FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

66

WASHINGTON COUNTY
WAS.-76-(19.98-21.48)

WAS-339-20.13

B.M. B-236
N.W. Corner Waterford Post Office
Elev. 646.90

Nail & Cap in Utility pole
69.87
POT 1090+87.0 ℄
86°00'
66°45'
58.72
Nail & Cap in Utility pole

Concrete Block & Fr. C Storage Bldg.
1½ Story Frame
Conc. Block Gar.
Frame Comb. Gar & Shed
Frame Shed
Fr. Garage
2 Story Frame
1½ Story Frame Plumbing & Business
1½ Story Frame
Fr. Shed
End Approach Slab Sta. 1092+58.54
1½ Story Frame
Fr. Gar.
2 Story Frame & Basement
2 Story Frame
2 Story Frame
2 Story Frame
2½ Story Frame
2 Story Frame Business
Fr. Garage
Shed
Shed
655.57
654.4
WATERFORD
30" Box Elder
Large Tree
Sta. 1092+58.54
650.78
Sta. 1093+50
649.26
Sta. 1094+68
647.37
Bridge Limits 654.92'
Drainage Area 7937 Sq. Mi.
Q_{100} = 90,000 c.f.s.
B-1
B-2
B-3
B-4
B-5
B-6
B-7
1091
1092
1093
1094
1095
1096
1097
15'-0"
15'-0"
12'-0"
4' Sidewalk
4' Berm
50' Wide
I-10 Dumped rock channel protection 2'0" thick from normal flowline to elev 642.0 ft. Slope Protection shall extend across bench and to the limits of the new fill slopes.
MATCH LINE
Muskingum River
NAVIGATION CHANNEL PER CORPS OF ENGINEERS CHART

Foundation Soundings: Foundation design and foundation quantities are based on a study of rod soundings and borings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division Office, but the state does not guarantee the accuracy thereof.
⊕ Actual Boring Location
Railroad Facilities: B & O crosses at Sta. 1089+86.2

660.0
650.0
640.0
630.0
620.0
610.0
600.0
590.0
580.0
652.03
650.06
648.46
646.86
-1.60%
Elev. 659.05
T Exp.
Bench El. 642.0
2:1 Normal
Exp
Assumed 25 year High Water Elev. 631.0
Normal Pool Elev. 607.7
Existing Ground
Cast in place conc. piles Estimated length = 40 ft
Elev. 599.0
Elev. 579.75
1091+00
1092+00
1093+00
1094+00
1095+00

Steel H Piles 12 BP 53
Pier #2 Est. Length 21 Ft.
Pier #4 " " 23 "
Pier #5 " " 26 "
Pier #6 " " 24 "

PROFILE ON PROPOSED CENTER LINE

EXISTING BRIDGE DATA - WAS-76-21.36

Type: Steel truss with beam and slab approach Span
Span: 26'-0"± - 216'-3" - 182'-0" - 182'-0"
Roadway Width: 16'-0"
Skew = 21°56' L.F.
Length: 616'±
Loading: S6 6
Date Built: 1914 (Superstructure)
Wearing Surface: Creo. strip floor (1942)
Condition: Fair
Sidewalk: 5'0" Lt.
Sufficient Rating: 28

PROPOSED STRUCTURE

Type Continuous welded steel girders with Reinforced Conc. deck & Substructure
Span 89'-0 - 118'-0 - 118'-0 - 118'-0 - 118'-0 - 89'-0 CC Brg.
Roadway Width 30' face to face of Curb
Side Walk 5'-3" Rt. Side
Safety Curb: 2'3" Left Side
Wearing Surface: 1" Monolithic
Approach Slab 25' Long (Special)
Alignment On tangent
Skew: 24°00' Left Fwd
Load Frequency: CF = 400

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

1 of 2

BRIDGE NO. WAS.-76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. SR-76
SEC.-76-19.98-21.48 STA. 1092+58.54 to 1099+13.46
SCALE 1"=20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
Aerial Survey	Aerial Survey	LTT	KM	AJS	A. Miller 2-14-62

FED. RD DIVISION	STATE	PROJECT	
2	OHIO		

67

WASHINGTON COUNTY
WAS.-76-(19.98-21.48)

Nail & cp in tie to E of
6.31
℄ POT 1099+44
12.11
Nail & Cap in 12" Sycamore
151.37'
110°20'
56.54
Nail & Cap in 12" Rock Elm

Nail & cp in Util pole
69.81
POT 1099+87
5.30
64°40'
58.72
Nail & Cap in Util pole

B.M. cut in concrete wall Presby Church at 4th and Ferry Street
Elev 642.37

I:10 Dumped rock channel protection 2' thick from normal pool to Elev 631.6. Slope Protection shall extend across beach and to the limits of the new Fill Slopes.

Begin Approach Slab
Sta 1099+13.46

Wooded

Gravel Drive

PILE

Vertical Clearance Point

MATCH LINE

50' Wide

NAVIGATION CHANNEL PER CORPS OF ENGINEERS CHART

Bridge limits ℄ 654.92'

Sta 1094+68
647.37

Sta 1097+04
643.60

Sta 1098+22
641.71

Sta 1099+13.46
640.24

-1.6%

180° To Low Steel

Low Steel El. 637.80

Assumed 25 year High water Elev 631.0

Normal Pool Elev 607.7

Exp.

Fixed

33.1's Provided

Elev. 630.0

Elev. 594.0

Elev. 595.0

Elev. 574.75

Bench Elev. 631.6

Cast in place conc. piles
Estimated length = 35'

2:1 Normal

Sidewalk

Gravel Drive

B-6 1095 B-7 1096 B-9 1097 1098 1099 ℄ L 14 1100 BEVERLY 1101

1036 1037 1038 1039 1100

+50 +50 +50

PROFILE ON PROPOSED CENTER LINE

PROPOSED STRUCTURE

Type: Continuous welded steel girders with Reinforced Concrete deck & Substructure
Span: 89'-0"-118'-0"-118'-0"-118'-0"-118'-0"-89'-0" CC. Brgs.
Roadway Width: 30' Face to face Curb
Side Walk: 5'-3" Rt Side
Safety Curb: 2'-3" Lt. Side
Wearing Surface: 1" Monolithic
Approach Slab: 25' Long Reinf. Conc.
Alignment: On Tangent
Skew: 24°00' Left Fwd
Load Frequency: CF=4.00

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

2 of 2
BRIDGE NO. WAS.-76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. SR-76

SEC.-76-19.98-21.48 STA.1092+58.54 to 1099+13.46
SCALE 1"=20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
aerial Survey	Aerial Survey	LTT	KM	A.J.S.	A. Miller 2-14-62

FED. RD. DIVISION	STATE	PROJECT		68
2	OHIO			

WASHINGTON COUNTY
WAS. 76 (19.98 21.48)

Reference shall be made to Standard Drawings, AR-1-57 revised 12-12-60, CSB-2-56 sheets 2 & 3 of 6 revised 2-2-59, and RB-1-55 revised 2-2-59; And to Supplemental Specifications S-307 dated 8-23-60 and S-207.10 dated 4-25-61.

Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio Department of Highways, dated 9-1-57 together with current revisions thereof.

Excavation Quantity: for the abutments includes the removal of fill material required for construction of the abutments.

Abutment Piles: shall be driven to a minimum bearing capacity of 37 tons per pile.

Pier Piles: Shall be driven with a hammer of not less than 11,000 ft lbs per blow to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Section S-18.05 in not less than the following value for a pile hammer of the indicated energy rating:

60 tons per pile using a 11,000 ft. lb. hammer
55 tons per pile using a 15,000 ft. lb. hammer

The design load is 39 tons maximum.

Foundation Bearing Pressure: Pier #3 footing is designed for a maximum bearing pressure of 3 tons per sq. ft.

Concrete Deck Placing. In order to facilitate water curing of the concrete of the deck slab, the placing shall progress upgrade. The slab may be placed in sections between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

Welding: of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the contractor, be made in the shop. Class "B" welds are shown thus B

Utility Lines: All labor and expense involved in relocating the affected utility lines shall be borne by the Owner. The contractor and Owner are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

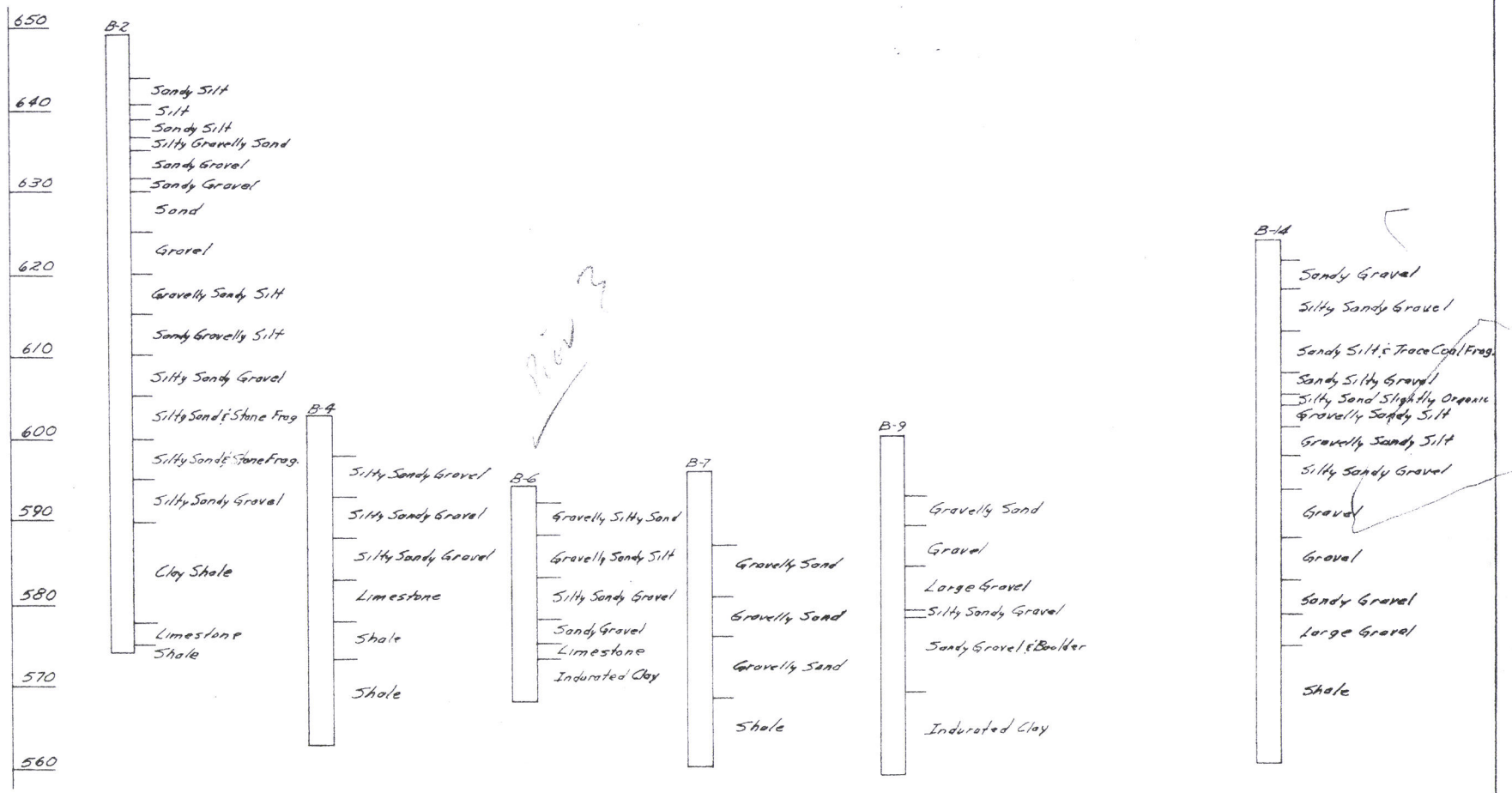
Bar Size: is indicated by the bar mark. The first digit where three digits are used and the first two digits where four digits are used, indicate the bar size number. For example, A706 is a No. 7 bar and A1014 is a No. 10 bar.

Shop Painting Steel: The surface preparation of all steel, requiring shop painting as per the plans and specifications, shall be accomplished by blast cleaning or power tool cleaning, except as noted in the specifications regarding the use of Cromate Primers.

Removal of Existing Structure: When no longer needed to maintain traffic the existing structure shall be removed in accordance with Item S-24 except that the south abutment and the existing wing walls shall be left in place. No damage shall be done to the abutment or wing walls when removing existing super-structure. The South pier shall be removed to elevation 616.00. All other piers shall be removed to the elevation of the existing channel flow line. The long masonary walls which serve as wing walls for the North abutment shall be removed and are included in Item S-24. The sidewalk and floor stringers (8 & 10" channel and I-beams) shall be carefully removed and piled along the right of way for disposal by the State's forces.

The balance of the super-structure shall become the Property of the Contractor.

Machine Finish: The top of the concrete bridge deck shall be machine finished as per Sec. S-1.23.



SOIL PROFILE

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

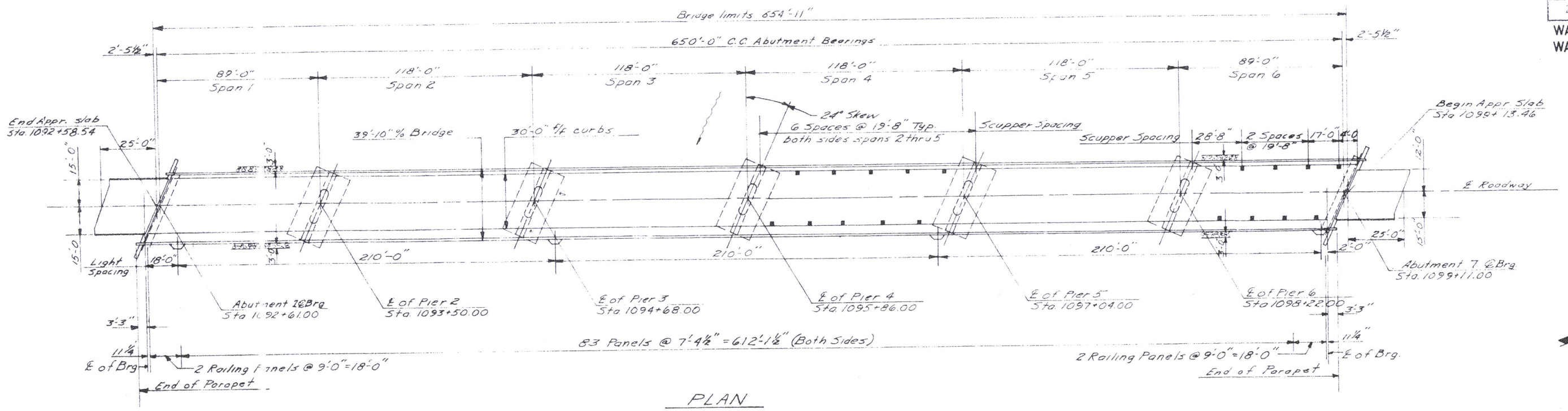
GENERAL NOTES
SOIL PROFILE

BRIDGE NO WAS - 76 - 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 - 21.48 STA. 1092 + 58.54 TO 1099 + 13.46

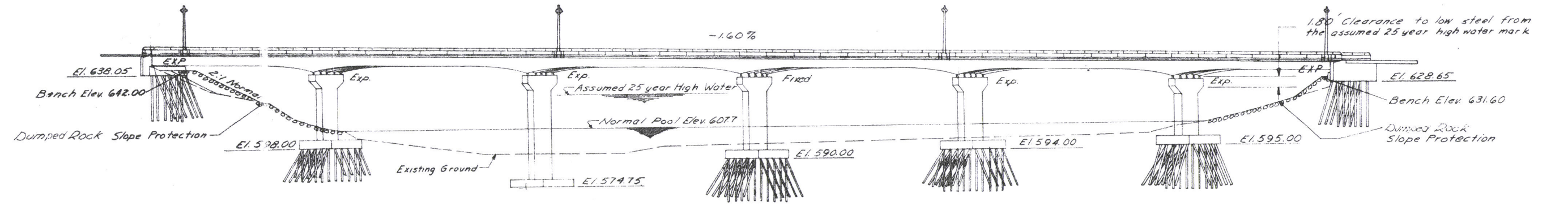
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.M.	J.M.	A.J.S.	A. Miller	2-14-62	

FED. HWY.	STATE	PROJECT		69
2	OHIO			

WASHINGTON COUNTY
WAS.-76-(19.98-21.48)



PLAN



ELEVATION

Note:
For limits of slope protection not shown see site plan.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super.	Abut. 1	Abut. 7	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Span 1
203-2	1701	Cu. Yd.	Unclassified Excavation		105	147	250	561	194	167	277	
206-2	Lump	L. S.	Cofferdams, Cribs, and Sheeting									
511-1	905	Cu. Yd.	Class "C" Concrete, superstructure	905								
511-1	608	Cu. Yd.	Class "C" Concrete, Pier Walls				111	169	128	107	99	
511-1	156	Cu. Yd.	Class "E" Concrete, Abutments		80	76						
511-1	529	Cu. Yd.	Class "E" Concrete, Pier Footings				107	101	107	107	107	
509-4	340,699	Lbs.	Reinforcing Steel	232,707	4896	4799	18,078	25,199	19,543	17,846	17,601	
513-7	89,473	Lbs.	Structural Steel	89,473								
514-8	89,473	Lbs.	Field Painting Structural Steel	89,473								
516-14	1313	Lin.ft.	Type "C" Alum. Railing with Conc. Parapet & End Posts	1313.00								
516		Lump	First Test Pile, steel or concrete									
512-16	3476	Lin.ft.	Steel "H" Piles (12BP53)				756	—	920	936	864	
512-3	905	Lin.ft.	Cast in Place Reinf. Conc. Piles (12")		480	420						
202-24		Lump	Removal of Existing Structure									
625-25**			Bridge Lighting**									
203-29	40	Cu. Yd.	Porous Backfill		20	20						
601-29	48	Each	Scuppers	48								
601-10	810	Cu. Yd.	Dumped Rock Channel Protection		460	350						
Special	905	Each	Water-reducing, set retarding admixture									

* See Proposal Note
** See Itemized Quantity Block, Sheet 80
625-25 Bridge Lighting is a non-Federal Participating Bridge Item included herewith.

