

ADT = 1760

MICROFILMED
JUL 19 1982

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
HOL-39-(5.94)
HOLMES COUNTY
BRIDGE NO. HOL-39-0594
WASHINGTON TOWNSHIP

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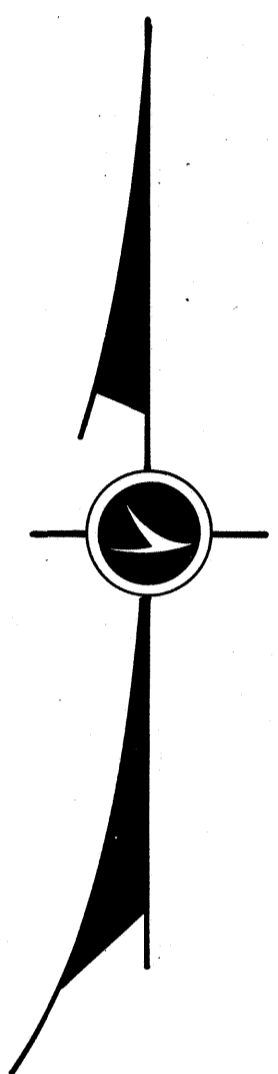
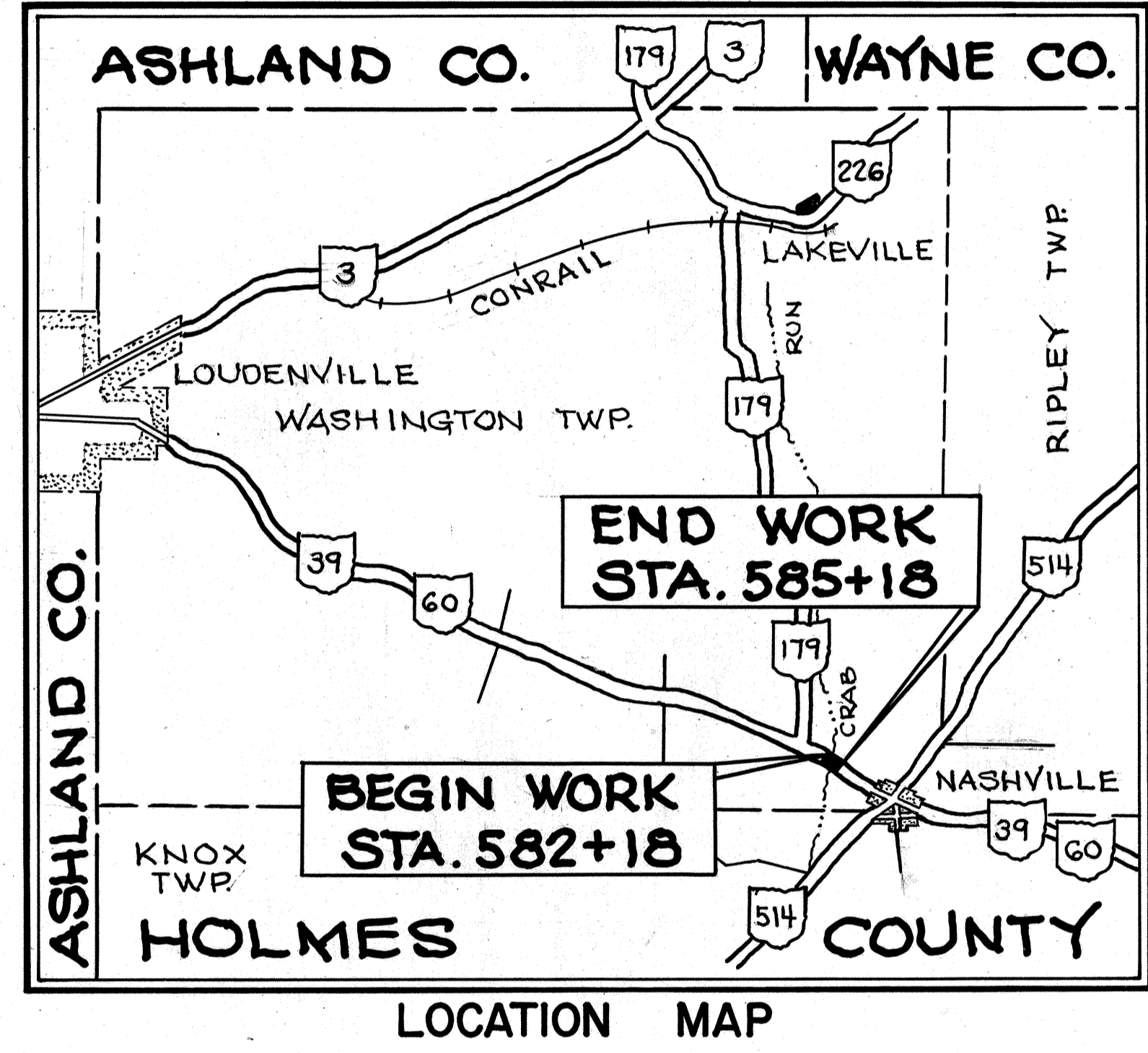
OHIO	1
FHWA REGION 5	11
F-39(14)	
HOL-39-(5.94)	
FEDERAL PROJECT	
PLAN NO. BR-33-81	

