

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

UI-1052 (2)

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	1 15
2	OHIO	UI-1052(2)	POST WAR	

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

MICROFILMED
JUL 25 1983

TOLEDO EXPRESSWAY SYSTEM

LUC 120 - 3.46
LUCAS COUNTY
CITY OF TOLEDO

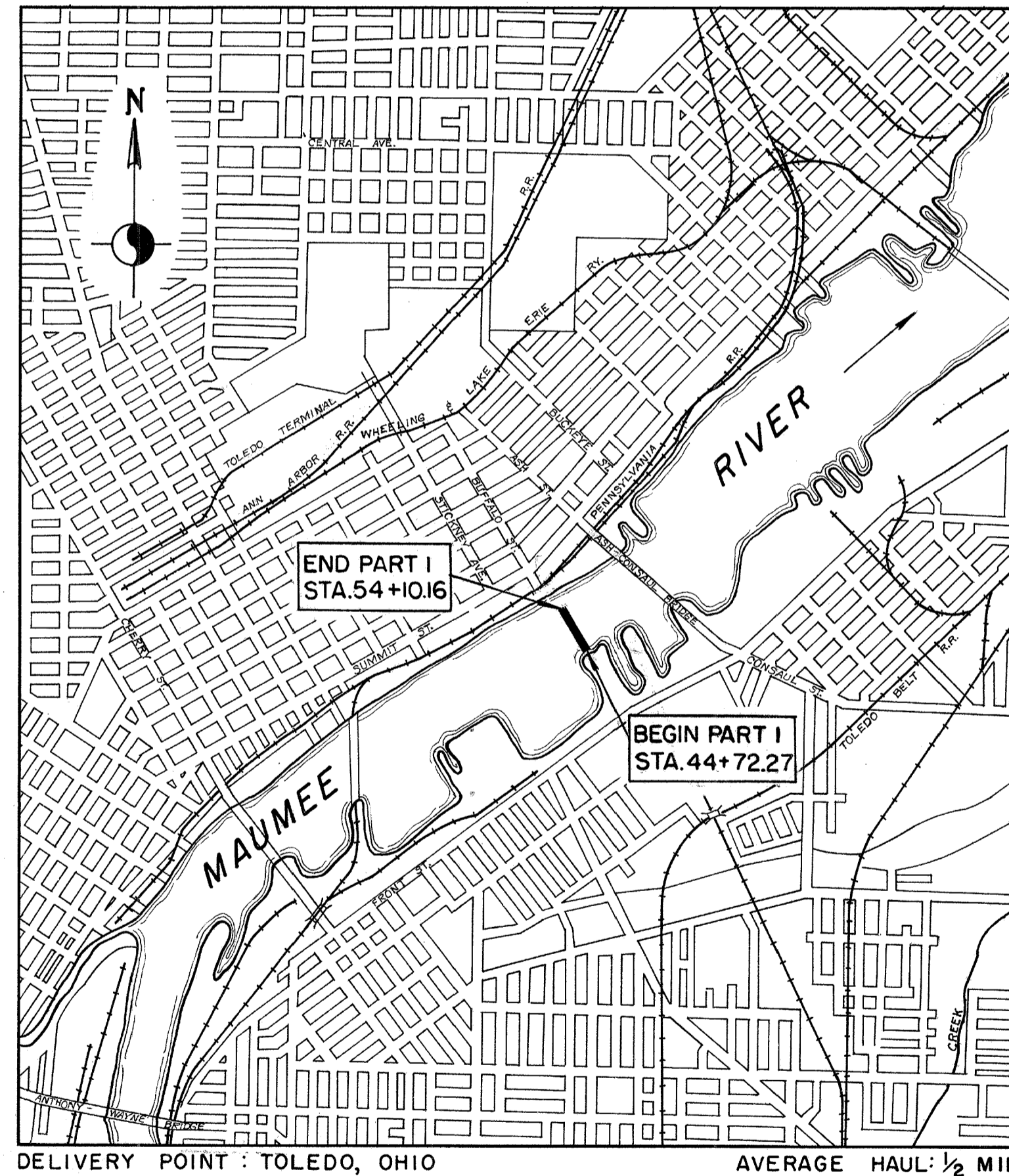
MAUMEE RIVER BRIDGE PART 1 - RIVER PIERS

INDEX OF SHEETS

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- GENERAL PLAN AND ELEVATION
- GENERAL NOTES
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- BORINGS
- PIER 1
- PIER 2
- PIER 3
- PERSPECTIVE VIEWS OF BASCULE PIER 5
- 10-14. BASCULE PIERS 4 AND 5
- FENDERS

APPROVED
DATE 12/17/51 Burton R. MacBirtcher
DIRECTOR OF PUBLIC SERVICE, CITY OF TOLEDO

APPROVED
DATE _____
CITY MANAGER, CITY OF TOLEDO



THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATE.

THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

APPROVED
DATE Dec. 18, '51 George H. Lieber
DIVISION DEPUTY DIRECTOR

APPROVED
DATE _____
CHIEF ENGINEER, BUREAU OF MAINTENANCE

APPROVED
DATE 12-18-51 Richard Orth
CHIEF ENGINEER, BUREAU OF BRIDGES & R. R. CROSSINGS

APPROVED
DATE 12-18-51 R. H. Patterson
CHIEF ENGINEER, BUREAU OF LOCATION & DESIGN

APPROVED
DATE 12-18-51 F. J. Schaubert
FIRST ASSISTANT DIRECTOR & CHIEF ENGINEER

APPROVED
DATE 12-18-51 W. Miller
DIRECTOR OF HIGHWAYS

CONSTRUCTION
BUREAU
JUN 30 1955
GROUND PHOTOLAB

LINE DATA

BEGIN PART I STA. 44 + 72.27
END PART I STA. 54 + 10.16
NET LENGTH PART I 937.89 FT. OR 0.178 MI.

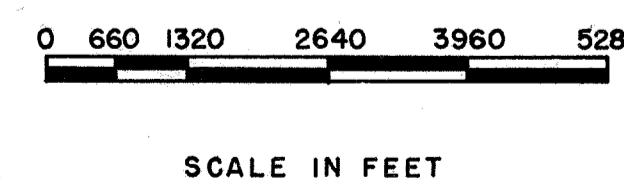
PREPARED AND RECOMMENDED BY
HOWARD NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

R. N. Bergendoff



SUPPLEMENTAL SPECIFICATIONS
T-171.19 Rev. 7-31-50

LOCATION PLAN



PORTION TO BE IMPROVED

NOTE:
THIS SET OF PLANS, THE FIVE RIVER PIERS OF THE MAUMEE RIVER BRIDGE, COVERS ONLY PART I OF THIS PROJECT. THE APPROACH PIERS, ABUTMENTS, SUPERSTRUCTURE, AND THE CONTIGUOUS HIGHWAY WORK WILL BE LET IN SUBSEQUENT CONTRACTS.

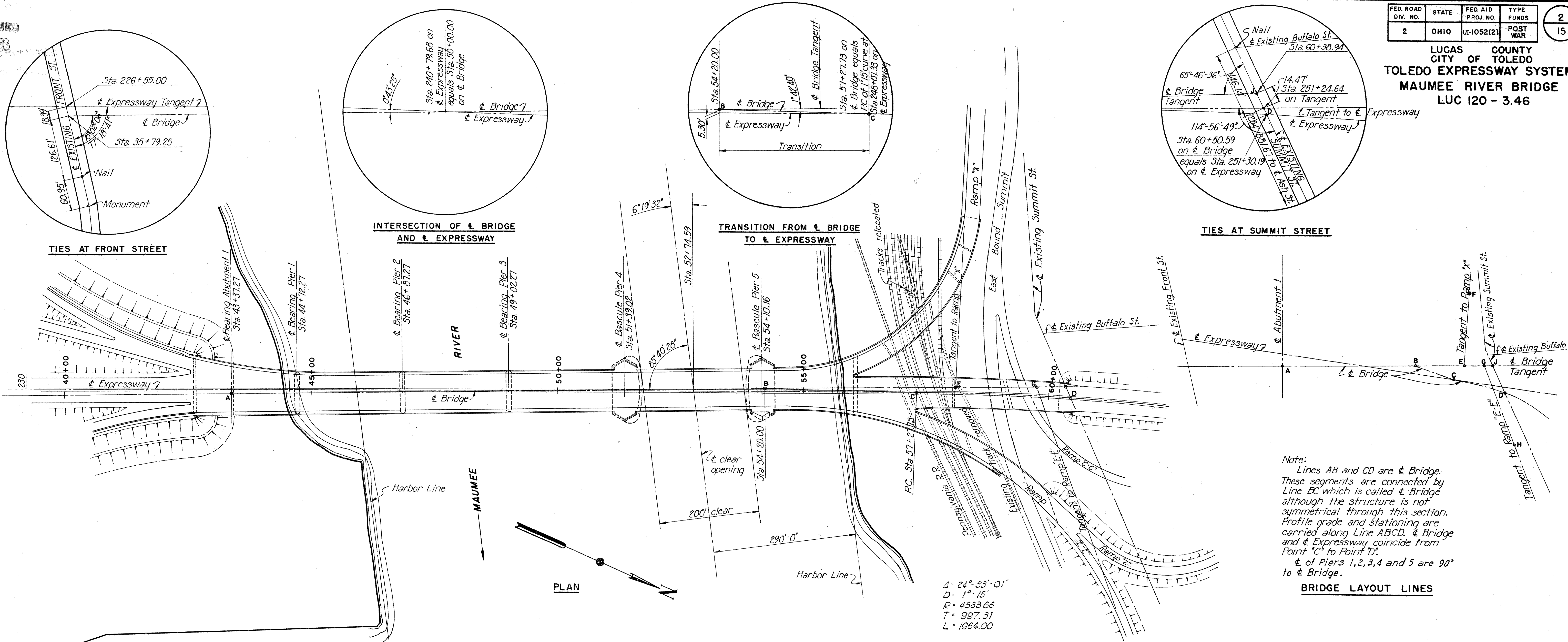
FILE NO	LUCAS COUNTY
SEC	LUC 120 - 3.46, PART I
DATE OF LETTING	_____, 195__
CONTRACT NO.	

DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS	
RECOMMENDED FOR APPROVAL	
_____ DISTRICT ENGINEER	_____ DATE
APPROVED	
_____ DIVISION ENGINEER	_____ DATE

MICROFILMED
JUL 25 1980

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	2
2	OHIO	U-1052(2)	POST WAR	15

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



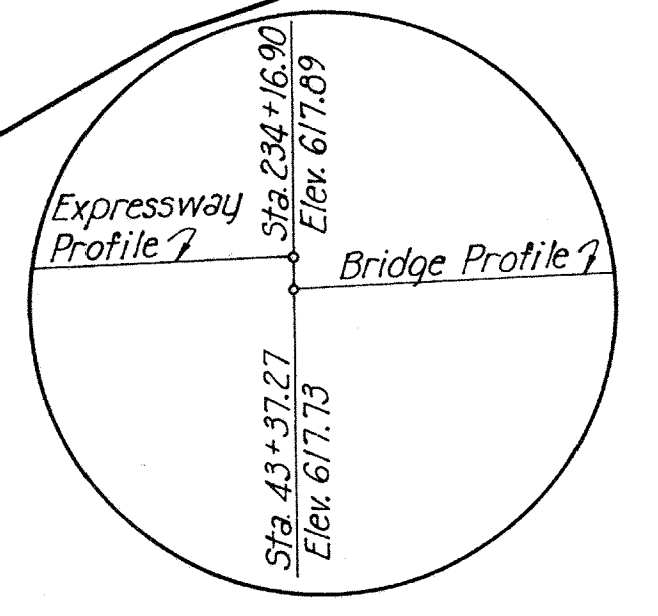
PLAN

Note:
Lines AB and CD are ϵ Bridge.
These segments are connected by Line BC which is called ϵ Bridge although the structure is not symmetrical through this section. Profile grade and stationing are carried along Line ABCD. ϵ Bridge and ϵ Expressway coincide from Point "C" to Point "D".
 ϵ of Piers 1, 2, 3, 4 and 5 are 90° to ϵ Bridge.

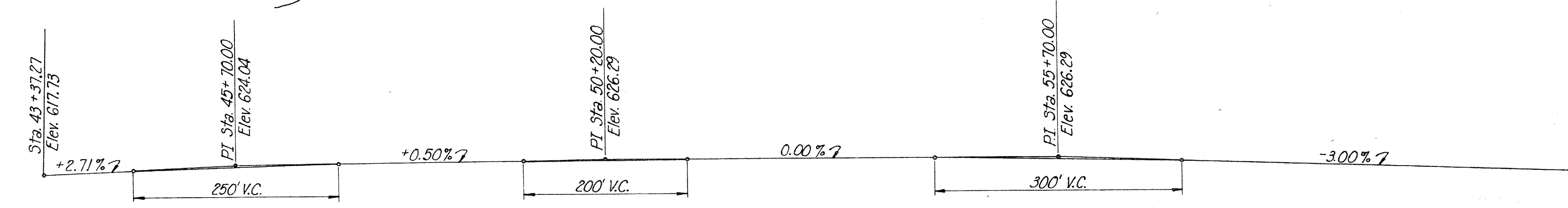
BRIDGE LAYOUT LINES

$\Delta = 24^{\circ} 33' 01''$
 $D = 1^{\circ} 15'$
 $P = 4583.66$
 $T = 997.31$
 $L = 1964.00$

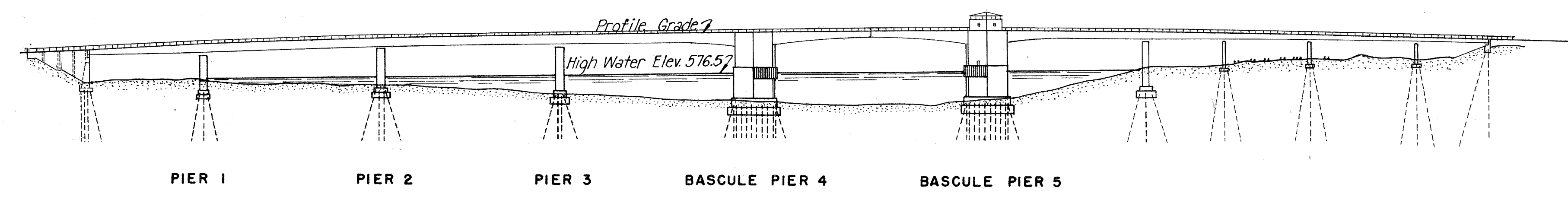
BENCH MARK
City Bench Mark No. 1112 at Ash Street Bridge, northwesterly end of bridge. Brass Bench Mark Plate set in northwesterly end of northerly retaining wall, 28 feet southeasterly of newel post on northerly side of bridge at Summit Street end of railing. Elevation 601.615 feet above Mean Sea Level, New York.



PROFILE TRANSITION AT BEARING ABUTMENT 1



PROFILE GRADE ALONG LINE ABCD



PIER 1 PIER 2 PIER 3 BASCULE PIER 4 BASCULE PIER 5

ELEVATION

PART I

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

GENERAL PLAN AND ELEVATION

TOLEDO, LUCAS COUNTY, OHIO

SCALE: 1" = 100'
MADE H.B. DATE 8-16-51 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD B.L.B. DATE 8-21-51 CONSULTING ENGINEERS
KANSAS CITY NEW YORK
CKD H.A.M. DATE 9-27-51
810 SHEET 1.02

502

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	W-1052 (2)	POST WAR

4
15

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

MICROFILMED
JUL 25 1983

ESTIMATED QUANTITIES FOR SUBSTRUCTURE

ITEM	DESCRIPTION	UNIT	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	GENERAL	TOTAL		
E-2	Cofferdams and Pumping	Lump Sum						Lump Sum	Lump Sum		
E-2	Unclassified Excavation	Cu. Yd.	913	1,217	1,026	5,664	6,251		15,071		
S-1	Concrete (Seal courses, footings, walls, shoe recesses)	Cu. Yd.	1,759	2,176	2,561	11,190	11,190		28,876		
S-4	Reinforcing Steel	Lbs.	12,291	14,339	14,567	263,538	263,538		568,273		
S-7	Structural Steel	Lbs.	3,120	2,635	2,685	2,562	2,952		13,954		
S-16	First Test Pile	Lump Sum						Lump Sum	Lump Sum		
S-17	First Pile Test Load	Lump Sum						Lump Sum	Lump Sum		
S-17	Subsequent Pile Test Loads	Each						3	3		
S-18	Steel Bearing Piles (14 B.P.117)	Lin. Ft.	3,380	4,960	3,870	14,730	15,060		42,000		
S-25	Electrical Equipment	Lump Sum						Lump Sum	Lump Sum		
Special	Fenders	Lump Sum						Lump Sum	Lump Sum		

PART

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

ESTIMATED QUANTITIES

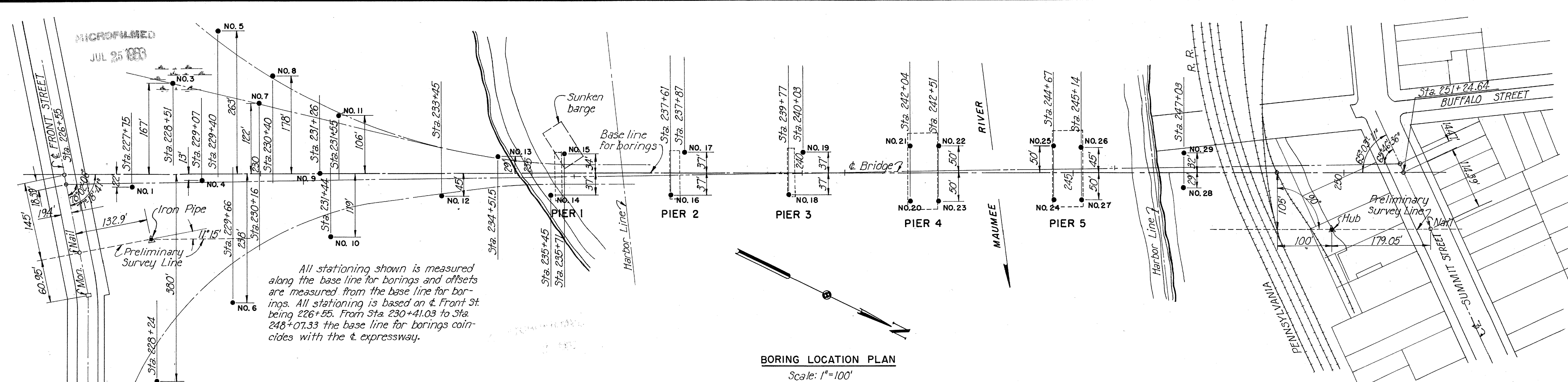
TOLEDO, LUCAS COUNTY, OHIO

SCALE _____
MADE G.D. DATE 9-21-51
TRCD A.H. DATE 12-11-51
CKD J.R.B. DATE 12-12-51

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

810 SHEET- 1.04

509



Note: Boring information, logs and samples of materials encountered may be examined in the Division Office, but the State does not guarantee these borings to present a complete picture of subsurface conditions to be encountered.

BORING LOCATION PLAN Scale: 1"=100'

BORING NO. 1	BORING NO. 2	BORING NO. 3	BORING NO. 4	BORING NO. 5	BORING NO. 6	BORING NO. 7	BORING NO. 8	BORING NO. 9	BORING NO. 10	BORING NO. 11	BORING NO. 12	BORING NO. 13	BORING NO. 14	BORING NO. 15	BORING NO. 16	BORING NO. 17	BORING NO. 18	BORING NO. 19	BORING NO. 20	BORING NO. 21	BORING NO. 22	BORING NO. 23	BORING NO. 24	BORING NO. 25	BORING NO. 26	BORING NO. 27	BORING NO. 28	BORING NO. 29
<ul style="list-style-type: none"> El. 598.9 Top soil El. 597.9 Top soil El. 588.9 Med. stiff clay Med. clay (scat. peb) El. 564.9 Stiff clay (scat. peb) El. 544.9 Stiff pebbly clay El. 523.9 Very hard pebbly clay El. 512.9 Stiff pebbly clay El. 505.9 Compact sand, gravel, boulders, and broken limestone El. 499.3 Top of limestone 	<ul style="list-style-type: none"> El. 601.1 Top soil El. 600.1 Med. clay El. 590.1 Med. clay (scat. peb) El. 553.1 Stiff pebbly clay El. 531.1 Silt El. 526.1 Compact sand, gravel and boulders El. 515.1 Very hard pebbly clay El. 505.6 Stiff pebbly clay El. 499.6 Compact sand, gravel, boulders and broken limestone El. 492.5 Top of limestone 	<ul style="list-style-type: none"> El. 574.5 Med. sand El. 574.0 Water El. 573.0 Med. sand El. 571.5 Med. clay El. 563.5 Med. clay (scat. peb) El. 561.5 Stiff clay (scat. peb) El. 557.5 Clay, sand and gravel El. 528.5 Stiff pebbly clay El. 522.5 Compact sand, gravel and little clay El. 506.0 Very hard pebbly clay El. 499.6 Very compact fine sand, gravel, boulders and broken limestone El. 492.5 Top of limestone 	<ul style="list-style-type: none"> El. 575.0 Water El. 574.3 Med. sand El. 569.3 River mud & vegetation El. 564.8 Med. clay (scat. peb) El. 549.3 Stiff pebbly clay El. 525.3 Hard pebbly clay El. 506.3 Compact sand, gravel, boulders and broken limestone El. 497.3 Top of limestone 	<ul style="list-style-type: none"> El. 575.0 Water El. 573.5 Loose sand & large gravel El. 565.5 River mud & vegetation El. 559.5 Stiff clay, pebbly El. 527.5 Very compact sand, gravel & boulders El. 521.5 Stiff clay pebbles El. 513.5 Sand, gravel, broken limestone & clay El. 506.5 Hard pebbly clay El. 497.8 Broken limestone El. 495.5 Solid limestone El. 492.5 Limestone bedrock 	<ul style="list-style-type: none"> El. 578.1 Sand & fine gravel El. 572.1 Med. sand (Muddy) El. 567.1 Pebbly clay El. 554.1 Stiff clay, scat. pebbles El. 545.1 Stiff pebbly clay El. 529.1 Silty clay El. 526.6 Very compact sand & gravel El. 525.1 Very hard pebbly clay El. 513.1 Very hard pebbly clay El. 505.1 Stiff pebbly clay El. 499.1 Sand, clay, gravel & stones El. 493.6 Limestone bedrock 	<ul style="list-style-type: none"> El. 575.0 Water El. 573.6 Med. sand El. 568.6 River mud & vegetation El. 564.6 Med. clay El. 556.6 Stiff pebbly clay El. 527.6 Compact sand & gravel El. 523.6 Hard pebbly clay El. 507.6 Compact sand & gravel El. 497.6 Broken limestone El. 492.3 Limestone bedrock 	<ul style="list-style-type: none"> El. 573.8 Clay & gravel layered El. 566.3 River mud & vegetation El. 558.8 Med. pebbly clay El. 546.8 Stiff pebbly clay El. 524.3 Stiff pebbly clay El. 520.3 Silt El. 517.7 Very hard pebbly clay El. 504.7 Very hard pebbly clay El. 497.0 Compact fine sand, gravel, stone & very little clay El. 494.2 Broken limestone El. 491.7 Solid limestone 	<ul style="list-style-type: none"> El. 575.6 Med. sand El. 569.6 Fine sand layered with mud El. 558.6 Stiff pebbly clay El. 545.6 Clay & scat. pebbles El. 532.6 Stiff clay (showing some silt) El. 527.6 Loose sand & gravel El. 523.6 Very hard pebbly clay El. 514.6 Hard pebbly clay El. 505.1 Compact sand, clay, gravel & stones El. 496.6 Broken limestone El. 493.6 Broken limestone El. 488.6 Solid limestone bedrock 	<ul style="list-style-type: none"> El. 573.7 Water El. 566.7 River mud & vegetation El. 559.2 Med. loose sand El. 548.5 Med. loose sand El. 544.5 Sand & gravel El. 541.5 Stiff clay (scat. pebbles) El. 529.0 Stiff clay (scat. pebbles) El. 515.0 Med. clay El. 514.0 Med. coarse gravel El. 501.8 Hard pebbly clay El. 490.6 Very compact sand, gravel, boulders & broken limestone (little clay) El. 490.3 Bedrock - solid limestone 	<ul style="list-style-type: none"> El. 576.7 Mix. sand, clay, gravel El. 569.8 Sand, clay & gravel mixture El. 559.7 River mud with layer of sand El. 551.7 Mud, sand (very loose) El. 543.7 Loose muddy sand (very active) El. 532.7 Stiff pebbly clay El. 525.7 Stiff clay El. 521.2 Very fine clay-like sand El. 517.7 Sand & gravel El. 510.7 Very hard stoney clay El. 504.7 Very hard pebbly clay El. 496.7 Very compact clay, sand & stones El. 491.7 Limestone bedrock 	<ul style="list-style-type: none"> El. 574.0 Water El. 570.5 Coarse sand El. 567.5 Fine sand & river mud El. 560.5 Med. sand - loose El. 542.5 Stiff clay - scat. pebbles El. 520.5 Very fine silty sand El. 516.5 Very fine silty sand El. 505.0 Hard pebbly clay El. 497.7 Very compact sand, gravel & broken limestone El. 491.7 Solid limestone 	<ul style="list-style-type: none"> El. 574.0 Water El. 566.5 River mud & sand El. 563.0 Med. loose sand El. 541.5 Stiff clay (scat. pebbles) El. 525.5 Stiff clay (scat. pebbles) El. 518.5 Silty silt El. 517.0 Very hard pebbly clay El. 507.5 Compact sand, gravel, boulders & broken limestone El. 501.5 Top of bedrock - limestone 	<ul style="list-style-type: none"> El. 574.0 Water El. 566.5 River mud & sand El. 563.0 Med. loose sand El. 541.5 Stiff clay (scat. pebbles) El. 525.5 Stiff clay (scat. pebbles) El. 518.5 Silty silt El. 517.0 Very hard pebbly clay El. 507.5 Compact sand, gravel, boulders & broken limestone El. 501.5 Top of bedrock - limestone 	<ul style="list-style-type: none"> El. 574.0 Water El. 566.5 River mud & sand El. 563.0 Med. loose sand El. 541.5 Stiff clay (scat. pebbles) El. 525.5 Stiff clay (scat. pebbles) El. 518.5 Silty silt El. 517.0 Very hard pebbly clay El. 507.5 Compact sand, gravel, boulders & broken limestone El. 501.5 Top of bedrock - limestone 	<ul style="list-style-type: none"> El. 574.0 Water El. 566.5 River mud & sand El. 563.0 Med. loose sand El. 541.5 Stiff clay (scat. pebbles) El. 525.5 Stiff clay (scat. pebbles) El. 518.5 Silty silt El. 517.0 Very hard pebbly clay El. 507.5 Compact sand, gravel, boulders & broken limestone El. 501.5 Top of bedrock - limestone 	<ul style="list-style-type: none"> El. 574.0 Water El. 566.5 River mud & sand El. 563.0 Med. loose sand El. 541.5 Stiff clay (scat. pebbles) El. 525.5 Stiff clay (scat. pebbles) El. 518.5 Silty silt El. 517.0 Very hard pebbly clay El. 507.5 Compact sand, gravel, boulders & broken limestone El. 501.5 Top of bedrock - limestone 	<ul style="list-style-type: none"> El. 573.5 Water El. 555.5 River mud El. 549.5 Med. loose sand El. 545.5 Sand & gravel El. 541.5 Stiff clay (scat. pebbles) El. 526.5 Med. clay El. 516.5 Med. clay El. 515.0 Med. clay El. 514.0 Med. coarse gravel El. 501.8 Hard pebbly clay El. 490.6 Very compact sand, gravel, boulders & broken limestone El. 490.3 Solid limestone 	<ul style="list-style-type: none"> El. 573.5 Water El. 555.0 River mud & vegetation El. 548.5 Med. loose sand El. 544.5 Sand & gravel El. 541.5 Stiff clay (scat. pebbles) El. 529.0 Stiff clay (scat. pebbles) El. 515.0 Med. clay El. 514.0 Med. coarse gravel El. 501.8 Hard pebbly clay El. 490.6 Very compact sand, gravel, boulders & broken limestone El. 490.3 Bedrock - solid limestone 	<ul style="list-style-type: none"> El. 573.8 Water El. 544.3 River mud & vegetation El. 542.3 Stiff clay (scat. pebbles) El. 517.8 Med. hard pebbly clay El. 501.8 Very compact sand, gravel, boulders & broken limestone (little clay) El. 490.6 Bedrock - solid limestone 	<ul style="list-style-type: none"> El. 574.3 Water El. 545.3 River mud El. 544.3 Stiff clay - scat. pebbles El. 517.8 Med. hard pebbly clay El. 502.8 Very compact sand, gravel, stones, boulders & broken limestone El. 498.8 Solid limestone 	<ul style="list-style-type: none"> El. 573.8 Water El. 544.3 River mud El. 541.3 Stiff clay (scat. pebbles) El. 512.8 Med. hard pebbly clay El. 502.8 Very compact sand, gravel, boulders & broken limestone El. 498.8 Solid limestone 	<ul style="list-style-type: none"> El. 573.8 Water El. 543.8 River mud El. 540.8 Med. clay (scat. peb.) El. 535.8 Water bearing sand El. 534.3 Med. clay (scat. peb.) El. 521.8 Stiff pebbly clay El. 513.5 Med. hard stoney clay El. 504.8 Very hard pebbly clay El. 500.3 Very compact sand, gravel, boulders & broken limestone El. 498.3 Limestone 	<ul style="list-style-type: none"> El. 573.5 Water El. 545.0 River mud El. 542.5 Stiff clay (scat. peb.) El. 513.5 Med. hard stoney clay El. 502.0 Very compact sand, gravel, boulders & broken limestone (little clay) El. 497.7 Limestone El. 489.5 Solid limestone 	<ul style="list-style-type: none"> El. 573.4 Water El. 545.4 River mud & vegetation El. 540.9 Stiff clay (scat. peb.) El. 512.4 Med. hard pebbly clay El. 509.4 Very compact sand, gravel, boulders & broken limestone El. 503.4 Bedrock - solid limestone 	<ul style="list-style-type: none"> El. 574.4 Water El. 546.4 River mud El. 542.4 Stiff clay (scat. peb.) El. 514.9 Med. hard pebbly clay El. 509.4 Med. hard stoney clay El. 502.7 Very compact sand, gravel, boulders & broken limestone El. 497.9 Bedrock - solid limestone El. 489.9 Solid limestone 	<ul style="list-style-type: none"> El. 574.2 Water El. 547.7 River mud, sand & vegetation El. 541.2 Stiff clay (scat. peb.) El. 515.7 Med. hard pebbly clay El. 508.7 Med. hard stoney clay El. 502.7 Very compact sand, gravel, boulders & broken limestone El. 494.3 Bedrock - solid limestone El. 487.8 Solid limestone 	<ul style="list-style-type: none"> El. 570.3 Misc. fill El. 573.3 River sand El. 567.3 River mud El. 557.3 Soft clay El. 553.3 Sand & gravel El. 544.3 Stiff clay & pebbles El. 520.3 Stiff stoney clay El. 505.3 Very compact clay, sand & gravel El. 495.3 Glacier drift & gravel El. 487.8 Bedrock - limestone 	<ul style="list-style-type: none"> El. 573.5 Cinder fill El. 569.0 Fine sand El. 556.5 Soft clay & vegetation El. 551.5 Silty clay (soft) El. 547.5 Sand & gravel El. 521.5 Stiff clay (scat. peb.) El. 500.5 Very compact clay, sand & gravel El. 493.5 Glacier drift broken limestone, gravel El. 484.0 Bedrock - limestone

