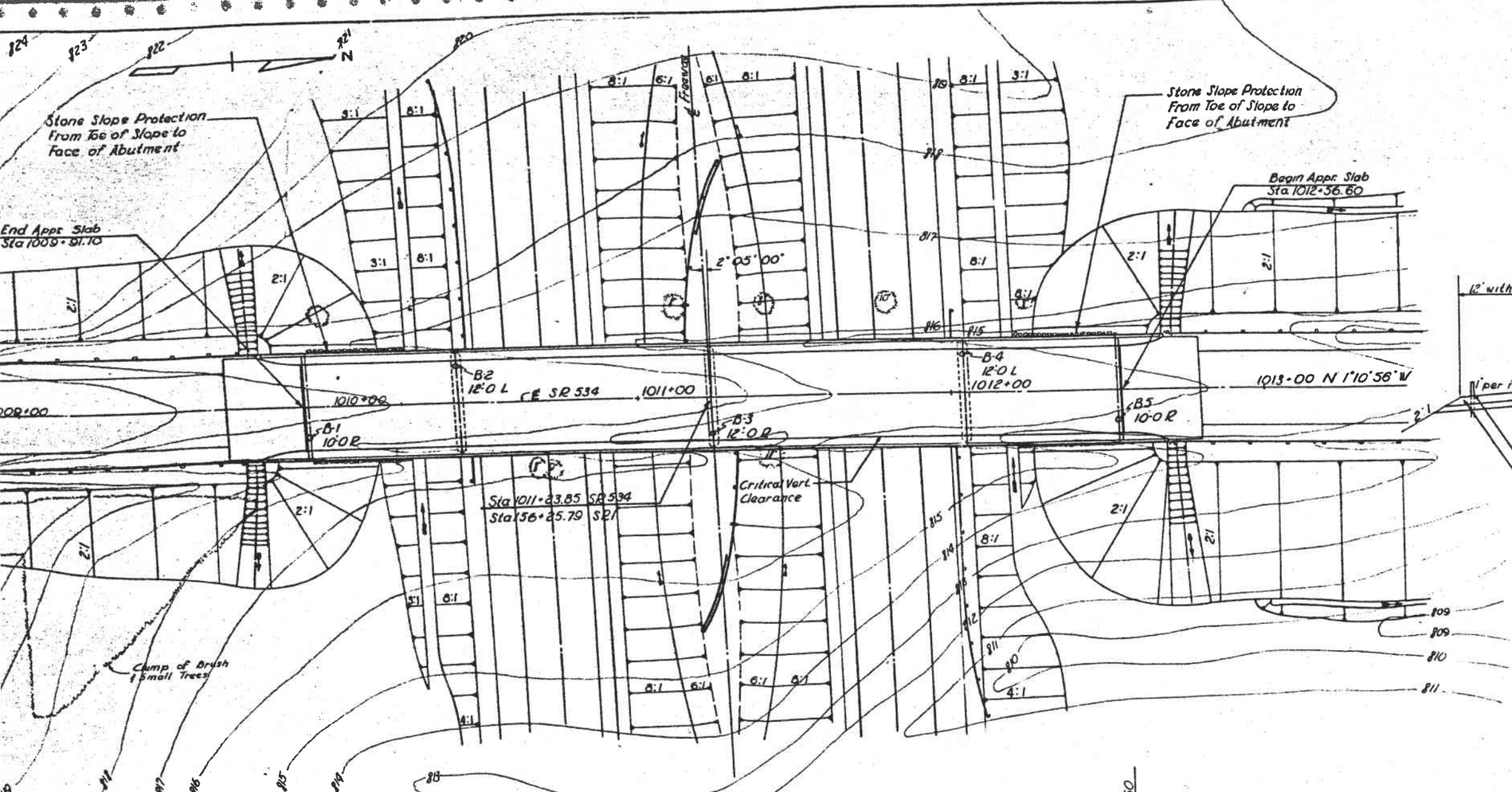
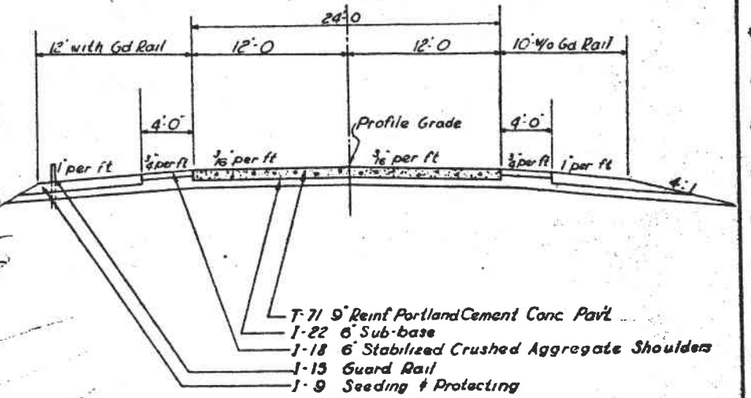
FED RD DIVISION	STATE	FED AID PROJECT	FOCAL SHEET
2	OHIO	I 1103( )	

128

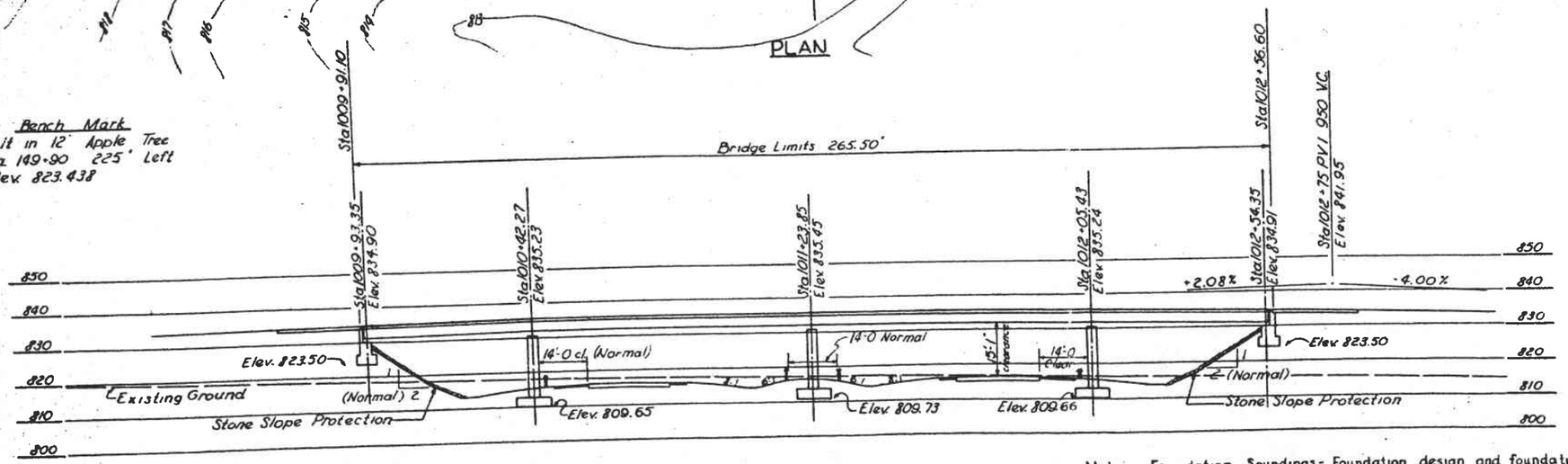
ASHTABULA COUNTY
ATB-1-2.49





TYPICAL SECTION THRU APPROACH PAVEMENT

Bench Mark
Bolt in 12" Apple Tree
Sta 149+90 225' Left
Elev. 823.438



SECTION ALONG ℄

Notes: Foundation Soundings - Foundation design and foundation quantities are based on a study of soil sampling soundings made at the site. This sounding information may be inspected at the Interstate Projects Office in Columbus or the Division Office, But the State assumes no responsibility for accuracy thereof.
1955 Traffic: 340 V.P.D. with under 30 combination trucks.

PROPOSED STRUCTURE

Type: Continuous Steel Beam with Reinforced Concrete Deck and Substructure
Span: 48'-11", 81'-7", 81'-7", 48'-11"
Roadway: 30'-0 ½" Safety curbs
Load Frequency C.F. =400(51)
Skew: 2°05' RF
Wearing Surface: 1" Monolithic Conc.
Approach Slabs: 25'-0 Long
Alignment: Tangent
Safety Curbs: 2'-0 each side