CONVENTIONAL SIGNS

County Line	-----	Limited Access (only)	----- LA
Township Line	-----	Right of Way (only)	----- RW
Section Line	-----	Limited Access & Right of Way	----- LA & RW
Corporation Line	----- or -----	Existing Right of Way	-----
Fence Line (existing)	-x-x-	Property Line	----- (in existing fence) -x-x-
Fence Line (proposed)	-x-x-	Railroad	----- or -----
Center Line	352 353	Guardrail (existing)	----- (proposed) -----
Trees	⊙, ⊙		
Stumps	⊙, ⊙		
(to be removed)	⊙, ⊙		
Utility Poles: Telephone	⊙		
Power	⊙		
Light	⊙		

INDEX OF SHEETS

TITLE SHEET
GENERAL NOTES, TYPICAL SECTION & PAVEMENT ELEVATIONS
SITE PLAN
CROSS SECTIONS
GENERAL PLAN AND ELEVATION & SUMMARY OF QUANTITIES
ABUTMENT DETAILS
PIER DETAILS AND REINFORCING STEEL LIST
SUPERSTRUCTURE DETAILS
FOUNDATION INVESTIGATION



1979 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

The right of way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and provisions for the maintenance and safety of traffic will be as set forth in these plans.

Approved: Robert M. Short
Date: 2-13-81 District Deputy Director of Transportation

Approved: Robert B. Pender
Date: 3-25-81 Engineer, Bureau of Bridges

Approved: Arnold E. Hann
Date: 3-31-81 Chief Engineer, Operations

Approved: David L. Wein
Date: 3-31-81 Director, Department of Transportation

LINE DATA

BEGIN WORK	582+18	
END WORK	585+18	
NET LENGTH OF WORK	= 300 LIN. FT. OR	0.06 MILE
PROJECT LENGTH	= 64.31 LIN. FT. OR	0.01 MILE

Portion to be improved: _____
State & Federal Routes: _____
Other Roads: _____

SCALES

Plan: _____

Profile: _____ Horizontal _____, Vertical _____

Cross Section: Horizontal _____, Vertical _____

SUPPLEMENTAL SPECIFICATIONS

1001	1-3-77
836	3-12-75

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-5	4-16-79	AS-1-72	G-30-72
GR-1	12-6-76	CPA-2-73	4-10-73
GR-2 B	12-6-76	CPP-2-73	4-10-73
GR-3	12-6-76	CS-2-73	4-10-73
GR-4	12-6-76	DBR-2-73	4-10-73
MC-3	G-1-73		

Plan Prepared By: _____

SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____

DIVISION ADMINISTRATOR _____ DATE _____

Project: HOL-39-(5.94)
Date of Letting: 19 _____ Contract No. _____
LD0300 Rev. 9-3-75

GENERAL NOTES

REFERENCES:

Shall be made to Standard Drawings:
 GR-1 Dated 12-6-76 AS-1-72 Dated 6-30-72
 GR-2B Revised 12-6-76 CPA-2-73 Dated 4-10-73
 GR-3 Revised 12-6-76 CPP-2-73 Dated 4-10-73
 GR-4 Revised 12-6-76 CS-2-73 Dated 4-10-73
 MC-3 Revised 6-1-73 DBR-2-73 Dated 4-10-73
 BD-5 Revised 4-16-79
 and to Supplemental Specifications: 836 Dated 3-12-75
 1001 Dated 1-3-77

DESIGN SPECIFICATIONS

This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of the State Highway and Transportation Officials, 1977, including 1976, 1978 & 80 Interim Specifications and the Ohio "Supplement" to these specifications.

DESIGN DATA:

Design Loading - HS 20-44
 Concrete Class C - unit stress 1800 p.s.i. for Substructure
 Concrete Class S - unit stress 1800 p.s.i. for Superstructure
 Reinforcing Steel - ASTM A 615, A 616, or A 617 - unit stress 20,000 p.s.i.
 Deck Protective Method - Epoxy coated reinforcing steel, top mat only
 Monolithic wearing surface thickness is assumed to be 1"

REMOVAL OF EXISTING STRUCTURE:

When no longer needed to maintain traffic the existing structure shall be removed. Abutments shall be removed to Elev. 962.01, or to a minimum of one foot below proposed ground surface as per 202.03.

PILES:

Piles shall be driven to a minimum bearing capacity of 25 tons per pile for the abutments and 35 tons per pile for the piers.

UTILITIES:

All expenses involved in relocating the affected utilities shall be borne by the Owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

Following are Owners known to be within the work limits:

Ohio Power Company 301 Cleveland Ave. S.W. Canton, Ohio 44701	United Telephone Company 175 Ashland Road Mansfield, Ohio 44901
---------------------------------------------------------------------	-----------------------------------------------------------------------

U.S.C. & G.S. BENCH MARK:

Bench Mark K 261 1959 set in the top of the west end of the North concrete girder of Bridge No. HOL-39-0594 will be destroyed by construction. Therefore, the Contractor will be required to establish temporary bench marks outside construction work limits.

