

# 3088

MICROFILMED  
SEP 29 1987

# STATE OF OHIO DEPARTMENT OF HIGHWAYS

I-475-7(17)195

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-475-7(17)195

1  
101

LUC-475-0.81

## CONVENTIONAL SIGNS

Section Line	-----
Center Line	-----
Corporation Line	-----
Property Line	-----
Fence Line	-----
Township Line	-----
Limited Access Only	----- LA -----
Right of Way Only	----- R/W -----
Existing Right of Way	-----
Guard Rail	..... New ..... Exist.
Railroads	-----
Pole Lines	⊗ Telephone ⊗ Power
Drainage Lines	----- New ----- Exist.
Trees & Stumps	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗

# LUC-475-0.81

## SPRINGFIELD TOWNSHIP MONCLOVA TOWNSHIP LUCAS COUNTY

### SEPARATION WITH N & W RAILWAY

#### LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a Limited Access Highway or Freeway by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

#### 1965 SPECIFICATIONS (See Note Sht. N° 8)

The Standard Specifications of the State of Ohio, Department of Highways, including changes and supplemental specifications listed in the proposal, shall govern this improvement.

The Right of Way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will not require the closing of the highway to traffic, and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

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Sheet No. 75 revised 9-14-66

#### LINE DATA

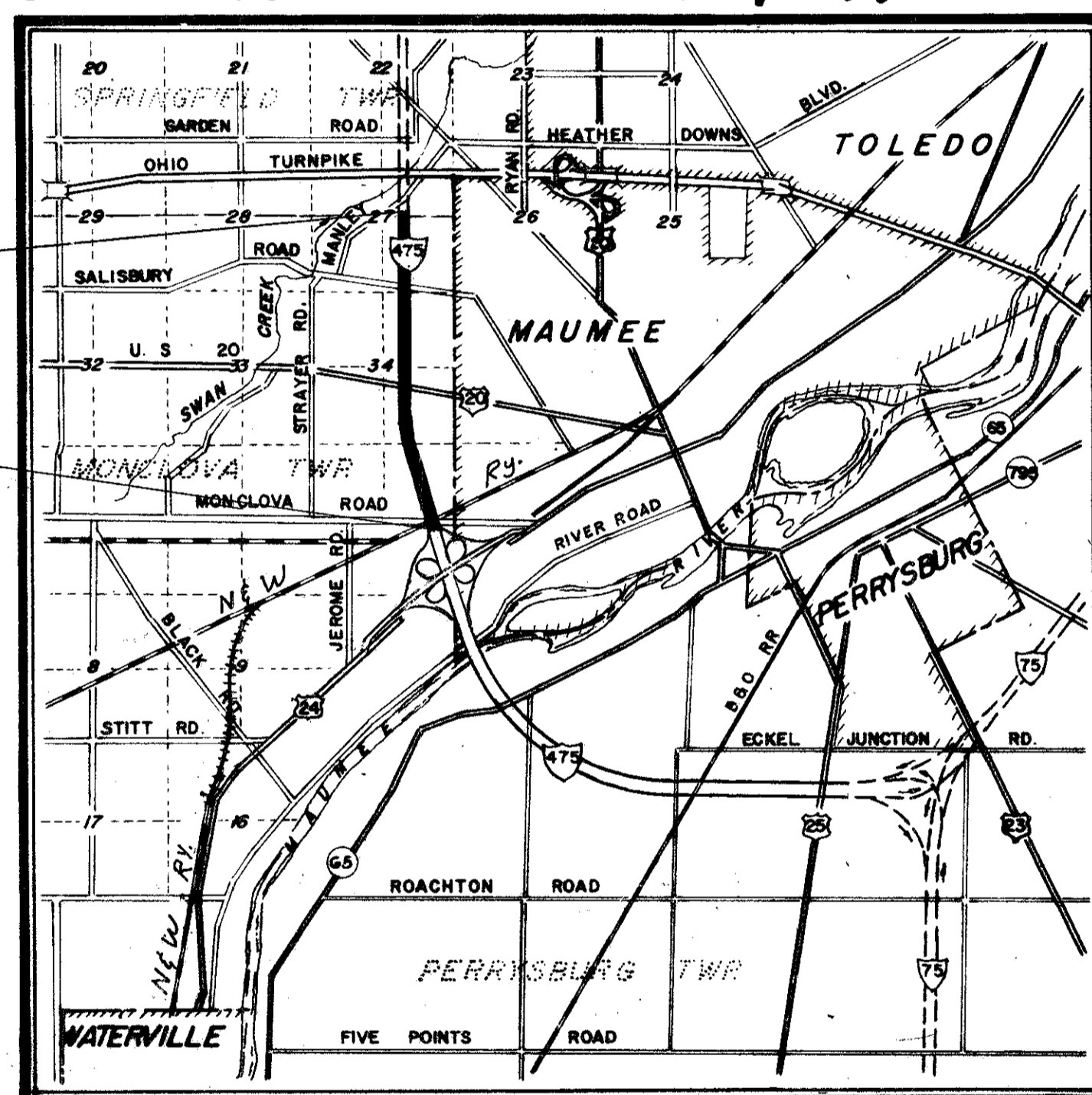
I-475-7(4)195

Sta. 315+00 to Sta. 436+00  
 Net Length of Project = 12,100 Lin. Ft. or 2.291 Miles  
 Add for approaches (See Sht. N° 2) = 4,667 Lin. Ft.  
 Net Length of Work = 16,767 Lin. Ft. or 3.175 Miles

"See Sheet No. 8 for Conversion Table of Standard Drawings ~1963 Specifications to 1965 Specifications."

#### STANDARD CONSTRUCTION DRAWINGS

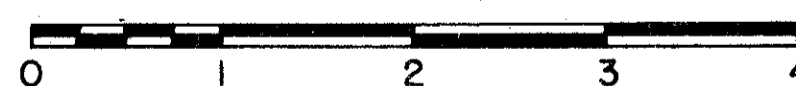
DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE
MC-1	6-1-65	GR-3A	6-1-65	HW-E	6-1-65		
MC-3	6-1-65	GR-G	6-1-65	MC-4	6-1-65		
BP-1	6-1-65	MC-G	6-1-65	CD 22A&D	6-1-65		
BP-2	6-1-65	L-1	6-1-65	CB-3	6-1-65		
F-2	6-1-65	MH-1A	6-1-65	MH-1	6-1-65		
F-3	6-1-65	CB-5	6-1-65	BR-1-65 (sht.1)	2-1-65		
BP-G	6-1-65	BP-3	6-1-65	SD-1-G3	11-12-63		
FACT-1	6-1-65	SP-5	6-1-65	F3B-1-G2	1-15-63		
FACT-2	6-1-65	BP-4	6-1-65	AS-1-54	8-10-65		
BP-7	1-1-66			SD-2-64	11-25-64		
GR-1	6-1-65	HW-1	6-1-65				
GR-2A	9-1-65	HW-3	6-1-65				



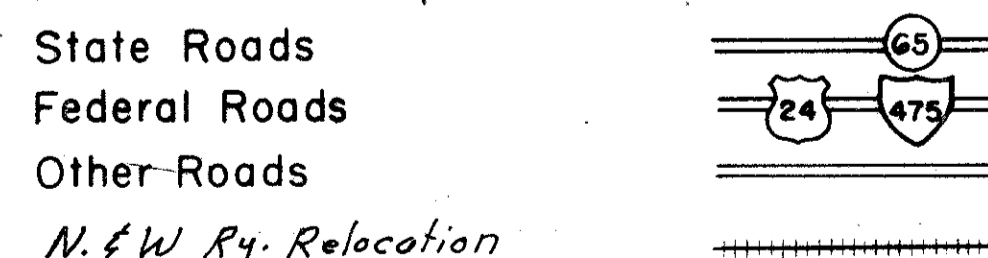
Delivery Point: Maumee Average Haul: 1.0 Mile

#### LOCATION MAP

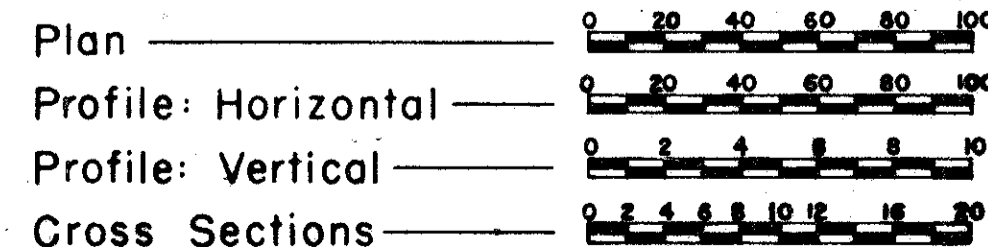
SCALE OF MILES



Portion to be Improved



#### SCALE



"See Sheet No. 8 for Conversion Table of Supplemental Specifications ~1963 Specifications to 1965 Specifications."

