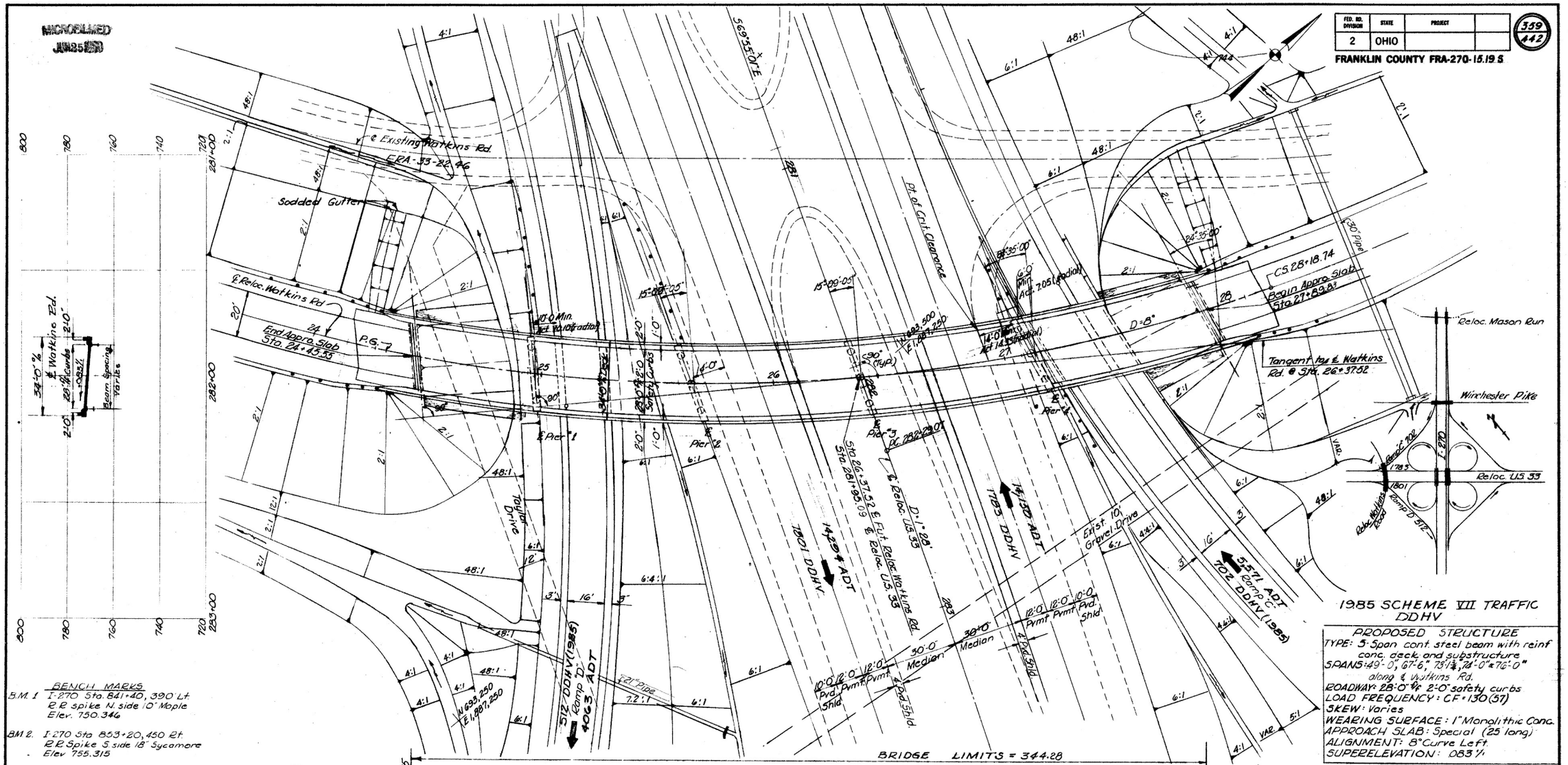
MICROFILMED JUN 25 1971

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

359 442

FRANKLIN COUNTY FRA-270-15.19 S



1985 SCHEME VII TRAFFIC DDHV

PROPOSED STRUCTURE
TYPE: 3-Span cont. steel beam with reinf conc. deck and substructure
SPANS: 49'-0", 67'-6", 78'-1¾", 74'-0" & 76'-0" along ℄ Watkins Rd.
ROADWAY: 28'-0" & 2'-0" safety curbs
LOAD FREQUENCY: CF-130(57)
SKEW: Varies
WEARING SURFACE: 1" Monolithic Conc.
APPROACH SLAB: Special (25' long)
ALIGNMENT: 8° Curve Left
SUPERELEVATION: 083" /'

BENCH MARKS
B.M. 1 I-270 Sta. 841+40, 390' Lt.
2" ℄ spike N. side 10" Maple
Elev. 750.346

B.M. 2. I-270 Sta. 853+20, 450' Rt.
2" ℄ Spike S. side 18" Sycamore
Elev. 755.315

12" ϕ C.I.P. Reinforced concrete pile estimated average pay length: Abutments = 40'/pile
Piers = 30'/pile

Revised by Sticklen-Bolsheim & Associates

DE LEUW, CATHER & BRILL
CONSULTING ENGINEERS
NEW YORK, N.Y. • COLUMBUS, OHIO • BUFFALO, N.Y.

SITE PLAN
BRIDGE Nº FRA 33-2491
UNDER RELOC. WATKINS RD.
FRANKLIN COUNTY — COLUMBUS OUTERBELT STA. 26+37.52

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Dell	V.N	D.M.K.	M.M			K

HELLS CO.—17-0251—HD—0-63

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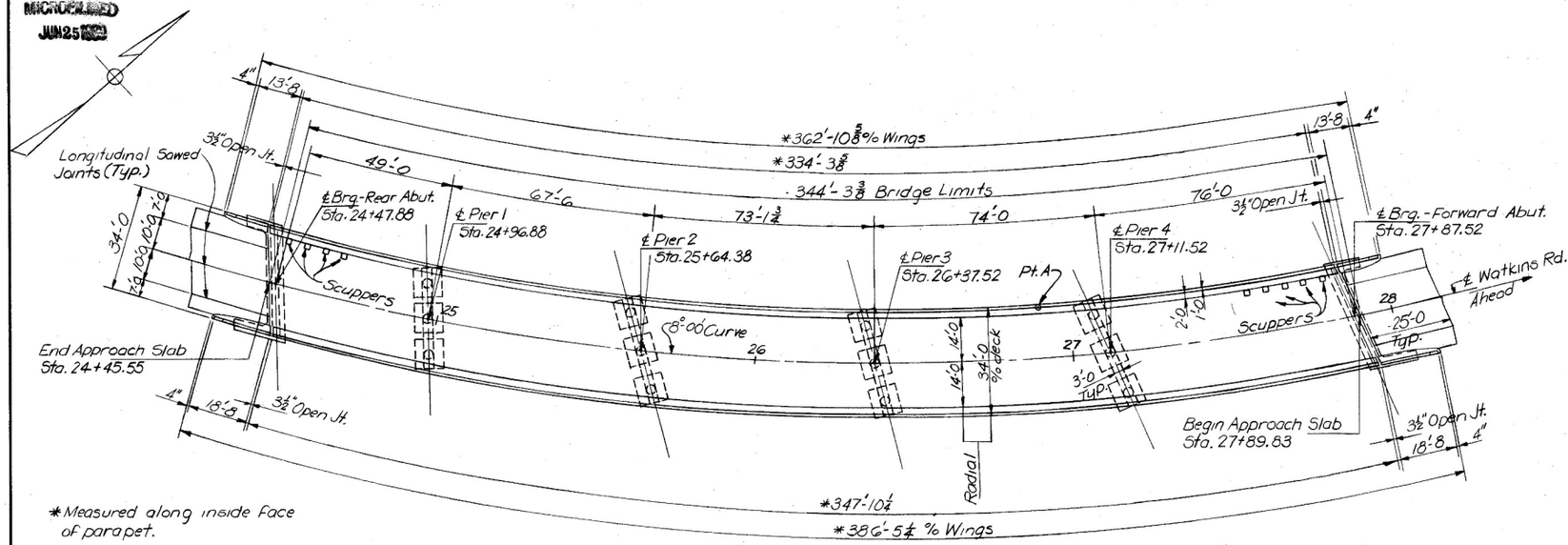
JUN 25 19[illegible]

