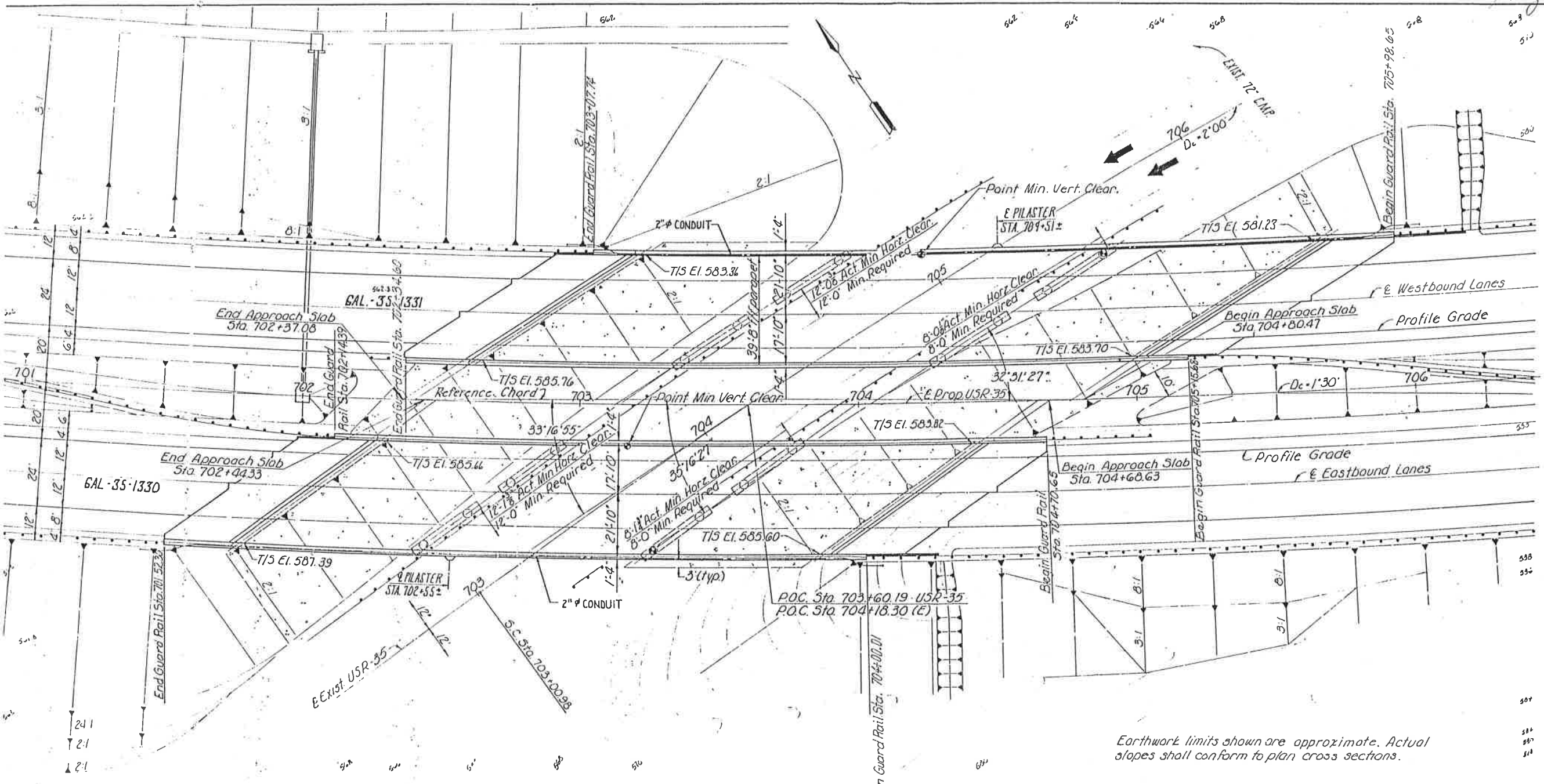


Proj. 8004(90)

|        |         |            |
|--------|---------|------------|
| STATE  | PROJECT | 447<br>515 |
| 5 OHIO |         |            |

GAL-35-8.22

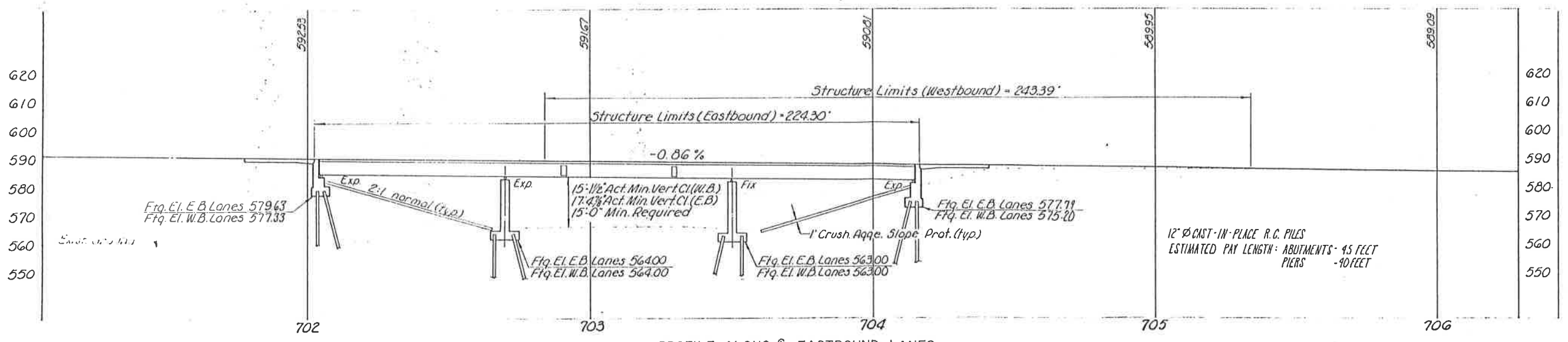
**CURVE DATA -USR-35**  
 $\Delta = 54^{\circ}00'$   
 $D_c = 1^{\circ}30'$   
 $L_c = 3400.00$   
 $R_c = 3819.719$



Earthwork limits shown are approximate. Actual slopes shall conform to plan cross sections.

PLAN

⊙ LOCATION OF STRUCTURE GROUNDING SYSTEM



PROFILE ALONG E EASTBOUND LANES

**PROPOSED STRUCTURES**  
 TYPE: Left & Right, continuous steel girder bridges with reinforced concrete decks and substructures.  
 SPANS: Left: 72'-0", 91'-0", 72'-0" @ E Survey; Right: 65'-6", 85'-6", 65'-6" @ E Survey  
 LOADING: HS20-100S11 Alternate Interstate Loading  
 WEARING SURFACE: Monolithic Concrete  
 SKEW: Left: 57°28'33" reference chord; Right: 54°43'33" reference chord  
 APPROACH SLAB: A5-1-81 (25'-0" long)  
 ALIGNMENT: 1°30' curve  
 SUPERELEVATION: 0.048 ft/ft  
 A.D.T. S300 A.D.T.T. 530 (2003)

FRANKLIN CONSULTANTS INC. 1/19  
 Consulting Engineers COLUMBUS, OHIO

**SITE PLAN** 1/342  
 BRIDGE NO. GAL-35-1330  
 BRIDGE NO. GAL-35-1331  
 over Exist. USR-35

GALLIA COUNTY USR-35  
 Scale: 1"=20'

|          |       |        |         |          |       |         |
|----------|-------|--------|---------|----------|-------|---------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE  | REVISED |
| F. A.    | W. H. |        | MM      | JL       | 11-74 |         |

ESTIMATED QUANTITIES - TWO BRIDGES

| ITEM    | TOTAL BOTH BR | TOTALS   |          | UNIT    | DESCRIPTION  | SUPERSTR. |          | ABUTMENTS |          | PIERS   |          | GENERAL |       |
|---------|---------------|----------|----------|---------|--|-----------|----------|-----------|----------|---------|----------|---------|-------|
|         |               | LEFT BR  | RIGHT BR |         |  | LEFT BR   | RIGHT BR | LEFT BR   | RIGHT BR | LEFT BR | RIGHT BR |         |       |
| 503     | 1,281         | 675      | 606      | CU.YD.  | UNCLASSIFIED EXCAVATION  |           |          | 492       | 423      | 183     | 183      |         |       |
| 505     | LUMP SUM      |          |          | LUMP    | PILE DRIVING EQUIPMENT MOBILIZATION  |           |          |           |          |         |          |         |       |
| 506     | LUMP SUM      |          |          | LUMP    | STATIC LOAD TEST   |           |          |           |          |         |          |         | LUMP  |
| 507     | 7,440         | 3,770    | 3,670    | LIN.FT. | 12" CAST-IN-PLACE REINFORCED CONCRETE PILES                                |           |          | 1,850     | 1,750    | 1,920   | 1,920    |         | LUMP  |
| 507     | 100           | 100      |          | LIN.FT. | PREBORED HOLES   |           |          | 100       |          |         |          |         |       |
| 509     | 124,024       | 64,547   | 59,477   | LB.     | REINFORCING STEEL, GRADE 60  |           |          | 23,319    | 17,766   | 41,228  | 41,711   |         |       |
| 511     | 653           | 346      | 307      | CU.YD.  | CLASS S CONCRETE, SUPERSTRUCTURE (SEE PROPOSAL NOTE)                       | 346       | 307      |           |          |         |          |         |       |
| 511     | 165           | 83       | 82       | CU.YD.  | CLASS C CONCRETE, PIER CAPS AND COLUMNS                                    |           |          |           |          | 83      | 82       |         |       |
| 511     | 409           | 223      | 186      | CU.YD.  | CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS                                 |           |          | 223       | 186      |         |          |         |       |
| 511     | 453           | 234      | 219      | CU.YD.  | CLASS C CONCRETE, FOOTINGS   |           |          | 132       | 117      | 102     | 102      |         |       |
| 513     | 585,200       | 333,350  | 251,850  | LB.     | STRUCTURAL STEEL (AISC CATEGORY III)                                       | 333,350   | 251,850  |           |          |         |          |         |       |
| 514     | LUMP SUM      | LUMP SUM | LUMP SUM | LUMP    | FIELD PAINTING OF STRUCTURAL STEEL, SYSTEM A, AS PER PLAN                  |           |          |           |          |         |          |         |       |
| 516     | 29,600        | 15,650   | 13,950   | LB.     | EXPANSION AND CONTRACTION JOINTS   | 15,650    | 13,950   |           |          |         |          |         |       |
| 518     | 202           | 113      | 89       | CU.YD.  | POROUS BACKFILL  |           |          | 113       | 89       |         |          |         |       |
| 518     | 253           | 135      | 118      | LIN.FT. | 6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01                        |           |          | 135       | 118      |         |          |         |       |
| 518     | 214           | 109      | 105      | LIN.FT. | 6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS 707.01 |           |          | 109       | 105      |         |          |         |       |
| 518     | 10            | 5        | 5        | EACH    | SCUPPERS, INCLUDING SUPPORTS   |           |          | 5         | 5        |         |          |         |       |
| 523     | 6             | 3        | 3        | HOURS   | DYNAMIC LOAD TEST  |           |          |           |          |         |          | 3       | 3     |
| 601     | 1,870         |          | 1,870    | SQ.YD.  | CRUSHED AGGREGATE SLOPE PROTECTION   |           |          |           |          |         |          |         | 1,870 |
| 601     | 12            |          |          | EA      | Barrier Reflectors, Type B   |           |          |           |          |         |          |         |       |
| 602     | 170,915       | 90,470   | 80,445   | LB.     | EPOXY COATED REINFORCING STEEL, GRADE 60                                   | 87,607    | 77,821   | 2,863     | 2,624    |         |          |         |       |
| 602     | 1050          | 529      | 529      | SQ.YD.  | Sealing of concrete surfaces (Epoxy) (See Proposal Note)                   | 475       | 475      | 57        | 45       |         |          |         |       |
| SPECIAL | 6673          | 3386     | 3287     | SQ.FT.  | PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)                        |           |          | 684       | 612      | 270.2   | 2675     |         |       |
| 625     |               |          |          | LIN.FT. | 2" CONDUIT, 713.04   |           |          |           |          |         |          |         |       |
| 625     |               |          |          | LIN.FT. | TRENCH, 24" DEEP   |           |          |           |          |         |          |         |       |
| 625     |               |          |          | EACH    | STRUCTURE GROUNDING SYSTEM (GAL-35-1330)                                   |           |          |           |          |         |          |         |       |
| 625     |               |          |          | EACH    | STRUCTURE GROUNDING SYSTEM (GAL-35-1331)                                   |           |          |           |          |         |          |         |       |
| 625     |               |          |          | EACH    | LIGHT POLE ANCHOR BOLTS FOR STRUCTURES 713.01                              |           |          |           |          |         |          |         |       |

\* TEST PILE: PAYMENT WILL BE MADE FOR ONLY ONE TEST PILE. IT MAY BE DRIVEN FOR EITHER THE LEFT OR RIGHT BRIDGE.