Specification No.	Date	Specification No.	Date
801	9-2-65		
811	3-29-65		
803	7-14-65		
803	8-24-65		
804	2-21-66		
806	9-2-65		
1201	9-2-65		
825	4-22-65		

PLANS PREPARED BY  
CHARLES L. BARBER & ASSOCIATES  
CONSULTING ENGINEERS TOLEDO, OHIO

Charles L. Barber Sept 23, 1964  
Date

Approved  
Date 10-1-65

Thomas M. Major  
Division Deputy Director

Approved  
Date 2-25-66

C. W. Abrater  
Engineer of Bridges

Approved  
Date 3-1-66

R. D. Ritten  
Engineer of Location & Design

Approved  
Date 3/1/66

R. E. Shultz  
Deputy Director of Design & Construction

Approved  
Date 5-7-66

T. H. Broad  
Deputy Director of Right-of-Way

Approved  
Date 3-7-66

F. W. Wilson  
Deputy Director of Planning & Programming

Approved  
Date

First Assistant Director

Approved  
Date 3/7/66

J. E. Mashitt  
Director of Highways

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

APPROVED:

DIVISION ENGINEER

DATE

File No. LUCAS COUNTY ~ LUC ~ 475 ~ 0.81

Date of Letting  
Contract No.

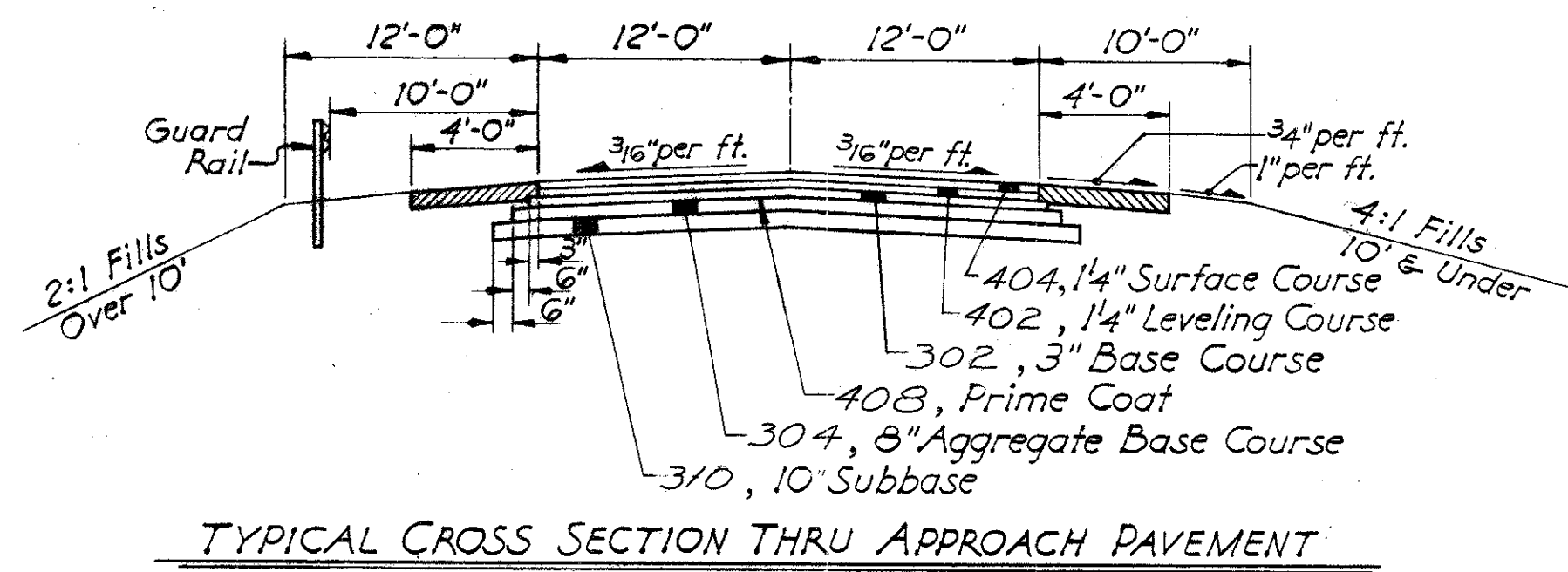
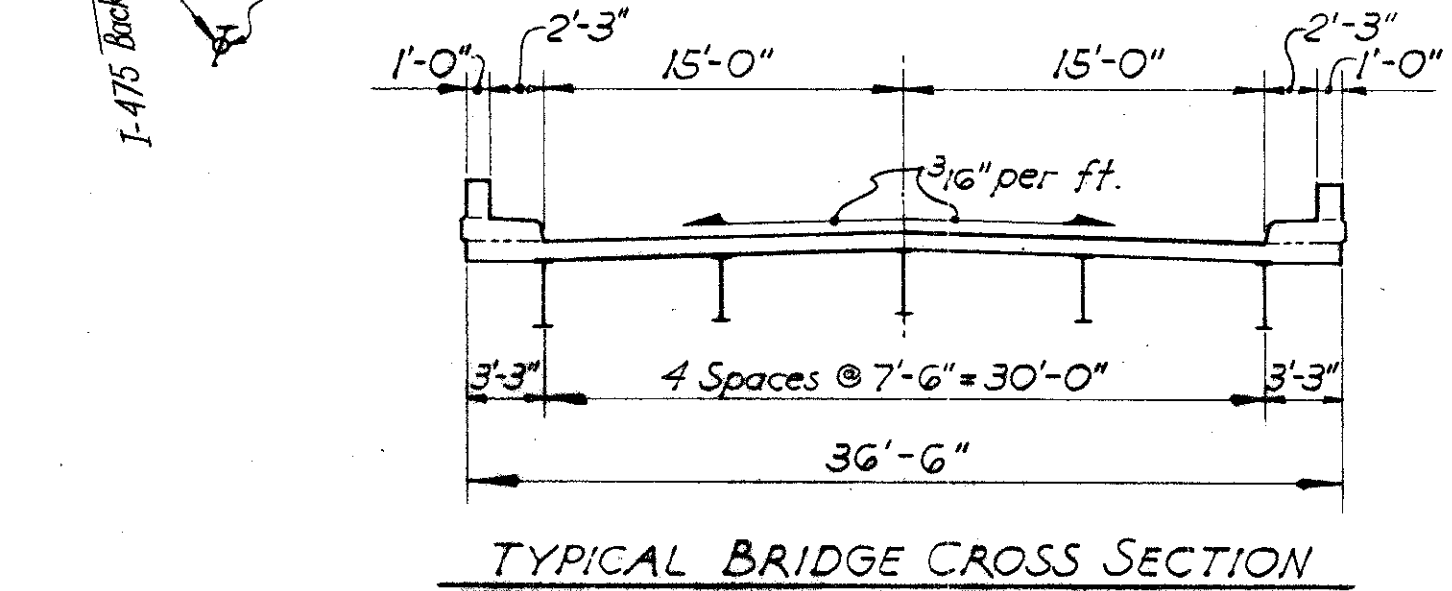
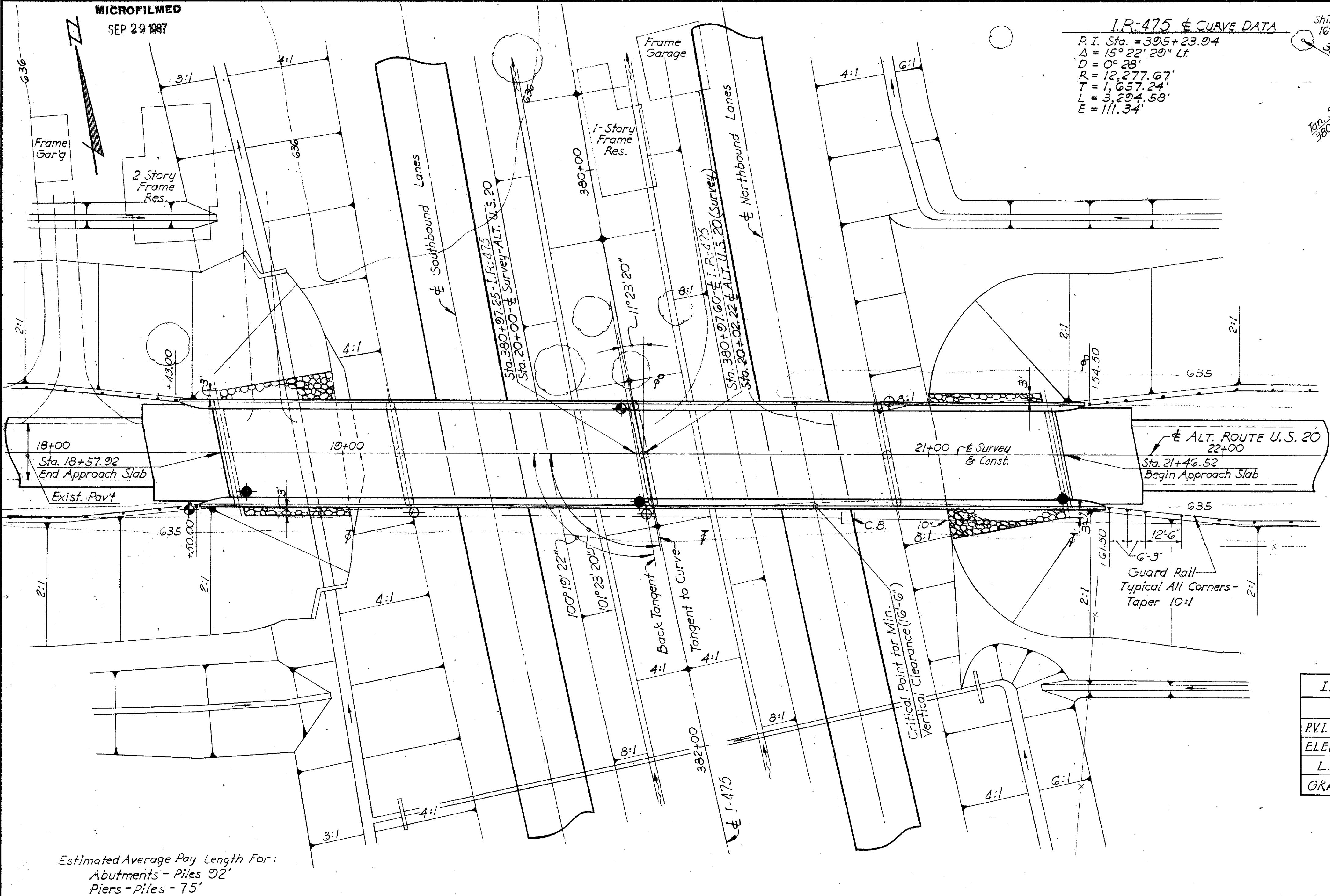
19

