

DUBUQUE COUNTY

SUBSTRUCTURE

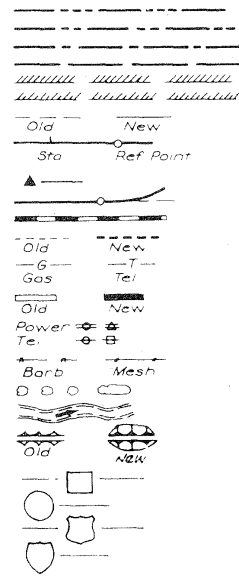
BRF-561-4(2)--38-31

State Line
Co. Line
Twp. Line
Sec. Line
Corp. Line
Urban Bdry
R.O.W. Lines
Survey Line

Sec. Corner
Profile Grade
Railroad
Field Tile
Underground Lines
Culverts
Utility Poles
Fences
Trees Or Brush
Stream
Dike

County Road No.
Primary Road No.
U. S. Road No.
Interstate Road No.

CONVENTIONAL SIGNS



LOCATION MAP

PART OF THE CITY OF
DUBUQUE
T-89N R-3E
DUBUQUE TWP.

DESIGN 777

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
DUBUQUE COUNTY

DUBUQUE COUNTY-IOWA AND GRANT COUNTY-WISCONSIN
SUBSTRUCTURE
CITY ISLAND BRIDGE IN DUBUQUE

THE STANDARD SPECIFICATIONS, SERIES OF 1977
OF THE IOWA DEPARTMENT OF TRANSPORTATION
SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT

(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

DESIGN STRESSES:

Design stresses for the following materials are in accordance with the
AASHTO Standard Specifications for Highway Bridges, Series of 1977.
Reinforcing Steel in accordance with Section 1.5, Grade 60
Concrete in accordance with Section 1.5, $f'_c = 3,500$ psi.

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: *William L. Campbell*
Resident Construction Engineer

Date: *MARCH 1, 1982* Iowa Reg. No. *4130*

REVIEWED AND FORWARDED TO AMES

District Construction Engineer

One 50% Reduced and Two Full-Size Prints To Be Made and Returned To

District Engineer

AFTER MICROFILMING RETURN ORIGINAL
TO DISTRICT NO. _____

THIS AS BUILT PLAN INCLUDES
WORK CONTRACTOR

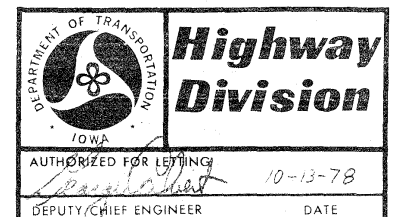
1979 SUBSTRUCTURE LUNDA CONST. CO. PROJ. INSPECTOR
JOHN J. THURN

REVISED

SEE FOLLOWING SHEET 1A

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED
UNDER MY SUPERVISION AND THAT ENGINEERING
DECISIONS WITH REGARD TO THE DESIGN WERE
MADE BY ME OR BY OTHER DULY REGISTERED
PROFESSIONAL ENGINEERS UNDER THE LAWS OF
THE STATE OF IOWA.

IOWA REGISTRATION NUMBER DATE



U.S. DEPT. TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ENGINEER DATE

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		1	31
PROJECT NUMBER				
BRF-561-4(2)--38-31				
R.O.W. PROJECT NUMBER				
PRELIMINARY ENGINEER NUMBER				
BRF-561-4(1)--38-31				

INDEX OF SHEETS

NO.	DESCRIPTION
1	Title Sheet
1A	REVISION SHEET
2.	General Plan and Elevation
3.	General Plan and Elevation
4.	General Plan and Elevation
5.	General Notes and FINAL Quantities
6.	Log of Borings
7.	Log of Borings
8.	Log of Borings
9.	Log of Borings 9A-C PILING LOGS
10.	Pier P1
11.	Pier P2
12.	Bar List - Piers P1 & P2
13.	Pier P3
14.	Pier P4
15.	Bar List - Piers P3 & P4
16.	Pier P5
17.	Pier P6
18.	Bar List - Piers P5 & P6
19.	Pier P7
20.	Pier P7
21.	Pier P8
22.	Pier P8
23.	Bar List - Piers P7 & P8
24.	Pier P9
25.	Pier P10
26.	Piers P9 & P10
27.	Bar List - Piers P9 & P10
28.	Pier P11
29.	Bar List - Pier P11
30.	Clearance Gauge Details
31.	Grounding Details

DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION
STANDARDS REQUIRED (Available at Bridge Design Services)

STANDARD ISSUED REVISED

NONE REQUIRED

LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS	DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
1-24-79	1A of 31	Design 777 This sheet Added (Revision Sheet).			
	5 of 31	Items revised are identified by  . Reinf. Steel quantities for Piers 1,2,3,4,5,6,9,10,11 & total changed.			
	10 thru 22, 24, 25, 27, 28 & 29 of 31	Items revised are identified by  .			
	1 of 31	Sheet 1A added to "Index of Sheets." REASON: Above revisions made due to an error in the design. MASTERS PRINTED			
6-29-79		Design 777			
	17 & 25 of 31	Footing dimension corrected in Elevation as identified by  . REASON: Error in plan detailing (no change in quantities). MASTERS PRINTED			

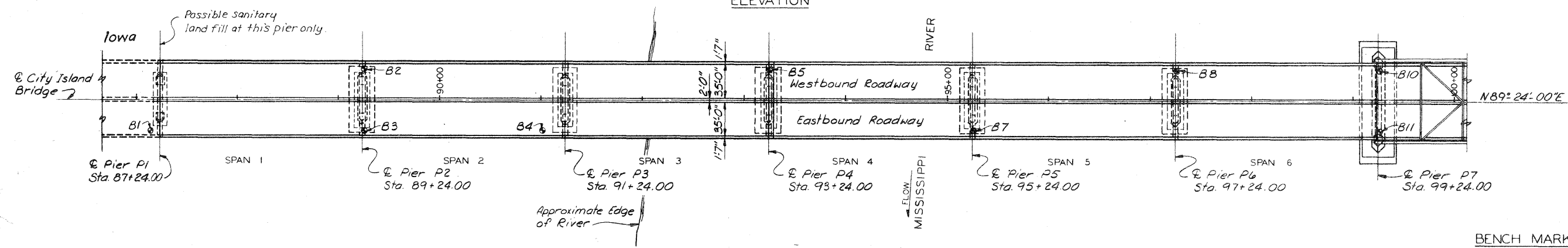
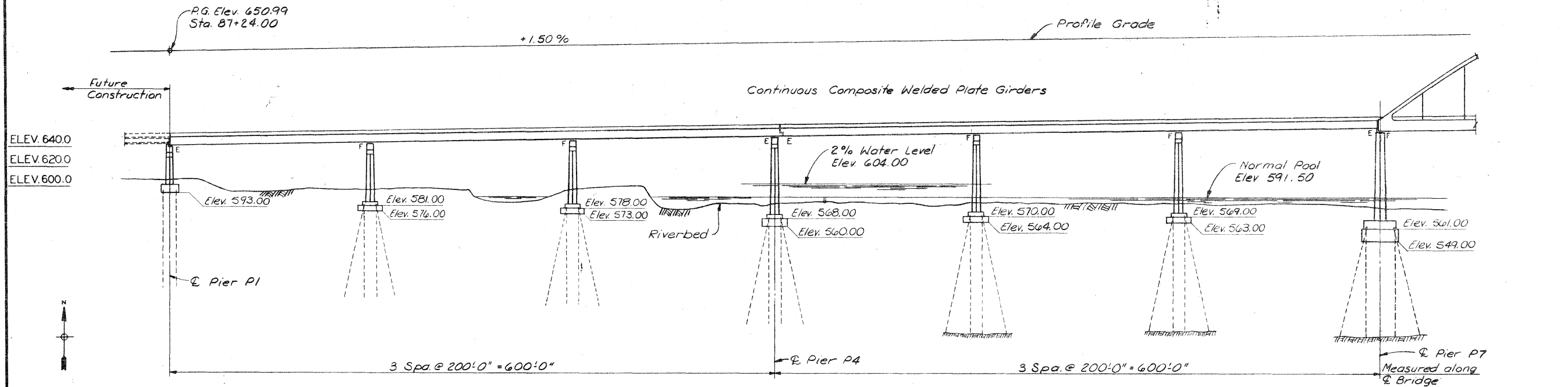
REVISION SHEET

FILE NO. 25896

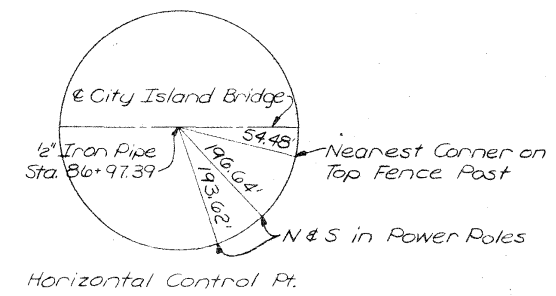
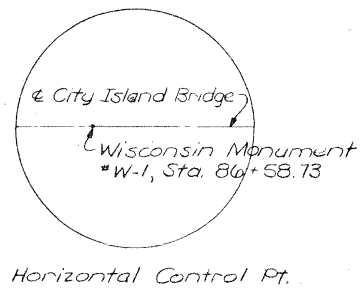
Dubuque COUNTY

PROJECT NUMBER
BRF-561-4(21)--38-31

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	3		1-A	31



Note: • Indicates Boring see Sheets 6 thru 9.



BENCH MARKS

T.B.M. #8 100p. spike on west side of west power pole of 3 power poles. 187' Rt. Sta. 86+41. Elev. 613.49.

T.B.M. #10 "x" on N.W. Anchor bolt for R.R. semaphore 32.5' Lt. Sta. 113.97. Elev. 612.57.

Bench Mark: IDOT B.M. IN SW, BARRIER RAIL 40 RT. STA. 85+90 ELEV. — 651.03

MISSISSIPPI RIVER BRIDGE

GENERAL PLAN AND ELEVATION

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

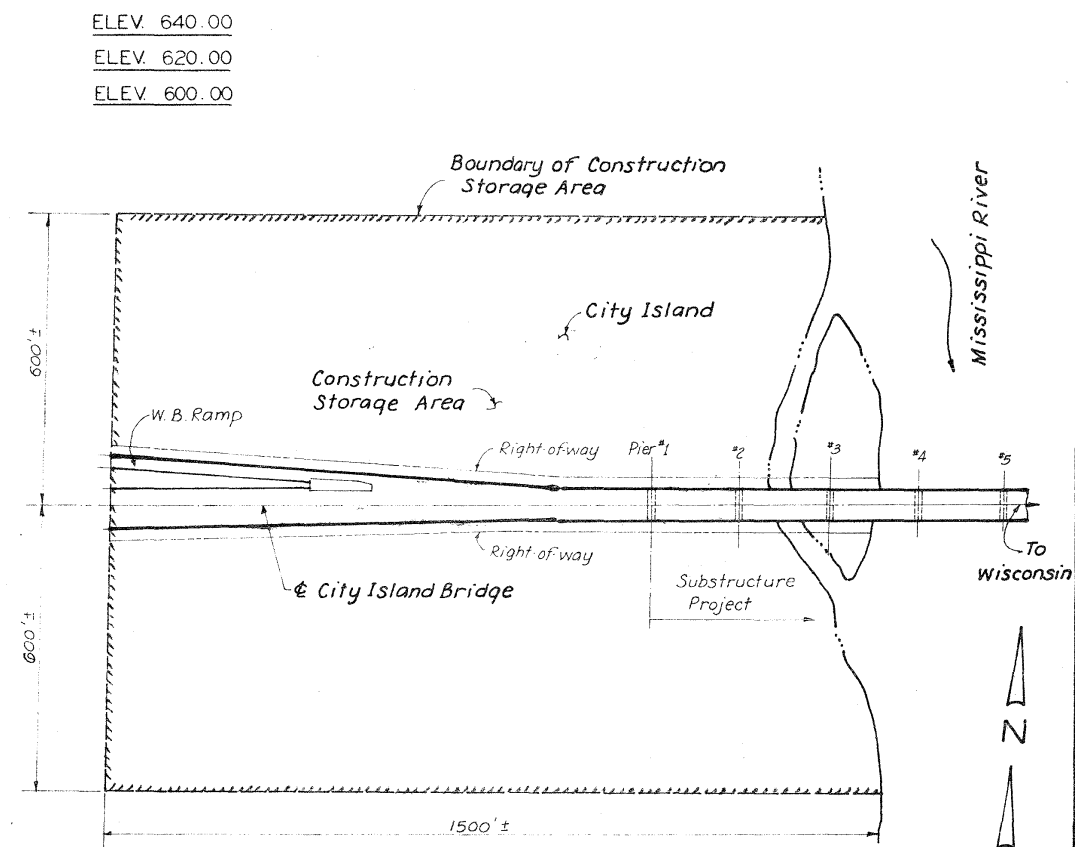
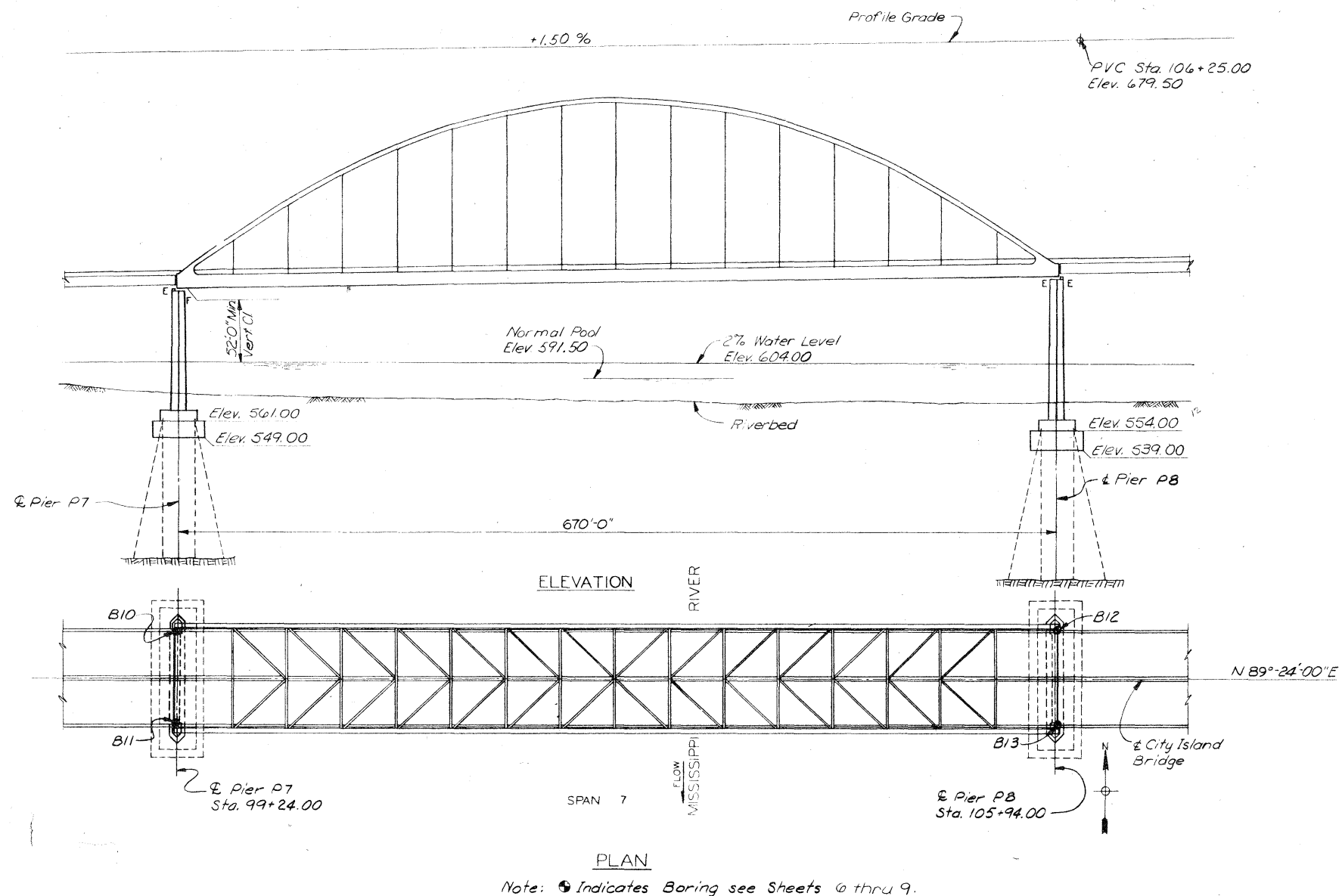
IOWA DEPARTMENT OF TRANSPORTATION

DRAWN BY: T. Simmons July, 1978
CHECKED BY: J. Oliver, Sept. 1978

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 2 OF 31
PROJECT BRP-561-4(2)-38-31 PROJECT SH. NO. 2 OF 31



LAYOUT OF CONSTRUCTION STORAGE
AREA ON CITY ISLAND

MISSISSIPPI RIVER BRIDGE

GENERAL PLAN AND ELEVATION

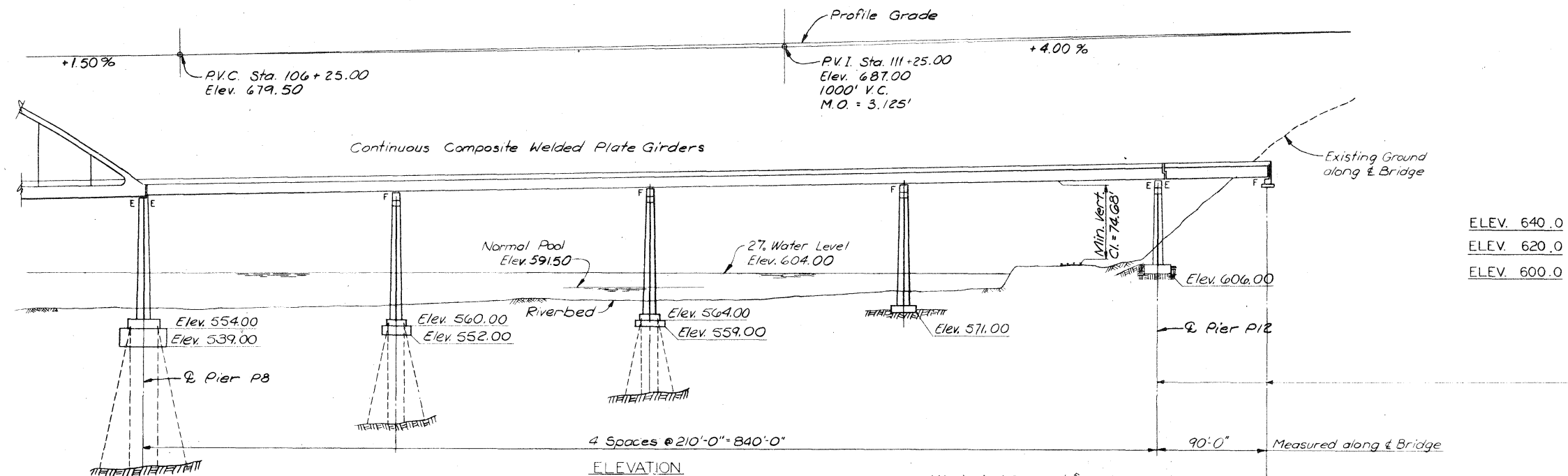
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

DRAWN BY: T. Simmons July, 1978
CHECKED BY: J. J. J. J.

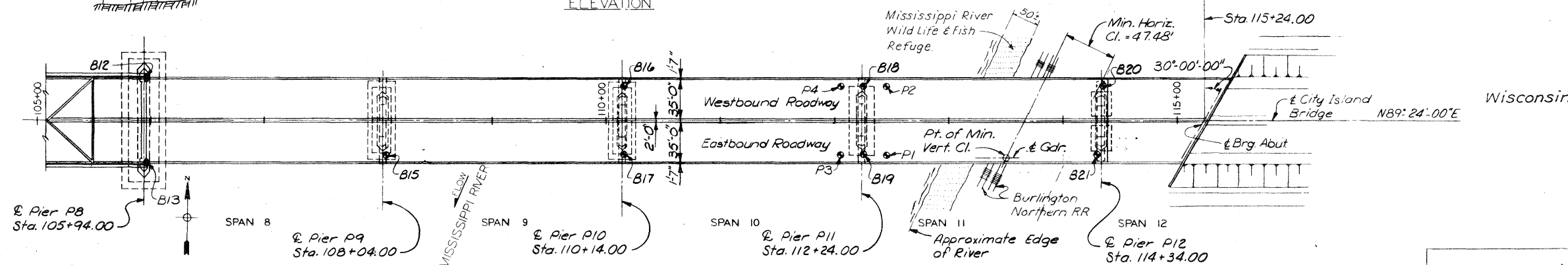
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 3 OF 31
PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 3 OF 31

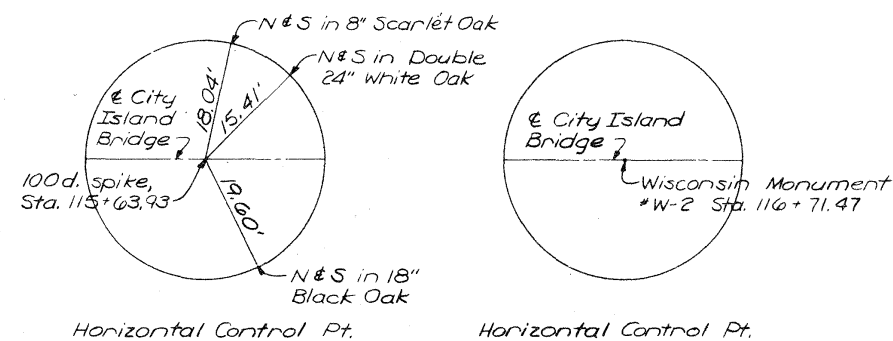


ELEV. 640.0
ELEV. 620.0
ELEV. 600.0



PLAN
Note: B Indicates Boring or Probe see Sheets 6 thru 9.

NOTE
Pier P12 and the Wisconsin Approach Abutment are not included in this contract.



MISSISSIPPI RIVER BRIDGE

GENERAL PLAN AND ELEVATION

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

5818
DRAWN BY: I. Simmons July, 1978
CHECKED BY: J.G. Oliver Sept, 1978

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 4 OF 31
PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 4 OF 31

PILE & FOOTING DATA

		Pier P1	Pier P2	Pier P3	Pier P4	Pier P5	Pier P6	Pier P7	Pier P8	Pier P9	Pier P10	Pier P11
PILES	Pile Type and size	HP14x89	HP14x89	HP14x89	HP14x89	HP14x89	HP14x89	HP14x89	HP14x89	HP14x89	HP14x89	—
	Number	18*	4*	40	40	48	48	120	140	56	56	—
	Est. Pile Tip Elev.	500.0	490.0	482.0	463.0	453.0	455.0	456.0	440.0	477.0	503.0	—
	Est. Length (vertical) ^Δ Ft.	111	109	114	118	120	117	108	117	86	64	—
	Design Bearing Tons	146.8	148.8	148.8	132.2	145.4	145.4	141.8	144.0	132.0	129.6	—
SPREAD FOOTINGS	Foundation Material	—	—	—	—	—	—	—	—	—	—	Rock
	Design Bearing Tons/Sq. Ft.	—	—	—	—	—	—	—	—	—	—	78

Note: Number of piles shown includes one load test pile. See test pile length on Sh. 10 & 11. ^Δ For battered piling length see Piling Schedule for Piers P2 thru P10.

PILING NOTE:

- All piling shall be HP14 x 89. Piling shall be driven with either an impact hammer or vibratory driver.
- Piling at Piers P1 thru P4 shall be 'friction piles' driven to plan tip elevations. Bearing piling at Piers P5 thru P10 shall be seated in rock with an impact hammer.
- Bearing piling shall be driven to practical refusal of 15 blows per inch of penetration at the plan tip elevations. Seating shall be done with a diesel hammer having a ram weight of 7,000 pounds delivering 51,000 foot-pound of energy at design bearing or a steam hammer having a ram weight of 12,000 pounds delivering 39,000 foot-pound of energy at design bearing.
- Test loading of piles described in Article 2501.10 Para. C of the Standard Specification will not be required for single acting diesel hammers.
- The use of a follower for driving HP14 x 89 piles will be permitted under the following conditions:
- The Contractor shall design the follower and submit it to the Engineer for approval.
 - The use of a follower will be permitted only if all applicable safety requirements are met.
 - One pile shall be driven near each end of each footing without a follower and another pile shall be driven with a follower approximately 10 feet from each pile driven without a follower. Each pile driven with a follower shall penetrate to the same elevation as the adjacent pile driven without a follower. If the piles driven with a follower require more than 15 blows per inch for the diesel and steam/air to penetrate to the required elevation, all piles driven with a follower shall be driven to this greater resistance as approved by the Engineer.
 - If the Contractor elects to use followers, he shall furnish piles five feet longer than the furnished length shown on the drawings to insure that the piles reach the required resistance and extend into the footing. The cost of furnishing this additional five feet of pile will be considered incidental to the use of the follower, and will not be paid for directly. Any portion of this five feet length that remains in place will be paid for at the contract price for driving.

