2 (two) sets of plans for the above project for your approval. The estimated cost of this project is in excess of \$50,000 and we anticipate letting the project in early July 1975.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/MB/ed

Encls.: Construction Plans

COPY

June 9, 1975

State of Ohio
Department of Industrial Relations
Columbus, Ohio

Dear Sir:

Re: Prevailing Wage Rate for
Logan County Bridge Project
Br. 29-2.70

We are requesting prevailing rates of wages for the above project in Logan County, Enclosed is a copy of the bidding blank for this project. We anticipate letting the job in early July, 1975.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/MB/ed

Encl.

COPY

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
SUPPLEMENTAL SPECIFICATION 808
CHEMICAL ADMIXTURES FOR CONCRETE

November 14, 1969

808.01 Description. This work consists of furnishing and incorporating Type A water-reducing, Type B retarding or Type D water-reducing and retarding admixtures in 511 concrete for bridge superstructure.

808.02 Use. When an air temperature of 60 degrees F or higher prevails at time of placing concrete in a bridge superstructure (over a 20-foot span), the Contractor shall add an approved admixture to the concrete mix. Only admixtures approved by the Director may be used.

808.03 Type. The admixture shall be furnished in liquid or powder form; however, it shall be added in liquid form. It shall be Type A, B or D. ASTM C 494 conforming to the respective physical requirements of Table 1 except that the relative durability shall be not less than 90.

808.04 Acceptance. The producer of the admixture shall furnish the Department's Laboratory two copies of test data from a recognized laboratory showing that the admixture meets the requirements specified herein. A recognized laboratory shall be a laboratory of any State Highway Department, EPR, or any cement or concrete laboratory regularly inspected by the Cement and Concrete Reference Laboratory of ASTM.

The test data shall be obtained and reported in accordance with ASTM C 494.

808.05 Procedure. All concrete mixes containing the admixture shall be produced using cement of the same brand and source. The fine aggregate shall be from one source, and coarse aggregate from one source. The Contractor shall notify the Laboratory of the admixture, cement and aggregates he will use at least 60 days before the date of proposed use. If the Department has had no prior experience with the proposed admixture cement-aggregate combination, it may be necessary to make tests to determine whether or not the admixture can be approved. When this is done, the necessary samples of the materials to be used shall be furnished by the Contractor.

The admixture in liquid form, shall be batched accurately by means of a visual volumetric device in quantities recommended by the admixture producer and approved by the Engineer. The admixture shall be introduced into the mix in a manner that will prevent it from coming in direct contact with the dry cement or the air-entraining admixture.

The admixture shall be delivered in the manufacturer's original container labeled to show the names of the manufacturer and the content. Tests will be made on each shipment of admixture to be used by the Contractor.

The approved status of an admixture is dependent on satisfactory performance on the job. Tests to determine the rate of hardening and the compressive strength of the concrete may be made at any time during the progress of the work.

808.06 Measurement. The quantity of admixture shall be the number of units of approved material furnished and incorporated into the specified concrete.

A unit of admixture shall be the material required for acceptably treating one cubic yard of 511 concrete.

808.07 Payment. Payment for accepted quantities, complete in place, will be made at contract price for:

| Item | Unit | Description |
|------|-------|---|
| 808 | Units | Type A Water-reducing admixture |
| 808 | Units | Type B Retarding admixture |
| 808 | Units | Type D Water-reducing and retarding admixture |

File

ERIKSSON ENGINEERING LIMITED

1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731

June 10, 1975

Mr. Chester Kurtz
Logan County Engineers
P. O. Box 427
Bellevfontaine, Ohio 43311

Re: Co. Rd. 29
Over Mad River

Dear Chester:

Enclosed is the final invoice for the above project. The total of my previous and this invoice is \$12,665.24 or \$665.24 over the maximum amount in the contract.

As you recall we changed the alignment of the road after having done considerable amount of work. We also used our surveyors for some of the field work instead of using your own surveyors as planned. When I set an upset figure I try to be as accurate as possible and still leave a margin for errors. On a small job this backfires, however, when there is a change in plans.

You should have received this attached letter from the Contractors Association but I want to remind you of it. An add in this bulletin should give you more bidders and hopefully better prices.

If you have any questions for this invoice or on the plans, please call.

I hope to see you in the near future.

Very truly yours,

ERIKSSON ENGINEERING LTD.



Carl E. Eriksson, P. E.

CEE:jt

W/Encls.

RECEIVED

JUN 12 1975

LOGAN COUNTY
ENGINEER

ERIKSSON ENGINEERING LIMITED

CONSULTING ENGINEERS

1523 Chesapeake Avenue
Columbus, Ohio 43212

DATE

June 10, 1975

NO. 903

INVOICE

TO:

Mr. Chester Kurtz
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio 43311

1. Engineering Agreement of September 16, 1974
2. Engineering services for project:
Co. Rd. 29 over Mad River in Monroe Township
3. Final invoice
4. Salaries:
Engineers
Technicians and draftsmen
Total Salaries
5. Payroll cost (x 1.277)
6. Payroll cost plus 100%
7. Total Due This Invoice

| |
|-------------------|
| \$2,274.03 |
| \$1,337.55 |
| <u>\$3,611.58</u> |
| \$4,611.98 |
| \$9,223.96 |
| \$9,223.96 |

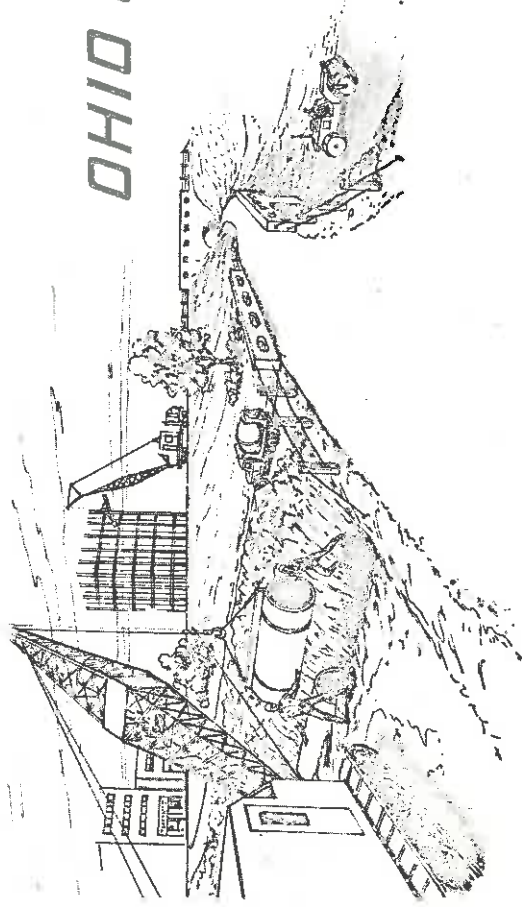
*To be paid out of
Revenue Sharing
Original sent to Annsa. Farnow
Comm. Clerk*

Ch. Kurtz

RECEIVED

JUN 12 1975

LOGAN COUNTY
ENGINEER



OHIO CONTRACTORS Association

THE NEIL HOUSE MOTOR HOTEL
COLUMBUS, OHIO 43215 • 228-6831
LONG DISTANCE TELEPHONE 800 282-1388

TO: Consulting Engineers, Architects, Service Directors, and County Engineers

SUBJECT: Bid Reporting Service Announced

Gentlemen:

The Ohio Contractors Association is initiating a new service — the weekly publication of an “ADVERTISEMENT FOR BIDS” bulletin — to its membership (highway, heavy, sewer, waterline, and building contractors).

Contained in the bulletin will be formal advertising notices inviting bids on all types of construction work. The bulletin will be distributed state-wide to the Association's more than 1,000 members every Monday. Copy deadline will be 12:00 Noon on Wednesday. First publication of the new bulletin will be June 16 with copy deadline on June 11.

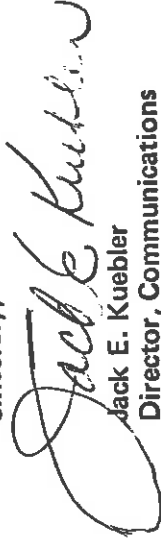
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We look forward to providing this service to your company or agency. Should you have any questions, please call on our toll free Ohio WATS line, 800-282-1388.

Sincerely,


Jack E. Kuebler
Director, Communications

RECEIVED

JUN 12 1975

LOGAN COUNTY
ENGINEERS
ASSOCIATION



JEK:jc

State of Ohio
Logan County, Ohio

RECEIVED
JUL 2 1975
LOGAN COUNTY
ENGINEERING

Notice To Bidders

County of Logan
Board of County Commissioners
Bellefontaine, Ohio

Sealed bids will be received at the office of the County Engineer, Logan County, Ohio until 10:00 A.M. Ohio Standard Time, Monday, July 7, 1975 for the improving of County Road 29 in Monroe Township by grading, drainage, surfacing with asphalt concrete on aggregate base and replacing bridge BX 29-4.70 with a three span continuous reinforced concrete slab bridge on capped pile abutments and piers, spans 38'0", 40'0", 38'0", roadway 34'0" design loading HS-20-44, project length 591.47 linear feet; at which time they will be opened and publicly read aloud.

Construction plans, specifications and contract documents may be obtained from the office of the Logan County Engineer, P. O. Box 427, County Road No. 13, Bellefontaine, Ohio. Bid proposals will be furnished at no cost upon request.

Each bid shall contain the full name of each person or company interested and shall be accompanied by a certified check, payable to the Logan County Treasurer, in the amount of one Thousand Dollars (\$1,000.00) as a proposal guarantee. All proposal guarantees, except that of the three lowest bidders, will be returned within (10) days. The proposal guarantee of the successful bidder and all others will be returned after a contract bond has been furnished and the contract has been executed. A performance bond in the amount of (100%) of the total bid will be required by the successful bidder, to insure faithful performance of the work in accordance with the proposal, plans and specifications.

Bids shall be sealed and endorsed "Sealed Bid - Bridge No. 29-4.70". The Board of County Commissioners are reserves the right to reject any or all bids submitted.

By order of the Board of County Commissioners, Logan County, Ohio,
CHESTER R. KURTZ, P.E.
Logan County Engineer
June 29, 1975-13

THOMAS E. HUBBARD

being duly sworn, says that he is the representative of the publisher of The Bellefontaine Examiner a newspaper printed and of general circulation in the said county, and that the annexed

advertisement was published in said paper June 23,

30, 1975



Sworn to and subscribed before me a Notary Public

ON this 30th day of June, 1975



RUTH E. DETWILER
Notary Public, Logan County, Ohio
My Commission Expires January 16, 1978

Printer's Fee \$ 25.20

CANTER PRINT.

K-31
An-2

August 15, 1975

RIGHT OF WAY EASEMENT

SR. 29-2.70

| <u>NAME</u> | <u>AREA TO BE ACQUIRED</u> | <u>AMOUNT</u> |
|--------------------------|--------------------------------|---------------|
| Don M. Hilliker et al | 0.933 ac. | \$2,000.00 |
| Robert D. Lockwood et al | 1.170 ac. | 377.00 |
| Velma Godwin | 0.051 ac. | <u>111.00</u> |
| | TOTAL | \$2,488.00 |

September 27, 1974

State of Ohio
Department of Transportation
Testing Laboratory
1600 West Broad Street
Columbus, Ohio 43215
Attention: Mr. Robert E. Calvin

Dear Mr. Calvin:

Re: Logan County
Bridge No.29-2.70
Soil Testing

This is to request that you perform some soil borings for our county at the above site. The county will bear the cost of the work.

Our consultant, Mr. Carl Eriksson, P.E., will furnish you with site plans and other data.

We appreciate your consideration in this matter.

Very truly yours,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

cc: Mr. Carl Eriksson

COPY

RESOLUTION NO. 129-74

The County Commissioners met in regular session on this date of September 13, 1974 with the full Board present.

Mr. John K. Inskoop moved that the following Resolution be adopted:

Re: Bridge No. 29-2.70

BE IT HEREBY RESOLVED by the Logan County Commissioners to employ Eriksson Engineering Limited to prepare the Preliminary Plans and the Construction Contract Plans for the above bridge and that the amount will be paid from Revenue Sharing Funds and that the attached contract be made a part of this Resolution.

Mr. Warren W. Smith seconded the motion.

Roll Call resulted as follows:

Warren W. Smith

Mr. G. Parker Kennedy, Chairman

Warren W. Smith

Mr. Warren W. Smith, V. Pres.

John K. Inskoop

Mr. John K. Inskoop, Member

I, Anna C. Furrow, Clerk hereby certify this to be a true copy of the proceedings as taken from the minutes of the meeting of the Logan County Commissioners on this date of September 13, 1974.

Anna C. Furrow

Anna C. Furrow, Clerk

COUNTY OHIO

ENGINEERING AGREEMENT

This Engineering Agreement entered into at Bellefontaine, Ohio, Logan County, this _____ day of September, 1974, by and between Logan County, Ohio, acting by and through the Commissioners, hereinafter referred to as the COUNTY, and ERIKSSON ENGINEERING LIMITED, a limited partnership association organized and duly licensed and existing under the laws of the State of Ohio for the practice of engineering, hereinafter referred to as the CONSULTANT, with an office located at 1523 Chesapeake Avenue, Columbus, Ohio, 43212.

W I T N E S S E T H :

That the COUNTY and the CONSULTANT, for the mutual considerations herein contained and specified, have agreed and do hereby agree as follows:

CLAUSE I - PROJECT DESCRIPTION

Except as modified or otherwise provided, the CONSULTANT agrees to perform all engineering services, as subsequently authorized by the COUNTY by written notice or notices to proceed, for the preparation of Preliminary Plans and Construction Contract Plans for reconstruction of the bridge carrying County Road No. 29 over Mad River in Monroe Township including approaches. The length of the project is approximately 550 feet.

CLAUSE II - SCOPE OF WORK

The CONSULTANT shall prepare the Preliminary Plans and the Construction Contract Plans for the Project based on data furnished by the COUNTY and work performed by the COUNTY'S own staff.

CLAUSE II - SCOPE OF WORK (cont.)

The COUNTY shall furnish the CONSULTANT with:

1. Field Surveys
 2. Soils information, which shall be obtained to the extent as agreed upon between the COUNTY and the CONSULTANT as the plan preparation is progressing.
 3. Field information of high water marks and other data required for the determination of bridge water way opening.
 4. The COUNTY shall prepare the documents required for hearings, the taking of bids and the Contract documents.
- The CONSULTANT shall:
1. Review the data furnished by the COUNTY.
 2. Prepare alignment and profile studies of the reconstructed road.
 3. Prepare preliminary bridge site plans.
 4. Perform additional required field surveys.
 5. Prepare the final detail construction contract plans.
 6. Be available for meetings and reviews.

The contract plans shall be prepared to meet the specifications and standards of the COUNTY. The Ohio Department of Transportation's "Construction and Material Specifications" shall be used, with whatever modifications are required by the COUNTY.

CLAUSE III - TIME SCHEDULE

As authorized by the COUNTY, the CONSULTANT agrees that the work to be performed under this Engineering Agreement shall adhere to and comply with the following time schedule:

COMMENCEMENT: Within ten (10) days after written notice to proceed.

COMPLETION: Four (4) months, exclusive of all review time.

CLAUSE IV - THE CONTRACT SUM

The COUNTY agrees to pay the CONSULTANT for the performance of the work specified in this Engineering Agreement as follows: for all services except survey parties, the payment is based on payroll costs plus 100%.

The payroll costs are stipulated and agreed to be 127.7% of the salaries or imputed salaries of the personnel employed on the work. Imputed salary of the manager of the firm is stipulated and agreed to be \$9.00 per hour.

Survey parties:

Two man survey party \$27.00 per hour

Three man survey party \$35.00 per hour

Four man survey party \$43.00 per hour

Electronic measuring equipment \$50. per day or part thereof

The total fee for the Engineering Study shall not exceed the amount of \$12,000 (Twelve Thousand Dollars).

The COUNTY also agrees to pay the CONSULTANT within thirty (30) days on monthly submitted detailed invoices. The invoices shall be paid in full without retainer.

CLAUSE V - ADDITIONAL-FEES (EXTRA WORK PAYMENTS)

The COUNTY also agrees to pay the CONSULTANT for the performance of the following services, if such services are requested by subsequent written authorization, as follows:

(a) Soil Profile and Foundation Investigation:
Sub-contract cost plus 10%.