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

360
442

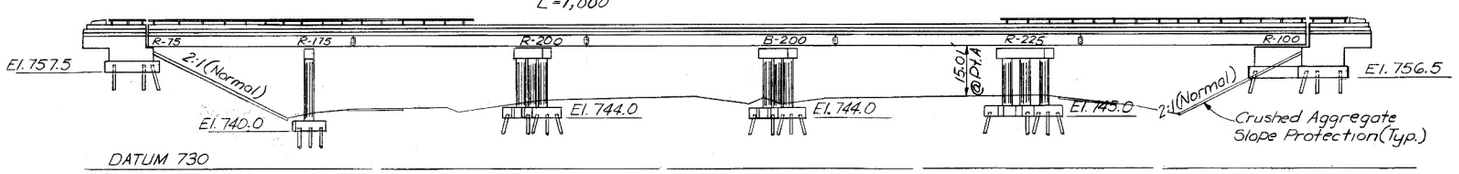
FRA-270-15.19S



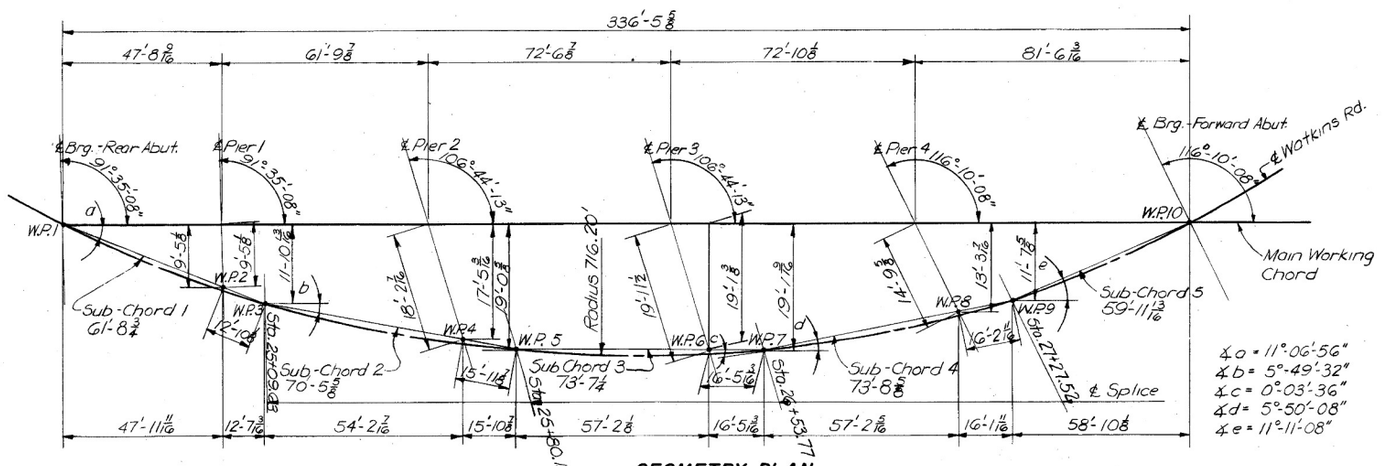
*Measured along inside face of parapet.

+3.72% | -4.00%
PVI Sta. 26+00
El. 780.85
L = 1,000'

PLAN



ELEVATION



∠a = 11°-06'-56"
∠b = 5°-49'-32"
∠c = 0°-03'-36"
∠d = 5°-50'-08"
∠e = 11°-11'-08"

GEOMETRY PLAN

All horizontal dimensions measured along main working chord

GENERAL NOTES:

•REFERENCE: shall be made to Standard Drawing BR-1-65 revised 11-24-65, RB-1-55 revised 2-2-59, SD-1-65 dated 11-8-65 & to Supplemental Specifications 808 dated 2-7-66, 811 dated 3-29-65, 825 dated 4-22-65 and 828 dated 3-21-66.

•DESIGN SPECIFICATION: These structures conform 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 thereto.

•DESIGN LOADING: CF-130(57)
Concrete Class C basic unit stress 1333 psi.
Concrete Class E basic unit stress 1133 psi.
Structural Steel ASTM A36 basic unit stress 20,000 psi.
Reinforcing Steel ASTM A15, A16, A160 deformed intermediate or hard grade basic unit stress 20,000 psi. except that spiral reinforcement may be plain structural grade with basic unit stress of 18,000 psi.

•EXCAVATION QUANTITY: Includes removal of fill material required for construction of the abutments.

•PROCEDURE: The embankment shall be placed and compacted up to the finished spill thru slope & to the level of sub-grade for a distance of 200 Ft. back of abutments after which excavation shall be made for the abutments and piles driven.

•MACHINE FINISH: The concrete deck shall be finished by the use of a finishing machine.

•PILES: shall be driven to a minimum bearing capacity of 34 tons per pile for the abutments & 33 tons per pile for the piers.

•MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0 shall be maintained in each direction on relocated U.S. 33 at all times. The contractor shall safe-guard the traveling public by providing platforms, nets or other suitable protection above the traveled lanes. A minimum vertical clearance of 12'-9 shall be provided at all times.

STICKLEN - BELSHEIM & ASSOCIATES
ENGINEERS
WORTHINGTON OHIO

GENERAL PLAN

BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD

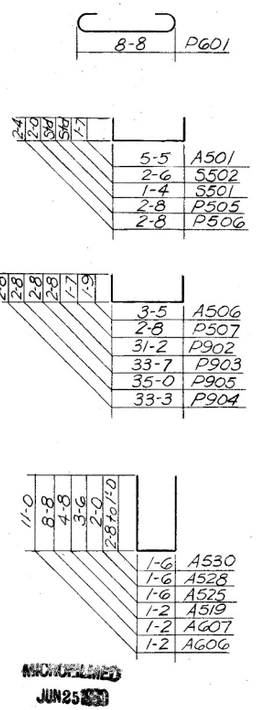
COLUMBUS OUTERBELT STA. 24+45.55
FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	RBY	6-10-66	

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp.
Superstructure				
S701	423	33-8	29,109	S
S702	1 ser. of 6	32-0 to	279	S
		13-6		3-8 inc.
S703	3	10-6	64	S
S704	1 ser. of 7	32-0 to	329	S
		14-0		3-0 inc.
S705	3	11-6	71	S
S601	423	33-8	21,390	S
S602	741	28-6	31,720	S
S603	88	31-0	4097	S
S604	1 ser. of 6	32-0 to	205	S
		13-6		3-8 inc.
S605	3	10-6	47	S
S606	1 ser. of 7	32-0 to	242	S
		14-0		3-0 inc.
S607	3	11-6	52	S
S501	914	2-4	2224	B
S502	457	3-6	1668	B
S503	457	5-7	2661	B
Railing				
R501	164	15-2	*	S
R502	16	11-9	*	S
R503	12	4-2	*	B
R504	8	5-4	*	B
R505	8	18-4	*	S
R506	8	13-4	*	S
Abutments				
A801	7	36-7	684	S
A802	7	36-2	676	S
A803	6	10-3	164	S
A804	3	15-4	123	S
A805	6	11-2	179	S
A806	6	7-0	112	S
A807	3	16-2	129	S
A601	5	16-7	125	B
A602	16	15-10	381	B

Bending Diagrams



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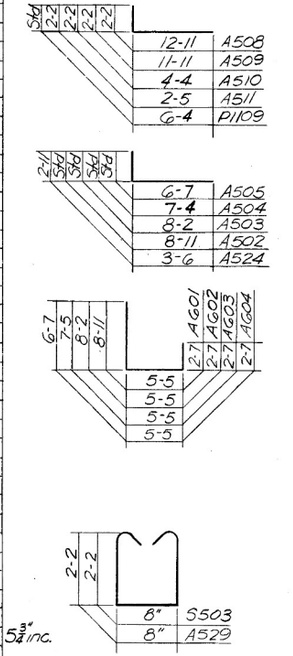
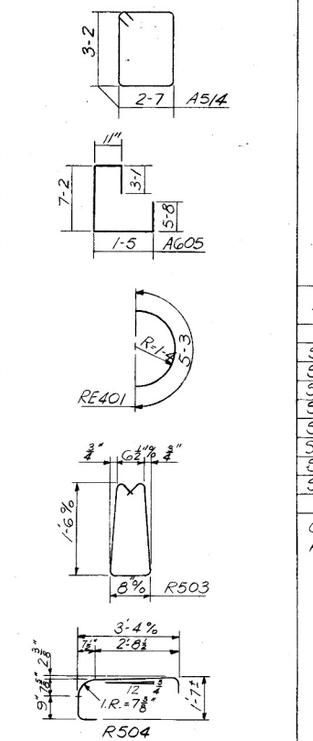
Mark	No.	Length	Weight	Shp.
A603	14	15-1	317	B
A604	16	14-3	342	B
A605	60	17-7	1585	B
A606	16	22-10	549	B
A607	10	18-2	273	B
A608	6	6-9	61	S
A609	6	9-0	81	S
A501	54	8-4	469	B
A502	5	9-5	49	B
A503	16	8-8	145	B
A504	14	7-10	114	B
A505	16	7-1	118	B
A506	51	6-8	355	B
A507	12	34-6	432	S
A508	10	14-11	156	B
A509	10	13-11	145	B
A510	5	6-4	33	B
A511	5	4-5	23	B
A512	2	28-8	60	S
A513	2	28-4	59	S
A514	48	11-11	597	B
A515	4	7-0	29	S
A516	24	4-6	113	S
A517	10	34-2	356	S
A518	52	4-10	262	S
A519	24	10-3	257	B
A520	6	7-10	49	S
A521	9	12-6	117	S
A522	20	18-8	389	S
A523	20	13-8	285	S
A524	2	6-3	13	B
A525	2	8-3	17	B
A526	6	6-0	38	S
A527	9	11-0	103	S
A528	36	5-3	197	B
A529	46	5-7	268	B
A530	36	6-7 to	185	B
		3-3		4½ inc.
A531	4	9-6	40	S

Bending Diagrams



Mark	No.	Length	Weight	Shp.
Piers				
P1101	14	21-0	1562	S
P1102	14	22-0	1636	S
P1103	14	21-10	1624	S
P1104	42	18-0	2678	S
P1105	28	17-0	2529	S
P1106	28	18-10	2802	S
P1107	14	15-6	1153	S
P1108	14	16-4	1215	S
P1109	168	7-6	6694	B
P901	24	12-0	979	S
P902	6	35-11	733	B
P903	6	38-4	782	B
P904	6	38-0	775	B
P905	6	39-9	811	B
P906	6	31-2	636	S
P907	6	33-7	685	S
P908	6	33-3	678	S
P909	6	35-0	714	S
PG01	288	10-0	4326	B
P501	2	31-2	65	S
P502	2	33-7	70	S
P503	2	33-3	69	S
P504	2	35-0	73	S
P505	36	6-5	241	B
P506	208	7-1	1537	B
P507	24	5-7	140	B
Replacement Bars				
RE1101	2	7-7	—	S
RE901	1	6-10	—	S
RE801	1	6-6	—	S
RE701	2	6-3	—	S
RE601	4	5-11	—	S
RE501	1	5-7	—	S
RE401	1	5-3	—	B