EXTRA WORK ORDERS

NO.	DESCRIPTION	UNIT	TOTAL
8001	FURNISH GRANULAR SURFACING CL. A CRUSHED STONE	TONS	2231.2
8002	PERMIT FOR WING DAM	\$	\$325.00
8003	REMOVE WING DIKE PIER 4, 5, 6 & 7	\$	\$10152.09
8004	HEATING MATERIALS FOR CONCRETE IN 1979	CU. YD.	374
8005	HEATING & PROTECTING CONCRETE IN 1979	CU. YD.	6546
8006	HEATING MATERIALS FOR CONCRETE IN 1980	CU. YD.	374
8007	HEATING & PROTECTING CONCRETE IN 1980	CU. YD.	1861.1
8008	MOVE CHAIN LINK FENCE	\$	\$650.00
8009	PILING SPLICE HP14X89 ONLY		31
8010	PRICE ADJUSTMENT FOR GRADATION	CU. YD.	178.7
8011	PRICE ADJUSTMENT FOR HIGH SLUMP	CU. YD.	6
8012	FURNISH & PLACE WING DIKE MATERIAL	\$	\$17981.88

SUBSTRUCTURE-FINAL QUANTITIES

Item No.	Item	Unit	Pier P1	Pier P2	Pier P3	Pier P4	Pier P5	Pier P6	Pier P7	Pier P8	Pier P9	Pier P10	Pier P11	Total
1	Structural Concrete Class C	Cu. Yd.	426.9	742.6	810.9	1000.4	994.8	1040.5	3165.2	3688.9	1423.7	1398.4	1415.7	16,108
2	Structural Concrete Class X	Cu. Yd.	—	284.4	284.4	492.6	374.0	374.0	2097.3	2666.7	497.8	298.1	1415.7	7369.3
Δ 3	Reinforcing Steel Grade 60	Lbs.	47,474	70,549	78,518	66,603	86,308	88,820	217,357	248,657	115,624	109,247	125,754	1,264,661
4	Steel Piles	Lin. Ft.	15798	3616.7	3908.2	4341.0	4606.1	4750.7	12047.8	14732.0	5059.6	3742.6	—	58045.2
5	Drive	Lin. Ft.	15798	35946	3632.7	4164.1	4164.8	4180.7	10810.3	13073.7	4758.3	3234.1	—	53193.1
6	Class 20 Excavation	Cu. Yd.	464.48	—	—	—	—	—	—	—	—	—	—	464.48
7	Pile Load Test*	Each	1	1	—	—	2	—	—	—	—	—	—	4
8	Cofferdam	Lump Sum	—	1	1	1	1	1	1	1	1	1	1	10
9	Field Office	No.	—	—	—	—	—	—	—	—	—	—	—	1
10	Additional Load Test*	Each	1	1	—	—	—	—	—	—	—	—	—	2
Δ 3	Reinforcing Steel Grade 60	Lbs.	48858	71,619	77405	66,773	87,328	89,840	217,357	248,657	117,928	110,862	128,058	1,264,665

* See Art. 18 of Special Provisions

NOTES:

- For Steel Piles the "Furnish" length shown provides an allowance of 2 ft. per pile for overdriving.

* Excavation included in price bid for Cofferdam. See Special Provisions.

Revised (1-24-79)

Items revised are identified by Δ. Reinf. Steel quantities for Piers 1, 2, 3, 4, 5, 6, 9, 10, 11 & Total changed.

GENERAL NOTES

SPECIFICATIONS:

Design: The American Association of State Highway and Transportation Officials "Standard Specifications for Highway Bridges", Twelfth Edition, 1977.
Construction: Iowa Department of Transportation "Standard Specifications for Highway and Bridge Construction" Series of 1977, current supplemental specifications and Special Provisions.

LOADS:

Live Loads: HS20-44 Live Load, two lanes each direction, and interstate highway bridge loading as per AASHTO 1.2.5 (G).
Dead Load: An allowance of 20 lbs/sq. ft. of roadway for future wearing surface is included in the dead load.
Flow Ice: 18-inch thickness as per AASHTO 1.2.17 applied normal to the centerline of bridge at Elevation 598.00
Stream Current: 4 ft./sec. as per AASHTO 1.2.17 applied normal to the centerline of bridge at Elevation 598.00
Seismic Forces: In accordance with AASHTO 1.2.20 by the Equivalent Static Force Method, for Zone I, using a combined response coefficient of C = 0.06.

SPECIAL LOADS:

Barge Impact: 1,000,000 lbs. applied normal to the centerline of bridge at Elevation 604.00
Sheet Ice: 20,000 lbs./ft. applied parallel to the centerline of bridge at Elevation 598.00
The special loads indicated above were applied to the main piers. Similar loads of lesser magnitude were applied to the other piers located in the river.

DESIGN STRESSES:

All members are designed according to the Service Load Design Method.
Concrete: $f'_c = 3500$ psi, $n = 10$
Reinforcement: $f_s = 24,000$ psi (Grade 60)
Footings on Rock: 10 tsf.
Piling: 150-ton H-piles with a normal unit stress of 12,000 psi.

CONCRETE: All exposed corners of 90° or sharper are to be formed with a $\frac{3}{4}$ " dressed and beveled fillet.

REINFORCEMENT: Reinforcing bars shall conform to ASTM A615, Grade 60, ASTM A616, Grade 60, or ASTM A617, Grade 60.

All dimensions to reinforcing steel on detail drawings are to center line of bar except where clear distance is noted from the face of concrete. All reinforcing steel shall be lapped according to AASHTO 1.5.22 unless otherwise shown or noted.

PILING: HP14x89 - 150 tons max. load (See Pile & Footing Data for design bearing values)

COFFERDAMS: Cofferdam construction will be required at Piers P2 thru P11. (See Special Provisions.)

RAILROAD RIGHT-OF-WAY: See Special Provisions.

MISCELLANEOUS: The Contractor shall submit construction plans to the Commander, Second Coast Guard District, St. Louis, Missouri, for approval prior to construction on navigable water. The Contractor shall comply with the requirements for temporary lighting or marking as required by the Coast Guard.
The cost of this work shall be considered incidental to the construction, and no separate payment will be allowed.

MISSISSIPPI RIVER BRIDGE

GENERAL NOTES AND ESTIMATED QUANTITIES

DUBUQUE COUNTY, IOWA — GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 5 OF 31

PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 5 OF 31

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

DRAWN BY: L. J. ... 1/78
CHECKED BY: ... 1/78

ELEV	BORING NO. B-1 Station 87+15 Offset 30' Rt.	ELEV	BORING NO. B-1 (Cont'd)	ELEV	BORING NO. B-2 Station 89+25 Offset 30' Lt.	ELEV	BORING NO. B-2 (Cont'd)	ELEV	BORING NO. B-3 Station 89+25 Offset 30' Rt.	ELEV	BORING NO. B-3 (Cont'd)
610	611.6'	440	111	610		440	35	610		470	35
	4" Gravel (Road)										Dense
600	599.6	430	35	600	599.3	430	35	600	599.0	460	
	Sand-medium dense, brown, fine to medium				596.8				594.5		
					590.8				589.5		
590	596.9	420	53	590	589.2	420	18	590	588.0	450	
	Sand-gray, fine to medium				586.8						
	Silt-black, organic										
	Sand-very loose, gray, fine to medium										
	Layers of black organic silt										
580	578.6	410	63	580		410	27	580		440	
	Loose, trace of wood and silt										
570		400	56	570	569.3	400	140	570		430	
	Sand-Medium dense, gray, fine to coarse										
	Trace of gravel and wood										
560	563.1	390	39	560		390	126	560		420	
	Sand-Medium dense, brown, fine to coarse, little gravel										
550		380	43	550	552.8	380	381.8	550		410	
540		370		540		370	100%	540		400	
530		360	361.6	530		360	363.3	530		390	
520		350	26	520		350		520		380	
510		340	341.1	510	510.3	340		510		370	
500	500.0			500		500		500			
	Pile Load Test tip elev.										
490	491.6			490	490.0	490		490	490.0		
	Sand-dense, brown, fine to coarse, little gravel										
480				480		480		480			
	Plan Pile Tip Elev. 485										
470				470		470		470			
460				460		460		460			
	Very dense										
450	451.6			450		450		450			

PIER #1

PIER #2 (N. End)

PIER #2 (S. End)

NOTES
For Boring Notes see Sht. B

MISSISSIPPI RIVER BRIDGE

LOG OF BORINGS

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 6 OF 31

PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 6 OF 31

DRAWN BY: T. Simmons Sept. 1978
CHECKED BY: J.G. Oliver Sept. 1978
5818 785265

BORING B12 Sta. 105+95 35' Lt.		BORING B13 Sta. 105+95 35' Rt.		BORING B15 Sta. 108+05 30' Rt.		BORING B16 Sta. 110+15 30' Lt.		ELEV.
600.9	Water	597.9	Water	597.9	Water	595.8	Water	600
574.2	4 Sand - Fine, very loose, grey Little silt Loose - Trace of silt Trace of gravel 6" layer silt - black organic Trace of fibers & wood Med. dense	574.2	5 Sand - Loose, brown to grey, fine to medium, poor recovery Medium dense	577.7	2 Sand - Very loose, brown, fine to coarse Layers of organic silt Trace of wood	582.3	2 Silt - Very loose, black organic Trace of shells	590
553.7	10 Sand - Medium dense, grey, fine to medium Trace of shells	562.2	19 Sand - Loose, grey, fine to coarse Trace of gravel Loose	565.7	4 Sand - Loose, brown, fine to coarse	573.3	3 Sand - Loose, grey, fine to coarse Trace of silt & shells Medium dense	580
543.7	14 Sand - Medium dense, grey, fine to coarse Trace of gravel	546.2	13 Firm	546.2	5 Firm	573.3	8 Sand - Loose, grey, fine to coarse Trace of silt & shells Medium dense	570
522.7	25 Sand - Dense, grey, fine to medium coarse Little gravel	522.7	11 Loose	522.7	14 Firm	573.3	21 Medium dense Little gravel	560
475.2	39 Sand - Dense, grey, fine to medium coarse Little gravel	475.2	9 Layers of gravel	475.2	22 Medium dense	573.3	38 Sand - Dense, grey, fine to coarse Little gravel	550
464.7	26 Layers of gravel Layers of fine brown sand Sand - Medium dense, brown, fine to coarse. Little gravel	464.7	29 Very dense	464.7	34 Dense	573.3	54 Sand - Very dense, grey, fine	540
456.2	53 Sand - Very dense, brown, medium to coarse. Some gravel	456.2	36 Layers of coarse gravel Stone in shoe	456.2	43 Limestone - Grey weathered	573.3	100% Sandstone - Very dense, yellowish brown	530
439.7	27 Sand - Medium dense, brown, fine to medium. Trace of gravel	439.7	44.5 No recovery, refusal of S.S.	439.7	47.2 Plan Pile Tip Elev. 477.0	573.3	100% Sandstone - Very dense, yellowish brown	520
433.2	60% Sandstone - White Fractured Limestone Jammed barrel	433.2	438.2 Limestone - Brown, weathered	433.2	452.7 Sandstone - Very dense, white weathered	573.3	100% Sandstone - Very dense, yellowish brown	510
416.2	56% End of Boring	416.2	435.7 Sand - Very dense, brown, silty	416.2	452.7 Sandstone - Very dense, white weathered	573.3	100% Sandstone - Very dense, yellowish brown	500
	PIER #8 (N. End)		423.0 End of Boring		434.1 End of Boring		100% Sandstone - Very dense, yellowish brown	490
							487.8 Sandstone - White	480
							96% Sandstone turns to brown	470
							20% End of Boring	460
								450
								440
								430
								420
								410

BORING NOTES

Boring data are furnished for information only and may or may not represent the actual conditions which may be found when the work is executed. Percentages given in the vertical columns represent the % of core recovery. Numbers shown in the vertical columns without a % sign are the number of blows required to drive a 2" O.D. sampling spoon one foot using a 140 lb. weight falling 30 inches. All borings were made during the months of May thru August 1978. Borings B6, B9, and B14 were eliminated from the boring program.

MISSISSIPPI RIVER BRIDGE

LOG OF BORINGS

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

PIER #8 (S. End)

PIER #9 (S. End)

PIER #10 (N. End)

Boring data are furnished for information only and may or may not represent the actual conditions which may be found when the work is executed. Percentages given in the vertical columns represent the % of core recovery. Numbers shown in the vertical columns without a % sign are the number of blows required to drive a 2" O.D. sampling spoon one foot using a 140 lb. weight falling 30 inches. All borings were made during the months of May thru August 1978. Borings B6, B9, and B14 were eliminated from the boring program.

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 8 OF 31
PROJECT BR 561-4(2)-38-31 PROJECT SH. NO. 8 OF 31

ELEV.	BORING B17 Sta. 110+15 30' Rt.		BORING B18 Sta. 112+25 30' Lt.		BORING B19 Sta. 112+25 30' Rt.		BORING B20 Sta. 114+35 30' Lt.		BORING B21 Sta. 114+29.5 30' Rt.		ELEV.
620									622.2		620
610							617.2		619.7	Black topsoil	610
600							614.2	Black, silty topsoil-Boulders	100%	Limestone	600
590	595.6	Water	595.5	Water	595.5	Water		100%	100%		590
580	582.1		584.1	2 Silt - Very loose Trace of wood & fibers & shells. Layers of grey, fine sand	587.1	1 Silt - Very loose, black organic		65%			580
570	572.1	Sand - Very loose, brown fine to medium	576.1	2 Sand - Loose, brown, fine to medium. Little gravel Trace of shells	585.1	2 Sand - Very loose, fine to medium, grey		98%	604.2	End of Boring	570
560	567.1	S.S. Sank by its own Weight		6 Sand - Loose, brown, fine to medium. Little gravel Trace of shells	584.1	3 Silt - Very loose, black organic					560
550	556.1	Sand - Loose, grey, fine to medium Trace of shells & gravel		576.1	3 Silt - Very loose, dark grey, sandy Trace shells & wood						550
540		Sand - Loose, fine. Little Sand Wood			576.6	3 Sand - Very loose, grey, silty Some gravel, brown					540
530		Trace of wood Little gravel Medium dense		561.1	98% Limestone - Grey Layers of brown						530
520		Sand - Medium dense, fine to medium, grey			97% Dark, brown shale						520
510		Poor recovery			562.4	95% End of Boring					510
500		Poor recovery									500
490		Poor recovery									490
480											480

NOTES
For Boring Notes, see Sheet B.

PIER #10 (S. End)		PIER #11 (N. End)		PIER #11 (S. End)		PIER #12 (N. End)		PIER #12 (S. End)	
ELEV.	PROBE P1 Sta. 112+45 30' Rt.	ELEV.	PROBE P2 Sta. 112+45 30' Lt.	ELEV.	PROBE P3 Sta. 112+05 30' Rt.	ELEV.	PROBE P4 Sta. 112+05 30' Lt.	ELEV.	
590	595.0	590	595.0	590	595.0	590	595.0	590	
580	591.4	580	591.2	580	590.4	580	590.4	580	
570	575.5	570	573.4	570	572.4	570	571.8	570	

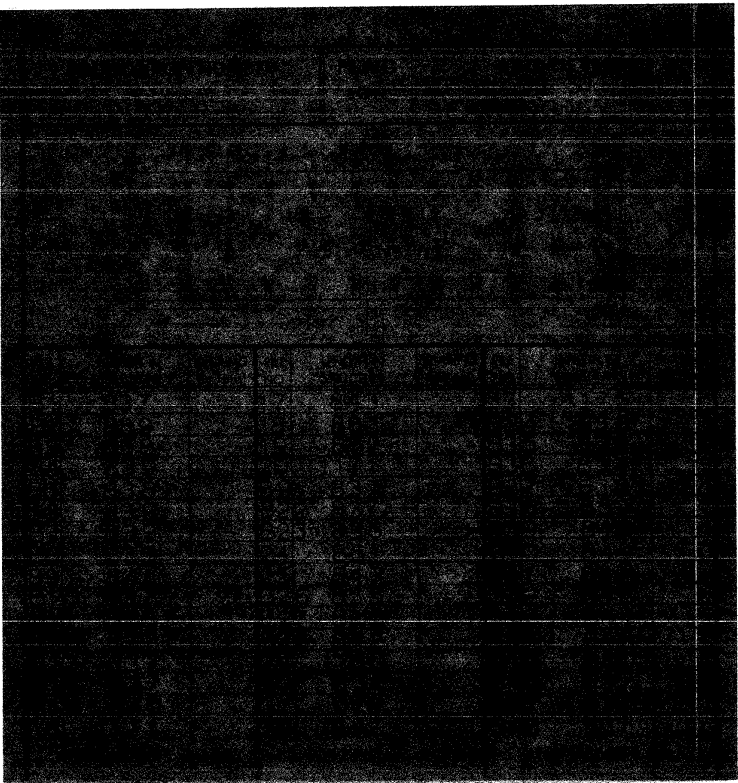
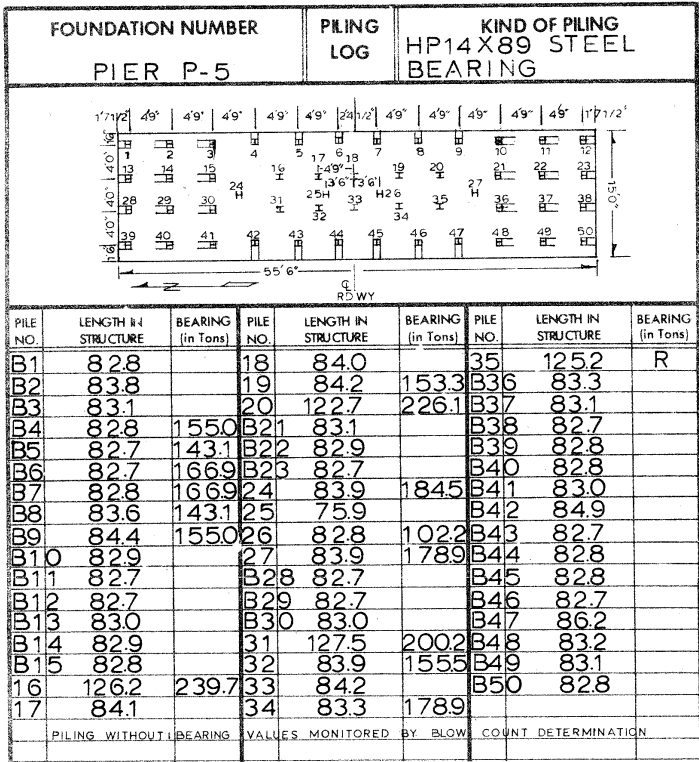
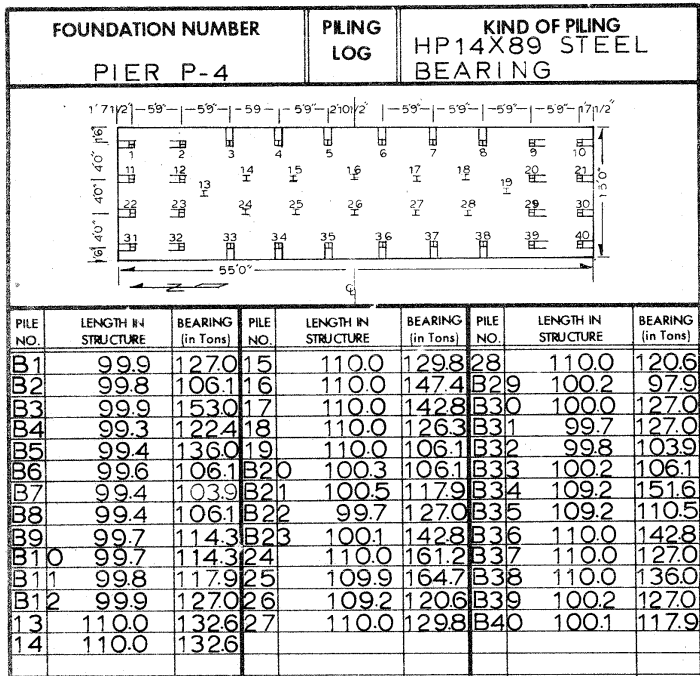
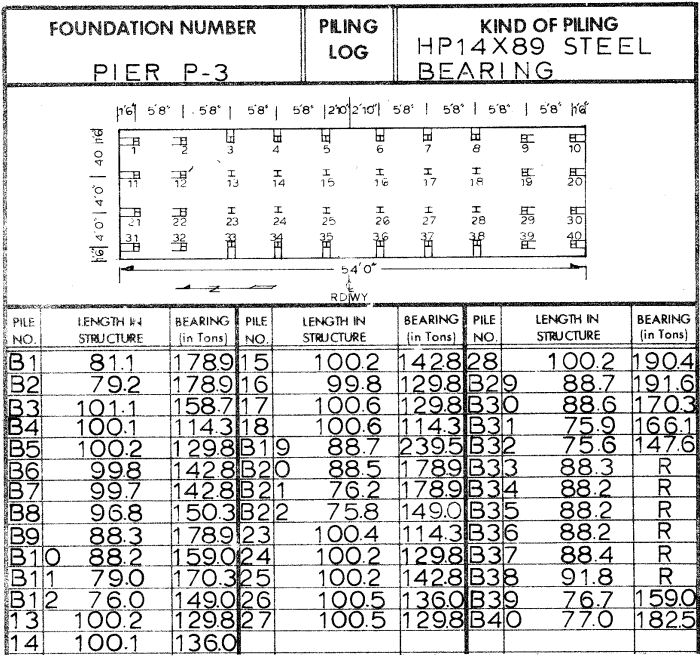
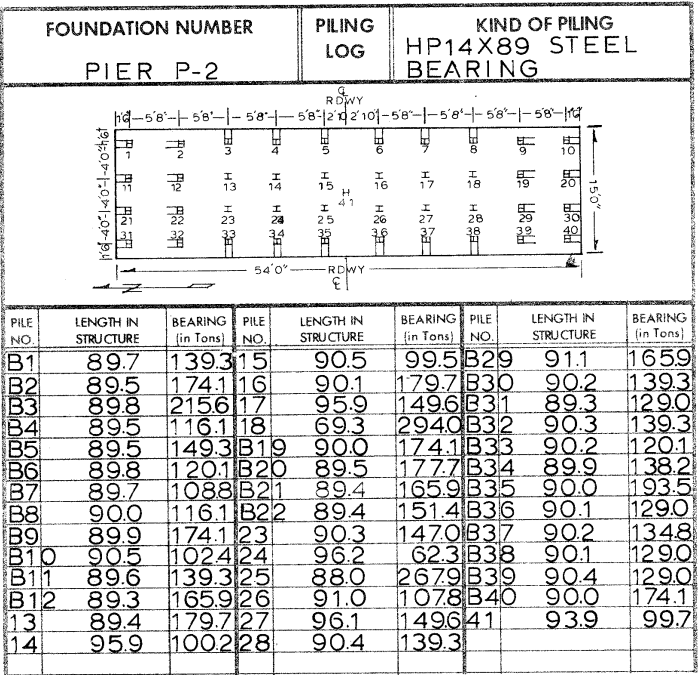
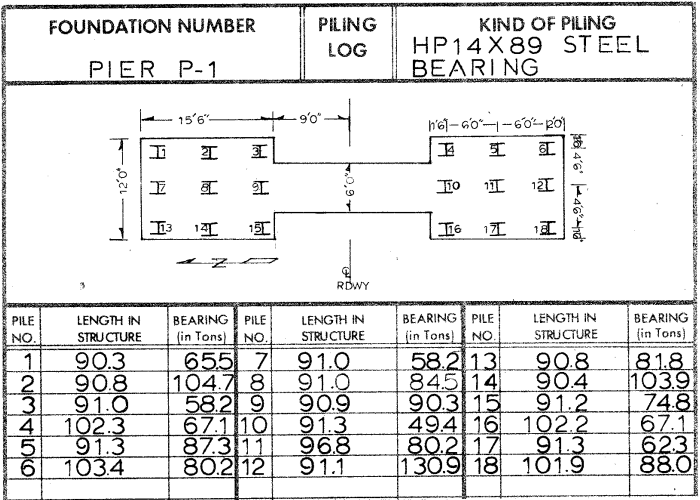
MISSISSIPPI RIVER BRIDGE
LOG OF BORINGS
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

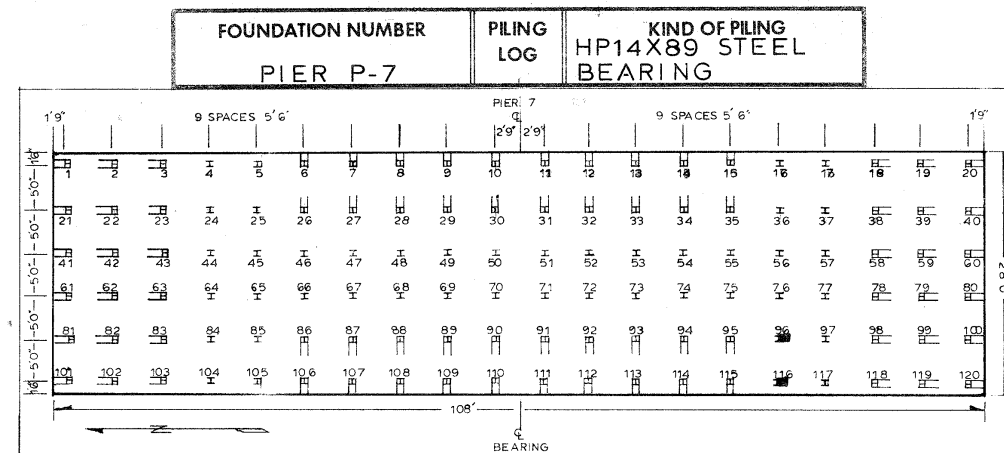
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 9 OF 31
PROJECT BRP-561-4(2)-38-31 PROJECT SH. NO. 9 OF 31

DRAWN BY: W. In-Albon Sept. 1978
CHECKED BY: J. J. W. Sept. 1978
5818 783257

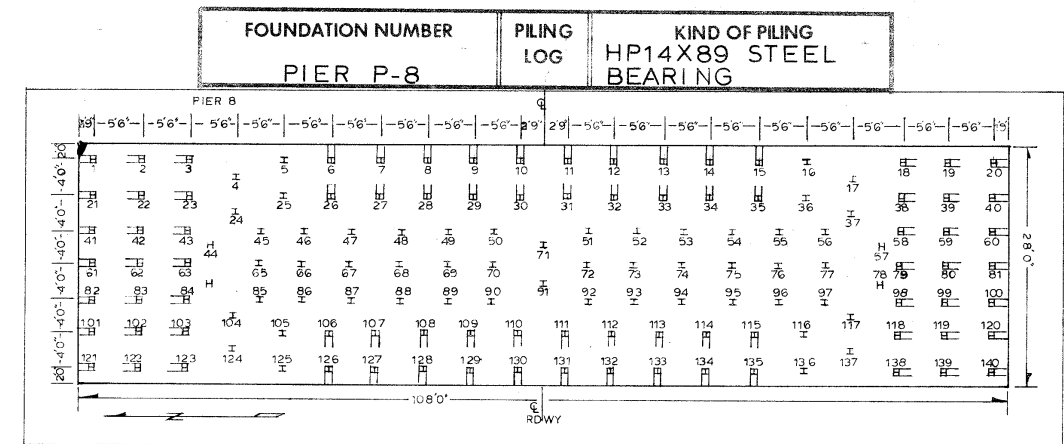
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.





PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
B1	90.2		B41	89.8		B81	89.9	
B2	90.2		B42	90.2		B82	89.9	
B3	90.0		B43	90.3		B83	90.4	
4	89.9		44	90.1		84	76.1	
5	90.2		45	89.9		85	76.4	
B6	90.2		46	88.2		B86	89.6	
B7	90.3		47	89.5		B87	89.7	
B8	90.8		48	89.5		B88	89.7	
B9	90.5		49	90.0		B89	90.0	
B10	90.1		50	90.7		B90	90.9	
B11	90.3		51	89.8		B91	89.3	
B12	90.1		52	89.7		B92	89.2	
B13	90.2		53	90.2		B93	89.2	
B14	90.1		54	89.7		B94	89.2	
B15	90.7		55	90.5		B95	89.5	
16	90.0		56	89.5		96	107.5	
17	90.1		57	89.2		97	89.3	
B18	89.6		58	89.5		B98	89.4	
B19	90.3		59	89.6		B99	89.7	
B20	90.0		60	89.7		B100	89.5	
B21	90.2		61	90.0		B101	90.0	
B22	89.8		62	90.3		B102	89.8	
B23	89.8		63	90.1		B103	89.4	
24	89.8		64	90.2		104	76.4	
25	109.8		65	90.8		105	90.0	
B26	89.7		66	89.9		B106	90.2	
B27	90.0		67	89.2		B107	90.2	
B28	89.7		68	89.8		B108	89.8	
B29	89.9		69	89.8		B109	90.7	
B30	89.9		70	89.7		B110	84.1	
B31	89.7		71	90.0		B111	90.7	
B32	89.9		72	89.7		B112	89.0	
B33	89.4		73	89.9		B113	89.2	
B34	89.8		74	89.7		B114	89.9	
B35	89.8		75	90.2		B115	90.5	
36	109.3		76	90.4		116	89.7	
37	89.8		77	90.4		117	90.7	
B38	100.1		B78	89.3		B118	89.9	
B39	90.2		B79	90.1		B119	89.7	
B40	90.2		B80	90.2		B120	90.1	

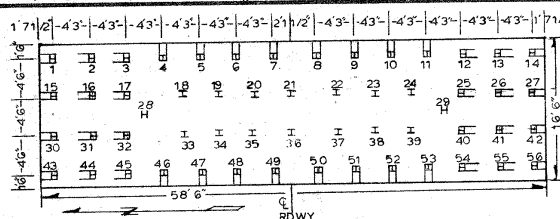
PIILING WITHOUT BEARING VALUES MONITORED BY BLOW COUNT DETERMINATION

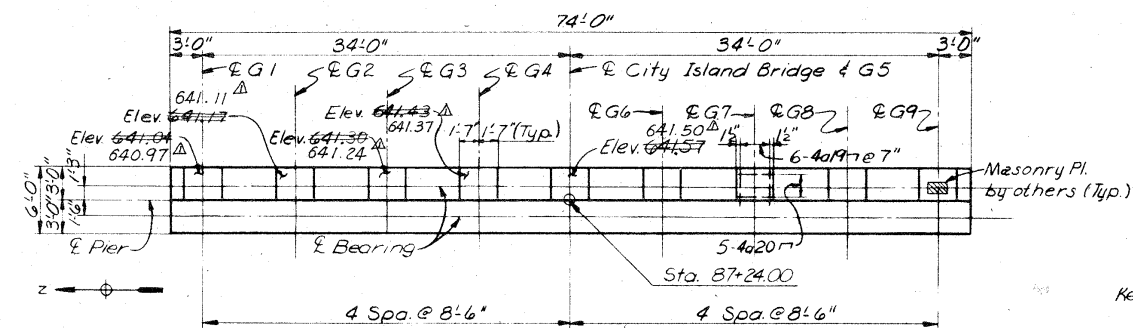


PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
B1	92.3		48	93.3		95	93.0	
B2	92.7		49	93.2		96	93.1	
B3	93.1		50	94.0		97	93.3	
4	92.7		51	92.6		B98	92.6	
5	92.8		52	92.8		B99	92.8	
B6	92.9		53	93.0		B100	92.2	
B7	92.2		54	92.9		B101	92.6	
B8	93.1		55	92.8		B102	93.0	
B9	92.5		56	93.0		B103	92.7	
B10	92.8		57	92.7		104	92.8	
B11	92.6		B58	92.8		105	115.6	
B12	92.7		B59	92.6		B106	92.2	
B13	92.8		B60	92.2		B107	93.0	
B14	92.7		B61	92.3		B108	93.1	
B15	92.4		B62	92.9		B109	92.9	
16	92.9		B63	92.6		B110	92.9	
17	93.0		64	92.9		B111	92.5	
B18	92.0		65	92.7		B112	92.6	
B19	92.4		66	93.3		B113	93.0	
B20	92.3		67	93.1		B114	92.5	
B21	92.1		68	93.1		B115	93.0	
B22	92.5		69	93.1		116	112.8	
B23	93.0		70	94.2		117	94.1	
24	92.8		71	93.2		B118	92.8	
25	114.9		72	93.0		B119	92.8	
B26	93.0		73	93.2		B120	92.2	
B27	93.1		74	93.1		B121	92.5	
B28	93.0		75	93.4		B122	92.8	
B29	93.0		76	92.9		B123	92.5	
B30	92.9		77	94.0		124	93.0	
B31	92.8		78	93.1		125	93.0	
B32	92.8		B79	92.9		B126	92.7	
B33	92.9		B80	92.6		B127	92.6	
B34	93.0		B81	92.2		B128	92.0	
B35	92.9		B82	92.0		B129	92.8	
36	109.0		B83	92.9		B130	92.1	
37	93.0		B84	92.8		B131	92.6	
B38	92.8		85	92.9		B132	92.5	
B39	92.5		86	92.8		B133	92.1	
B40	92.2		87	93.0		B134	92.7	
B41	92.5		88	93.0		B135	92.6	
B42	92.9		89	93.0		136	93.8	
B43	93.0		90	92.5		137	92.8	
44	92.6		91	92.9		B138	92.2	
45	92.8		92	92.8		B139	92.8	
46	92.7		93	93.6		B140	92.2	
47	93.2		94	92.6				

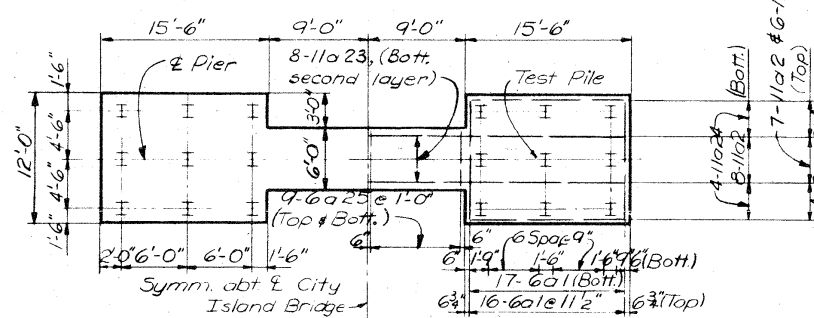
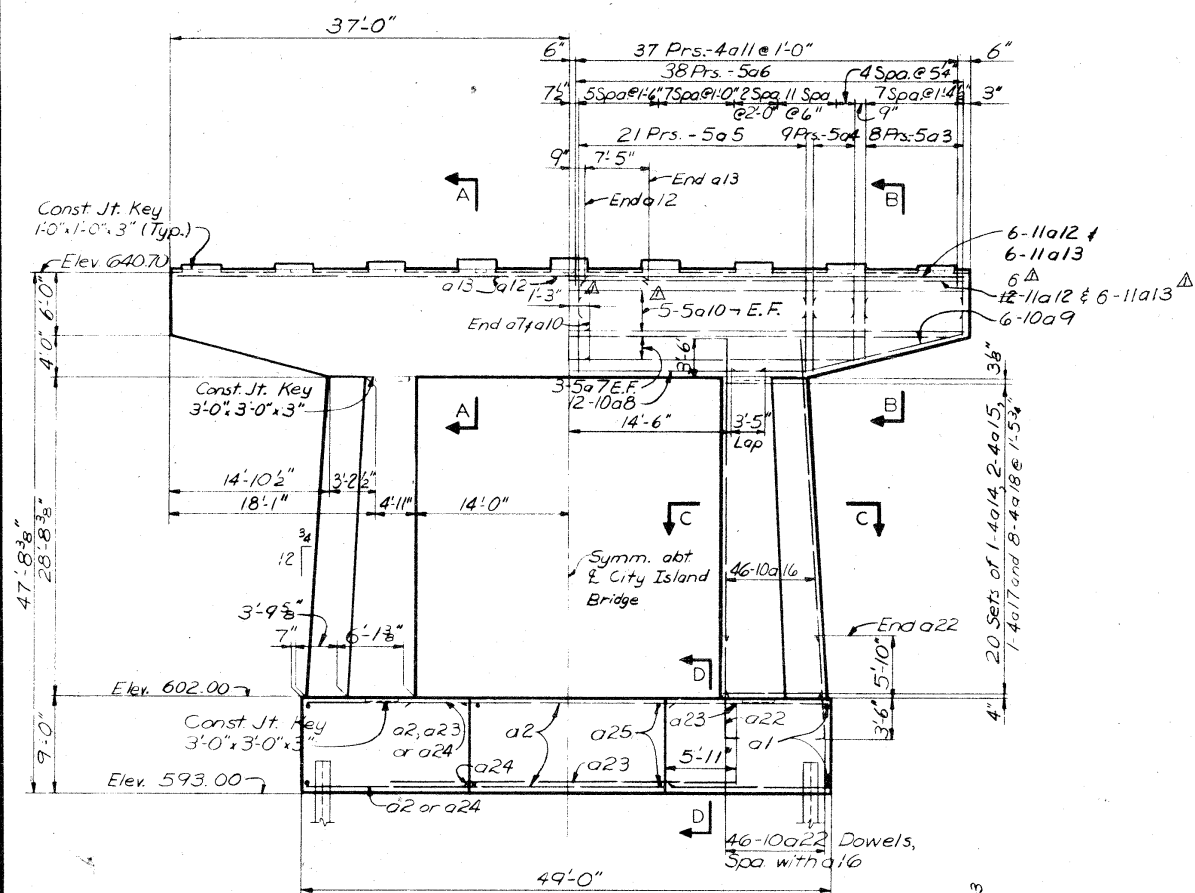
PIILING WITHOUT BEARING VALUES MONITORED BY BLOW COUNT DETERMINATION

FOUNDATION NUMBER			PILING LOG		KIND OF PILING			
PIER P-9					HP14X89 STEEL BEARING			
Diagram of Pier P-9 showing pile layout with dimensions: 1'7 1/2", 4'3", 4'3", 4'3", 4'3", 4'3", 2'1 1/2", 4'3", 4'3", 4'3", 4'3", 1'7 1/2". Total width 58'6". Piles are numbered 1-42. A north arrow and "RD WY" are also shown.								
PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
B1	88.3		20	86.1		39	86.0	
B2	87.4		21	85.5		40	85.6	
B3	81.9		22	85.4		41	86.0	
B4	83.2		23	84.7		42	84.8	
B5	84.4		24	85.0		B43	92.7	
B6	84.6		B25	82.1		B44	85.7	
B7	85.5		B26	85.2		B45	83.3	
B8	86.2		B27	85.6		B46	91.7	
B9	76.7		28	86.2		B47	91.2	
B10	80.6		29	85.7		B48	91.2	
B11	81.3		B30	86.1		B49	91.2	
B12	83.5		B31	84.4		B50	91.3	
B13	84.1		B32	86.1		B51	83.1	
B14	85.0		33	86.0		B52	88.8	
B15	79.4		34	86.7		B53	91.4	
B16	77.4		35	83.4		B54	78.8	
B17	81.9		36	83.1		B55	84.8	
B18	86.3		37	76.3		B56	88.0	
B19	85.5		38	75.9				
PILING WITHOUT BEARING VALUES MONITORED BY BLOW COUNT DETERMINATION								

FOUNDATION NUMBER			PILING LOG		KIND OF PILING			
PIER P-10					HP14X89 STEEL BEARING			
								
PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
B1	53.3		20	56.9		39	55.6	
B2	57.6		21	55.3		40	55.4	
B3	57.6		22	56.3		41	48.3	
B4	61.0		23	55.3		42	44.5	
B5	55.2		24	55.9		43	58.5	
B6	62.0		25	57.3		44	59.7	
B7	52.4		26	53.7		45	70.1	
B8	53.5		27	43.3		46	63.9	
B9	55.9		28	60.7		47	64.8	
B10	55.4		29	56.3		48	67.4	
B11	55.3		30	63.7		49	69.3	
B12	57.1		31	56.1		50	68.9	
B13	55.8		32	65.1		51	63.3	
B14	42.5		33	60.0		52	66.3	
B15	55.3		34	56.8		53	71.2	
B16	59.9		35	57.2		54	57.6	
B17	61.9		36	55.5		55	52.0	
B18	55.0		37	56.1		56	54.6	
B19	58.0		38	56.5				
PILING WITHOUT BEARING VALUES MONITORED BY BLOW COUNT DETERMINATION								

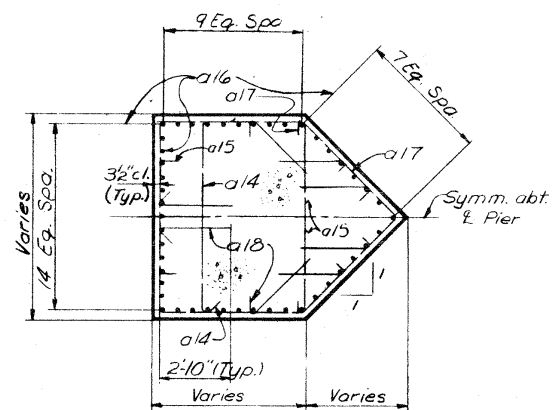
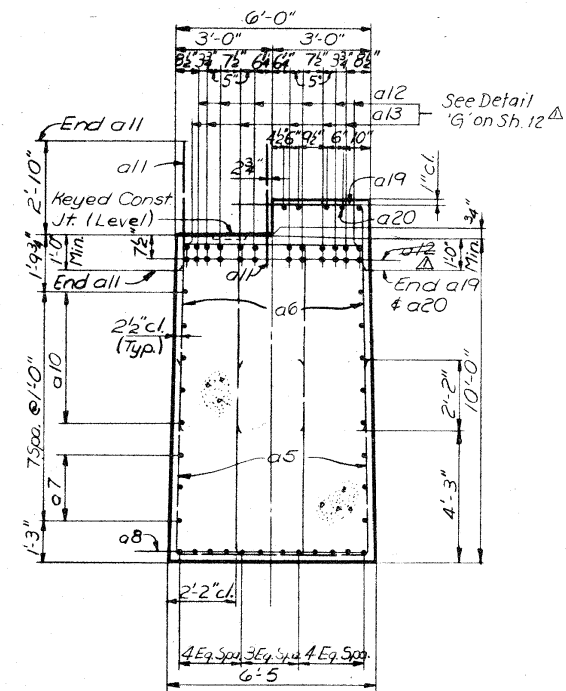
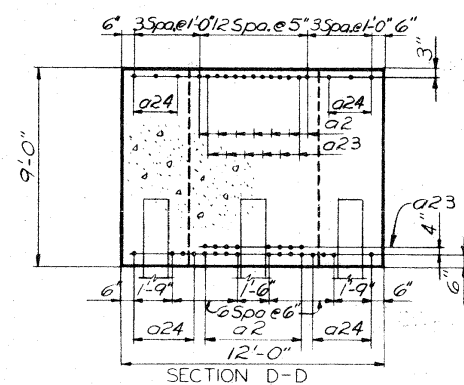
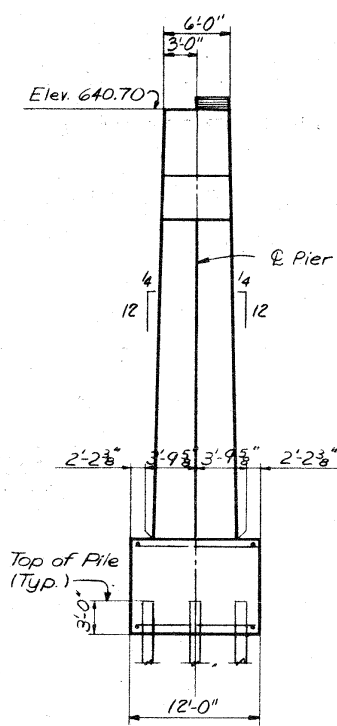
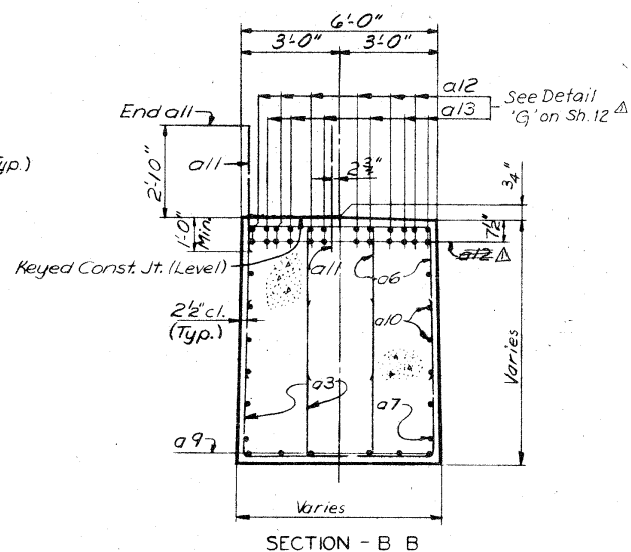


Note: Reinf. shown in Brg. Ped.
at G7 is typical.



FOOTING PLAN

Note : Pile spacing shown is measured at bottom of footing.



NOTES

For Pile Data, see Sheet 5.-9A
For Grounding Details, see Sheet 31.
E.F. indicates Each Face.

CONCRETE QUANTITIES	
Cap	158.2
Columns	108.7
Footings	160.0
Total	426.9 c.y.

Piling Schedule		
	Drive	Furnish
17 (Vert)	111'	113'
1 Pile Load Test (Vert) 98'		

Revised (1-24-79)
Items revised are
identified by Δ

MISSISSIPPI RIVER BRIDGE

PIER PI

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

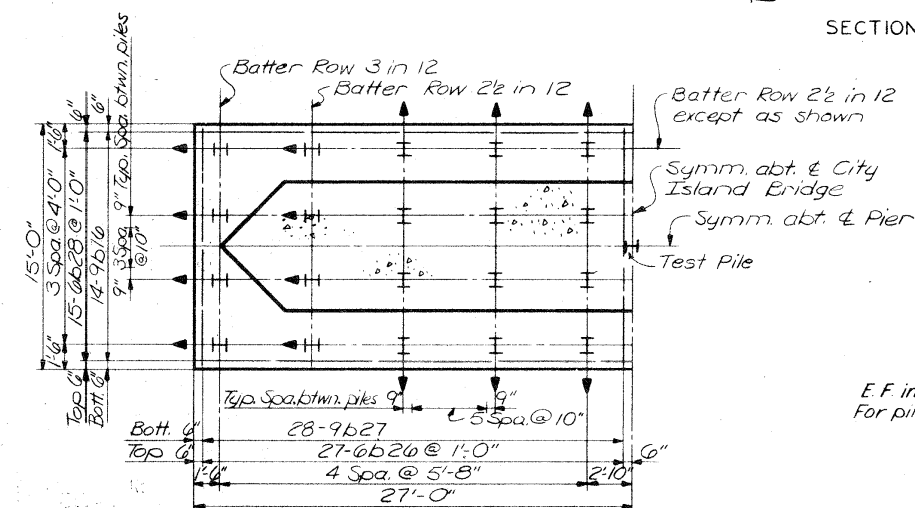
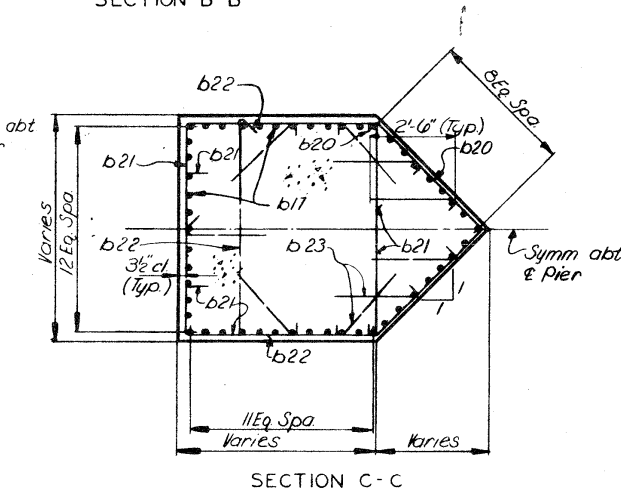
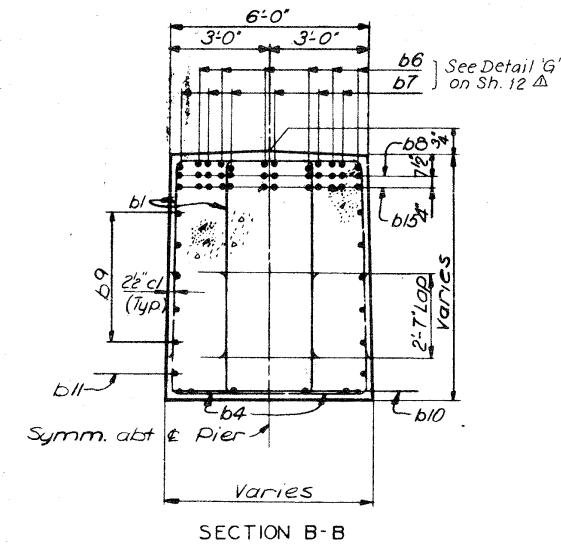
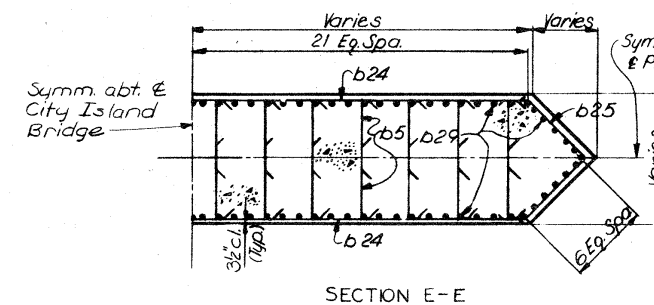
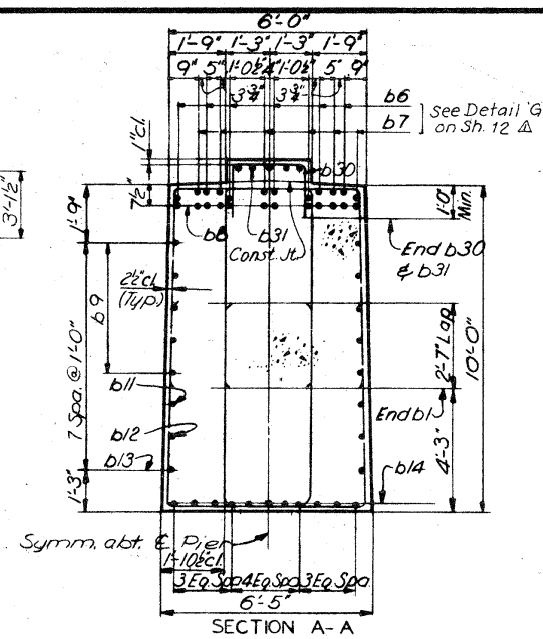
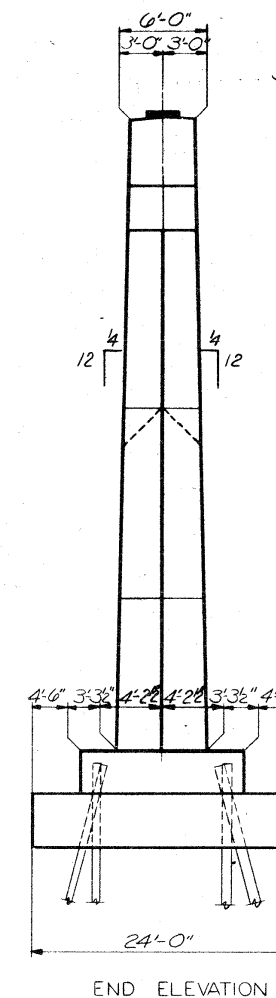
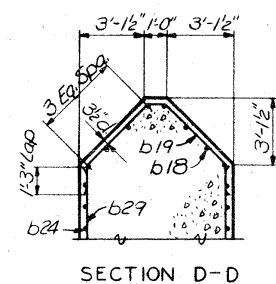
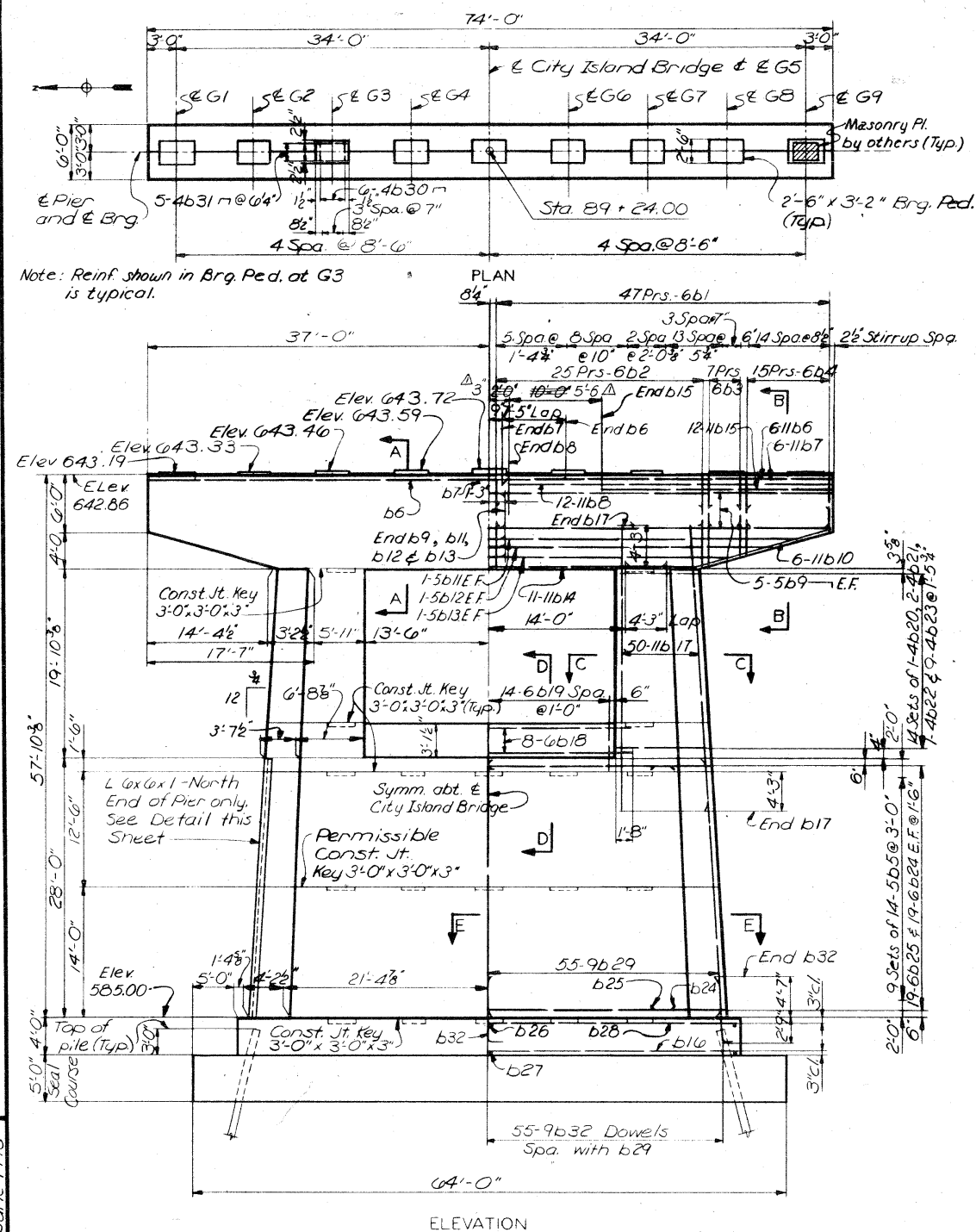
DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 10 OF 31

PROJECT BRF-561-4(2)--38-3/ PROJECT SH. NO. 10 OF 3/

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5818	DRAWN BY: D.L. Richardson, April 1978
8084	CHECKED BY: T. Sanders, July 1978

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.