(b) Checking of Shop Drawings:
\$2.50 per ton of approved pay weight
of structural steel.

\$10.00 per beam for prestressed
concrete beams.

(c) Preparation of Appropriation Plats:
\$50.00 per plat.

It is mutually understood and agreed that the maximum fee set forth in Clause IV of this Engineering Agreement is totally separate and independent of the CONSULTANT'S fee which may be earned under the COUNTY'S optional and independent authorization of this Clause V.

CLAUSE VI - ACCESS TO SITE

The CONSULTANT shall obtain permission to enter onto any private property necessary for accomplishing the work outlined in this agreement. In the event that the CONSULTANT is unable to secure approval to enter onto such private property, the COUNTY will give whatever assistance is necessary to obtain such approval.

CLAUSE VII - NONDISCRIMINATION

The CONSULTANT, with regard to the work performed after award and prior to completion of the contract work, will not discriminate on the grounds of race, sex, color or national origin in employment practices or in the retention of subcontractors, including procurement of materials and leases of equipment.

CLAUSE VIII - CONTINUING OBLIGATION

It is mutually understood and agreed, by and between the COUNTY and CONSULTANT, that this Engineering Agreement constitutes a contract for the employment of professional engineering services of a highly specialized and technical nature, and that, in the event of any substantial change in the character or organization of the CONSULTANT'S Limited Partnership Association, including but not necessarily limited to the death, resignation or incapacity of any one or more of the individual partners or of the CONSULTANT'S principal or key personnel, the COUNTY, at its own option, may terminate this Engineering Agreement without further liability, if the COUNTY should consider such changes or loss to be of sufficient magnitude to materially affect the CONSULTANT'S capacity or ability to satisfactorily complete the performance of the work specified in this Agreement in the time allowed; provided, however, that the death, resignation or incapacity of any one or more of the individual partners hereunder shall not relieve the CONSULTANT of the remaining or surviving partners of their continuing obligation to complete performance according to the terms and provisions of this Engineering Agreement.

CLAUSE IX - WARRANTY

The CONSULTANT warrants that he has not employed or retained any company or person, other than a bona-fide employee working solely for the CONSULTANT, to solicit or secure this contract, and that he has not paid or agreed to pay any company or person, other than a bona-fide employee working solely for the CONSULTANT, any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, the COUNTY shall have the right to annual this Contract without liability, or, in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

IN WITNESS WHEREOF, the parties hereto have caused this Engineering Agreement to be executed in duplicate, as of the day and year first above written, by affixing the signature of the duly authorized officers or representatives.

ERIKSSON ENGINEERING LIMITED

Witness: James J. [Signature]

By: Carl E. [Signature]
Chairman

LOCAN COUNTY:

Attest: Charles R. [Signature]

By: [Signature]
Commissioner

By: Warren [Signature]
Commissioner

By: John C. [Signature]
Commissioner

ERIKSSON ENGINEERING LIMITED

1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731

September 9, 1974

Mr. Chester Kurtz
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio 43311

Re: Co. Rd. 29
Bridge 29-2.70

Dear Chester:

Enclosed are two copies of a contract for the Engineering Services for the reconstruction of the above bridge.

If you agree with the content in the Contract, please have it signed and return one copy to me. We are ready to start work immediately. If you have any questions or anything you want to discuss, please call.

I appreciate this opportunity and will look forward to work with you.

Very truly yours,

ERIKSSON ENGINEERING LTD.



Carl E. Eriksson, P. E.

CEE:jt

RECEIVED

SEP 13 1974

**LOGAN COUNTY
ENGINEER**

September 16, 1974

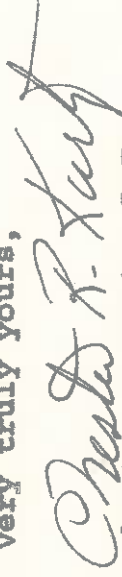
Eriksson Engineering Limited
1523 Chesapeake Avenue
Columbus, Ohio 43212
Attention: Carl E. Eriksson, P.E.

Dear Carl:

Re: Co.Rd. 29
Bridge 29-2.70

Enclosed is a copy of signed contract for the
Engineering Services for the reconstruction of the above
bridge.

Very truly yours,


Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

Att: Contract

COPY

LOGAN COUNTY OHIO

ENGINEERING AGREEMENT

This Engineering Agreement entered into at Bellefontaine, Ohio, Logan County, this 12th day of September, 1974, by and between Logan County, Ohio, acting by and through the Commissioners, hereinafter referred to as the COUNTY, and ERIKSSON ENGINEERING LIMITED, a limited partnership association organized and duly licensed and existing under the laws of the State of Ohio for the practice of engineering, hereinafter referred to as the CONSULTANT, with an office located at 1523 Chesapeake Avenue, Columbus, Ohio, 43212,

W I T N E S S E T H :

That the COUNTY and the CONSULTANT, for the mutual considerations herein contained and specified, have agreed and do hereby agree as follows:

CLAUSE I - PROJECT DESCRIPTION

Except as modified or otherwise provided, the CONSULTANT agrees to perform all engineering services, as subsequently authorized by the COUNTY by written notice or notices to proceed, for the preparation of Preliminary Plans and Construction Contract Plans for reconstruction of the bridge carrying County Road No. 29 over Mad River in Monroe Township including approaches. The length of the project is approximately 550 feet.

CLAUSE II - SCOPE OF WORK

The CONSULTANT shall prepare the Preliminary Plans and the Construction Contract Plans for the Project based on data furnished by the COUNTY and work performed by the COUNTY'S own staff.

CLAUSE II - SCOPE OF WORK (cont.)

The COUNTY shall furnish the CONSULTANT with:

1. Field Surveys
2. Soils information, which shall be obtained to the extent as agreed upon between the COUNTY and the CONSULTANT as the plan preparation is progressing.
3. Field information of high water marks and other data required for the determination of bridge water way opening.
4. The COUNTY shall prepare the documents required for hearings, the taking of bids and the Contract documents.

The CONSULTANT shall:

1. Review the data furnished by the COUNTY.
2. Prepare alignment and profile studies of the reconstructed road.
3. Prepare preliminary bridge site plans.
4. Perform additional required field surveys.
5. Prepare the final detail construction contract plans.
6. Be available for meetings and reviews.

The contract plans shall be prepared to meet the specifications and standards of the COUNTY. The Ohio Department of Transportation's "Construction and Material Specifications" shall be used, with whatever modifications are required by the COUNTY.

CLAUSE III - TIME SCHEDULE

As authorized by the COUNTY, the CONSULTANT agrees that the work to be performed under this Engineering Agreement shall adhere to and comply with the following time schedule:

COMMENCEMENT: Within ten (10) days after written notice to proceed.

COMPLETION: Four (4) months, exclusive of all review time.

CLAUSE IV - THE CONTRACT SUM

The COUNTY agrees to pay the CONSULTANT for the performance of the work specified in this Engineering Agreement as follows: for all services except survey parties, the payment is based on payroll costs plus 100%.

The payroll costs are stipulated and agreed to be 127.7% of the salaries or imputed salaries of the personnel employed on the work. Imputed salary of the manager of the firm is stipulated and agreed to be \$9.00 per hour.

Survey parties:

Two man survey party \$27.00 per hour

Three man survey party \$35.00 per hour

Four man survey party \$43.00 per hour

Electronic measuring equipment \$50. per day or part thereof

The total fee for the Engineering Study shall not exceed the amount of \$12,000 (Twelve Thousand Dollars).

The COUNTY also agrees to pay the CONSULTANT within thirty (30) days on monthly submitted detailed invoices. The invoices shall be paid in full without retainer.

CLAUSE V - ADDITIONAL-FEES (EXTRA WORK PAYMENTS)

The COUNTY also agrees to pay the CONSULTANT for the performance of the following services, if such services are requested by subsequent written authorization, as follows:

(a) Soil Profile and Foundation Investigation;
Sub-contract cost plus 10%.

(b) Checking of Shop Drawings:
\$2.50 per ton of approved pay weight
of structural steel.

\$10.00 per beam for prestressed
concrete beams.

(c) Preparation of Appropriation Plats:
\$50.00 per plat.

It is mutually understood and agreed that the maximum fee set forth in Clause IV of this Engineering Agreement is totally separate and independent of the CONSULTANT'S fee which may be earned under the COUNTY'S optional and independent authorization of this Clause V.

CLAUSE VI - ACCESS TO SITE

The CONSULTANT shall obtain permission to enter onto any private property necessary for accomplishing the work outlined in this agreement. In the event that the CONSULTANT is unable to secure approval to enter onto such private property, the COUNTY will give whatever assistance is necessary to obtain such approval.

CLAUSE VII - NONDISCRIMINATION

The CONSULTANT, with regard to the work performed after award and prior to completion of the contract work, will not discriminate on the grounds of race, sex, color or national origin in employment practices or in the retention of subcontractors, including procurement of materials and leases of equipment.

CLAUSE VIII - CONTINUING OBLIGATION

It is mutually understood and agreed, by and between the COUNTY and CONSULTANT, that this Engineering Agreement constitutes a contract for the employment of professional engineering services of a highly specialized and technical nature, and that, in the event of any substantial change in the character or organization of the CONSULTANT'S Limited Partnership Association, including but not necessarily limited to the death, resignation or incapacity of any one or more of the individual partners or of the CONSULTANT'S principal or key personnel, the COUNTY, at its own option, may terminate this Engineering Agreement without further liability, if the COUNTY should consider such changes or loss to be of sufficient magnitude to materially affect the CONSULTANT'S capacity or ability to satisfactorily complete the performance of the work specified in this Agreement in the time allowed; provided, however, that the death, resignation or incapacity of any one or more of the individual partners hereunder shall not relieve the CONSULTANT of the remaining or surviving partners of their continuing obligation to complete performance according to the terms and provisions of this Engineering Agreement.

CLAUSE IX - WARRANTY

The CONSULTANT warrants that he has not employed or retained any company or person, other than a bona-fide employee working solely for the CONSULTANT, to solicit or secure this contract, and that he has not paid or agreed to pay any company or person, other than a bona-fide employee working solely for the CONSULTANT, any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, the COUNTY shall have the right to annual this Contract without liability, or, in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

IN WITNESS WHEREOF, the parties hereto have caused this Engineering Agreement to be executed in duplicate, as of the day and year first above written, by affixing the signature of the duly authorized officers or representatives.

ERIKSSON ENGINEERING LIMITED

Witness: Jane Treas

By: Kathleen Birkney
Chairman

LOCAN COUNTY:

Attest: Charles R. Kurby By: Stephen W. Kennedy
Commissioner

By: Warren W. Smith
Commissioner

By: John C. Gunkle
Commissioner

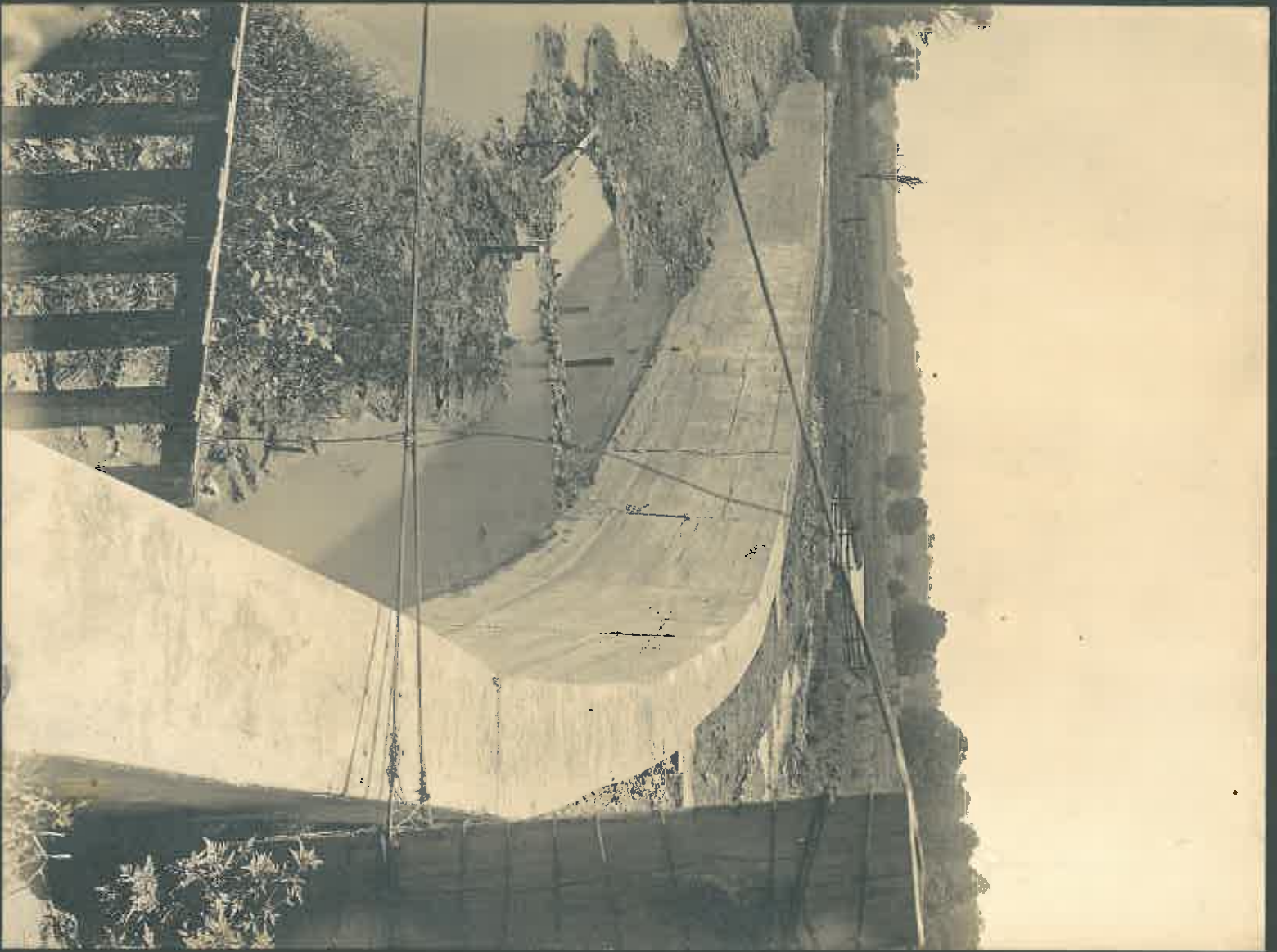












STEEL TRUSS BRIDGES

DATE

ACME # 14880-A

TYPE OF BRIDGE **PRATT** T RUSS NO. OF SPANS **1** FABRICATOR **BELFIT. BRIDGE & IRON BUILT** DATE

APPROX. SAFE LOAD CAPACITY **- OF TRUSS** OF FLOOR SYSTEM

| TYPE AND SIZE OF HUB GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD | TYPE AND SIZE OF CURB OR FLOOR GUARD |
|----------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| 48.00' | 53.45' | 13.10' | 14.90' | NONE | 0.75' | 12.65' | 0.5' |

DESCRIPTION OF LEON DRAINAGE **LATERAL**

ALIGNMENT AND SKEN OF STRUCTURE **-0-** APPROACH SLABS HEIGHT FROM GRADE **8'** LENGTH **HEIGHT FROM GRADE TO HIGH WATER**

STREAM **MAD RIVER** CHANNEL **VAR.** NATURE OF BOTTOM **GRAVEL**

CHARACTERISTICS APPROX. WIDTH BETWEEN BANKS **VAR.** DEPTH **VAR.** ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE **SEE SKETCH**

CONDITION OF BANKS **SOD WASHED** ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE **SEE SKETCH**

TYPE OF TRUSSES **PRATT** LENGTH OF SPANS - C TO C. **52'-0"** NO. PANELS **4** LENGTH OF PANELS **13'-0"**

SUPERSTRUCTURE **STD. DRAWING NO.**

FLOOR BEAMS AND CONNECTIONS

| TYPE | NUMBER | SPACING | SECTION | SIZE-SHAPE-NET SECTION | RIVETS USED IN CONNECTIONS | NO. & SIZE RIVETS FLOOR BEAM TO GORN. | NO. & SIZE RIVETS CORR. TO TRUSS |
|---------------------------|--------|----------------|---------|------------------------|----------------------------|---------------------------------------|----------------------------------|
| INTER-MEDIATE FLOOR BEAMS | 13'-0" | 12" I @ 31.5 # | | | RIVETS USED IN CONNECTIONS | | |
| END FLOOR BEAMS | | | | | RIVETS USED IN CONNECTIONS | | |