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

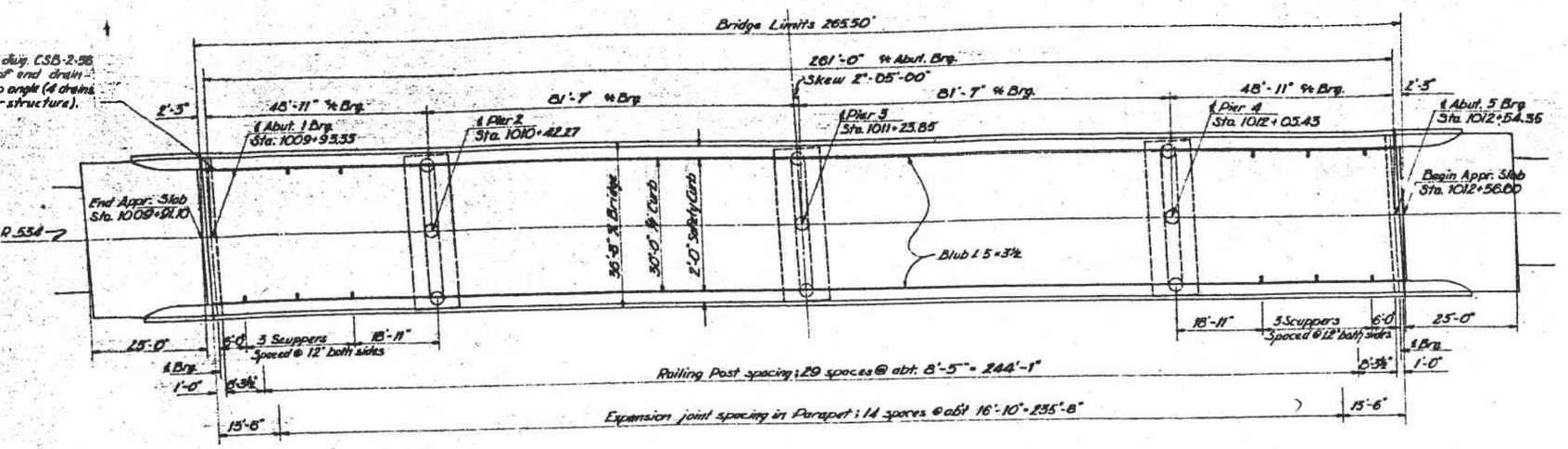
SITE PLAN
BRIDGE Nº ATB-1-0295
SR1 UNDER SR 534
ASHTABULA CO SR1
STA 156+25.79

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
V.A.L.	W.A.B.	R.G.E.	J.B.	R.G.E.	A.C.A.

FED HWY DIVISION	STATE	FED AID PROJECT	FISCAL YEAR
2	OHIO	I 1103( )	

129

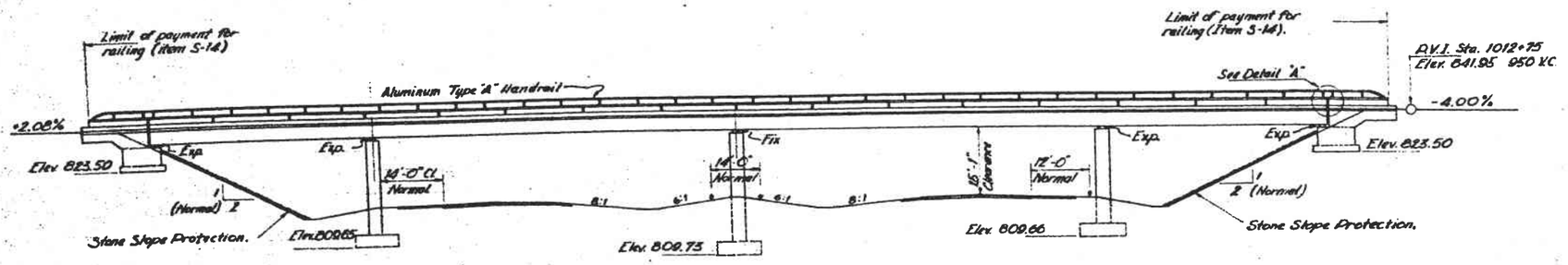
ASTABULA COUNTY
AT 84-2.49



Note:
See st'd. dwg. AR-1-57 for handrail & parapet expansion joint details.

GENERAL PLAN

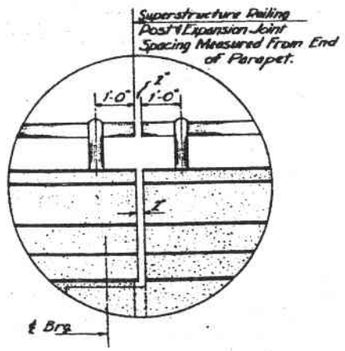
Note:
Railing post, expansion joints and scupper spacing symmetrical by rotation of plan.



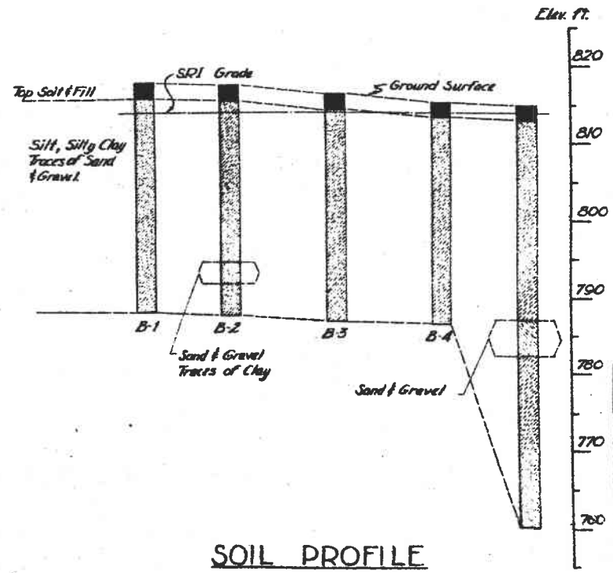
ELEVATION

· ESTIMATED QUANTITIES ·

Item	Total	Unit	Description	Super Str.	Abut 1	Abut 5	Pier 2	Pier 3	Pier 4	Gen'l
C-2	504	Cu. Yd.	Excavation for Structures		104	104	93	110	93	
C-2	L.S.	L.S.	Cofferdams, Cribs, Sheeting							L.S.
C-1	314	Cu. Yd.	Class "C" Concrete (Superstructure)	314						
C-1	66	Cu. Yd.	Class "C" Concrete (Pier Caps & Cols.)				22	22	22	
C-1	90	Cu. Yd.	Class "C" Concrete (Abutments above Footings.)		45	45				
C-1	163	Cu. Yd.	Class "E" Concrete (Pier & Abutment Footings.)		20	20	40	43	40	
C-4	118,583	Lbs.	Reinforcing Steel.	77,633	4635	4635	10353	10974	10353	
C-7	299,670	Lbs.	Structural Steel	299,670						
C-8	299,670	Lbs.	Field Painting of Structural Steel	299,670						
C-14	578	Lin. Ft.	Railing (Aluminum Type A and Concrete Parapet).	526	26	26				
C-29	24	Cu. Yd.	Porous Backfill		12	12				
C-29	102	Cu. Yd.	Stone Slope Protection (1'-0" Thick).		51	51				



DETAIL "A"



SOIL PROFILE

GENERAL NOTES

REFERENCE shall be made to Standard Drawings CSB-2-56 sheets 2 of 6 and 3 of 6 dated, December 3, 1956 BR-1-55 dated March 1, 1955, AR-1-57 dated April 9, 1957, and supplemental specifications No. 514, revised August 1, 1957

DESIGN SPECIFICATIONS This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated October 1, 195 , together with revisions thereof dated July 15, 1952, April 1, 1954, and February 1, 1955.

CONCRETE Superstructure, columns, caps and abutments above footings shall be "Class C Concrete". Abutment footings and Pier footings shall be Class E Concrete.

DECK CONSTRUCTION PROCEDURE In order to facilitate water curing of the deck slab, the placing of concrete shall progress to grade. The slab may be placed in sections between transverse construction joints which are normal to the center line of the bridge and are located near the center of any span.

EXCAVATION QUANTITIES shall be as outlined in Sec. E2 and includes the removal of material from the finished grade down or original grade down, whichever is the lower in elevation. Abutment excavation quantities includes the removal of fill material between the surface of embankment and the bottom of Abut. Backfill material behind abutments shall meet the requirements of Section 1-22 and shall be compacted in accordance with Sec. E-108. Payment for backfill material will be included in Item E-2 unclassified.

STONE SLOPE PROTECTION extending from face of abutment to invert of ditch shall be provided at all abutments. Protection shall be minimum of 12" thick, measured perpendicular to the slope, and shall be extended 3 ft past outside limits of structure. Stone material shall meet the requirements of Section S-29.02 for porous drains.

WELDING All welding shall be Class A unless otherwise shown. Any weld shown as field weld may be made in the shop at the option of the contractor.

WELDED STEEL The steel for all rolled beams and moment plates with a thickness greater than 1" shall conform to ASTM Designation A-373. All other structural steel shall conform to either ASTM A-7 (per Sec. M 24 (a) of the Construction and Material Specifications.) or to A373.

BAR SIZE for reinforcing steel is indicated in the bar mark. The first digit represents bar size number. For example, S601 is a no. 6 size bar and A1014 is a no. 10 size.

