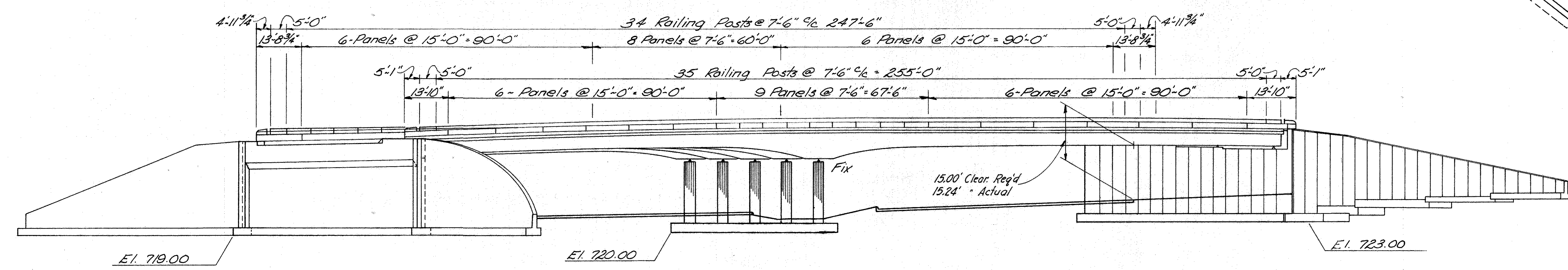


PLAN



ELEVATION

NOTE:
 Piling not shown. For pile placement see respective plan sheets.
 For sections "AA" & "BB" see sheet 4/24

| | | | | | |
|--------------------------------------------------------------------|--------|--------|---------|---------------|------|
| E. S. PRESTON & ASSOCIATES, LIMITED ENGINEERS COLUMBUS, OHIO | | | | | |
| GENERAL PLAN | | | | | |
| BRIDGE NO. FRA.-70-1349S | | | | | |
| WHITTIER ST. OVER RD."C" & RD."D" | | | | | |
| FRANKLIN COUNTY | | | | STA. 23+19.83 | |
| | | | | STA. 25+92.37 | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE |
| A.S.B. | R.U.B. | R.U.B. | E.K. | | 7/21 |

GENERAL NOTES

REFERENCE SHALL BE MADE TO Standard Drawings AS-1-67 revised 6-12-69, RB-1-55 revised 2-2-59, SD 1-69 sheets 1 thru 4 dated 6-12-69 and to Supplemental Specifications 808, dated 1-1-71 and 836, dated 1-1-71.

DESIGN SPECIFICATION: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969, including the Ohio "Supplement" to these specifications.

DESIGN DATA:

Design Loading - HS20-44 and the Interstate Alternate Loading.

Concrete, Class "C" - Unit Stress 1200 p.s.i. for superstructure.
Unit Stress 1333 p.s.i. for substructure.

Structural Steel - A.S.T.M. A36 - Unit Stress 20,000 p.s.i.

Reinforcing Steel - A.S.T.M. A615, A616 and A617 Unit Stress 20,000 p.s.i.
If bars in accordance with ASTM A616 are provided they shall be subject to bend tests as per AASHTO Designation M42-70. Spiral Reinforcement may be plain bars ASTM A82, A306, A499 or A615

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing structure shall be removed.

Minimum cover for all Reinforcing Steel in all footings shall be 3."

Substructure units shall be removed down to the following elevations:

ABUTMENTS — Forward 748.00
Rear 743.00
PIERS — 1 722.5
2 Complete
3 726.0

EMBANKMENT CONSTRUCTION: Before the backwall is constructed the embankment shall be constructed up to the level of the subgrade with a 1:1 slope from the bridge seat to the subgrade, for a minimum distance of 200 feet back of the abutment.

PILES shall be driven to a minimum bearing capacity of 50 Tons per pile for the abutments, retaining walls, and piers.

UTILITY LINES: All expense involved in relocating and/or installing the affected utility lines shall be borne by the owners. The contractor and owners are requested to co-operate by arranging their work in such a manner that inconvenience to either would be held to a minimum.

| ESTIMATED QUANTITIES | | | | | | | | | | |
|----------------------|---------|----------|-----------------------------------------------------------|---------|--------|--------|--------|-------|--|--|
| ITEM | TOTAL | UNIT | DESCRIPTION | SUPER. | ABUTS. | PIER | WALLS | GEN. | | |
| 503 | LUMP | SUM | COFFERDAMS, CRIBS AND SHEETING | | | | | LUMP | | |
| 202 | LUMP | SUM | EXISTING STRUCTURE REMOVED | | | | | LUMP | | |
| 503 | 3,176 | CU. YDS. | UNCLASSIFIED EXCAVATION | | 482 | 135 | 2,559 | | | |
| 505 | LUMP | SUM | TEST PILE | | | | | LUMP | | |
| 507 | 12,695 | LIN. FT. | 12" Ø CAST IN PLACE REINFORCED CONCRETE PILES | | 3,820 | 1,650 | 7,225 | | | |
| 509 | 275,574 | LBS. | REINFORCING STEEL | 76,311 | 73,555 | 26,558 | 99,150 | | | |
| 511 | *326 | CU. YDS. | CLASS "C" CONCRETE - SUPERSTRUCTURE | 326 | | | | | | |
| 511 | 34 | CU. YDS. | CLASS "C" CONCRETE - PIER ABOVE FOOTINGS | | | 34 | | | | |
| 511 | 692 | CU. YDS. | CLASS "C" CONCRETE - FOOTINGS | | 198 | 65 | 429 | | | |
| 511 | 320 | CU. YDS. | CLASS "C" CONCRETE - ABUTMENTS ABOVE FOOTINGS | | 320 | | | | | |
| 511 | 537 | CU. YDS. | CLASS "C" CONCRETE - RETAINING WALLS ABOVE FOOTINGS | | | | 537 | | | |
| 512 | 352 | LIN. FT. | PREMOLDED SEALING STRIP | | | | | 352 | | |
| 513 | 502,994 | LBS. | STRUCTURAL STEEL | 502,994 | | | | | | |
| 514 | 502,994 | LBS. | FIELD PAINTING OF STRUCTURAL STEEL | 502,994 | | | | | | |
| 518 | 725 | CU. YDS. | POROUS BACKFILL | | 243 | | 482 | | | |
| 518 | 443 | LIN. FT. | "8" PERFORATED, HELICAL C.M.P. } INCL. SPECIALS, 70701 | | 147 | | 296 | | | |
| 518 | 65 | LIN. FT. | "8" NON-PERFORATED HELICAL C.M.P. } INCL. SPECIALS, 70701 | | | | | 65 | | |
| 518 | 6 | EACH | SCUPPERS, INCLUDING SUPPORTS | | | | | 6 | | |
| 808 | 326 | UNITS | CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D | 326 | | | | | | |
| 516 | 411 | SQ. FT. | 1" PREFORMED EXPANSION JOINT FILLER | | | | | 411 | | |
| 517 | 543 | LIN. FT. | RAILING (ALUMINUM W/CONCRETE PARAPETS) | 543 | | | | | | |
| 518 | 58.58 | LIN. FT. | PIPE HORIZONTAL CONDUCTOR (8" GALV. STEEL) INCL. SPECIALS | | | | | 58.58 | | |
| 518 | 22.83 | LIN. FT. | 8" GALV. STEEL PIPE INCL. SPECIALS | | | | | 22.83 | | |
| 506 | LUMP | SUM | PILE TEST LOAD | | | | | | | |
| 506 | 1 | EACH | SUBSEQUENT PILE TEST LOAD | | | | | 1 | | |
| 625 | | | SEE SHEET NO. 527 FOR LIGHTING SUMMARY. | | | | | | | |

*15 CU. YDS. CLASS "C" CONCRETE, SUPERSTRUCTURE, IS NON-PARTICIPATING FOR FEDERAL FUNDS.

| | | | | | | |
|-------------------------------------|--------|--------|---------|---------------|---------|--------|
| E. S. PRESTON & ASSOCIATES, LIMITED | | | | | | 3 / 24 |
| ENGINEERS | | | | | | |
| COLUMBUS, OHIO | | | | | | |
| GENERAL NOTES & QUANTITIES | | | | | | |
| BRIDGE NO. FRA.-70-1349S | | | | | | |
| WHITTIER ST. OVER RD. "C" & RD. "D" | | | | | | |
| FRANKLIN COUNTY | | | | STA. 23+19.83 | | |
| | | | | STA. 25+92.37 | | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED | |
| A.S.B. | M.L.S. | M.L.S. | E.K. | 10/6 7/1/71 | | |

FRANKLIN COUNTY
FRA-70-12.31S

1/2" x 12" Premolded sealing strip in 13" x 3/4" recess (top of footing to approach slab seat)

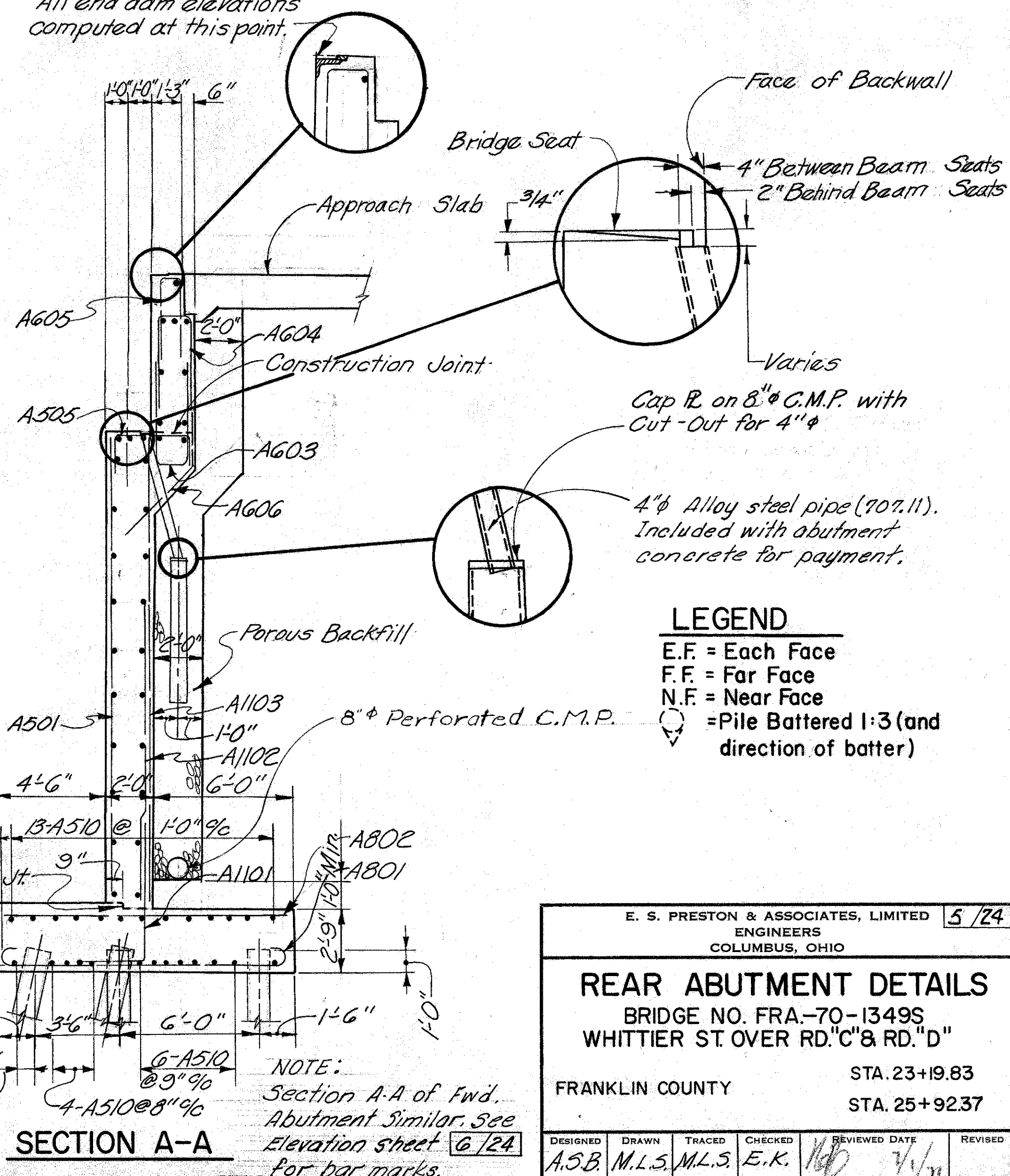
CONTRACTION JOINT
DETAIL

NOTES:

Porous Backfill 2' thick, full length of abutment, shall extend up to the subgrade or to the finished ground surface.
For Additional Details see Sheets No. 6/24 & 4/24

SECTION B-B

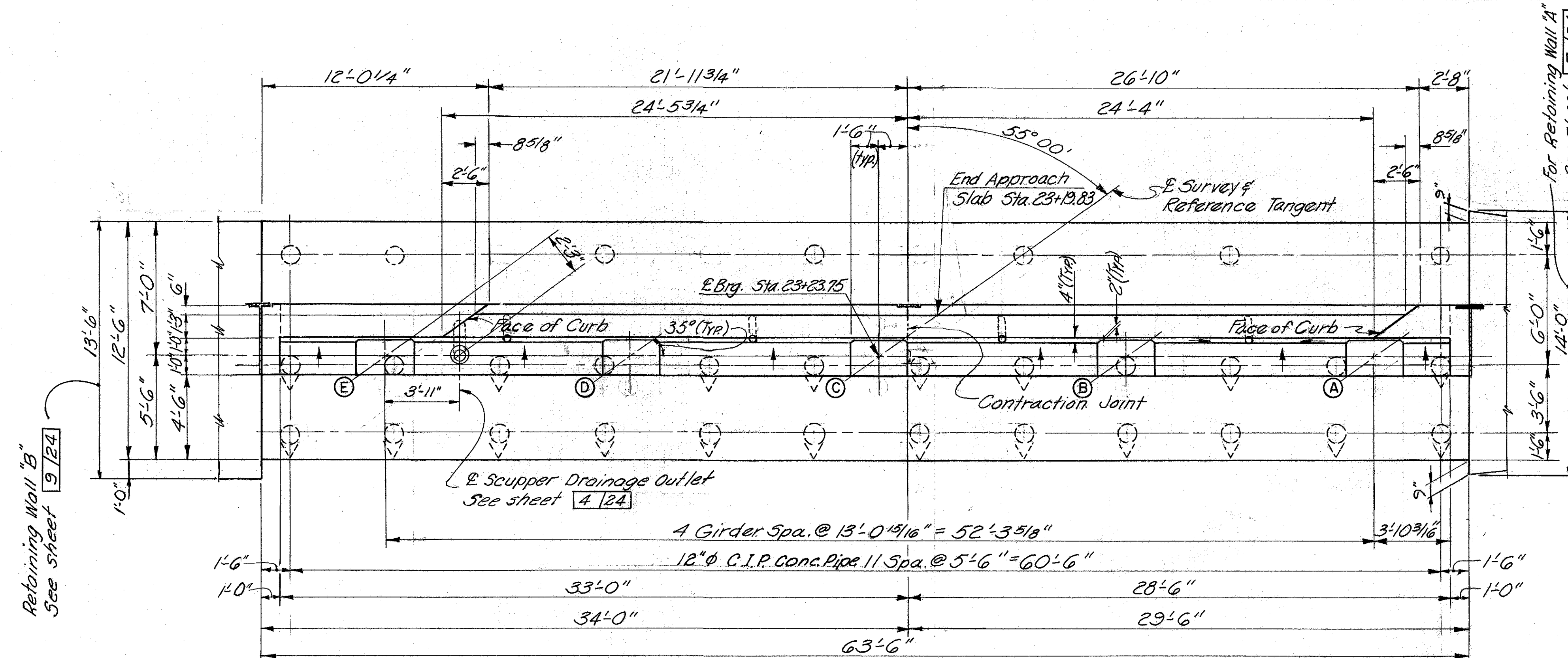
All end dam elevations computed at this point.



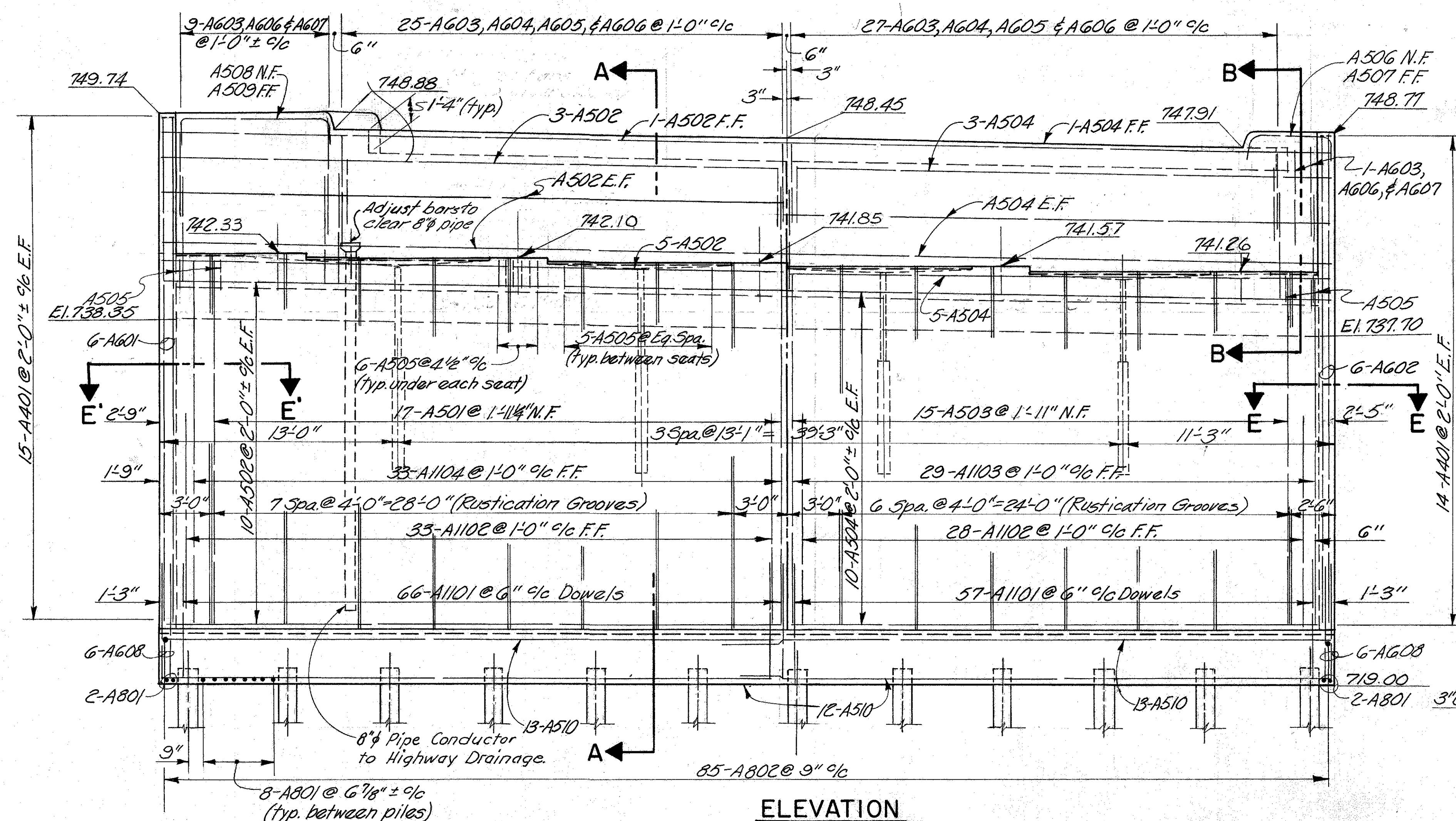
REAR ABUTMENT DETAILS
BRIDGE NO. FRA-70-1349S
WHITTIER ST. OVER RD. "C" & RD. "D"

FRANKLIN COUNTY STA. 23+19.83
STA. 25+92.37

| | | | | | |
|----------|--------|--------|---------|---------------|---------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
| A.S.B. | M.L.S. | M.L.S. | E.K. | 1/1/71 | |



PLAN



ELEVATION

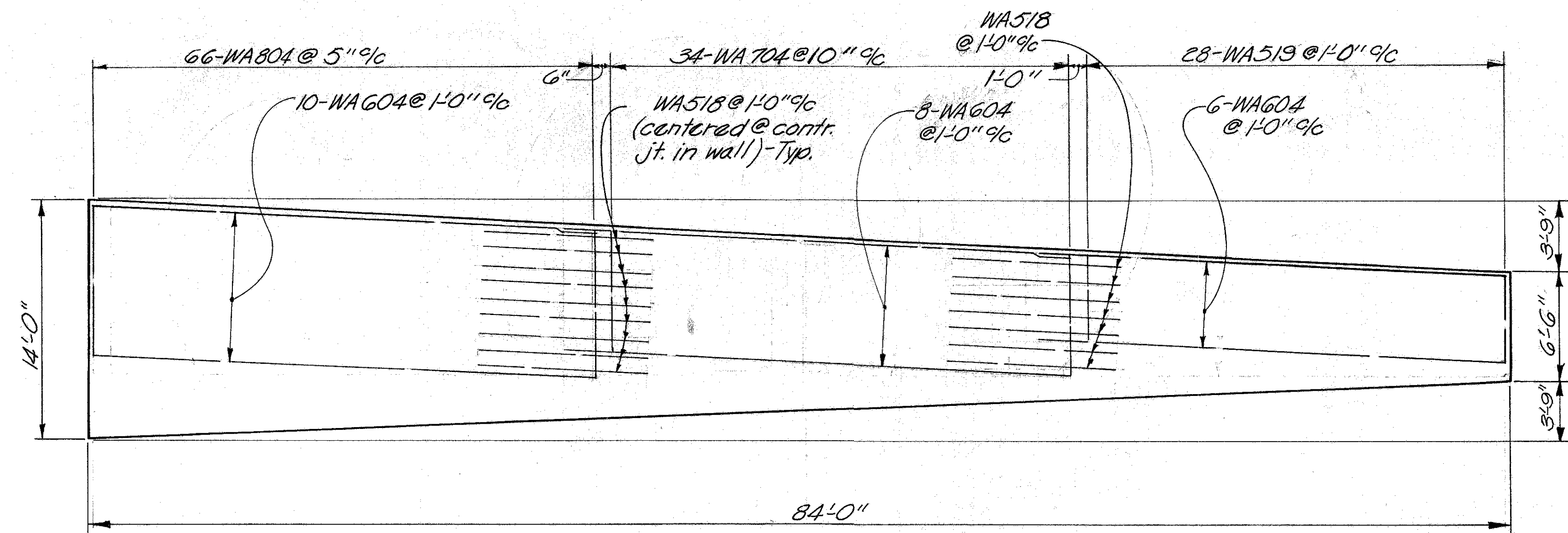
SECTION A-A

NOTE:
Section A-A of Fwd. Abutment Similar. See Elevation sheet 6/24 for bar marks.