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

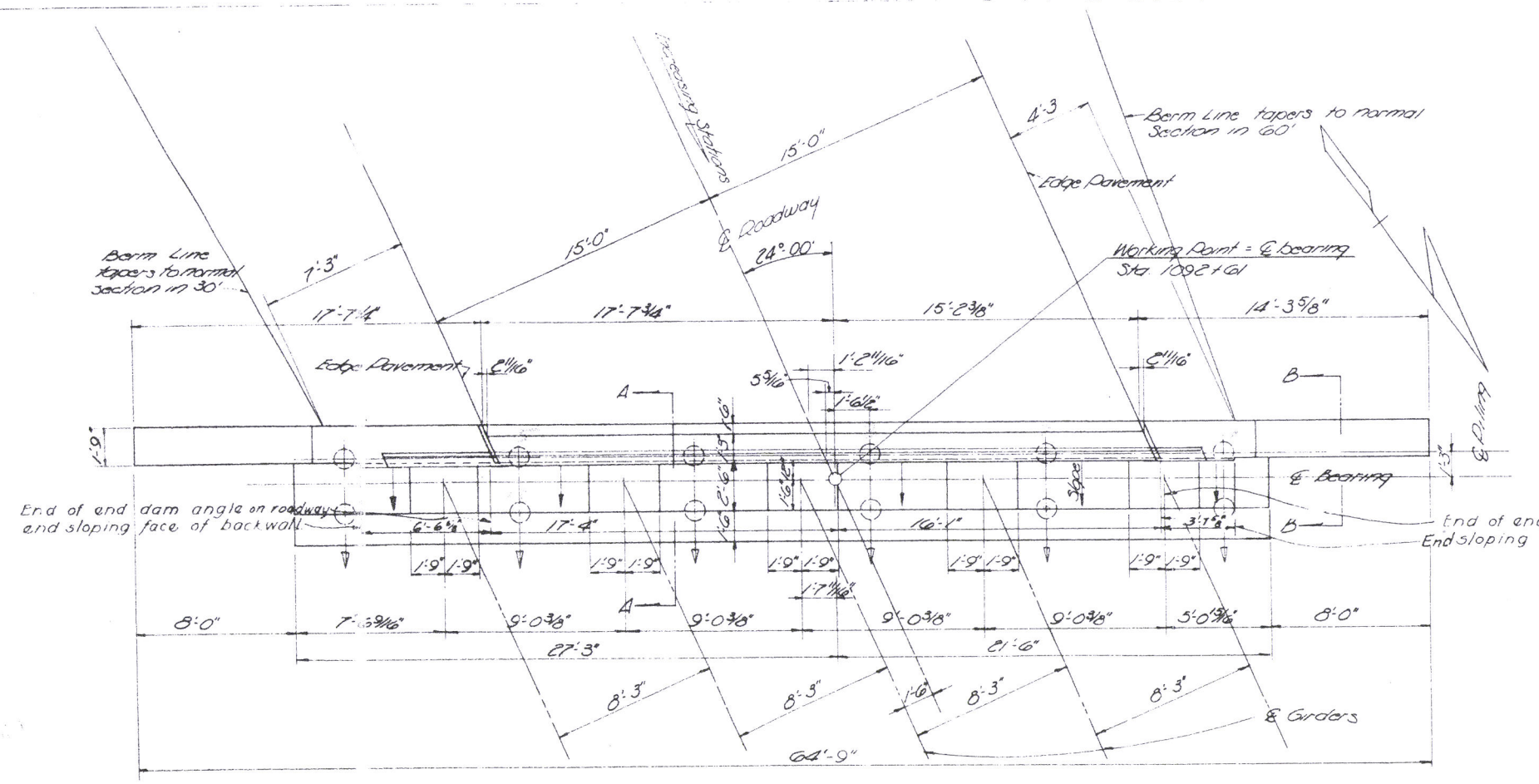
GENERAL PLAN & ELEVATION

BRIDGE NO. WAS - 76 - 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98-21.48 STA. 1092+58.54 TO 1099+13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.P.	J.M.	A.J.S.	L. M. Balke	5-1-62	

FED. HIGHWAY DIVISION	STATE	PROJECT		70
2	OHIO			

WASHINGTON COUNTY
WAS.-76-(19.98-21.48)



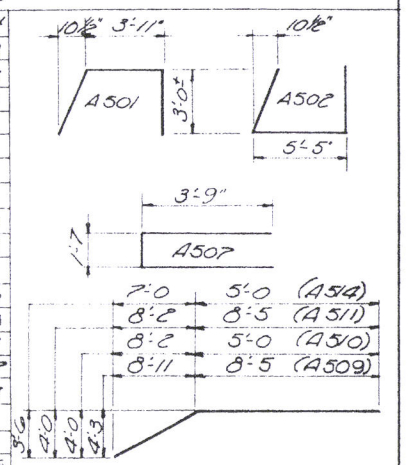
PLAN - ABUTMENT - 1

Note
Field bend A-602 bars as req. to match sloping face of backwall.

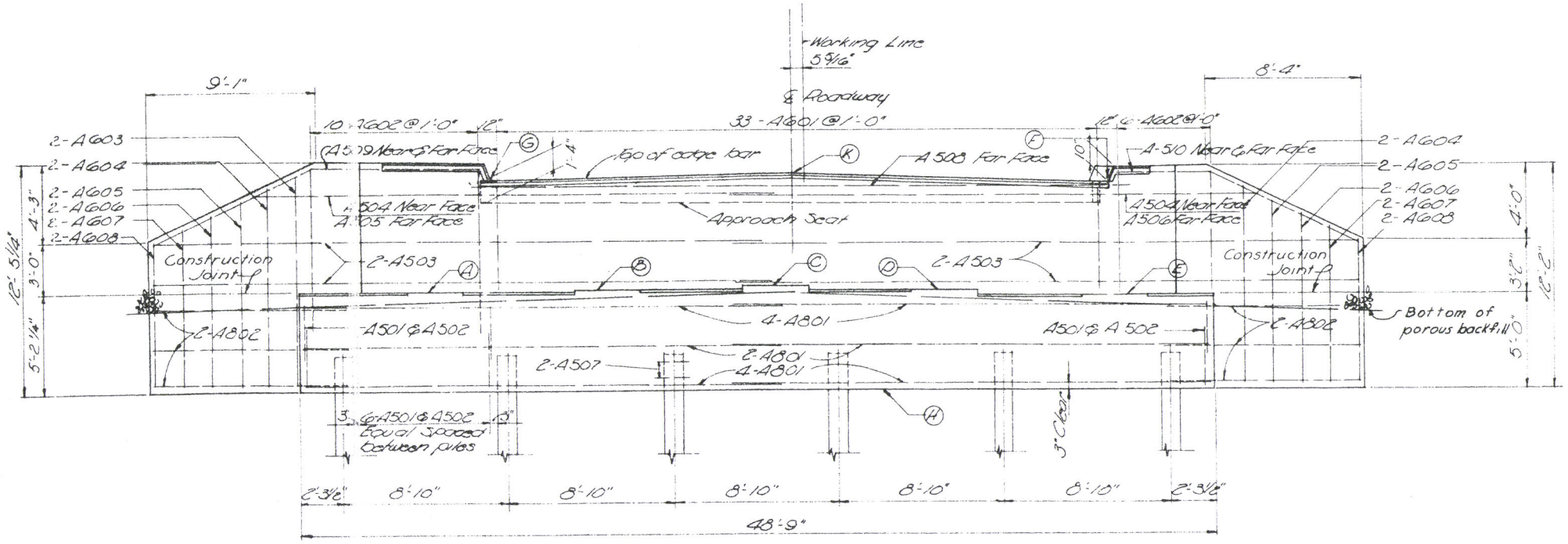
REINFORCING STEEL LIST

ABUTMENTS

Mark	Length	Shape	No.	Abut-1	Abut-7	Weight
A501	9'-10	Bent	64	32	32	658
A502	11'-3	Bent	64	32	32	754
A503	33'-0	Str.	8	8	-	276
A504	28'-0	Str.	4	2	2	118
A505	12'-0	Str.	1	1	-	13
A506	8'-9	Str.	1	1	-	9
A507	8'-9"	Bent	48	24	24	440
A508	36'-0	Str.	2	1	1	76
A509	13'-4	Bent	2	2	-	39
A510	12'-1	Bent	2	2	-	30
A511	17'-5	Bent	2	-	2	36
A512	32'-0	Str.	8	-	8	200
A513	11'-0	Str.	1	-	1	12
A514	12'-10	Bent	2	-	2	27
A515	12'-9	Str.	1	-	1	14
A601	20'-5	Bent	33	33	-	1012
A602	20'-2	Bent	31	16	15	936
A603	11'-5	Str.	4	2	2	70
A604	10'-9	Str.	6	4	2	97
A605	10'-0	Str.	6	4	2	90
A606	9'-2"	Str.	4	4	-	56
A607	8'-6"	Str.	4	4	-	52
A608	7'-9"	Str.	4	4	-	48
A609	9'-2	Str.	2	-	2	28
A610	8'-4	Str.	2	-	2	25
A611	8'-2	Str.	2	-	2	25
A612	8'-9"	Str.	2	-	2	26
A613	9'-5"	Str.	2	-	2	29
A614	10'-1"	Str.	2	-	2	31
A615	10'-9"	Str.	2	-	2	33
A616	11'-5"	Str.	2	-	2	34
A617	20'-1"	Bent	33	-	33	995
A801	25'-6	Str.	20	20	-	1362
A802	10'-4	Str.	24	12	12	666
A803	22'-6	Str.	20	-	20	1310
				Total Weight =		9692



ELEVATION - ABUTMENT - 1
Looking to Rear



	A	B	C	D	E	F	G	H	K
Elev	644.24	644.31	644.38	644.24	644.05	650.36	650.57	639.05	650.70

ABUTMENT NOTES

POROUS BACKFILL 1'-6" thick shall extend up to the underside of the approach slab and to the finished ground surface and outward to the surface of the embankment slopes. Excavation, therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

PROCEDURE

Abut No. 7: The embankment shall be placed and compacted up to the finished grade and to the level of the subgrade for a distance of 200 feet back of the abutment, after which excavation shall be made for the abutment and the earth bench and the piles driven.

Abut No. 1: The embankment shall be placed and compacted to the height of the earth bench, after which excavation shall be made for the abutments and the piles driven.

PILES: marked thus - ▷ to be battered 1:4 in direction of arrow. All piles shall be 12" butt diameter cast in-place concrete piles.

CONCRETE: shall be class "E".

REINFORCING STEEL: shall be 2" clear from face of concrete unless otherwise shown.

NOTE: See sheet 71 for abutment details.

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

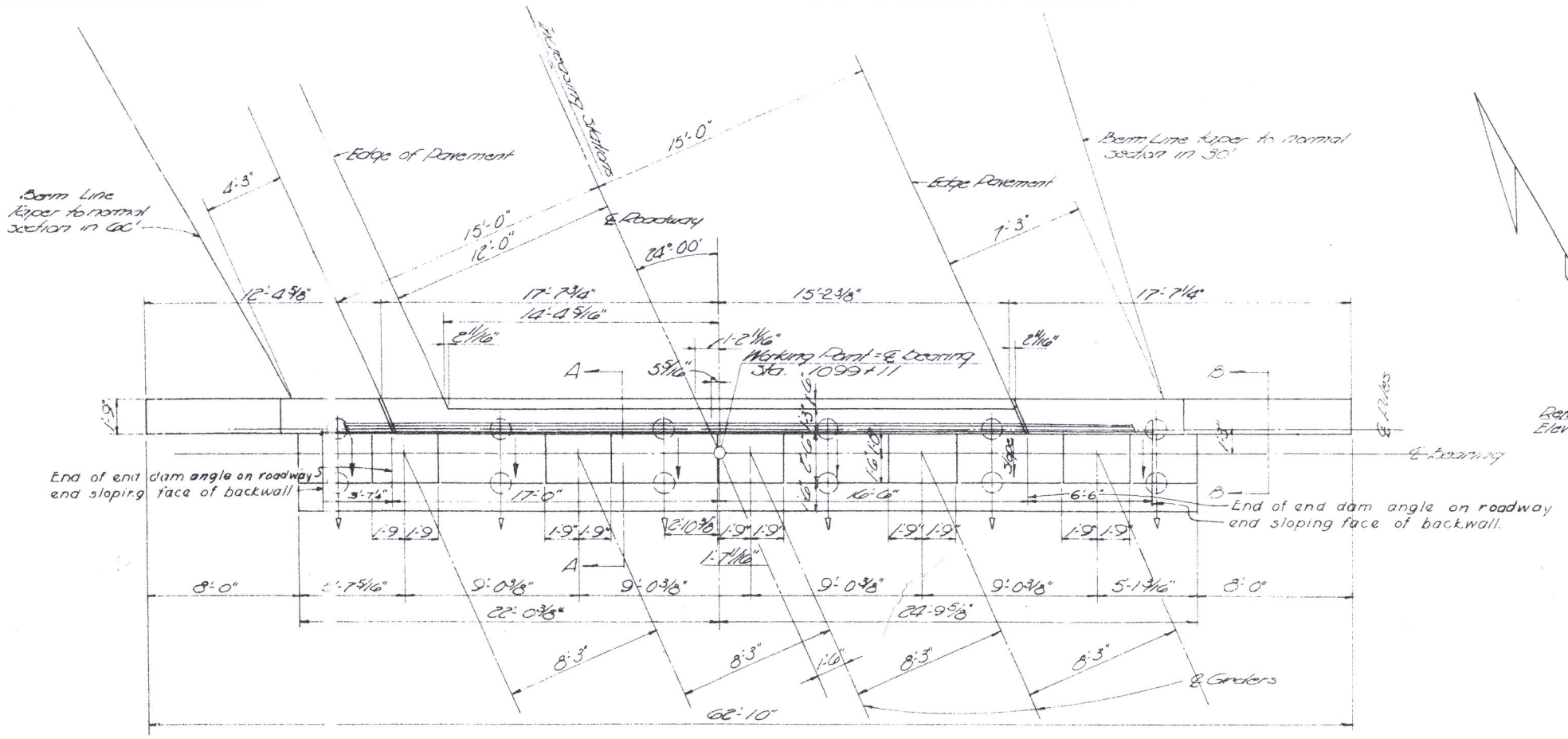
ABUTMENT NO.1 DETAILS

BRIDGE NO. WAS - 76 - 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19 98 - 21.48 STA 1092+58.54 TO 1099+13.46