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION
BRIDGE Nº ATB-1-0295
SR 1 UNDER SR 534
ASHTABULA CO. SR 1
STA 156+25.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CTL	CTM	P.H.	RGE	A.C.A.	10-1457	

FED HWY DIVISION	STATE	FED AID PROJECT	FISCAL YEAR
2	OHIO	I 1103( )	

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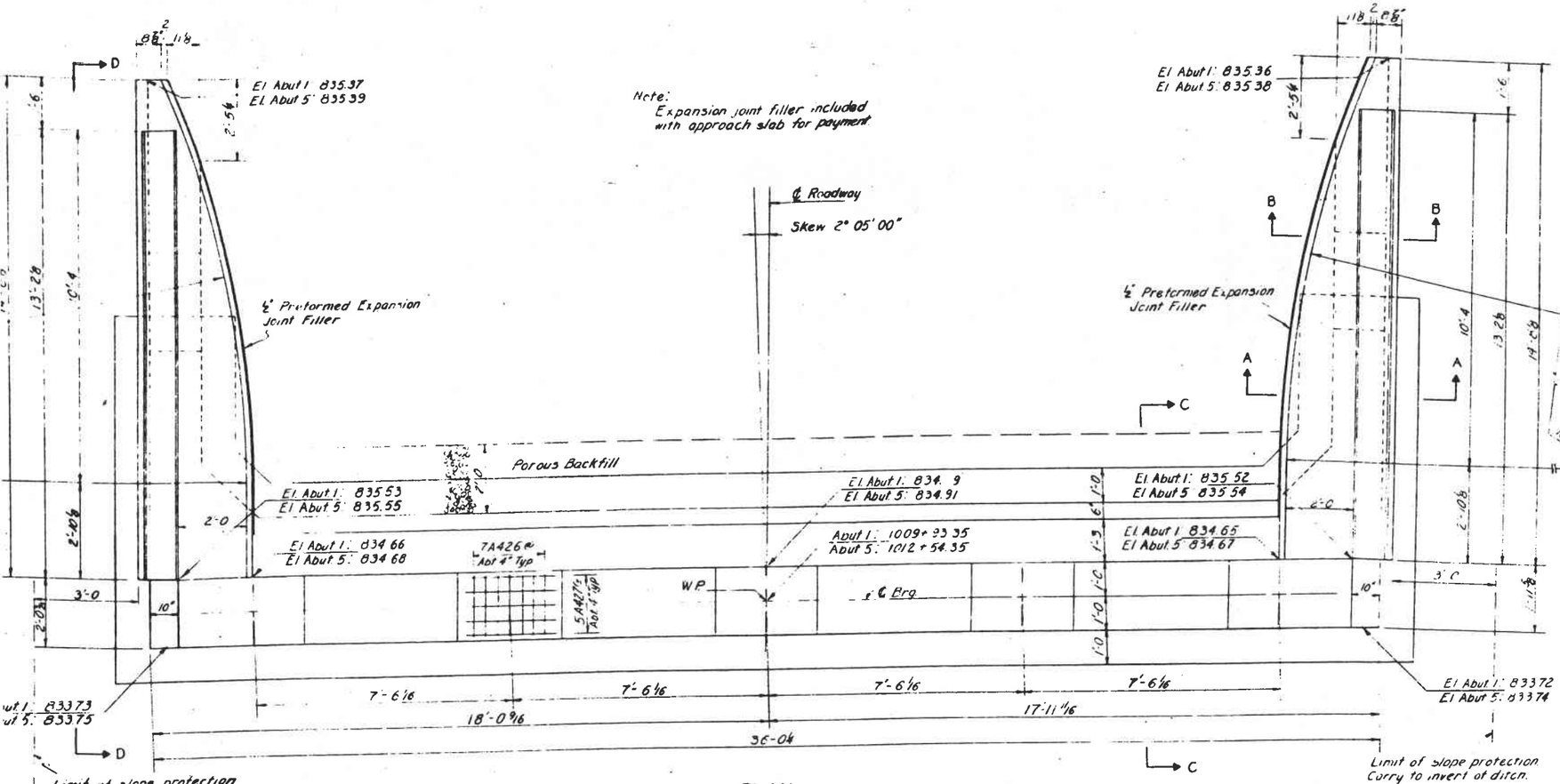
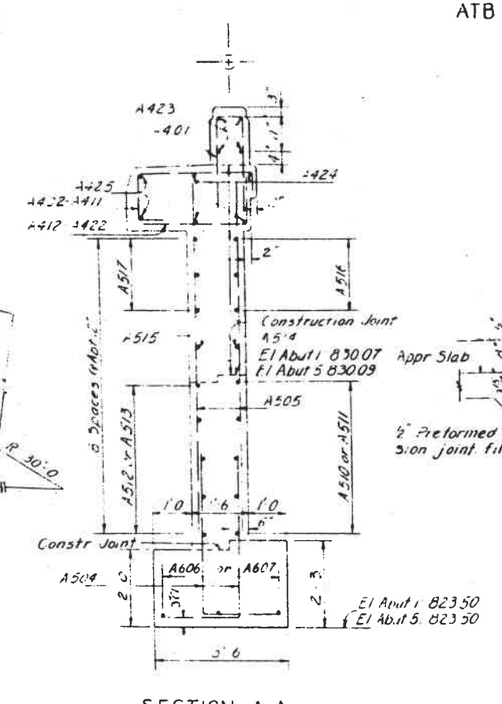
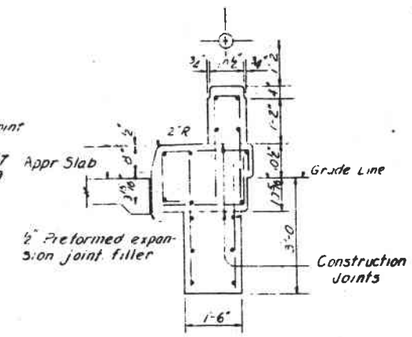
ASHTABULA COUNTY
ATB -1-2.49

Note:
Expansion joint filler included with approach slab for payment

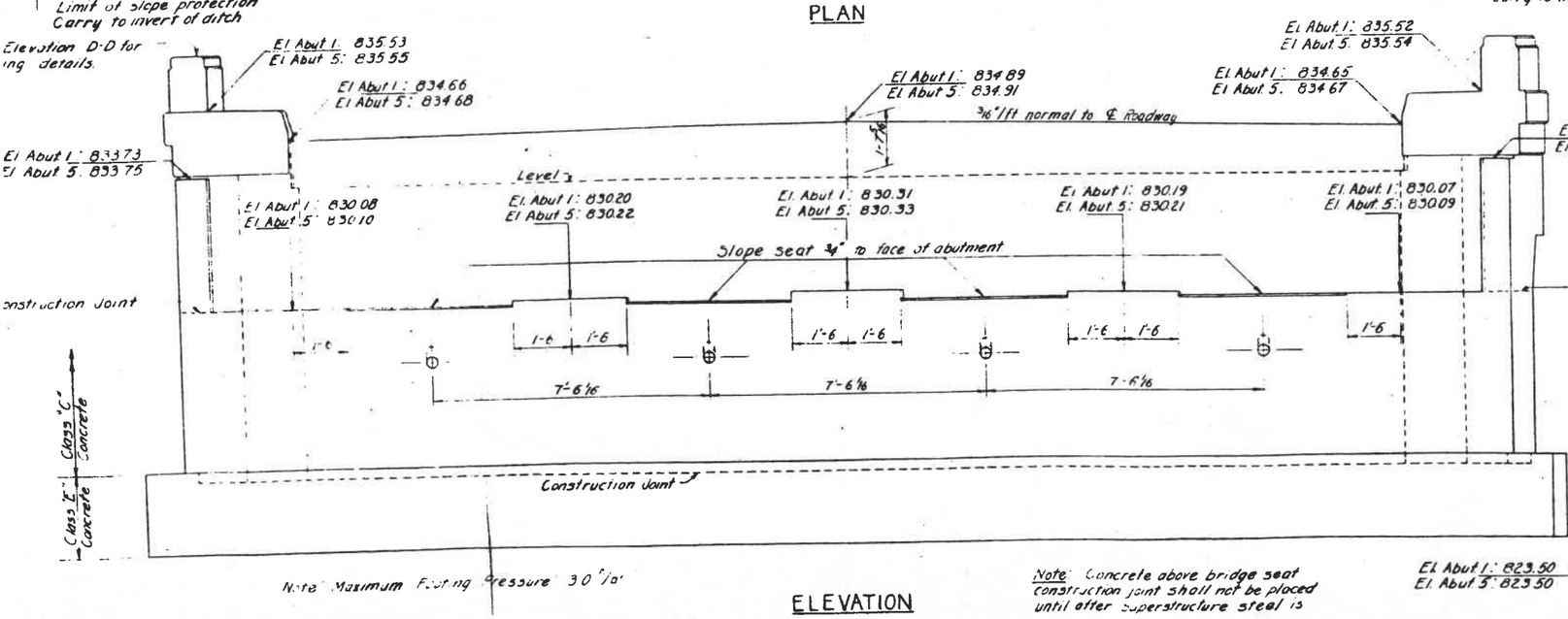




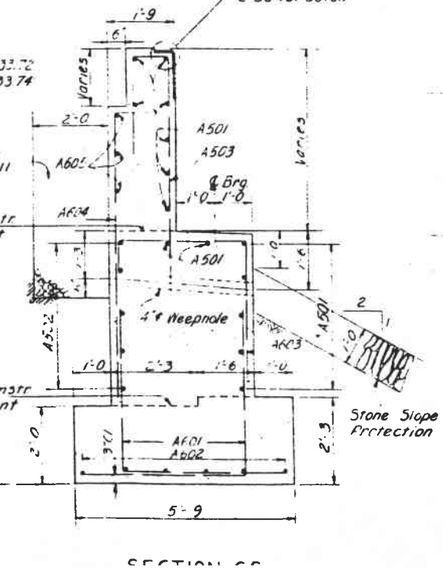


NOTE: See sheet #134 for details of the guard rail end connection.

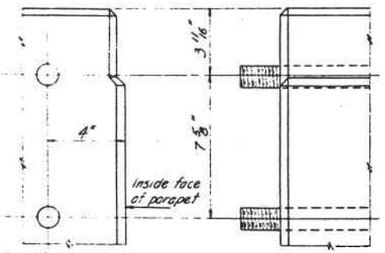
PROCEDURE
The embankment shall be placed and compacted to subgrade elevation after which excavation shall be made for the abutments.