FLOOR JOISTS

| KIND | NO. LINES | SIZE | WIDTH OF FLANGE | THICKNESS OF WEB | SPACING |
|----------|-----------|----------------|-----------------|------------------|------------------------|
| BEAMS | 6 | 5" I @ 12.25 # | | | 1'-9" |
| CHANNELS | 2 | 5" C @ 8.50 # | | | 2'-0" N. 1'-10 1/4" S. |

DO JOISTS REST ON TOP OF FLOOR BEAMS? **YES** HOW RAISED TO **NOT** SUPPORTS

ARE SHELF ANGLES USED? **NO** END JOISTS - LENGTH **FLOOR** INCHES THICK **CONCRETE** INCHES THICK ON CORRUGATED ARCHES OR BUCKLE PLATES

REINFORCED CONCRETE SLAB **END JOISTS - LENGTH**

WEARING SURFACE **BITUMINOUS** THICKNESS **1 1/2" ±** PLANK **CONCRETE** CLAMPS

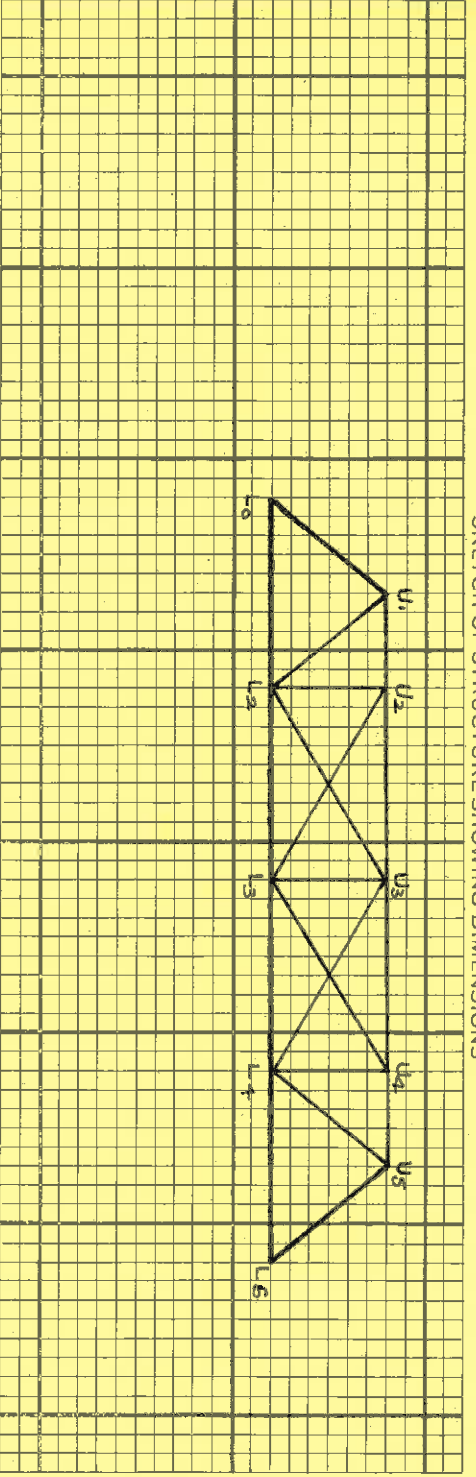
STRIP TYPE **BITUMINOUS** SUB-STRUCTURE **2" X 4" TREATED** STD. DRAWING NO. **CLAMPS**

ADJUTMENTS AND PIERS **CONCRETE** TYPE **CONCRETE** HEIGHT ABOVE BRIDGE SEAT **WIDTH OF BRIDGE SEAT** LENGTH OF BRIDGE SEAT **FOUNDATIONS (PILING)** WINGS (LENGTHS, ANGLES ETC.)

PIER **PIER**

| BRIDGE NO. | TOWNSHIP | ROAD NO. | SYSTEM | SECTION | STRENGTH | ROADWAY | CLEARANCE | TYPE |
|------------|----------|----------|--------|---------|-----------------|-----------------|-----------------------|-------------|
| 29-270 | MONROE | CR-29 | | | H10 H12 H15 H20 | 15-16 19-22 23+ | 18- 12-14 14-16 PER A | A B C D E T |

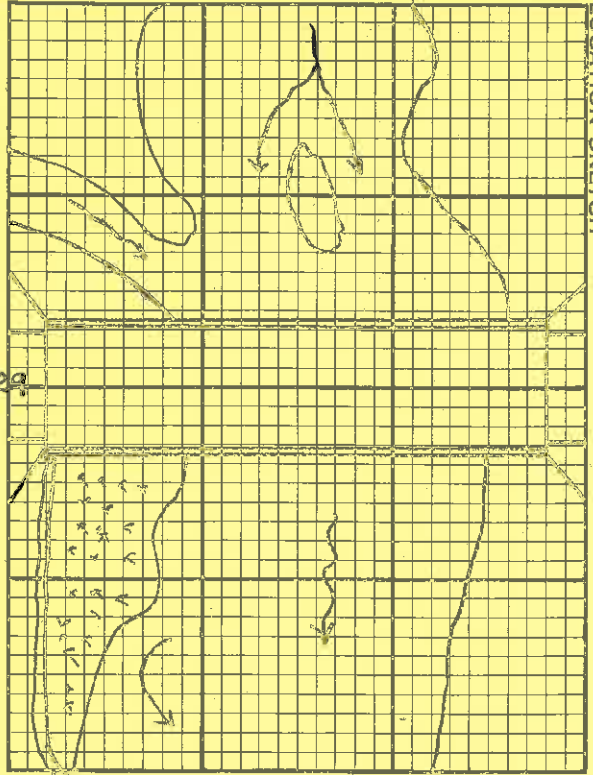
SKETCH OF STRUCTURE SHOWING DIMENSIONS



SECTION OF TRUSS MEMBERS

END POSTS 2 - 6x1 7/8" x 1/4" E AND 1-12" x 5/16" R 8" B/B
 TOP CHORDS SAME AS END POST
 BOTTOM CHORDS L₀L₁, L₁L₂, 2-1 1/4" x 3/4", L₂L₃, L₃L₄ 2-2 5/8" x 3/4"
 INTERMEDIATE POSTS 2 - 5" x 1 3/4" x 3/16" E
 DIAGONALS U₁L₂, U₂L₃ 2-2" x 3/4" U₃L₄, L₃U₄ 2-1 1/2" x 3/4" L₄U₅, U₅L₆ 1-7/8" DIA.
 HIP VERTICALS
 PINS 1 1/16" DIA.

LOCATION SKETCH



REMARKS:

PAINTED 1965
 PAINTED 1970

HIGH WATER - 2-25-75
 13.0' below top of W. Abutment

RESOLUTION NO. 210-75

The County Commissioners met in regular session on this date of July 28, 1975 with the full Board present.

Mr. G. Parker Kennedy moved that the following Resolution be adopted:

RE: Right of Way Acquisition
Br. 29-2.70

WHEREAS the Logan County Engineer has notified the Board of County Commissioners with regard to the construction of the above bridge requires the acquisition of additional right of way as shown in attached plat, and

WHEREAS the Logan County Engineer has negotiated the purchase of the required parcels for the following amounts:

| | | |
|--------------------------|-----------|------------|
| Hilliker, Don M. etal | 0.903 Ac. | \$2,000.00 |
| Lockwood, Robert D. etux | 0.170 Ac. | 377.00 |
| Godwin, Velma | 0.051 Ac. | 111.00 |
| TOTAL | | \$2,488.00 |

THEREFORE BE IT RESOLVED by the Logan County Commissioners to authorize the Logan County Engineer to purchase the above parcels for the amounts stated.

Mr. Warren W. Smith seconded the motion.

Roll Call resulted as follows:

Warren W. Smith *Yes*
Mr. Warren W. Smith, Chairman

Donald E. Corwin *Yes*
Mr. Donald E. Corwin, V. Chr.

G. Parker Kennedy *Yes*
Mr. G. Parker Kennedy, Member

I, Anna C. Furrow, Clerk hereby certify this to be a true copy of the proceedings as taken from the minutes of the meeting of the Logan County Commissioners on this date of July 28, 1975.

Anna C. Furrow
Anna C. Furrow, Clerk

Ballast's Destroy Trout Area

WEST LIBERTY — A bridge construction and stream diversification project in Logan county will 20,000 tons of ballast, which will be dumped into the Mad river for trout habitation.

The project is located near the intersection of county road 5 and Highway 29, and calls for the removal of an old steel bridge spanning the river, a straightening of Highway 29, and a modification of 200 feet of the river from the bridge to a point 300 yards downstream.

This section of the river has been quite popular with Mad river trout anglers because of the large numbers of rainbow and brown trout stocked there by the Ohio Division of Wildlife, and its easy access. The section of the river containing these pools and several hundred feet of riffles. All are gone now under the blade of county bulldozers.

Deputy county engineer Dan Jackson, Bellefonte, said the project costs a total of \$150,000 and was funded entirely by Logan county. Had any federal money been used anywhere in the project, a federal environmental impact statement would have had to be filed.

Jackson said several large trees and several sheds by the river had been bulldozed away in an attempt to remove alleged erosion of the river's west bank by high water.

He said a plot of land west of the new bridge location, reported to be 60 feet across, has been leveled and set aside as a public access and parking area to be used by fishermen. This area is to be planted in grass.

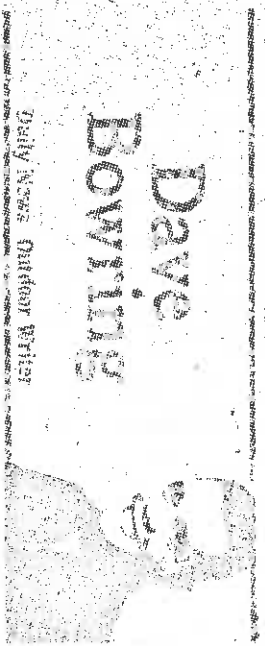
The Mad river (Madawater) expressed our wish for it a fishing area because the fishermen have the river. Jackson said. He said the Madison board is final use of the plot would be up to Logan county commissioners and the state department of natural resources.

The Mad river has for several years proposed a new bridge over the river by several individuals and organizations. Jackson said, however, he said that some engineering work has been completed for the project's completion.

The old steel bridge had to be replaced because it has a 15 foot gap had remaining between of the old bridge. Truck and school buses had had bridge and they didn't want to cross it because it was dangerous, he added.

The project, due to be completed in November, has already cleared a new bridge and parking area, the basin to reconstruct the foundation work will be located on the opposite side of the Mad river's pool.

Jackson would not comment on how the project will be financed. He said.



THE NEW BRIDGE ON THE MAD RIVER
CONSTRUCTION WILL TAKE TWO MONTHS

FROM

WREN REESE, INC.
P. O. BOX 349
NAPOLEON, OHIO 43545
419/599-2065

DATE June 23, 1975

SUBJECT

Logan County Engineer
P. O. Box 427
County Road No. 13
Bellefontain, Ohio

TO

FOLD

Dear Sir:

Please send plans and contract documents for the attached project
being let July 7, 1975.

Very truly yours,

WREN REESE, INC.

Wren T. Reese

Wren T. Reese
Secretary

RECEIVED

JUN 26 1975

LOGAN COUNTY
ENGINEER

6
5
4
3
2
1

WTR:jef

NOTICE TO BIDDERS

County of Logan
Board of County Commissioners
Bellefontaine, Ohio

Sealed bids will be received at the office of the County Engineer, Logan County, Ohio until 10:00 A.M. Ohio Standard Time, Monday, July 7, 1975 for the improving of County Road 29 in Monroe Township by grading, draining, surfacing with asphalt concrete on aggregate base and replacing bridge BR 29-2.70 with a three span continuous reinforced concrete slab bridge on capped pile abutments and piers, spans 32'0", 40'0", 32'0", roadway 34'0", design loading HS-20-44, project length 591.47 linear feet; at which time they will be opened and publicly read aloud.

ORDER

Construction plans, specifications and contract documents may be obtained from the office of the Logan County Engineer, P.O. Box 427, County Road No. 13, Bellefontaine, Ohio. Bid proposals will be furnished at no cost upon request.

Each bid shall contain the full name of each person or company interested and shall be accompanied by a certified check, payable to the Logan County Treasurer, in the amount of one Thousand Dollars (\$1,000.00) as a proposal guarantee. All proposal guarantees, except that of the three lowest bidders, will be returned within (10) days. The proposal guarantee of the successful bidder and all others will be returned after a contract bond has been furnished and the contract has been executed.

A performance bond in the amount of (100%) of the total bid will be required by the successful bidder, to insure faithful performance of the work in accordance with the proposal, plans and specifications.

Bids shall be sealed and endorsed "Sealed Bid - Bridge No. 29-2.70".

The Board of County Commissioners reserves the right to reject any or all bids submitted.

By order of the Board of County Commissioners, Logan County, Ohio.

Chester R. Kurtz
Chester R. Kurtz, P.E.
Logan County Engineer

Posted June 17, 1975

Advertised June 23, 30, 1975

RESOLUTION NO. 182-75

The County Commissioners met in regular session on this date of June 27, 1975 with the full Board present.

Mr. G. Parker Kennedy moved that the following Resolution be adopted:

RE: Bridge 29-2.70 Replacement

WHEREAS the Logan County Engineer has indicated that the above structure is in critical condition beyond reasonable repair, and

WHEREAS the County Engineer proposes to construct a new three span continuous reinforced concrete slab bridge on capped pile abutments 50' south of the old structure, and in addition .13 mile of C. R. 29 is proposed to be realigned including its intersection with C. R. 5 and its intersection with Twp. Rd. 166, and

WHEREAS the estimated cost of this project is \$166,700.06,

THEREFORE BE IT RESOLVED by the Logan County Commissioners to authorize the County Engineer to advertise and receive bids for the construction of the improvement, and

BE IT FURTHER RESOLVED by the County Commissioners to authorize the County Engineer to acquire the additional right of way needed for the project.

Mr. Donald E. Corwin seconded the motion.

Roll Call resulted as follows:

Warren W. Smith Yes
Mr. Warren W. Smith, Chairman

Donald E. Corwin Yes
Mr. Donald E. Corwin, V. Chr.

G. Parker Kennedy Yes
Mr. G. Parker Kennedy, Member

I, Anna C. Furrow, Clerk hereby certify this to be a true copy of the proceedings as taken from the minutes of the meeting of the Logan County Commissioners on this date of June 27, 1975.

Anna C. Furrow
Anna C. Furrow, Clerk

June 12, 1975

The Honorable Board of
Logan County Commissioners
Court House
Bellefontaine, Ohio 43311

Gentlemen:

Re: Bridge 29-2.70 Replacement

The reference bridge is located on County Road 29 over the Mad River southeast of Zanesfield in Monroe Township. The existing structure is a 50' long by 12'8" wide Pratt Truss. This structure is in critical condition beyond reasonable repair.

We propose to construct a new three span continuous reinforced concrete slab bridge on capped pile abutments 50' south of the old structure. In addition .13 mile of County Road 29 is proposed to be realigned including its intersection with County Road 5 and its intersection with Township Road 166. The estimated cost of this project is as follows:

| | |
|-------------------------------------|-----------------|
| Contract | \$150,534.82 |
| Right of Way | 1,500.00 |
| Design Engineering | 13,665.24 |
| Inspection & Construction Surveying | <u>1,000.00</u> |
| Project Total | \$166,700.06 |

Enclosed is a twenty one page set of construction plans and an estimate for your approval. We are requesting authorization to advertise and receive bids for the construction of this improvement.

We are also requesting authorization to acquire the additional right of way needed as indicated on the attached right of way plan.