The District Office will furnish a new disk which shall be placed as directed by the Engineer in the new northwest wingwall. The Contractor shall accurately establish the elevation of the new benchmark and report to the District location & Design Office on special forms to be furnished. The old disk shall be returned with the report to the District Office. Payment for the above shall be included in the lump sum price bid for Item 223, Construction Layout Stakes.

12 INCH PRECAST PRESTRESSED CONCRETE PILES

may be substituted for the 12 inch cast-in-place reinforced concrete piles at the abutments. Drawings showing details of and specifications for prestressed concrete piles are available from the Director (Bureau of Bridges). If the prestressed pile alternate is chosen, the method of measurement and basis of payment shall be the same as for cast-in-place reinforced concrete piles per 507.

FIELD OFFICE:

The Contractor shall provide a suitable field office having a minimum of 150 sq. ft. of floor space and in addition to the requirements of Item 619, he shall provide and maintain sanitary provisions as per 107.06. All of the above is included in the lump sum price bid for Item 619, Field Office.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS:

Roundings of corners shown on cross sections apply to all cross sections even though otherwise shown on these plans.

RIGHT OF WAY:

All work shall be performed within the existing right of way.

GUARDRAIL REMOVED FOR RE-USE OR STORAGE:

This item shall consist of dismantling and storing all existing guardrail including existing anchor assemblies and bridge terminal assemblies, Type J. At the Contractor's option guardrail posts and concrete anchorage may be pulled and reset at the locations shown on the Site Plan or may be removed as per 202.07. All guardrail materials, removed but not reused, shall be stored for removal by State Forces.

FILL ACTIVITIES DONE BELOW ORDINARY HIGH WATER:

Elevation 1064.00, must be in accordance with specific conditions of Section 323.4-2(b) of the Federal Register, Vol. 42, No. 138 dated July 19, 1977.

ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION:

Shall include the removal of the full depth of pavement and concrete base on existing S.R. 39 from approach slab to approach slab and the removal of the existing bituminous wearing course from Sta. 583+07 and Sta. 584+71.

APPROACH SLAB:

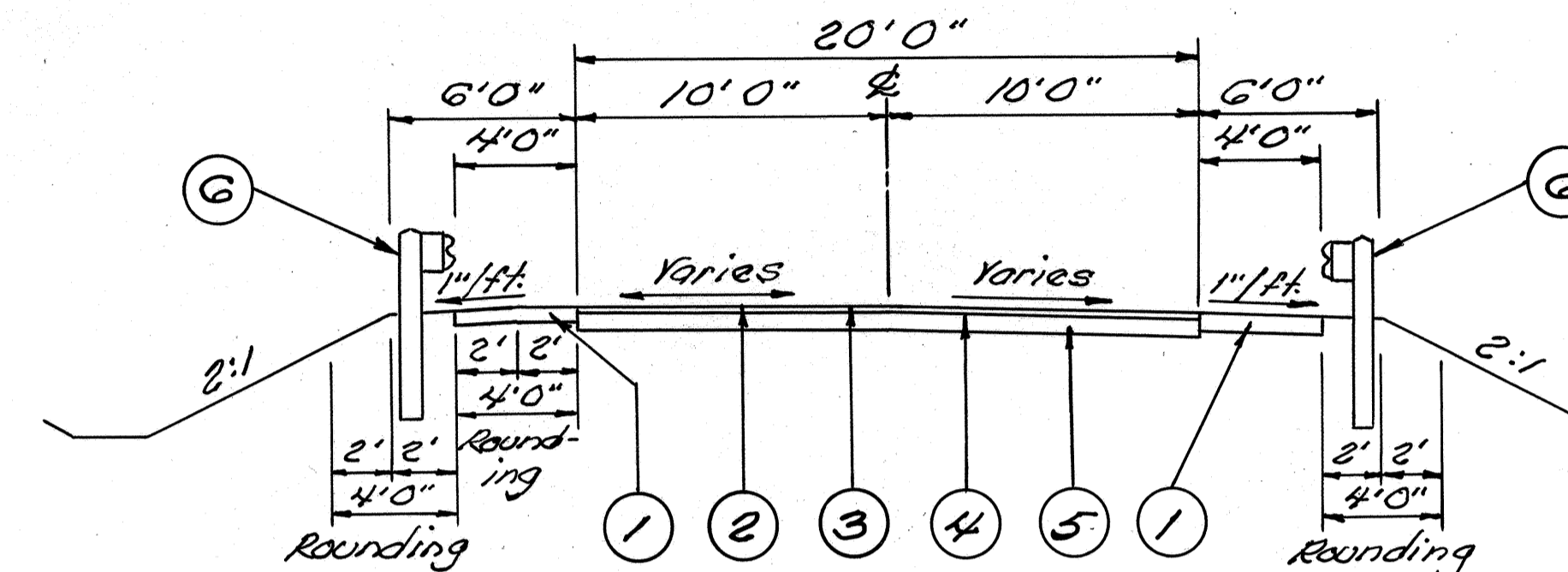
Approach slab jacking holes as called for on Standard Drawing AS-1-72 will not be required on this project. Clearance between the top reinforcing steel and top of slab shall be 3".