| FED. RD. DIVISION | STATE | PROJECT |
|-------------------|-------|---------|
| 2 | OHIO | |

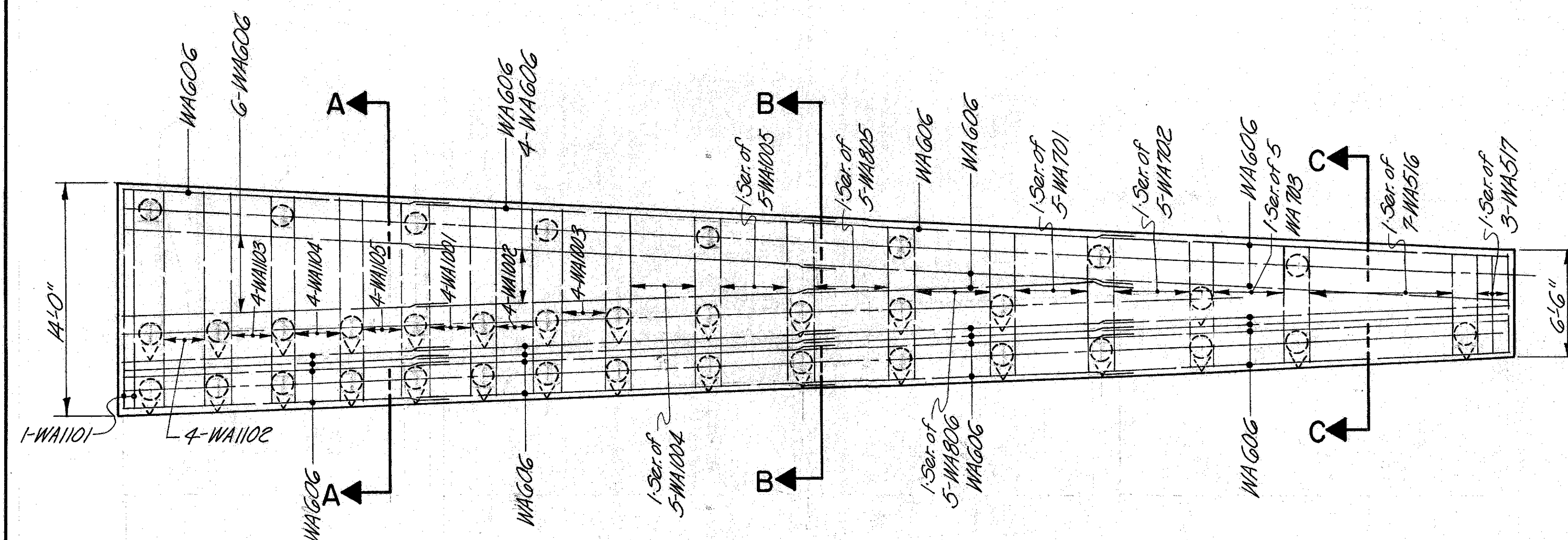
894

FRANKLIN COUNTY
FRA.-70-12.31S

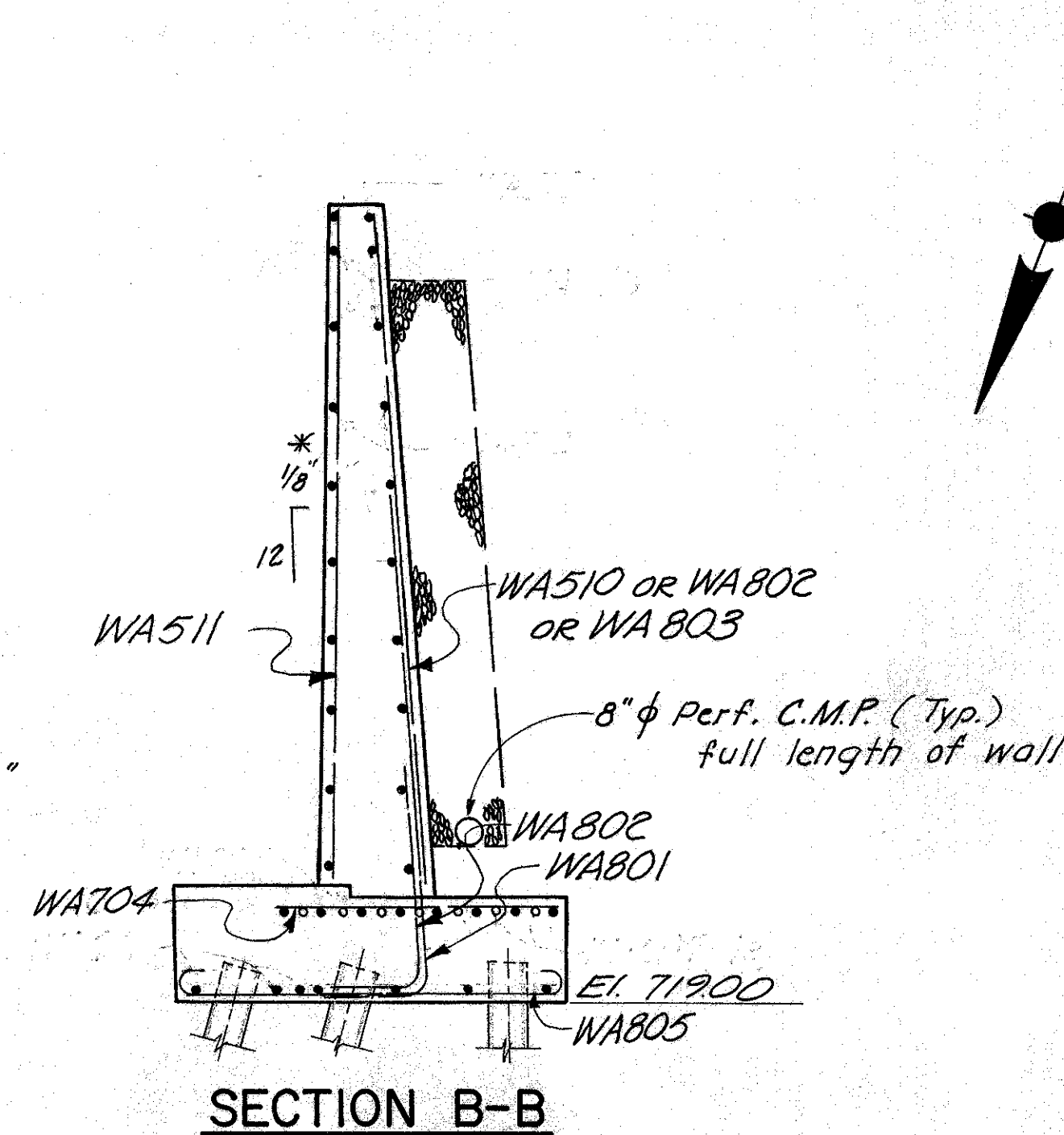


FOOTING REINFORCING STEEL-TOP

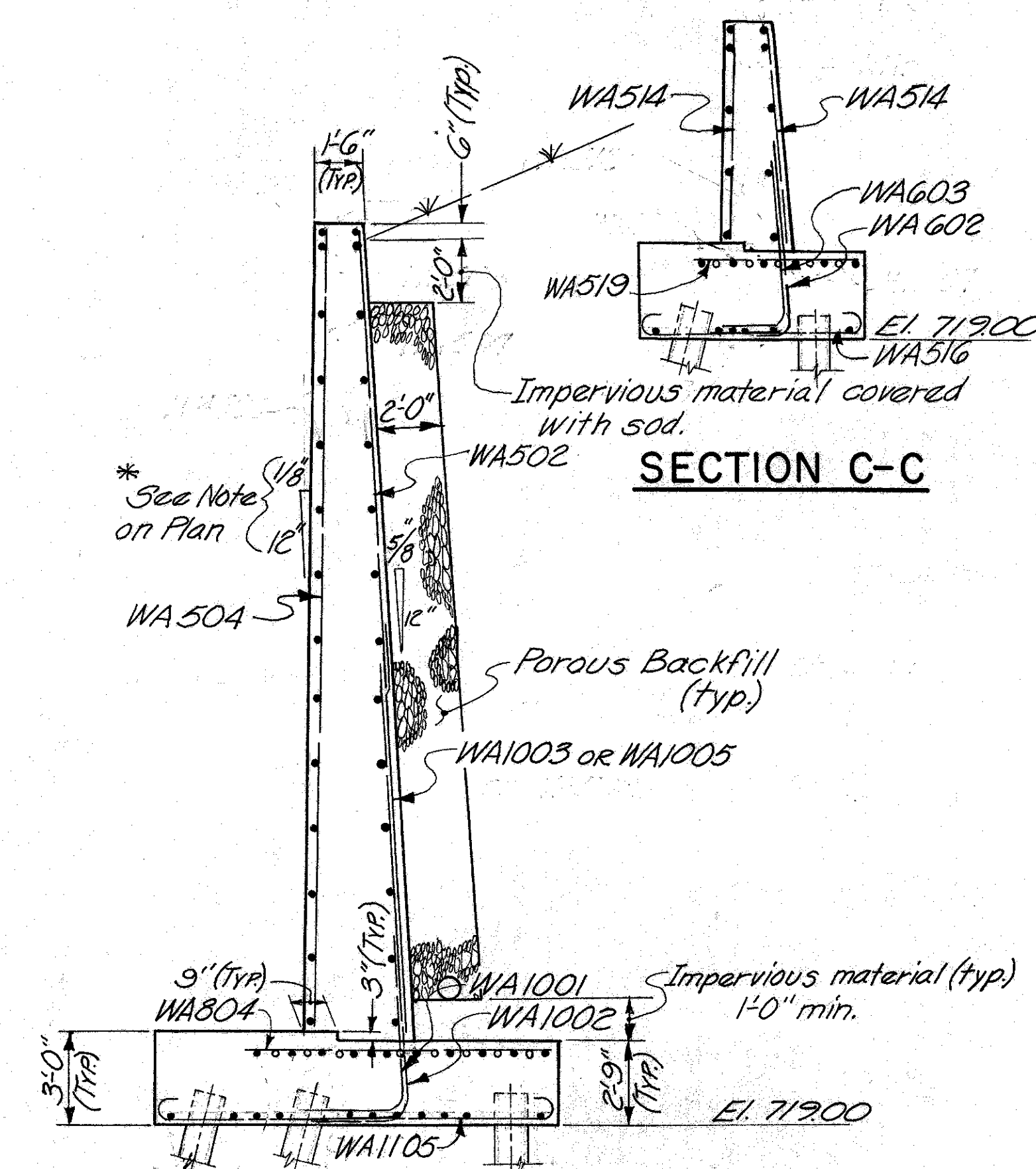
* Total batter on front face of wall not to exceed 3"



FOOTING REINFORCING STEEL-BOTTOM



SECTION B-B



SECTION A-A

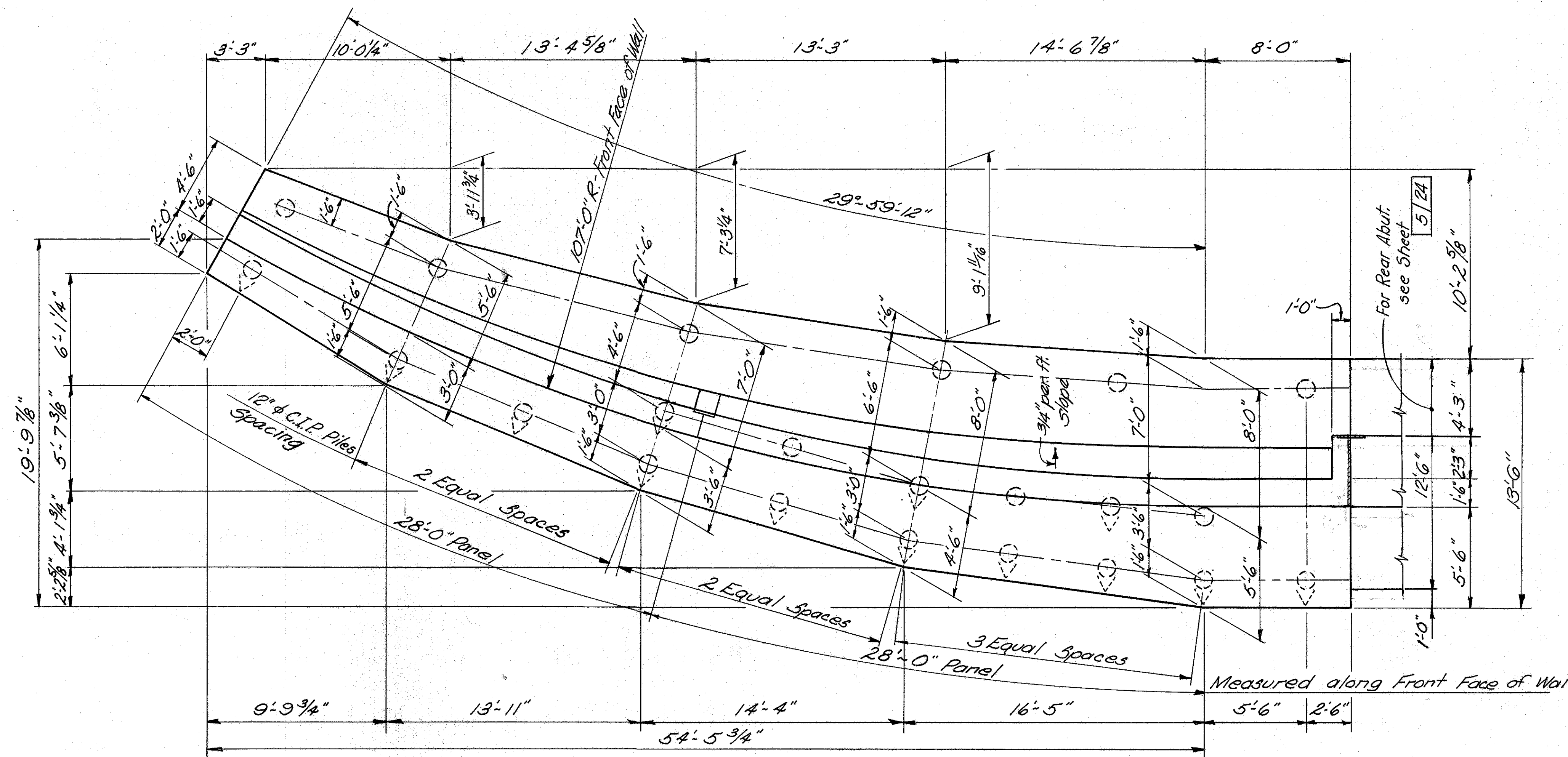
NOTE:
For Additional Details
See Sheet 7/24

| | | | | | |
|--------------------------------------------------------------------|--------|--------|---------|---------------|---------|
| E. S. PRESTON & ASSOCIATES, LIMITED ENGINEERS COLUMBUS, OHIO | | | | | |
| RETAINING WALL "A" DETAILS | | | | | |
| BRIDGE NO. FRA.-70-1349S | | | | | |
| WHITTIER ST. OVER RD. "C" & RD. "D" | | | | | |
| FRANKLIN COUNTY | | | | STA. 23+19.83 | |
| | | | | STA. 25+92.37 | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
| A.S.B. | M.L.S. | M.L.S. | E.K. | 7/1/71 | |

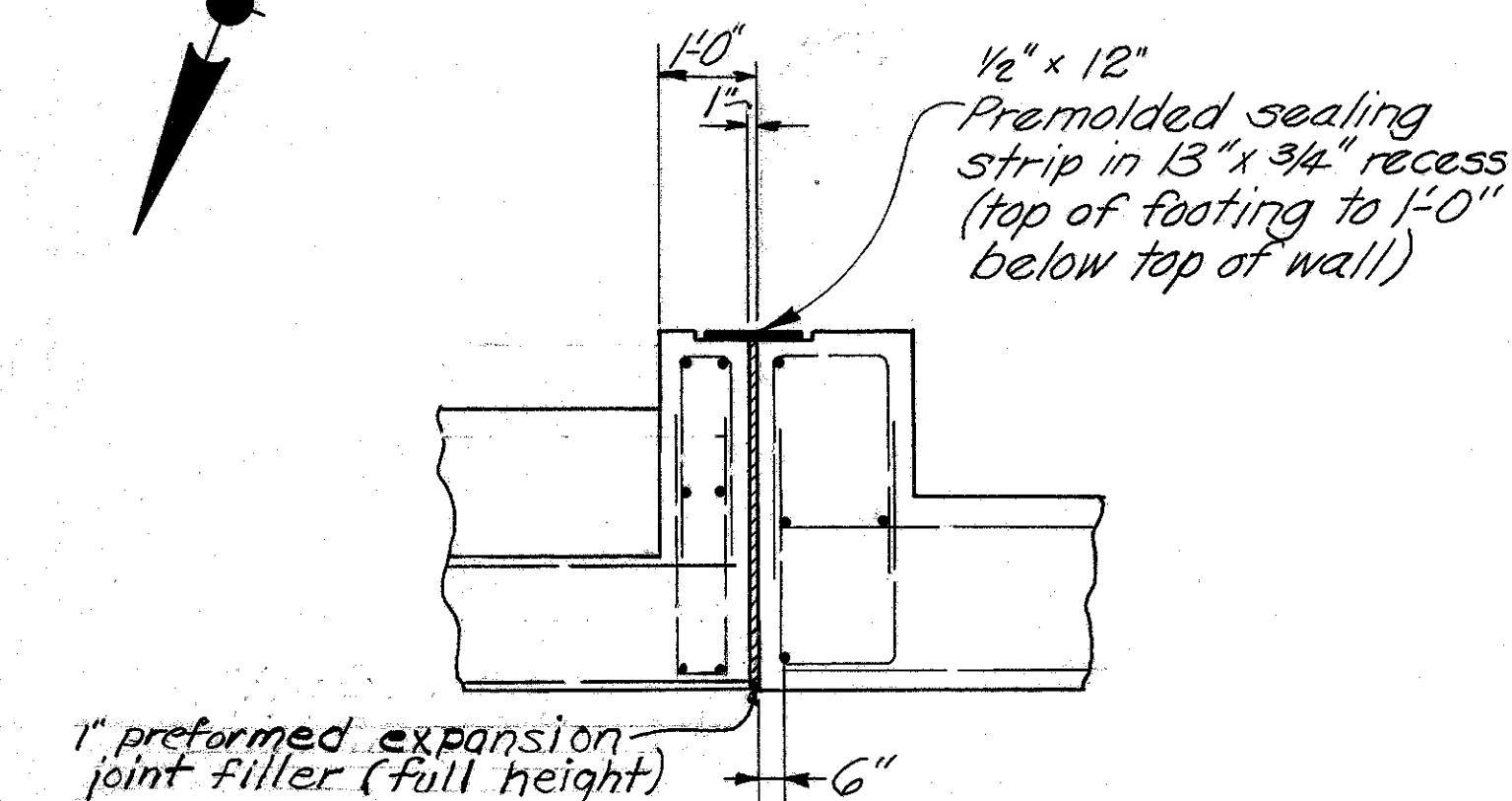
| FED. RD. DIVISION | STATE | PROJECT |
|-------------------|-------|---------|
| 2 | OHIO | |

895

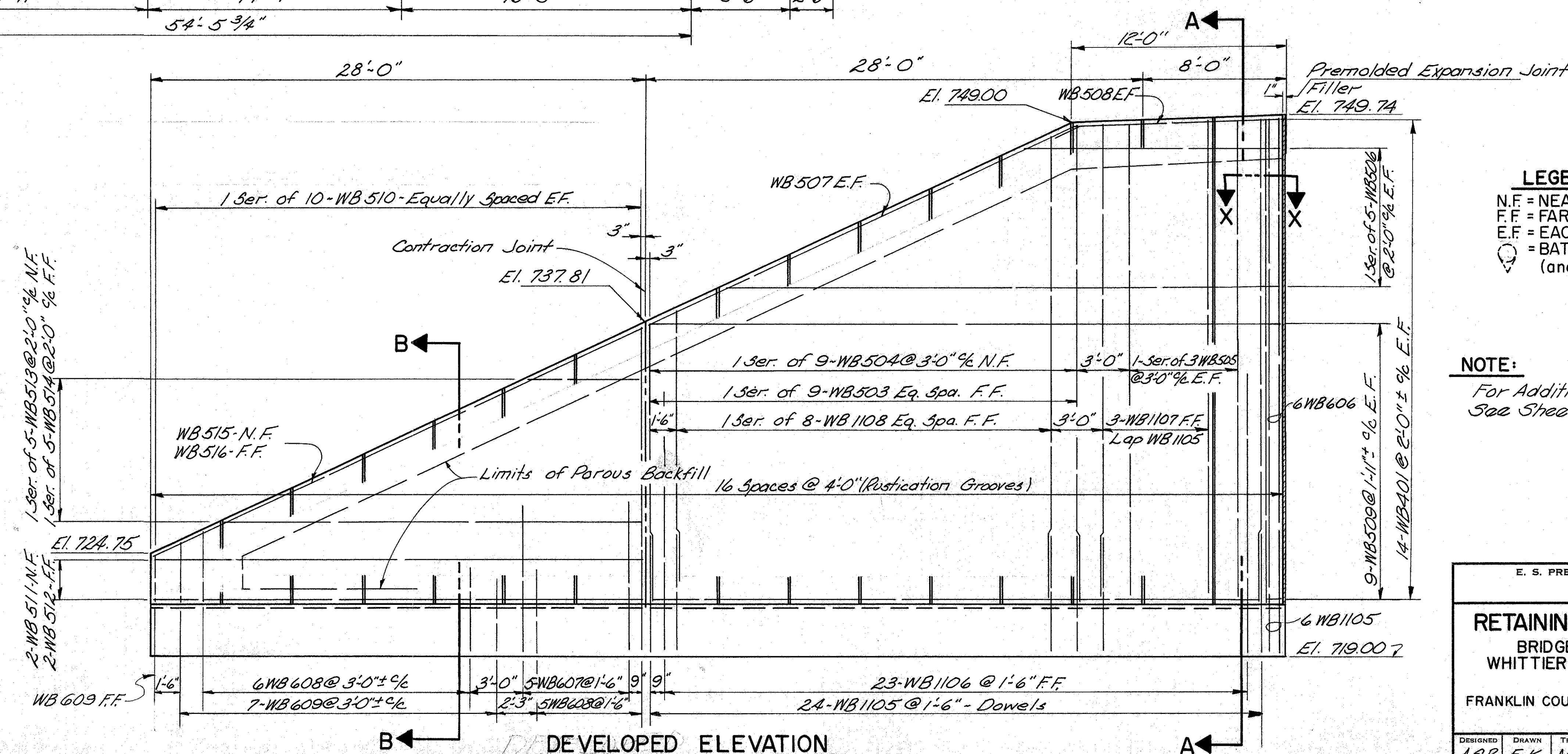
FRANKLIN COUNTY
FRA-70-12.31S



PLAN



SECTION X-X (Shown)
SECTION Y-Y (Opposite)



DEVELOPED ELEVATION

LEGEND

N.F = NEAR FACE
F.F = FAR FACE
E.F = EACH FACE
⊙ = BATTER PILES 1:4
(and direction of batter)

NOTE:

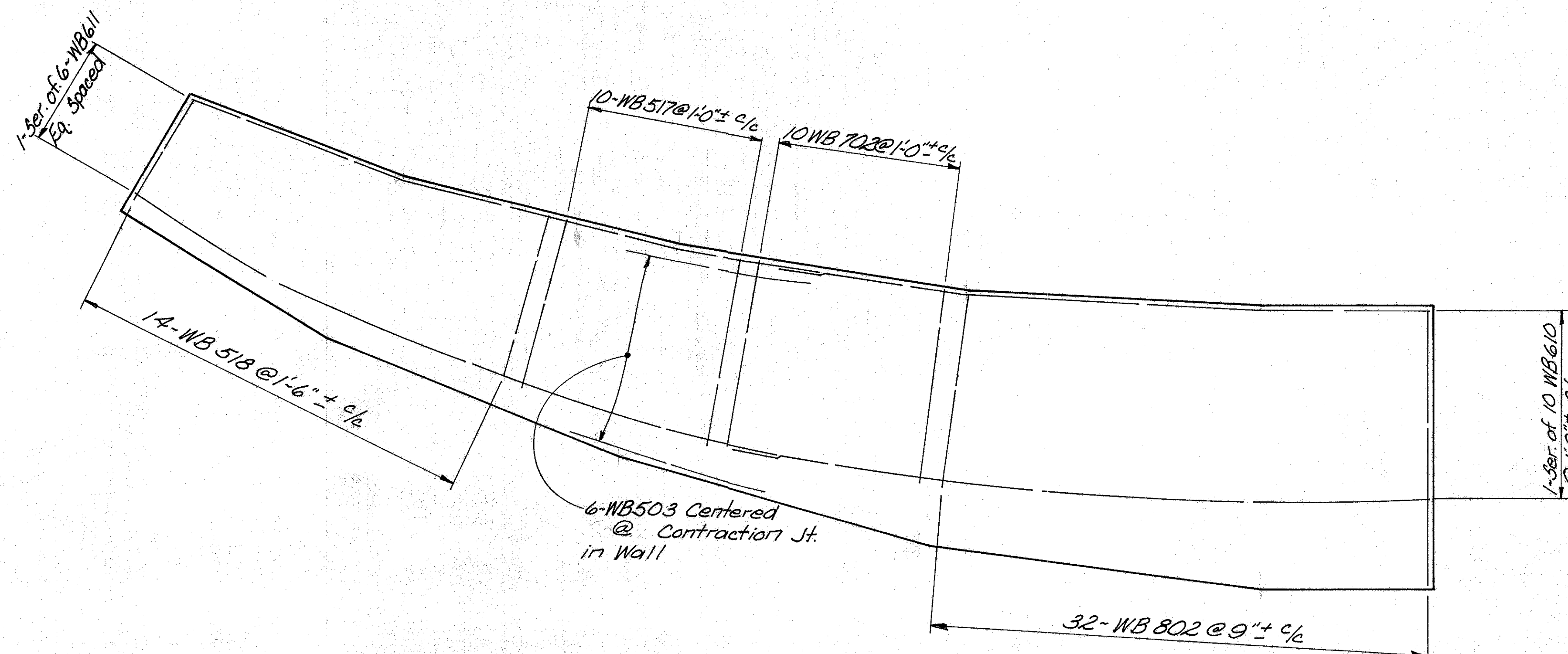
For Additional Details
See Sheet 10/24 & 11/24

E. S. PRESTON & ASSOCIATES, LIMITED 9/24
ENGINEERS
COLUMBUS, OHIO

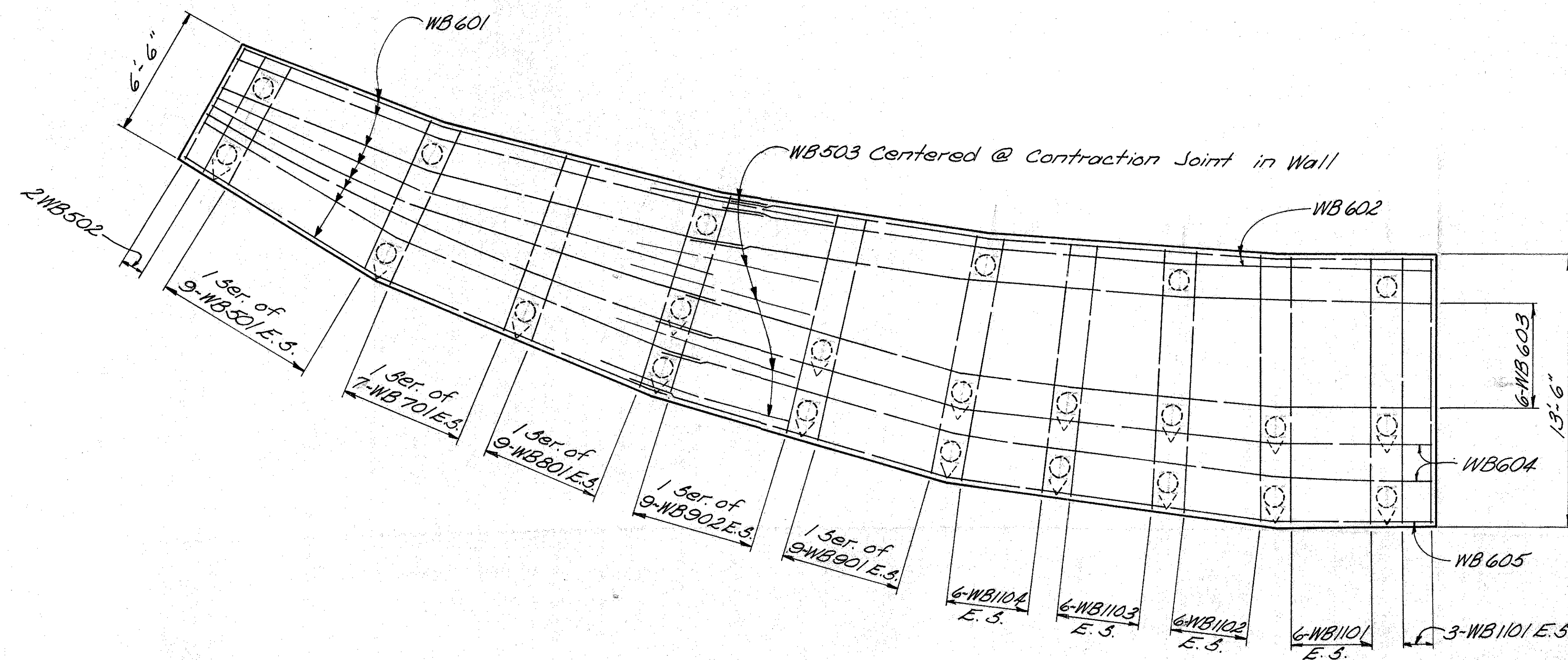
RETAINING WALL "B" DETAILS
BRIDGE NO. FRA-70-1349S
WHITTIER ST. OVER RD. "C" & RD. "D"