Respectfully submitted,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/MB/ed

COPY

LOGAN COUNTY ENGINEER

BY Mike Bow

GENERAL ESTIMATE SHEET

Project 29-270

For Final Estimate

Date 6/5/75

Sheet 1 of 2

| ITEM | APPROXIMATE QUANTITIES | UNIT | DESCRIPTION | UNIT COST | TOTAL COST | P.O. | STOCK | ACC'T CHECK | NUMBERS |
|------|------------------------|--------|--|-----------|------------|------|-------|-------------|---------|
| 201 | Lump | Lump | Clearing & Grubbing | 500.00 | 500.00 | | | | |
| 202 | L.F. | 1.00 | Guard Rail Removed & Stored | 1.00 | 280.00 | | | | |
| 202 | Lump | Lump | Foundation Removed | 100.00 | 100.00 | | | | |
| 203 | C.Y. | 3.00 | Embankment | 11,892.00 | 11,892.00 | | | | |
| 203 | C.Y. | 2.00 | Embankment Construction <small>EXCAVATION NOT INCLUDING</small> | 10,712.00 | 10,712.00 | | | | |
| 606 | L.F. | 10.00 | Guard Rail Type 4 <small>ROCK CHANNEL PROTECTION</small> | 1,088.40 | 1,088.40 | | | | |
| 601 | C.Y. | 15.00 | Type B with Bedding | 120.00 | 120.00 | | | | |
| 601 | C.Y. | 15.00 | Dumped Rock Fill Type "A" | 8,265.00 | 8,265.00 | | | | |
| 659 | S.Y. | 19 | Seeding & Mulching | 1,620.32 | 1,620.32 | | | | |
| 659 | Ton | 170.00 | Commercial Fertilizer 12-12-12 | 130.90 | 130.90 | | | | |
| 659 | Ton | 3.84 | Agricultural Lime | 57.60 | 57.60 | | | | |
| 603 | L.F. | 10.00 | 12" Conduit Type B 707.13 | 500.00 | 500.00 | | | | |
| 605 | L.F. | 2.50 | Aggregate Drains | 700.00 | 700.00 | | | | |
| 304 | C.Y. | 10.00 | Aggregate Base | 4,750.00 | 4,750.00 | | | | |
| 404 | C.Y. | 30.00 | Asphalt Concrete | 3,120.00 | 3,120.00 | | | | |
| 408 | Gal. | 1.00 | Bituminous Prime Coat <small>702.09, MC-70 OR MC 250</small> | 911.00 | 911.00 | | | | |
| 202 | Lump | Lump | Structure Removed | 800.00 | 800.00 | | | | |
| 503 | C.Y. | 5.00 | Unclassified Excavation <small>Concrete Piles</small> | 410.00 | 410.00 | | | | |
| 507 | L.F. | 20.00 | 14" Cast in Place Reinforced <small>Concrete Piles</small> | 16,800.00 | 16,800.00 | | | | |
| 509 | Lb. | 40 | Reinforcing Steel | 20,976.40 | 20,976.40 | | | | |

LOGAN COUNTY ENGINEER

By Mike Bow

GENERAL ESTIMATE SHEET

Project 29-2.70

Sheet 2 of 2

For Final Estimate

Date 6/5/75

| ITEM | APPROXIMATE QUANTITIES | UNIT | DESCRIPTION | UNIT COST | TOTAL COST | P.O. | STOCK | ACC'T CHECK | REMARKS |
|---------|------------------------|------|--|-----------|--------------|------|-------|-------------|---------|
| 511 | 211 | C.Y. | Class C Concrete Super Structure | 240.00 | 50,640.00 | | | | |
| 511 | 12 | C.Y. | Class C Concrete Pier Caps | 230.00 | 2,760.00 | | | | |
| 511 | 42 | C.Y. | Class C Concrete Abutments Posts & Bolts) | 180.00 | 7,560.00 | | | | |
| 517 | 216.18 | L.F. | Railing (Deep Beam Rail with Steel Porous Backfill) | 15.00 | 3,242.70 | | | | |
| 518 | 13 | C.Y. | Porous Backfill | 14.00 | 182.00 | | | | |
| SPECIAL | Lump | Lump | Concrete Surface Treatment | 500.00 | 500.00 | | | | |
| 808 | 211 | Unit | Chemical Admixture for Concrete Type A, B or D | 1.50 | 316.50 | | | | |
| SPECIAL | Lump | Lump | Premium on Industrial Insurance | 1,200.00 | 1,200.00 | | | | |
| 614 | Lump | Lump | Maintaining Traffic | 400.00 | 400.00 | | | | |
| TOTAL | | | | | \$150,534.82 | | | | |

The County Commissioners met in regular session on this date of July 11, 1975 with the full Board present.

Mr. Donald E. Corwin moved that the following Resolution be adopted:

Re: Project: Br. 29-2.70
Contract Bids

WHEREAS the County Engineer received bids for construction of the above bridge on July 7, 1975, and

WHEREAS Frantz Brothers, Inc., was the lowest bidder at a total project cost of \$105,665.22 which is below the County Engineer's estimate of \$150,534.82,

THEREFORE BE IT RESOLVED that the Logan County Commissioners accept the bid of Frantz Brothers, Inc. and that the County Engineer be authorized to enter into a contract for the same.

Mr. Warren W. Smith seconded the motion.

Roll Call resulted as follows:

Warren W. Smith
Mr. Warren W. Smith, Chairman

Yes

Ronald E. Brown
Mr. Donald Corwin, V. Chairman

Yes

ABSENT

Mr. G. Parker Kennedy, Member

I, Anna C. Furrow, Clerk hereby certify this to be a true copy of the proceedings as taken from the minutes of the meeting of the Logan County Commissioners on this date of July 11, 1975.

Anna C. Furrow
Anna C. Furrow, Clerk

July 11, 1975

The Honorable Board of
Logan County Commissioners
Court House
Bellefontaine, Ohio 43311

Gentlemen:

Re: Br. 29-2.70 Contract Bids

On Monday July 7, 1975 we received bids for the construction of the above project. Five bids were received, the lowest of which was \$105,665.22 from Frantz Brothers, Inc. This bid was well below our estimate of \$150,534.82. Attached is a tabulation of all five bids.

We request your honorable body to adopt a resolution awarding the bid to said Frantz Brothers, Inc., Sidney, Ohio and enter into a contract for the same.

Respectfully submitted,


Chester R. Kurtz, P.E.
Logan County Engineer

CRK/MB/ed

Att: Bid tabulation

COPY

ERIKSSON ENGINEERING LIMITED

1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731

July 22, 1975

Mr. Chester R. Kurtz, P.E.
Logan County Engineer
P.O. Box 427
Bellevfontaine, Ohio 43311

Re: Logan County
Brig. No. 29-2.70

Dear Mr. Kurtz:

We are returning the field notes for the above referenced project, as requested by your office.

If any additional information is required, please contact this office.

Very truly yours,

ERIKSSON ENGINEERING LTD.



Carl E. Eriksson, P. E.

EAH:jt

RECEIVED

JUL 24 1975

LOGAN COUNTY
ENGINEERING

July 18, 1975

Mr. Donald M. Hilliker
101 West Columbus Avenue
Bellefontaine, Ohio 43311

Dear Mr. Hilliker:

Re: Right of way Acquisition
C.H.No.29 Relocation
Bridge No. 29-2.70

The Board of Logan County Commissioners hereby agrees to pay Donald M. Hilliker etal the sum of Two thousand Dollars (\$2,000.00) for the right of way easement over and across said Donald M. Hilliker etal 27.59 acre tract located in V.M.S. 9592-9618-10075, Monroe Township, required to relocate C.H.No.29 at Bridge No. 29-2.70 as shown on the Logan County Engineers right of way plan for said project.

The Board also agrees that should the area between the relocated roadway and the existing roadway of C.H.No. 29 become a parking area for persons fishing Mad River, the Logan County Highway Department shall furnish and place adequate trash containers and shall maintain the parking area and remove trash as required. The Board reserves the right to close the area to public parking at any time.

Board of Logan
County Commissioners

Thomas W. Lewis
Donald M. Hilliker
W. H. Hilliker

Charles R. Hilliker, P.E.
Logan County Engineer

Ann D. Vannest
Clerk

Accepted 7/18/75
Donald M. Hilliker

July 24, 1975

The Honorable Board of
Logan County Commissioners
Court House
Bellevfontaine, Ohio 43311

Gentlemen:

Re: Right of way acquisition
Br. 29-2.70

The construction of Bridge No. 29-2.70 requires the acquisition of additional right of way as shown on the accompany plat. We have negotiated the purchase of the required parcels for the following amounts:

| | | |
|--------------------------|-----------|------------|
| Hilliker, Don M. etal | 0.903 Ac. | \$2,000.00 |
| Lockwood, Robert D. etux | 0.170 Ac. | 377.00 |
| Godwin, Velma | 0.051 Ac. | 111.00 |
| Total Right of way cost | | \$2,488.00 |

I hereby request authorization to purchase the above parcels for the amounts stated.

Respectfully submitted,



Chester R. Kurtz, P.E.
Logan County Engineer

CRK/ed

COPY

AGREEMENT FOR CHANNEL CHANGE

County Highway No. 29, Section , Logan County

ARTICLES OF AGREEMENT

These articles of agreement entered into this 22 day of JUNY, 1975
by Robert D. Lockwood ET UX and the County Engineer,
Logan County, Ohio, Witnesseth:

That Robert D. Lockwood ET UX, for and in consideration

of the sum of One Dollar Dollars (\$ 1.00) to
paid by the County of Logan do hereby grant permission to said County of Logan
to use the hereinafter described portion of the premises for the purpose of ex-
cavating and completing a channel change for Mad River
at Bridge No. 29-270 in connection with the above proposed improvement; the
Grantors further agree to permit the County of Logan to perform such maintenance
and repair operations on said channel change as may be necessary to protect the
highway, and further, the Grantors for the consideration hereinbefore named, re-
lease the County of Logan from and waive all damages of every kind and nature
whatsoever arising from or in any manner growing out of the aforesaid channel
change or said maintenance and repair operations necessary to protect said high-
way. The said channel change is to be made on the following described premises:
Situatd in the State of Ohio, County of Logan, McNees Township,
Section , Town , Range , and more fully described as
follows:

PARCEL No. 1

Beings Robert D. Lockwoods 12.11 Ac tract in
V.M. 3 9592-9618-10075, said channel change to
extend 600'± downstream from Br. 29-270

IN WITNESS WHEREOF, said and
have hereunto set their hand s the 22 day of JUNY, in the year of
our Lord one thousand nine hundred and Seventy five.

Signed and sealed in the presence of:

Jan Dada Robert D. Lockwood
John E. Whelan Shirude Lockwood

STATE OF OHIO ss:
COUNTY OF LOGAN

Before me, a , in and for said County and State, personally
appeared the above named and
who acknowledged that he did sign the foregoing instrument and that the name
is free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at
 Ohio, this day of , A. D. 19

AGREEMENT FOR CHANNEL CHANGE

County Highway No. 29, Section _____, Logan County

ARTICLES OF AGREEMENT

These articles of agreement entered into this 22 day of July, 1975
by MILWARD L. BUENOSIDE ETUX and the County Engineer,

Logan County, Ohio, Witnesseth:
That MILWARD L. BUENOSIDE ETUX, for and in consideration

of the sum of One Dollar Dollars (\$ 1.00) to
paid by the County of Logan do hereby grant permission to said County of Logan
to use the hereinafter described portion of the premises for the purpose of ex-
cavating and completing a channel change for MAP River
at Bridge No. 29-270 in connection with the above proposed improvement; the
Grantor further agree to permit the County of Logan to perform such maintenance
and repair operations on said channel change as may be necessary to protect the
highway, and further, the Grantor for the consideration hereinbefore named, re-
lease the County of Logan from and waive all damages of every kind and nature
whatsoever arising from or in any manner growing out of the aforesaid channel
change or said maintenance and repair operations necessary to protect said high-
way. The said channel change is to be made on the following described premises:
Situated in the State of Ohio, County of Logan, MOORES Township,
Section _____, Town _____, Range _____, and more fully described as
follows:

PARCEL No. 1

BEING MILWARD L. BUENOSIDE'S 57.00 AC. TRACT
LOCATED IN V.M.S. 9592-9618-10075, SAID CHANNEL
CHANGE TO EXTEND UP STREAM 200'± FROM
BE. 29-270

IN WITNESS WHEREOF, said Milward L. Buenoside
ha hereunto set _____ hand the _____ day of _____, in the year of
our Lord one thousand nine hundred and _____

Signed and sealed in the presence of:

Don S. Dodson
Richard A. Bass
William Bursick
Laurie Bursick

STATE OF OHIO ss:
COUNTY OF LOGAN

Before me, a _____, in and for said County and State, personally
appeared the above named _____ and _____
who acknowledged that he did sign the foregoing instrument and that the name
is _____ free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at
Ohio, this _____ day of _____, A. D. 19 _____

AGREEMENT FOR CHANNEL CHANGE

County Highway No. 29, Section , Logan County

ARTICLES OF AGREEMENT

These articles of agreement entered into this 22 day of July, 1975

by Don M. Hinkse ETC and the County Engineer,
Logan County, Ohio, Witnesseth:

That Don M Hinkse ETC, for and in consideration

of the sum of Dollars (\$ 100) to
paid by the County of Logan do hereby grant permission to said County of Logan
to use the hereinafter described portion of premises for the purpose of ex-
cavating and completing a channel change for

at Bridge No. in connection with the above proposed improvement; The
Grantor further agree to permit the County of Logan to perform such maintenance
and repair operations on said channel change as may be necessary to protect the
highway, and further; the Grantor, for the consideration hereinbefore named, re-
lease the County of Logan from and waive all damages of every kind and nature
whatsoever arising from or in any manner growing out of the aforesaid channel
change or said maintenance and repair operations necessary to protect said high-
way. The said channel change is to be made on the following described premises:
Situated in the State of Ohio, County of Logan, Township,
Section , Town , Range ; and more fully described as
follows:

PARCEL No. 1

Being Don M. Hinkse ETC 27 Ac Tenx
IN V.M.S Said channel
improvement to extend 600± downstream
from Br. 29-2.70

I, WITNESS WHEREOF, said and
ha hereunto set hand the day of , in the year of
our Lord one thousand nine hundred and

Signed and sealed in the presence of:

Don Dada James Hinkse

STATE OF OHIO ss:
COUNTY OF LOGAN

Before me, a , in and for said County and State, personally
appeared the above named and
who acknowledged that he did sign the foregoing instrument and that the name
is free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at
 Ohio, this day of , A. D. 19

AGREEMENT FOR CHANNEL CHANGE

County Highway No. 29, Section , Logan County

ARTICLES OF AGREEMENT

These articles of agreement entered into this 22 day of July, 1975

by VELMA GOODWIN and the County Engineer,
Logan County, Ohio, Wātneeseth;

that VELMA GOODWIN, for and in consideration

of the sum of Dollars (\$ 1.00) to
paid by the County of Logan do hereby grant permission to said County of Logan
to use the hereinafter described portion of premises for the purpose of ex-
cavating and completing a channel change for MAD RIVER
at Bridge No. 29-210 in connection with the above proposed improvement; the
Grantor further agree to permit the County of Logan to perform such maintenance
and repair operations on said channel change as may be necessary to protect the
highway, and further, the Grantor for the consideration hereinbefore named, re-
lease the County of Logan from and waive all damages of every kind and nature
whatsoever arising from or in any manner growing out of the aforesaid channel
change or said maintenance and repair operations necessary to protect said high-
way. The said channel change is to be made on the following described premises
situated in the State of Ohio, County of Logan,
Section , Town , Range ; and more fully described as
follows:

PARCEL No. 1

BEING VELMA GOODWIN 8.00 AC. TRACT IN
V.M.S. 9592-9618-10075, MORROE TOWNSHIP
SAID IMPROVEMENT TO EXTEND UPSTREAM
200' ± FROM BR. 29-210

IN WITNESS WHEREOF, said VELMA GOODWIN and
do hereunto set hand the 22 day of JULY, in the year of
our Lord one thousand nine hundred and Seventy five

Signed and sealed in the presence of:

Rayton Shook + Velma Goodwin
Jan Jordan

STATE OF OHIO ss:
COUNTY OF LOGAN

Before me, a in and for said County and State, personally
appeared the above named and
who acknowledged that he did sign the foregoing instrument and that the name
is free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at
Ohio, this day of , A. D. 1975