CONCRETE QUANTITIES	
Cap	158.4
Columns	80.9
Shaft	383.3
Ftg	120.0
Total	742.6 c.y.
Seal course	284.4 c.y.

	Drive	Furnish
12' (vert)	109'	111'
8' (3:12)	112'	114'
20' (25:12)	111'	113'
1 Pile Load Test (vert) 96'		

Revised (1-24-79)
Items revised are
identified by Δ

NOTES
E.F. indicates Each Face.
For pile data, see Sheet 5.

MISSISSIPPI RIVER BRIDGE

PIER P2

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

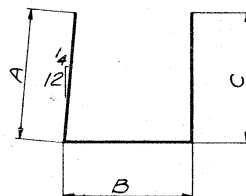
DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 11 OF 31

PROJECT BRF-561-4(2)-38-31 PROJECT SH. NO. 11 OF 31

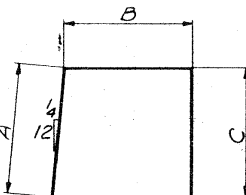
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5818	DRAWN BY: T. Simmons - May, 1978
	CHECKED BY: T. Sanders, June 1978

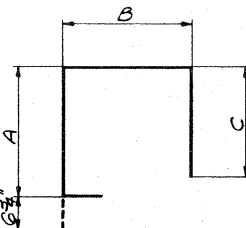
BAR LIST-PIER P1						BAR LIST-PIER P2					
BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT
6a1	Footing	—	11'-6"	66	1140	6b1	Cap	□	14'-11"	188	4212
11a2	do	—	48'-6"	15	3865	6b2	do	□	17'-4"	100	2403
5a3	Cap	□	Varies	32	365	6b3	do	□	Varies	28	679
4 Series of 8 bars (8'-3 3/4" to 13'-6 3/4")						4 Series of 7 bars (15'-3" to 17'-0 3/4")					
5a4	Cap	□	Varies	36	562	6b4	Cap	□	Varies	60	1097
4 Series of 9 bars (13'-11 1/2" to 16'-0")						4 Series of 15 bars (9'-4 3/4" to 14'-11 1/2")					
5a5	Cap	□	16'-3"	84	1424	5b5	Shaft	→	5'-8"	252	1489
5a6	do	□	14'-8"	152	2325	11b6	Cap	—	45'-0"	12	2869
5a7	do	—	Varies	12	389	11b7	do	—	36'-1"	12	2301
4 Series of 3 bars (27'-4 1/2" to 34'-9 3/4")						11b8	do	—	34'-10"	24	4442
10a8	Cap	—	35'-10"	12	1850	5b9	do	—	42'-1"	20	878
10a9	do	—	22'-10"	12	1179	11b10	do	—	23'-4"	12	1488
5a10	do	□	42'-1"	20	878	5b11	do	—	34'-11"	4	146
4a11	do	—	3'-10"	148	379	5b12	do	—	31'-4"	4	131
11a12	do	—	36'-1"	24	4824	5b13	do	—	27'-9"	4	116
11a13	do	—	45'-0"	24	5234	11b14	do	—	36'-6"	11	2133
4a14	Column	□	Varies	40	200	11b15	do	—	24'-10"	24	3167
2 Series of 20 bars (6'-10 3/8" to 8'-0 3/8")						9b16	Footing	—	53'-6"	14	2547
4a15	Column	□	Varies	80	801	11b17	Column	—	29'-10"	100	15850
4 Series of 20 bars (13'-7 3/4" to 16'-3 3/8")						6b18	Shaft	—	30'-4"	8	364
10a16	Column	—	32'-3"	92	12,767	6b19	do	□	11'-5"	27	463
4a17	do	—	Varies	40	271	4b20	Column	□	Varies	28	185
2 Series of 20 bars (9'-3 3/4" to 10'-11 3/4")						2 Series of 14 bars (9'-3 3/4" to 10'-5 1/2")					
4a18	Column	→	3'-3"	320	695	4b21	Column	□	Varies	56	574
4a19	Ped.	□	5'-5"	54	204	4 Series of 14 bars (14'-5 3/8" to 16'-3 3/8")					
4a20	do	□	6'-3"	45	188	4b22	Column	□	Varies	28	136
4a21	Not Used					2 Series of 14 bars (6'-10 3/8" to 7'-8 3/4")					
10a22	Footing	□	10'-10"	92	4289	4b23	Column	→	2'-11"	252	491
11a23	do	—	29'-10"	14	2219	6b24	Shaft	—	40'-2"	38	2293
11a24	do	—	15'-0"	14	1116	6b25	do	□	Varies	38	975
6a25	do	—	5'-6"	36	297	2 Series of 19 bars (15'-1 1/8" to 19'-0 3/8")					
						6b26	Footing	—	14'-6"	54	1176
						9b27	do	—	14'-6"	56	2761
						6b28	do	—	53'-6"	15	1205
						9b29	Shaft	—	27'-11"	108	10251
						4b30	Cap	□	5'-9"	54	207
						4b31	do	□	6'-3"	45	188
						9b32	Footing	—	8'-8"	108	3182
Total (lbs.) 47,174						Total (lbs.) 70,599					



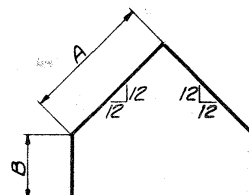
5a3, 5a4, 5a5, 6b2, 6b3 & 6b4



5a6 & 6b1



4a15 & 4b21



6b25

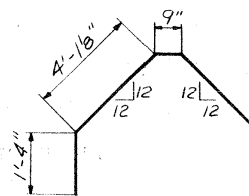
BAR	A	B	C
5a3	2'-3 3/4" to 4'-10 3/8"	3'-11 1/2" to 4'-0 3/8"	2'-3 3/4" to 4'-10 3/8"
5a4	5'-14" to 6'-1 3/8"	4'-0 3/4" to 4'-0 3/4"	5'-14" to 6'-1 3/8"
5a5	6'-3"	4'-0 1/2"	6'-3"
6b2	6'-8"	4'-4"	6'-8"
6b3	5'-7 1/2" to 6'-6 3/8"	4'-3 3/4" to 4'-4"	5'-7 1/2" to 6'-6 3/8"
6b4	2'-8 3/4" to 5'-5 3/4"	4'-3" to 4'-3 3/4"	2'-8 3/4" to 5'-5 3/4"

BAR	A	B	C
5a6	5'-7"	3'-10"	5'-7"
6b1	5'-7"	4'-1 1/2"	5'-7"

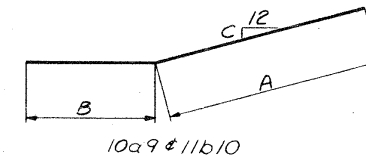
BAR	A	B	C
4a15	4'-8 3/4" to 5'-7 3/4"	4'-7 3/8" to 5'-9 3/8"	3'-11 1/8" to 4'-6 1/4"
4b21	4'-6 3/8" to 5'-1 3/8"	5'-7 3/8" to 6'-5 1/4"	3'-11 1/8" to 4'-4"

BAR	A	B
6b25	4'-8 3/8" to 5'-6 1/2"	2'-11 1/2" to 4'-1"

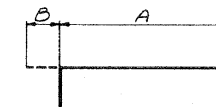
BAR	A
4a14	5'-10 3/8" to 7'-0 3/8"
4b22	5'-10 3/8" to 6'-7 3/4"



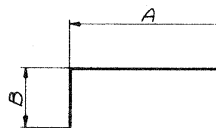
6b19



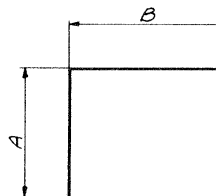
10a9 & 11b10



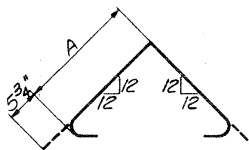
10a22 & 9b32



5a10, 4a19 & 5b9



4a20, 4b30 & 4b31



4a17 & 4b20

BAR	A	B	C
10a9	15'-3"	7'-7 1/4"	3 1/4"
11b10	14'-9"	8'-7 1/2"	3 3/8"

BAR	A	B
10a22	9'-4"	1'-6 1/4"
9b32	7'-4"	1'-3 3/4"

BAR	A	B
5a10	38'-1"	4'-2"
4a19	3'-11"	1'-10"
5b9	38'-1"	4'-2"

BAR	A	B
4a20	1'-10"	2'-10"
4b30	1'-10"	2'-3 1/2"
4b31	1'-10"	2'-10"

BAR	A
4a17	4'-2 3/4" to 5'-0 3/4"
4b20	4'-2 3/4" to 4'-9 3/8"

NOTES

All dimensions are out to out.
All bends shown are bent around a standard mandrel of D=6d_b for #3 thru #8; D=8d_b for #9, #10 and #11.
Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" except as noted.
Bar lengths include deductions for bends.

MISSISSIPPI RIVER BRIDGE

BAR LIST
PIERS P1 & P2

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 12 OF 31

PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 12 OF 31

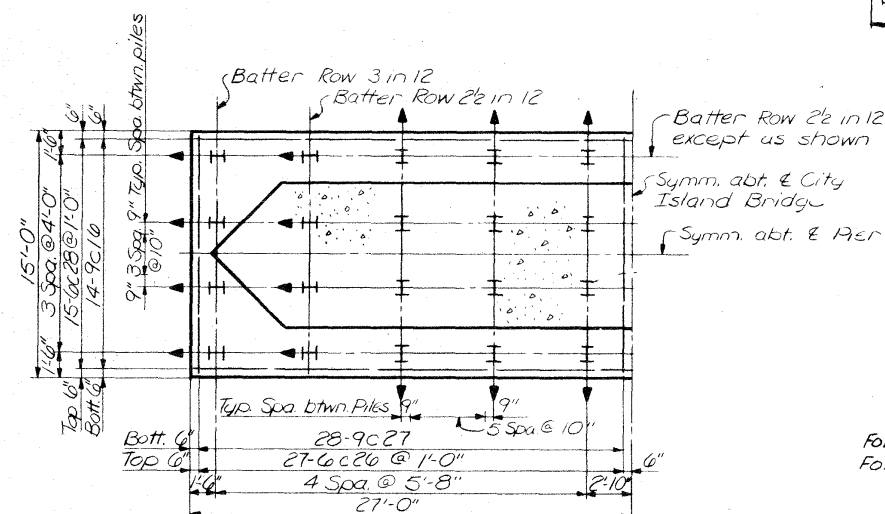
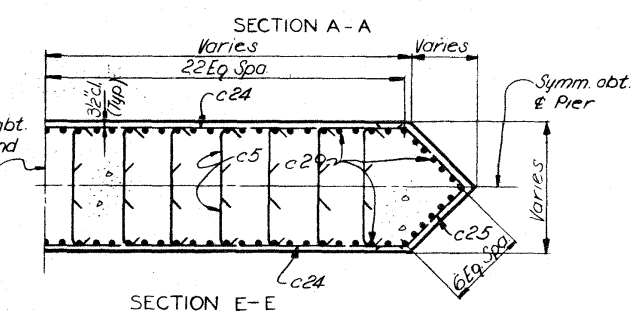
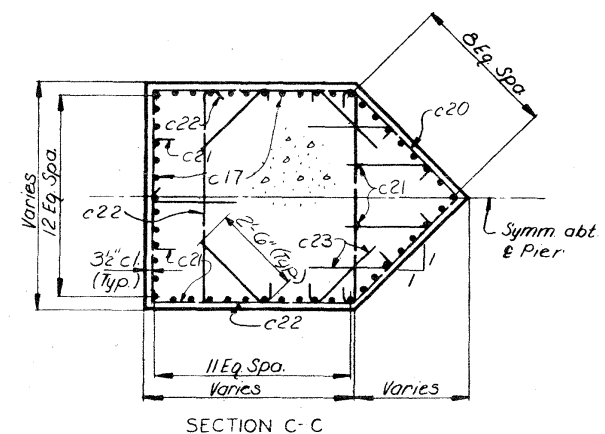
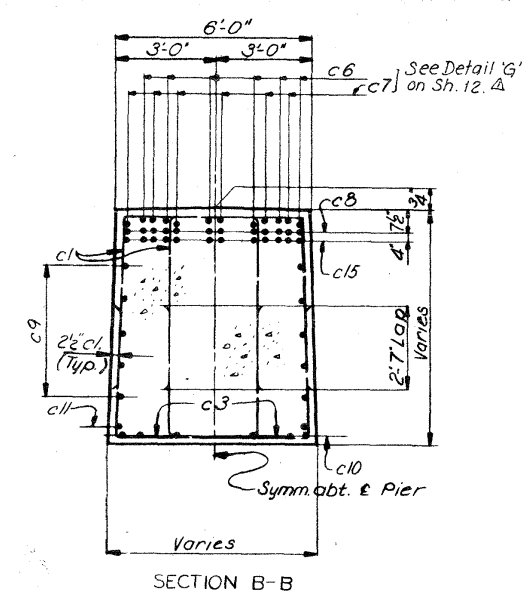
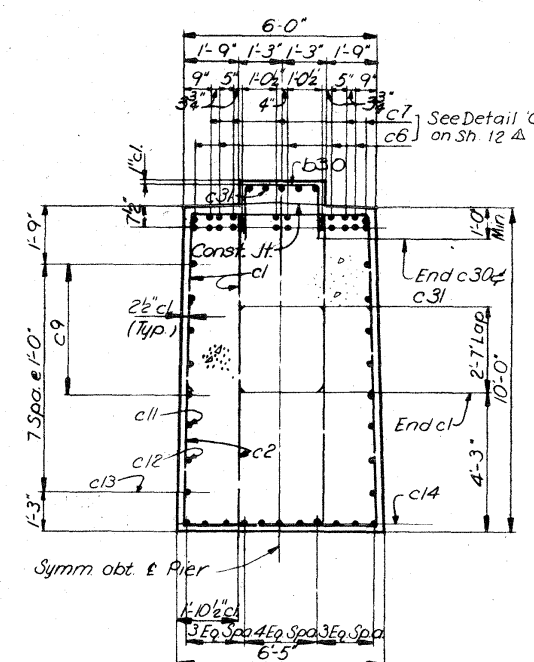
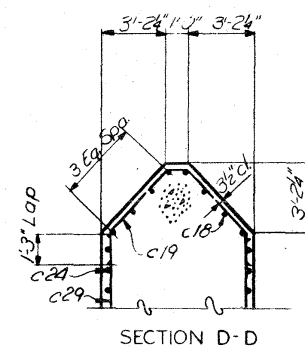
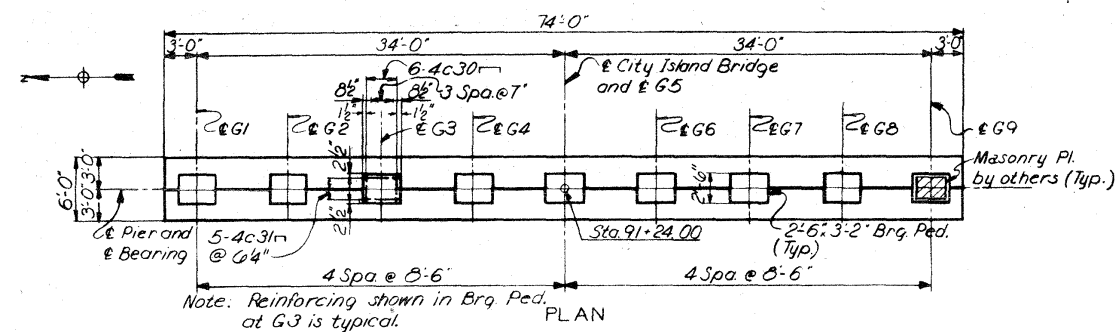
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised (1-24-79)
Items revised are identified by Δ

DETAIL 'G' Δ
PIER CAP TOP LONGITUDINAL BAR LAYOUT
FOR PIERS 1, 2, 3, 4, 5, 6, 9, 10 & 11

SVENDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

DRAWN BY: J. L. Mitchell
CHECKED BY: J. S. Oliver
5818
795200
JUL 1978



NOTES

For Grounding Details see, Sheet 31
For pile data see Sheet 5.

MISSISSIPPI RIVER BRIDGE

PIER P3

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

CONCRETE QUANTITIES	
Cap	158.4
Columns	94.9
Shaft	437.6
Fig	120.0
Total	810.9 c.y.

Seal Course	284.4 c.y.
-------------	------------

Piling Schedule		
	Drive	Furnish
12 (Vert)	114'	116'
8 (3:12)	117'	119'
20 (2.5:12)	116'	118'

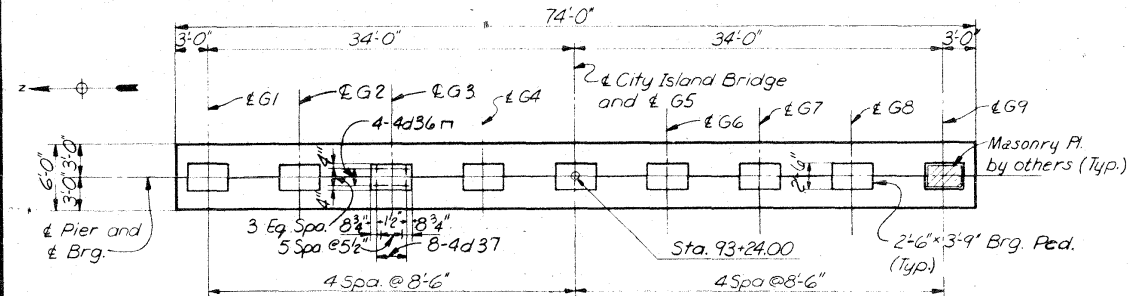
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised (1-24-79)
Items revised are identified
by Δ .

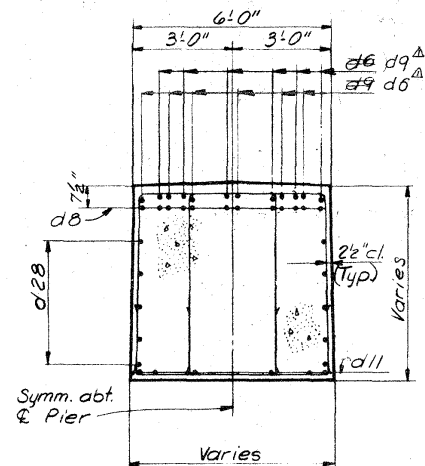
DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 13 OF 31

PROJECT BRF-561-4(2)-38-31 PROJECT SH. NO. 13 OF 31

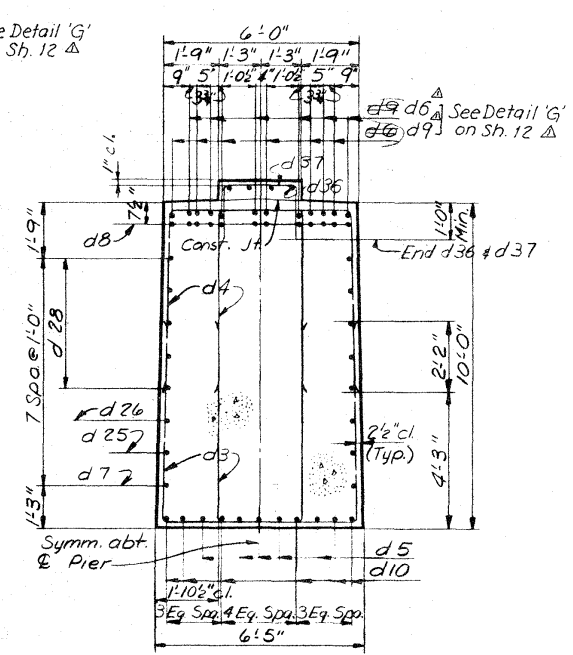
5818	DRAWN BY: T. Simmons May, 1978
785121	CHECKED BY: T. Sanders, June 1978



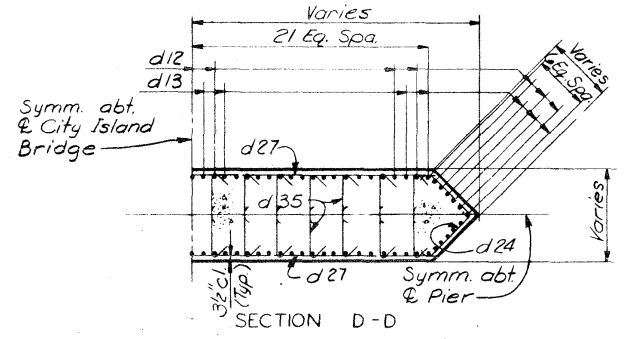
PLAN
Note: Reinf shown in Brg. Ped. at G3 is typical.