LEFT BRIDGE = GAL-35-1331  
RIGHT BRIDGE = GAL-35-1330

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS: AS-1-B1 DATED 11-27-81; RB-1-55 DATED 2-2-59R; SD-1-69: SHEETS 1, 2, 3 AND 4 OF 4 SHEETS DATED 6-12-69; BR-1 DATED 5-29-79; BP-7 DATED 10-1-81 GR-1 DATED 1-11-85; GR-3 DATED 1-21-85 HL-10-13 DATED 5-1-87, HL-20-15 DATED 5-1-87; -30-31 DATED 5-1-87, HL-50-21 DATED 5-1-87 AND TO SUPPLEMENTAL SPECIFICATIONS 836 DATED 11-12-85 AND 902 DATED 5-4-88

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 45 TONS PER PILE FOR THE ABUTMENTS AND 45 TONS PER PILE FOR THE PIERS.  
MAINTENANCE OF TRAFFIC: TWO LANES OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 24'-0" AND A MINIMUM VERTICAL CLEARANCE OF 13'-6" SHALL BE MAINTAINED ON EXISTING USR 35 AT ALL TIMES.  
12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATIONS FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

~~LIGHT POLE ANCHOR BOLTS FOR BRIDGES (CONTINUED)~~  
PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH SET OF THE SIZE REQUIRED AND NECESSARY TO INSTALL ONE POLE, AND THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND PLACING THE BOLTS.

~~CONDUIT ON STRUCTURES~~  
EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE TYPE AX, CROUSE-HINDS TYPE VJ-4, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER. EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.

~~EMBANKMENT CONSTRUCTION:~~ THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. AFTER A MINIMUM WAITING PERIOD OF 3 MONTHS, FOR THE REAR ABUTMENTS, EXCAVATION MAY BE MADE FOR THE ABUTMENTS and piers and the piles driven.

~~ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS:~~ CONCRETE INSERT ANCHOR ASSEMBLIES, PER STANDARD CONSTRUCTION DRAWING GR-1 AND GR-3, SHALL BE PLACED DURING PARAPET CONSTRUCTION.

~~MONOLITHIC WEARING SURFACE:~~ FOR DESIGN PURPOSES THICKNESS IS ASSUMED TO BE 1 INCH.

~~DECK PROTECTION METHOD:~~ EPOXY COATED REINFORCING STEEL, BOTH MATS.

| DESIGN DATA:       |   |
|--------------------|---|
| DESIGN LOADING     | HS-20-44 CASE II AND THE INTERSTATE ALTERNATE LOADING.  |
| CONCRETE CLASS "S" | UNIT STRESS 1500 P.S.I. FOR SUPERSTRUCTURE.   |
| CONCRETE CLASS "C" | UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE.   |
| STRUCTURAL STEEL   | ASTM A588- UNIT STRESS 27,000 P.S.I.  |
| REINFORCING STEEL  | ASTM A615, A616 OR A617- UNIT STRESS 24,000 P.S.I. SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615. |

~~ANCHOR BOLTS SHALL HAVE A 15" DIA. BOLT CIRCLE UTILIZING TWO 1" x 86 1/2" U-SHAPED ANCHOR BOLTS AS PER STANDARD CONSTRUCTION DRAWING HL-3 (7-27-73)~~

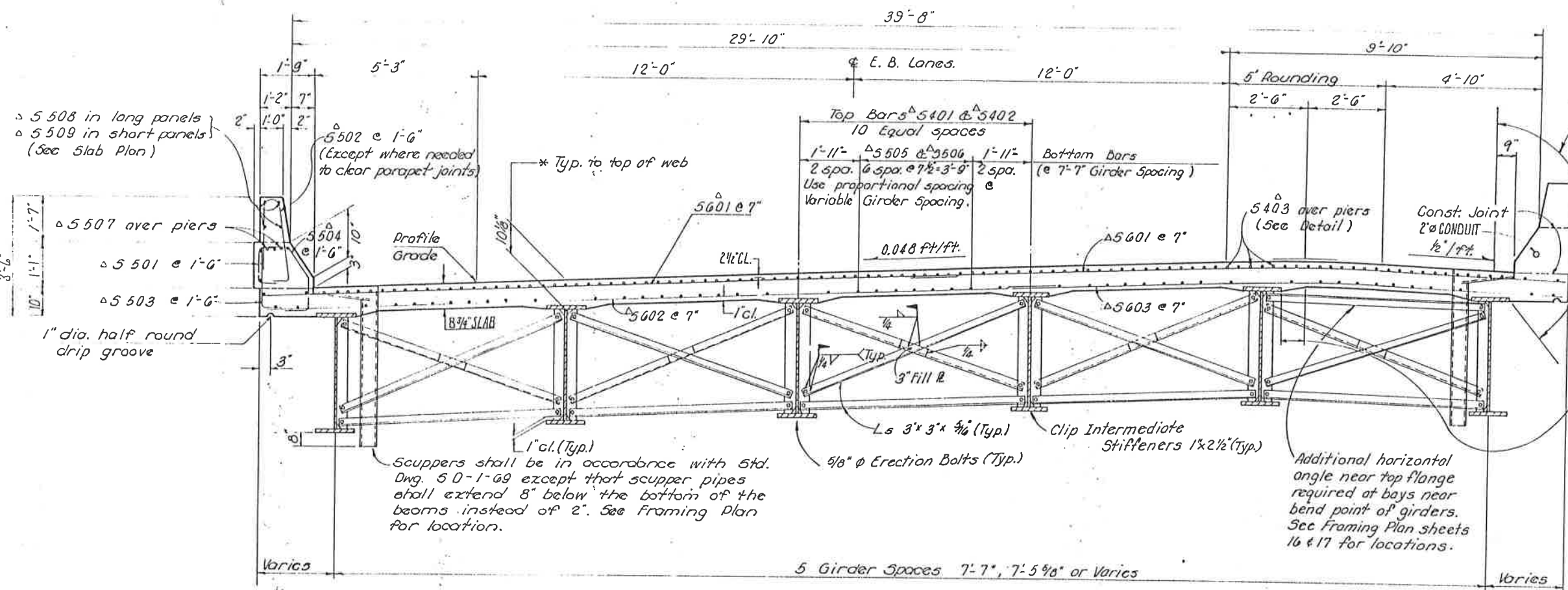
~~LIGHT POLE ANCHOR BOLTS FOR BRIDGES~~  
ANCHOR BOLTS FOR MOUNTING LIGHT POLES ON BRIDGES SHALL CONFORM TO THE REQUIREMENTS OF 713.01 AND DETAILS SHOWN ON THE PLANS AND STANDARD DRAWINGS, OR THE APPROVED SHOP DRAWINGS FOR THE RESPECTIVE POLES TO BE PLACED THEREON.

|  |          |        |
|--|----------|--------|
| STATE OF OHIO<br>DEPARTMENT OF TRANSPORTATION<br>BUREAU OF BRIDGES AND STRUCTURAL DESIGN |          | 3 / 19 |
| <b>ESTIMATED QUANTITIES &amp; GENERAL NOTES</b>  |          |        |
| BRIDGES No. GAL-35-1330 & 1331<br>over Existing USR - 35                                 |          |        |
| GALLIA COUNTY  |          | USR 35 |
| DESIGNED   | DRAWN    | TRACED |
| CHECKED  | REVIEWED | DATE   |
| REVISED  |          |        |

|                   |       |         |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5                 | OHIO  |         |

460  
515

GAL-35-8.22



Sealing of concrete surfaces (Epoxy) (Typ.)

\* This is the design dimension. The quantity of deck concrete to be paid for shall be based upon this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per 511.18.

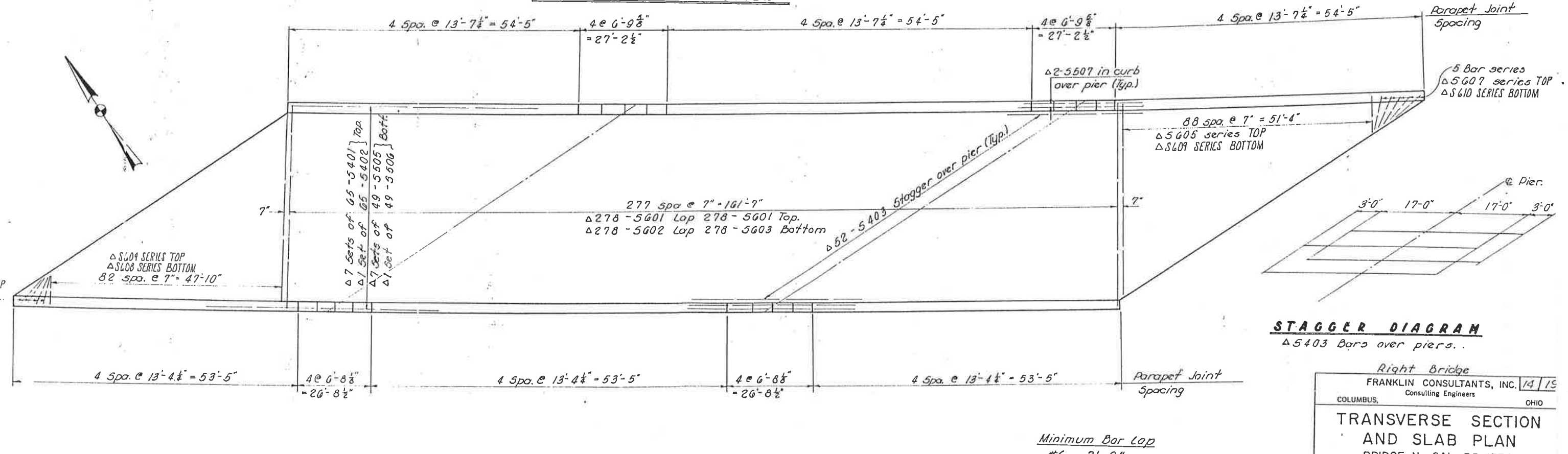
A haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" (provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.)

ERECTION BOLTS: Hole diameter in the crossframes and girder stiffeners shall be respectively 1/16" and 1/4" larger than the diameter of the erection bolts. Unless replaced by permanent high strength bolts, erection bolts shall remain in place. Lock washers shall be furnished for other than fully torqued high strength erection bolts. Bolts shall be furnished as part of 513.

In lieu of erection bolts and at the option of the Contractor, alternative means of temporary bracing may be used subject to the approval of the Director (501.06).

For Additional Notes & Details see sheet Nos. 15, 16, 17.  
 Δ Denotes Epoxy Coated Bars.

**TRANSVERSE SECTION**



**SLAB PLAN**

Minimum Bar Lap  
 #6 ~ 2'-0"  
 #5 ~ 1'-7"  
 #4 ~ 1'-3"

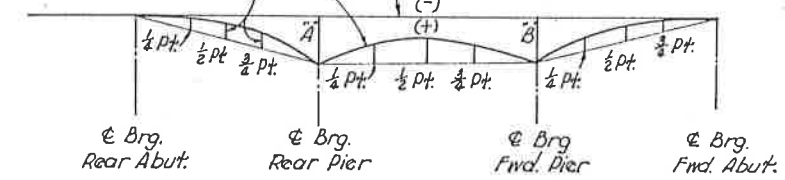
**STAGGER DIAGRAM**  
 Δ 5403 Bars over piers.

|   |      |                                  |      |
|---|------|----------------------------------|------|
| Right Bridge                              |      | FRANKLIN CONSULTANTS, INC. 14/15 |      |
| COLUMBUS, OHIO                            |      | Consulting Engineers             |      |
| <b>TRANSVERSE SECTION AND SLAB PLAN</b>   |      |                                  |      |
| BRIDGE No. GAL-35-1330 over Exist. USR-35 |      |                                  |      |
| DESIGNED                                  |      | TRACED                           |      |
| DRAWN                                     |      | CHECKED                          |      |
| DATE                                      |      | REVIEWED                         |      |
| REVISION                                  |      | DATE                             |      |
| MM  | F.G. | A.D.W.                           | J.F. |
|   |      |                                  | 7/11 |

**DEFLECTION AND CAMBER**

|  | Gal-35-1331 (Left Bridge) |         |         |         |         |         |         |         |         | Gal-35-1330 (Right Bridge) |         |         |         |         |         |         |         |         |
|--|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | Span 1                    |         |         | Span 2  |         |         | Span 3  |         |         | Span 1                     |         |         | Span 2  |         |         | Span 3  |         |         |
|  | 1/4 pt.                   | 1/2 pt. | 3/4 pt. | 1/4 pt. | 1/2 pt. | 3/4 pt. | 1/4 pt. | 1/2 pt. | 3/4 pt. | 1/4 pt.                    | 1/2 pt. | 3/4 pt. | 1/4 pt. | 1/2 pt. | 3/4 pt. | 1/4 pt. | 1/2 pt. | 3/4 pt. |
| Deflection due to own weight of steel. | 1/16                      | 1/16    | 1/16    | 1/16    | 1/16    | 1/16    | 0       | 1/16    | 1/16    | 1/16                       | 1/16    | 0       | 1/16    | 1/16    | 1/16    | 0       | 1/16    | 1/16    |
| Deflection due to remaining dead load. | 3/8                       | 7/16    | 3/4     | 3/16    | 7/16    | 3/4     | 1/8     | 3/8     | 3/16    | 3/16                       | 3/16    | 1/8     | 1/4     | 7/16    | 1/4     | 1/16    | 1/4     | 1/4     |
| Adjustment required for horiz. curve.  | -1/16                     | -1/8    | -1/16   | -1/16   | -1/8    | -1/16   | -1/16   | -1/8    | -1/16   | -1/16                      | -1/16   | -1/8    | -1/16   | -1/8    | -1/16   | -1/16   | -1/8    | -1/16   |
| Required shop camber.                  | 3/8                       | 3/8     | 3/8     | 3/16    | 3/8     | 3/16    | 1/16    | 5/16    | 5/16    | 5/16                       | 1/4     | 1/16    | 1/4     | 3/8     | 1/4     | 0       | 3/16    | 1/4     |

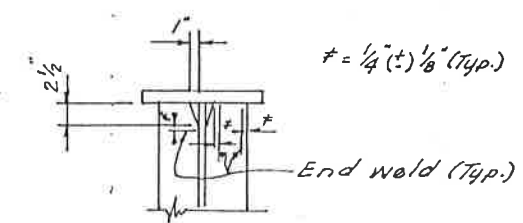
Required Shop Camber (See Table at Left)  
Girder shown in correct unloaded position.  
Base line is a line from bearing rear abutment to bearing fwd. abut. at girder.