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

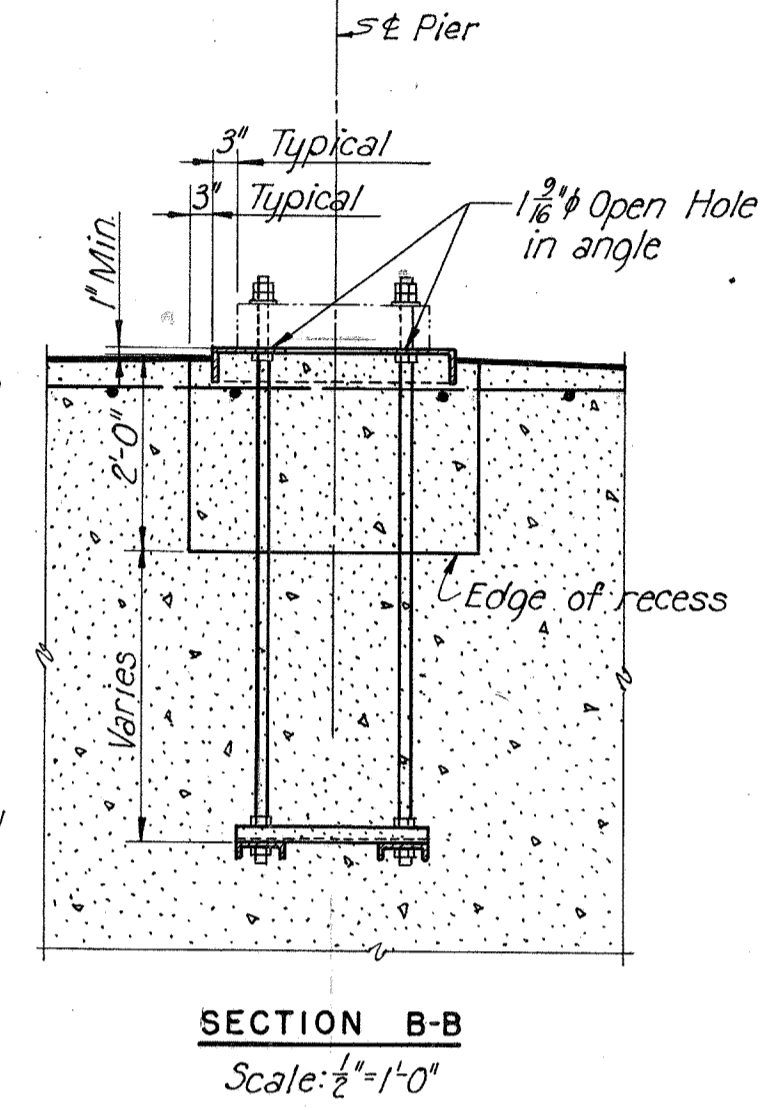
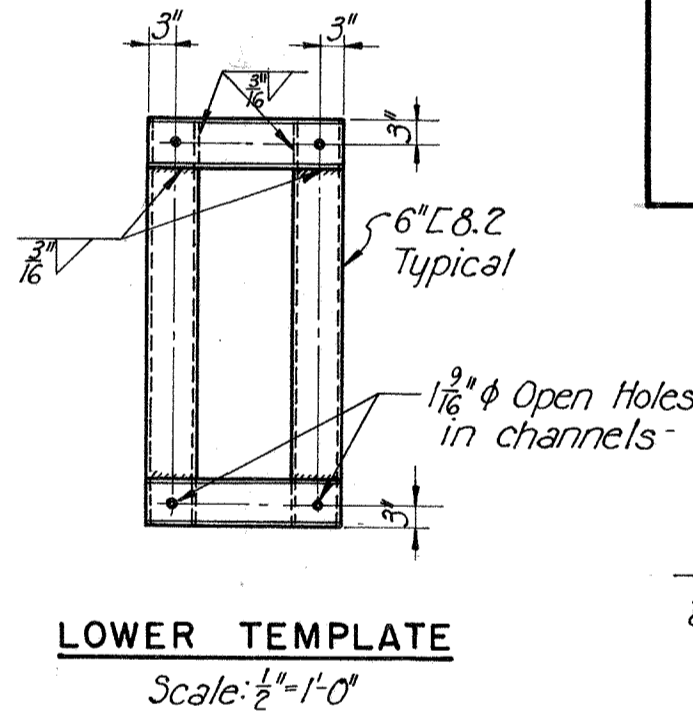
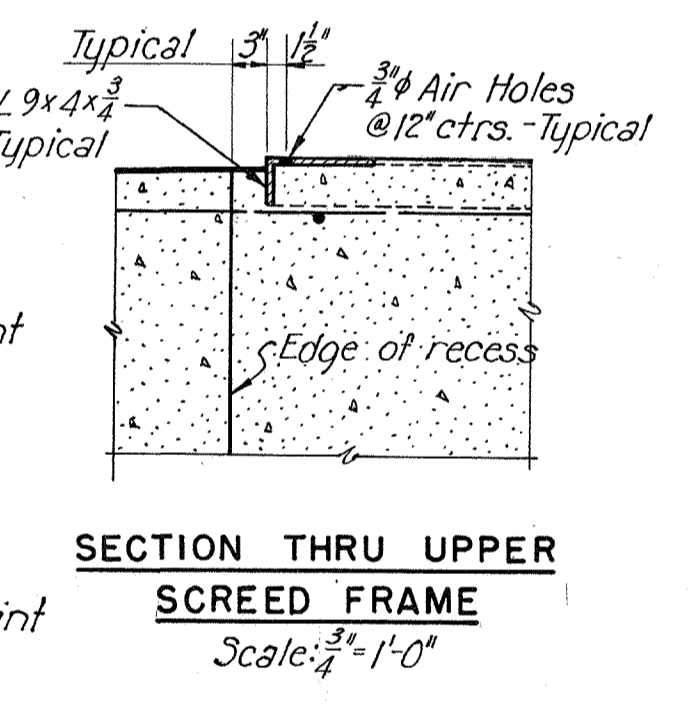
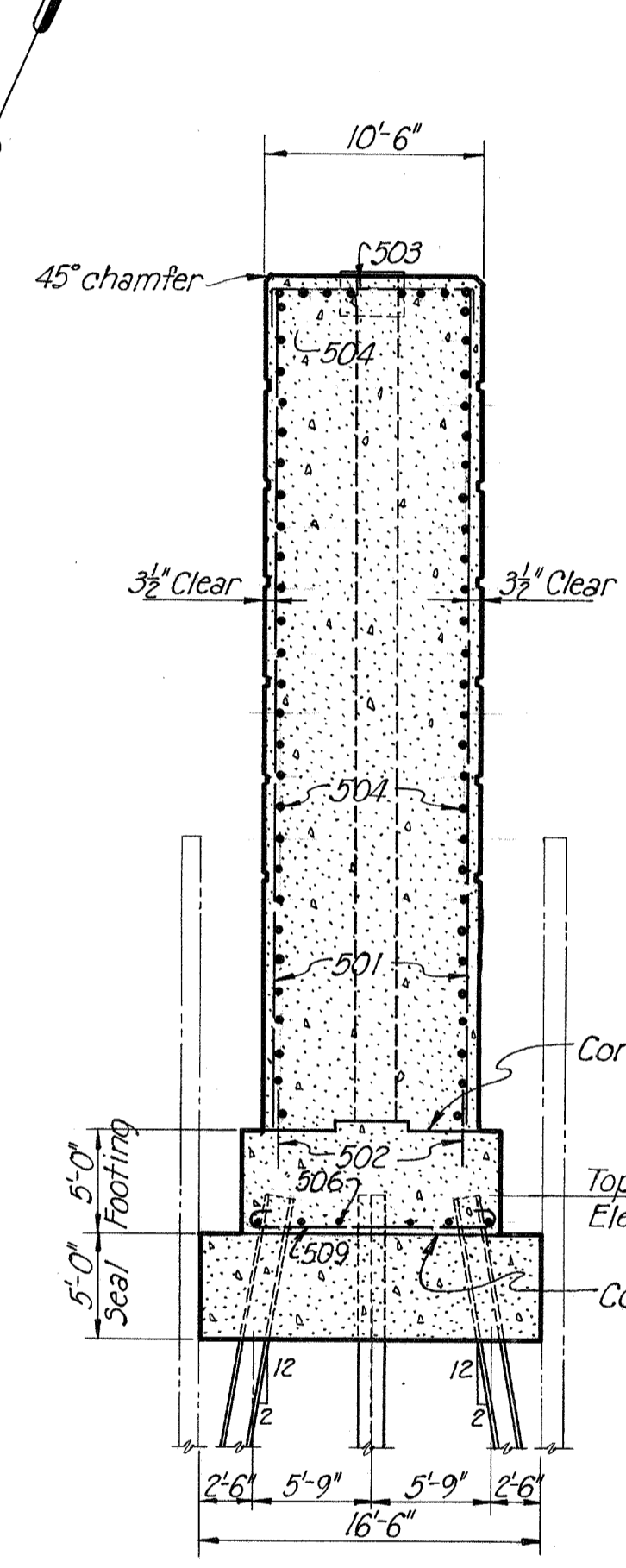
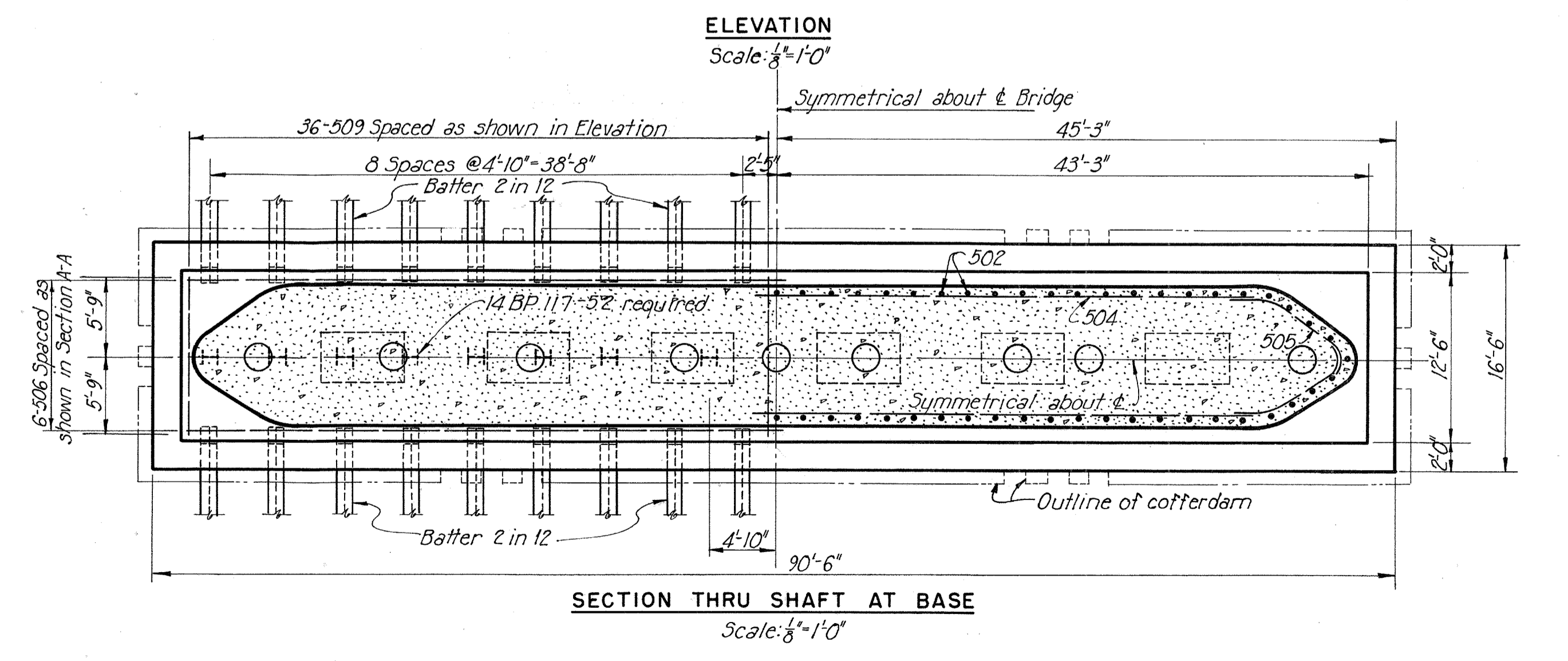
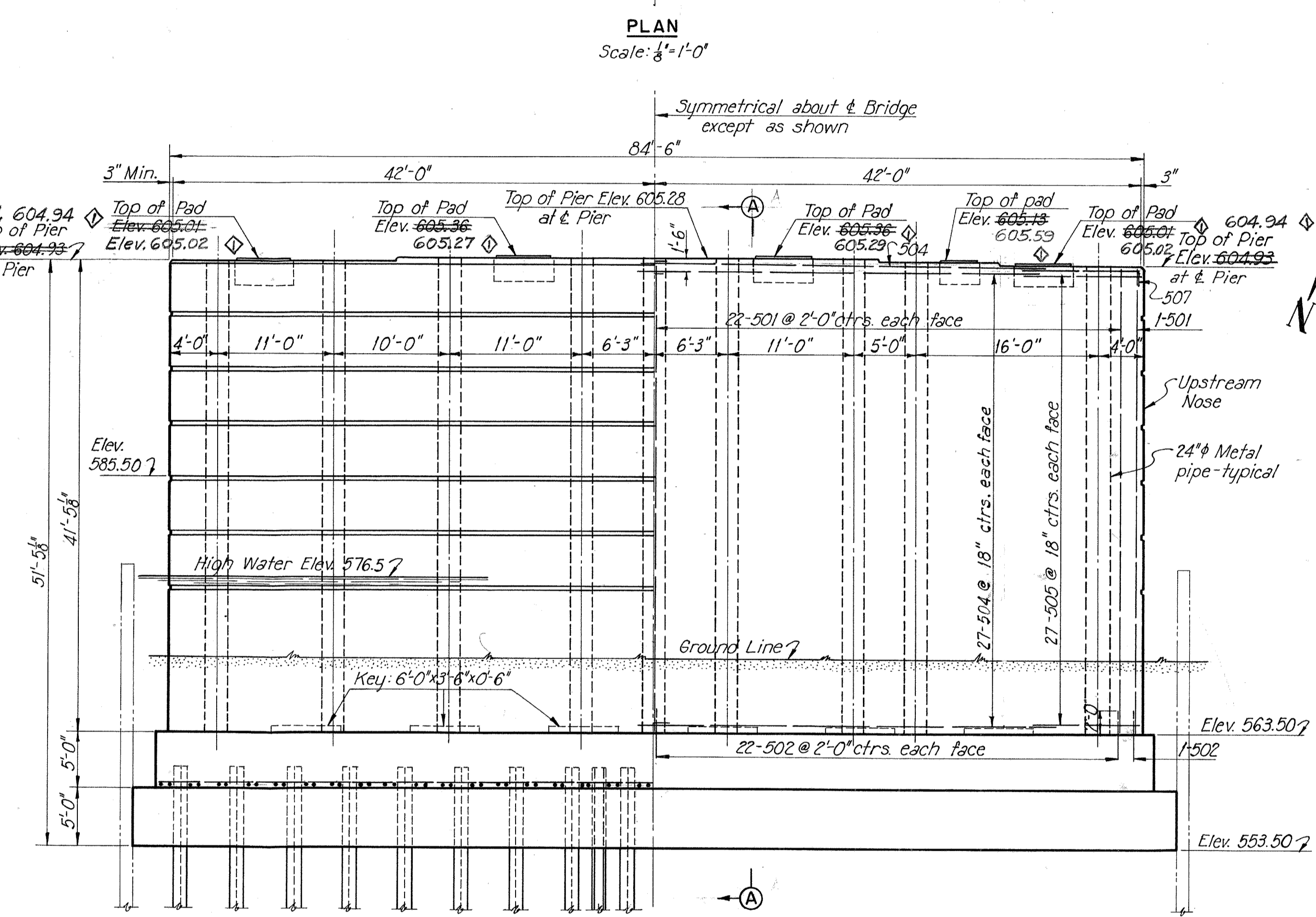
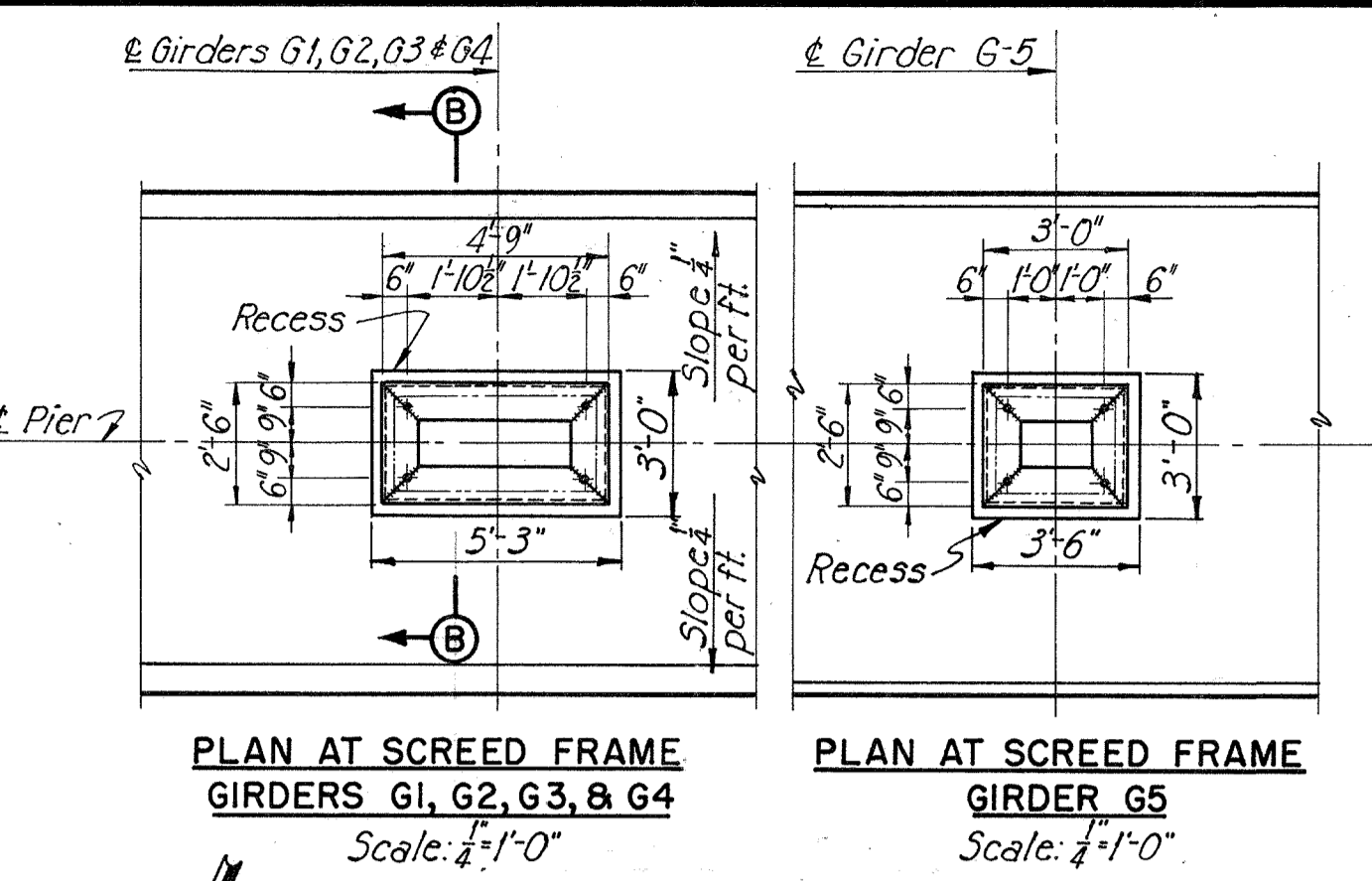
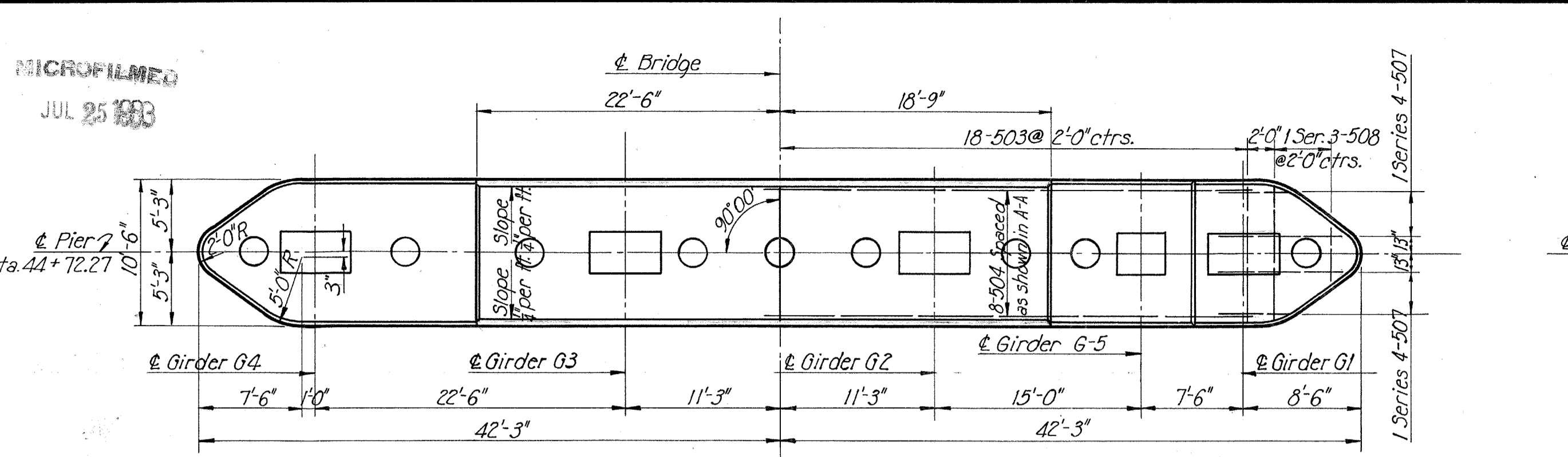
BORINGS TOLEDO, LUCAS COUNTY, OHIO

