

049-00467

STATE OF ILLINOIS
 DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
 DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
 FEDERAL AID HIGHWAY**

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 SECTION 12F-1

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2	GENERAL BRIDGE PLAN & SUMMARY OF QUANTITIES
3	BORINGS & NOTES
4	DECK REINFORCEMENT PLAN N. BRIDGE
5	DECK REINFORCEMENT PLAN S. BRIDGE
6	STRUCTURAL STEEL PLAN & DETAILS
7	HANDRAIL DETAILS

SCALES

F. A. ROUTE 21 SECTION 12-B-1 & 12-F-1
 PROJECT F-43 (II)
 LAKE COUNTY

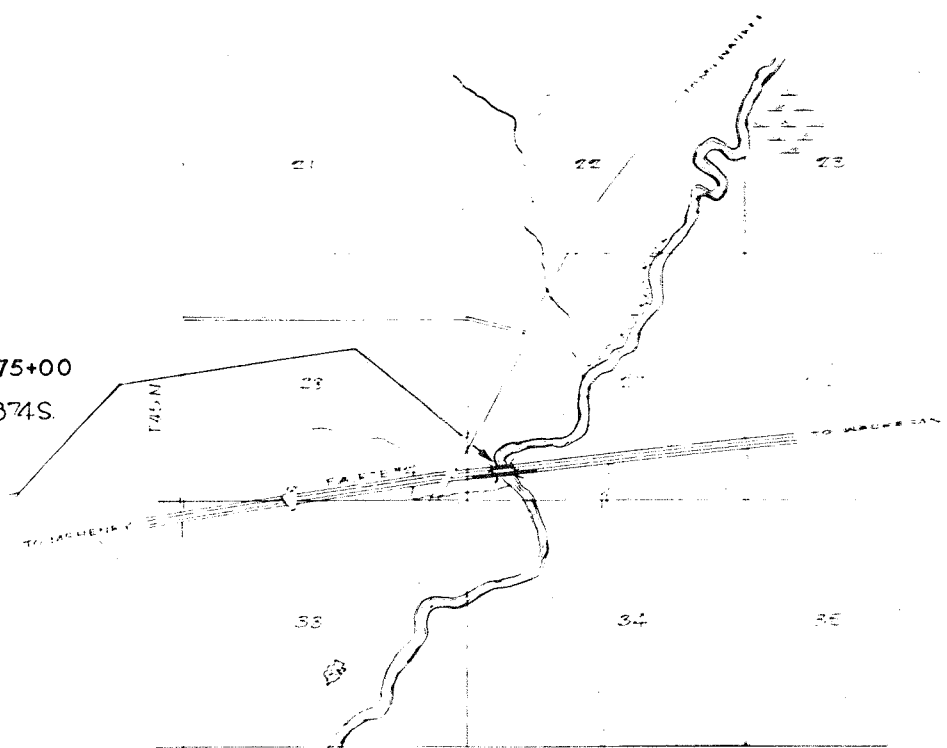
INDEX OF SHEETS
 SECTION 12B-1

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SHEET NO 5	DECK REINFORCEMENT PLAN-S. BRIDGE
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SHEET NO 17 TO 20	CROSS SECTIONS STA. 360+00 TO 375+00
SHEET NO 21	STD. 1666R. & STD. 1908R
SHEET NO 22	STD. 258R. STD. 2115 STD. 2368R & STD. 1874S
SHEET NO 23	STD. 1766R. & STD. 1687S
SHEET NO 24	STD. 1071S. STD. 1072R & STD. 2113
SHEET NO 25	STD. 2114

SECTION 12-B-1 INCLUDES THE CONSTRUCTION OF TWO PARALLEL I-BEAM BRIDGES, SPANS
 2 AT 83'-0" AND 1 AT 89'-0" AT STA. 360+00 OVER THE DEEP PLAINES RIVER AND
 CONSTRUCTION OF A 22'-0" PAVEMENT EASTBOUND LANE FROM STA. 362+00
 TO STA. 375+00 COMPLETE WITH A PERMANENT 14'-0" AND TEMPORARY PAVEMENT
 TO THE DEPT. IN SPREADS AND OTHER DETAILS STRUCTURAL STEEL
 AND METAL HANDRAIL AS SPECIFIED IN NOTE BELOW.

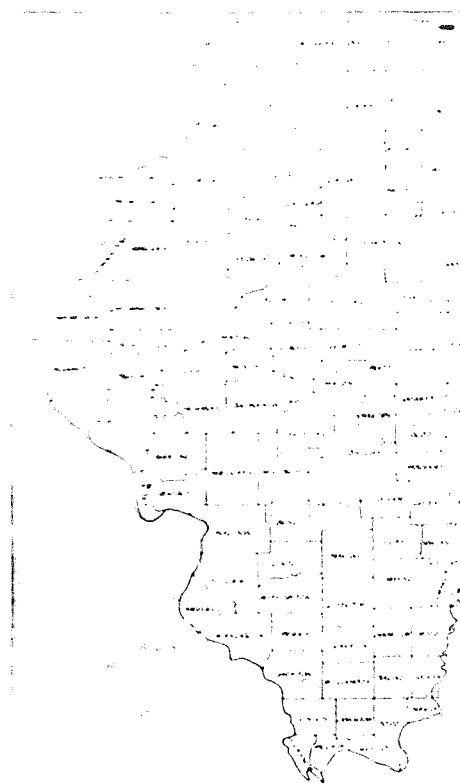
SECTION 12-F-1 INCLUDES FURNISHING AND ERECTING OF STRUCTURAL STEEL
 AND METAL HANDRAIL FOR THE EAST AND WEST APPROACH SLABS AND
 DECK OF THE STRUCTURAL STEEL AND METAL HANDRAIL AS SPECIFIED IN NOTE
 BELOW FOR TWO PARALLEL I-BEAM BRIDGES, SPANS 2 AT 83'-0" AND 1 AT 89'-0"
 AT STA. 360+00 OVER THE DEEP PLAINES RIVER.

NOTE: ALL STRUCTURAL STEEL AND METAL HANDRAIL SHALL BE DELIVERED FOR EACH CASE
 BY WAGON, TRUCK OR TRACTOR TO THE PROJECT SITE AT 10:00 A.M. ON THE DATE DELIVERY
 MAY BE MADE FOR ALL DATE BY TRUCK OR TRACTOR ARRANGEMENTS ARE MADE WITH
 THE CONTRACTOR FOR THE PROJECT.



GROSS LIMIT OF CONTRACT = 1000.00 FT = 0.189 MILE
 NET LIMIT OF CONTRACT = 1002.00 FT = 0.189 MILE

SCALE: 3" = 1 MILE

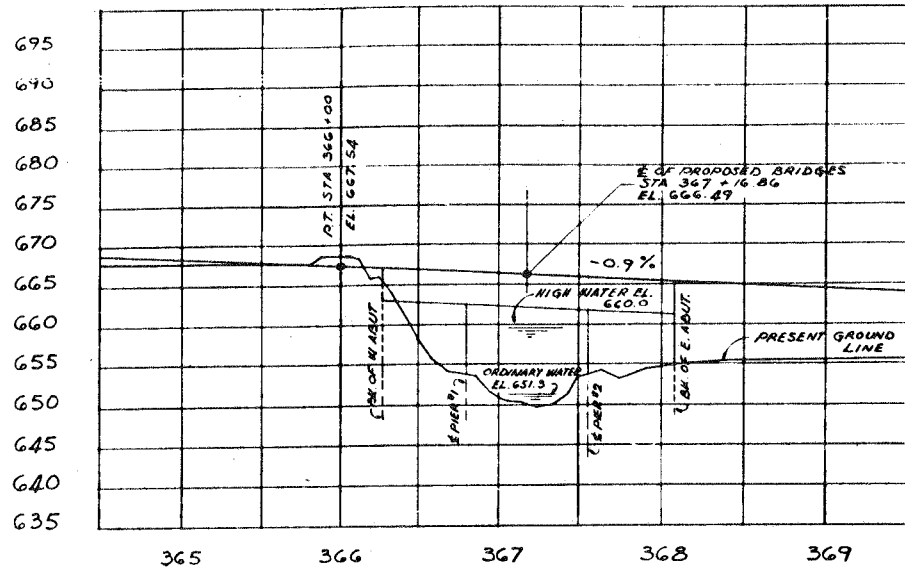


LOCATION OF SECTION INDICATED THUS: —

0.5 MILE
 January 10, 1937
 Approved
 January 10, 1937
 District Engineer

DEPARTMENT OF PUBLIC WORKS
 DIVISION OF HIGHWAYS
 APPROVED
 DISTRICT ENGINEER

049-004647



PROFILE OF E. OF F.A. ROUTE 21

SCALE 1" = 50'-0" HORIZONTALLY
1" = 10'-0" VERTICALLY

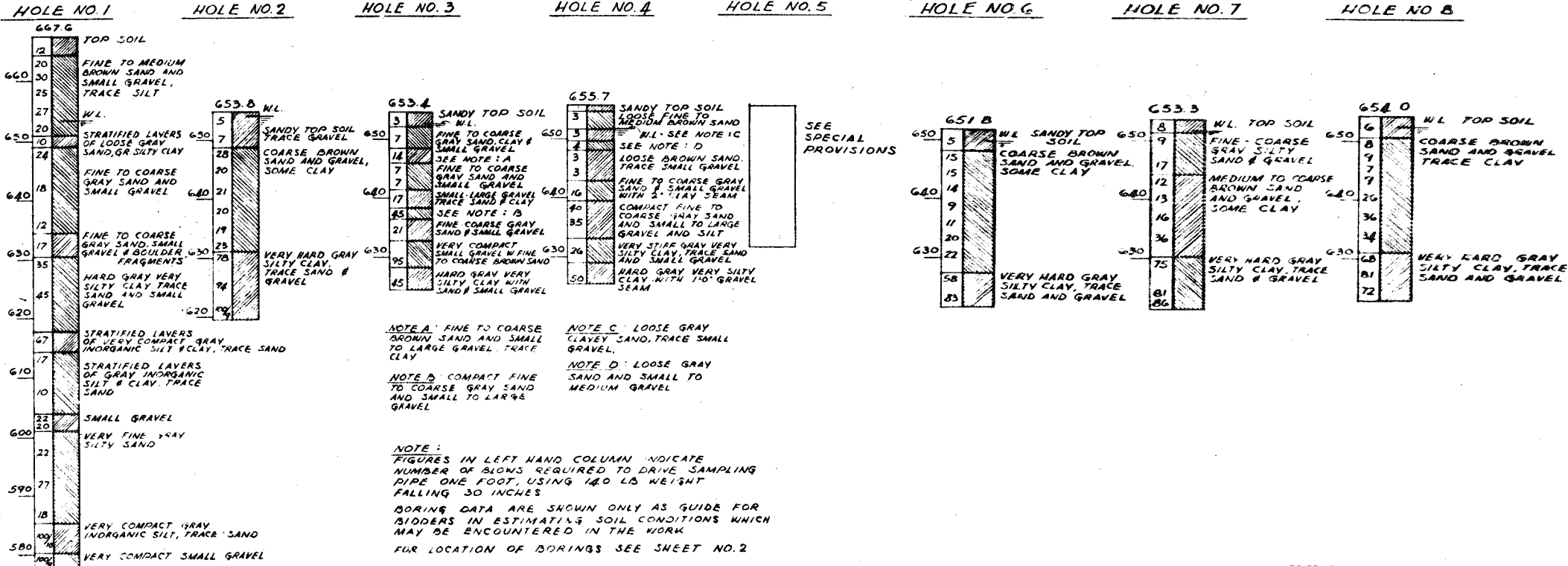
STATION 367+16.86
BUILT 195 BY
STATE OF ILLINOIS
F.A. RT. 21 SEC 12-B-1
F.A. PROJ. F-43(11)
LOADING H20-S16

SEE STATE OF ILLINOIS STD 2113

LETTERING FOR NAME PLATE

GENERAL NOTES

CLASS X CONCRETE SHALL BE USED THROUGHOUT EXCEPT AS NOTED. HANDMAIL CONCRETE SHALL BE USED IN THE TOP PORTIONS OF THE WINGWALL AS SHOWN. CONCRETE FLOOR SLABS SHALL BE PLACED IN ONE CONTINUOUS OPERATION BETWEEN CONSTRUCTION JOINTS SHOWN, AND SHALL BE FINISHED IN ACCORDANCE WITH ARTICLE 51.18 (G) OF THE STANDARD SPECIFICATIONS. ALL CONNECTIONS FOR STRUCTURAL STEEL SHALL BE RIVETED EXCEPT AS NOTED. ALL RIVETS SHALL BE 3/8" IN 1/2" Ø HOLES, EXCEPT IN BEAM FLANGE SPICES WHICH SHALL BE 7/8" IN 1 1/2" Ø HOLES. HOLES FOR BEAM SPICES SHALL BE PUNCHED 1/16" AND REAMED TO CORRECT SIZE WITH STRINGERS ASSEMBLED FULL LENGTH IN THE SHOP, IN PROPER POSITION, WITH OR WITHOUT DIAPHRAGMS IN PLACE. LEAVE ASSEMBLED FOR INSPECTION. ALL ROLLERS, ROLLERS, BEARING PLATES AND ANCHOR BOLTS SHALL BE FABRICATED AND SET IN ACCORDANCE WITH ARTICLE 51.18 OF THE STANDARD SPECIFICATIONS AND ARE INCLUDED FOR PAYMENT AS STRUCTURAL STEEL. ESTIMATED WEIGHT - 17,450 LBS FOR TWO BRIDGES. ANCHOR BOLTS SHALL BE SET BEFORE RIVETING DIAPHRAGMS OVER PIERS AND ABUTMENTS. STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF RED LEAD PAINT AND TWO FIELD COATS OF ALUMINUM PAINT. ALL PAINT SHALL BE FURNISHED AND APPLIED BY THE CONTRACTOR INVOLVED. SHOP INSPECTION OF STRUCTURAL STEEL BY THE ILLINOIS DIVISION OF HIGHWAYS BEFORE PAINTING. THE CONTRACTOR SHALL DRIVE ONE CONCRETE TEST PILE IN A PERMANENT LOCATION AT EACH ABUTMENT AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMINDER OF THE PILES. THE CONTRACTOR SHALL DRIVE ONE TIMBER TEST PILE AT EACH PIER AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES. THE REMOVAL AND DISPOSAL OF THE TEMPORARY RUN AROUND CONNECTION WILL BE PERFORMED UNDER ANOTHER CONTRACT.



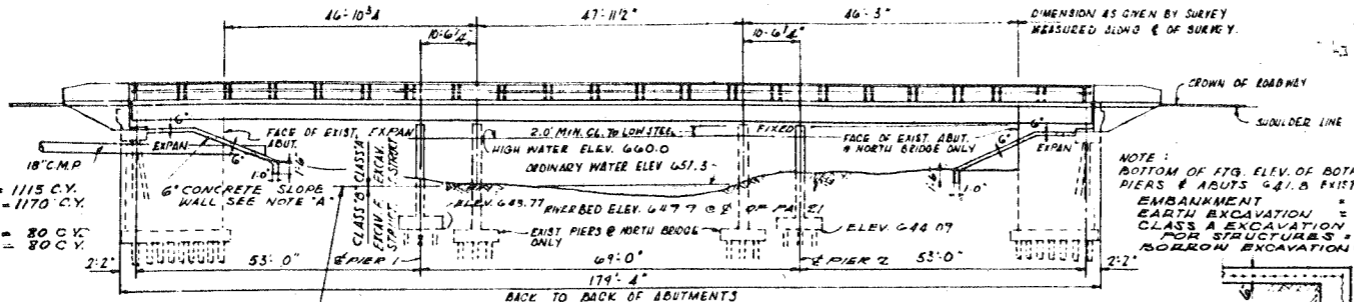
NOTE A: FINE TO COARSE BROWN SAND AND SMALL TO LARGE GRAVEL TRACE CLAY
NOTE B: COMPACT FINE TO COARSE GRAY SAND AND SMALL TO LARGE GRAVEL
NOTE C: LOOSE GRAY CLAYEY SAND, TRACE SMALL GRAVEL
NOTE D: LOOSE GRAY SAND AND SMALL TO MEDIUM GRAVEL

NOTE: FIGURES IN LEFT HAND COLUMN INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE SAMPLING PIPE ONE FOOT, USING 140 LB WEIGHT FALLING 30 INCHES. BORING DATA ARE SHOWN ONLY AS GUIDE FOR BIDDERS IN ESTIMATING SOIL CONDITIONS WHICH MAY BE ENCOUNTERED IN THE WORK. FOR LOCATION OF BORINGS SEE SHEET NO. 2

PROFILES, BORINGS & NAME PLATES
BRIDGE OVER DES PLAINES RIVER
F.A. ROUTE 21 SECTION 12-B-1 & 12-F-1
LAKE COUNTY
STATION 367+16.86

B.M. #37 SPIKE IN ROCK HOLE
40' LEFT FROM E. OF PRESENT
PAVEMENT STA. 359+61
ELEVATION 668.24
EXISTING STRUCTURE - 3 SIMPLE SPANS
26'7" - 28'2" AND 26'7"
REINFORCED CONCRETE DECK
GIRDER BRIDGE WITH 19" ROADWAY
REINFORCED CONCRETE CLOSED
ABUTTS AND SOLID PIERS.
TO BE REMOVED BY CONTRACTOR
SEE SPECIAL PROVISIONS.

EMBANKMENT = 1115 C.Y.
EARTH EXCAVATION = 1170 C.Y.
CLASS A EXCAVATION
FOR STRUCTURES = 30 C.Y.
BORROW EXCAVATION = 80 C.Y.



NOTE:
BOTTOM OF FTG. ELEV. OF BOTH
PIERS & ABUTS 441.8 FIRST BRIDGE
EMBANKMENT = 1060 C.Y.
EARTH EXCAVATION = 110 C.Y.
CLASS A EXCAVATION
FOR STRUCTURES = 40 C.Y.
BORROW EXCAVATION = 1108 C.Y.