Note: Concrete above bridge seat construction joint shall not be placed until after superstructure steel is



Note:
Reinforcing steel shall clear the face of the concrete by 2" unless otherwise noted.



1"ø x 20" galvanized machine bolts with square heads and minimum thread length of 3". Bolts to project 2" from face of concrete.

GUARD RAIL ANCHOR BOLTS

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

ABUTMENT DETAILS

BRIDGE Nº ATB -1-02.95
SR 1 UNDER SR 534

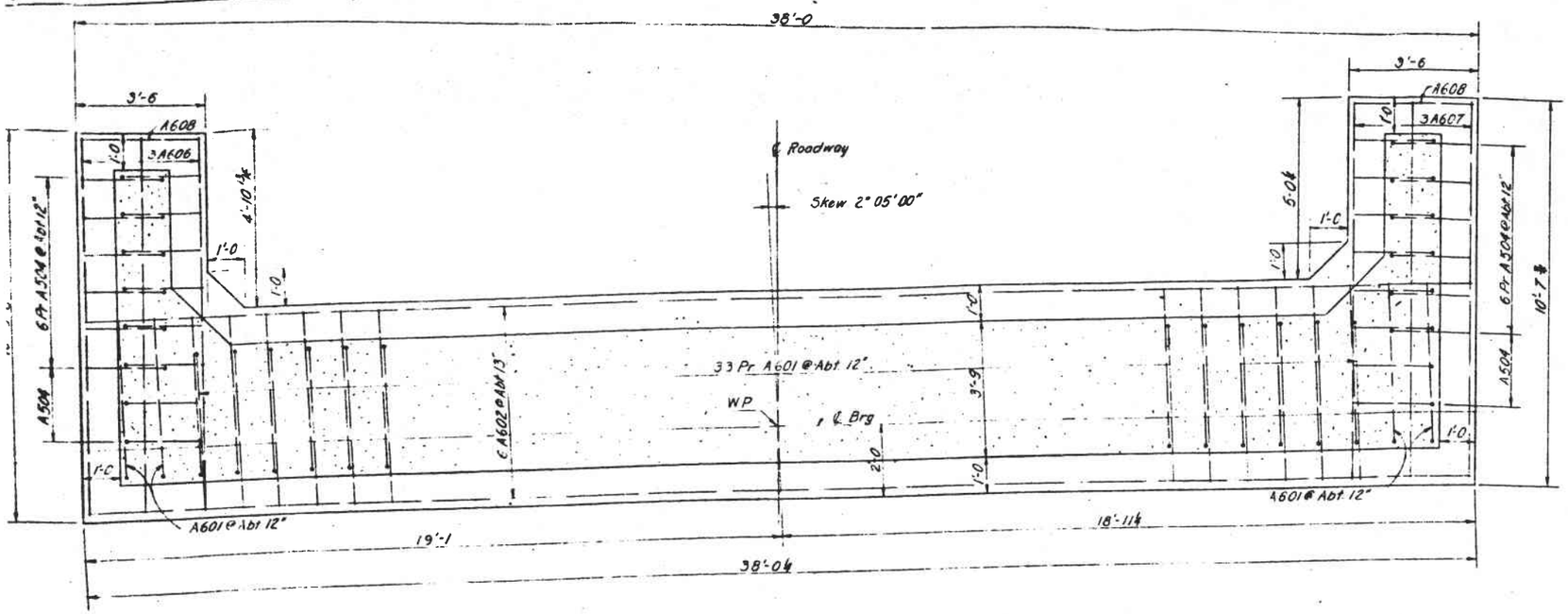
ASHTABULA CO. SR 1 STA. 156+25.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED

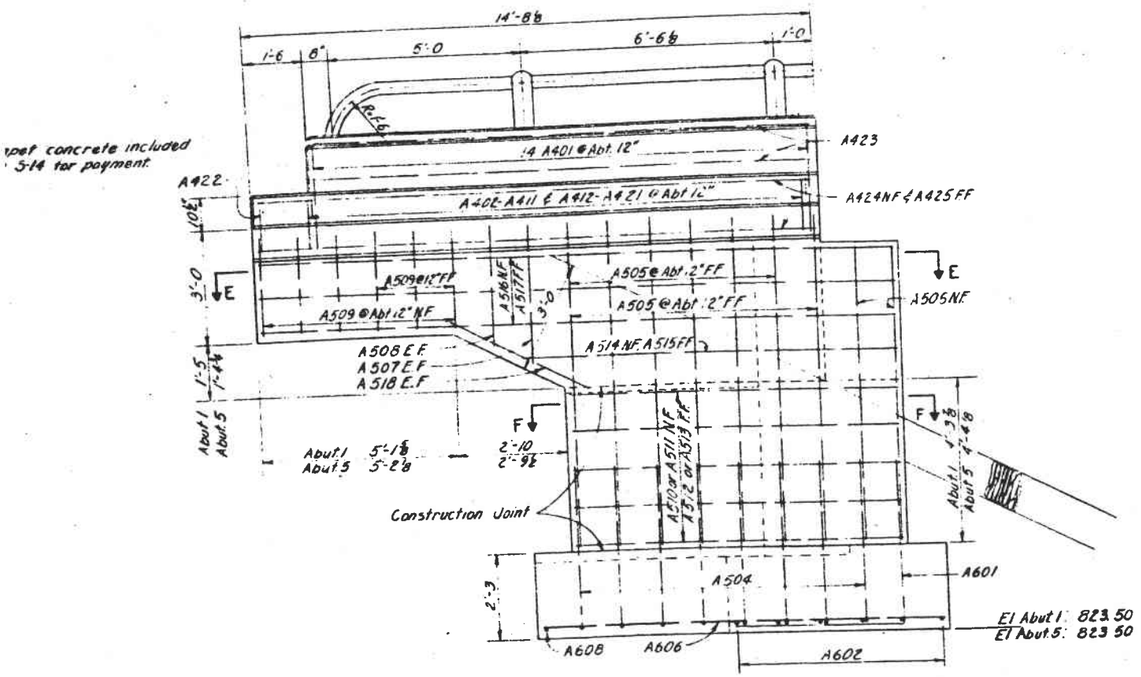
FED RD DIV-REGION	STATE	FED RD PROJECT	FISCAL YEAR
2	OHIO	I 1103( )	