Bending Diagrams



Mark	No.	Length %	No. Turns	Weight
Spiral Reinforcing List				
SP401	1	18-6	52	337
SP402	1	19-5	55	361
SP403	1	20-4	57	374
SP404	3	14-8	42	826
SP405	2	15-6	44	577
SP406	2	16-5	47	616
SP407	1	13-0	38	248
SP408	1	13-11	40	262

Core diameter % Spiral = 2'-8
Pitch = 4½"

* Included with Railing for payment

ESTIMATED QUANTITIES (100% State)

Item	Total	Unit	Description	Superstr.	Rear Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Fwd. Abut.	General
503	464	Cu. Yds.	Unclassified Excavation		99	67	67	67	67	97	
511	395	Cu. Yds.	Class C Concrete - Superstructure	395							
511	96	Cu. Yds.	Class C Concrete - Piers above Footings			26	24	23	23		
511	168	Cu. Yds.	Class E Concrete - Abutments		85					83	
511	108	Cu. Yds.	Class E Concrete - Pier Footings			27	27	27	27		
509	145,484	Lbs.	Reinforcing Steel	94,158	5,706	10,807	9892	9878	9495	5,548	
513	293,000	Lbs.	Structural Steel	293,000							
514	293,000	Lbs.	Field painting of Structural Steel	293,000							
517	747.99	Lin. Ft.	Bridge Railing, Type I	747.99							
505	Lump	Sum	First Test Pile								
507	3720	Lin. Ft.	12" diameter cast-in-place reinforced concrete piles		400	720	720	720	720	440	
518	28	Cu. Yds.	Porous Backfill		14					14	
518	9	Each	Scuppers including supports	9							
518	54	Lin. Ft.	6" Helical Perforated CMP, 707.06 including specials		27					27	
518	76	Lin. Ft.	6" Helical CMP, 707.06 Non-Perforated		38					38	
601	439	Sq. Yds.	Crushed Aggregate Slope Protection		252					187	
808	395	Units	Water-reducing, set retarding Admixture for concrete	395							
825	1508	Sq. Yds.	Concrete surface treatment								1508
828	58	Lin. Ft.	Joint Sealer (end dam)	58							

SPIRAL REINFORCING BARS: the "length" shown in the steel list for spiral bars is the distance from the top of the footing to the bottom of the pier cap. "The number of turns" shown is the "length" divided by the pitch, plus 3 turns, (total no. of closed coils) expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations, but shall in other respects conform to item 509. 1½ closed coils shall be provided at each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs per lin. Ft. of spacer shall be provided at 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 lbs. per lin. Ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars. BAR SIZE: is indicated in 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, S701 is a No. 7 size bar and P1101 is a No. 11 size bar.

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WORTHINGTON OHIO

STEEL REINFORCING LIST AND ESTIMATED QUANTITIES

BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD
COLUMBUS OUTERBELT STA. 24+45.55
FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Std.	EH	EH	LCT	RBY	6-10-66	

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FED. RD. DIVISION	STATE	PROJECT	
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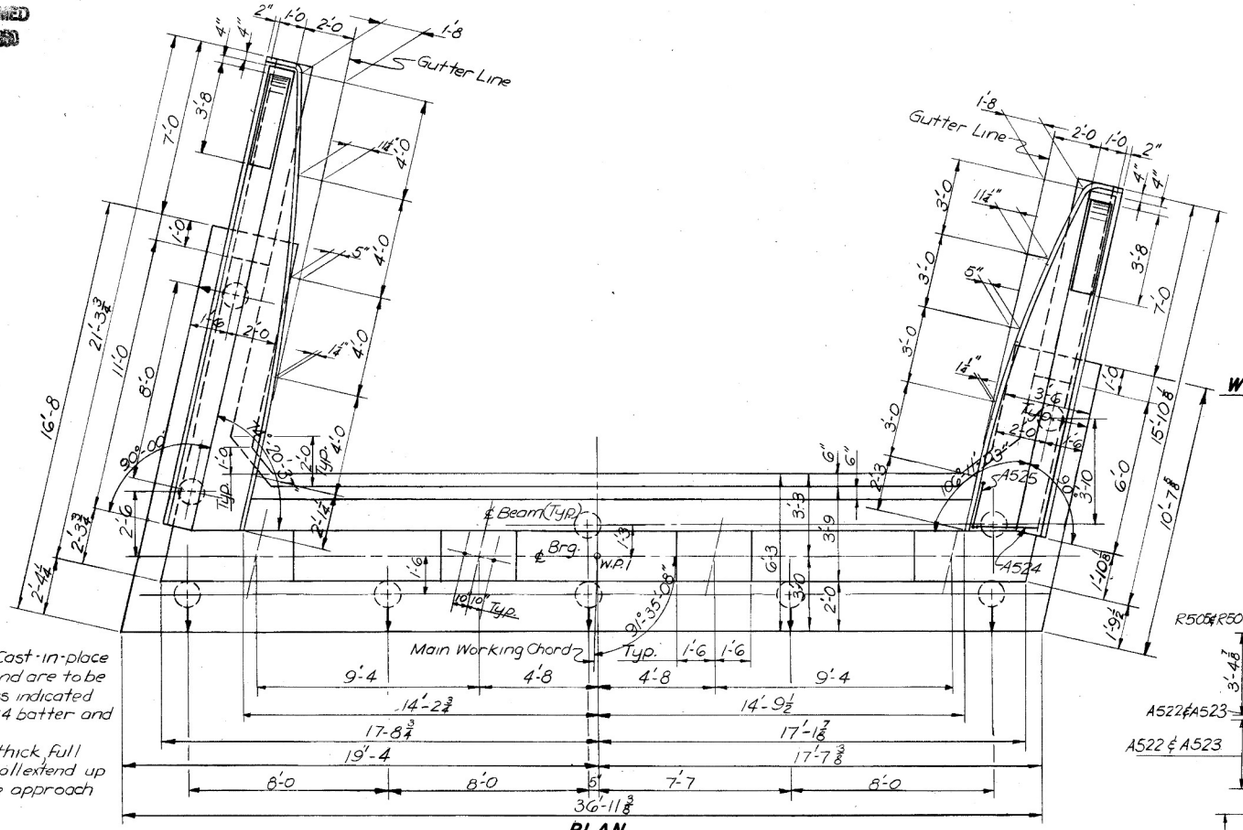
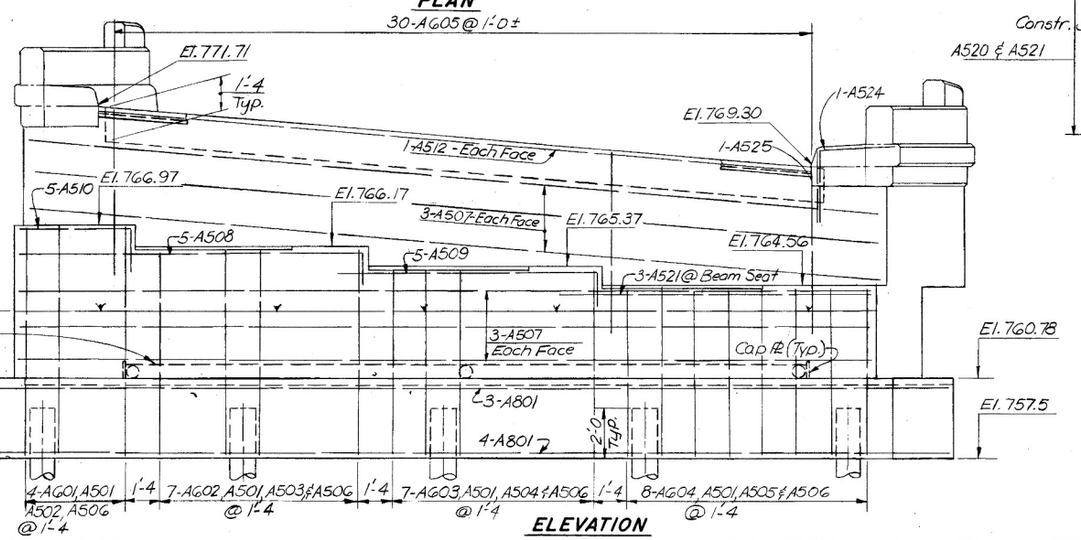
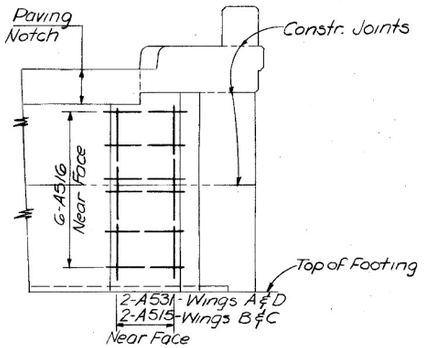
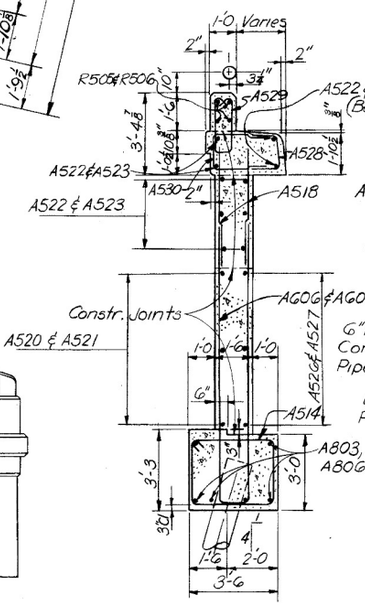
FRA-270-15.19S

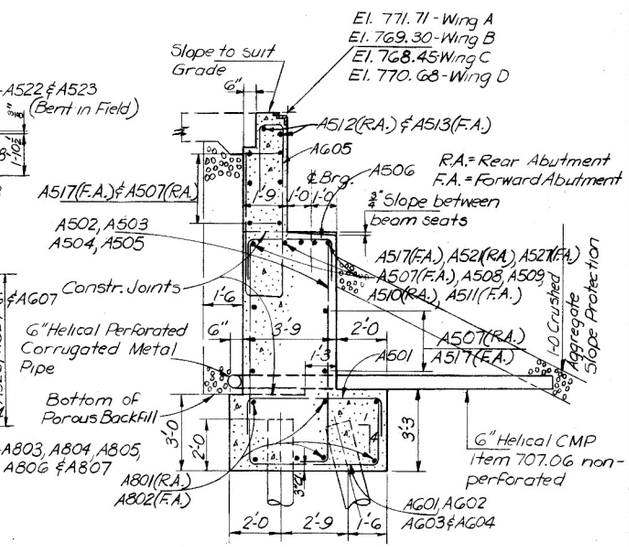






TYPICAL FILLET SECTION





TYPICAL ABUTMENT SECTION

Bar Marks are typical except noted

NOTES:

PILES: are to be 12"ø Cast-in-place Reinforced Concrete and are to be driven vertically unless indicated thus ◯ which denotes 1:4 batter and direction of batter.