NOTE: REINFORCED WITH
WELDED WIRE FABRIC
6" x 6" MESH NO. 4 WIRE
WEIGHING APPROX. 5.8
LBS. PER 100 SQ. FT.

NOTE:
OPENING REQUIRED FOR 35 YEAR FLOOD FREQUENCY - 8'70"
OPENING PROVIDED FOR 35 YEAR FLOOD FREQUENCY - 8'70"
CHARACTER OF LAND - ROLLING

SUMMARY OF QUANTITIES - SECTION 12B-1

ITEM	UNIT	QUANTITY			TOTAL
		NORTH BRIDGE	SOUTH BRIDGE	TOTAL	
CLASS "A" CONCRETE	CU YDS	1061	223	2078	2887
REINFORCING STRUCTURAL STEEL	LBS	175,770	292,180	467,950	643,900
REINFORCING NAT'L MANUFACT' STEEL	CU YDS	858.7	858.7	1717.4	2385.8
PURCHASING STRUCTURAL STEEL	CU YDS	175,770	292,180	467,950	643,900
REINFORCING NAT'L MANUFACT' STEEL	CU YDS	858.7	858.7	1717.4	2385.8
CLASS "A" EXCAVATION	CU YDS	110	110	220	297
BORROW EXCAVATION	CU YDS	1108	1108	2216	2913
EMBANKMENT	CU YDS	1060	1060	2120	2817
CLASS A EXCAVATION FOR STRUCTURES	CU YDS	40	40	80	107
REINFORCING STRUCTURAL STEEL	LBS	175,770	292,180	467,950	643,900
REINFORCING NAT'L MANUFACT' STEEL	CU YDS	858.7	858.7	1717.4	2385.8
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SUMMARY OF QUANTITIES - SECTION 12F-1

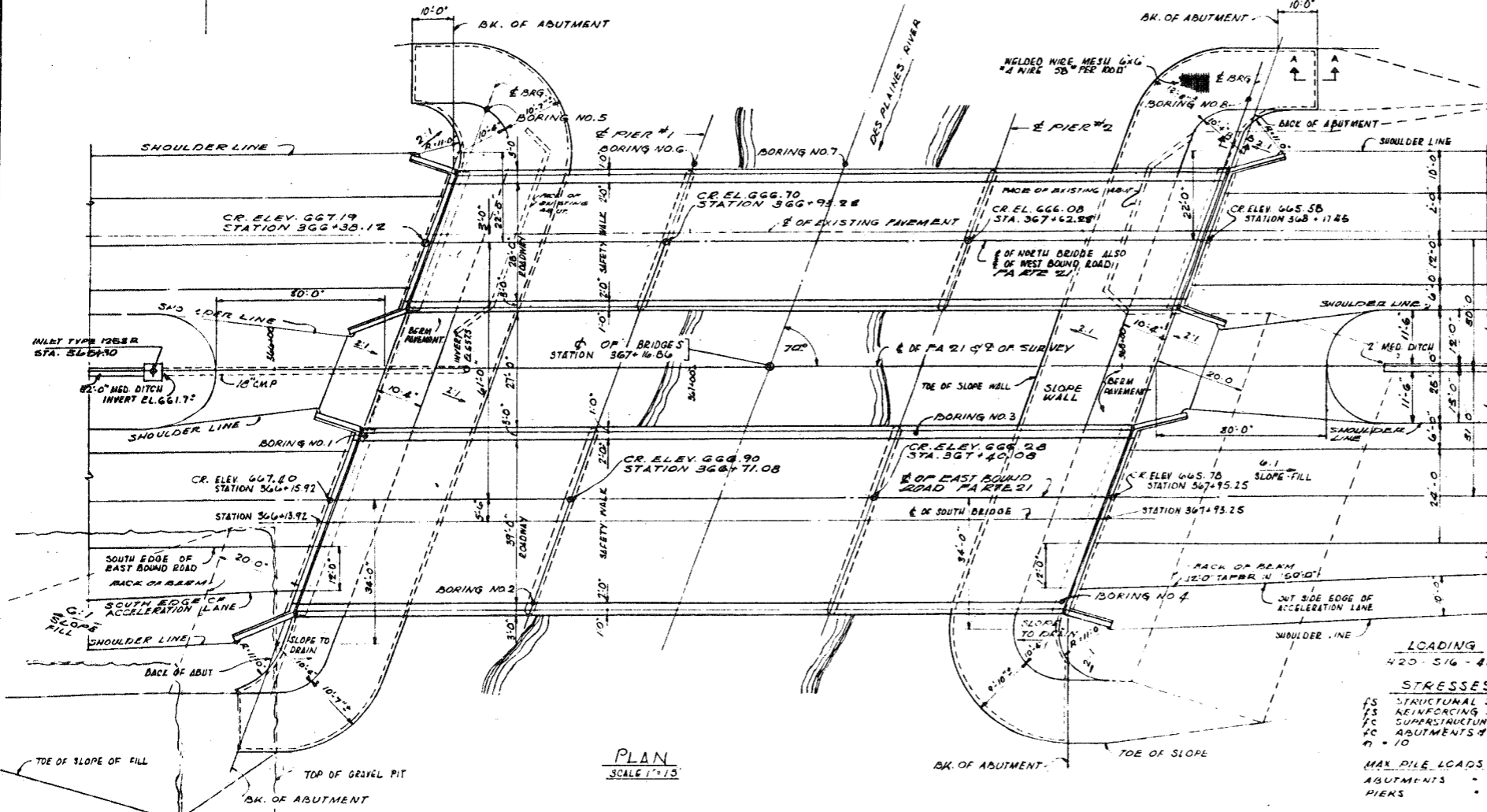
ITEM	UNIT	QUANTITY			TOTAL
		N. BRIDGE	S. BRIDGE	TOTAL	
PURCHASING STRUCTURAL STEEL	LBS	175,770	292,180	467,950	643,900
REINFORCING NAT'L MANUFACT' STEEL	CU YDS	858.7	858.7	1717.4	2385.8

NOTE:
(1) REINFORCEMENT
(2) DRIVE TEST PILES
(3) CONSTRUCT EMBANKMENT
AS SHOWN FROM EARTH EXCAVATION.
(4) DRIVE REMAINDER OF PILES
THROUGH EMBANKMENTS. SEE
SPECIAL PROVISIONS

LOADING
420 - 516 - 44

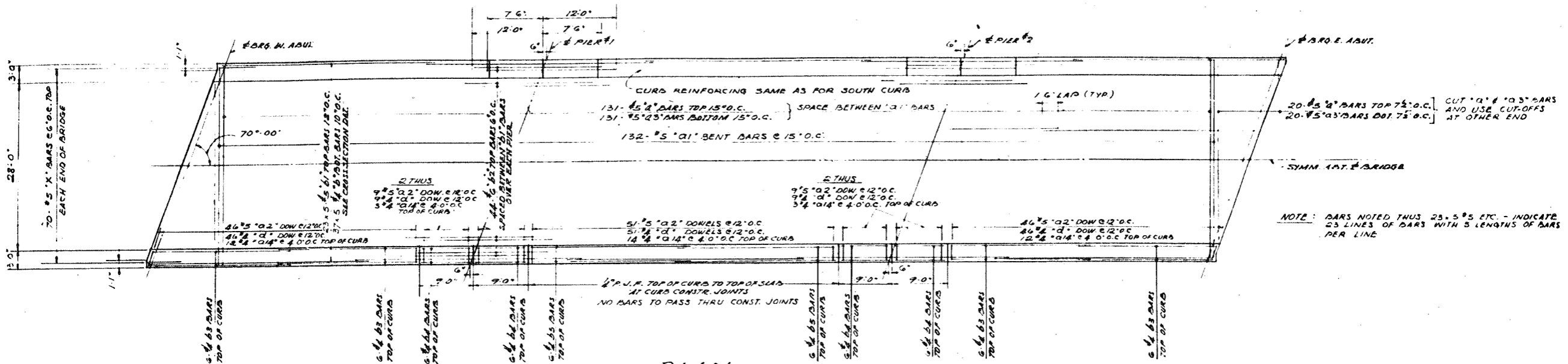
STRESSES
1S STRUCTURAL STEEL = 18,000 PSI
2S REINFORCING STEEL = 20,000 PSI
3C SUPERSTRUCTURE = 1,400 PSI
4C ABUTMENTS & PIERS = 800 PSI
7 - 10

MAX. PILE LOADS
ABUTMENTS = 35 TONS
PIERS = 20 TONS

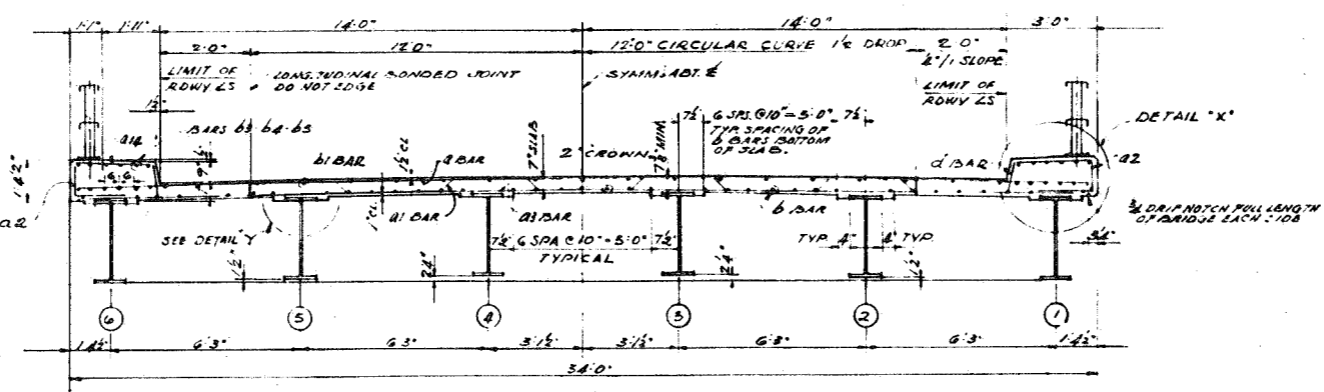


GENERAL PLAN, ELEVATION & QUANTITIES
BRIDGE OVER DES PLAINES RIVER
F.A. ROUTE 21 - SECTIONS 12B-1 & 12F-1
LAKE COUNTY
STATION 367+16.86

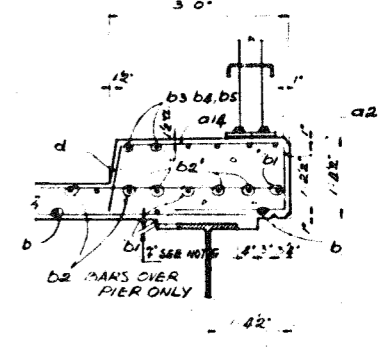
049-0046847



PLAN
SCALE 1/8" = 1'-0"



CROSS SECTION
SCALE 3/16" = 1'-0"



DETAIL "X"
SCALE 1/4" = 1'-0"

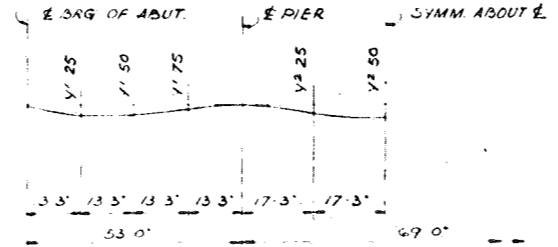
DETAIL "Y"
SCALE 3/8" = 1'-0"

METHOD OF DETERMINING FILLET HEIGHTS "f"

AFTER ALL STRUCTURAL STEEL HAS BEEN ERCTED, ELEVATIONS OF THE TOP FLANGES OF THE BEAMS SHALL BE TAKEN AT INTERVALS NOT TO EXCEED 10 FEET, FROM THESE ELEVATIONS SUBTRACT THE INCREMENT OF DEFLECTION FOR THESE POINTS DETERMINED FROM THE D.L. DEFLECTION DIAGRAM. THE ELEVATIONS SO ATTAINED SUBTRACTED FROM THE THEORETICAL GRADE ELEVATIONS MINUS FLOOR THICKNESS, EQUAL THE FILLET HEIGHTS ABOVE TOP OF BEAM.

TABLE OF "Y" DIMENSIONS

BEAM NO.	Y' 1/25	Y' 1/50	Y' 1/75	Y' 1/25	Y' 1/50
NO. 1 AND G	4"	4"	1/16"	3/16"	1/4"
NO'S 2, 3, 4, 5	3"	3/16"	1/8"	1/4"	1/2"



D.L. DEFLECTION DIAGRAM
WEIGHT OF STRUCTURAL STEEL NOT INCLUDED

SUPERSTRUCTURE
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
CLASS "X" CONCRETE	CU YDS	164.1
REINFORCEMENT BARS	LBS	30,050
METAL HANDRAIL	LIN FT	358.7
STRUCTURAL STEEL	LBS	175.770

049-004647

DECK REINFORCEMENT PLAN - NORTH BRIDGE

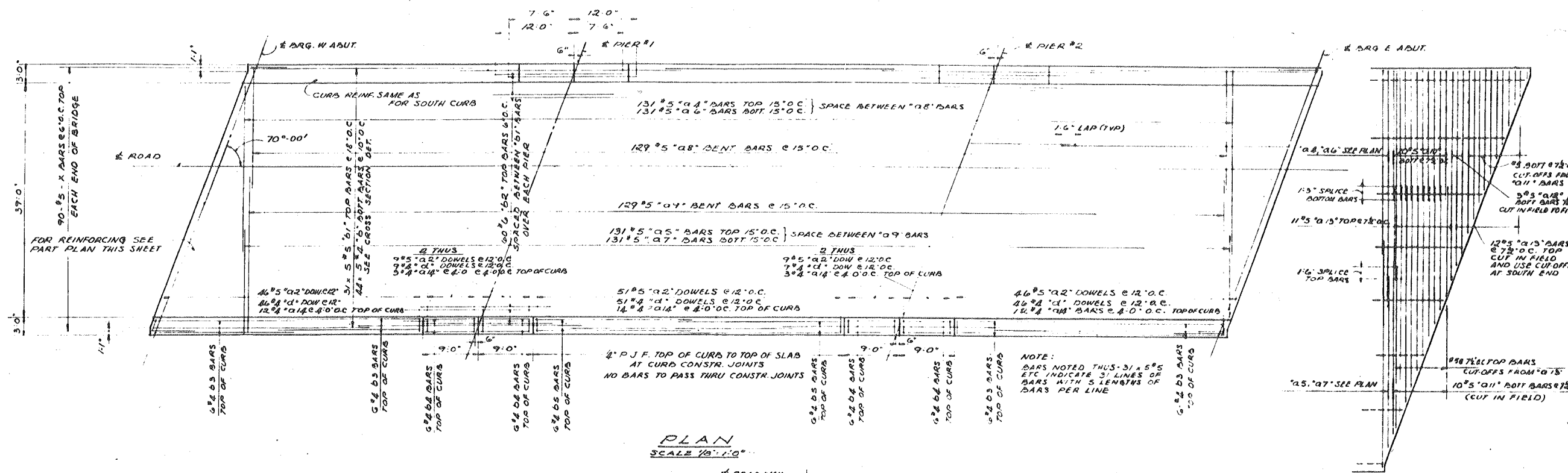
BRIDGE OVER DES PLAINES RIVER

E.A. ROUTE 21 - SECTIONS 12B-1 & 12F-1

LAKE COUNTY

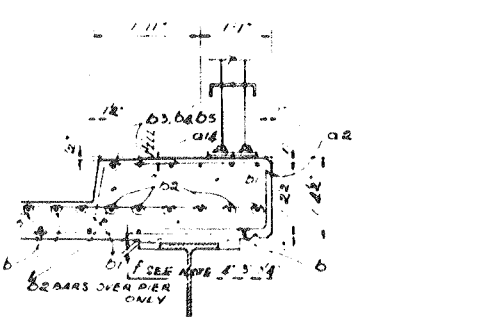
STATION 367+16.86

FEDERAL AID ROUTE NO.	DIST.	COUNTY	TOTAL SHEETS	SHEET NO.
21	12	LAKE	4	3
PROJECT TITLE				
LAKE COUNTY STATION 367+16.86				

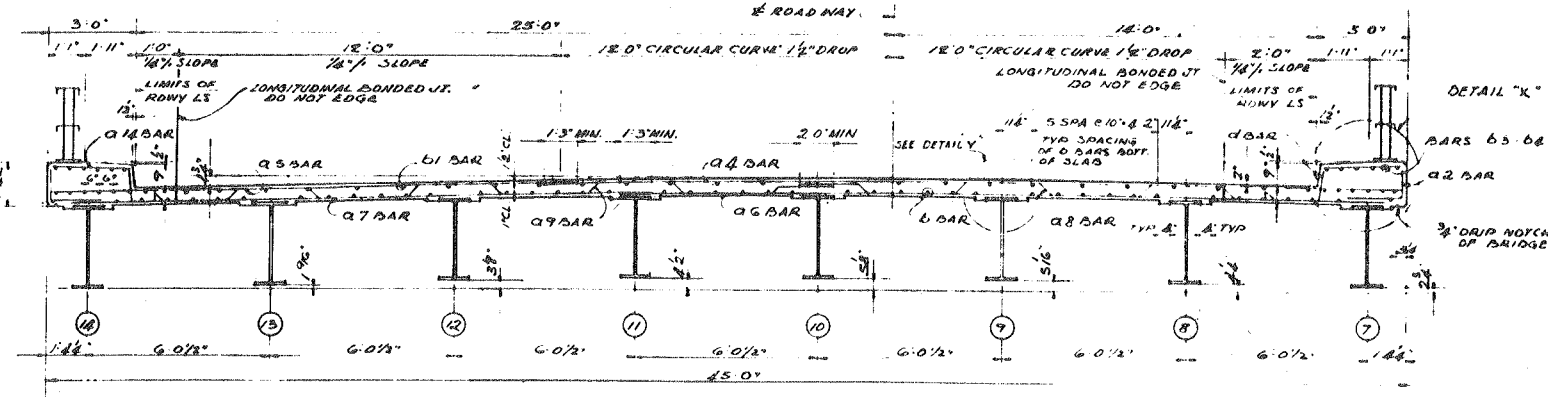


PLAN
SCALE 1/8" = 1'-0"

