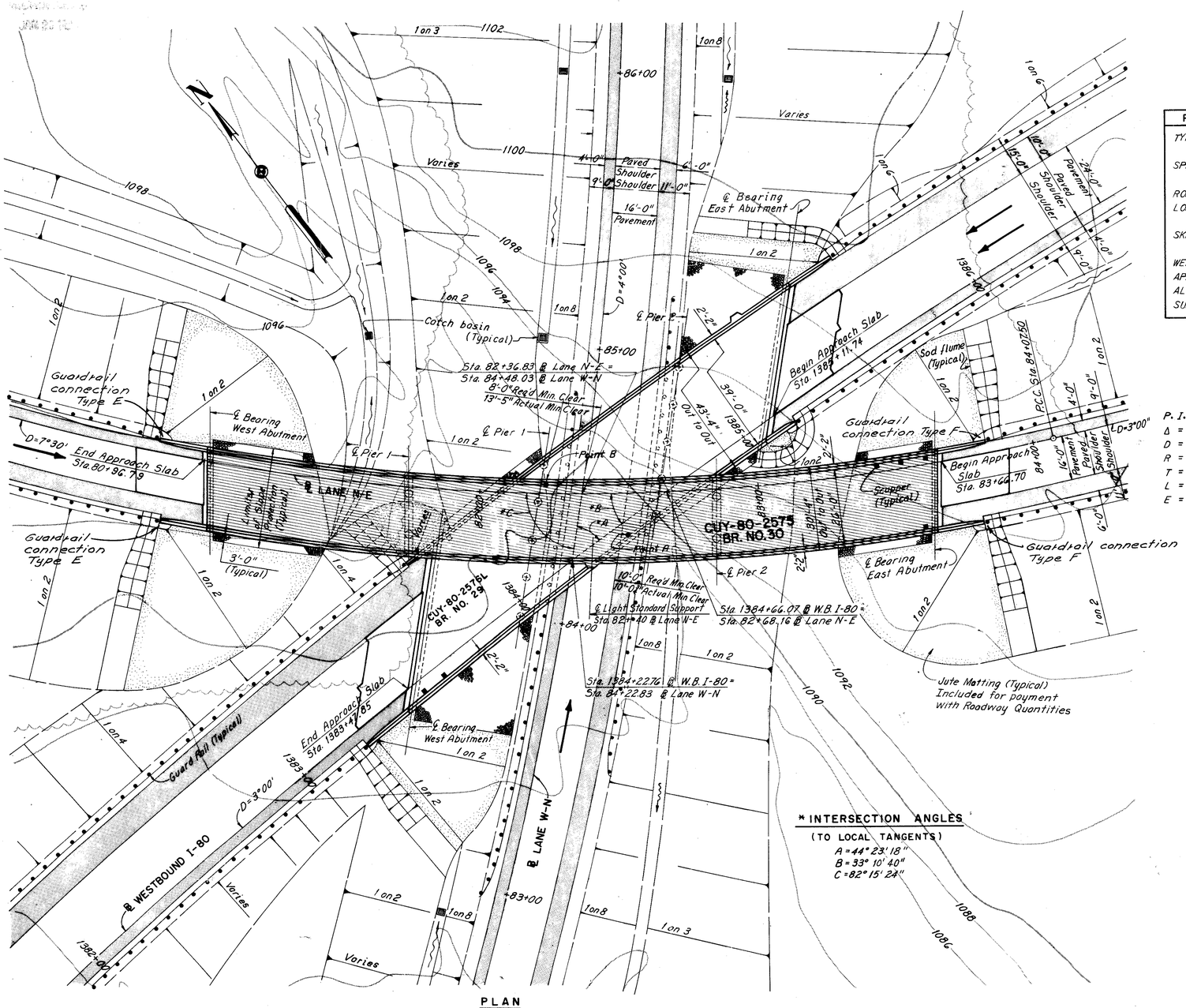
U-14

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

435/514

CUYAHOGA COUNTY
CUY-80-~~24.63~~ 24.45



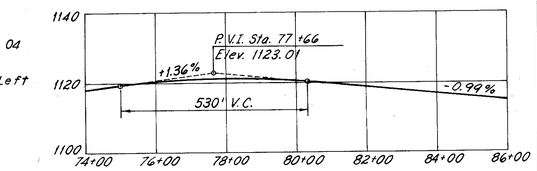
PLAN
Scale: 1"=20'-0"