POROUS BACKFILL: 1'-6 thick, full length of abutment shall extend up to the underside of the approach slab.

Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats so as to avoid interference with the drilling of Anchor bolt holes.

Anchor bolts shall be 1¼ø x 1'-8 Swedge Anchor Bolts with washers. Bolts set 1'-3 into concrete.

For Wing Elevations & location of Section A-A see sheet 363

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WORTHINGTON OHIO

REAR ABUTMENT

BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD

COLUMBUS OUTERBELT STA. 24+45.55
FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	RBY	6-10-66	

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JUN25

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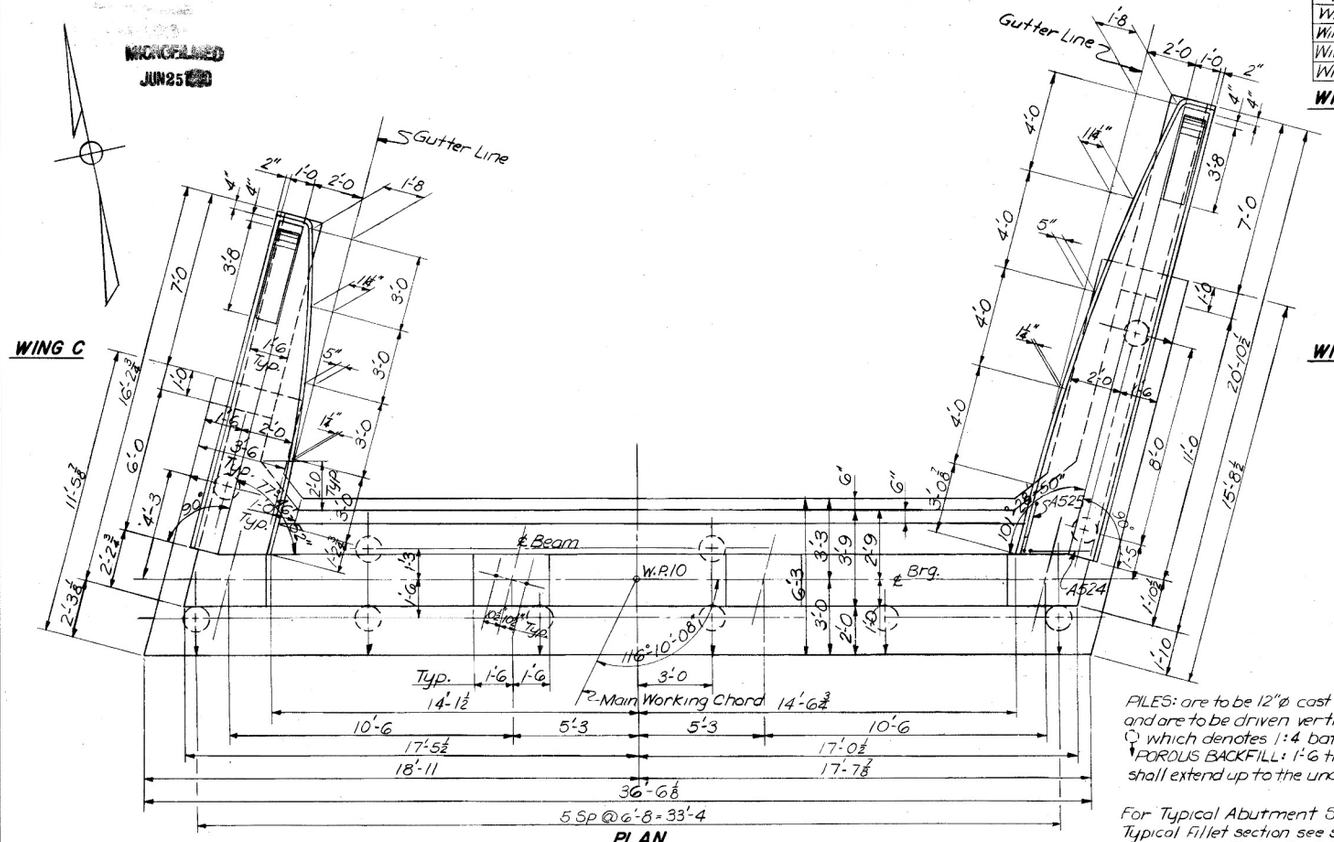
El.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Wing A	757.5	760.78	766.97	770.67	770.48
Wing B	757.5	760.78	764.56	768.26	768.09
Wing C	756.5	759.83	763.64	767.41	767.18
Wing D	756.5	759.83	765.87	769.64	769.32