FRANKLIN COUNTY STA. 23+19.83
STA. 25+92.37

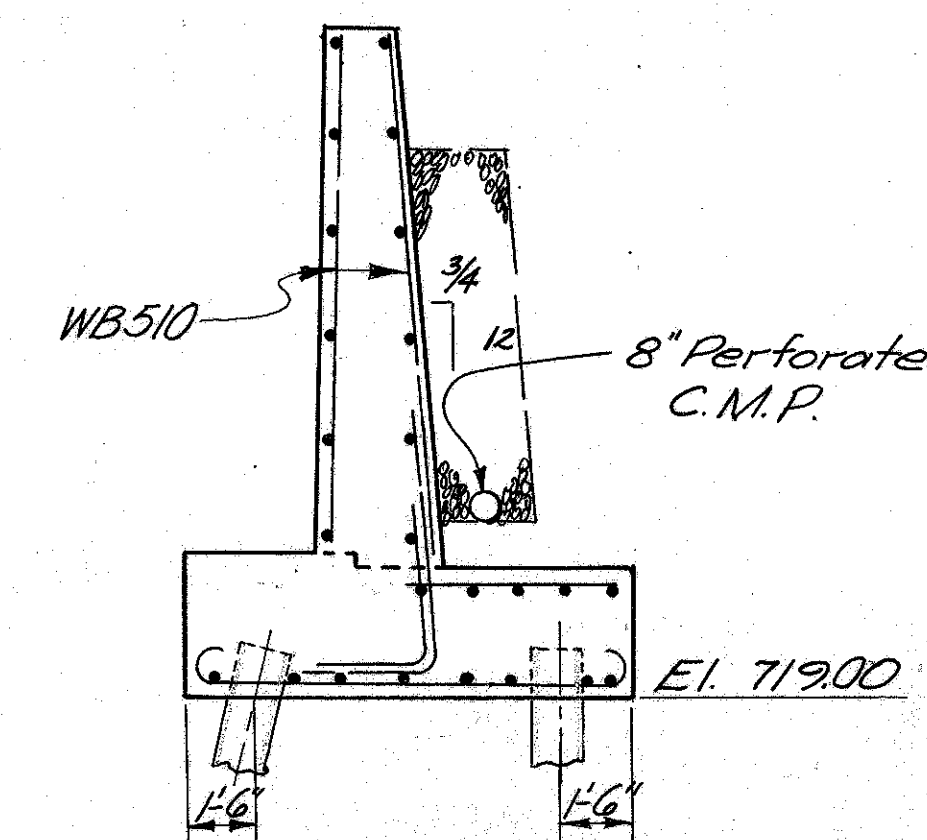
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISION |
|----------|-------|--------|---------|---------------|----------|
| A.S.B. | E.K. | M.L.S. | E.K. | 11/11 | |



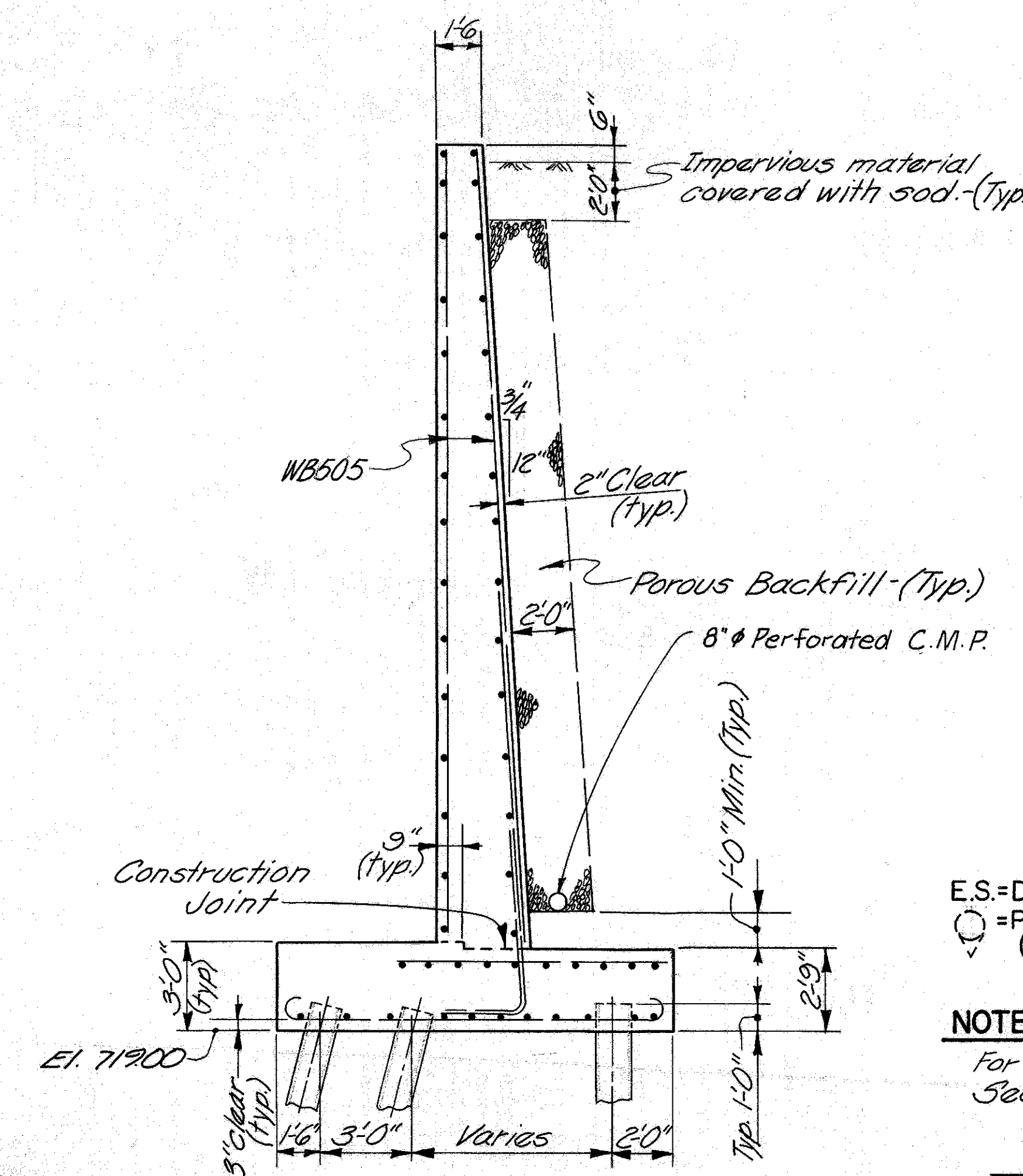
FOOTING REINFORCING STEEL (TOP)



FOOTING REINFORCING STEEL (BOTTOM)



SECTION B-B



SECTION A-A

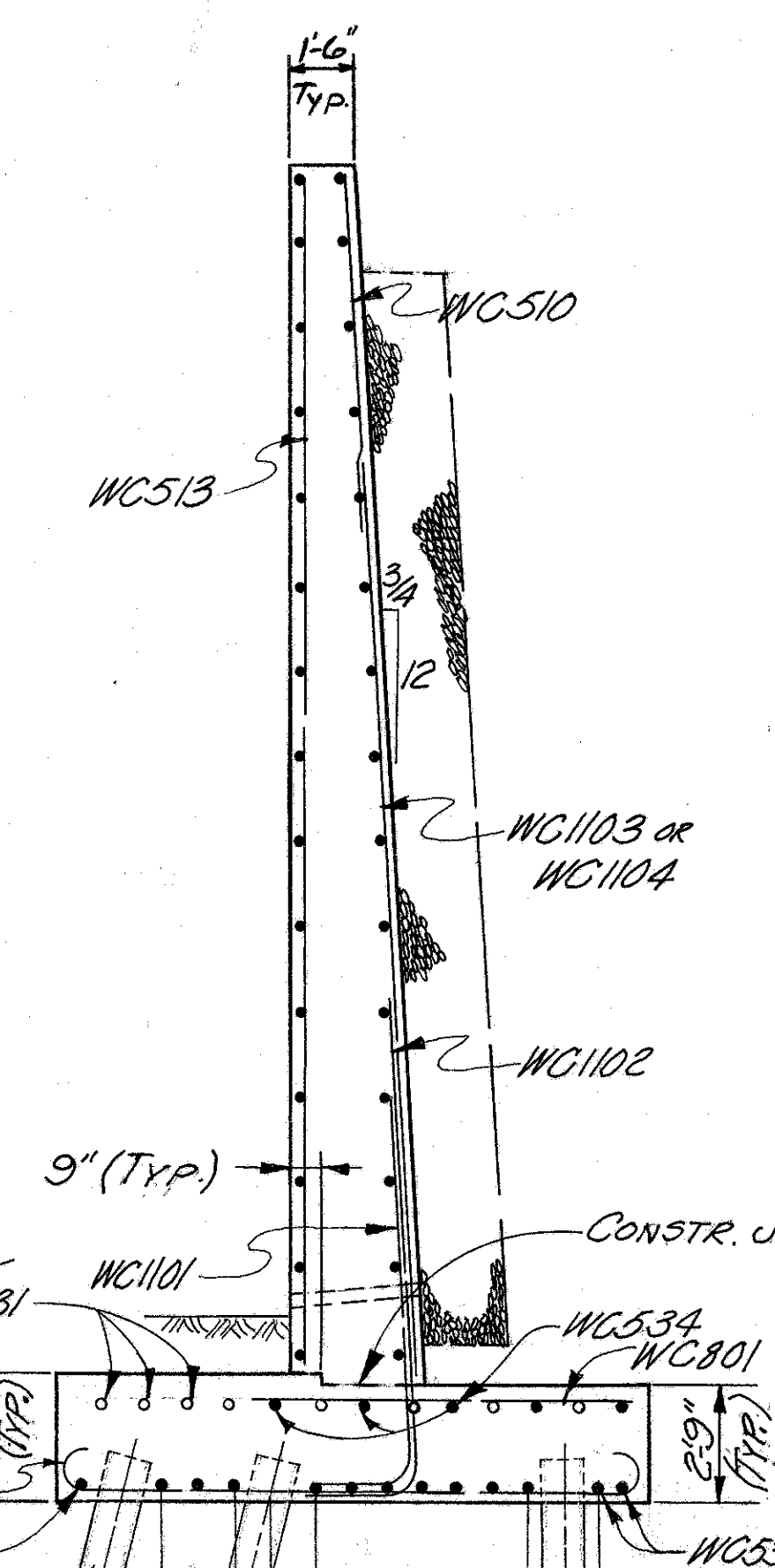
LEGEND

E.S.=DENOTES EQUALLY SPACED
 =PILES BATTERED 1:4
 (and direction of batter)

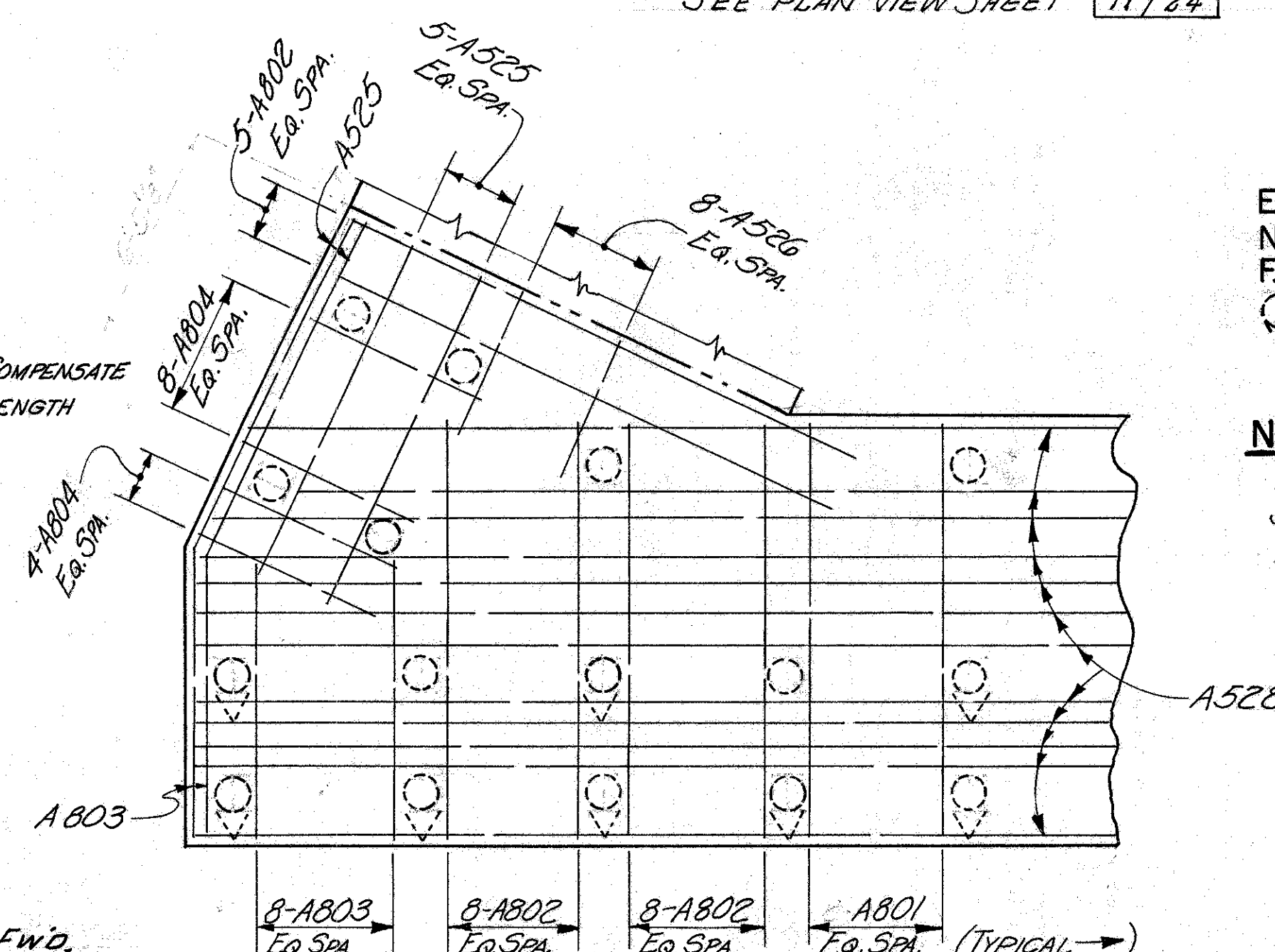
NOTE:

For Additional Details
 See Sheet 9/24 11/24


| | | | | | |
|--------------------------------------------------------------------|--------|--------|---------|--------------------------------|---------|
| E. S. PRESTON & ASSOCIATES, LIMITED ENGINEERS COLUMBUS, OHIO | | | | | |
| RETAINING WALL "B" DETAILS | | | | | |
| BRIDGE NO. FRA-70-1349S WHITTIER ST. OVER RD. "C" & RD. "D" | | | | | |
| FRANKLIN COUNTY | | | | STA. 23+19.83 STA. 25+92.37 | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
| A.S.B. | R.E.L. | R.J.B. | E.K. | 10/1/24 | |



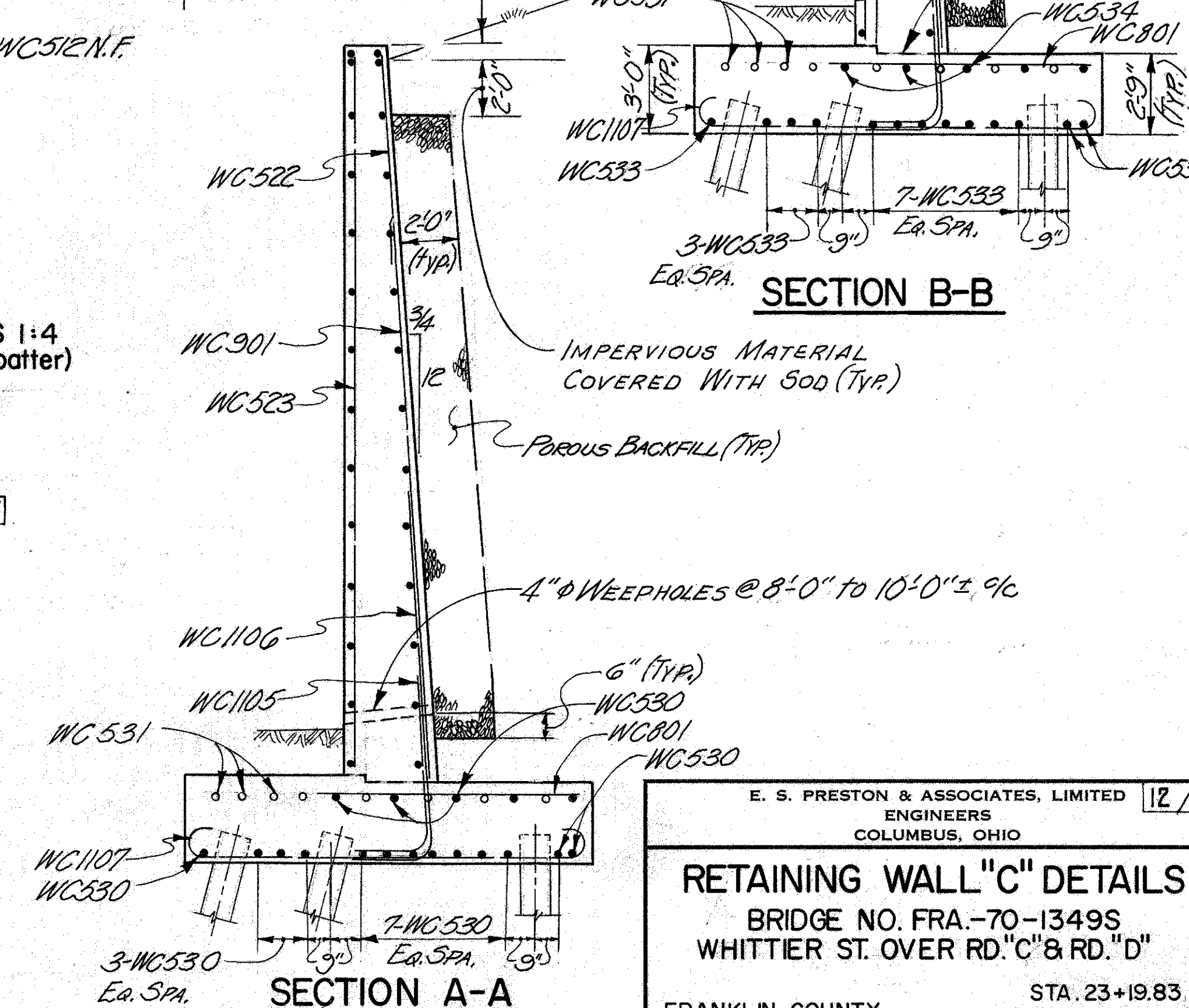
SEE PLAN VIEW SHEET 11/24



PART PLAN
BOTTOM REINFORCING STEEL
(FORWARD ABUTMENT)

- LEGEND**
- E.F. = EACH FACE
N.F. = NEAR FACE
F.F. = FAR FACE
 = BATTER PILES 1:4
(and direction of batter)

NOTE:
FOR SECTION X-X
SEE SHEET 9/24



| | |
|-------------------------------------|----|
| E. S. PRESTON & ASSOCIATES, LIMITED | 12 |
|-------------------------------------|----|

RETAINING WALL "C" DETAILS

BRIDGE NO. FRA.-70-1349S
WHITTIER ST. OVER RD."C"& RD."D"