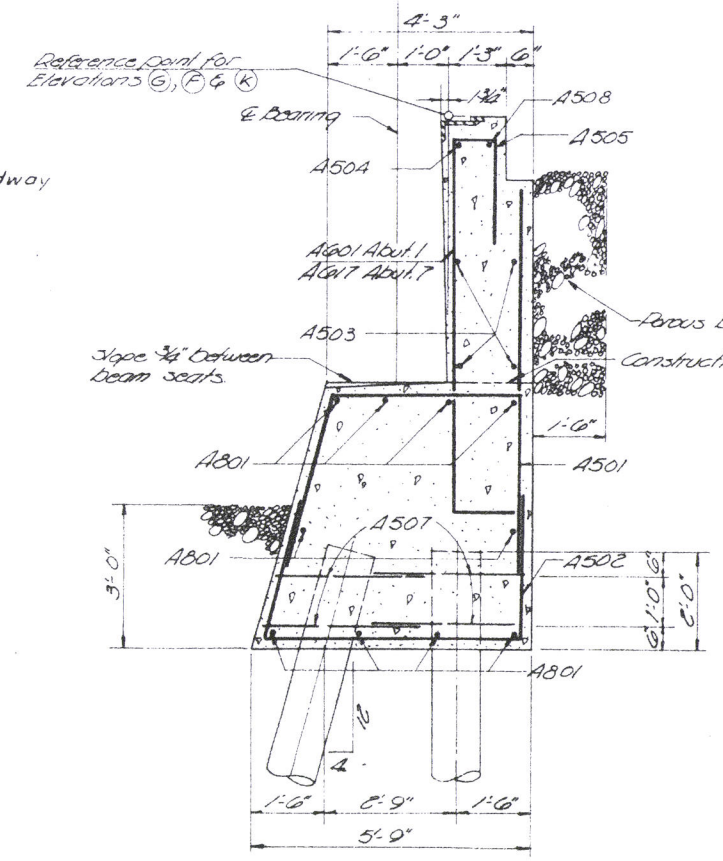
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.P.	J.P.	A.J.S.	A. H. H.	2-13-62	

FED. RD. DIVISION	STATE	PROJECT		71
2	OHIO			

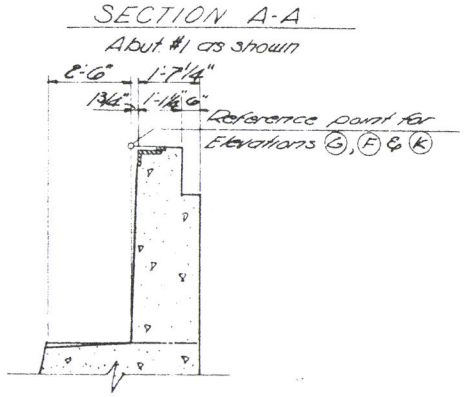
WASHINGTON COUNTY
WAS.-76-(19.98-21.48)



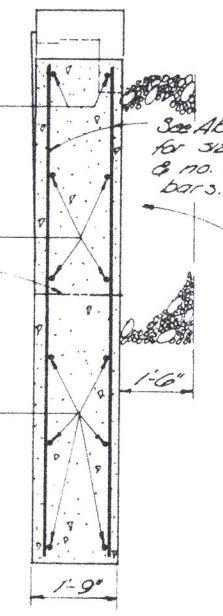
PLAN ABUTMENT-7



SECTION A-A
Abut #1 as shown

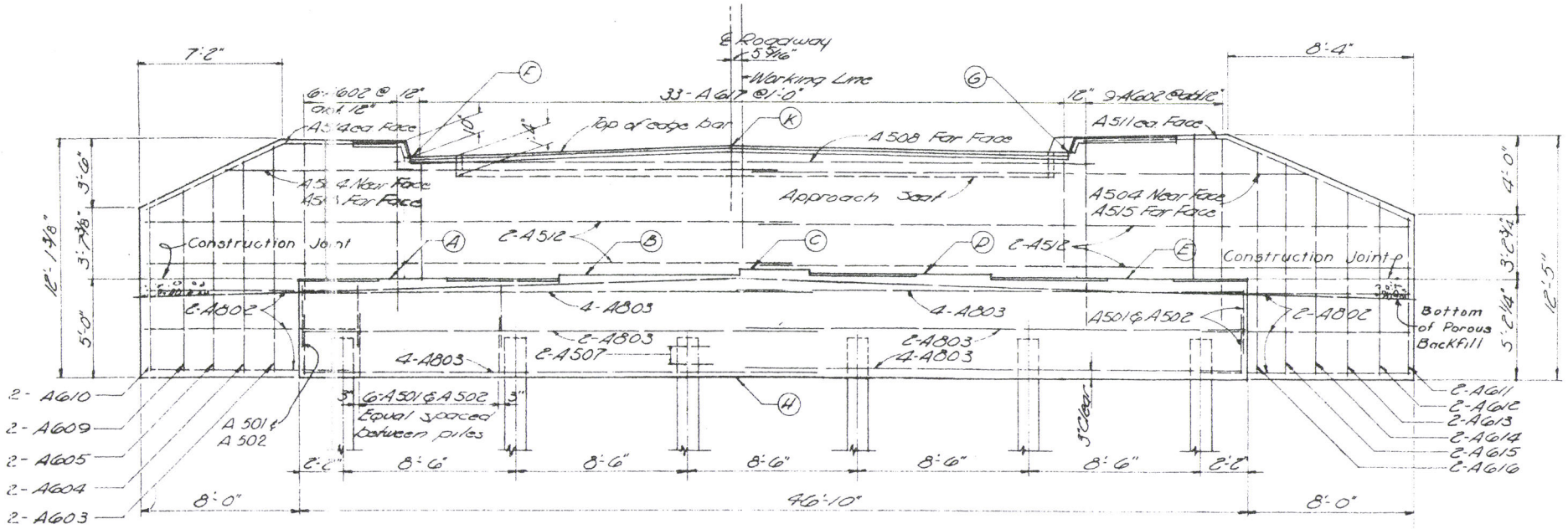


PART SECTION A-A
Abut #7



SECTION B-B

Note: See Sheet 70 for additional notes & details.



ELEVATION-ABUTMENT-7
Looking Ahead

	A	B	C	D	E	F	G	H	K
Elev.	633.65	633.84	633.98	633.91	633.84	639.93	640.14	628.65	640.67

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

ABUTMENT NO.7 DETAILS

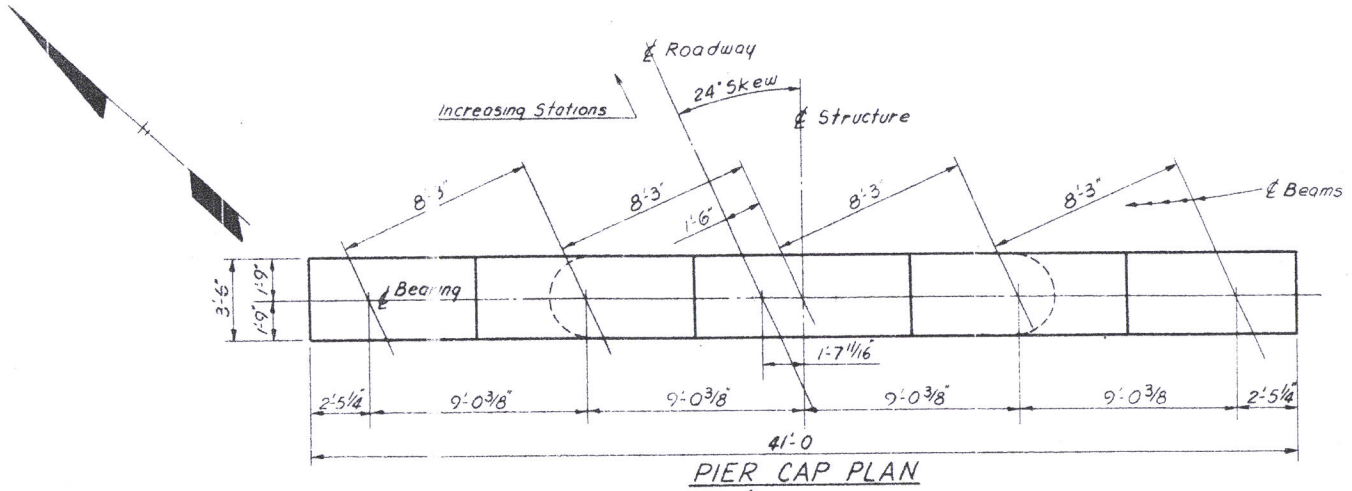
BRIDGE NO. WAS-76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98-21.48 STA. 1092+58.54 TO 1099+13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.P.	J.P.	A.J.S.	R. Keller	2-13-62	

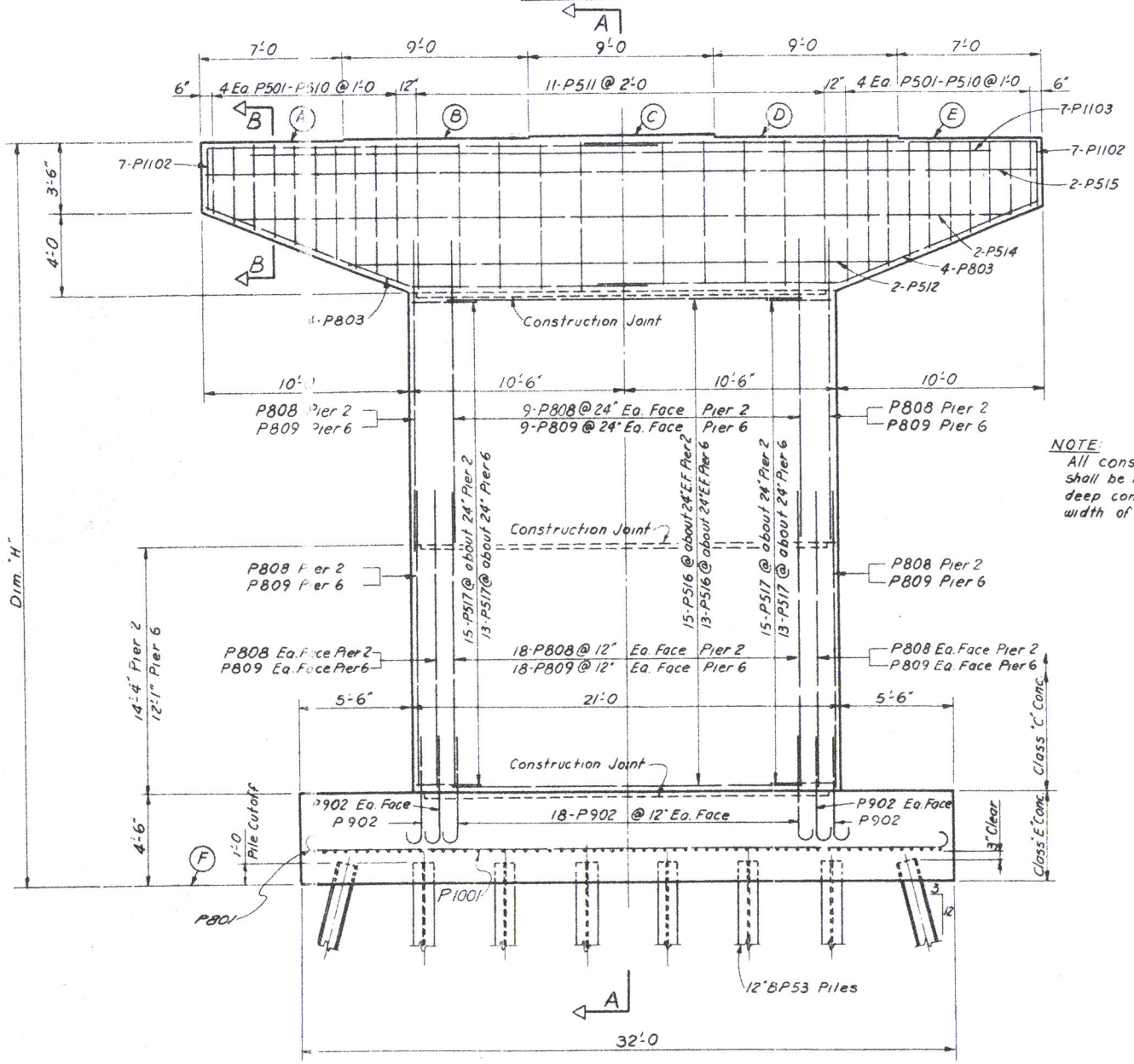
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

72

WASHINGTON COUNTY
WAS. 76 (19.98 21.48)