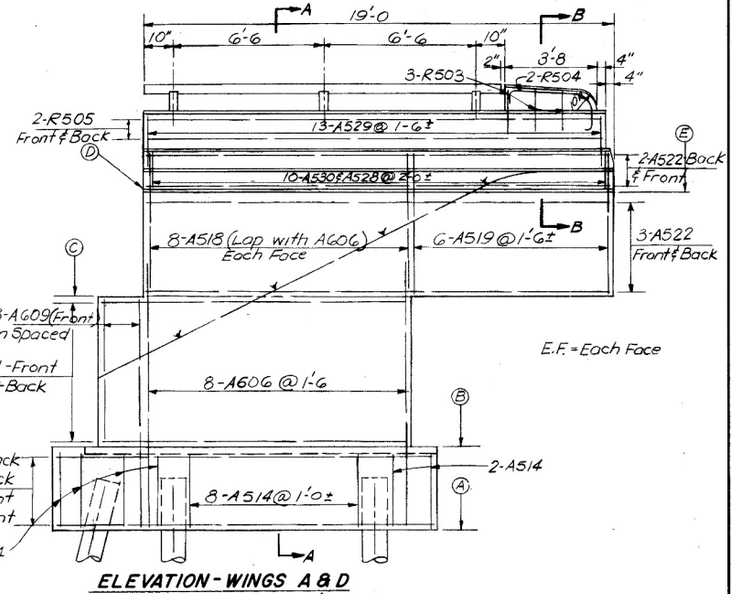
WING ELEVATIONS

WING C



PLAN

WING D

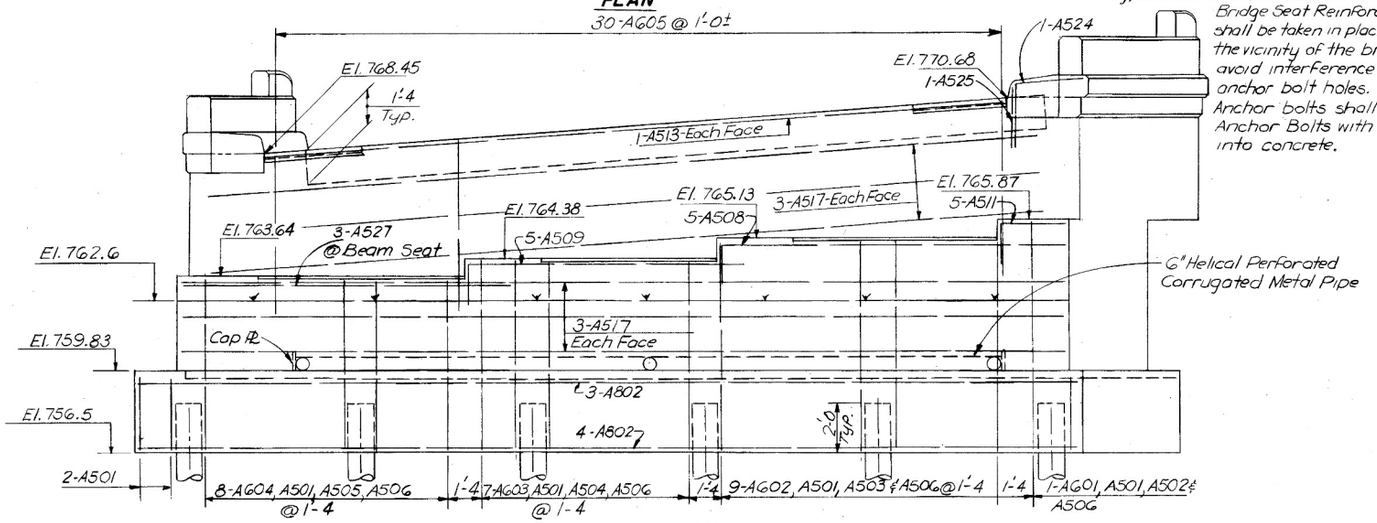


ELEVATION - WINGS A & D

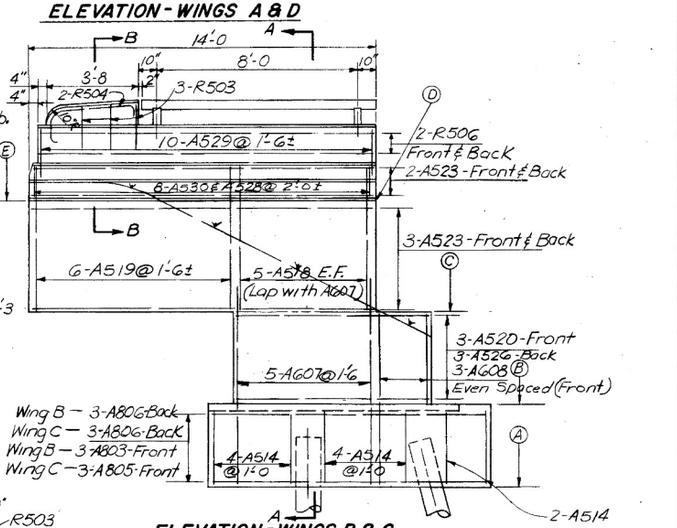
PILES: are to be 12"ø cast-in-place reinforced concrete and are to be driven vertically unless indicated thus ⬡ which denotes 1:4 batter and direction of batter.
POROUS BACKFILL: 1'-6 thick, full length of abutment shall extend up to the underside of the approach slab.

For Typical Abutment Section Section A-A ℄ Typical Fillet section see sheet 362

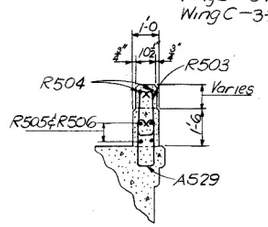
Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats so as to avoid interference with the drilling of anchor bolt holes.
Anchor bolts shall be 1¼"ø x 1'-8 Swedge Anchor Bolts with washers. Bolts set 1'-3 into concrete.



ELEVATION



ELEVATION - WINGS B & C



SECTION B-B

STICKLEN - BELSHEIM & ASSOCIATES
ENGINEERS
WORTHINGTON OHIO

FORWARD ABUTMENT
BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD

COLUMBUS OUTERBELT STA. 24+45.55
FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	RBY	6-10-66	

MICROFILMED
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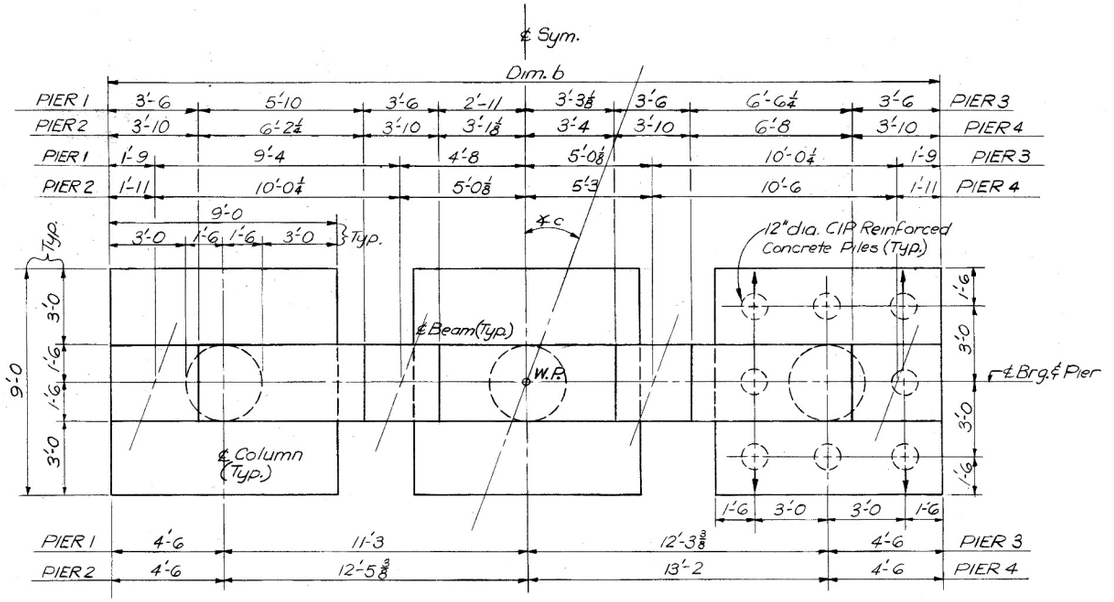
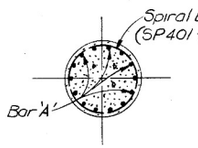


PLAN
Looking Ahead

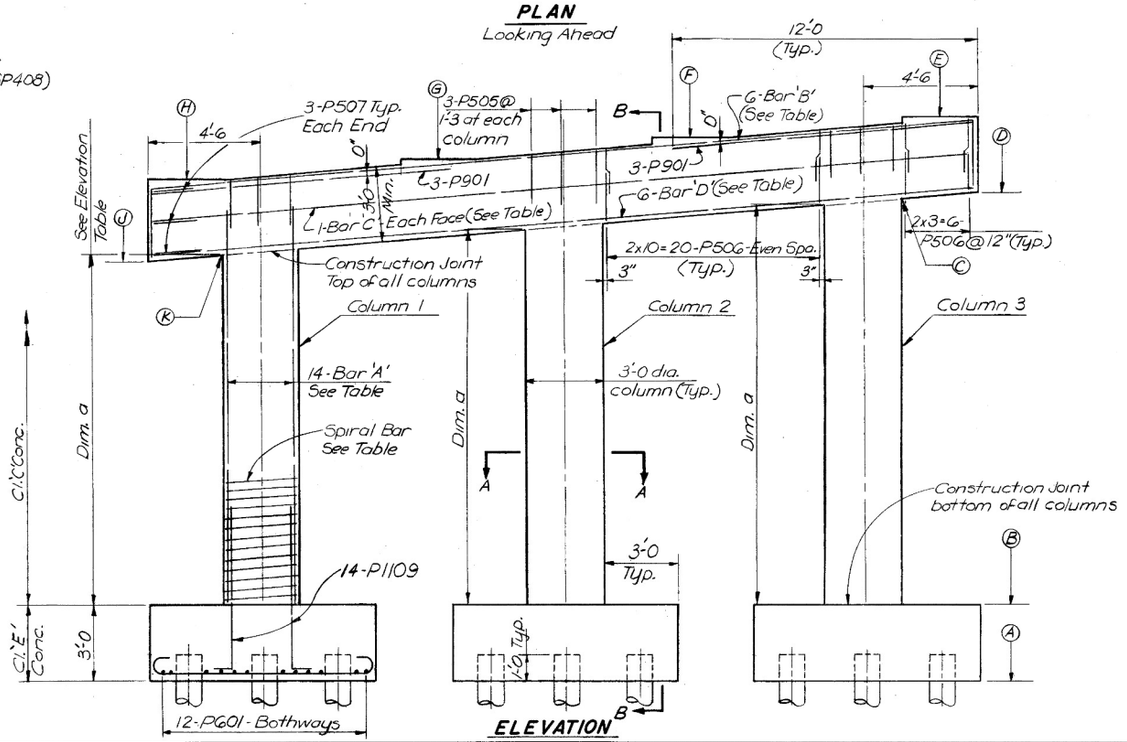
	PIER 1			PIER 2			PIER 3			PIER 4		
COLUMN	1	2	3	1	2	3	1	2	3	1	2	3
Dimension a	18'-5 Dia.	19'-4⅞	20'-4 Dia.	14'-7⅛	15'-6¾	16'-6¼	14'-6¼	15'-5½	16'-4¾	12'-11⅝	13'-10½	14'-9⅜
Bar 'A'	P1101	P1102	P1103	P1104	P1105	P1106	P1104	P1105	P1106	P1107	P1108	P1104
Spiral Bar	SP401	SP402	SP403	SP404	SP405	SP406	SP404	SP405	SP406	SP407	SP408	SP404
℄ c	12°-42'-04"			22°-33'-45"			16°-47'-49"			20°-20'-00"		
Dimension b	31'-6			33'-10¾			33'-6¾			35'-4		
Dimension c	1'-0			1'-0½			0'-10			1'-1		
Dimension d	0'-5			0'-6			0'-6			0'-6½		
Bar 'B'	P902			P903			P904			P905		
Bar 'C'	P501			P502			P503			P504		
Bar 'D'	P906			P907			P908			P909		

ELEVATIONS

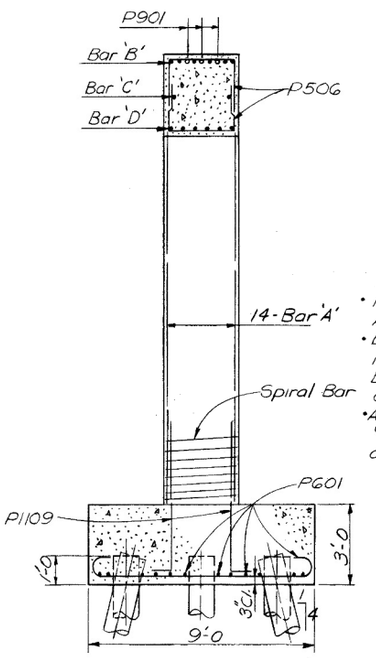
Elevation	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓙ	Ⓚ
PIER 1	740.0	743.00	763.62	763.87	766.87	766.08	765.29	764.50	761.20	761.45
PIER 2	744.0	747.00	763.76	763.99	766.99	766.21	765.44	764.66	761.36	761.59
PIER 3	744.0	747.00	763.63	763.86	766.86	766.10	765.33	764.56	761.29	761.52
PIER 4	745.0	748.00	763.02	763.23	766.23	765.48	764.74	763.99	760.72	760.93



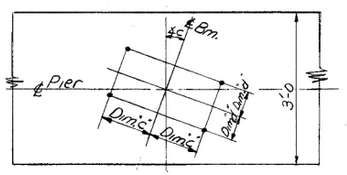
SECTION A-A



ELEVATION



SECTION B-B



ANCHOR BOLT LAYOUT

NOTES

- For Pier designation & W.P. location see General Plan. Anchor Bolts shall be 1¼ø x 1'-8 long.
- Bridge Seat Reinforcing: special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes.
- All piles to be driven vertically unless indicated thus ◇ which denotes 1:4 batter in the direction of arrow.