POROUS BACKFILL:

Porous backfill shall extend upward to the plane of the subgrade and laterally to the surface of the embankment slopes.

TYPICAL SECTION

(For Pavement elevations, see Pavement Elevation Table this sheet.)



KEY:

- ① Item 411 - 6" Stabilized Crushed Aggregate
- ② Item 404 - Asphalt Concrete AC-20 1" Thick
- ③ Item 402 - Asphalt Concrete AC-80 Variable Thickness
- ④ Item 408 - Bituminous prime coat, 702.03, RT-2 or RT-3; 702.02 MC-30 or MC-70; or 702.03, Primer 20 applied at the rate of 0.4 gal. per sq. yd.
- ⑤ Existing Base Course
- ⑥ Item 606 - Guardrail Rebuilt, Type 5

PAVEMENT ELEVATIONS

Station &	Left Edge Elevation	& Survey Elevation	Right Edge Elevation
583+07.0	Match Existing Pavement Elevations		
583+25	1071.68	1071.31	1070.93
583+28.0	1071.70*	1071.33	1070.99*
583+43.0		1071.46	
Bridge			
584+07.31		1072.21	
584+22.31	1072.66*	1072.33	1072.10*
584+25	1072.66	1072.40	1072.11
584+50	1072.64	1072.62	1072.40
584+71	Match Existing Pavement Elevations		

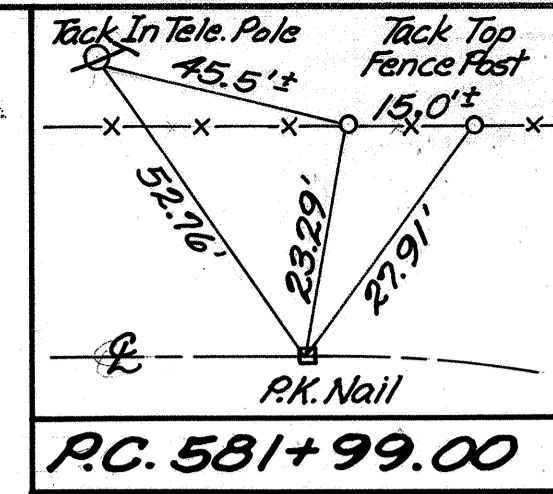
* Elevation is located at edge of pavement or beginning of approach slab.

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BUREAU OF MAINTENANCE

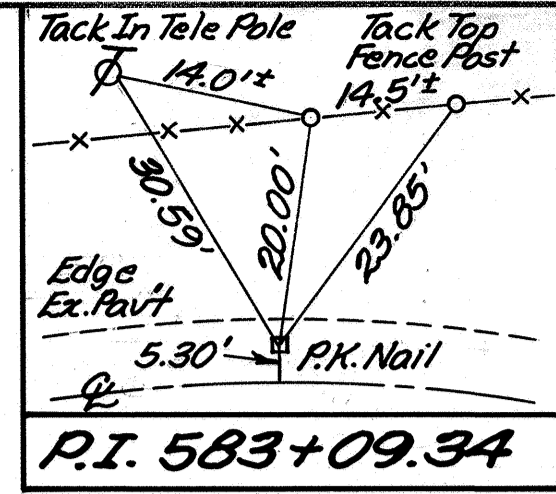
GENERAL NOTES
 PAVEMENT ELEVATIONS
 TYPICAL SECTION
 BRIDGE NO. HOL-39-0594
 OVER CRAB RUN

Design Dist. I	Drawn Dist. II	Traced Dist. II	Chkd. Dist. II	Reviewed Dist. II	Date	Revised
JLO	JLO	LJC	SLU			