131

ASHTABULA COUNTY
ATB-1-2.49

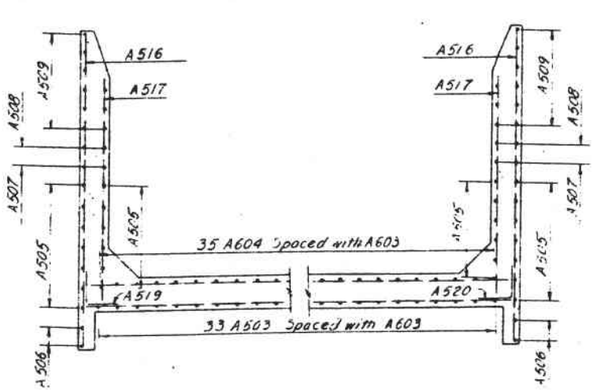


FOOTING PLAN

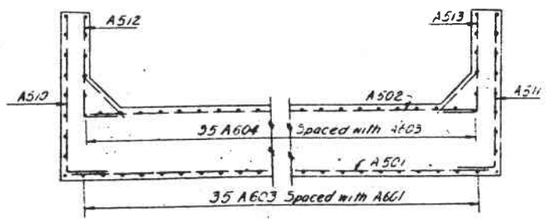


ELEVATION D-D

oof concrete included
5-14 for payment



SECTION E-E



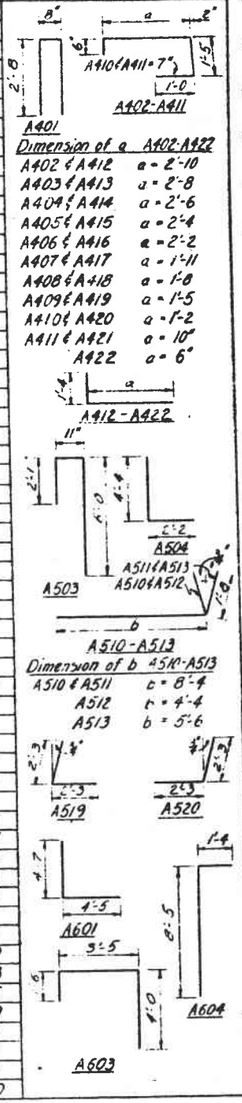
SECTION F-F

REINFORCING STEEL LIST

BOTH ABUTMENTS

Mark	Length	Shape	No	Weight
A401	6'-0	Bent	56	224
A402	5'-9	Bent	16	61
A403	5'-7	Bent	8	30
A404	5'-5	Bent	4	14
A405	5'-3	Bent	4	14
A406	5'-1	Bent	4	14
A407	4'-10	Bent	4	13
A408	4'-7	Bent	4	12
A409	4'-4	Bent	4	12
A410	3'-8	Bent	4	10
A411	3'-4	Bent	4	9
A412	4'-2	Bent	16	45
A413	4'-0	Bent	8	21
A414	3'-10	Bent	4	10
A415	3'-8	Bent	4	10
A416	3'-6	Bent	4	9
A417	3'-3	Bent	4	9
A418	3'-0	Bent	4	8
A419	2'-9	Bent	4	7
A420	2'-6	Bent	4	7
A421	2'-2	Bent	4	6
A422	1'-10	Bent	4	5
A423	12'-10	Str	16	137
A424	14'-4	Str	16	153
A425	10'-0	Str	8	53
A426	1'-6	Str	70	70
A427	2'-6	Str	50	84
A501	35'-8	Str	28	1042
A502	33'-4	Str	10	348
A503	9'-0	Bent	66	620
A504	6'-6	Bent	56	380
A505	6'-10	Str	52	479
A506	7'-8	Str	8	64
A507	7'-0	Str	8	53
A508	3'-8	Str	8	31
A509	3'-5	Str	36	128
A510	10'-0	Bent	10	104
A511	11'-0	Bent	10	104
A512	6'-0	Bent	10	63
A513	7'-2	Bent	10	75
A514	9'-8	Str	4	40
A515	7'-6	Str	4	31
A516	16'-4	Str	12	204
A517	11'-6	Str	12	144
A518	4'-6	Str	8	38
A519	4'-6	Bent	8	38
A520	4'-6	Bent	8	38
A521	3'-2	Str	32	106
A601	37'-0	Bent	70	946
A602	37'-0	Str	12	679
A603	8'-11	Bent	70	938
A604	9'-9	Bent	70	1025
A605	35'-6	Str	6	320
A606	10'-5	Str	6	94
A607	10'-3	Str	6	92
A608	3'-2	Str	4	19
			Total	9270

Bar Diagram



Dimension of a A402-A422

A402 & A412	a = 2'-10
A403 & A413	a = 2'-8
A404 & A414	a = 2'-6
A405 & A415	a = 2'-4
A406 & A416	a = 2'-2
A407 & A417	a = 1'-11
A408 & A418	a = 1'-8
A409 & A419	a = 1'-5
A410 & A420	a = 1'-2
A411 & A421	a = 10"
A422	a = 6"

Dimension of b A510-A513

A510 & A511	b = 8'-4
A512	b = 4'-4
A513	b = 5'-6

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

ABUTMENT DETAILS

BRIDGE Nº ATB-1-0295
SR 1 UNDER SR 534

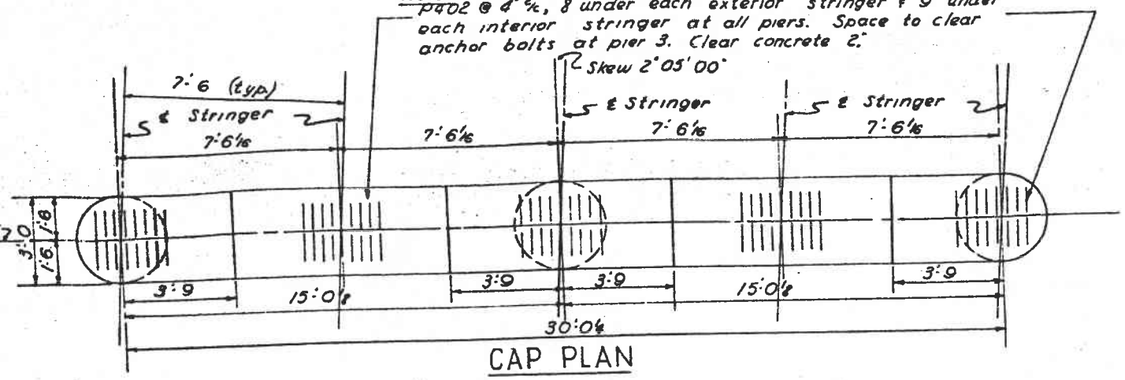
ASHTABULA CO. SR 1 STA 156+25.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CTL	RBS	R.B.S.	RGE	A.C.A.	10-14-57	

DIST. NO. DIVISION	STATE	FED. AID PROJECT	SHEET NO.
2	OHIO	I 1103( )	132

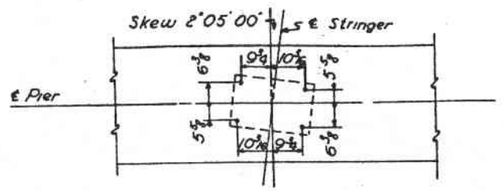
ASHTABULA COUNTY
ATB-1-2.49

Note: P402 @ 4"c, 8 under each exterior stringer & 9 under each interior stringer at all piers. Space to clear anchor bolts at pier 3. Clear concrete 2".

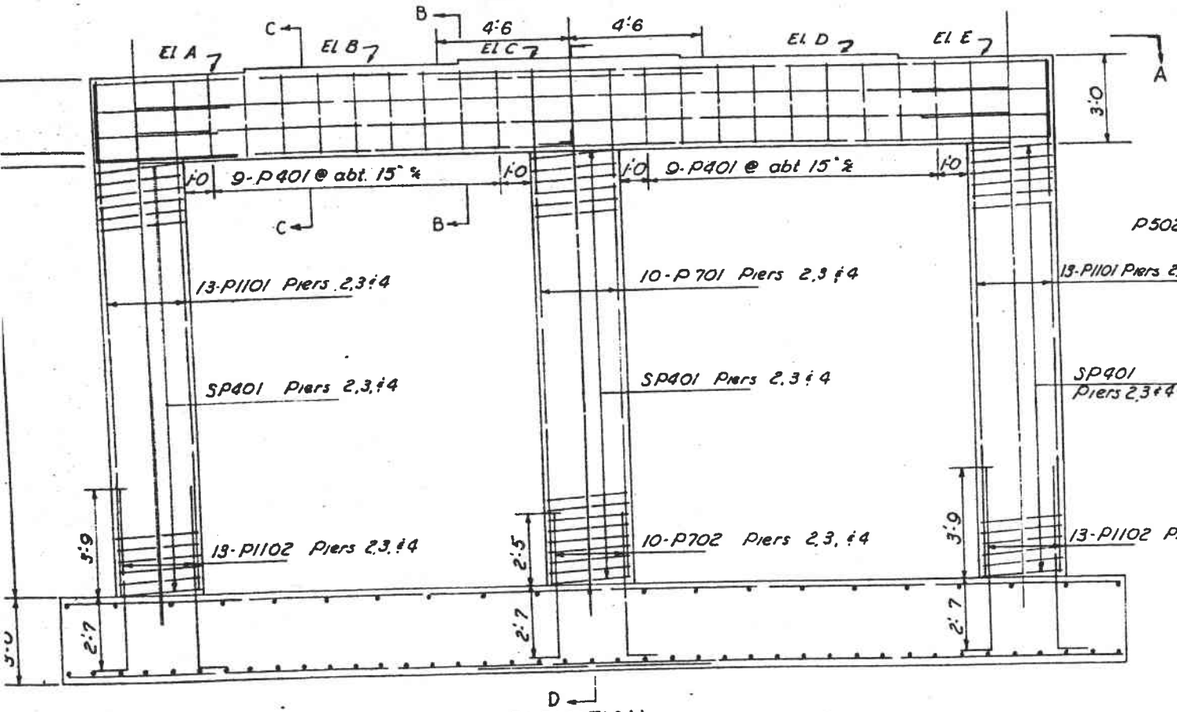


CAP PLAN

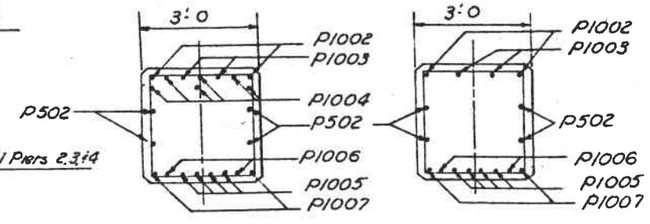
	El. A	El. B	El. C	El. D	El. E	El Bolt Pts	H
Pier 2	829.90	830.01	830.13	830.01	829.90	809.65	14.25
Pier 3	829.98	830.10	830.22	830.10	829.98	809.73	14.25
Pier 4	829.91	830.03	830.14	830.03	829.91	809.66	14.25