MOMENT RES. AVAILABLE FOR C.M. TEMP. = 46.75 - 1.84

= 44.91 ft-kips. #2

$$wL/M_{BEAM} = \frac{78}{3.73} = 20.9 \text{ ft-kips}$$

Impact $20.9 \times 0.3 = 6.27 \text{ ft-kips}$
 27.17 ft-kips

% LEGAL LOAD.

$$\frac{69.4}{14.91} = 4.65$$

$$\frac{44.91}{27.17} \times 0.905 = 148.6\%$$

LOOR BEAM

$$S = \frac{67.4 + 14.91}{22} \times 12 = \frac{82.31}{22} \times 12 = 449 \text{ in}^3$$

Use 12 WF 36 (45.9 in³)

2x4" STRIP $\frac{50 \text{ ft}^3}{3 \text{ ft}} \times 13 \text{ ft} \times 12 \text{ ft} = 2600 \text{ ft}^3$

FUTURE WEARING SURFACE

12 WF 36

6-8 WF 17

6x17 ft x 13 ft = 1326 ft²

~~2600 ft²~~

3926 ft²

290.43

~~12 ft~~

~~6 ft~~

~~376.45 ft²~~

~~246.43~~

$$\frac{wL^2}{8} = \frac{.376 \times 14^2}{8} = 0.9472$$

FUTURE WEARING SURFACE

$$\frac{150}{12} \times 13 \times 12 = 1950$$

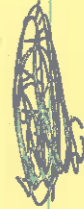
~~2600~~

4550 ft²

D.L. $\frac{4550}{14} + 66 = 391 \text{ ft}^2/\text{ft}$ use 400 ft²/ft

$$\frac{wL^2}{8} = \frac{.4 \times 14^2}{8} = 9.8 \text{ ft-kips}$$

MOMENT RESIST.



$$\frac{45.9 \times 33}{12} = 126.225 \text{ ft-kips}$$

$$\% \text{ legal load} = \frac{126.225 - 9.8}{126.225 - 9.8} \times 100 = 109.9\%$$

STRINGER USING $G_w = 15.5$ SPACING $d = 2.0$ "

Moment Resist. Available for S.C. Support

$$= \frac{10.1 \times 33}{12} - 1.65 = 26.12 \text{ ft-Axis}$$

$$\% \text{ legal load} = \frac{26.12}{22.53} \times 90.5 = 104.34 \% \quad \text{OK}$$

TRUSSES

$$42L3 \quad 2.25 \times 33 = 74.25$$

$$\begin{array}{r} 74.25 \\ 6.5 \\ \hline 69.75 \end{array}$$

$$\% \text{ legal load} = \frac{74.25 - 6.5}{36.44} \times 76 = 141.456$$

BRIDGE CR-29-2.70

#1

STRINGER

TRIAL #1

$$S = \frac{20.62 + 1.72}{2.2} \times 12 = \frac{22.34}{2.2} \times 12 = 12.185 \text{ in}^3$$

USE 8WF17 $\frac{150}{18} \times 2.4 =$

DEAD LOAD

FUTURE WEARING SURFACE 30 #/ft

5" X 4" STRIP $\frac{50}{3} \times 2 = 33 \text{ #/ft}$

SPACING ~~17"~~ 20"

8WF17

$$\frac{17 \text{ #/ft}}{80 \text{ #/ft}}$$

MOMENT RESIST.

$$\frac{17 \times 33}{12} = 46.75 \text{ ft-kips}$$

$$\frac{46.75}{1.59} = 45.06$$

$$D.L.M = \frac{wL^2}{8} = \frac{0.08 \times 13^2}{8} = 1.69 \text{ ft-kips}$$

MOMENT RESIST. AVAILABLE FOR L.L.T IMP. = 46.75 - 1.69 = 45.06 ft-kips

L.L.M. PER TRAFFIC LANE = 78.0 ft-kips

$$L.L.M / DEM = \frac{78}{4.5} = 17.33$$

$$\text{Imp. } 17.33 \times 3 = 5.2 \text{ ft-kips}$$

$$\frac{22.53 \text{ ft-kips}}{22.53 \text{ ft-kips}}$$

% 5-0-46 Loading and legal load

$$\frac{45.06}{22.53} = 200\%$$

$$200\% \times \frac{90.5}{100} = 181\%$$

TRIAL #2

SPACING 20"

$$\text{DEAD LOAD } \frac{50}{3} \times 2.4 = 40 + 30 + 17 = 87 \text{ #/ft}$$

$$D.L.M \frac{0.08 \times 13^2}{8} = 1.837 \text{ ft-kips}$$

BRIDGE CR-29-2.70

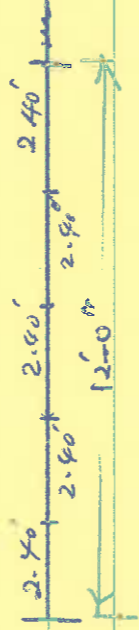
STRINGER OR GIRDERS (LONGITUDINAL)

REPLACE BY 8WF17 $S = 14.1 \text{ in}^3$ A-36 STEEL

SPACING AT 2.40'

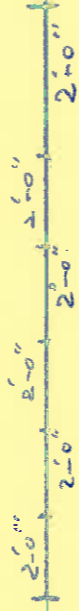
ROADWAY 12'-0"

% DEAD LOAD = 158.6%



OR

REPLACE BY 6WF15.5 $S_{ECT. M} = 10.15 \text{ in}^3$
AT SPACING 2'-0"



% DEAD LOAD = 104.34%

FLOOR BEAM

REPLACE BY 12WF36 $S = 46.9 \text{ in}^3$ A-36 STEEL

REPLACE U.Ls BY 2 $\square 1\frac{1}{2} \times 3\frac{1}{2}$ " A36 STEEL

BRIDGE NO. _____
 COUNTY _____
 TYPE _____
 DATE BUILT _____

SPAN (c. to c.) _____
 ROADWAY _____
 TYPE FLOOR _____
 WEARING SURF. _____

ANALYSIS OF BRIDGES FOR POSTING

CALCULATED BY _____ DATE _____
 CHECKED _____

| BEAM OR GIRDER (LONGITUDINAL) | | | | | | | | | | Span _____ | | Spacing _____ | | Dead Load per lin. ft. of Beam _____ | | | | |
|-------------------------------|-----------------|-------------------|---------------------------|--------------------------|----------------------|-----------------|----------------------------|-------------------------|-------------------------|-----------------|--------|--------------------|-------------------------|--------------------------------------|--------------------------------------|--|--|--|
| Size of Beam | Section Modulus | Percent Available | Section Modulus Available | Moment Resist. Foot Kips | D.L.M. 1000 # p.l.f. | D.L.M. per Beam | Mom. Res. Available L.L.+I | L.L.M. per Traffic Lane | Equivalent Number Beams | L.L.M. per Beam | Impact | L.L.M. plus Impact | Percent S-15-46 Loading | Percent Legal Load | Percent Total and Axle Loads Reduced | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

| FLOOR BEAMS Ctr. to Ctr. Supports _____ | | | | | | | | | | Dead Load per lin. ft. of Beam _____ | | | | |
|---|-----------------|-------------------|---------------------------|--------------------------|----------------------|-----------------|----------------------------|-----------------------------------|-----------------|--------------------------------------|--------------------|-------------------------|--------------------|--------------------------------------|
| Size or Section of Beam | Section Modulus | Percent Available | Section Modulus Available | Moment Resist. Foot Kips | D.L.M. 1000 # p.l.f. | D.L.M. per Beam | Mom. Res. Available L.L.+I | Reaction due to Traffic Lane Load | L.L.M. per Beam | Impact | L.L.M. plus Impact | Percent S-15-46 Loading | Percent Legal Load | Percent Total and Axle Loads Reduced |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

| TRUSSES Span (ctrs. end bearings) <u>50'-0"</u> Panel Length <u>13'-0"</u> | | | | | | | | | | Dead Load per lin. ft. (One Tr.) _____ | | | | | D.L. Pan. _____ <u>5475</u> |
|--|-------------|---------------------------|------------------|------------------------|---------------------------|---------------------|---------------------------|-------------------------------------|----------------------|--|--------|------------------------------|-------------------------|--------------------|--|
| Member | Section | Percent Section Available | Unit Stress Used | Total Stress Available | Mom. Res. or Total Stress | D.L. Stress or Mom. | Stress or Mom. for L.L.+I | Stress or L.L.M. for one Traf. Lane | Percent to One Truss | Stress or L.L.M. to One Truss | Impact | Stress or L.L.M. plus Impact | Percent S-15-46 Loading | Percent Legal Load | Percent Total and Axle Loads Reduced |
| <u>L₀U₁</u> | <u>OK</u> | | | | | | | | | | | | | | |
| <u>d₂U₃</u> | <u>6.9</u> | <u>100</u> | <u>15.0</u> | <u>100</u> | | | | | | | | | | | |
| <u>L₀L₂</u> | <u>1.88</u> | <u>100</u> | <u>21.0</u> | | | | | | | | | | | | |
| <u>L₂L₃</u> | <u>OK</u> | | | | | | | | | | | | | | |
| <u>U₁L₂</u> | <u>3.00</u> | <u>100</u> | <u>21</u> | | | | | | | | | | | | |
| <u>U₂L₃</u> | <u>2.25</u> | <u>100</u> | <u>21</u> | | | | | | | | | | | | |
| <u>U₃L₁</u> | <u>0.6</u> | <u>100</u> | <u>21</u> | | | | | | | | | | | | |

Unit Stresses (Tension) For Posting 3300 PSI
 Structures Built Since 1930 - 27000 # p.s.i.
 Structures Built 1900-1930 - 24000 # p.s.i.
 Structures Built Before 1900 - 21000 # p.s.i.

tan. θ _____ sec. θ _____

| PROCESSING KEY | | |
|--------------------|-------------|---|
| STRUCTURE FILE NO. | TRANS. CODE | |
| 1 | 7 | 8 |
| 4,6,3,2,5,3,2,0 | | |

29-2.70

| CARD NO. | (1) | (2) | (3) INVENTORY ROUTE | | | | | | (4) FEATURE(S) INTERSECTED | | | (5) INV. RTE. BRIDGE NO. | | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|----------|---------------|--------------|---------------------|--------------|----------------|-------------|-------------|--------|----------------------------|----|---------------------|--------------------------|-------------------------------|-------------|------------------|----------------|------------------|------|------|------|
| | ODOT DISTRICT | CITY OR TOWN | ON/UNDER SYSTEM | ROUTE NUMBER | DIRECT. SUFFIX | DESIGNATION | PREF. ROUTE | COUNTY | UNIT NUMBER | | SPECIAL DESIGNATION | SECTION I. D. NUMBER | INVENTORY ROUTE A.D.T. (TENS) | A.D.T. YEAR | FED. AID. SYSTEM | ADMIN. JURISD. | FUNCTIONAL CLASS | | | |
| 1 | 10 | 12 | 16 | 17 | 18 | 23 | 24 | 25 | 26 | 51 | 54 | 59 | 61 | 65 | 71 | 73 | 75 | 77 | 78 | |

| CARD NO. | (13) DEFENSE | | | (14) | | (15) | (16) | (17) INTERSECTED ROUTE | | | | | | (18) FEATURE(S) INTERSECTED | | | (19) INTR. RTE. BRIDGE NO. | |
|----------|----------------|-------------------------|----------------|-----------------------------|-----------------------------------|-----------------|--------------|------------------------|-------------|-------------|--------|-------------|----|-----------------------------|----|----|----------------------------|----|
| | SECTION NUMBER | MILEPOINT BEGIN SECTION | SECTION LENGTH | TOT. MIN. HORIZONTAL CLEAR. | PRACTICAL MAXIMUM VERTICAL CLEAR. | ON/UNDER SYSTEM | ROUTE NUMBER | DIRECT. SUFFIX | DESIGNATION | PREF. ROUTE | COUNTY | UNIT NUMBER | | SPECIAL DESIGNATION | | | | |
| 2 | 10 | 15 | 19 | 22 | 25 | 28 | 30 | 32 | 36 | 37 | 38 | 43 | 44 | 45 | 46 | 71 | 74 | 79 |

| CARD NO. | (20) | (21) | (22) | (23) | (24) | (25) DEFENSE | | | (26) | (27) | (28) | (29) | (30) COORDINATES | | | | 31 | 32 | (33) YEAR BUILT | | (34) | (35) HORIZ. CURVE | | (36) | (37) | | | |
|----------|---------------------------------|-------------|-----------------|----------------|------------------|----------------|-------------------------|----------------|-----------------------------|-----------------------------------|----------------|---------|------------------|---------|---------|---------------|------|-------------|-----------------|------------|---------------|-------------------|------|------|--------|----|----|----|
| | INTERSECTED ROUTE A.D.T. (TENS) | A.D.T. YEAR | FED. AID SYSTEM | ADMIN. JURISD. | FUNCTIONAL CLASS | SECTION NUMBER | MILEPOINT BEGIN SECTION | SECTION LENGTH | TOT. MIN. HORIZONTAL CLEAR. | PRACTICAL MAXIMUM VERTICAL CLEAR. | BY-PASS LENGTH | DEGREES | MINUTES | DEGREES | MINUTES | PHYS. VULNER. | TOLL | ORIG. CONS. | MAJOR RECON. | ON STRUCT. | UNDER STRUCT. | DEG. | MIN. | SKEW | DESIGN | | | |
| 3 | 10 | 18 | 18 | 20 | 22 | 24 | 29 | 33 | 36 | 38 | 42 | 44 | 46 | 50 | 52 | 54 | 57 | 60 | 63 | 64 | 65 | 67 | 68 | 71 | 73 | 75 | 77 | 79 |

| CARD NO. | (38) | (39) | 40 | (41) | (42) | 43 | 44 | (45) SIDEWALKS | | 46 | (47) | (48) STRUCTURE TYPE | | (49) | (50) | (51) | (52) | (53) | (54) | (55) | (56) | | | | |
|----------|------------------------|-------------|--------|------------------------------|----------------------|------------|-------------|----------------|-------|-----------------|----------------------------------|---------------------|-------------|-----------------|---------------------|--------------------------|--------------|--------------------|-----------------------------------|------|------|----|----|----|----|
| | APPROACH ROADWAY WIDTH | MEDIAN TYPE | FLARED | BRIDGE ROADWAY WIDTH (CB/CB) | DECK WIDTH (OUT/OUT) | RAIL. TYPE | DECK DRAIN. | LEFT | RIGHT | FLOOR SLAB TYPE | WEARING SURFACE THICKNESS (INCH) | MAIN SPANS | APPR. SPANS | TOTAL NO. SPANS | MAXIMUM SPAN LENGTH | OVERALL STRUCTURE LENGTH | TYPE SERVICE | BRIDGE DESCRIPTION | MINIMUM VERTICAL CLEAR. ON BRIDGE | | | | | | |
| 4 | 10 | 13 | 16 | 17 | 21 | 25 | 26 | 27 | 30 | 33 | 34 | 35 | 37 | 40 | 43 | 46 | 49 | 52 | 56 | 62 | 64 | 66 | 68 | 70 | 75 |

| CARD NO. | (58) SUBSTRUCTURE | | | | | | | | | | 59 | (60) MIN. VERT. UNDERCLEAR. (MAIN LANES) | | | | (61) MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE | | | | (62) NAVIGATION | | (63) | (64) | (65) | | | | |
|----------|-------------------|------|-------------|-------|-------|-------|-------|-----|--------|-------------------|-----|--|------|-------------------|------|---|----|------------|--------------|-----------------|---------------------------------|--------------------|--|------|----|----|----|----|
| | ABUTMENTS | | PIERS | | | | | | PILING | NON-CARD. OPENING | | CARDINAL OPENING | | NON-CARD. DIRECT. | | CARDINAL DIRECT. | | CONTROLLED | VERT. CLEAR. | HORIZ. CLEAR. | OHIO ORIGINAL CONSTR. PROJ. NO. | MICROFILM REEL NO. | ORIGINAL CONSTRUCTION FEDERAL AID PROJECT NUMBER | | | | | |
| | REAR | FWD. | PREDOMINATE | OTHER | OTHER | OTHER | OTHER | FT. | | IN. | FT. | IN. | LEFT | RIGHT | LEFT | RIGHT | | | | | | | | | | | | |
| 5 | 10 | 11 | 12 | 13 | 14 | 16 | 17 | 18 | 20 | 21 | 22 | 24 | 25 | 26 | 27 | 29 | 31 | 33 | 35 | 38 | 41 | 44 | 47 | 48 | 51 | 55 | 61 | 67 |

| CARD NO. | (66) LOAD RATING | | | | (69) APPRAISAL | | | | (70) PROPOSED IMPROVEMENTS | | | | | | | | | | (71) COST OF IMPROVEMENTS | | | | | 72 | | | | | | |
|----------|------------------|------------------|-----------------|-------------|----------------|------------|-------------|----------------|----------------------------|-------------|--------------|-------------|--------------|-----------|-----------------------|----------------------|---------------------|--------------|---------------------------|-------------|------------|-----------------------|---------------|--------------|-------------|---------------|-----------------|----------|----|----|
| | OPERATING RATING | INVENTORY RATING | OHIO % OF LEGAL | INSP. RESP. | MAINT. RESP. | DECK GEOM. | UNDERCLEAR. | SAFE LOAD CAP. | WATERWAY ADEQ. | APPR. ALIGN | REMAIN. LIFE | YEAR NEEDED | TYPE SERVICE | TYPE WORK | LENGTH OF IMPROVEMENT | IMPR. LOAD DES. LOAD | PROPOSED ROAD WIDTH | NUMBER LANES | DESIGN A.D.T. (TENS) | YEAR A.D.T. | ADJ. RDWY. | TOTAL COST (\$1000'S) | YEAR OF COSTS | PRELIM. ENG. | DEMO-LITION | SUB-STRUCTURE | SUPER-STRUCTURE | PRIORITY | | |
| 6 | 10 | 13 | 16 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 30 | 31 | 34 | 39 | 41 | 45 | 47 | 53 | 55 | 57 | 58 | 69 | 85 | 88 | 71 | 75 | 79 |