JUL 29 1932

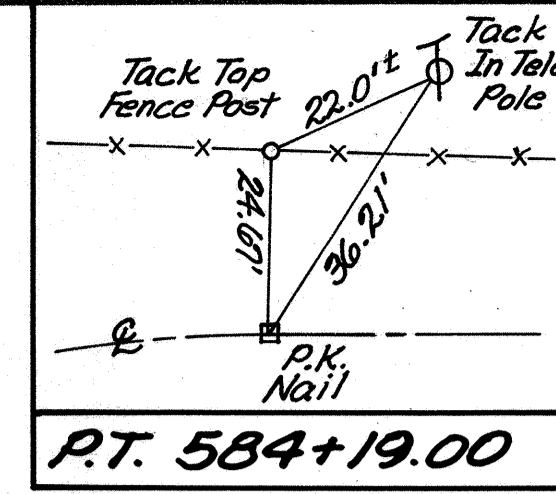


P.C. 581+99.00



P.I. 583+09.34

B.M. ELEV. 1074.43
C. & G.S. Disk K-261
11.5' LT. @ STA. 583+58



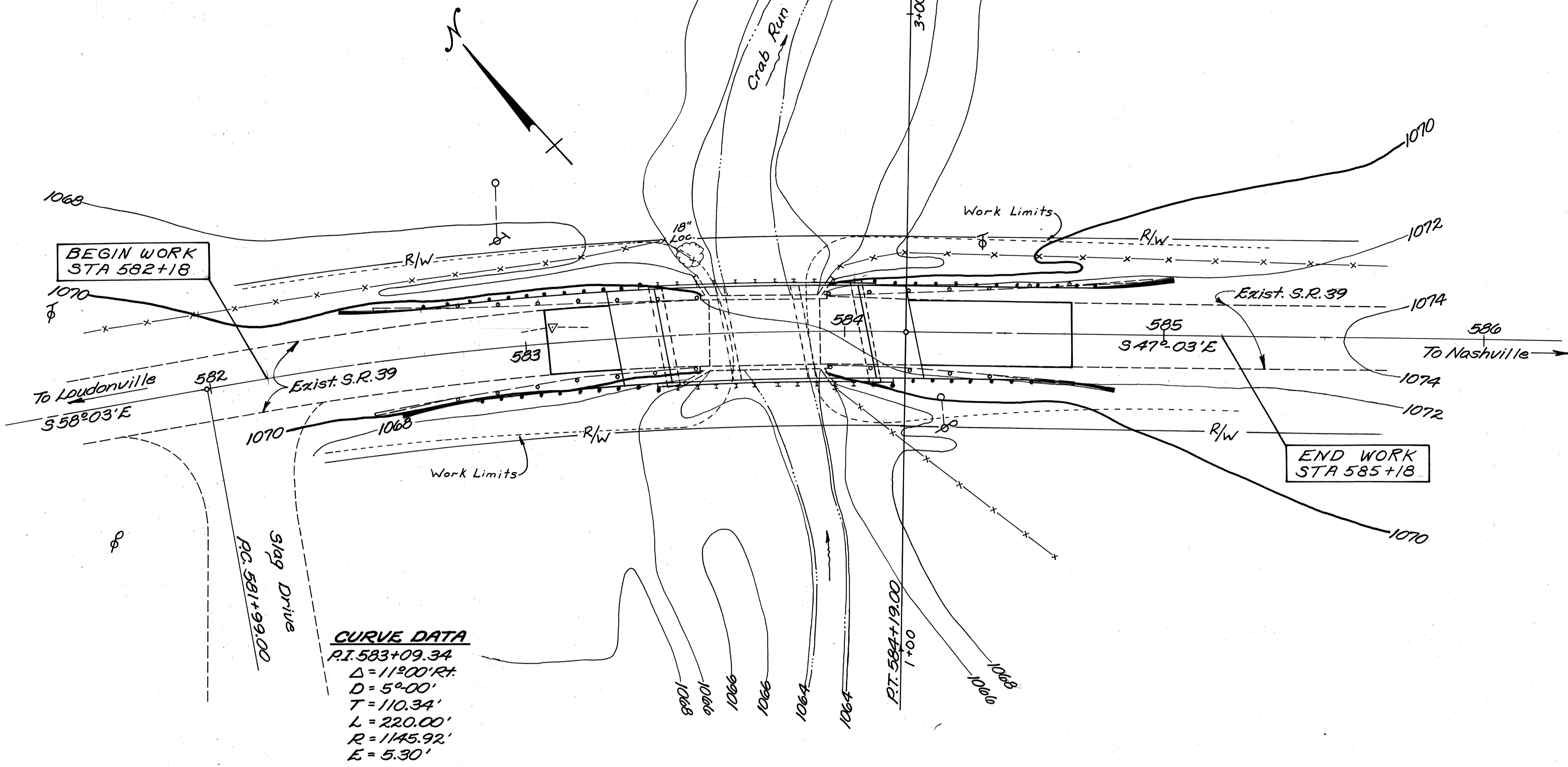
P.T. 584+19.00

FHWA REGION	STATE	PROJECT
5	OHIO	

3/11

HOL-39-(5.94)

BR-33-81



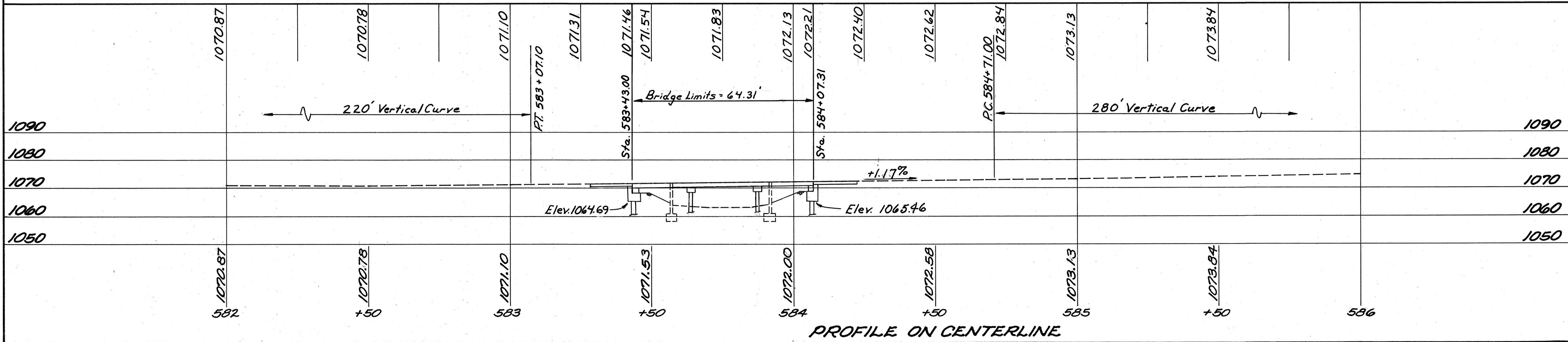
CURVE DATA
P.I. 583+09.34
 $\Delta = 112^{\circ}00'$ Rt.
D = 5⁰⁰
T = 110.34'
L = 220.00'
R = 1145.92'
E = 5.30'