LAYOUT DIAGRAM (See table left and below) (Both Bridges)

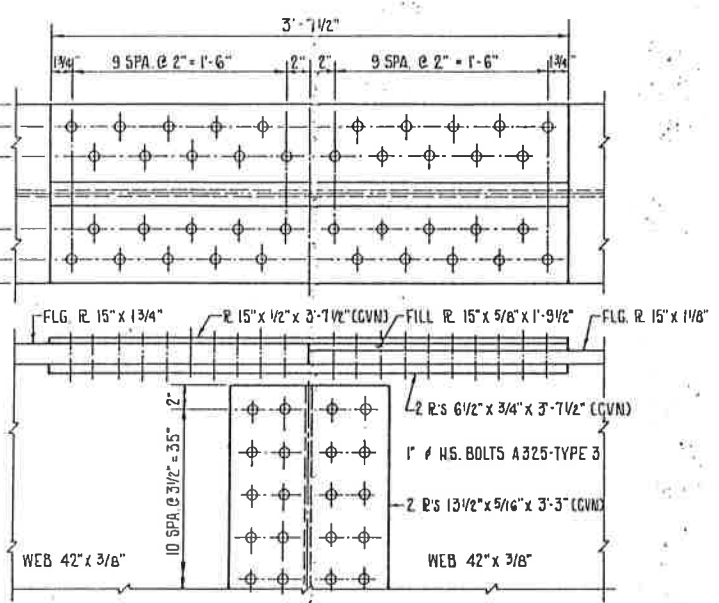
|            | GAL-35-1331 LEFT BRIDGE |       | GAL-35-1330 RIGHT BRIDGE |       |
|------------|-------------------------|-------|--------------------------|-------|
|            | A                       | B     | A                        | B     |
| Girder # 1 | 0                       | -1/4" | Girder # 7               | 0     |
| Girder # 2 | 7/8"                    | 1/8"  | Girder # 8               | 5/8"  |
| Girder # 3 | 1/8"                    | 3/8"  | Girder # 9               | 9/8"  |
| Girder # 4 | 1/8"                    | 9/8"  | Girder # 10              | 9/8"  |
| Girder # 5 | 1/8"                    | 7/8"  | Girder # 11              | 5/8"  |
| Girder # 6 | 9/8"                    | 1/2"  | Girder # 12              | -7/8" |

**Notes**  
Reference is made to Standard Drawing SD-1-69. The 516 pay item, Expansion and Contraction joints, shall include the main angle (2x4x1), supporting angle (2x4x3/4), abutment angle (2x4x1/2), 2" edge bar, curb plates, 5" wide bevel fill plates, 3/8" gusset plates that are shop welded to the supporting angle, all anchor bars and plates and temporary fasteners. The remaining components of the end crossframes shall be included in Item 513 for payment. (Typical for both bridges: 1. GAL-35-1330 and 2. GAL-35-1331.)

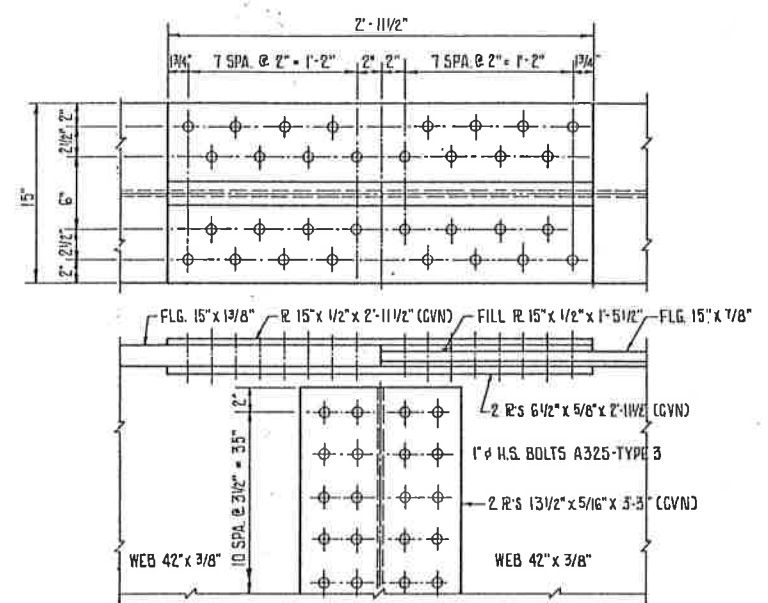


STIFFENER WELD TERMINATION DETAIL

Intermediate stiffeners to which crossframe angles are connected shall be welded to the top and bottom flanges.



LEFT BRIDGE SPLICE

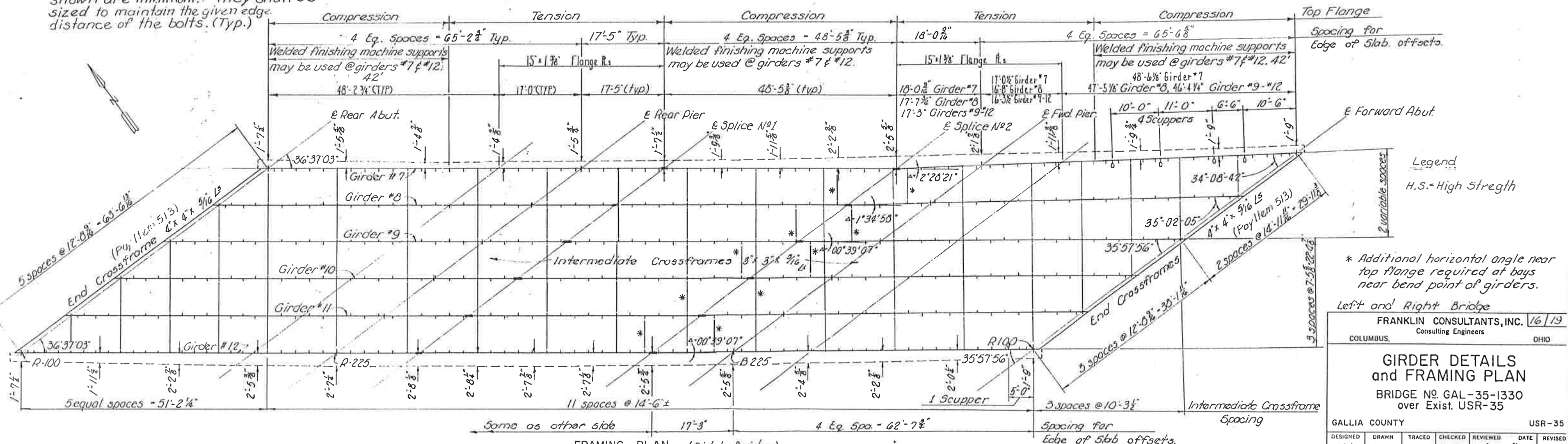


RIGHT BRIDGE SPLICE

Splice # 3  
Girder # 1 Δ = 02°-48'-48" Left.  
Girder # 2 Δ = 01°-49'-17" Left.  
Girder # 3-# 6 Δ = 00°-46'-04" Left.  
The size of the flange and fill plates shown are minimum. They shall be sized to maintain the given edge distance of the bolts. (Typ.)

Splice # 2  
Girder # 7 Δ = 2°-28'-21" Left  
Girder # 8 Δ = 1°-34'-58" Left  
Girder # 9-# 12 Δ = 0°-39'-07" Left

GIRDER LAYOUT (Both Bridges)



FRAMING PLAN (Right Bridge)

**Legend**  
H.S. - High Strength  
\* Additional horizontal angle near top flange required at bays near bend point of girders.  
Left and Right Bridge

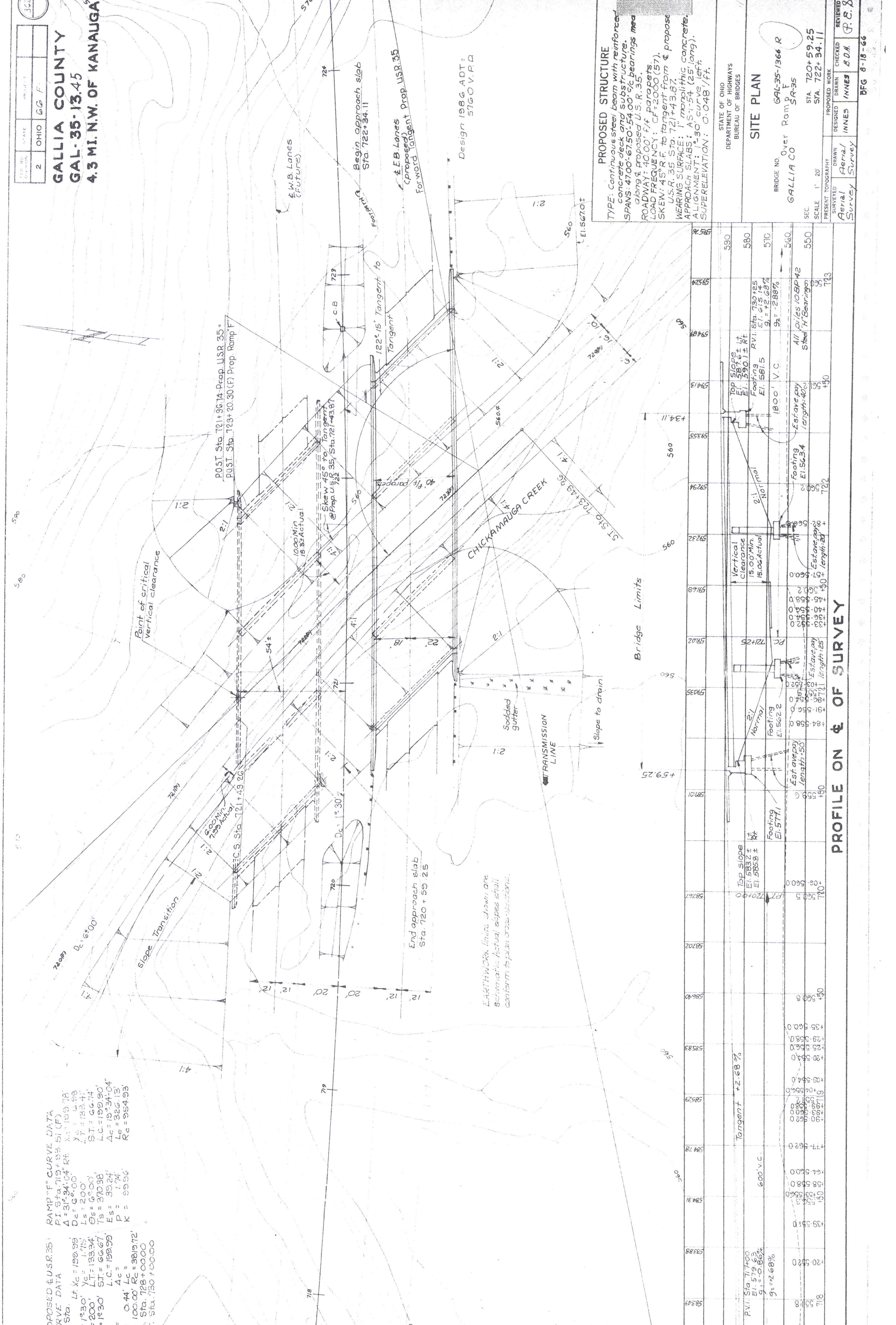
FRANKLIN CONSULTANTS, INC. 1/6/19  
Consulting Engineers COLUMBUS, OHIO

**GIRDER DETAILS AND FRAMING PLAN**  
BRIDGE NO. GAL-35-1330 over Exist. USR-35

GALLIA COUNTY USR-35

|          |       |        |         |          |      |         |
|----------|-------|--------|---------|----------|------|---------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
| H.H.     | F.G.  |        | J.W.B.  | J.F.     | 7/11 |         |

**GALLIA COUNTY**  
**GAL-35-13.45**  
**4.3 MI. N.W. OF KANAUGA, O.**



**PROPOSED U.S.R. 35:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**CURVE DATA:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
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 Ts = 133.34'  
 ST = 66.67'  
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**RAMP "F" CURVE DATA:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
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**PROPOSED U.S.R. 35:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
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 Ls = 200'  
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**PROPOSED U.S.R. 35:**  
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**PROPOSED U.S.R. 35:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**CURVE DATA:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**RAMP "F" CURVE DATA:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**PROPOSED U.S.R. 35:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**CURVE DATA:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
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**RAMP "F" CURVE DATA:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
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 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**PROPOSED U.S.R. 35:**  
 P.I. Sta. 719+93.51 (CF)  
 Δ = 31°34'04" R  
 Δc = 6°00'  
 Dc = 190.99'  
 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
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 P.I. Sta. 719+93.51 (CF)  
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 Ls = 200'  
 Ts = 133.34'  
 ST = 66.67'  
 L.C. = 199.99'  
 Es = 39.24'  
 P = 1.74'  
 K = 89.96'

**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beam with reinforced concrete deck and substructure.  
 SPANS: 4700'-6750'-5400'-5400' bearings med along & proposed U.S.R. 35.  
 ROADWAY: 40'00' F/F parapets  
 LOAD FREQUENCY: CF=2000 (57).  
 SKEW: 45° R F to tangent from & propose U.S.R. 35 Sta. 721+43.87.  
 WEARING SURFACE: 1" monolithic concrete.  
 APPROACH SLABS: AS-1-54 (25' long).  
 ALIGNMENT: 1'-30" curve left.  
 SUPERELEVATION: 0.048'/ft.