SCALE: As Noted
MADE L.E.T. DATE: 8-7-51
TRCD: L.B. DATE: 8-22-51
CKD: E.B.J. DATE: 9-27-51

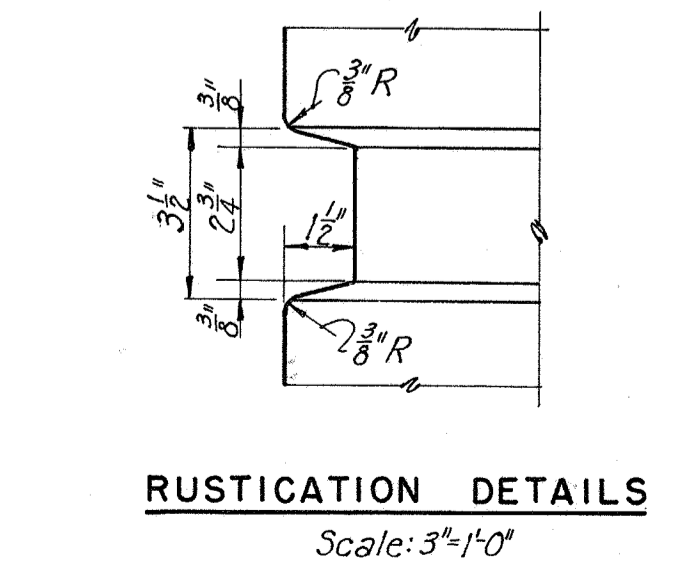
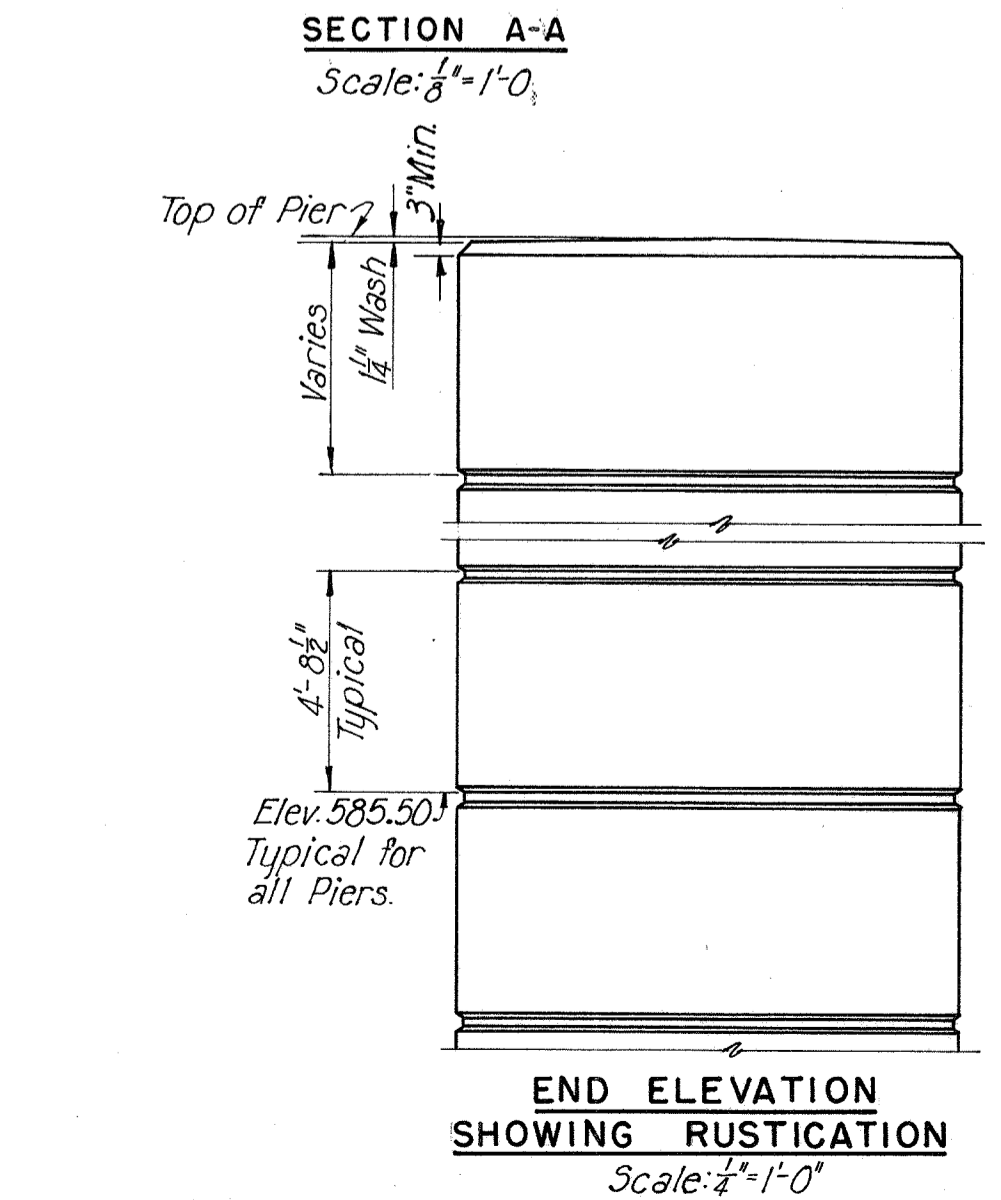
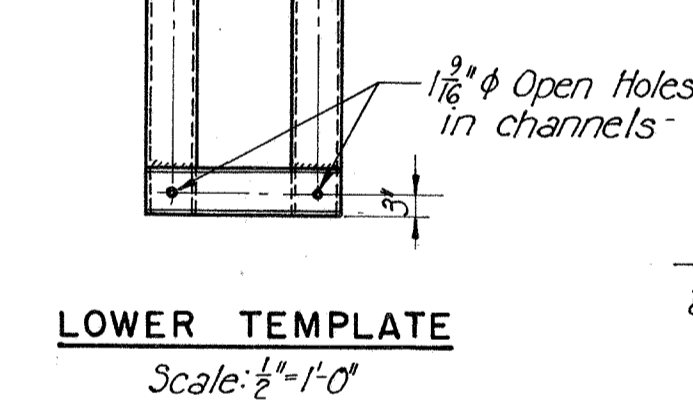
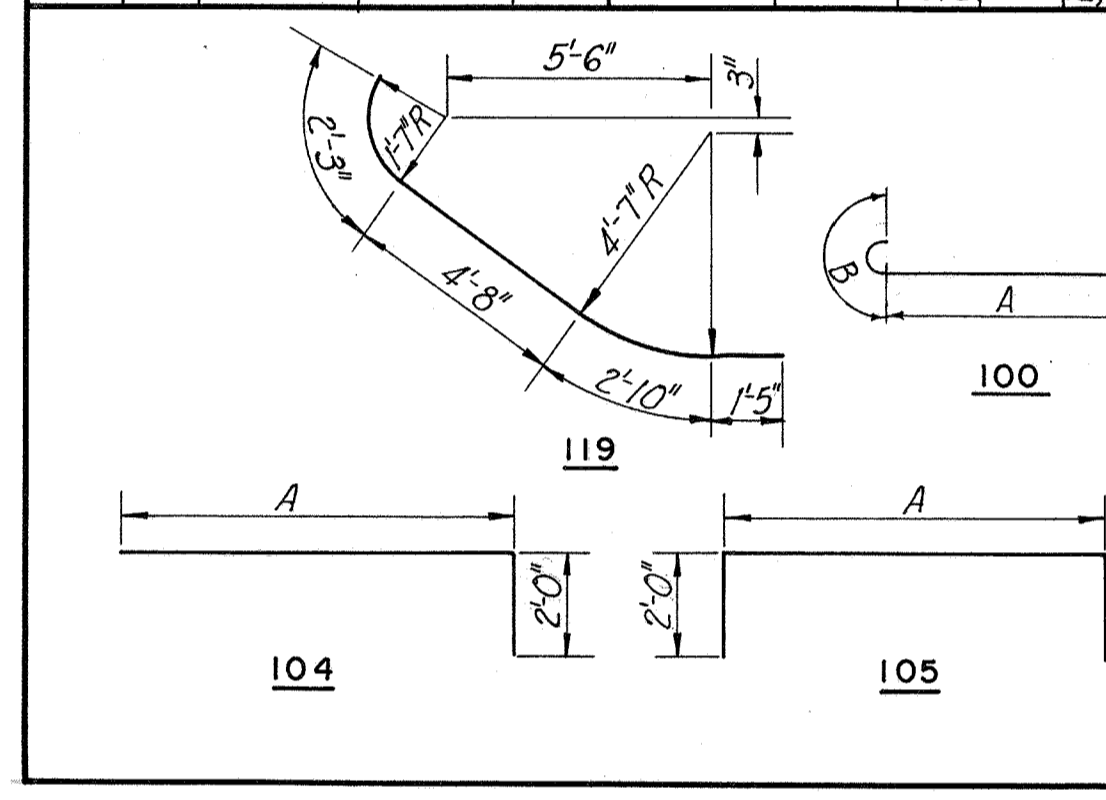
HOWARD, NEEDLES, TAMMEN & BERGENCOFF CONSULTING ENGINEERS
KANSAS CITY NEW YORK

810 SHEET 1.05

MICROFILMED
JUL 25 1983



Mark	Size	Number	Length	Type	Dimensions				Weight	
					A	B	C	D		
501	5	88	41'-0"	Str.					37.6	
502	5	88	4'-0"	Str.					3.6	
503	5	35	13'-8"	105	9'-8"				4.9	
504	5	124	36'-0"	Str.					46.5	
505	5	108	11'-2"	119					12.5	
506	5	12	43'-9"	Str.					5.4	
507	5	4 Ser. of 3	5'-6" to 10'-1"	104	3'-6" to 8'-1"				1.3	
508	5	2 Ser. of 3	8'-4" to 13'-6"	105	4'-4" to 9'-6"				4.6	
509	5	72	13'-3"	100	11'-7"	10"			9.7	
Test replacement bar										
5	1	1	8'-0"	Str.					3.2	
									Total	122.5



GENERAL NOTES ON PIERS
 For special concrete in shoe pad recesses, see General Notes, Sheet 3.
 For class of concrete, see Sheet 3.
 Spacing of piles shown is at bottom of seal.
 In Piers 1, 2 and 3 provide 24" ventilation cells formed with metal pipe. Pipes shall be flush with top of pier, and shall be filled with concrete 3 months after pier wall concrete has been placed. Embraco concrete or equal, shall be used for top 3 feet. Provisions shall be made to keep cells dry during freezing weather.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	UI-1052(2)	POST WAR

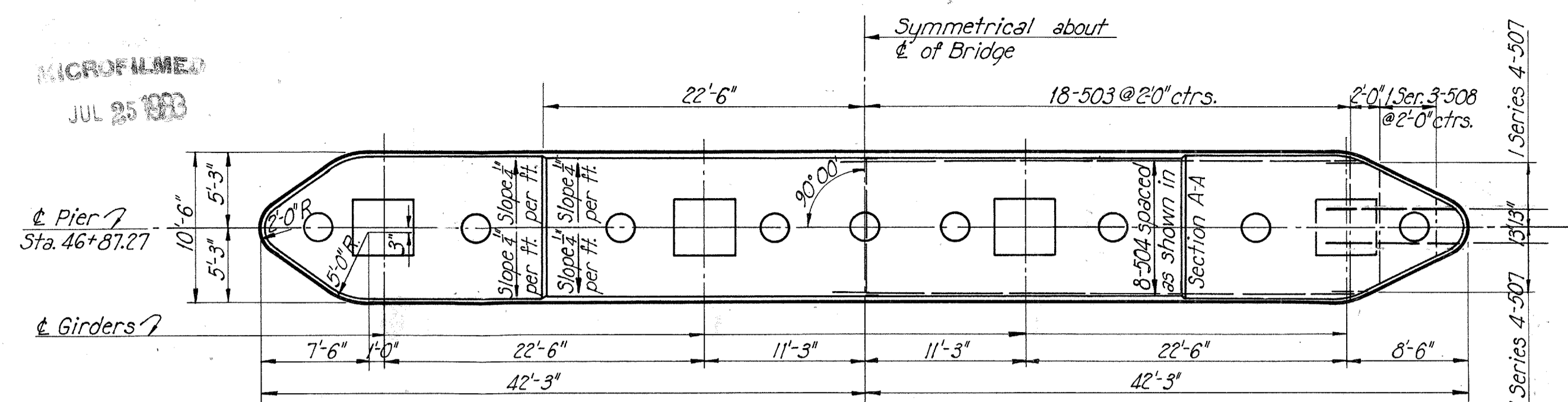
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES
TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35
PIER 1
TOLEDO, LUCAS COUNTY, OHIO
SCALE 3/4"=1'-0"
MADE BY DATE 9-22-51
TRCD B.L.B. DATE 9-22-51
CKD HAM DATE 9-22-51
HOWARD, NEEDLES, TAMMEN & BERGENDORF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET 1.06

Rev. 11-4-52

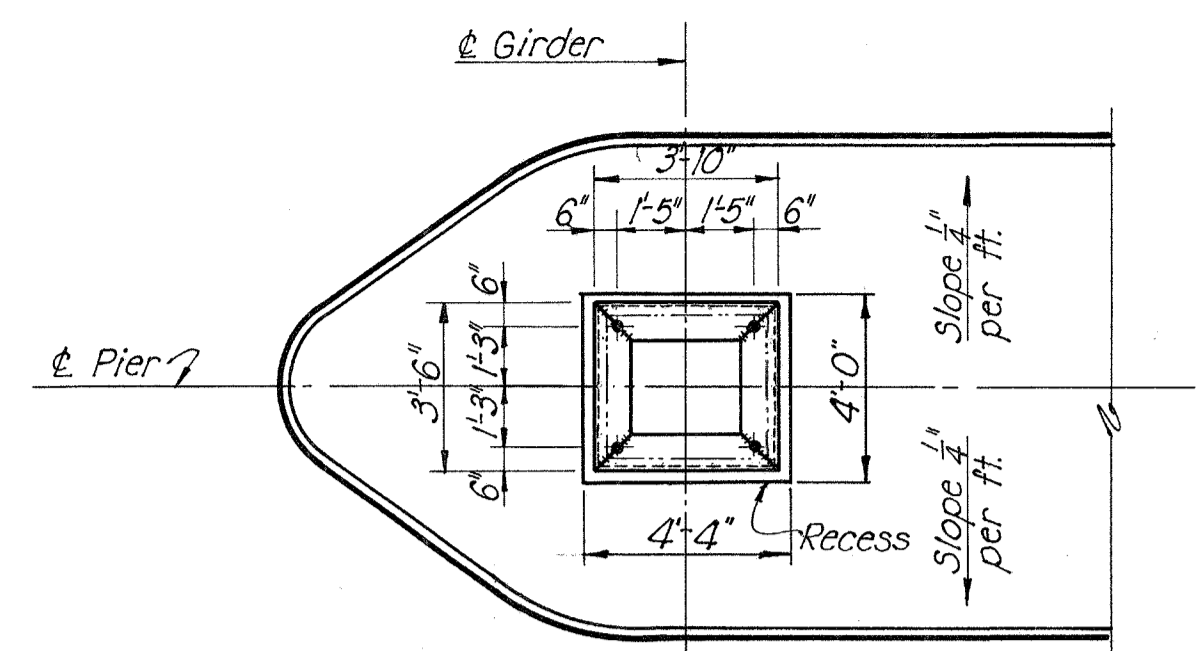
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	7
2	OHIO	UH052 (2)	POST WAR	15

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



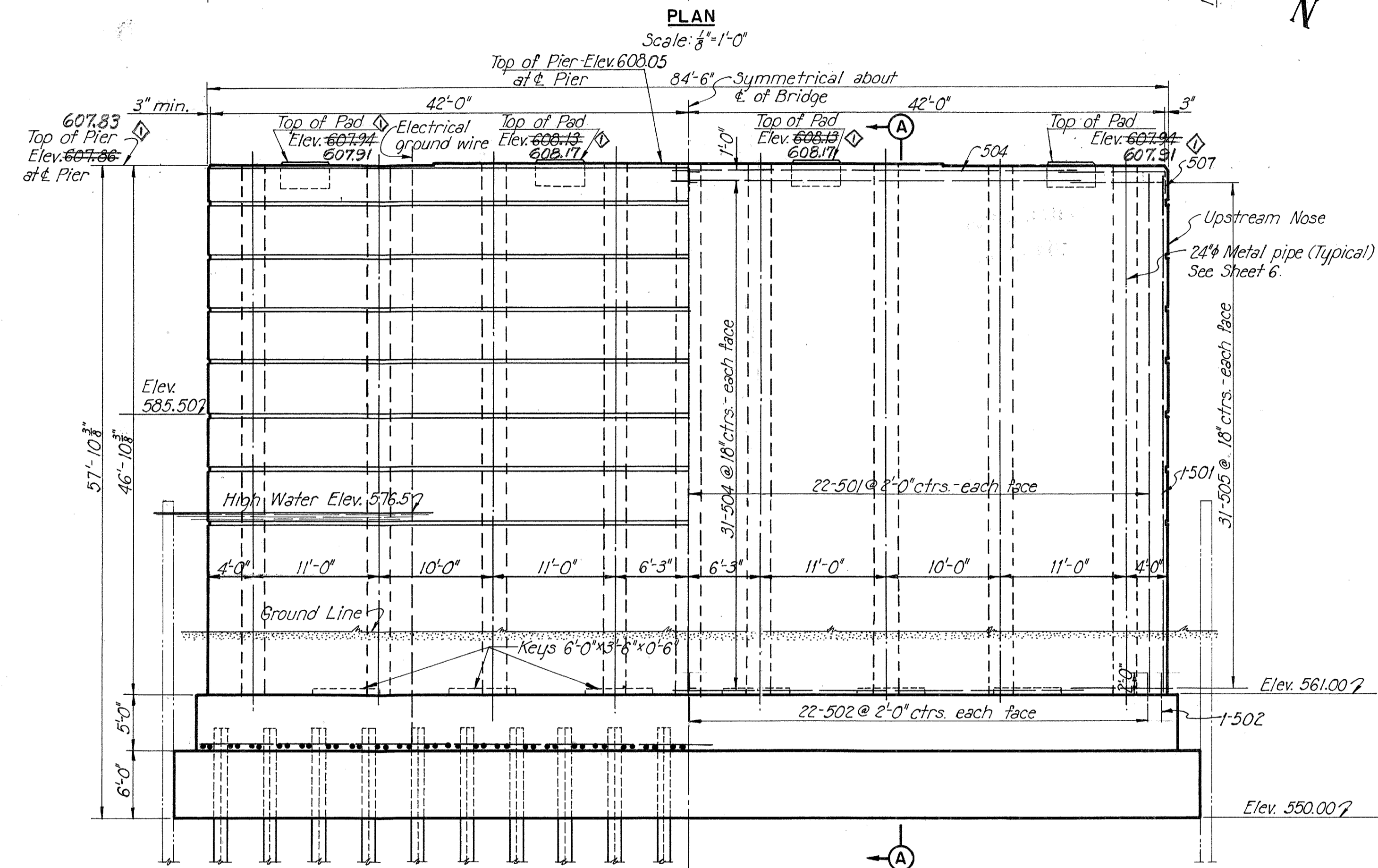
PLAN

Scale: $\frac{1}{4}$ " = 1'-0"



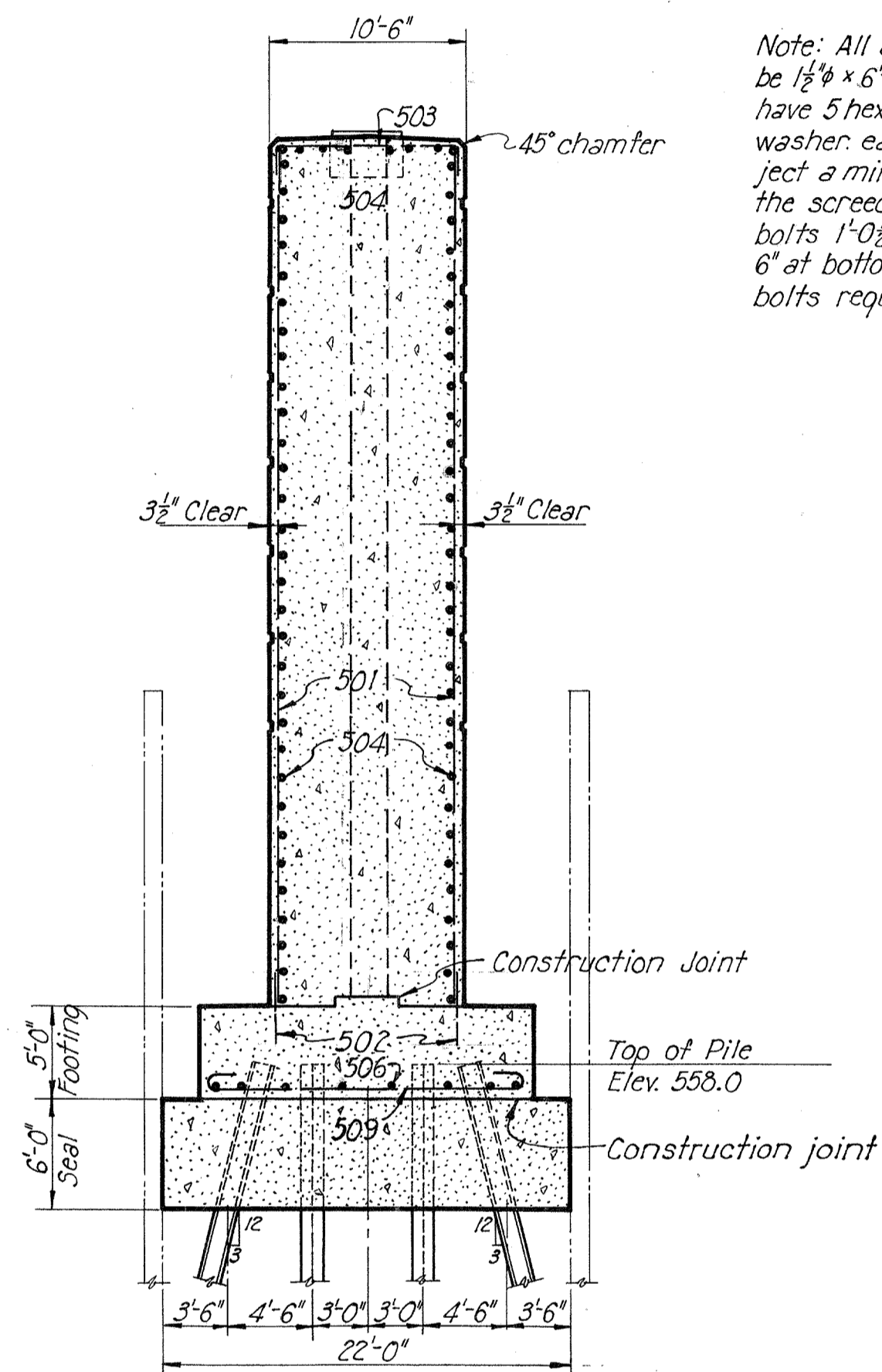
PLAN AT SCREED FRAMES

Scale: $\frac{1}{4}$ " = 1'-0"



ELEVATION

Scale: $\frac{1}{8}$ " = 1'-0"