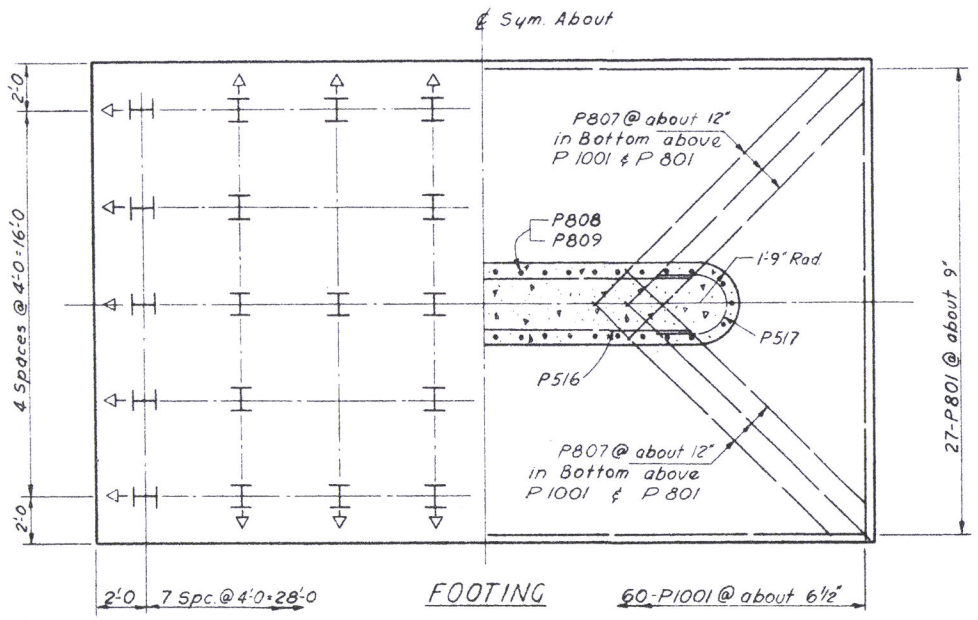


PIER CAP PLAN

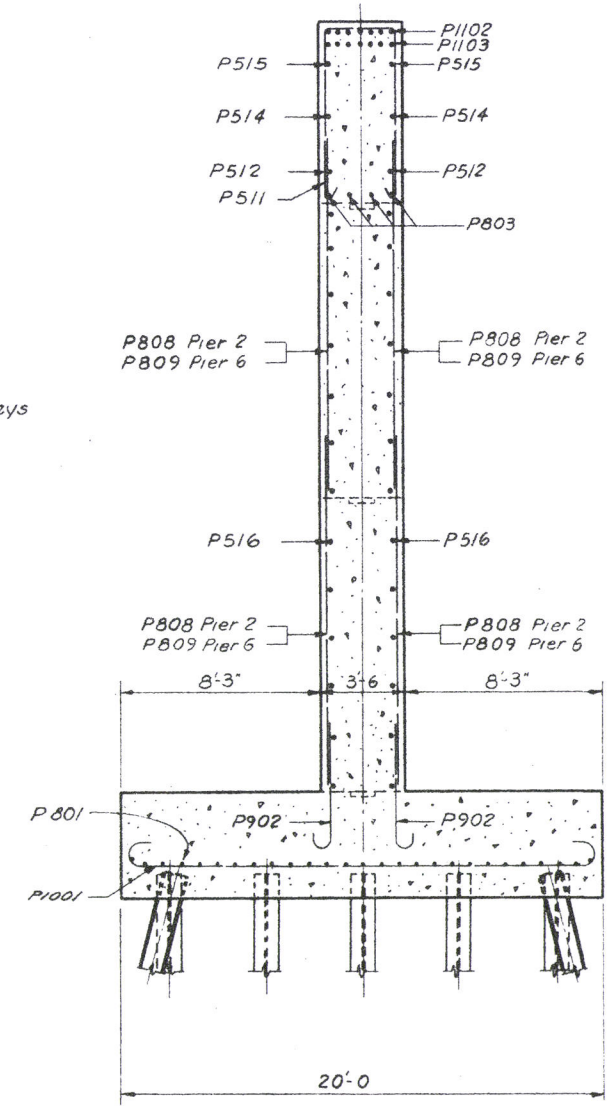


ELEVATION
Looking Ahead

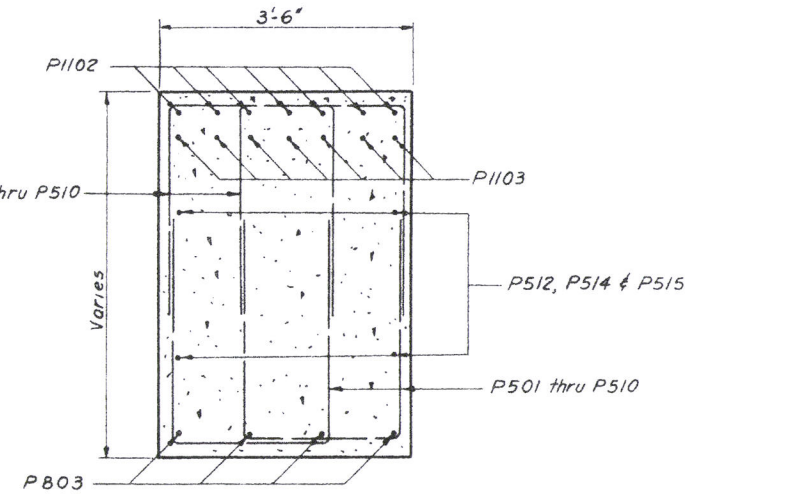
NOTE:
All construction joint. Keys shall be 1'-0 wide and 3" deep continuous for full width of pier.



FOOTING



SECTION AA



SECTION B-B

NOTE:
Piles marked ⟵ are battered 1:4 in direction of arrow.
Reinforcing Steel shall be 2" clear from face of concrete unless otherwise shown.

Elevation	A	B	C	D	E	F	Dim "H"
Pier 2	638.75	638.94	639.08	639.01	638.94	598.00	40'-9"
Pier 6	631.20	631.39	631.53	631.46	631.39	595.00	36'-2 1/2"

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

PIERS 2 & 6

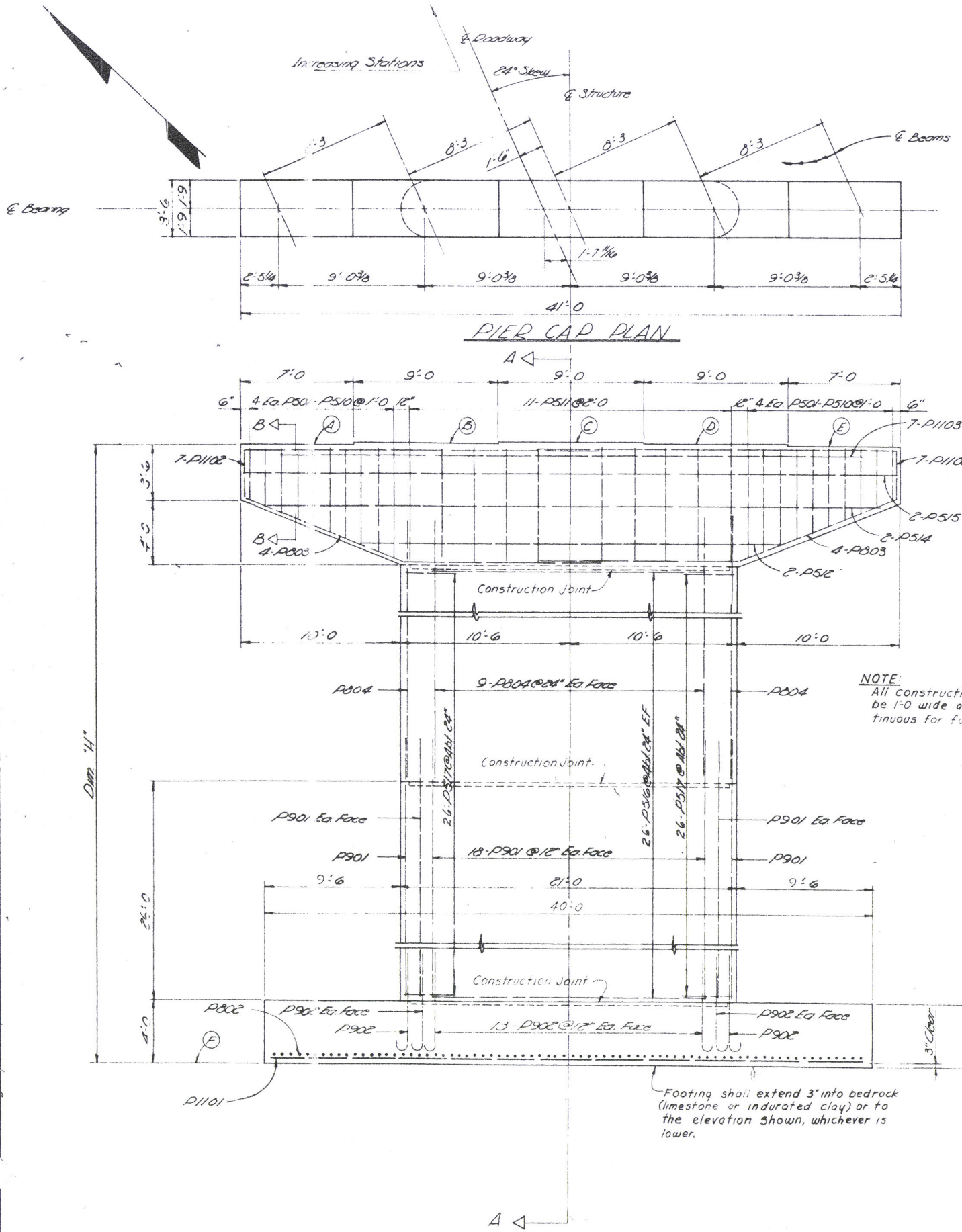
BRIDGE NO. WAS - 76 - 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 - 21.48 STA. 1092+58.54 TO 1099+13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	D.C.F.	D.C.F.	A.J.S.	A. Miller	1-14-63	

DEPT. OF TRANSPORTATION	STATE	PROJECT	
2	OHIO		

73

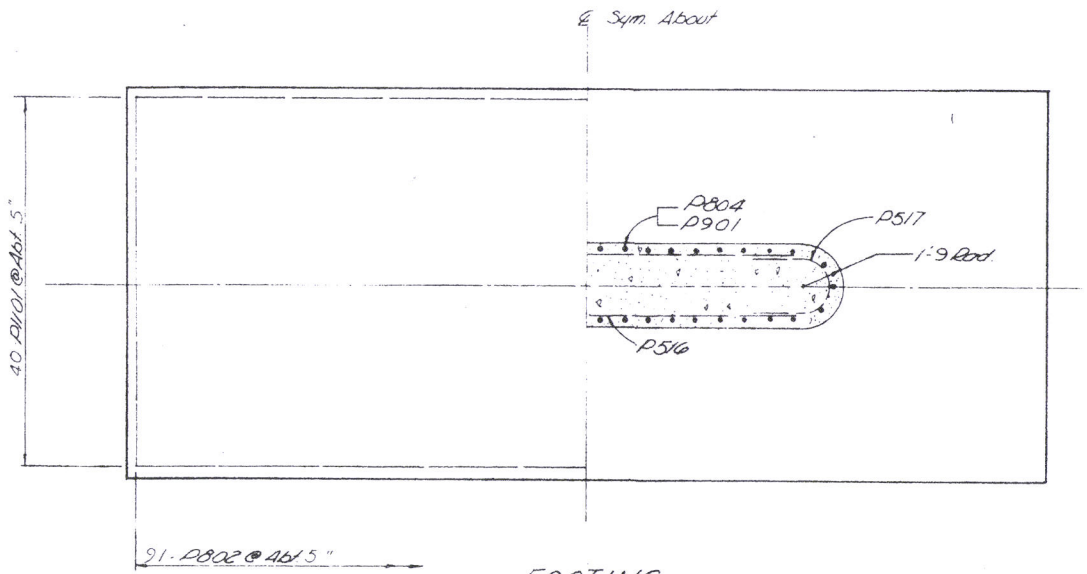
WASHINGTON COUNTY
WAS. 76 (19.98 21.48)



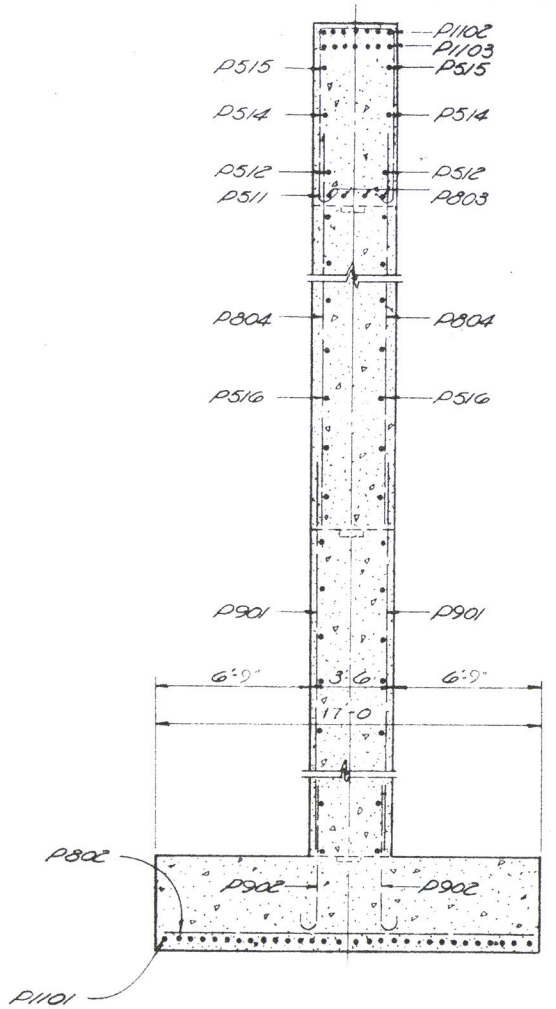
PIER CAP PLAN

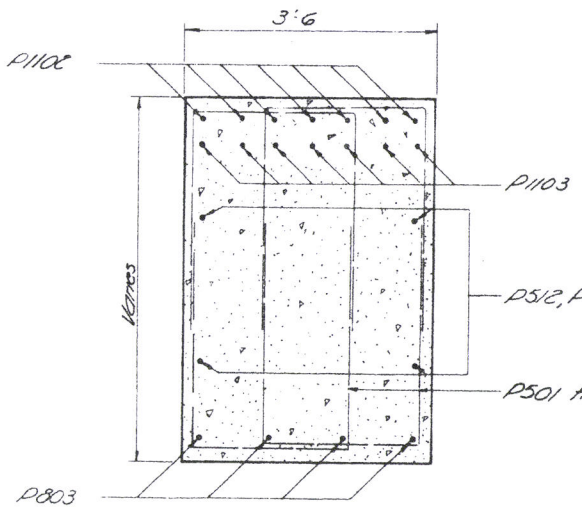
NOTE:
All construction joint keys shall be 1'-0 wide and 3" deep continuous for full width of pier.

ELEVATION
Looking Ahead



FOOTING





SECTION B-B

	A	B	C	D	E	F	Dim "H"
Elevation	636.84	637.03	637.17	637.10	637.03	574.75	62'-1 1/8"

Note: Reinforcing steel shall be 2" clear from face of concrete unless otherwise shown.

SECTION A-A

6'-9
6'-9
3'-6
17'-0

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

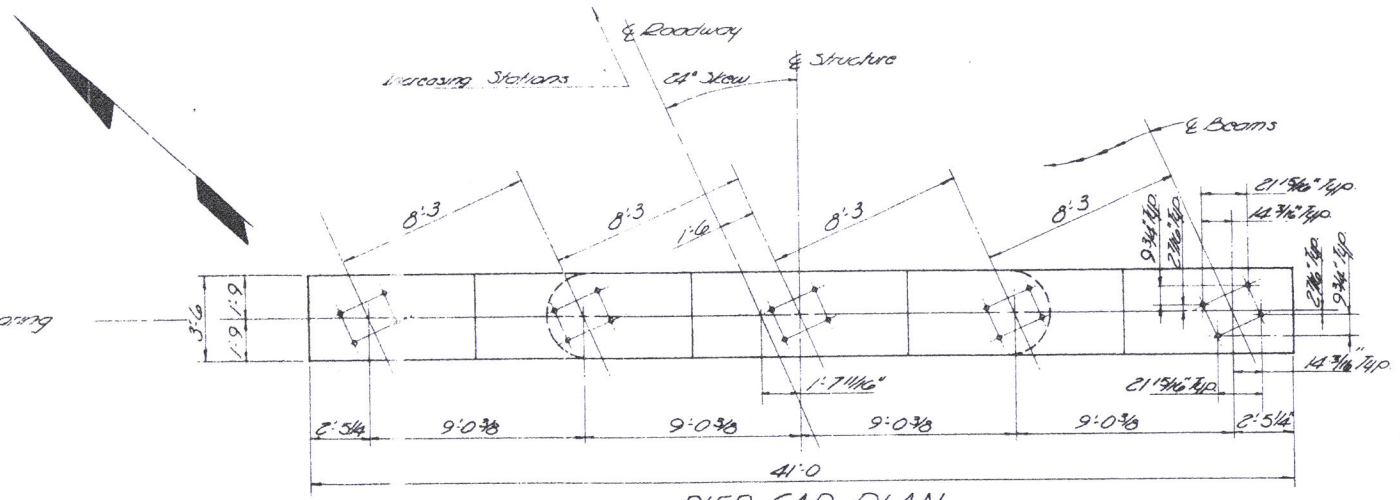
PIER 3

BRIDGE NO. WAS - 76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 21.48 STA. 1092+58.54 TO 1099+13.46