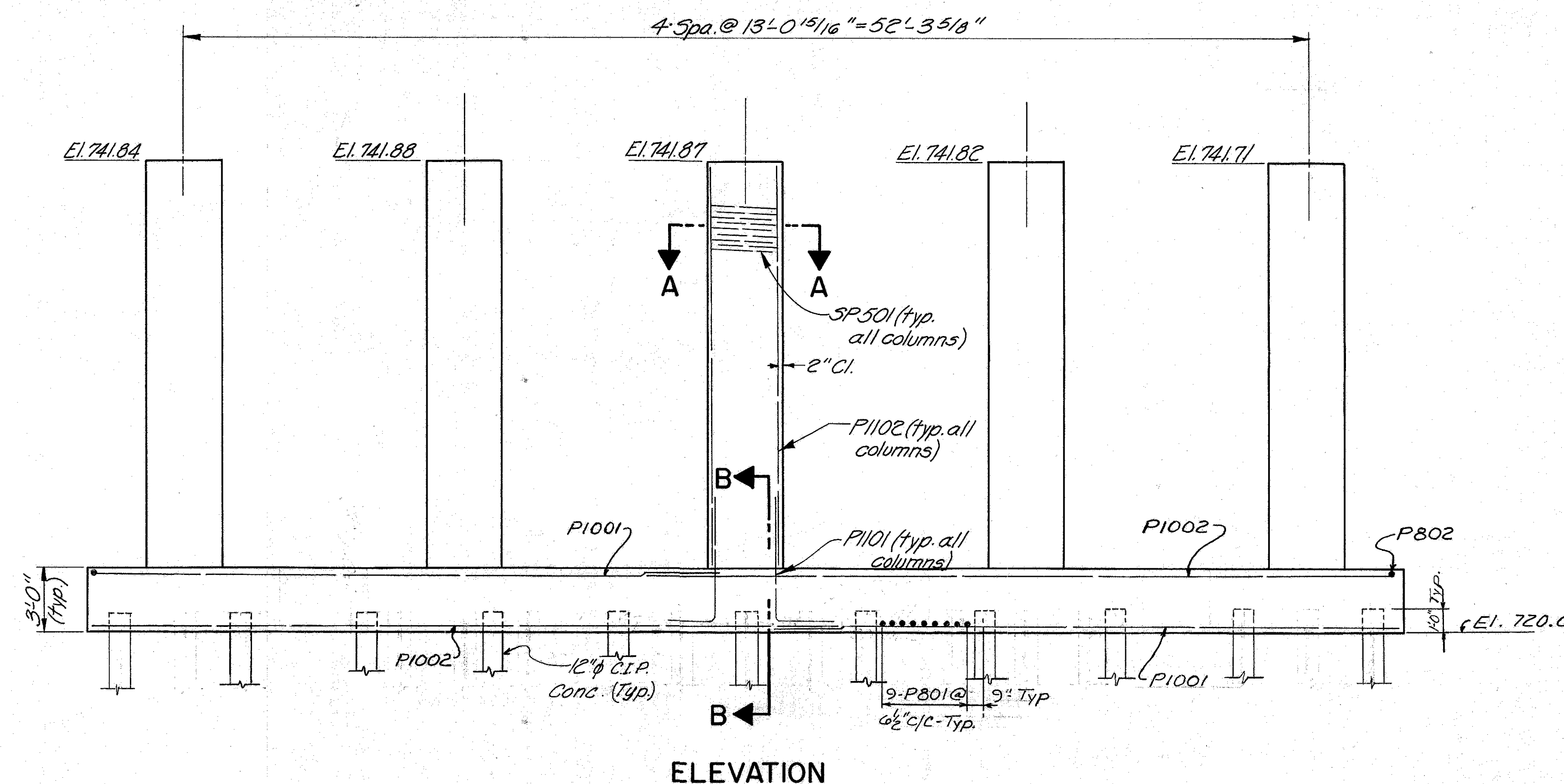
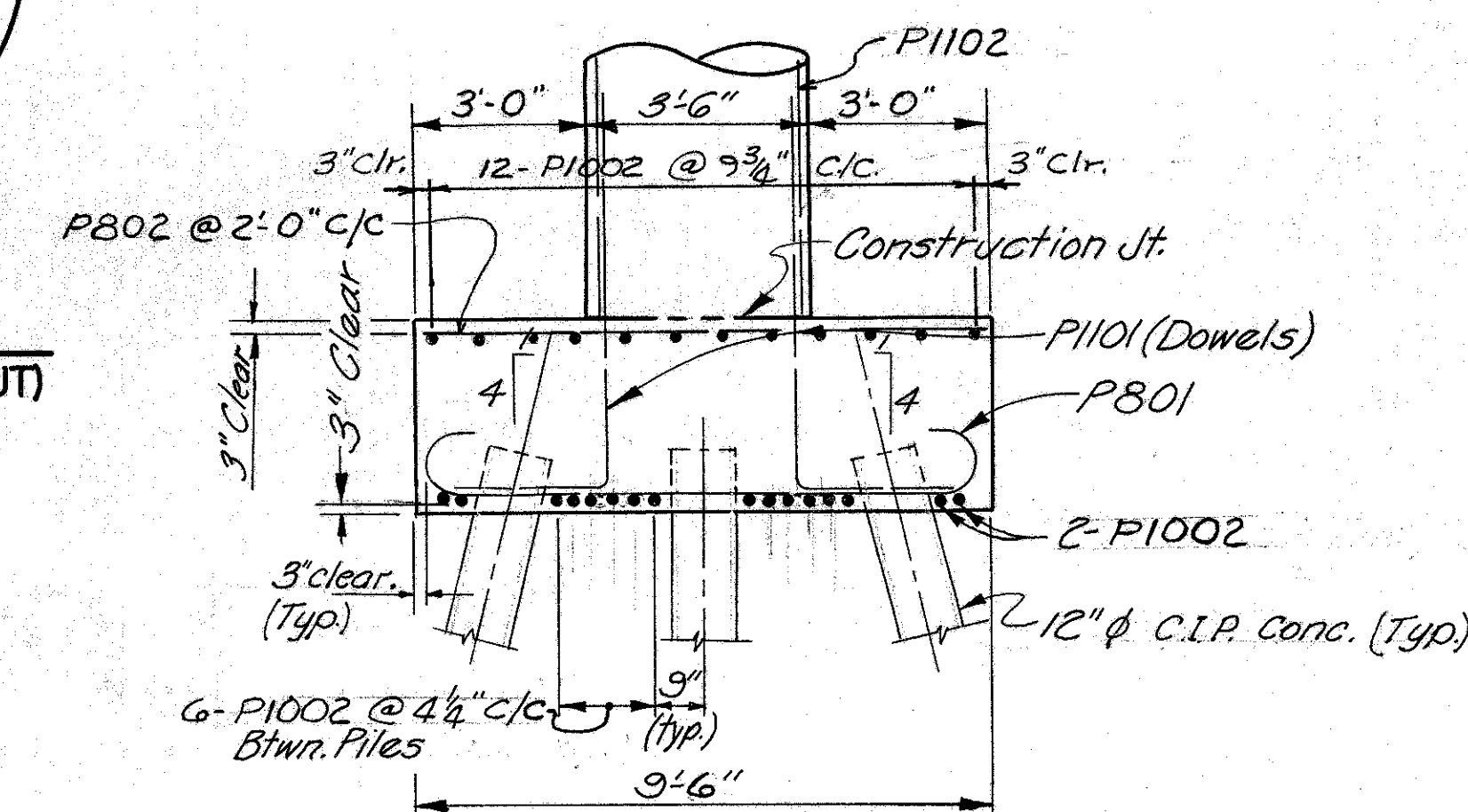
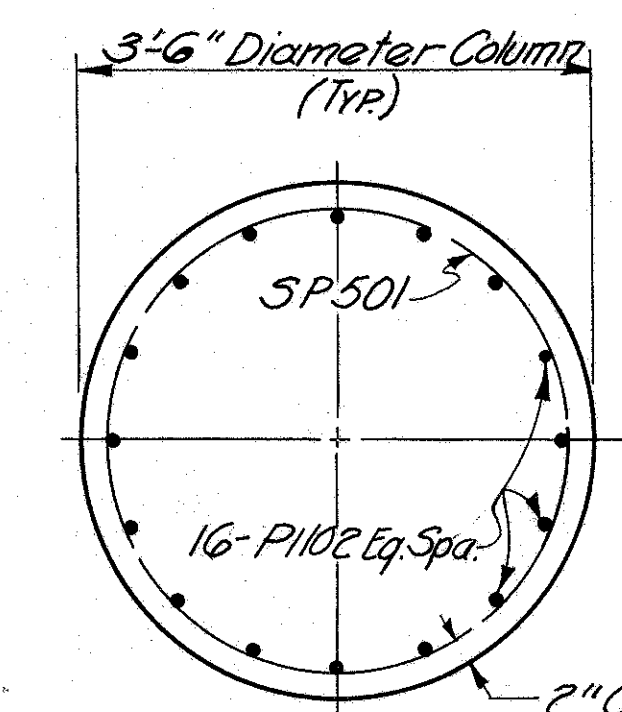
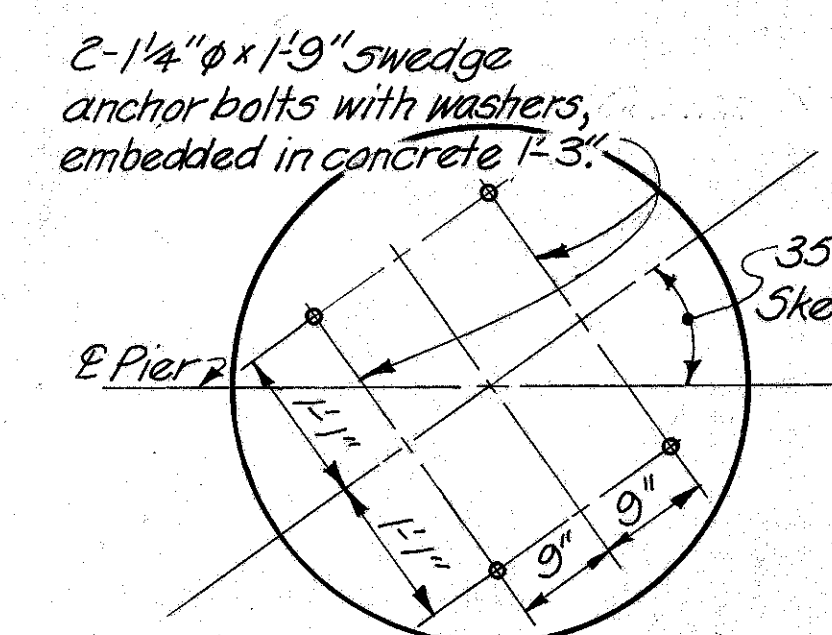
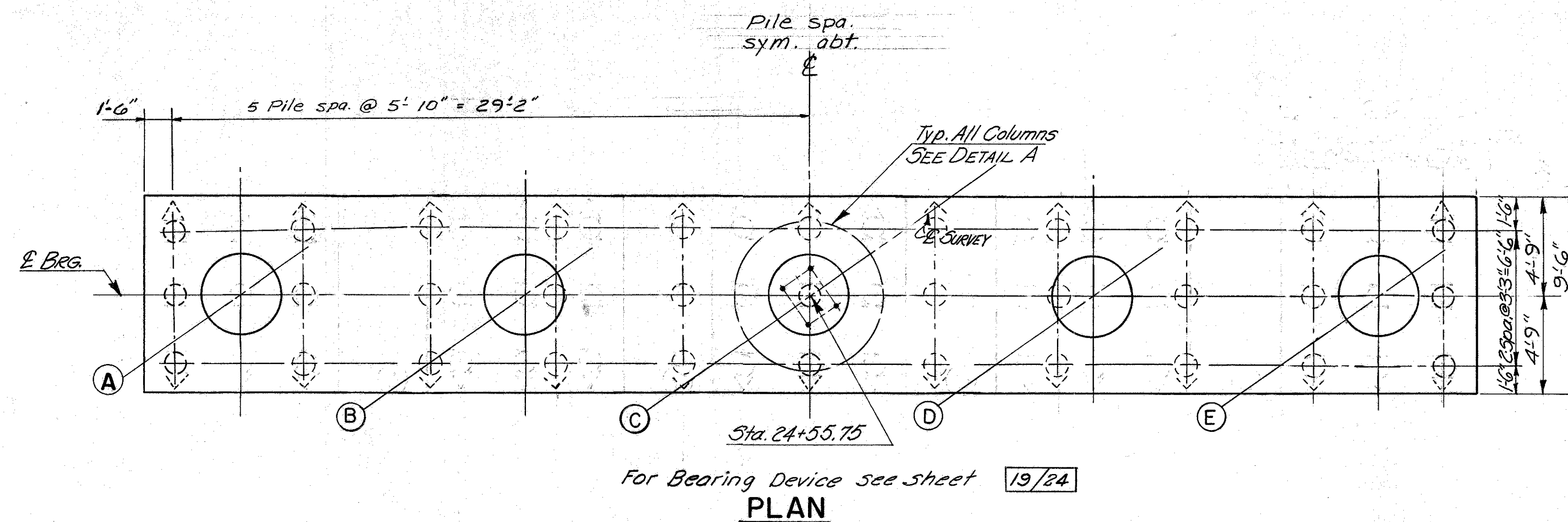
FRANKLIN COUNTY STA. 23+19.83
STA. 25+92.37

| | | | | | |
|----------|--------|--------|---------|---------------|-------------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVIEWED BY |
| A.S.B. | M.L.S. | R.E.L. | E.K. | 1/1/72 | |

| FED. RD. DIVISION | STATE | PROJECT |
|-------------------|-------|---------|
| 2 | OHIO | |

901

FRANKLIN COUNTY
FRA-70-12.31S



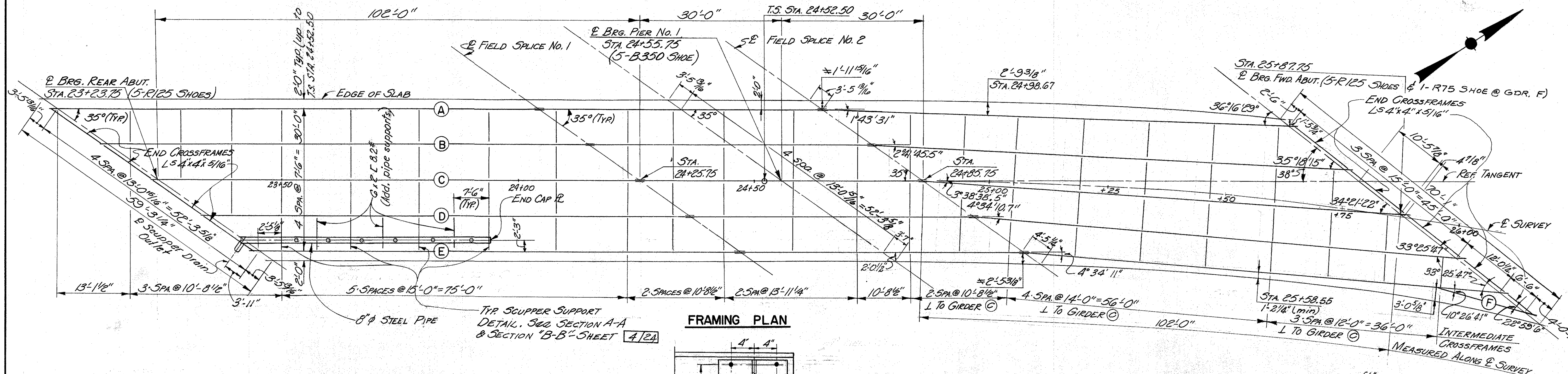
LEGEND:

- = Piles battered 1:4 (and direction of batter)
- All piles to be 12" φ C.I.P. Conc. (Typ.)

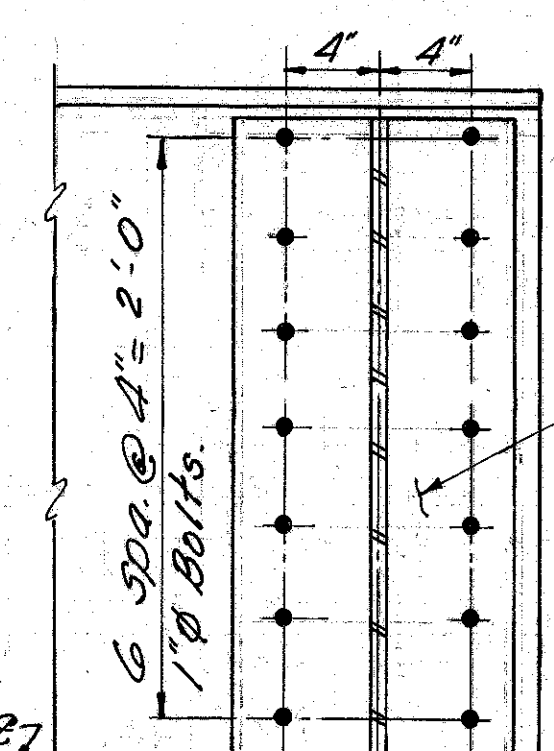
NOTE:

Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes.

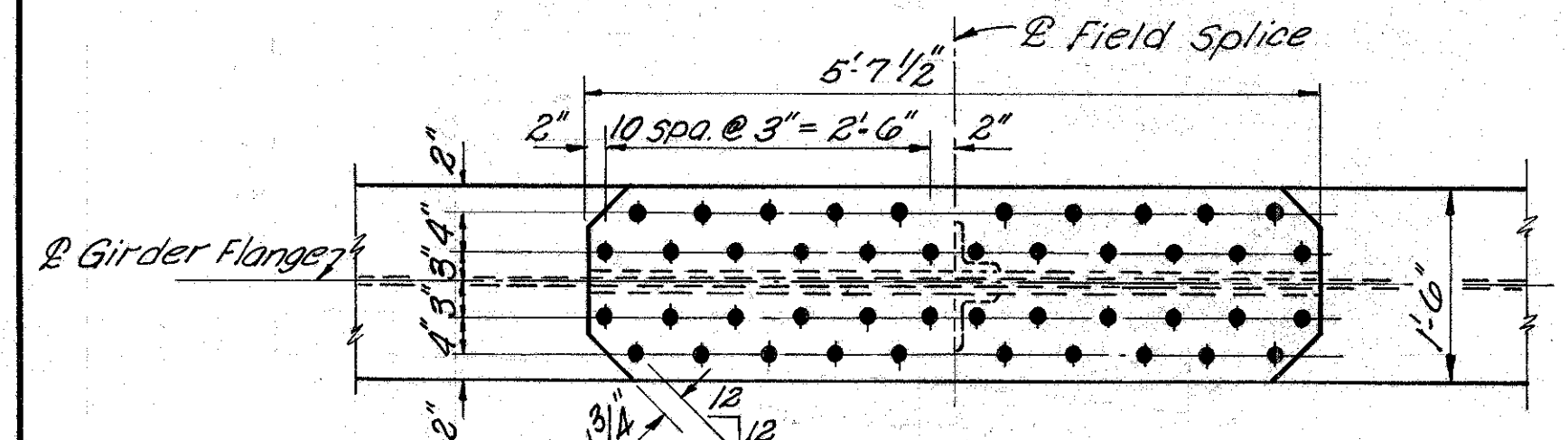
| | | | | | |
|-------------------------------------|--------|--------|---------|---------------|-------|
| E. S. PRESTON & ASSOCIATES, LIMITED | | | | | 15/24 |
| ENGINEERS | | | | | |
| COLUMBUS, OHIO | | | | | |
| PIER DETAILS | | | | | |
| BRIDGE NO. FRA-70-1349 S | | | | | |
| WHITTIER ST. OVER RD."C" & RD."D" | | | | | |
| FRANKLIN COUNTY | | | | | |
| STA. 23+19.83 | | | | | |
| STA. 25+92.37 | | | | | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVIS |
| A.S.B. | R.E.L. | M.L.S. | E.K. | 66 7/1/71 | |



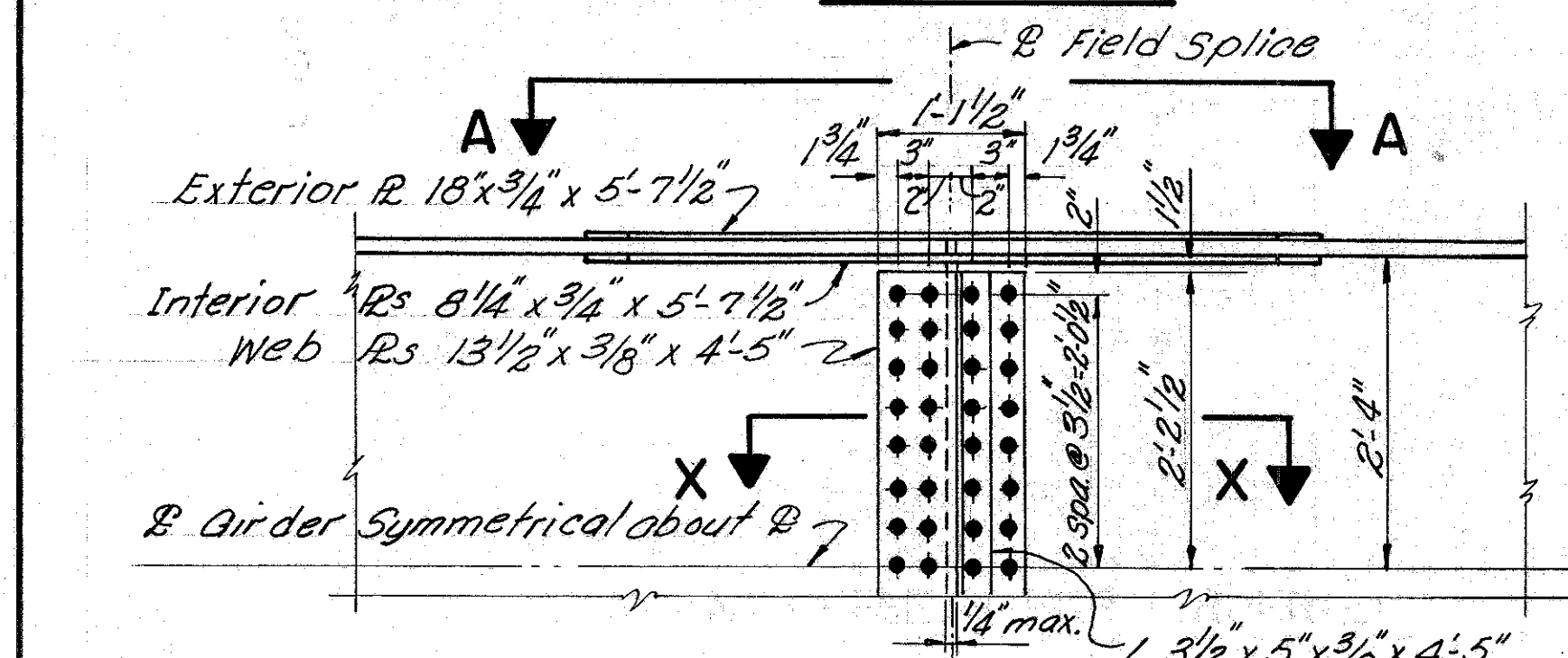
FRAMING PLAN



SECTION Y-Y

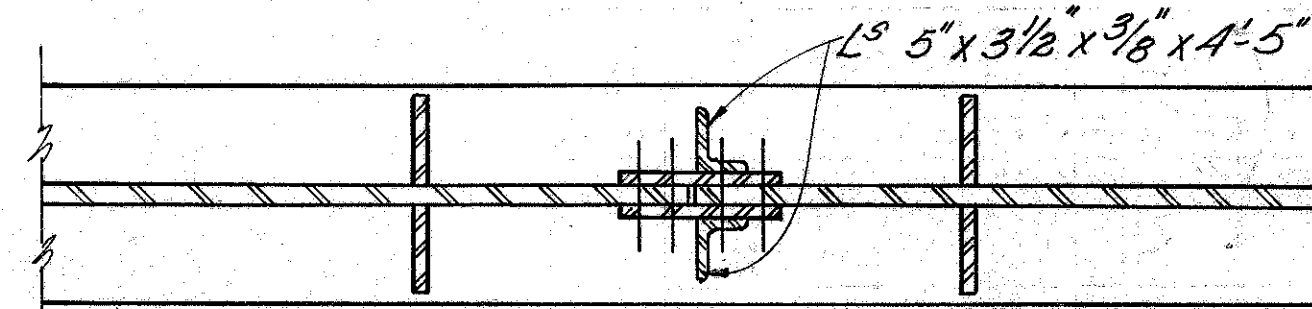


VIEW A-A

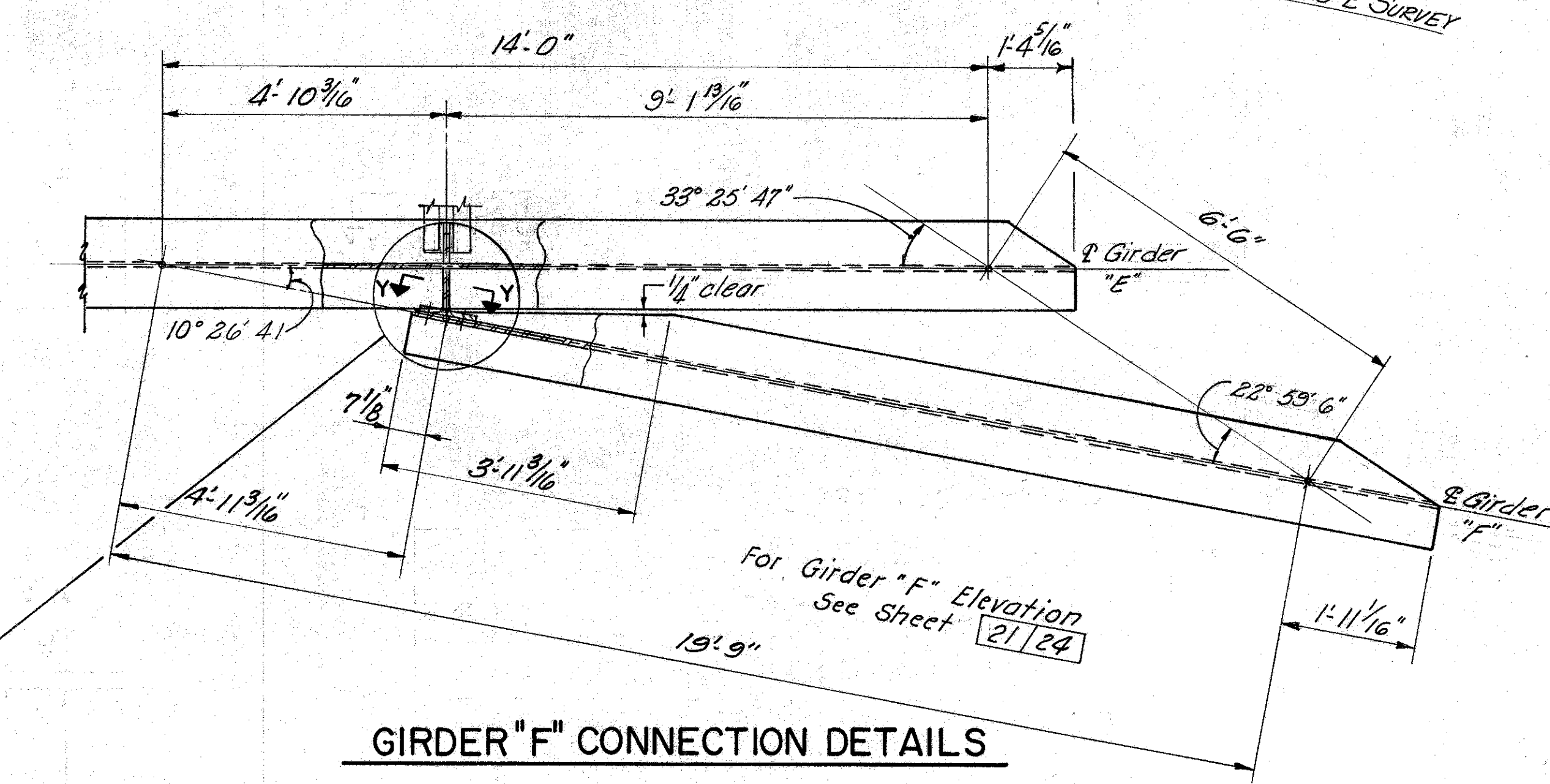


GIRDER SPICE DETAIL

ALL BOLTS TO BE 1" H.S.



SECTION X-X



GIRDER 'F' CONNECTION DETAILS

NOTE:
For Additional Details see sheet 17/24 19/24
Crossframes, and stiffeners may be respaced
(not to exceed spacing shown) so that crossframes
may be attached to stiffeners.