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**I.R. 475 CURVE DATA**  
 P.I. Sta. = 395+23.94  
 $\Delta = 15^\circ 22' 20''$  Lt.  
 $D = 0^\circ 28'$   
 $R = 12,277.67'$   
 $L = 1,657.24'$   
 $T = 3,294.58'$   
 $E = 111.34'$

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LUC-475-0.81



**I.R. 475 VERTICAL CURVE DATA**

P.V.I. STATION	1	2
ELEVATION	636.34	641.12
L.V.C.	400'	400'
GRADES	-0.24% $\ddagger$ +0.24%	+0.24% $\ddagger$ -0.24%

**TEST BORING LEGEND**

- ◆ Shelby Tube Borings.
- ⊕ Drive Sample Borings.
- ⊙ Auger Borings.

**PROPOSED STRUCTURE**

Type: Continuous Steel Beam with Reinforced Concrete Deck and Substructure.  
 Spans: 58'-6", 83'-6", 83'-6", 58'-6".  
 Roadway: 30'-0" f/f curbs.  
 Load Frequency: CF=400 (1957).  
 Skew Angle: 11° 23' 20", R.F.  
 Wearing Surface: 1" Monolithic Concrete.  
 Approach Slabs: 25'-0" Long.  
 Alignment: Tangent.  
 Curbs: 2'-3" Each Side.

Traffic on ALT. ROUTE U.S. 20:  
 1957 Traffic: 2430 V.P.D. with 280 Type "B" Vehicles.  
 1975 Traffic: 4850 V.P.D.

**CHARLES L. BARBER & ASSOCIATES ENGINEERS TOLEDO, OHIO**

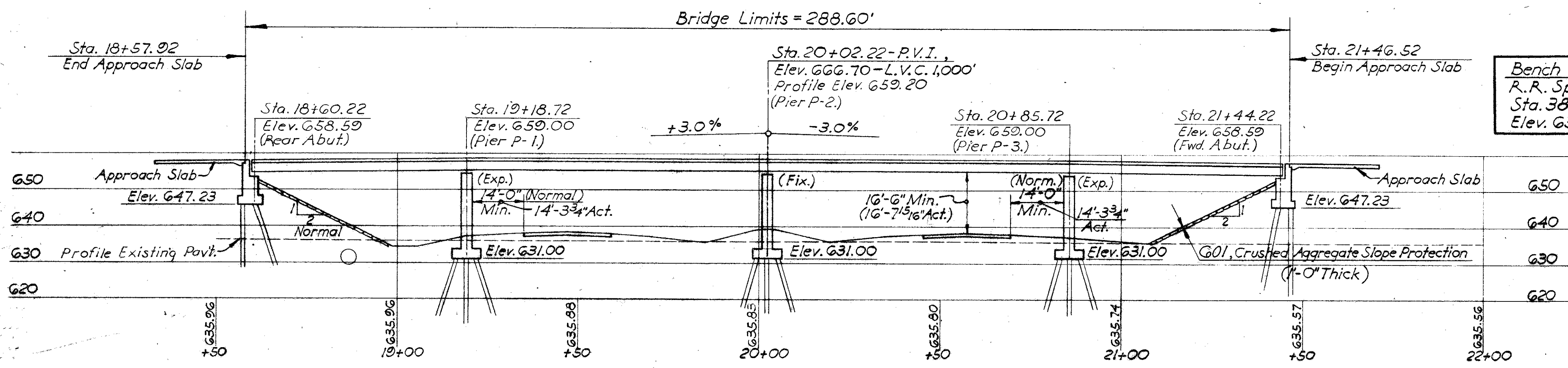
**SITE PLAN**

BRIDGE NO. LUC-20-1684  
 I.R. 475 UNDER ALT. ROUTE U.S. 20  
 LUCAS CO. STA. 18+57.92  
 STA. 21+46.52

SCALE 1" = 20'

PRESENT TOPOGRAPHY		PROPOSED WORK	
SURVEYED	DRAWN	DESIGNED	DRAWN
L.A.B.	H.C.M.	W.B.D.	S.S.P. K.R.R.
			W.B.L.

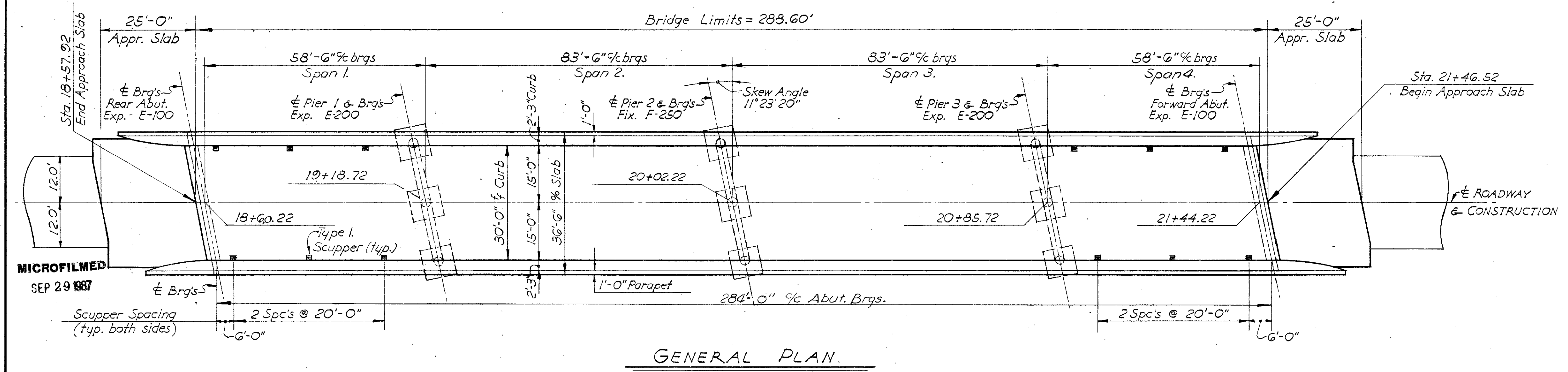
Estimated Average Pay Length For:  
 Abutments - Piles @ 2'  
 Piers - Piles - 75'