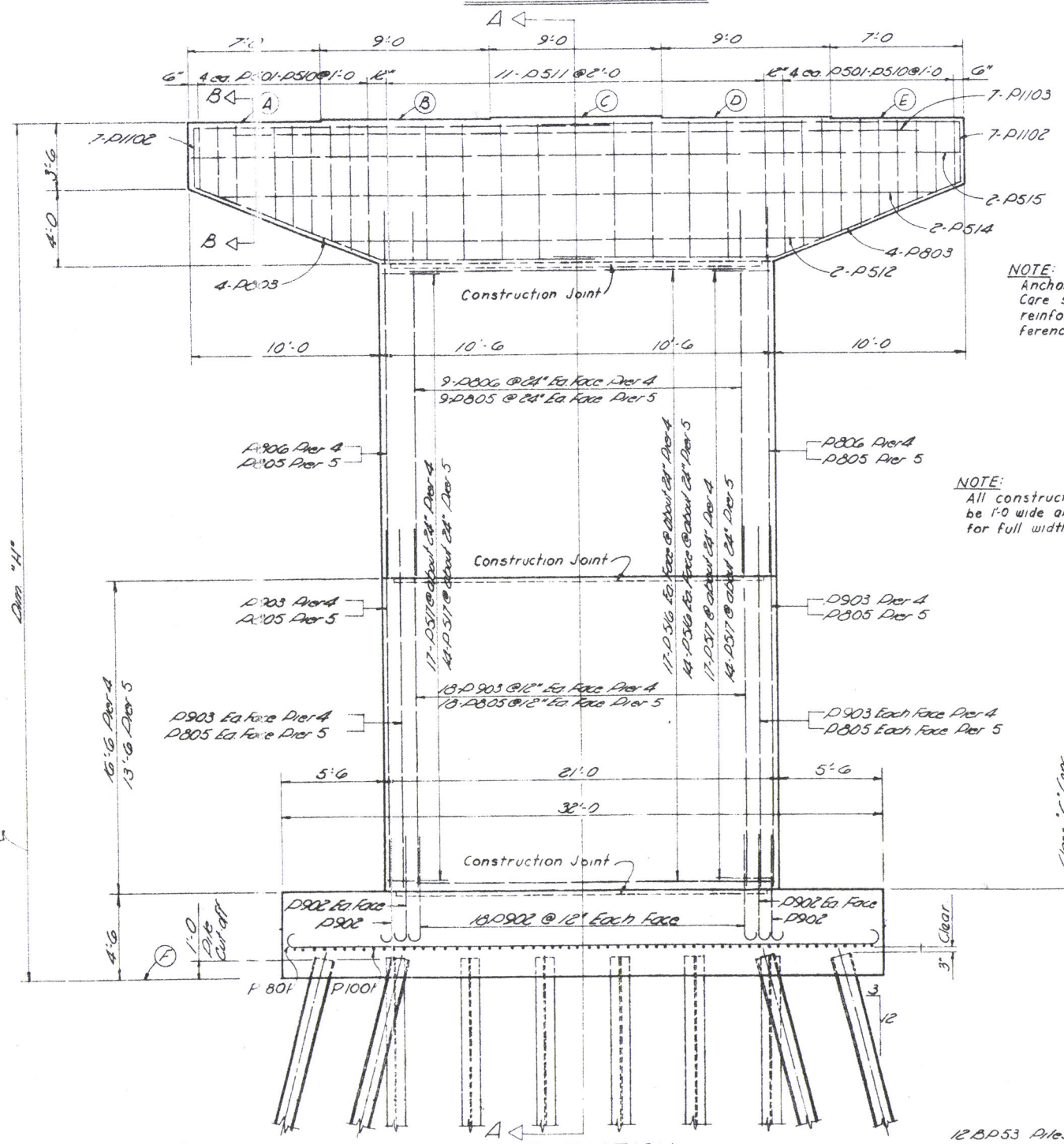
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.P.	D.C.F.	A.J.S.	L. Mills	2-13-62	

DIVISION	STATE	PROJECT		74
2	OHIO			

WASHINGTON COUNTY
WAS. 76 (19.98 21.48)



PIER CAP PLAN

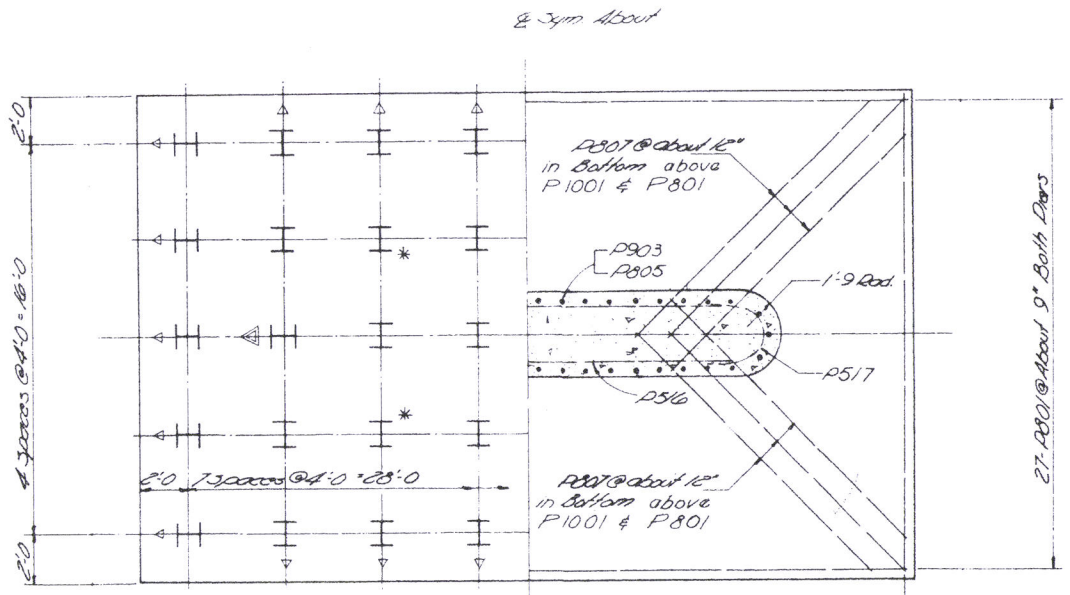


NOTE:
Anchor bolts apply to Pier 4 only. Care shall be taken when placing reinforcing steel to avoid interference with anchor bolts.

NOTE:
All construction joint keys shall be 1'-0 wide and 3" deep continuous for full width of pier.

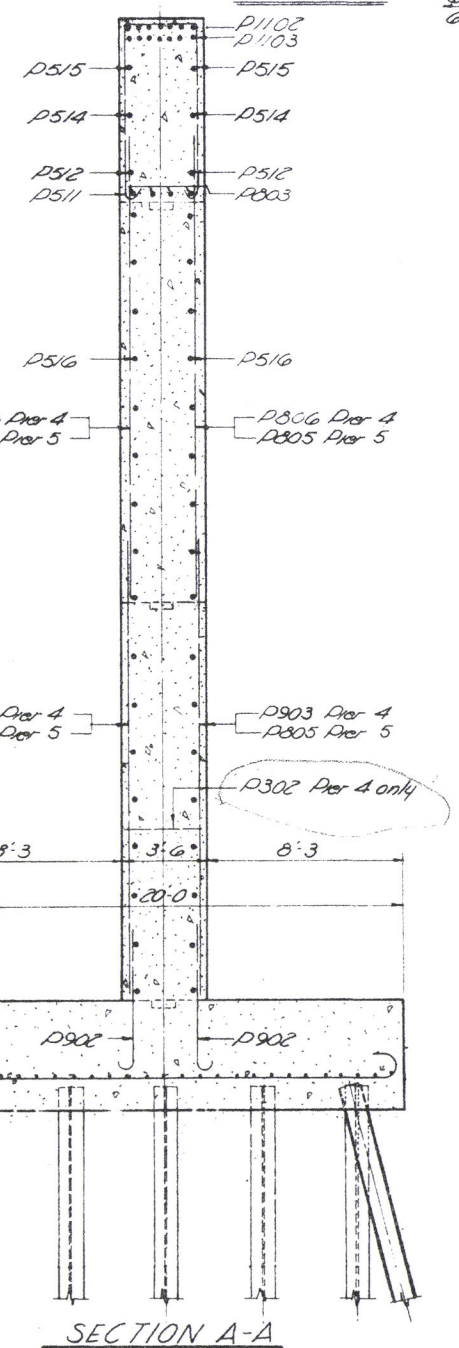
12 BP 53 Piles

ELEVATION - Looking Ahead

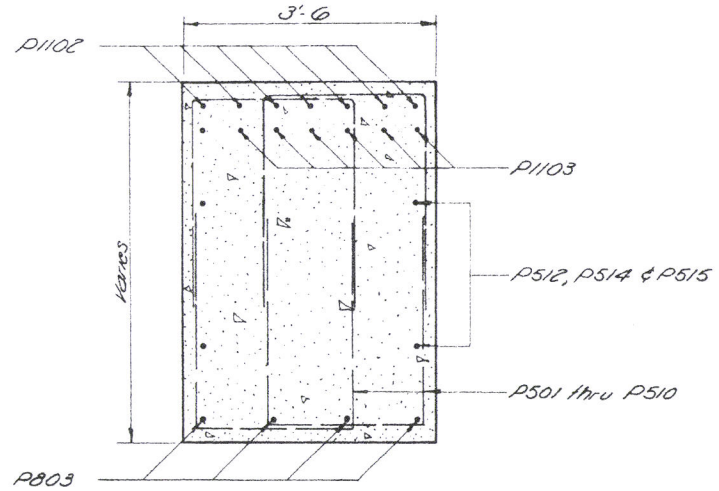


Note: Piles marked * Pier 4 only
Piles marked ⇦ Battered Pier 4 only
Piles marked ⇦ Battered both Piers
Piles battered 1:4 in direction of arrow.
Reinforcing steel shall be 2" clear from face of concrete unless otherwise shown.

FOOTING



G4 - P1001 @ About 6" Pier 4
G0 - P1001 @ About 6½" Pier 5



SECTION B-B

SECTION A-A

Elevation	A	B	C	D	E	F	Dim "H"
Pier 4	634.96	635.14	635.28	635.21	635.14	590.00	44'-11½
Pier 5	633.07	633.26	633.40	633.33	633.26	594.00	39'-0⅞

Note:
See Sheet 80 for Ground Wire Details for Pier No. 4.

HARRY BALKE ENGINEERS
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CINCINNATI 6, OHIO

PIERS 4 & 5

BRIDGE NO WAS - 76 - 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO S.R. 76
SEC. 19.98 21.48 STA 1092+58.54 TO 1099+13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.P.	J.P.	A.J.S.	A. Balke	2-13-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

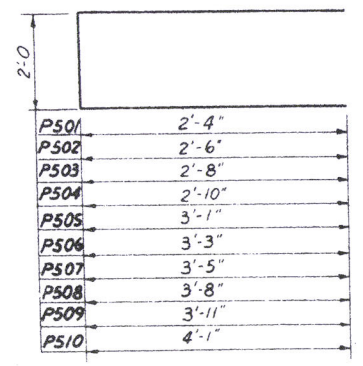
75

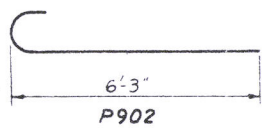
WASHINGTON COUNTY
WAS. 76 (19.98 21.48)

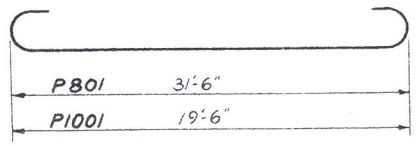
REINFORCING STEEL LIST

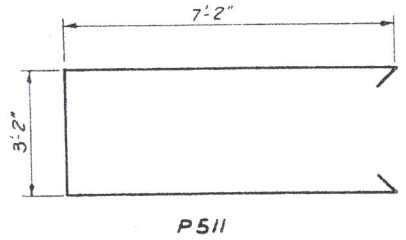
PIERS

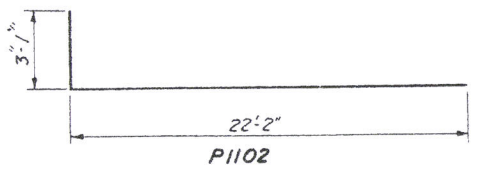
Mark	Length	Shape	No.	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Weight
P501	6'-5"	Bent	40	8	8	8	8	8	270
P502	6'-9"	Bent	40	8	8	8	8	8	280
P503	7'-1"	Bent	40	8	8	8	8	8	295
P504	7'-5"	Bent	40	8	8	8	8	8	310
P505	7'-11"	Bent	40	8	8	8	8	8	330
P506	8'-3"	Bent	40	8	8	8	8	8	345
P507	8'-7"	Bent	40	8	8	8	8	8	360
P508	9'-1"	Bent	40	8	8	8	8	8	380
P509	9'-7"	Bent	40	8	8	8	8	8	400
P510	9'-11"	Bent	40	8	8	8	8	8	415
P511	18'-6"	Bent	55	11	11	11	11	11	1060
P512	26'-6"	Str.	10	2	2	2	2	2	275
P514	37'-10"	Str	10	2	2	2	2	2	395
P515	40'-8"	Str.	10	2	2	2	2	2	425
P516	17'-6"	Str	170	30	52	34	28	26	3104
P517	7'-8"	Bent	170	30	52	34	28	26	1360
P801	33'-8"	Bent	108	27	—	27	27	27	9708
P802	16'-6"	Str	91	—	91	—	—	—	4009
P803	22'-4"	Bent	40	8	8	8	8	8	2385
P804	26'-8"	Str.	20	—	20	—	—	—	1424
P805	15'-9"	Str.	62	—	—	—	62	—	2607
P806	18'-9"	Str.	20	—	—	20	—	—	1001
P807	14'-0"	Str	48	12	—	12	12	12	1792
P808	16'-10"	Str.	62	62	—	—	—	—	2786
P809	14'-7"	Str.	62	—	—	—	—	62	2414
P901	28'-4"	Str	42	—	42	—	—	—	4046
P902	7'-6"	Bent	210	42	42	42	42	42	5355
P903	19'-4"	Str.	42	—	—	42	—	—	2760
P1001	22'-4"	Bent	244	60	—	64	60	60	23445
P1101	39'-6"	Str.	40	—	40	—	—	—	8395
P1102	25'-0	Bent	70	14	14	14	14	14	9300
P1103	36'-3"	Str.	35	7	7	7	7	7	6740
						Total Wt. =			98,171

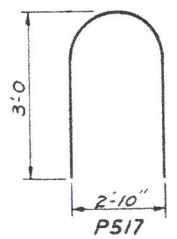


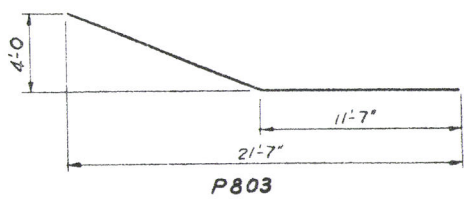












HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

PIER
REINFORCING STEEL

BRIDGE NO. WAS - 76 - 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 - 21.48 STA. 1092+58.54 TO 1099 + 13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	D.C.F.	D.C.F.	A.J.S.	A. Hillis	2-1962	

FED. RD. DIV. NO.	STATE	PROJECT	
2	OHIO		

76

WASHINGTON COUNTY
WAS. 76 (19.98 21.48)

89'-0" ℄ Brgs.

118'-0" ℄ Brgs.

118'-0" ℄ Brgs.

℄ Brg. Abut #1

℄ Pier #2

Skew 24° 00'

℄ Pier #3

℄ Pier #4

Back of Cross Frame Angle 7 11/16"

R 300 (Typ.)

R 300 (Typ.)

R 100 (Typ.)

Plate Girder

Plate Girder

Plate Girder

Plate Girder

Plate Girder

B 300 (Typ.)

℄ Roadway

End of 9 7/8" Girder

11'-6"

4 Spaces @ 14'-8"

11'-6"

11'-4"

33'-0"

8'-3"

8'-3"

1'-6"

8'-3"

8'-3"

Intermediate Cross Frames 6 Spaces @ 14'-8"
Ls 4 x 3 x 5/16

11'-4"

11'-4"

6 Spaces @ 14'-8"

11'-4"

SPAN 1 & 6

SPAN 2 & 5

SPAN 3 & 4

HALF FRAMING PLAN

Girders Symmetrical by rotation about ℄ except stiffeners

DETAIL A-A

Face of Backwall

℄ Brg. Abut. #1 & #7

℄ Brg.

℄ of girders

9 7/8"

3"

9 7/8"

A

A

4'-8 1/4"

1/4"

Brg. Stiffeners 2-5 1/16" x 1/2" x 4'-6" Mill to bear

5/16"

3/16" Typ.

31'-10"

Field Splice

PL 16" x 1 1/8"

54" x 3/8" Web

52 PL 6" x 3/8" Typ.

PL 16" x 1 1/8"

2 PL 6" x 3/8" Typ.

5/16"

3/8" Web

3/16"

7'-10 1/4" ℄

PL 16" x 1 1/8"

31'-10"

℄ Pier #2 & #6

Bearing Stiffener All Piers 2 PL-7 1/2" x 1 1/4" x 7'-8"

5/16"

3/16"

Horz. Stiff. 2 PL 4" x 3/8" Typ.

2 3/8" PL Typ.