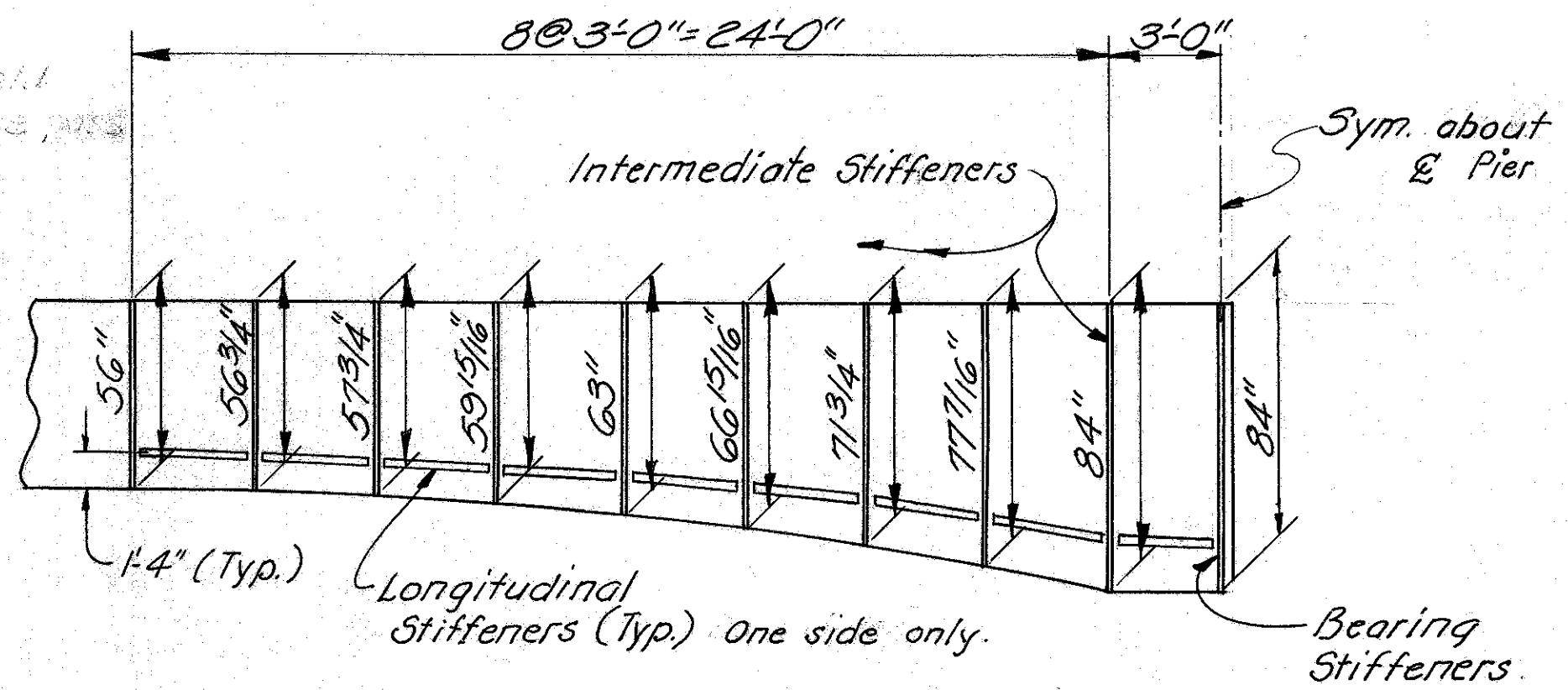
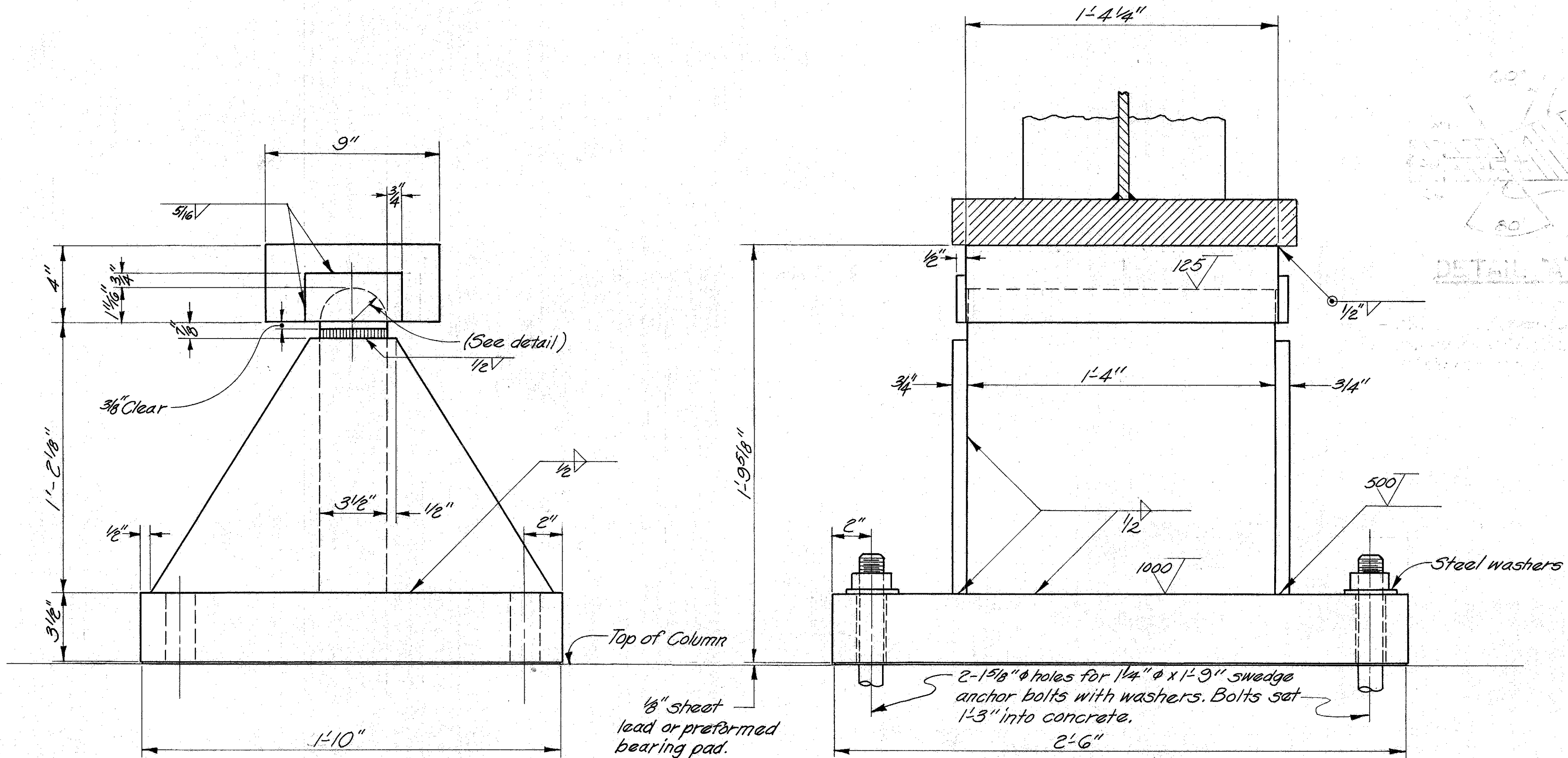
| | | | | | |
|-------------------------------------|-------|--------|---------|---------------|----------|
| E. S. PRESTON & ASSOCIATES, LIMITED | | | | | 16/24 |
| ENGINEERS | | | | | |
| COLUMBUS, OHIO | | | | | |
| SUPERSTRUCTURE DETAILS | | | | | |
| BRIDGE NO. FRA-70-1349 S | | | | | |
| WHITTIER ST. OVER RD. 'C' & RD. 'D' | | | | | |
| FRANKLIN COUNTY | | | | | |
| STA. 23+19.83 | | | | | |
| STA. 25+92.37 | | | | | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISION |
| A.S.B. | REL. | M.L.S. | E.K. | 16/24 | |

B. K. ELLIOTT CO., Cleveland

GIRDER DETAIL

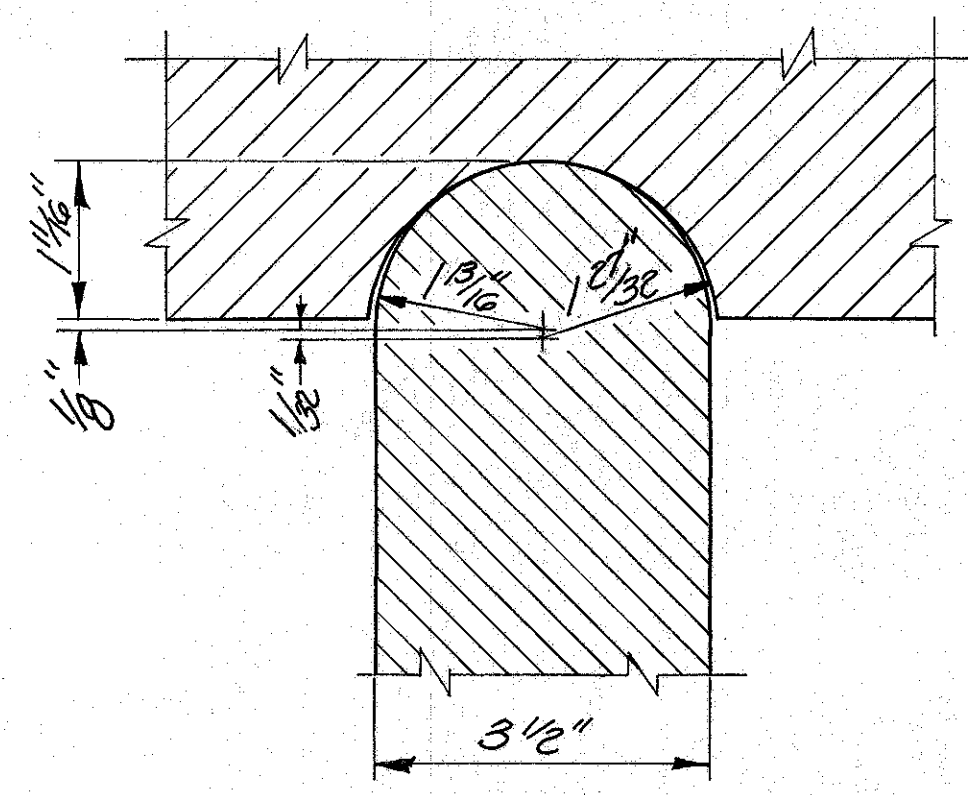
SCALE: $\frac{3}{32}'' = 1'-0''$ (H)
 $\frac{3}{8}'' = 1'-0''$ (V)

FRANKLIN COUNTY
FRA-70-12.31S

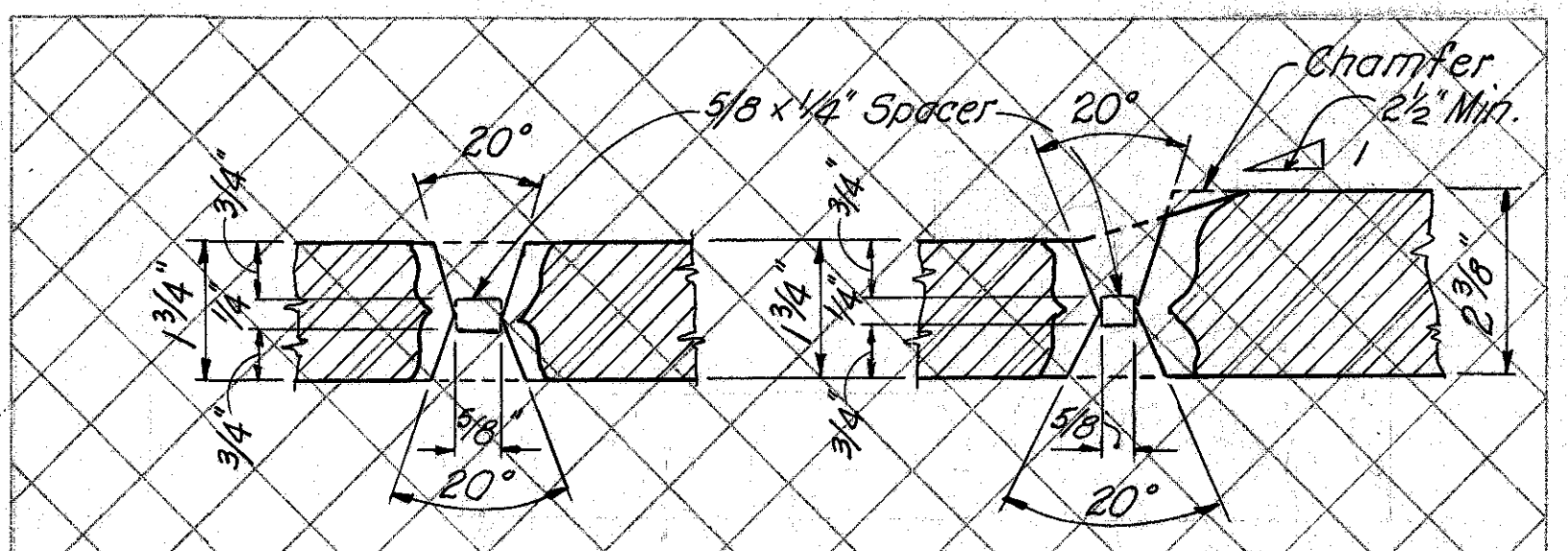


WEB PLATE DETAIL (PARABOLIC HAUNCH)
(TYPICAL FOR ALL GIRDERS)

STRUCTURAL STEEL BOLSTER - (B-350)

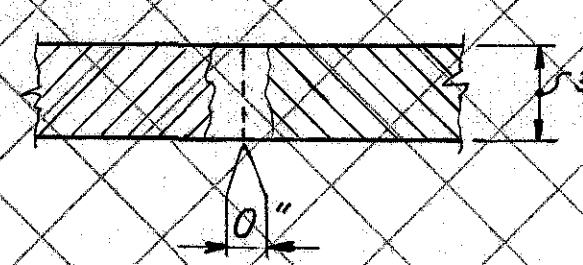


TOP BEARING DETAIL



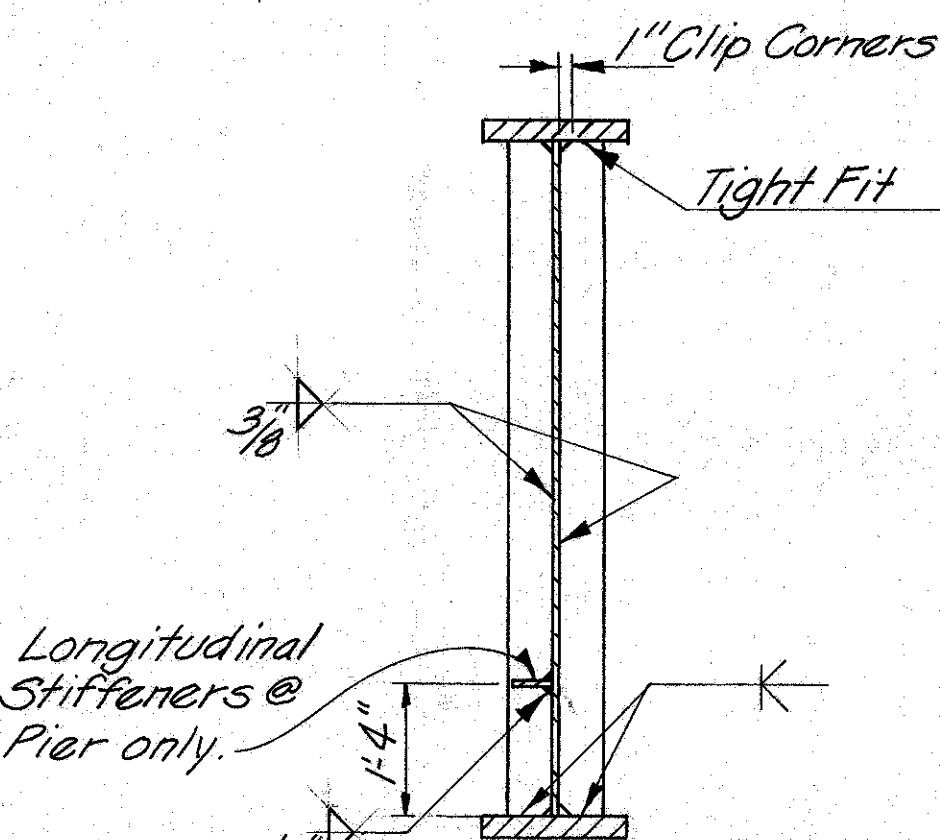
Joint Preparation for Submerged Arc Weldments

FLANGE WELD DETAIL

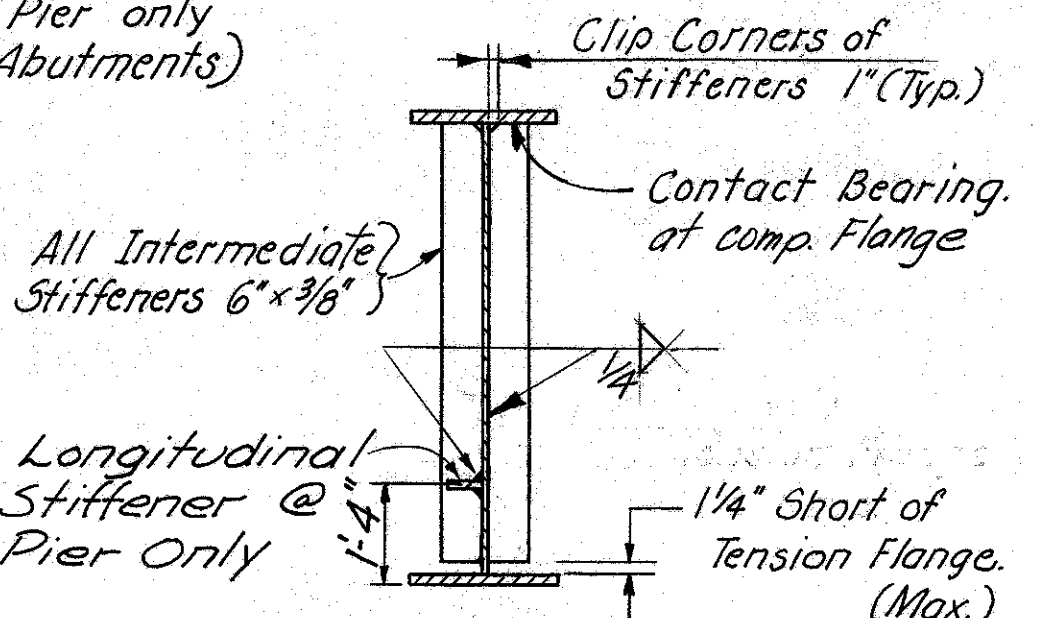
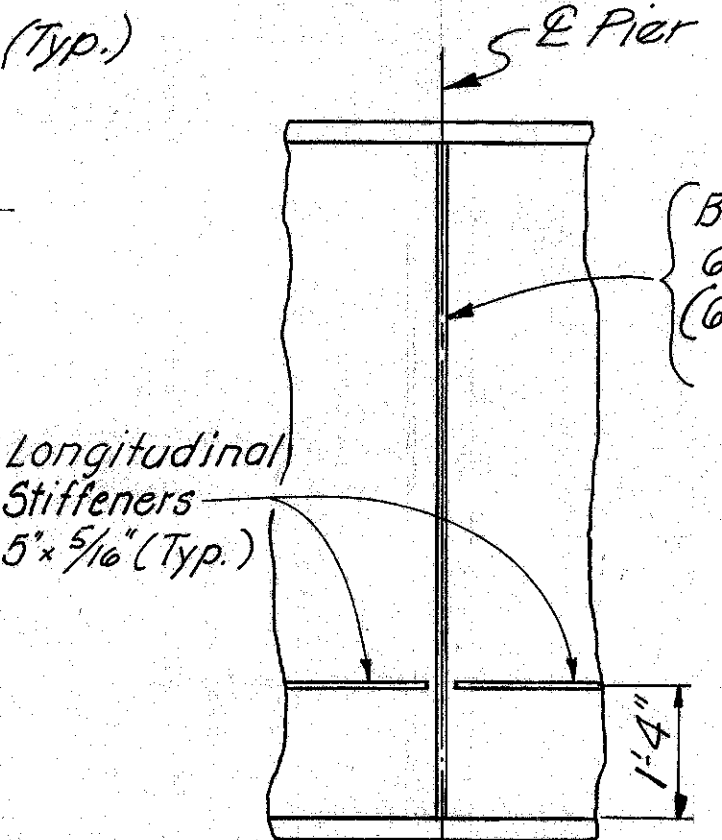


WEB WELD DETAIL

NOTE:
Welds must be centered on joint.
All welds shall be back-gauged and welded after welding far side.
Butt welds on girder flange plates shall be ground flush, the finish grinding being parallel with web.



BEARING STIFFENERS



INTERMEDIATE STIFFENER

NOTE:
For Additional Details see Sheets 16/24 17/24 18/24

| | | | | | | |
|-------------------------------------|--------|--------|---------|---------------|---------|---------------|
| E. S. PRESTON & ASSOCIATES, LIMITED | | | | | | 19/24 |
| ENGINEERS | | | | | | |
| COLUMBUS, OHIO | | | | | | |
| SUPERSTRUCTURE DETAILS | | | | | | |
| BRIDGE NO. FRA-70-1349S | | | | | | |
| WHITTIER ST. OVER RD. "C" & RD. "D" | | | | | | |
| FRANKLIN COUNTY | | | | | | |
| | | | | | | STA. 23+19.83 |
| | | | | | | STA. 25+92.37 |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED | |
| A.S.B. | R.J.B. | M.L.S. | E.K. | 1/1/24 | | |

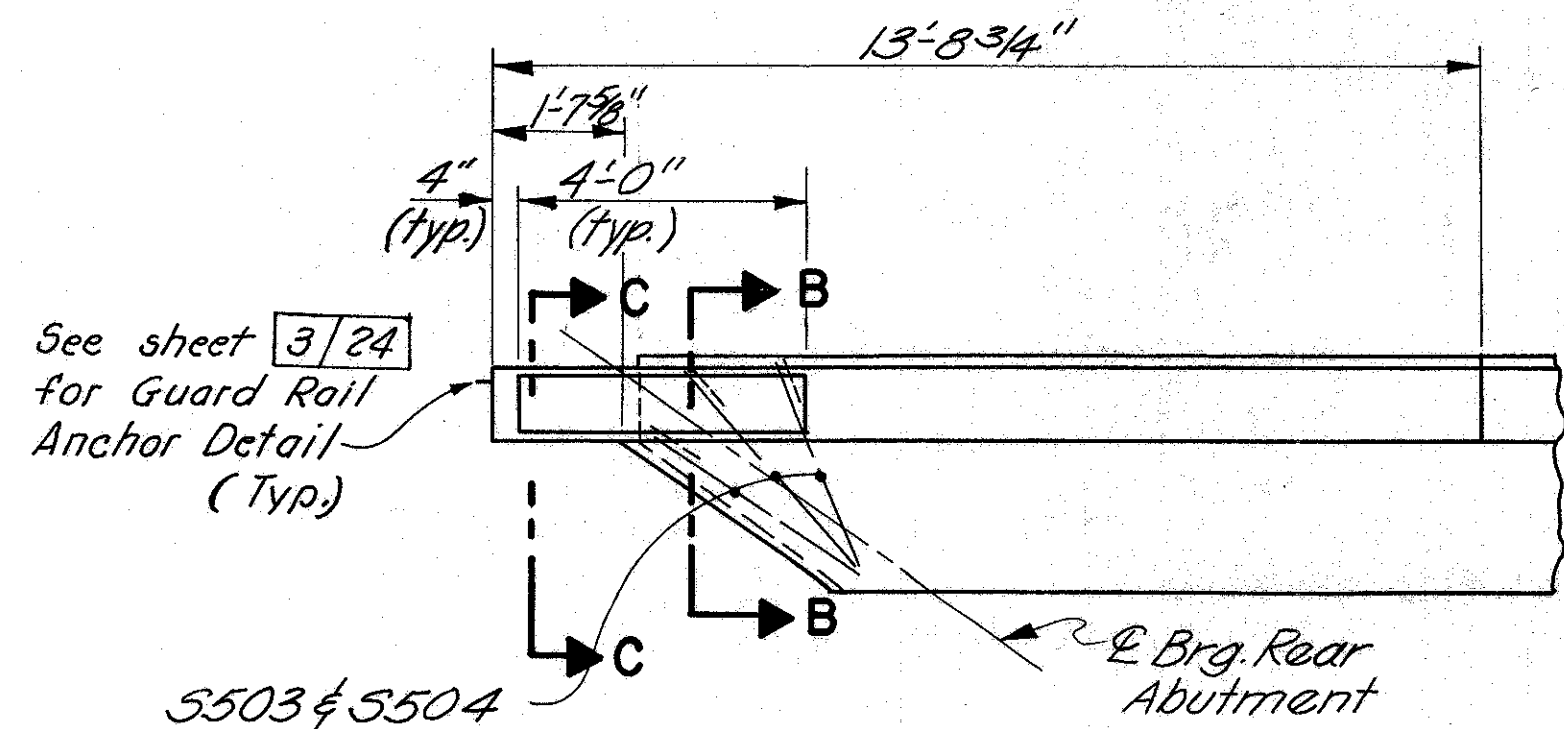
| FED. RD. DIVISION | STATE | PROJECT |
|-------------------|-------|---------|
| 2 | OHIO | |

306

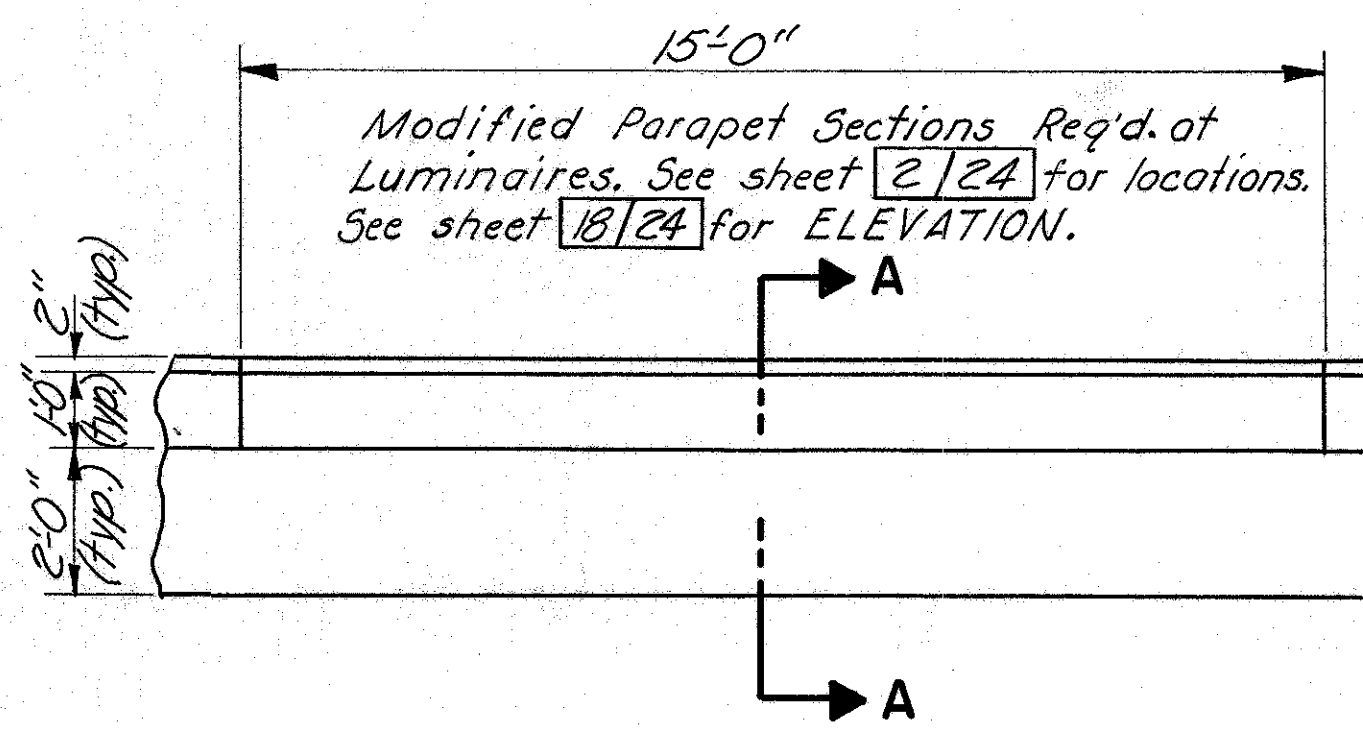
FRANKLIN COUNTY
FRA.-70-12.31S

NOTE:

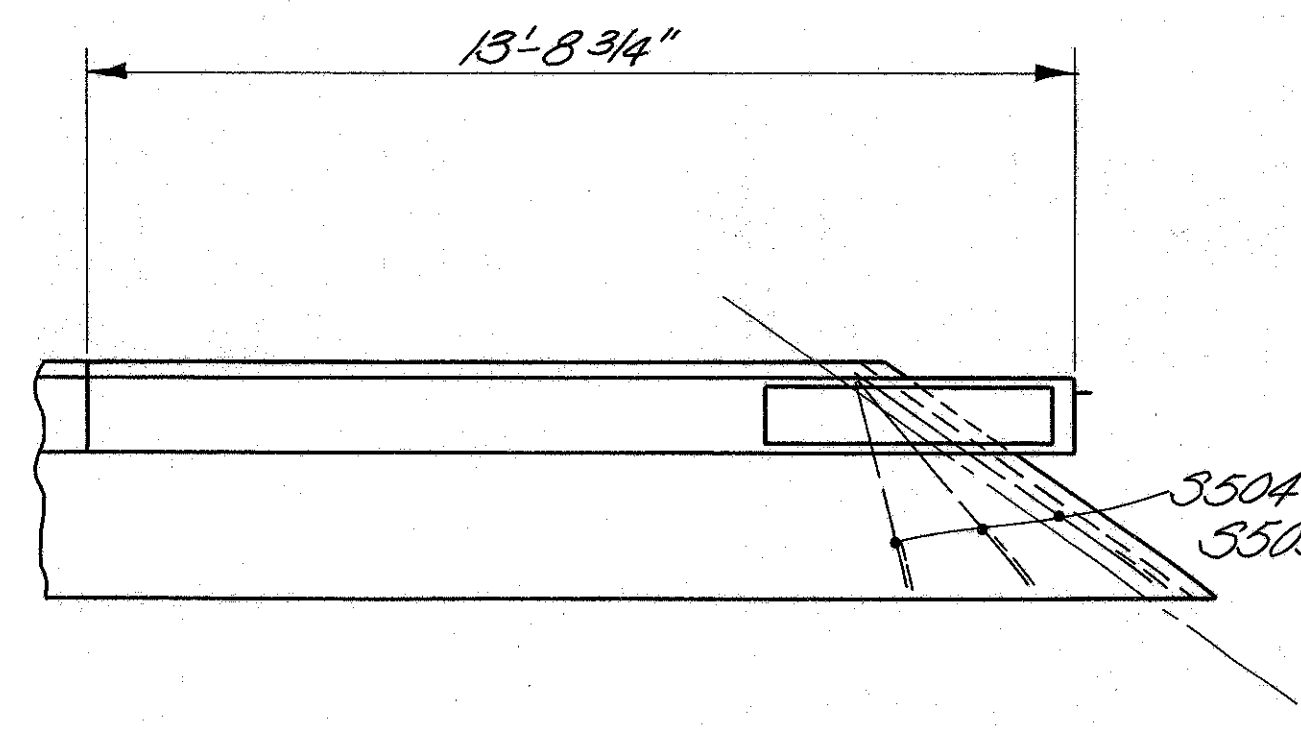
"R" bars to be included with railing for payment.