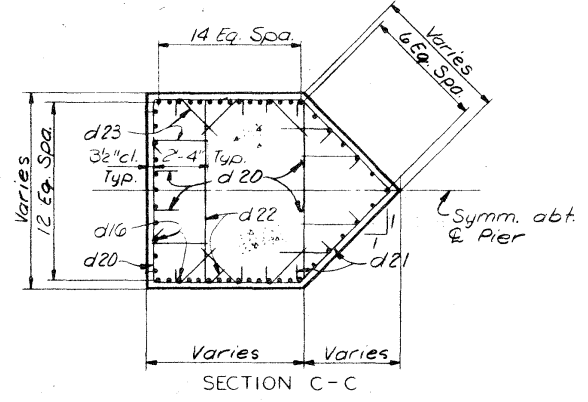
SECTION B-B



SECTION A-A

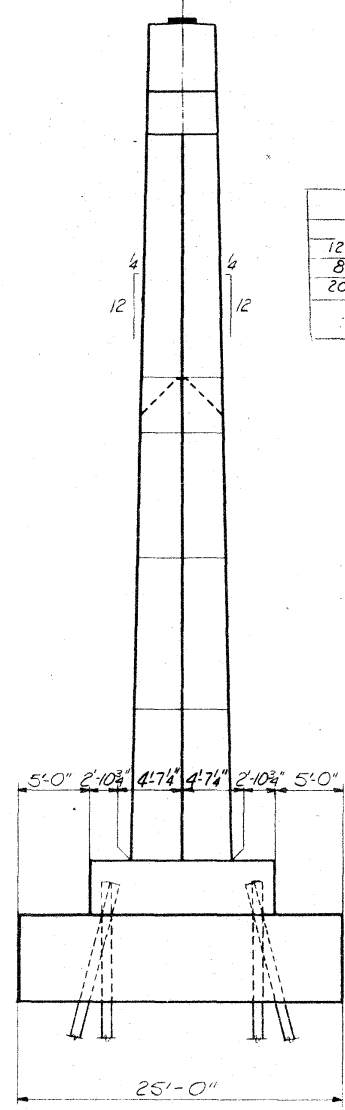


SECTION D-D

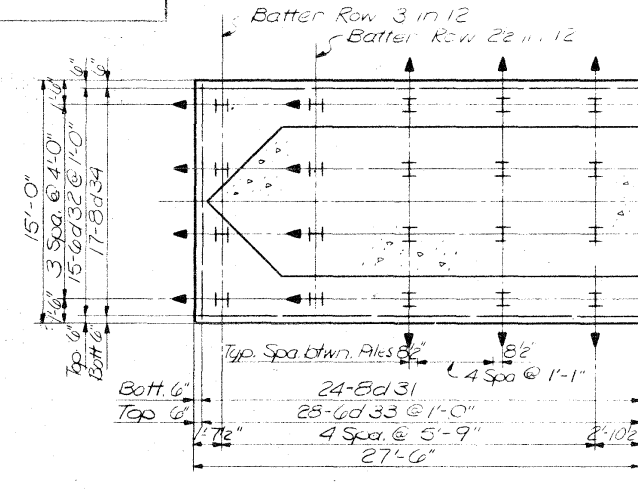


SECTION C-C

Piling Schedule		
	Drive	Furnish
12 (Vert)	118	120
8 (3:12)	120	122
20 (2.5:12)	120	122



END ELEVATION



HALF FOOTING PLAN
Note: Pile spacing measured at bottom of footing.
H indicates pile battered in direction shown.

CONCRETE QUANTITIES	
Cap	158.7
Columns	109.9
Shaft	609.6
Ftg	122.2
Total	1000.4 c.y.
Seal Course	492.6 c.y.

NOTES

For Pile data, see Sheet 5.
E.F. indicates Each Face

MISSISSIPPI RIVER BRIDGE

PIER P4

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 14 OF 31

PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 14 OF 31

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: D. Richardson, April 1978
 CHECKED BY: T. Sanders, June 1978
 5818
 3091

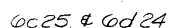
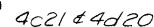
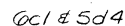
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

Revised (1-24-79)
Items revised are identified by Δ

44



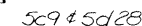
6c2, 6c3, 6c4,
5d1, 5d2 & 5d3



BAR	A
6d29	4'-3 1/4"
6c19	4'-2 1/4"

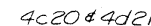


9c32 & 9d17

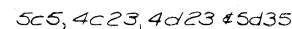


BAR	A	B
4c30	1'-10"	2'-3 1/2"
4c31	1'-10"	2'-10"
4d30	1'-10"	3'-5"
4d37	1'-10"	2'-3 1/2"

4c30, 4c31, 4d36 & 4d37

NOTES

All dimensions are out to out.
All bends shown are bent around a standard mandrel $d = 6d_b$ for #3 thru #8; $d = 8d_b$ for #9, #10 and #11.
Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" except as noted.
Bar lengths include deductions for bends.



4c22 & 4d22

6c19 & 6d29

Revised (1-24-79)
Items revised are
identified by Δ

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSISSIPPI RIVER BRIDGE

BAR LIST
PIERS P3 & P4

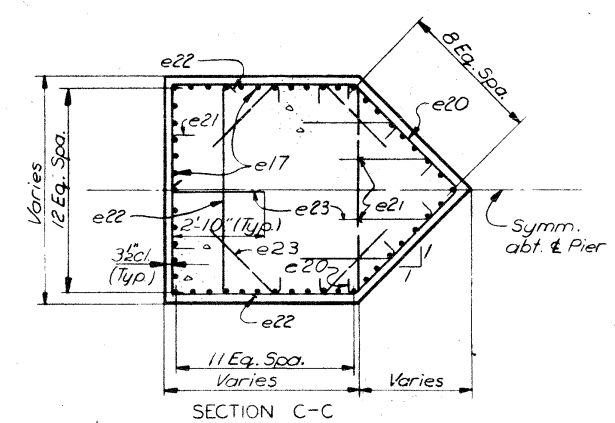
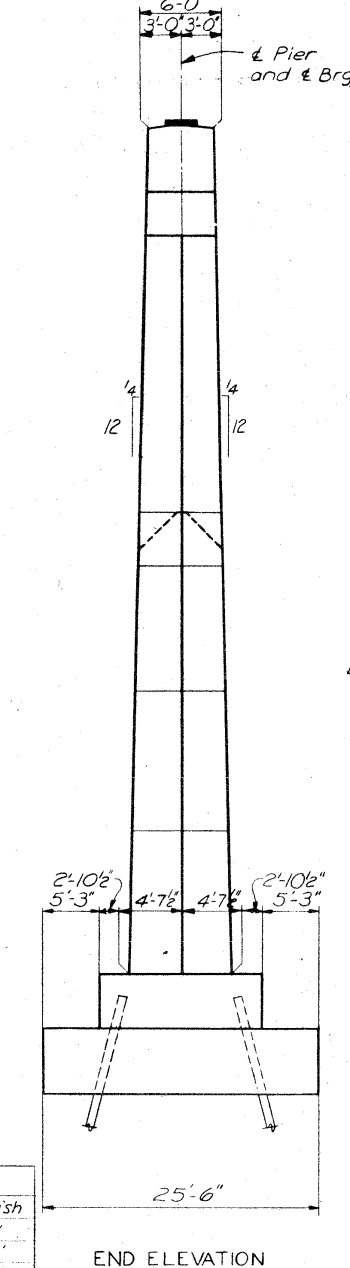
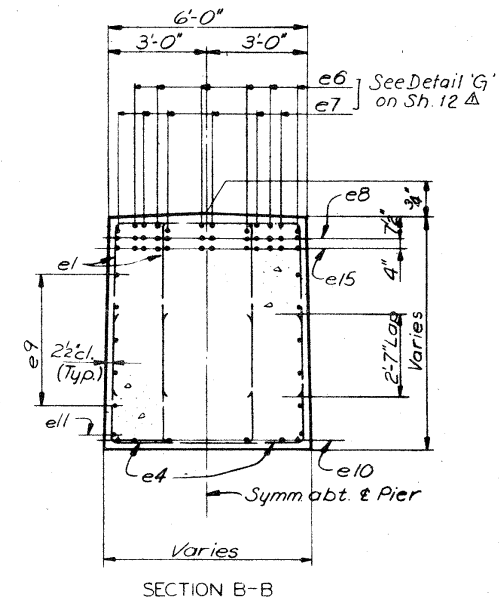
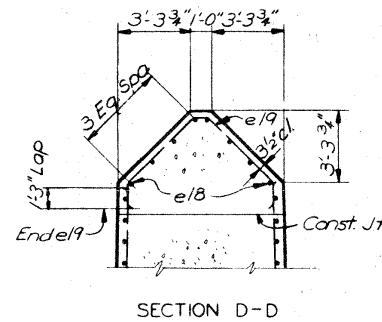
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 15 OF 31

PROJECT 89F-561-4(2)-38.3/ PROJECT SH. NO. 15 OF 31

5818	DRAWN BY: S. H. [Signature]	1000 1000
	CHECKED BY: [Signature]	1000 1000

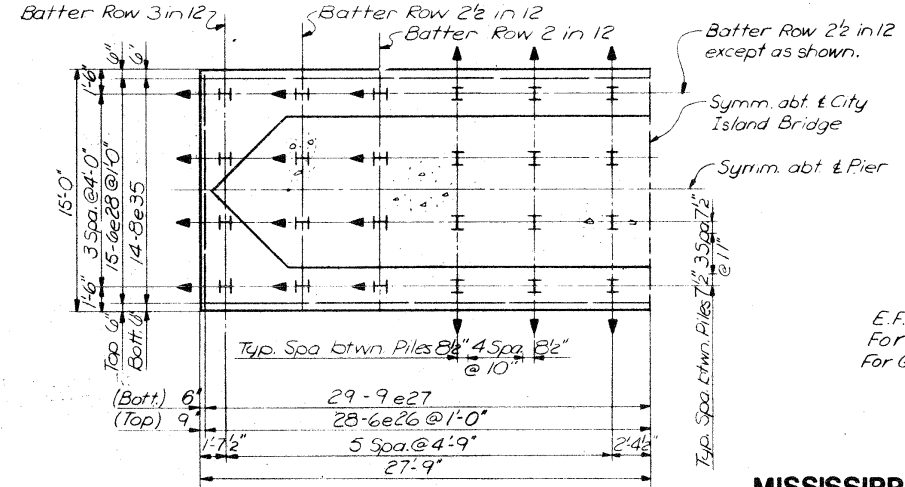


CONCRETE QUANTITIES	
Cap	158.4
Columns	124.4
Shaft	588.7
Ftg	123.3
Total	994.8 c.y.

Seal Course	374.0 c.y.
-------------	------------

NOTES

E.F. indicates Each Face.
For Pile Data, see Sheet 5.
For Grounding Details, see Sheet 31.



HALF FOOTING PLAN

Note: Pile spacing measured at bottom of footing.

↔ indicates battered pile in direction shown.

MISSISSIPPI RIVER BRIDGE

PIER. P5

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

	Drive	Furnish
12 (Vert)	120'	122'
8 (3:12)	124'	126'
20 (2.5:12)	122'	124'
8 (2:12)	121'	123'

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

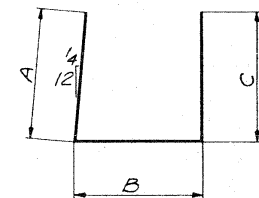
DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 16 OF 31

PROJECT BRF-561-4(2)-38-31 PROJECT SH. NO. 16 OF 31

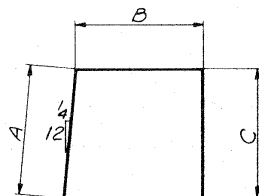
5818	DRAWN BY: M. Koronowicz, May-1978
78S/25	CHECKED BY: T. Sanders, July 1978

Revised (1-24-79)
Items revised are
identified by Δ

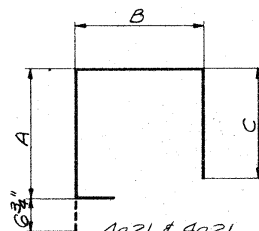
BAR LIST-PIER P5						BAR LIST-PIER P6					
BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT
6e1	Cap	□	15'-0"	188	4230	6g1	Cap	□	15'-0"	188	4230
6e2	do	□	17'-4"	100	2603	6g2	do	□	17'-4"	96	2499
6e3	do	□	Varies	28	679	6g3	do	□	Varies	32	783
4 Series of 7 bars (15'-3" to 17'-0 1/2")						4 Series of 8 bars (15'-3" to 17'-3 3/4")					
6e4	Cap	□	Varies	60	1097	6g4	Cap	□	Varies	60	1097
4 Series of 15 bars (9'-4 1/4" to 14'-11 1/2")						4 Series of 15 bars (9'-4 1/4" to 14'-11 1/2")					
5e5	Shaft	→	6'-1"	364	2310	5g5	Shaft	→	6'-2"	364	2341
11e6	Cap	—	45'-0"	12	2869	11g6	Cap	—	45'-0"	12	2869
11e7	do	—	36'-1"	12	2301	11g7	do	—	36'-1"	12	2301
11e8	do 36"	—	34'-11"	4	146	11g8	do 36"	—	34'-11"	4	146
5e9	do	—	42'-1"	20	878	5g9	do	—	42'-1"	20	878
11e10	do	—	23'-4"	12	1488	11g10	do	—	23'-4"	12	1488
5e11	do	—	34'-11"	4	146	5g11	do	—	34'-11"	4	146
5e12	do	—	31'-4"	4	131	5g12	do	—	31'-4"	4	131
5e13	do	—	27'-9"	4	116	5g13	do	—	27'-9"	4	116
11e14	do	—	36'-6"	11	2133	11g14	do	—	36'-6"	11	2133
11e15	do 31"	—	24'-10"	24	3447	11g15	do 31"	—	24'-10"	24	3447
4e16	do	□	6'-3"	45	185	4g16	do	□	6'-3"	45	185
11e17	Column	—	38'-11"	100	20676	11g17	Column	—	41'-11"	100	22270
6e18	Shaft	—	30'-4"	8	364	6g18	Shaft	—	30'-4"	8	364
6e19	do	□	11'-11"	27	483	6g19	do	□	12'-1"	27	490
4e20	Column	△	Varies	40	271	4g20	Column	△	Varies	44	301
2 Series of 20 bars (9'-4" to 10'-11 1/2")						2 Series of 22 bars (9'-4" to 11'-2")					
4e21	Column	□	Varies	80	843	4g21	Column	□	Varies	88	936
4 Series of 20 bars (14'-5 1/2" to 17'-1 1/8")						4 Series of 22 bars (14'-5 1/2" to 17'-4 1/2")					
4e22	Column	□	Varies	40	200	4g22	Column	□	Varies	44	222
2 Series of 20 bars (6'-10 3/4" to 8'-0 3/4")						2 Series of 22 bars (6'-10 3/4" to 8'-2 1/4")					
4e23	Column	→	3'-3"	360	782	4g23	Column	→	3'-5"	396	904
6e24	Shaft	—	40'-10"	78	4784	6g24	Shaft	—	41'-1"	80	4937
6e25	do	△	Varies	78	2158	6g25	do	△	Varies	80	2237
2 Series of 39 bars (15'-8 3/8" to 21'-1 3/8")						2 Series of 40 bars (15'-10 1/8" to 21'-4 1/8")					
6e26	Footing	—	14'-6"	55	1198	6g26	Footing	—	14'-6"	55	1198
9e27	do	—	14'-6"	57	2810	9g27	do	—	14'-6"	57	2810
6e28	do	—	55'-0"	15	1239	6g28	do	—	55'-0"	15	1239
9e29	do	□	8'-8"	112	3300	9g29	do	□	8'-8"	112	3300
4e30	Cap	□	5'-9"	54	207	4g30	Cap	□	5'-9"	54	207
9e31	Shaft	—	16'-6"	56	3142	9g31	Footing	—	55'-0"	14	2056
9e32	do	—	29'-6"	56	5617	9g32	Shaft	—	16'-6"	56	3142
9e33	do	—	25'-11"	56	4935	9g33	do	—	29'-6"	56	5617
9e34	do	—	12'-11"	56	2459	9g34	do	—	26'-11"	56	5125
8e35	Footing	—	55'-0"	14	2056	9g35	do	—	13'-11"	56	2650
Total (lbs.) 86,328						Total (lbs.) 89,840					



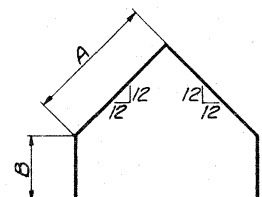
6e2, 6e3, 6e4,
6g2, 6g3 & 6g4



6e1 & 6g1



4e21 & 4g21



6e25 & 6g25

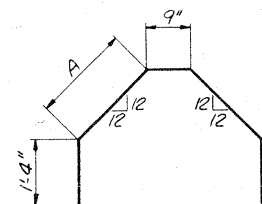
BAR	A	B	C
6e2	6'-8"	4'-4"	6'-8"
6e3	5'-7 1/2" to 6'-6 1/2"	4'-3 3/4" to 4'-4"	5'-7 1/2" to 6'-6 1/2"
6e4	2'-8 3/4" to 5'-5 3/4"	4'-3" to 4'-3 3/4"	2'-8 3/4" to 5'-5 3/4"
6g2	6'-8"	4'-4"	6'-8"
6g3	5'-7 1/2" to 6'-7 3/4"	4'-3 3/4" to 4'-4"	5'-7 1/2" to 6'-7 3/4"
6g4	2'-8 3/4" to 5'-5 3/4"	4'-3" to 4'-3 3/4"	2'-8 3/4" to 5'-5 3/4"

BAR	A	B	C
6e1	5'-7"	4'-1 1/2"	5'-7"
6g1	5'-7"	4'-1 1/2"	5'-7"

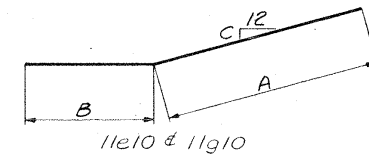
BAR	A	B	C
4e21	4'-6 3/8" to 5'-4 3/8"	5'-7 3/4" to 6'-9 3/4"	3'-11 1/4" to 4'-6 1/4"
4g21	4'-6 3/8" to 5'-6"	5'-7 3/4" to 6'-11 1/4"	3'-11 1/4" to 4'-7"

BAR	A	B
6e25	5'-0 3/8" to 6'-1 1/2"	2'-11 3/8" to 4'-6 5/8"
6g25	5'-1 1/8" to 6'-2 3/8"	2'-11 3/8" to 4'-6 5/8"

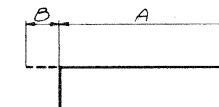
BAR	A
6e19	4'-4 3/8"
6g19	4'-5 3/8"



6e19 & 6g19

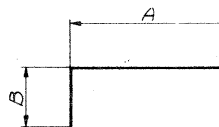


BAR	A	B	C
11e10	14'-9"	8'-7 1/4"	3'-3 1/2"
11g10	14'-9"	8'-7 1/4"	3'-3 1/2"



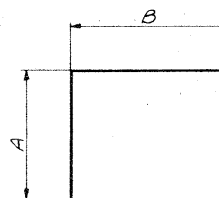
9e29 & 9g29

BAR	A	B
9e29	7'-4"	1'-3 3/4"
9g29	7'-4"	1'-3 3/4"



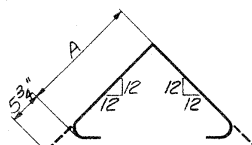
5e9 & 5g9

BAR	A	B
5e9	38'-1"	4'-2"
5g9	38'-1"	4'-2"



4e16, 4e30, 4g16 & 4g30

BAR	A	B
4e16	1'-10"	2'-10"
4e30	1'-10"	2'-3 1/2"
4g16	1'-10"	2'-10"
4g30	1'-10"	2'-3 1/2"



4e20 & 4g20

BAR	A
4e20	4'-2 3/8" to 5'-0 3/4"
4g20	4'-2 3/8" to 5'-1 3/8"

NOTES

All dimensions are out to out.
All bends shown are bent around a standard mandrel of D=6d_b for #3 thru #8; D=8d_b for #9, #10 and #11.
Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" except as noted.
Bar lengths include deductions for bends.

MISSISSIPPI RIVER BRIDGE

BAR LIST
PIERS P5 & P6

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

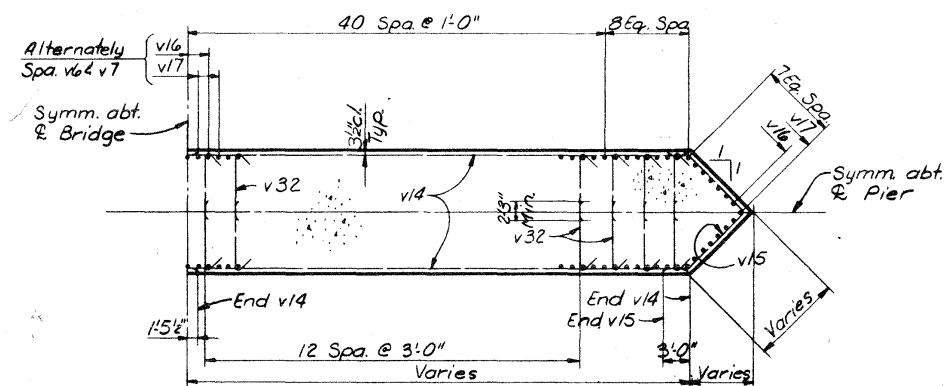
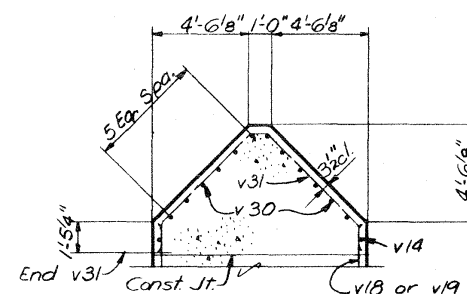
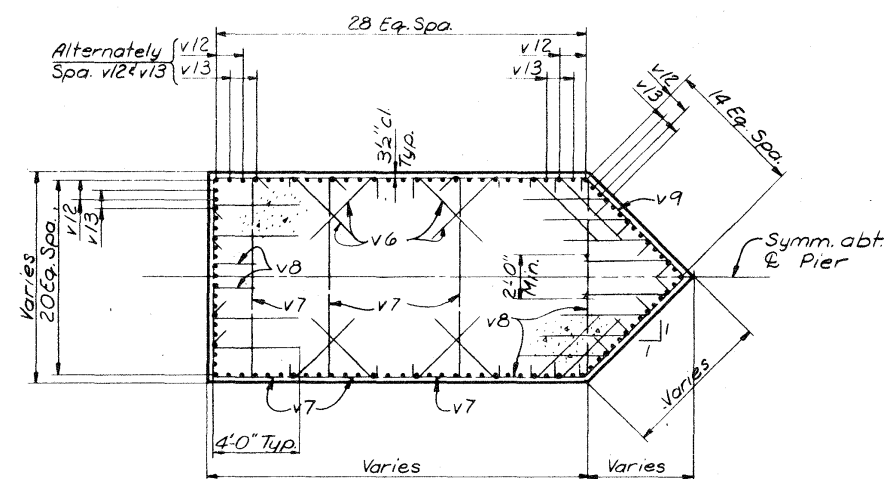
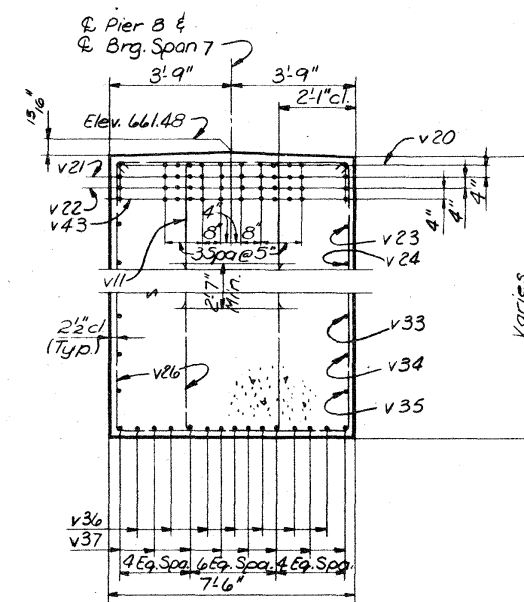
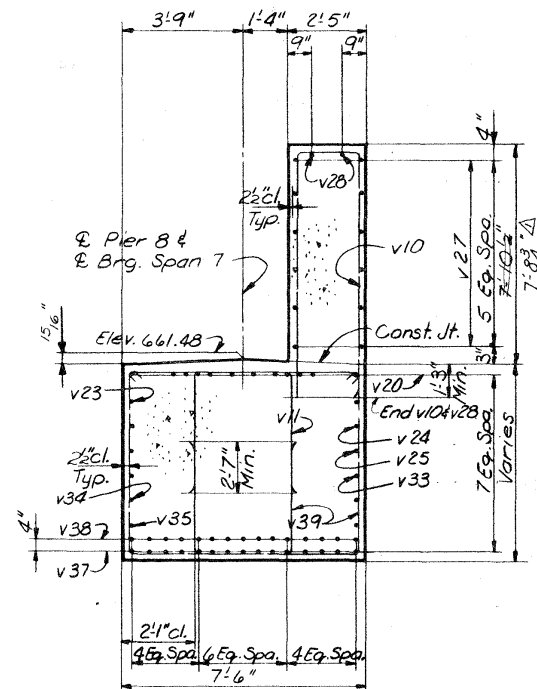
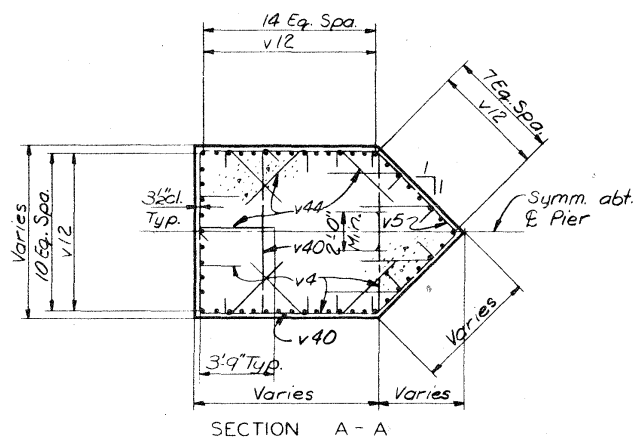
Revised (1-24-79)
Items revised
are identified
by Δ

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 18 OF 31

PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 18 OF 31

DRAWN BY: [Signature]
CHECKED BY: [Signature]
5818



Revised (1-24-79)
Items revised are
identified by Δ

CONCRETE QUANTITIES	
Cap	171.6
Columns	501.4
Shaft	2,120.0
Ftg	895.9
Total	3,688.9 c.y.
Seal Course	2666.7 c.y.

