

_____, 1972

Logan County Commissioners
Court House
Bellefontaine, Ohio 43311

Gentlemen:

We propose to furnish the Board of County Commissioners of Logan County, Ohio, freight prepaid, the following material, fabricated to the Logan County Engineer's plans and specifications.

PROJECT:

Logan County Bridge No. 97-0.76
Located 0.8 mile north of New Richland on County Highway No. 97

ITEM	DESCRIPTION	QUANTITY	LENGTH
1	16 WF 45	9	36'-9"
2	16 WF 45	9	55'-3"
3	12 BP 53	24	30'-0"
4	12 BP 53 Piling Cap	4	28'-0"
5	10 WF 21	64	3'-2 5/8"
6	10 WF 21	30	1'-2 3/16"
7	6 WF 25	30	3'-10"
8	Splice Plate	18	1'-1 1/2"x1'-2"x 3/8"
9	Splice Plate	9	1'-9 1/2"x6"x3/8"
10	Splice Plate	36	1'-9 1/2"x2 1/2"x3/8"
11	6"x 4"x 1/2" Angle	48	6"
12	2"x 2"x 1/4" Angle	54	9"
13	Neoprene Pad	27	8"x 9"x 1/2"
14	1" Bolts (ASTM A325)	275	3"

All structural steel to be ASTM A-36.

Price for above material delivered to bridge site: _____

Delivery Date: _____

Signed: _____

By: _____

OFFICE OF THE
COUNTY ENGINEER

LOGAN COUNTY
BELLEFONTAINE, OHIO 43311

CHESTER R. KURTZ, COUNTY ENGINEER

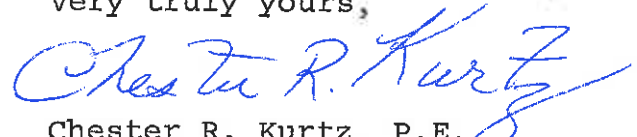
July 17, 1972

Gentlemen:

We shall receive quotations at the office of the Logan County Engineer, Tidewater Road, Bellefontaine, Ohio, until 10:00 A.M. Daylight Savings Time, August 4, 1972 on the attached forms only, for the purpose of supplying structural steel for Logan County Bridge No. 97-0.76.

The Logan County Commissioners reserve the right to reject any or all quotations.

Very truly yours,



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

CRK/ed

Att: Quotation Sheet
Bridge Plan

July 17, 1972

MAILING LIST
STRUCTURAL STEEL BIDS FOR BRIDGE NO. 97-0.76

Champion Bridge Company, Inc.
Wilmington, Ohio 45177

Robert L. Porter
4301 Douglas Road
Toledo, Ohio 43613

Carter Steel & Fabr. Co., Inc.
Carlisle Street
Bellefontaine, Ohio 43311

Ohio Bridge Corporation
203 Wheeling Avenue
Cambridge, Ohio 43725

Robert F. McGuckin
P.O. Box 5553
Columbus, Ohio 43221

ROBERT L. "Bob" PORTER, Inc.

Mfg. Representatives—Hwy. Products

4301 DOUGLAS ROAD

TOLEDO, OHIO 43613

Toledo, Ohio
July 31, 1972

"Dependable Highway Products"

•

**United Steel Fabricators
Wooster, Ohio**

Structural - Plate
Bridge Flooring
Guard Rails
Sheet Piling
Bridge Deck Forms
Sec'l Plate Culverts

•

**Gregory Bridge Co.
Canton, O.**

"All Galvanized
Bridges" For
Bolted Erection

•

**Katy Steel Co.
Toledo, O.**

Structural - Steel
Reinforcing Bars
Steel Piling

•

**The Garland Co.
Cleveland, O.**

Highway Paints

Logan County Board of Commissioners
Att: Mr. Chester R. Kurtz, P. E.
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio 43311

Re: Br N. 97-0.76
Quotations Due: Aug. 4, 1972, 10:00 AM

Gentlemen:

As Mfg. Representatives, we are authorized by KATY STEEL CO., of Toledo, Ohio, whom we represent to attach two firm Proposals for delivery of steel and accessories, fabricated to Logan County Engineers' plans and specifications.

Proposal No. 1 - Delivery of Domestic Mill Steel Beams and Domestic Mill H-Piling ASTM A-36

Proposal No. 2 - Delivery of Domestic Mill Steel Beams and Imported Steel H-Piling ASTM A-36

If awarded KATY STEEL CO. of Toledo, Ohio become Vendors for fabrication and delivery, and Purchase Order should go direct to them.

Thank you for the opportunity of quoting and all past favors, we remain,

Yours very truly,


Robert L. "Bob" Porter, Inc
Robert L. Porter, Pres

RLP:lp
Encls - 2

PROPOSAL # 1 Delivery Domestic Mill Steel - BEAMS W/Certificate
 Delivery Domestic Mill Steel H-Piling ASTM A-36

July 31, 1972

Logan County Commissioners
 Court House
 Bellefontaine, Ohio 43311

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2	16 WF 45	9	55'-3"
3	12 BP 53	24	30'-0"
4	12 BP 53 Piling Cap	4	28'-0"
5	10 WF 21	64	3'-2 5/8"
6	10 WF 21	30	1'-2 3/16"
7	6 WF 25 G.R. Posts W/Bolts Holes	30	3'-10"
8	Splice Plate Plates	18	1'-1 1/2" x 1'-2" x 3/8"
9	Splice Plate W/Shop Splice Preparation	9	1'-9 1/2" x 6" x 3/8"
10	Splice Plate	36	1'-9 1/2" x 2 1/2" x 3/8"
11	6" x 4" x 1/2" Angle	48	6"
12	2" x 2" x 1/4" Angle	54	9"
13	Neoprene Pad	27	8" x 9" x 1/2"
14	1" Bolts (ASTM A325)	275	3"

All structural steel to be ASTM A-36.

Price for above material delivered to bridge site: \$10,116.52

- - TEN THOUSAND FOUR HUNDRED FORTY-SIX DOLLARS & FIFTY-TWO CENTS - - -

Delivery Date: H-Piling - Stock 2 to 3 weeks

BEAMS subject to Mill Rolling, anticipated delivery with preparation and accessories 5 to 6 weeks, possibly sooner.

Signed: KATY STEEL COMPANY
 4075 Detroit Ave., Toledo, Ohio 43612
 By: Robert L. "Bob" Porter, Inc
 BY: Robert L. Porter, Pres
 Sales Representatives

PROPOSAL # 2 Delivery Domestic Mill Steel - BEAMS W/Certificate
 Delivery Imported Mill H-Piling ASTM A-36 W/Certificate

July 31, _____, 1972

Logan County Commissioners
 Court House
 Bellefontaine, Ohio 43311

Gentlemen:

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Logan County Bridge No. 97-0.76
 Located 0.8 mile north of New Richland on County Highway No. 97

ITEM	DESCRIPTION	QUANTITY	LENGTH
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2	16 WF 45	9	55'-3"
3	12 BP 53 Imported H-Piling ASTM A-36	24	30'-0"
4	12 BP 53 Piling Cap	4	28'-0"
5	10 WF 21	64	3'-2 5/8"
6	10 WF 21	30	1'-2 3/16"
7	6 WF 25 G.R. Posts W/Bolt Holes	30	3'-10"
8	Splice Plate Plates	18	1'-1 1/2 x 1'-2" x 3/8"
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12	2" x 2" x 1/4" Angle	54	9"
13	Neoprene Pad	27	8" x 9" x 1/2"
14	1" Bolts (ASTM A325)	275	3"

All structural steel to be ASTM A-36. Beams Domestic Mill
 H-Piling - Imported ASTM A-36

Price for above material delivered to bridge site: \$10,049.66

- - TEN THOUSAND FORTY-NINE DOLLARS & - SIXTY-SIX CENTS - - - - -

Delivery Date: H-Piling - Stock 2 to 3 weeks

BEAMS subject to Mill Rolling, anticipated delivery with preparation and accessories 5 to 6 weeks, possibly sooner.

KATY STEEL COMPANY
 4075 Detroit Ave. Toledo, Ohio 43612
 Signed: Robert L. Porter, Inc
 By: Robert L. Porter, Pres
 Sales Representative

File

August 9, 1972

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

Gentlemen:

Re: Logan County Bridge No. 97-0.76
Material Bids: Aug. 4, 1972, 10:00 DST

Attached are the bids received on the above material. We recommend that the material be purchased from the low bidder, Robert L. Porter, Inc., Toledo, Ohio as stated in his proposal No. 1 for Domestic Steel at the bid of \$10,446.52.

We request your honorable board to accept this proposal and authorize purchase of the same for use in the force account construction of said Bridge No. 97-0.76.

Respectfully submitted,

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

CRK/ed

Attached: 4 bids received
bid notice

C
O
P
Y

July 26, 1972

Logan County Commissioners
Court House
Bellefontaine, Ohio 43311

Gentlemen;

We propose to furnish the Board of County Commissioners of Logan County, Ohio, freight prepaid, the following material, fabricated to the Logan County Engineer's plans and specifications.

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13	Neoprene Pad	27	8"x 9"x 1/2"
14	1" Bolts (ASTM A325)	275	3"

All structural steel to be ASTM A-36.

Price for above material delivered to bridge site: \$14,190.00

Fourteen Thousand-One Hundred Ninety Dollars and no/cents.

Delivery Date: 4 weeks

Signed: Superior Steel Corporation

By: 

August 4, 1972

Logan County Commissioners
Court House
Bellefontaine, Ohio 43311

Gentlemen:

We propose to furnish the Board of County Commissioners of Logan County, Ohio, freight prepaid, the following material, fabricated to the Logan County Engineer's plans and specifications.

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12	2"x 2"x 1/4" Angle	54	9"
13	Neoprene Pad	27	8"x 9"x 1/2"
14	1" Bolts (ASTM A325)	275	3"

All structural steel to be ASTM A-36.

Price for above material delivered to bridge site: Fourteen Thousand
Three Hundred Dollars.

Delivery Date: based on mill delivery.

Signed: CHAMPION BRIDGE COMPANY

By: Harry S. Mearns

OFFICE OF THE
COUNTY ENGINEER

LOGAN COUNTY
BELLEFONTAINE, OHIO 43311

CHESTER R. KURTZ, COUNTY ENGINEER

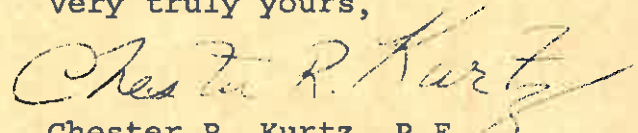
July 17, 1972

Gentlemen:

We shall receive quotations at the office of the Logan County Engineer, Tidewater Road, Bellefontaine, Ohio, until 10:00 A.M. Daylight Savings Time, August 4, 1972 on the attached forms only, for the purpose of supplying structural steel for Logan County Bridge No. 97-0.76.

The Logan County Commissioners reserve the right to reject any or all quotations.

Very truly yours,



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

CRK/ed

Att: Quotation Sheet
Bridge Plan

By L.H.G.

For _____ Date _____

ITEM	APPROXIMATE QUANTITIES	UNIT	DESCRIPTION	UNIT COST	TOTAL COST	P.O.	STOCK	ACC'T CHECK	REMARKS
	31,800	LB	12 BP 53 BRIDGE PILE				X		
	5,936 ✓	LB	12 BP 53 BRIDGE SEAT				X		
	37,260 ✓	LB	16 WF 45			X			
	4,326 ✓	LB	10 WF 21 DIAPHRAGMS			X			
	778 ✓	LB	10 WF 21 GUARDRAIL BRAC			X			
	2875 ✓	LB	6 WF 25 GUARDRAIL POST				X		
	638 ✓	LB	72 STIFFENERS (1/2" x 5 3/4" x 10 7/8")			X			
	206 ✓	LB	36 SAUCE (2 1/2" x 3/8" x 1' 9 1/2")			X			
	363 ✓	LB	18 " (1' 1 1/2" x 3/8" x 1' 2")			X			
112	123 ✓	LB	9 " (6" x 3/8" x 1' 9 1/2")			X			
10	(252) 428 lb. 50		1" x 2 1/2" BOLTS (ASTM A325) 1/2" x 5/8" BOLTS TIMBER	10	15	X			
	10080 ✓	B.F.	3" x 4" TIMBER STRIP x 28'				X		
(2)	224 ✓	B.F.	4" x 12" END PLANK x 28'				X		
	1920	B.F.	3" x 8" PLANKS BACKWALL				X		
	207	B.F.	3" x 8 NAILING STRIP				X		

Steel Quantities



12 BP 53 - 20 PCS @ 30' = 600 LF = 31,800 LB
12 BP 53 - 4 PCS @ 28' = 112 LF = 5,936 LB

16 WF 45 - 9 LINES @ 92'0" = 828 LF = 31,260

10" WF 21 - DIAPHRAGMS - 8 LINES - 8 PCS PER
LINE - EA PC = 3' 2 5/8"

64 PCS @ 3' 2 5/8" = 206'0" = 4,326 LB

6 WF 25 - 30 GUARDRAIL POSTS @ 3'10" = 115' = 2875 LB

10 WF 21 - GUARDRAIL BRACKETS - 30 @ 1' 2 1/16" = 37.03' = 777.66 LB

STEELER = (1/2" x 5 3/4" x 10 7/8") 1/8 PER BEAM

1/8 x 4 = 72 1/2" x 5 3/4" = 9.78 LB. PF

72 x 8.863 = 638.14 LB 9.78 x 10 7/8 = 8.863 LB PF

SPICES - 36 - (2 1/2" x 3/8" x 1'9 1/2")
18 - (1' 1/2" x 3/8" x 1'2")
9 - (6" x 3/8" x 1'9 1/2")

9 SPICES @ 28 (1" x 2 1/2" BOOTS ASTM A 325) PER =
252 BOOTS

2 1/2" x 3/8" = 3.19 LB/FT 1' 2 1/2" x 3.19 = 5.71539 EA

5.71539 x 36 = 205.755 LB

3/8" x 1/4" = 17.9 LB/EA 1' 1/2" x 17.9 = 20.1375 EA

20.1375 x 18 = 362.475 LB

6" x 3/8" = 7.65 LB/FT x 1'9 1/2" = 13.70619 EA

13.70619 x 9 = 123.356 LB

5 - 1/2" x 4" CHANNEL BOOTS FOR WALLS 57.5 PER PILE
10 PILE @ 5 PER = 50 - 1/2" x 4" CHANNEL BOOTS

⁸ 1.00
~~454~~ Yd MARGINAL FILL

ROADWAY QUANTITIES 97-076

① 407 SENS. COAST - TOTAL LIN. FT. PWT = 242 124 GAL

PWT WIDTH X 1/6 400 TONS IN PWT

3872 SF

3872 ÷ 9 = 430 SY

430 X 0.5 GAL = 215 GAL MC 3000

430 X 25 LB = 10750 LB ÷ 2000 = 5.375 TONS

400 TON

② 304 - 5" AGG. BASE COARSE (4000 LBS PER CY)
5/12 X 1/8 X 242 = 806.5 CF = 305 CY

③ 310 - 4" SUB-BASE (400 TON)

5/12 X 1/8 X 242 = ~~639~~ 278 CF = 28 CY

④ 408 - BIT. PRIME COAST

430 SY X 0.5 = 215 GAL. 194 GAL

430 | 2

Treated Timber

2000
1 1/2
1 1/2

11	17	18.67
0.167	26.28	27.34
	2720	1867
	1360	2240
	1360	

FLOOR

FLOOR 90' x 28' x .33 = 840 CF x 12 = 10,080 B.F. ✓

END PLANKS 56' x 4" x 12" = 18.67 CF x 12 = 224 B.F. ✓

BACKWALL 12' - 3" x 8" x 20' = 1920 B.F. x 2 = 1920 B.F.

WALLS STRIP 3" x 8" x 5' = 106.66 B.F. 10.66 B.F. EA. PILE

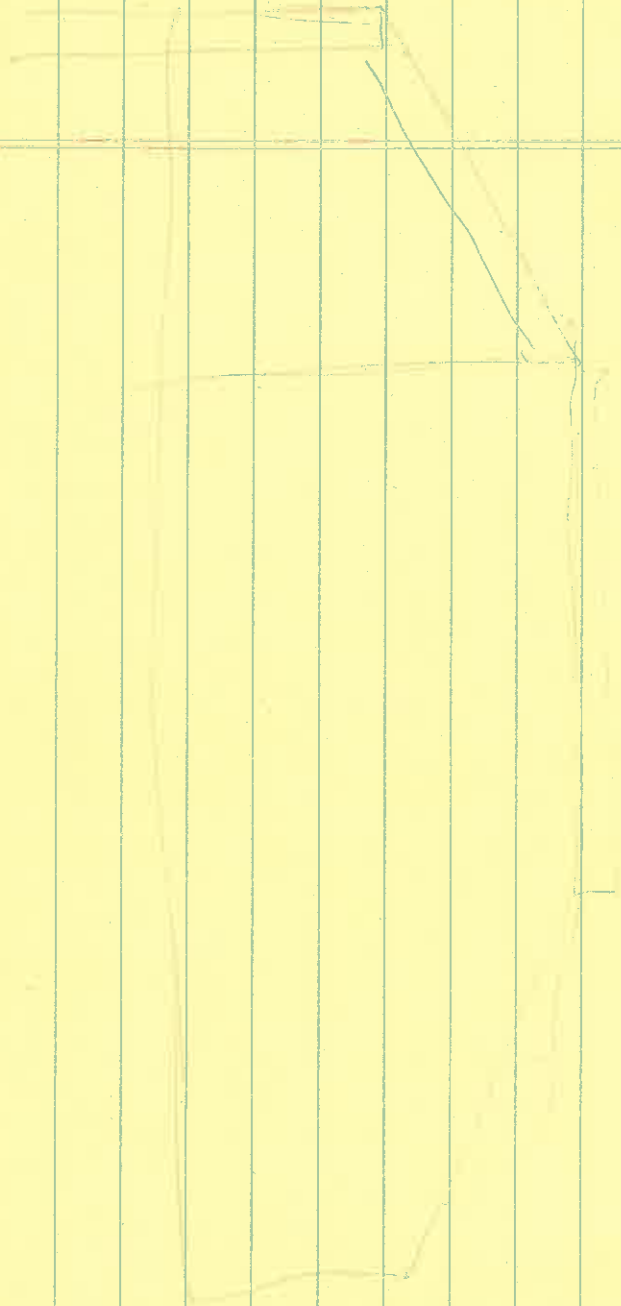
5 PILE EA END = 10

10 x 10 B.F. = 100 B.F.

10 x 10.66 B.F. = 106.66 B.F.

207 B.F. WALLS STRIP

CONCRETE & WOOD POSTS



RESOLUTION NO. 126-72

The County Commissioners met in regular session on this date of July 17, 1972 with the full Board present.

Mr. Harvey C. Terrill moved that the following Resolution be adopted:

BE IT HEREBY RESOLVED by the Logan County Commissioners to authorize the County Engineer to receive bids, award a contract for material and to proceed with the construction of the improvement by Force Account Re: Bridge No. 97-0.76 replacement. (Richland Twp.)

Mr. Don Downing seconded the motion.

Roll Call resulted as follows:

John R. Inskeep *Rep* *yes*
Mr. John R. Inskeep, Chairman

Don Downing *yes*
Mr. Don Downing, V. Chairman

Harvey C. Terrill *yes*
Mr. Harvey C. Terrill, Member

I, Vicky Waring, Acting 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 17, 1972.

Vicky Waring
Vicky Waring, Acting Clerk

7/17/72
Vicky Waring

FILE
BR. 97

ROBERT L. "Bob" PORTER, Inc.

Mfg. Representatives—Hwy. Products

4301 DOUGLAS ROAD

TOLEDO, OHIO 43613

Aug 23, 1972

Chet:

Thank you for P.O. 25709 Copy of same attached
as assigned to KATY STEEL CO - Vendors per my Proposal.

Please send me Fab. Dwgs.

Mrs P in hospital for check up and tracktion treatment,

She is getting along O.K.

Thank you -

Regards,

Bob

**"Dependable Highway
Products"**

**United Steel Fabricators
Wooster, Ohio**

Structural - Plate
Bridge Flooring
Guard Rails
Sheet Piling
Bridge Deck Forms
Sec'l Plate Culverts

**Gregory Bridge Co.
Canton, O.**

"All Galvanized
Bridges" For
Bolted Erection

**Katy Steel Co.
Toledo, O.**

Structural - Steel
Reinforcing Bars
Steel Piling

**The Garland Co.
Cleveland, O.**

Highway Paints

**RECEIVED
AUG 28 1972
LOGAN COUNTY**

Toledo, Ohio
July 31, 1972

Logan County Board of Commissioners
Att: Mr. Chester R. Kurtz, P. E.
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio 43311

Re: Br W. 97-0.76
Quotations Due: Aug. 4, 1972, 10:00 AM

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If awarded KATY STEEL CO. of Toledo, Ohio become Vendors for fabrication and delivery, and Purchase Order should go direct to them.

Thank you for the opportunity of quoting and all past favors, we remain,

Yours very truly,

Robert L. "Bob" Porter, Inc
Robert L. Porter, Pres

RLP:lp
Encls - 2

RECEIVED

AUG 28 1972

LOGAN COUNTY
ENGINEER

PROPOSAL # 1 Delivery Domestic Mill Steel - BEAMS W/Certificate
Delivery Domestic Mill Steel H-Piling ASTM A-36

July 31, 1972

Logan County Commissioners
Court House
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Price for above material delivered to bridge site: \$10,446.52

- - TEN THOUSAND FOUR HUNDRED FORTY-SIX DOLLARS & FIFTY-TWO CENTS - - - -

Delivery Date: H-Piling - Stock 2 to 3 weeks

BEAMS subject to Mill Rolling, anticipated delivery with preparation and accessories 5 to 6 weeks, possibly sooner.

KATY STEEL COMPANY
4075 Detroit Ave., Toledo, Ohio 43612
Signed: By:
Robert L. "Bob" Porter, Inc
By: Robert L. Porter, Pres

Sales Representatives

RECEIVED

AUG 28 1972

LOGAN COUNTY
ENGINEER

**OFFICE OF THE COUNTY ENGINEER
OF LOGAN COUNTY, OHIO**

PURCHASE ORDER

Requisition No. 23484

Bellefontaine, Ohio, August 21, 1972
VENDOR - KATY STEEL CO, 4075 Detroit Ave, Toledo, Ohio 43612

No 25709

APPROPRIATION

Code	Amount
K-26	\$10,446.52

To Robert L. "Bob" Porter, Inc.
4301 Douglas Road
Toledo, Ohio 43613

Chester R. Kurtz County Engineer

Bill
At BELLEFONTAINE, OHIO

Deliver to

Quantity	Unit	DESCRIPTION	Price Per Unit	Amount
LUMP		Structural Steel as per bid on August 4, 1972 Proposal No. 1 Bridge No. 97-0.76 See bid sheet		\$10,446.52
Per- Bid -		Assigned to: Vendor - KATY STEEL COMPANY 4075 Detroit Ave. Toledo, Ohio 43612 By: Robert L. "Bob" Porter Inc. Mfg Rep. Per Robert L. Porter, Pres. <i>Robert L. Porter</i>		

Please Invoice in Duplicate.

All goods must be shipped prepaid.

CARTER PATG.

By Order of the Board of County Commissioners

John R. McRae
Don Downing

Commissioners.

Chester R. Kurtz
LOGAN COUNTY ENGINEER

By _____ ed _____

RECEIVED

AUG 28 1972

LOGAN COUNTY
ENGINEER

ROBERT L. "Bob" PORTER, Inc.

Mfg. Representatives—Hwy. Products

4301 DOUGLAS ROAD

TOLEDO, OHIO 43613

Toledo, Ohio
Nov.10, 1972

**"Dependable Highway
Products"**

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

**United Steel Fabricators
Wooster, Ohio**

Re: Br. #97-0.76
Katy Steel Co

Structural - Plate
Bridge Flooring
Guard Rails
Sheet Piling
Bridge Deck Forms
Sec'l Plate Culverts

Dear Chet:

Confirming my conversation on Nov. 6th with Dan at which
time I ordered out Plate Cap Stiffeners for Bearing Pile
with KATY STEEL CO for immediate delivery. Also agreed to
take back-charge and issue Credit for mitre saw cut on
Gr. Posts and installing holes.

**Gregory Bridge Co.
Canton, O.**

"All Galvanized
Bridges" For
Bolted Erection

Chet, we did not have complete shop fab drawings because of
our misunderstanding. Therefore, this work was not done
per Plan. Normally, Paul works these up for us, and we
furnish same.

**Katy Steel Co.
Toledo, O.**

Structural - Steel
Reinforcing Bars
Steel Piling

Sorry for the mix up, and thank you for all past favors,
we remain,

**The Garland Co.
Cleveland, O.**

Highway Paints

Yours very truly,


Robert L. "Bob" Porter, Inc
Robert L. Porter, Pres

RIP:lp
Encl

RECEIVED

NOV 14 1972

**LOGAN COUNTY
ENGINEER**

KATY STEEL CO.