PROPOSED STRUCTURE BR. NO. CUY-80-2576L	
TYPE:	Continuous steel beam with reinforced concrete deck and substructure.
SPANS:	49'-9 1/4", 60'-8 3/4" and 46'-11 3/16" (Measured along ℄ Westbound I-80)
ROADWAY:	41'-0" Face to face parapets.
LOAD FREQUENCY:	CF2000(57) Adequate for A.A.S.H.O. Alternate loading
SKEW:	45°36'42" Left Forward to local tangent at intersection with ℄ Lane W-N
WEARING SURFACE:	1" Monolithic Concrete
APPROACH SLABS:	AS-1-67 (20' long)
ALIGNMENT:	3°00'00" Right
SUPERELEVATION:	0.071 ft. per ft.

PROPOSED STRUCTURE BR. NO. CUY-80-2575	
TYPE:	Continuous welded steel girders with reinforced concrete deck and substructure.
SPANS:	74'-8 1/8", 114'-7 3/16", 76'-0 3/8" (Measured along ℄ Lane N-E)
ROADWAY:	28'-0" Face to face parapets.
LOAD FREQUENCY:	CF 2000(57) Adequate for A.A.S.H.O. Alternate loading
SKEW:	Substructure elements perpendicular to local tangent at Sta. 82+36.83 ℄ Lane N-E
WEARING SURFACE:	1" Monolithic Concrete
APPROACH SLABS:	AS-1-67(25' long)
ALIGNMENT:	7°30'00" Left
SUPERELEVATION:	0.083 ft. per ft.

CURVE DATA
℄ LANE N-E

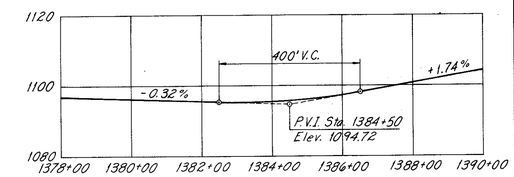
P.I. Sta.	79+77.34	P.I. Sta.	85+54.04
Δ =	96°49'44"	Δ =	8°46'30"
D =	7°30'00" Left	D =	3°00'00" Left
R =	763.94'	R =	1,909.86'
T =	860.89'	T =	146.54'
L =	1,291.05'	L =	292.50'
E =	387.03'	E =	5.61'



PROFILE LANE N-E
Scale: Horiz. 1"=200'
Vert. 1"=20'

CURVE DATA
℄ WESTBOUND I-80

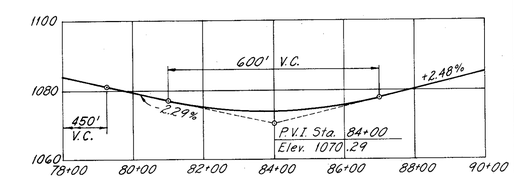
P.I. Sta. 1383+24.58
Δ = 28°10'40"
D = 3°00'00" Right
R = 1,909.86'
T = 479.33'
L = 939.26'
E = 59.23'



PROFILE WESTBOUND I-80
Scale: Horiz. 1"=200'
Vert. 1"=20'

CURVE DATA
℄ LANE W-N

P.I. Sta. 82+53.84
Δ = 42°48'27"
D = 4°00'00" Left
R = 1,432.39'
T = 561.46'
L = 1,070.19'
E = 106.11'



PROFILE LANE W-N
Scale: Horiz. 1"=200'
Vert. 1"=20'

*** INTERSECTION ANGLES**
(TO LOCAL TANGENTS)
A = 44°23'18"
B = 33°10'40"
C = 82°15'24"

TRAFFIC DATA: (1986)

Westbound I-80	A.D.T.	15,882
	D.D.H.V.	2,128
Lane N-E	A.D.T.	6,664
	D.H.V.	893

H.N.T.B. BR. NO. 30

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN

LANE N-E OVER WESTBOUND I-80

BR. NO. CUY-80-2575 STA. 80+96.79 TO STA. 83+66.70 (℄ LANE N-E)