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 BUREAU OF BRIDGES

**SITE PLAN**

BRIDGE NO. GAL-35-1366 R  
 Over Romp F  
 GALLIA CO  
 SR-35

SEC. STA. 720+59.25  
 STA. 722+34.11

SCALE 1" = 20'

PRESENT TOPOGRAPHY  
 Aerial Survey

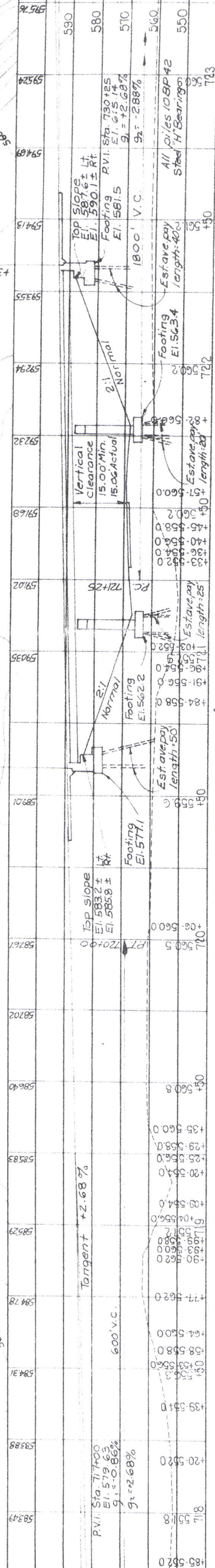
DRAWN  
 Aerial Survey

DESIGNED  
 INNES

CHECKED  
 INNES

REVIEWED  
 B.D.A.

DATE  
 8-18-66



**PROFILE ON & OF SURVEY**

EARTHWORK limits shown are schematic actual slopes shall conform to plan cross-sections.

Bridge Limits



GAL 35-1374

### GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65 sheets 1, 2, 3, dated 11-8-65, R8-1-55, revised 2-2-59 and BR-1-65 sheet 1, revised 11-24-65 and to Supplemental Specifications 808 dated 1-13-67, 811 dated 1-1-67, 825 dated 1-1-67 and 828 dated 1-1-67.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of Design Specifications for Highway Structures of the State of Ohio, Department of Highways dated 9-1-57, together with current revisions thereof.

DESIGN DATA: Design Loading - CF 2000 (S7)

- Concrete Class C - basic unit stress 1333 p.s.i.
- Concrete Class E - basic unit stress 1133 p.s.i.
- Structural Steel - ASTM A36 - basic unit stress 20,000 p.s.i.
- Reinforcing Steel - ASTM A15, A16, A16G, Deformed, Intermediate or Hard Grade
- Basic unit stress 20,000 p.s.i. except that spiral reinforcement shall be plain bars and may be structural grade with basic unit stress of 18,000 p.s.i.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments and piers.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

- For the abutment piles
  - 45 tons per pile using a 7000 ft. lb. hammer
  - 40 tons per pile using an 11000 ft. lb. hammer
  - 35 tons per pile using a 15000 ft. lb. or greater hammer.
- For the pier piles
  - 55 tons per pile using a 7000 ft. lb. hammer
  - 50 tons per pile using an 11000 ft. lb. hammer
  - 45 tons per pile using a 15000 ft. lb. or greater hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile.

PROCEDURE: The embankments shall be placed and compacted up to the finished spill-thru slopes and to the level of the subgrade for a distance of 200 feet back of the abutments for S.R. 35 and to the elevation of the subgrade for Ramp. After which excavation may be made for the abutments and piers. Then the piles shall be driven.

### ESTIMATED QUANTITIES

| Item | Total  | Unit     | Description   | Super. | Piers | Abuts. | Gen'l | As Built |
|------|--------|----------|---|--------|-------|--------|-------|----------|
| 503  | 500    | Cu. Yds. | Unclassified excavation                               |        | 130   | 370    | Lump  |          |
| 505  | Lump   | Sum      | First test pile                                       |        |       |        | Lump  |          |
| 507  | 2340   | Lin. Ft. | Steel piles, IOBP42                                   |        | 900   | 1440   |       |          |
| 509  | 99336  | Lbs.     | Reinforcing steel                                     | 62905  | 21423 | 15008  |       |          |
| 511  | 224    | Cu. Yds. | Class C concrete, super-structure                     | 224    |       |        |       |          |
| 511  | 81     | Cu. Yds. | Class C concrete, pier caps and columns               |        | 81    |        |       |          |
| 511  | 160    | Cu. Yds. | Class E concrete abutments above footings             |        | 160   |        |       |          |
| 511  | 148    | Cu. Yds. | Class E concrete footings                             |        | 48    | 100    |       |          |
| 513  | 183000 | Lbs.     | Structural steel                                      | 183000 |       |        |       |          |
| 514  | 183000 | Lbs.     | Field painting of structural steel                    | 183000 |       |        |       |          |
| 517  | 402.65 | Lin. Ft. | Railing (Type 1 with concrete parapet and end posts)  | 339.73 |       | 62.92  |       |          |
| 518  | 66     | Cu. Yds. | Porous backfill                                       |        |       | 66     |       |          |
| 518  | 103    | Lin. Ft. | C Perforated helical C.M.P. including specials, 1070G |        |       | 103    |       |          |
| 518  | 86     | Lin. Ft. | C Non-perforated helical C.M.P. 1070G                 |        |       | 86     |       |          |
| 518  | 6      | Each     | Scuppers, including supports - Type 2                 | 6      |       |        |       |          |
| 518  | 1      | Each     | Scuppers, including supports - Special                | 1      |       |        |       |          |
| 601  | 710    | Sq. Yds. | Crushed aggregate slope protection                    |        |       |        | 710   |          |
| 808  | 224    | Units    | Water-reducing set-retarding admixture                | 224    |       |        |       |          |
| 825  | 940    | Sq. Yds. | Concrete surface treatment                            | 870    |       | 70     |       |          |
| 928  | 107    | Lin. Ft. | Joint sealer (end dam)                                |        |       | 107    |       |          |

|   |        |         |             |
|---|--------|---------|-------------|
| STATE OF OHIO<br>DEPARTMENT OF HIGHWAYS<br>DIVISION OF DESIGN AND CONSTRUCTION<br>BUREAU OF BRIDGES |        |         |             |
| <b>GENERAL NOTES &amp;<br/>ESTIMATED QUANTITIES</b>   |        |         |             |
| BRIDGE No. GAL-35-1366R   |        |         |             |
| OVR RAMP F  |        |         |             |
| DESIGNED  | DRAWN  | CHECKED | REVIEWED    |
| WTF   | R.D.M. |         |             |
|   |        |         | DATE        |
|   |        |         | BFG 8-18-66 |

Rev. 7-14-67  
Rev. 2-8-67



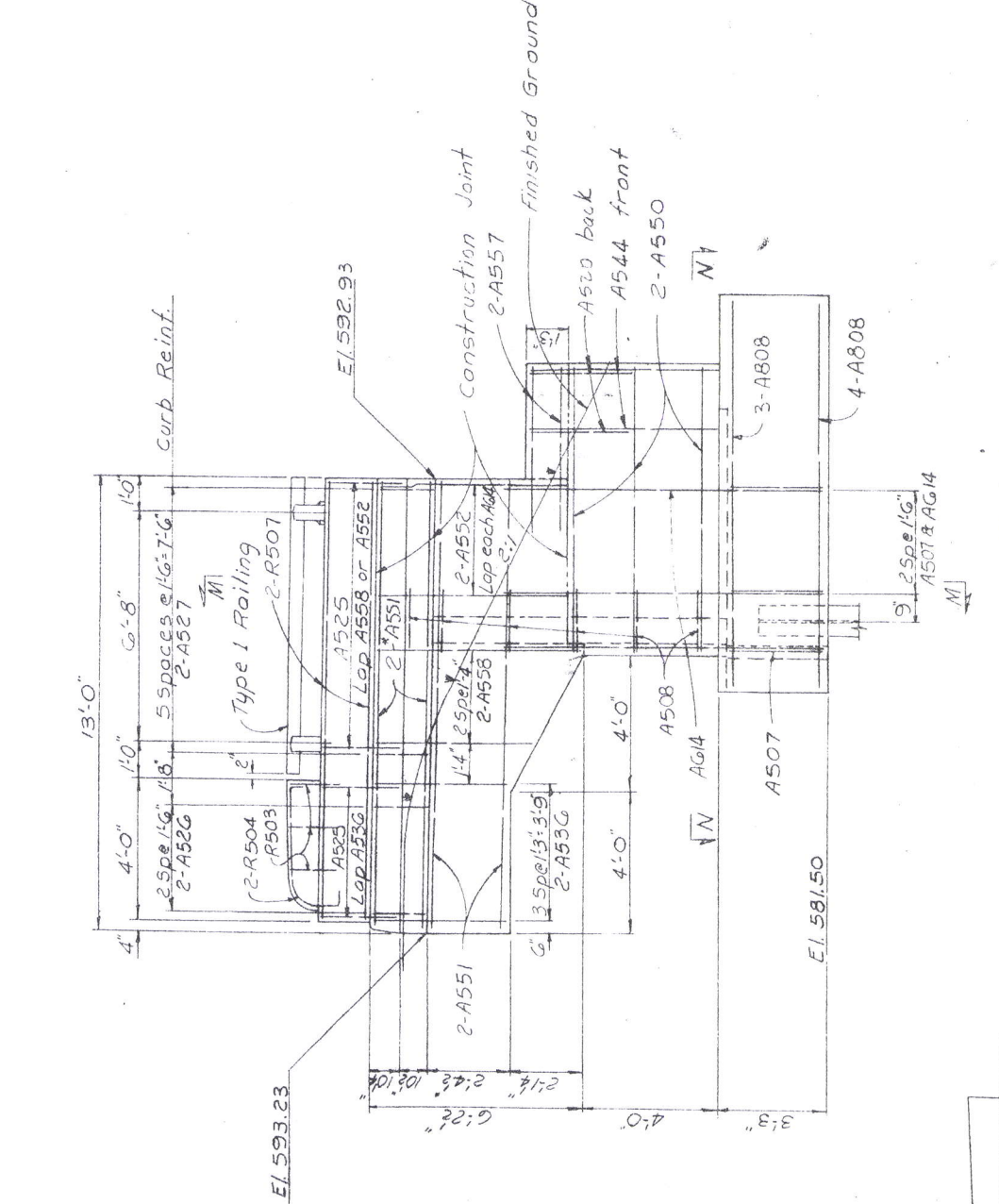
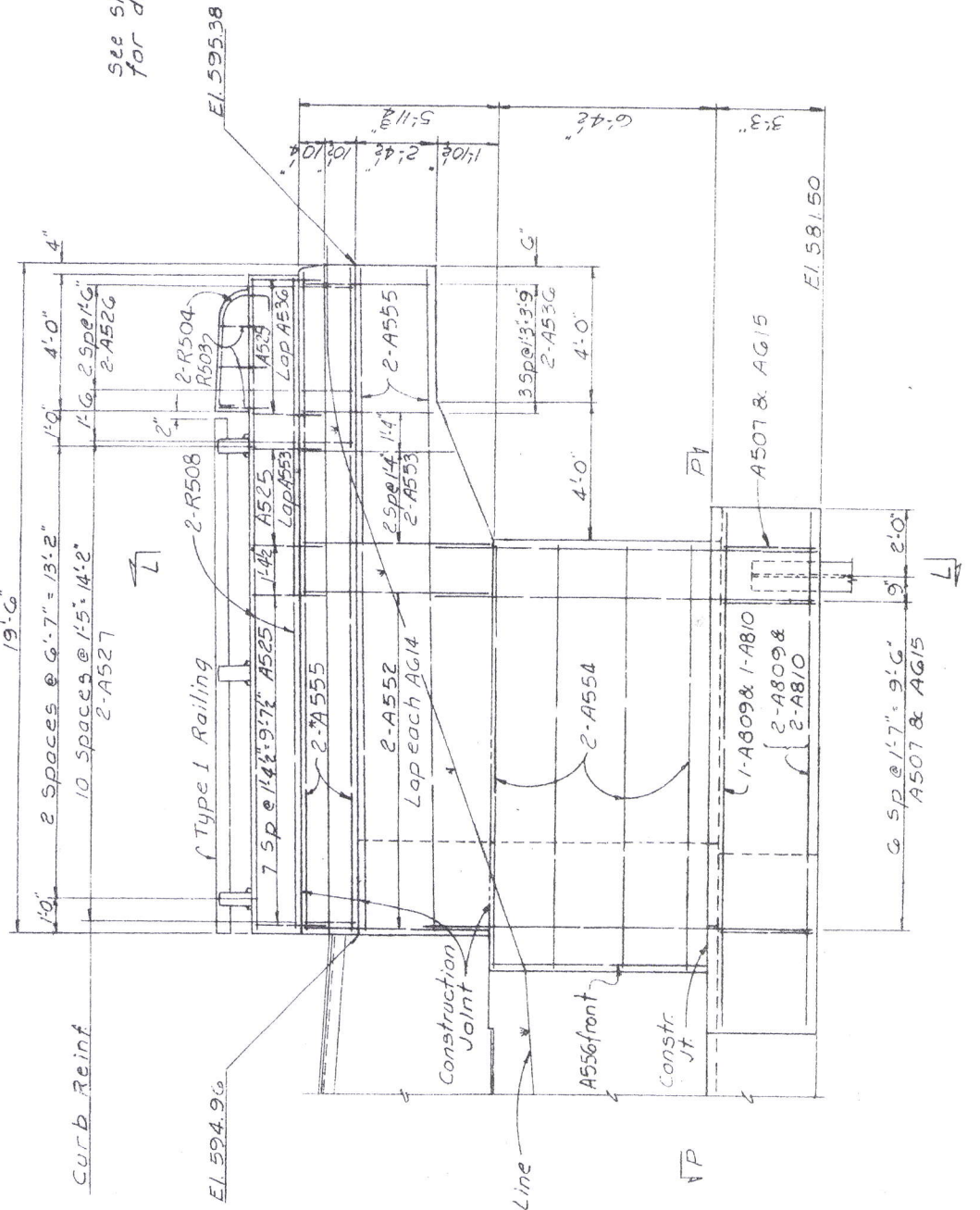