QUOTATION

4075 DETROIT AVENUE • TOLEDO, OHIO 43612
TELEPHONE: Greenwood 4-5454

Date Nov. 6, 1972

TO Logan County Board of Commissioners
Att: Mr. Chester R. Kurtz, P. E.
Logan County Engineer
P.O. Box 427
Bellefontaine, Ohio 43311

Subject Shortage - Plates File Cap Stiffeners
Br. # 97-076
Location Logan County
Architect-Engineer Chester R. Kurtz, P.E.
Logan County Engineer

The KATY STEEL COMPANY proposes to furnish the following, subject to acceptance within.....days:

FILE CAP STIFFENER PLATE

72 Pcs 1/2" Plate 5-3/4 x 10-7/8" approx wgt 9.50 each Total 684 Lbs

ABOVE TO BE DELIVERED VIA PREPAID TRUCK AT - - - - - NO CHARGE

Should have been shipped with Cut & Fab. Material on Aug. 21, '72

Pur. Order # 2509 per Bid of Aug. 4 '72

Back Charge Credit to be allowed County for local Shop Work required

and not performed by KATY STEEL CO per Bid (30 Pcs Gr. Posts mitre saw cut bevel

and installation of Gr. Posts Holes) ESTIMATED BACK CHARGES - CREDIT @ \$60.00

Above Plates to be rushed - Bridge under construction.

RECEIVED

NOV 14 1972

LOGAN COUNTY
ENGINEER

Applicable Sales, Use or similar Taxes, unless specifically included, and increases in Transportation charges, will be added to the above price.

TERMS: Buyer agrees to make payment for each shipment of materials within thirty (30) days from date of shipment. See other side for additional Terms and Conditions.

No discount allowed from above prices which are F.O.B. Via prepaid truck Logan County Hwy Yard

Shipment: We will endeavor to begin shipment of materials within..... See above..... after our Home Office approval and acceptance of this proposal and receipt at Home Office of all approved drawings, details, and other information necessary for our performance, which buyer agrees to furnish promptly. All contracts, amendments and proposals are subject to approval of and acceptance by our Home Office at Toledo, Ohio.

Accepted.....
By.....
At..... Date..... 11/6/72

KATY STEEL COMPANY
Signature of
Representative making proposal. Robert L. "Bob" Porter, Inc
Robert L. Porter, Pres
Sales Representatives

BRIDGE INVENTORY & APPRAISAL CODE SHEET

97-0.76

PROCESSING KEY	
STRUCTURE FILE NO.	TRANS. CODE
4639014C	e

CHECKED BY Curtis Dill DATE 2-29-80

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)
			DN/UNDER	SYSTEM	ROUTE NUMBER		COUNTY	UNIT NUMBER								
9	10	12	16	17	18		51	54	59	61	65	71	73	75	77	79 80
1																

CARD NO.	(13) DEFENSE SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	(14) TOT. MIN. HORIZONTAL CLEAR.		(15) PRACTICAL MAXIMUM VERTICAL CLEAR.	(16)	(17) INTERSECTED ROUTE			(18) FEATURE(S) INTERSECTED	(19) INTER. RTE. BRIDGE NO.							
				NON-CARD. OPENING	CARDINAL OPENING			DN/UNDER	SYSTEM	ROUTE NUMBER			DIRECT. BUFFER	DESIGNATION	PREF. ROUTE				
9	10		19	22	26	28	30	32	36	37	38	43	44	45	46	71	74	75	80
2																			

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				PHYS. VULNER.	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. CONS.	MAJOR RECON.	ON STRUCT.	UNDER STRUCT.			DEG.	MIN.
9	10	16	18	20	22	24	29	33	36	39	42	44	46	50	52	54	57	60	63	64	65	57	69	71	73	75	77	79	80
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 TYPE	(47) HEARING SURFACE THICKNESS (INCH)	(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)	57 BEARING TYPE			
								LEFT	RIGHT			NUMBER	TYPE CODE						NUMBER	TYPE CODE				FT.	IN.	
9	10	13	18	17	21	25	26	27	30	33	34	35	37	40	43	46	49	52	56	62	64	66	68	70	75	80
4																										

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.	REEL NO.			PROJECT NO.						
	REAR	FWD.	PREDOMINATE	OTHER	OTHER	NUMBER UNITS	MAT'L TYPE	NUMBER UNITS	MAT'L TYPE	NUMBER UNITS				MAT'L TYPE	FT.	IN.	FT.							IN.	LEFT	RIGHT	LEFT	RIGHT	FT.	IN.
9	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	28	29	31	33	35	38	41	44	47	48	51	55	61	67	80
5																														

CARD NO.	(66) LOAD RATING				(69) APPRAISAL				(70) PROPOSED IMPROVEMENTS										(71) COST OF IMPROVEMENTS					72 PRIORITY						
	OPERATING RATING	INVENTORY RATING	OHIO % OF LEGAL	RATING YEAR	INSP. RESP.	MAINT. RESP.	DECK DEGR.	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. ROWY.	TOTAL COST (\$1000'S)		YEAR OF COSTS	PRELIM. ENG.	DEMO-LITION	SUB-STRUCTURE	SUPER-STRUCTURE	
9	10	13	16	18	21	22	23	24	25	26	27	28	29	31	32	35	40	42	46	48	54	55	58	59	64	66	69	72	76	80
0																														

REMARKS:

OFFICIAL USE ONLY

O.A. CODE _____

REVIEWED BY _____

DATE _____

DATA RECORDER

DATE FEB 02 1980

97-0.76

PROCESSING KEY	
STRUCTURE FILE NO.	TRANS. CODE
4639014	A

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE INVENTORY & APPRAISAL CODE SHEET

BR-87
REV. 5-74

CHECKED BY R.A. Bruce DATE 2/14/79

CARD NO.	(1) DISTRICT	(2) CITY OR TOWN	(3) INVENTORY ROUTE			(4) FEATURE(S) INTERSECTED										(5) INV. RTE. BRIDGE NO.		(6)	(7)	(8)	(9)	(10)	(11)	(12)
			ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX	DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER		SECTION I. D. NUMBER	INVENTORY ROUTE A.D.T. (TENS)	A.D.T. YEAR	FED. AID SYSTEM	ADMIN. JURISD.	FUNCTIONAL CLASS								
									STRAIGHT LINE MILEAGE	SPECIAL DESIGNATION														
1	10	12	16	17	18	29	24	25	26	61	54	59	61	65	71	79	75	77	79	80				
1	07	0000	14	C0097	1	SOUTH FORK MIAMI RIVER	L06	0076						000018	77	1	40	06						

CARD NO.	(13) DEFENSE			(14)		(15)	(16)	(17) INTERSECTED ROUTE							(18) FEATURE(S) INTERSECTED					(19) INTER. 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		STRAIGHT LINE MILEAGE	SPECIAL DESIGNATION					
				NON-CARD. OPENING	CARDINAL OPENING								FT.	IN.							
2	9	10	15	19	22	25	28	30	32	36	37	38	43	44	45	46	71	74	79	80	
					000	278	99	99													

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)		(27)	(28)	(29)	(30) COORDINATES				(31)	(32)	(33) YEAR BUILT		(34) NO. LANES		(35) HORIZ. CURVE		(36)	(37)					
						SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.	ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX	DESIGNATION	PREF. ROUTE	BY-PASS LENGTH	LATITUDE		LONGITUDE		PHYS. VULNER.	TOLL	ORIG. CONSTR.	MAJOR RECON.	ON STRUCT.	UNDER STRUCT.	DEG.	MIN.	SKEW	DESIGN LOADING
																			DEGREES	MINUTES	DEGREES	MINUTES										
3	9	10	15	19	22	24	29	33	36	39	42	44	46	50	52	54	57	60	63	64	65	67	69	71	73	75	77	79	80			
														05						3	72	00	02	00				00	50			

CARD NO.	(38) APPROACH ROADWAY WIDTH	(39) MEDIAN TYPE	40	(41) BRIDGE ROADWAY WIDTH (CB/CB)	(42) DECK WIDTH (OUT/OUT)	43	44	(45) SIDEWALKS		46	(47) HEARING SURFACE THICKNESS (INCH)	(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)	57					
								LEFT	RIGHT			MAIN SPANS		APPR. SPANS							FT.	IN.								
												NUMBER	TYPE CODE	NUMBER	TYPE CODE															
4	9	10	13	16	17	21	25	26	27	30	33	34	35	37	40	43	46	49	52	55	62	64	65	68	70	73	75	77	79	80
	0.30	0000	0	0.278	02847	10	0	0	0	0	220	1	003322	0000	0000	00300	35	000093	15		99	99							3	

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					LEFT	RIGHT	LEFT	RIGHT																		
5	9	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	28	31	33	35	38	41	44	47	48	51	55	61	67	80	
	6	9	6	9	02	5	7	00	00	00	00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CARD NO.	(66) LOAD RATING				67	68	(69) APPRAISAL					(70) PROPOSED IMPROVEMENTS								(71) COST OF IMPROVEMENTS					72					
	OPERATING RATING	INVENTORY RATING	OHIO % OF LEGAL	RATING YEAR	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. ROWY.		TOTAL COST (\$1000'S)		YEAR OF COSTS	BREAKDOWN (\$1000'S)			PRIORITY
																						YEAR	TYPE				PRELIM. ENO.	DEMO-LITION	SUB-STRUCTURE	
6	9	60	936	150	79	3	3	8	4	8	3	3	50										00							00

REMARKS:

MAY 01 1979

OFFICIAL USE ONLY

O. A. CODE _____
 REVIEWED BY _____
 DATE _____

DATA RECORDER (STAMP) 238
 DATE _____

Timber Decking Load Rating

97-0-76

Brig 436-038-WO # 2926

Decking

Actual Board Width (in):
Span Length 'L' (ft):

2.5
3.25

3x4 Boards Used:
3x6 Boards Used:

b (thickness):
d (depth):

2.5
2.5

A (in²):
S (in³):
I (in⁴):

8.75
13.75
8.93229167

5.10416667
12.6041667
34.6614583

7.035

Stringer top flange width (in):

Loading Type	Heavy Axle Wheel Load (k)		Tire Contact Parallel to Transverse		Number of boards tire rests on	Effective Wheel Load 'P' per board (k)	Minax due to L.L. (k/ft)	Live Load Banding Stress, fb (psi) (using...)		Live Load Compression Stress, fc perp. (psi) (using...)	
	24	32	Area (in ²)	Traffic (ln)				3x4's	3x6's	3x4's	3x6's
H15-44	24	32	12	210	15	6	2	3479.3	1409.0	113.7	113.7
HS20-44	32	32	16	300	15	6	2	4247.2	1719.9	151.6	151.6
School Bus	15.25	15.25	7.625	207.15	15	6	1.270833333	2216.7	897.7	72.3	72.3
OH 2S1	20	20	10	237.15	15	6	1.666666667	2825.5	1144.2	94.8	94.8
OH 3S1	17	17	8.5	218.7	15	6	1.416666667	2444.4	989.9	80.5	80.5
OH 4S1	14	14	7	198.45	15	6	1.166666667	2051.6	830.8	66.3	66.3
OH 5C1	17	17	8.5	218.7	15	6	1.416666667	2444.4	989.9	80.5	80.5

AA-SHTO AA-SHTO
3.25& 3.30 3.25& 3.30

Allowable Stress for Dense Commercial No. 65 Southern Yellow Pine

Design Value (psi)	Multipliers								F' values (psi)	
	Cd	CM	Ct	CL	CF	CV	Cc	Cb		
Fb	1650									1650
Fc'perp.	440									440

Rating Factors

Loading Type	Bending Stress Rating Factor = (Allowable-DL (negligible)) / (Live Load)		Compression Stress perp. to grain = (Allow.-DL (Neg.)) / (Live Load Stress)	
	3x4's	3x6's	3x4's	3x6's
H15-44	0.47	1.17	3.87	3.87
HS20-44	0.39	0.96	2.90	2.90
School Bus	0.74	1.84	6.09	6.09
OH 2S1	0.58	1.44	4.64	4.64
OH 3S1	0.68	1.67	5.46	5.46
OH 4S1	0.80	1.99	6.63	6.63
OH 5C1	0.68	1.67	5.46	5.46

Loading Type	Vehicle Gross Load (Tons)	Bending Stress Allowable Gross Load (tons) = rating factor * Gross veh. Weight		Compression Stress perp. to grain = Rating factor * Gross Veh. Weight	
		3x4's	3x6's	3x4's	3x6's
H15-44	15	7.11	17.57	58.04	58.04
HS20-44	36	13.99	34.54	104.47	104.47
School Bus	13	9.68	23.80	79.16	79.16
OH 2S1	15	8.76	21.63	69.65	69.65
OH 3S1	23	15.63	38.34	125.64	125.64
OH 4S1	27	21.72	53.62	179.09	179.09
OH 5C1	40	27.00	66.68	218.50	218.50

etc

Memo

To: Bridge Files
From: Stephanie Ann Goff, Assistant Engineer
Date: 11/10/98
Re: Change in Bridge Numbers

In 1998, the Logan County Engineer's Office had Mastermind Systems re-run the control point information for all of Logan County.

Therefore, all of the log points for the bridges have changed. In each file, a BR-87 was filled out showing the change in log points and this memo was attached to show the reason for the changes.

STRUCTURE FILE NO.	TRAN. CODE
4639014C	8

CARD	MPO CODE	CITY OR TOWN (FIPS)	ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX	DESIGNATION	PREF. ROUTE	4 FEATURE(S) INTERSECTED
9	10	12	17 18 19	20	24	25 26 27		
A				C0097				

5 INV. RTE. BRIDGE NO.	6	7	8	9	10	11	12	13
COUNTY	UNIT NUMBER	INVENTORY ROUTE A.D.T.	INVENTORY ROUTE A.D.T.	INVENTORY ROUTE A.D.T.	INVENTORY ROUTE A.D.T.	INVENTORY ROUTE A.D.T.	INVENTORY ROUTE A.D.T.	INVENTORY ROUTE A.D.T.
52	55	60	62	68	70	75	76	77 78 79 80
	0076							

CARD	NHS	MACRO COR	FUNCTIONAL CLASS	TOT. MIN. HORIZONTAL CLEAR	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.	DEFENSE	ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX	DESIGNATION	PREF. ROUTE	23 FEATURE(S) INTERSECTED
9	10	11	12	14	17	20			24	25	27	28	29	30	35 36 37 38
B															

24 INT. RTE. BRIDGE NO.	25	26
COUNTY	UNIT NUMBER	INTERSECTED ROUTE A.D.T.
63	66	71 73
		79 80

CARD	INTERSECTED ROUTE TRUCK TRAFFIC	NHS	MACRO COR	FUNCTIONAL CLASS	TOT. MIN. HORIZONTAL CLEAR	NON-CARD. OPENING	CARDINAL OPENING	DIR. TRAF NETWORK PARALLEL	DEFENSE	PRACTICAL MAXIMUM VERTICAL CLEARANCE	FT.	IN.	BY-PASS LENGTH	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS	TOLL	YEAR BUILT	YEAR MAJOR REHAB.	NO. LANES	HORIZ. CURVE	DEG.	MIN.	SKEW	UTILITIES	DESIGN LOADING
9	10	15	16	17	19	22	25	26 27 28	29	30			34	36	38	40	44	46	48	52	53	57	61	63	65	69	71	78	80
C																													

42	43	44	45	46	47	48
YEAR BUILT	YEAR MAJOR REHAB.	ON STRUCT.	UNDER STRUCT.	DEG.	MIN.	SKEW
57	61	63	65	69	71	78

CARD	APPROACH ROADWAY WIDTH	BRIDGE ROADWAY WIDTH (CB/CB)	DECK WIDTH (OUT/OUT)	MEDIAN TYPE	MED. OP./CL.	SIDEWALKS	CURBS	FLARED	COMPOSITE	RAIL TYPE	DECK DRAIN	DECK TYPE	EXT. DECK PRO.	AL. DECK PRO.	WEARING SURFACE	MAIN SPANS	APPR. SPANS	MAXIMUM SPAN LENGTH	OVERALL STRUCTURE LENGTH										
9	10	13	17	21	24	25	28	31	32	33	34	35	36	37	38	39	40	41	42	43	45	48	51	54	57	60	64	67	68
D																													

63	64	65	66	67	68	69
NUMBER	TYPE CODE	NUMBER	TYPE CODE	MAXIMUM SPAN LENGTH	OVERALL STRUCTURE LENGTH	DESIGN BR. LENG.
45	48	51	54	57	60	64

CARD	SUBSTRUCTURE										FOUNDATION			MIN. VERT. UNDERCLEAR. (MAIN LANES)		MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE				MINIMUM VERTICAL CLEAR ON BRIDGE		MINIMUM LATERAL CLEARANCE TO EDGE OF LANE				V.C. AT VERTICAL LIFT BRIDGE											
	ABUTMENTS					PIERS					ABUT.	PIERS																									
	REAR	FWD.	PREDOMINATE		OTHER		OTHER			REAR	FORWARD	PREDOM.	OTHER	OTHER	AVG. LENGTH ABUT. FOUND.	AVG. LENGTH PIER FOUND.	SCOUR CR.	CHAN. PROT.																			
	MATL.	TYPE	MATL.	TYPE	NUMBER	UNITS	MATL.	TYPE	NUMBER	UNITS	MATL.	TYPE	NUMBER	UNITS	MATL.	TYPE	REAR	FORWARD	PREDOM.	OTHER	OTHER	FT.	IN.	FT.	IN.	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	V.C. AT VERTICAL LIFT BRIDGE	
9	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	28	29	30	31	33	35	36	37	38	42	46	49	52	55	58	62	65	68	71	74	77	80
E																																					

77	78	79	80	81	82
MIN. VERT. UNDERCLEAR. (MAIN LANES)	MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE	MINIMUM VERTICAL CLEAR ON BRIDGE	MINIMUM LATERAL CLEARANCE TO EDGE OF LANE	V.C. AT VERTICAL LIFT BRIDGE	
42	46	49	52	55	58

CARD	LOAD RATING				PROPOSED IMPROVEMENTS										FUTURE A.D.T. (ON THE BRIDGE)		DESIGNATED INSPECTION FREQUENCY		INSP. RESP.		MAINT. RESP.		TYPE SERVICE						
	HS OPERATING RATING	HS INVENTORY RATING	OHIO % OF LEGAL RATING	YEAR	RAT. METH.	STREAM VELOCITY V-100	WAY ADO.	APPR. ALIGN.	TYPE WORK	METHOD	LENGTH OF IMPROVEMENTS	BRIDGE IMPROVEMENT COSTS (\$1000)	ROADWAY IMPROVEMENT COSTS (\$1000)	TOTAL PROJECT COSTS (\$1000'S)	YEAR OF COSTS	YR. FUT. A.D.T.	INSPECTION FREQUENCY	INSP. RESP.	MAINT. RESP.	TYPE SERVICE									
9	10	13	16	19	21	22	23	26	28	29	30	32	33	39	45	51	57	59	65	67	69	71	72	73	76	78	79	80	
F																													

92	93	94	95	96	97	98	99	100
YR. FUT. A.D.T.	INSPECTION FREQUENCY	INSP. RESP.	MAINT. RESP.	TYPE SERVICE				
65	67	69	71	72	73	76	78	79

G																																							
H																																							
I																																							

ENGLISH UNITS

RECEIVED
L.C. CO. ENGINEER
DATE

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE INVENTORY & APPRAISAL CODE SHEET 4 1998
CODED BY
DATE STAMP

No change

ALL ITEMS SHOWN IN RED LETTERS ARE MANDATORY WHERE APPLICABLE

BR-87 (REV. 1-95)
DOT-2853

PROCESSING KEY	
STRUCTURE FILE NO.	TRAN. CODE
4,6,3,9,0,1A	8
	C

1	2	3 INVENTORY ROUTE					4 FEATURE(S) INTERSECTED					5 INV. RTE. BRIDGE NO.		6	7	8	9				
CARD	MPO CODE	CITY OR TOWN (FIPS)	ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT, SUFFIX	DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER	INVENTORY ROUTE A.D.T.	A.D.T. YEAR	INVENTORY ROUTE TRUCK TRAFFIC	DIR. TRAF.	TEMP	NET	PAR					
9	10	12	17	18	19	24	25	26	27	52	55	60	62	68	70	75	76	77	78	79	80
A																					

ENGLISH UNITS

97-076

14	15	16	17 INVENTORY		18 INV.	19	20	21	22 INTERSECTED ROUTE					24 INT. RTE. BRIDGE NO.		25	26						
CARD	NHS	MACRO COR FUNCTIONAL CLASS	TOT. MIN. HORIZONTAL CLEAR	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.	DEFENSE	ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT, SUFFIX	DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER	INTERSECTED ROUTE A.D.T.	A.D.T. YEAR						
9	10	11	12	14	17	20		24	25	27	28	29	30	35	36	37	38	63	66	71	73	79	80
B																							

27	28	29	30	31 INTERSECTED ROUTE TRUCK TRAFFIC		32	33	34	35	36	37	38 COORDINATES			40	41	42	43	44	45 UTILITIES		47	48								
CARD	NHS	MACRO COR FUNCTIONAL CLASS	TOT. MIN. HORIZONTAL CLEAR	NON-CARD. OPENING	CARDINAL OPENING	DIR. TRAF	NETWORK PARALLEL	DEFENSE	PRACTICAL MAXIMUM VERTICAL CLEARANCE	BY-PASS LENGTH	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS	TOLL	YEAR BUILT	YEAR MAJOR REHAB.	NO. LANES	HORIZ. CURVE	DEG.	MIN.	SKEW	ELECT. GAS SAN. SEW. TELEPHONE	CABLE WATER OTHER	DESIGN LOADING				
9	10		15	16	17	19	22	25	26	27	28	29	30	34	36	38	40	44	46	48	52	53	57	61	63	65	69	71		78	80
C																															

49	50	51	52	53	54	55 CURBS		56	57	58	59	60	61	62	63 STRUCTURE TYPE		64	65	66	67	68	69								
CARD	APPROACH ROADWAY WIDTH	BRIDGE ROADWAY WIDTH (CB/CB)	DECK WIDTH (OUT/OUT)	MEDIAN TYPE	MED. OP./CL.	LEFT	RIGHT	FLARED	COMPOSITE	RAIL TYPE	DECK DRAIN	DECK TYPE	EXT. DECK PRO.	INT. DECK PRO.	THICKNESS (INCHES)	NUMBER	TYPE	NUMBER	TYPE	MAXIMUM SPAN LENGTH	OVERALL STRUCTURE LENGTH		REL. LENG.							
9	10	13	17	21	24	25	28	31	32	33	34	35	36	37	38	39	40	41	42	43	45	48	51	54	57	60	64	70	75	80
D																														

70	SUBSTRUCTURE				71 FOUNDATION				72	73	74	75	76	77 MIN. VERT. UNDERCLEAR. (MAIN LANES)		78 MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE		79 MINIMUM VERTICAL CLEAR ON BRIDGE		80 MINIMUM LATERAL CLEARANCE TO EDGE OF LANE				81	82												
CARD	REAR	FWD.	PREDOMINATE	OTHER	OTHER	REAR	FORWARD	PREDOM.	OTHER	OTHER	AVG. LENGTH	AVG. LENGTH	PIER FOUND.	SCOUR CR.	CHAN. PROT.	NON-CARD. OPENING	CARDINAL OPENING	NON-CARD. DIRECT	CARDINAL DIRECT	FT.	IN.	LEFT	RIGHT	LEFT	RIGHT	FT.	IN.	LEFT	RIGHT	LEFT	RIGHT	V.C. AT VERTICAL LIFT BRIDGE					
9	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	28	29	30	31	33	35	36	37	38	42	46	49	52	55	58	62	65	68	71	74	77	80
E																																					

83	LOAD RATING				84	85	86	87	88 PROPOSED IMPROVEMENTS					89	90	91	92	93	94	95	96	97	98	99	100				
CARD	HS OPERATING RATING	HS INVENTORY RATING	OHIO % OF LEGAL	RATING YEAR	RAT. METH.	STREAM VELOCITY V-100	WAY AID.	APPR. ALIGN.	TYPE WORK	METHOD	LENGTH OF IMPROVEMENTS	BRIDGE IMPROVEMENT COSTS (\$1000)	ROADWAY IMPROVEMENT COSTS (\$1000)	TOTAL PROJECT COSTS (\$1000'S)	YEAR OF COSTS	FUTURE A.D.T. (ON THE BRIDGE)	YR. FUT. A.D.T.	DESIGNATED INSPECTION FREQUENCY	INSP. RESP.	MAINT. RESP.			TYPE SERVICE						
9	10	13	16	19	21	22	23	26	28	29	30	32	33	39	45	51	57	59	65	67	69	71	72	73	76	78	79	80	
F	2	2	3	2	1	7	0	6	5	0	2																		

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE INVENTORY & APPRAISAL SHEET
EMPOWERED

REMARKS DATA RECORD DATE STAMP CODED BY DATE

Change posting due to wood floor. Scott wants sign to say 8, 15, 21, 27 see analysis

ALL ITEMS SHOWN IN RED LETTERS ARE MANDATORY WHERE APPLICABLE

Timber Decking Load Rating

Brig 136-6-88, W/O # 2925

Decking
Actual Board Width (in):
Span Length L (ft):

2.5
3.25
3x4 Boards Used:
3x6 Boards Used:

b (thickness) 2.5
d (depth) 2.5
A (in²) 3.5
S (in³) 6.75
I (in⁴) 5.10416867
Stringer top flange width (in): 7.035

Loading Type	Heavy Axle Load (kips)	Wheel Lead (ft)	The Distribution		Number of boards the wheel rests on	Effective Wheel Load (k)	Minax due to L.L.	Live Load Bending Stress, fb (psi) (using...)	Live Load Compression Stress, fc perp. (psi) (using...)
			The Contact Area (in ²)	Parallel to Traffic (in)					
H15-44	24	24	12	210	15	2	1.47898983	3479.3	1409.0
HS20-44	32	32	16	300	15	6	2.66666667	4247.2	1719.9
School Bus	15.25	15.25	7.625	207.15	15	6	1.27083333	2216.7	897.7
OH 2S1	20	20	10	237.15	15	6	1.66666667	2925.5	1144.2
OH 3S1	17	17	8.5	218.7	15	6	1.41666667	2444.4	989.9
OH 4S1	14	14	7	198.45	15	6	1.16666667	2051.6	830.8
OH 5C1	17	17	8.5	218.7	15	6	1.41666667	2444.4	989.9

AASHTO AASHTO
3.258 3.30 3.258 3.30

Allowable Stress for Dense Commercial No. 65 Southern Yellow Pine

Design Value (psi)	Multipliers										F values (psi)	
	CD	CM	CR	CL	CF	CV	CH	CR	CC	CF		CB
F _v	1650											1650
F _c perp.	440											440

Rating Factors

Loading Type	Bending Stress Rating Factor = (Allowable-DL (negligible)) / (Live Load)		Compression Stress perm. to grain = (Allow-DL (Neg.)) / (Live Load Stress)	
	3x4's	3x6's	3x4's	3x6's
H15-44	0.47	1.17	3.87	3.87
HS20-44	0.39	0.96	2.90	2.90
School Bus	0.74	1.94	6.09	6.09
OH 2S1	0.58	1.44	4.64	4.64
OH 3S1	0.88	1.57	5.46	5.46
OH 4S1	0.80	1.99	6.63	6.63
OH 5C1	0.68	1.87	5.46	5.46

Loading Type	Vehicle Gross Load (Tons)	Bending Stress Allowable Gross Load (tons) = rating factor * Gross Veh. Weight		Compression Stress perm. to grain = Rating Factor * Gross Veh. Weight	
		3x4's	3x6's	3x4's	3x6's
H15-44	15	7.11	17.57	58.04	58.04
HS20-44	36	13.99	34.54	104.47	104.47
School Bus	13	9.99	23.90	79.18	79.18
OH 2S1	15	8.76	21.63	69.65	69.65
OH 3S1	23	15.13	38.34	125.64	125.64
OH 4S1	27	21.72	53.62	179.09	179.09
OH 5C1	40	27.00	68.68	218.50	218.50

Reduce based on 3x4 decking.
post ~ 35% reduction
8
15
21
27

RESOLUTION NO. 603-02

The Board of Logan County Commissioners of Logan County met in regular open session on this date of December 31, 2002 with the full Board present.