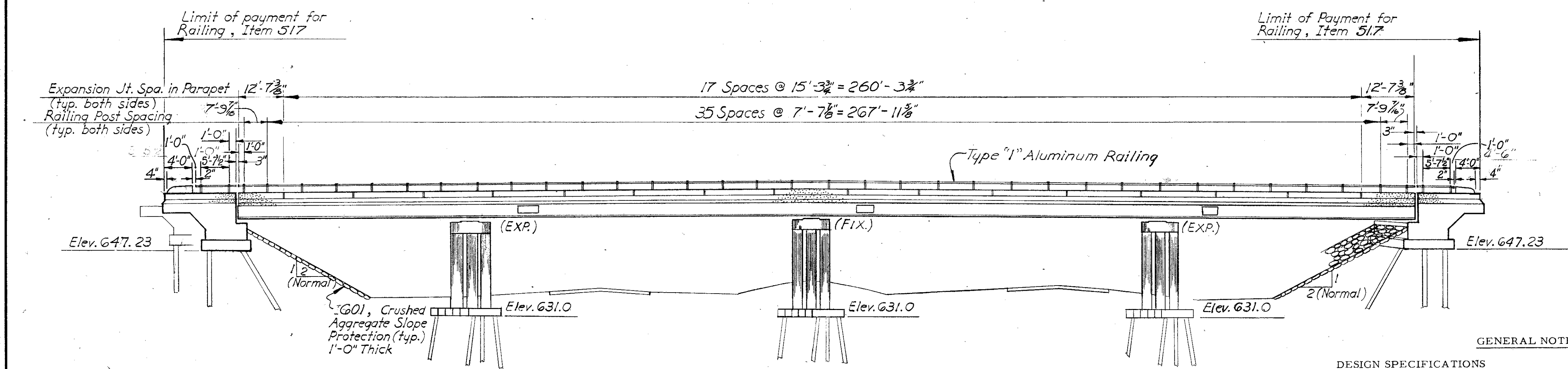
SECTION ALONG CENTERLINE OF ALTERNATE U.S. 20



LUC-475-0.81



GENERAL PLAN



ELEVATION

ESTIMATED QUANTITIES							
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER-STRUCT.	ABUTS.	PIERS	GENERAL AS BUILT
825	1350	Sq. Yds.	Concrete Surface Treatment	1350			
503	550	Cu. Yds.	Unclassified Excavation		320	230	
511	362	Cu. Yds.	Class "C" Concrete (Superstructure)	362			
511	75	Cu. Yds.	Class "C" Concrete (Piers Above Footing)			75	
511	77	Cu. Yds.	Class "E" Concrete (Pier Footing)			77	
511	148	Cu. Yds.	Class "E" Concrete (Abutments)		148		
808	362	Each	Water Reducing Set-Retarding Admixture	362			
509	131,808	Pounds	Reinforcing Steel	92,298	11,502	28,008	
513	357,000	Pounds	Structural Steel	357,000			
514	357,000	Pounds	Field Painting of Structural Steel	357,000			
517	618.56	Lin. Ft.	Bridge railing, Type 1	618.56			
518	60	Lin. Ft.	6" Perforated Helical CMP, 707.06, including specials		60		
518	51	Lin. Ft.	6" Helical CMP, 707.06, non-perforated		51		
505	Lump	Sum	First Test Pile				Lump
507	5,350	Lin. Ft.	Steel Piles (12 BP53)		1,460	3,890	
518	26	Cu. Yds.	Porous Backfill		26		
518	12	Each	Scuppers, including supports	12			
601	427	Sq. Yds.	Crushed Aggregate Slope Protection		427		

GENERAL NOTES

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 LOADING CF = 400 (1957)  
CONCRETE CLASS "C" BASIC UNIT STRESS 1,333 P. S. I.  
CONCRETE CLASS "E" BASIC UNIT STRESS 1,133 P. S. I.  
STRUCTURAL STEEL ASTM A36 - BASIC UNIT STRESS 20,000 P. S. I.  
REINFORCING STEEL ASTM A-15, A16, A160, DEFORMED, INTERMEDIATE OR HARD GRADE, BASIC UNIT STRESS 20,000 P. S. I., EXCEPT SPIRAL REINFORCEMENT MAY BE PLAIN STRUCTURAL GRADE WITH BASIC UNIT STRESS OF 18,000 P. S. I.

REFERENCE DRAWINGS  
REFERENCE SHALL BE MADE TO STANDARD DRAWINGS SD-2-64 dated 11-25-64, SD-1-63, DATED 11-12-63, FSB-1-62 REVISED 1-15-63, BR-1-65 DATED 2-1-65, SUPPLEMENTAL SPECIFICATIONS 811 DATED 3-29-65 AND 808 DATED 7-14-65 and B25 dated 4-22-65

UTILITY LINES  
ALL EXPENSE INVOLVED IN RELOCATION (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

EMBANKMENT PROCEDURE  
THE EMBANKMENT SHALL BE PLACED AND COMPACTED UP TO THE FINISHED SPILL THRU SLOPE AND TO THE LEVEL OF THE SUBGRADE FOR A DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. AFTER WHICH EXCAVATION SHALL BE MADE FOR THE ABUTMENTS, AND PILES DRIVEN. (SEE ALSO HIGHWAY PLAN GENERAL NOTES SHEET No. 7 & 8.)

EXCAVATION QUANTITY  
THE EXCAVATION QUANTITY FOR THE ABUTMENTS INCLUDES THE REMOVAL OF FILL MATERIAL REQUIRED FOR CONSTRUCTION OF THE ABUTMENTS.

CONTINUOUS BEAM SHOP ASSEMBLY  
REFERENCE PARAGRAPH 4, SEC. 5-7.12 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS, IF ROLLED BEAMS ARE FIELD SPICED ONLY AT SUPPORTS. FOR THE PURPOSE OF CHECKING THE FIT-UP OF WELD JOINT PREPARATION, ONLY TWO ADJACENT BEAMS NEED BE SHOP ASSEMBLED AT ONE TIME IN THEIR CLOSEST UNLOADED POSITIONS. ALL BEAMS SHALL BE ASSEMBLED AND MATCH MARKED.

WELDING  
WELDING SHALL BE CLASS "A", EXCEPT AS SHOWN. ANY WELDS SHOWN AS FIELD WELDS MAY, AT THE OPTION OF THE CONTRACTOR, BE MADE IN THE SHOP. CLASS "B" WELDS ARE SHOWN THUS  $\text{B}$ .

DECK SLAB HAUNCH  
THE HAUNCH IN THE DECK SLAB ADJACENT TO THE TOP OF THE STEEL BEAMS, WHICH IS SHOWN AS 9" WIDE, MAY VARY FROM THIS DIMENSION BETWEEN THE LIMITS OF 6 AND 12 INCHES, EXCEPT THAT THE MAXIMUM SLOPE SHALL NOT EXCEED 3 INCHES PER FT. PAYMENT FOR DECK SLAB CONCRETE SHALL BE BASED ON THE 9 INCH WIDTH.

CONCRETE DECK PLACING  
IN ORDER TO FACILITATE WATER CURING OF THE DECK SLAB CONCRETE THE PLACING OF CONCRETE SHALL PROGRESS UP GRADE. THE SLAB SHALL BE PLACED IN SECTIONS, BETWEEN TRANSVERSE CONSTRUCTION JOINTS WHICH ARE PARALLEL TO THE TRANSVERSE REINFORCING STEEL AND ARE LOCATED NEAR THE CENTER OF ANY SPAN.

MACHINE FINISH  
THE CONCRETE BRIDGE DECK SHALL BE FINISHED BY THE USE OF A FINISHING MACHINE.

SURFACE FINISH OF CONCRETE  
THE REQUIREMENTS OF SEC. 5-1.22 RUBBED FINISH, SHALL APPLY TO THE FOLLOWING EXPOSED CONCRETE SURFACES: THE ENTIRE SUPERSTRUCTURE EXCEPT THE TOP AND BOTTOM SURFACES OF SIDEWALKS AND ROADWAYS. THE ENTIRE SURFACE OF PIERS AND ABUTMENTS, EXCEPT BRIDGE SEATS, BACKWALLS AND THE FACE OF SPILL THRU ABUTMENTS BETWEEN OUTSIDE BEAMS.

REINFORCING BAR SIZE  
BAR SIZE FOR REINFORCING STEEL IS INDICATED IN THE BAR MARK. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S601 IS A NO. 6 SIZE BAR.

PILES  
PILES SHALL BE DRIVEN WITH A HAMMER OF NOT LESS THAN 15,000 FT. LBS. PER BLOW, 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 SECTION 5-18.05 IS NOT LESS THAN THE FOLLOWING VALUE FOR A PILE HAMMER OF THE INDICATED ENERGY RATING.

FOR THE ABUTMENT PILES - 50 TONS PER PILE USING A 15,000 FT. LB. OR GREATER HAMMER.  
FOR THE PIER PILES - 52 TONS PER PILE USING A 15,000 FT. LB. OR GREATER HAMMER.

THE DESIGN LOAD IS 45 TONS PER PILE FOR THE ABUTMENT PILES AND 45 TONS PER PILE FOR THE PIER PILES.