TYPICAL ANCHOR BOLT DETAIL
PIER 3 BOLSTER ONLY

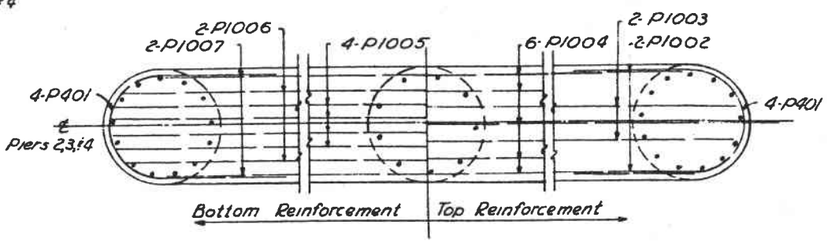


ELEVATION

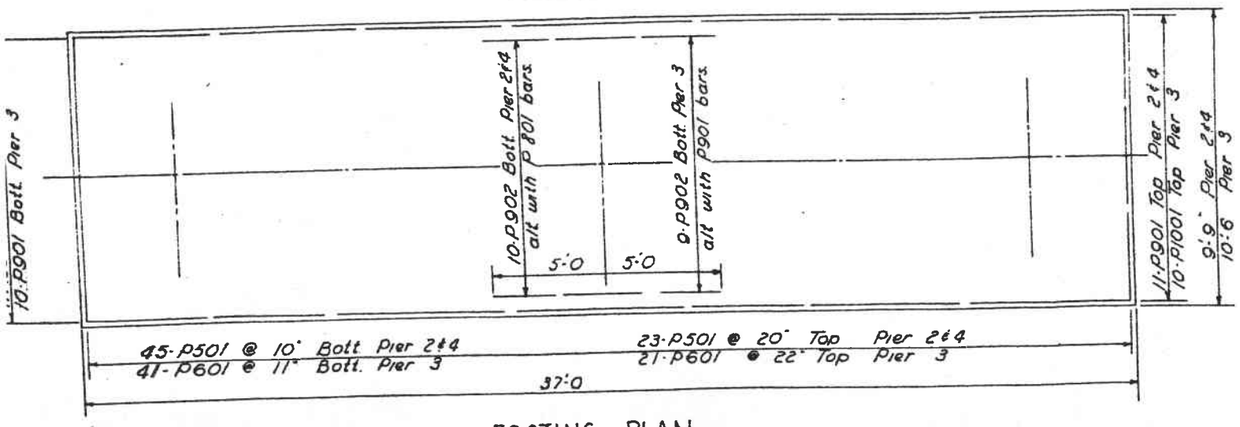


SECTION B-B

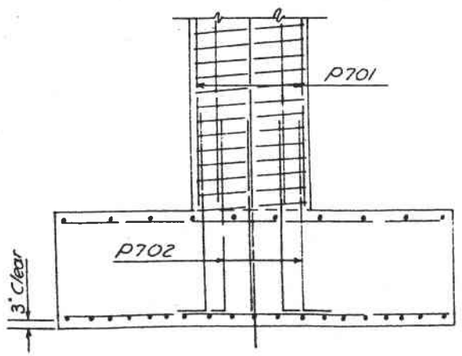
SECTION C-C



SECTION A-A



FOOTING PLAN



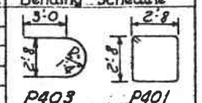
SECTION D

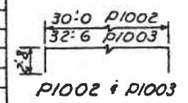
NOTE:
Maximum footing pressure 4.0 ksf.

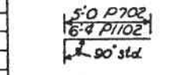
REINFORCING STEEL LIST
INCLUDES ALL THREE PIERS

Mark	Length	Shape	No.	Pier 2	Pier 3	Pier 4	Weight
P401	11'-6	Bent	54	18	18	18	415
P402	2'-0	Str.	129	43	43	43	172
P403	10'-2	Bent	24	8	8	8	163
P501	9'-5	Str.	136	68		68	1336
P502	30'-0	Str.	12	4	4	4	375
P601	10'-2	Str.	62		62		947
P701	16'-11	Str.	30	10	10	10	1037
P702	5'-5	Bent	30	10	10	10	332
P801	36'-8	Str.	22	11		11	2154
P901	36'-8	Str.	32	11	10	11	3989
P902	10'-0	Str.	29	10	9	10	986
P1001	36'-8	Str.	10		10		1578
P1002	35'-4	Bent	6	2	2	2	912
P1003	37'-10	Bent	6	2	2	2	977
P1004	9'-0	Str.	18	6	6	6	697
P1005	32'-3	Str.	12	4	4	4	1665
P1006	31'-4	Str.	6	2	2	2	809
P1007	30'-0	Str.	6	2	2	2	775
P1101	16'-11	Str.	78	26	26	26	7011
P1102	7'-1	Bent	78	26	26	26	2935
						Total	29,265

Bending Schedule







SPIRAL REINFORCING STEEL LIST.

Mark	No.	Size	Core Dia	Length	Pitch	No Turns	Weight
SP401	9	½"	32"	14.25	4½"	41	2415

NOTES:

The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch plus 3 turns (total number of closed coils), expressed as the nearest whole number.

Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 5.4.

1½ closed coils shall be provided at the ends of each spiral unit.

Four steel channel tee or angle spacers weighing approximately 0.68 lb. per lin. ft. of spacer shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

Reinforcing steel shall clear the face of the concrete by 2" unless otherwise noted.

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

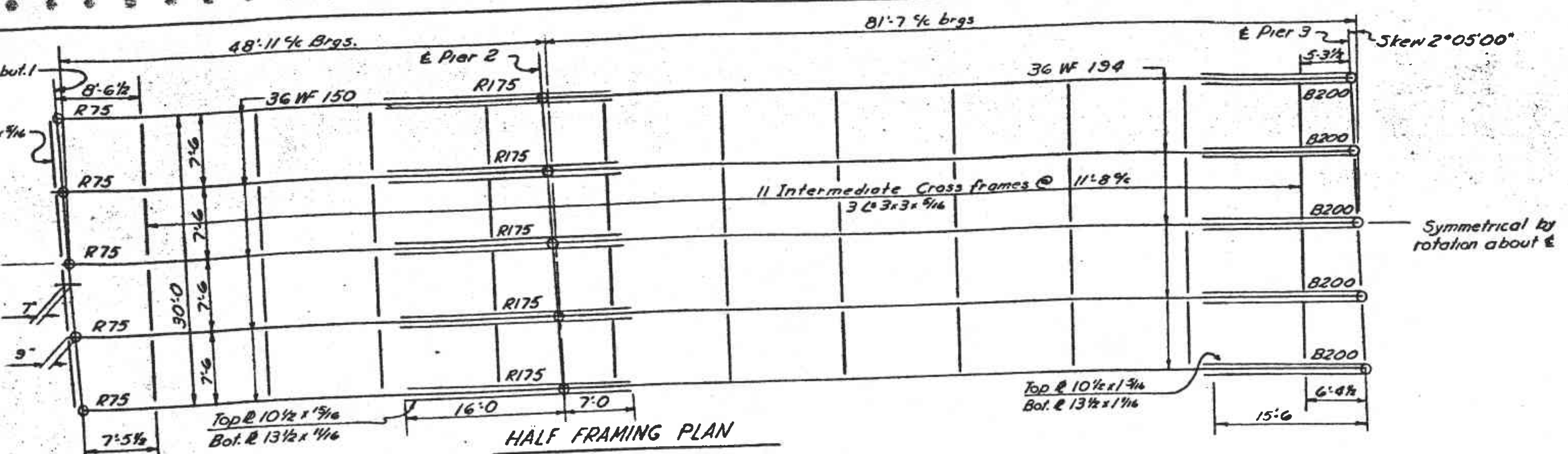
PIER DETAILS

BRIDGE Nº ATB-1-0295
SR 1 UNDER SR 534
ASHTABULA CO SR 1
STA 156+25.79

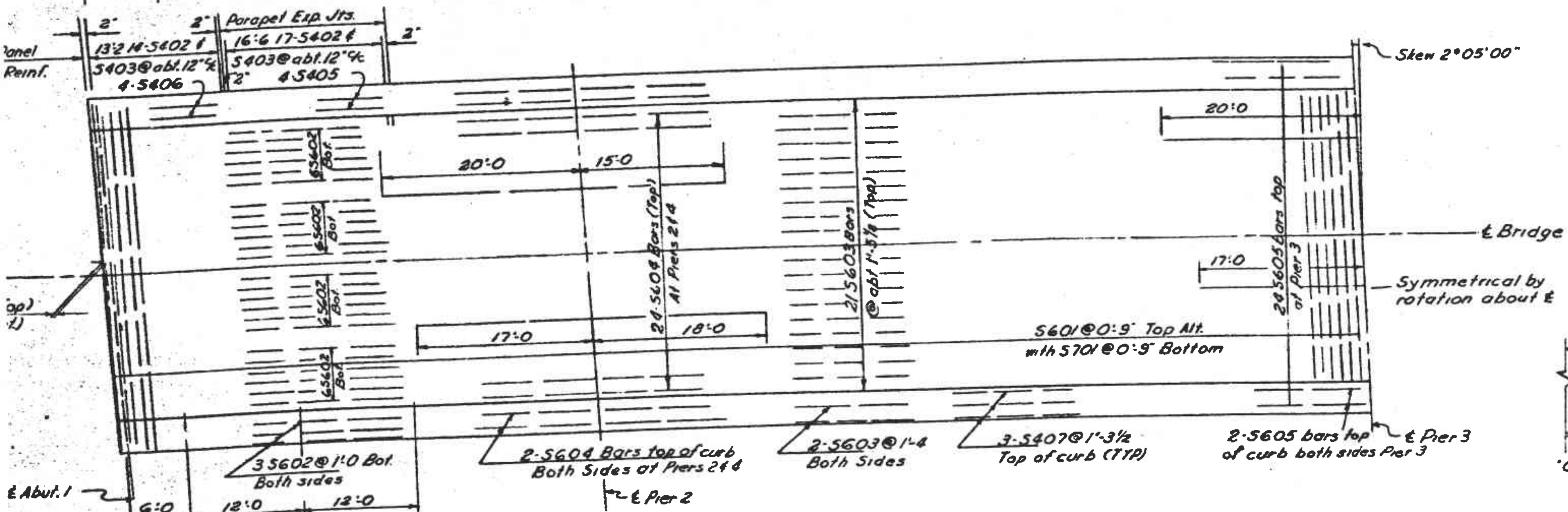
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.T.L.	E.A.	C.T.M.	R.G.E.	A.C.A.	10-14-57	

FED. RD. DIVISION	STATE	FED. AID PROJECT	FISCAL YEAR
2	OHIO	I 1103( )	