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE INVENTORY & APPRAISAL CODE SHEET

CODED BY S. J. ... DATE 10/20/76 REVIEWED BY _____ DATE _____

DATA RECORDER (STAMP)

DATE _____

| PROCESSING KEY | | | | | | | |
|--------------------|---|---|---|---|---|---|-------------|
| STRUCTURE FILE NO. | | | | | | | TRANS. CODE |
| 1 | 7 | 8 | | | | | |
| 4 | 6 | 3 | 2 | 5 | 3 | 2 | A |

| CARD NO. | (1) DISTRICT | | (2) CITY OR TOWN | | (3) INVENTORY ROUTE | | | | | | (4) FEATURE(S) INTERSECTED | (5) INV. RTE. BRIDGE NO. | | | (6) SECTION I. D. NUMBER | | (7) INVENTORY ROUTE A.D.T. (TENS) | | (8) A.D.T. YEAR | (9) FED. AID. SYSTEM | (10) ADMIN. JURISD. | (11) FUNCTIONAL CLASS | (12) | | | | | | | | | | | |
|----------|--------------|----------|------------------|--------|---------------------|----------------|-------------|-------------|--------|-------------|----------------------------|--------------------------|---------------------|-------------------------------|--------------------------|------------------|-----------------------------------|------------------|-----------------|----------------------|---------------------|-----------------------|------|---|---|---|---|---|---|---|---|---|---|---|
| | 000T | DISTRICT | ON/UNDER | SYSTEM | ROUTE NUMBER | DIRECT. BUFFER | DESIGNATION | PREF. ROUTE | COUNTY | UNIT NUMBER | | STRAIGHT LINE MILEAGE | SPECIAL DESIGNATION | INVENTORY ROUTE A.D.T. (TENS) | A.D.T. YEAR | FED. AID. SYSTEM | ADMIN. JURISD. | FUNCTIONAL CLASS | | | | | | | | | | | | | | | | |
| 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 2 | 9 | 1 | M.A.D. RIVER | L | 0 | 2 | 7 | 0 | | 0 | 0 | 0 | 0 | 2 | 3 | 7 | 1 | 0 | 3 | 4 | 0 | 0 | 2 |

| CARD NO. | (13) DEFENSE | | | (14) TOT. MIN. HORIZONTAL CLEAR. | | (15) PRACTICAL MAXIMUM VERTICAL CLEAR. | | (16) ROUTE NUMBER | | | (17) INTERSECTED ROUTE | | | | | | (18) FEATURE(S) INTERSECTED | | | (19) INTR. RTE. BRIDGE NO. | | | | | | | | | | | | | | | |
|----------|----------------|-------------------------|----------------|----------------------------------|------------------|--|-----|-------------------|--------|--------------|------------------------|-------------|-------------|--------|-------------|-----------------------|-----------------------------|--|--|----------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | SECTION NUMBER | MILEPOINT BEGIN SECTION | SECTION LENGTH | NON-CARD. OPENING | CARDINAL OPENING | FT. | IN. | ON/UNDER | SYSTEM | ROUTE NUMBER | DIRECT. BUFFER | DESIGNATION | PREF. ROUTE | COUNTY | UNIT NUMBER | STRAIGHT LINE MILEAGE | SPECIAL DESIGNATION | | | | | | | | | | | | | | | | | | |
| 2 | | | | 0 | 0 | 0 | 1 | 3 | 9 | 9 | 9 | 9 | | | | | | | | | | | | | | | | | | | | | | | |

| CARD NO. | (20) INTERSECTED ROUTE A.D.T. (TENS) | (21) A.D.T. YEAR | (22) FED. AID SYSTEM | (23) ADMIN. JURISD. | (24) FUNCTIONAL CLASS | (25) DEFENSE | | | (26) TOT. MIN. HORIZONTAL CLEAR. | | (27) PRACTICAL MAXIMUM VERTICAL CLEAR. | | (28) | (29) BY-PASS LENGTH | (30) COORDINATES | | | | (31) PHYS. VULNER. | (32) TOLL | (33) YEAR BUILT | | (34) NO. LANES | | (35) HORIZ. CURVE | | (36) SKEW | (37) DESIGN LOADING | | | | | | |
|----------|--------------------------------------|------------------|----------------------|---------------------|-----------------------|----------------|-------------------------|----------------|----------------------------------|------------------|--|-----|------|---------------------|------------------|---------|---------|---------|--------------------|-----------|-----------------|--------------|----------------|---------------|-------------------|------|-----------|---------------------|--|--|--|--|--|--|
| | | | | | | SECTION NUMBER | MILEPOINT BEGIN SECTION | SECTION LENGTH | NON-CARD. OPENING | CARDINAL OPENING | FT. | IN. | | | DEGREES | MINUTES | DEGREES | MINUTES | | | ORIG. CON. | MAJOR RECON. | ON STRUCT. | UNDER STRUCT. | DEG. | MIN. | | | | | | | | |
| 3 | | | | | | | | | | | | | 0 | 3 | | | | | | | | | | | | | | | | | | | | |

| CARD NO. | (38) APPROACH ROADWAY WIDTH | (39) MEDIAN TYPE | (40) FLARED | (41) BRIDGE ROADWAY WIDTH (CB/CB) | (42) DECK WIDTH (OUT/OUT) | (43) RAIL. TYPE | (44) DECK DRAIN. | (45) SIDEWALKS | | (46) FLOOR SLAB | (47) HEARING SURFACE | (48) STRUCTURE TYPE | | (49) TOTAL NO. SPANS | (50) MAXIMUM SPAN LENGTH | (51) OVERALL STRUCTURE LENGTH | (52) TYPE SERVICE | (53) BRIDGE DESCRIPTION | (54) MINIMUM VERTICAL CLEAR. ON BRIDGE | (55) | (56) | | | | | | | | | | | | | | | | | |
|----------|-----------------------------|------------------|-------------|-----------------------------------|---------------------------|-----------------|------------------|----------------|-------|-----------------|----------------------|---------------------|-----------|----------------------|--------------------------|-------------------------------|-------------------|-------------------------|--|------|------|--------|-----------|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | LEFT | RIGHT | | | NUMBER | TYPE CODE | | | | | | | | | NUMBER | TYPE CODE | FT. | IN. | | | | | | | | | | | | | |
| 4 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARD NO. | (58) SUBSTRUCTURE | | | | | | | | | | (59) PILING | (60) MIN. VERT. UNDERCLEAR. (MAIN LANES) | | | | (61) MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE | | | | (62) NAVIGATION | | (63) OHIO ORIGINAL CONSTR. PROJ. NO. | (64) MICROFILM REEL NO. | (65) ORIGINAL CONSTRUCTION FEDERAL AID PROJECT NUMBER | | | | | | | | | | | | |
|----------|-------------------|------|-------------|-------|-------|-------|-------|-----|-------------------|------------------|-------------|--|-----|------------------|------|---|--------------|---------------|-------|-----------------|-------|--------------------------------------|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ABUTMENTS | | PIERS | | | | | | NON-CARD. OPENING | CARDINAL OPENING | | NON-CARD. DIRECT. | | CARDINAL DIRECT. | | CONTROLLED | VERT. CLEAR. | HORIZ. CLEAR. | | | | | | | | | | | | | | | | | | |
| | REAR | FWD. | PREDOMINATE | OTHER | OTHER | OTHER | OTHER | FT. | | | | IN. | FT. | IN. | LEFT | | | | RIGHT | LEFT | RIGHT | | | | | | | | | | | | | | | |
| 5 | 2 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARD NO. | (66) LOAD RATING | | | | (67) APPRAISAL | | | | (70) PROPOSED IMPROVEMENTS | | | | | | | | (71) COST OF IMPROVEMENTS | | | | | (72) PRIORITY | | | | | | | | | | | | | | | |
|----------|------------------|------------------|-----------------|-------------|----------------|------------|-------------|----------------|----------------------------|-------------|--------------|-------------|--------------|-----------|-----------------------|-----------------|---------------------------|--------------|----------------------|-------------|------------|---------------|-----------------------|---------------|--------------|-------------|---------------|-----------------|---|---|---|---|---|---|---|---|---|
| | OPERATING RATING | INVENTORY RATING | OHIO % OF LEGAL | INSP. RESP. | MAINT. RESP. | DECK GEOM. | UNDERCLEAR. | SAFE LOAD CAP. | WATERWAY ADEQ. | APPR. ALIGN | REMAIN. LIFE | YEAR NEEDED | TYPE SERVICE | TYPE WORK | LENGTH OF IMPROVEMENT | IMPR. DES. LOAD | PROPOSED ROAD WIDTH | NUMBER LANES | DESIGN A.D.T. (TENS) | YEAR A.D.T. | ADJ. RDWY. | | TOTAL COST (\$1000'S) | YEAR OF COSTS | PRELIM. ENG. | DEMO-LITION | SUB-STRUCTURE | SUPER-STRUCTURE | | | | | | | | | |
| 6 | 9 | 1 | 2 | 9 | 0 | 8 | 0 | 2 | 8 | 3 | 3 | 7 | N | 2 | 7 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE INVENTORY & APPRAISAL CODE SHEET

CODED BY Carl Ricketts DATE 6-28-73 REVIEWED BY DATE

BR-87
SAC
10/15/73

DATA RECORDER (STAMP)
NOV 08
DATE



RIDGE NO. 29-2.70 SPAN (CTOC) 52'
 WP. Monroe ROADWAY 12'
 TYPE Half-hip Pratt TYPE FLOOR 4" strip
 DATE BUILT 1895 WEARING SURF. 2" bit

ANALYSIS OF BRIDGE FOR POSTING

CALCULATED BY SAS DATE 4-70 ROAD CR-29
 CHECKED J. P. ... 4-21-90 STREAM Mad River

| BEAM OR GIRDER (LONGITUDINAL) | | | | | | | | | | | | | SPAN <u>13.0'</u> SPACING <u>1.83'</u> DEAD LOAD PER LIN. FT. OF BEAM <u>87#</u> | | | |
|-------------------------------|-----------------|-------------|---------------------------|--------------------------|---------------------|-----------------|--------------------------------------|-------------------------|---------------------|-----------------|------------|-----------------|--|--------------|------------------------------|------------|
| SIZE OF BEAM | SECTION MODULUS | % AVAILABLE | SECTION MODULUS AVAILABLE | MOMENT RESIST. FOOT KIPS | D.L.M. 1000# P.L.F. | D.L.M. PER BEAM | MOMENT RESIST AVAILABLE FOR L.L.+IMP | L.L.M. PER TRAFFIC LANE | EQUIV. NO. OF BEAMS | L.L.M. PER BEAM | IMPACT | L.L.M. + IMPACT | % S-15-46 LOADING | % LEGAL LOAD | % TOTAL & AXLE LOADS REDUCED | S-46 |
| <u>5I12.3</u> | <u>4.8</u> | <u>95</u> | <u>4.6</u> | <u>8.1</u> | <u>21.12</u> | <u>1.72</u> | <u>6.4</u> | <u>78.0</u> | <u>4.92</u> | <u>15.86</u> | <u>30%</u> | <u>20.62</u> | <u>31.1</u> | <u>28.1</u> | <u>71.9</u> | <u>2.7</u> |
| | | | | <u>5.4</u> | | | <u>3.7</u> | | | | | <u>20.62</u> | | | | |

HS-2.7-44
Truck

| FLOOR BEAMS CTR. TO CTR. SUPPORTS <u>14.0'</u> DEAD LOAD PER LIN. FT. OF BEAM <u>648#</u> | | | | | | | | | | | | | | | |
|---|-----------------|-------------|---------------------------|--------------------------|---------------------|-----------------|--------------------------------------|-----------------------------------|-----------------|------------|-----------------|-------------------|--------------|------------------------------|------------|
| SIZE OR SECTION OF BEAM | SECTION MODULUS | % AVAILABLE | SECTION MODULUS AVAILABLE | MOMENT RESIST. FOOT KIPS | D.L.M. 1000# P.L.F. | D.L.M. PER BEAM | MOMENT RESIST AVAILABLE FOR L.L.+IMP | REACTION DUE TO TRAFFIC LANE LOAD | L.L.M. PER BEAM | IMPACT | L.L.M. + IMPACT | % S-15-46 LOADING | % LEGAL LOAD | % TOTAL & AXLE LOADS REDUCED | S-46 |
| <u>12I31.5</u> | <u>36.0</u> | <u>95</u> | <u>34.2</u> | <u>59.9</u> | <u>24.5</u> | <u>14.91</u> | <u>45.0</u> | <u>24.0</u> | <u>51.85</u> | <u>30%</u> | <u>67.4</u> | <u>66.8</u> | <u>41.7</u> | <u>58.3</u> | |
| | | | | <u>40.0</u> | | | <u>25.1</u> | | | | <u>67.4</u> | | | | <u>5.6</u> |