CHARLES L. BARBER & ASSOCIATES  
ENGINEERS  
TOLEDO, OHIO

GENERAL PLAN  
& ELEVATION

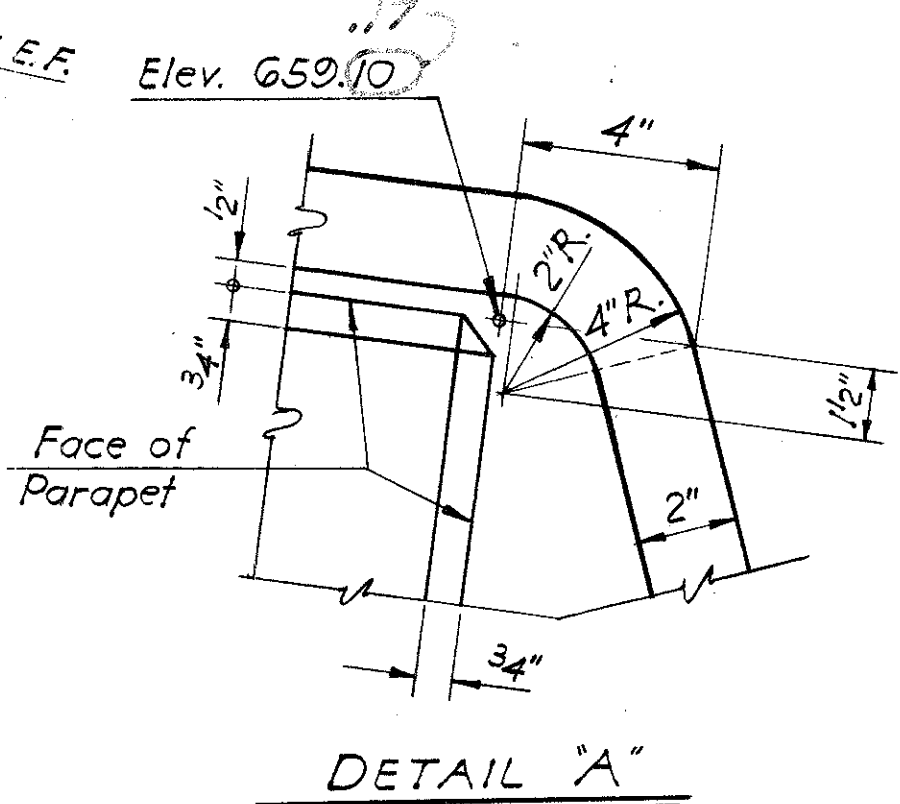
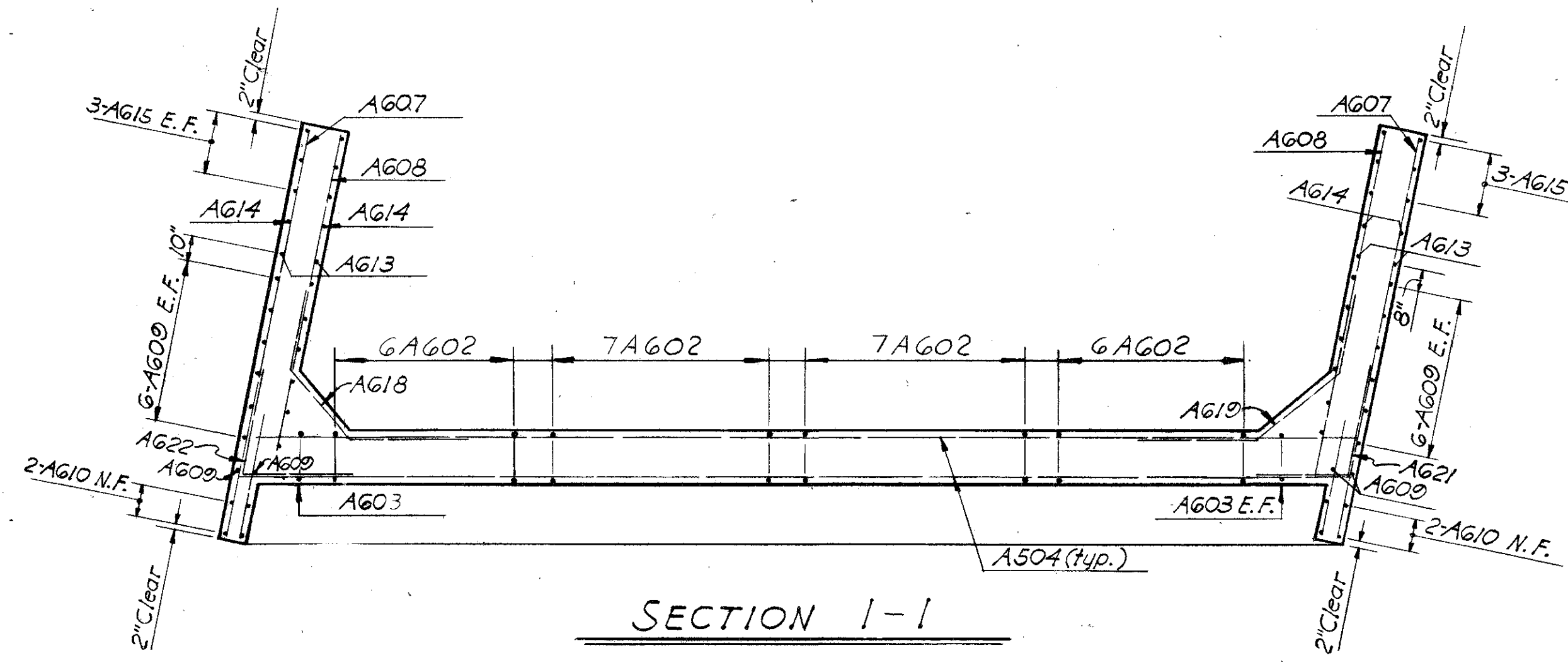
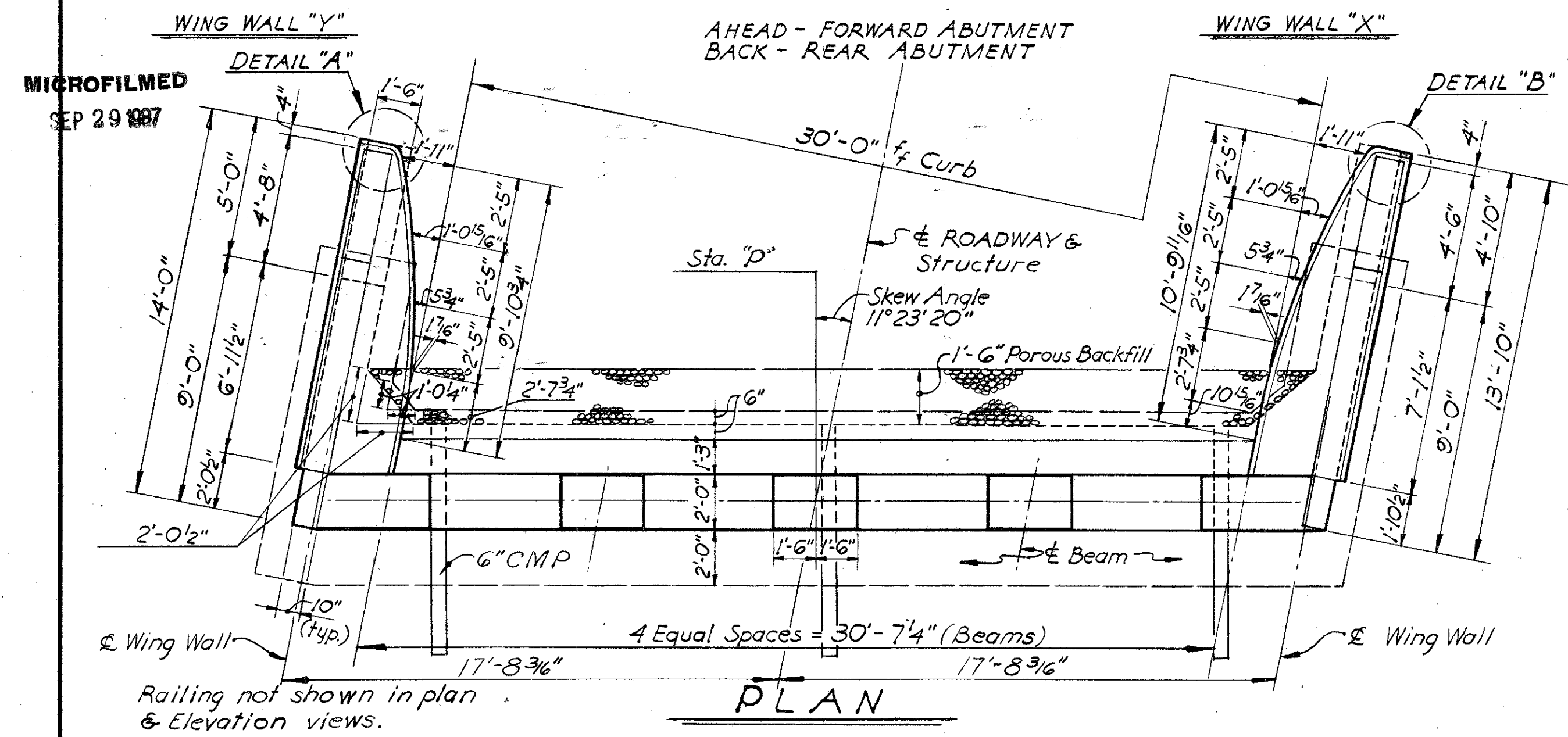
BRIDGE NO. LUC-20-1684