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ENGINEERS
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PIERS

BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD

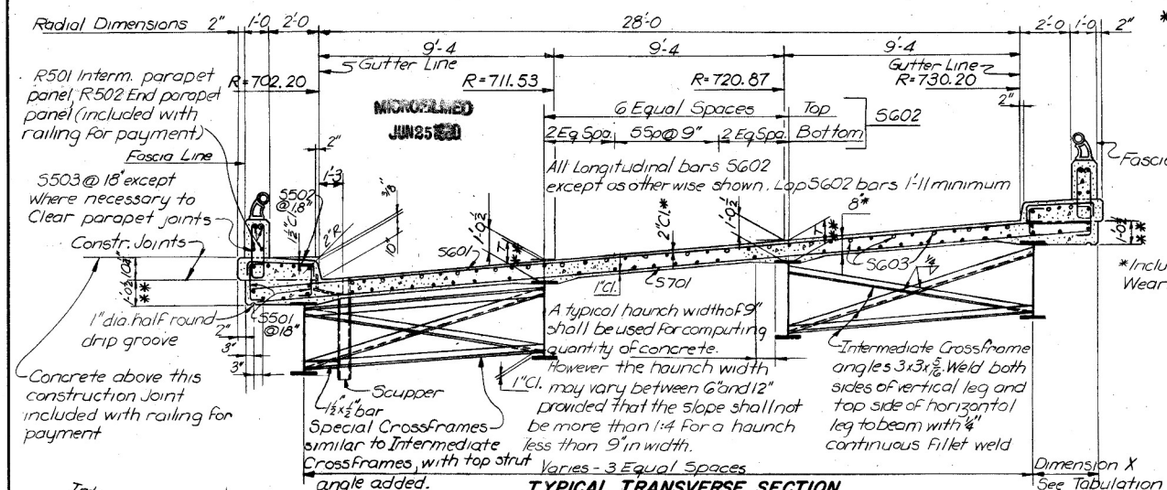
COLUMBUS OUTERBELT STA. 24+45.55
FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	RBY	6-10-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

365
442

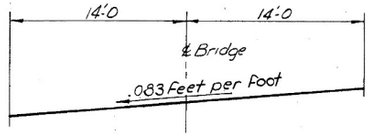
FRA-270-15.19S



TYPICAL TRANSVERSE SECTION

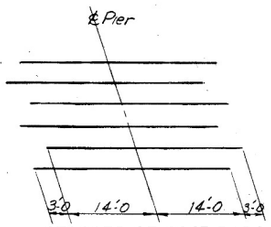
** This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for the volume of encased structural steel as per item 511.19 of the Construction and Material Specifications.

* Includes 1" Monolithic Wearing Surface.



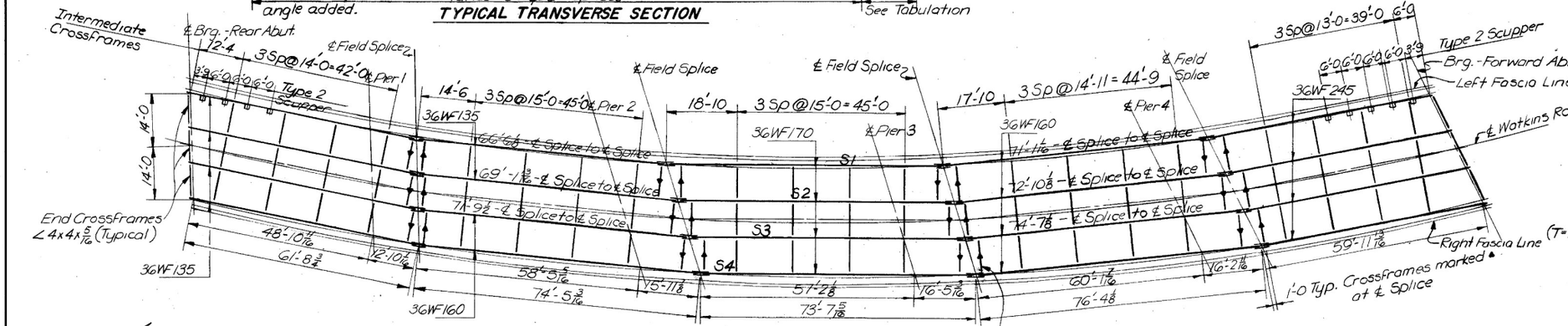
ROADWAY CROWN DIAGRAM

For additional notes see Sheets 366 & 367

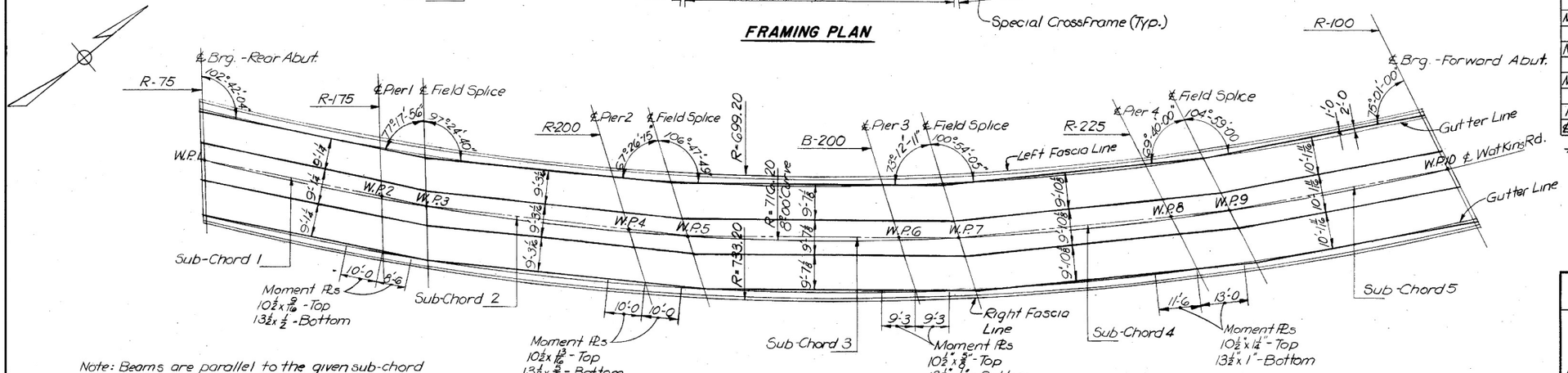


STAGGER OF S603 BARS OVER PIERS

(Bend in field to suit the skew angle)



FRAMING PLAN



Note: Beams are parallel to the given sub-chord respectively. All intermediate crossframes are normal to the beams.

GEOMETRY FOR FRAMING PLAN

DIMENSION T TABULATION

	S1	S2	S3	S4
℄ Brg.-Rear Abutment	13	12 1/16	12 3/16	12
Midpoint, Sub-Chord 1	12 1/2	11 15/16	11 11/16	11 1/2
℄ Splice @ Pier 1	12 3/8	12 1/16	12 1/16	12 1/4
Midpoint, Sub-Chord 2	12 1/2	11 15/16	11 3/8	11 3/16
℄ Splice @ Pier 2	12 1/2	12 1/2	12 1/16	12 1/2
Midpoint, Sub-Chord 3	12 1/2	11 15/16	11 11/16	11 15/16
℄ Splice @ Pier 3	12 1/2	12 1/16	12 1/16	12 1/16
Midpoint, Sub-Chord 4	12 1/2	11 15/16	11 13/16	12 1/16
℄ Splice @ Pier 4	12 1/2	12 1/16	12 1/16	12 1/4
Midpoint, Sub-Chord 5	12 1/2	11 1/2	12 1/16	12 1/4
℄ Brg.-Forward Abutment	12 1/2	12 1/16	12 1/16	12 1/16

(T = From top of slab to top of web in inches)

DIMENSION X TABULATION***

	Left Side	Right Side
℄ Brg.-Rear Abutment	3'-6	3'-5 3/16
Midpoint, Sub-Chord 1	2'-8 3/16	4'-0
℄ Splice @ Pier 1	3'-2 7/16	3'-2 5/16
Midpoint, Sub-Chord 2	2'-3 7/16	3'-11 5/16
℄ Splice @ Pier 2	2'-10 7/16	2'-10
Midpoint, Sub-Chord 3	1'-8 1/16	3'-6 7/16
℄ Splice @ Pier 3	2'-4 15/16	2'-4 3/16
Midpoint, Sub-Chord 4	1'-3 7/16	3'-2 7/16
℄ Splice @ Pier 4	1'-11 3/16	1'-11 3/16
Midpoint, Sub-Chord 5	1'-2 1/16	2'-4 3/16
℄ Brg.-Forward Abut.	1'-7 1/16	1'-7 1/16