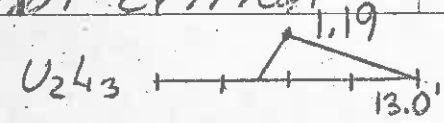
HS-5.6-44

TRUSSES SPAN (CTRS. END BEARINGS) 52.0' PANEL LENGTH 13.0' DEAD LOAD PER LIN. FT. (ONE TR) — D.L. PAN. 5475#

Truck

| MEMBER | NET SECTION | % & SECTION AVAILABLE | UNIT STRESS USED | TOTAL STRESS AVAILABLE | MOMENT RESIST OR TOTAL STRESS | D.L. STRESS OR MOMENT | STRESS OR MOMENT FOR L.L.+IMP | STRESS OR L.L.M. FOR ONE TRAFFIC LANE | % TO ONE TRUSS | STRESS OR L.L.M. TO ONE TRUSS | IMPACT | STRESS OR L.L.M. + IMPACT | % S-15-46 LOADING | % LEGAL LOAD | % TOTAL & AXLE LOADS REDUCED | S-46 |
|-----------------------------------|-------------|-----------------------|------------------|------------------------|-------------------------------|-----------------------|-------------------------------|---------------------------------------|----------------|-------------------------------|------------|---------------------------|-------------------|--------------|------------------------------|------------|
| | | | | | | | | | <u>64%</u> | | <u>28%</u> | | | | | |
| <u>L₁U₁</u> | <u>6.90</u> | <u>50</u> | <u>16.5</u> | <u>57</u> | | <u>11.7</u> | <u>45.3</u> | <u>40.5</u> | | | | <u>33.2</u> | <u>136</u> | <u>103</u> | <u>0</u> | |
| <u>U₂U₃</u> | <u>6.90</u> | <u>95</u> | <u>15.0</u> | <u>98.5</u> | | <u>23.7</u> | <u>74.8</u> | <u>82.4</u> | | <u>.818</u> | | <u>67.5</u> | <u>111</u> | <u>84</u> | <u>16</u> | |
| <u>L₁L₂</u> | <u>1.88</u> | <u>95</u> | <u>21.0</u> | <u>37.5</u> | | <u>8.2</u> | <u>29.3</u> | <u>28.6</u> | | | | <u>23.4</u> | <u>125</u> | <u>95</u> | <u>5</u> | |
| <u>L₂L₃</u> | <u>4.13</u> | <u>95</u> | <u>21</u> | <u>82.4</u> | | <u>17.8</u> | <u>64.6</u> | <u>50.5</u> | | | | <u>41.3</u> | <u>156</u> | <u>119</u> | <u>0</u> | |
| <u>U₁L₂</u> | <u>3.00</u> | <u>95</u> | <u>21</u> | <u>59.8</u> | | <u>12.6</u> | <u>47.2</u> | <u>47.4</u> | | | | <u>38.8</u> | <u>121</u> | <u>92</u> | <u>8</u> | |
| <u>U₂L₃</u> | <u>2.25</u> | <u>95</u> | <u>21</u> | <u>30.0 44.9</u> | | <u>6.5</u> | <u>23.5 38.4</u> | <u>44.4</u> | | | | <u>34.2 36.4</u> | <u>105.5</u> | <u>80</u> | <u>20</u> | <u>9.7</u> |
| <u>U₃L₂</u> | <u>0.60</u> | <u>95</u> | <u>21</u> | <u>12.0</u> | | <u>+6.5</u> | <u>18.5</u> | <u>19.5</u> | | | | <u>16.0</u> | <u>115.5</u> | <u>88</u> | <u>12</u> | |
| <u>Other members not critical</u> | | | | | | | | | | | | | | | | |

HS-10.3-44
truck



UNIT STRESSES (TENSION) FOR POSTING
 STRUCTURES BUILT SINCE 1930 27000# P.S.I
 STRUCTURES BUILT 1900 THRU 1930 24000# P.S.I
 STRUCTURES BUILT BEFORE 1900 21000# P.S.I

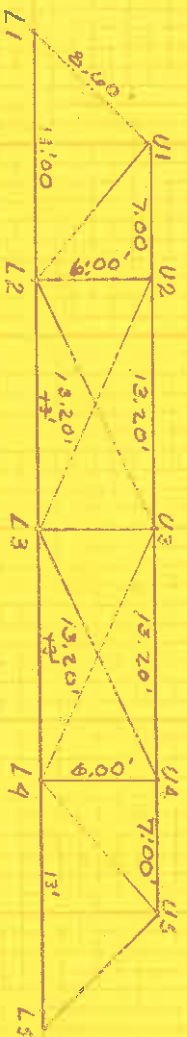
| | | | | | | | | | | |
|---------------------------------------|----------------|---------|----------------|---------|----------------------------|----------------------|---|------------|------------------|------------------|
| TYPE OF BRIDGE | P-dtt Truss | | NO. OF SPANS | 1 | FABRICATOR | Belle & Bridges Iron | BUILT | DATE | 1962 | |
| APPROX. SAFE LOAD CAPACITY | OF TRUSS | | | | | | | | | |
| TYPE AND SIZE OF RAILING OR RUB GUARD | 48'-6" | 53'-10" | 13'-10" | 14'-70" | None | 0.75' | 12'-05" | 12'-6" | 0'-6" | |
| DESCRIPTION OF FLOOR DRAINAGE | Lattice | | | | | | | | | |
| ALIGNMENT AND SKEW OF STRUCTURE | - 0 - | | APPROACH SLABS | | | | | | | |
| CHANNEL CHARACTERISTICS | APPROX. WIDTH | Vary | CHANNEL DEPTH | Vary | NATURE OF BOTTOM | Gravel | ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE | See sketch | | |
| CONDITION OF BANKS | Sod Washed | | | | | | | | | |
| SKEW OF NORMAL FLOW | SUPERSTRUCTURE | | | | | | | | | |
| TYPE OF TRUSSES | | | P-dtt | | LENGTH OF SPANS - C. TO C. | | 52'-0" | | NO. PANELS | 4 |
| | | | | | STD. DRAWING NO. | | 52'-0" | | LENGTH OF PANELS | 13'-0" x 15'-20" |

| TYPE | NUMBER | SPACING | SECTION | SIZE | SIZE-SHAPE-NET SECTION | WIDTH OF FLANGE | THICKNESS OF WEB | SPACING |
|---------------------------|-----------|--------------------------|--------------------------------------|----------|---------------------------|-----------------|---------------------|----------------------------------|
| INTER-LEGIATE FLOOR BEAMS | 13'-0" | 12" I @ 31.5# (12" x 5") | HANG-ENS | 1/4" Φ U | | | | 1'9" |
| END FLOOR BEAMS | | | HANG-ENS | | | | | 2' Nodal, 1' 10 1/2" x 5" x 1/2" |
| FLOOR JOISTS | | | | | | | | |
| KIND | NO. LINES | SIZE | DO JOISTS REST ON TOP OF FLOOR BEAMS | Yes | HOW FRAMED TO FLOOR BEAMS | Not | END JOISTS - LENGTH | FLOOR |
| I BEAMS | 6 | 5" I @ 12.85# | ARE SHELF ANGLES USED? | Yes | | | | |
| CHANNELS | 2 | 5" L @ 6.50# | | | | | | |
| WOOD | | | | | | | | |

| REINFORCED CONCRETE SLAB | THICKNESS | INCHES THICK | CONCRETE | INCHES THICK ON CORRUGATED ARCHES OR BUCKLE PLATES |
|--------------------------|-----------|--------------|------------------------------|--|
| Wearing Surface | 2" x 4" | Tredted | Concrete | |
| STRIP | 2" x 4" | Tredted | Concrete | |
| SUB-STRUCTURE | | | | |
| ABUTMENTS AND PIERS | MATERIAL | TYPE | HEIGHT FOOTER TO BRIDGE SEAT | WIDTH OF BRIDGE SEAT |
| BEAR | Concrete | | | |
| FORWARD | Concrete | | | |
| PIER | | | | |
| PIER | | | | |

| BRIDGE NO. | COUNTY | ROUTE NO. | S.H. NO. | SECTION | STRENGTH | ROADWAY | CLEARANCE | TYPE |
|------------|--------|-----------|----------|---------|----------|---------|-----------|------|
| 29-270 | LOGAN | CR-29 | MONROE | | | | | |

SKETCH OF STRUCTURE SHOWING DIMENSIONS



6" x 1 1/2" x 1/4" SECTION OF TRUSS 5 1/8" BARS

L1-U1, L5-U5 = Red 6" @ 2.5 # E and Red 1/2" x 1 1/2" plate 8" g/c

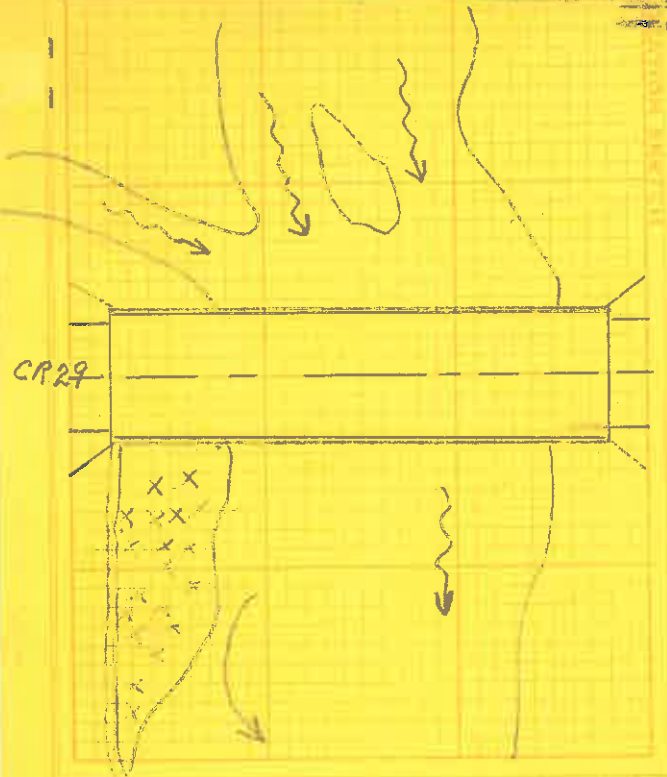
Plate 1' x 5 1/2" 2 # 6" x 1/2" 8" x 1/2" 8" g/c

L1-L2, L4-L5; 2 # 1 1/2" x 3/4" L2-L3 # L3-L4; 2 # 2 5/8" x 3/4"

L2-U2, L3-U3, L4-U4 = Red 5" @ 6.5 # E 8" x 1 1/2" x 3/4" (5" x 1 1/2" x 3/4")

U1-L2, U5-L4 2 # 2" x 3/4" U2-L3, L3-U4 2 # 1 1/2" x 3/4" L2-U3, U3-L4 1 - 1/8" dia.

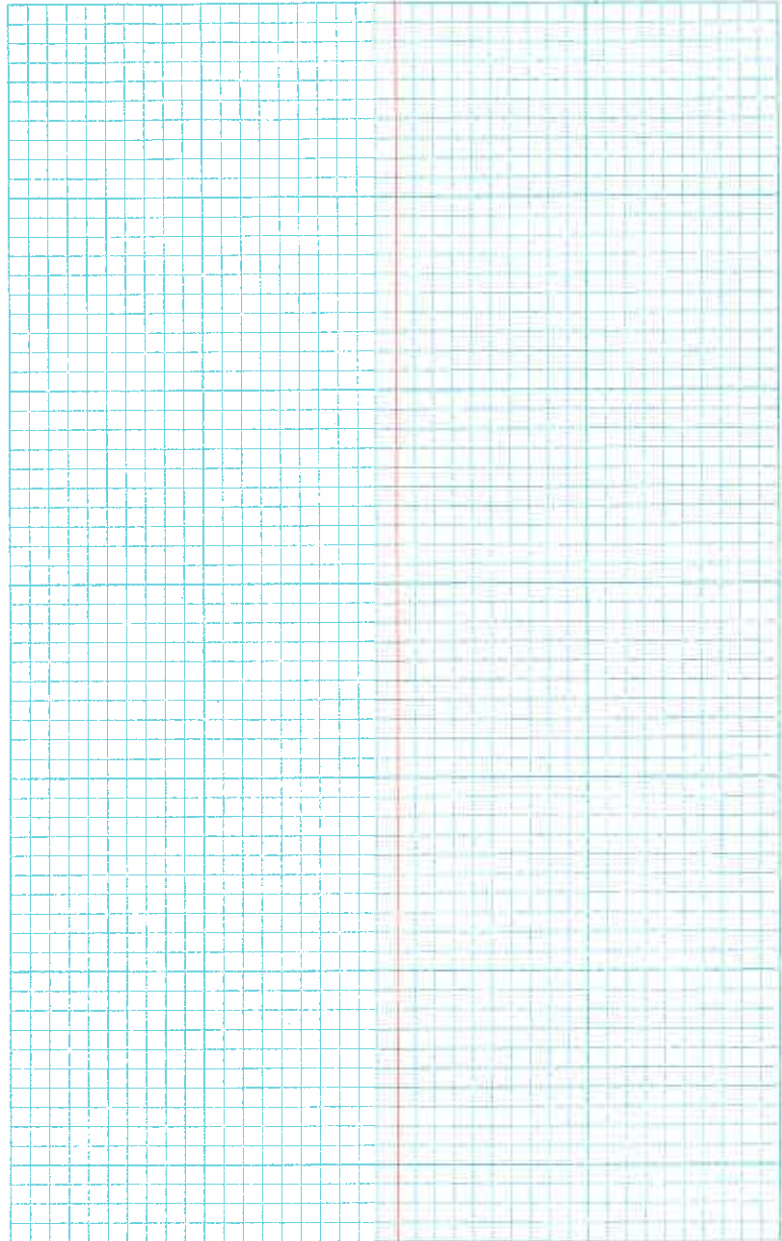
1 1/8" dia.



REMARKS: PAINTED 1965
PAINTED 1970

Ring 29-270

| Data | Sta. | Chord | Deflection |
|--------------------------|-------------|----------|---------------------------------------|
| $\Delta = 15^{\circ}09'$ | PC. 0+16.18 | | |
| $I = 6^{\circ}$ | +50 | C1 33.82 | $d_1 = 1^{\circ}00.9'$ |
| PI. 1+43.28 | +50 | 50. | $2^{\circ}30.9'$ |
| T. 128.90 | +50 | 50. | $4^{\circ}00.9'$ |
| PC. 0+16.18 | 2+43.28 | 50. | $5^{\circ}30.9'$ |
| L = 252.00 | +50 | 50. | $7^{\circ}00.9'$ |
| P.T. 2+168.68 | +68.68 | 12.68 | $7^{\circ}31.5'$ |
| $E = 955.4$ | | | |
| $E = 8.4$ | | | $7^{\circ}31.5' = \frac{1}{2} \Delta$ |
| $M =$ | | | |
| $C1 = 33.82'$ | | | |
| $C2 = 18.28'$ | | | |
| $d_1 = 1^{\circ}00.9'$ | | | |
| $d_2 = 0^{\circ}33.4'$ | | | |



Brg. 29-2.70

EE 2192

Brg. 29-2.70

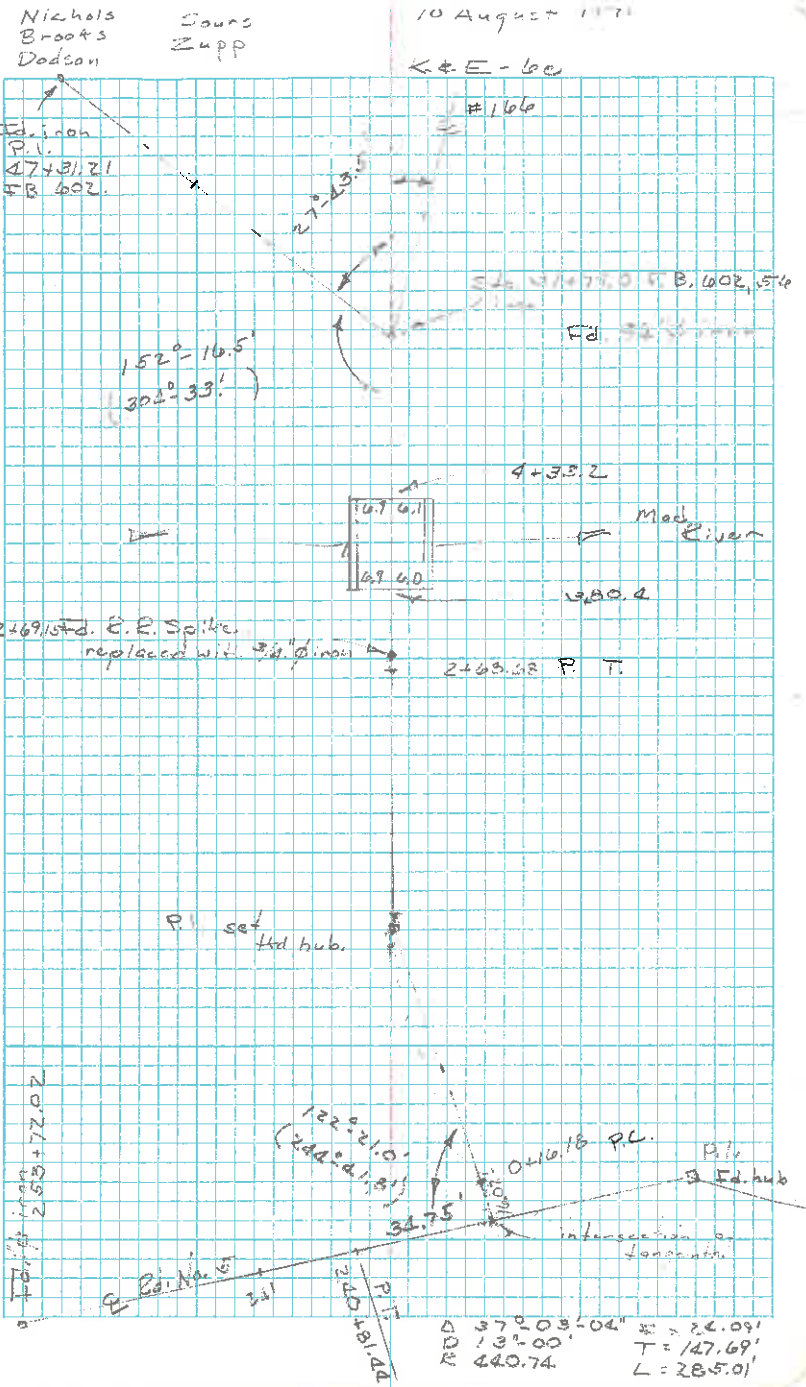
Brg. # 29-2.70 cont

| | | |
|---------|---------|---------------------------------------|
| Sta. | | |
| 5+73.65 | 304.97' | ↳ P.T. (5+101+790 FB 602) |
| 4+48.00 | | Even line for circumference alignment |
| 2+69.15 | | 5d. RR Spike, kent. Road 9d. Run |
| 2+68.68 | | P.T. |
| | | <u>0.47' Diff</u> |

Curve data from F.R. 666 page 57.