ASHTABULA COUNTY
ATB.-1-2.49

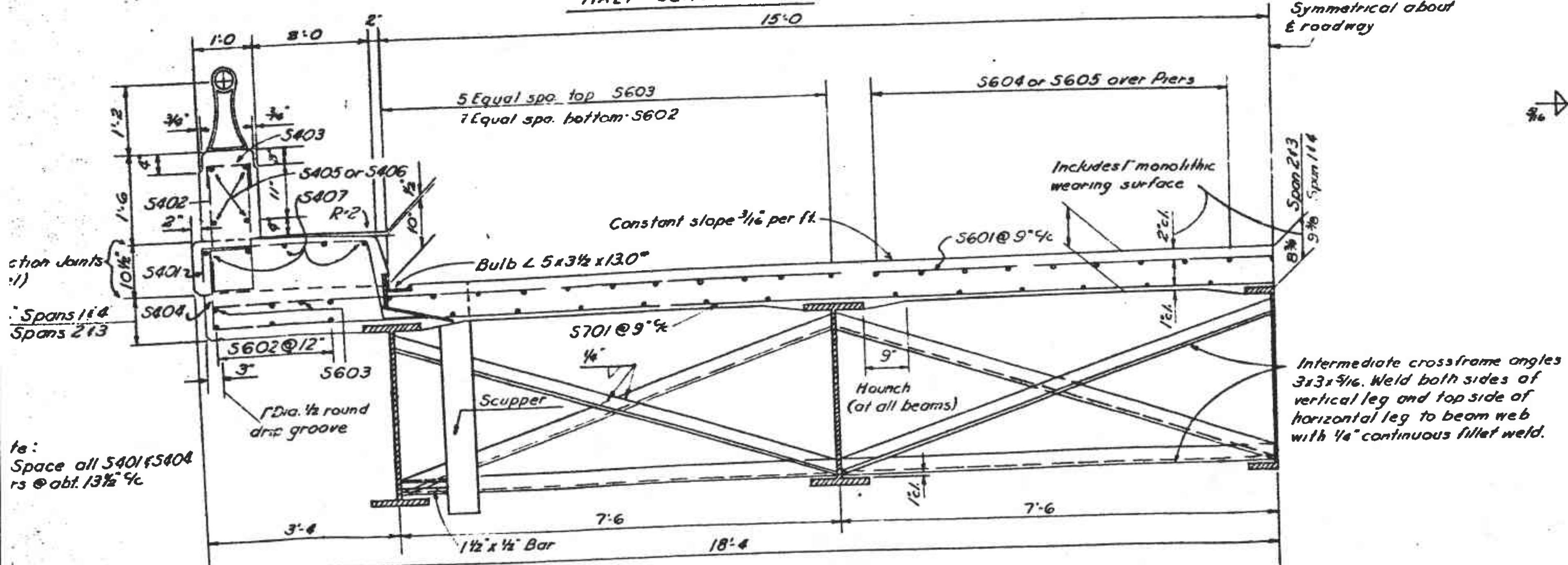


HALF FRAMING PLAN



Parapet Exp. Jts.
13'-2 14-S402 ℄
16'-6 17-S402 ℄
S403 @ abt. 12" c/c
4-S406
4-S405
Skew 2°05'00"
20'-0
15'-0
17'-0
18'-0
℄ Bridge
Symmetrical by rotation about ℄
S601 @ 0'-9" Top Alt. with S701 @ 0'-9" Bottom
2-S604 Bars top of curb Both Sides at Piers 2 & 4
2-S603 @ 1'-4 Both Sides
3-S407 @ 1'-3½ Top of curb (TYP)
2-S605 bars top of curb both sides Pier 3
3 S602 @ 1'-0 Bot. Both sides
℄ Abut. 1
℄ Pier 2
℄ Pier 3
6'-0
12'-0
12'-0

HALF SLAB PLAN



Symmetrical about ℄ roadway
15'-0
5 Equal spa. top S603
7 Equal spa. bottom S602
S604 or S605 over Piers
S403
S405 or S406
S407
S402
S401
S404
S602 @ 12"
S603
Includes 1" monolithic wearing surface
Constant slope 3/16" per ft.
S601 @ 9" c/c
Bulb ∠ 5x3½ x 13.0#
S701 @ 9" c/c
Haunch (at all beams)
Scupper
1" Dia. ½ round drip groove
Intermediate crossframe angles 3x3x 5/16. Weld both sides of vertical leg and top side of horizontal leg to beam web with ¼" continuous fillet weld.
1½" x ½" Bar
3'-4
7'-6
7'-6
18'-4

HALF CROSS SECTON

te:
Space all S401 & S404
rs @ abt. 13½" c/c

Notes:

For slab pouring sequence see general notes.

Parapet concrete included with Item 5-14 for payment.

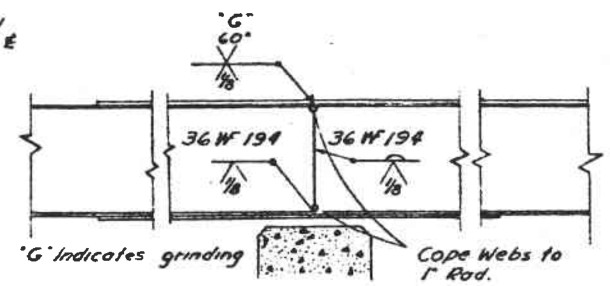
Rockers and bolsters included with Item 5-7 for payment.

For details of scuppers, end dams, cross frames & curb plates see std. dwg. No. CSB-2-56

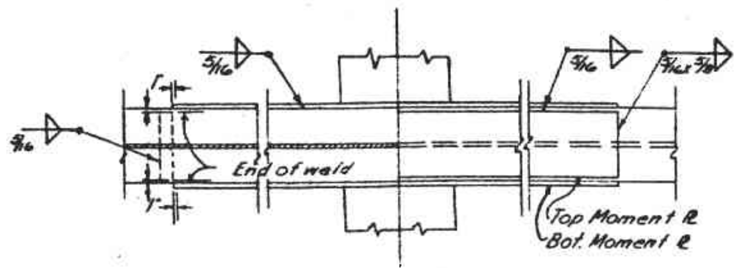
For rocker and bolster details see std. dwg. No. RB-1-55.

BEAM SPLICE WELDING PROCEDURE

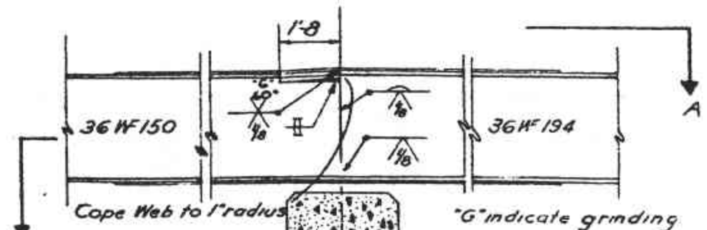
1. Erect span 2 & 3 beams first.
2. Raise the pier no. 2 end of span no. 2 beams 3½".
3. Butt weld the beam flanges and webs at pier no. 3 using the following sequence: make one pass on each flange, then one on the web; repeat until welds are complete.
4. Weld the bottom & top moment ℞s.
5. Lower the pier no. 2 end of span no. 2 to the final position.
6. Raise the abutment end of the span no. 1 beams 3/16".
7. Repeat steps 3 & 4 at pier no. 2
8. Lower abutment end of span no. 1 to final position.
9. Repeat steps 3, 4, 6 & 8 at pier 4 & abut. 5.



ELEVATION PIER 3



SECTION A-A



ELEVATION PIERS 2 & 4
BEAM SPLICE DETAIL

REINFORCING STEEL LIST

SUPERSTRUCTURE

Mark	Length	Shape	No.	Weight
S401	5-2	Bent	234	807
S402	4-10	Bent	532	1718
S403	1-4	Bent	532	474
S404	2-6	Bent	234	391
S405	16-6	Str.	112	1234
S406	13-2	Str.	16	141
S407	33-10	Str.	48	1085
S601	36-0	Str.	349	18,871
S602	34-5	Str.	240	12,407
S603	39-0	Str.	175	10,251
S604	35-0	Str.	56	2944
S605	37-0	Str.	28	1556
S701	36'-0	Str.	350	25,754
			Total	77,633

S401: 2'-10, 6", 1'-2, 2", 8"
S402: 2'-1, 8"
S403: 4", 8"
S404: 1'-2, 8"

Note:
Replacement Bars: If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec. S402 need not be furnished and replacement bars will not be required.

REPLACEMENT BARS

Mark	Length	Shape	No.
RB401	5-3	Str.	1
RB501	5-7	Str.	1
RB601	5-11	Str.	3
RB701	6-3	Str.	2
RB801	6-6	Str.	1
RB901	6-10	Str.	1
RB1001	7-3	Str.	1
RB1101	7-7	Str.	1

DEFLECTION & CAMBERS

LOCATION	Outside Beam				Inside Beam			
	Span 1	Span 2	Span 3	Span 4	Span 1	Span 2	Span 3	Span 4
Deflection Due to Weight of Steel	0	1/8"	1/8"	0	0	1/8"	1/8"	0
Deflection Due to Remaining Dead Load	1/16"	11/16"	11/16"	1/16"	1/16"	3/8"	3/8"	1/16"
Convexity Required For Vertical Curve	1/4"	5/8"	5/8"	1/4"	1/4"	5/8	5/8"	1/4"
Sum of Deflection and Convexity	5/16"	1 7/16"	1 7/16"	5/16"	5/16"	1 1/8"	1 1/8"	5/16"
Required Camber	0	1 7/16"	1 7/16"	0	0	1 1/8"	1 1/8"	0

Where no camber is required the beams shall be so fabricated that any curved beam will be placed with convex flange up.