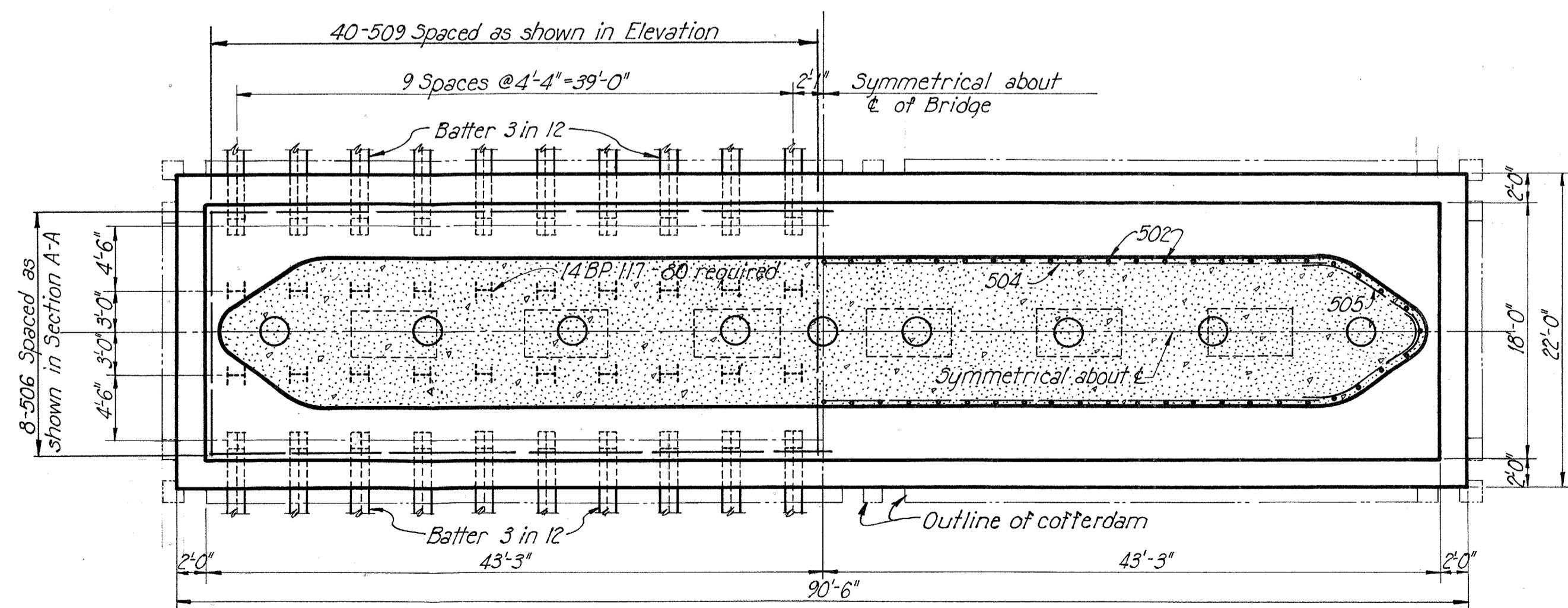
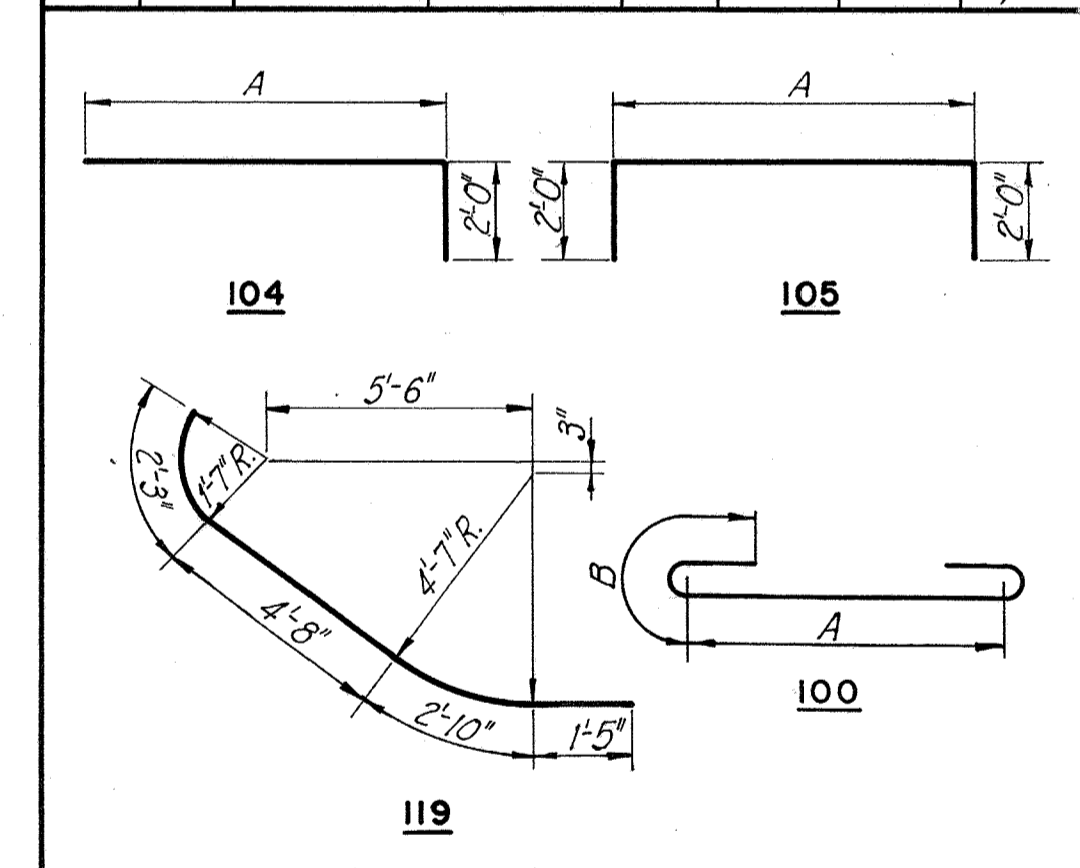


SECTION A-A

Scale: $\frac{1}{8}$ " = 1'-0"

Note: All anchor bolts shall be $\frac{1}{2}$ " x 6'-0" long and shall have 5 hex. nuts and 1- $\frac{3}{8}$ " x $\frac{1}{4}$ " washer each. Bolts shall project a minimum of 8" above the screed frame. Thread bolts 1'-0" at top end and 6" at bottom end. Sixteen bolts required for Pier 2.

Mark	Size	Number	Length	Type	Dimensions		Weight Lbs.	
					A	B		
501	5	88	46'-6"	Str.			4268	
502	5	88	4'-0"	Str.			367	
503	5	35	13'-8"	105	9'-8"		499	
504	5	140	36'-0"	Str.			5257	
505	5	124	11'-2"	119			1445	
506	5	16	43'-9"	Str.			731	
507	5	4 Series of 4	5'-6" to 10'-1"	104	8'-6" to 8'-1"		130	
508	5	2 Series of 3	8'-4" to 13'-6"	105	4'-4" to 9'-6"		68	
509	5	80	18'-9"	100	17'-1"	10"	1565	
Test replacement bar	5	2	8'-0"	Str.			9	
Total								14,339



SECTION THRU SHAFT AT BASE

Scale: $\frac{1}{8}$ " = 1'-0"

Note: For typical screed frame details, rustication details, pile details, and general notes on piers, see Sheet 6.

PART 1

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

PIER 2

TOLEDO, LUCAS COUNTY, OHIO

SCALE: $\frac{1}{8}$ " = 1'-0"

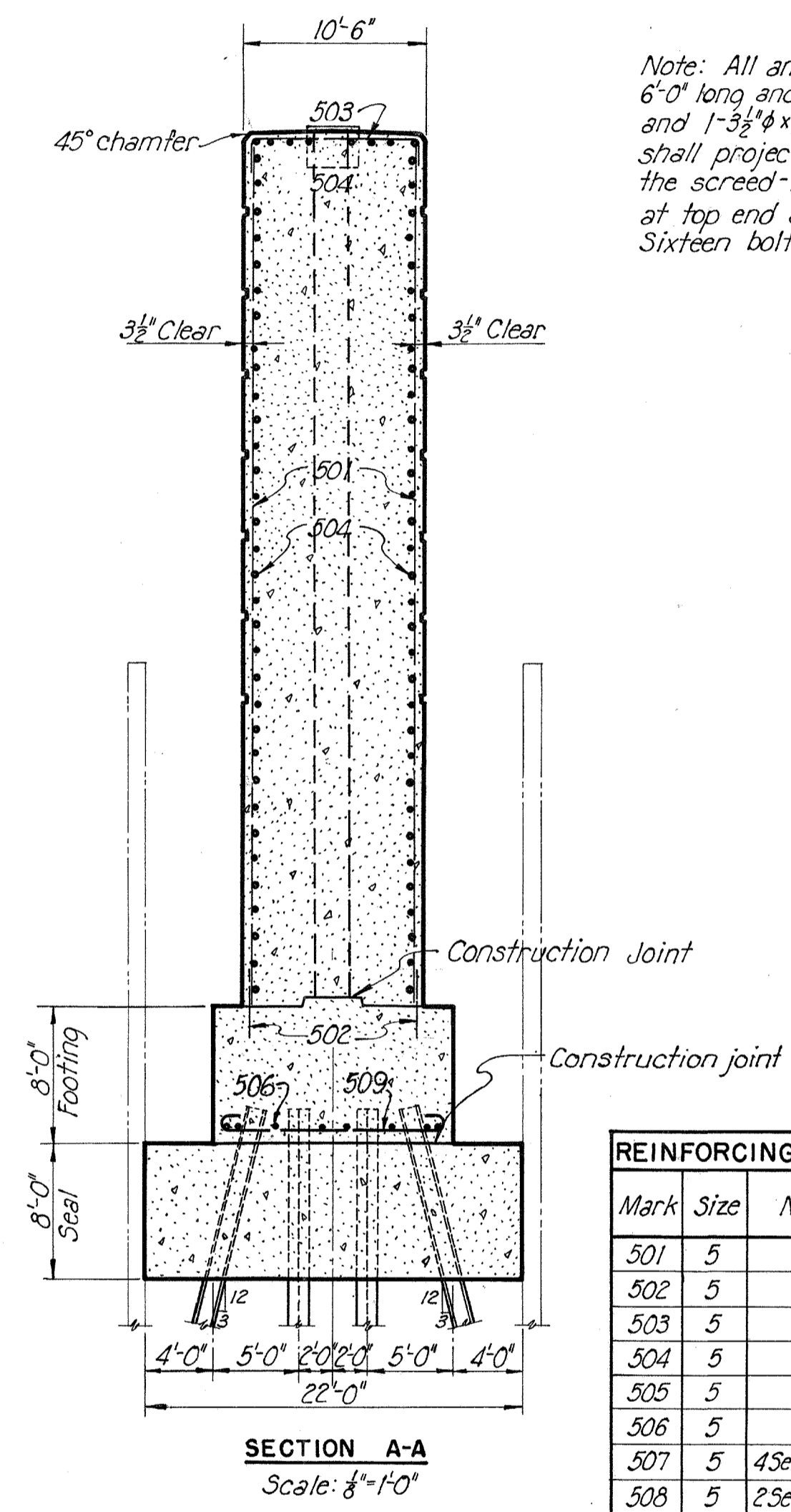
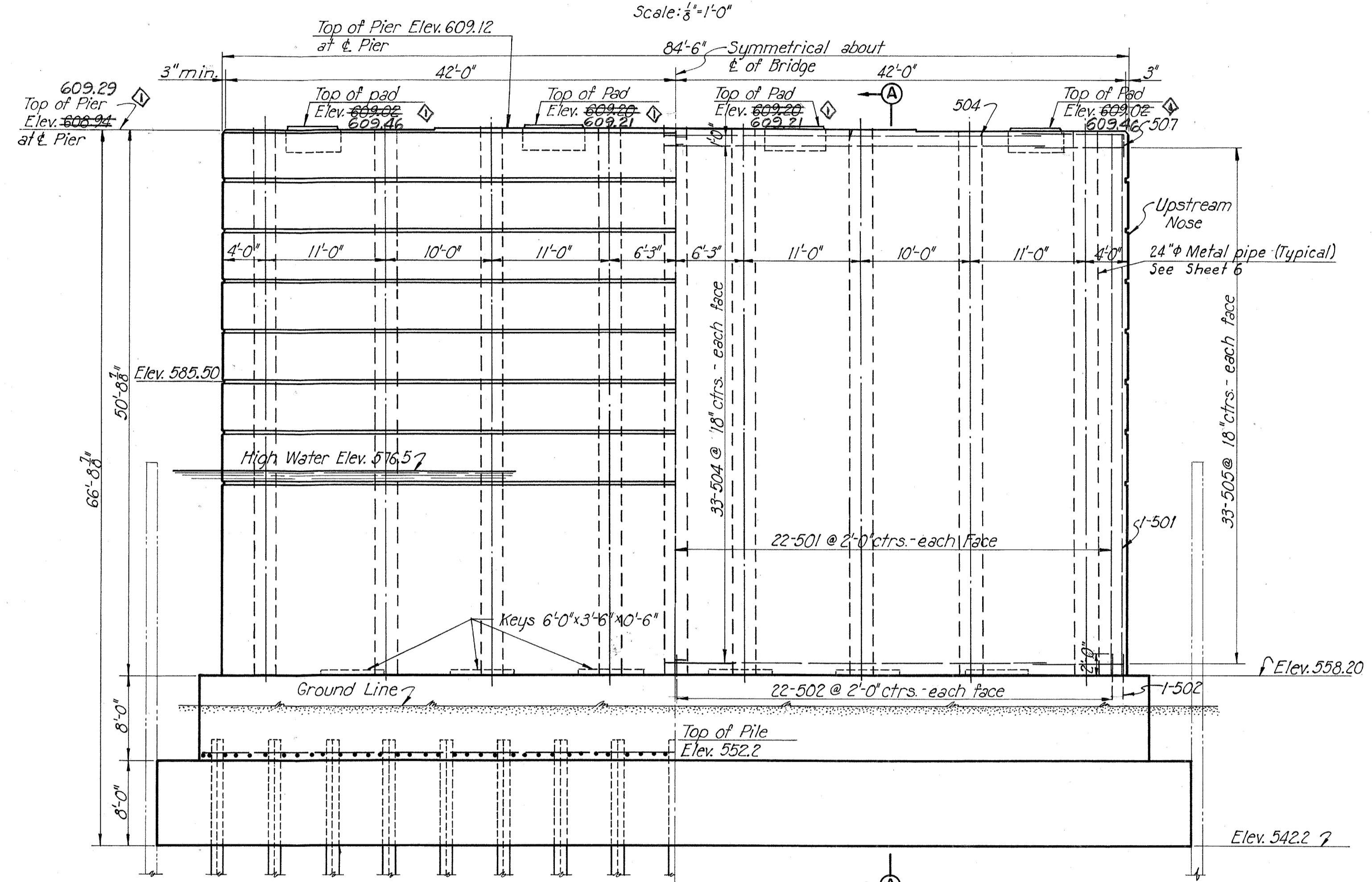
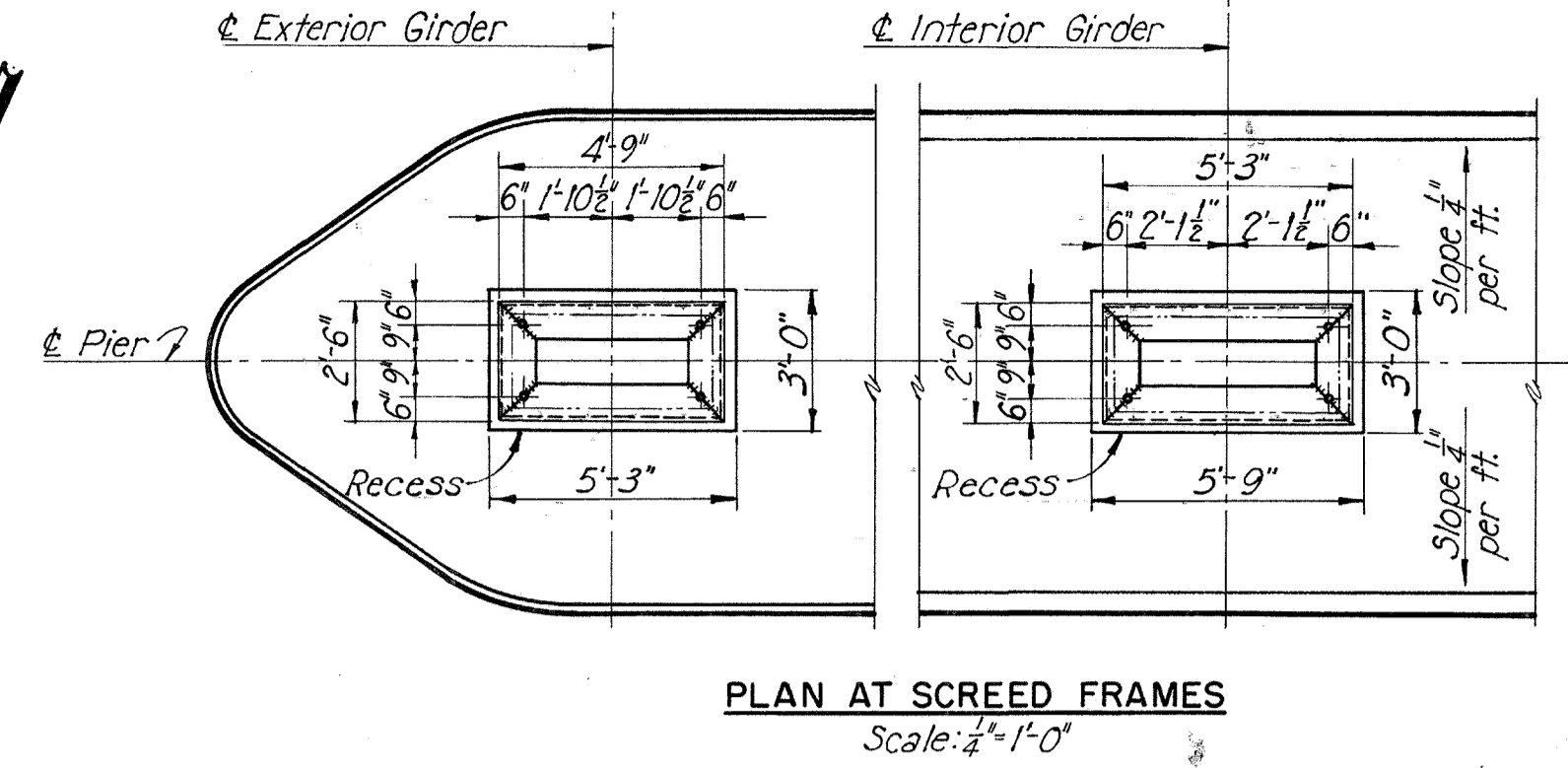
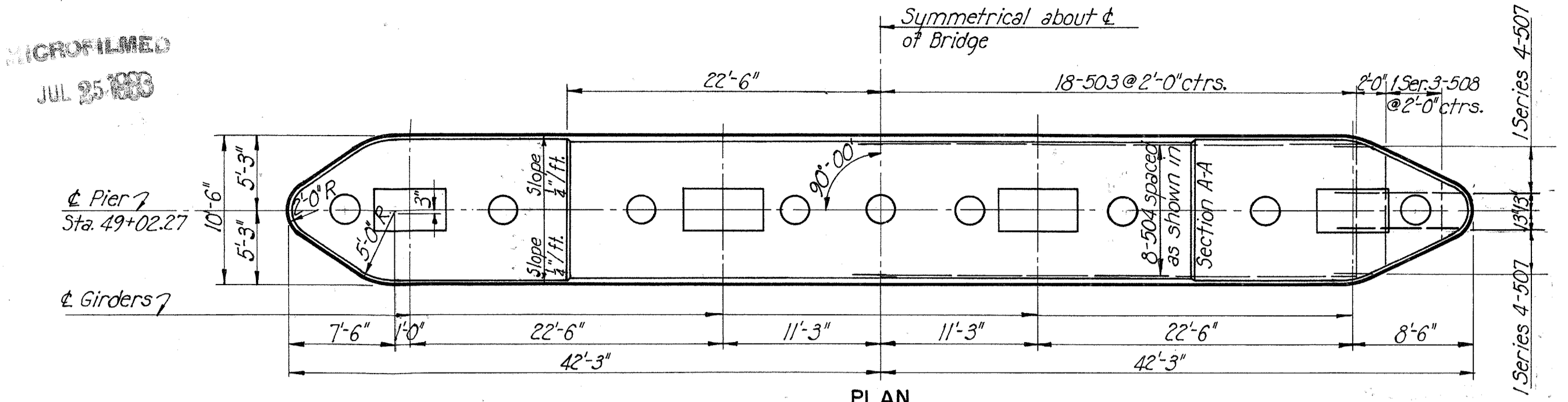
MADE E.B.J. DATE 8-3-51
TRCD B.L.B. DATE 8-15-51
CKD HAM DATE 8-27-51

HOWARD, NEEDLES, TAMMEN & BERGENDC
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

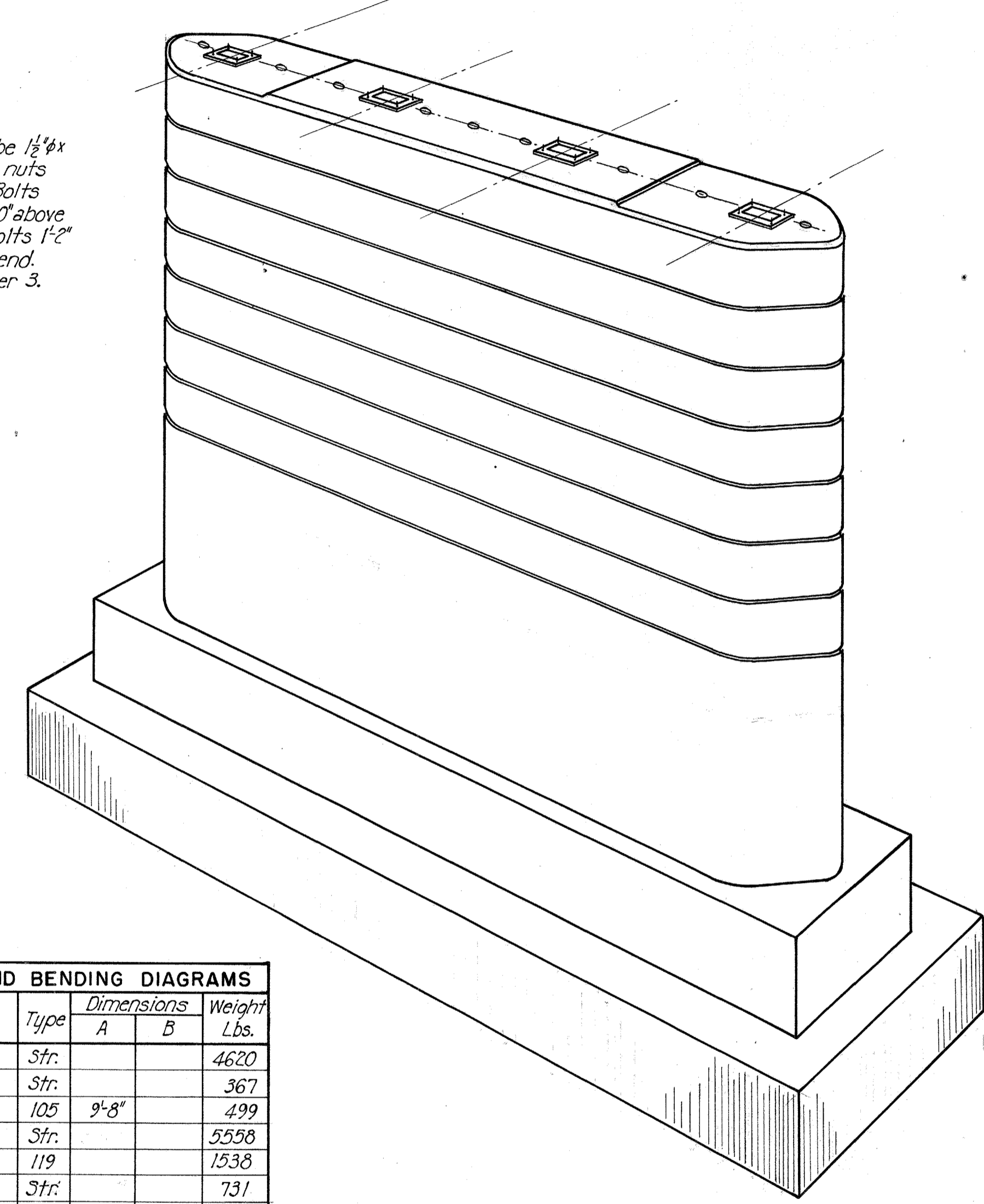
810 SHEET 10

Rev. 11-4-52

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

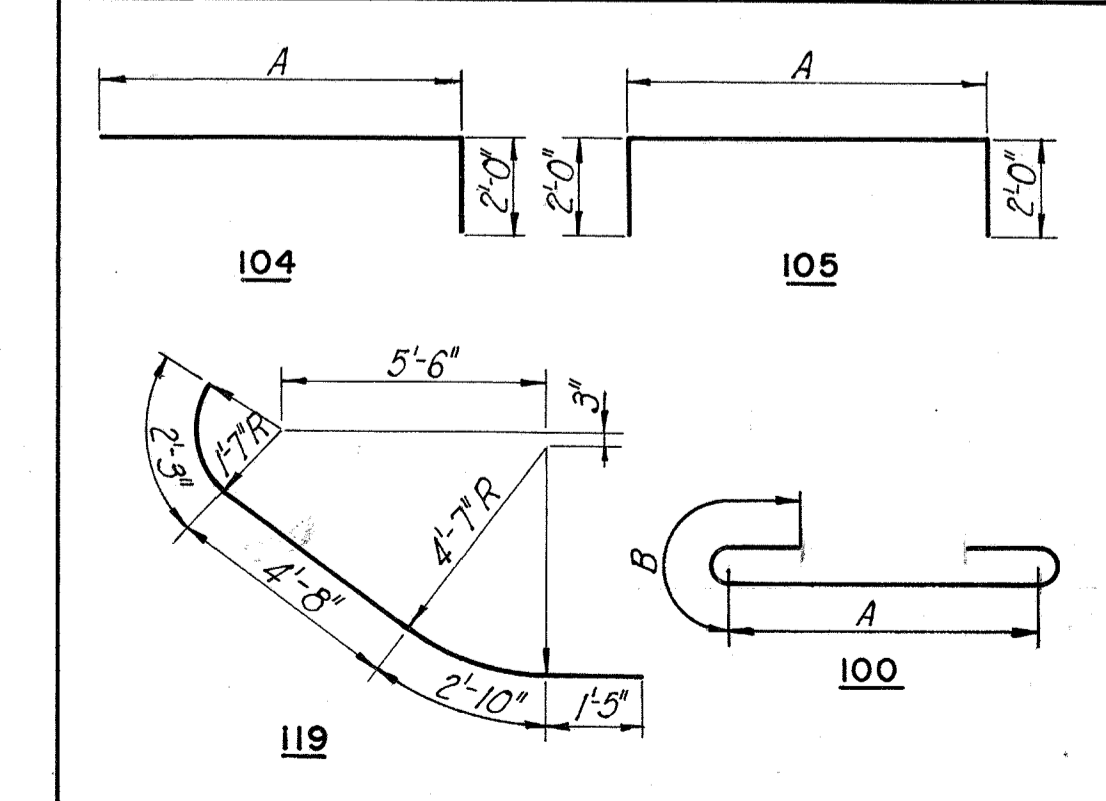
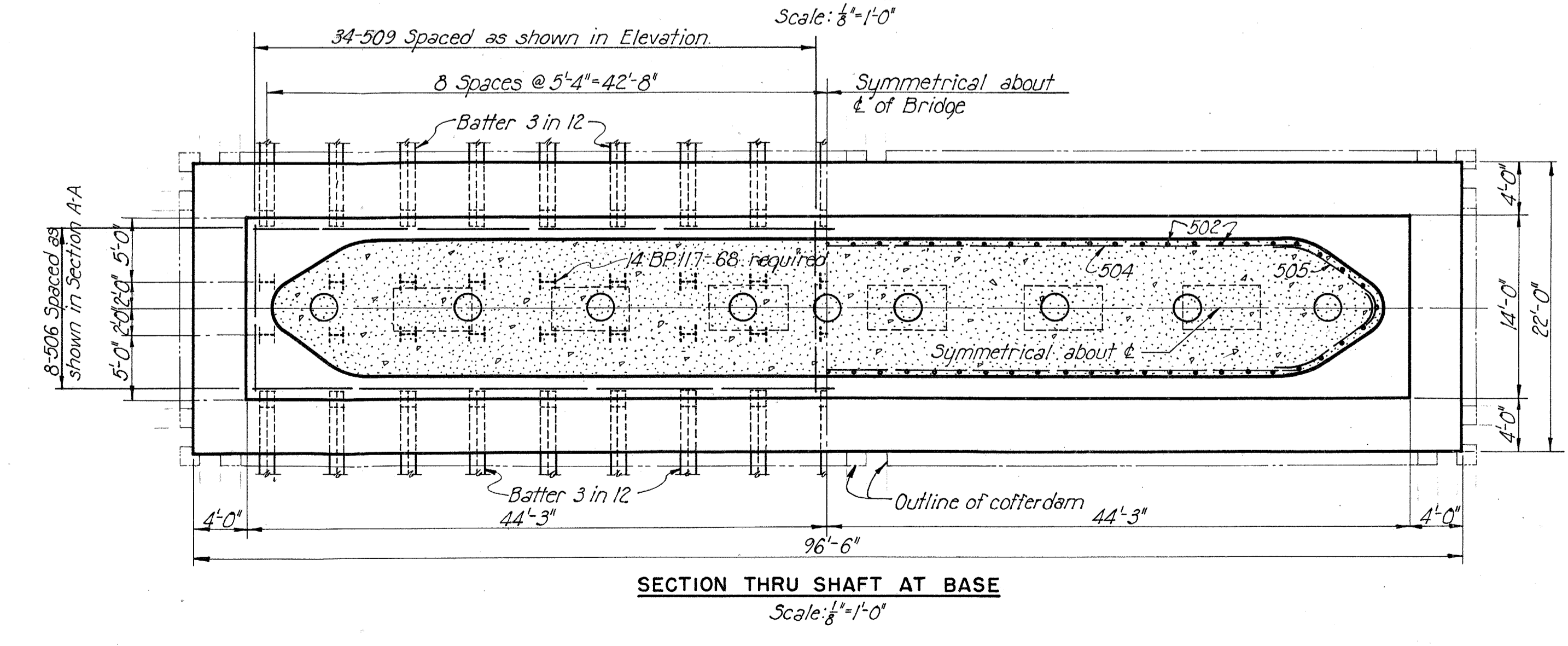


Note: All anchor bolts shall be 1/2" x 6'-0" long and shall have 5 hex nuts and 1-3/4" x 1/2" washer each. Bolts shall project a minimum of 10" above the screed-frame. Thread bolts 1'-2" at top end and 6" at bottom end. Sixteen bolts required for Pier 3.