I.R.475 UNDER ALT. ROUTE U.S. 20

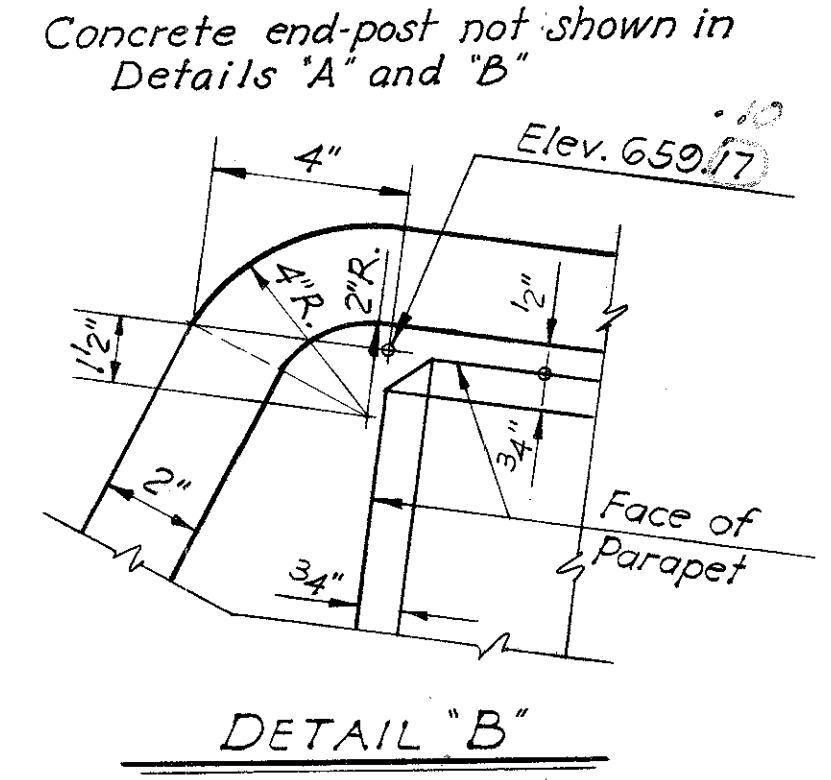
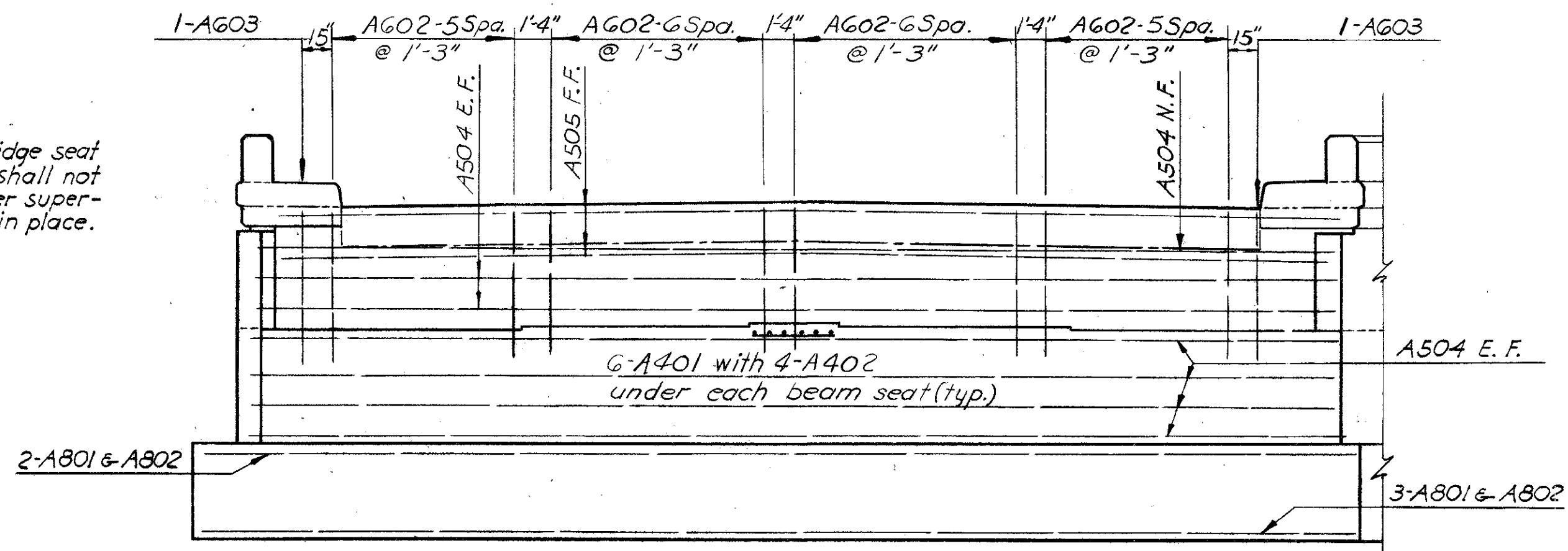
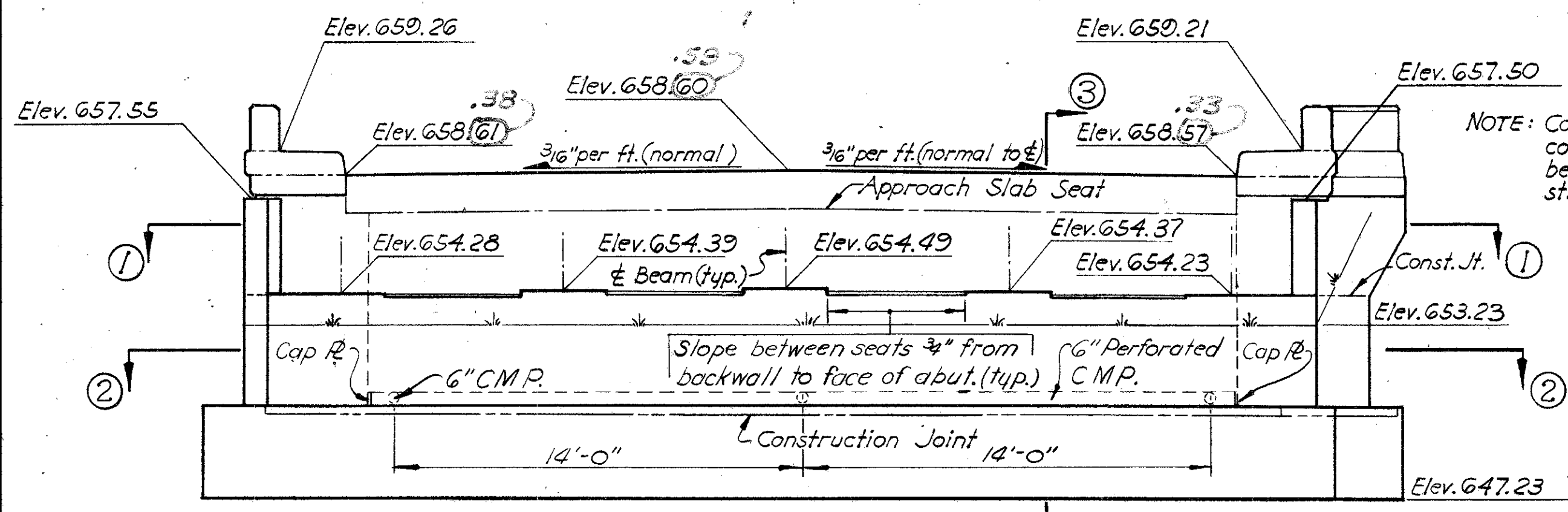
LUCAS CO. STA. 18+57.92  
STA. 21+46.52

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
W.B.D.	W.B.D.	H.C.M.	K.R.R.	W.B.D.	Sept. '64	9-7-65