Mr. Russell Forsythe moved that the following Resolution be Adopted:

**RE: LOAD LIMIT REDUCED ON BRIDGE 97-0.76 IN
RICHLAND TOWNSHIP DUE TO DETERIORATION**

WHEREAS as a result of the annual bridge inspections, it has been determined that the deterioration of the above mentioned bridge warrants the reduction of the maximum weight of vehicle and load, and

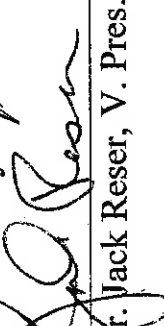
WHEREAS Scott C. Coleman, Logan County Engineer, recommended that the maximum weight of vehicle and load crossing Bridge 97-0.76 in Richland Township have a 35% reduction placed on it in accordance with Section 5577.071 of the Ohio Revised Code,

THEREFORE BE IT RESOLVED by the Logan County Commissioners to authorize the Logan County Engineer to reduce to 35% the maximum weight of vehicle and load on Bridge 97-0.76 in Richland Township.

Mr. Jack Reser seconded the motion.

Roll Call resulted as follows:

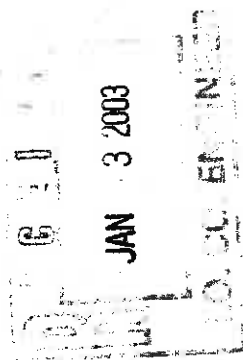

Mr. John Bayliss, Pres. *Yes*


Mr. Jack Reser, V. Pres. *Yes*


Mr. Russell Forsythe, Member *Yes*

I, Judith L. Grove, Clerk/Adm. 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 December 31, 2002.


Judith L. Grove, Clerk/Adm.



OFFICE OF THE
LOGAN COUNTY ENGINEER

P.O. Box 427
1991 Rd. 13
Bellefontaine, Ohio 43311

SCOTT C. COLEMAN, P.E., P.S.
Engineer

Telephone: (937) 592-2791
Fax: (937) 599-2658
www.co.logan.oh.us

December 31, 2002

The Honorable Board of
Logan County Commissioners
Bellefontaine, OH 43311

RE: Changing in the Load Limit on Bridge 97-0.76

Dear Commissioners:

As a result of our annual bridge inspections and a load rating review of the timber decking, it has been determined that the deterioration of the above mentioned bridge warrants the reduction of the maximum weight of vehicle and load, and I recommend the following:

Bridge	Recommended load limits
Bridge 97-0.76 Richland Township	35% reduction

Therefore, in accordance with Section 5577.071 of the Ohio Revised Code, I am requesting that your honorable board adopt a resolution reducing the maximum weight of vehicle and load on the above mentioned bridge.

Sincerely,



Scott C. Coleman P.E., P.S.
Logan County Engineer

FILE COPY

WRITTEN CONTRACT

On acceptance of the proposal for said work _____ do hereby bind
myself or ourselves this _____ day of _____, 1958,
I or we

to enter into a written contract with the Logan County Engineer within
ten (10) days from date of notice of award.

IF AN INDIVIDUAL, SIGN BELOW:

Name _____ Address _____

IF AN INDIVIDUAL DOING BUSINESS UNDER A TRADE NAME, SIGN BELOW:

Trade Name _____ Address _____

By _____ Sole Owner

IF A PARTNERSHIP, SIGN BELOW:

Name of Partnership _____ Address _____

By _____

Partner _____ Address _____

Partner _____ Address _____

Partner _____ Address _____

Partner _____ Address _____

IF A CORPORATION, SIGN BELOW:

Name of Corporation _____

Incorporated under the laws of the State of _____

By _____ Signature _____

Title of officer signing

SIMPLE SPANS

Dr. 97-0.76



ROADWAY = 28'-0"

FLOOR = 3" x 4" STRIP @ 50#/cu ft + 20# 29 ft @ 100#

BEAM = 35/25 = 1.40 Assume 18 WF 50 @ 3'-3" 1/2

LOADING HS 20-44

DEAD LOAD

$$\text{FLOOR} = \frac{50}{3} \times 30 \times 3.25' = 467 \times 3.25' = 151.5 \text{ lb/ft}$$

$$\text{BEAM } 18 \text{ WF } 50 = 50.0 \text{ lb/ft}$$

DIAPHRAGMS, ETC.

$$= 8.5 \text{ lb/ft}$$

$$\Sigma DL = 210.0 \text{ lb/ft}$$

$$DLM = \frac{210 \times 35^2}{8} = 3220 \text{ ft. lbs}$$

$$ML = 361.2 \times 2 = 180.6 \text{ k'}$$

$$I = \frac{50}{160} = 0.3125 \text{ USE } 0.3 \text{ MAX}$$

$$IL = 180.6 \times 0.3 = 54.2 \text{ k'}$$

$$ML + IL = 234.8 \text{ k'}$$

$$DLM = 3.2 \text{ k'}$$

$$\Sigma M = 238.0$$

$$S = \frac{238 \times 12}{22} = 129.5 \text{ in}^3$$

$$21 \text{ WF } 68 = 139.9$$

Pr. 97-0.76

11/5/20
P.U.D.

Flow Channel Bottom = 20'

Flu Elev Stream = 1021.1

Grade Elev = 1032.8

Difference = 11.7'



Use OVERALL LENGTH OF BEAM = 70.0'

Area of Sec. = $20 \times 11.7 + 23.4 \times 11.7 = 507 \text{ ft}^2$

Use 3 span continuous 28' 35' 28"

Design Reg. S.H.D.

Waterway Req'd = $60\% \times 1160 = 696 \text{ sq. ft.}$

Waterway Furnished

$$\frac{84 + 30 \times 9}{2} = 513 \text{ sq. ft.}$$

20



16 W F 4 S



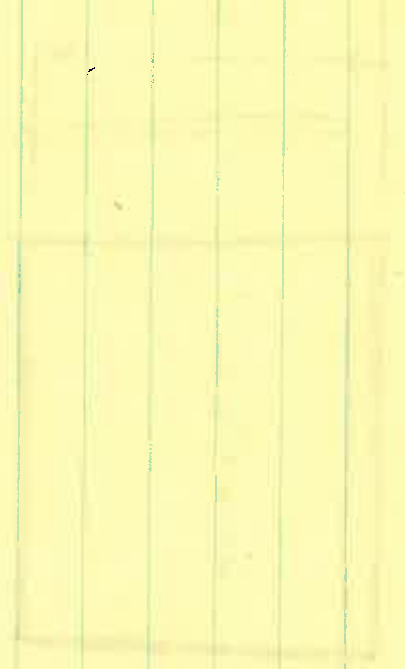
$\frac{3}{8}$ "

Welded Rod
 $8 \times 9 \times \frac{1}{2}$

$2 \times 2 \times 1 \frac{1}{2} \times 9$



$10 \frac{1}{2}$ "



6 Beams

93-6' Floor %

999919

$$93.5 \div 1.8 = 62.3$$

6

$$93 = 62 \times 5 = 310$$

919191919

mat.

$$14 \times 93.5 = 1309 \text{ sq ft} \quad \$1090$$

$$\text{Labor} = 499 \div 1309 = 38¢$$

$$\text{Equip.} = 162.3 \div 1309 = 12¢$$

FLOORING

$$93.5 \times 28' = 2618 \text{ sq ft}$$

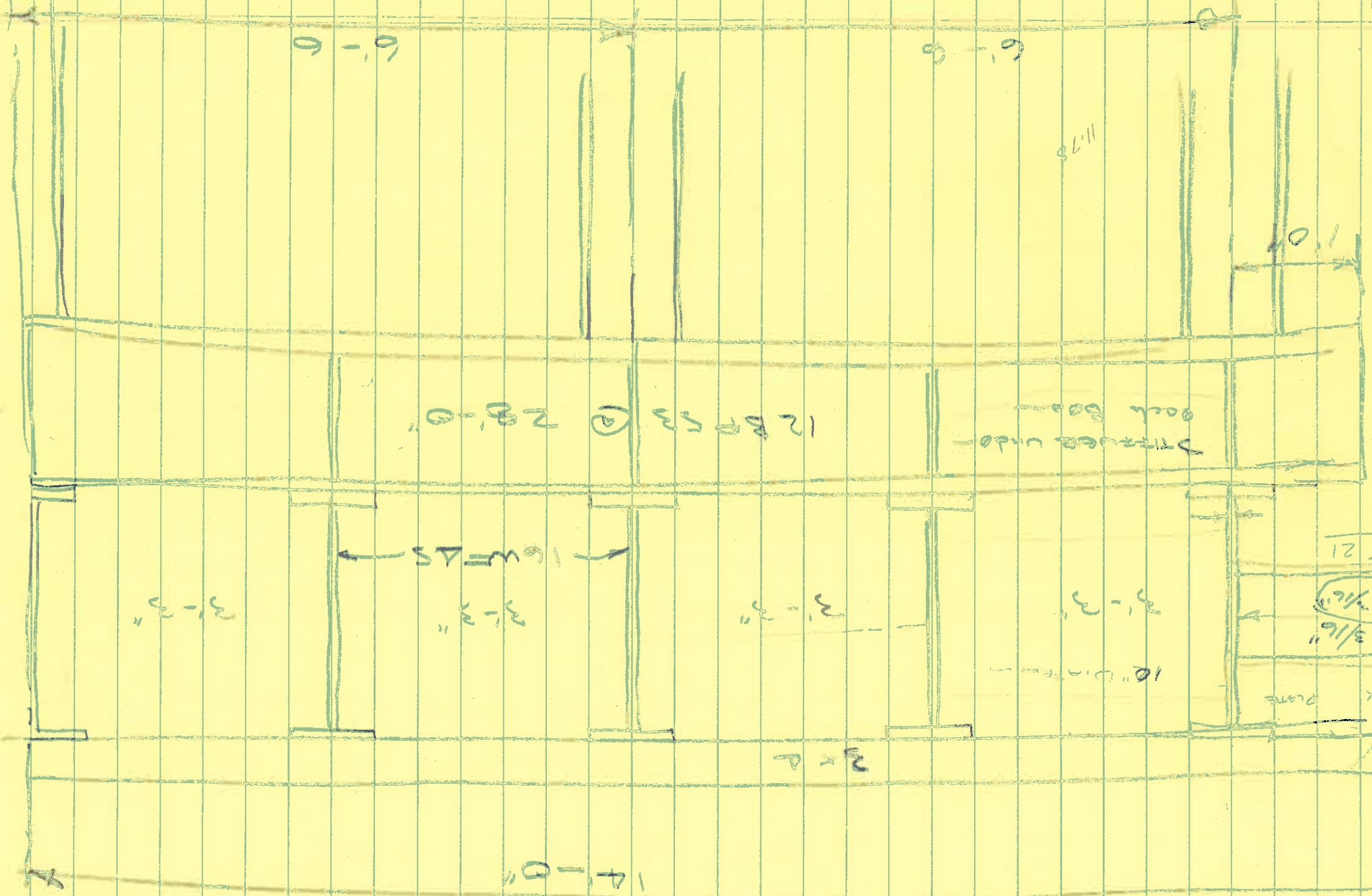
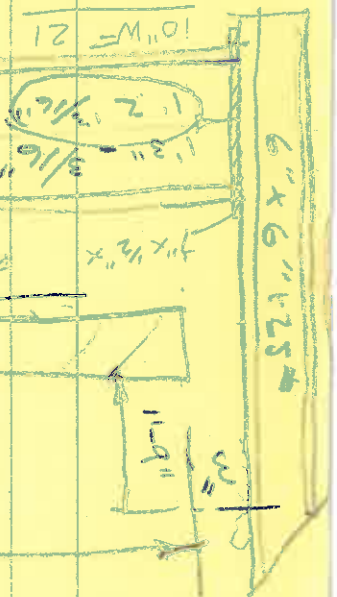
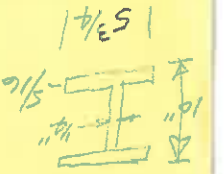
$$2 \times 4" \times 168" = 1344 \text{ sq in} \div 144 = 9.333 \text{ bd ft}$$

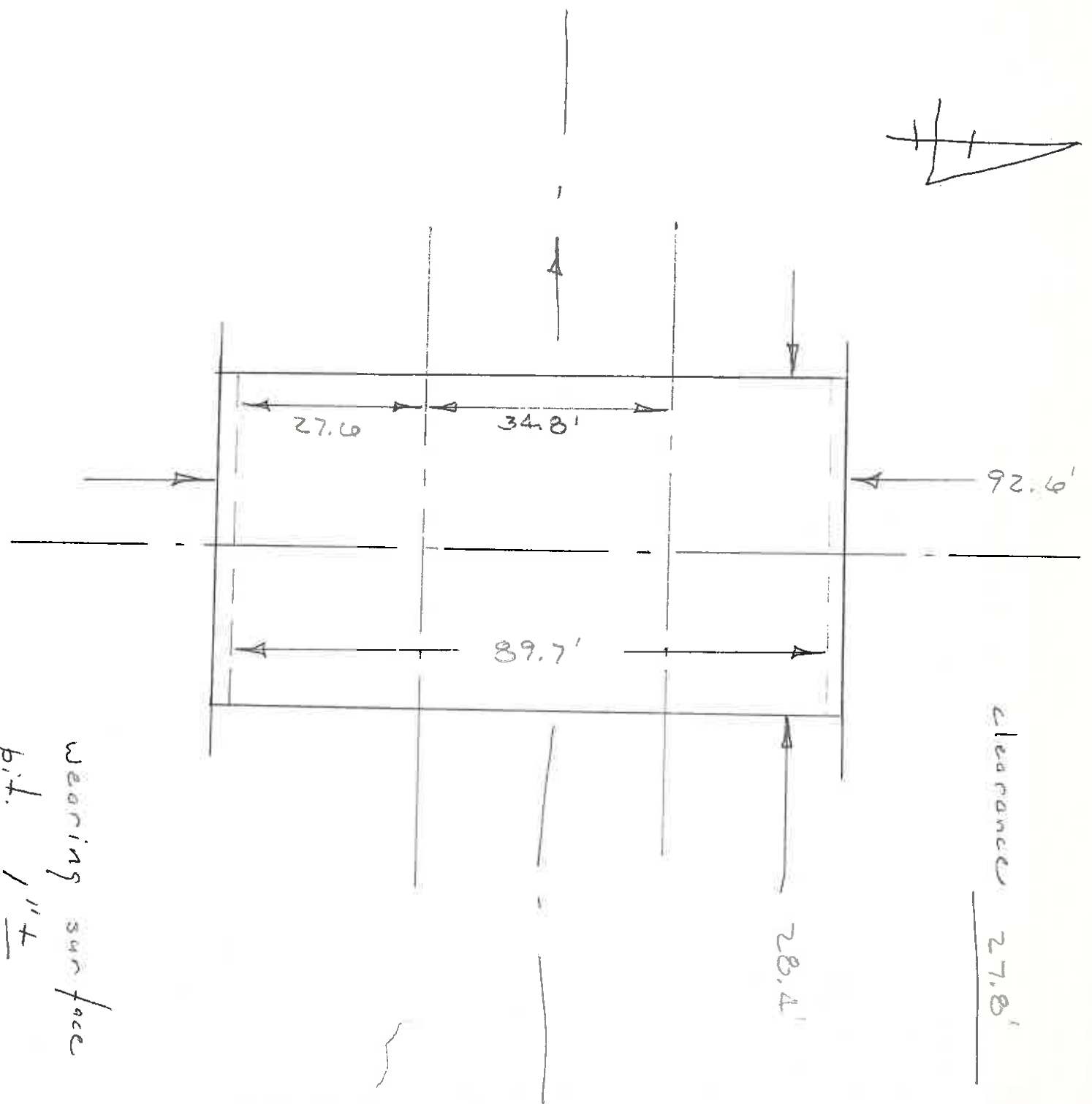
$$9.333 \times 67¢$$

Labor Steel

$$552 \times 24¢ = 13,248¢ = \$0.02316$$

$$\text{Equip. steel} \quad \$0.0116$$





clearance 27.8'

wearing surface
bit. 1" ±

pavement width 21.0'
rdwy. width 30.0'

Max Pos. Mom. 35' span

$$M_D = 0.0670 \times 0.24 \times 28^2 = 12.6$$

$$M_L = 216.0 \times 0.405 = 87.5$$

$$M = 0.295 \times 87.5 = \underline{25.8}$$

$$\Sigma M = 125.9 \text{ k'}$$

$$S = \frac{125.9 \times 12}{22} = 68.7 \text{ in}^3$$

$$16W = 45 = 72.4 \text{ in}^3$$

Max Neg. Mom.

$$M_D = 0.1286 \times 0.24 \times 28^2 = 24.2$$

$$M_L = 193.9 \times 0.405 = 78.5$$

$$M = 78.5 \times 0.3 = \underline{23.6}$$

$$\Sigma M = 126.3 \text{ k'}$$

$$S = \frac{126.3 \times 12}{22} = 68.9 \text{ in}^3$$

$$16W = 45 = 72.4 \text{ in}^3$$

MAX REACTION AT RIGHT

at P.O.C.

$$R_D = 3714 \times .24 \times 28 = 24.5$$

$$R_L = 1,2536 \times .24 \times 28$$

$$R_L = \underline{45.0}$$

$$= 8.0$$

$$R_L = 63.0$$

$$\Sigma R = 47.5 \text{ k'}$$

$$\Sigma R = 71.4 \text{ k'}$$

BY _____

Roadway

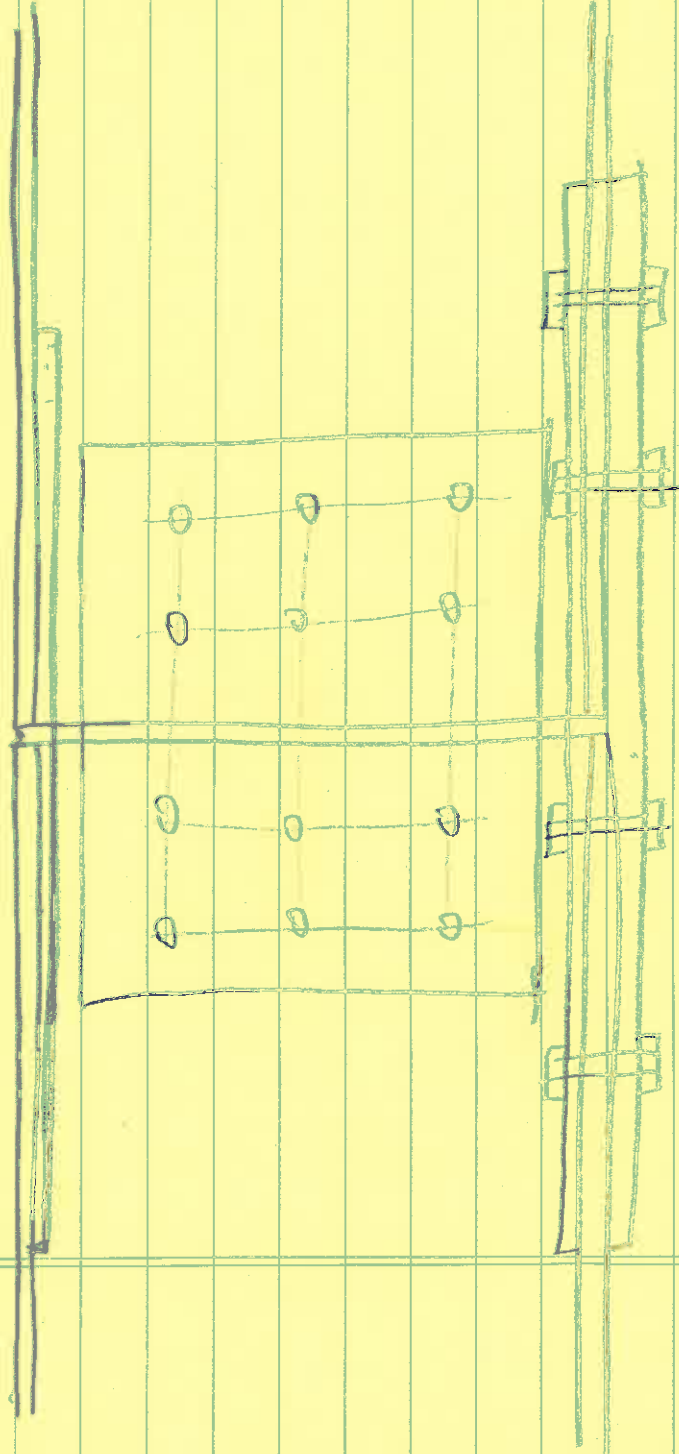
For _____

Date _____

ITEM	APPROXIMATE QUANTITIES	UNIT	DESCRIPTION	UNIT COST	TOTAL COST	P.O.	STOCK	ACC'T CHECK	REMARKS
409	215	GAL	MC 3000 SEAL COAT BITUMINOUS MATERIAL	19	40 85		X		
409	5.5	TON	No 8 STONE	4 00	22 00	X			
304	120	TON	AGGREGATE BASE COURSE	4 00	480 00	X			
310	96	TON	SUB-BASE	4 00		X			
408	215	GAL	BITUMINOUS PRIME COAT	19	40 85		X		
	520	CY	FILL FOR WIDENING SHOULDERS	50	260 00	X			
	200	L.F.T.	10 GA. DEEP BEAM GUARD RAIL	1 00			X		
	4	EA	TIMBER GR. POST	3 25					
	4	EA	GUARD RAIL TERMINAL	7 25					
			TOTAL MATERIAL (ROADWAY)		843 70				

To STRUCTURE

$$\begin{array}{r} 7 \\ 12.5 \overline{) 910} \\ \underline{875} \\ 350 \end{array}$$



1' 1/2" x 3/8" x 1/2"

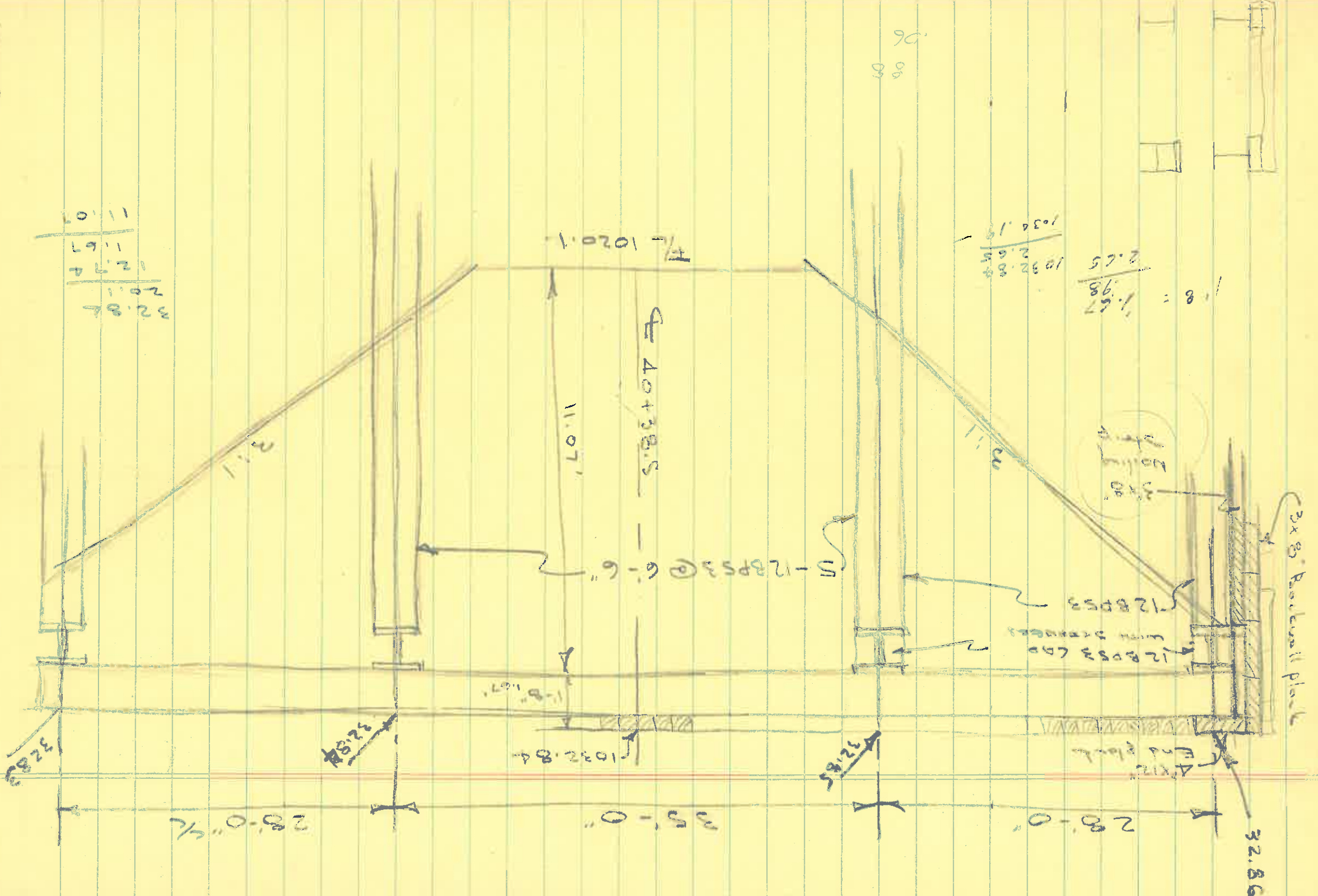
2' 1/2" x 3/8" x 1' 9 1/2"



6" x 3/8" x 1' 9 1/2"

11/16/76
D.W.B.