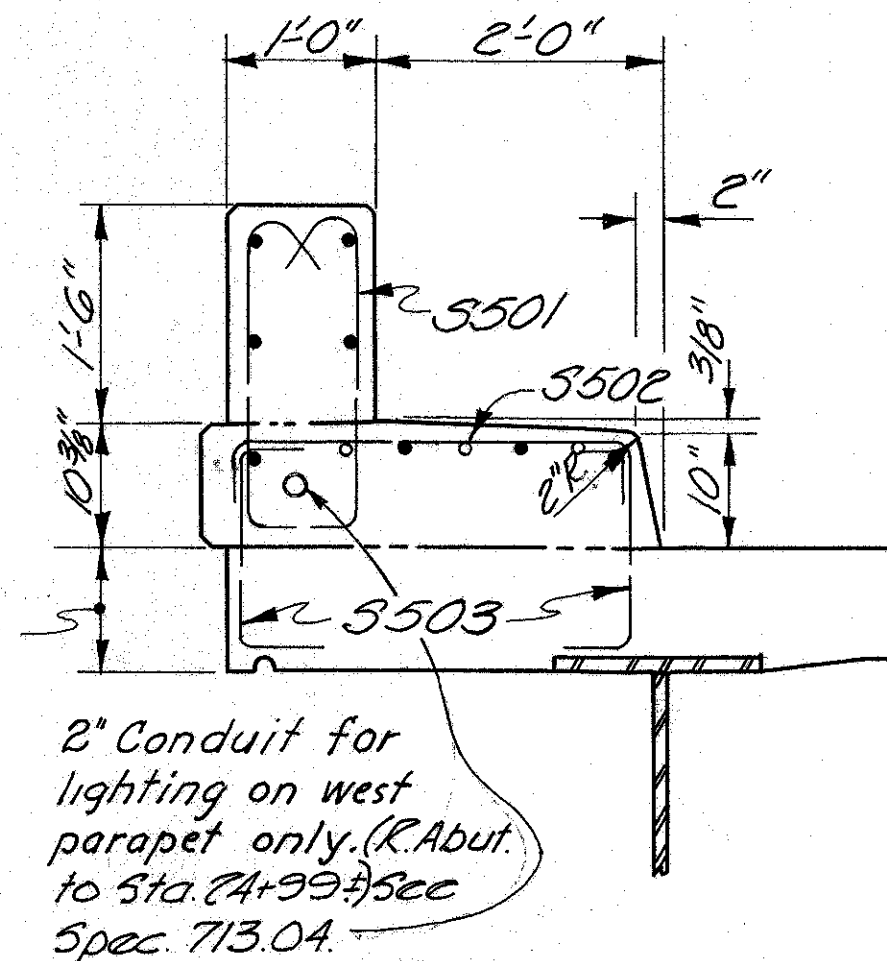
SOUTHWEST END PARAPET PLAN
(I-REQUIRED)



INTERMEDIATE PARAPET PLAN
(22-REQUIRED AS SHOWN)
2-REQ'D AS MODIFIED)



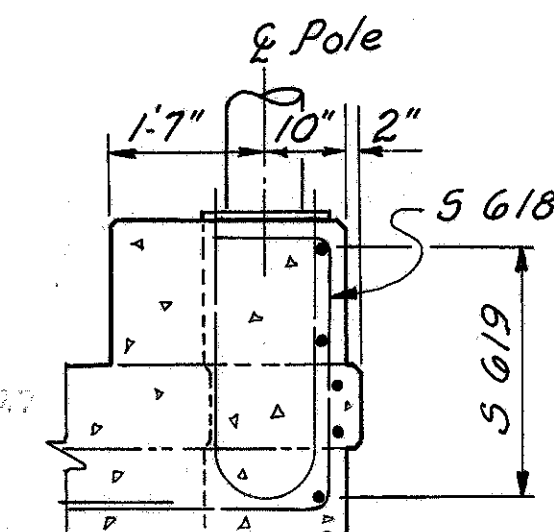
NORTHWEST END PARAPET PLAN
(I-REQUIRED)



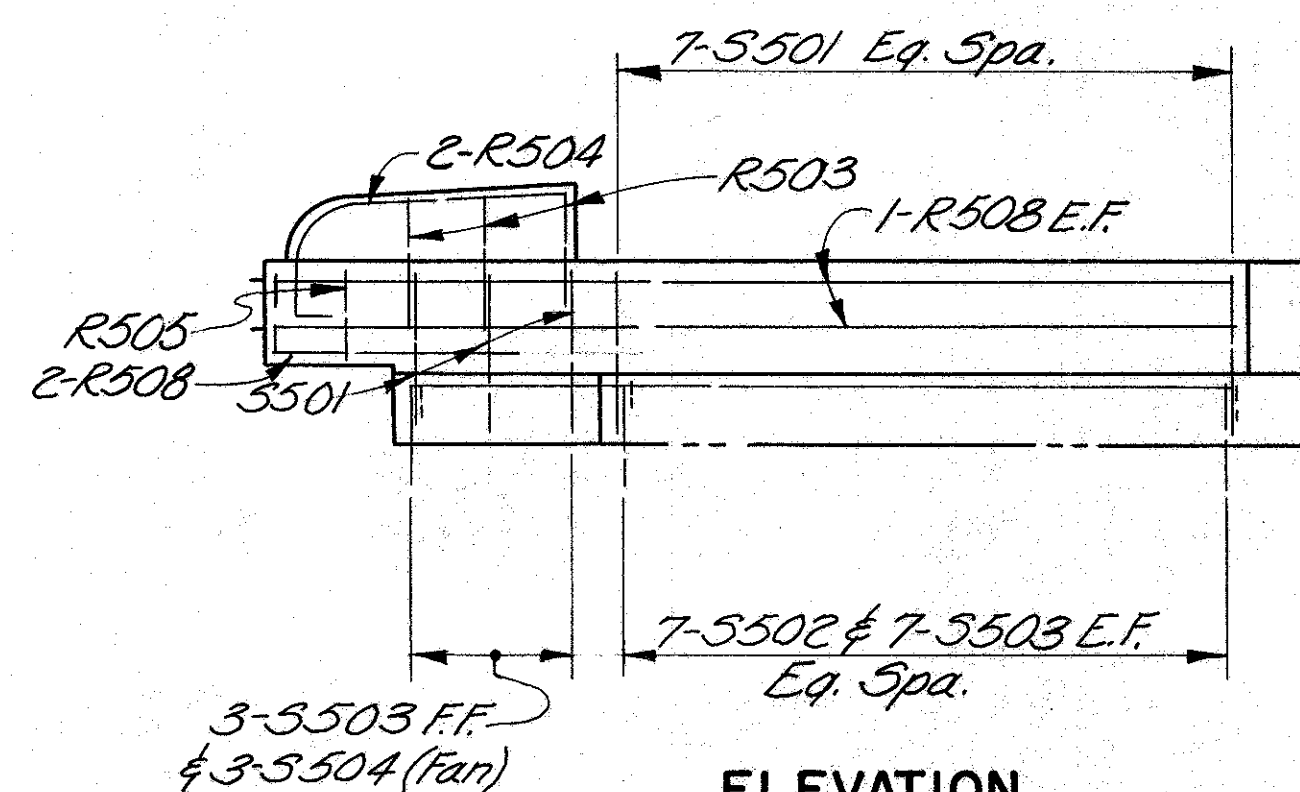
SECTION A-A

For details see
Lighting Plan.

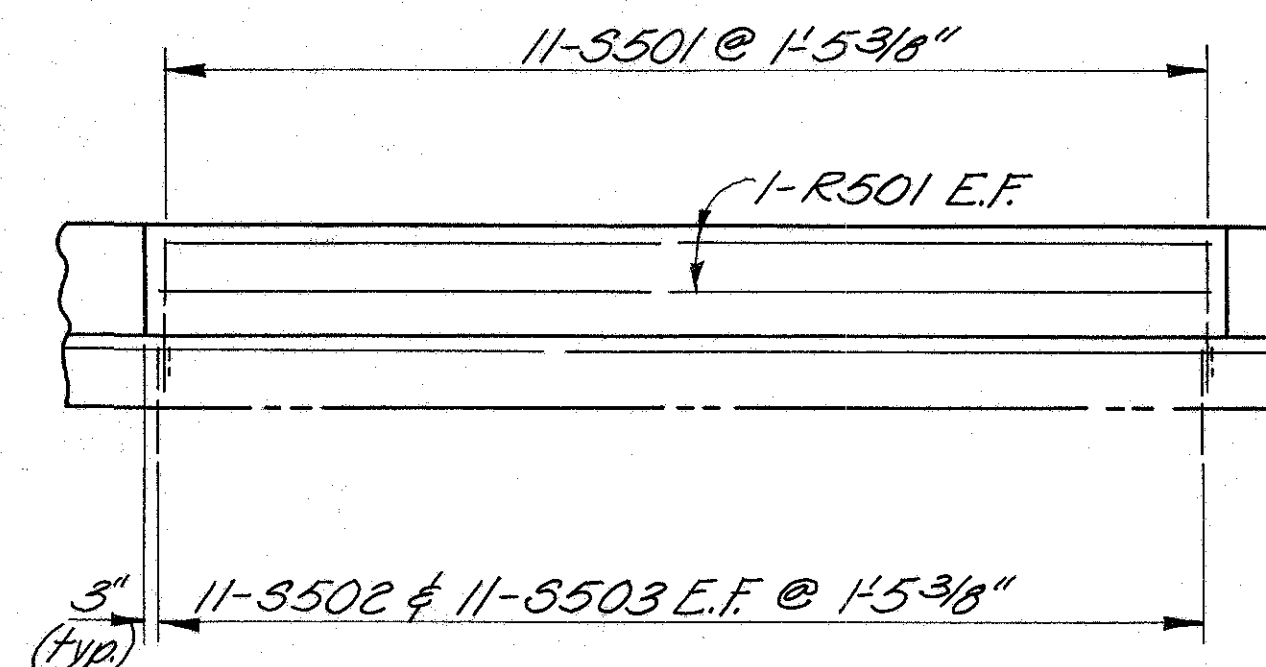
NOTE: All lighting fixtures to be included with item 675 for payment.



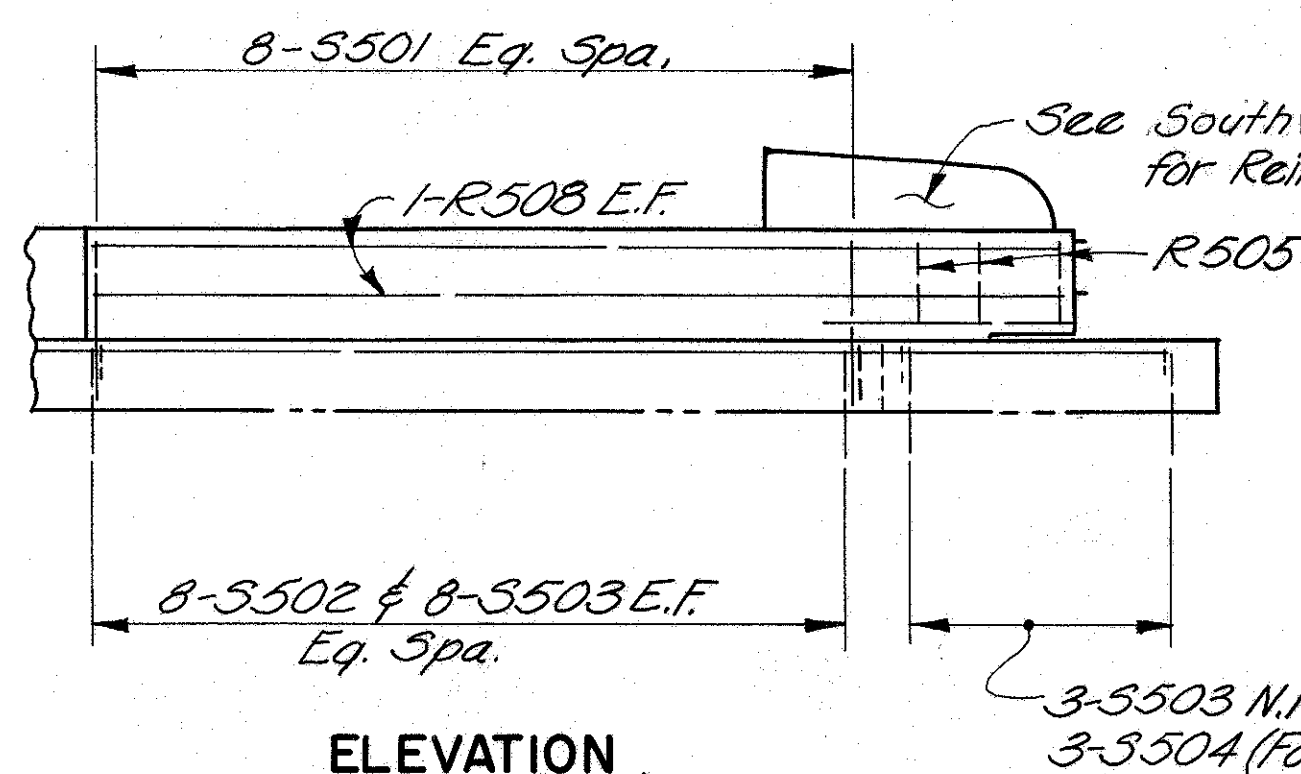
PARTIAL SECTION



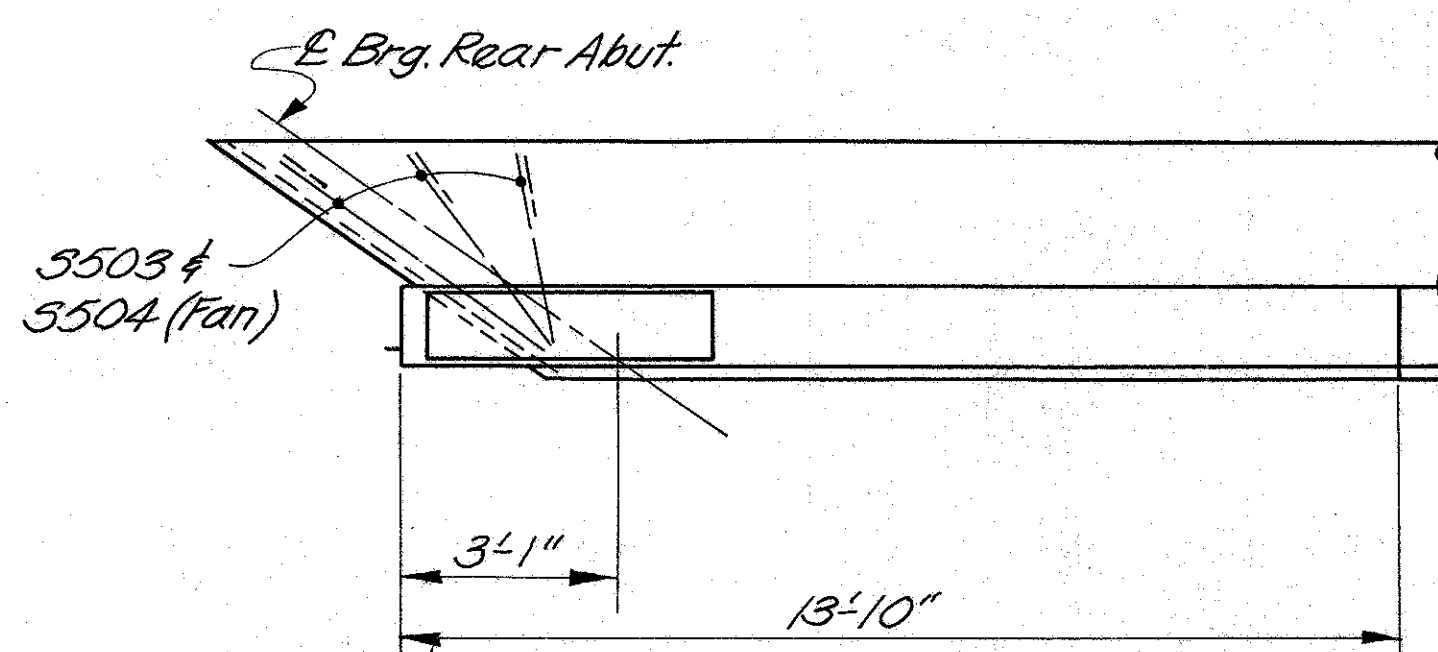
ELEVATION



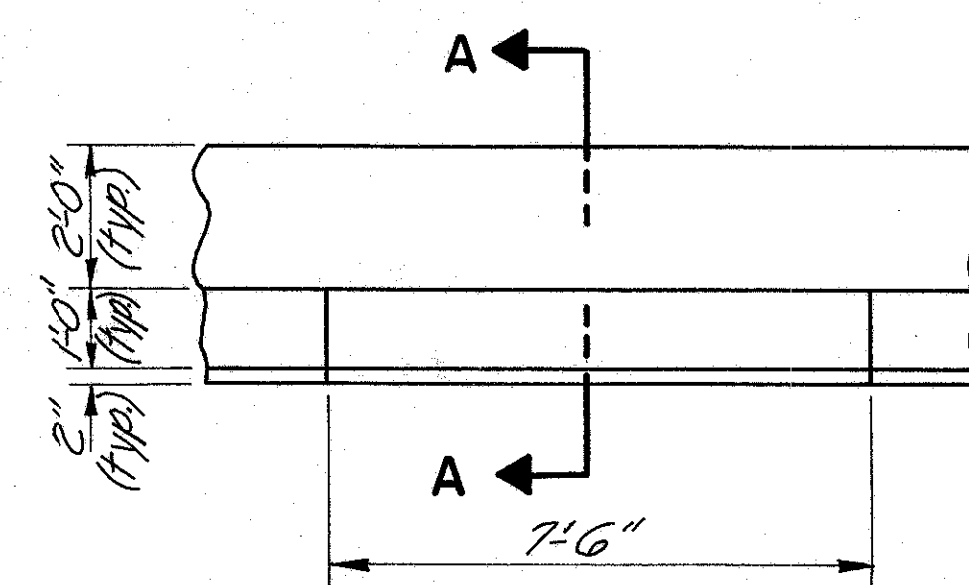
ELEVATION



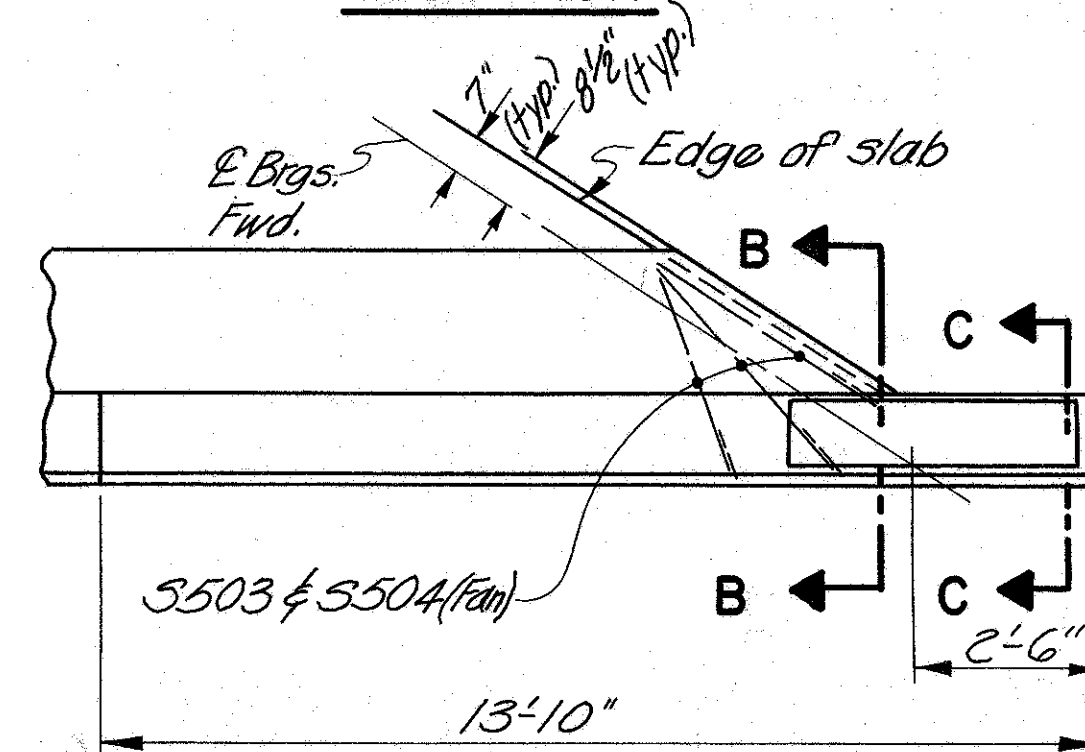
ELEVATION



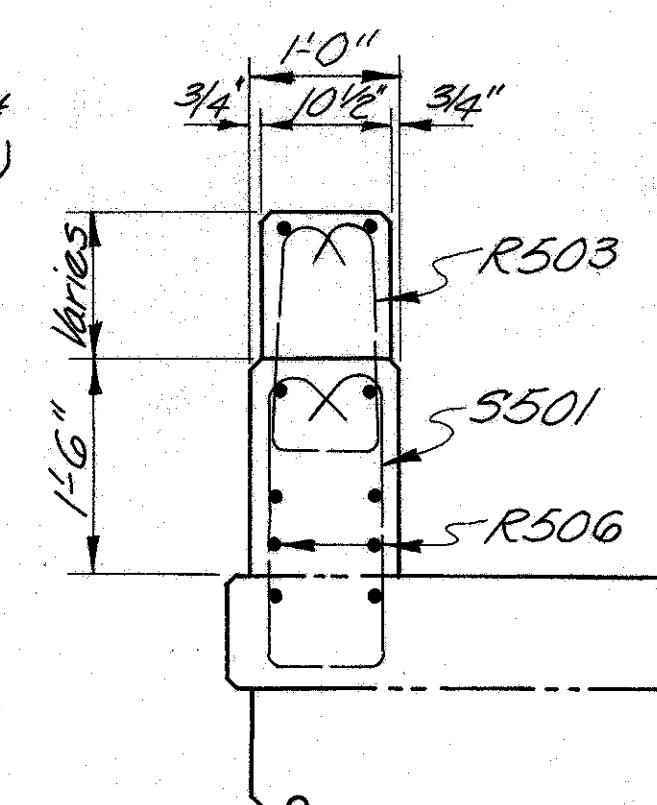
SOUTHEAST END PARAPET PLAN
(I-REQUIRED)