CUYAHOGA COUNTY OHIO

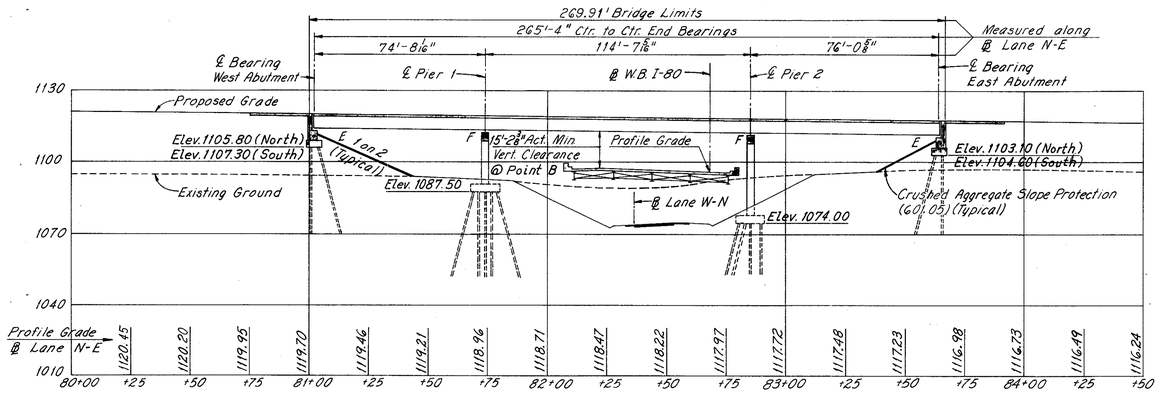
DRAWN L.E.D.	TRACED	CHECKED	REVIEWED W.S.F.	REVISED
DATE 3-2-66	DATE	DATE 10-13-67	DATE 5-11-70	SHEET 1/8

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

436/514

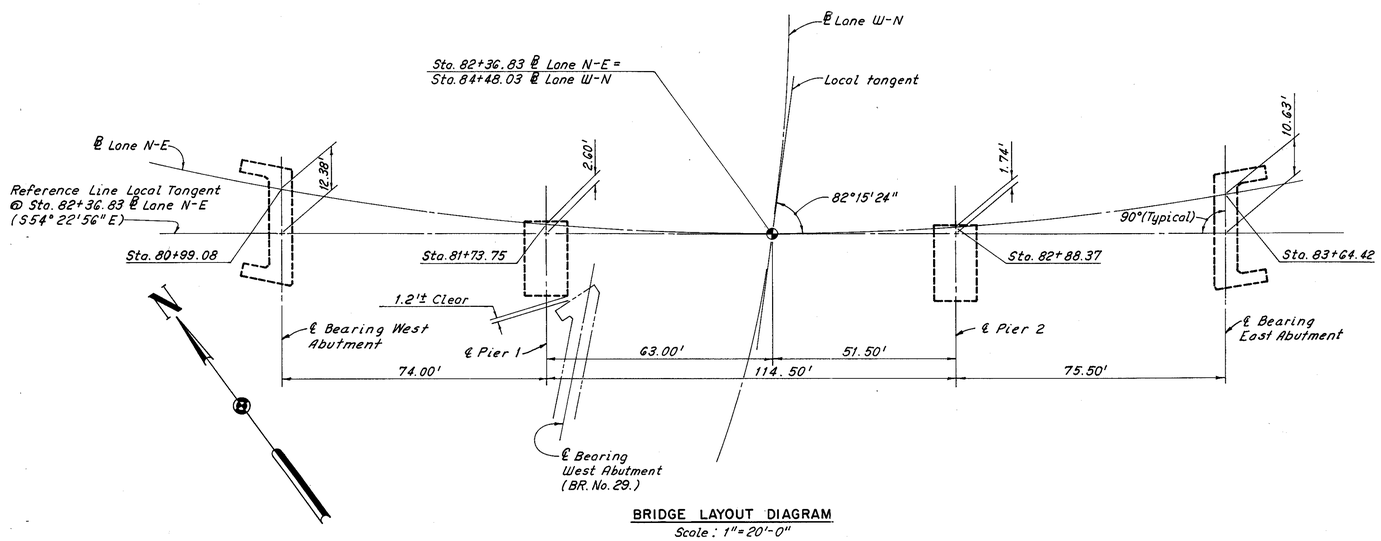
CUYAHOGA COUNTY
CUY - 80 - 24.63

Note:
15'-0" Required minimum vertical clearance @ Point B.
Minimum vertical clearance occurs at the deck crown of Bridge No. 29 and the outside edge of the north exterior girder of Bridge No. 30.