LUC-475-0.81

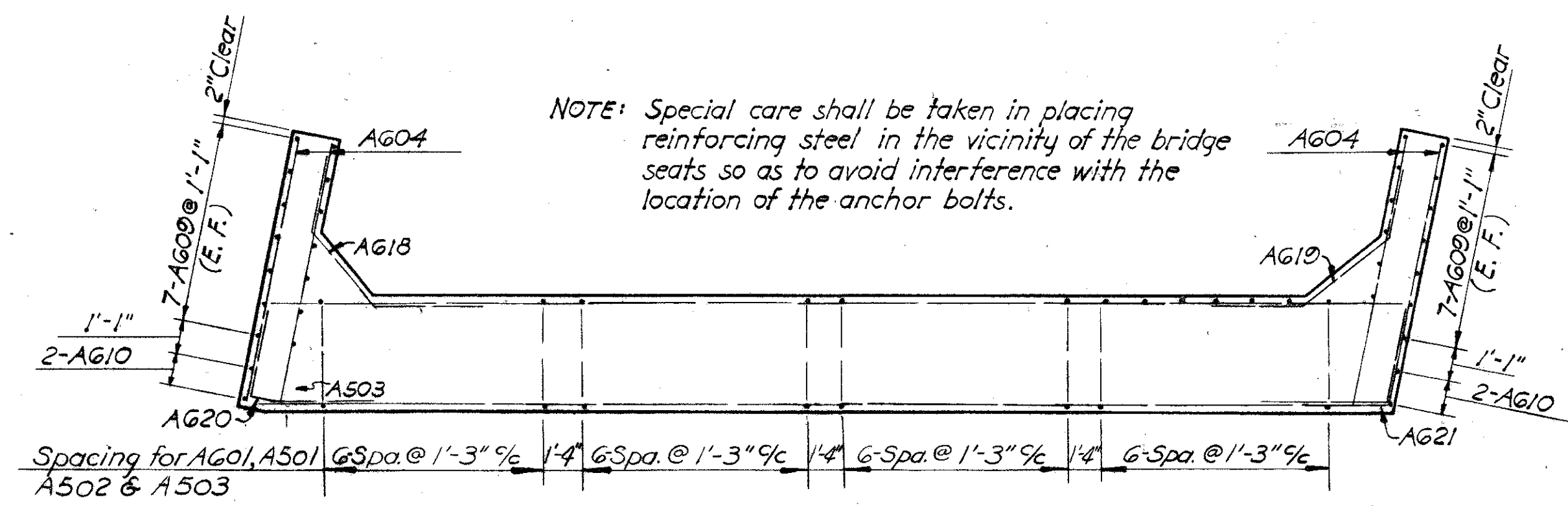
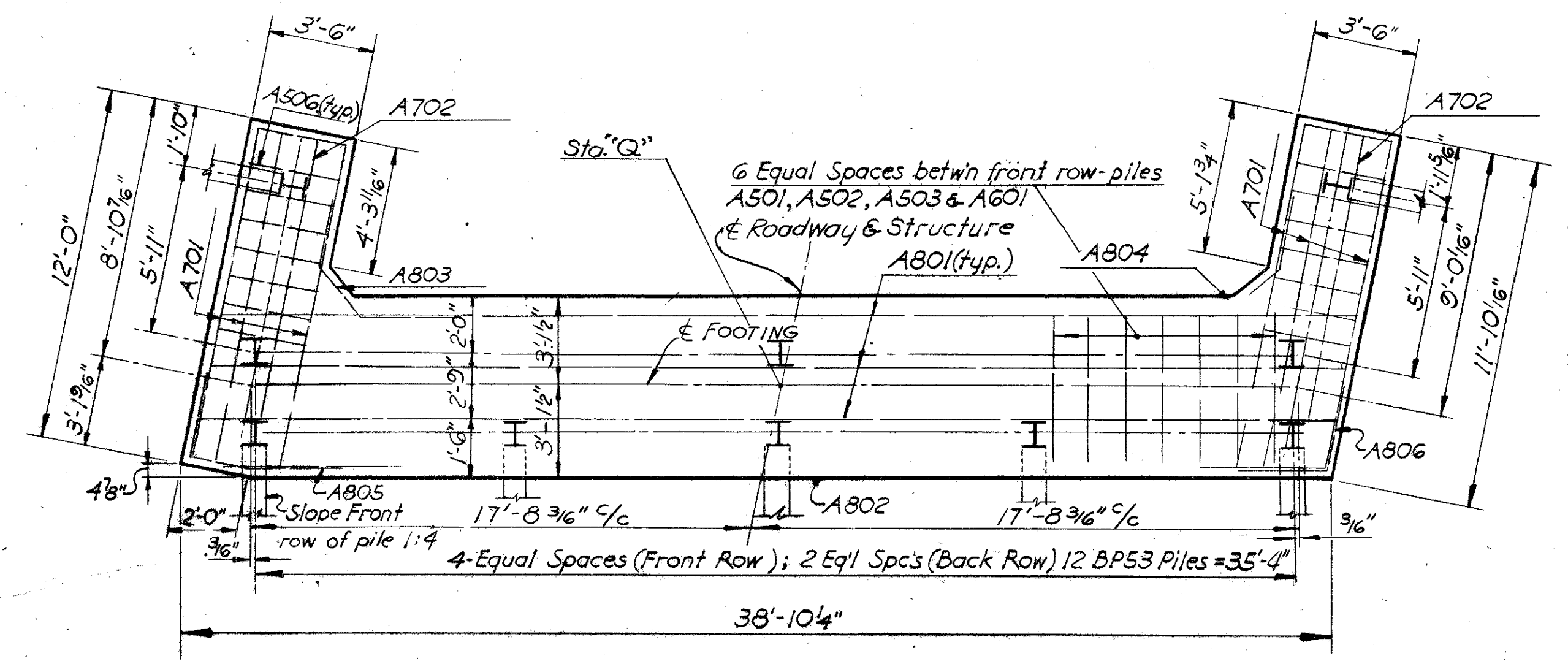


	"P"	"Q"
Rear Abut.	18+60.22	18+60.09
Fwd. Abut.	21+44.22	21+44.35



- NOTES**
- All piles shall be 12 BP53.
  - Pile design load - 45 Tons per pile.
  - Reinforcement steel shall clear the face of concrete by 2" unless otherwise noted.
  - N. F. - denotes Near Face.  
F. F. - denotes Far Face.  
E. F. - denotes Each Face.
  - Porous Backfill 1'-6" Thick full length of abutment bearing wall shall extend upto underside of the approach slab or to the finished ground surface.

For Reinforcement Schedule & Other Details See Sheet No 76



CHARLES L. BARBER & ASSOCIATES  
ENGINEERS  
TOLEDO, OHIO

**ABUTMENT DETAILS**

BRIDGE NO. LUC-20-1684  
I.R. 475 UNDER ALT. ROUTE U.S. 20  
LUCAS CO. STA. 18+57.92  
STA. 21+46.52

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
S.S.P.	S.S.P.	H.C.M.	K.R.R.	W.B.D.	Sept '64	9-7-65 9-17-66