Be. 97-0.76



1032.84	2.65	1.67	= 8
1036.19	2.65	2.65	

11.07	1.67	12.74
32.86	20.11	2.74

32.86

32.86

28'-0" / 2

28'-0" / 2

28'-0" / 2

40x38.5

12BPS3 @ 6'-6"

12BPS3 CDD
wall studs

3x8 Backwall plate

End plate

3x8
Backwall plate

06
08

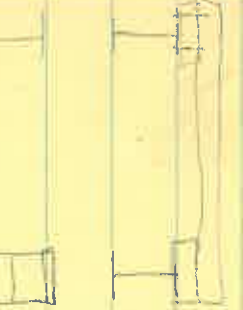
11'-07"

11'-07"

10'-32.84"

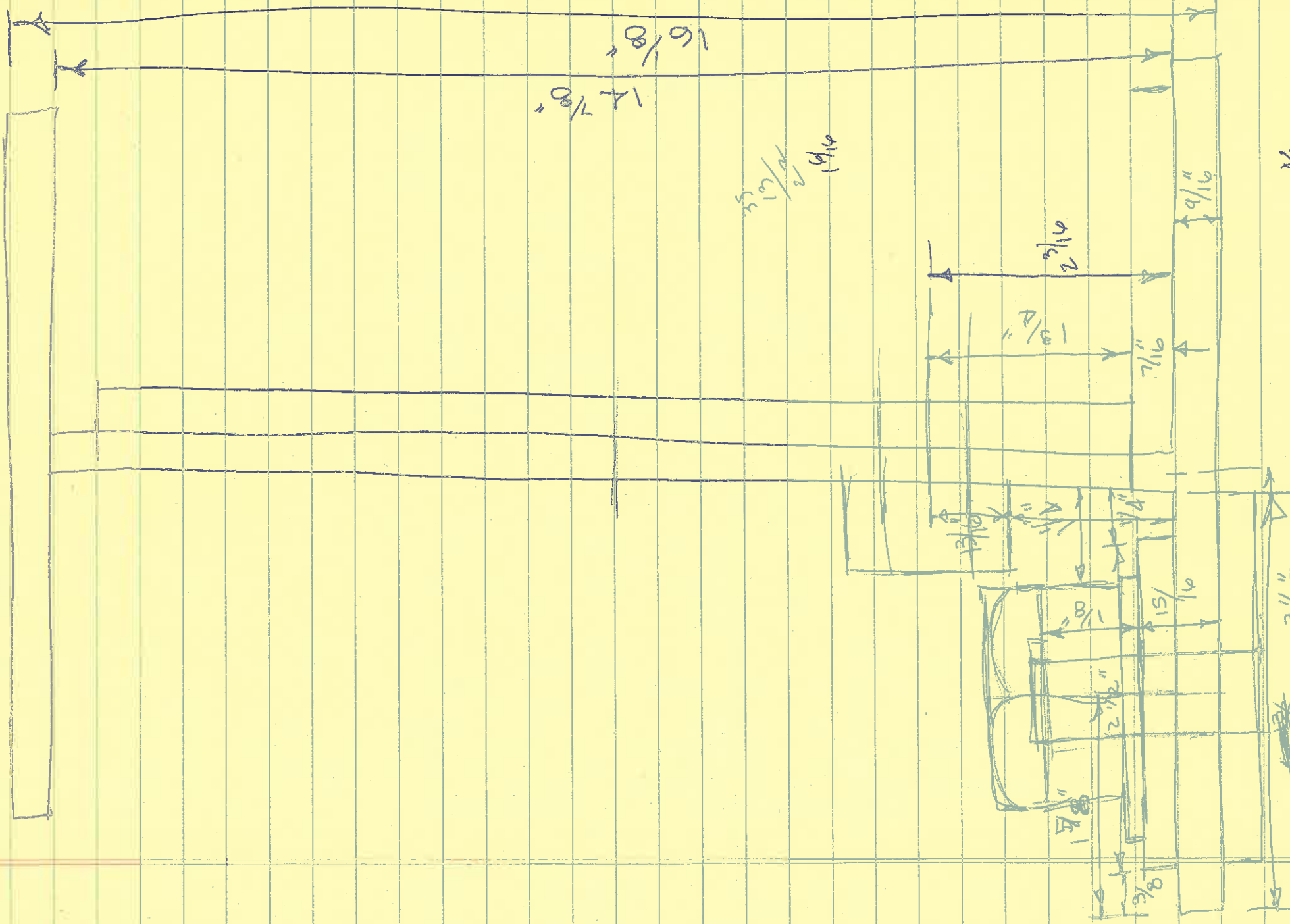
1032.84
2.65
1036.19

1.67
2.65



Splice Detail

$\frac{9}{16}$
 $\frac{16}{8}$
 $\frac{11}{16}$



12 7/8"
16 1/8"

19 1/2"

9 1/16"
13 1/2"
2 1/16"
9 1/16"

2 1/2"
1 1/2"
1 5/16"
3 1/8"
3 1/8"
2 7/8"
3 1/8"

2 1/4"
5 1/2"
2 1/4"
3 1/8"

2 1/4"
5 1/2"
2 1/4"
3 1/8"

3 1/8"

July 17, 1972

The Honorable Board of
Logan County Commissioners
Mount Pleasant
Bellefontaine, Ohio

Re: Bridge No. 97-076
Richland Township

Gentlemen:

Bridge No. 97-076 is a 50 foot span
 Pratt Truss with 2.0 foot tail spans and
 15'-6" roadway. The structure is in very
 poor condition and is presently posted for
 a 95% reduction of legal loads.

It is proposed to replace the existing structure
 with a continuous steel beam bridge having
 spans of 28'-38'-28' and 28 foot roadway

The estimated cost of this improvement
 is as follows:

Material	16,000 ⁰⁰
Labor	7,000 ⁰⁰
Equipment	3,000 ⁰⁰
Retirement	490 ⁰⁰
Workers Compensation	210 ⁰⁰
Engineering	1,000 ⁰⁰

Total Cost of Project \$27,700⁰⁰

You are hereby advised the construction
 of this improvement will require the closing to
 traffic of that portion of C.H. 97 from
 C.H. 96 to S.R. 273 for a period of

1972

Logan County Commissioners
Court House
Bellevue, Ohio

Gentlemen:

We propose to furnish the Beams of County Commissioners of Logan County, Ohio, freight prepaid, the following material, fabricated to the Logan County Engineer's plans and specifications.

PROJECT:

LOGAN COUNTY BRIDGE No. 97-0.76

LOCATED 0.8 MILE NORTH OF NEW RICHMOND
ON COUNTY HIGHWAY No. 97

ITEM	DESCRIPTION	QUANTITY	LENGTH
1	16 WF 45	9	36'-9"
2	16 WF 45	9	55'-3"
3	12 BP 53	24	30'-0"
4	12 BP 53	4	28'-0"
5	10 WF 21	64	3'-2 ⁵ / ₈ "
6	10 WF 21	30	1'-2 ³ / ₁₆ "
7	6 WF 25	30	3'-10"
9	SPlice Plate	18	1'-1 ¹ / ₂ " x 1'-2" x 3/8"
10	"	9	1'-9 ¹ / ₂ " x 6" x 3/8"
11	"	36	1'-9 ¹ / ₂ " x 2 ¹ / ₂ " x 3/8"
12	6" x 4" x 1/2" ANGLE	48	6"
13	2" x 2" x 1/4" ANGLE	54	9"
15	NEOPRENE PAD	27	8" x 9" x 1/2"
16	1" BOLTS (ASTM A325)	215	3"

All structural steel to be ASTM A-36.

July 17, 1972

Logan County Commissioners
Court House
Bellefontaine, Ohio

Gentlemen:

We shall receive quotations of the
Office of the Logan County Engineer,
T. Dewater Road, Bellefontaine, Ohio, until
10:00 A.M. Daylight Savings Time, August
1, 1972 on the attached forms only
for the purpose of supplying structural
steel for Logan County Bridge No. 97-0.76.

The Logan County Commissioners reserve the
right to reject any or all quotations.

Very truly yours

C. E. K. P. E.

Co. Co. Eng.

Att: Quotation sheet
Bridge Plan

7/10/72

97-0.97

ADDITIONAL MATERIAL

6 x 4 x 1/2 x 6" L^s 48 pcs

48 x .15 x 16.2" = 388.8"

2 x 2 x 1/4 x 9" L 54 pcs

54 x .75 x 3.19" = 129.2"

518"

NEOPRENE PADS 27 PCS

8" x 9" x 1/2"

48 3 1/2"

$$\begin{array}{r}
 254 \quad 928 \\
 132 \quad 189 \\
 \hline
 7960 \quad 4161 \\
 9 \quad 252 \\
 \hline
 18708
 \end{array}$$

$$\begin{array}{r}
 1001 \quad 800 \\
 252 \quad 144 \\
 \hline
 1001 \quad 1008
 \end{array}$$

$$\begin{array}{r}
 1001 \quad 800 \\
 252 \quad 144 \\
 \hline
 1001 \quad 1008 \\
 252 \quad 144 \\
 \hline
 252 \quad 144
 \end{array}$$

$$\begin{array}{r}
 28 \\
 6 \\
 \hline
 252
 \end{array}$$

$$\begin{array}{r}
 28 \\
 6 \\
 \hline
 252
 \end{array}$$



$$\begin{array}{r}
 .82 \\
 \hline
 .2 \\
 \hline
 .164
 \end{array}$$

~~285.5~~
~~518.5~~
~~232.8~~
~~285.5~~

5.15.0

Richard Township

Bridge 97-0.76

Station
 EUB Area CUT
 EUB Area FILL
 DIRT
 SUM CUT
 SUM FILL
 (cu yds) CUT
 (cu yds) FILL

Station	EUB Area CUT	EUB Area FILL	DIRT	SUM CUT	SUM FILL	(cu yds) CUT	(cu yds) FILL
36+00	0	0	100	2	34	4	63
37+00	2	34	100	4	73	7	135
38+00	2	39	100	4	81	7	150
39+00	2	34	92	4	76	7	130
39+92	2	42					
40+85	40	0	85	80	0	126	0
41+00	40	0	100	59	17	109	31
42+00	19	17	100	21	41	39	76
43+00	2	24	100	2	57	4	106
44+00	0	33	100	0	56	0	104
45+00	0	23	100	0	23	0	43
46+00	0	0					

CUT FOR PUMPT
 To fill
 303
 115
 418

39+92 S.EUB BR
 40+85 N.EUB BR

32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1



RA 97 - 0.75

A-4865

1960

Map located

305

R. L. H. H.

James

316

W. L. H.

Alan

306

William

Chambers

304

2nd horizontal
of detector
at 1500

9/15

9/20

9/21

9

9

9

9

9

17 min. 18 min. 33 min. 2.1 min. 1.7 min. 1.4 min. 1.2 min. 1.1 min. 1.0 min. 0.9 min. 0.8 min. 0.7 min. 0.6 min. 0.5 min. 0.4 min. 0.3 min. 0.2 min. 0.1 min.

22.31
9" x 4" x 16"
1/2" x 5 1/2" holes
1 1/8" x 18" holes

13px = 139 M.H. @ 0.12
10 @ 0.13
8 @ 0.15

1668
130
2291
0.80

09 @ 6.50

585

note

Outback

0.9 km @ 6.50

4 885

585

Jameson

109 M.H. @ 0.12

1668

130

2291

1 1/8" x 18" holes
10 @ 0.13
10 @ 0.15

Jameson

109 M.H. @ 0.12

1668

16484

W. L. H. H. & Jameson

109 M.H. @ 0.12

1668

692

Jameson & Jameson
109 M.H. @ 0.12
10 @ 0.13
10 @ 0.15

1668

2291

109

62

102

102

102

102

102

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102

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102

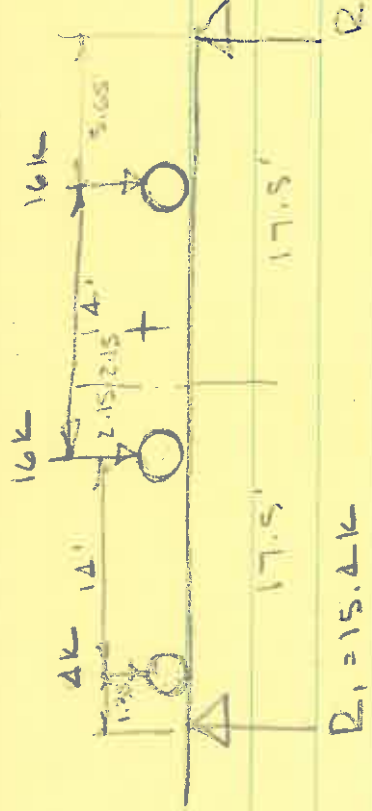
102

102

102

102

H520-44



$$R_1 = 15.4k$$

$$R_2 = 20.6k$$

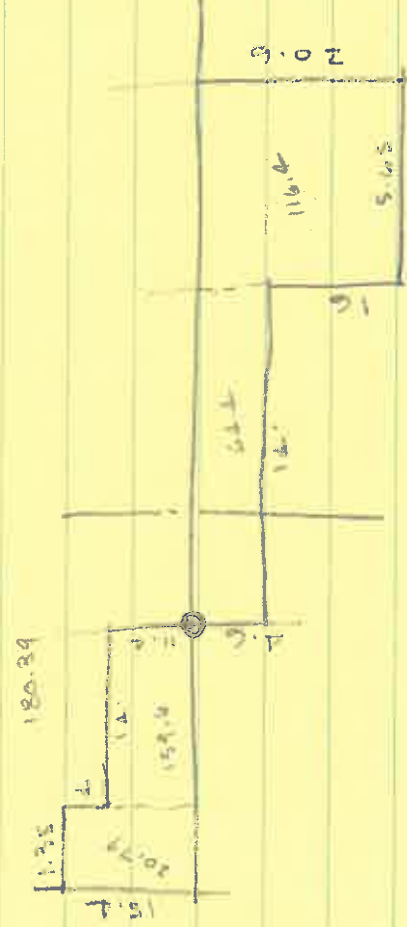
$$\sum \zeta = (14)(16) + (20)(16) + 30 = 18.7 \text{ from } 4k \text{ load}$$

$$\sum \zeta = 35R_2 - (29.35)(16) - (15.35)(16) - (1.35)(4) = 0$$

$$R_2 = 20.59$$

$$= 35R_1 - (33.65)(4) - (19.65)(16) - (5.65)(16) = 0$$

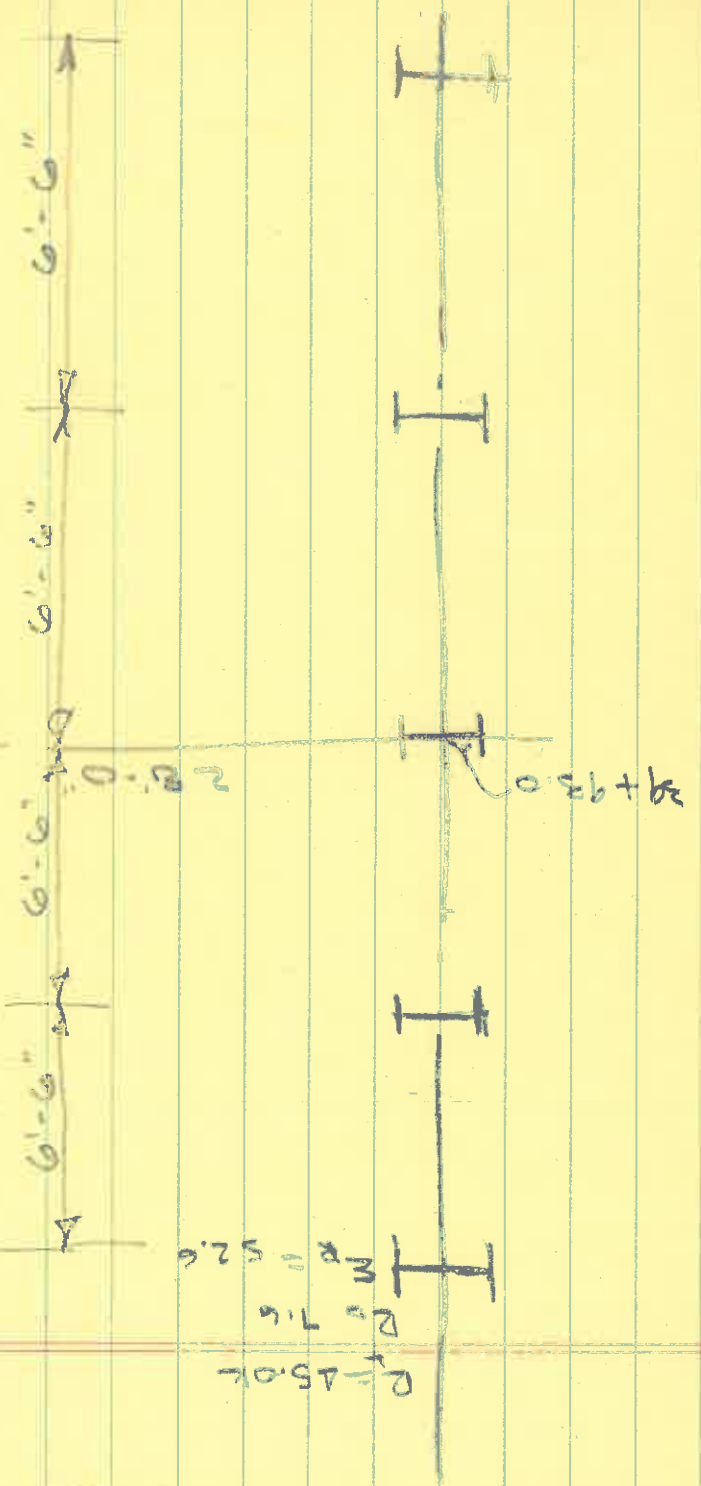
$$R_1 = 15.41$$



P.L.C. Piping 12 BR 53 @ 6-6" / c
 20 psi 12 BR 53 @ 30' = 600 L.F.

$R = 150'$
 $D = 7.6$
 $E = 52.6$

$R = 62.4$
 $D = 2.10$
 $E = 83.4$



To Drive Pipe
 20
 To Bend

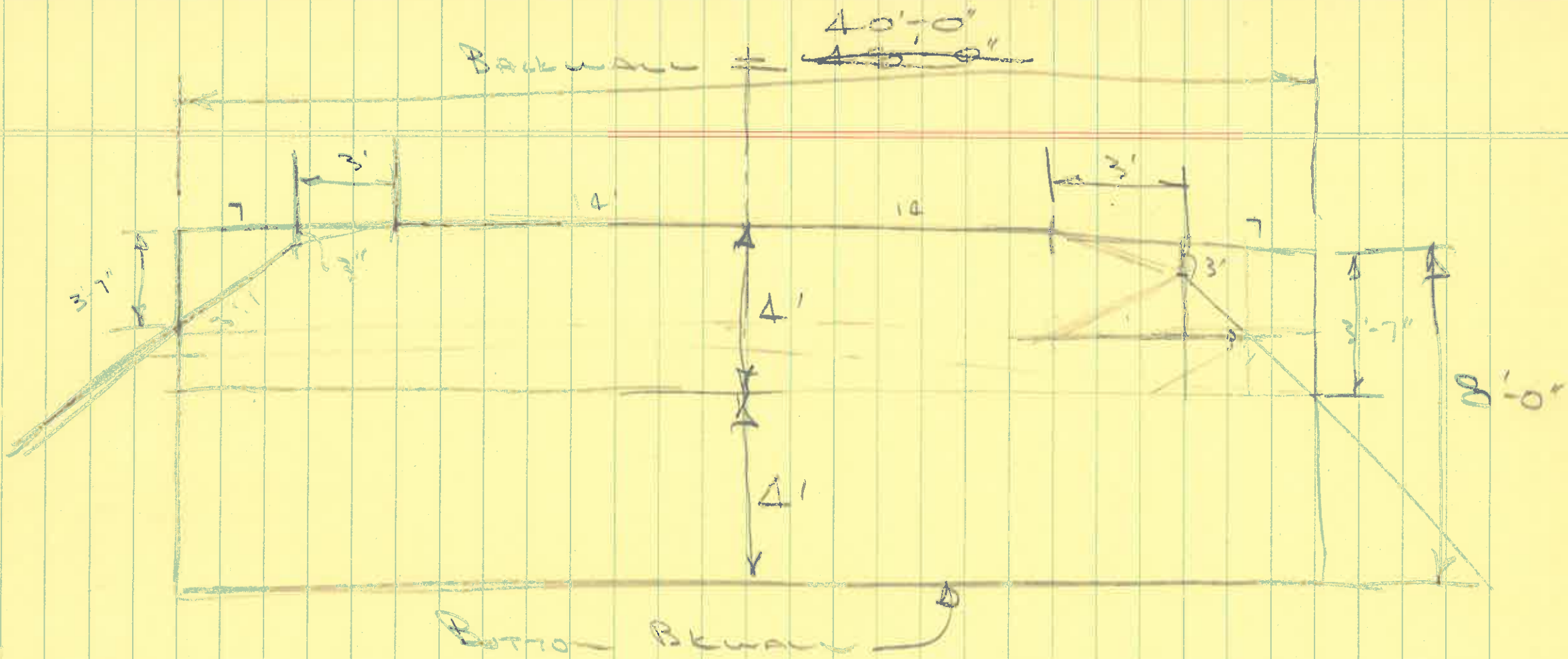


12 BR 53



Dr. 97-0.76

01/11/11
 D.S.S.