Mark	Size	Number	Length	Type	Dimensions		Weight Lbs.	
					A	B		
501	5	88	50'-4"	Str.			4620	
502	5	88	4'-0"	Str.			367	
503	5	35	13'-8"	105	9'-8"		499	
504	5	148	36'-0"	Str.			5558	
505	5	132	11'-2"	119			1538	
506	5	16	43'-9"	Str.			731	
507	5	4 Series of 4	5'-6" to 10'-1"	104	3'-6" to 8'-1"		130	
508	5	2 Series of 3	8'-4" to 13'-6"	105	4'-4" to 9'-6"		68	
509	5	68	14'-9"	100	13'-1"	10"	1047	
Test replacement bar	5	1	8'-0"	Str.			9	
Total								14,567

Note: For typical screed frame details, rustication details, pile details and general notes on piers, see Sheet 6.



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

PIER 3

TOLEDO, LUCAS COUNTY,

SCALE: 1/8"=1'-0"
MADE BY: HMB DATE: 8-10-51
TRCD: BLB DATE: 8-14-51
CKD: HBA DATE: 8-27-51

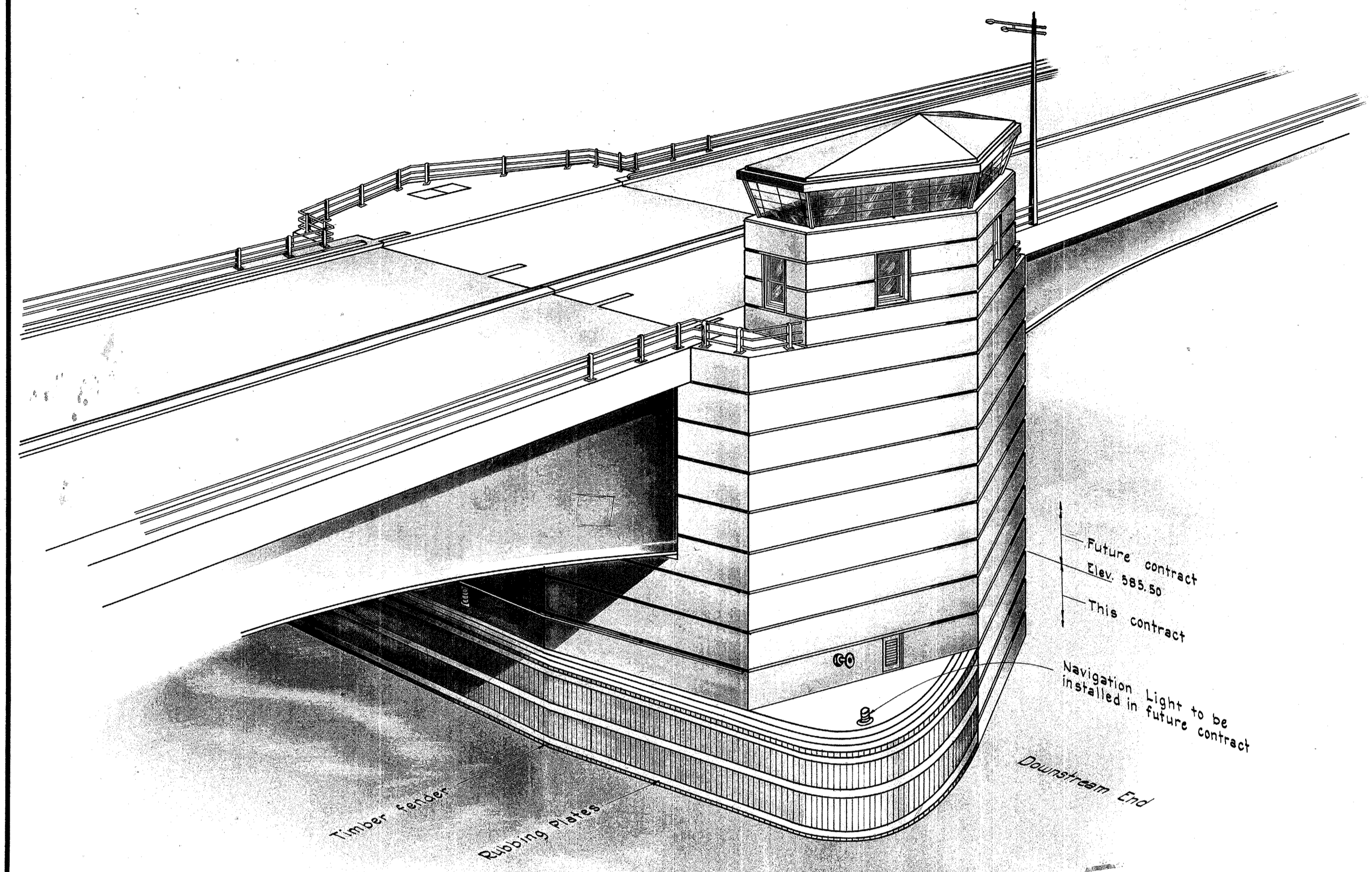
HOWARD, NEEDLES, TAMM
CONSULTING ENGINEERS
KANSAS CITY

Rev. 11-4-52

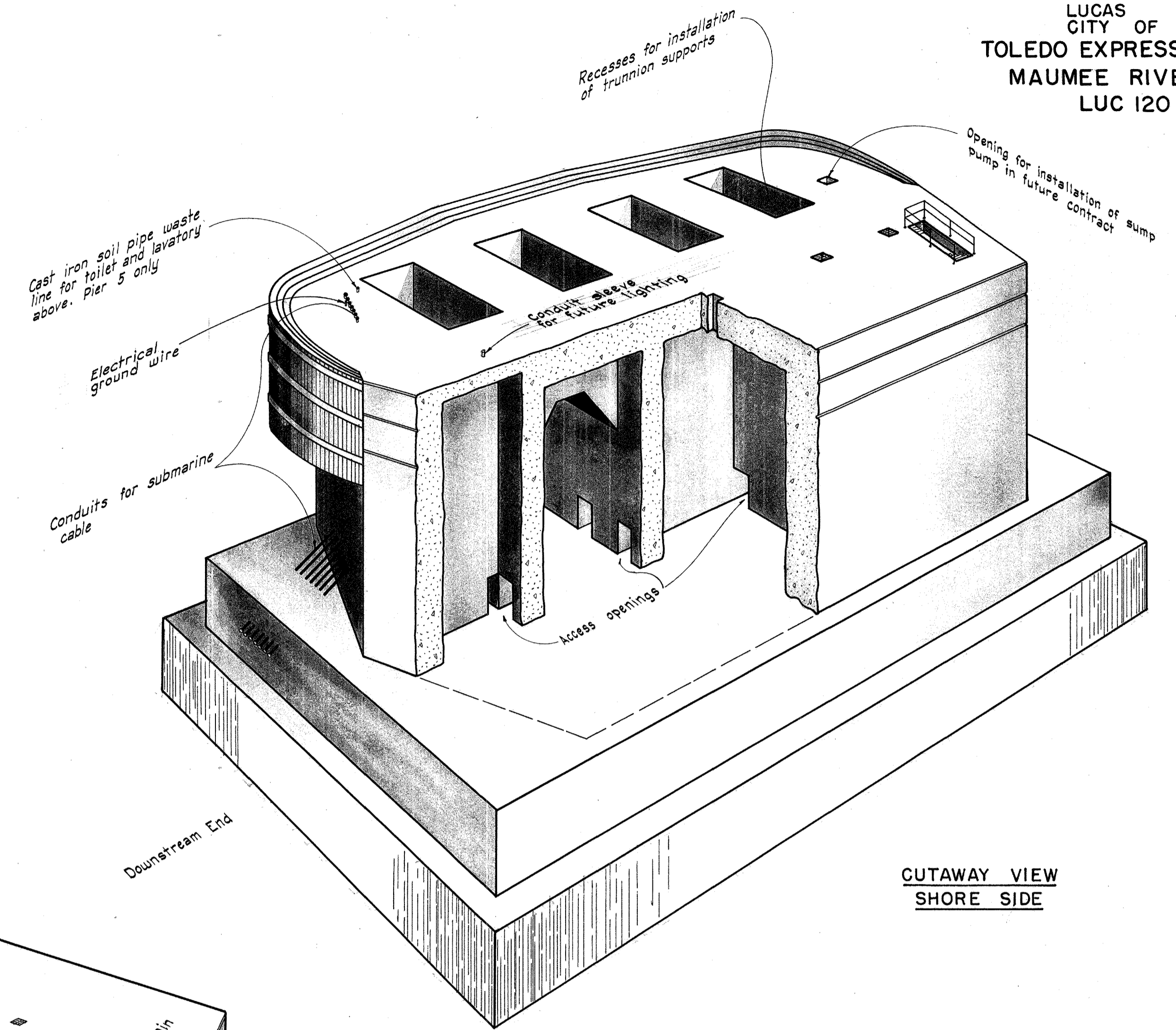
MICROFILMED
JUL 25 1980

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	UH-1052 (2)	POST WAR

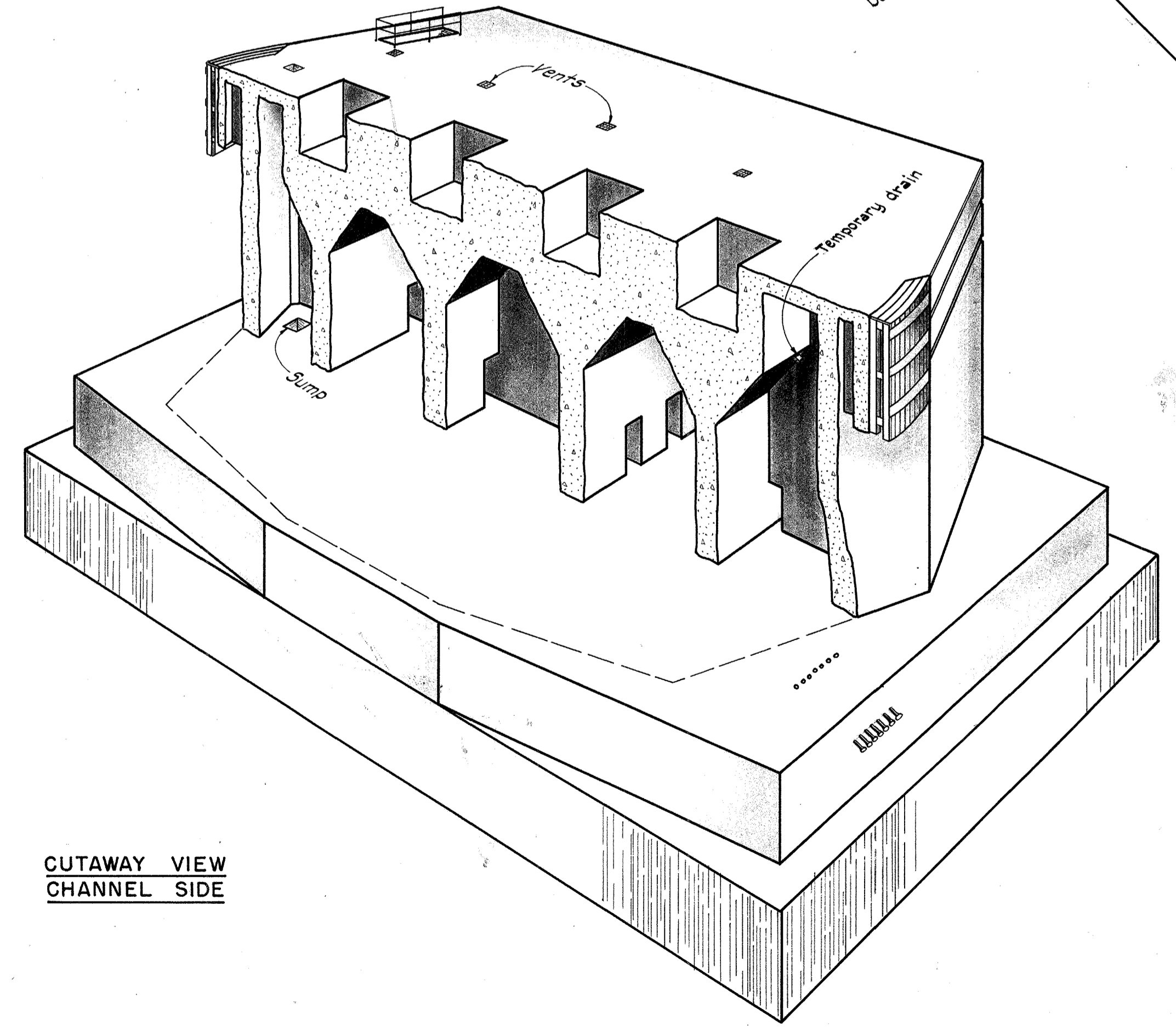
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



PERSPECTIVE VIEW OF COMPLETED PIER



CUTAWAY VIEW
SHORE SIDE



CUTAWAY VIEW
CHANNEL SIDE

Note: Pier 5 shown. Pier 4 similar except for cast iron soil pipe

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-20 - 35

PERSPECTIVE VIEWS OF BASCULE PIER
TOLEDO, LUCAS COUNTY, OHIO

SCALE _____
MADE W.L.G. DATE 8-15-51
TRCD B.L.B. DATE 8-12-51
CKD JT DATE 12-13-51

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KANSAS CITY NEW YORK

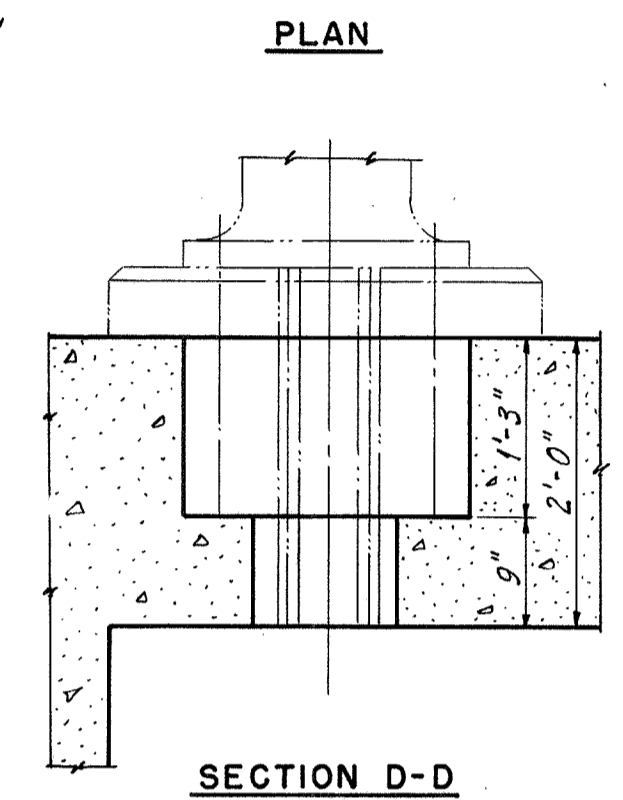
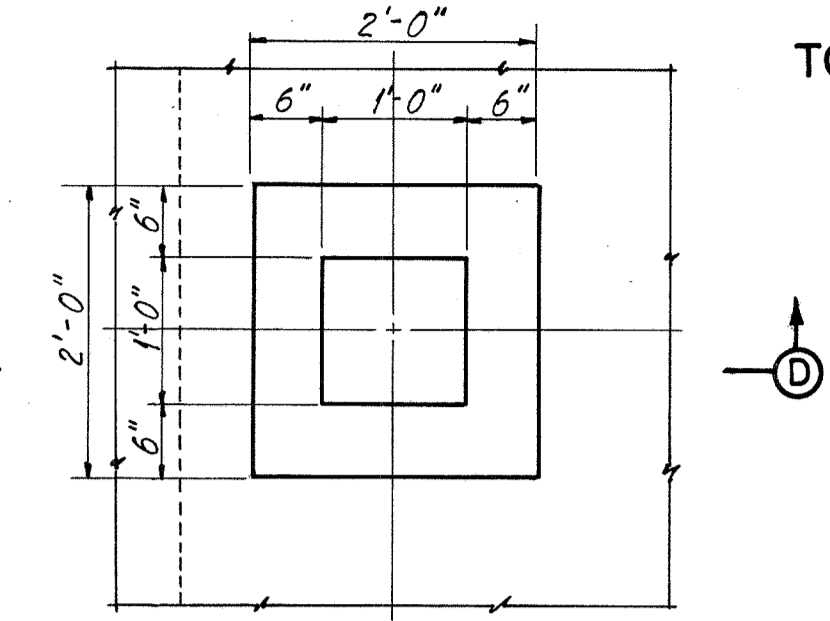
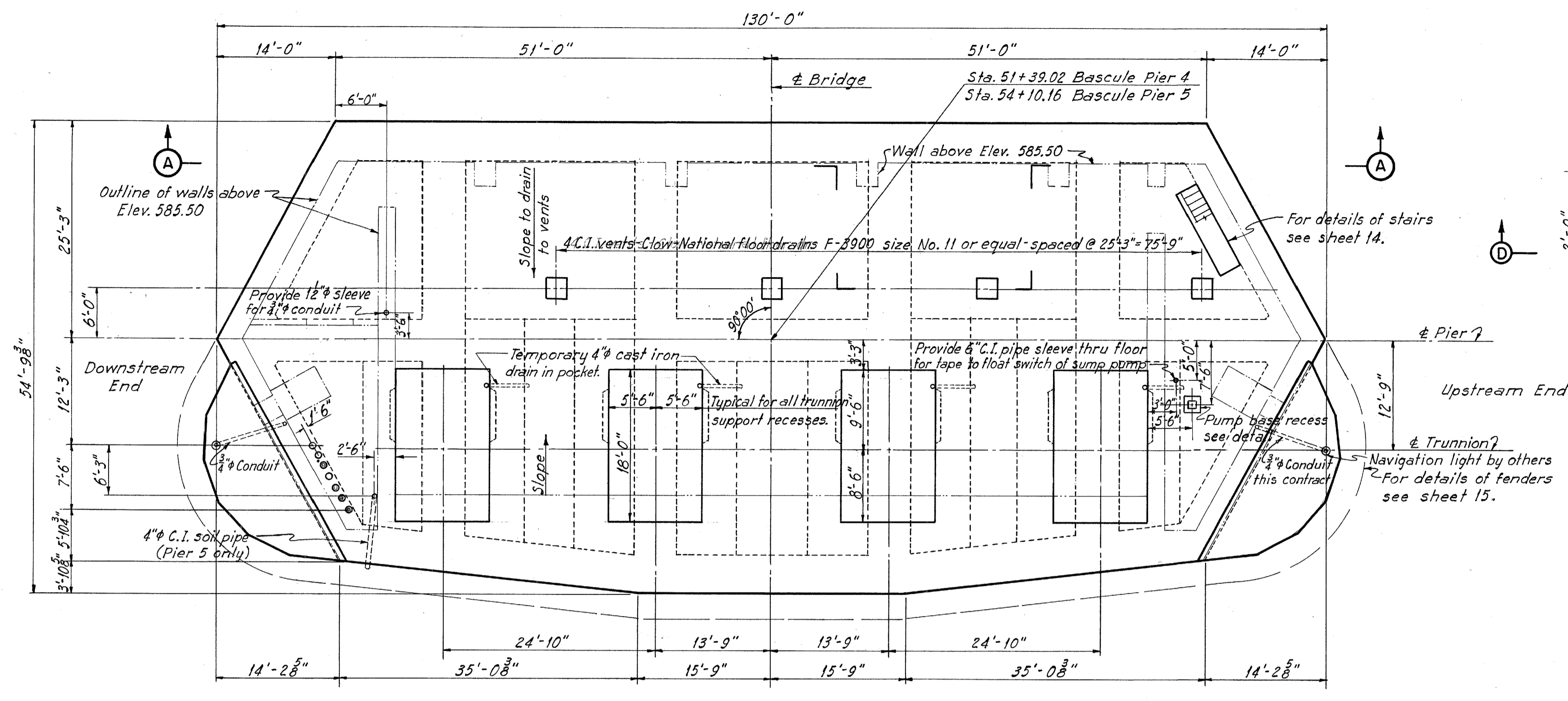
810 SHEET 109

512

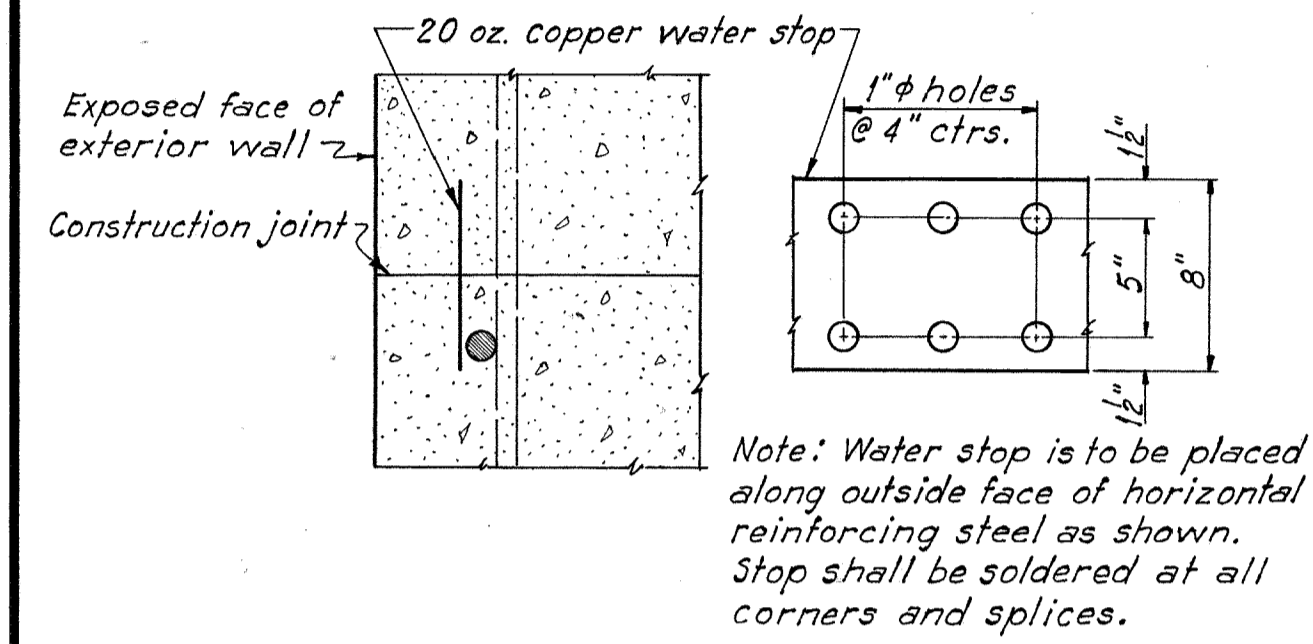
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	UH052 (2)	POST WAR

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

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JUL 25 1988



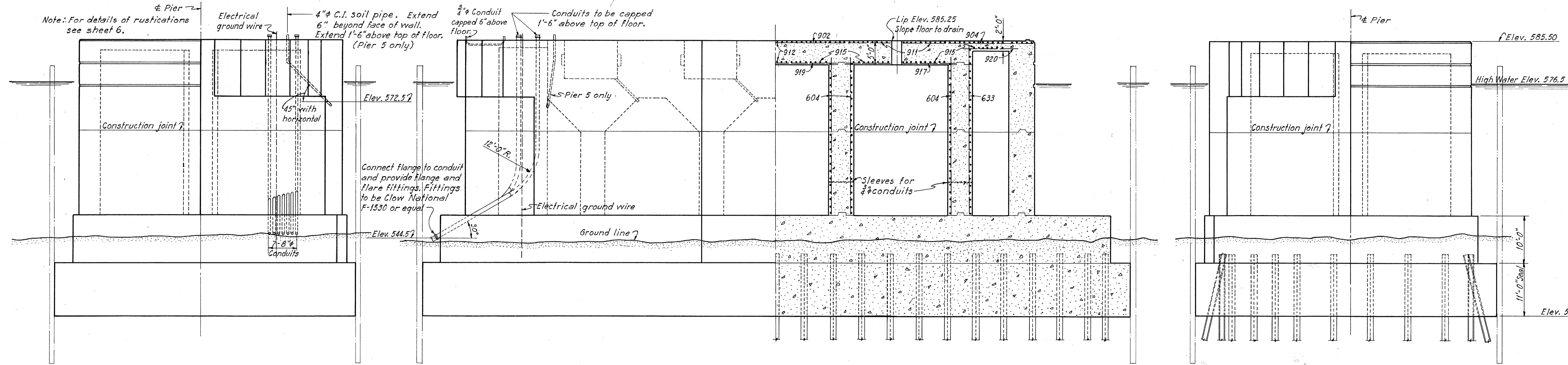
Note: Provide 20 oz. copper water stop at all construction joints from Elev. 549.0 to Elev. 585.0 exterior walls only.