1'-0"

End PL 16" x 1 1/8"

Field Splice

End PL 16" x 1 1/8"

P.C. Haunch

Parabolic Curve

P.C. Haunch

29'-6"

Max. Stiff. Spa. 3'-10" - Locate to fit Cross Frames

Max. Stiff. Spa. 4'-6"

59'-0"

Max. Stiff. Spa. 3'-10" Locate to fit Cross Frame

30'-0"

Max. Stiff. Spa. 3'-9 1/2" Locate to fit Cross Frame

30'-0"

Max. Stiff. Spa. 4'-6"

58'-0"

89'-0" ℄ of Brgs. Spans 1 & 6

118'-0" ℄ Brgs. Spans 2 & 5

31'-10"

Field Splice

31'-10"

℄ Pier #3 & 5

31'-10"

Field Splice

4'-8 1/4"

PL 16" x 1 1/4"

54" x 3/8" Web

5/16"

PL 16" x 1 1/4"

PL 16" x 1 1/4"

3/8" Web

7'-10 1/2" ℄

5/16"

P.C. Haunch

P.C. Haunch

1'-0"

Max. Stiff. Spa. 4'-6"

58'-0"

Max. Stiff. spa. 3'-9 1/2" Locate to fit Cross Frame

30'-0"

Max. Stiff. Spa. 3'-9 1/2" Locate to fit Cross Frame.

30'-0"

Max. Stiff. Spa. 4'-6"

58'-0"

118'-0" ℄ Brgs. Spans 2 & 5

118'-0" ℄ Brgs. Spans 3 & 4

Field Splice

31'-10"

℄ Pier #4

4'-8 1/2" ℄

PL 16" x 1 1/4"

54" x 3/8" Web

5/16"

PL 16" x 1 1/4"

3/8" Web

PL 16" x 1 1/4"

7'-10 1/2" ℄

5/16"

P.C. Haunch

1'-0"

Max. Stiff. Spa. 4'-6"

58'-0" to splice

Max. Stiff. Spa. 3'-9 1/2" - 22'-4" - Locate to fit Cross Frame

30'-0"

118'-0" ℄ Brgs. Spans 3 & 4

Girder Symmetrical about ℄ except stiffeners

Note: See Sheet 78 for typ. field splice detail.

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

SUPERSTRUCTURE DETAILS

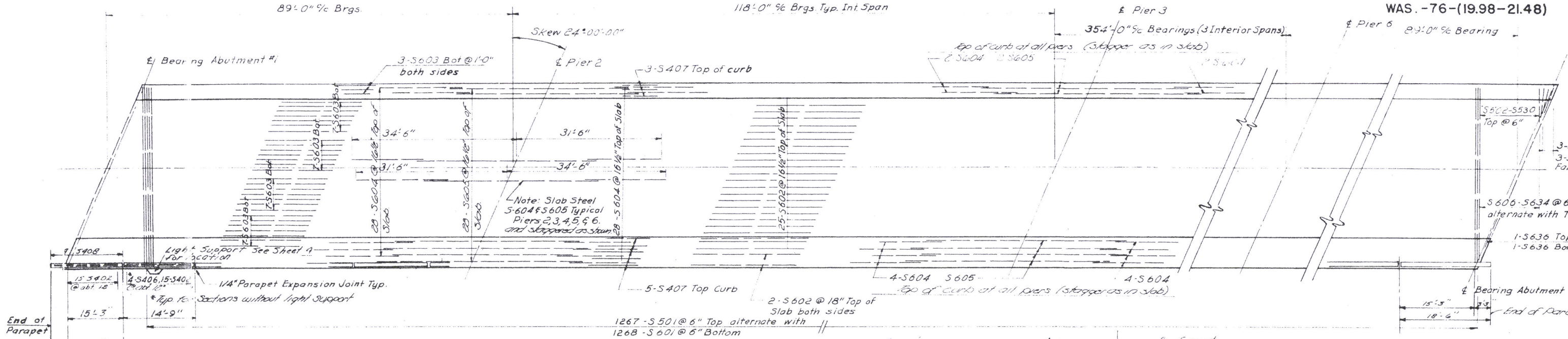
BRIDGE NO. WAS- 76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 21.48 STA. 1092+58.54 TO 1099+13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISE
L.T.T.	J.P.	J.M.	A.J.S.	A Balke	2-13-62	

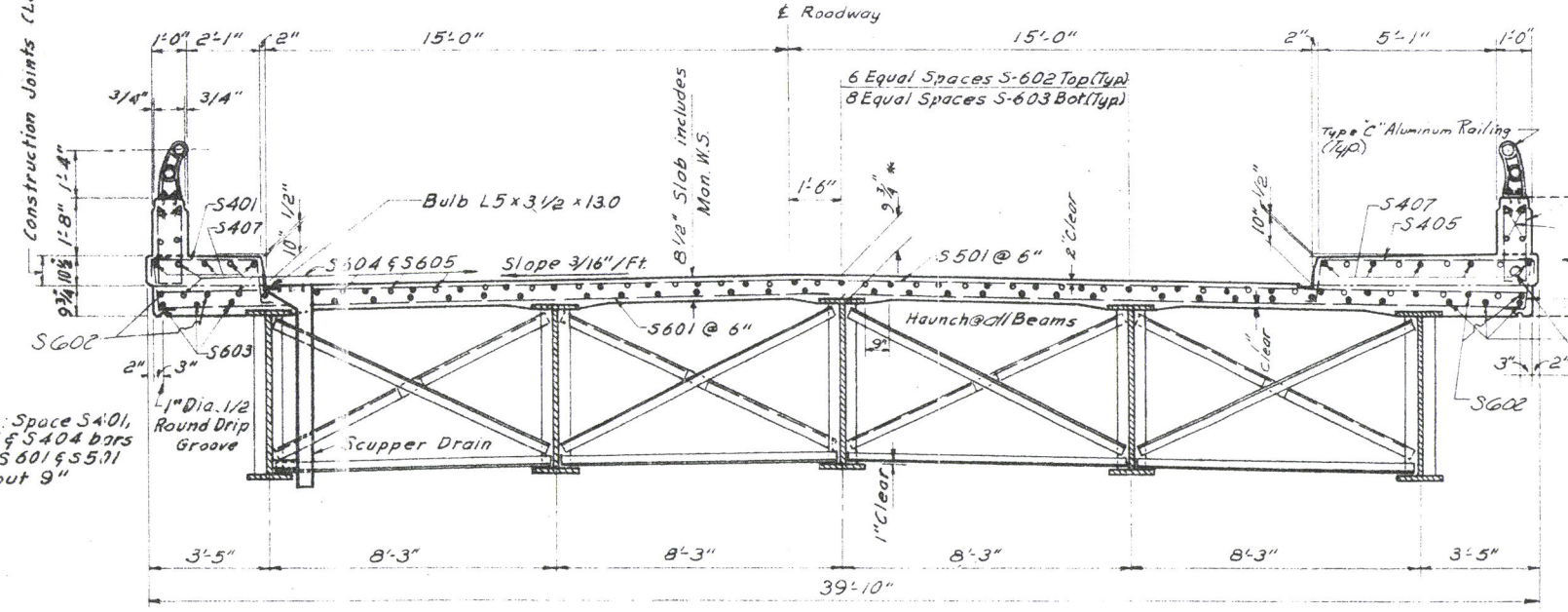
1			
2			

77

WASHINGTON COUNTY
WAS.-76-(19.98-21.48)

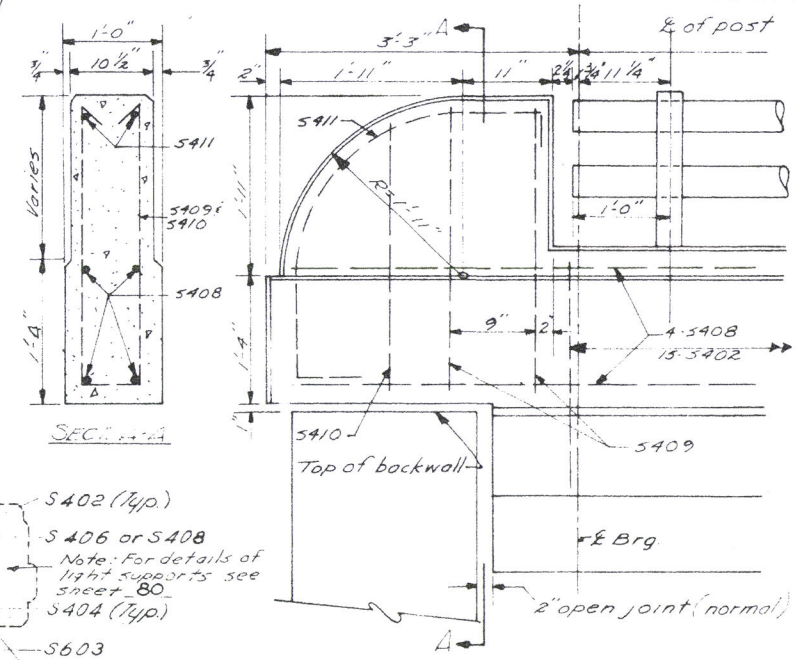


PLAN



CROSS SECTION

*Note
This is a nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the girders may not have the exact camber or confirmation required to place it parallel to the finished grade.



TYPICAL END POST DETAILS

NOTES:
For Slab pouring sequence see General Notes
Parapet concrete included with Item S-14 for payment.
For details of Scuppers see Std. Dwg. No. CSB-2-56
For Type "C" Aluminum Railing see Std. Dwg. No. AR-1-57

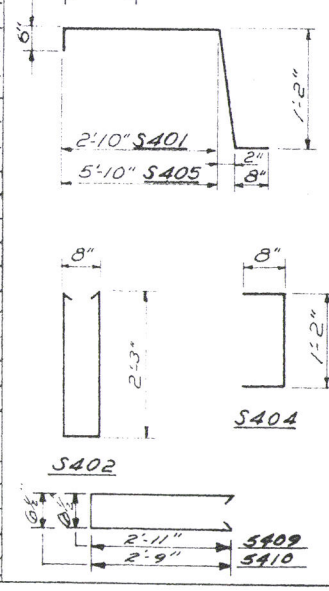
Deck Slab Haunch; The haunch in the deck slab adjacent to the top of the steel beams, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and a maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

Reinforcing Bars S406 and S408, S409, S410 & S411 are included with Item # S-14 parapet and railing, for payment.

REINFORCING STEEL LIST

SUPERSTRUCTURE *

Mark	Length	Shape	No	Weight
S401	4'11"	Bent	866	2844
S402	5'-9"	Bent	1320	5070
S404	2'-4"	Bent	1732	2700
S405	7'-11"	Bent	866	4580
S406	14'-5"	Str.	330	
S407	39'-7"	Str.	136	3596
S408	18'-1"	Str.	16	
S409	6'-11	Bent	8	
S410	6'-7"	Bent	4	
S411	6'-8"	Bent	8	
S501	39'-2"	Str.	1267	51,782
S502	38'-10"	Str.		
S502 thru S530			58	1361
Varies by 1'-2" each				
S530	6'-2	Str.		
S531	6'-0	Str.	6	37
S601	39'-2"	Str.	1268	74600
S602	34'-5"	Str.	580	29986
S603	38'-0"	Str.	612	34931
S604	15'-6"	Str.	340	7916
S605	39'-0"	Str.	170	9958
S606	38'-2	Str.		
S606 Thru S634			58	1902
Varies by 1'-2" each				
S634	5'-6"	Str.		
S635	6'-0"	Str.	6	54
S636	41'-6"	Str.	4	249
		Total		231,540



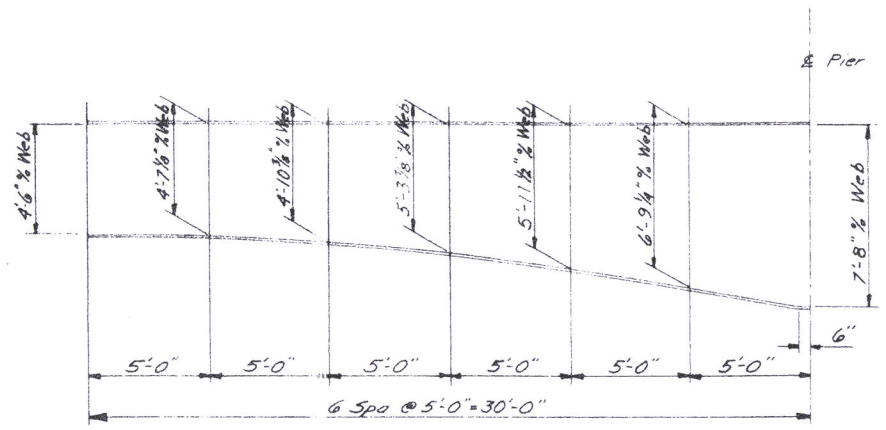
* Note: See Sheet 80 for additional superstructure steel list.

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

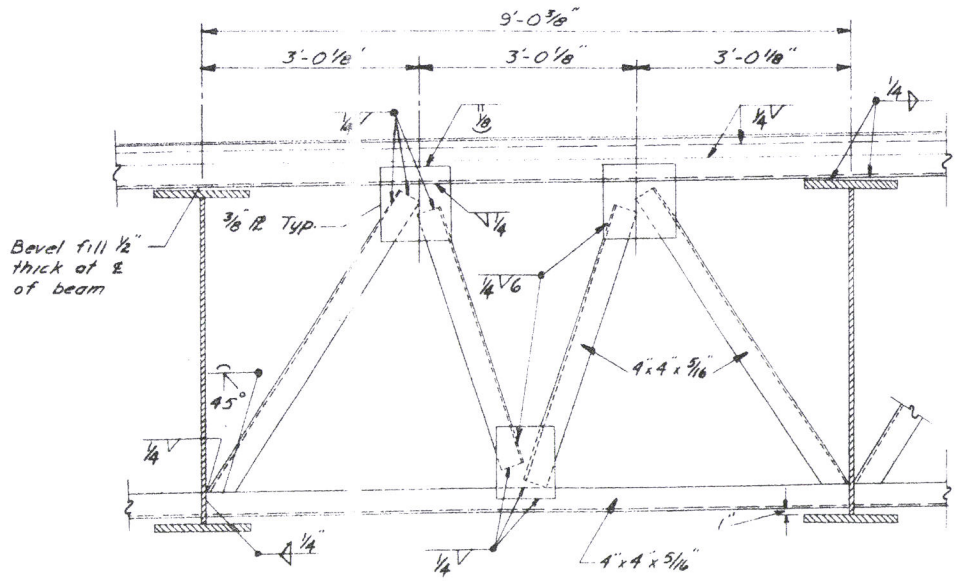
SUPERSTRUCTURE DETAILS

BRIDGE NO. WAS-76-2062
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98-21.48 STA. 1092+58.54 TO 1099+13.46

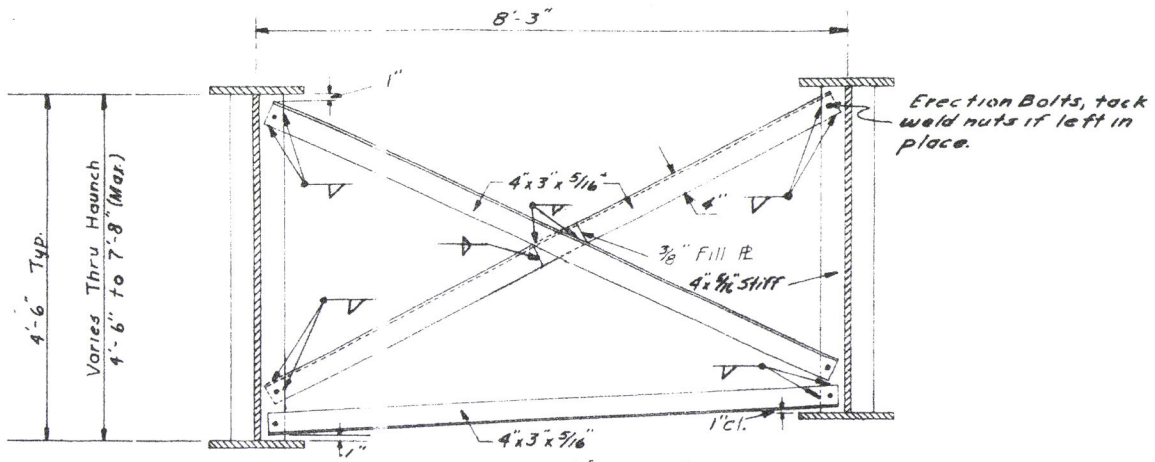
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.K.P.	J.C.	E.S.	A. Mills	1-14-62	