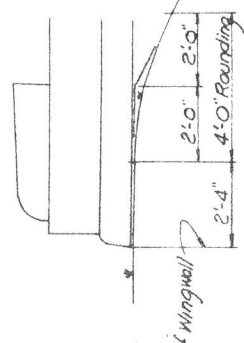


GAL-35-1345

See sh. 1 of Std Dwg, BR-1-55 for details of Type 1 Railing

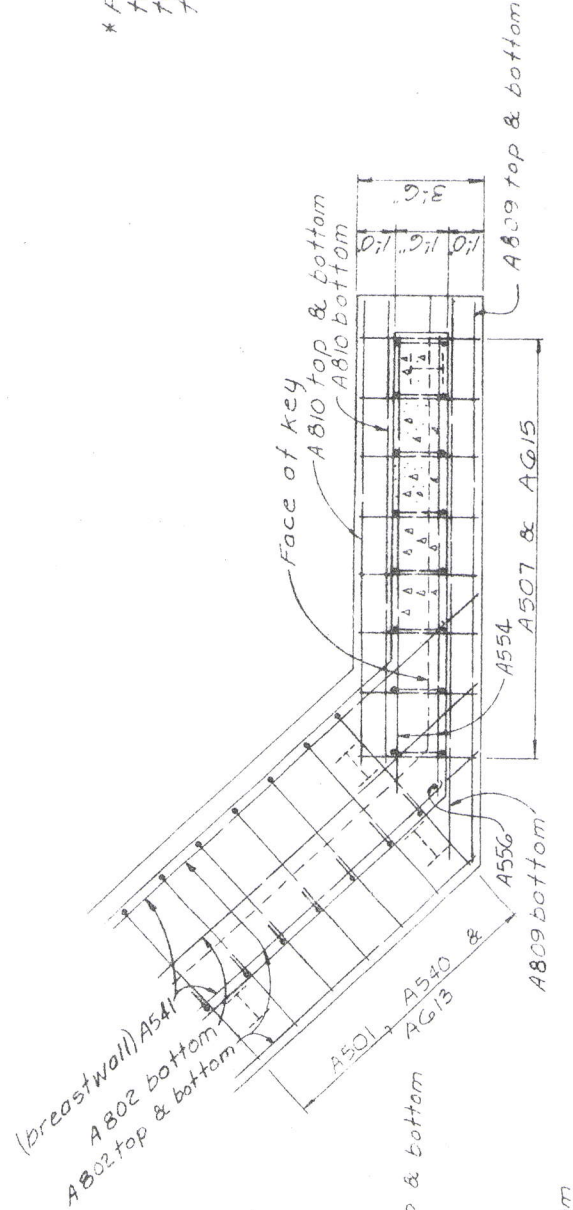


VIEW J-J



ARTH SLOPE ROUNDING DETAIL

VIEW K-K



SECTION N-N

SECTION L-L AS SHOWN SECTION M-M SIMILAR (Except for Porous Backfill)

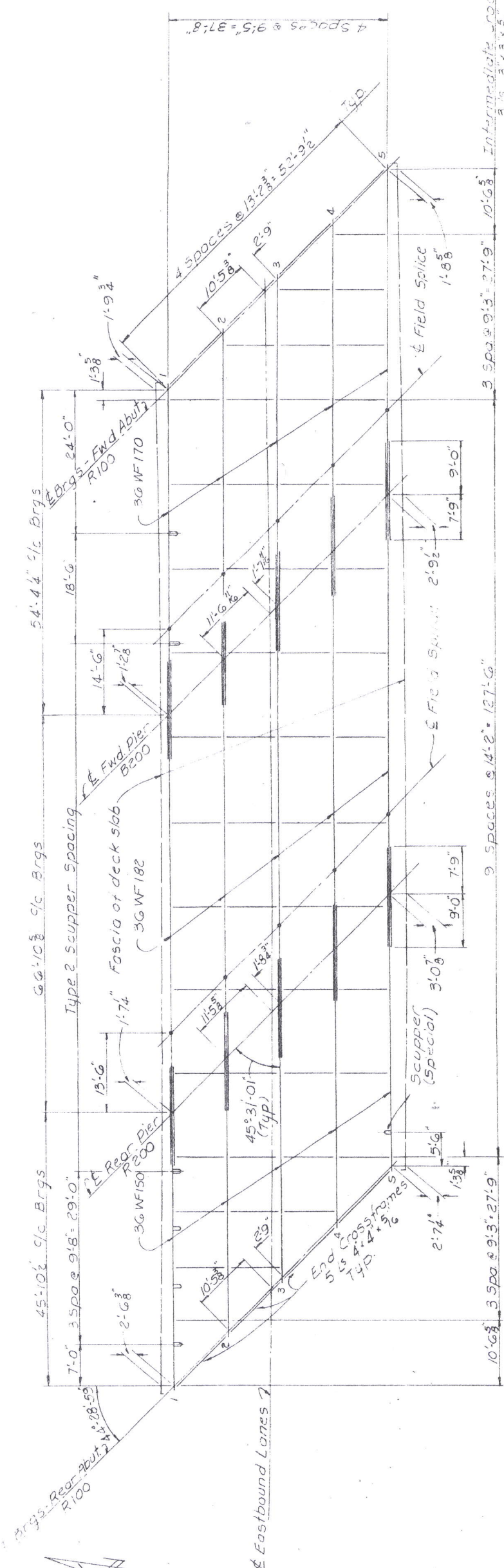
\* FIELD BENDING OF A551 and A555 bars adjacent to the face of the curb will be required in order to fit the curvature of the curb. Payment for bending shall be included with Item 509.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

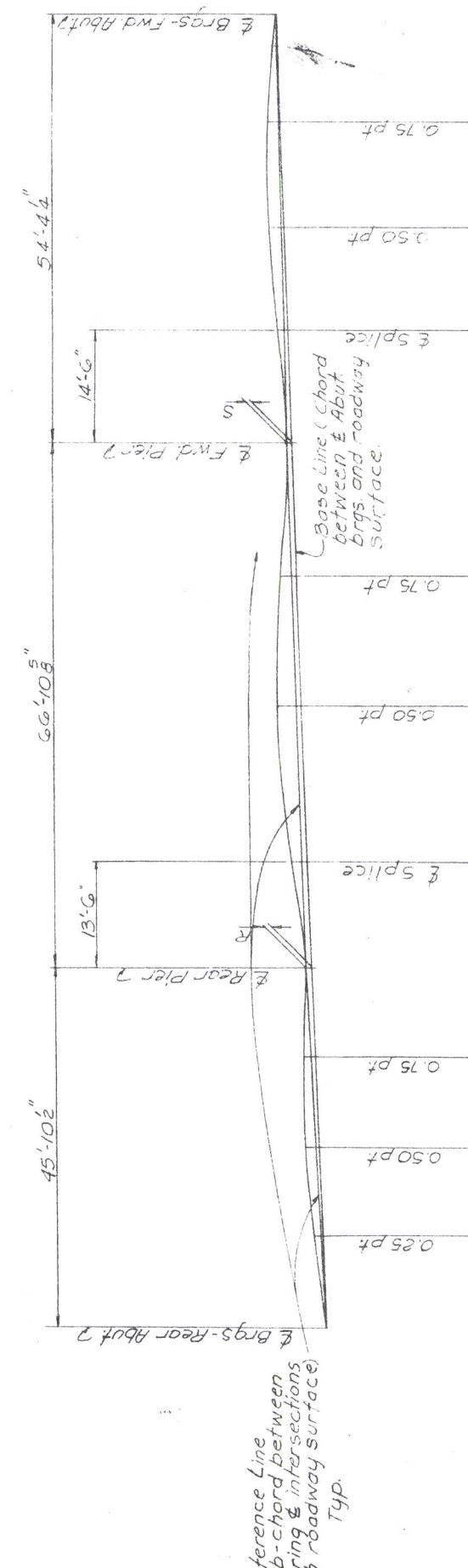
FORWARD ABUTMENT DETAILS  
BRIDGE NO. GAL-35-1366  
OVER RAMP F

|          |     |        |     |         |      |          |     |      |         |
|----------|-----|--------|-----|---------|------|----------|-----|------|---------|
| DESIGNED | WTF | TRACED | WTF | CHECKED | Rush | REVIEWED | BFG | DATE | 8-18-66 |
|----------|-----|--------|-----|---------|------|----------|-----|------|---------|





STEEL FRAMING PLAN



CAMBER AND LAYDOWN DIAGRAM

MOMENT PLATES

|              |                          |
|--------------|--------------------------|
| Rear Pier    | 10' 1/2" x 16' 9" Top    |
|              | 13' 1/2" x 16' 9" Bottom |
| Forward Pier | 10' 1/2" x 16' 9" Top    |
|              | 13' 1/2" x 16' 9" Bottom |

OFFSETS FROM BASE LINE

| Beam Line | R   | S   |
|-----------|-----|-----|
| 1         | 1'  | 1'  |
| 2         | 3'  | 3'  |
| 3         | 6'  | 6'  |
| 4         | 9'  | 9'  |
| 5         | 12' | 12' |

CONCRETE PLACEMENT ELEVATIONS

| STATION   | LEFT CURB | RIGHT CURB |
|-----------|-----------|------------|
| 720+78.06 | 589.52    |            |
| 721+00    | 590.12    |            |
| 721+16.65 |           | 591.80     |
| 721+24.67 | 590.77    |            |
| 721+25    | 590.78    | 592.03     |
| 721+50    | 591.46    | 592.68     |
| 721+62.35 |           | 593.00     |
| 721+75    | 592.09    | 593.34     |
| 721+91.65 | 592.50    |            |
| 722+00    | 592.70    | 593.97     |
| 722+25    | 593.83    | 594.55     |
| 722+28.03 |           | 594.62     |
| 722+45.24 | 593.78    |            |
| 722+50    |           | 595.15     |
| 722+75    |           | 595.70     |
| 722+80.63 |           | 595.82     |

Form elevation at top surface of the concrete slab prior to placing slab concrete

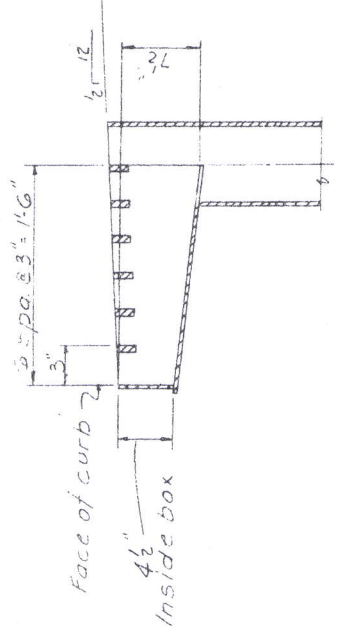
Substructure bearings

See Standard Drawing SD-1-65 for details of:  
 End Crossframes  
 End Dams  
 Curb Plates  
 Scuppers  
 Bolted Beam Splice Details

See Standard Drawing RB-1-55 for Bearing Devices

See Standard Drawing BR-1-65 sheet 1 for end post, parapet and Type 1 Bridge Railing

SCUPPER (SPECIAL) DETAILS  
 For additional details, see Std Dwg. SD-1-65, 5th Ed.