MISSISSIPPI RIVER BRIDGE
PIER P8
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

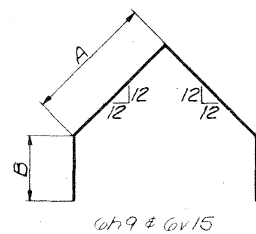
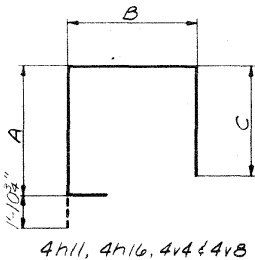
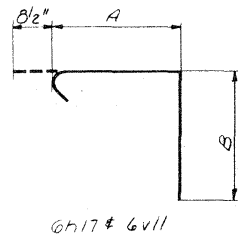
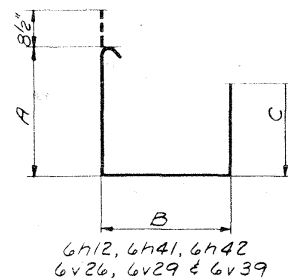
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 22 OF 31
PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 22 OF 31

5818
705/29
DRAWN BY: D. Richardson, May 1978
CHECKED BY: [Signature]

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

BAR LIST-PIER P7						BAR LIST-PIER P8					
BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT
6h1	Footing	—	54'10"	120	9883	6v1	Footing	—	54'10"	50	4612
11h2	do	—	27'6"	137	20017	10v2	do	—	27'6"	156	18460
6h3	do	—	27'6"	108	4461	6v3	do	—	27'6"	108	4461
4h4	Column	—	46'8"	96	34272	4v4	Column	□	Varies	60	850
4h5	do	—	31'10"	96	23378	4 Series of 15 bars (19'6" to 23'2")					
10h6	Shaft	—	10'6"	108	7668	4v5	Column	△	Varies	30	240
10h7	do	—	22'6"	108	10456	2 Series of 15 bars (11'0" to 12'4")					
6h8	do	—	Varies	120	8539	4v6	Column	→	4'-5"	1584	4673
4 Series of 30 bars (46'6" to 48'3")						4v7	do	→	Varies	198	1295
6h9	Shaft	△	Varies	60	1784	6 Series of 33 bars (9'1/4" to 10'5 3/4")					
2 Series of 30 bars (18'6" to 21'1")						4v8	Column	□	Varies	132	2328
4h10	Column	△	Varies	50	438	4 Series of 33 bars (22'3" to 30'6 3/4")					
2 Series of 25 bars (12'5 1/4" to 13'9 3/4")						4v9	Column	△	Varies	60	592
4h11	Column	□	Varies	100	1687	2 Series of 33 bars (12'5 1/4" to 14'4")					
4 Series of 25 bars (22'3" to 28'3 3/4")						5v10	Pedestal	□	19'9"	45	927
6h12	Beam	□	Varies	52	1505	6v11	Beam	□	9'10"	176	2597
4 Series of 13 bars (17'8 3/4" to 20'9 3/4")						4v12	Column	—	55'9"	104	44355
4h13	Column	→	4'6"	1388	4172	4v13	do	—	40'4"	104	32583
4h14	do	→	Varies	100	642	6v14	Shaft	—	Varies	136	9780
4 Series of 25 bars (9'1/4" to 10'1/4")						4 Series of 34 bars (46'10" to 48'11")					
4h15	Column	△	Varies	32	256	6v15	Shaft	△	Varies	68	2108
2 Series of 16 bars (11'0 3/4" to 12'4 3/4")						2 Series of 34 bars (19'2 3/4" to 22'1 1/2")					
4h16	Column	□	Varies	64	912	10v16	Shaft	—	22'6"	110	10650
4 Series of 16 bars (19'6 1/2" to 23'1 3/4")						10v17	do	—	28'6"	110	13490
6h17	Beam	□	9'10"	176	2599	10v18	do	—	32'11"	110	15580
10h18	Shaft	—	31'11"	108	14832	10v19	do	—	26'11"	110	12740
10h19	do	—	25'11"	108	12044	11v20	Beam	—	46'9"	24	5961
11h20	Beam	—	46'9"	24	5961	11v21	do	—	32'0"	24	4080
11h21	do	—	32'0"	24	4080	11v22	do	—	27'0"	24	3443
11h22	do	—	27'0"	24	3443	11v23	do	—	46'4"	4	985
11h23	do	—	46'4"	4	985	11v24	do	—	46'2"	4	981
11h24	do	—	46'2"	4	981	11v25	do	—	46'0"	4	978
11h25	do	—	46'0"	4	978	6v26	do	□	Varies	80	2860
5h26	Pedestal	□	18'3"	45	857	4 Series of 20 bars (21'0 1/4" to 26'8 1/4")					
4h27	do	□	11'2"	54	403	4v27	Pedestal	□	11'2"	54	403
4h28	do	□	9'4"	18	232	4v28	do	□	20'10"	18	251
4h29	Column	→	Varies	32	187	6v29	Beam	□	Varies	52	1504
2 Series of 16 bars (8'5 1/2" to 9'0 1/2")						4 Series of 13 bars (17'5 3/4" to 20'9 3/4")					
6h30	Shaft	—	33'4"	24	1193	6v30	Shaft	—	31'9"	24	1145
6h31	do	—	14'10"	57	1270	6v31	do	—	15'4"	55	1267
5h32	do	—	7'2"	900	6727	5v32	do	—	7'7"	1088	8605
11h33	Beam	—	45'10"	4	974	11v33	Beam	—	45'10"	4	974
11h34	do	—	45'8"	4	971	11v34	do	—	45'8"	4	971
11h35	do	—	45'7"	4	969	11v35	do	—	45'7"	4	969
11h36	do	—	33'2"	15	2643	11v36	do	—	33'2"	15	2643
11h37	do	—	57'2"	15	4556	11v37	do	—	57'2"	15	4556
11h38	do	—	42'4"	15	3374	11v38	do	—	42'4"	15	3374
11h39	do	—	23'0"	24	2933	6v39	do	□	Varies	44	1082
10h40	Footing	□	10'10"	216	10069	4 Series of 11 bars (15'3 3/4" to 17'5 1/4")					
6h41	Beam	□	Varies	80	2860	4v40	Column	□	Varies	30	170
4 Series of 20 bars (21'0 1/4" to 26'8 1/4")						2 Series of 15 bars (8'5 1/4" to 9'0 3/4")					
6h42	Beam	□	Varies	44	1082	4v41	Beam	□	8'10"	18	106
4 Series of 11 bars (15'3 3/4" to 17'5 1/4")						10v42	Footing	—	10'10"	220	10255
4h43	Beam	□	7'4"	16	78	11v43	Beam	—	23'0"	24	2933
						4v44	Column	→	4'2"	330	919
						7v45	Footing	—	54'10"	44	4931
Total (lbs.) 217,357						Total (lbs.) 248,657					

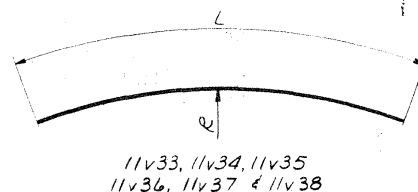


BAR	A	B	C
6h12	6'-9 1/2" to 8'-4"	5'-2 1/2"	5'-4" to 6'-10 1/4"
6h41	8'-5 1/4" to 11'-3 1/4"	5'-2 1/2"	6'-11 3/4" to 9'-9 3/4"
6h42	5'-7" to 6'-7 3/4"	5'-2 1/2"	4'-1 1/2" to 5'-2 1/4"
6v26	8'-5 1/4" to 11'-3 1/4"	5'-2 1/2"	6'-11 3/4" to 9'-9 3/4"
6v29	6'-9 1/2" to 8'-3 3/4"	5'-2 1/2"	5'-4" to 6'-10 1/4"
6v39	5'-7" to 6'-7 3/4"	5'-2 1/2"	4'-1 1/2" to 5'-2 1/4"

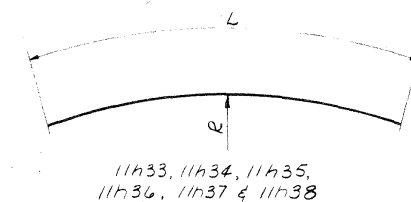
BAR	A	B
6h17	5'-2 1/2"	4'-1 1/2"
6v11	5'-2 1/2"	4'-1 1/2"

BAR	A	B	C
4h11	4'-7 1/2" to 5'-2"	10'-10 1/2" to 15'-10 1/2"	5'-0 3/4" to 5'-6 3/4"
4h16	5'-4 1/4" to 5'-9 1/4"	7'-9" to 10'-7 3/4"	4'-9" to 5'-0 1/2"
4v4	5'-4 1/4" to 5'-9 1/4"	7'-9 1/4" to 10'-8"	4'-9" to 5'-0 1/2"
4v8	4'-7 1/2" to 5'-4 1/2"	10'-10 1/2" to 17'-9"	5'-0 3/4" to 5'-9"

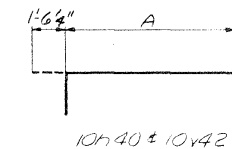
BAR	A	B
6h9	6'-5" to 7'-8 1/2"	2'-11 1/2"
6v15	6'-8 3/4" to 8'-2 1/4"	2'-11 3/4"



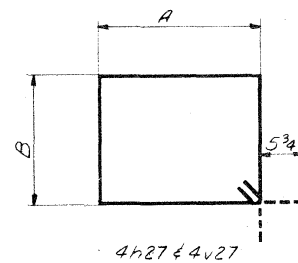
BAR	L	R
11v33	45'-10"	118'-6"
11v34	45'-8"	117'-8"
11v35	45'-7"	116'-11"
11v36	33'-2"	116'-1"
11v37	57'-2"	116'-1"
11v38	42'-4"	116'-5"



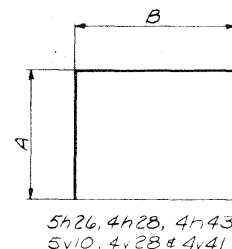
BAR	L	R
11h33	45'-10"	118'-6"
11h34	45'-8"	117'-8"
11h35	45'-7"	116'-11"
11h36	33'-2"	116'-1"
11h37	57'-2"	116'-1"
11h38	42'-4"	116'-5"



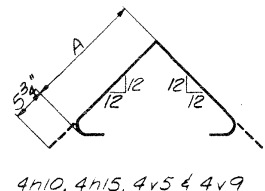
BAR	A
10h40	9'-4"
10v42	9'-4"



BAR	A	B
4h27	3'-2"	2'-1"
4v27	3'-2"	2'-1"



BAR	A	B
5h26	8'-3"	2'-0"
4h28	8'-3"	3'-1"
4h43	1'-2"	5'-3"
5v10	9'-0"	2'-0"
4v28	9'-0"	3'-1"
4v41	1'-2"	6'-9"



BAR	A
4h10	5'-9 1/2" to 6'-5 3/4"
4h15	5'-4 1/4" to 5'-9 1/4"
4v5	5'-4 1/4" to 5'-9 1/4"
4v9	5'-9 1/2" to 6'-9 1/4"

NOTES

All dimensions are out to out.
All bends shown are bent around a standard mandrel of D=6db for #3 thru #8; D=8db for #9, #10 and #11.
Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" except as noted.
Bar lengths include deductions for bends.

MISSISSIPPI RIVER BRIDGE

BAR LIST PIERS P7 & P8

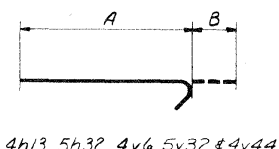
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

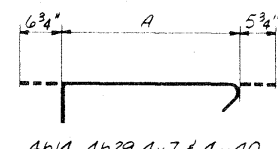
DESIGN NO. 777 FILE NO. 25 896 DES. SH. NO. 23 OF 31

PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 23 OF 31

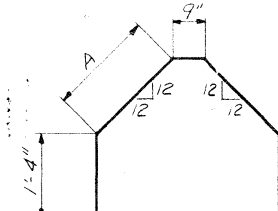
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



BAR	A	B
4h13	4'-0"	5 3/4"
5h32	6'-7"	7 1/4"
4v6	4'-0"	5 3/4"
5v32	7'-0"	7 1/4"
4v44	3'-9"	5 3/4"



BAR	A
4h14	8'-0 3/4" to 9'-0 3/4"
4h29	7'-5" to 8'-0"
4v7	8'-0 3/4" to 9'-5 1/4"
4v40	7'-5 1/4" to 8'-0 1/4"



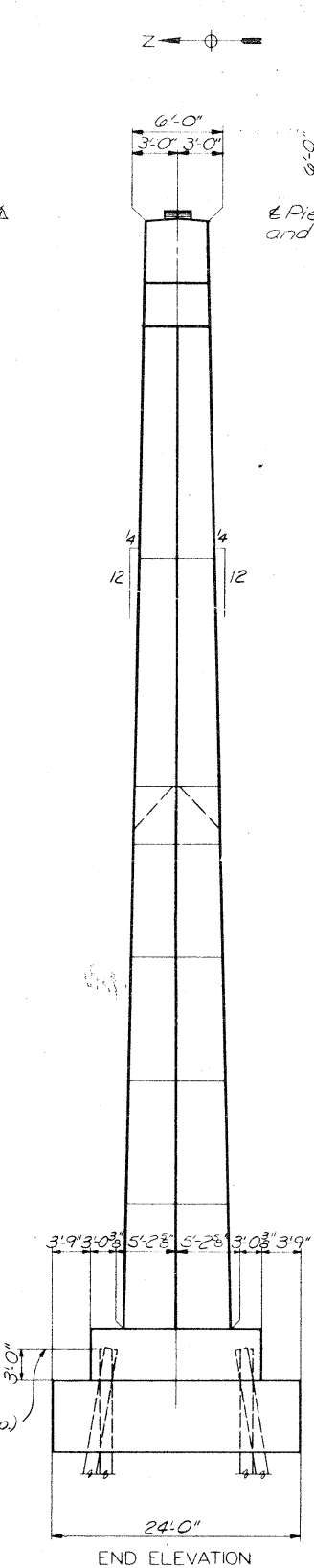
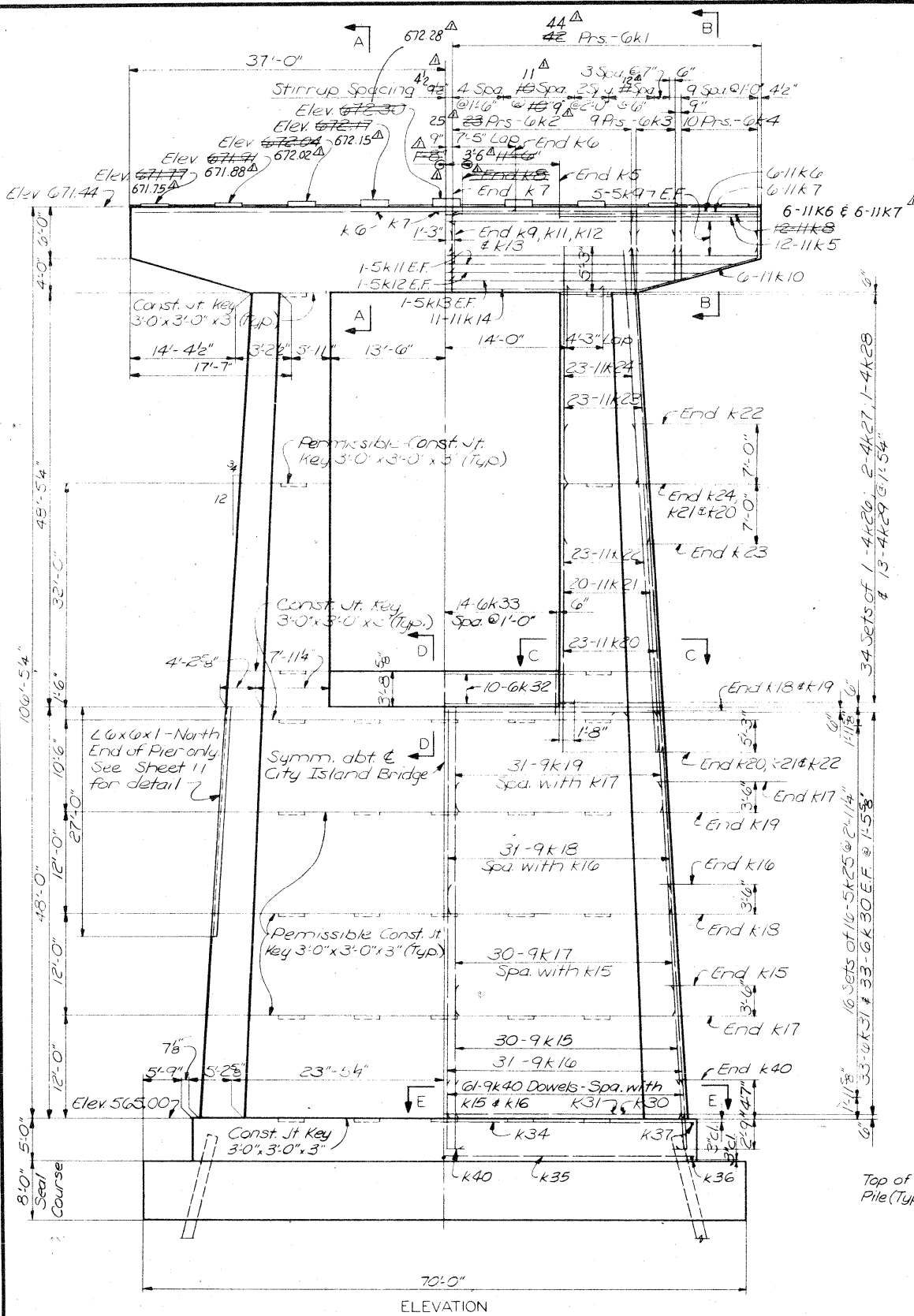
BAR	A
6h31	5'-9 1/2"
6v31	6'-0 1/2"

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

DRAWN BY: D. Richardson Aug. 1978
CHECKED BY: J. S. Zettl
5818

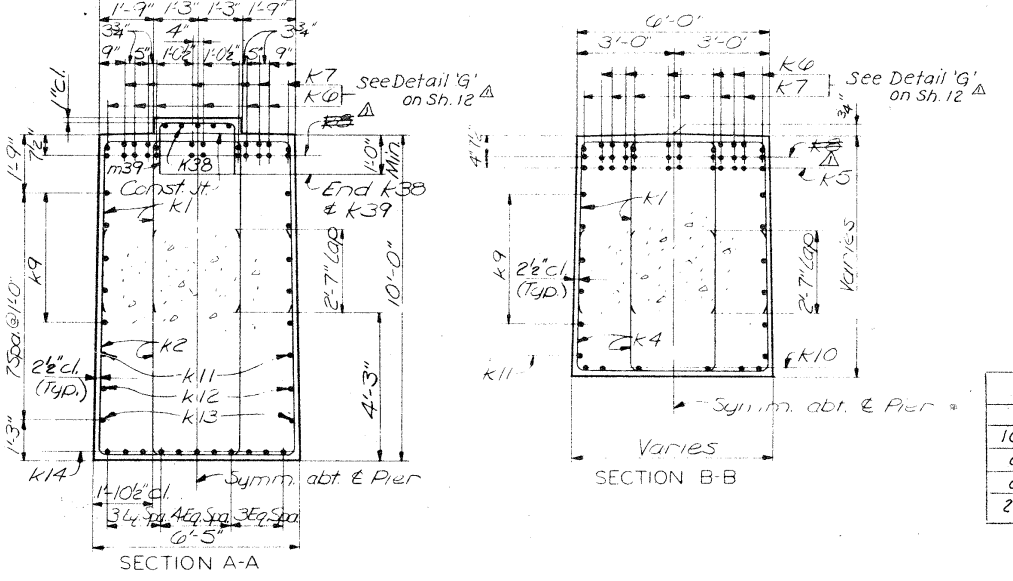
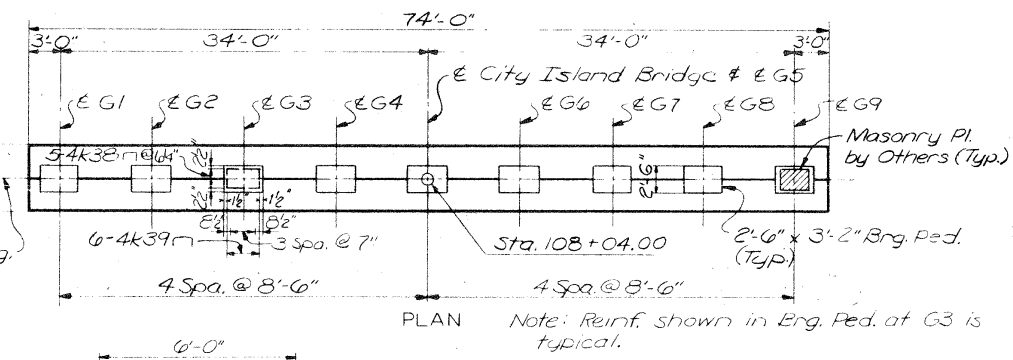
5818
185/13
DRAWN BY: L. Mitchell, April 1973
CHECKED BY: J. R. S.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.



Revised (1-24-79)
Items revised are identified by Δ.

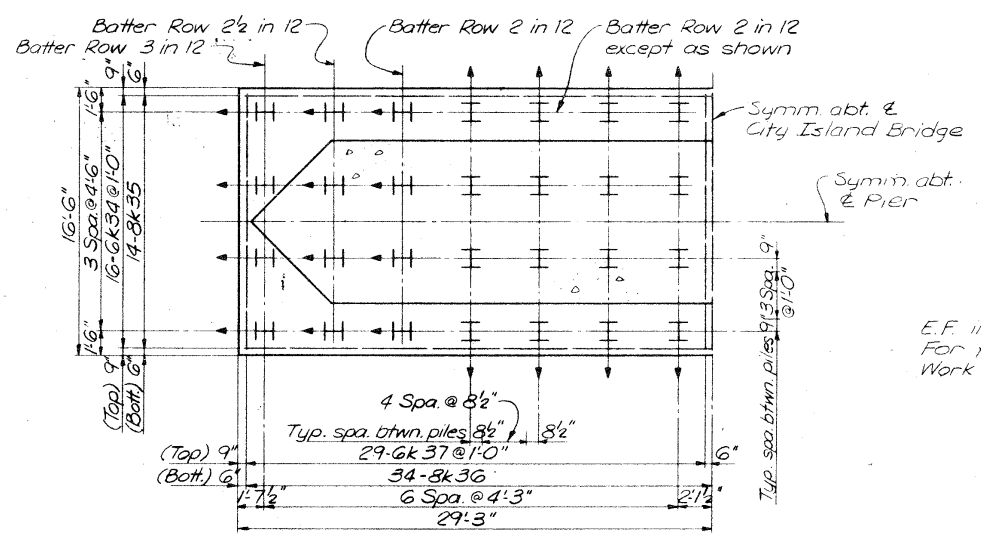
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



Piling Schedule		
	Drive	Furnish
16 (Vert)	86'	88'
8 (3-12)	89'	91'
8 (25-12)	88'	90'
24 (2-12)	87'	89'

CONCRETE QUANTITIES	
Cap	158.4
Columns	235.5
Shaft	851.1
Ftg	178.7
Total	1,423.7 c.y.
Seal Course	497.8 c.y.

NOTES
E.F. indicates Each Face.
For pile data, see Sheet 5.
Work this sheet with Sheet 26.



HALF FOOTING PLAN
Note: Pile spacing measured at bottom of footing.
→ indicates battered pile in direction shown.