38+00 1032.91
 39+92 = 1032.84
 40+85 = 1032.84 46.5
 41+00 1032.74

39+92
 +46.5
 40+38.5

38+00 1032.91
 39+00 1032.87
 41+00 1032.84
 42+00 1032.80
 43+00 1032.77
 44+00 1032.74

3.15 / .10.00 .00028
 945
 55

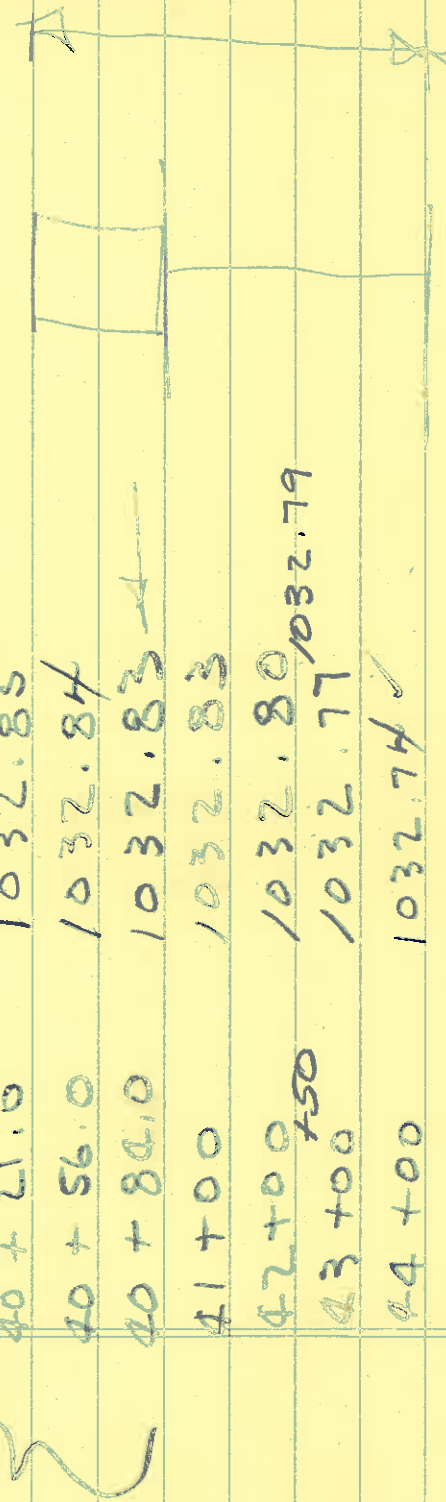
23

.15
 .03
 6045
 91
 74
 17
 600283
 600 | 1700
 1200
 5000
 4800
 2000

10
 +00
 9

192 238.5
 38+00 1032.91
 39+00 39+15 1032.88
 39+93.0 1032.86 1032.88
 40+21.0 1032.85
 40+56.0 1032.84
 40+84.0 1032.83
 41+00 1032.83
 42+00 1032.80
 43+00 450 1032.77 1032.79
 44+00 1032.74

45.5
 93
 4038.5



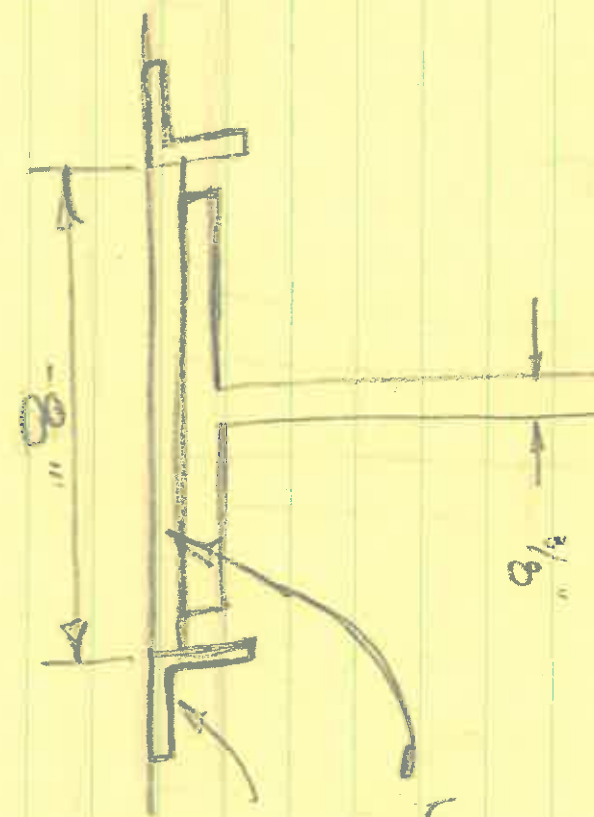
PROP. PROFILE

11.78"

97-



16W48



Diagonal Rod
 8. x 9 x 1/2
 2 x 2 x 1/2 L x 9"

18
 54

6 Doors

93-6' Floor - %

9 9 9 9 9

$$93.5 \div 1.5 = 62.3$$

6

$$93 - 62 \times 3 = 310$$

9 1 9 1 9 1 9

$$14 \times 93.5 = 1309 \text{ sq ft} \quad \text{mat.} \quad 1094$$

$$L_{500} - 299 \div 1309 = 384$$

$$\text{Equip.} = 102.3 \div 1309 = 124$$

FLOORING

$$93.5 \times 28' = 2618 \text{ sq ft}$$

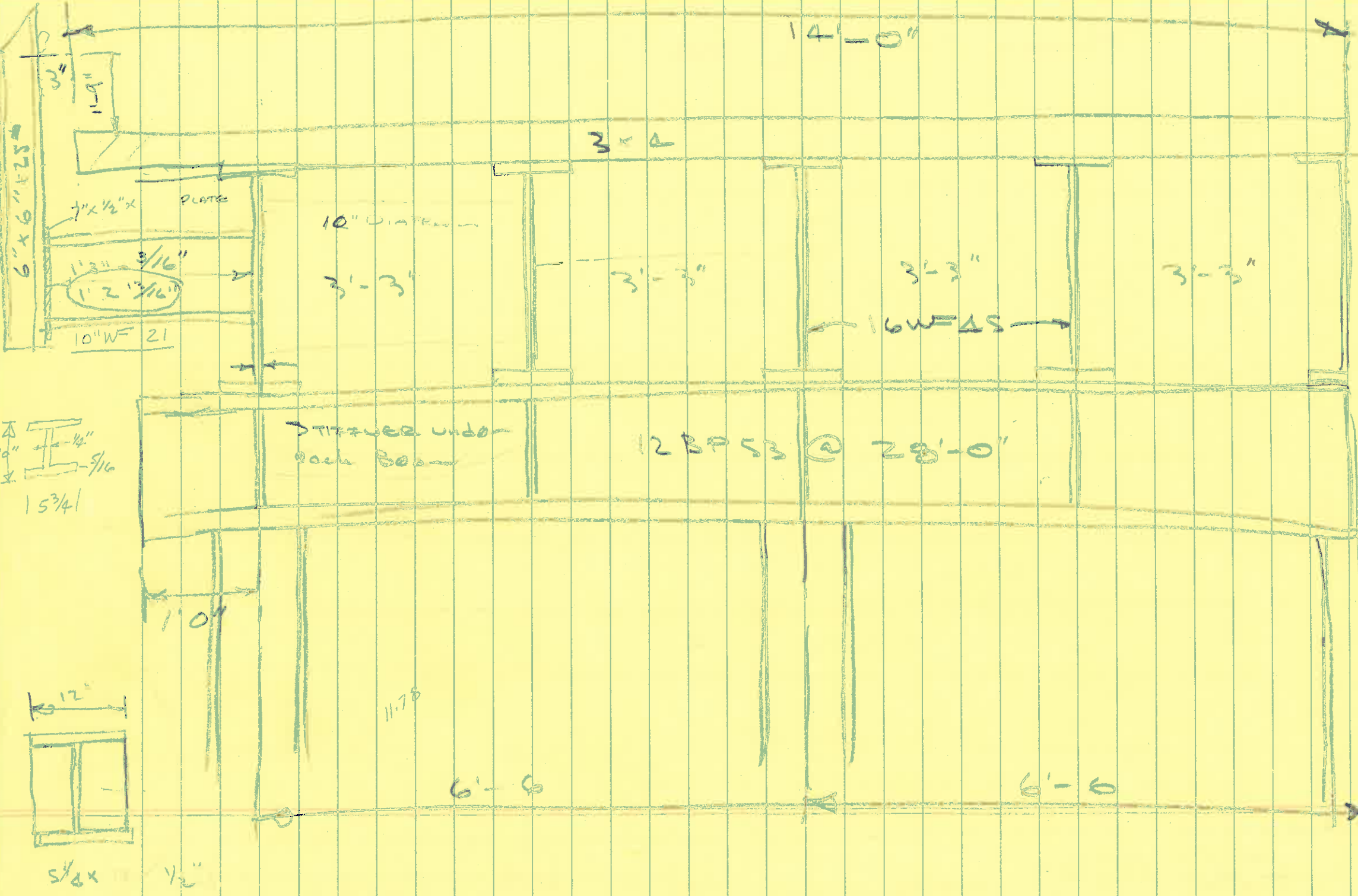
$$2' \times 4' \times 168" = 1344 \text{ cu in} \div 144 = 9.333 \text{ bd ft}$$

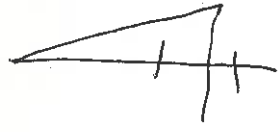
$$9.333 \times 674$$

Labors Steel

$$592 \times 24' = 13,248' = 8 \text{ @ } 2516$$

$$\text{Equip. Steel} \quad 8 \text{ @ } 0.0116$$





92.6'

clearance 27.8'

28.4'

89.7'

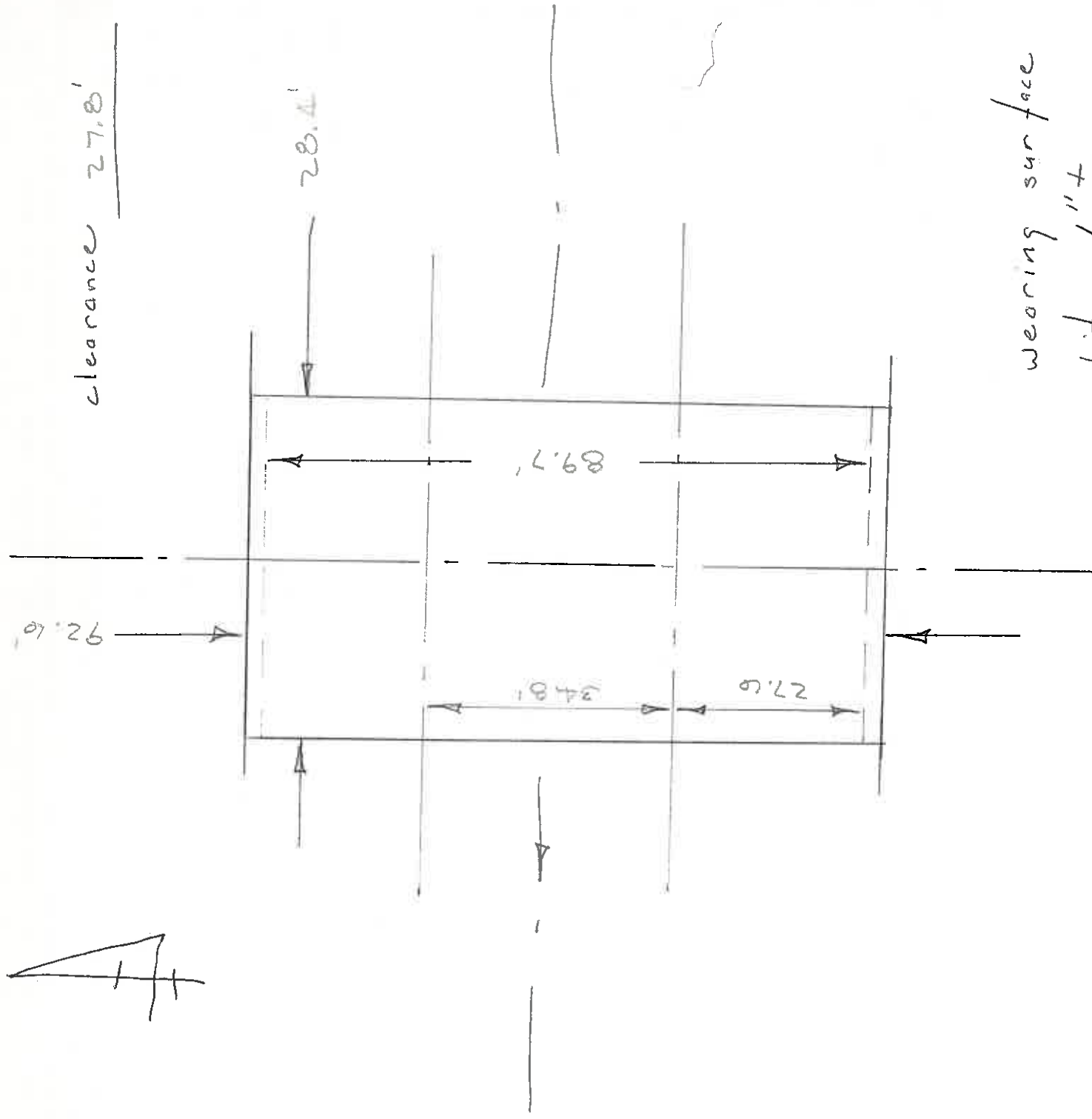
24.8'

27.6'

wearing surface
bit. 1"±

pavement width 21.0'

rdwy. width 30.0'



Max Pos. Mom. 35' span

$$M_D = 0.0670 \times 0.24 \times 28^2 = 12.6$$

$$M_L = 216.0 \times 0.405 = 87.5$$

$$M_{\text{im}} = 0.295 \times 87.5 = \underline{25.8}$$

$$\Sigma M = 125.9 \text{ k'}$$

$$S = \frac{125.9 \times 12}{22} = 68.7 \text{ in}^3$$

$$16W5 = 45 = 72.4 \text{ in}^3$$

Max Neg. Mom.

$$M_D = 0.1286 \times 0.24 \times 28^2 = 24.2$$

$$M_L = 193.9 \times 0.405 = 78.5$$

$$M_{\text{im}} = 78.5 \times 0.3 = \underline{23.6}$$

$$\Sigma M = 126.3 \text{ k'}$$

$$S = \frac{126.3 \times 12}{22} = 68.9 \text{ in}^3$$

$$16W5 = 45 = 72.4 \text{ in}^3$$

Max Reaction at Abut.

$$R_D = 1.3714 \times 24 \times 28 = 2.5 \quad \text{D}_4 = 1.2596 \times 24 \times 28$$

$$R_{L2} = 45.0 = 8.4$$

$$R_{L3} = 63.0$$

$$\Sigma R = 47.5 \text{ k'}$$

$$\Sigma R = 71.4 \text{ k'}$$

R. F. McGuckin & Associates

Consulting Civil Engineers
Box 5553
Columbus, Ohio 43221

October 31, 1969

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

RE: Bridge 97-0.76

Gentlemen:

We have inspected Bridge No. 97-0.76 in Richland Township and find it is unsafe.

Standard engineering practice is to close a bridge when it exceeds a reduction of 85% in legal load capacity. We rate this bridge at 95% reduction in legal load capacity.

It is therefore our recommendation that you close this structure to traffic until repairs can be made.

Respectfully submitted,

R. F. MCGUCKIN & ASSOCIATES



R. F. McGuckin PE

RFM:hb

LOGAN COUNTY

BRIDGE INSPECTION REPORT

1969

PREPARED
FOR
THE HONORABLE BOARD OF COUNTY COMMISSIONERS

Don Downing
Harvey C. Terrill *John Inskeep*

AND

Chester P. Kurtz P.E.

LOGAN COUNTY ENGINEER

BY
R. F. M^c GUCKIN & ASSOC. INC.
CIVIL ENGINEER
COLUMBUS, OHIO

R. F. McGuckin & Associates

Consulting Civil Engineers

Box 5553

Columbus, Ohio 43221

Logan County Bridge 97-0.76
over South Fork of the Miami River

This structure consists of a center span Half-Hip Pratt Truss, 50 feet long, with steel beam end spans 19.4 feet long. The substructure for all spans is a patented cast iron piling and steel beam cap system. The abutments are finished with wood backwalls.

Field inspection of this structure revealed several areas of deterioration and structural damage especially in the steel beam end spans.

The north steel beam end span has approximately one inch of sag in all beams and deflects considerably under light live loads. Additional wearing surface material has been placed on this span to remove the depression caused by beam sag. The abutment steel beam pile cap also sags evidently from this additional dead load.

The center truss span shows only minor deterioration mostly in the cover plate of the end posts and top chord. This plate has buckled between the rivets due to rust pressure. The truss and the end beam spans employ a common floor beam at the piers. The south pier floor beam has been damaged and will be further discussed later.

The south steel beam end span shows considerable deterioration and structural damage probably from a heavy live load applied some time ago.

The deterioration of the center three steel beams amounts to approximately a 60% loss of section modulus, the remaining beams are evidently replacements. The south abutment piling on the east side has sunk and shifted making the span 19.6' long and the pile cap is considerably out of level.

The pile cap (pier floor beam) has been bent and shows some web buckling and the entire beam has been depressed due to failure of the hanger plates. The original hanger plates ($4\frac{1}{2}$ " X $\frac{1}{2}$ ") have been notched down to 3" X $\frac{1}{2}$ " to relieve the pressure on the pier pile brace rods.

The analysis of the truss span indicates that several members are rated below legal loads however the maximum reduction of 68% is due to the interior floor beams.

R. F. McGuckin & Associates

Consulting Civil Engineers

Box 5553

Columbus, Ohio 43221

-2-

Logan County Bridge 97-0.76 over South Fork of the Miami River

The analysis of the steel beam end spans indicates that the deteriorated south span is reduced 95% for the beams and the damaged floor beam at the south pier is reduced 78% of legal loading.

It is recommended that the deteriorated and damaged members of the south end beam span be replaced, the additional dead load be removed from the north end beam span and that the unsupported length of both beam spans be reduced by an additional capped pile pier at mid-span.

The truss span floor beams should be plated to increase their load carrying capacity to that of the 7 inch stringers.

With aforementioned repairs and modifications the structure could then be posted for S-10-46 loading which is equivalent to a 35% reduction of total and axle loads.

Respectfully submitted,

R. F. MCGUCKIN & ASSOCIATES



By R. H. Rittall, P.E.

RHR:mh

R. J. McGuckin & Associates

Consulting Civil Engineers
Box 5553
Columbus, Ohio 43221

Logan County Bridge 97-0.76
over South Fork of the Miami River

The following conditions are reported as a matter of record for future comparison.

From North to South

Beam Span

1. All beams sag approximately 1 inch.
2. Additional pavement on span to reduce sag adds deadload.
3. Live load deflection of considerable magnitude.
4. Slope of span causes impact on beams.
5. Abutment pile cap beam sags.

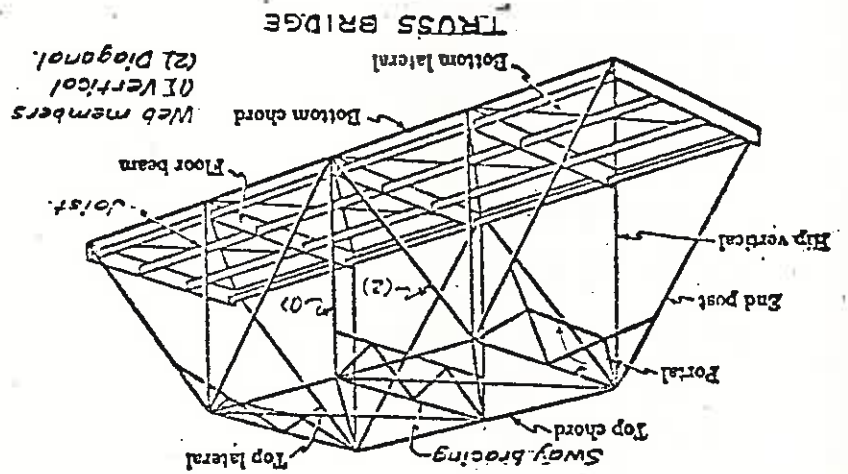
Truss Span

1. Cover plate of upper chords has buckled between rivets due to rust accumulation.
2. Counters are loose and slap against diagonals.
3. South pier floor beam has been bent and hanger plates have been bent. Repairs to hangers have reduced their section and the stringers are supported on shims to bring them up to grade.
4. Stringers are both Carnegie and Bethlehem, outside channels Weirton indicating possible deck repairs.

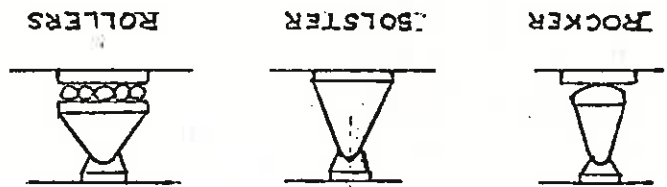
South Beam Span

1. All beams supported on bent floorbeam at pier as previously described.
2. Center three beams 60% rusted away at abutment end, other beams are replacements.
3. Abutment pile cap beam slopes due to sinking of piling at east end.
4. Beam span longer on east than on west due to shift of east pile.
5. Steep slope of span causes impact on beams.
6. Considerable deflection under live load.

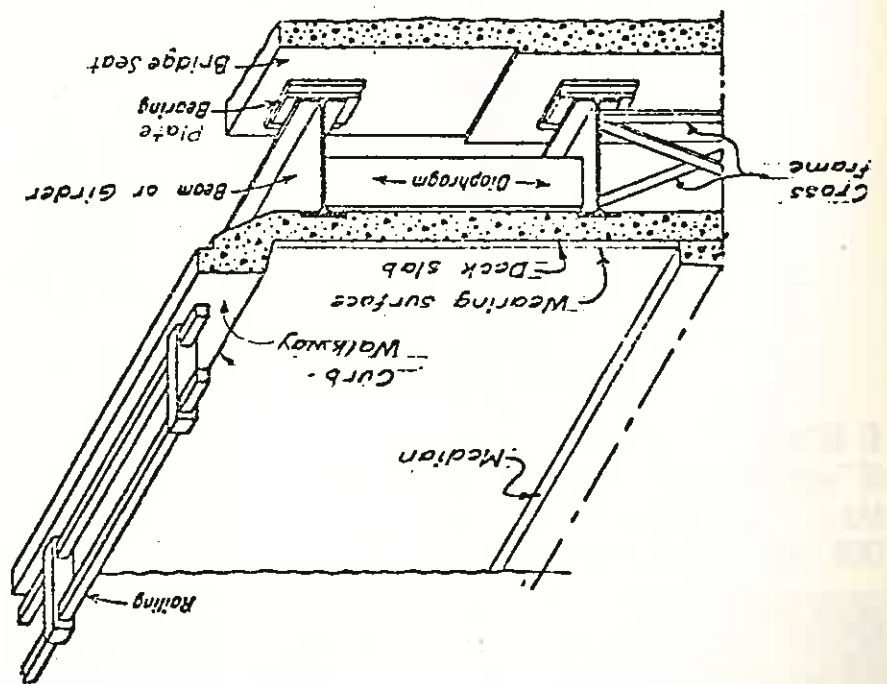
BRIDGE NOMENCLATURE



BEARINGS

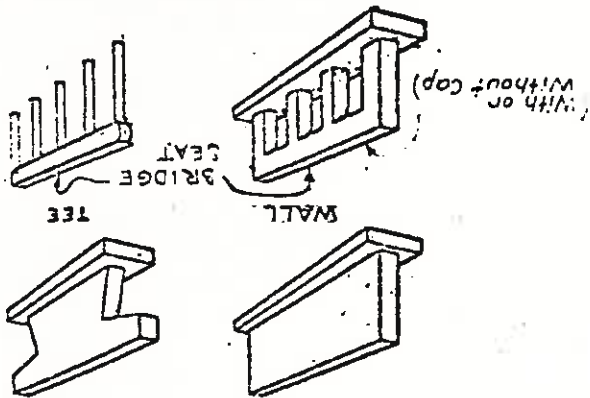


BEAM BRIDGE

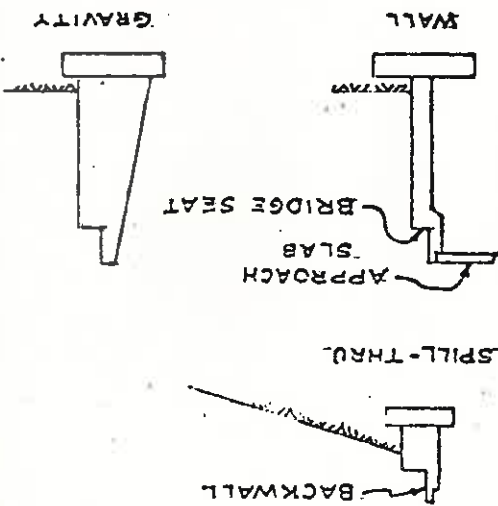


PIERS

COLUMN CAPPED PILE



ABUTMENTS



DGE NO: 97-0.76
 NTY: LOGAN
 TYPE: HALF HIP BRIDGE
 E. BUILT: 19XX

SPAN (c. to c.): 50.0'
 ROADWAY: 15.0'
 TYPE FLOOR: 2 x 4 W/O STRIP
 WEARING SURF: 2" G. CONC.