PART PLAN OF DECK AT EAST ABUTMENT
SCALE 3/16" = 1'-0"
PLAN AT WEST ABUTMENT OPPOSITE END



DETAIL "X"
SCALE 3/4" = 1'-0"



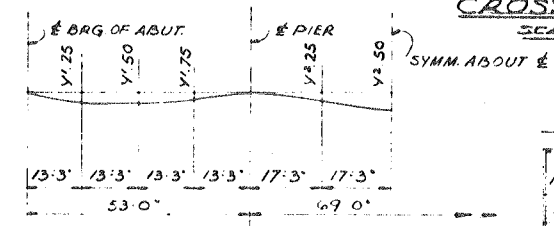
CROSS SECTION
SCALE 3/4" = 1'-0"

SUPERSTRUCTURE
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
CLASS "X" CONCRETE	CU YDS	207.8
REINFORCEMENT BARS	LBS	38,510
METAL HANDKAIL	LIN FT	3,537
STRUCTURAL STEEL	LBS	232.10

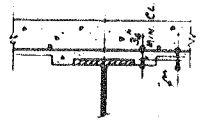
TABLE OF "Y" DIMENSIONS

BEAM "Y"	Y-25	Y-50	Y-75	Y-25	Y-50
NO 7 AND 14	4'	4'	16'	36'	38'
NO 8, 9, 10, 11, 12 & 13	3/16'	3/16'	1/16'	1/8'	1/2'



D.L. DEFLECTION DIAGRAM
WEIGHT OF STRUCTURAL STEEL NOT INCLUDED

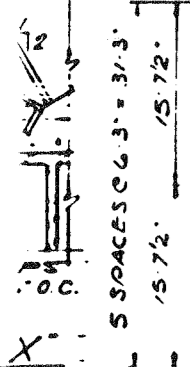
NORTH



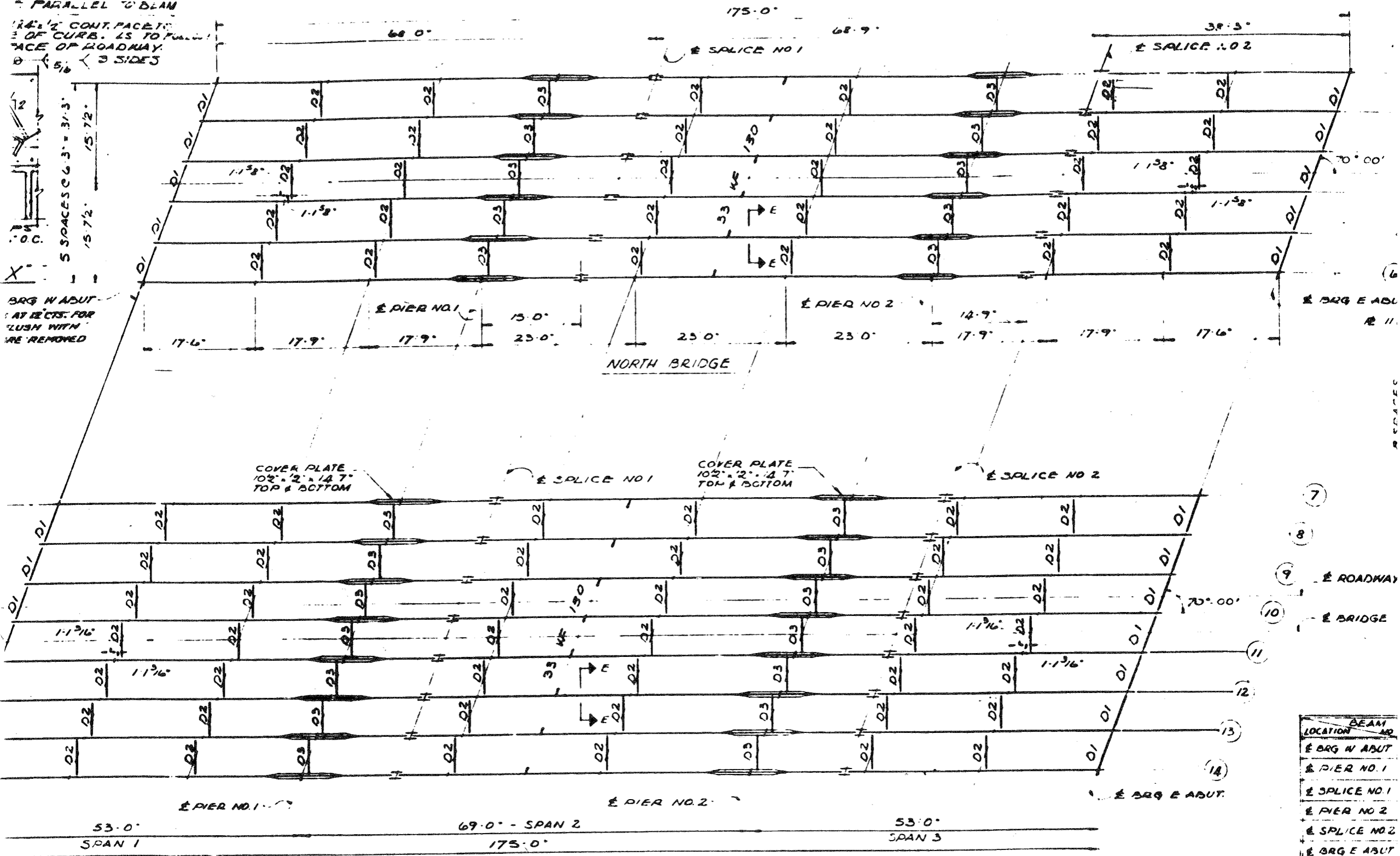
DETAIL "Y"
SCALE 3/4" = 1'-0"

METHOD OF DETERMINING FILLET HEIGHTS "F"
AFTER ALL STRUCTURAL STEEL HAS BEEN ERRECTED, ELEVATIONS OF THE TOP FLANGES OF THE BEAMS SHALL BE TAKEN AT INTERVALS NOT TO EXCEED 10 FEET FROM THESE ELEVATIONS SUBTRACT THE INCREMENT OF DEFLECTION FOR THESE POINTS DETERMINED FROM THE D.L DEFLECTION DIAGRAM. THE ELEVATIONS SO ATTAINED SUBTRACTED FROM THE THEORETICAL GRADE ELEVATIONS MINUS FLOOR THICKNESS, EQUAL THE FILLET HEIGHTS ABOVE TOP OF BEAM.

PARALLEL TO BEAM
 4" x 2" CONT. FACETS
 OF CURB. IS TO FOLLOW
 FACE OF ROADWAY.
 3 SIDES



BRG W ABUT
 AT 12' CTS. FOR
 FLUSH WITH
 ARE REMOVED



COVER PLATE
 10" x 2" x 14 7/8"
 TOP & BOTTOM

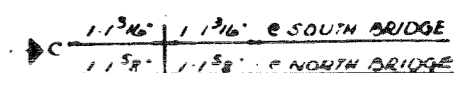
COVER PLATE
 10" x 2" x 14 7/8"
 TOP & BOTTOM

BEAM LOCATION	BEAM NO
BRG W ABUT	
PIER NO 1	
SPLICE NO 1	
PIER NO 2	
SPLICE NO 2	
BRG E ABUT	

SOUTH BRIDGE
PLAN OF STRUCTURAL STEEL
 SCALE 3/32" = 1'-0"

DIAPHRAGM D1 - 12WF20
 DIAPHRAGMS D2, D3 - 16WF36

1/2" x 50" F PARALLEL TO BEAM
 IS 4" x 2" CONT FACETS
 FACE OF CURBS. ANGLES TO FOLLOW
 SURFACE OF ROADWAY. SEE SHTS 4 & 5 FOR CROWN OF RDWAY.



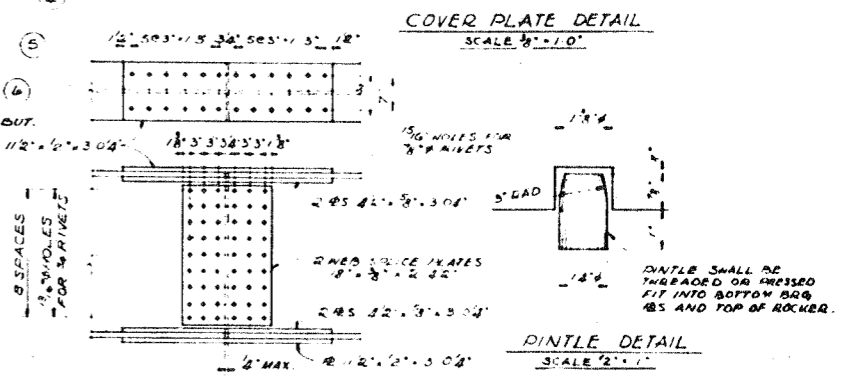
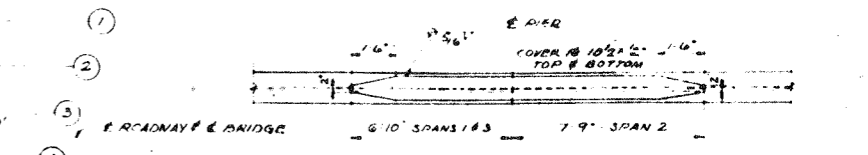
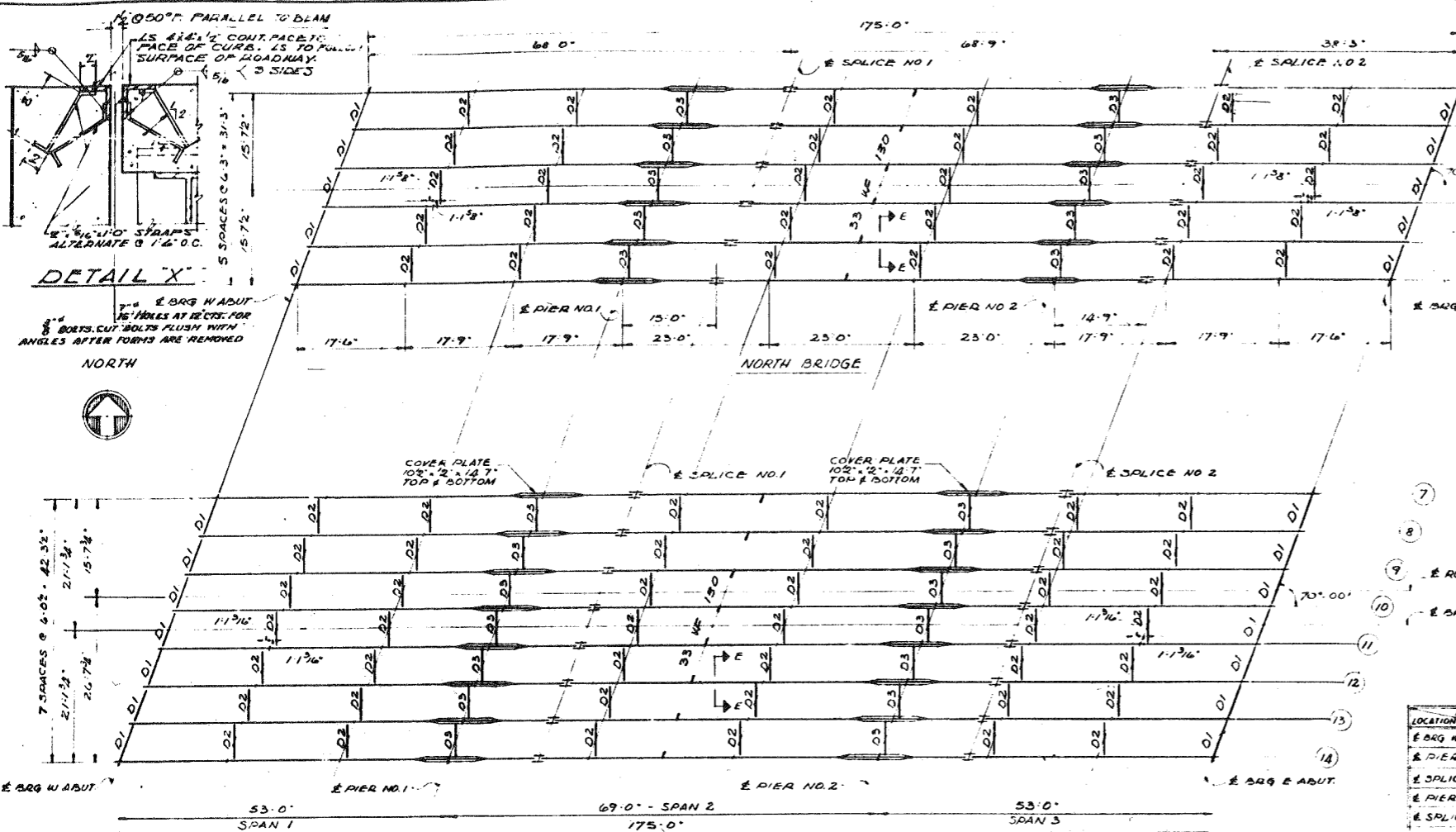
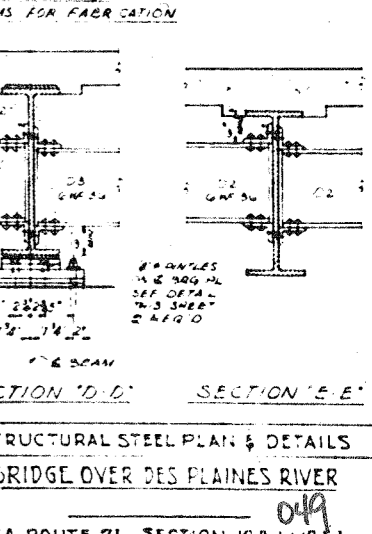
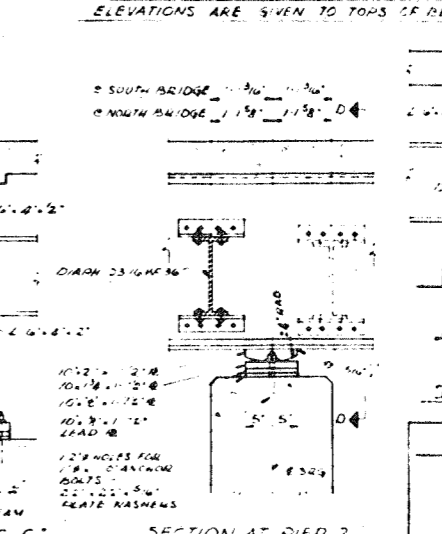
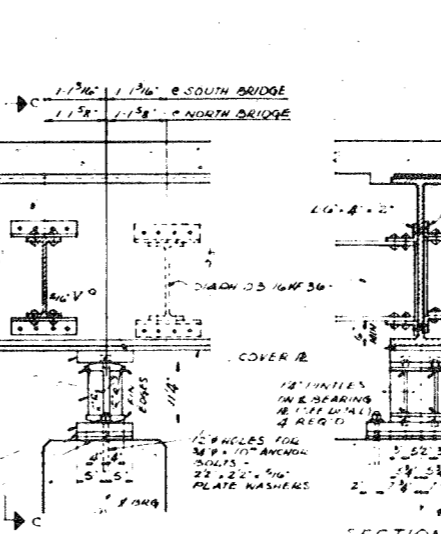
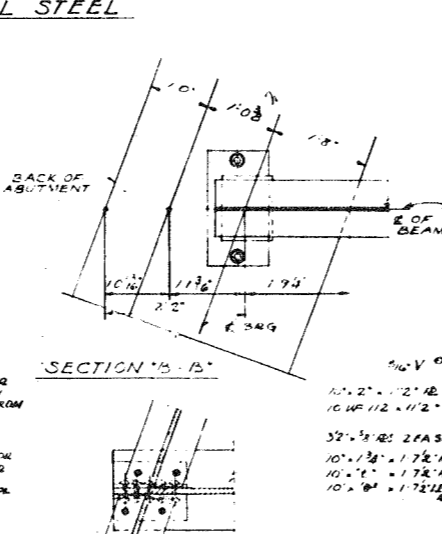
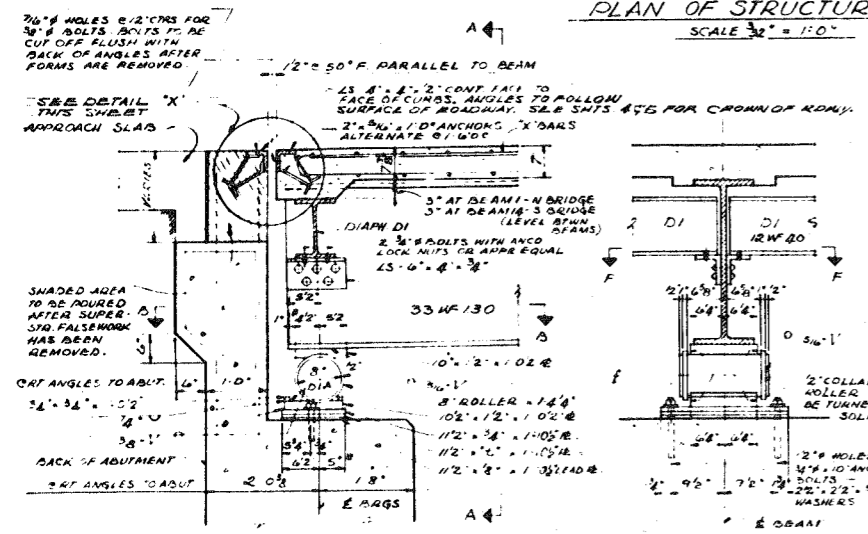