ELEVATION
Scale: 1" = 30'

ESTIMATED QUANTITIES									
				H.N.T.B. BRIDGE NO. 30					
ITEM	TOTAL	UNIT	DESCRIPTION	ABUT-MENTS	PIERS	SUPER-STRUCTURE	GENERAL		
503	Lump Sum	Lump Sum	Cofferdams, Cribs And Sheeting		Lump Sum				
503	391	Cu. Yd.	Unclassified Excavation	226	165				
505	Lump Sum	Lump Sum	Test Pile				Lump Sum		
507	2,310	Lin. Ft.	12" ϕ C.I.P. Reinforced Concrete Piles	1,066	1,244				
507	14	Lin. Ft.	Prebored Holes		14				
509	121,172	Pounds	Reinforcing Steel	13,530	30,927	76,715			
511	276	Cu. Yd.	Class "C" Concrete, Superstructure			276			
511	64	Cu. Yd.	Class "C" Concrete, Pier Caps and Columns		64				
511	95	Cu. Yd.	Class "C" Concrete, Abutment (Above footing)	95					
511	113	Cu. Yd.	Class "C" Concrete, Footings	58	55				
513	281,500	Pounds	Structural Steel			281,500			
514	281,500	Pounds	Field Painting of Structural Steel			281,500			
517	602.31	Lin. Ft.	Railing (Type 1)	68.84		533.47			
518	39	Cu. Yd.	Porous Backfill	39					
518	31	Lin. Ft.	6" Helical C.M.P. (Section 707.01)						
			Non-Perforated, Including Specials	31					
518	44	Lin. Ft.	6" Perforated Helical C.M.P. (Section 707.01)	44					
838	3	Hours	Special Pile Tests				3		
518	4	Each	Scuppers, Including Supports			4			
601	313	Sq. Yd.	Crushed Aggregate Slope Protection				313		
625			For Lighting Quantities see Lighting Plans						
808	276	Units	Chemical Admixture for Concrete, Type A, B or D			276			



BRIDGE LAYOUT DIAGRAM
Scale: 1" = 20'-0"

Notes:

Roadway excavation in cut sections shall be completed and embankment shall be placed and compacted to the finished spill-thru slopes and to the level of the subgrades for a minimum distance of 200 feet back of the abutments for Br. No.'s 29 and 30 before excavating or driving piles for the abutments and piers.

All piles are 12" ϕ C.I.P. reinforced concrete. Piles for the abutments shall be driven to a minimum bearing capacity of 35 tons per pile and piles for the piers shall be driven to a minimum bearing capacity of 40 tons per pile.

The estimated average pay lengths of the piles are as follows:

West Abutment	36ft.
PIER 1	38ft.
PIER 2	22ft.
East Abutment	46ft.

H.N.T.B. BR. NO. 30

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

BRIDGE LAYOUT DIAGRAM, ELEVATION AND ESTIMATED QUANTITIES

LANE N-E OVER WESTBOUND I-80

BR. NO. CUY-80-2575 STA. 80+96.79 TO STA. 83+66.70 (℄ LANE N-E)