*** All dimensions are radial

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WORTHINGTON OHIO

SUPERSTRUCTURE

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FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	RBY	6-10-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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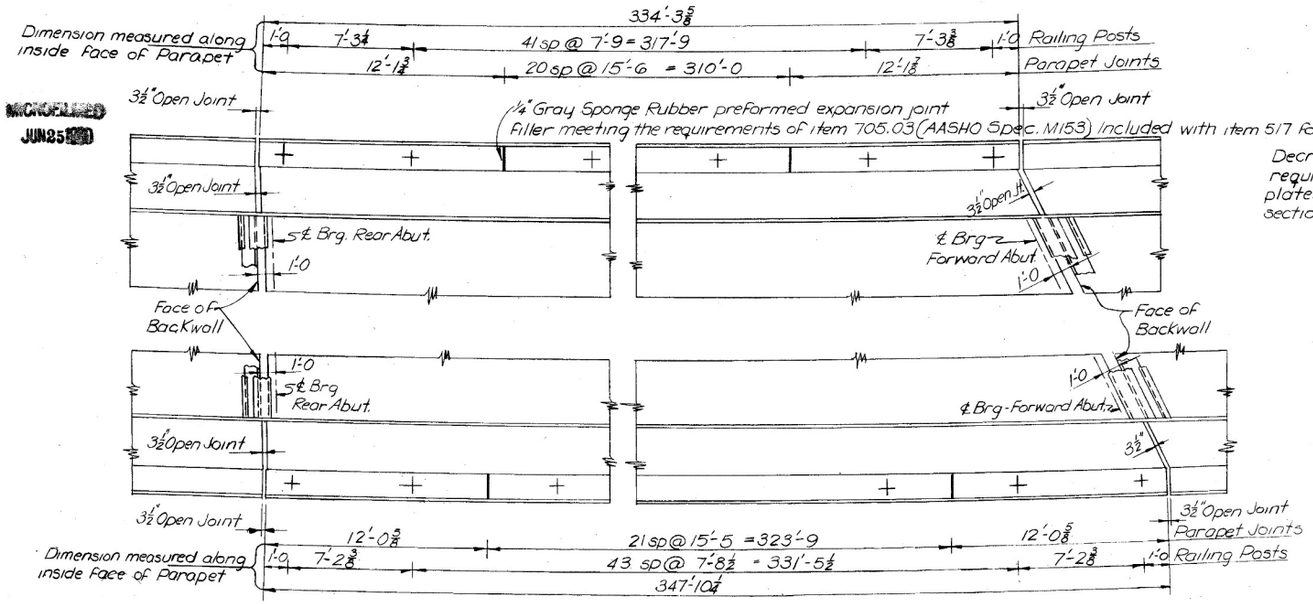
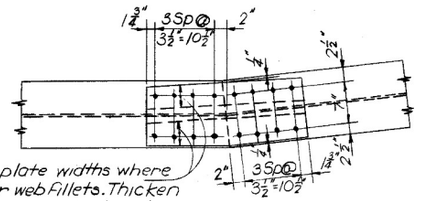
FRA-270-15.19S

MICROFILMED JUN 25 1968

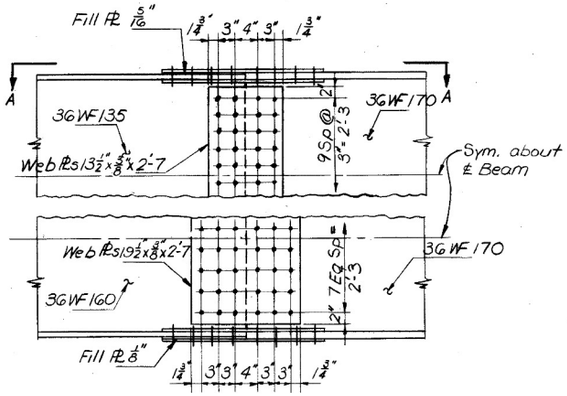


TYPICAL PARAPET PLAN

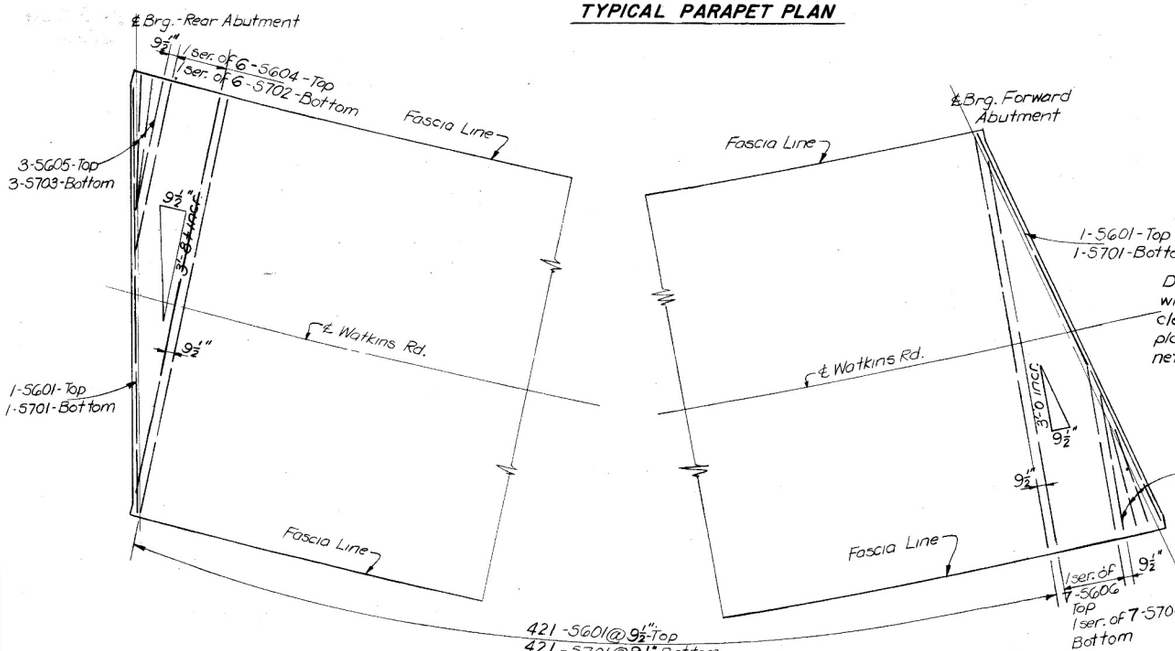


Decrease inside plate widths where required to clear web fillets. Thicken plates to provide equivalent net cross sectional area.

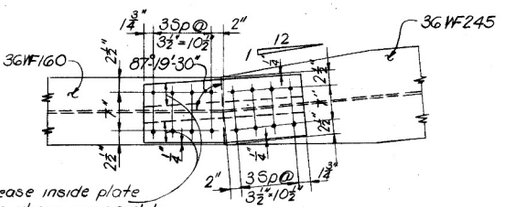
VIEW A-A



FIELD SPLICE DETAIL

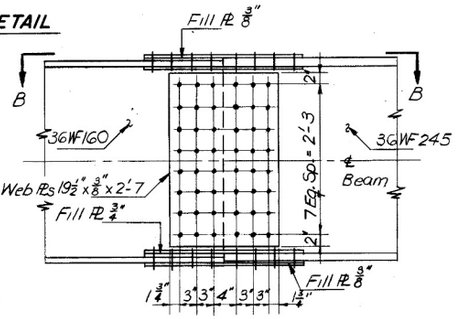


PARTIAL DECK PLAN

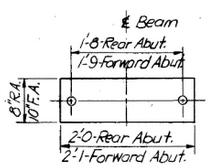


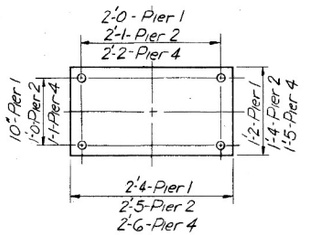
Decrease inside plate widths where required to clear web fillets. Thicken plates to provide equivalent net cross sectional area.

VIEW B-B



FIELD SPLICE DETAIL





MASONRY PLATE DETAILS

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SUPERSTRUCTURE

BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD

COLUMBUS OUTERBELT STA. 24+45.55
FRANKLIN CO. STA. 27+89.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	RBY	6-10-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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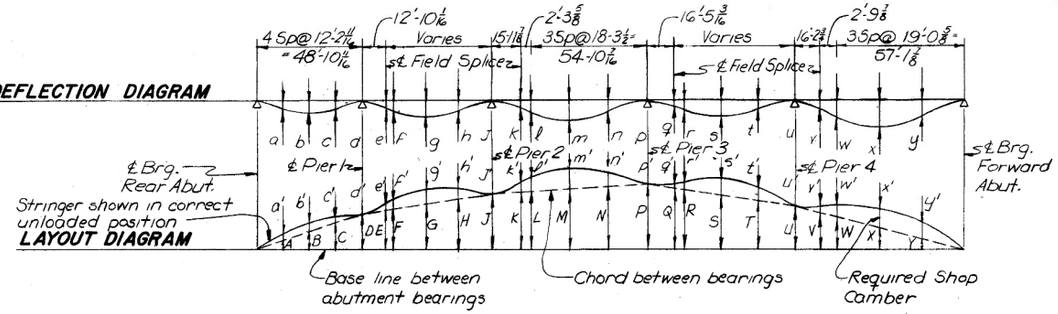
DEFLECTION AND CAMBER