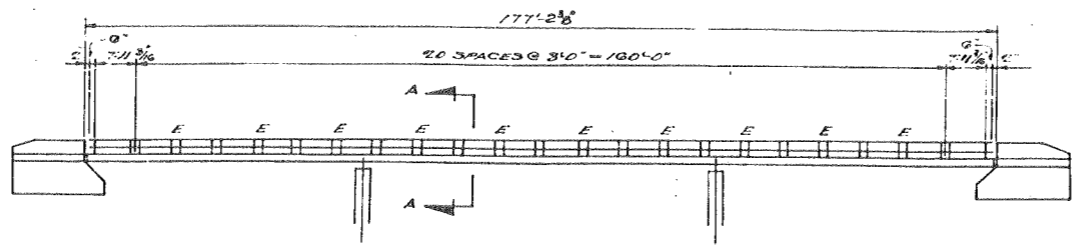
TABLE OF "L" DIMENSIONS

LOCATION	BEAM NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PIER NO. 1		3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6
PIER NO. 2		3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6
EAST ABUT		3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6

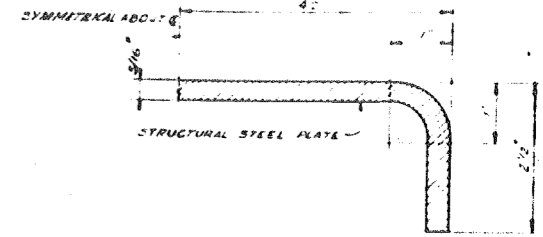
BEAM ELEVATIONS (UNDEFLECTED BEAMS)
ELEVATIONS ARE GIVEN TO TOPS OF BEAMS FOR FACE SECTION

LOCATION	BEAM NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
E BRG W ABUT		664.911	664.457	664.584	664.568	664.518	664.518	664.518	664.518	664.518	664.518	664.518	664.518	664.518	664.518
E PIER NO. 1		665.838	665.806	665.607	665.087	664.081	665.987	664.731	664.72	664.260	664.742	664.748	664.52	664.26	665.981
E SPLICE NO. 1		665.679	665.845	665.952	665.952	665.908	665.82	665.876	664.66	664.67	664.125	664.66	664.66	664.66	664.66
E PIER NO. 2		665.218	665.387	665.446	665.446	665.470	665.376	665.410	665.551	665.639	665.661	665.627	665.531	665.825	665.820
E SPLICE NO. 2		665.031	665.216	665.313	665.335	665.287	665.195	665.277	665.419	665.507	665.528	665.494	665.377	665.293	665.18
E BRG E ABUT		664.736	664.886	664.974	664.987	664.943	664.839	664.914	664.914	664.914	664.914	664.914	664.914	664.914	664.914

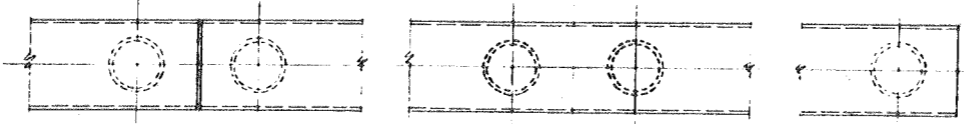




EXTERIOR ELEVATION OF ALL RAILINGS



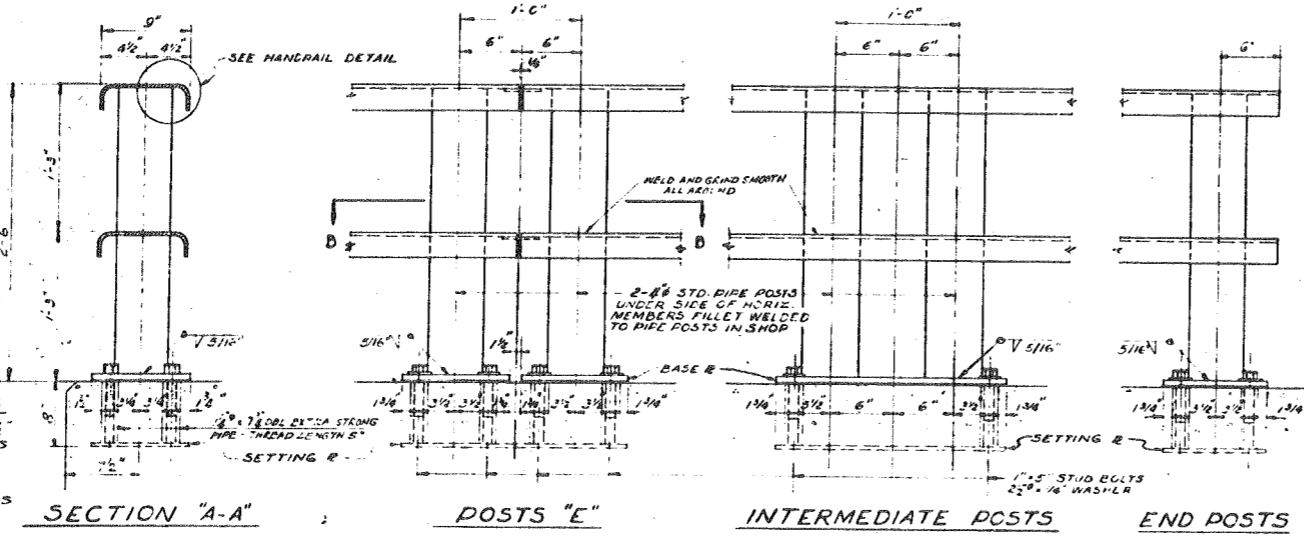
HANDRAIL DETAIL



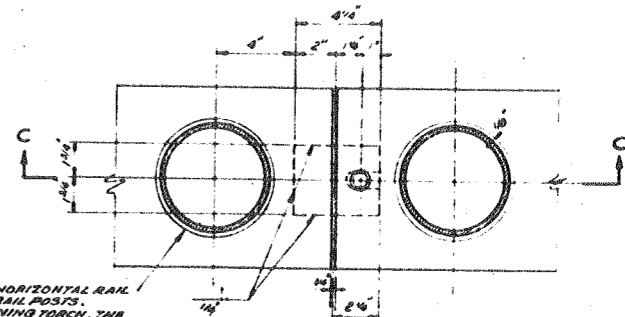
TOP VIEW OF RAIL

NOTES

RAIL SHALL BE FABRICATED & ERECTED TO CONFORM TO PROFILE OF ROADWAY. RAIL POSTS SHALL BE TRULY VERTICAL. WELDING OF RAIL POSTS TO HORIZONTAL MEMBERS AND BASE PLATES SHALL BE CONTINUOUS WELDS ALL AROUND. RAIL POSTS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR WELDED AND SEAMLESS STEEL PIPE A.S.T.M. A53 WITH MINIMUM YIELD POINT OF 30,000 P.S.I. HAND RAIL SHALL BE GIVEN ONE SHOP COAT OF RED OIL AND 2 FIELD COATS OF ALUMINUM PAINT. SEE SPECIFICATIONS.

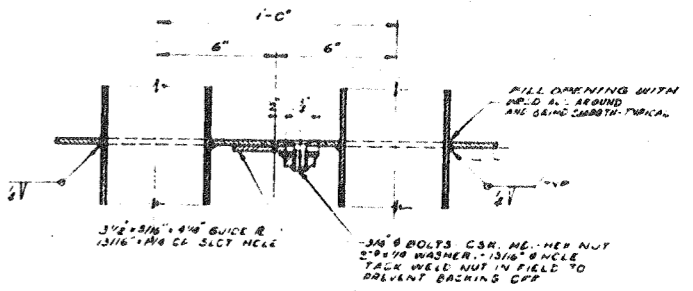


SHIM PLATES FOR RAIL POSTS
 FURNISH SHIMS CONSISTING OF ONE 1/2\"/>

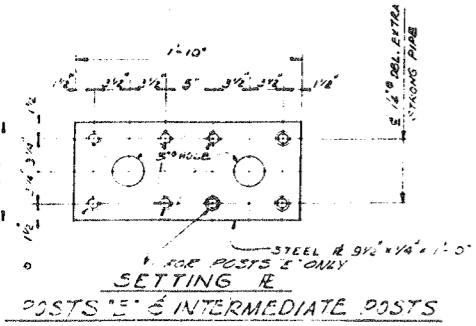


CUT HOLE IN HORIZONTAL RAIL MEMBER FOR RAIL POSTS. IF CUT BY BURNING TORCH, THE BURCH SHALL BE MECHANICALLY GROUDED.

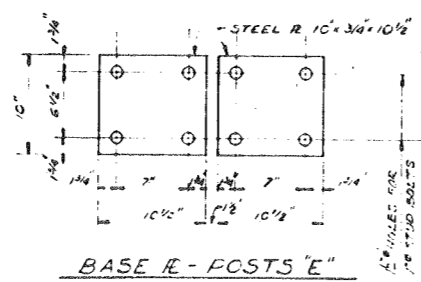
SECTION 'B-B'



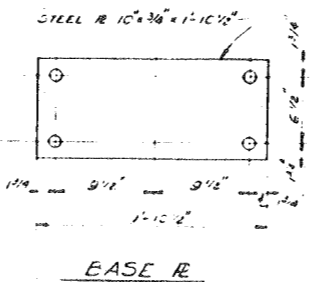
SECTION 'C-C'



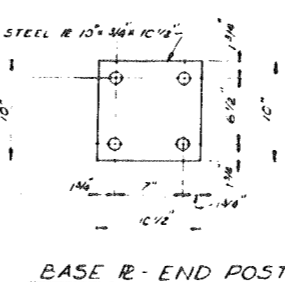
SETTING R - POSTS 'E' & INTERMEDIATE POSTS



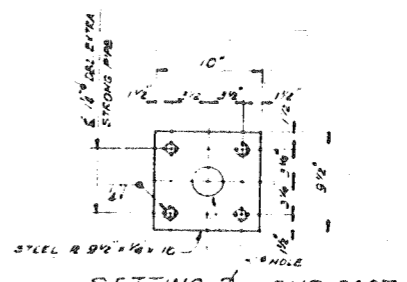
BASE R - POSTS 'E'



BASE R - INTERMEDIATE POSTS



BASE R - END POSTS

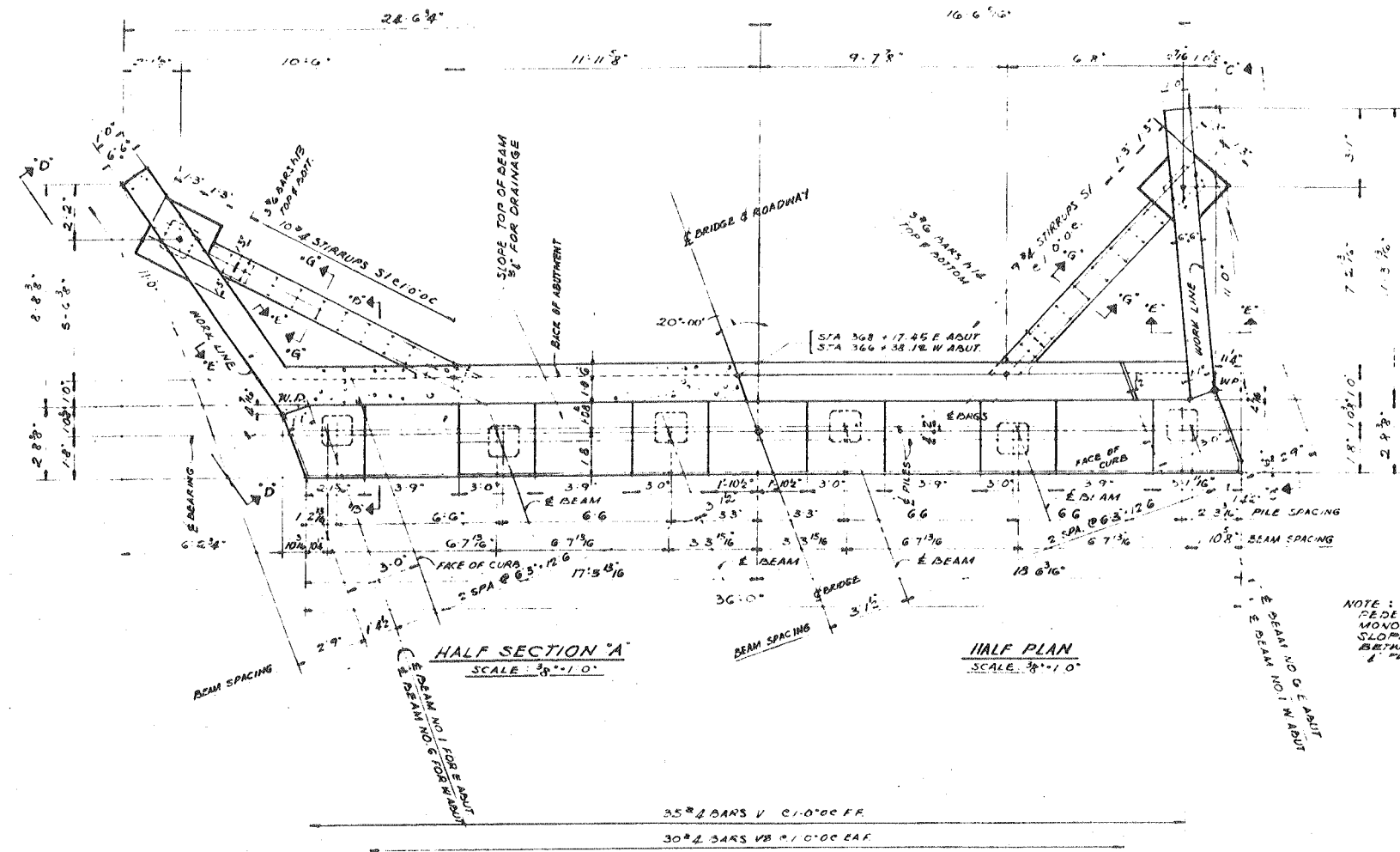


SETTING R - END POST

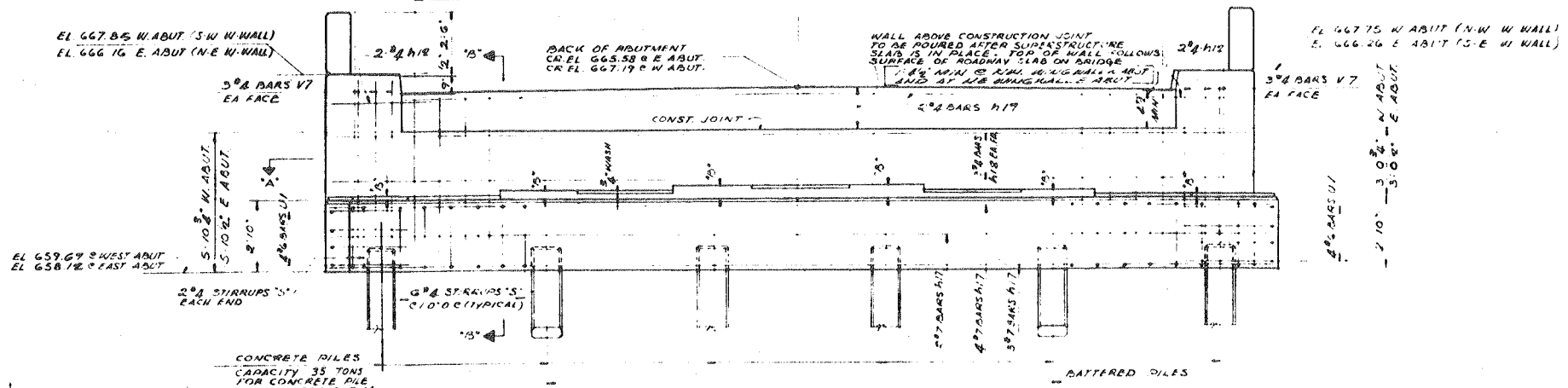
HANDRAIL DETAILS
 BRIDGE OVER DES PLAINES RIVER
 F.A. ROUTE 21 SECTION 12514 1251
 LAKE COUNTY
 STATION 367+12.54

TABLE OF "B" DIMENSIONS

LOCATION	BEAM	1	2	3	4	5	6
EAST ABUTMENT		2'	2'	3'	3'	3'	1 3/8'
WEST ABUTMENT		2'	2'	3'	3'	3'	1 3/8'



NOTE:
 PEDESTAL BLOCKS TO BE CAST MONOLITHICALLY WITH CAP BEAM SLOPE BRIDGE SEAT AREA BETWEEN PEDESTAL BLOCKS 1" PER FOOT.