- S = 158.00'
- D = 6°
- R = 955.21' - Railroad curve
- T = 126.9'
- L = 252.5'
- E = 8.4'

0+16.18 P.C



| STA | B.S. | I.T. | F.S. | ELEV |
|--------------|----------------------|--------------------|-----------------|-----------|
| BM | 2.44 | 1134.11 | | 1131.67 |
| TP #1 | 5.40 | 1137.40 | 2.05 | 1132.06 |
| | 5.40 | 1137.40 | | |
| TP #2 | | 1130.99 | 6.41 | |
| BM | 2.44 | 1134.11 | | 1131.67 ✓ |
| TP | 5.40 | 1137.46 | 2.05 | 1132.06 |
| TP | 5.77 ^{5.74} | 1136.99 | 6.41 | 1131.05 |
| BM | 5.77 | | 6.56 | 1130.43 |
| CHECK LEVELS | | | | |
| | 6.49 | 1136.92 | 5.77 | 1130.43 |
| TP | 5.35 | 1137.91 | 5.86 | |
| TP 2 | 7.38 | 1134.44 | 5.35 | 1132.06 |
| BM | | | 2.75 | 1131.68 ✓ |

BM 30 CHISEL + NE Wing of BRDG
 15.5' LT STA 229+81 (CR 5)

STATION 3+00 (CR 29)
 R.R. IN ϕ 73.7' RT STA 5+59.5
 B.M. Elev 1130.43

7. 8.

Topo Brg 9-2-70

Sta.

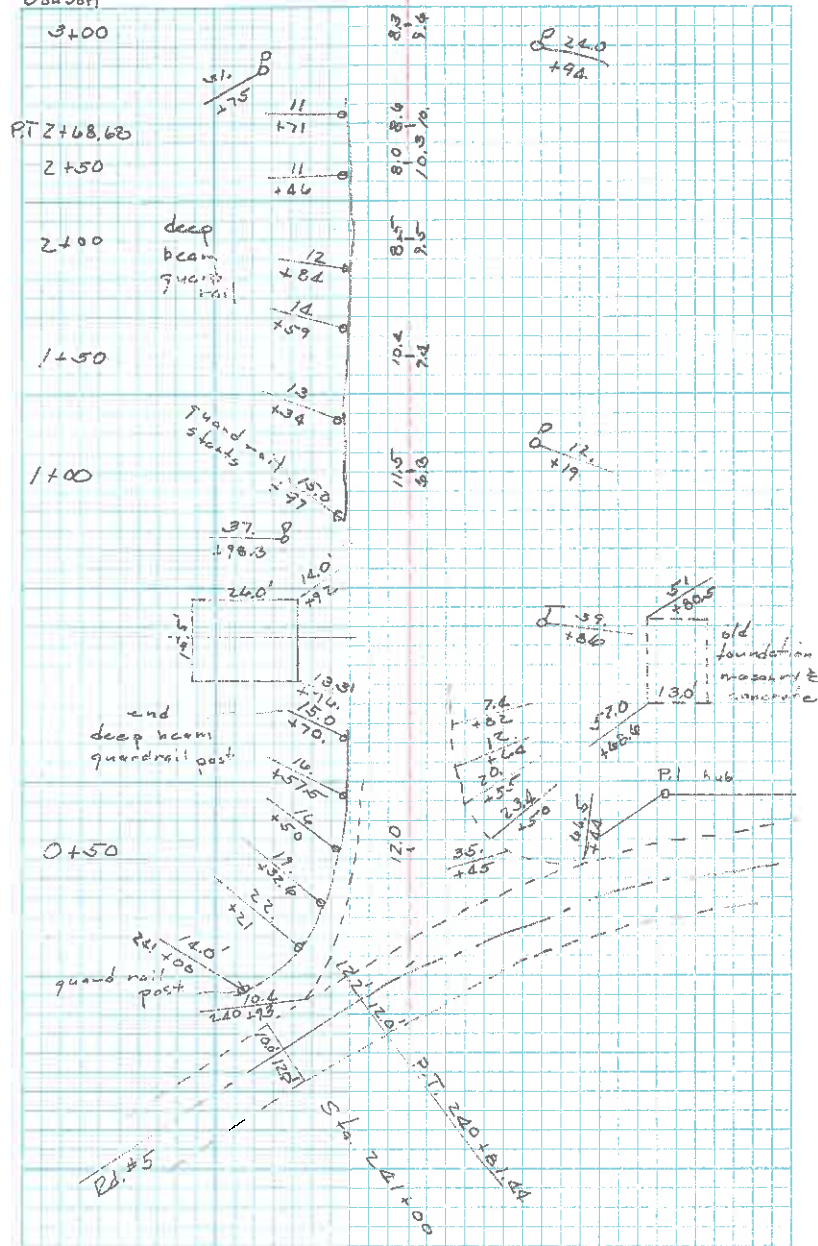
Brq. beams are six lap chords
 - from old truss bridges.
 floor 2"x4" located atop timber.
 Structure delicate with loading
 of L-Zupp, V.D. type.
 Abutments are exposed old trusses
 rest on rocks, earth.

P.C. 0+16.18

Nichols
 Brooks
 Dodson

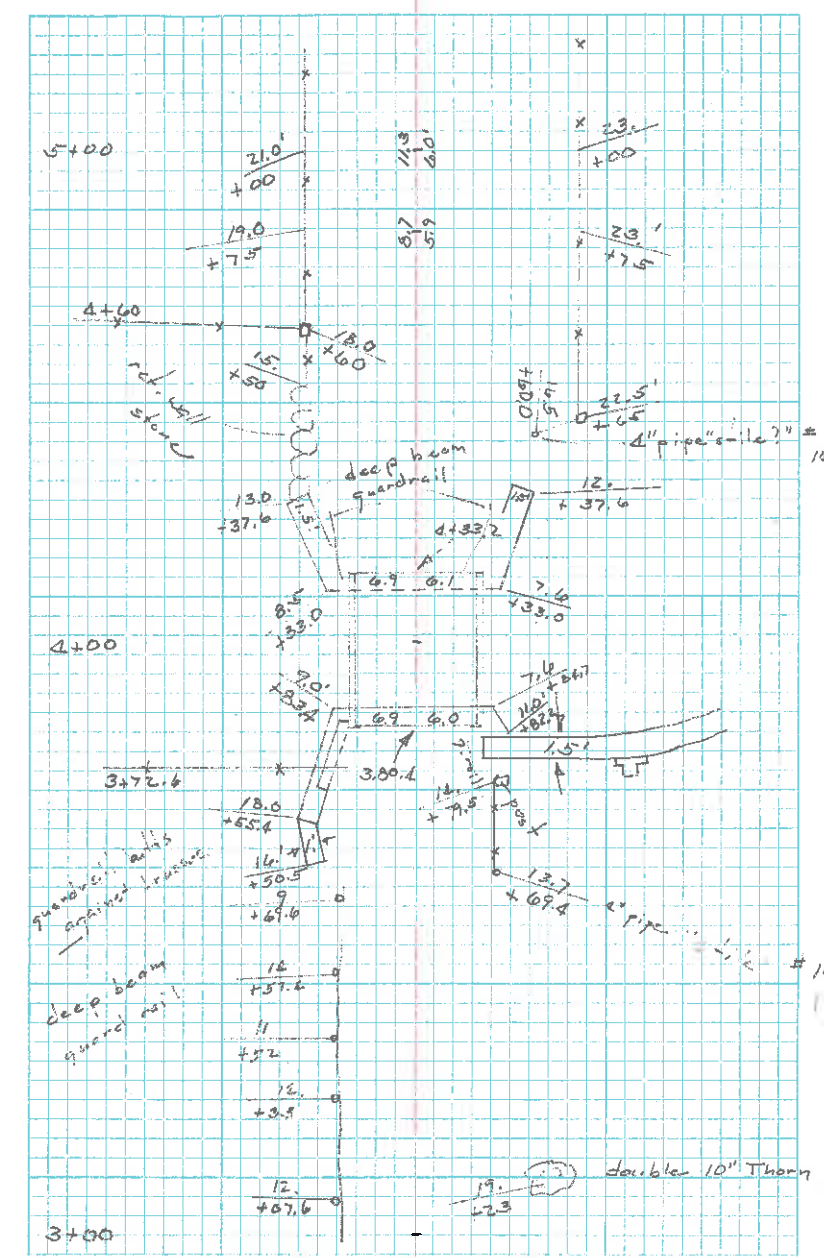
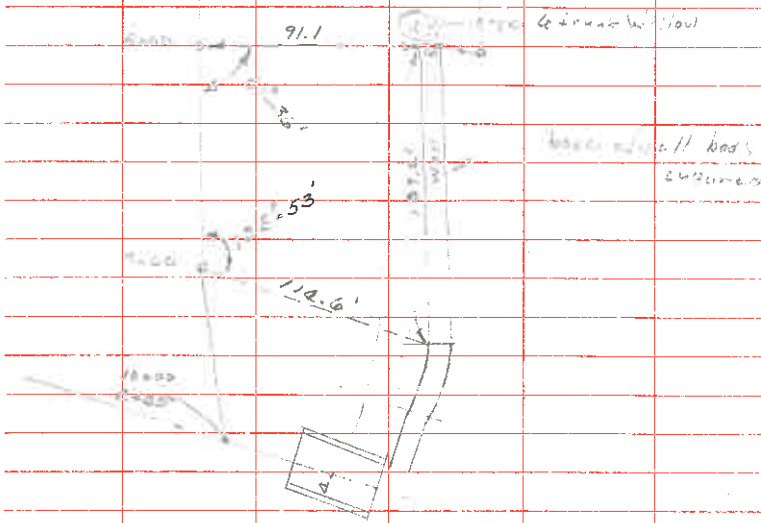
Sours
 Zupp

1 Aug 1911
 Sunny



below rail wall location

7+00



Profile & X-sections Brg. 29-2.70
R.M. 1130.43

| Sta. | Elev. | |
|-------------------------------|----------|-----|
| +33.2 | 1132.80 | |
| +25 | 2.76 | |
| 4+00 | 1132.63 | |
| +80.4 | 2.79 | |
| +75 | 2.74 | |
| +50 | 2.25 | |
| +25 | 1.63 | |
| 3+00 | 1131.07 | Lp. |
| +75 | 30.90 | |
| P.T. +68.68 | 0.85 | |
| +50 | 0.82 | |
| +25 | 0.73 | |
| 2+00 | 1130.64 | |
| +75 | 0.71 | |
| +50 | 0.107 | Lp. |
| +25 | 1.41 | |
| 1+00 | 1132.05 | |
| +75 | 2.75 | |
| +50 | 1133.28 | Lp. |
| +25 | 3.29 | |
| P.C.O. +16.18 | 3.34 | |
| Inter-section Trans. 54.29 | 113 3.49 | |
| V.T. 240+81.44 | 113 3.71 | |
| +50 | 3.49 | |
| 242+00 | 1133.10 | |
| +50 | 3.16 | |
| 239+00 | 1132.99 | |
| +50 | 2.77 | |
| 238+00 | 2.68 | |
| P.S. 237+96.43 | 1132.58 | |

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2 Aug. 17 71

| E | | | | | | | | | | | | | | | RT. |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|
| $\begin{array}{r} 4.1 \quad 4.0 \quad 4.2 \quad 26.4 \quad 26.5 \quad 50 \\ \hline 2.1 \quad 1.8 \quad 1.7 \quad 1.6 \quad 1.5 \quad 1.5 \quad 1.0 \quad 0.2 \quad 0 \quad 31.9 \quad 29.6 \quad 28.4 \quad 27.8 \quad 27.3 \\ \hline 2.1 \quad 1.8 \quad 1.7 \quad 1.6 \quad 1.5 \quad 1.5 \quad 1.0 \quad 0.2 \quad 0 \quad 31.9 \quad 29.6 \quad 28.4 \quad 27.8 \quad 27.3 \end{array}$ | | | | | | | | | | | | | | | |
| $\begin{array}{r} 4.2 \quad 3.8 \quad 4.3 \quad 24.3 \quad 28.2 \quad 0.2 \quad 0.5 \quad 30.9 \quad 50 \\ \hline 2.2 \quad 2.7 \quad 2.5 \quad 2.2 \quad 1.7 \quad 1.3 \quad 1.1 \quad 8.4 \quad 0 \quad 0.3 \quad 28.6 \quad 17.5 \quad 7.6 \quad 28.3 \quad 8.0 \\ \hline 2.2 \quad 2.7 \quad 2.5 \quad 2.2 \quad 1.7 \quad 1.3 \quad 1.1 \quad 8.4 \quad 0 \quad 0.3 \quad 28.6 \quad 17.5 \quad 7.6 \quad 28.3 \quad 8.0 \end{array}$ | | | | | | | | | | | | | | | |
| $\begin{array}{r} 5.3 \quad 5.1 \quad 24.9 \quad 27.7 \quad 29.3 \quad 0.5 \quad 0.6 \quad 0.7 \quad 50 \\ \hline 2.1 \quad 1.9 \quad 1.8 \quad 1.5 \quad 1.3 \quad 1.1 \quad 8.5 \quad 5 \quad 0 \quad 12.7 \quad 18 \quad 2.5 \quad 5.1 \quad 9.9 \quad \text{level} \\ \hline 2.1 \quad 1.9 \quad 1.8 \quad 1.5 \quad 1.3 \quad 1.1 \quad 8.5 \quad 5 \quad 0 \quad 12.7 \quad 18 \quad 2.5 \quad 5.1 \quad 9.9 \quad \text{level} \end{array}$ | | | | | | | | | | | | | | | |
| $\begin{array}{r} 8.0 \quad 7.7 \quad 28.6 \quad 30.9 \quad 31.5 \quad 2.1 \quad 2.4 \quad 2.3 \quad 50 \\ \hline 2.7 \quad 2.4 \quad 2.2 \quad 1.9 \quad 1.7 \quad 1.5 \quad 11.5 \quad 4 \quad 0 \quad 31.5 \quad 1.1 \quad 30.0 \quad 2.0 \\ \hline 2.7 \quad 2.4 \quad 2.2 \quad 1.9 \quad 1.7 \quad 1.5 \quad 11.5 \quad 4 \quad 0 \quad 31.5 \quad 1.1 \quad 30.0 \quad 2.0 \end{array}$ | | | | | | | | | | | | | | | |
| $\begin{array}{r} 8.0 \quad 7.6 \quad 7.3 \quad 27.8 \quad 1.8 \quad 2.0 \quad 3.0 \quad 3.2 \quad 50 \\ \hline 2.8 \quad 2.7 \quad 2.6 \quad 2.3 \quad 1.8 \quad 1.6 \quad 1.2 \quad 4 \quad 0 \quad 3.2 \quad 2.5 \quad 1.8 \quad 3.1 \quad 1.4 \\ \hline 2.8 \quad 2.7 \quad 2.6 \quad 2.3 \quad 1.8 \quad 1.6 \quad 1.2 \quad 4 \quad 0 \quad 3.2 \quad 2.5 \quad 1.8 \quad 3.1 \quad 1.4 \end{array}$ | | | | | | | | | | | | | | | |

15.

16.