TRUSS ANALYSIS OF BRIDGES FOR POSTING

CALCULATED BY DATE: R.W. DICKEY JR. AUG. 28, 1929
 CHECKED: R.L.P.
 R. F. MCGUCKIN & ASSOCIATES

BEAM OR GIRDER (LONGITUDINAL) Span 12.5' Spacing 2.28' Dead Load per lin. ft. of Beam 1.20*

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.+1	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	
7I15*	10.4	95%	9.88	19.76	19.53	2.34	17.42	75.0	30%	18.99	3.95	24.69	70.6	65.3	34.7	10.6

FLOOR BEAMS Ctr. to Ctr. Supports 16.8# Dead Load per lin. ft. of Beam 6.59*

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.+1	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	
12I31.5*	36.0	95%	34.2	68.4	35.28	23.25	45.15	24.0	30%	68.0	88.4	51.1	32.2	67.8	7.7

TRUSSES Span (ctrs. end bearings) 50.0' Panel Length 12.5' Dead Load per lin. ft. (One Tr.) 4.90# D.L. Pan 612.5*

Member	Section	Percent S-Section Available	Unit Stress Used	Total Stress Available	Mom. Res. or Total Stress	D.L. Stress or Mom.	Stress or Mom. for L.L.+1	Stress or L.L.M. for one Tr. or 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
L0L2	2.0	95%	1.9	2400	45600	8820	36780	27000	70%	18900	28.5%	24287	151.4	76.5%	
L2L3	3.938		3.74	24000	89760	17640	72120	43920		30744		39506	182.6	139.7	
V1V2	5.78		5.49	19341	106182	17640	88542	54000		37800		48573	182.3	139.5	
V2V3	5.78		5.49	17372	95372	23520	71852	72000		50400		64764	110.9	84.5	15.2
V2L2	2.28		2.17	17184	37289	3063	34226	18400		12880		16551	206.8	158.2	
V3L3	2.28		2.17	17184	37289	0	37289	8150		5705		7331	508.6	389.1	
L0V1	5.78		5.49	18736	102312	12680	89632	38813		27169		34912	256.7	196.9	
V1L2	2.5		2.38	24000	57120	12680	44440	42297		29608		38046	116.8	89.4	10.6
V2L3	2.0		1.9	24000	45600	-	6646	38954		27912		35867	108.6	83.1	16.9

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

100% 0.96
 100% 1.38
 100% 1.42
 Sec. 0.5 = 2.17

TRUSS ANALYSIS OF BRIDGE NO. LOGAN 97-076 cont'd. BRIDGE FOR POSTING

Calculated by **R.W.D.**
 Checked by **R.L.P.**
J.R. Mc Guerin & Associates
 CONSULTING ENGINEERS

TRUSSES Span, c-c bgs. 50.0' Panel length 12.5' Dead load one truss/lin. ft. 490# Per panel 6125

Member	Section	% & Section available	Unit stress used	Total stress Available	Mom. Res. or total stress	D.L. Stress or mom.	Mom. Resist available for L.L. + Imp	Stress or LLM for 1 traffic lane	% to one truss	Stress or LLM to 1 truss	Impact	L.L.M. + Impact	% S-15-46 loading	% LEGAL LOAD	% total & reduced axle loads	S-.46	
L2 U ₃	0.44	95% 0.42	24000	10080	-	6646	16726	17686	70%	12380	28.5%	15908	105.1	76.5%	80.9	19.6	15.7

COUNTER

Unit Stresses (tension) for Posting.
 Structures built since 1930
 Structures built 1900 thru 1930
 Structures built before 1900

27000 lb. p.s.i.
 24000 lb. p.s.i.
 21000 lb. p.s.i.

Tan θ 142
 0.96
 Sec. θ 142
 1.38
 Sec. θ_s = 2.17

DGE NO. 97-0.76
 NTRY Logan
 TYPE Steel Beams
 E BUILT 19XX

SPAN (c.to c.) (19.38')
 ROADWAY 15.0'
 TYPE FLOOR 2x4 W/ STRIP
 WEARING SURF 2x2 BI. Cons.

END SPANS ANALYSIS OF BRIDGES FOR POSTING

CALCULATED BY R.W. DICKERSON
 DATE Aug. 28, 1969
 CHECKED B.L.P.
 R. F. MCGUCKIN & ASSOCIATES

BEAM OR GIRDER (LONGITUDINAL) Span 19.38' Spacing 2.28' Dead Load per lin. ft. of Beam 1.80*

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.+1	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	
7I15*	10.4	40%	4.16	8.32	46.94	5.63	2.69	116.3	3.95	29.44	30%	38.27	7.03	4.9	95.1%	1.05

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.+1	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	
12I31.5*	36.0	75%	27.0	54.0	29.37	26.67	27.33	24.0	61.0	30%	79.3	34.5	21.7	78.3	5.18

TRUSSES Span (ctrs. end bearings) Panel Length Dead Load per lin. ft. (One Tr.) D.L. Pan.

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.+1	Stress or L.L.M. for one Tr. or 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

Unit Stresses (Tension) For Posting
 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. 0 sec. 0

BRIDGE INSPECTION REPORT

CONDITION CODE: **GOOD = 1, FAIR = 2, POOR = 3, CRITICAL = 4**

BRIDGE NUMBER: 92-0.76 EXISTING
 HWY. SYSTEM: FED. AID SYSTEM: YEAR BUILT: 19XX

DIV. BR. TYPE: T O/A LGTH. 89' NO. OF SPANS: 3 OVER-OVERSPAN: MIAMI RIVER

SUPERSTRUCTURE:

1. DECK SLAB:
 REINFC. CONC.=1, TIMBER STRIP=2, TIMBER PLANK=3,
 FILLED STL.=4, OPEN STL. GRID=5, CORRUGATED STL.=6,
 BUCKLE PL.=7, CHECKER PL.=8, JACK ARCH=9, OTHER=0

REMARKS:

TYPE COND.

TYPE COND.

2. WEARING SURFACE
 CONC.=C, BITUMINOUS=B, OTHER=0

B 1

3. CURBS & MEDIAN:
 CONC.=C, STL.=S, TIMBER=T, OTHER=0

T 2

4. WALKWAYS:
 SEE DECK SLAB FOR TYPE CODE

5. RAILINGS:
 STL.=S, TIMBER=T, CONC. & ALUMINUM=A, OTHER=0

S 1

6. JOISTS:
 STL.=S, TIMBER=T

S 1

7. FLOORBEAMS:
 STL.=S, CONC.=C, TIMBER=T

S 1

8. FLOORBEAM CONNECTIONS:
 ROD=R, PLATE=P, ANGLE=A

R 2

9. LONGITUDINAL BEAMS OR GIRDERS:
 STL.=S, CONC.=C, PRESTRESSED CONC.=P, TIMBER=T

S 3

End Spans

10. TRUSS ALIGNMENT:
 STL.=S, TIMBER=T

S 1

11. HIP VERTICALS:

12. END POSTS:
 STL.=S, TIMBER=T

S 2

13. TOP CHORDS:
 STL.=S, TIMBER=T

S 2

14. BOTTOM CHORDS:
 STL.=S, TIMBER=T

S 1

15. WEB MEMBERS-VERTICAL:
 TYPE COND.

S 1

17. PORTALS:
 STL.=S, TIMBER=T

S 1

19. LATERAL BRACING:
 STL.=S, TIMBER=T

S 2

20. CROSS FRAMES OR DIAPHRAGMS:
 STL.=S, TIMBER=T, CONC.=C

21. DECK EXPANSION DEVICES:
 STL.=S, OTHER=O

S 1

22. BEARINGS: ROLLERS=R, BOLSTERS=B,
 ROLLERS=M, PLATES=P, ELASTOMERIC=E, OTHER=O

P 1

23. DRAINAGE SYSTEM: THRU CURBS=T,
 SCUPPERS=S, SCUPPERS WITH DOWNSPOUTS=D, OTHER=O

O 1

24. ARCHES:
 STL.=S, MASONRY=M, TIMBER=T

S 1

26. SUSPENSION BRIDGE CABLE OR CHAIN BENTS:

S 1

28. SUSPENSION SYSTEMS-MAIN:
 CABLE=C, EYEBAR=E

S 1

30. PAINT:
 SHOW YEAR LAST PAINTED IN LEFT & CENTER BLOCKS

6 8 1

31. RESPONSE TO LIVE LOAD: *End Spans*
 EXCESSIVE DEFLECTION=VIB=E, SATISFACTORY=S

S 3

SUBSTRUCTURE:

40. ABUTMENTS:
 WALL=W, SPILL-THRU=S, GRAVITY=G

S 1

Piling

41. BACKWALLS:
 CONC.=C, MASONRY=M, OTHER=O

O 2

42. WINGWALLS:
 CONC.=C, MASONRY=M, OTHER=O

S 1

43. BRIDGE SEATS - ABUTMENT:
 CONC.=C, MASONRY=M, TIMBER=T, STL.=S

S 3

44. PIER:

S 1

45. PIERS:
 COLUMN=C, WALL=W, T-TYPE=T, CAPED PILE=P, OTHER=O

P 1 P 1

46. SUSPENSION BRIDGE ANCHORAGES:
 CONC.=C, MASONRY=M

S 1

50. STREAM CHANNEL - WATERWAY
 UNRESTRICTED=U, RESTRICTED=R

U N 1

51. BANK PROTECTION:
 SHOW IN TYPE BLOCK: ADDITIONAL PROTECTION NEEDED=Y, NO=N

N

52. CULVERTS:
 BOX=B, ARCH=A, SLAB TOP=S, PIPE=P

T 1

53. APPROACH GUARDRAIL:
 DEEP BEAM=D, CABLE=C, WOVEN=W, OTHER=O

D 1

54. APPROACH EMBANKMENT:
 SHOW IN TYPE BLOCK: SETTLED=Y, NOT SETTLED=N

N 1

55. APPROACH PAVEMENT:
 CONC.=C, BITUMINOUS=B, OTHER=O

B 1

56. APPROACH ALIGNMENT & GRADE:

1

57. APPROACH SLABS:
 SHOW IN TYPE BLOCK: SETTLED=S, NOT SETTLED=N

S 3

58. SUMMARY: SATISFACTORY=S, NEEDS HOUSEKEEPING
 MAINT.=2, MINOR REPAIRS=3, MAJOR REPAIR=4

3

INSPECTED BY: JAMES R. NIMZ INITIALS: **JN** DATE: 9/9/69

DESIGNED BY: JAMES R. NIMZ INITIALS: **JN** DATE: 9/9/69

USE REVERSE SIDE FOR ADDITIONAL DETAILS.
 CONSULTING CIVIL ENGINEERS
R. J. McQuinn & Assoc. Inc. INITIALS: DATE: 9/9/69

BRIDGE INSPECTION RECORD

Code: good (G), fair (F), poor (P), critical (C)

Bridge Number LOCAL 97-076

Twp. RICHLAND Highway System

Federal Aid System

Year Built 19XX

Over ~~Under~~ SPAN WITH TRUSS

Bridge Type

TRUSS WITH END SPANS

Loading S-1-46

No. of Spans 3

Overall Length

89'

SUPERSTRUCTURE	Month		68	69	70	71	72	73	74	75	76	77	78
	Day	Avg											
1. Deck Slab													
2. Wearing Surface													
3. Curbs													
4. Walkways													
5. Railings													
6. Joists													
7. Floorbeams													
8. Floorbeam Connections													
9. Long Beams or Girders													
10. Trusses: Alignment													
11. Hip Verticals													
12. End Posts													
13. Top Chords													
14. Bottom Chords													
15. Web Members-Vertical													
16. Web Members-Diagonal													
17. Portals													
18. Sway Bracing													
19. Lateral Bracing													
20. Crossframes or Diaphragms													
21. Deck Expansion Devices													
22. Bearings													
23. Drainage System													
24. Arches													
25. Moveable Bridge Machinery													
26. Susp. Br. C or Ch. Bts.													
27. Susp. Bridge Towers													
28. Susp. System--Main													
29. Susp. System--Suspender													
30. Paint													
31. Response to Live Load													
SUBSTRUCTURE													
40. Abutments													
41. Backwalls													
42. Wingwalls													
43. Bridge Seats--Abutments													
44. Bridge Seats--Piers													
45. Piers													
46. Susp. Bridge Anchorage													
47. Piling													
GENERAL													
50. Stream Channel													
51. Bank Protection													
52. Approach Slabs													
53. Approach Guardrail													
54. Approach Embankment													
55. Approach Pavement													
56. Alignment & Grade													
60. Culverts													
70. Inspected By													

TYPE OF BRIDGE	DATE BUILT	APPROX. SAFE LOAD CAPACITY - OF TRUSS	TYPE AND RAILING OR SIZE OF FLOOR GUARD	DESCRIPTION OF FLOOR DRAINAGE	ALIGNMENT AND SKEW OF STRUCTURE	STREAM	CHANNEL CHARACTERISTICS - APPROX. WIDTH BETWEEN BANKS	CHANNEL DEPTH	CHANNEL NATURE OF BOTTOM	ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE	SKW OF FLOOR	SUPERSTRUCTURE	STD. DRAWING NO.	TYPE OF TRUSSES	LENGTH OF SPANS - C. TO C.	NO. PANELS	LENGTH OF PANELS
HALF HIP PRATT			Open Sides	Tangent Square	None	MIAMI RIVER	60'	2'	Silty clay	Curving	0°		0°	HALF HIP PRATT	50.0'	4	12.50'

TYPE AND RAILING OR SIZE OF FLOOR GUARD	DESCRIPTION OF FLOOR DRAINAGE	ALIGNMENT AND SKEW OF STRUCTURE	STREAM	CHANNEL CHARACTERISTICS - APPROX. WIDTH BETWEEN BANKS	CHANNEL DEPTH	CHANNEL NATURE OF BOTTOM	ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE	SKW OF FLOOR	SUPERSTRUCTURE	STD. DRAWING NO.	TYPE OF TRUSSES	LENGTH OF SPANS - C. TO C.	NO. PANELS	LENGTH OF PANELS
3" x 4" Wood	Open Sides	Tangent Square	MIAMI RIVER	60'	2'	Silty clay	Curving	0°		0°	HALF HIP PRATT	50.0'	4	12.50'

TYPE	NUMBER	SPACING	SECTION	SIZE-SHAPE-NET SECTION	NO. & SIZE RIVETS FLOOR BEAM TO CORR.
INTER-MEDIATE BEAMS	3	12.5'	12" I @ 31.8#	1 1/4" U Bolt	
END BEAMS	2	12.5'	12" I @ 31.8#	2-1" bolts	Area = 0.55 sq. in.

KIND	NO. LINES	SIZE	WIDTH OF FLANGE	THICKNESS OF WEB	SPACING
I BEAMS	6	7" I @ 15.3#	3.63"	0.25"	27"
CHANNELS	2	7" I @ 9.8#	2.0"	0.25"	24"

REINFORCED CONCRETE SLAB	INCHES THICK	CONCRETE	INCHES THICK	PLANK	SIZE, TREAT-MENT, SPECIES	THICKNESS	STRIP	SIZE, TREAT-MENT, SPECIES
							2" x 4" Treated	

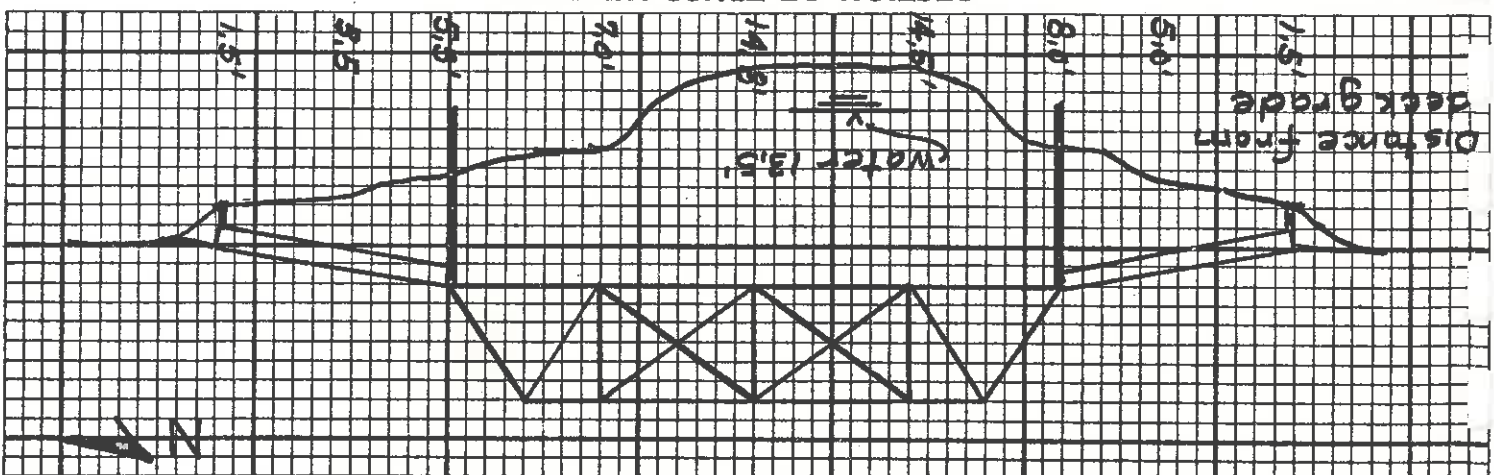
REINFORCED CONCRETE SLAB	INCHES THICK	CONCRETE	INCHES THICK	PLANK	SIZE, TREAT-MENT, SPECIES	THICKNESS	STRIP	SIZE, TREAT-MENT, SPECIES
							2" x 4" Treated	

REINFORCED CONCRETE SLAB	INCHES THICK	CONCRETE	INCHES THICK	PLANK	SIZE, TREAT-MENT, SPECIES	THICKNESS	STRIP	SIZE, TREAT-MENT, SPECIES
							2" x 4" Treated	

BRIDGE NO.	TOWNSHIP	ROAD NO.	SYSTEM	SECTION	STRENGTH	ROADWAY	CLEARANCE	TYPE
97-0-76	Richland	CR 97			2-piles			

BRIDGE NO.	97-0.76
COUNTY	Richland
ROUTE NO.	Cr. 97
S.H. NO.	
SECTION	
STRENGTH	
ROADWAY	
CLEARANCE	
TYPE	

SKETCH OF STRUCTURE SHOWING DIMENSIONS

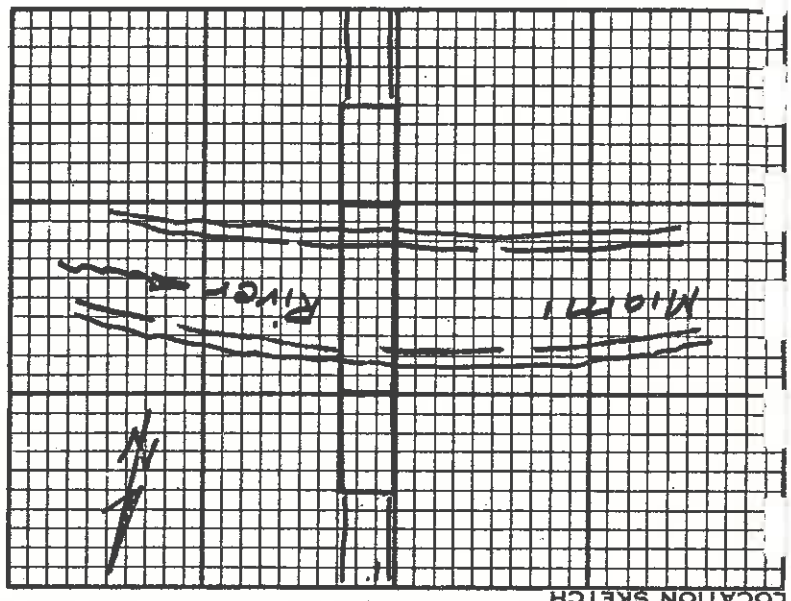


SECTION OF TRUSS MEMBERS

ID POSTS 2-5" channels @ 6.7# 10" x 3/16" plate
 TOP CHORDS Same as end post
 BOTTOM CHORDS L₂, 2-2" x 1/2" bars; L₃, 2-3 1/2" x 9/16" bars

INTERMEDIATE POSTS L₁, 4-2" x 1/2" angles; L₂, 4-2" x 1/2" angles; L₃, 4-2" x 1/2" angles
 AGONALS U₁, 2-2 1/2" x 1/2" bars; U₂, 2 3/4" x 1/2" bars; U₃, 2 3/4" x 1/2" bars; U₄, 1-3/4" dia.
 HIP VERTICALS None

NS 1 1/2" dia.



LOCATION SKETCH

REMARKS:

STEEL BEAM AND GIRDER BRIDGES

END SPANS

DATE: 11/13/59-A

TYPE OF BRIDGE: STEEL BEAM

NO. OF SPANS: 2

LOAD CAPACITY - OF STRUCTURE: 5% Legal S-1-46

CLEAR SPAN: 19.2'

LENGTH OUT TO OUT OF FLOOR: 19.7'

WIDTH BETWEEN CURBS OF FLOOR GUARDS: 15.0'

WIDTH OUT TO OUT OF SUPERSTRUCTURE: 16.7'

WIDTH OF SIDEWALKS: None

HEIGHT OF FLOOR ABOVE BRIDGE SEAT: 1.9'

PROVISION FOR EXPANSION SLIDING: ROLLER REST

TYPE AND SIZE OF RAILING OR HUB GUARD: 1.75" Pipe

DESCRIPTION OF FLOOR DRAINAGE: Open Sides

ALIGNMENT AND SKEW OF STRUCTURE: Tangent Square

APPROACH: None

LENGTH FROM GRADE TO STREAM BED: varies

NATURE OF CHANNEL: silty clay

APPROX WIDHT CHANNEL: 60'

CHARACTERISTICS BETWEEN BANKS: varies

CONDITION: Steep slopes, brush covered

SKEW OF NORMAL FLOW: 0°

SKEW OF FLOOD FLOW: 0°

ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE: Curving

BEAM SPANS: STD. DRAWING NO.

PLATE GIRDER: STD. DRAWING NO.

INTERMEDIATE FLOOR BEAMS: END FLOOR BEAMS

NO. AND SPACING: END FLOOR BEAMS

SECTION: NO. SIZE RIVETS

CON. F. B. TO CONN. CONN. TO GIRDER

KIND: NO. LINES

I BEAMS: 6

CHANNLS: 2

DO JOISTS REST ON ARE SHELT TOP OF FLOOR BEAMS?

Yes

HOW FRAMED TO FLOOR BEAMS? Welded

END JOISTS - LENGTH: 12" I @ 31.8#

REINFORCED CONCRETE SLABS: CONCRETE

WEARING SURFACE: Bituminous

THICKNESS: 2 1/2"

PLANK: 2 1/2"

STRIP: 2" x 4" Treated

HOW FASTENED TO JOISTS: STD. DRAWING NO.

ABUTMENTS AND PIERS: MATERIAL

STEEL

TYPE: FORWARD

PIER: 2- Piles

PIER: 2- Piles

TYPE: Piling

BRIDGE NO.: 97-0.76

COUNTY: Richland

ROUTE NO.: CR.97

SECTION: ROADWAY

STRENGTH: CLEARANCE

TYPE: X

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

Chester R. Kurtz

Respectfully submitted,

I hereby request authorization to receive bids and award a contract for material and to proceed with the construction of the improvement by Force Account.

Standard barricades, gates, route marking and warning devices will be erected in accordance with "The Ohio Manual of Uniform Traffic Control Devices for Streets and Highways."

A detour will be provided as follows:
Commencing at the intersection of C.H. 97 and C.H. 96; thence with C.H. 97 southerly 0.25 mile to C.H. 39; thence with C.H. 39 southerly 0.10 mile to C.H. 105; thence with C.H. 105 easterly 2.12 mile to C.H. 106; thence with C.H. 106 northerly 0.21 mile to S.R. 638; thence with S.R. 638 northerly 1.88 mile to S.R. 273; thence with S.R. 273 westerly 2.59 mile to C.H. 97 and there terminate, a total distance of 7.15 miles. The additional mileage created by this detour is 5.34 miles.

You are hereby advised the construction of this improvement will require the closing to traffic of that portion of C.H. 97 from C.H. 96 to S.R. 273 for a period of 60 days.

Total cost of project \$27,700.00

\$16,000.00	Material
7,000.00	Labor
3,000.00	Equipment
490.00	Retirement
210.00	Workman's Compensation
1,000.00	Engineering

The estimated cost of this improvement is as follows:

I propose to replace the existing structure with a continuous steel beam bridge having spans of 28'-35'-28' and 28 foot roadway.

Bridge No. 97-0.76 is a 50 foot span Pratt Truss with 20 foot tall spans and 15' - 6" roadway. The structure is in very poor condition and is presently posted for a 95% reduction of legal loads.