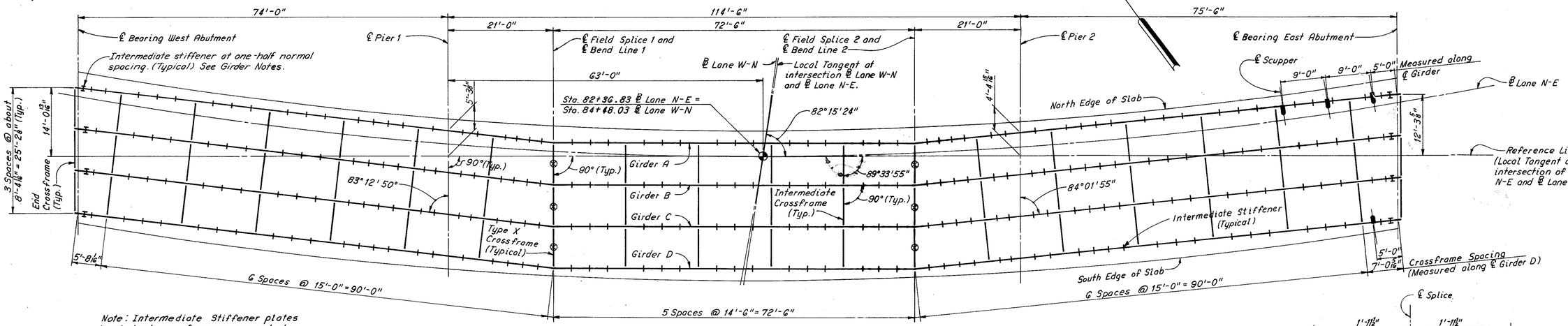
CUYAHOGA COUNTY OHIO

DRAWN RAB	TRACED DLR	CHECKED CWD	REVIEWED W.S.F.	REVISED
DATE 10-13-67	DATE 10-18-67	DATE 5-3-68	DATE 5-11-70	SHEET 2/8

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

440 / 514

CUYAHOGA COUNTY
CUY - 80- 24.63



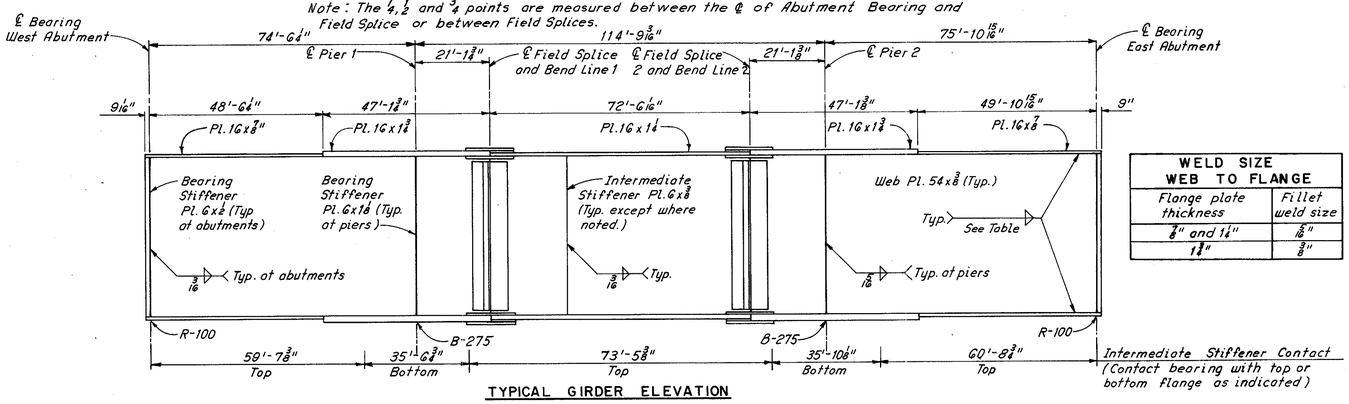
Note: Intermediate Stiffener plates located at crossframes are not shown in the Framing Plan.

FRAMING PLAN

TABLE OF OFFSETS
(Measured perpendicular from ℄ Girder to edge of slab)

Girder	℄ Brg. W. Abut. to ℄ Field Splice 1					℄ Field Splice 1 to ℄ Field Splice 2					℄ Field Splice 2 to ℄ Brg. E. Abut.				
	℄	1/4	1/2	3/4	℄	℄	1/4	1/2	3/4	℄	℄	1/4	1/2	3/4	℄
A	3'-4 1/4"	2'-2 3/4"	1'-10 3/8"	2'-3 1/4"	3'-4 1/4"	3'-4 3/4"	2'-9"	2'-6 3/8"	2'-9"	3'-4 3/4"	3'-4 3/4"	2'-2 3/4"	1'-10"	2'-2 1/2"	3'-4 1/4"
B	1'-10 1/2"	2'-10 3/8"	3'-1 1/2"	2'-8"	1'-5 5/8"	1'-5 5/8"	2'-1"	2'-3 1/2"	2'-0 5/8"	1'-5 5/8"	1'-5 5/8"	2'-8"	3'-1 1/2"	2'-10 5/8"	1'-9 3/4"