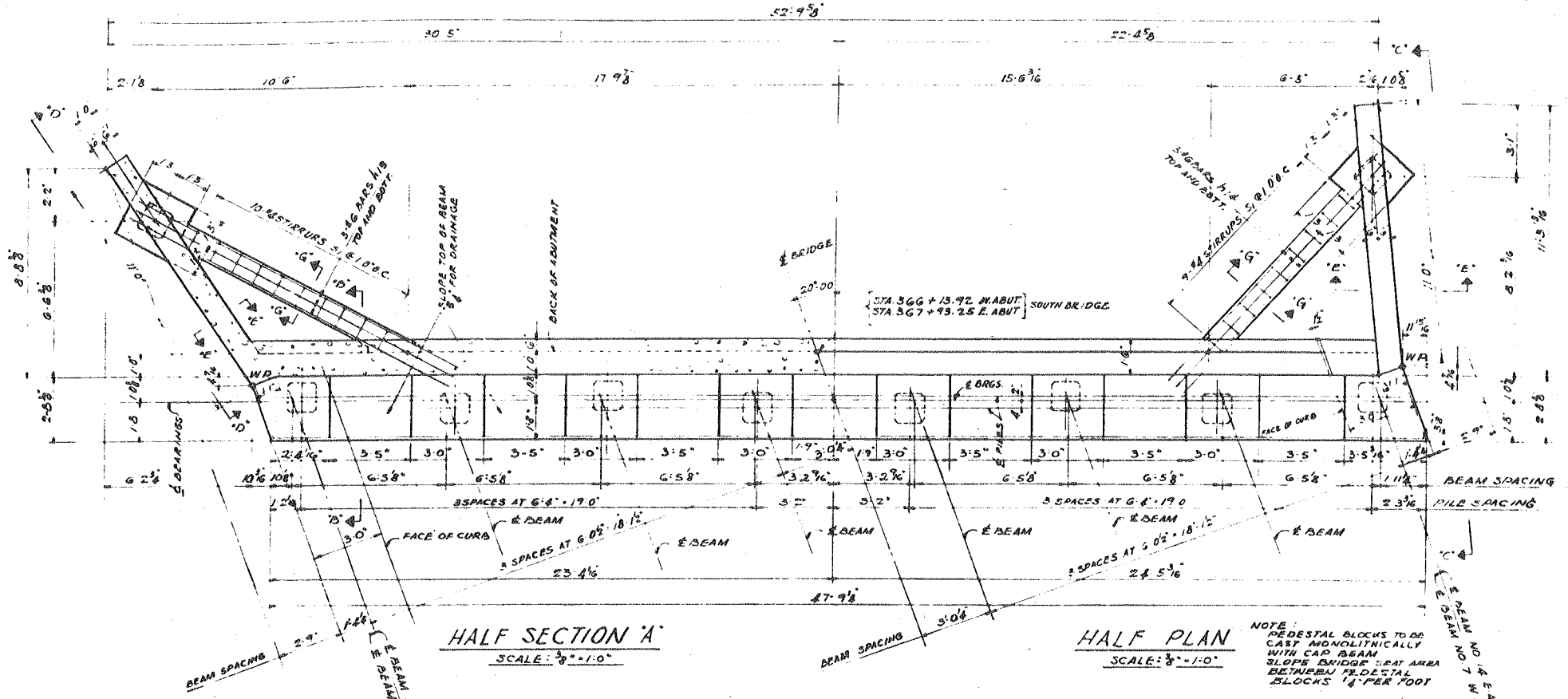


CONCRETE PILES
 CAPACITY 35 TONS
 FOR CONCRETE PILE
 DETAILS SEE SHT 14
 8 PILES REQUIRED EAST ABUT
 8 PILES REQUIRED WEST ABUT
 ESTIMATED LENGTH OF PILES
 EAST ABUT 40'-0"
 WEST ABUT 45'-0"

FRONT ELEVATION
 SCALE 3/8" = 1'-0"

NOTE:
 FOR SECTIONS "B" D' THRU "G" G'
 SEE SHEET 10

EAST & WEST ABUTS & WINGWALLS - N. BRIDGE
 BRIDGE OVER DES PLAINES RIVER
 F.A. ROUTE 21 SECTION 12 B.1
 LAKE COUNTY
 STATION 367+16.86



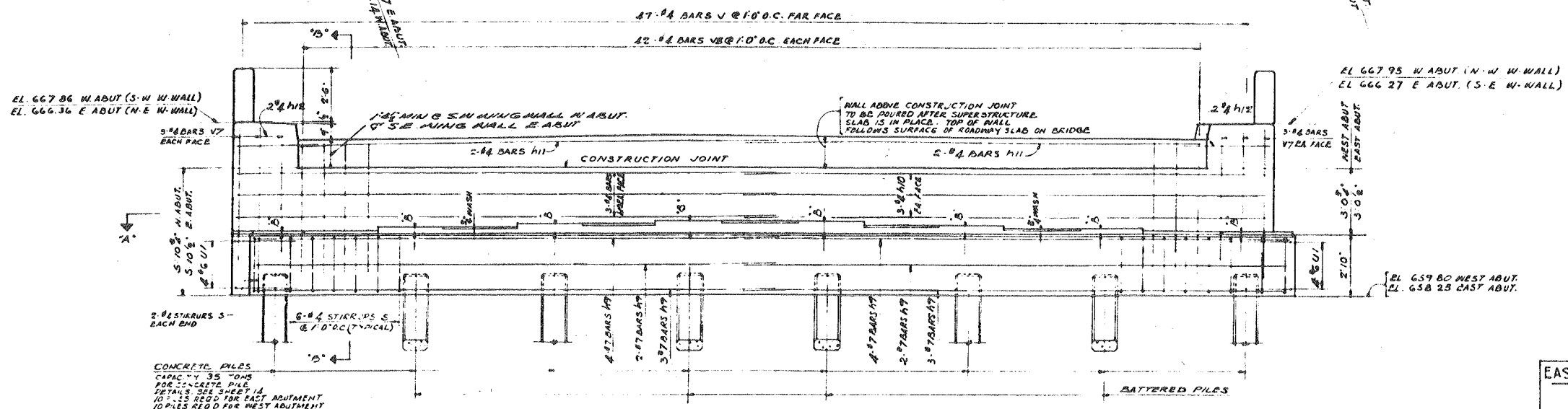
HALF SECTION 'A'
SCALE: 3/8" = 1'-0"

HALF PLAN
SCALE: 3/8" = 1'-0"

TABLE OF 15' DIMENSIONS

LOCATION	BEAM	7	8	7	10	11	12	13	14
EAST ABUTMENT		1 3/8	3/4	4/8	4/8	4/8	3	1 3/8	2
WEST ABUTMENT		1 3/8	3/4	4/8	4/8	4/8	3	1 3/8	2

NOTE: PEDESTAL BLOCKS TO BE CAST MONOLITHICALLY WITH CAP BEAM. SLOPE BRIDGE DECK AREA BETWEEN PEDESTAL BLOCKS 1/8" PER FOOT.

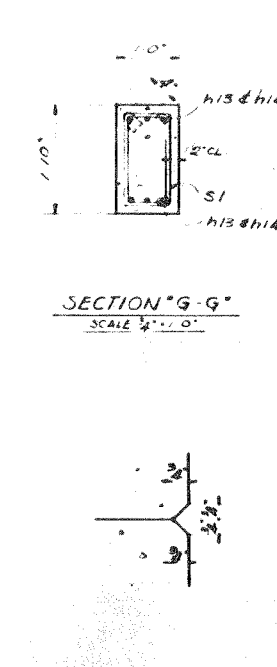
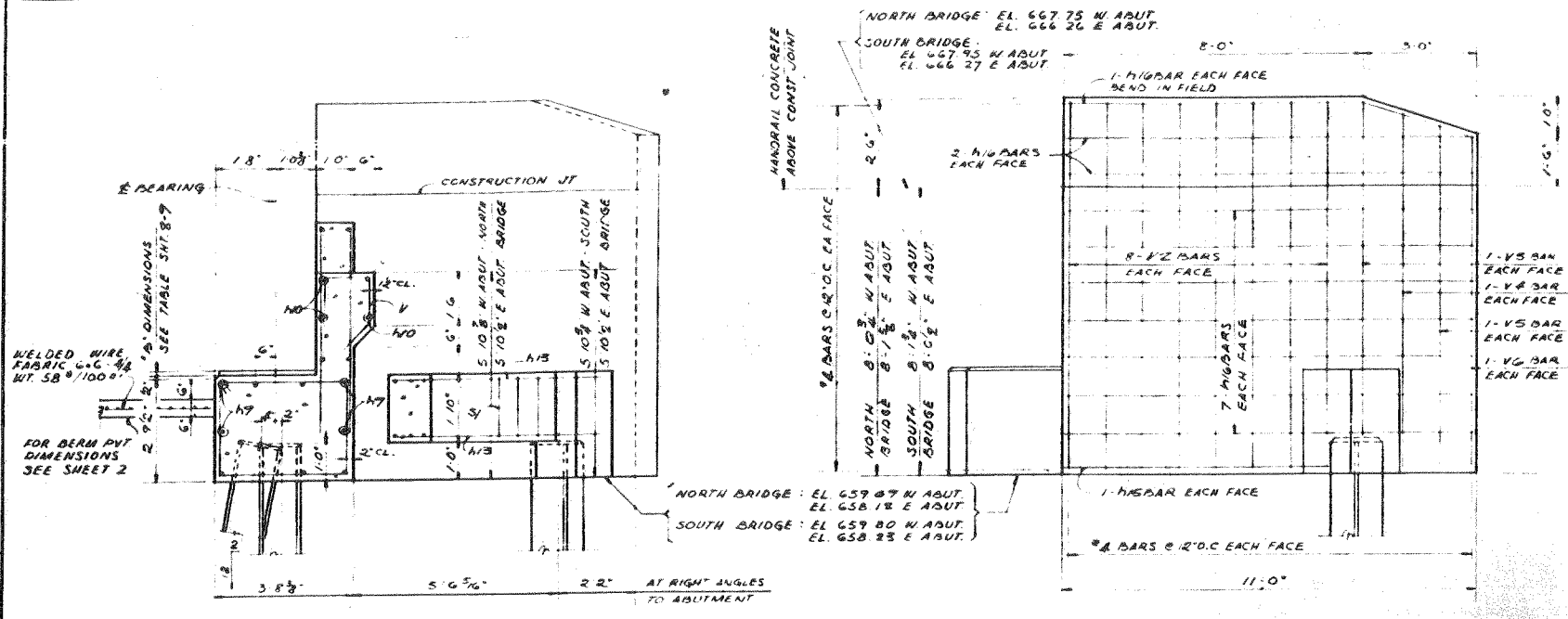


FRONT ELEVATION
SCALE: 3/8" = 1'-0"

NOTE: FOR SECT. ONE 'D' 'D' THRU 'G' 'G' SEE SHEET 10

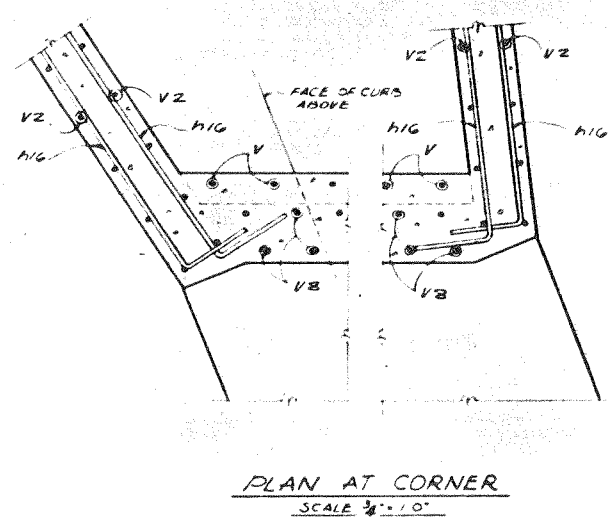
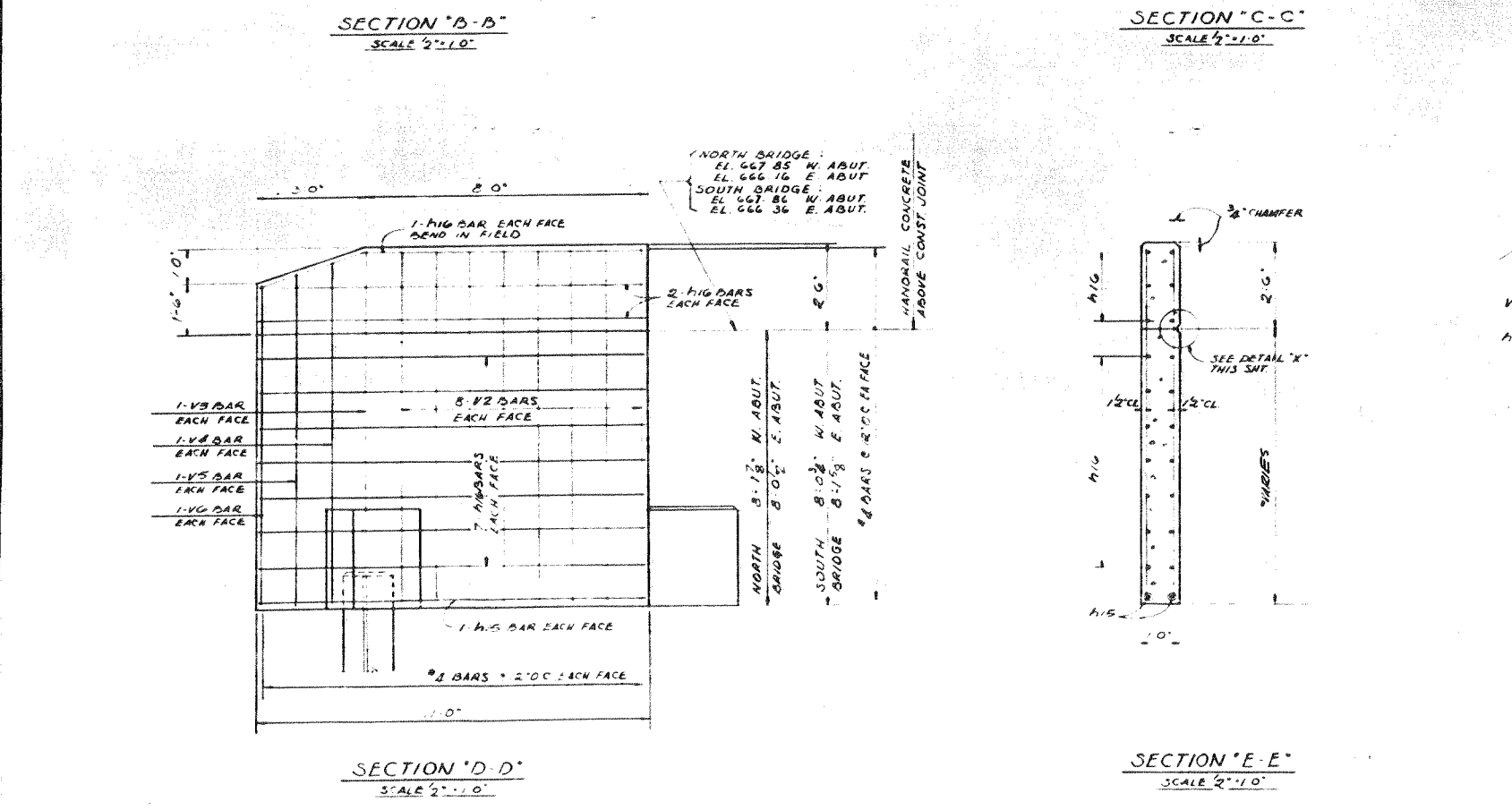
CONCRETE PILES CAPACITY 35 TONS FOR 20' CONCRETE PILE. SEE THIS SHEET 1A FOR 15' PILES FOR EAST ABUTMENT. ESTIMATED LENGTH OF PILES: EAST ABUT 40'-0", WEST ABUT 45'-0".

EAST & WEST ABUTS & WING WALLS - S. BRIDGE
BRIDGE OVER DES PLAINES RIVER
E.A. ROUTE 21 SECTION 12B-1
LAKE COUNTY
STATION 367+16.86

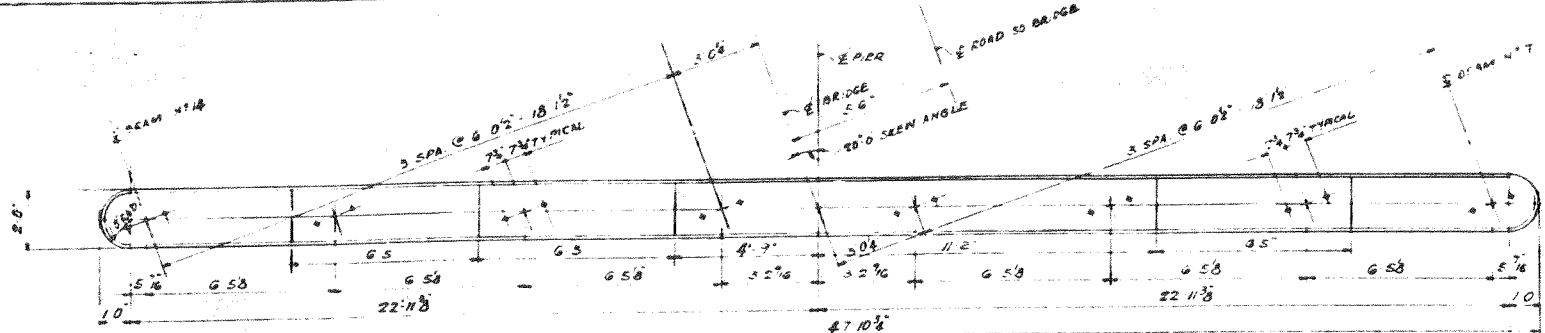


BILL OF MATERIAL
EAST & WEST ABUTMENTS & WINGWALLS

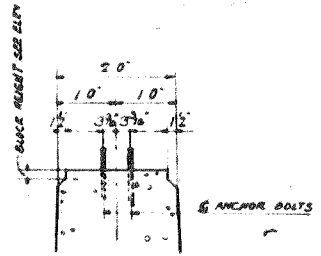
ITEM	UNIT	QUANTITY			
		NORTH BRIDGE E ABUT.	W ABUT.	SOUTH BRIDGE E ABUT.	W ABUT.
CLASS "X" CONCRETE	CU YDS	299	299	367	367
HANDRAIL CONCRETE	CU YDS	1.9	1.9	1.9	1.9
REINFORCEMENT BARS	LBS	2620	2620	3190	3190
ELAST. ABRASION FOR STRUCTURES	CB YDS	40	40	0	40
CONCRETE PILES	LINEAL	280	315	360	405
TEST PILES (CONCRETE)	EACH	1	1	1	1