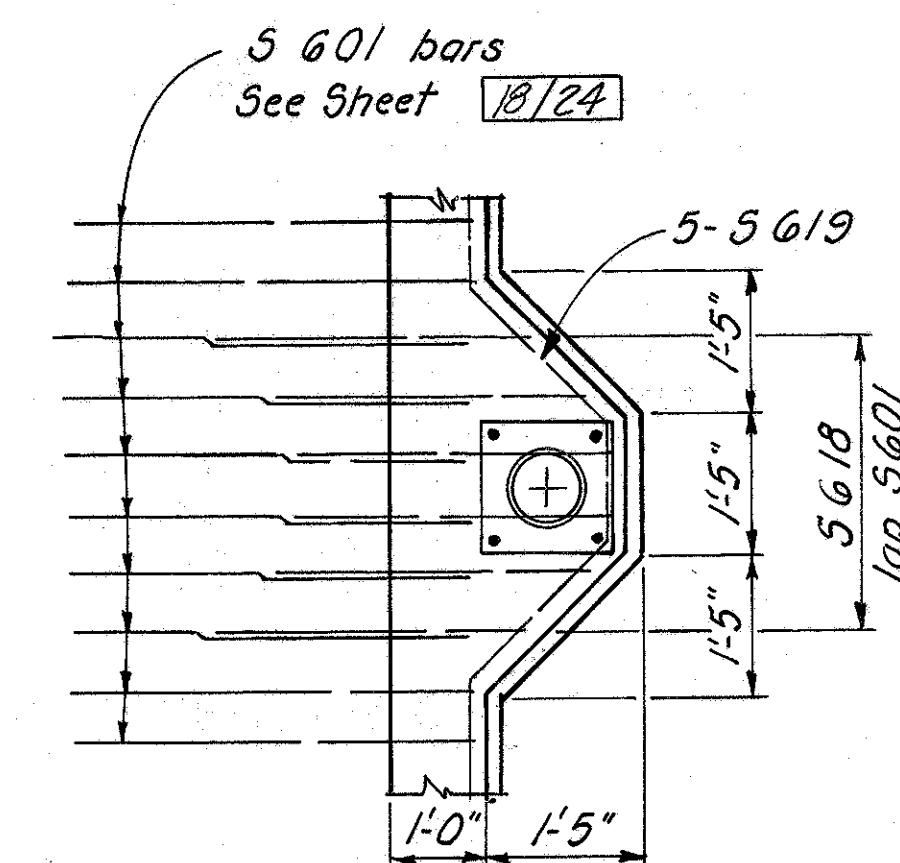
INTERMEDIATE PARAPET PLAN
(I7-REQUIRED)



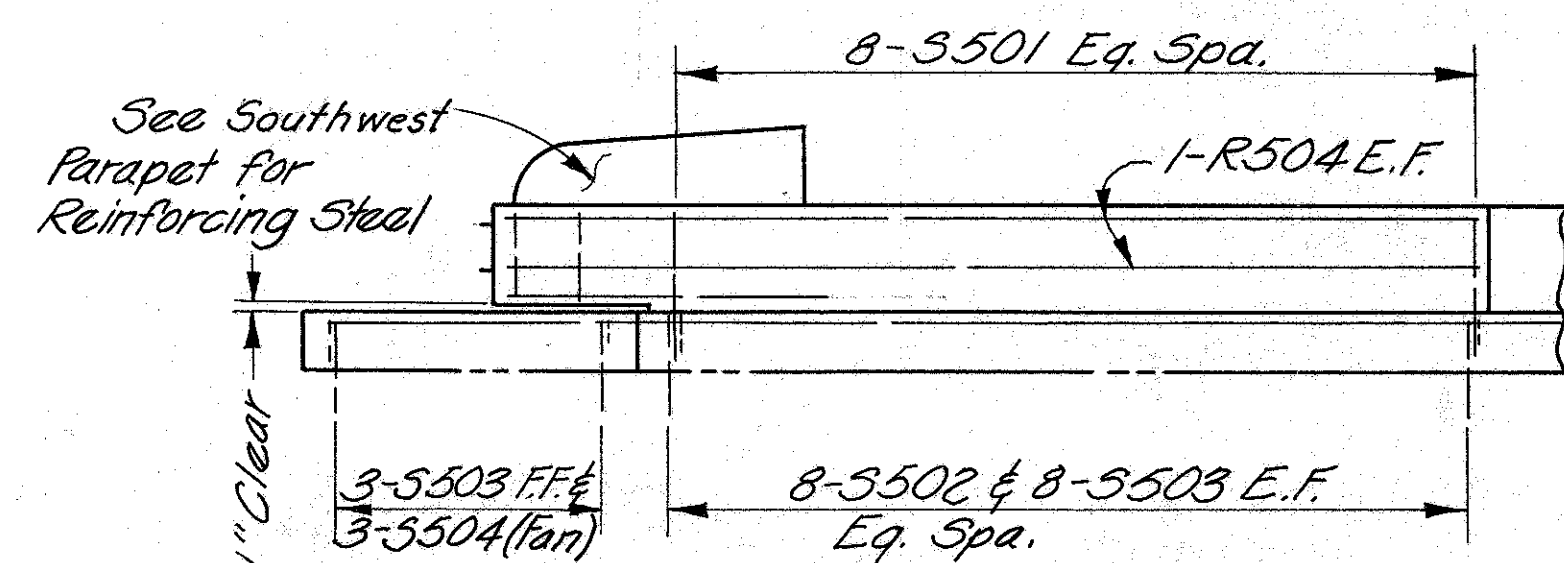
NORTHEAST END PARAPET PLAN
(I-REQUIRED)



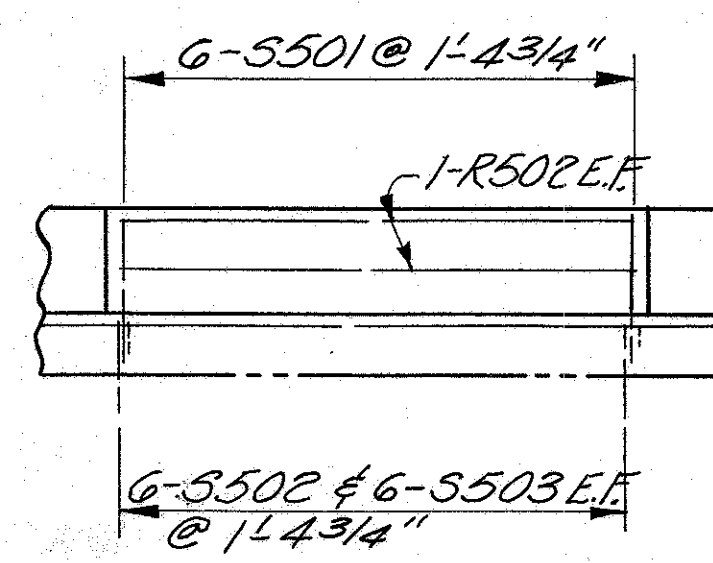
SECTION B-B



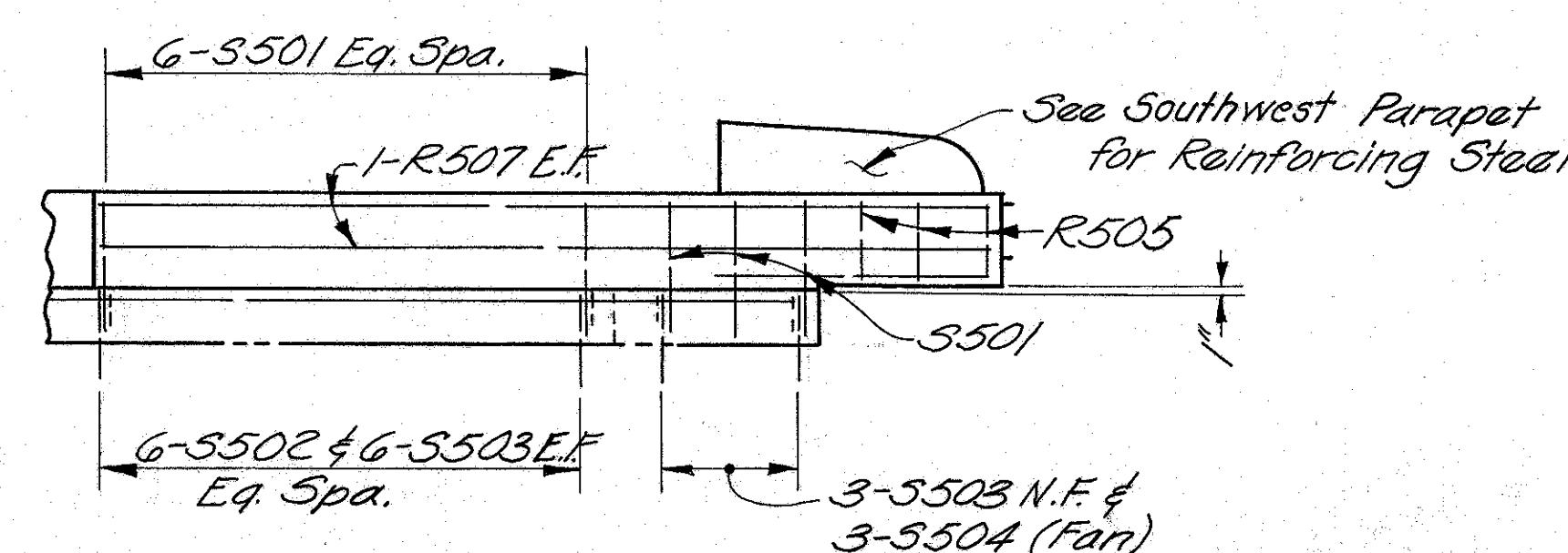
PARTIAL PLAN



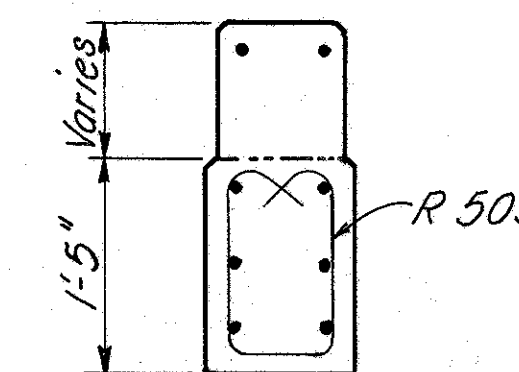
ELEVATION



ELEVATION



ELEVATION



SECTION C-C

**DETAIL OF
LUMINAIRE MOUNTING PAD**

E. S. PRESTON & ASSOCIATES, LIMITED 20/24

SUPERSTRUCTURE DETAILS

BRIDGE NO. FRA.-70-1349S
WHITTIER ST OVER RD. "C" & RD. "D"

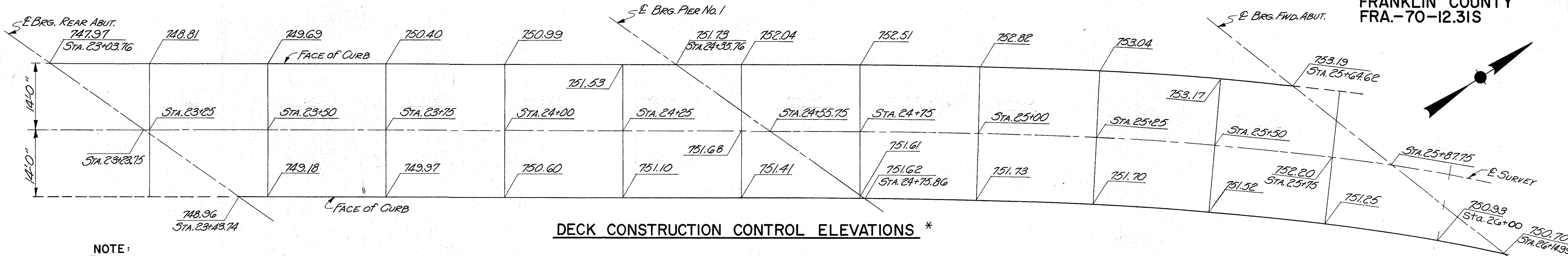
FRANKLIN COUNTY

STA. 23+19.83

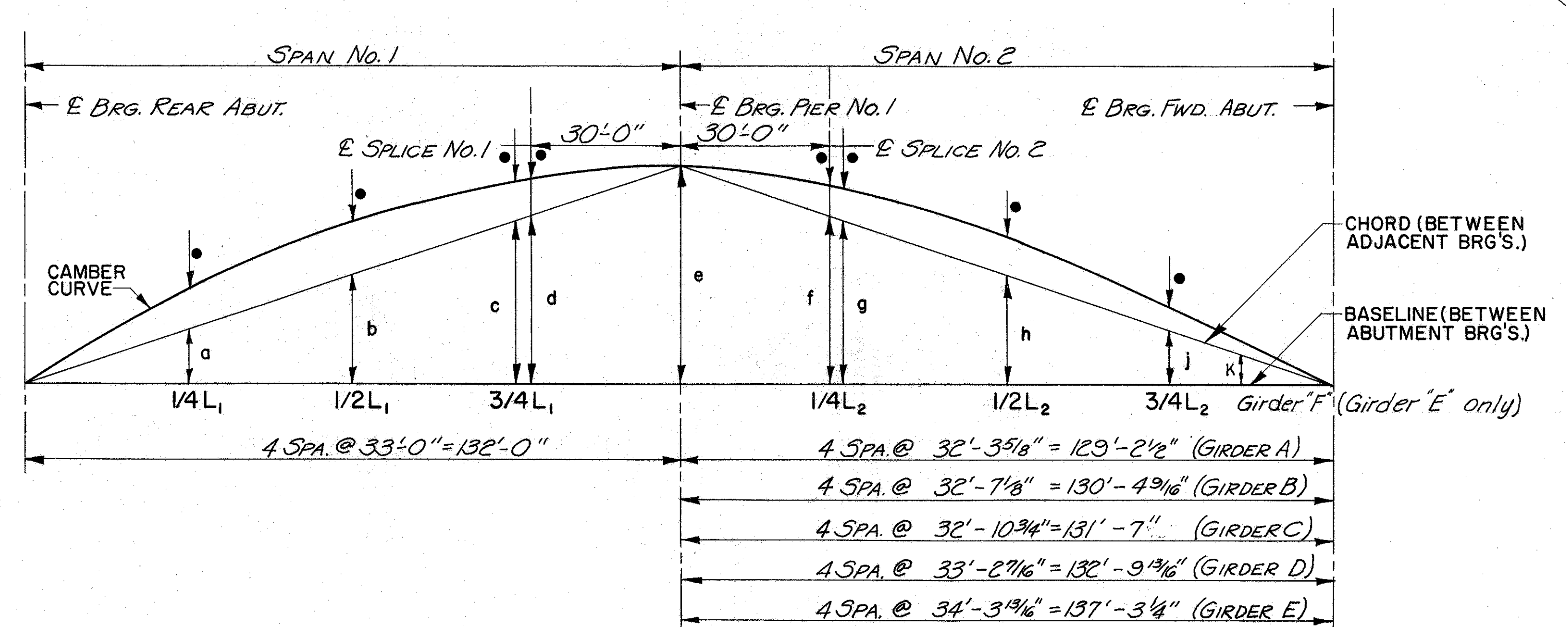
STA. 25+92.37

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED, DATE | REVISED |
|----------|-------|--------|---------|----------------|---------|
| A.S.B. | REL. | M.L.S. | E.K. | 6/6 7/1/71 | |

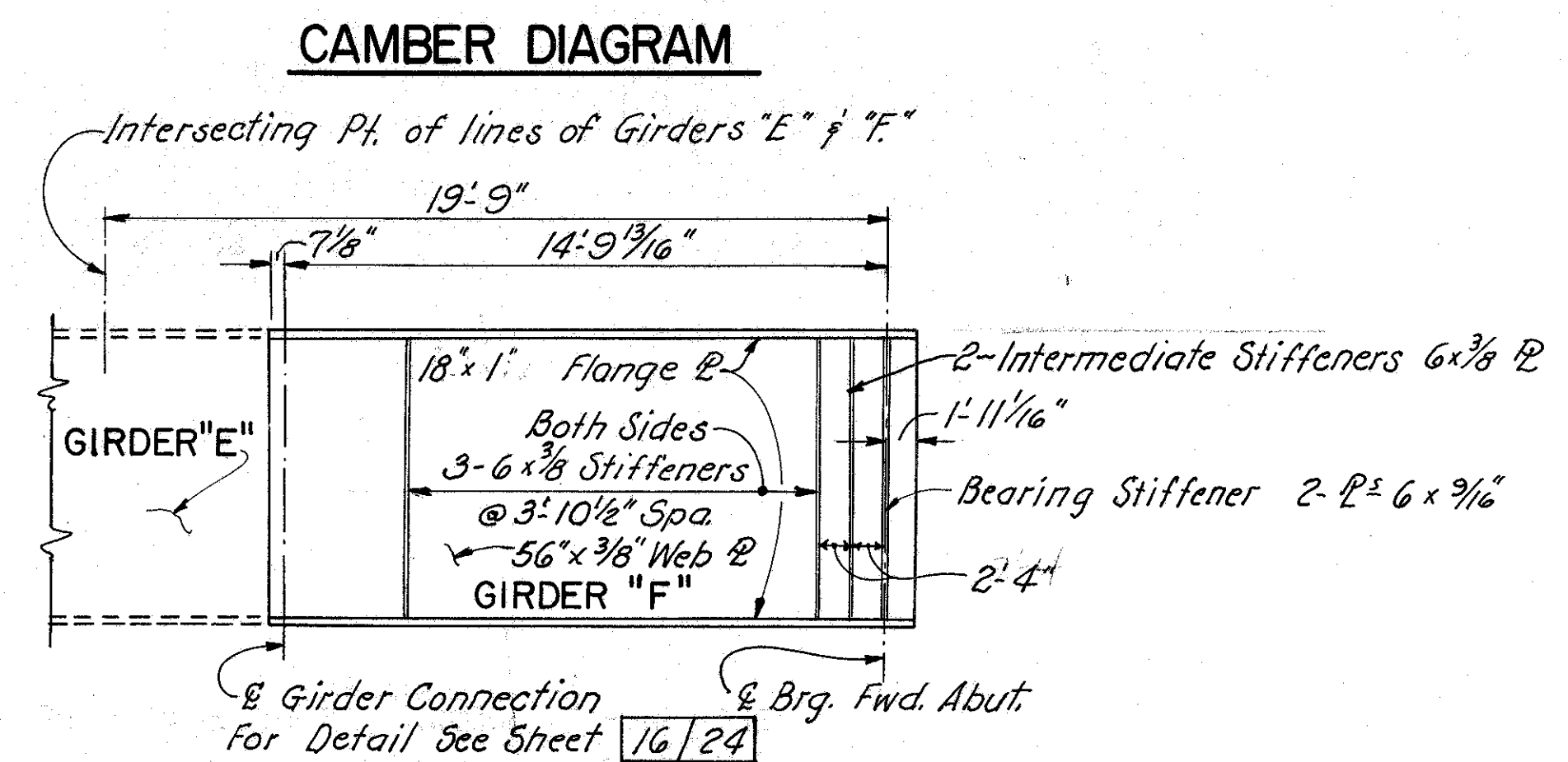
**FRANKLIN COUNTY
FRA-70-12.31S**



| DIMENSION TABLE | | | | | | | | | | |
|-----------------|--------|--------|----------|----------|----------|----------|----------|--------|--------|--------|
| | a | b | c | d | e | f | g | h | j | k |
| GIRDER A | 3 1/4" | 6 1/2" | 9 3/4" | 9 3/4" | 1 1/2" | 3 5/16" | 3 7/8" | 6 5/8" | 3 3/8" | — |
| GIRDER B | 3 7/8" | 7 3/4" | 11 3/8" | 11 3/8" | 1 3/4" | 11 1/4" | 11 1/4" | 7 5/8" | 3 7/8" | — |
| GIRDER C | 4 3/8" | 8 3/4" | 1 1/2" | 1 1/2" | 1 5/8" | 1 1/2" | 1 1/2" | 8 3/4" | 4 3/8" | — |
| GIRDER D | 4 7/8" | 9 3/4" | 1 2 3/8" | 1 2 3/8" | 1 7/8" | 1 3/8" | 1 2 3/8" | 9 3/4" | 4 7/8" | — |
| GIRDER E | 5" | 10" | 1 3" | 1 3/2" | 1 8 1/2" | 1 3 1/2" | 1 3" | 10" | 5" | 2 1/2" |



| DEFLECTION AND CAMBER TABLE | | | | | | | | | | |
|-----------------------------|-------------------------------------------|--------------------|--------------------|--------------------|---------|---------|--------------------|--------------------|--------------------|----------|
| | DESCRIPTION | 1/4 L ₁ | 1/2 L ₁ | 3/4 L ₁ | Splice | Splice | 1/4 L ₂ | 1/2 L ₂ | 3/4 L ₂ | GIRDER F |
| GIRDER A | DEFLECTION DUE TO WEIGHT OF STEEL | 3/8" | 7/16" | 3/16" | 3/16" | 3/16" | 3/16" | 7/16" | 3/8" | — |
| | DEFLECTION DUE TO REMAINING DEAD LOAD | 1" | 1 1/16" | 3/8" | 3/8" | 7/16" | 1/2" | 13/16" | 1 1/16" | — |
| | ADJUSTMENT REQUIRED DUE TO VERTICAL CURVE | 3 1/8" | 4" | 2 3/4" | 3 1/8" | 2 3/4" | 2" | 2 1/4" | 1 1/2" | — |
| | REQUIRED SHOP CAMBER | 4 1/2" | 5 1/2" | 4 5/16" | 3 1/2" | 3 3/8" | 2 1/16" | 3 7/8" | 2 5/16" | — |
| GIRDER B | DEFLECTION DUE TO WEIGHT OF STEEL | 3/8" | 7/16" | 3/16" | 3/16" | 3/16" | 3/16" | 7/16" | 3/8" | — |
| | DEFLECTION DUE TO REMAINING DEAD LOAD | 1" | 1 1/16" | 3/8" | 3/8" | 7/16" | 1/2" | 13/16" | 1 1/16" | — |
| | ADJUSTMENT REQUIRED DUE TO VERTICAL CURVE | 3 1/8" | 4 1/8" | 3" | 3 1/8" | 2 3/4" | 2 7/8" | 1 3/16" | 1 1/16" | — |
| | REQUIRED SHOP CAMBER | 4 1/2" | 5 3/8" | 3 3/16" | 3 1/16" | 3 7/8" | 2 3/16" | 4 1/2" | 3 1/4" | — |
| GIRDER C | DEFLECTION DUE TO WEIGHT OF STEEL | 3/8" | 7/16" | 3/16" | 3/16" | 3/16" | 3/16" | 7/16" | 3/8" | — |
| | DEFLECTION DUE TO REMAINING DEAD LOAD | 1" | 1 1/16" | 3/8" | 3/8" | 7/16" | 1/2" | 13/16" | 1 1/16" | — |
| | ADJUSTMENT REQUIRED DUE TO VERTICAL CURVE | 3 1/4" | 4 3/16" | 3 3/8" | 3" | 2 3/4" | 3 1/8" | 1 13/16" | — | — |
| | REQUIRED SHOP CAMBER | 4 5/8" | 5 3/16" | 3 9/16" | 3 5/16" | 3 7/16" | 4 3/4" | 3 3/8" | — | — |
| GIRDER D | DEFLECTION DUE TO WEIGHT OF STEEL | 3/8" | 7/16" | 3/16" | 3/16" | 3/16" | 3/16" | 7/16" | 3/8" | — |
| | DEFLECTION DUE TO REMAINING DEAD LOAD | 1" | 1 1/16" | 3/8" | 3/8" | 7/16" | 1/2" | 13/16" | 1 1/16" | — |
| | ADJUSTMENT REQUIRED DUE TO VERTICAL CURVE | 3 1/2" | 4 9/16" | 3 3/4" | 3 1/2" | 3 1/8" | 2 1/2" | 2 3/8" | 1 3/16" | — |
| | REQUIRED SHOP CAMBER | 4 7/8" | 6 5/16" | 4 5/16" | 4 1/16" | 3 3/4" | 3 3/16" | 4" | 2 5/16" | — |
| GIRDER E | DEFLECTION DUE TO WEIGHT OF STEEL | 3/8" | 7/16" | 3/16" | 3/16" | 3/16" | 3/16" | 7/16" | 3/8" | 1/8" |
| | DEFLECTION DUE TO REMAINING DEAD LOAD | 1" | 1 1/16" | 3/8" | 3/8" | 7/16" | 1/2" | 13/16" | 1 1/16" | 5/16" |
| | ADJUSTMENT REQUIRED DUE TO VERTICAL CURVE | 3 5/10" | 5 7/10" | 4 1/4" | 4" | 2 3/8" | 2 7/16" | 2" | 3/16" | 1/4" |
| | REQUIRED SHOP CAMBER | 4 11/16" | 6 15/16" | 4 13/16" | 4 3/16" | 3 1/8" | 3 5/8" | 2" | 11/16" | — |



GIRDER ELEVATION

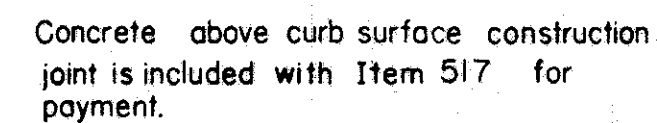


Diagram illustrating the reinforcement details for a Cantilever End Post. The structure is shown with reinforcement bars (R504, R503, 2-R5 bars, R505, 2-R506) and dimensions (1'-6" max., 1'-9" Max.). The diagram also shows the Abutment backwall and the Cantilever End Post.

SECTION G-G

SECTION F-F

Cast aluminum cap at the end of all tubes.

10"

5"

5 5/16"

1 1/2"

3"

1" Dia. plus 5° draft (core 4 holes)

1° Draft at holes

Flange and web transitions

Steel anchor rods (See Notes)

1/4" 1/4"

Face of curb

VIEW A-A

1'-6" parapet

This shall be a cast or machined cylindrical surface

$\frac{7}{16}$ " - 14 x 1/4" stainless steel hex. head cap screws with aluminum washers

30°

5/16"

2 1/2" R

5/16"

3"

2"

10" Radius

5/16"

6"

2"

2"

3/16"

20" Radius

3/16"

6" Radius

Steel washer

Blend

Test spec, see DETAIL B

All anchor rods

1/16" shim (if required)

1'-0" Concrete parapet

Casting Note: (unless otherwise shown)
 Draft angles to be 3°
 Corner radii to be 1/8"
 Fillet radii to be 1/4"

Casting Note: (unless otherwise shown)
Draft angles to be 3°
Corner radii to be $\frac{1}{8}$ "
Fillet radii to be $\frac{1}{4}$ "

[illegible]

SECTION E-E

Internal Sleeve 2'-0"

Drill and tap internal sleeve for 3/8"-16 x 1 1/2" stainless steel fillister head machine screw.