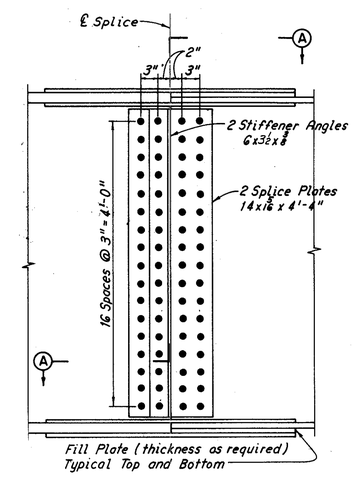
Note: The 1/4, 1/2 and 3/4 points are measured between the ℄ of Abutment Bearing and Field Splice or between Field Splices.



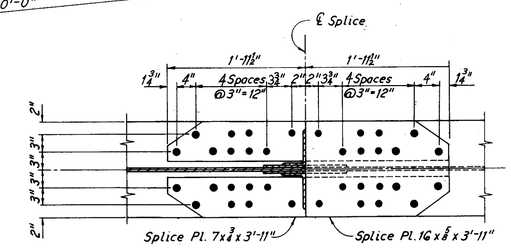
TYPICAL GIRDER ELEVATION

WELD SIZE WEB TO FLANGE

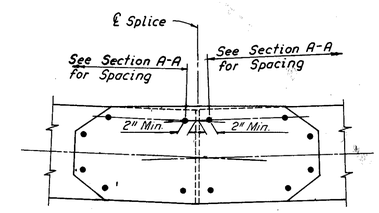
Flange plate thickness	Fillet weld size
7/8" and 1 1/4"	5/16"
1 3/4"	3/8"



TYPICAL FIELD WEB SPLICE



SECTION A-A
FLANGE FIELD SPLICE DETAIL



COVER PLATE DETAIL
AT GIRDER BEND POINT

GIRDER NOTES:

The girder shall be fabricated to compensate for the effects of vertical curvature, superelevation and dead load deflections. The top of the girder shall parallel the profile of the roadway surface directly over the center line of girder.

Top and bottom flange plates are to be the same and shall be spliced at points shown on the girder elevation. The web plates may be shop spliced as required by available plate lengths. The locations of shop web splices and the locations and details of any additional shop flange splices shall be submitted to the Director for approval prior to ordering of materials.

Intermediate stiffeners shall be placed as shown on framing plan equally spaced between crossframes, or crossframes and bearing stiffeners, or crossframes and field splices, except the first two stiffener spaces at the abutments shall be one-half of this spacing. Stiffeners shall be placed in pairs and shall have contact bearing with the compression flange as indicated in the girder elevation.

Bearing stiffeners at piers and abutments shall be placed in pairs on all girders. Intermediate stiffeners and bearing stiffeners at the piers shall be normal to girder flange. Bearing stiffeners at abutments shall be vertical.

All girder field splices shall be made with 1" diameter high strength steel bolts. The bolts shall be placed with their heads on the outside face of the exterior girders and on the bottom of all flange plates.

The Contractor shall submit to the Director for approval three prints showing his proposed erection procedure.

For girder shop welding details see Sheet CD3.

For details of Rockers and Bolsters see Ohio Standard Drawing RB-1-55.

For details of end crossframes, roadway end dams, and curb plates see Ohio Standard Drawing SD-1-69 Sheets 1 and 2 of 4. The main angle and supporting angle shown in Section A-A on Sheet 1 of 4 shall be increased from 8x4x1 to 8x6x1 and from 7x4x3/4 to 8x4x3/4 respectively.

For details of Intermediate and Type X Crossframes and drainage details see Sheet CD 3.