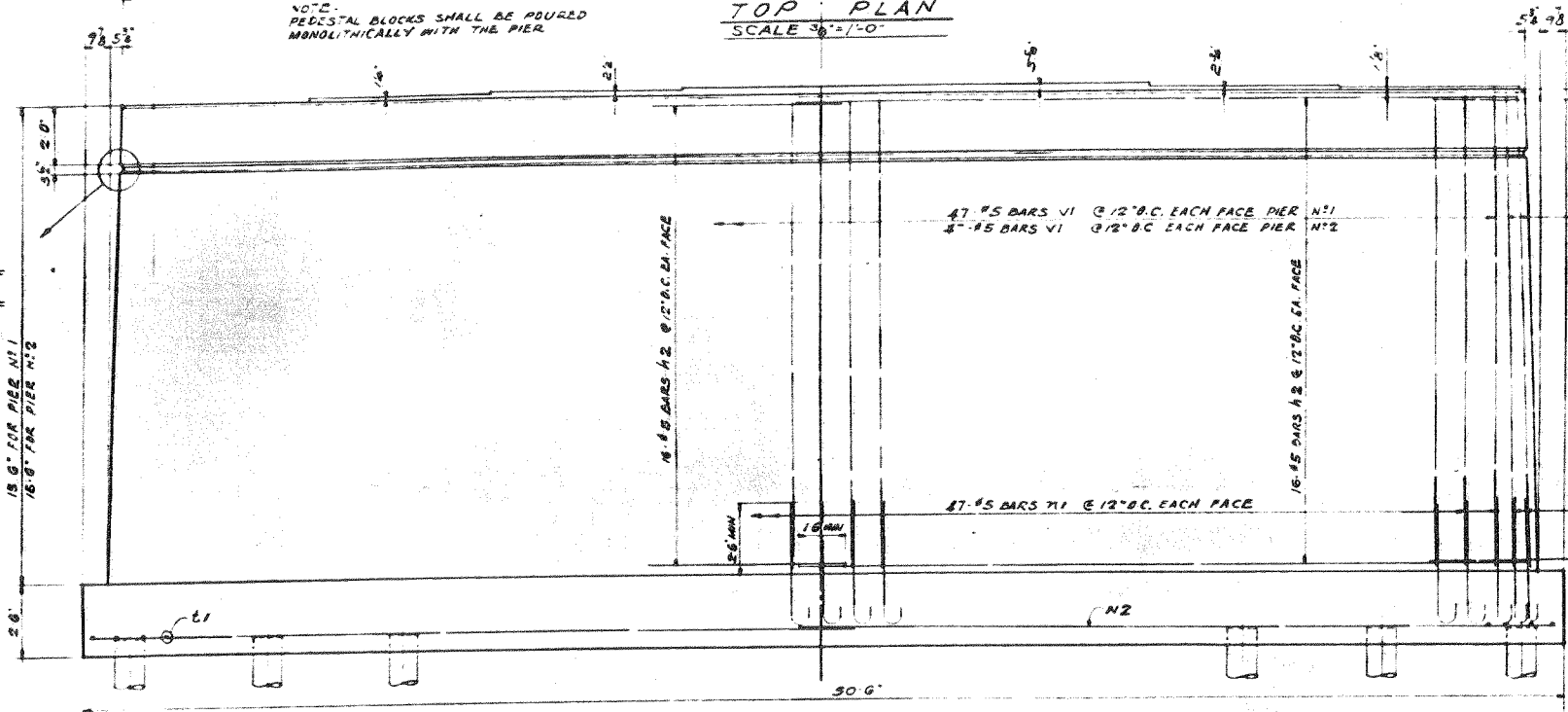
ABUTMENT & WINGWALL DETAILS
BRIDGE OVER DES PLAINES RIVER
 F.A. ROUTE 21 SECTION 12.81
 LAKE COUNTY
 STATION 367+16.86



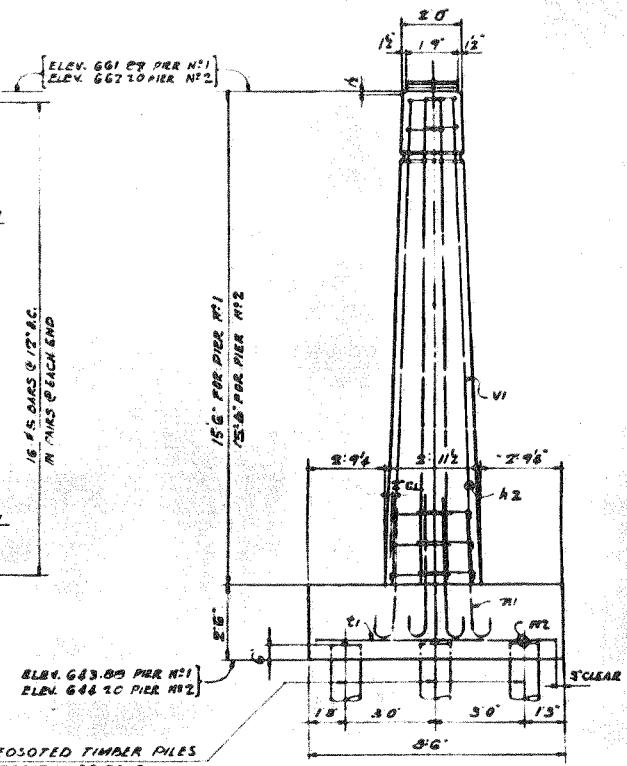
TOP PLAN
SCALE 3/8"=1'-0"



SECTION THRU TOP OF PIER



ELEVATION
SCALE 1/8"=1'-0"

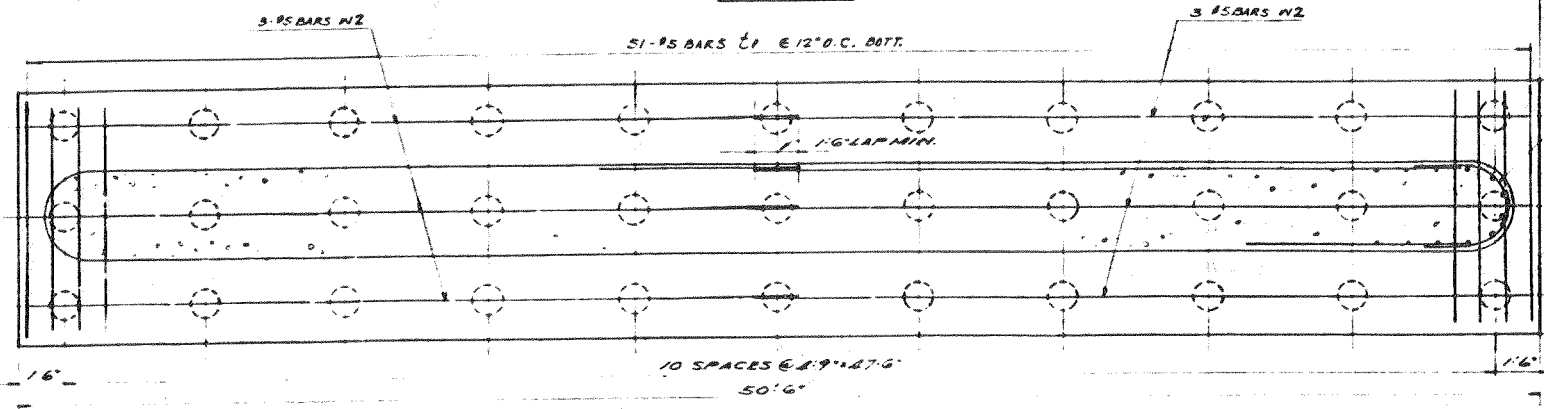


END VIEW

CREOSOTED TIMBER PILES
CAPACITY 20 TONS
ESTIMATED LENGTH
PIER 1 - 16'-0"
PIER 2 - 16'-0"

BILL OF MATERIAL

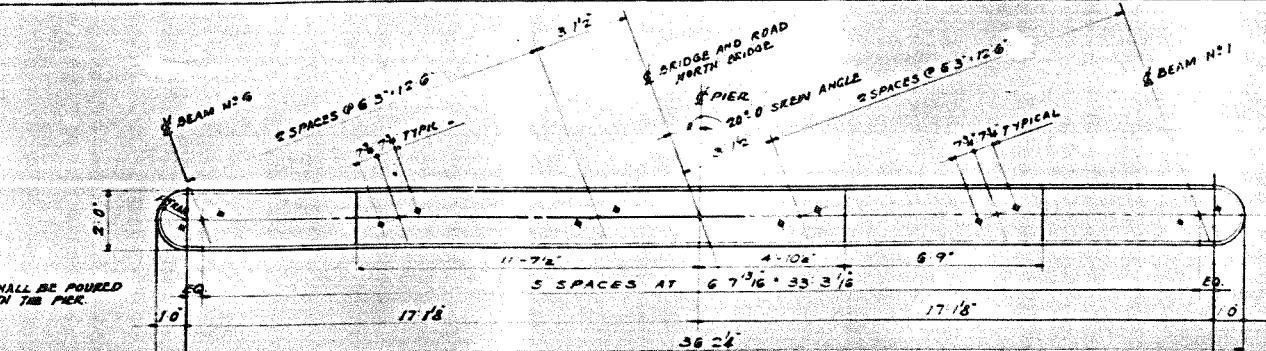
ITEM	UNIT	QUANTITY	
		PIER #1	PIER #2
CLASS X CONCRETE	CU YDS	107.9	107.9
REINFORCEMENT BARS	LBS	8750	8750
CLASS A EXCAVATION FOR STRUCTURES	CU YDS	0	100
CLASS B EXCAVATION FOR STRUCTURES	CU YDS	190	180
CREOSOTED TIMBER PILES, 6" X 8"	LINEAL FT	528.0	528.0
TEST PILES (TIMBER)	EACH	1	1



FOOTING PLAN
SCALE 3/8"=1'-0"

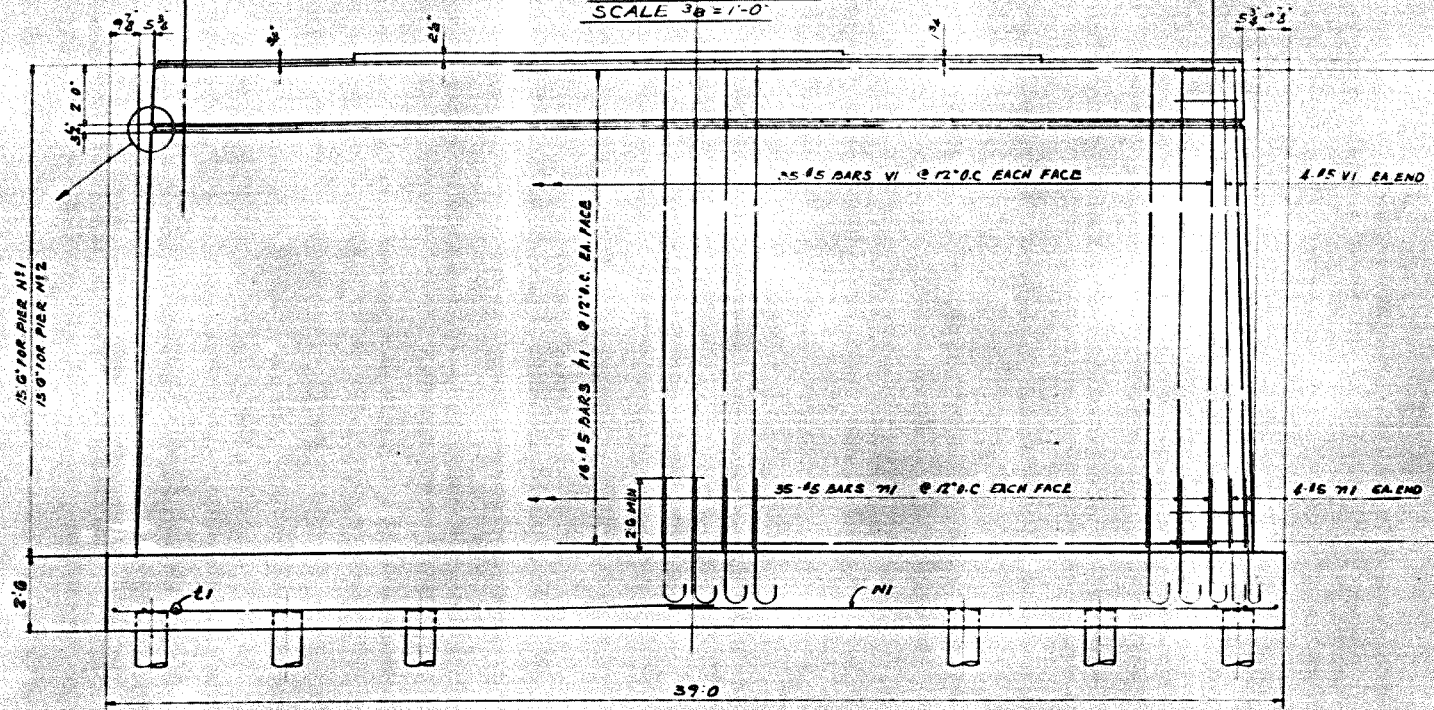
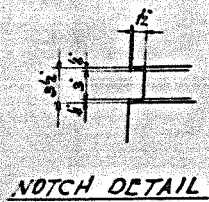
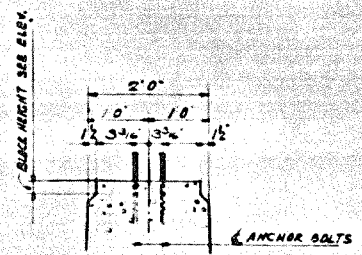
PIERS 1 AND 2 - SOUTH BRIDGE
BRIDGE OVER DES PLAINES RIVER
F.A. ROUTE 21 SECTION 12 B 1
LAKE COUNTY
STATION 367+16.86

NOTE:
PEDESTAL BLOCKS SHALL BE POURED
MONOLITHICALLY WITH THE PIER.

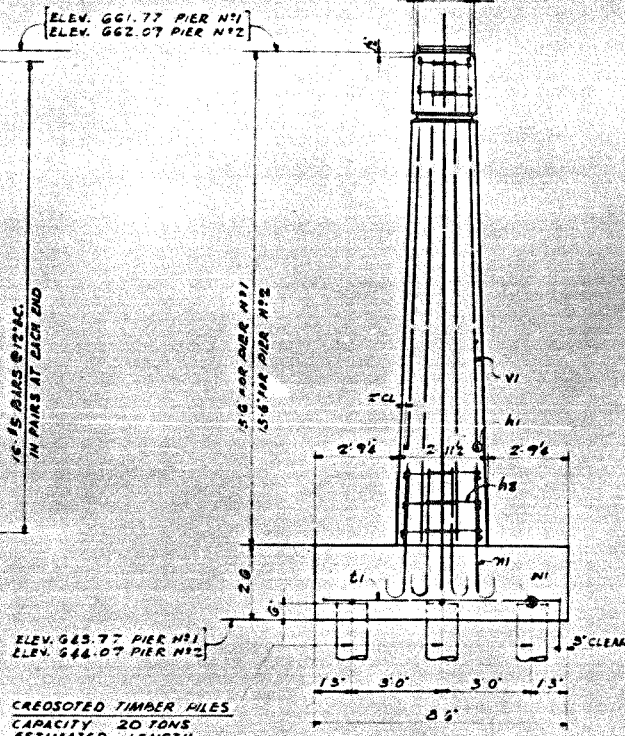


TOP PLAN
SCALE 3/8"=1'-0"

SECTION THRU TOP OF PIER



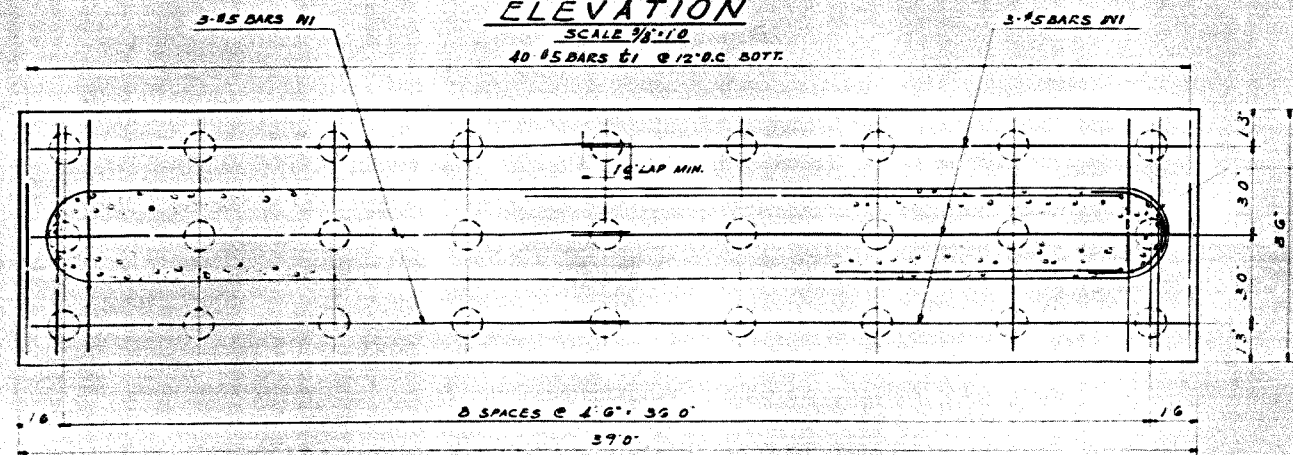
ELEVATION
SCALE 3/8"=1'-0"



CREOSOTED TIMBER PILES
CAPACITY - 20 TONS
ESTIMATED LENGTH
PIER 1 - 20'-0"
PIER 2 - 16'-0"

BILL OF MATERIAL

ITEM	UNIT	QUANTITY	
		PIER N°1	PIER N°2
CLASS X CONCRETE	CU YDS.	32.0	32.0
REINFORCEMENT BARS	LBS	5660	3650
CLASS A EXCAVATION FOR STRUCTURES	CU YDS.	50	60
CLASS B EXCAVATION FOR STRUCTURES	CU YDS.	150	140
CREOSOTED TIMBER PILES, 8" DIA	LIN FT	510	482
TEST PILLS (TIMBER)	EACH	1	1