GUARDRAIL						
STATION		SIDE	ITEM 202 GUARDRAIL REMOVED FOR REUSE LIN. FT.	ITEM 606 GUARDRAIL REBUILT TYPE 5 LIN. FT.	ITEM 606 BRIDGE TERMINAL ASSEMBLY TYPE B EACH	ITEM 606 ANCHOR ASSEMBLY TYPE A REBUILT EACH
FROM	TO					
582+59	584+84	Rt.	175	225.0	2	2
582+41	585+03	Lt.	200	262.5	2	2
			(Bridge - 128.6)			
TOTALS			375	358.9	4	4

EXISTING STRUCTURE
TYPE: Conc. Girder
LENGTH: 1 Span, clear span 35'-0"
ROADWAY: 19'-0" between curbs
LOADING: H-13
SKEW: 0°
S.F.N.: 3800210
General Appraisal & Operational Status 2A
Sufficiency Rate 72.50

DRAINAGE AREA = 3.38 SQ. MILES
Q₂₅ = 1350 C.F.S.
Q₅₀ = 1742 C.F.S.

PROPOSED STRUCTURE
TYPE: Continuous Concrete Slab
LENGTH: 3 Spans, 19'-23.75'-19'
ROADWAY: 28'-0" f/f rail
ABUTMENTS: Capped Pile
PIERS: Capped Pile
LOADING: HS 20-44
WEARING SURFACE: Monolithic concrete
APPROACH SLAB: AS-1-72 (15' long)
ALIGNMENT: 5° R.C.
SKEW: 11°-0' R.F.