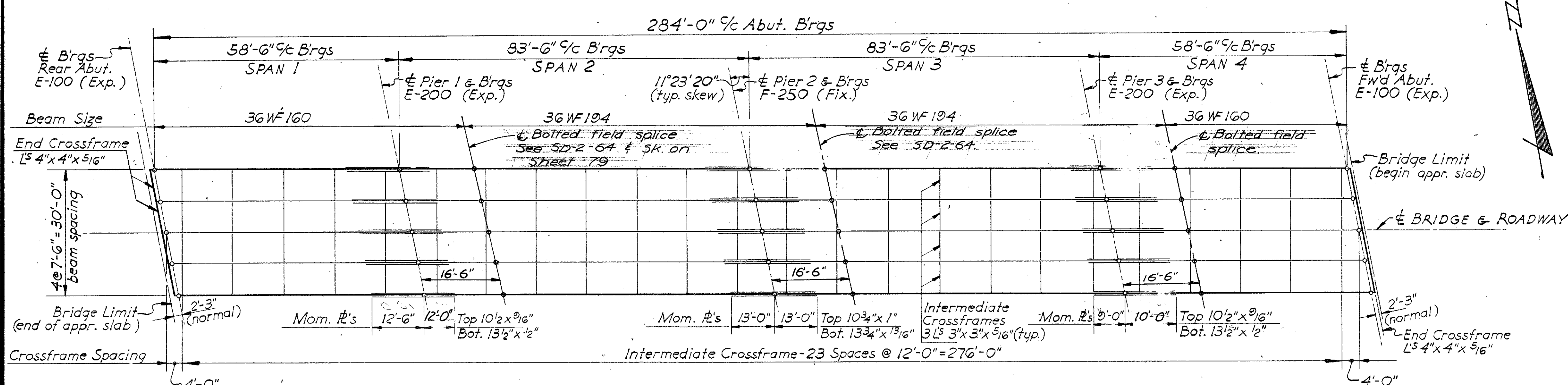








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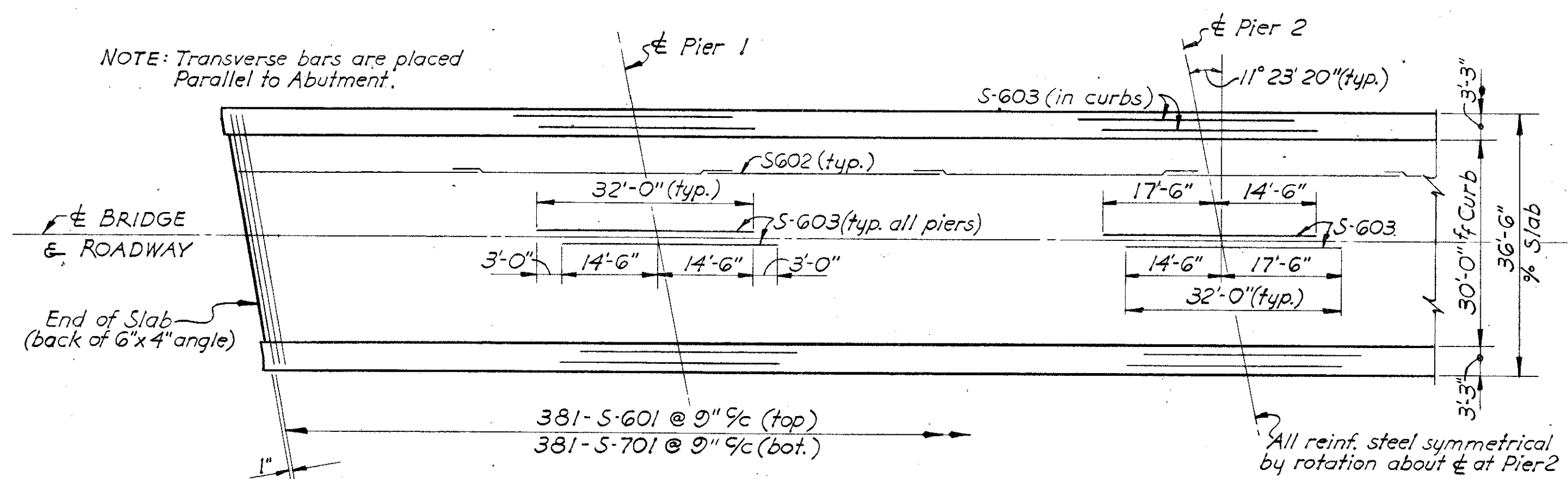


**REINFORCING STEEL LIST**

Mark	Length	No.	Weight	Shape	Bending Diagrams
S-401	4'-1"	382	1,041	Bent	
S-402	6'-8"	382	1,702	Bent	
S-501	6'-0"	382	2,391	Bent	
S-502	15'-0"	136	**	Str.	
S-503	12'-3"	16	**	Str.	
S-601	36'-11"	381	22,845	Str.	
S-602	33'-5"	585	29,362	Str.	
S-603	32'-0"	84	4,037	Str.	
S-701	36'-11"	381	31,088	Str.	
TOTAL					92,466#

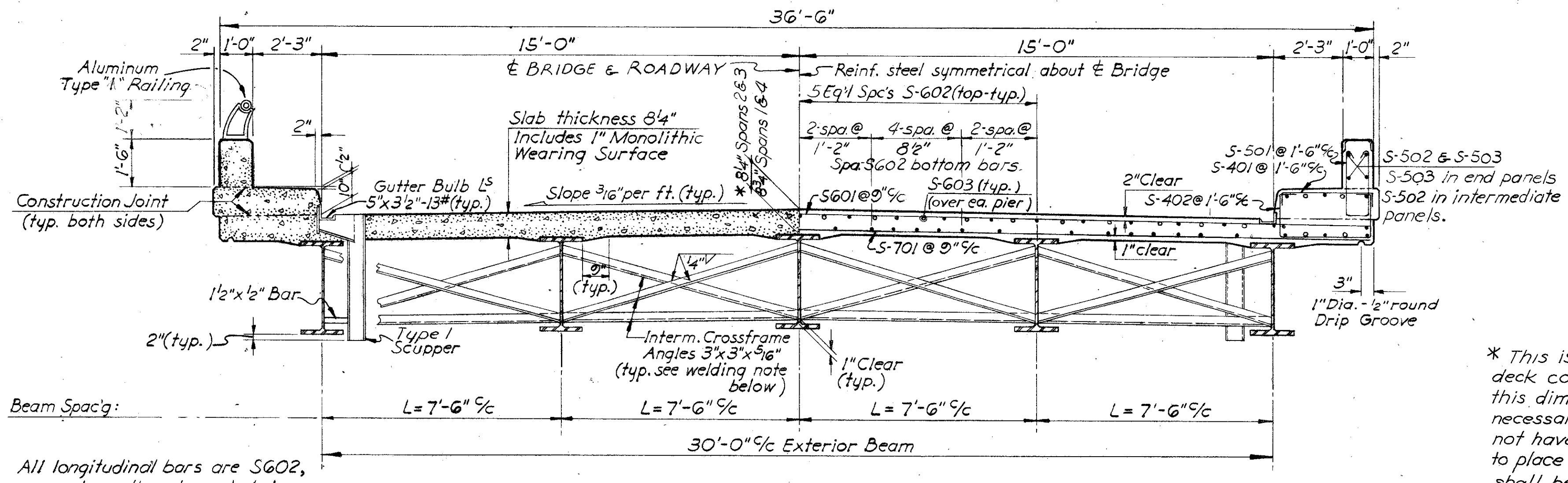
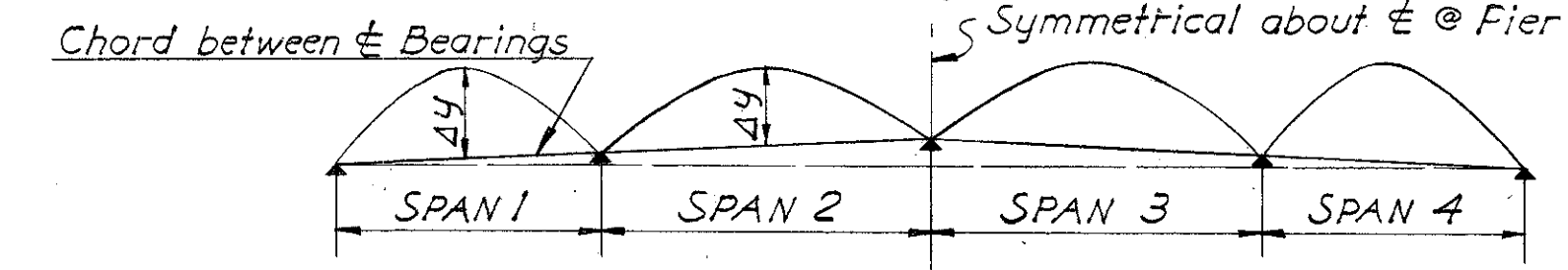
\*\* Horizontal Reinforcement in the concrete parapet will be included with the railing for payment (Item 517).

MICROFILMED  
SEP 29 1987



**TABLE OF DEFLECTION & CAMBER AT MID-SPANS**

	Exterior Beams				Interior Beams			
	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
DEFLECTION DUE TO STEEL WEIGHT	1/16"	3/16"	3/16"	1/16"	1/16"	3/16"	3/16"	1/16"
DEFLECTION DUE TO REMAINING DL	5/16"	5/8"	5/8"	5/16"	1/4"	7/16"	7/16"	1/4"
CONVEXITY REQ'D FOR VERT. CURVE	1/2"	9/16"	9/16"	1/2"	9/16"	9/16"	9/16"	1/2"
SUM OF DEFLECTION & CONVEXITY	7/8"	1 5/16"	1 5/16"	7/8"	13/16"	1 1/2"	1 1/2"	13/16"
CAMBER REQ'D	$\Delta y = 7/8"$	1 5/16"	1 5/16"	7/8"	13/16"	1 3/16"	1 3/16"	13/16"



\* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the beam 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 Sec 511.19 of the construction and Material Specifications.

CHARLES L. BARBER & ASSOCIATES  
ENGINEERS  
TOLEDO, OHIO

**SUPERSTRUCTURE DETAILS**

BRIDGE NO. LUC-20-1684  
 I R 475 UNDER ALT. ROUTE U.S. 20  
 LUCAS CO. STA. 18+57.92  
 STA. 21+46.52

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
W.B.D.	W.B.D.	H.C.M.	K.R.R.	W.B.D.	Sept. '64	9-7-65