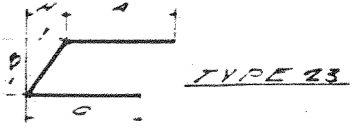
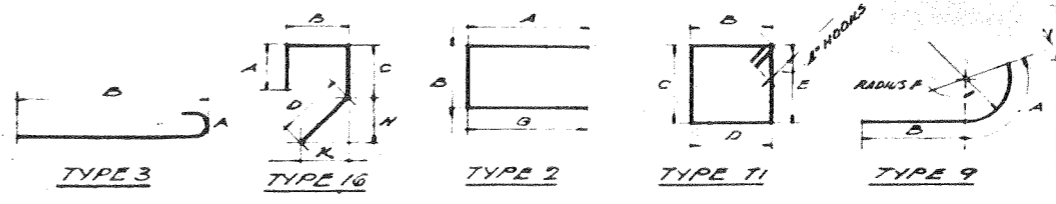
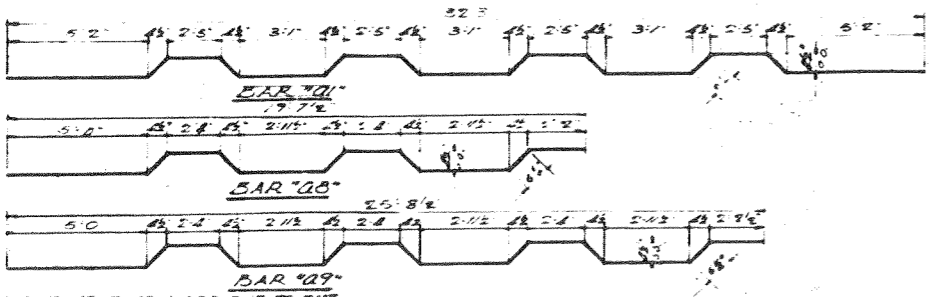
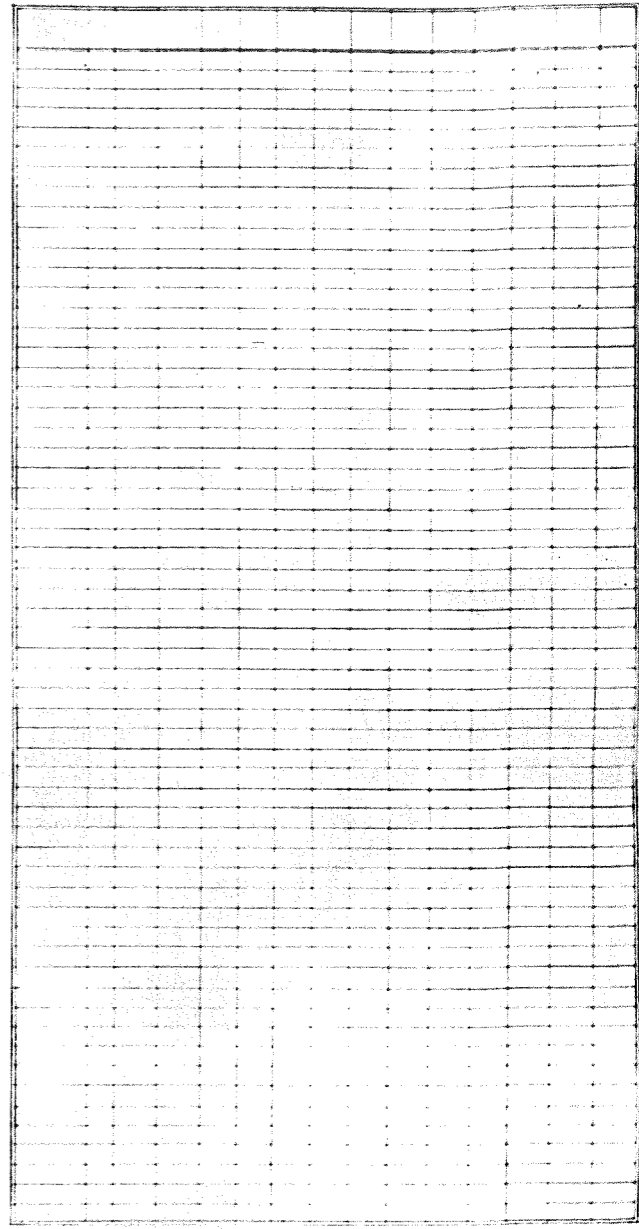
FOOTING PLAN
SCALE 3/8"=1'-0"

REINFORCEMENT BAR LISTS

NO. REBAR	NO. OF BARS	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	K	PIN
SUPERSTRUCTURE															
STRAIGHT															
88	120	#6	7.0	02											
151	—	#5	3.36	02											
151	—	#5	3.26	03											
—	131	#5	3.20	02											
—	131	#5	1.70	03											
—	131	#5	2.56	06											
—	131	#5	1.96	07											
—	20	#5	1.56	01/1											
—	20	#5	3.16	01/1											
—	6	#5	2.36	01/2											
—	86	#5	2.30	01/3											
115	155	#5	3.66	01											
100	100	#6	2.9	01/4											
185	270	#6	3.66	05											
48	48	#6	2.30	03											
28	28	#6	0.9	02											
28	28	#6	2.80	03											
358	358	#6	1.0	01											
BENT															
138	#5	3.37	01		SEE DETAIL BELOW										
358	358	#5	2.9	02	2	1.0								1.9	
137	#5	2.06	08		SEE DETAIL BELOW										
137	#5	2.61	09		SEE DETAIL BELOW										
140	180	#5	6.0	X	3	11.87									5

NO. REBAR	NO. OF BARS	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	K	PIN
ABUTMENTS															
STRAIGHT															
18/8	7	#6	2.64	07											
77	7	#6	3.56	07											
66	66	#6	1.50	01/3											
66	66	#6	1.30	01/2											
12/2	28	#6	2.6	01/0											
60	60	#6	2.8	01/1											
66	66	#6	2.6	01/2											
60	60	#6	3.56	01/2											
22	22	#6	2.9	01/2											
32	32	#6	1.0	01/2											
66	66	#6	2.0	01/3											
66	66	#6	1.00	01/2											
66	66	#6	2.0	01/3											
66	66	#6	2.3	01/0											
12/2	12	#6	6.0	01/7											
66	66	#6	6.0	01/3											
BENT															
8	8	#6	7.6	01	23	30	57	211							1 & 58
8	8	#6	8.0	01/2	2	13	69								
10	10	#6	1.9	01/0	2	15	106								
8	8	#6	1.8	01/5	11	26	34	26	34						
17	17	#6	5.6	01/7	11	09	17	09	17						
35	35	#6	2.9	01	16	10	15	18	12						040 01/0

NO. REBAR	NO. OF BARS	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	K	PIN
PIERS															
STRAIGHT															
22	22	#5	3.0	01											
44	44	#5	2.39	02											
44	44	#5	8.0	02											
28	28	#5	1.53	01											
66	66	#5	5.00	01											
66	66	#5	2.59	02											
BENT															
8	8	#5	4.6	03	7	3.0	16								10
22	22	#5	5.0	04	7	3.6	16								1.08
22	22	#5	5.3	05	7	3.9	16								1.25
22	22	#5	5.6	06	7	4.0	16								1.48
22	22	#5	5.9	07	7	4.3	16								1.7
10	10	#5	6.0	08	7	4.6	16								1.78
28	28	#5	5.6	01	3	11	27								5

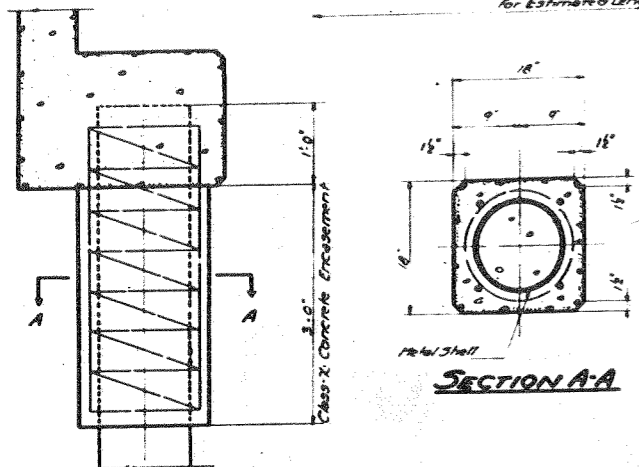
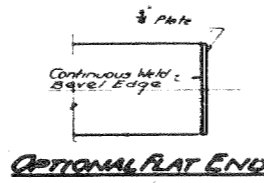
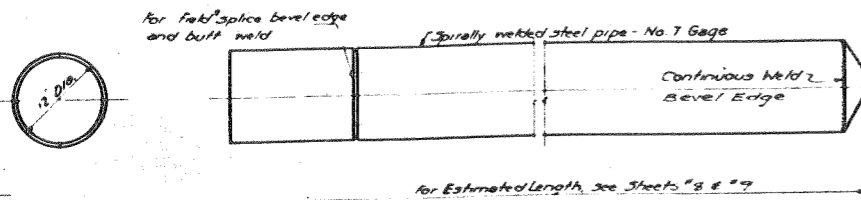


NOTE: FOR DETAILS OF REINFORCEMENT BARS IN APPROACH SLAB SEE SHEET # 16

ABUTMENT PILES

NOTE: PILING TO BE USED AT THE ABUTMENTS SHALL BE ANY OF THE VARIOUS KINDS SHOWN BELOW.

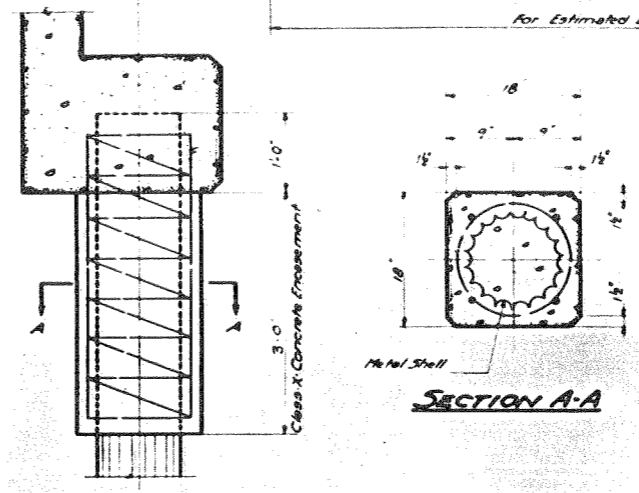
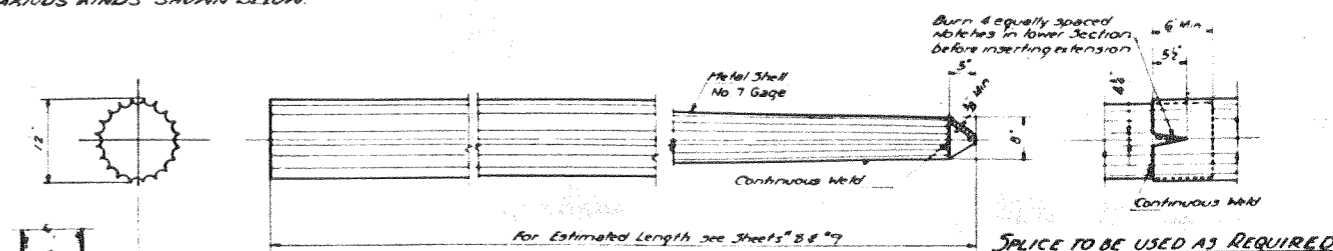
PROJECT NO.	DATE	TOTAL SHEETS	SHEET NO.
PAZ1	12-10-71	25	16
BTA	10 STA		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	



15 Dia Spiral #2 Wire 6" Pitch
2 extra turns top and bottom
#4 Tie Bars. The cost of Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing Piles.

Note
Driving end bearing ends of pipe shall be cut square.

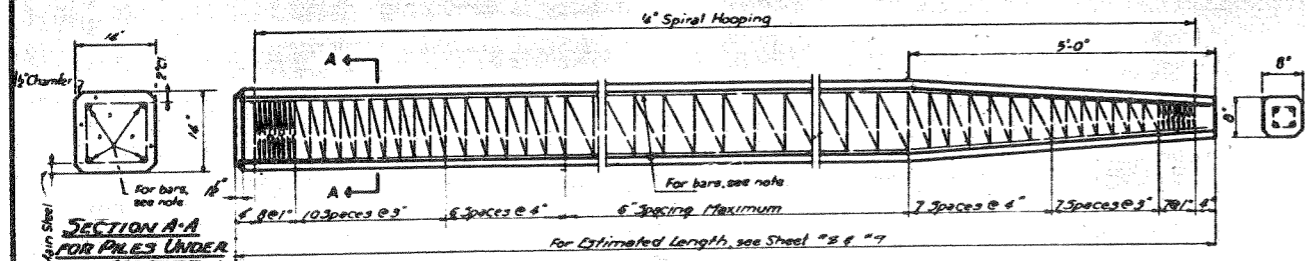
DETAIL OF SPIRALLY WELDED STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



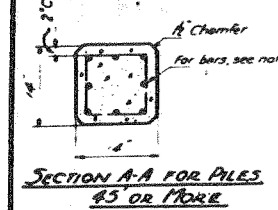
- ALLOWABLE TAPERS**
1. Taper 1/2" for 10" for 12" Cylindrical Section Extension
 2. Taper 1/4" for 17" for 12" Cylindrical Section Extension
 3. Taper 1/2" for 30" for 12" Cylindrical Section Extension

15 Dia Spiral #2 Wire 6" Pitch
2 extra turns top and bottom
#4 Tie Bars. The cost of Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing Piles.

DETAIL OF METAL SHELL FOR CAST IN PLACE CONCRETE PILES



SECTION A-A FOR PILES UNDER 45' LONG



Note
For 14" Piles 45' long or more use #8 bars & for the full length and 4 to the point of bevel.
For 14" Piles under 45' long use #8 bars the full length.

Handling
For pile lengths up to 45 ft, use two slings placed at a distance of 0.21L from each end.
For Piles longer than 45 ft, use three slings placed at a distance of 0.12L from each end and at mid point of pile.
L: Overall length of pile to be handled

DETAIL OF PRECAST CONCRETE PILES

PILING DETAILS

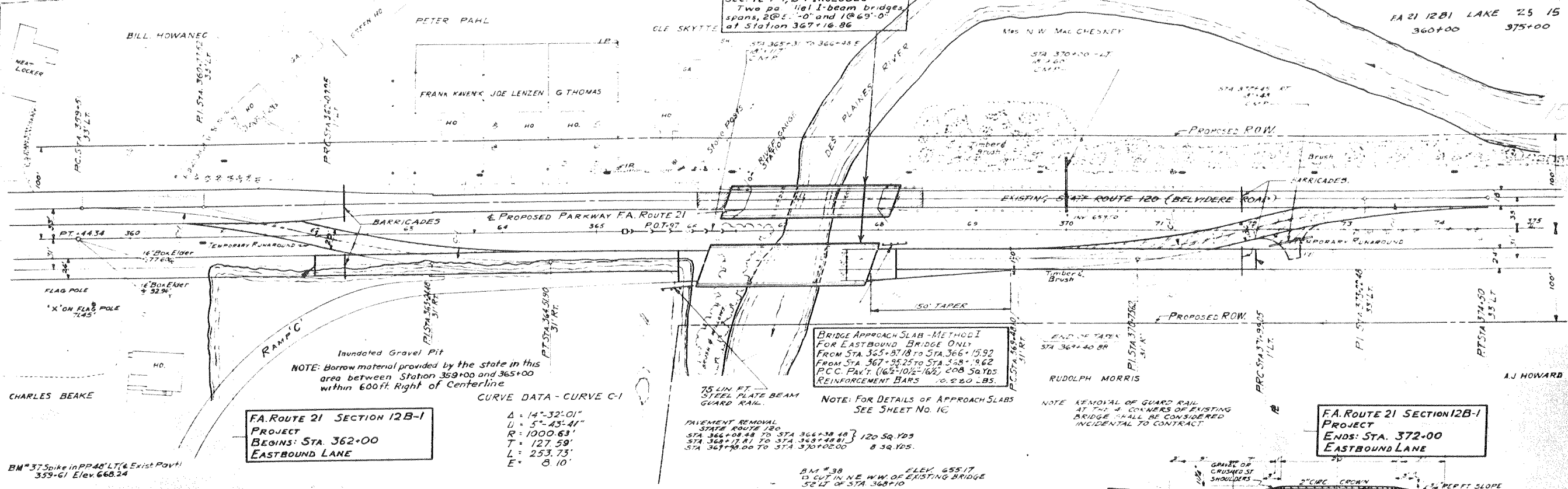
BRIDGE OVER DES PLAINES RIVER

F.A. ROUTE 21 SECTION 12B-1

LAKE COUNTY

STATION 367+16.86

PLAN
 DATE: 10/1/88
 PROJECT: FA ROUTE 21 SECTION 12B-1
 DRAWN BY: []
 CHECKED BY: []
 IN CHARGE: []