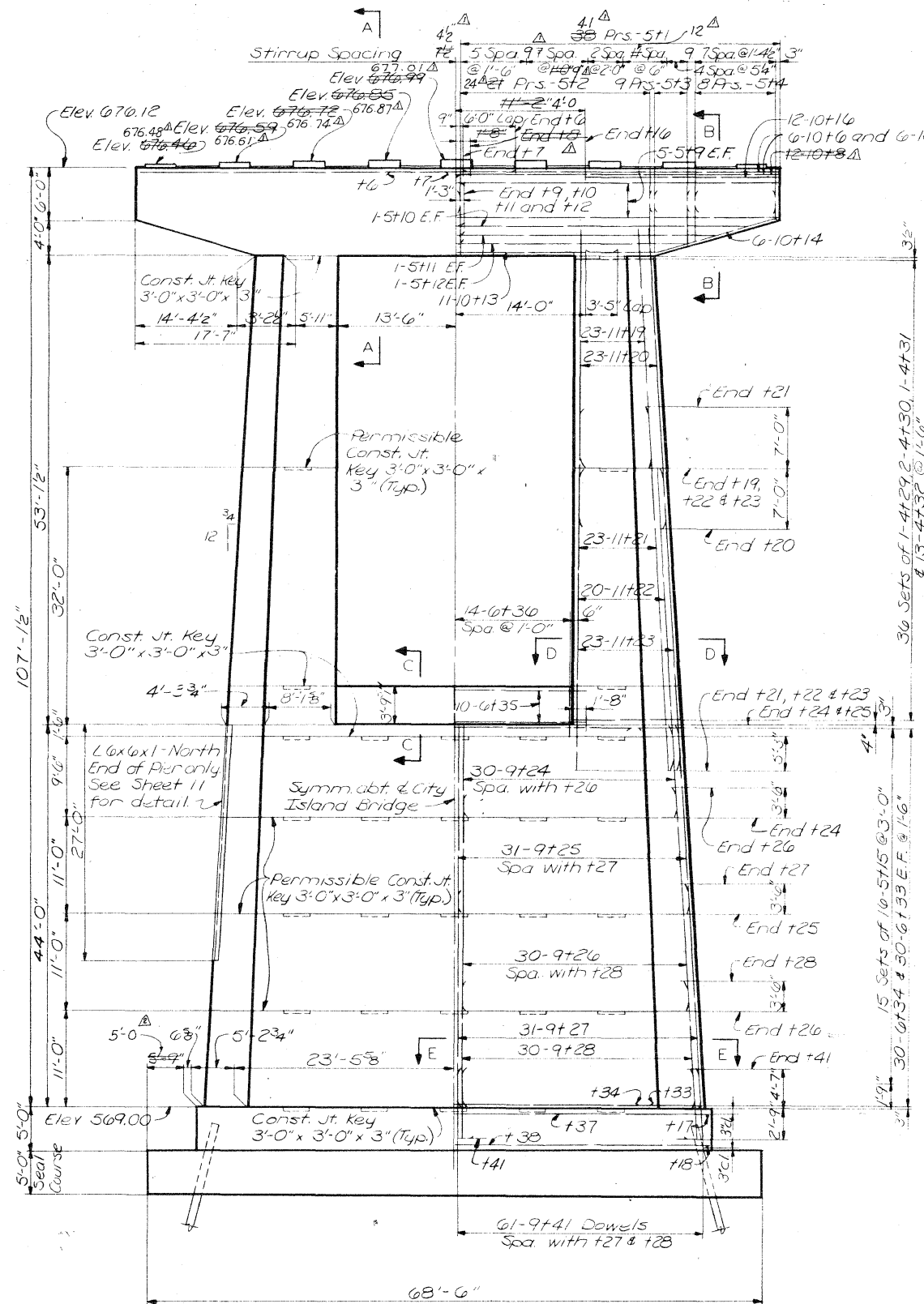
MISSISSIPPI RIVER BRIDGE

PIER P9

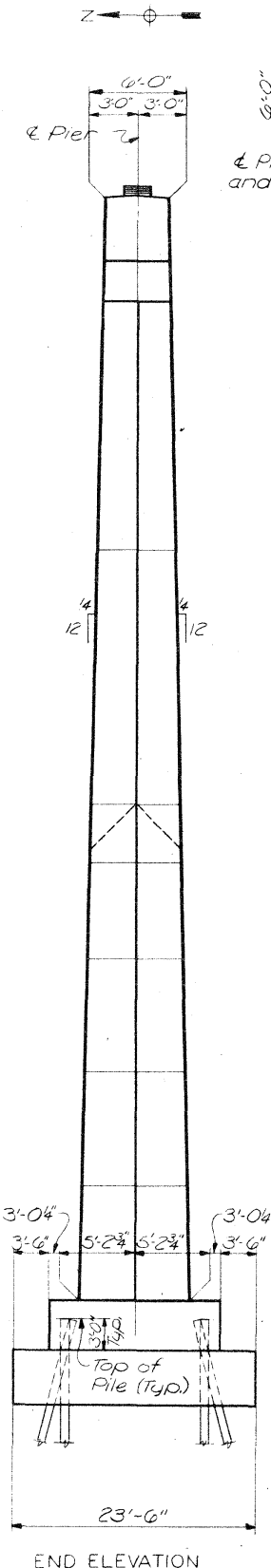
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 24 OF 31

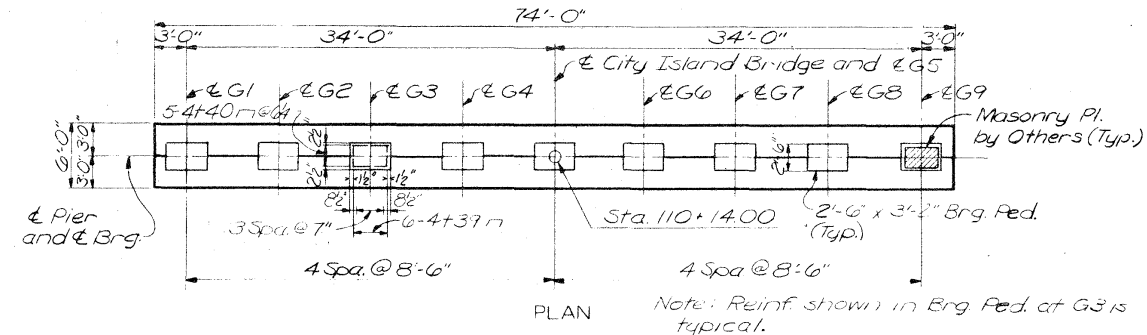
PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 24 OF 31



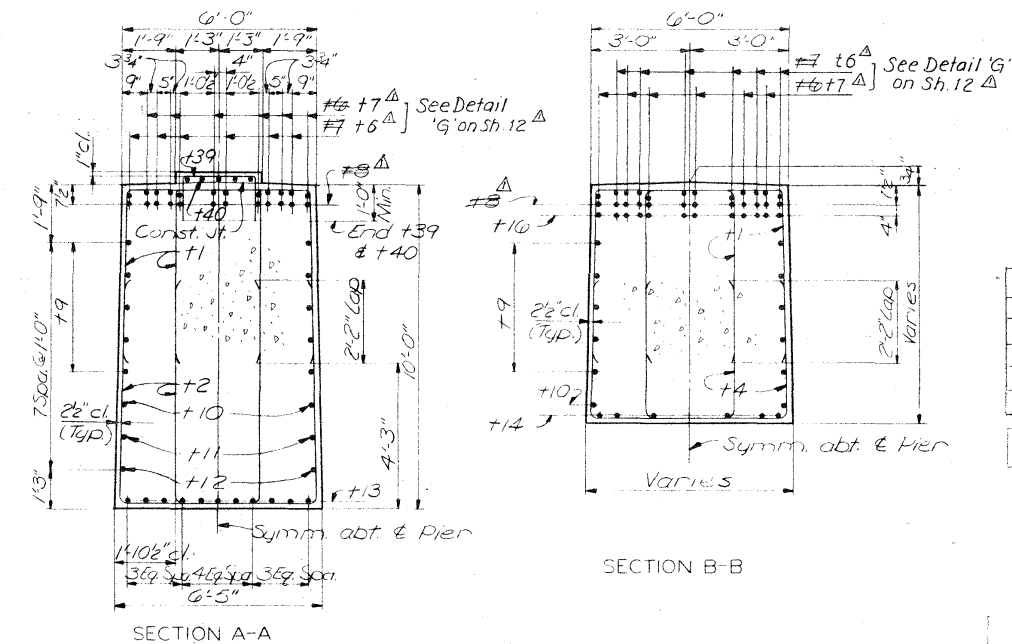
ELEVATION



END ELEVATION



PLAN



SECTION A-A

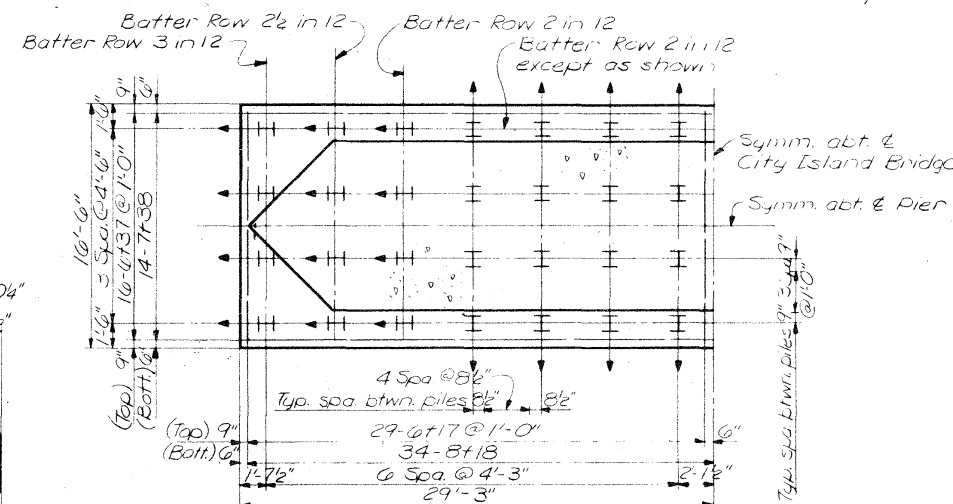
SECTION B-B

Piling Schedule		
	Drive	Furnish
16 (Vert)	64'	66'
8 (3-12)	66'	68'
8 (25-12)	65'	67'
24 (2-12)	65'	67'

CONCRETE QUANTITIES	
Cap	158.4
Columns	265.6
Shaft	795.6
Ftg	178.8
Total	1,398.4 c.y.
Seal Course	298.1 c.y.

NOTES

For Grounding Details, see Sht. 31
E.F. indicates Each Face.
Work this sheet with Sht. 26.
For pile data, see Sheet 5.



HALF FOOTING PLAN

Note: Pile spacing measured at bottom of footing.
-> indicates battered pile in direction shown.

MISSISSIPPI RIVER BRIDGE

PIER 10

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

DRAWN BY: L. WITCHELL, JR. 1973
CHECKED BY: T. J. JONES, JR. 1973

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

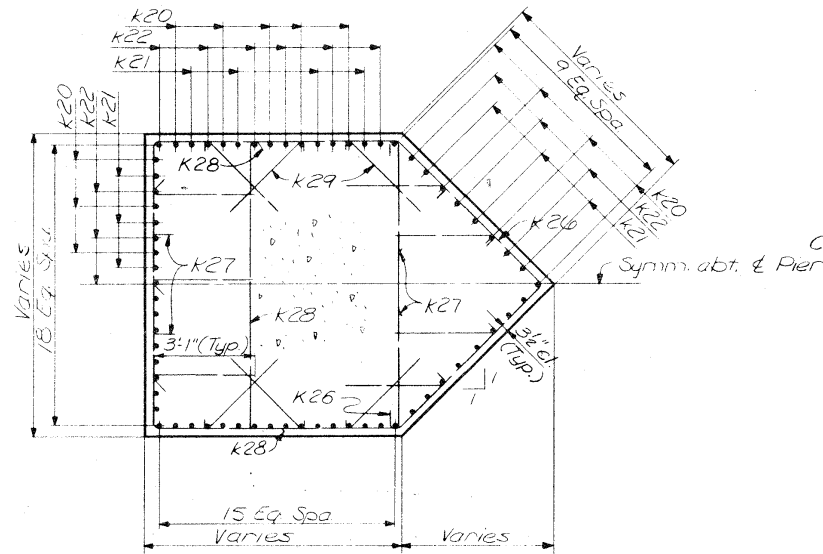
Revised (6-29-79) Footing
dimension corrected in
Elevation as identified by A

Revised (1-24-79)
Items revised are
identified by A

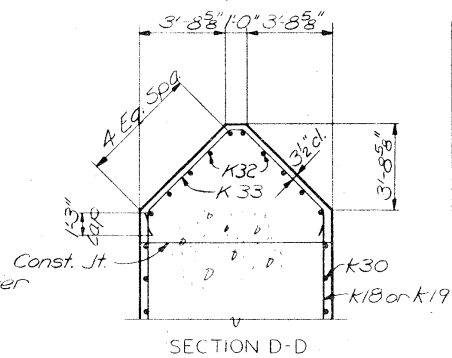
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 25 OF 31

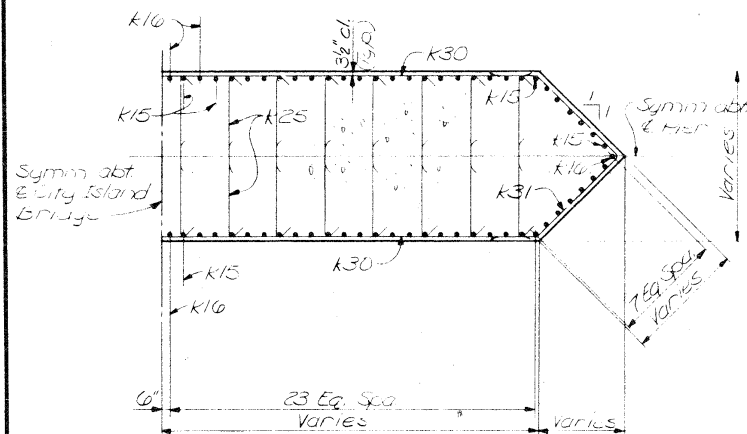
PROJECT BRP-561-4(2)-38-31 PROJECT SH. NO. 25 OF 31



SECTION C-C

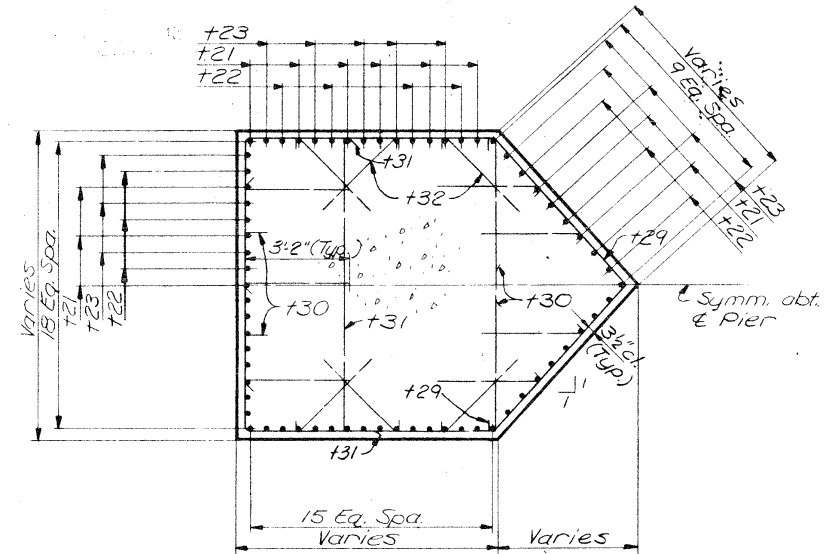


SECTION D-D

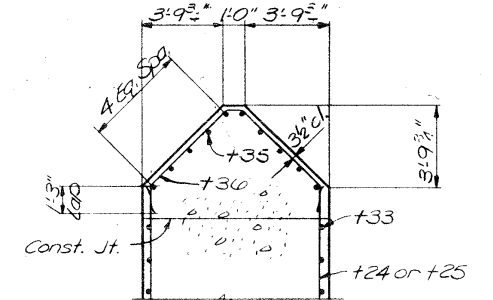


SECTION E-E

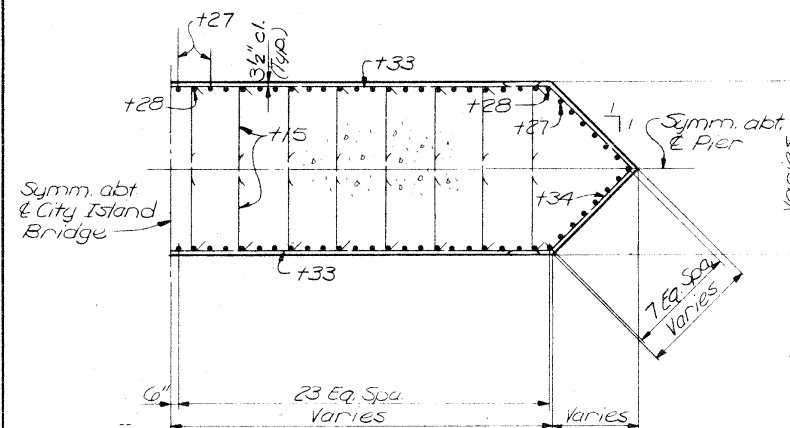
PIER P9



SECTION D-D



SECTION C-C



SECTION E-E

PIER P10

NOTES
Work this with Sheets 24 and 25.

MISSISSIPPI RIVER BRIDGE

PIERS P9 & P10

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN NO. 777 FILE NO. 2589G DES. SH. NO. 26 OF 31

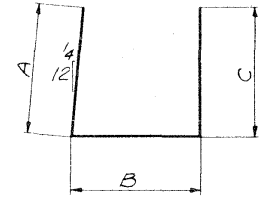
PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 26 OF 31

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

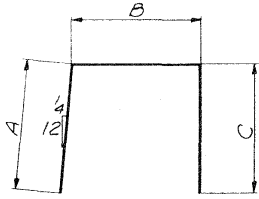
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

5818 DRAWN BY: [Signature] CHECKED BY: [Signature]
1982/11/17

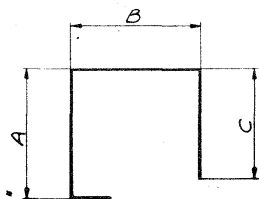
BAR LIST-PIER P9						BAR LIST-PIER P10					
BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT	BAR	LOCATION	SHAPE	LENGTH	NO.	WEIGHT
6k1	Cap	□	14'-11"	16	322.2	5t1	Cap	□	14'-11"	16	322.2
6k2	do	□	17'-4"	10	234.2	5t2	do	□	16'-6"	9	144.0
6k3	do	□	Varies	36	874	5t3	do	□	Varies	36	581
4 Series of 9 bars (14'-11" to 17'-4")						4 Series of 9 bars (14'-5" to 16'-6")					
6k4	Cap	□	Varies	40	721	5t4	Cap	□	Varies	32	377
4 Series of 10 bars (9'-5" to 14'-6")						4 Series of 8 bars (8'-7" to 14'-0")					
11k5	Cap 33'-4"	—	23'-8"	24	337.2	f5	Not Used	—	—	—	—
11k6	do	—	45'-0"	24	337.2	10t6	Cap	—	43'-7"	24	2250
11k7	do	—	36'-1"	24	242.2	10t7	do	—	36'-1"	24	1843
11k8	do	—	35'-2"	24	242.2	10t8	do	—	35'-2"	24	3432
5k9	do Cap	□	42'-1"	20	878	5t9	do Cap	□	42'-1"	20	878
11k10	do	—	23'-5"	12	1493	5t10	do	—	35'-0"	4	146
5k11	do	—	34'-11"	4	146	5t11	do	—	31'-5"	4	131
5k12	do	—	31'-4"	4	131	5t12	do	—	27'-10"	4	116
5k13	do	—	27'-9"	4	116	10t13	do	—	34'-10"	11	1649
11k14	do	—	36'-6"	11	2133	10t14	do	—	23'-4"	12	1205
9k15	Shaft	—	15'-6"	60	3162	5t15	Shaft	—	6'-9"	480	3379
9k16	do	—	27'-6"	62	5797	10t16	Cap 32'10"	—	25'-8"	24	2250
9k17	do	—	27'-6"	60	5610	6t17	Footing	—	16'-0"	58	1394
9k18	do	—	23'-11"	62	5042	8t18	do	—	16'-0"	47	2862
9k19	do	—	11'-11"	62	2512	11t19	Column	—	26'-4"	46	2430
11k20	Column	—	38'-9"	46	9470	11t20	do	—	33'-4"	46	8147
11k21	do	—	38'-9"	40	8235	11t21	do	—	45'-9"	46	11181
11k22	do	—	45'-9"	46	11181	11t22	do	—	38'-9"	40	8235
11k23	do	—	28'-9"	46	7026	11t23	do	—	38'-9"	46	9470
11k24	do	—	21'-9"	46	5316	9t24	Shaft	—	10'-11"	60	2227
5k25	Shaft	—	6'-8"	512	3560	9t25	do	—	21'-11"	62	4620
4k26	Column	□	Varies	68	487	9t26	do	—	25'-6"	60	5202
2 Series of 34 bars (9'-4" to 12'-12")						9t27	do	—	25'-6"	62	5375
4k27	Column	□	Varies	136	1467	9t28	do	—	14'-6"	60	2958
4 Series of 34 bars (14'-0" to 18'-3")						4t29	Column	□	Varies	72	523
4k28	Column	□	Varies	68	358	2 Series of 36 bars (9'-3" to 12'-5")					
2 Series of 34 bars (6'-10" to 8'-10")						4t30	Column	□	Varies	144	1575
4k29	Column	—	3'-6"	884	2067	4 Series of 36 bars (14'-0" to 18'-8")					
6k30	Shaft	—	42'-6"	66	4213	4t31	Column	□	Varies	72	584
6k31	do	□	Varies	66	2003	2 Series of 36 bars (6'-10" to 9'-0")					
2 Series of 33 bars (16'-10" to 23'-6")						4t32	Column	—	3'-7"	936	2240
6k32	Shaft	—	30'-4"	10	456	6t33	Shaft	—	43'-3"	60	3898
6k33	do	□	13'-1"	27	531	6t34	do	□	Varies	60	1816
6k34	Footing	—	58'-0"	16	1394	2 Series of 30 bars (17'-0" to 23'-3")					
8k35	do	—	58'-0"	14	2168	6t35	Shaft	—	30'-4"	10	456
8k36	do	—	16'-0"	67	2862	6t36	do	□	13'-4"	27	541
6k37	do	—	16'-0"	58	1394	6t37	Footing	—	58'-0"	16	1394
4k38	Cap	□	6'-3"	45	188	7t38	do	—	58'-0"	14	1660
4k39	do	□	5'-9"	54	207	4t39	Cap	□	5'-8"	54	204
9k40	Footing	□	8'-8"	122	3595	4t40	do	□	6'-2"	45	85
					9t41	Footing	□	8'-8"	122	3595	
Total (1b)						Total (1b)					
117,928						110,862					



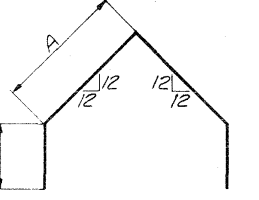
6k2, 6k3, 6k4,
5t2, 5t3 & 5t4



6k1 & 5t1



4k27 & 4t30



6k31 & 6t34

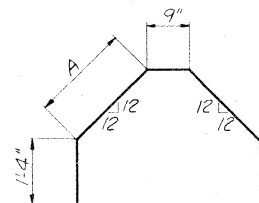
BAR	A	B	C
6k2	6'-8"	4'-4"	6'-8"
6k3	5'-5 3/4" to 6'-8"	4'-3 3/4" to 4'-4"	5'-5 3/4" to 6'-8"
6k4	2'-9 1/4" to 5'-3 1/4"	4'-3" to 4'-3 3/4"	2'-9 1/4" to 5'-3 1/4"
5t2	6'-3"	4'-4"	6'-3"
5t3	5'-2 1/2" to 6'-3"	4'-3 3/4" to 4'-4"	5'-2 1/2" to 6'-3"
5t4	2'-3 3/8" to 5'-0"	4'-3" to 4'-3 3/4"	2'-3 3/8" to 5'-0"

BAR	A	B	C
6k1	5'-7"	4'-1 1/2"	5'-7"
5t1	5'-7"	4'-1 1/2"	5'-7"

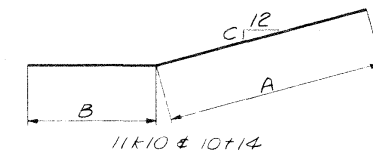
BAR	A	B	C
4k27	4'-0 3/8" to 5'-4 3/8"	5'-7 3/4" to 7'-7 1/2"	3'-11 1/4" to 4'-11 1/8"
4t30	4'-1" to 5'-6 1/2"	5'-7 3/8" to 7'-9 1/8"	3'-11 1/8" to 5'-0 1/4"

BAR	A	B
6k31	5'-7" to 6'-11 5/8"	2'-11 5/8" to 4'-11 5/8"
6t34	5'-8 5/8" to 7'-0"	2'-11" to 4'-9"

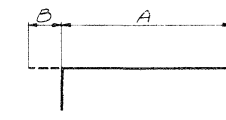
BAR	A
6k33	4'-11 1/8"
6t36	5'-0 3/8"



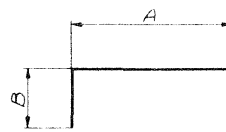
6k33 & 6t36



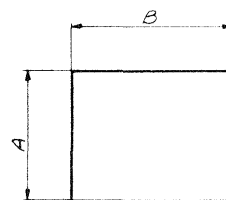
11k10 & 10t14



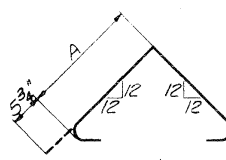
9k40 & 9t41



5k9 & 5t9



4k38, 4k39, 4t39 & 4t40



4k26 & 4t29

BAR	A	B	C
11k10	14'-9 1/4"	8'-7 1/2"	3'-5"
10t14	14'-9"	8'-7 1/2"	3'-5"

BAR	A	B
9k40	7'-4"	1'-3 3/4"
9t41	7'-4"	1'-3 3/4"

BAR	A	B
5k9	33'-1"	4'-2"
5t9	33'-1"	4'-2"

BAR	A	B
4k38	1'-10"	2'-10"
4k39	1'-10"	2'-3 1/2"
4t39	1'-9 1/2"	2'-3 1/2"
4t40	1'-9 1/2"	2'-10"

BAR	A
4k26	4'-2 3/8" to 5'-7 3/8"
4t29	4'-2 3/8" to 5'-9 3/8"

NOTES:

All dimensions are out to out.
All bends shown are bent around a standard mandrel of D=6d_b for #3 thru #8; D=8d_b for #9, #10 and #11.
Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" except as noted.
Bar lengths include deductions for bends.