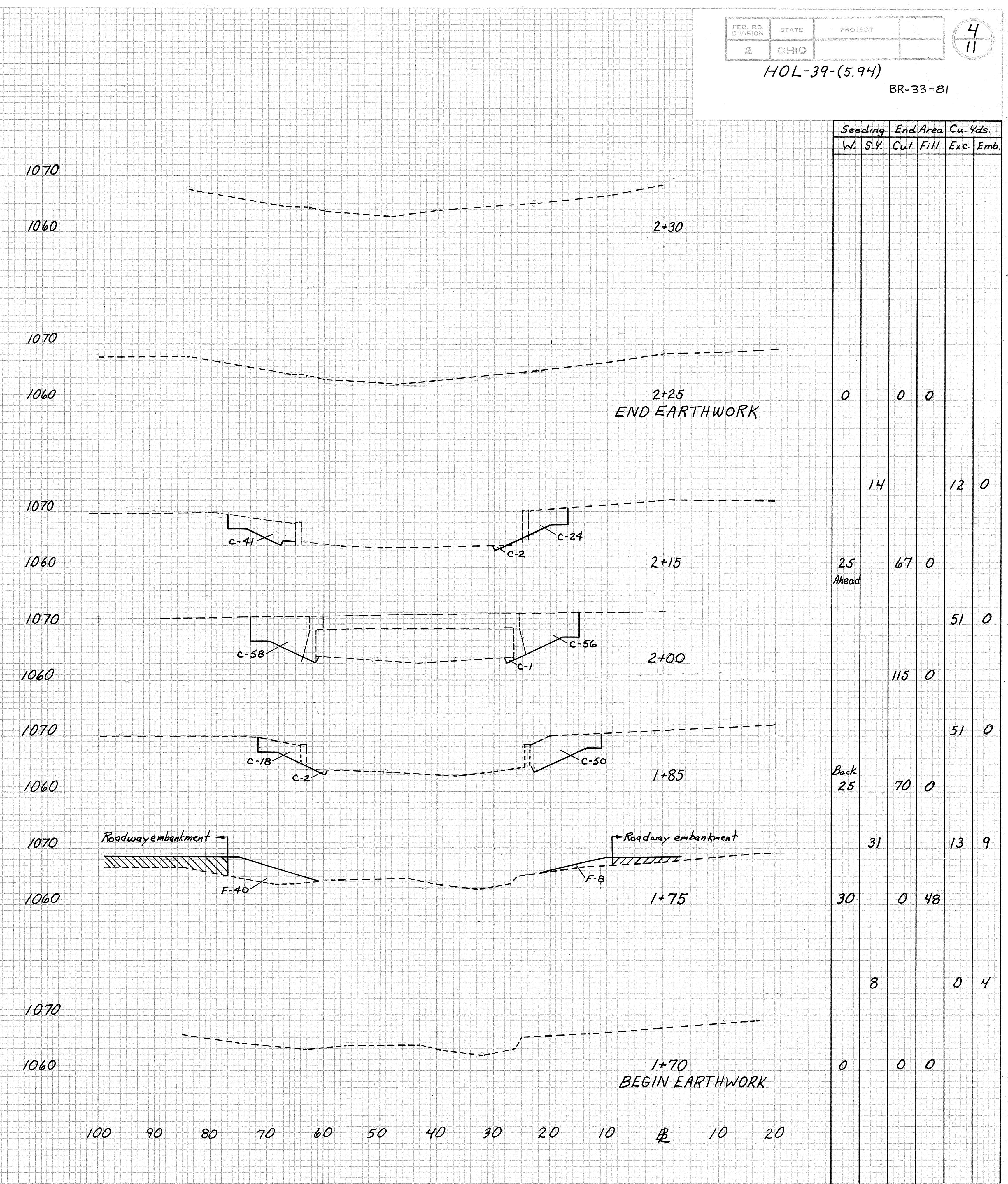
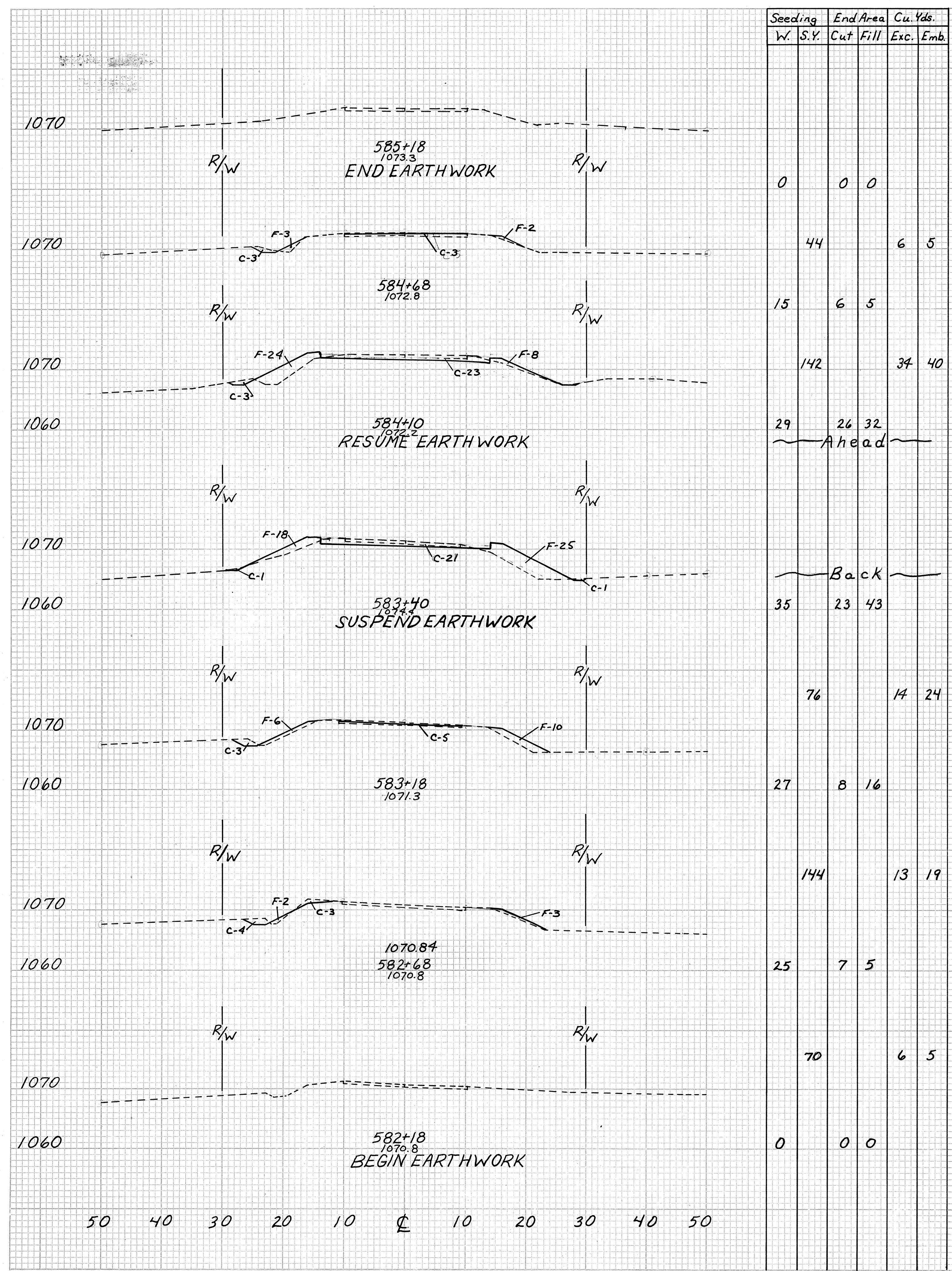