DETAIL OF WATER STOP
Scale: 1/2" = 1'-0"

PLAN AT ELEVATION 585.50
(Pier 4 shown. Pier 5 similar)
Scale: 1" = 10'

DETAIL OF RECESS FOR PUMP BASE
Scale: 3/4" = 1'-0"



ELEVATION - DOWNSTREAM END
Scale: 1" = 10'

HALF ELEVATION - CHANNEL SIDE
Scale: 1" = 10'

HALF SECTION A-A
Scale: 1" = 10'

ELEVATION - UPSTREAM END
Scale: 1" = 10'

Note:
Sumps are located in the upstream ends of Piers 4 and 5.
Submarine cable conduits are located in the downstream ends of Piers 4 and 5.
Cast iron soil pipe is located in the downstream end of Pier 5.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

BASCULE PIERS 4 AND 5

TOLEDO, LUCAS COUNTY, OHIO

SCALE: 1" = 10'; 3/4" = 1'-0"

MADE E.B.B. DATE 7-27-51
TRCD E.B.B. DATE 9-21-51
CKD V.R.B. DATE 9-27-51

HOWARD, NEEDLES, TAMMEN & BERGEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

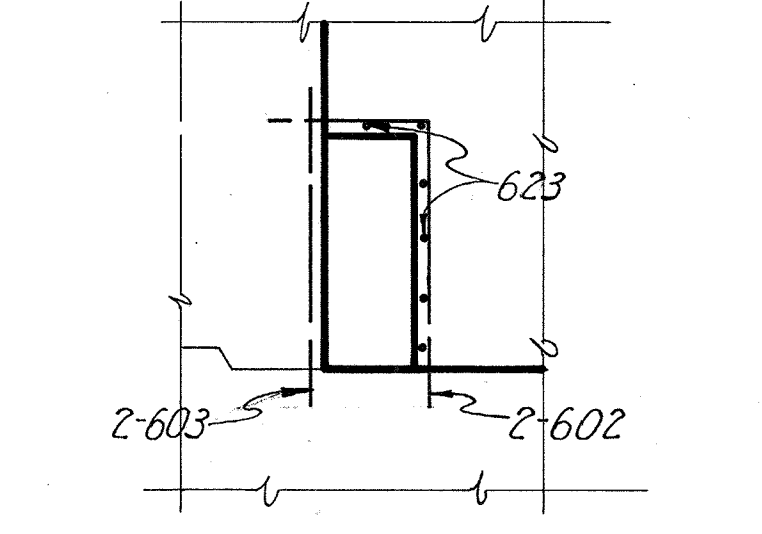
810 SHEET 1.10

506

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	UH052 (2)	POST WAR

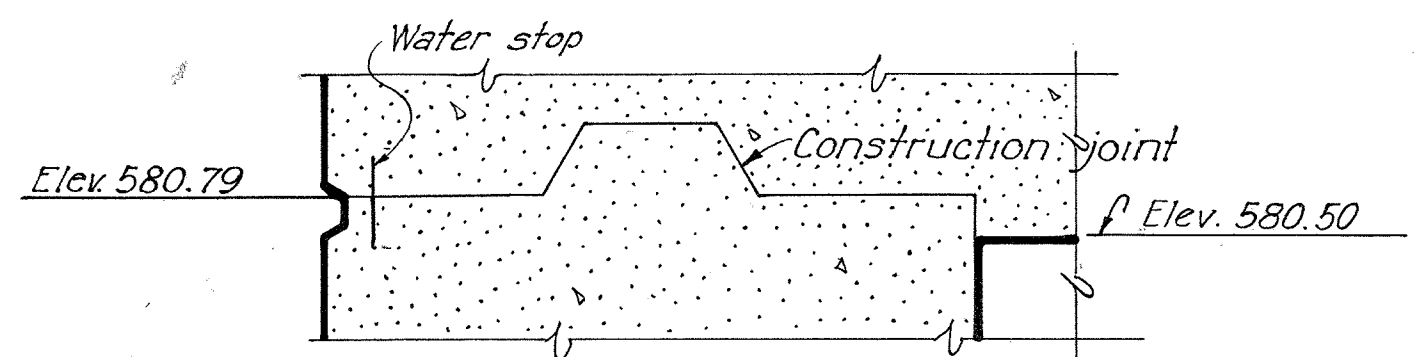
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

MICROFILMED
JUL 25 1983

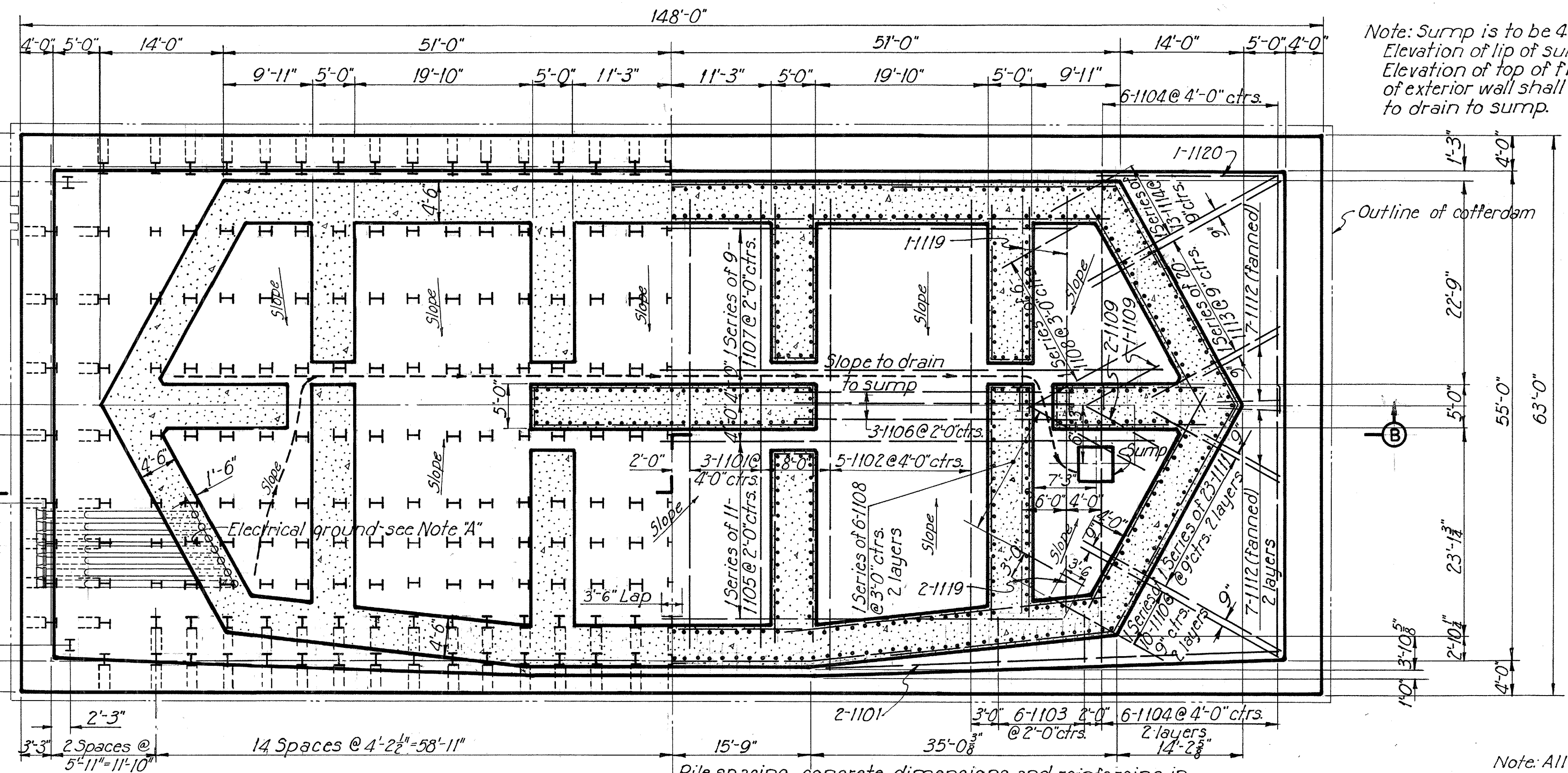


TYPICAL REINFORCEMENT AT DOORS
Scale: 1/8"=1'-0"

Note "A" Provide No. 6 stranded copper wire to be used as electrical ground. Braze or bolt to steel bearing pile and carry up through wall to Elev. 586.0

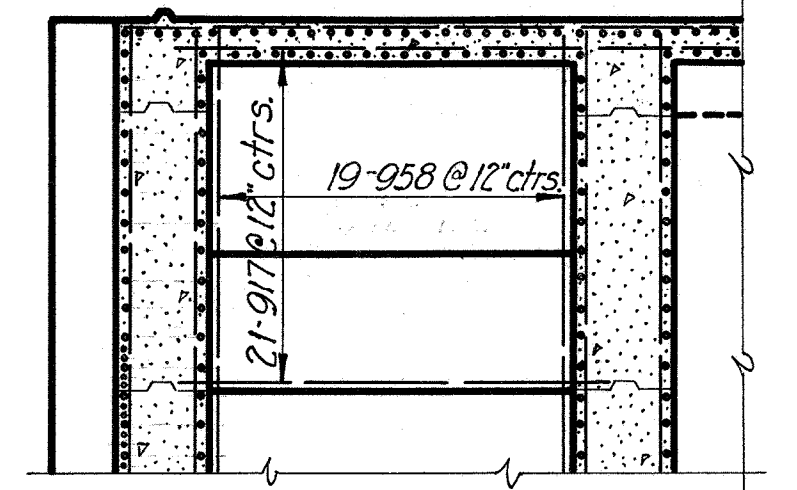


DETAIL "A"
Scale: 1/2"=1'-0"

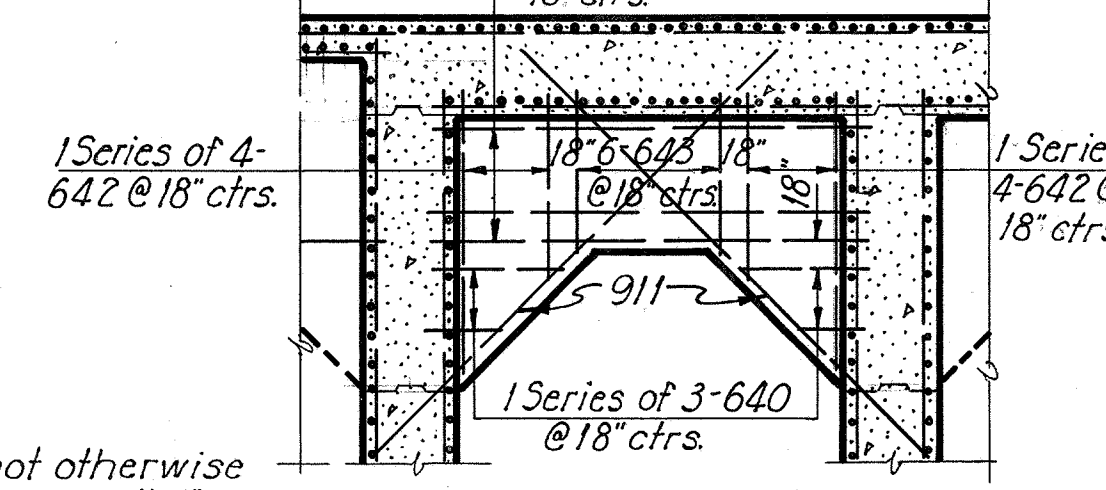


FOOTING PLAN
Scale: 1"=10'

Note: Sump is to be 4'-0" x 4'-0" x 4'-0".
Elevation of lip of sump shall be 548.8.
Elevation of top of floor at inside face of exterior wall shall be 549.0. Slope floor to drain to sump.

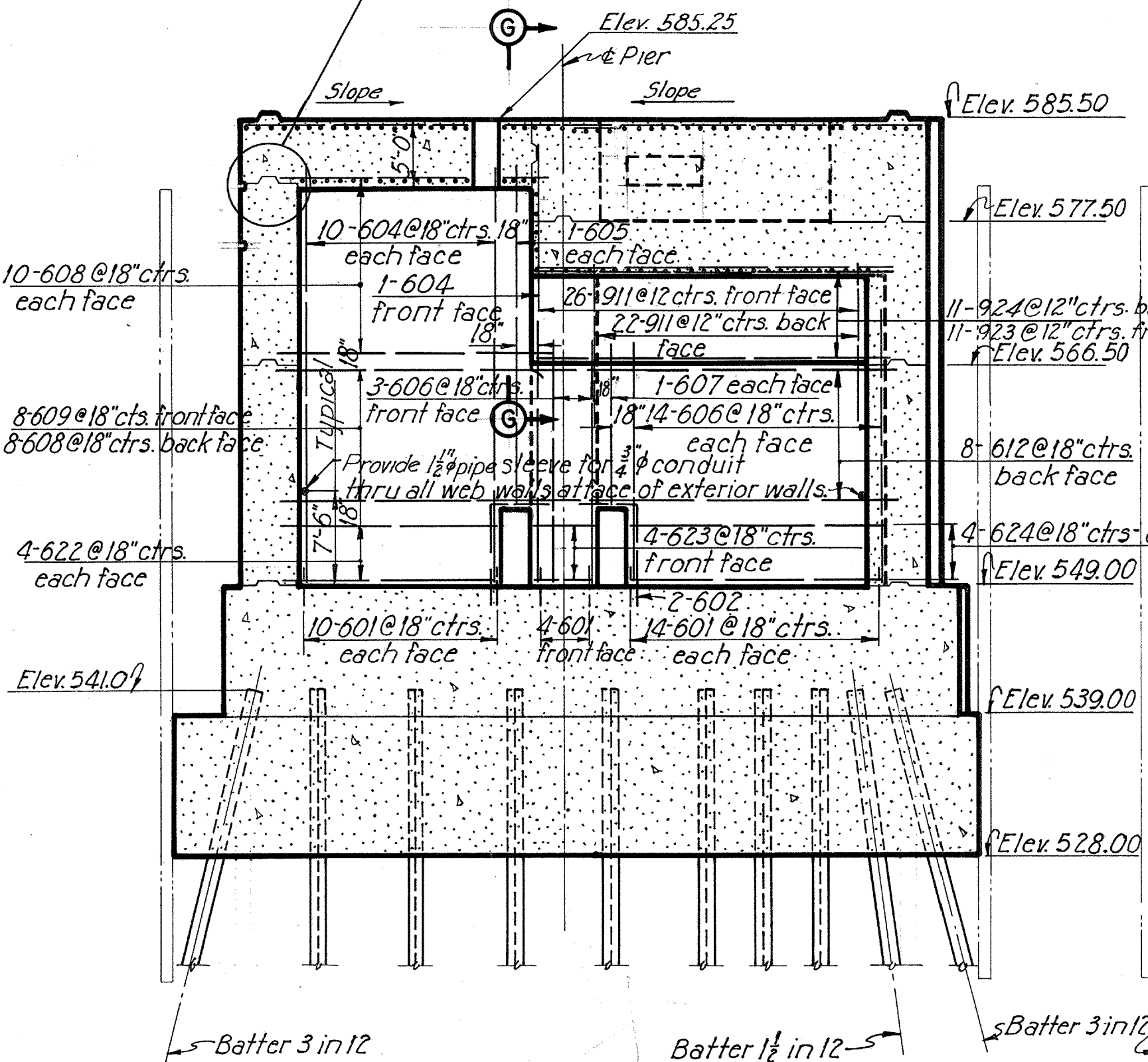


SECTION F-F
Scale: 1"=10'

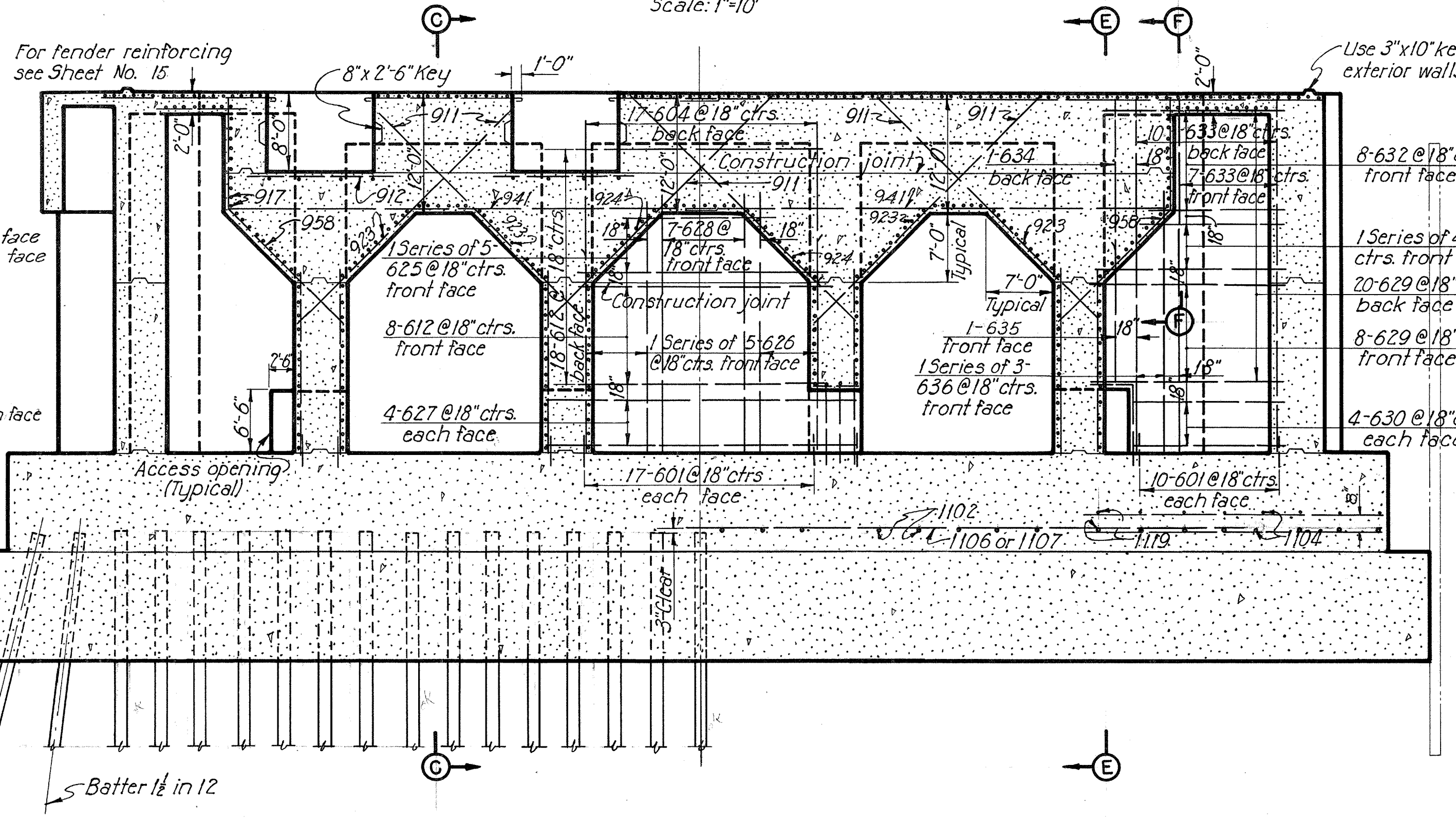


Note: All keys not otherwise shown are to be 6" x 1'-6".

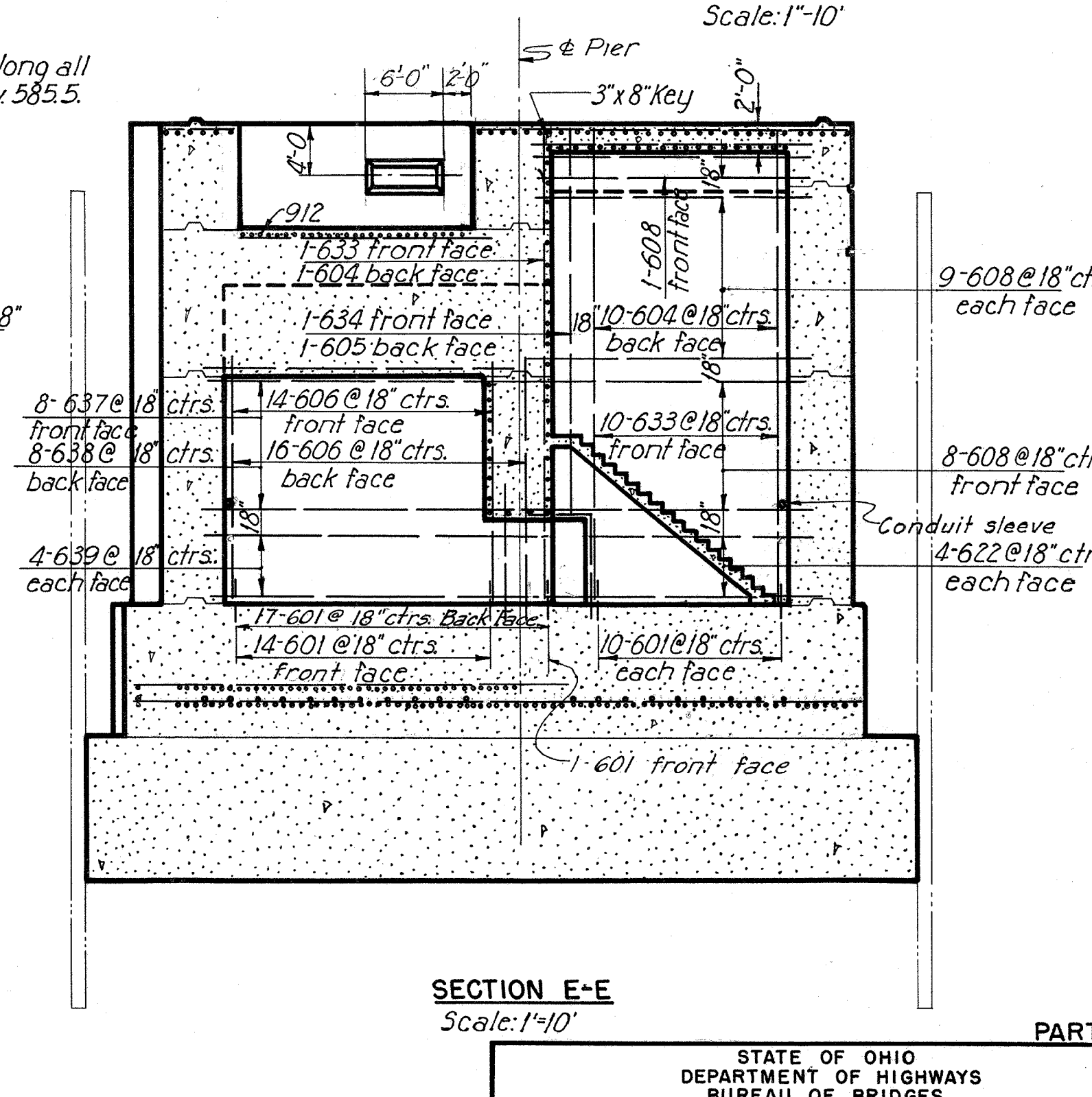
SECTION G-G
Scale: 1"=10'



SECTION C-C
Scale: 1"=10'



LONGITUDINAL SECTION B-B
Scale: 1"=10'



SECTION E-E
Scale: 1"=10'

PILE NOTES:
330-14 BP 117
Spacing of piles shown is at bottom of seal. Elev. 528.0.
For detail of pile splice and tip reinforcement see Sheet No. 6.