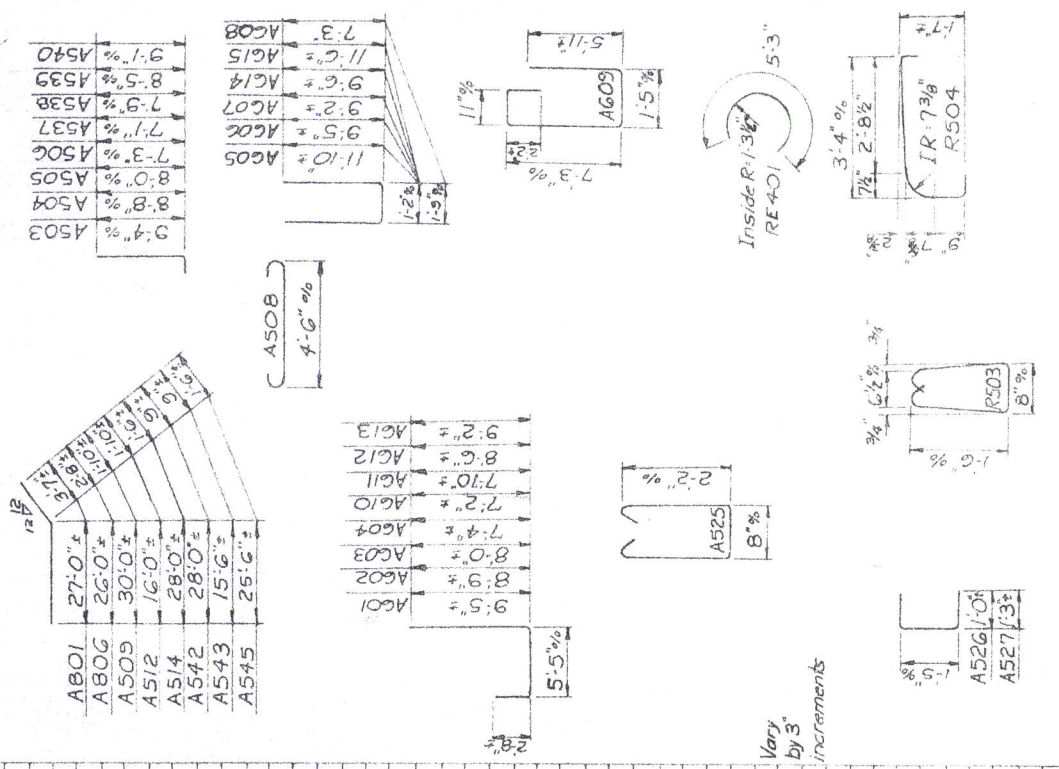




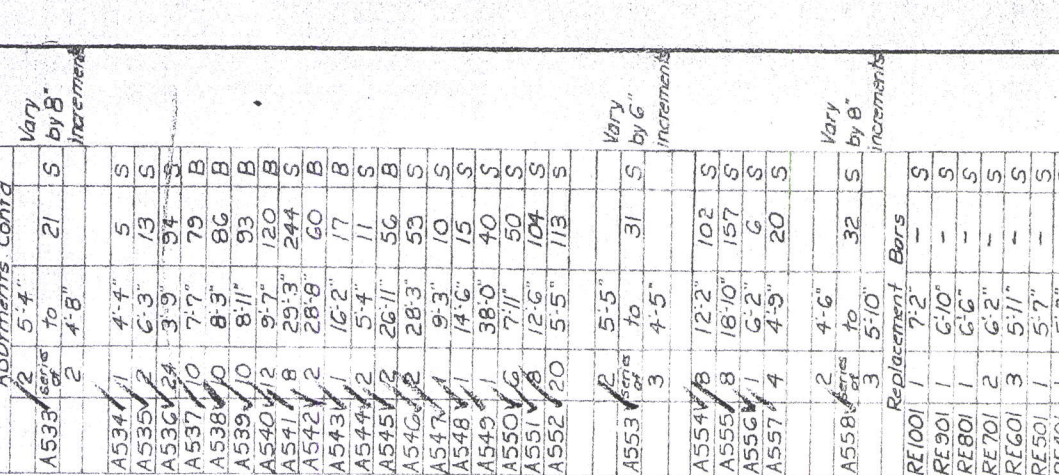
**REINFORCING STEEL LIST**

| Superstructure |        | Abutments |       | Piers    |         | Railing |      | Spiral Reinforcing |        | Replacement Bars |      |
|----------------|--------|-----------|-------|----------|---------|---------|------|--------------------|--------|------------------|------|
| Mark No.       | Length | Weight    | Ship  | Mark No. | Length  | Weight  | Ship | Mark No.           | Length | Weight           | Ship |
| S              |        | S         |       | S        |         | S       |      | S                  |        | S                |      |
| S701           | 191    | 41'-8"    | 16267 | AG09     | 17'-0"  | 1736    | B    | SP401              | 16'-2" | 305              | B    |
| S702           | 1      | 39'-3"    | 2279  | AG10     | 14'-1"  | 224     | B    | SP402              | 16'-8" | 312              | B    |
| S703           | 49     | 6'-3"     | 2206  | AG11     | 15'-7"  | 234     | B    | SP403              | 17'-2" | 325              | B    |
| SG01           | 191    | 41'-8"    | 11953 | AG12     | 16'-3"  | 244     | B    | SP404              | 17'-8" | 332              | B    |
| SG02           | 1      | 39'-3"    | 1674  | AG13     | 16'-11" | 305     | B    | SP405              | 18'-2" | 339              | B    |
| SG03           | 47     | 6'-3"     | 1621  | AG14     | 19'-10" | 119     | B    | SP406              | 18'-7" | 352              | B    |
| SG04           | 12     | 5'-8"     | 102   | AG15     | 23'-0"  | 286     | B    |                    |        |                  |      |
| SG05           | 10     | 6'-0"     | 90    | A501     | 8'-4"   | 721     | B    |                    |        |                  |      |
| SG06           | 395    | 30'-0"    | 17799 | A502     | 8'-4"   | 548     | B    |                    |        |                  |      |
| SG07           | 79     | 28'-4"    | 3362  | A503     | 9'-2"   | 86      | B    |                    |        |                  |      |
| SG08           | 60     | 27'-0"    | 2493  | A504     | 9'-2"   | 89      | B    |                    |        |                  |      |
| S501           | 227    | 4'-11"    | 1164  | A505     | 8'-6"   | 81      | B    |                    |        |                  |      |
| S502           | 227    | 2'-6"     | 592   | A506     | 7'-9"   | 380     | B    |                    |        |                  |      |
| S503           | 234    | 5'-7"     | 1363  | A507     | 12'-2"  | 77      | B    |                    |        |                  |      |
| P1001          | 20     | 29'-7"    | 2546  | A508     | 5'-8"   | 99      | B    |                    |        |                  |      |
| P1002          | 28     | 15'-2"    | 1827  | A509     | 3'-9"   | 103     | S    |                    |        |                  |      |
| P1003          | 14     | 34'-10"   | 2098  | A510     | 33'-0"  | 37      | B    |                    |        |                  |      |
| P1004          | 28     | 16'-0"    | 1928  | A511     | 4       | 17      | S    |                    |        |                  |      |
| P901           | 72     | 6'-7"     | 1612  | A512     | 17'-9"  | 598     | S    |                    |        |                  |      |
| P902           | 72     | 19'-10"   | 809   | A513     | 15'-6"  | 184     | B    |                    |        |                  |      |
| P903           | 12     | 20'-4"    | 830   | A514     | 29'-5"  | 16      | S    |                    |        |                  |      |
| P904           | 12     | 21'-2"    | 864   | A515     | 30'-0"  | 188     | B    |                    |        |                  |      |
| P905           | 12     | 21'-8"    | 884   | A516     | 15'-3"  | 16      | S    |                    |        |                  |      |
| P906           | 2      | 22'-1"    | 801   | A517     | 9'-0"   | 9       | S    |                    |        |                  |      |
| P907           | 12     | 22'-4"    | 911   | A518     | 37'-8"  | 39      | S    |                    |        |                  |      |
|                |        |           |       | A519     | 9       | 76      | S    |                    |        |                  |      |
|                |        |           |       | A520     | 5       | 16      | S    |                    |        |                  |      |
|                |        |           |       | A521     | 4       | 17      | S    |                    |        |                  |      |
|                |        |           |       | A522     | 10      | 54      | S    |                    |        |                  |      |
|                |        |           |       | A523     | 2       | 34      | S    |                    |        |                  |      |
|                |        |           |       | A524     | 10      | 115     | S    |                    |        |                  |      |
|                |        |           |       | A525     | 9       | 285     | B    |                    |        |                  |      |
|                |        |           |       | A526     | 24      | 79      | B    |                    |        |                  |      |
|                |        |           |       | A527     | 66      | 252     | B    |                    |        |                  |      |
|                |        |           |       | A528     | 4       | 54      | S    |                    |        |                  |      |
|                |        |           |       | A529     | 2       | 28      | S    |                    |        |                  |      |
|                |        |           |       | A530     | 8       | 165     | S    |                    |        |                  |      |
|                |        |           |       | A531     | 4       | 22      | S    |                    |        |                  |      |
|                |        |           |       | A532     | 14      | 79      | S    |                    |        |                  |      |

**Bending Diagrams**



**Banding Diagrams**



\* Included with railing for payment

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, P1001 is a No 10 size bar and AG01 is a No 6 size.

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

**REINFORCING STEEL LIST**

BRIDGE No. GAL-35-1366R  
 OVER RAMP F

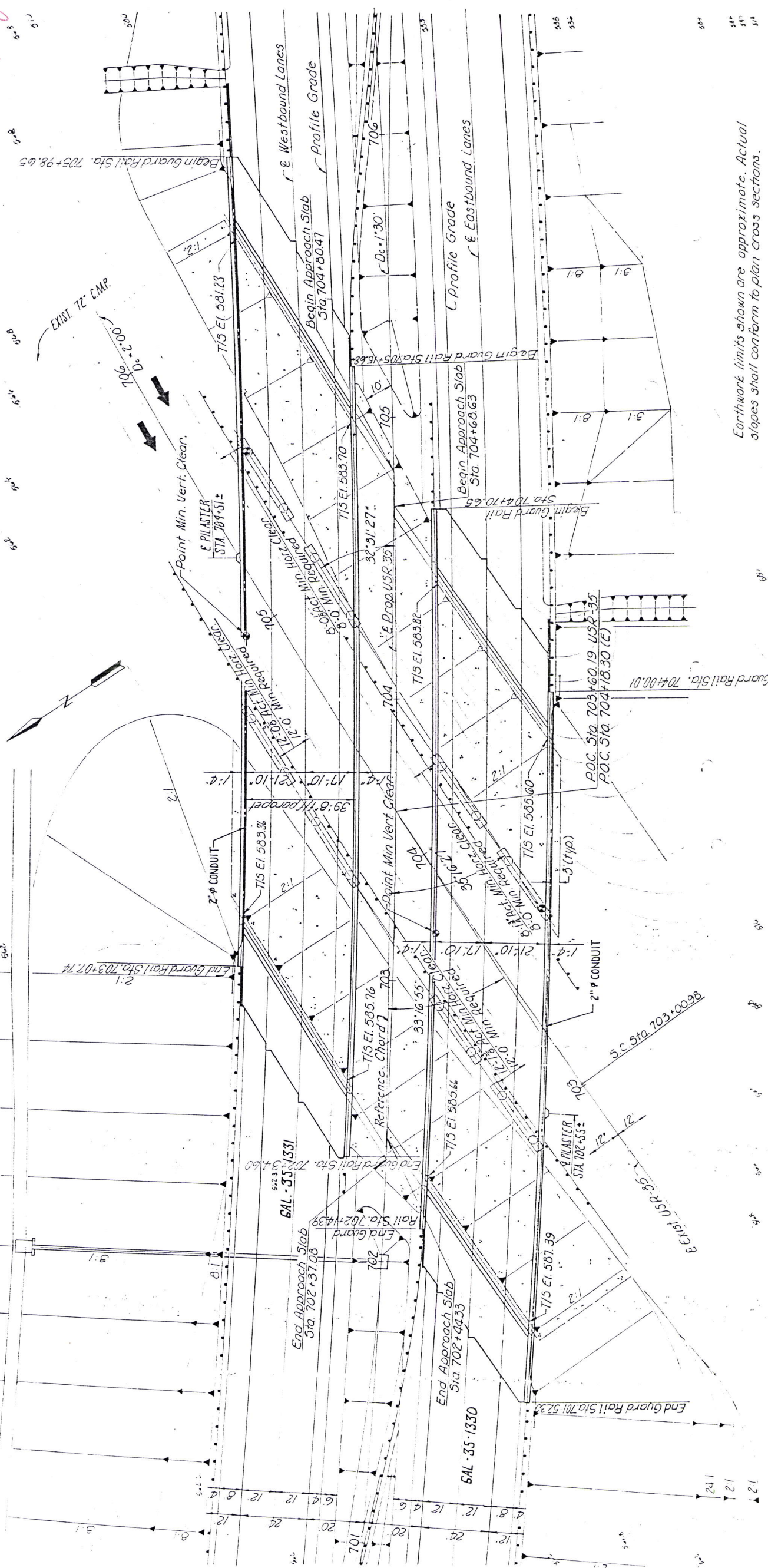
DESIGNED BY: W.F. RDM  
 CHECKED BY: R.J.  
 DATE: BFG 8-18-66



Proj. 8004(90)

|             |         |
|-------------|---------|
| 4-47        | PROJECT |
| 515         |         |
| 5           | OHIO    |
| GAL-35-8.22 |         |

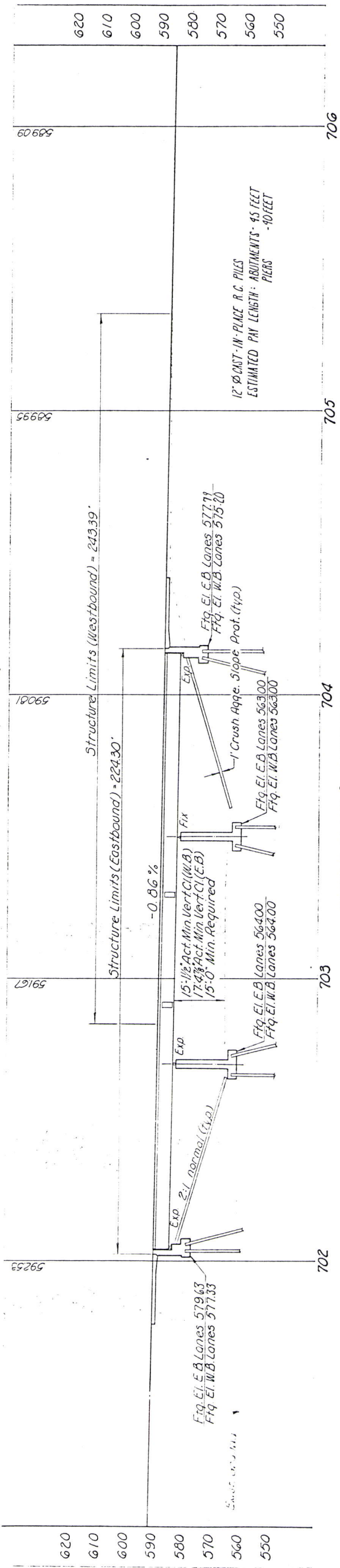
**CURVE DATA - USR-35**  
 $\Delta = 54.00$   
 $D_c = 1.30$   
 $L_c = 3400.00$   
 $R_c = 3819.719$



Earthwork limits shown are approximate. Actual slopes shall conform to plan cross sections.