Gentlemen:

Re: Bridge No. 97-0.76
Richland Township

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

July 17, 1972







TYPE OF BRIDGE	Patt Truss			NO. OF SPANS	1	FABRICATOR	
APPROX. SAFE LOAD CAPACITY OF TRUSS							
CLEAR SPAN	LENGTH OUT TO CUT OF FLOOR	WIDTH BETWEEN CURBS OR FELLOE GUARDS	WIDTH OUT TO OUT OF TRUSSES	WIDTH OF SIDEWALKS	HEIGHT OF FLOOR ABOVE BRIDGE SEAWALK	CLEARANCE DIMENSIONS MIN. HEIGHT	HEIGHT OF FLOOR ABOVE BOTTOM CHORD
48' 8"	90' 0"	15' 6"		None	0' 8"	15' 6"	0' 4"
TYPE AND SIZE OF RAILING OR RUB GUARD	Lattice 6 Pipe			TYPE AND SIZE OF CURB OR FELLOE GUARD	3" X 4"		

ALIGNMENT AND SKEW OF STRUCTURE	-0-		APPROACH SLABS	None		LENGTH	
STREAM	Miami River (Middle Branch)	HEIGHT FROM GRADE TO STREAM BED	14'	HEIGHT FROM GRADE TO HIGH WATER			

CHANNEL CHARACTERISTICS BETWEEN BANKS	APPROX. WIDTH	CHANNEL DEPTH	NATURE OF BOTTOM	ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE	NO. PANELS	LENGTH OF PANELS
50'	12'	CLAY	see sketch		4	12' 6"

CONDITION OF BANKS	BRUSH	SKEW OF NORMAL FLOW				
SUPERSTRUCTURE						
TYPE OF TRUSSES			LENGTH OF SPANS, C. & G.		NO. PANELS	
Patt (with two 7:11 spans) 19' 6"			506'		4	

FLOOR BEAMS AND CONNECTIONS							
TYPE	NUMBER	SPACING	SECTION	SIZE-SHAPE-NET SECTION	WIDTH OF FLANGE	THICKNESS OF WEB	SPACING
INTER-MEDIATE FLOOR BEAMS	3	12' 6"	12" I 31.5 #	HANG-ERS 1" φ U			2' 3"
END FLOOR BEAMS		12' 6"	12"	HANG-ERS			

FLOOR JOISTS							
KIND	NO. LINES	SIZE	WIDTH OF FLANGE	THICKNESS OF WEB	SPACING		
I BEAMS	6	7" I @ 31.5 #			2' 3"		
CHANNELS	2	7" C @ 31.5 #					
WOOD		JOIST, TREATMENT, SPECIES					
DO JOISTS REST ON TOP OF FLOOR BEAM?	Yes	HOW FRAMED TO FLOOR BEAM	Weld				
ARE SHELF ANGLES USED?		END JOISTS - LENGTH	SUPPORTS	12" I on piers			
		FLOOR		12" I on Abutments			

REINFORCED CONCRETE SLAB	THICKNESS	CONCRETE	INCHES THICK ON CORRUGATED ARCHES OR BUCKLE PLATES
WEARING SURFACE		PLANK	
STRIP	2" X 4" Treated	HOW FASTENED TO JOISTS	Old strips

ABUTMENTS AND PIERS	MATERIAL	TYPE	HEIGHT FOOTED TO BRIDGE SEAT	WIDTH OF BRIDGE SEAT	LENGTH OF BRIDGE SEAT	FOUNDATIONS (PILING)	WINGS (LENGTHS, ANGLES ETC.)
REAR	Steel	Piling		0' 5"		Red 10" +	No backwall
ORWARD	"	"		1' 6"		Red 10" +	
PIER	"	"		1' 6"		Red 10" +	
PIER	"	"		1' 6"		Red 10" +	

BRIDGE NO.	COUNTY	ROUTE NO.	SURV. NO.	SECTION	STRENGTH	ROADWAY	CLEARANCE	TYPE
97-076	Logan	CR-97	Richard		15x10 19-22 23 + 12-13-14 16 +	A B C D E F		T

97-076

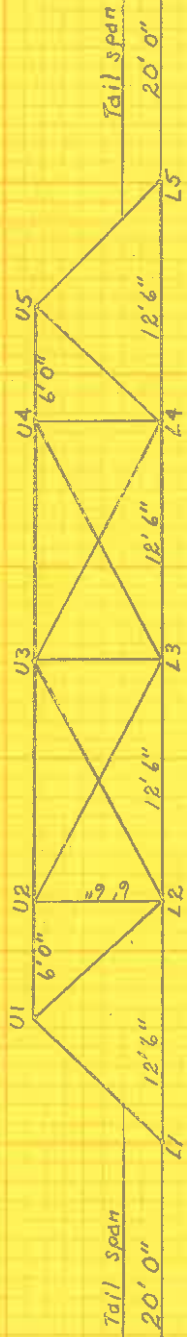
Logdn

TR-97

Richland

STATE NO. COUNTY DISTRICT SECTION PROJECT DRAWING TITLE

SKETCH OF STRUCTURAL SHOWING DIMENSIONS



SECTION OF TRUSS MEMBERS

L1-U1, U5-L5 = 2 ea 5" @ 8# [and 1 ea 3/8" X 10" Plate

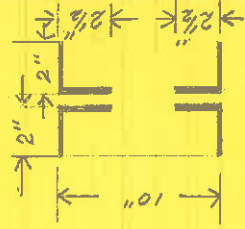
Top chord

Bottom chord

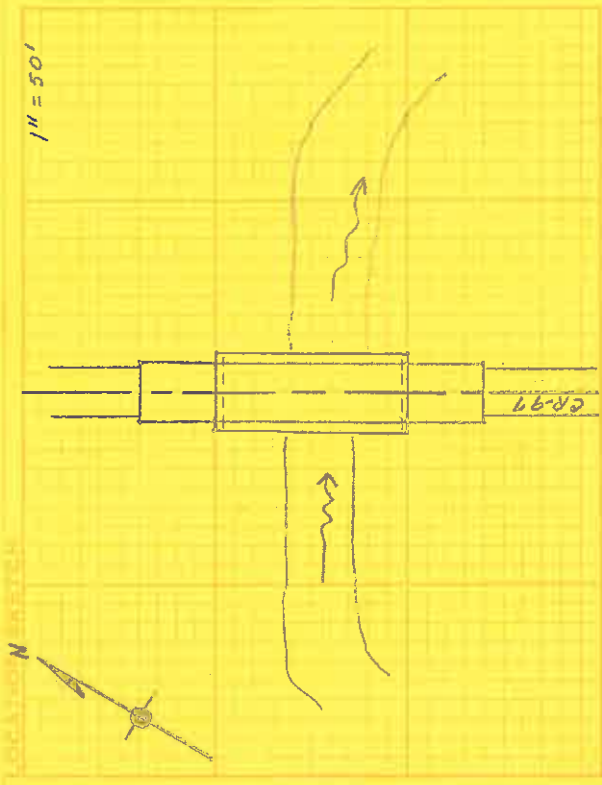
Intermediate Posts

See drawings

L1-L2, L4-L5 = 2 ea 1/2" X 2" Ls - L2-L3, L3-L4 = 2 ea 1/2" X 3" Ls
U2-L2, U3-L3, U4-L4 = 4 ea 1/2" X 2" Ls spaces as shown
U1-L2, L4-U5 = 2 ea 1/2" X 2 1/2" Ls - U2-L3, L3-U4 = 2 ea 1/2" X 2" Ls - L2-U3, U3-L4 = 1 ea 3/4" ϕ



LOCATION MAP



REMARKS- Painted 1964
Painted - 1968

POSTED FEB. 1970
95% REDUCTION

REMOVED FLOOR SEPT. 1960

G EQUIPMENT CO.
 PARTS - SERVICE - RENTALS

S. R. 33 & AVERY RD.
 DUBLIN, OHIO 43017
 614-889-1073

3 long. 28,000'

1020.0

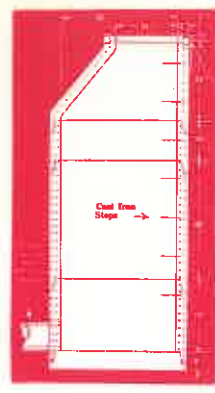
280 ft. 1080

60'

$\frac{60}{280} = 0.2\%$

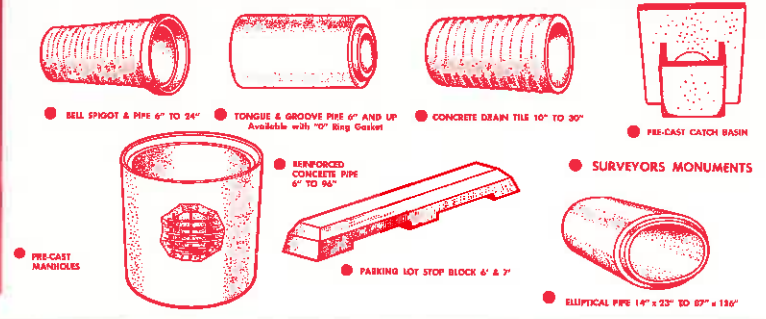
-0.76

- ESSICK
- GOODROADS
- TAMPO
- LAYTON



HYWAY CONCRETE PIPE COMPANY

Phone (419) 423-0862 · FINDLAY, OHIO 45840



24.4 on Roundhead
 105.8 on Silver Crest
 50.5 on Arroyo/Lante
 9.43 on Newville
 200.13 Total

$1 \text{ in}^2 = 91.827 \text{ A}$

$18,377.34 \text{ A} = 28.7 \text{ Sq. M.}$

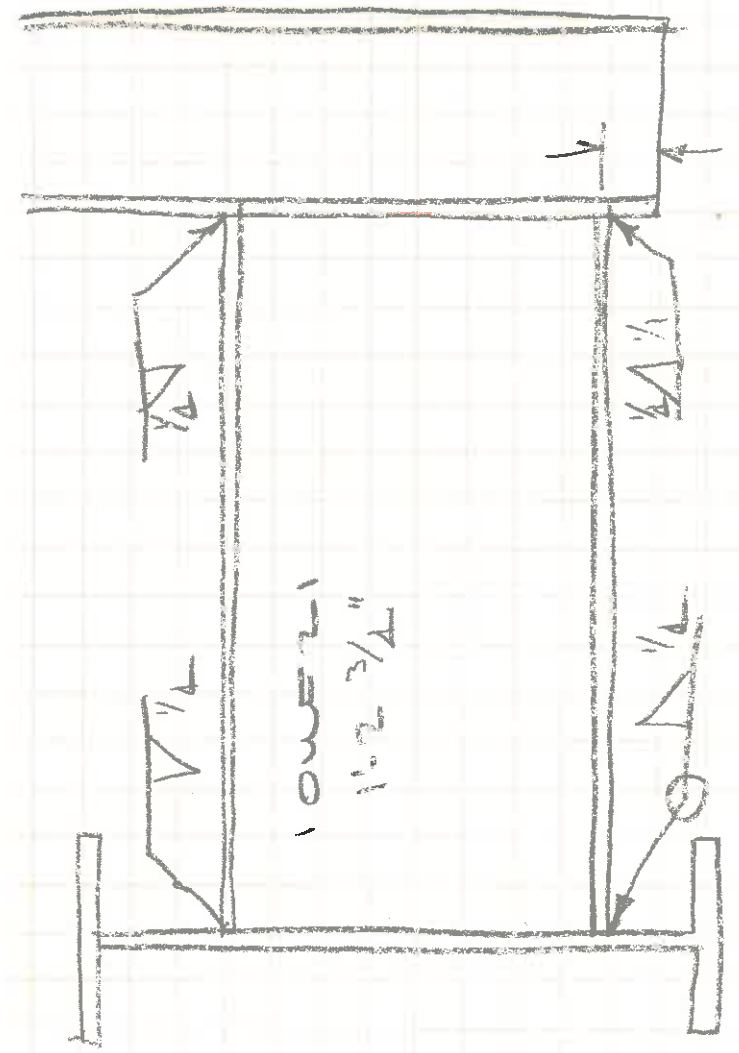
$\text{Dr } 97 = 0.76$



Concrete Products Division

Reliance Universal Inc.
 CONCRETE SEWER AND CULVERT PIPE... MANHOLES
 PRESTRESSED BRIDGE BEAMS... CRIBBING

- COLUMBUS, O. 614 221-2355
- PITTSBURGH, PA. 412 561-0770
- MELBOURNE, KY. 606 441-0068
- LOUISVILLE, KY. 502 368-6834
- KNOXVILLE, TENN. 615 687-4041
- JOHNSON CITY, TENN. 615 928-1178



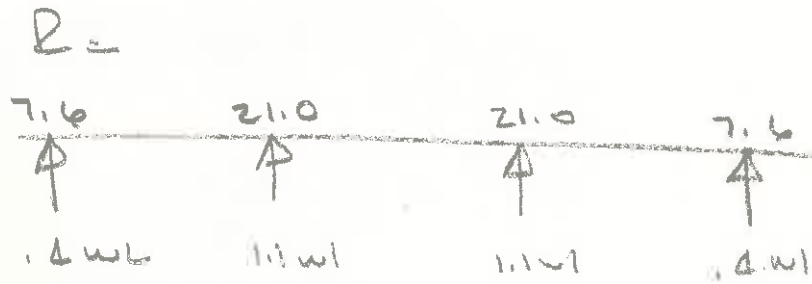
Phone 468-3576 Area 419
 P. O. Box 123
 Galion, Ohio 44833

GENE C. NEWELL SALES

Road Machinery

SNOW PLOWS - SPREADERS - GRADERS - ROLLERS - ROAD BROOMS - BROOM & CORE
 REPLACEMENT - ROAD WIDENERS - CUTTING EDGES, ALL KINDS - ROAD SIGNS
 ASPHALT DISTRIBUTORS - TAR KETTLES - CULVERT PIPE - PAINT STRIPERS
 LEAF COLLECTORS - WEED SPRAYERS - WEED & BRUSH SPRAY - POSTS
 STONE BOXES - USED EQUIPMENT

THE GLEDHILL ROAD MACHINERY COMPANY
 Phone 468-4400 Galion, Ohio 44833



$w = \text{dead load (kips/ft)}$

$l = \text{length}$

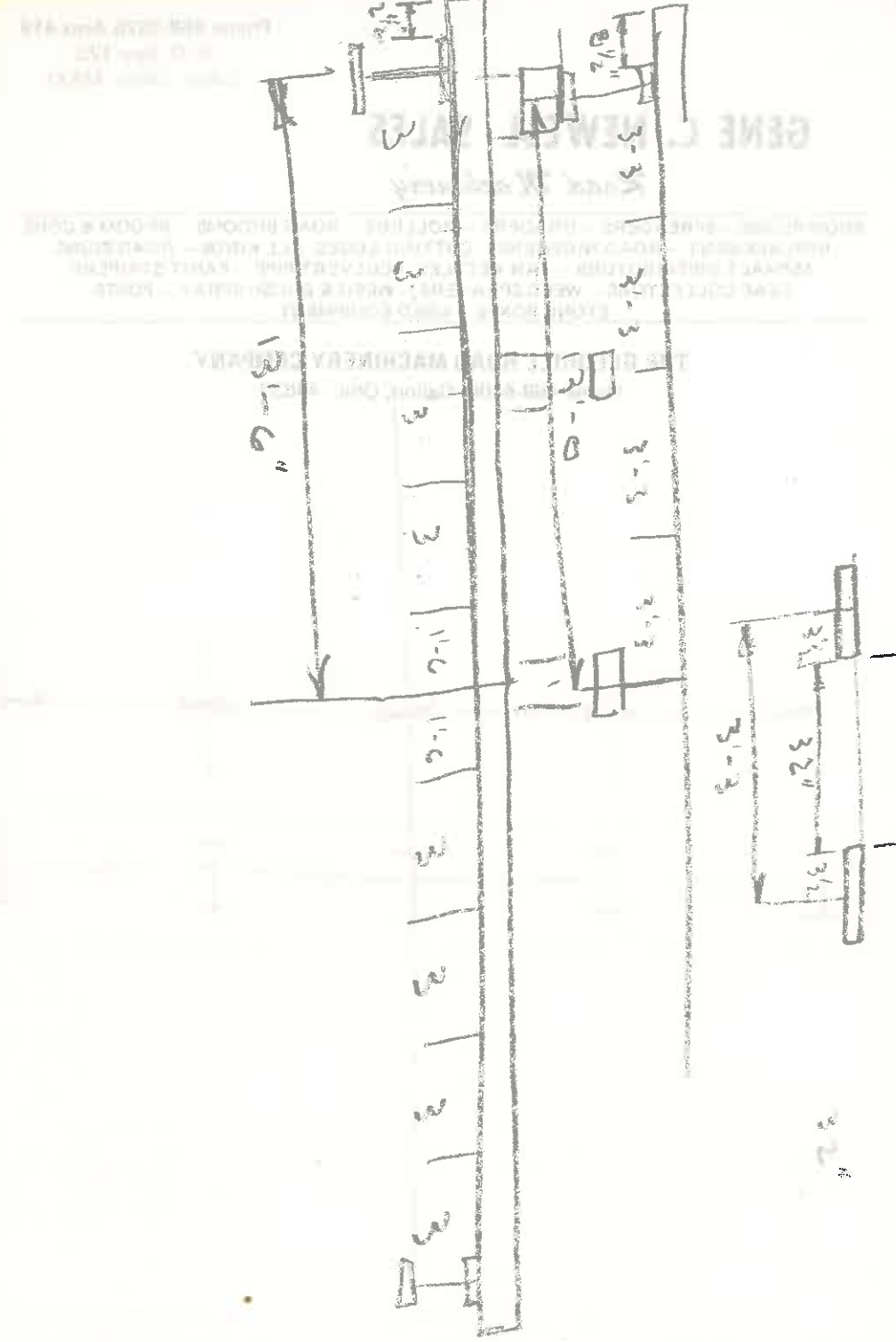
~~$210 \times 91 = 19.11 \text{ k}$~~

$$210 \times 91 = 19.11 \text{ k}$$

$$w \cdot l =$$

MENT CO.
 ENTALS
 AVERY RD.
 OHIO 43017
 19-1073

AMPO
 AYTON



Reliance

Concrete Products Division

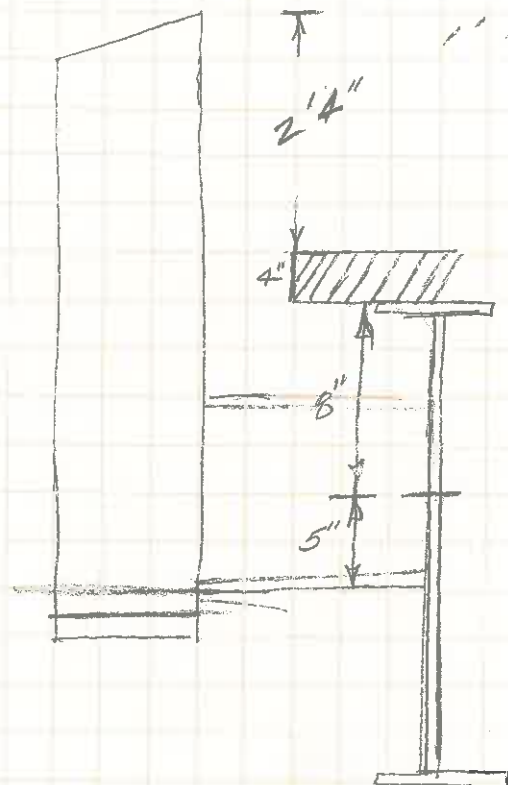
COLUMBUS, O.	614 221-2355
PITTSBURGH, PA.	412 561-0770
MELBOURNE, KY.	606 441-0068
LOUISVILLE, KY.	502 368-6534
KNOXVILLE, TENN.	615 887-4041
JOHNSON CITY, TENN.	615 928-1178

Reliance Universal Inc.

CONCRETE SEWER AND CULVERT PIPE ... MANHOLES
PRESTRESSED BRIDGE BEAMS ... CRIBBING

$$\begin{array}{r} 3' 20 \\ 14 11 \\ \hline 42 \quad 140 \\ 12 \\ \hline 53' 8'' \quad 20 \\ 12 \end{array}$$

$$\begin{array}{r} 1-9 \\ 1 \\ \hline 1-16 \\ 2-4 \\ \hline 1-16 \\ 3 \end{array}$$



$$\begin{array}{r} 2' 4'' \checkmark \\ 4'' \checkmark \\ 1' 1'' \\ \hline 3-9 \\ 4' \\ \hline 3' 10'' \\ 2 \quad 4 \\ \hline 1 \quad 6 \end{array}$$

Benjamin Steel Company



Office & Warehouse
423 York St.
Springfield, Ohio 45505

Steel Service Center

CALL TOLL FREE — DIAL 1-800-762-0926
LOCAL CALLS DIAL 325-5593

6-3-87, 10:00 AM

High Water

Br. 97-0.76

Up to the Bottom
of the 3"x4" strip floor

Prog. No 9 - 0.76

29+45.27 Fd. iron

47+75.30 Fd. iron 0.65' L.

45+00 P.R. Spike P.O.T.

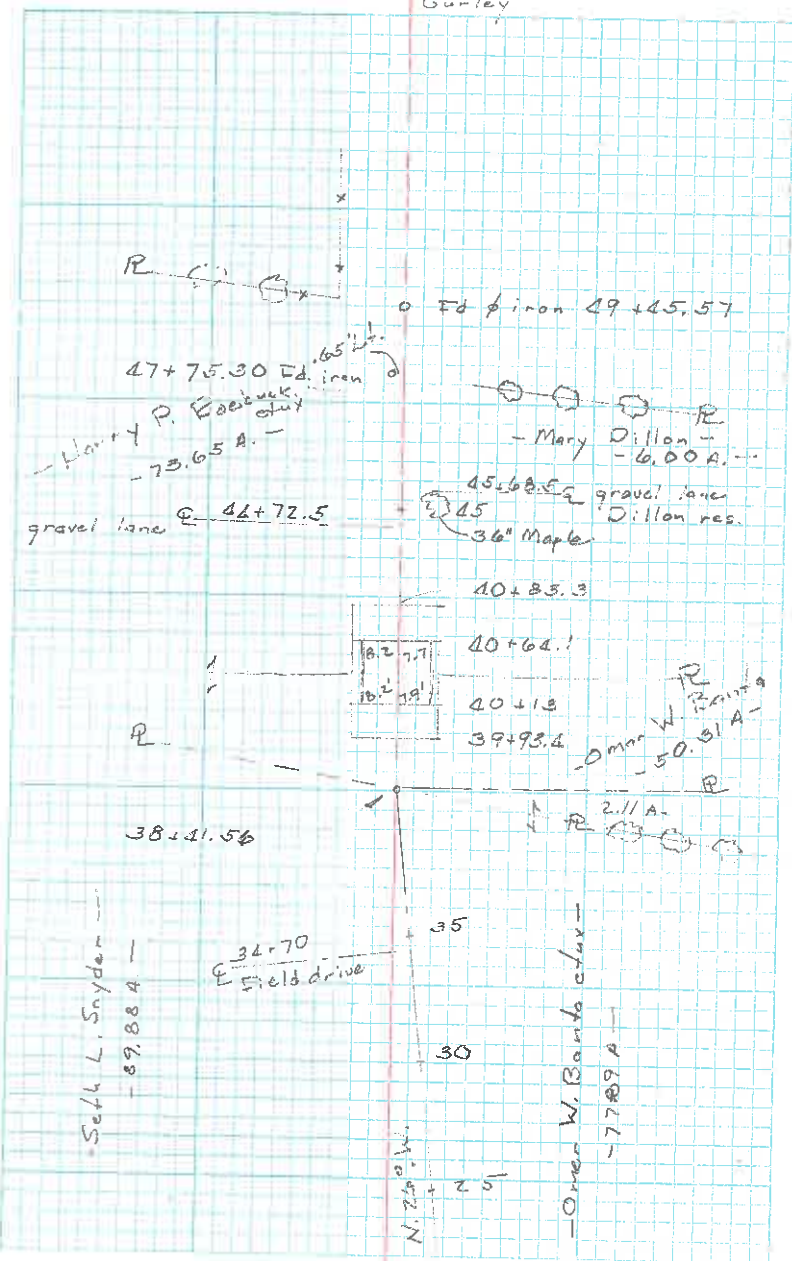
38+41.56 Fd. pipe 1" about 5' deep
Angle $0^{\circ}16'50''$ ($0^{\circ}33'20''$) Right

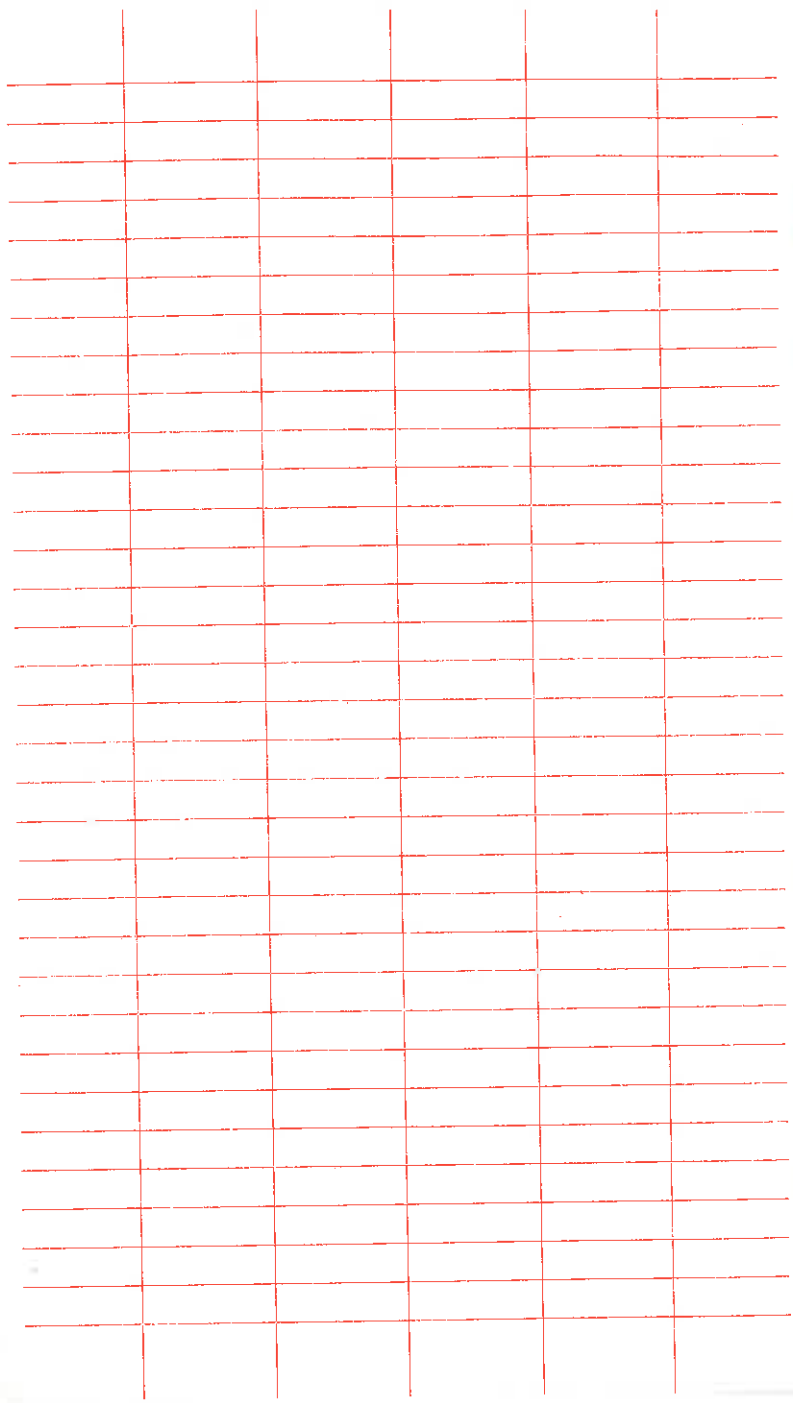
35+00 P.O.T. R.R. sec.