H.N.T.B. BR. NO. 30

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN, GIRDER ELEVATION AND FIELD SPLICE DETAILS
LANE N-E OVER WESTBOUND I-80

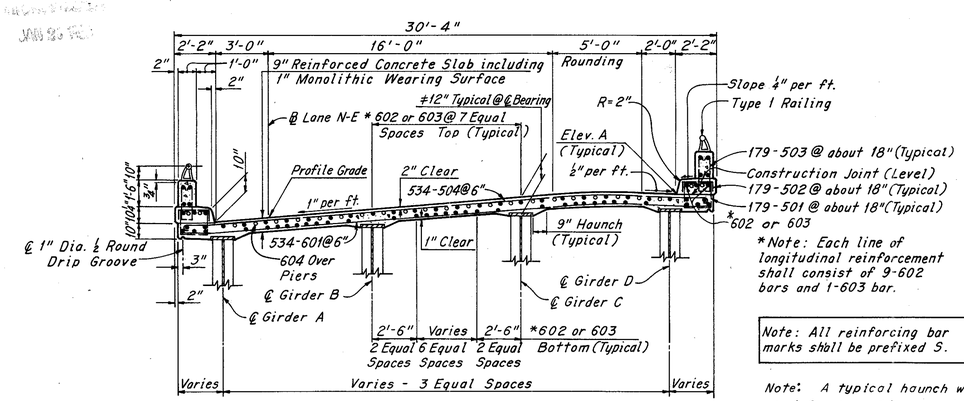
BR. NO. CUY-80-2575 STA. 80+96.79 TO STA. 83+66.70 (℄ LANE N-E)

CUYAHOGA COUNTY OHIO

DRAWN S.J.E	TRACED D.L.R	CHECKED J.E.H	REVIEWED	REVISED 11-16-71
DATE 3-9-67	DATE 3-17-67	DATE 5-15-67	DATE W.S.F. 5-11-70	SHEET 6/8

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 80- 24.63



TYPICAL SECTION

*Note: Each line of longitudinal reinforcement shall consist of 9-602 bars and 1-603 bar.

≠ Top of pavement to top of web, measured from extended top of pavement when girders are under the curb.

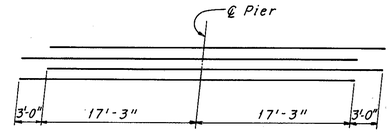
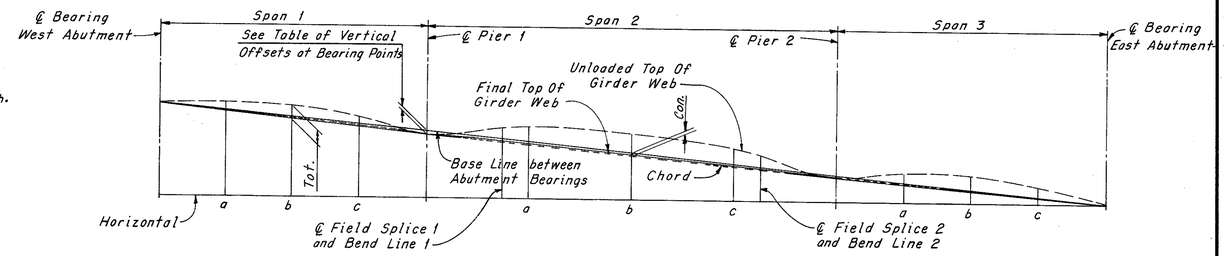


DIAGRAM SHOWING STAGGER OF 604 BARS OVER PIERS

Note: All reinforcing bar marks shall be prefixed S.

Note: A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.



CAMBER DIAGRAM

TOP OF PAVEMENT ELEVATIONS														
	SPAN 1					SPAN 2				SPAN 3				
Girder	℄ Bearing West Abutment	a	b	c	℄ Pier 1	a	b	c	℄ Pier 2	a	b	c	℄ Bearing East Abutment	Girder
A	1119.58	1119.32	1119.09	1118.90	1118.76	1118.53	1118.20	1117.96	1117.62	1117.39	1117.20	1117.06	1116.95	A
B	1120.25	1119.99	1119.77	1119.59	1119.44	1119.22	1118.90	1118.66	1118.32	1118.09	1117.90	1117.75	1117.62	B
C	1120.92	1120.67	1120.45	1120.27	1120.13	1119.92	1119.59	1119.36	1119.02	1118.79	1118.61	1118.45	1118.29	C
D	1121.02	1120.87	1120.71	1120.53	1120.33	1120.02	1119.76	1119.47	1119.22	1119.06	1118.88	1118.67	1118.40	D

Note: When Girders A and D fall under the curb the elevation shown is to the extended top of pavement.

| DEAD LOAD DEFLECTION AND CAMBER | | | | | | | | | | | | | |