**PLAN**

**LOCATION OF STRUCTURE GROUNDING SYSTEM**



**PROPOSED STRUCTURES**

TYPE: Left & Right, continuous steel girder bridges with reinforced concrete decks and substructures.  
 SPANS: Left: 72'-0" x 91'-0" x 72'-0" @ E & Survey Right: 65'-6" x 65'-6" x 65'-6" @ E & Survey  
 LOADING: HS20-14K alternate Interstate Loading  
 WEARING SURFACE: Monolithic Concrete  
 SKEW: Left: 57'28" 33" reference chord Right: 54'43" 33" reference chord  
 APPROACH SLAB: A5-1-81 (25'-0" long)  
 ALIGNMENT: 1'30" curve  
 SUPERELEVATION: 0.046 fl/ft  
 A.D.T. 5300 A.D.T.T. 530 (2003)

FRANKLIN CONSULTANTS INC. 1/19  
 Consulting Engineers  
 COLUMBUS, OHIO

**SITE PLAN** 1342  
 BRIDGE NO. GAL-35-1330  
 BRIDGE NO. GAL-35-1331  
 over Exist. USR-35

|                |               |
|----------------|---------------|
| GALLIA COUNTY  | USR-35        |
| Scale: 1"=20'  |               |
| DESIGNED: F.A. | DRAWN: J.F.   |
| TRACED: J.F.   | CHECKED: J.F. |
| REVIEWED: J.F. | DATE: 5/1/74  |

GAL-35-8.22

ESTIMATED QUANTITIES - TWO BRIDGES

| ITEM    | TOTAL BOTH BRS | TOTALS  |          | UNIT    | DESCRIPTION  | SUPERSTR. |          | ABUTMENTS |          | PIERS   |          | GENERAL |      |
|---------|----------------|---------|----------|---------|--|-----------|----------|-----------|----------|---------|----------|---------|------|
|         |                | LEFT BR | RIGHT BR |         |  | LEFT BR   | RIGHT BR | LEFT BR   | RIGHT BR | LEFT BR | RIGHT BR |         |      |
| 503     | 1,281          | 675     | 606      | CU.YD.  | UNCLASSIFIED EXCAVATION  |           |          | 492       | 423      | 183     | 183      |         |      |
| 505     |                |         |          | LUMP    | PILE DRIVING EQUIPMENT MOBILIZATION  |           |          |           |          |         |          |         | LUMP |
| 506     |                |         |          | LUMP    | STATIC LOAD TEST   |           |          |           |          |         |          |         | LUMP |
| 507     | 7,440          | 3,770   | 3,670    | LIN.FT. | 12" CAST-IN-PLACE REINFORCED CONCRETE PILES                                |           |          | 1,850     | 1,750    | 1,920   | 1,920    |         |      |
| 509     | 124,024        | 64,547  | 59,477   | LB.     | REINFORCING STEEL, GRADE 60  |           |          | 23,319    | 17,766   | 41,228  | 41,711   |         |      |
| 511     | 653            | 346     | 307      | CU.YD.  | CLASS S CONCRETE SUPERSTRUCTURE (SEE PROPOSAL NOTE)                        |           | 346      |           |          |         |          |         |      |
| 511     | 165            | 83      | 82       | CU.YD.  | CLASS C CONCRETE PIER CAPS AND COLUMNS                                     |           |          |           |          | 83      | 82       |         |      |
| 511     | 409            | 223     | 186      | CU.YD.  | CLASS C CONCRETE ABUTMENTS ABOVE FOOTINGS                                  |           |          | 223       | 186      |         |          |         |      |
| 511     | 453            | 234     | 219      | CU.YD.  | CLASS C CONCRETE FOOTINGS  |           |          | 132       | 117      | 102     | 102      |         |      |
| 513     | 585,200        | 333,350 | 251,850  | LB.     | STRUCTURAL STEEL (AISC CATEGORY III)                                       |           | 333,350  |           |          |         |          |         |      |
| 514     |                |         |          | LUMP    | FIELD PAINTING OF STRUCTURAL STEEL, SYSTEM A, AS PER PLAN                  |           | LUMP     |           |          |         |          |         |      |
| 516     | 29,600         | 15,650  | 13,950   | CU.YD.  | EXPANSION AND CONTRACTION JOINTS   |           | 15,650   |           |          |         |          |         |      |
| 518     | 202            | 113     | 89       | LIN.FT. | POROUS BACKFILL  |           |          | 113       | 89       |         |          |         |      |
| 518     | 253            | 135     | 105      | LIN.FT. | 6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01                        |           |          | 135       | 105      |         |          |         |      |
| 518     | 214            | 109     | 105      | LIN.FT. | 6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS 707.01 |           |          | 109       | 105      |         |          |         |      |
| 518     | 10             | 5       | 5        | EACH    | SCUPPERS, INCLUDING SUPPORTS   |           |          |           |          |         |          |         |      |
| 523     | 6              | 3       | 3        | HOURS   | DYNAMIC LOAD TEST  |           |          |           |          |         |          |         |      |
| 601     | 1,870          |         |          | SQ.YD.  | CRUSHED AGGREGATE SLOPE PROTECTION   |           |          |           |          |         |          | 3       |      |
| 604     |                |         |          | LB.     | EPOXY COATED REINFORCING STEEL, GRADE 60                                   |           | 87,607   | 77,821    | 2,863    | 2,624   |          |         | 1870 |
| SPECIAL | 170,915        | 90,470  | 87,607   | LIN.FT. | PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)                        |           | 474      | 474       | 37       | 45      |          |         |      |
| 625     | 6,673          | 3,386   | 3,287    | SQ.FT.  | CONDUIT, 2" CONDUIT, 713.04  |           |          |           | 684      | 612     | 270.2    | 2675    |      |
| 625     |                |         |          | LIN.FT. | TRENCH, 24" DEEP   |           |          |           |          |         |          |         |      |
| 625     |                |         |          | EACH    | STRUCTURE GROUNDING SYSTEM (GAL-35-1330)                                   |           |          |           |          |         |          |         |      |
| 625     |                |         |          | EACH    | STRUCTURE GROUNDING SYSTEM (GAL-35-1331)                                   |           |          |           |          |         |          |         |      |
| 625     |                |         |          | EACH    | LIGHT POLE ANCHOR BOLTS FOR STRUCTURES 713.01                              |           |          |           |          |         |          |         |      |

\* TEST PILE : PAYMENT WILL BE MADE FOR ONLY ONE TEST PILE.  
IT MAY BE DRIVEN FOR EITHER THE LEFT OR RIGHT BRIDGE.

LEFT BRIDGE = GAL-35-1331  
RIGHT BRIDGE = GAL-35-1330

GENERAL NOTES

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 45 TONS PER PILE FOR THE ABUTMENTS AND 45 TONS PER PILE FOR THE PIERS.  
MAINTENANCE OF TRAFFIC: TWO LANES OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 24'-0" AND A MINIMUM VERTICAL CLEARANCE OF 13'-8" SHALL BE MAINTAINED ON EXISTING USR 35 AT ALL TIMES.  
12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATIONS FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.  
ANCHOR BOLTS SHALL HAVE A 1 1/2" DIA. BOLT CLARGE UTILIZING TWO 1" x 86 1/2" U-SHAPED ANCHOR BOLTS AS PER STANDARD CONSTRUCTION DRAWING HL-3 (17-27-73)  
LIGHT POLE ANCHOR BOLTS FOR BRIDGES  
ANCHOR BOLTS FOR MOUNTING LIGHT POLES ON BRIDGES SHALL CONFORM TO THE REQUIREMENTS OF 713.01 AND DETAILS SHOWN ON THE PLANS AND STANDARD DRAWINGS, OR THE APPROVED SHOP DRAWINGS FOR THE RESPECTIVE POLES TO BE PLACED THEREON.

LEFT POLE ANCHOR BOLTS FOR BRIDGES (CONTINUED)  
PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH SET OF THE SIZE REQUIRED AND NECESSARY TO INSTALL ONE POLE, AND THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EMBANKMENT AND PLACING THE BOLTS.  
CONDUIT ON STRUCTURES  
EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE TYPE AX. CROUSE-HINDS TYPE VJ-4, ABBEYTON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER. EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.  
EMBANKMENT CONSTRUCTION: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. AFTER A MINIMUM WAITING PERIOD OF 3 MONTHS, FOR THE REAR ABUTMENTS, EXCAVATION MAY BE MADE FOR THE ABUTMENTS and piles and the piles driven.  
ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS: CONCRETE INSERT ANCHOR ASSEMBLIES, PER STANDARD CONSTRUCTION DRAWING GR-1 AND GR-3, SHALL BE PLACED DURING PARAPET CONSTRUCTION.  
MONOLITHIC WEARING SURFACE: FOR DESIGN PURPOSES THICKNESS IS ASSUMED TO BE 1 INCH.  
DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, BOTH MATS.

DESIGN SPECIFICATIONS: THESE STRUCTURES CONFORM TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS 1973, INCLUDING THE 1974, 1975 AND 1976 INTERIM SPECIFICATIONS AND THE "OHIO SUPPLEMENT" TO THESE SPECIFICATIONS.

|                    |  |
|--------------------|--|
| DESIGN DATA:       |  |
| DESIGN LOADING     | HS-20-44 CASE II AND THE INTERSTATE ALTERNATE LOADING.   |
| CONCRETE CLASS "S" | UNIT STRESS 1500 P.S.I. FOR SUPERSTRUCTURE.  |
| CONCRETE CLASS "C" | UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE.  |
| STRUCTURAL STEEL   | ASTM A588 - UNIT STRESS 27,000 P.S.I.  |
| REINFORCING STEEL  | ASTM A615, A616 OR A617 - UNIT STRESS 24,000 P.S.I. SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615. |

|                   |       |         |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5                 | OHIO  |         |

GAL-35-8.22

Sealing of concrete surfaces (Epoxy) (Typ.)

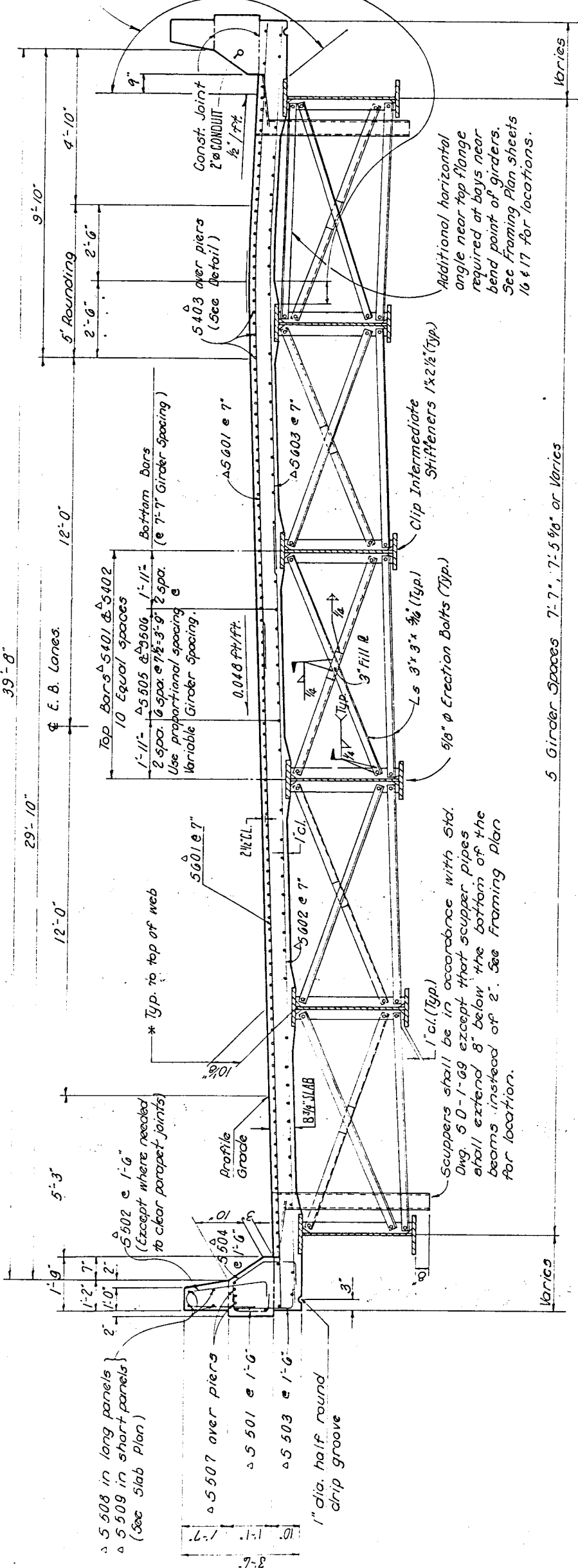
\* This is the design dimension. The quantity of deck concrete to be paid for shall be based upon this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per 511.18.

A haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" (provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.)