TEMPLATE FOR PARABOLIC HAUNCH FOR WEB PLATES

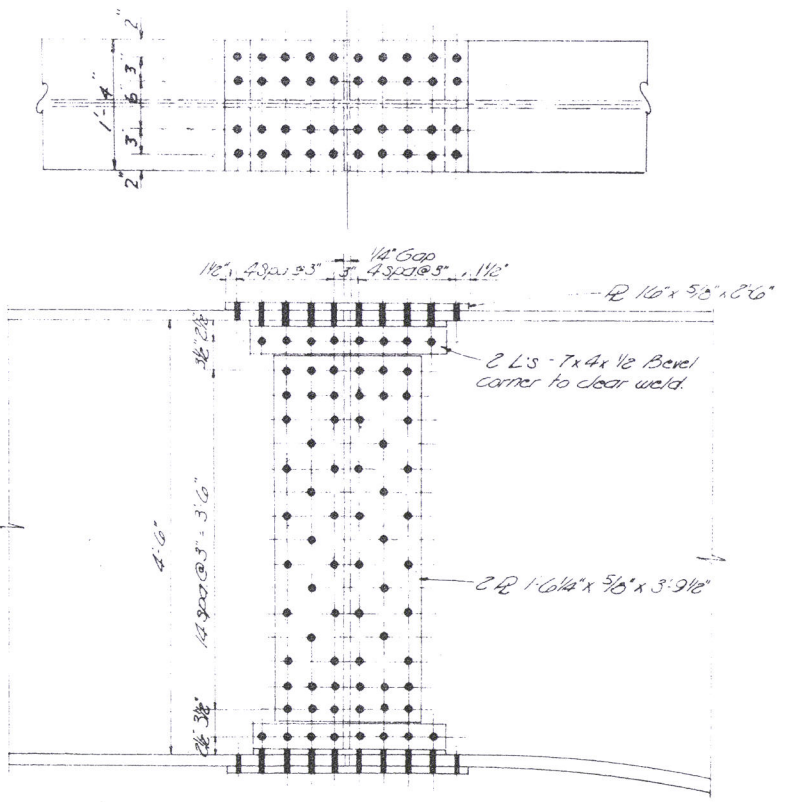


PART END CROSS FRAME ELEVATION



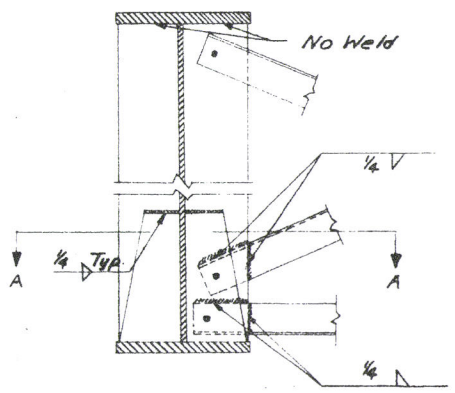
Note: All crossframe holes 11/16 ϕ for ⅝" ϕ erection bolts
All t. flat welds are ¼". For end dam details not shown refer to std. dwg. CSB-2-56

TYPICAL INTERMEDIATE CROSS FRAME

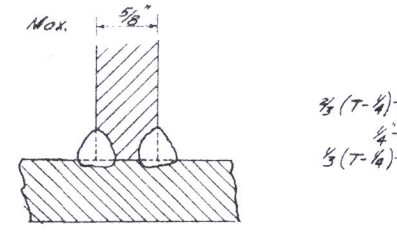


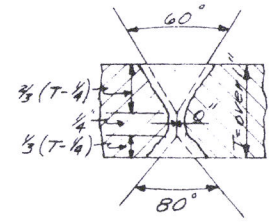
Note: All holes 15/16" ϕ for ⅞" ϕ High Strength Steel Bolt. Bolts, nuts, & washers shall conform to Supplemental Specification No. S-207.10 dated 4-25-61.

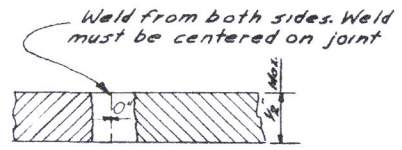
TYPICAL FIELD SPLICE DETAIL

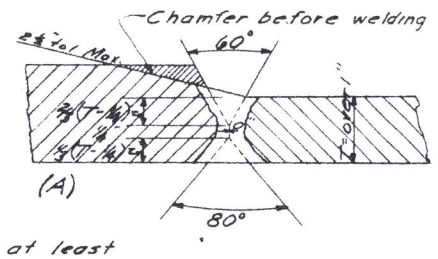


TYPICAL BEARING
STIFFENER DETAIL AT PIERS



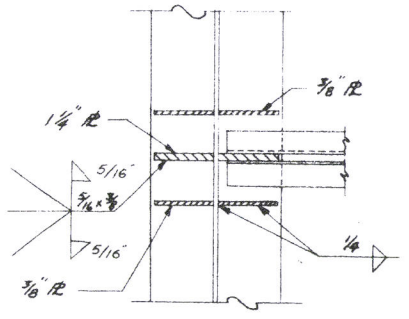




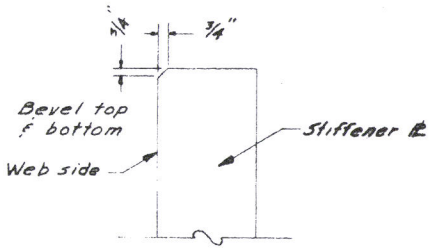


Note(A): Weld after placing at least one pass on other side

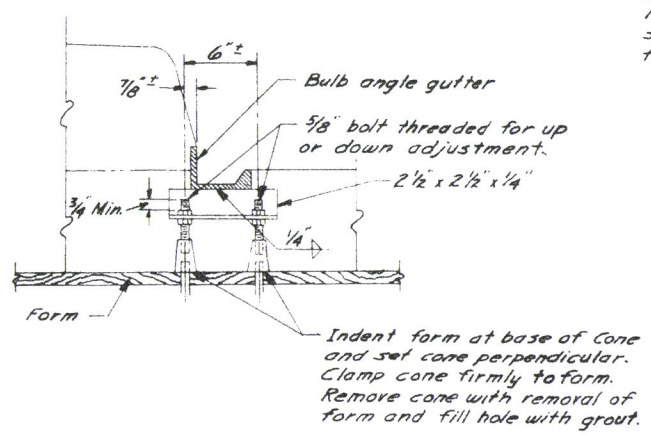
TYPICAL SHOP WELDED JOINTS
AUTOMATIC SUBMERGED ARC PROCESS



SECTION A-A



STIFFENER CORNER CUT (TYP.)



GUTTER SUPPORT DETAIL - SIDEWALK SIDE

Note: For gutter support detail on curb side see std. dwg. CSB-2-56

NOTES: STRUCTURAL STEEL
For Rocker and Bolster detail see Std. Dwg. No. RB-1-55.
Optional shop splices will be permitted in webs and flanges, but their location shall be submitted to the Director for approval.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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WASHINGTON COUNTY
WAS. 76 (19.98 21.48)

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

STEEL DETAILS

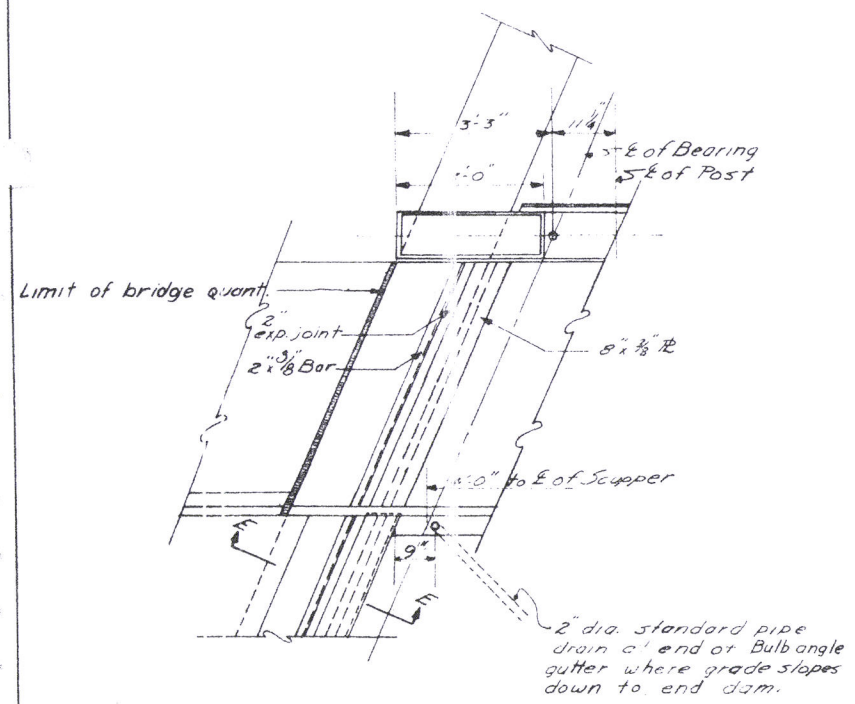
BRIDGE NO. WAS - 76 20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 - 21.48 STA. 1092+58.54 TO 1099+13.46

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.T.T.	J.M.	J.M.	A.J.S.	A. Balke	2-14-62	

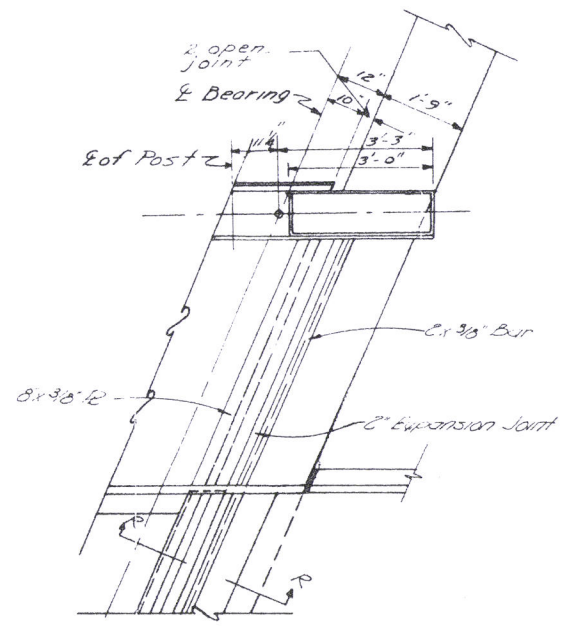
SHEET NO.	STATE	PROJECT	
2	OHIO		

79

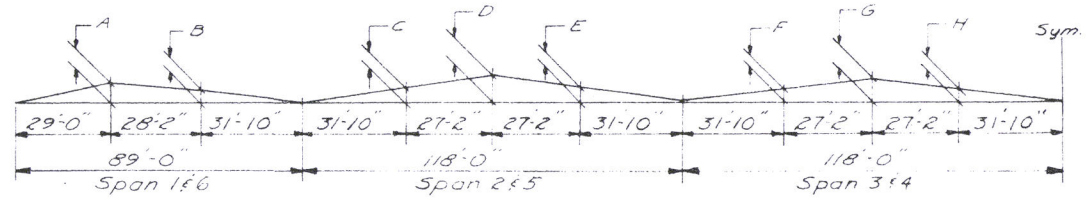
WASHINGTON COUNTY
WAS. 76 (19.98 21.48)



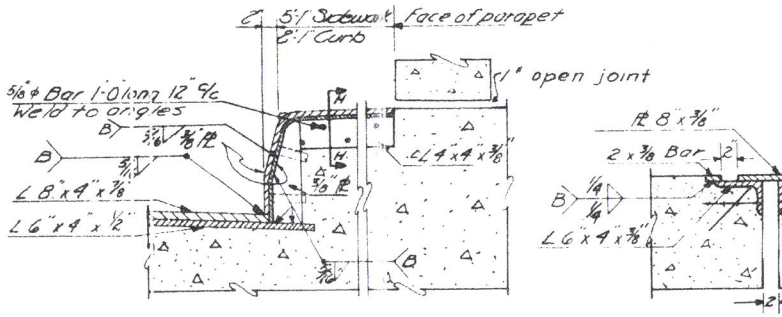
PARTIAL ABUTMENT PLAN
SIDEWALK SIDE



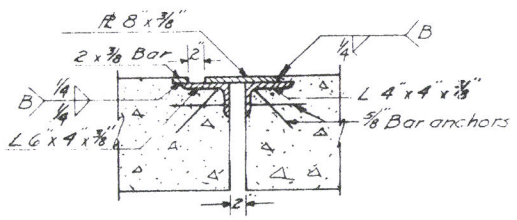
PARTIAL ABUTMENT PLAN
CURB SIDE



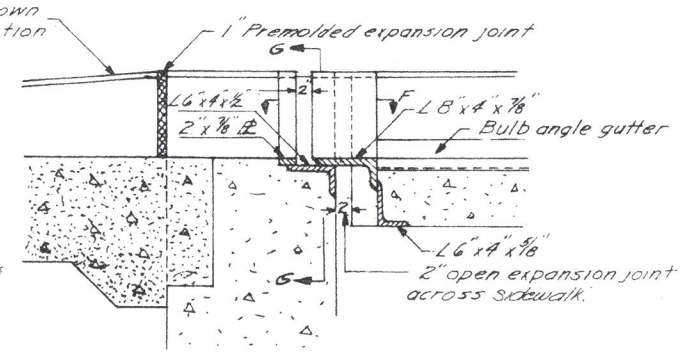
GIRDER CAMBER DIAGRAM



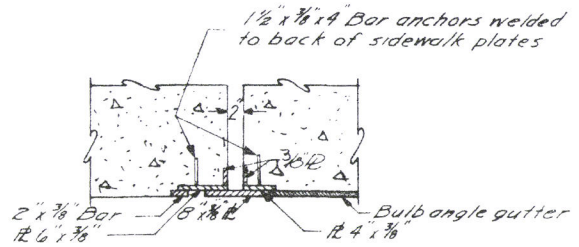
SECTION G-G as shown
SECTION V-V Opposite Hand



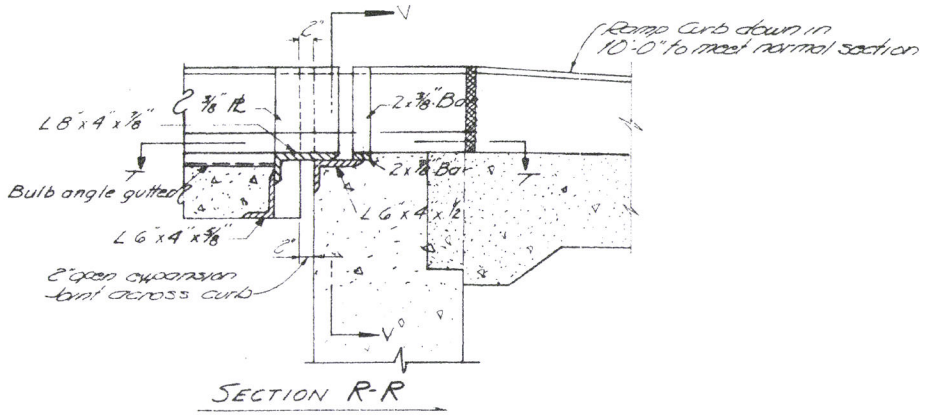
SECTION H-H



SECTION E-E



SECTION F-F As Shown
SECTION T-T Opposite Hand



SECTION R-R

DEFLECTION AND CAMBER

POINT	A	B	C	D	E	F	G	H
EXTERIOR GIRDERS								
Deflection due to wt of steel	1/8	1/4	1/4	1/8	1/16	1/4	1/8	1/16
" " " remaining D.L.	1/2	3/4	3/8	3/4	3/8	9/16	5/8	5/16
Total Deflection	5/8	3/8	7/16	7/8	7/16	3/8	3/4	3/8
Required Camber	0	0	0	1"	0	0	0	0
	A	B	C	D	E	F	G	H
INTERIOR GIRDERS								
Deflection due to wt of steel	1/8	1/4	1/4	1/8	1/16	1/4	1/8	1/16
" " " remaining D.L.	3/8	1/4	5/16	9/16	5/16	1/4	1/2	1/4
Total Deflection	1/2	5/8	3/8	11/16	3/8	5/8	5/8	5/16
Required Camber	0	0	0	0	0	0	0	0