All values in inches

	POINT	SPAN 1			SPAN 2				SPAN 3				SPAN 4				SPAN 5			
		a	b	c	e	f	g	h	k	l	m	n	q	r	s	t	v	w	x	y
S1	Deflection due to weight of Steel	—	1/16	—	—	—	1/16	—	1/16	1/16	1/8	1/16	—	—	1/16	—	1/8	1/8	1/4	3/16
	Deflection due to weight of Concrete	1/4	1/4	1/8	1/8	3/16	1/4	1/8	5/16	3/8	9/16	3/8	1/16	1/16	1/8	—	3/16	1/2	13/16	5/8
	Sum of deflection due to dead load	1/4	5/16	1/8	1/8	3/16	5/16	1/8	3/8	7/16	11/16	7/16	1/16	1/16	3/16	—	1/2	5/8	1 1/16	1 3/16
	Convexity for Vertical Curve	3/16	1/4	3/16	5/16	3/8	7/16	3/8	7/16	7/16	5/8	7/16	1/16	1/16	3/16	1/16	3/16	1/2	1/16	1/2
	Sum of Deflection and Convexity	7/16	3/16	5/16	7/16	9/16	3/4	1/2	13/16	7/8	1 3/16	7/8	1/2	1/2	3/4	1/16	15/16	1 1/8	1 3/4	1 5/16
S2	Deflection due to weight of Steel	—	—	—	—	1/16	1/16	—	1/16	1/16	1/8	1/16	—	—	—	—	1/8	1/8	1/4	1/8
	Deflection due to weight of Concrete	5/16	3/16	1/16	1/8	3/16	5/16	3/16	5/16	5/16	1/2	5/16	1/8	1/8	1/4	—	1/16	9/16	1 5/16	3/4
	Sum of Deflection due to dead load	3/16	3/16	1/16	1/8	1/4	3/8	3/16	3/8	3/8	5/8	3/8	1/8	1/8	1/4	—	3/16	11/16	1 3/16	7/8
	Convexity for Vertical Curve	5/16	1/4	3/16	5/16	3/8	1/2	3/8	1/16	1/16	5/8	1/16	1/16	1/16	5/8	1/16	1/16	1/2	1/16	1/2
	Sum of Deflection and Convexity	3/8	7/16	1/4	7/16	5/8	1/8	9/16	13/16	13/16	1 1/4	13/16	9/16	9/16	1/8	1/16	1	1 3/16	1 1/8	1 3/8
S3	Deflection due to weight of Steel	—	—	—	—	1/16	1/8	—	1/16	1/16	1/8	1/16	1/16	—	1/16	—	1/8	3/16	3/16	1/8
	Deflection due to weight of Concrete	3/16	3/16	1/16	3/16	3/16	5/16	3/16	1/4	1/4	7/16	1/4	1/8	3/16	5/16	1/16	1/16	1/2	15/16	3/4
	Sum of Deflection due to dead load	3/16	3/16	1/16	3/16	1/4	7/16	3/16	5/16	5/16	9/16	5/16	3/16	3/16	3/8	1/16	5/16	11/16	1 1/8	7/8
	Convexity for Vertical Curve	3/16	1/4	3/16	5/16	1/16	3/16	1/16	1/16	1/16	5/8	1/16	1/16	1/2	5/8	1/2	1/16	1/2	1/16	1/2
	Sum of Deflection and Convexity	3/8	7/16	1/4	1/2	1/16	1	5/8	3/4	3/4	1 3/16	3/4	5/8	11/16	1	9/16	1	1 3/16	1 3/16	1 3/8
S4	Deflection due to weight of Steel	—	—	—	—	1/16	1/16	1/16	—	1/16	1/16	1/16	—	1/16	1/16	1/16	1/8	1/8	1/4	3/16
	Deflection due to weight of Concrete	1/4	1/4	1/16	5/16	1/16	1/16	3/8	1/4	1/4	9/16	5/16	1/4	1/4	1/2	3/16	3/8	1/2	7/8	1/16
	Sum of Deflection due to dead load	1/4	1/4	1/16	5/16	1/2	3/4	1/16	1/4	5/16	5/8	3/8	1/4	5/16	9/16	1/4	1/2	5/8	1 1/8	7/8
	Convexity for Vertical Curve	3/16	1/4	3/16	5/16	1/16	9/16	1/16	1/16	1/16	5/8	1/16	1/16	1/2	11/16	1/2	1/16	1/2	11/16	1/2
	Sum of Deflection and Convexity	7/16	1/2	1/4	5/8	15/16	1 5/16	7/8	11/16	3/4	1 1/4	13/16	11/16	13/16	1 1/4	3/4	15/16	1 1/8	1 5/16	1 3/8

DL DEFLECTION DIAGRAM



POINT	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y
S1	1 3/8	3 3/16	4 7/16	6 3/16	7 11/16	7 11/16	8 5/16	10 3/16	11 1/2	11 3/4	11 3/4	12 1/16	12 3/8	12 11/16	11 7/8	11 3/4	10 7/8	9 15/16	9 1/16	7 5/16	6 3/16	4 3/16	2 1/4
S2	1 5/8	3 1/4	4 7/8	6 9/16	7 9/16	7 7/8	9 3/16	10 1/2	11 13/16	12 1/16	12 1/8	12 11/16	12 11/16	13	12 1/8	12 1/16	11 1/8	10 3/16	9 3/16	7 1/4	6 3/16	4 3/8	2 5/16
S3	1 1/16	3 5/16	5	6 5/8	7 11/16	8	9 1/16	10 7/16	12 3/16	12 7/16	12 1/2	12 3/16	13 1/16	13 3/16	12 1/2	12 3/8	11 3/8	10 3/8	9 3/8	7 3/8	7	4 1/16	2 5/16
S4	1 1/16	3 3/8	5 1/16	6 3/4	7 3/4	8 3/16	9 3/8	11 1/8	12 1/16	12 3/16	12 7/16	12 7/8	13 1/8	13 3/8	13 1/16	12 3/16	12 3/8	11 5/8	10 1/16	9 1/2	7 1/2	7 1/8	4 3/16	2 3/8
POINT	a'	b'	c'	d'	e'	f'	g'	h'	j'	k'	l'	m'	n'	p'	q'	r'	s'	t'	u'	v'	w'	x'	y'
S1	1/16	9/16	5/16	0	1/16	9/16	3/4	1/2	0	13/16	1/8	1 3/16	1/8	0	1/2	1/2	3/4	1/16	0	15/16	1 1/8	1 3/4	1 5/16
S2	3/8	1/16	1/4	0	1/16	5/8	7/8	3/16	0	1 3/16	1 3/16	1 1/4	1 3/16	0	9/16	9/16	7/8	1/16	0	1	1 3/16	1 7/8	1 5/8
S3	3/8	1/16	1/4	0	1/2	1 1/16	1	5/8	0	3/4	3/4	1 3/16	3/4	0	5/8	1 1/16	1	9/16	0	1	1 3/16	1 7/8	1 5/8
S4	1/16	1/2	1/4	0	5/8	1 5/16	1 3/16	7/8	0	1 1/16	3/4	1 1/4	1 3/16	0	1 1/16	1 3/16	1 1/4	3/4	0	1 5/16	1 1/8	1 3/16	1 5/8

FOR DETAILS OF:
Rockers & Bolsters see Standard Drawing RB-1-55 dated 3-1-55 Revised 2-2-59.
Superstructure details not shown, see Standard Drawing SD-1-65 dated 11-8-65.
Parapet and Railing see Standard Drawing BR-1-65 revised 11-24-65.

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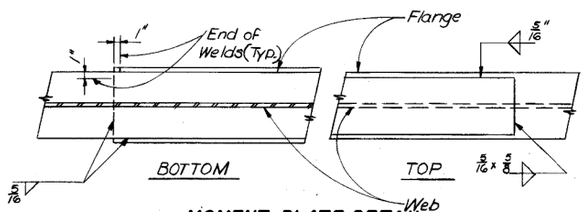
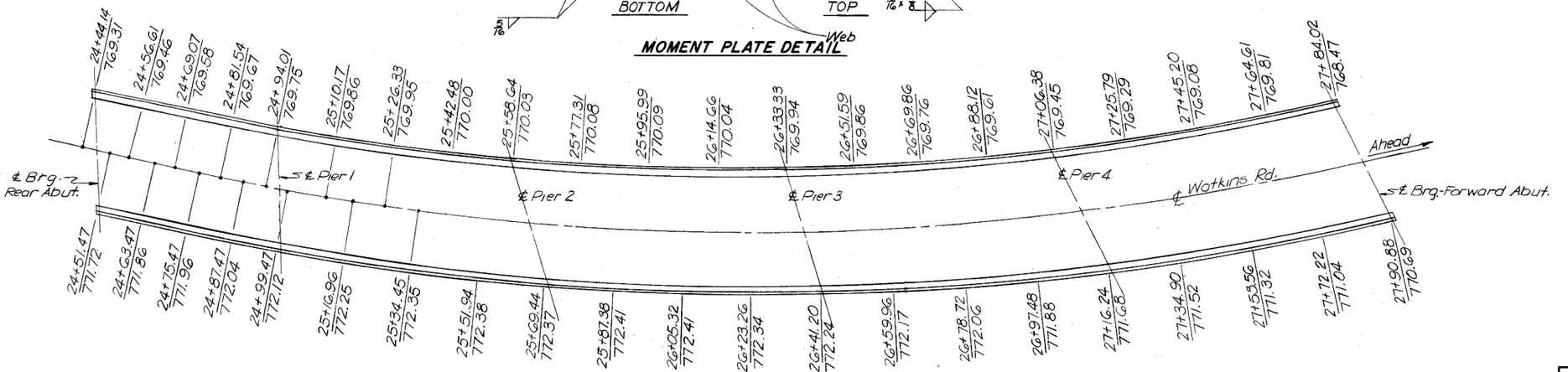
JUN 25 1969



MOMENT PLATE DETAIL



GUTTER ERECTION ELEVATIONS

Elevations shown are those required before deck concrete is placed.

STICKLEN - BELSHEIM & ASSOCIATES
ENGINEERS
WORTHINGTON OHIO

SUPERSTRUCTURE

BRIDGE NO. FRA-33-2491 UNDER FUTURE RELOCATED WATKINS ROAD

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