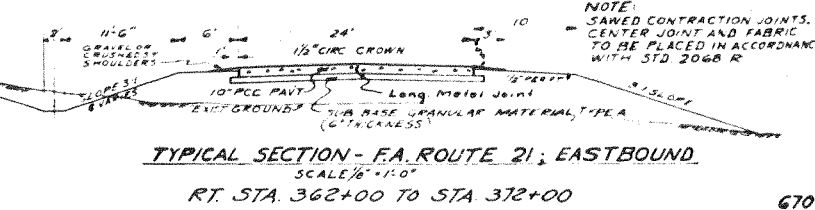
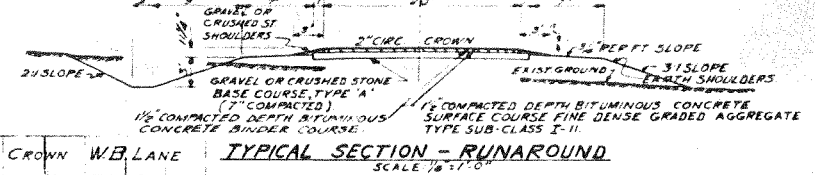
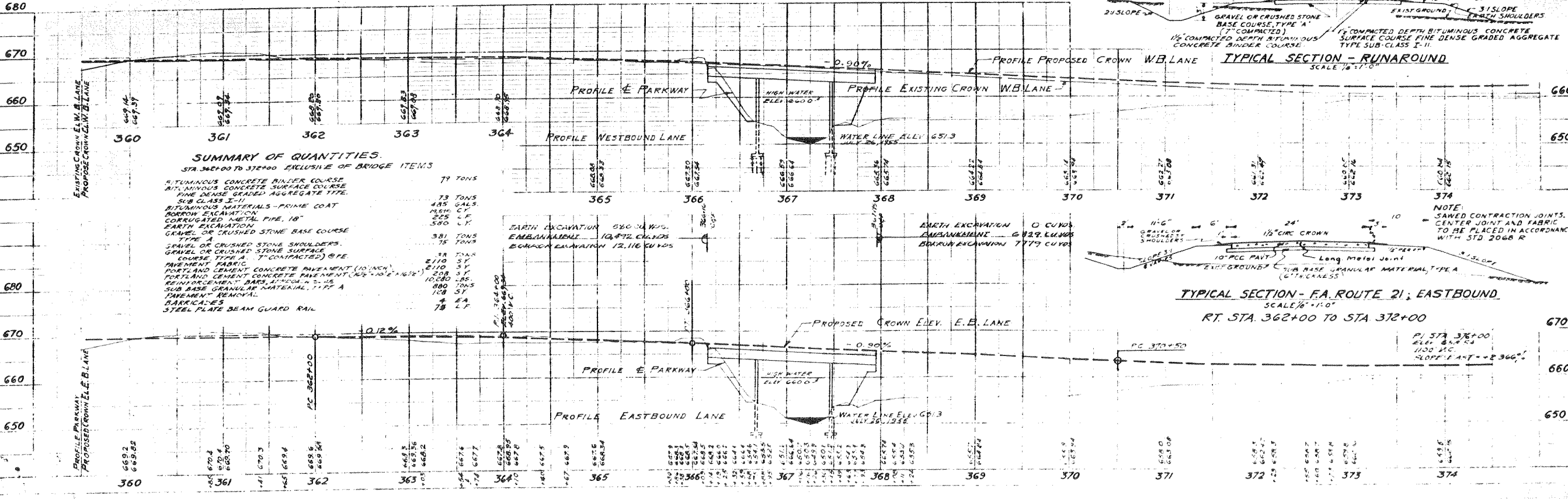
FA. ROUTE 21 SECTION 12B-1 PROJECT
 BEGINS: STA. 362+00
 EASTBOUND LANE

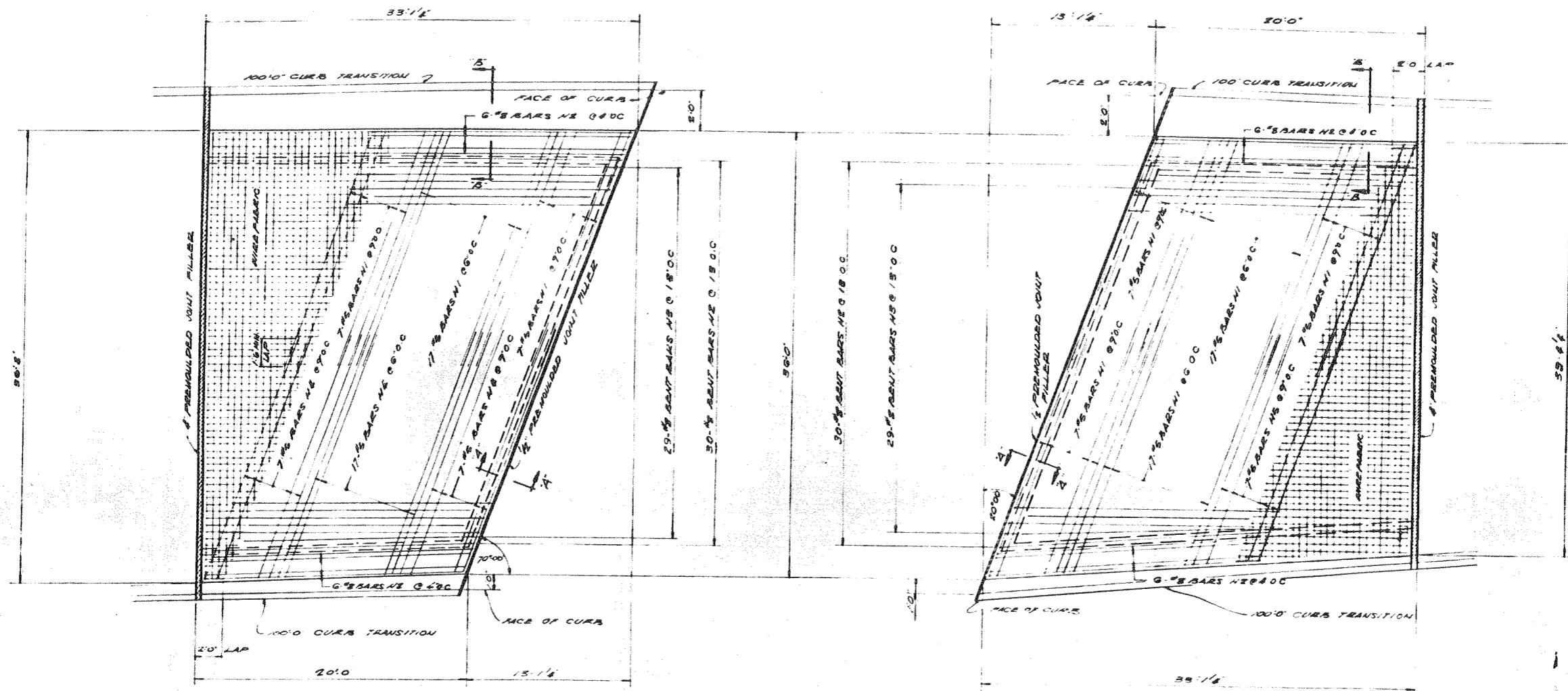
CURVE DATA - CURVE C-1
 $\Delta = 14^{\circ}32'01''$
 $L = 5^{\circ}43'41''$
 $R = 1000.63'$
 $T = 127.59'$
 $L = 253.73'$
 $E = 8.10'$

BRIDGE APPROACH SLAB - METHOD I FOR EASTBOUND BRIDGE ONLY
 FROM STA. 363+87.18 TO STA. 366+15.92
 FROM STA. 367+56.25 TO STA. 368+19.62
 P.C.C. PAV'T. (16'-10 1/2" x 16 1/2") 208 SQ. YDS
 REINFORCEMENT BARS 10,220 LBS.

PAVEMENT REMOVAL STATE ROUTE 120
 STA. 366+08.48 TO STA. 366+38.48 } 120 SQ. YDS
 STA. 368+17.81 TO STA. 368+48.81 } 8 SQ. YDS
 STA. 367+38.00 TO STA. 370+02.00 } 8 SQ. YDS.

FA. ROUTE 21 SECTION 12B-1 PROJECT
 ENDS: STA. 372+00
 EASTBOUND LANE

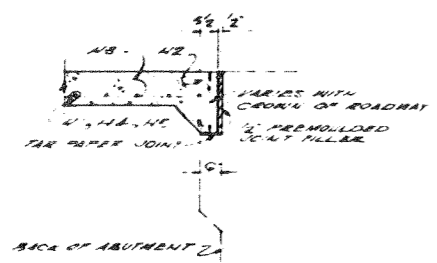




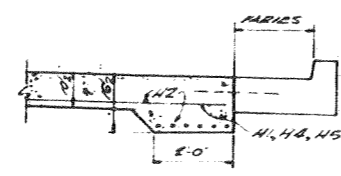
WEST APPROACH

EAST APPROACH

DETAIL OF APPROACH SLABS AT EAST BOUND STRUCTURE 12B-1
SCALE: 1/4"=1'-0"

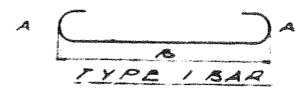


SECTION A-A
SCALE: 1/2"=1'-0"



SECTION B-B
SCALE: 1/2"=1'-0"

BAR LIST FOR APPROACH SLABS						
NO OF PIECES	BAR	LEN	BAR TYPE	A	B	PIN DIA
31	55	45	49 #1			
31		45	303 #2			
42	42	48	220 #2	1	1/2	5/8 #2
29	29	48	180 #3	1	1/2	5/8 #2
	7	85	83 #5			



NOTE:
FOR GENERAL NOTES WORK
THIS DRAWING WITH BRIDGE
APPROACH STANDARD 1903 R

APPROACH SLAB DETAILS - EAST BOUND STRUCTURE

BRIDGE OVER DES PLAINES RIVER

PA ROUTE 21 SECTIONS 12B-1

LAKE COUNTY
STATION 507+16.86

STANDARD SYMBOLS

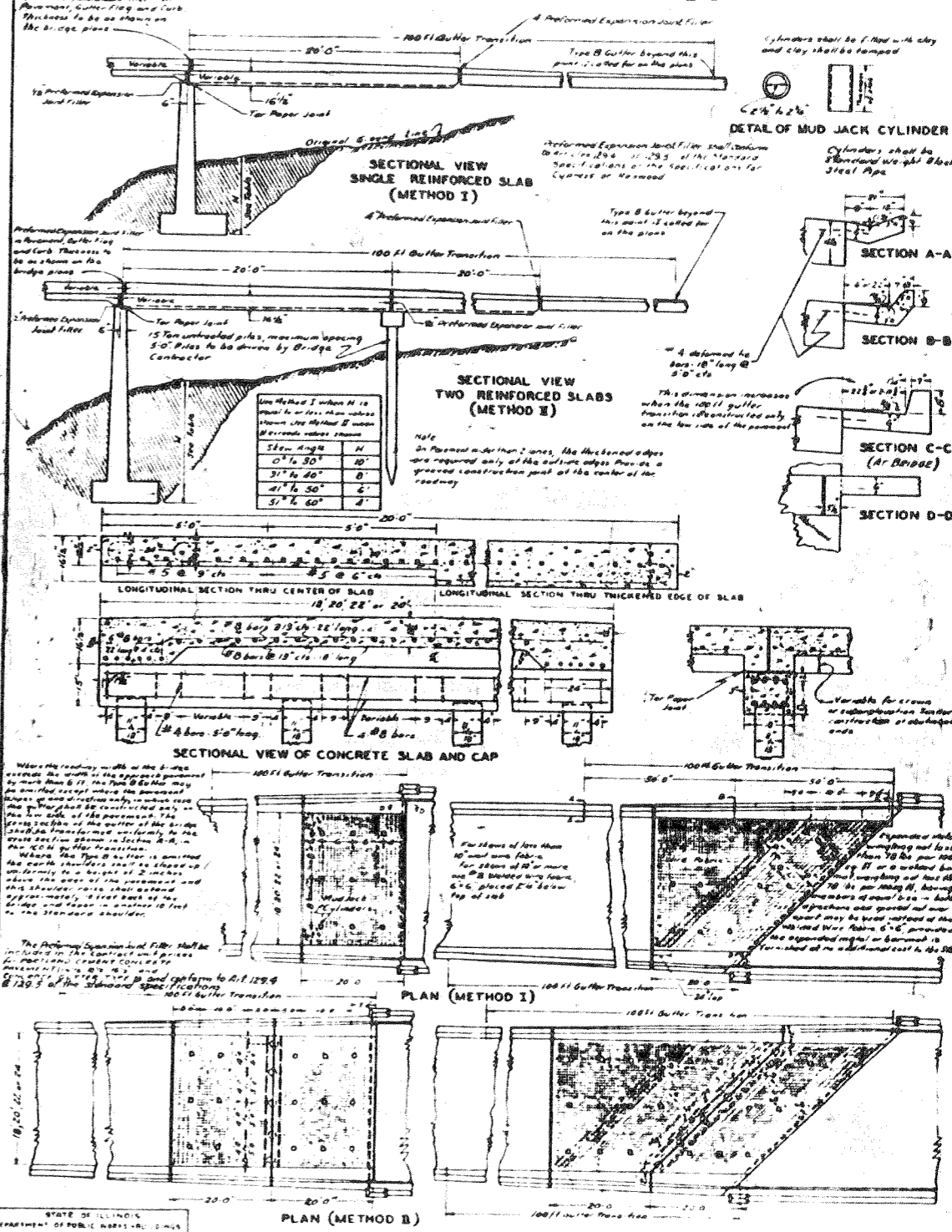
THESE SYMBOLS AND ABBREVIATIONS ARE USED THROUGHOUT THESE PLANS UNLESS OTHERWISE NOTED

- | | | | | | |
|--|---|--|-------------------|---------------------------|--|
| | State Line | | County Line | | Trolley Pole |
| | City, Village or Town Limits | | Township Line | | Telephone or Telegraph Pole |
| | Section or Grant Line | | Section Corner | | Power Line Pole |
| | Unimproved Property Line | | Right of Way Line | | |
| | Fence Line | | | | |
| | Expansion Joint | | Retaining Wall | PLAN ABBREVIATIONS | |
| | Base or Survey Line | | Levee | TD | Tile Drain |
| | Culvert to be Constructed | | Existing Culvert | SS | Storm Sewer (Existing) |
| | Marsh | | Stream | (SS) | Skrm. Sewer (Size, Length and Type) |
| | Traced | | | (SS) | Storm Sewer (Size, Length, Type and Material) |
| | Traveled Way | | | C.M.P. | Corrugated Metal Pipe |
| | Storm Sewer (Direction of Flow & Invert Elevation Indicated) | | | C.I.P. | Cast Iron Pipe |
| | The Drain (Direction of Flow & Invert Elevation Indicated) | | | P.C. | Pipe Culvert (Existing) |
| | Guard Rail | | | (P.C.) | Pipe Culvert (Size, Length and Type) |
| | Steam or Electric Railroad, or Utility Tracks | | | (P.C.) | Pipe Culvert (Size, Length, Type and Material) |
| | Hedge | | | FF | Face to Face of Curb |
| | Longitudinal Construction Joint | | | B-R | Back to Back of Curb |
| | Longitudinal Metal Joint | | | E-F | Center Line to Face of Curb |
| | Existing Pavement, Curb & Gutter, Driveway Pavement & Sidewalk to be Removed | | | E-B | Center Line to Back of Curb |
| | Elevation of Surface of Finished Pavement at Point Indicated | | | Δ | Central Angle |
| | Elevation of Top of Curb at Point Indicated | | | D | Degree of Curve |
| | Elevation of Flow Line of Gutter at Point Indicated | | | T | Tangent Length |
| | Existing Inlet to be Adjusted, or Inlet to be Reconstructed | | | L | Curve Length |
| | Inlet to be filled with Sand & Connection Blocked with Brick & Mortar | | | R | Radius of Curve |
| | Existing Catch Basin, Catch Basin to be Adjusted, or Catch Basin to be Reconstructed | | | E | External Distance |
| | Catch Basin to be Constructed | | | S | Superelevation (ft. per ft. of width) |
| | Catch Basin to be filled with Sand & Connection Blocked with Brick & Mortar | | | PC | Point of Curvature |
| | Existing Manhole, Manhole to be Adjusted, or Manhole to be Reconstructed | | | PI | Point of Intersection |
| | Manhole to be Constructed | | | PT | Point of Tangency |
| | Manhole to be filled with Sand & Connection Blocked with Brick and Mortar | | | POT | Point on Tangent |
| | Existing Valve Vault, Valve Vault to be Adjusted, or Valve Vault to be Reconstructed | | | PCC | Point of Compound Curvature |
| | Valve Vault to be Constructed | | | PRC | Point of Reverse Curvature |
| | Valve Vault to be filled with Sand & Connection Blocked with Brick and Mortar | | | VC | Vertical Curve |
| | Existing Fire Hydrant, or Fire Hydrant to be Adjusted | | | X | External Distance of Vertical Curve |
| | Fire Hydrant & Auxiliary Valve to be Moved (Symbol with Letter Indicates New Location) | | | SBI | State Bond Issue |
| | Existing Light Standard, or Light Standard to be Adjusted | | | FA | Federal-aid |
| | Light Standard to be Moved (Symbol with Letter Indicates New Location) | | | SA | State-aid |
| | Existing Stop & Go Light, or Stop & Go Light to be Adjusted | | | Rt. | Route |
| | Stop & Go Light to be Moved (Symbol with Letter Indicates New Location) | | | Sec. | Section |
| | Existing Traffic Sign, or Traffic Sign to be Adjusted | | | Sta. | Station |
| | Traffic Sign to be Moved (Symbol with Letter Indicates New Location) | | | R.P.S. | Reference Point Stake |
| | Existing House Service Box or House Meter Vault, or House Service Box or House Meter Vault to be Adjusted | | | IP | Iron Pipe |
| | House Service Box or House Meter Vault to be Moved (Symbol with Letter Indicates New Location) | | | N&W | Nail & Washer |
| | Box or Main Meter Vault to be Adjusted | | | T.P. | Telephone Pole |
| | Main Service Box or Main Meter Vault to be Moved (Symbol with Letter Indicates New Location) | | | RP | Power Pole |
| | Right of Way Markers | | | EP | Fence Post |
| | | | | F.H. | Fire Hydrant |
| | | | | B.M. | Bench Mark |
| | | | | R.R.S. | Rail Road Spike |
| | | | | R.C.W. | Right of Way |
| | | | | Inv. | Invert |
| | | | | FL | Flow Line |
| | | | | Sum. | Summit |
| | | | | Elev. | Elevation |
| | | | | P.C.C. | Portland Cement Concrete |
| | | | | U.S.G.S. | U.S. Geological Survey or U.S. Coast & Geodetic Survey |
| | | | | F.A.S. | Federal-aid Secondary |
| | | | | M.F.T. | Motor Fuel Tax |
| | | | | C.S. | City Streets |
| | | | | Proj. | Project |

If it is definitely known that adjustment or reconstruction is required, place A or R inside the symbol. If a new casting is required, show the casting number. Use P for open, C for closed lid. Example - Catch Basin to be reconstructed with new type 5 frame, open lid - R, SP

First character denotes type of structure. Use S for special design. Second character denotes number of frame or grate. Example - Type A manhole with type 1 frame & closed lid - A-1C

DETAILS OF BRIDGE APPROACHES USING CONCRETE GUTTER TYPE B



STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS - DIVISION OF HIGHWAYS

STANDARD 1908R

STANDARD 1686 R