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE Nº ATB-1 0295
SR 1 UNDER SR 534
ASHTABULA CO — SR1
STA 156+25.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.T.L.	C.T.M.	D.H.S.	R.G.E.	A.C.A.	10-14-57	

FED RD DIVISION	STATE	FED AID PROJECT	FISCAL YEAR
8	OHIO	1 1103( )	

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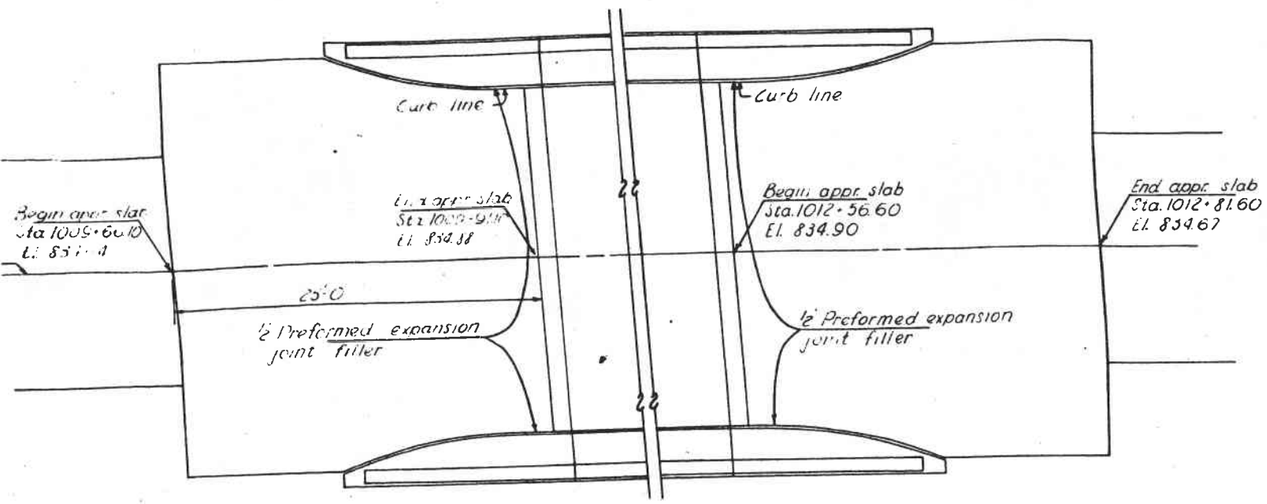
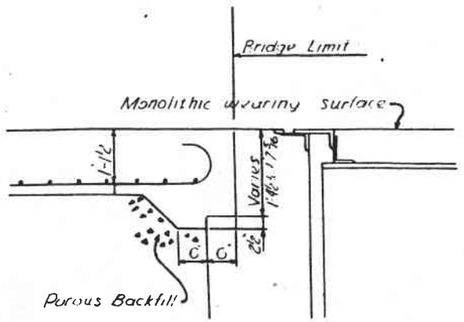
ASHTABULA COUNTY
ATB 1-2.49



GENERAL PLAN



SECTION C-C

Notes:

½" Preformed expansion joint filler included in Item I-7 for payment.

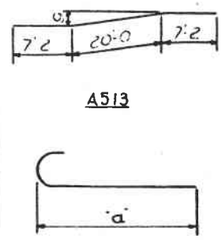
Approach slabs to be class C concrete.

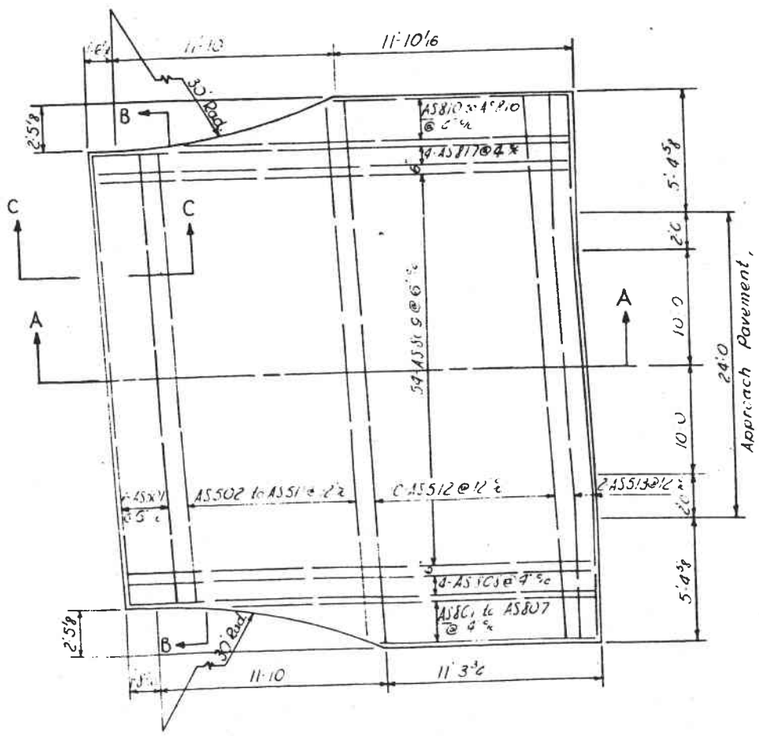
In the reinforcing steel bar marks, the numeral following the second letter is the bar number which indicates the size of the bar.

Reinforcing steel is included in "Reinforced Concrete Approach Slab Item I-7" and is not paid for separately.

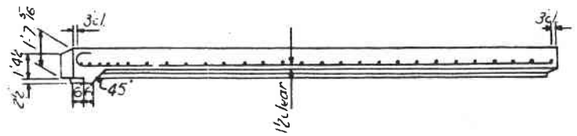
REINFORCING STEEL LIST

Both Approach Slabs					Bar Diagram
Mark	Length	Shape	No.	Wt.	
AS501	29'-6	Str.	12	369	
AS502	29'-7	Str.	2	62	
AS503	29'-9	Str.	2	62	
AS504	30'-0	Str.	2	63	
AS505	30'-4	Str.	2	63	
AS506	30'-8	Str.	2	64	
AS507	31'-2	Str.	2	65	
AS508	31'-8	Str.	2	66	
AS509	32'-3	Str.	2	67	
AS510	32'-11	Str.	2	69	
AS511	33'-8	Str.	2	70	
AS512	34'-3	Str.	20	714	
AS513	34'-4	Bent	4	72	
AS801	11'-3	Str.	2	60	
AS802	12'-1	Str.	2	65	
AS803	13'-0	Str.	2	69	
AS804	14'-0	Str.	2	75	
AS805	15'-1	Str.	2	81	
AS806	16'-5	Str.	2	88	
AS807	18'-2	Str.	2	97	
AS808	25'-5	Bent	8	543	
AS809	25'-7	Bent	108	7377	
AS811	11'-6	Str.	2	61	
AS812	12'-6	Str.	2	67	
AS813	13'-5	Str.	2	72	
AS814	14'-5	Str.	2	77	
AS815	15'-7	Str.	2	83	
AS816	17'-0	Str.	2	91	
AS817	18'-9	Str.	2	100	
AS818	25'-8	Bent	8	548	
			Total	11,360	

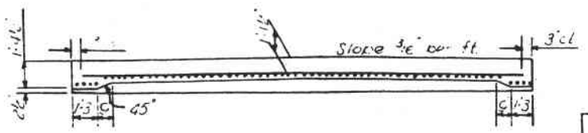




PLAN

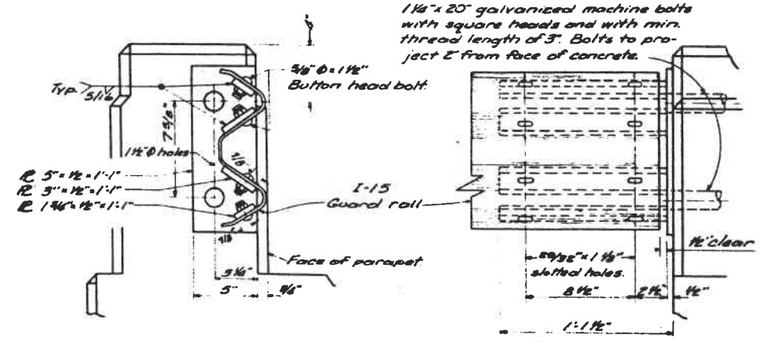


SECTION A-A



SECTION B-B

STATION To STATION	REINFORCED CONCRETE APPROACH SLAB ITEM I-7	
1009+66.10 to 1009+91.10	76	Sq. yd.
1012+56.60 to 1012+81.60	76	Sq. yd.
TOTAL	152	Sq. yd.



Guard rail end connection assembly shall be galvanized after welding.

Guard rail end connection shall be included with Item 5-14 for payment.

GUARD RAIL END CONNECTION

CHARLES L. BARBER AND ASSOCIATES
HARRY BALKE ENGINEERS
TOLEDO, OHIO

APPROACH SLAB DETAILS

BRIDGE Nº ATB-1-0295
SR1 UNDER SR 534
ASHTABULA CO. SR 1
STA. 156+25.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.T.S	E.E.C	C.T.M.	R.G.E.	A.C.A.	10-14-57	2-14-58