Tube splice

Chamfer edge

Sleeve anchor bar

DETAIL A

Drill and tap for $\frac{7}{16}$ "-14 stainless steel hex. head cap screws.

5/8"

3/32"

3/32"

19/32"

3/32"

1 1/4"

2 1/2"

1 1/4"

5"

3/32"

15/32"

7/16"

3/32"

Bevel

TUBE ANCHOR BAR DETAIL
(aluminum)

5"

2 1/2"

7/16" hole for 3/8" machine screw

1/4"

1.7"

Technical drawing of a rectangular plate. The overall width is 5". The distance from the left edge to the center of the hole is $2\frac{1}{2}"$. The hole is specified as a $\frac{7}{16}"$ hole for $\frac{3}{8}"$ machine screw.

SECTION H-H

2 1/4"

1/2" x 3/4" slotted hole for anchor

anchor channel

The diagram shows a circular flange with four segments, each labeled 120°. The segments are separated by gaps, with one gap labeled 1/2". The diagram also shows the outside and inside diameters of the flange.

6" 3° Draft (typical) 7" Varies Roadway side 5"

MATERIAL: Railing posts shall be permanent mold castings. All aluminum products shall conform to Section 711.20.

FINISH: The outside surface of the post flanges and the tube caps shall be given a 40 grit finish.

HORIZONTAL CURVATURE: This standard is applicable to structures having a railing curvature radius of 20 feet or more. For a radius less than 20 feet, the design shall be special. For structures on curvatures of 3° or less, the tubes may be furnished straight and forced into position in the field.

ANCHORS: Post anchor rods, hexagonal nuts and flat washers shall be galvanized steel, with all galvanizing, except on the lower 6" of the anchor rods, meeting the requirements of Ohio Specification Section 711.02. Anchor rods, as fabricated, shall have the following minimum dimensions and mechanical properties.

| | |
|-----------------------------|-----------------|
| Diameter at root of threads | 0.620" |
| Straight portion of rod | 1'-0" long |
| Hook at bottom | 2 1/2'-90° bend |
| Anchor tensile strength | 21,000 lbs |

Hexagonal nut shall develop the tensile strength of the anchor rod.

Cap screws shall be stainless steel, ASTM A276, type 410 with a minimum yield strength of 80,000 psi.

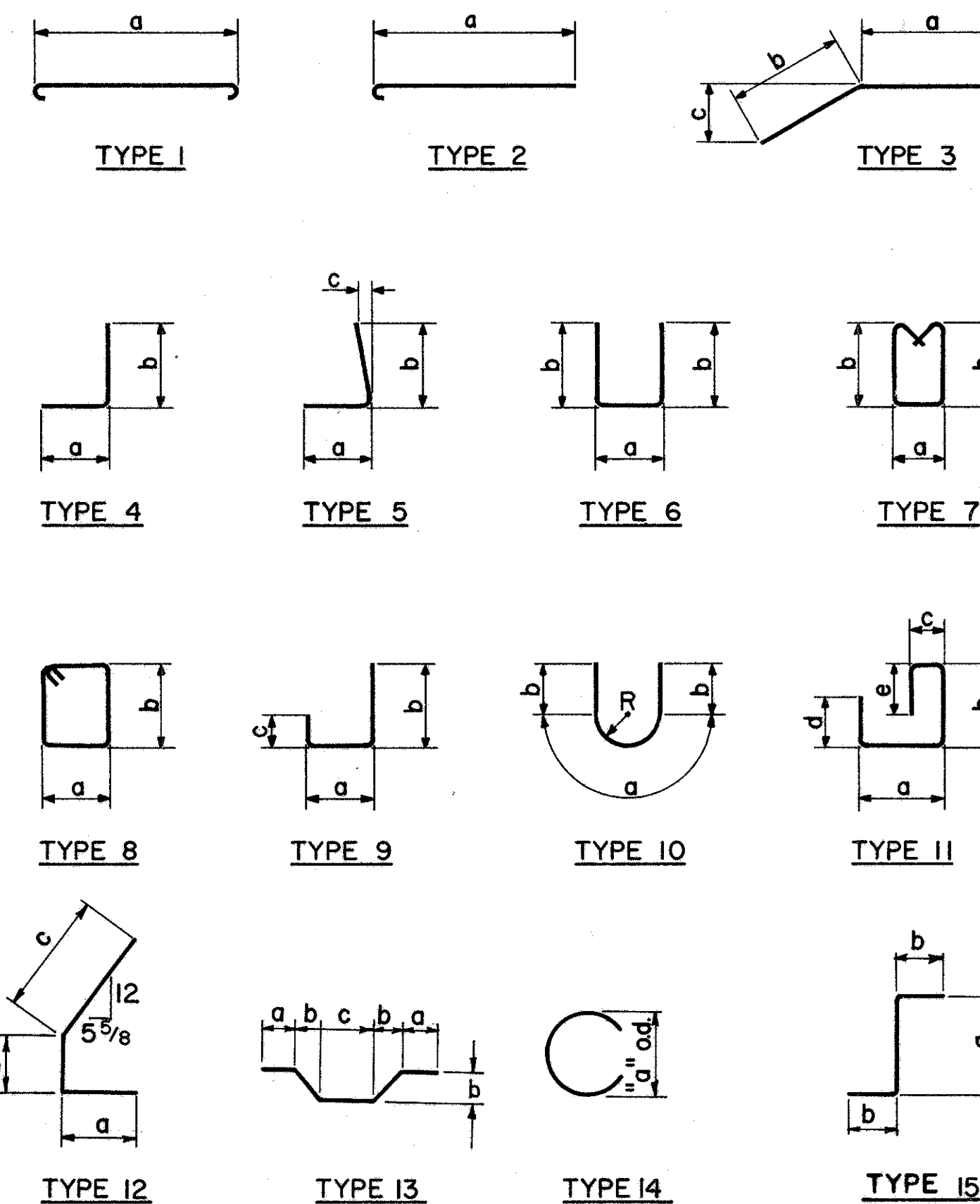
| RAILING REINFORCING STEEL | | | | |
|---------------------------|--------|----------------------------------------|-------|------------------|
| Mark | Length | Weight | Shape | Bending Diagrams |
| R5-bars | * | | St. | |
| R503 | 4'-2" | Included with Item 517 for payment. | Bt. | |
| R504 | 5'-4" | | Bt. | |
| R505 | 3'-5" | | Bt. | |
| R506 | 3'-0" | | St. | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

* See project plans

| | | | | | |
|------------------------------------|-----------------|------------------|-----------------|-------------------------|---------|
| E. S. PRESTON & ASSOCIATES LIMITED | | | | 22/24 | |
| ENGINEERS | | | | | |
| COLUMBUS, OHIO | | | | | |
| BRIDGE RAILING | | | | | |
| BRIDGE NO. FRA.-70-1349S | | | | | |
| WHITTIER ST. OVER RD."C"& RD."D" | | | | | |
| FRANKLIN COUNTY | | | (DWG. BR-I-65) | | |
| DESIGNED A.S.B. | DRAWN R.E.L. | TRACED M.L.S. | CHECKED E.K. | REVIEWED DATE 1/1/38 | REVISED |

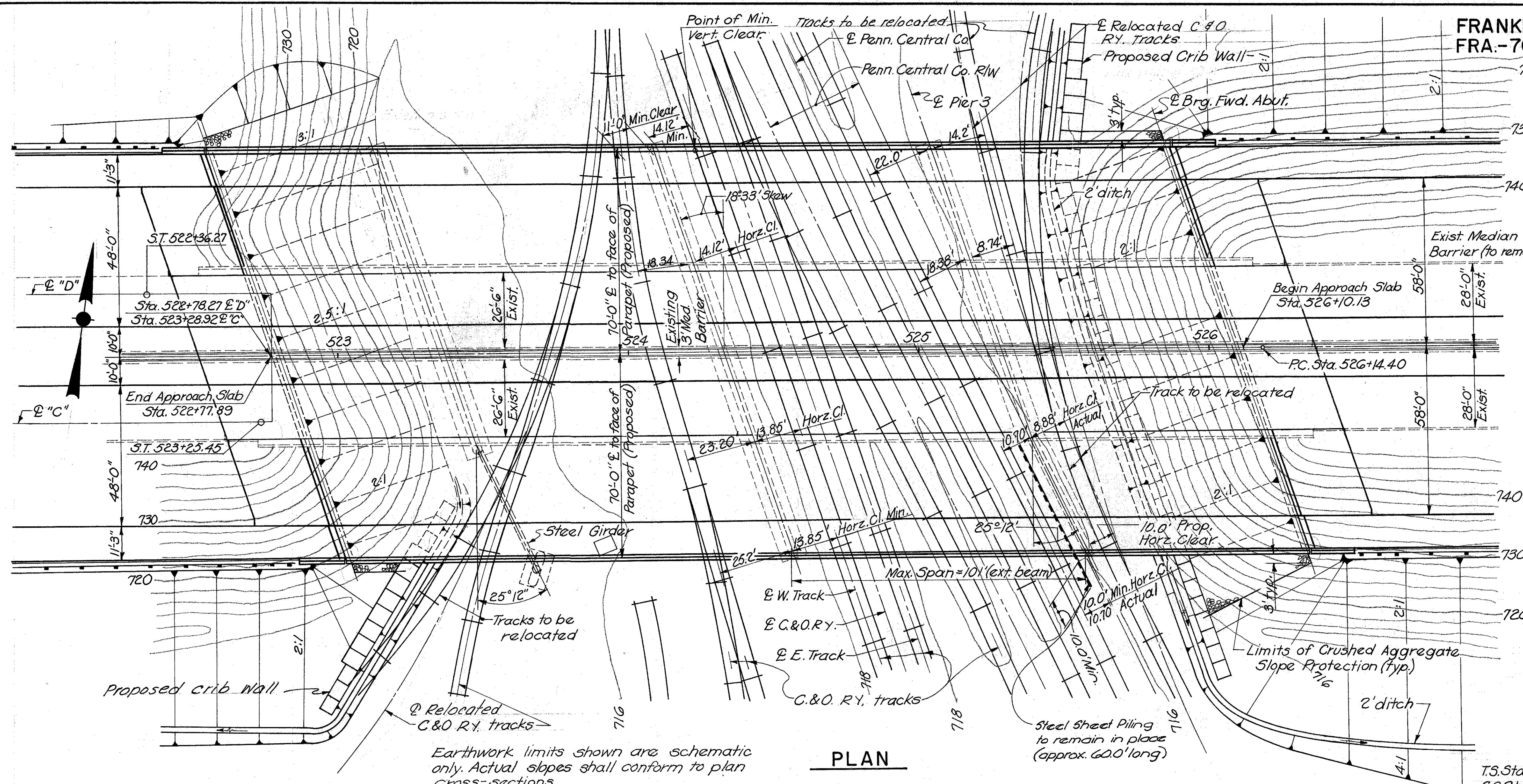
FRANKLIN COUNTY
FRA.-70-12.31S

| MARK | NO. | LENGTH | TYPE | DIMENSIONS | | | | | Rad. | Inc. | WEIGHT |
|--------------------|-----------------|--------------------|------|--------------------|-------|----|---|---|------|------|--------|
| | | | | a | b | c | d | e | | | |
| RETAINING WALL "B" | | | | | | | | | | | |
| WB1101 | 9 | 16'2" | 1 | 13'0" | | | | | | | 773 |
| WB1102 | 6 | 15'11" | 1 | 12'9" | | | | | | | 507 |
| WB1103 | 6 | 15'6" | 1 | 12'4" | | | | | | | 494 |
| WB1104 | 6 | 15'2" | 1 | 12'0" | | | | | | | 483 |
| WB1105 | 30 | 10'0" | 5 | 3'6" | 6'6" | | | | | | 1,594 |
| WB1106 | 23 | 10'3" | 5 | 3'6" | 14'9" | | | | | | 2,230 |
| WB1107 | 3 | 10'10 | 5H | | | | | | | | 300 |
| WB1108 | 1 Ser. of 8 | 7'0" to 10'10" | 5H | | | | | | | | 549 |
| WB 901 | 1 Ser. of 9 | 13'9" to 13'9" | 1 | 11'2" to 11'2" | | | | | | | 428 |
| WB902 | 1 Ser. of 9 | 12'8" to 13'5" | 1 | 10'2" to 10'11" | | | | | | | 323 |
| WB001 | 1 Ser. of 9 | 11'4" to 12'1" | 1 | 9'2" to 9'11" | | | | | | | 282 |
| WB002 | 32 | 8'6" | 5H | | | | | | | | 726 |
| WB701 | 1 Ser. of 7 | 9'10" to 10'7" | 1 | 8'2" to 8'11" | | | | | | | 146 |
| WB702 | 10 | 7'9" | 5H | | | | | | | | 158 |
| WB601 | 8 | 27'0" | 5H | | | | | | | | 324 |
| WB602 | 2 | 35'3" | 5H | | | | | | | | 106 |
| WB603 | 6 | 38'0" | 5H | | | | | | | | 342 |
| WB604 | 2 | 39'0" | 5H | | | | | | | | 117 |
| WB605 | 1 | 40'0" | 5H | | | | | | | | 60 |
| WB606 | 6 | 27'3" | 5H | | | | | | | | 246 |
| WB607 | 5 | 10'5" | 5 | 1'11" | 8'8" | | | | | | 78 |
| WB608 | 11 | 6'5" | 5 | 1'11" | 4'8" | | | | | | 106 |
| WB609 | 8 | 5'9" | 5 | 1'11" | 4'0" | | | | | | 69 |
| WB610 | 1 Ser. of 10 | 31'0" to 33'3" | 5H | | | | | | | | 484 |
| WB611 | 1 Ser. of 6 | 30'0" to 33'3" | 5H | | | | | | | | 285 |
| WB501 | 1 Ser. of 9 | 7'0" to 9'1" | 1 | 6'4" to 7'11" | | | | | | | 79 |
| WB502 | 2 | 7'2" | 1 | 6'0" | | | | | | | 15 |
| WB503 | 11 | 10'0" | 5H | | | | | | | | 104 |
| WB504 | 2 Ser. of 3 | 13'8" to 26'10" | 5H | | | | | | | | 399 |
| WB505 | 2 Ser. of 3 | 26'10" to 27'3" | 5H | | | | | | | | 169 |
| WB506 | 2 Ser. of 3 | 13'6" to 30'6" | 5H | | | | | | | | 230 |
| WB507 | 2 | 24'6" | 5H | | | | | | | | 55 |
| WB508 | 2 | 13'1" | 3 | 11'6" | 1'7" | 8" | | | | | 27 |
| WB509 | 18 | 34'10" | 5H | | | | | | | | 654 |
| WB510 | 2 Ser. of 10 | 2'3" to 13'3" | 5H | | | | | | | | 182 |
| WB511 | 2 | 27'6" | 5H | | | | | | | | 57 |
| WB512 | 2 | 27'2" | 5H | | | | | | | | 57 |
| WB513 | 1 Ser. of 3 | 6'3" to 23'3" | 5H | | | | | | | | 77 |
| WB514 | 1 Ser. of 3 | 6'0" to 22'10" | 5H | | | | | | | | 75 |
| WB515 | 1 | 30'3" | 5H | | | | | | | | 32 |
| WB516 | 1 | 30'0" | 5H | | | | | | | | 31 |
| WB517 | 10 | 7'3" | 5H | | | | | | | | 76 |
| WB518 | 14 | 6'0" | 5H | | | | | | | | 88 |
| WB401 | 28 | 4'7" | 6 | 8" | 2'1" | | | | | | 86 |
| RETAINING WALL "C" | | | | | | | | | | | |
| WC1101 | 73 | 9'11" | 5 | 3'6" | 6'5" | | | | | | 3,846 |
| WC1102 | 72 | 15'0" | 5 | 3'6" | 11'8" | | | | | | 5,738 |
| WC1103 | 37 | 12'10" | 5H | | | | | | | | 2,523 |
| WC1104 | 36 | 22'4" | 5H | | | | | | | | 4,272 |
| WC1105 | 19 | 9'9" | 5 | 3'6" | 6'5" | | | | | | 984 |
| WC1106 | 18 | 16'1" | 5 | 3'6" | 12'9" | | | | | | 1,638 |

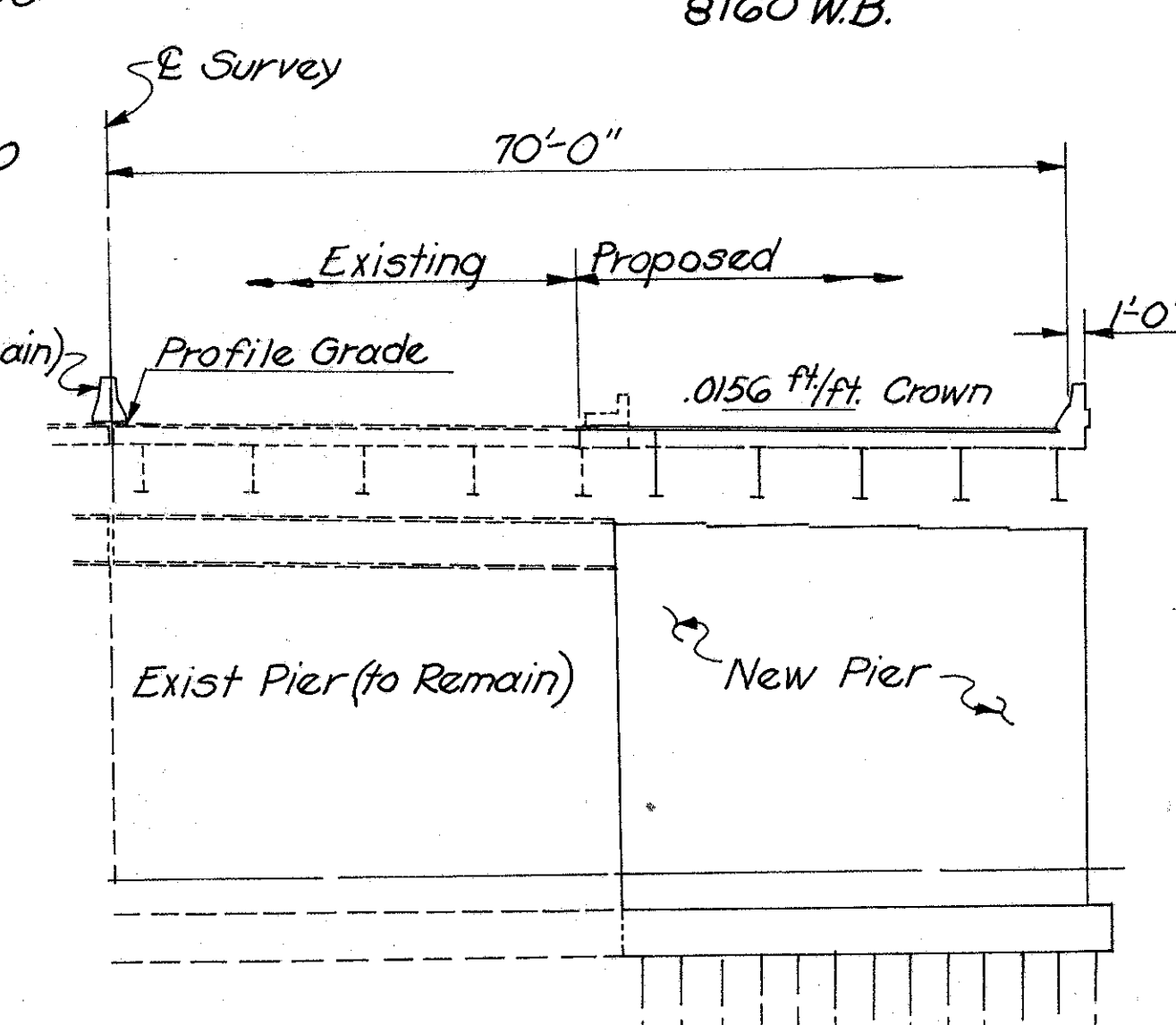


BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four digits are used indicate the bar size number. For example, A700 is a No. 7 size and A1014 is a No. 10 size.

1986 DHV
8160 E.B.
8160 W.B.



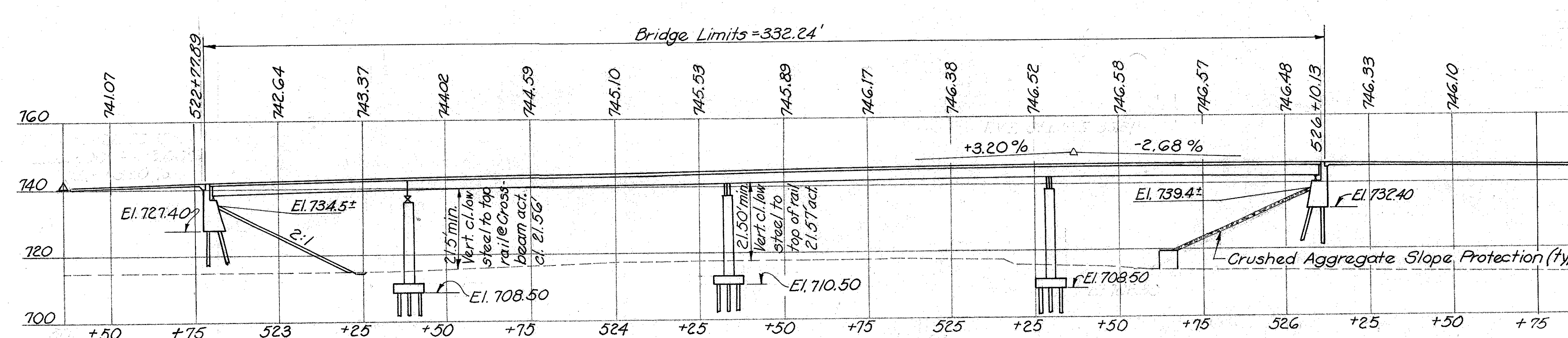
PLAN



TYPICAL HALF SECTION
(Except Rt. Side Pier 1)

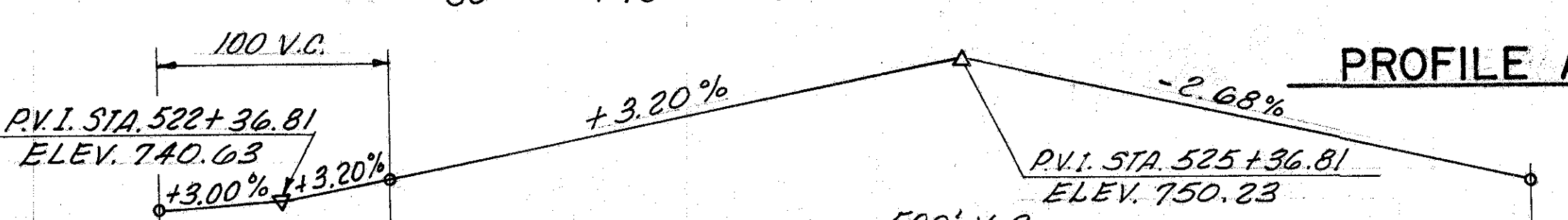
HORIZONTAL CURVE DATA

| | |
|-----------------------|-----------------|
| T.S. Sta. = 515+97.31 | Tc = 114.2053' |
| S.C. Sta. = 518+47.31 | Ts = 365.4797' |
| C.S. Sta. = 520+75.45 | Ls = 250' |
| S.T. Sta. = 522+25.45 | Os = 3° 45' 00" |
| Pc = 3° | P = 1.36' |
| R = 1909.859' | k = 124.98' |
| Δt = 14° 20' 39" | L.T. = 166.70' |
| Δc = 6° 50' 39" | S.T. = 83.33' |
| Lc = 228.14' | |



PROFILE ALONG C SURVEY I-70

VERTICAL CURVE DATA



E "D"
 T.S. Sta. = 515+64.26
 S.C. Sta. = 518+64.26
 C.S. Sta. = 519+86.27
 S.T. Sta. = 522+36.27
 Dc = 3° 00'
 R = 1909.859
 Δt = 11° 54' 37"
 Δc = 3° 39' 37"
 Lc = 122.009
 Tc = 61.025
 Ts = 349.3964
 Ls = 300
 Os = 4° 30' 00"
 Ls2 = 250
 Os2 = 3° 45' 00"

I.R. 70 E
 P.I. Sta. = 533+75.53
 Δ = 20° 05' 48.8" Rt.
 Dc = 1° 20'
 R = 4297.194'
 T = 761.458'
 L = 1507.269'
 E = 66.943'

Note:
 All piles shall be 12" φ C.I.P. reinf. conc. They shall be driven to a minimum bearing capacity of 30 tons and 40 tons for the abutments & piers respectively. Estimated pay length = 30' @ piers & 45' @ abutments.

PROPOSED STRUCTURE
 TYPE: Continuous Steel Beams with Reinf. Conc. Deck and Reinf. Conc. and Steel Substructure.
 SPANS: 57'-0", 95'-3", 95'-3", 80'-0" % Bearing
 ROADWAY: 140'-0" f/f of Parapets with 3'-0" Median Barrier.
 LOADING: CF 2000 (Adequate for Interstate Alternate.)
 WEARING SURFACE: 2" Asphaltic Concrete.
 SKEW: 18° 33' R. Fwd. except 25° 12' South portion of Piers 1 & 3.
 ALIGNMENT: Target
 APPROACH SLAB: 25' Long

EXISTING STRUCTURE
 Same as Above except Roadway 56'-0" f/f 2'-0" Safety Curbs with 3' Median, Aluminum Railing with Conc. Parapets, and Skew 18° 33' throughout.

E. S. PRESTON ASSOCIATES, INC.
 ENGINEERS
 COLUMBUS, OHIO

SITE PLAN
 BRIDGE NO. FRA. 70-1361 S
 EXPRESSWAY OVER C & O RY. AND PENN. CENTRAL

FRANKLIN COUNTY STA. 522 + 77.89
 STA. 526 + 10.13

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|----------|-------|--------|---------|---------------|---------|
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
| J.P. | M.N. | M.L.S. | A.S.B. | 11/11 | 12-7-72 |