30+00 P.O.T. R.R. sec.

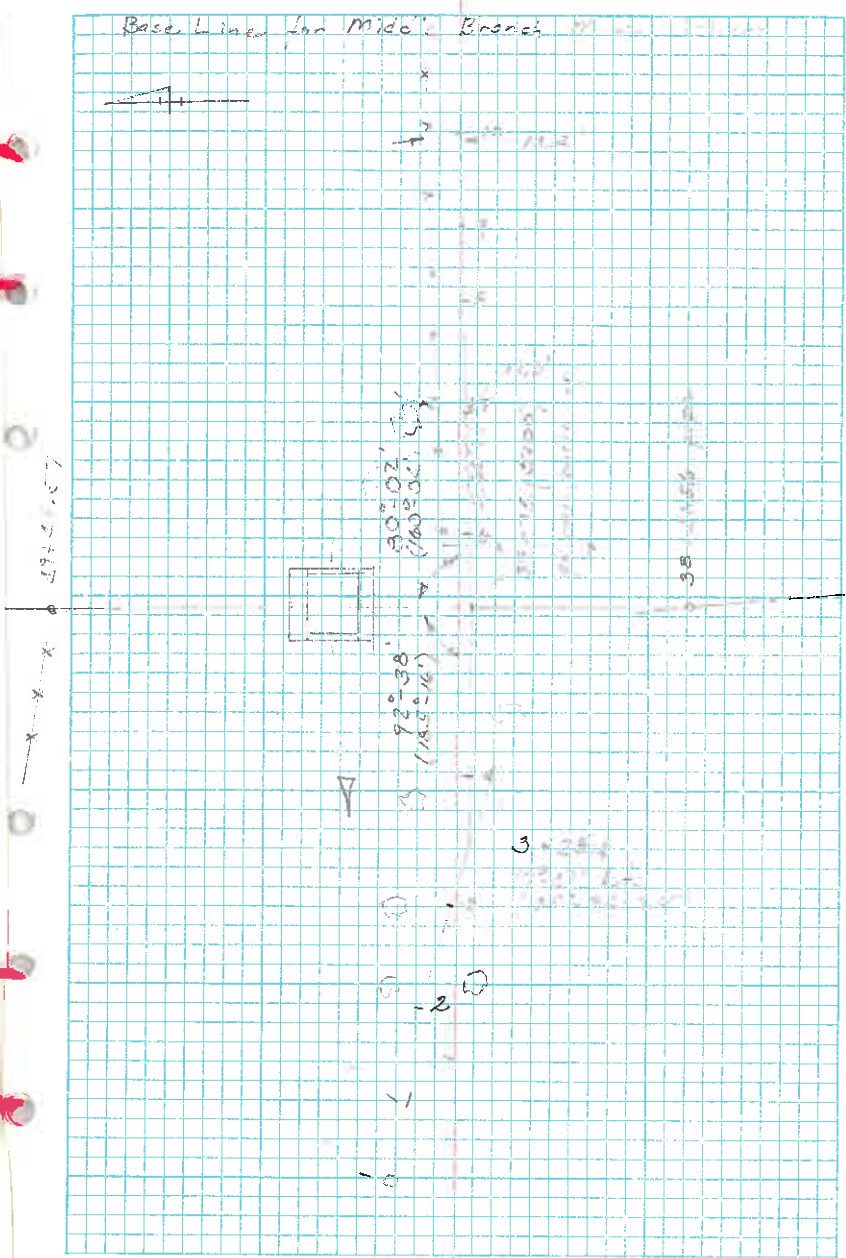
25+00 P.O.T. R.R. sec.

13 July 1970
Sunny humid 85°
Gurley





Base Line for Middle Branch



Topo Eng 77-0.74

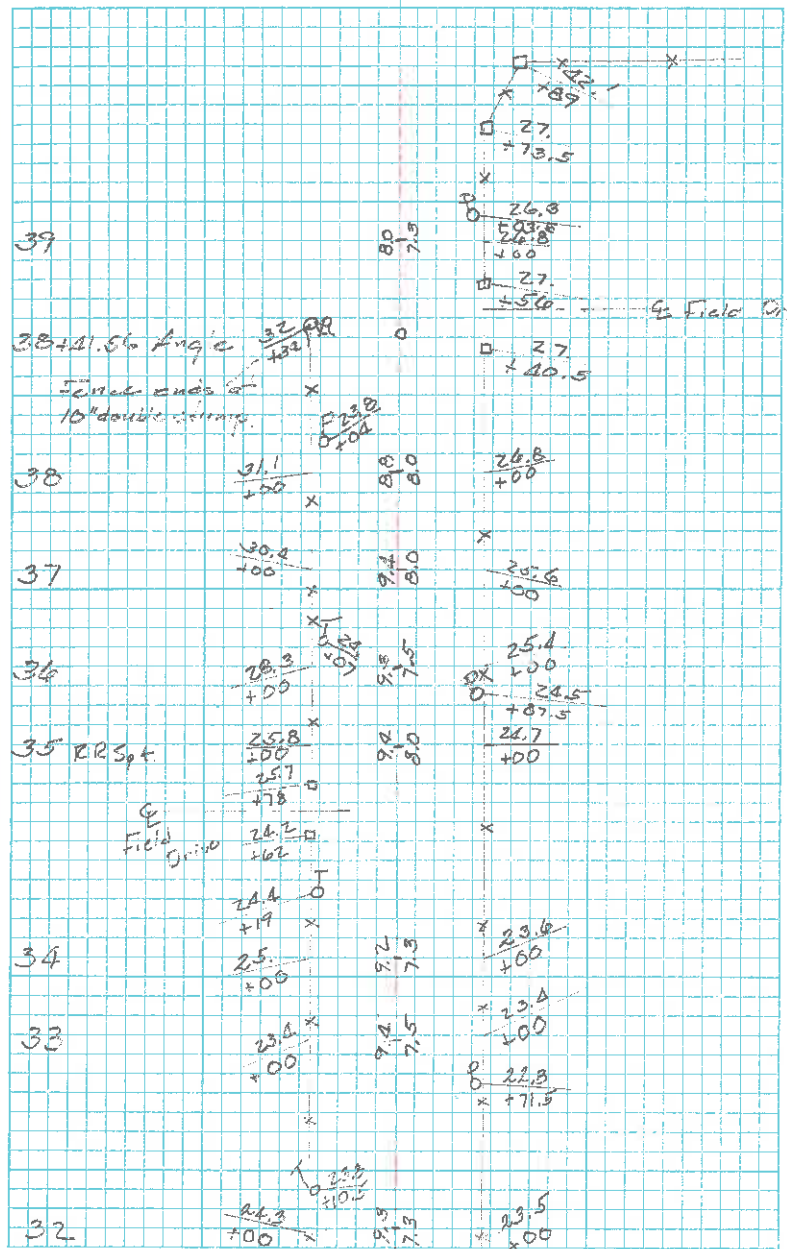
Sta.

33400

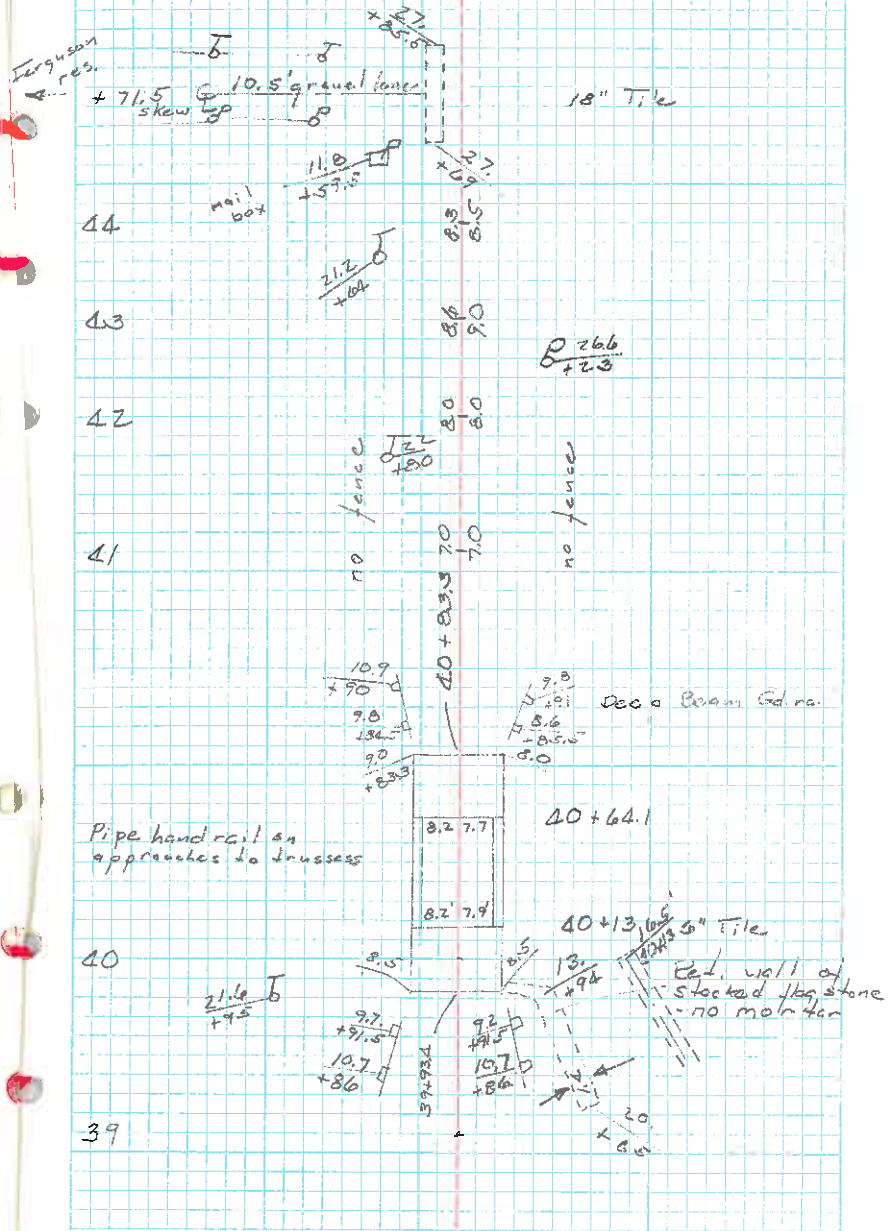
33400

15 JUN 1970

3



Togo Brg #97-0.74 cont.



Topo Br-g 97-0.76 con

(5)

49+45.57

49

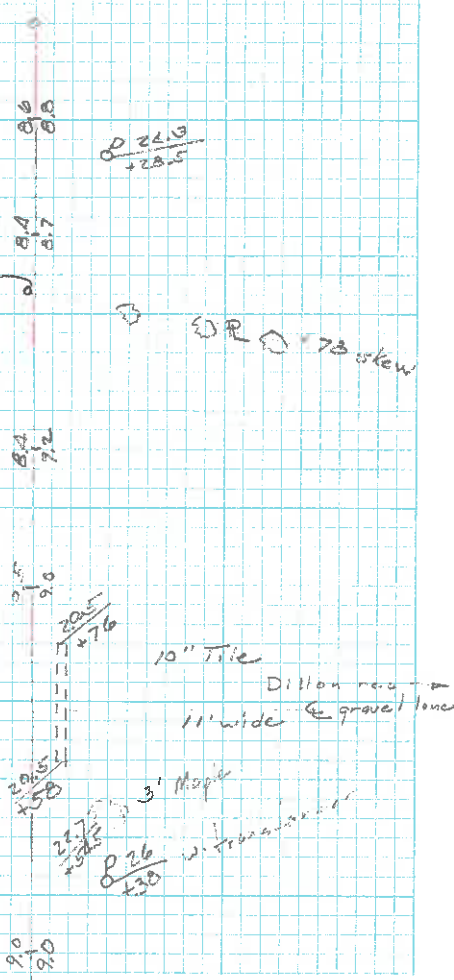
48

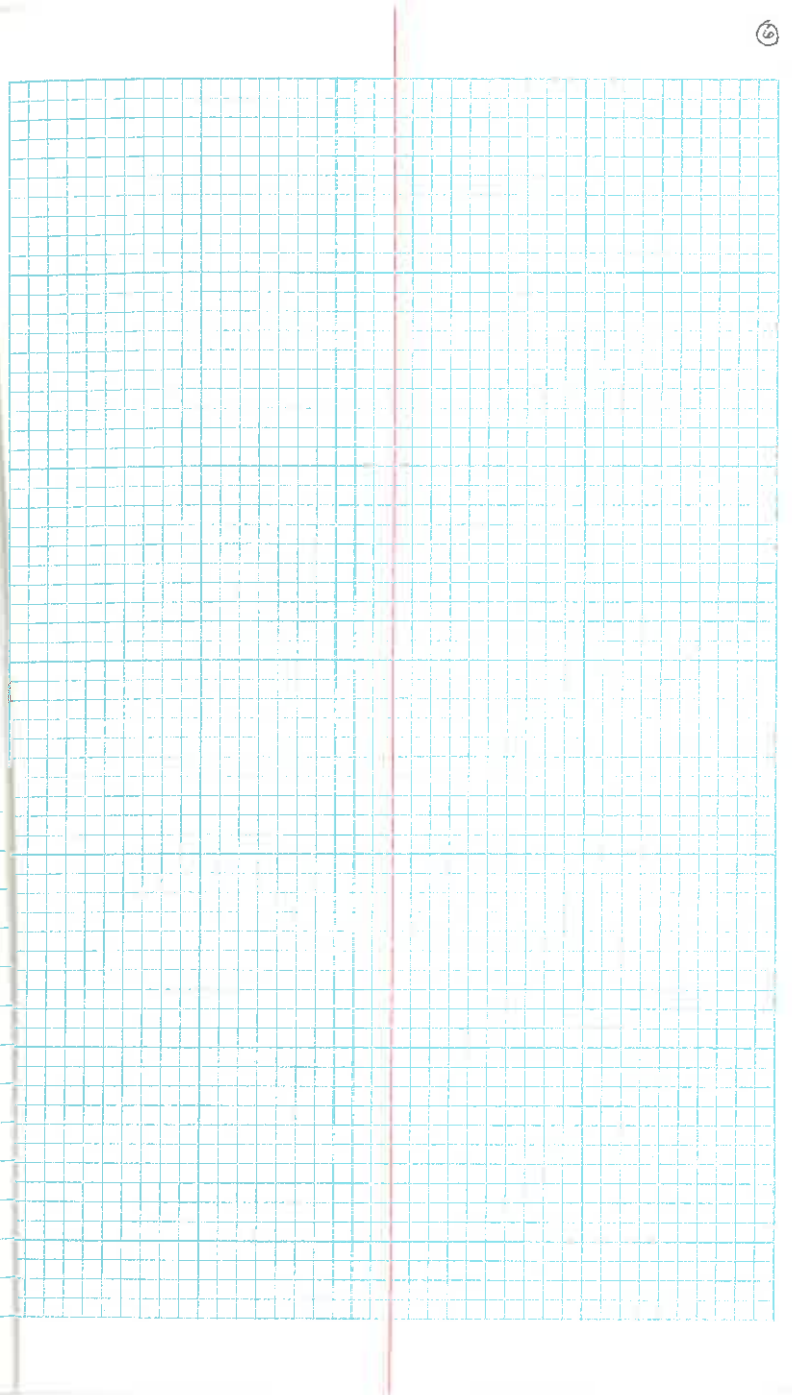
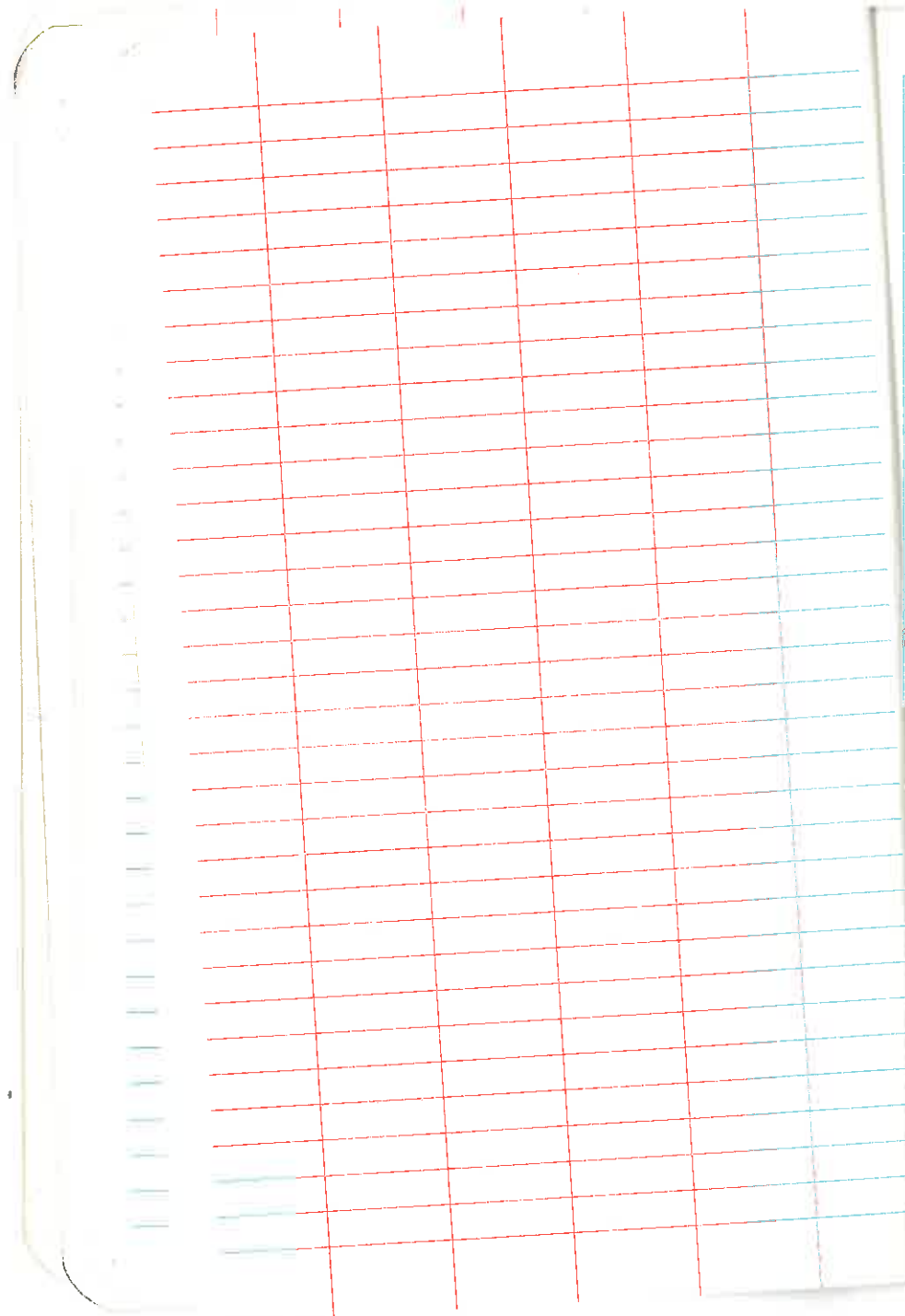
47+75.30 iron

47

46

4.5 R.R. Spiku





200, 97-0.76 Levels

Sta.	R.I.	I.I.	F.S.	Elev.
R/W men	1.42	1056.62		1045.22
Lp. 1	4.29	1055.91	5.02	1051.62
2	2.58	1051.24	7.25	1038.64
3	0.86	1046.12	5.98	1045.16
PK nail in crossing	0.75	1045.47	1.40	1042.72
4	2.55	1042.81	7.19	1037.25
5	2.09	1039.76	5.14	1036.67
6	3.16	1037.31	5.61	1035.15
7	8.07	1033.26	5.12	1032.19
8	5.72	1032.36	5.12	1035.14
9	5.14	1046.81	4.19	1035.67
10	6.67	1042.96	5.52	1032.29
11	0.30	1042.03	0.23	1044.73
12	6.80	1051.38	0.45	1044.58
13	6.14	1056.83	0.69	1050.19
14	5.52	1057.17	8.18	1051.65
15			11.92	1045.25
				1.03

B.M.s listed 200, #39-5.00 F.R. 704/32 (22 June 1966)

B.M. from Survey for Proj. #39-5.00
 R/W men Pt. Sta. 179+15.22 elev. 1045.22
 B.M. date nail 28' T. pole 25' Pt. Sta. 174+79 elev. 1047.23

B.M. 97-0.76 Harrow teeth in pole 26.5' Pt. Sta. 139+03.5 Elev. 1030.20

Brq. 97-0.76 cont.

Sta.	Elev.
150	1033.57
125	1033.11
39+	1032.76
+75	1032.88
+50	1032.83
+25	1032.90
158+00	1032.91
+75	1033.00
+50	1032.98
+25	1032.90
157+00	1032.85
+75	1032.83
+50	1032.88
+25	1032.80
156+00	1032.75
+75	1032.77
+50	1032.81
+25	1032.93
155+00	1033.09
+75	1033.23
+50	1033.26
+25	1033.61
154+00	1033.67
+75	1033.76
+50	1033.94
+25	1034.14
153+00	1034.34
+75	1034.50
+50	1034.46
+25	1034.48
152+00	1034.55

L. E. R.

1030.20 BM narrowfoot in pole

8.9	8.7	23.2	30.8	2.3	2.6	1.6	29.5	8.9	9.5	9.2	29.1
38	32	21	16	8.1	8.1	14	19	24	32	39	53
				M		M					
27.9	27.9	9.1	28.7	31.5	2.7	3.8	30.6	28.8	27	9.4	50.2
37	31.2	24	22	15	9.2	8.0	15	21	24	26.2	34
	F				M	M					
30.0	30.4	9.5	29.2	1.6	2.7	2.7	30.8	28.3	8.6	29.2	30.7
31	30	25	23	15	9.2	8.2	14	20	22	25	34
	F				M	M					
0.7	39.7	29.6	30.0	1.9	2.6	2.7	31.9	28.6	2.0	9.1	30.6
35	28	23	20	15	9.2	7.8	11	16	18	19	25
	F				M	M					
30.9	30.4	9.6	29.8	1.2	3.9	3.9	2.1	29.0	29.2	5.1	31.1
33	25.2	23	19	16	9.4	8.0	11	18.2	20	22	32
	F				M	M					
31.3	31.5	0.4	0.4	37.6	3.4	3.4	2.7	30.5	29.6	9.7	31.2
31	24.5	21	19	13	9.4	7.8	10	16	18	18.5	28
	F				M	M					
32.8	32.4	1.4	31.5	2.8	32.0	4.12	3.5	1.2	30.4	0.5	2.0
31	23	21	18	16	9.5	7.7	12	17	18	20	23
	F				M	M					
37.8	2.8	1.8	1.8	3.0	4.2	4.4	3.8	0.8	0.9	32.1	32.5
31	24	20	18	13	9.5	7.8	11	18	19	23	32
	F				M	M					

Sta.	Elev.
-25	1032.19
26+00	1032.09
+75	1032.81
+50	1032.83
+25	1032.87
45+00	1032.82
+75	1032.85
+50	1032.81
+25	1032.73
24+00	1032.74
+75	1032.75
+50	1032.78
+25	1032.82
23+00	1032.94
+75	1033.14
+50	1033.25
+25	1033.21
22+00	1033.50
+75	1033.64
+50	1033.91
+25	1034.21
11+00	1034.37
+33.3	1034.59
+75	1034.61
+64.1	1034.98
+50	1035.24
+25	1035.11
+13	1034.29
20+	1034.48
+93.3	1034.38
39+75	1034.07

Sta.	Elev.												
30.0	29.2	29.5	30.0	1.5	2.0	2.8	1.6	31.0	0.0	3.0	0.6	3.9	
41	27	23	17	14	9	M	2.4	13	10	2.0	21	24	28
45+53 FL 1029.40													
50+76 FL 1027.80													

29.0	28.8	29.1	29.4	1.3	1.8	2.2	0.6	28.8	0.8	29.5
28	25	24	23	15	8.1	M	8.3	15	21	28
47 44+69 FL 1028.97										
44+85.5 FL 1028.83										

29.5	30.3	29.1	29.7	1.2	2.5	2.8	0.7	29.2	3.8	30.3	0.0
51	27	23	21	12	8.0	M	8.1	12	20	28	33

30.0	30.6	29.5	29.5	1.4	2.7	2.6	1.9	28.2	3.7	29.8	0.6	3.0
48	22	21	20	12	8.0	M	8.3	14	23	24	27	33

29.4	30.5	29.5	29.6	2.0	2.3	2.3	2.5	1.1	29.4	3.1	30.6		
48	24	23	17	13	7.2	M	7.3	14	18	22	22	24	27
32													
29													

30.5	28.1	30.1	31.5	3.3	4.1	4.2	3.0	30.4	28.0	26.8	26.8	
44	30	24	20	16	6.2	M	6.1	14	17	20	22	23
29.2												
38												
26												
24												

5+00 1052.07
39+74