Note: Bascule Pier 4 shown. Pier 5 similar

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

BASCULE PIERS 4 AND 5

TOLEDO, LUCAS COUNTY, OHIO

SCALE: 1/8"=1'-0"; 1/2"=1'-10"

MADE J.R.B. DATE 7-28-51
TRCD L.L. DATE 9-24-51
CKD E.B.J. DATE 9-27-51

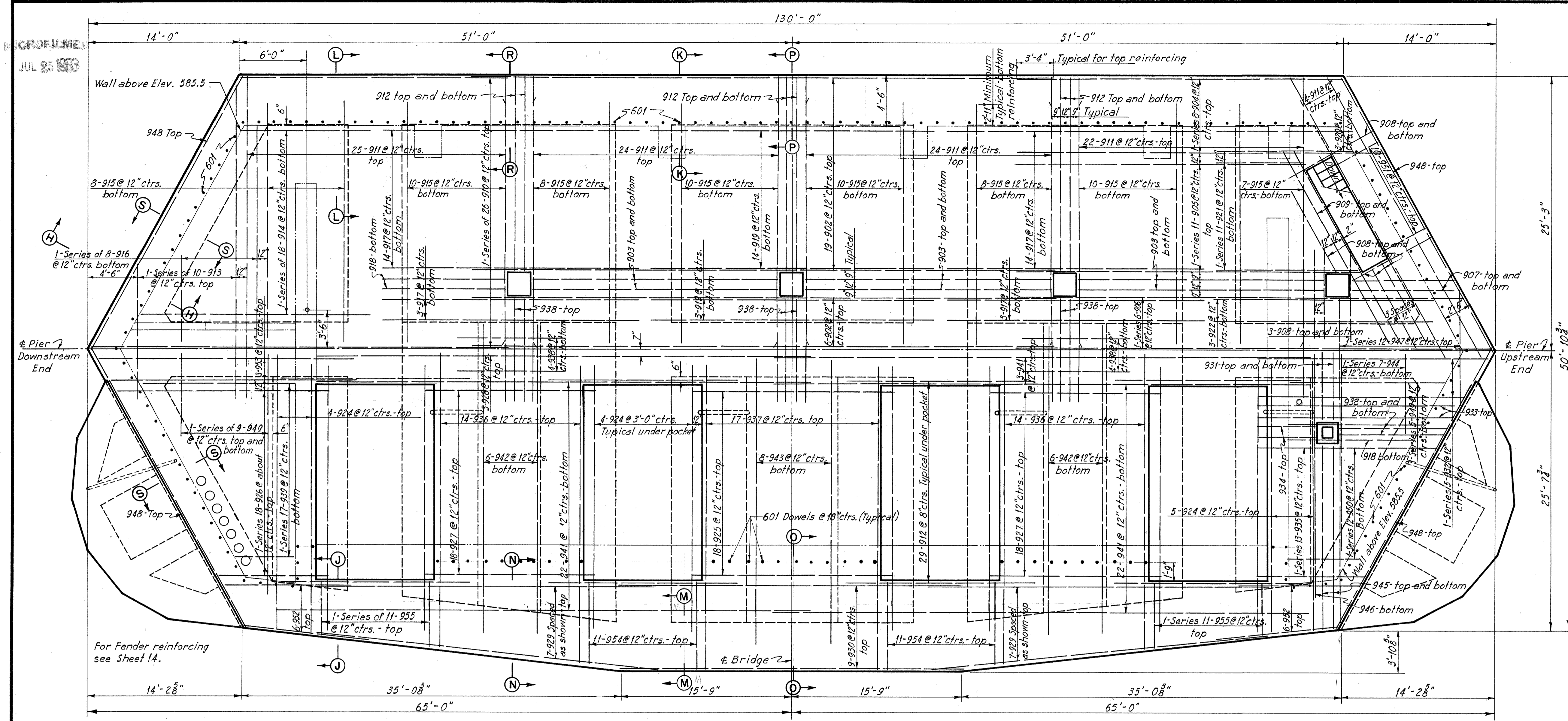
HOWARD, NEEDLES, TAMMEN & BERGENCO
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

810 SHEET-1.11

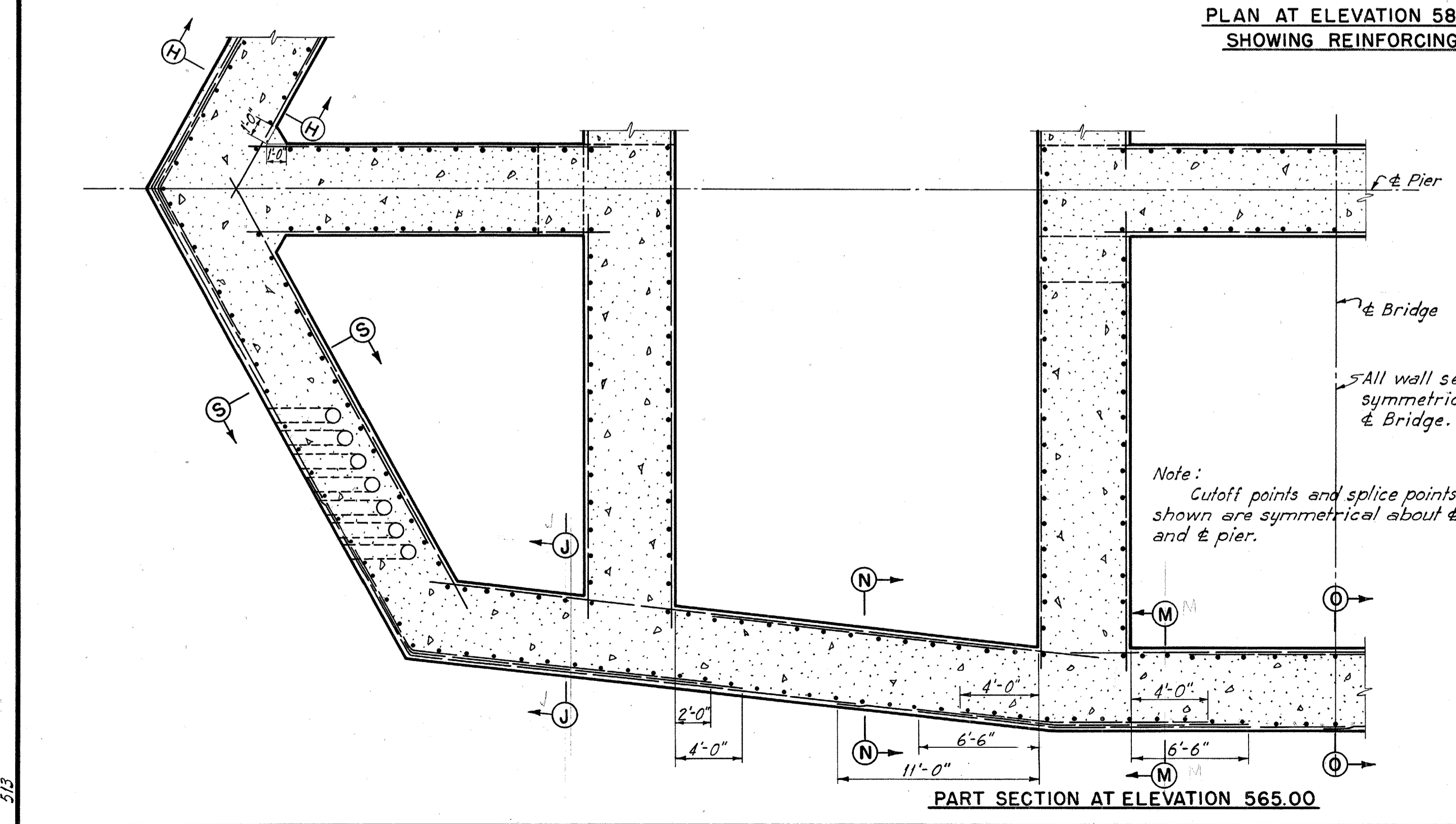
MICROFILME
JUL 25 1953

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	UL-1052(2)	POST WAR

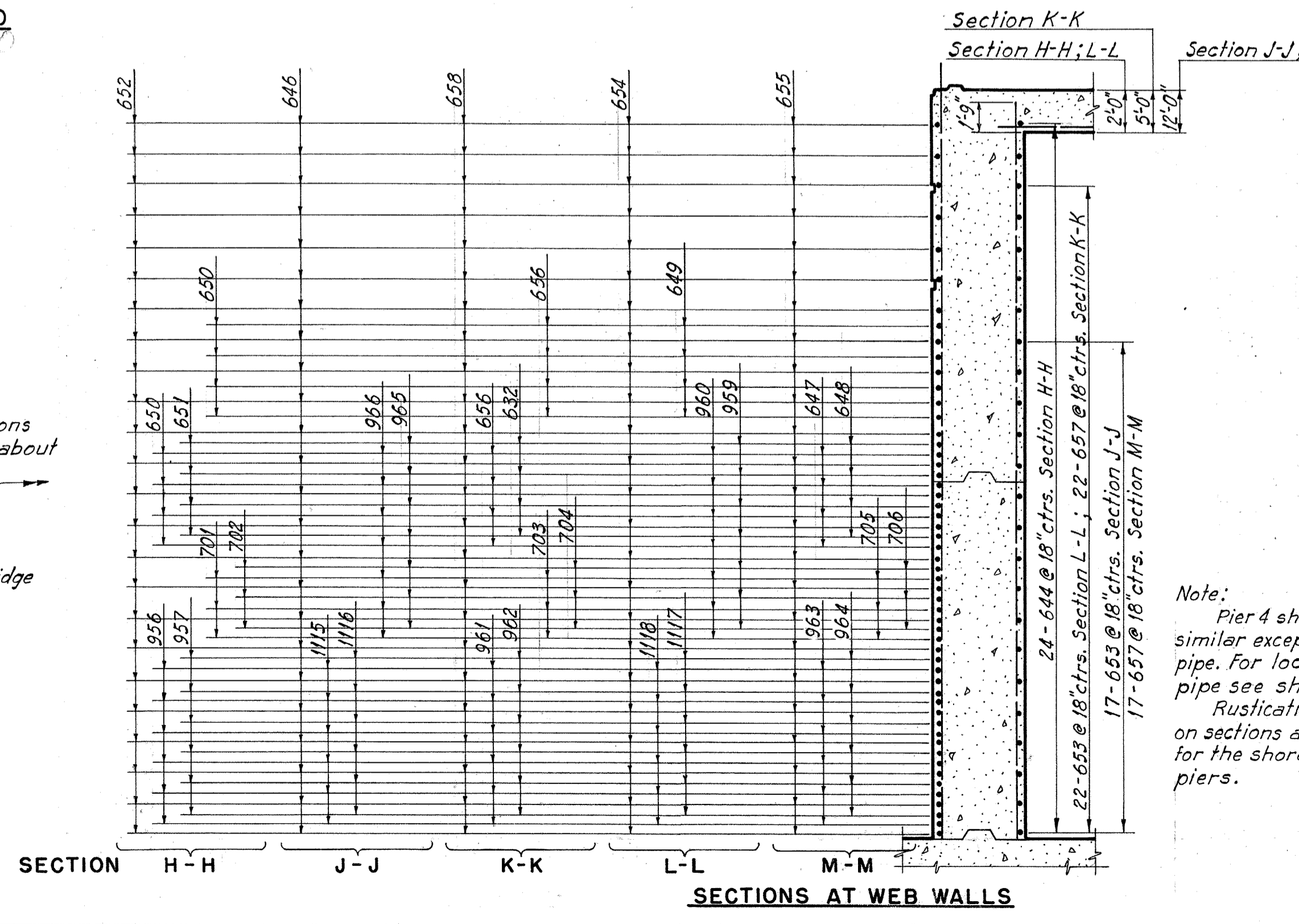
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46



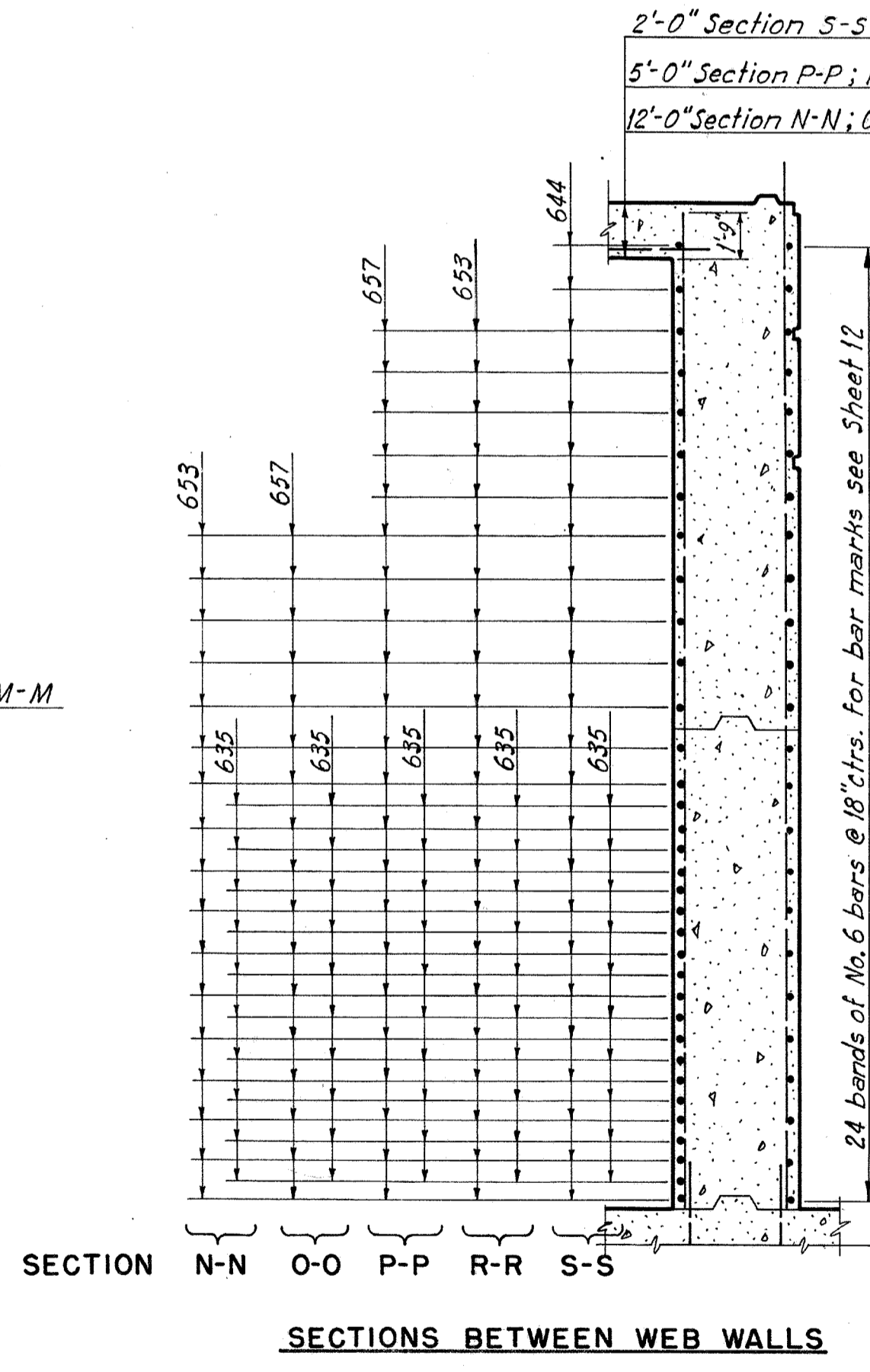
PLAN AT ELEVATION 585.50
SHOWING REINFORCING



PART SECTION AT ELEVATION 565.00



SECTIONS AT WEB WALLS



SECTIONS BETWEEN WEB WALLS

Note:
Pier 4 shown. Pier 5 similar except for C.I. soil pipe. For location of soil pipe see sheet 10.
Rustication lines shown on sections apply to sections for the shore side of the piers.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

BASCULE PIERS 4 AND 5

TOLEDO, LUCAS COUNTY, OHIO

SCALE: 1/4" = 1'-0"
MADE E.B.M. DATE 9-12-51
TRCD G.D. DATE 9-20-51
CKD J.R.B. DATE 9-27-51

HOWARD, NEEDLES, TAMMEN & BERGEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

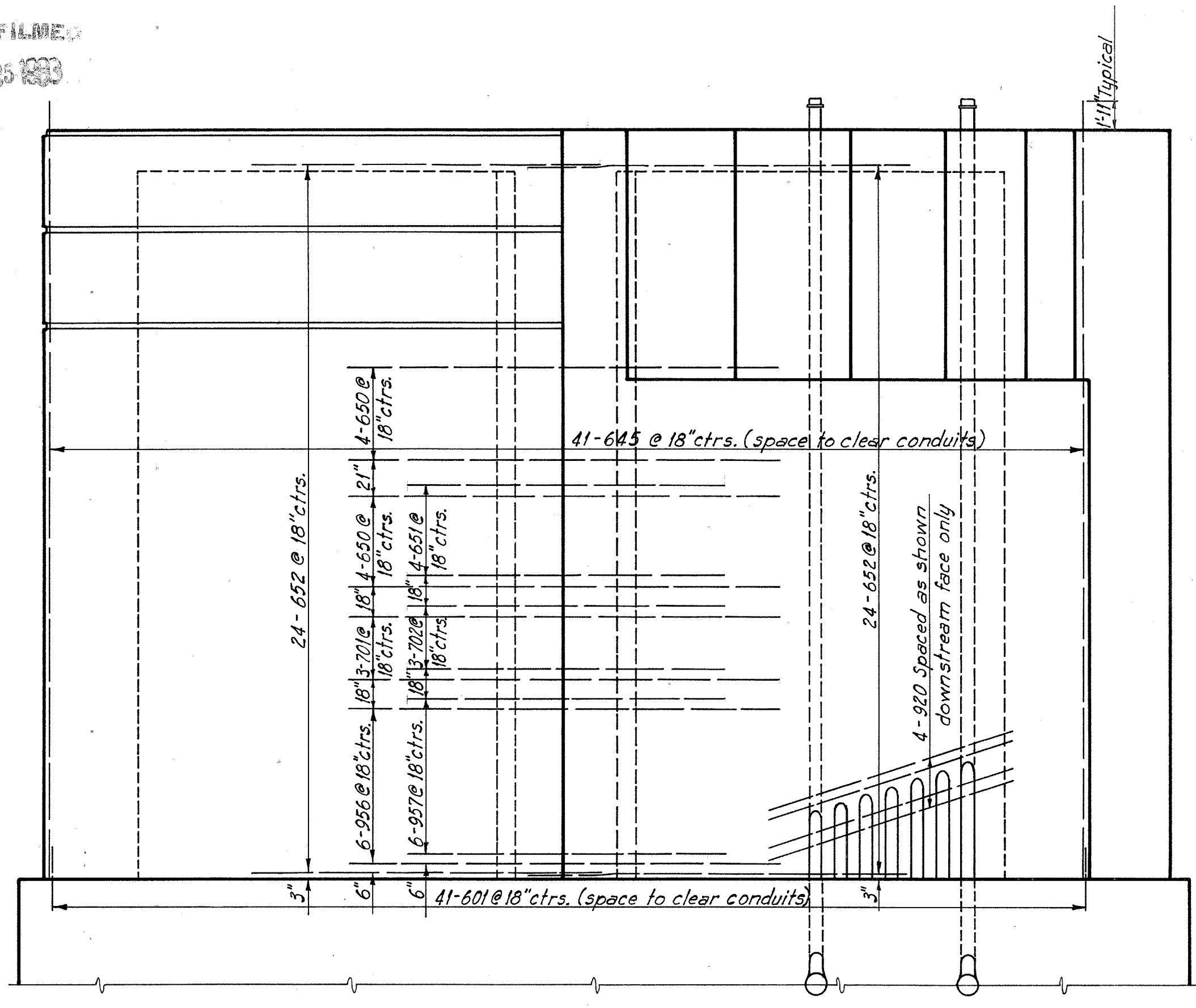
810 SHEET 1.12

MICROFILMED
JUL 25 1983

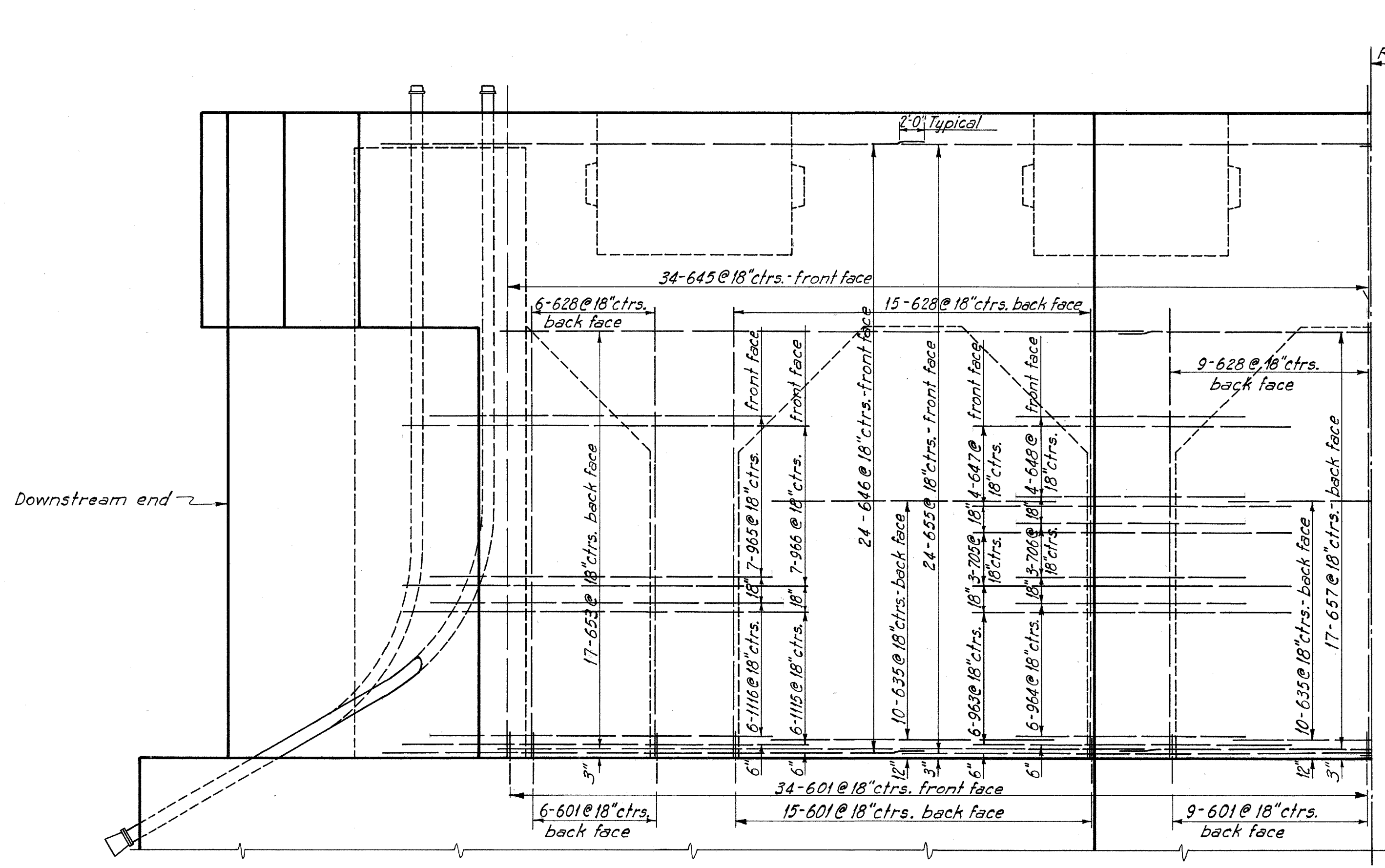
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	13
2	OHIO	UI-1052(2)	POST WAR	15

LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 3.46

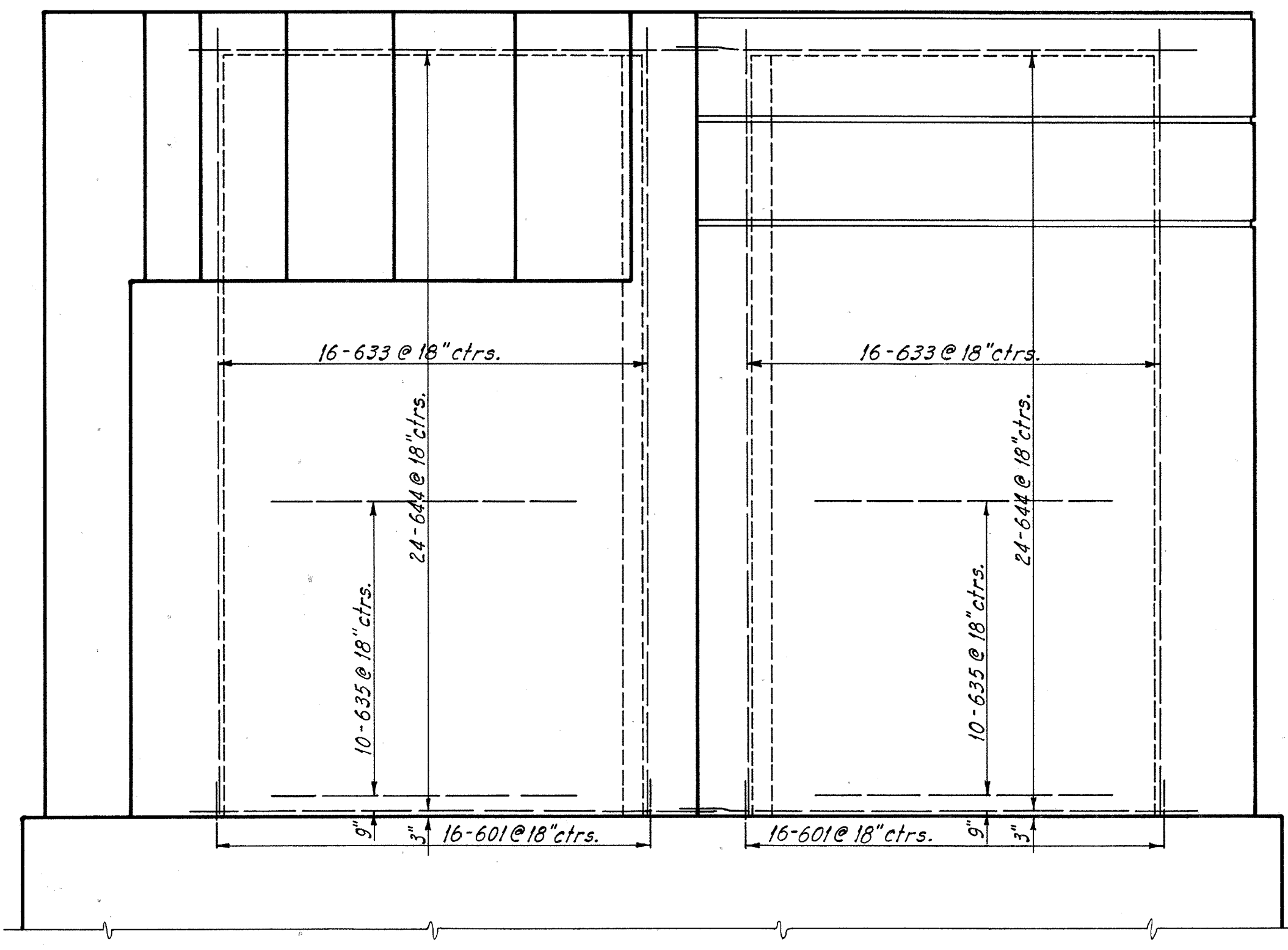
Reinforcing symmetrical about & bridge



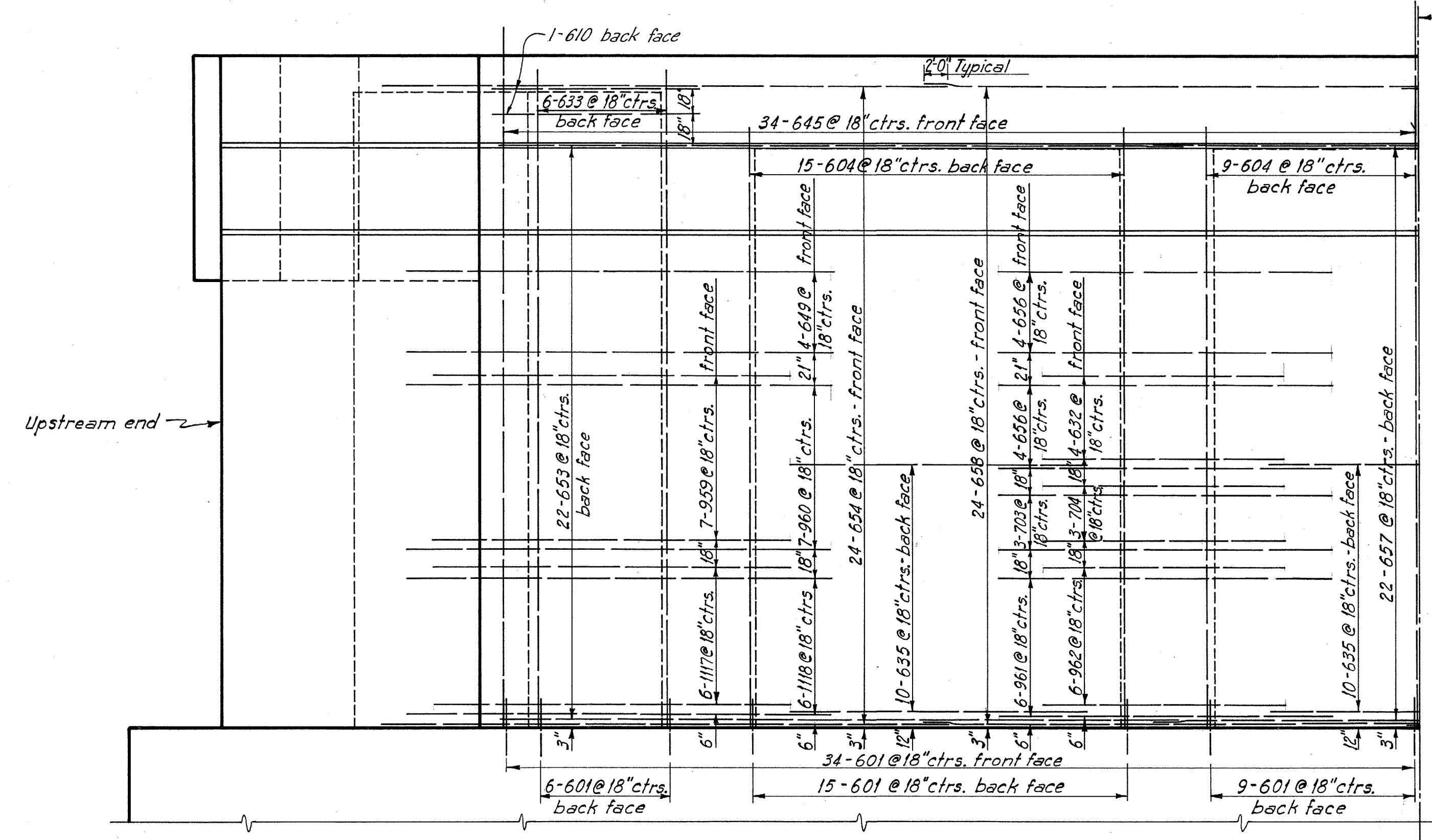
ELEVATION - DOWNSTREAM END
Showing typical reinforcing in front face of exterior walls.



HALF ELEVATION - CHANNEL SIDE



ELEVATION - UPSTREAM END
Showing typical reinforcing in back face of exterior walls.



HALF ELEVATION - SHORE SIDE

Reinforcing symmetrical about & bridge

Note:
For sections through walls see Sheet 12.
Pier 4 shown. Pier 5 similar except for cast iron pipe. For location of pipe see Sheet 10.

PART

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 35

BASCULE PIERS 4 AND 5

TOLEDO, LUCAS COUNTY, OHIO

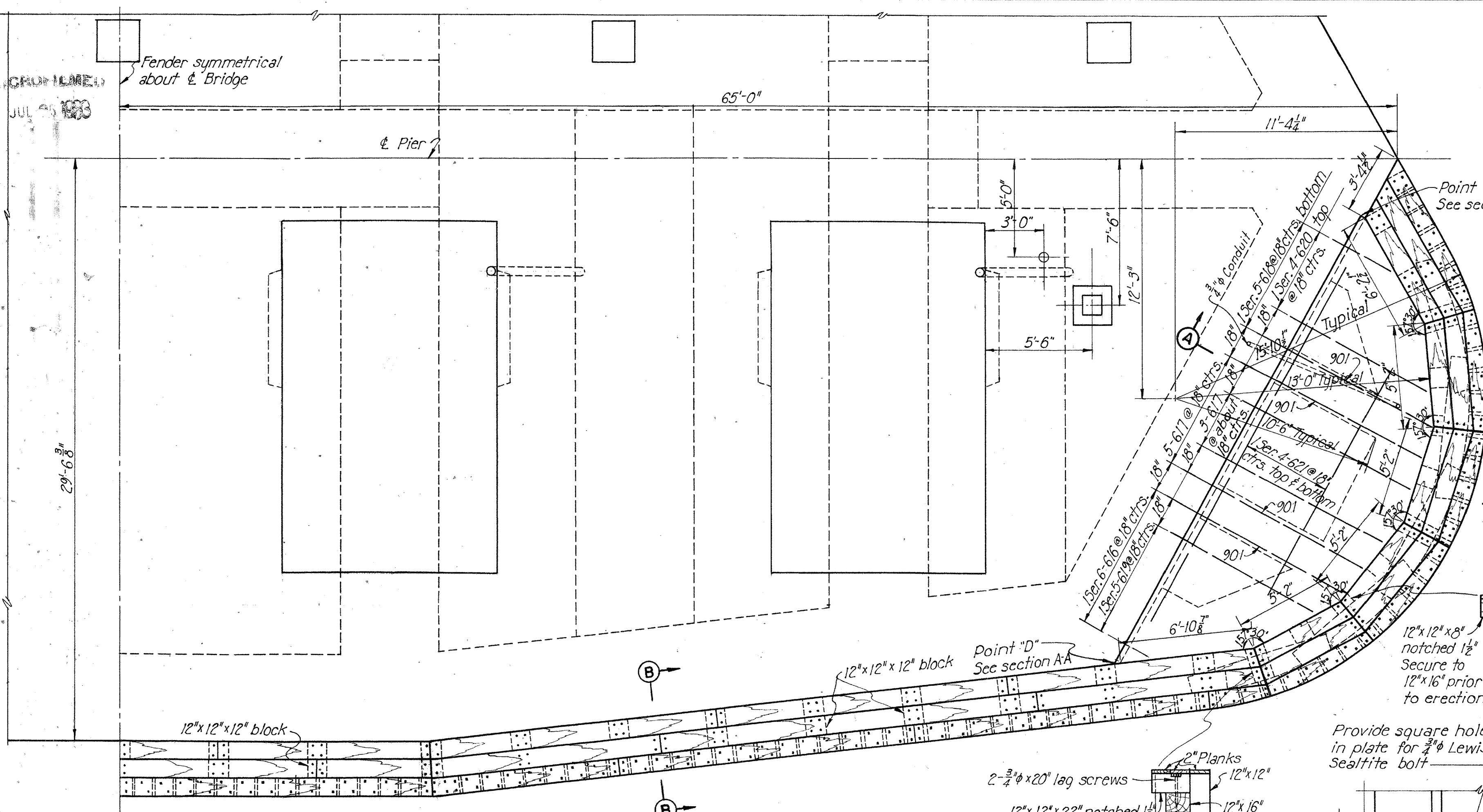
SCALE: 1/8" = 1'-0"
MADE E.B.J. DATE 9-21-51
TRCD G.D. DATE 9-24-51
CKD J.R.B. DATE 9-24-51

HOWARD, NEEDLES, TAMMEN & BERGENSON
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
810 SHEET 1.13

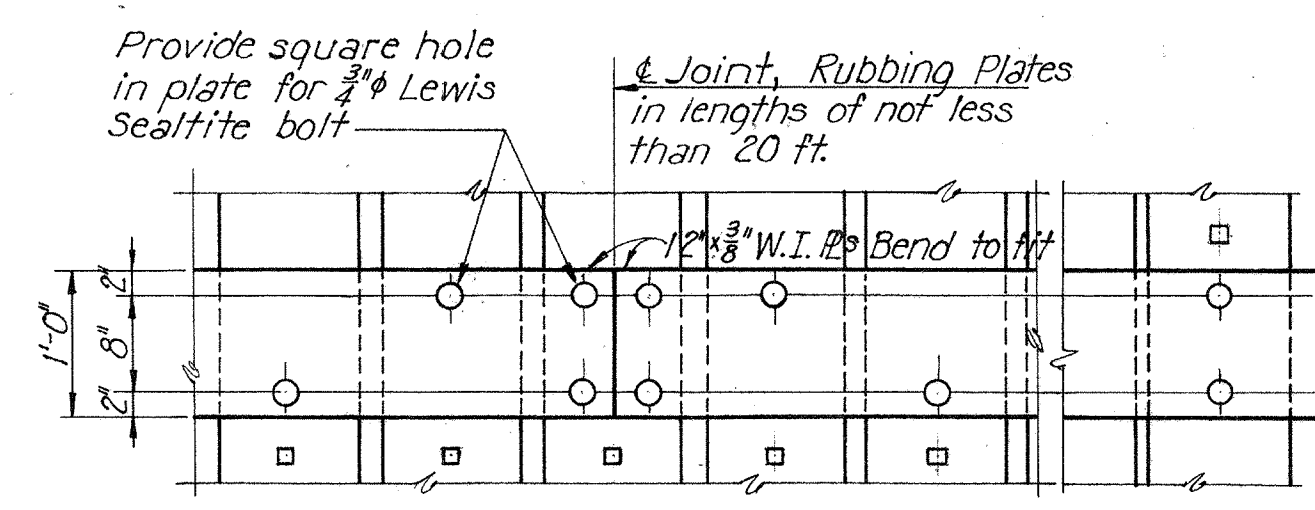
514

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	15
2	OHIO	UH-1052 (2)	POST WAR	15

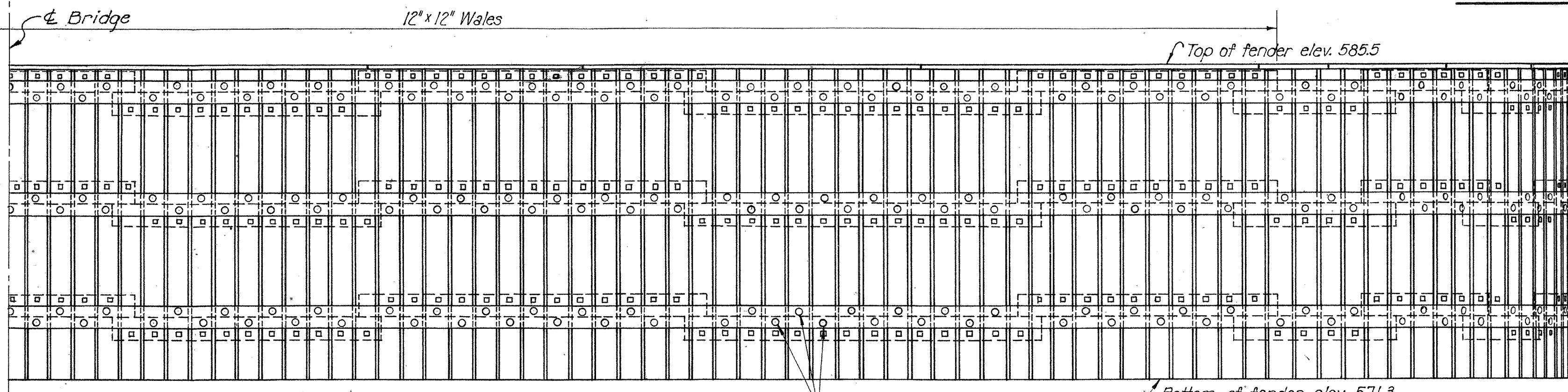
LUCAS COUNTY
CITY OF TOLEDO
TOLEDO EXPRESSWAY SYSTEM
MAUMEE RIVER BRIDGE
LUC 120 - 346



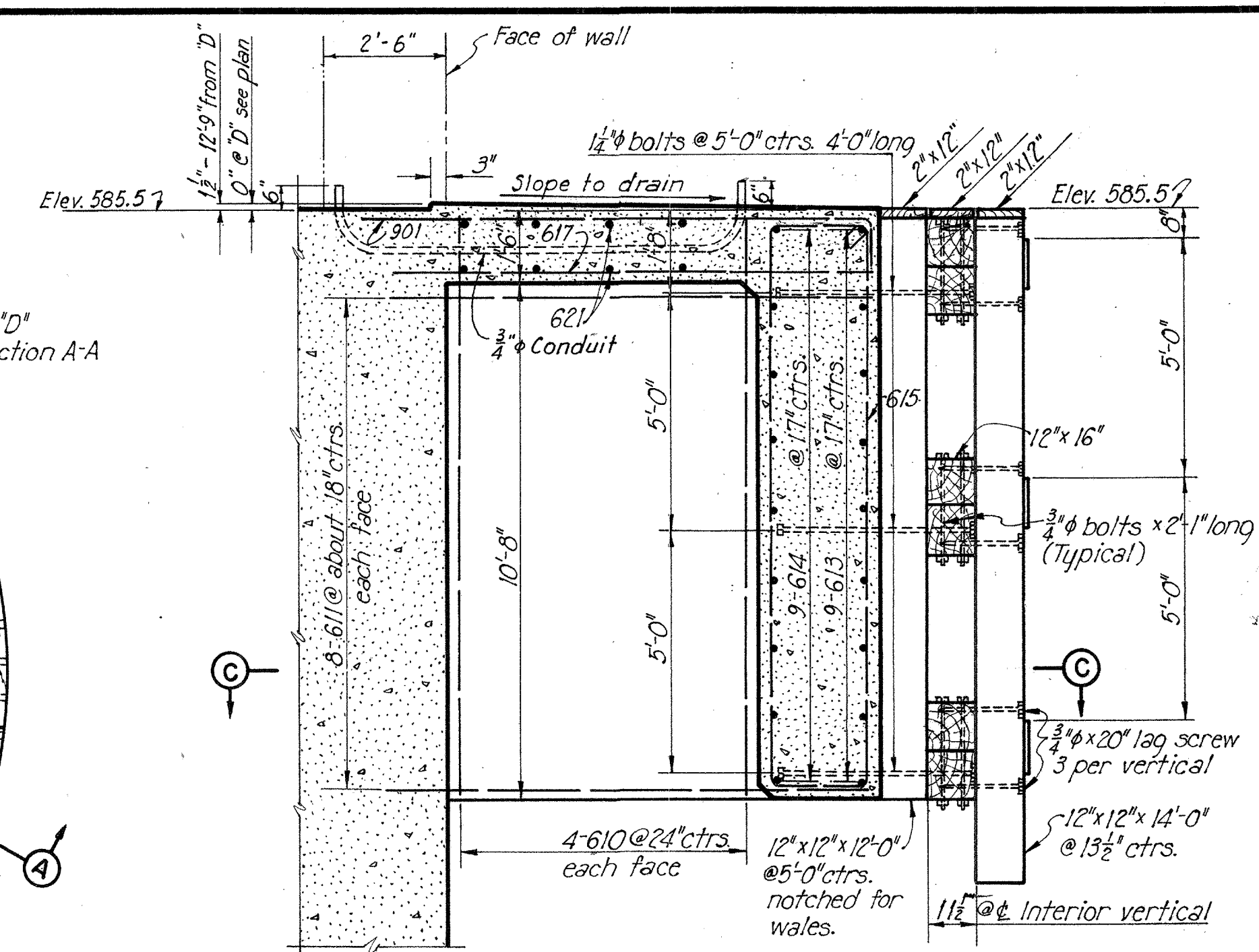
HALF PLAN OF FENDER
Scale: 1/4" = 1'-0"



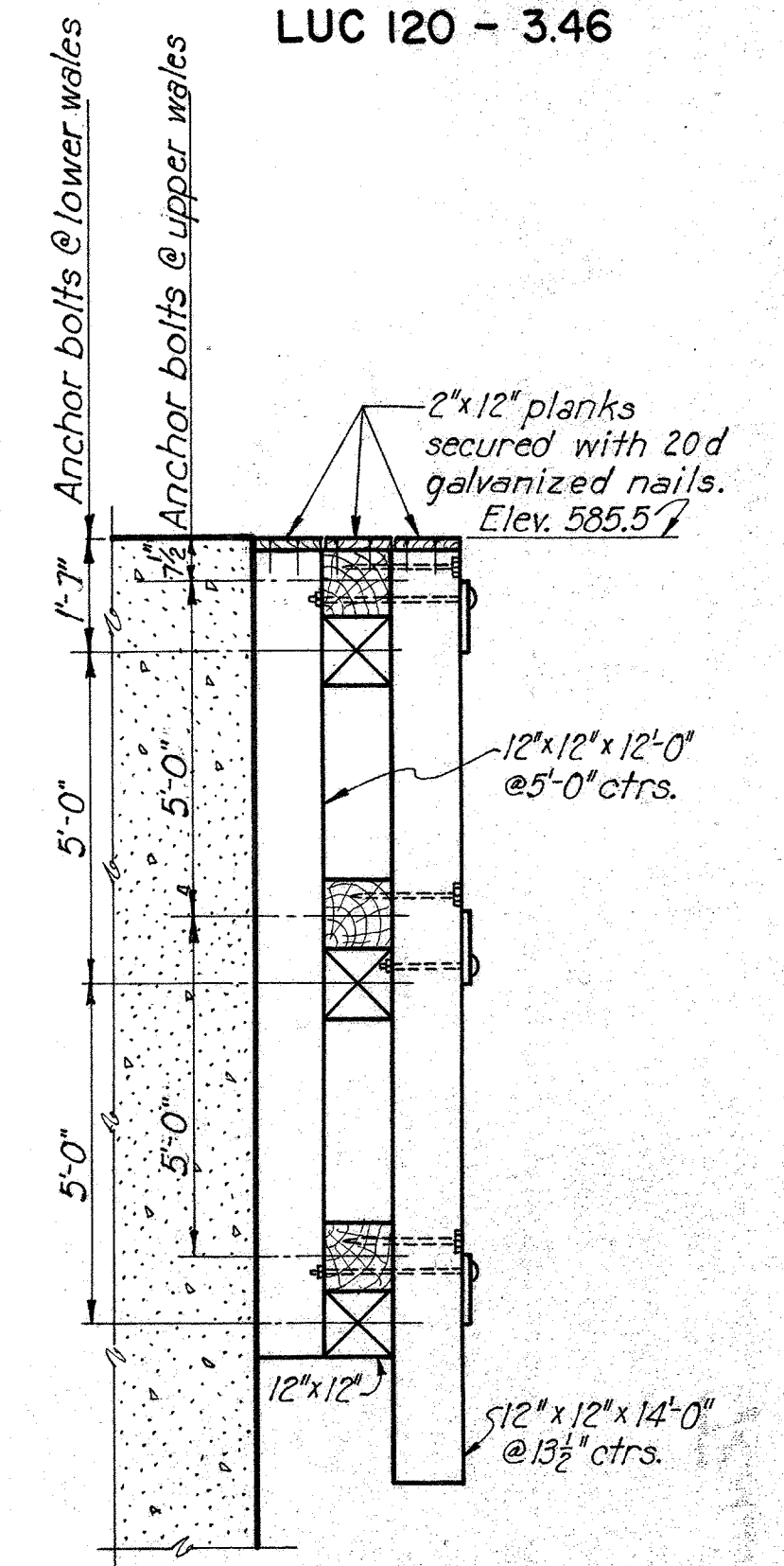
TYPICAL FENDER PLATE DETAILS
Scale: 3/8" = 1'-0"



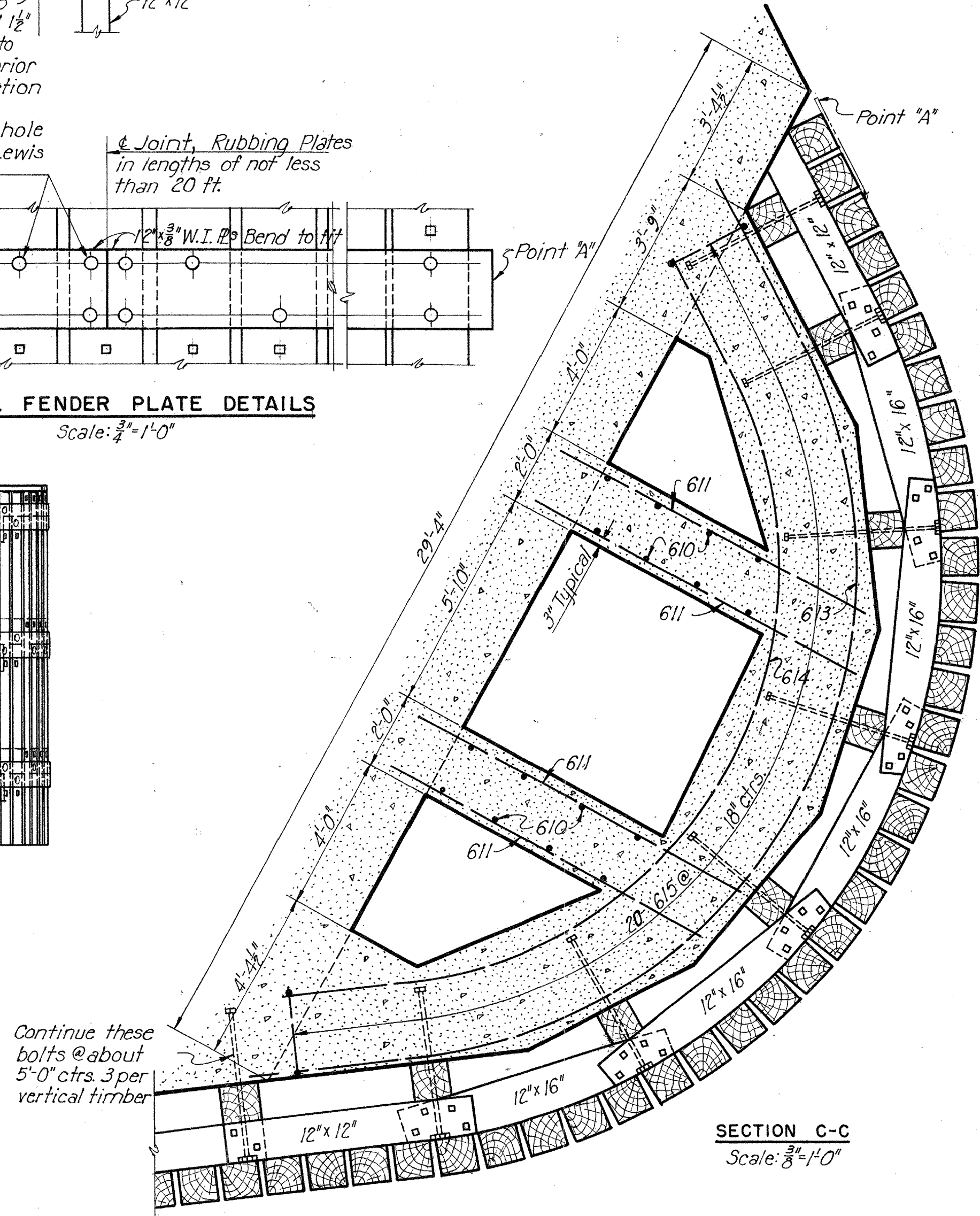
HALF ELEVATION
Scale: 1/4" = 1'-0"



SECTION A-A
Scale: 3/8" = 1'-0"



SECTION B-B
Scale: 3/8" = 1'-0"



SECTION C-C
Scale: 3/8" = 1'-0"

1/2" x 4'-0" Anchor bolts to be set 2'-1" into pier before concrete is placed.
All timber to be creosoted.
For notes on fenders see sheet 3.
For reinforcement schedule see Sheet 14.
All fender hardware to be galvanized.
Fenders as shown shall be provided on Piers 4 and 5.

PART I

STATE OF OHIO
DEPARTMENT OF HIGHWAY
BUREAU OF BRIDGES

TOLEDO EXPRESSWAY SYSTEM
(FRONT STREET TO SUMMIT STREET)
MAUMEE RIVER BRIDGE
BR. NO. LU-120 - 346

FENDERS

TOLEDO, LUCAS COUNTY

SCALE: 1/4" = 1'-0"
MADE HAM DATE 8-30-51
TRCD P.L.B. DATE 2-4-51
CKD J.R.B. DATE 9-27-51

HOWARD, NEEDLES, TAMM & BERG
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

810 SHEET 1