HARRY BALKE ENGINEERS
990 NASSAU ST.
CINCINNATI 6, OHIO

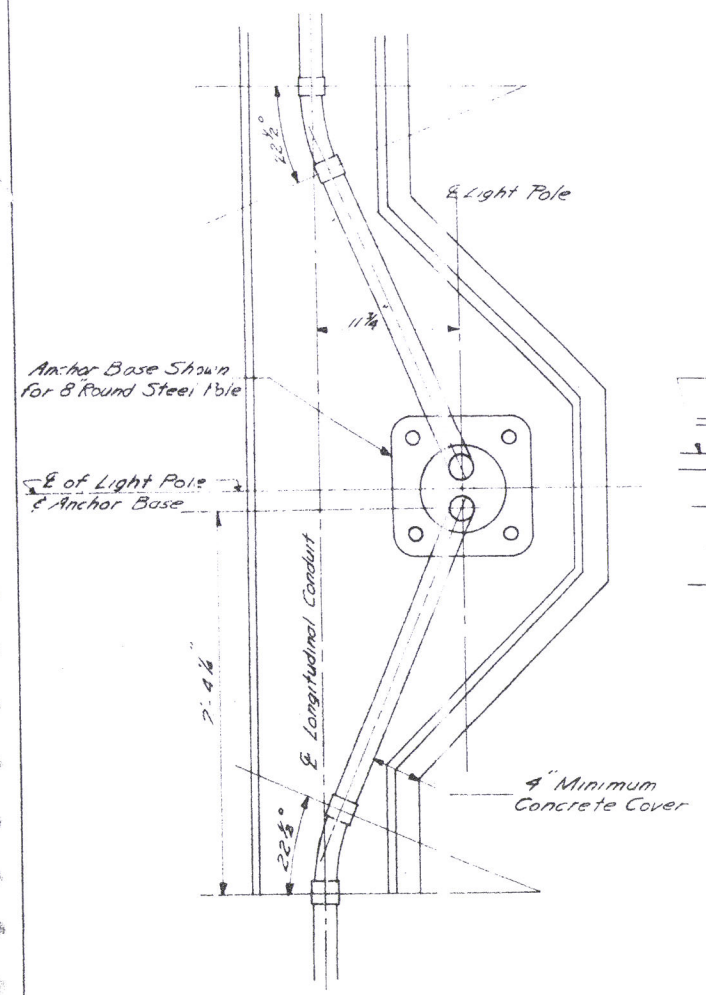
STEEL DETAILS

BRIDGE NO. WAS 76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98-21.48 STA. 1092+58.54 TO 1099+13.4

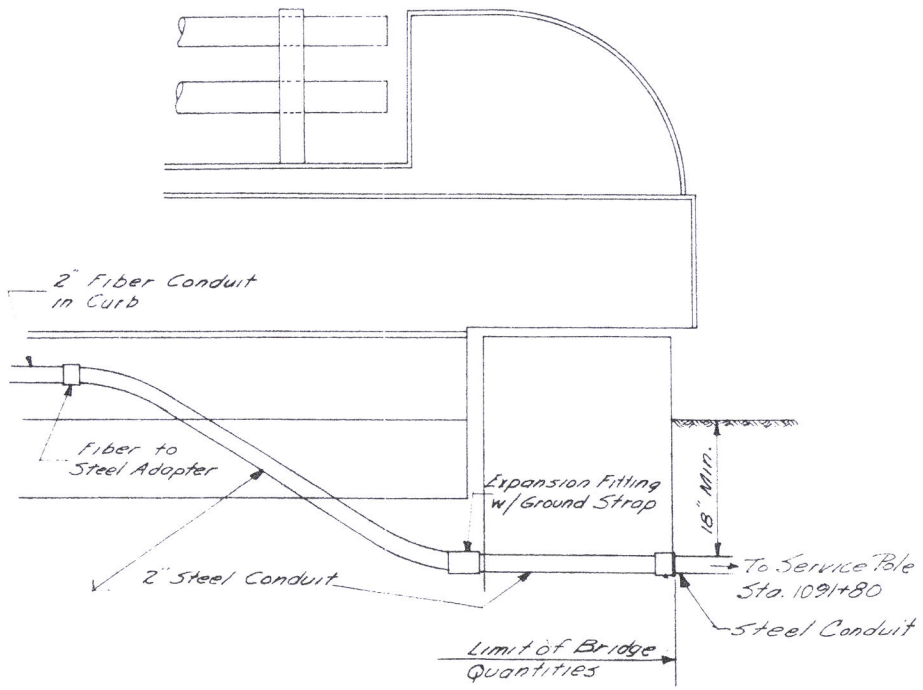
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVIS
L.T.T.	J.P.	J.M.	A.J.S.	A. Miller	2-14-62	

FED. RD. DIVISION	STATE	ROUTE	
2	OHIO		

WASHINGTON COUNTY
WAS. 76 (19.98-21.48)

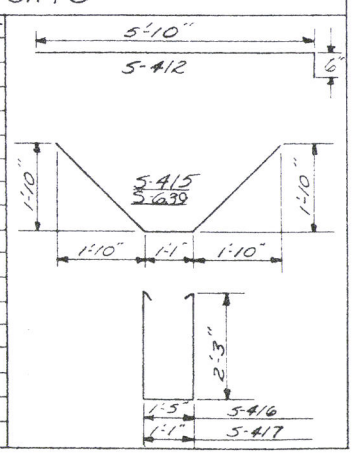


PLAN

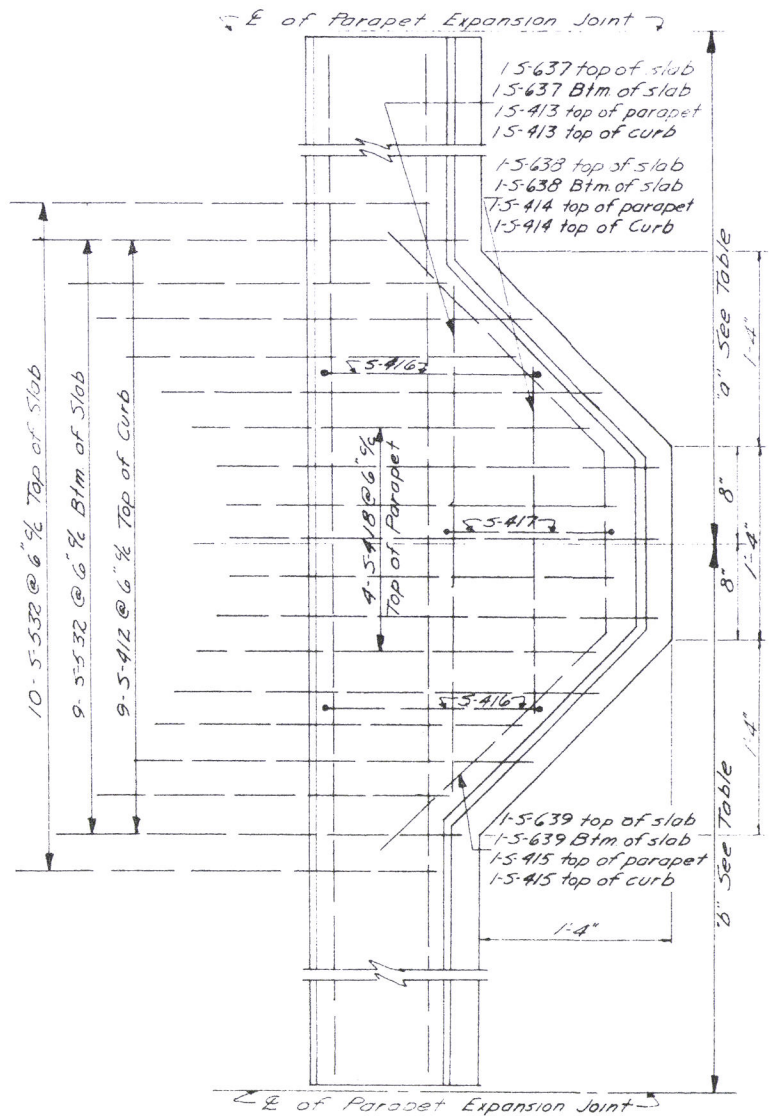


REINFORCING STEEL LIST
LIGHT SUPPORTS

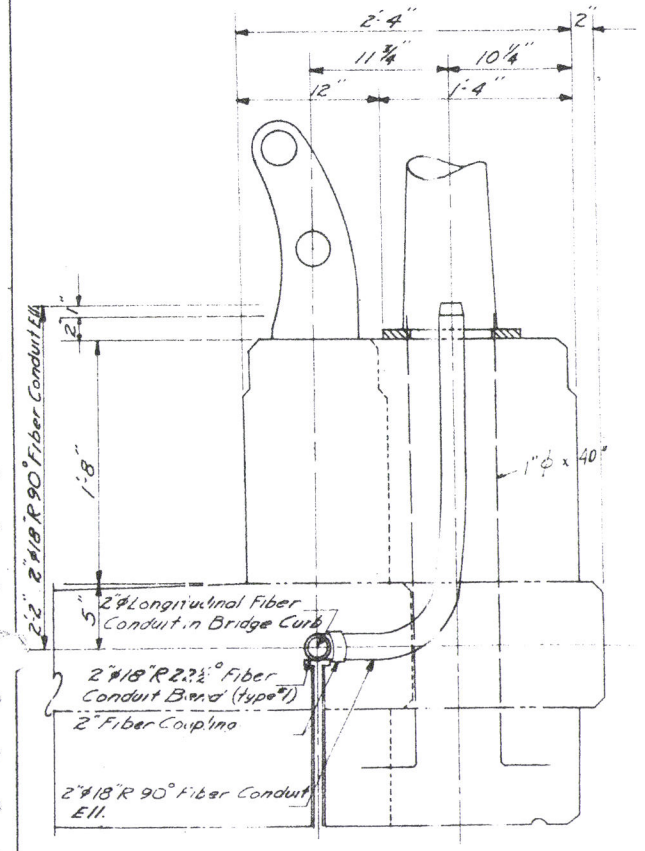
Mark	Length	Shape	No.	Weight
S404	2'-4"	Bent*	28	43
S412	6'-3"	Bent	36	150
S413	3'-5"	Str.	8	18
S414	2'-4"	Str.	8	125
S415	6'-3"	Bent	8	33
S416	6'-6"	Bent	8	35
S417	6'-2"	Bent	4	17
S418	1'-9"	Str.	16	19
S532	7'-3"	Str.	76	577
S637	3'-5"	Str.	8	41
S638	2'-4"	Str.	8	28
S639	6'-3"	Str.	8	75
				1161



* See Sheet 77



PLAN



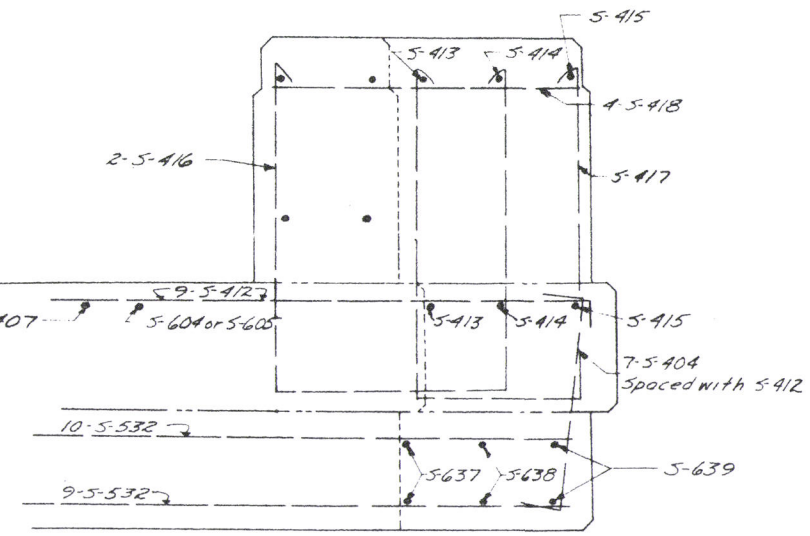
SECTION

Light No.	Distance from ℄ Abut.*	a	b
1	18'-0"	12'-0"	2'-9"
2	228'-0"	8'-6"	6'-3"
3	438'-0"	4'-6"	10'-3"
4	648'-0"	2'-0"	13'-3"

ESTIMATED LIGHTING QUANTITIES

Item	Total	Unit	Description		
S-25	4	Ea.	Lighting Standards		
S-25*	4	Ea.	Luminaires, as per plan		
S-25	672	L.F.	2"ϕ Electrical Conduit, Fiber		
S-25	14	L.F.	2"ϕ Electrical Conduit, Metal		
S-25	2400	L.F.	Electrical Cable, #8AWG with insulation		
S-25	Lump	L.S.	Ground System Complete		

* Item S-25, Luminaires, as per plan, shall include luminaires, ballasts, lamps, photo-electric controls (complete with wiring), and all incidental items not specifically mentioned but necessary for proper installation.



SECTION

LIGHTING NOTES

Item S-25
Item S-25 includes furnishing and installing lamp standards, grounds, fiber & steel conduit and fittings luminaries, lamps and wiring and accessories as indicated on plans and as specified. For location of lamp standards on bridge, refer to General Plan and Superstructure Drawings.

Conduit
Encased in concrete, shall be a 2" dia. Type "I Fiber Conduit and fittings. Exposed, shall be a 2" dia. Rigid Galvanized Steel Conduit and fittings. Conduit shall extend through backwall of forward and rear abutments.

Drains
"T" coupling and drain shall be located at low point of each conduit run between each light pole.

Anchor Rods
Anchor Rods shall be galvanized per Section M-7.4(d). Furnish with galvanized hex nuts and washers. Anchor Rod location to be furnished by lamp standard manufacturer. Anchor Rods are included in Item S-7 Structural Steel for Payment.

Luminaire
Luminaire shall be 400W Mercury with photo-electric control and Ballast in lamp. (Line Materials Type 2R2, General Electric M400, or Westinghouse OV-25). Lamps 400W Mercury, clear, ASA Code H33-1-CD Ballast shall be regulation type, integral with luminaire.

Service
Insulated cable shall be single conductor copper #8 AWG 600 Volt stranded copper as per spec. FAA-L-824 Type A. Marietta Electric Company to furnish 3 wire 120/240 volt single phase current at Waterford end of bridge. See Sht. 2 for details of Service Pole and Roadway lighting.

Reinforcing Steel
As shown in bar list is included with Item S-4 in the Quantity Summary for payment.

Concrete
All light support concrete outside the normal bridge section is included with Item S-1 class "C" concrete for superstructure in the Quantity Summary for payment.

Ground System
Superstructure ground shall be ½ AWG 7 strand, soft annealed bare copper cable encased in Right Hand Side of Pier No 4. Connect lower end by "exothermic weld" to a steel pile. Extend cable in one continuous length through top of pier with lead of sufficient length to exothermic weld upper end of cable to Right Hand Side outside girder.
Light Standard ground shall be No. ½ AWG 7 strand soft annealed bare copper wire. Exothermic weld end of cable to a light pole anchor rod and exothermic weld other end to top flange of Right Hand outside girder.

Lamp Standard
Lamp Standard shall conform to Metal-Type 440-A (H-250-C2) round tapered steel with anchor base, handhole and 8' bracket arm. The handhole shall be 4" x 6½" centered 1" above base and shall be located on sidewalk side of pole. A stainless steel ground nut (¼" x 13) shall be welded to the inside of pole 18" above base and opposite the handhole.

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CINCINNATI 6, OHIO

LIGHTING DETAILS

BRIDGE NO. WAS.- 76-20.62
OVER MUSKINGUM RIVER
WASHINGTON CO. S.R. 76
SEC. 19.98 21.48 STA. 1092+58.54 TO 1099+13.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REV.
E.S.	J.M.	J.M.	E.S.	A. Miller	2-14-62	