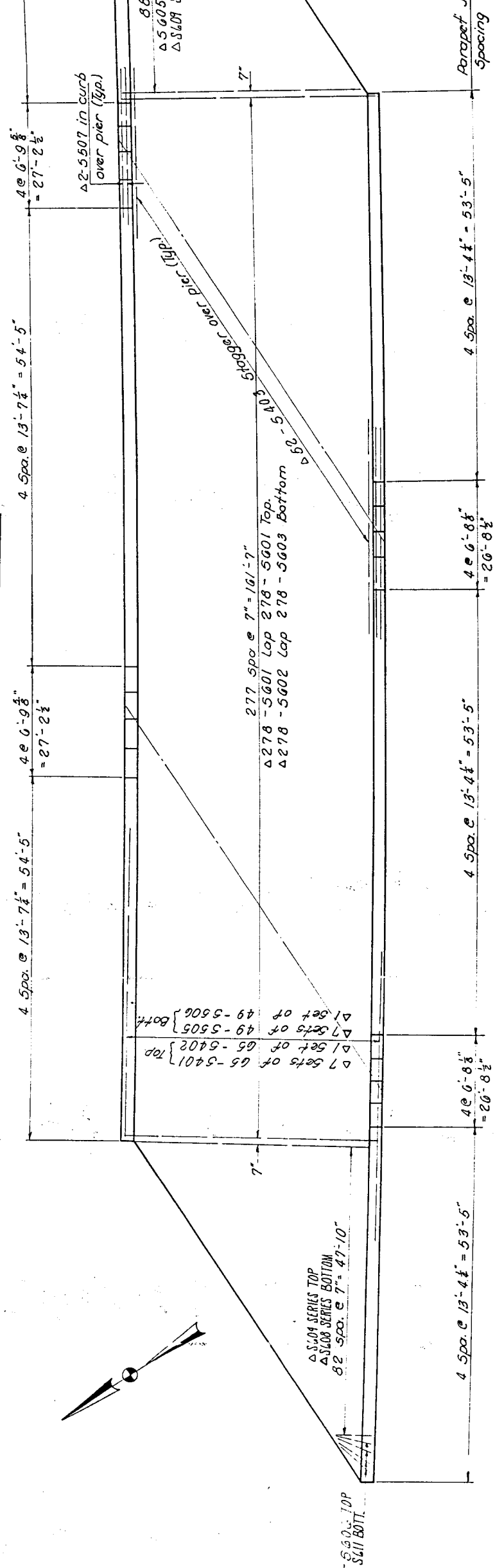
ERECTION BOLTS: Hole diameter in the crossframes and girder stiffeners shall be respectively 1/16" and 1/4" larger than the diameter of the erection bolts. Unless replaced by permanent high strength bolts, erection bolts shall remain in place. Lock washers shall be furnished for other than fully torqued high strength erection bolts. Bolts shall be furnished as part of 513.

In lieu of erection bolts and at the option of the Contractor, alternative means of temporary bracing may be used subject to the approval of the Director (501.06).

For Additional Notes & Details see sheet Nos. 15, 16, 17.  
 Δ Denotes Epoxy Coated Bars.



**TRANSVERSE SECTION**



Minimum Bar Lap  
 #6 ~ 2'-0"  
 #5 ~ 1'-7"  
 #4 ~ 1'-3"

**SLAB PLAN**

**STAGGER DIAGRAM**  
 Δ5403 Bars over piers.

Right Bridge  
 FRANKLIN CONSULTANTS, INC. 1/4/79  
 Consulting Engineers  
 COLUMBUS, OHIO

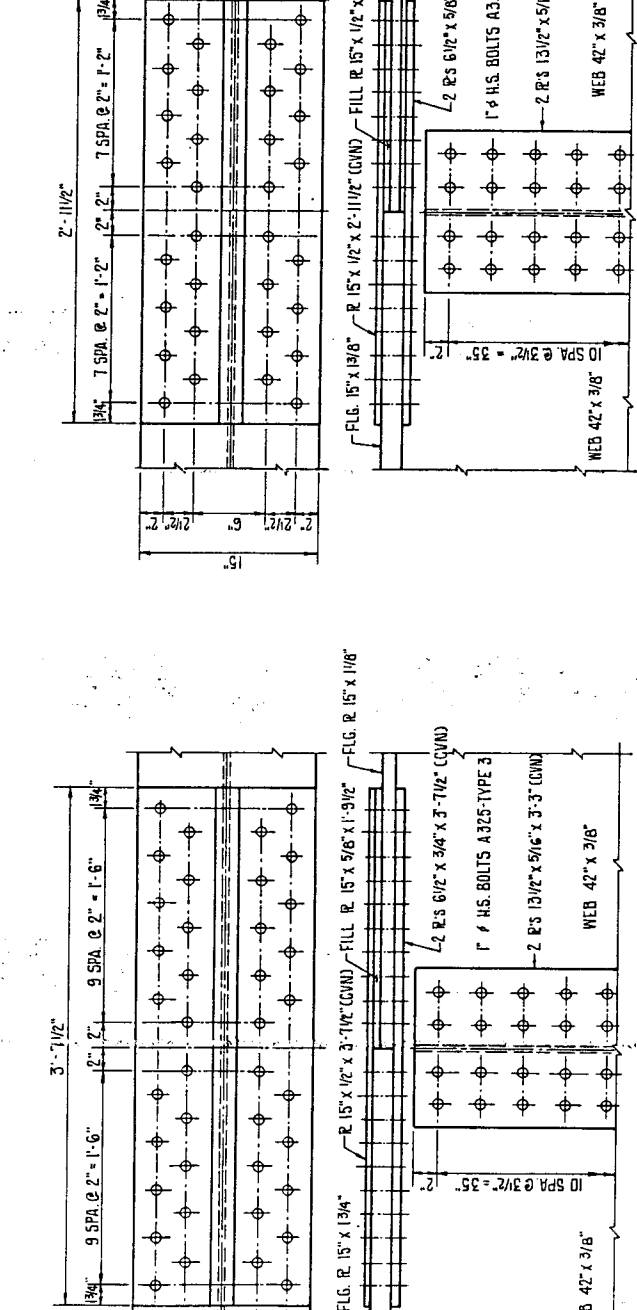
**TRANSVERSE SECTION AND SLAB PLAN**  
 BRIDGE No. GAL-35-1330  
 over Exist. USR-35

|          |       |        |         |          |      |          |
|----------|-------|--------|---------|----------|------|----------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISION |
| MM       | F.G.  |        |         | JT       | 9.71 |          |

GALLIA COUNTY  
 USR-35

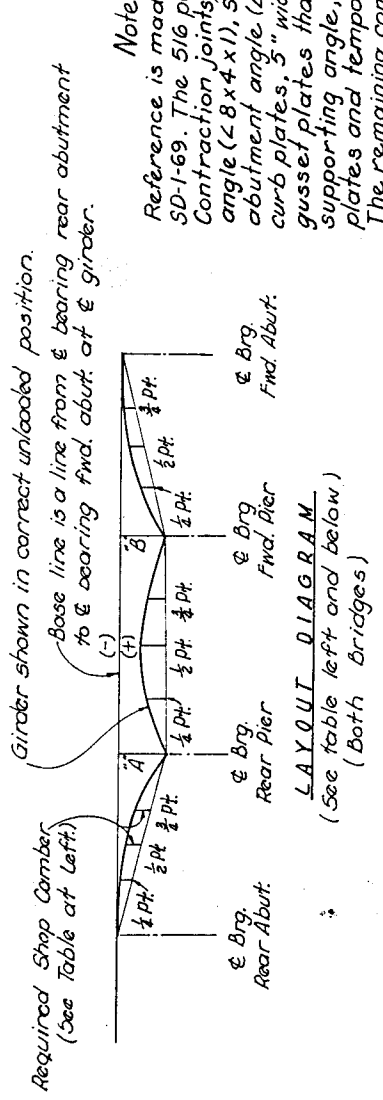
**DEFLECTION AND CAMBER**

|  | Gal-35-1331 (Left Bridge) |        |        | Gal-35-1330 (Right Bridge) |        |        |
|--|---------------------------|--------|--------|----------------------------|--------|--------|
|  | Span 1                    | Span 2 | Span 3 | Span 1                     | Span 2 | Span 3 |
| Deflection due to own weight of steel. | 1/16                      | 1/16   | 1/16   | 1/16                       | 1/16   | 1/16   |
| Deflection due to remaining dead load. | 3/16                      | 3/16   | 3/16   | 3/16                       | 3/16   | 3/16   |
| Adjustment required for barg. curve.   | -1/16                     | -1/16  | -1/16  | -1/16                      | -1/16  | -1/16  |
| Required shop camber.                  | 3/16                      | 3/16   | 3/16   | 3/16                       | 3/16   | 3/16   |



**LEFT BRIDGE SPLICE**  
 Splice #3  
 Girder #1 Δ = 02'-48"-48" Left  
 Girder #2 Δ = 01'-49"-17" Left  
 Girder #3-#6 Δ = 00'-46"-04" Left  
 The size of the flange and fill plates shown are minimum. They shall be sized to maintain the given edge distance of the bolts. (Typ.)

**RIGHT BRIDGE SPLICE**  
 Splice #2  
 Girder #7 Δ = 2'-28'-21" Left  
 Girder #8 Δ = 1'-34'-58" Left  
 Girder #9-#12 Δ = 0'-0'-39'-07" Left

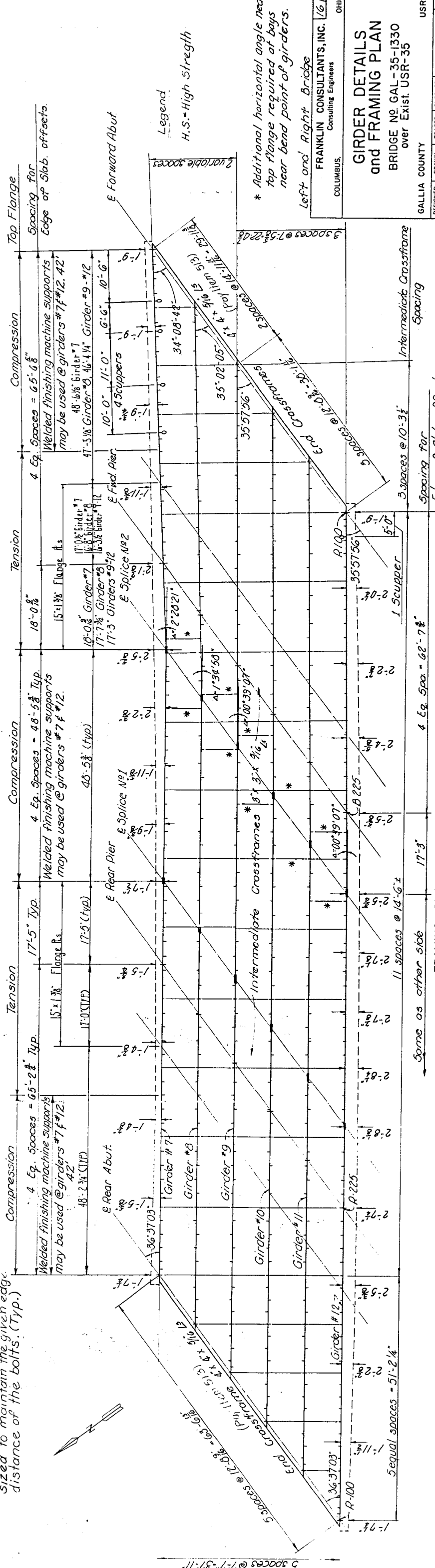


**LAYOUT DIAGRAM**  
 (See table left and below)  
 (Both Bridges)

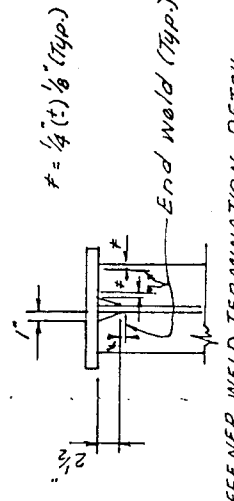
| GAL-35-1331 LEFT BRIDGE |      | GAL-35-1330 RIGHT BRIDGE |      |
|-------------------------|------|--------------------------|------|
| Girder #                | A'   | Girder #                 | B'   |
| 1                       | 0    | 7                        | 0    |
| 2                       | 7/16 | 8                        | 7/16 |
| 3                       | 1/16 | 9                        | 7/16 |
| 4                       | 7/16 | 10                       | 7/16 |
| 5                       | 7/16 | 11                       | 7/16 |
| 6                       | 7/16 | 12                       | 7/16 |

**GIRDER LAYOUT**  
 (Both Bridges)

Intermediate stiffeners to which crossframe angles are connected shall be welded to the top and bottom flanges.



**Notes**  
 Reference is made to Standard Drawing SD-1-69. The 516 pay item, Expansion and Contraction joints, shall include the main angle (2-8 x 4 x 1), supporting angle (2-7 x 4 x 3/4), abutment angle (2-7 x 4 x 1/2), 2" edge bar, curb plates, 5" wide bevel fill plates, 3/8" gusset plates that are shop welded to the supporting angle, all anchor bars and plates and temporary fasteners. The remaining components of the end crossframes shall be included in Item 513 for payment. (Typical for both bridges: 1. GAL-35-1330 and 2. GAL-35-1331.)



**STIFFENER WELD TERMINATION DETAIL**

\* Additional horizontal angle near top flange required at bays near bend point of girders.

Left and Right Bridge

FRANKLIN CONSULTANTS, INC. 1/6/13  
 Consulting Engineers  
 COLUMBUS, OHIO

**GIRDER DETAILS and FRAMING PLAN**  
 BRIDGE NO. GAL-35-1330  
 OVER EXIST. USR-35

GALLIA COUNTY  
 DESIGNED: F.G.  
 DRAWN: J.B.  
 CHECKED: J.B.  
 REVIEWED: J.B.  
 DATE: 4-7-11  
 USR-35