MISSISSIPPI RIVER BRIDGE

BAR LIST

PIERS P9 & P10

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

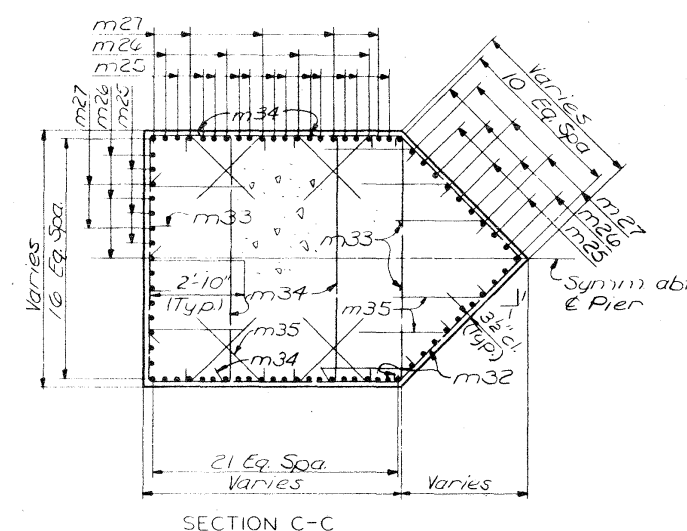
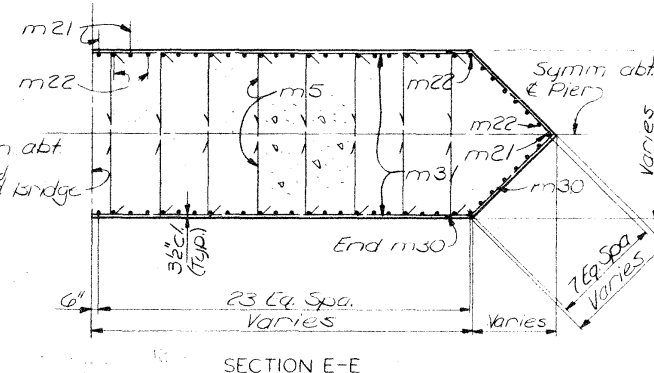
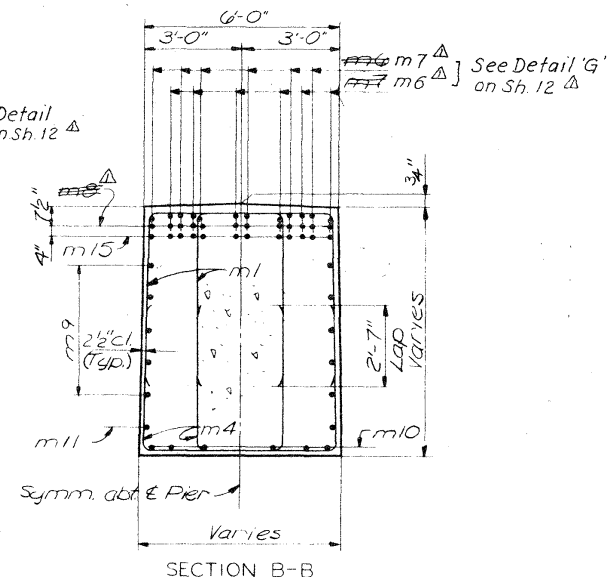
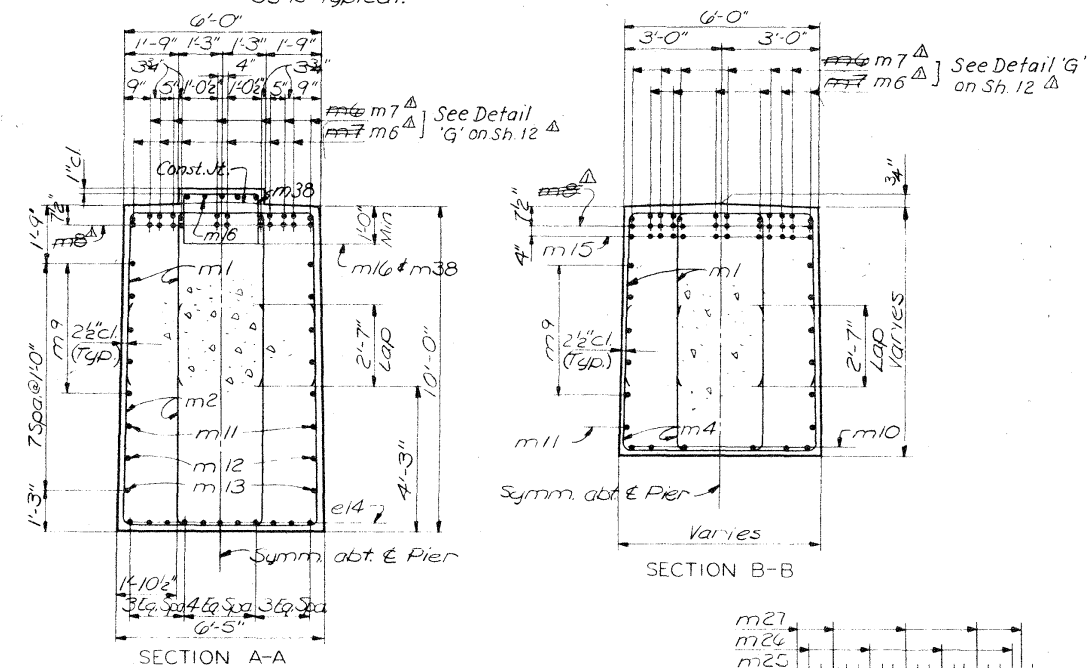
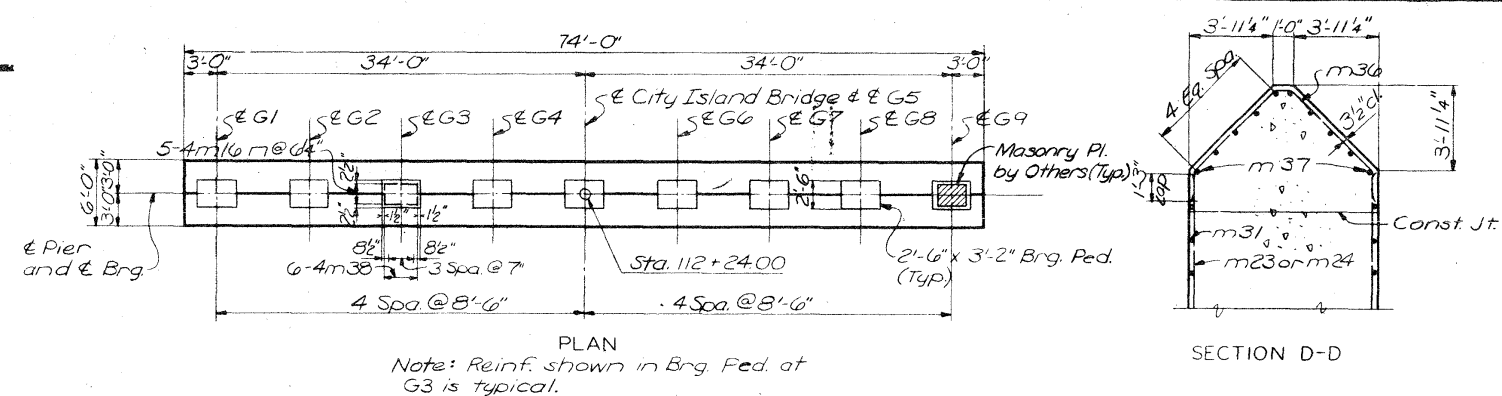
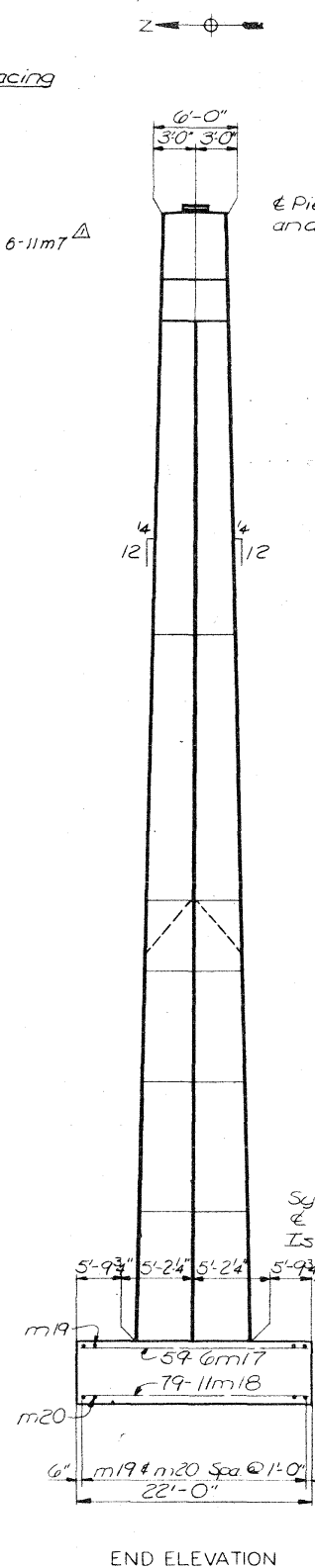
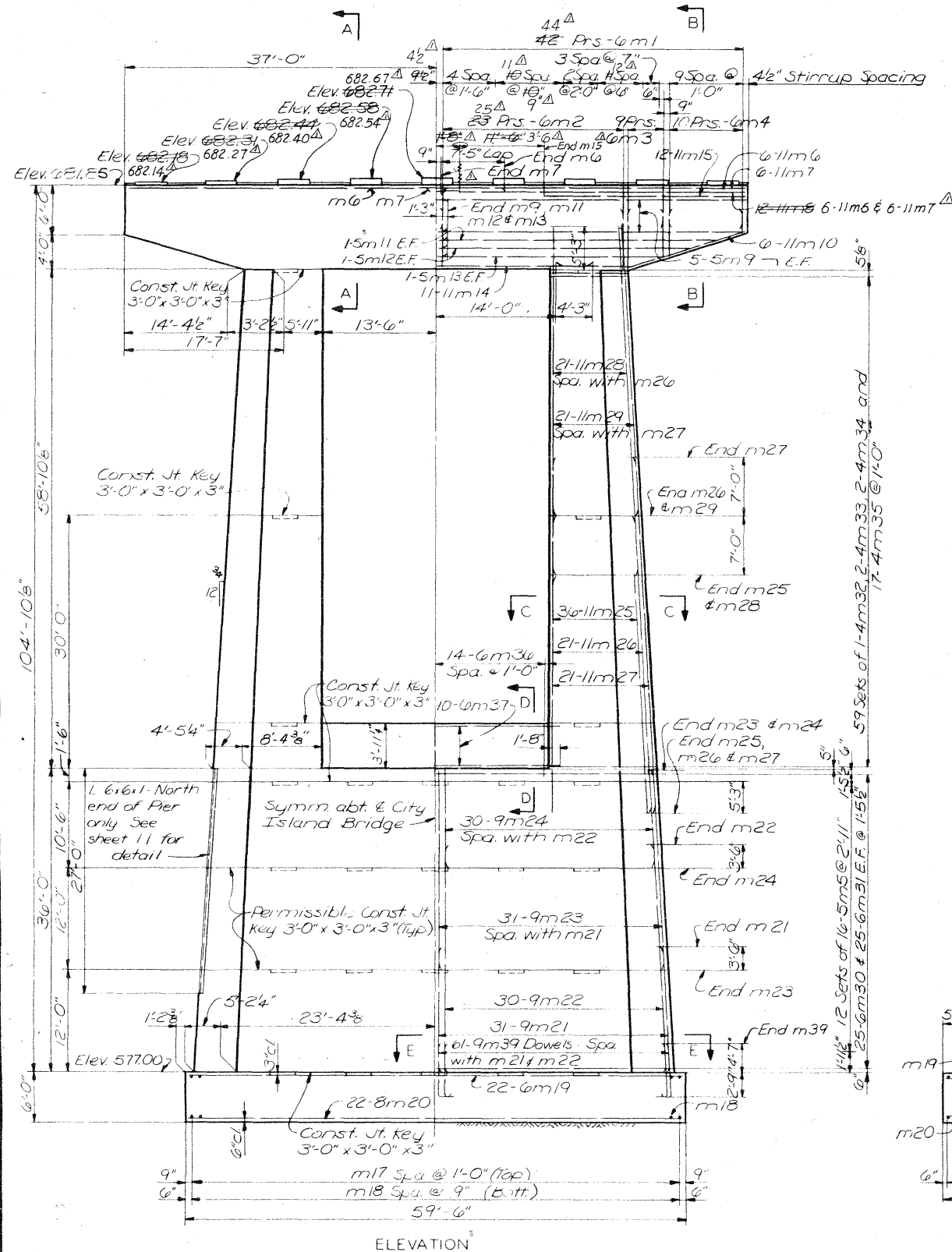
Revised (1-24-79)
Items revised are
identified by Δ

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 27 OF 31

PROJECT BR-56/4(2)-38-31 PROJECT SH. NO. 27 OF 31

DRAWN BY: J. L. W. CHECKED BY: J. L. W.



MISSISSIPPI RIVER BRIDGE

PIER PII

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

NOTES

E.F. indicates Each Face.
For Spread Footing Data,
see Sheet 5.

Revised (1-24-79)
Items revised are
identified by Δ

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 28 OF 31

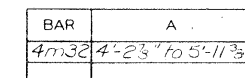
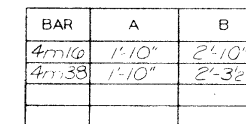
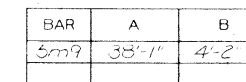
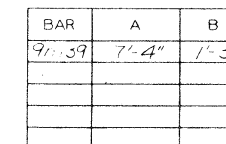
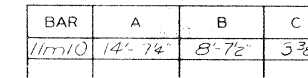
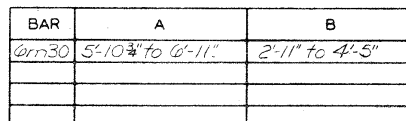
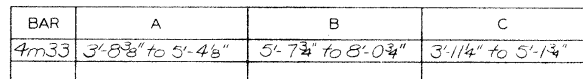
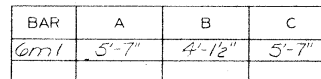
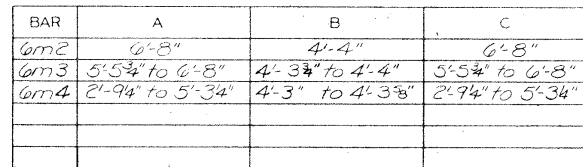
PROJECT BRF-561-4(2)-38-31 PROJECT SH. NO. 28 OF 31

5818	DRAWN BY: C. A. V. 12-1-1973
35122	CHECKED BY: T. J. M. 12-1-1973

3943 $\triangle$
2603 $\triangle$

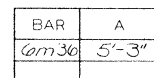
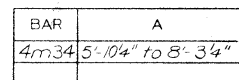
5738 $\triangle$
4601 $\triangle$
 $\triangle$

4250 $\triangle$



All dimensions are out to out.
All bends shown are bent around a standard mandrel of D=6d_b for #3 thru #8; D=8d_b for #9, #10 and #11.
Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" except as noted.
Bar lengths include deductions for bends.

BAR	A	B
5m5	6'-1'8"	7'4"
4m35	2'-10"	5'3 1/4"

MISSISSIPPI RIVER BRIDGE

PIER PII

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

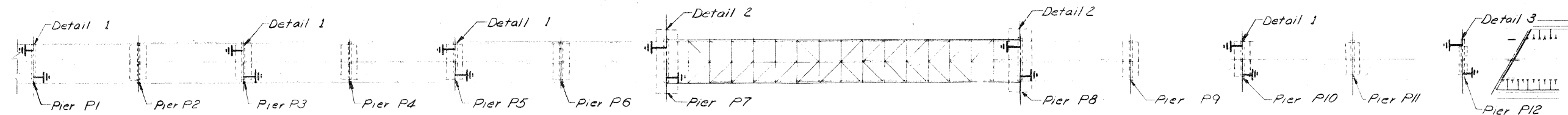
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 29 OF 31

PROJECT BRF:561-4(2)--38-31 PROJECT SH. NO. 29 OF 31

5818	DRAWN BY: C. Mitchell, July, 1918
20194	CHECKED BY: L. H. Davis, July, 1918



PLAN

SYMBOLS

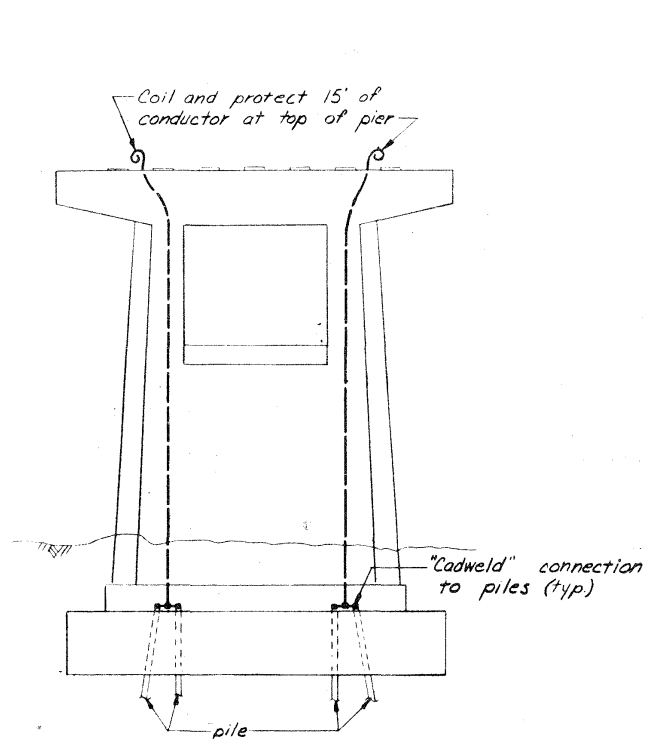
- ⊥ Bridge ground point, see detail indicated
- #4/0 Neoprene or polyethylene jacketed grounding conductor embedded in pier
- "Cadweld" connection

NOTES

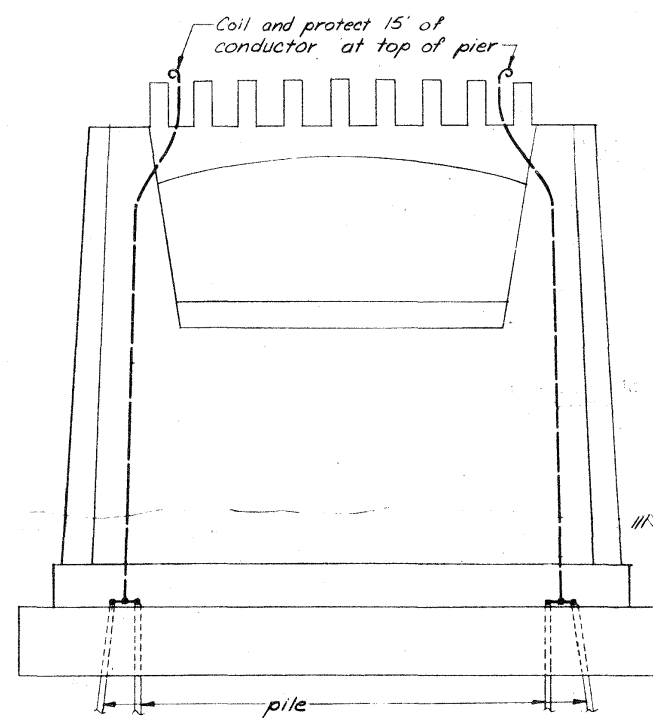
- 1 After installation contractor shall test each grounding conductor for continuity and for resistance to ground.

NOTE

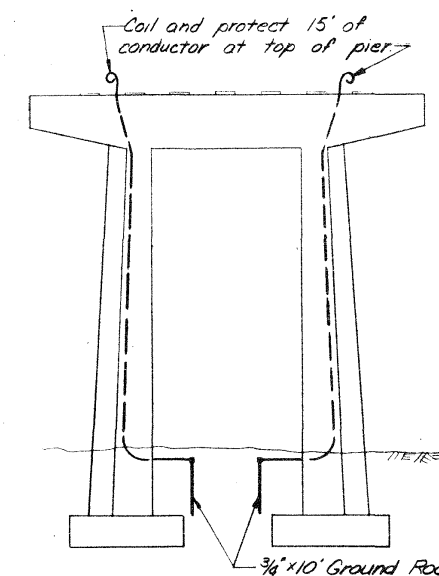
Pier P12 and the Wisconsin Approach Abutment are not included in this contract.



DETAIL 1



DETAIL 2



DETAIL 3

MISSISSIPPI RIVER BRIDGE

GROUNDING DETAILS

DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN

IOWA DEPARTMENT OF TRANSPORTATION

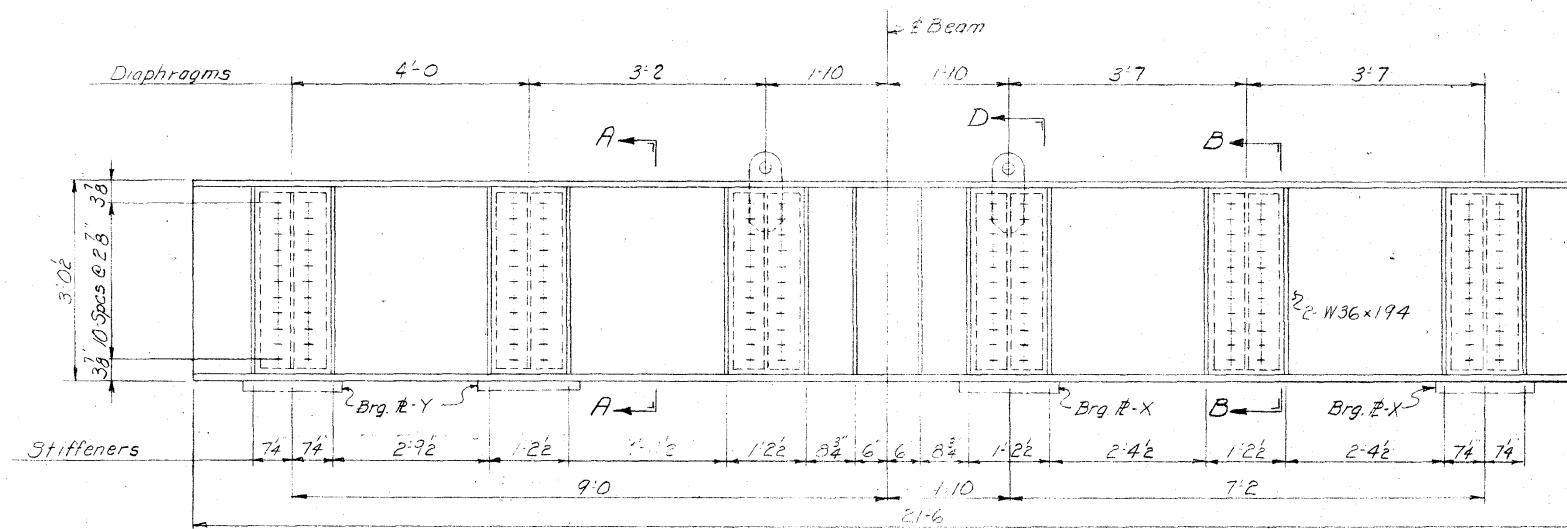
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGN NO. 777 FILE NO. 25896 DES. SH. NO. 31 OF 31

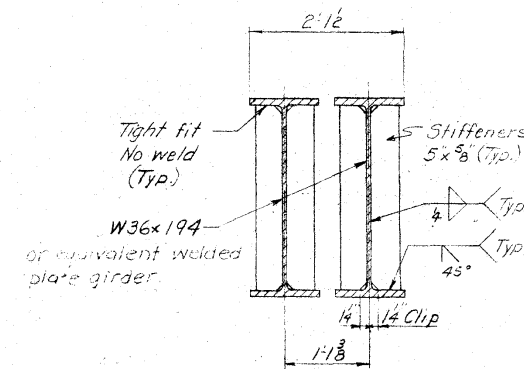
PROJECT BR-561-4(2)-38-31 PROJECT SH. NO. 31 OF 31

5818 DRAWN BY: J. Krussel/ June 1978
CHECKED BY:

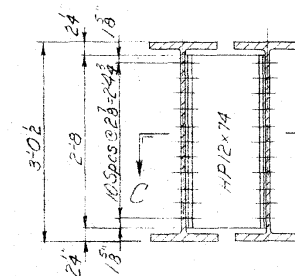


DETAIL OF JACKING BEAM

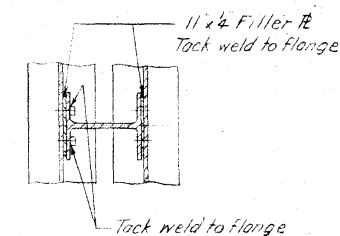
Wt. = 11,563 lbs.



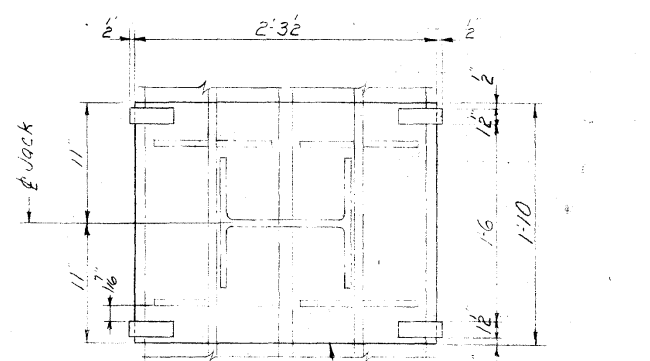
SECTION A-A



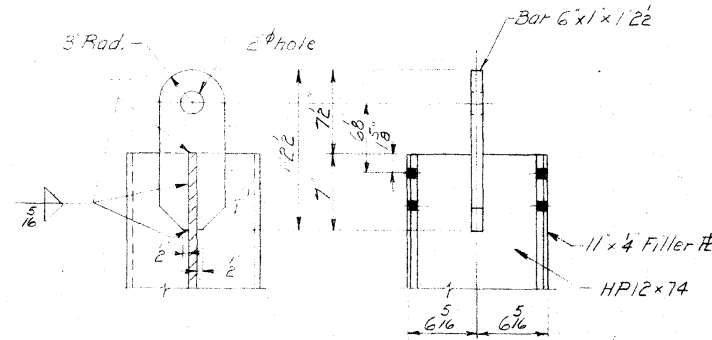
SECTION B-B



SECTION C-C



Bearing R-X 1'10" x 34" x 2'-3 1/2"
Bearing R-Y 1'10" x 24" x 2'-3 1/2"



PART SECTION D

NOTE: This jacking beam is not a bid item.
It is designed for 300 ton jacking capacity.

BEARING PLATE DETAIL

Bearing R-X 2-Reqd. Wt 564 lbs. Each
Bearing R-Y 2-Reqd. Wt 392 lbs. Each
Shop weld angles to bearing plate while
bearing plate is held in position against
the bottom flange of the jacking beam.

Jacking Beam Wt. = 13,475 lbs.

MISSISSIPPI RIVER
JACKING BEAM FOR PILE LOAD TEST
DUBUQUE COUNTY, IOWA - GRANT COUNTY, WISCONSIN
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN No. 777 FILE No. 25896 DES. SH. No. 31A OF 31
PROJECT BR-561-4(2)-38-31 PROJECT SH. No. 31A OF 31

SPINNING BRGS
2nd Cont'd
2nd Cont'd

BR-561-4(2)-38-31