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES

SITE PLAN
BRIDGE NO. HOL-39-0594
OVER
CRAB RUN
HOLMES COUNTY-S.R.39

SCALE: 1"=20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED DIST. 11	DRAWN DIST. 11	DESIGNED JLO	DRAWN SLU	CHECKED JJN	REVIEWED



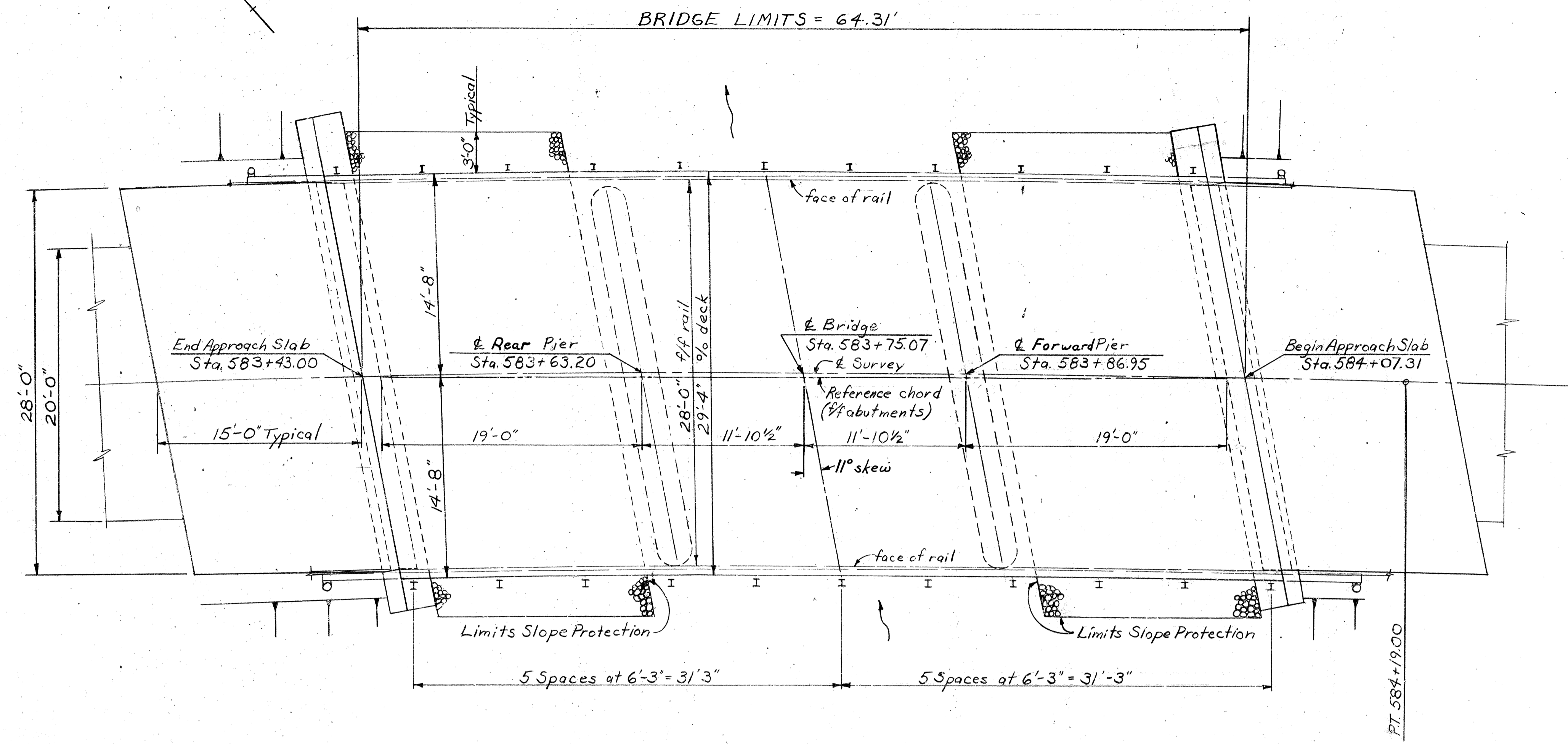
Seeding	End Area		Cu. Yds.	
	W. S.Y.	Cut	Fill	Exc. Emb.
0	0	0	0	0
44	6	5		
15	6	5		
142	34	40		
29	26	32	Ahead	
Back				
35	23	43		
76	14	24		
27	8	16		
144	13	19		
25	7	5		
70	6	5		
0	0	0		

Seeding	End Area		Cu. Yds.	
	W. S.Y.	Cut	Fill	Exc. Emb.
0	0	0	0	0
14			12	0
25	67	0		
Ahead				
			51	0
	115	0		
			51	0
Back				
25	70	0		
31			13	9
30	0	48		
8			0	4
0	0	0		

Pavement and Channel X-Sections

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JUL 19 1982

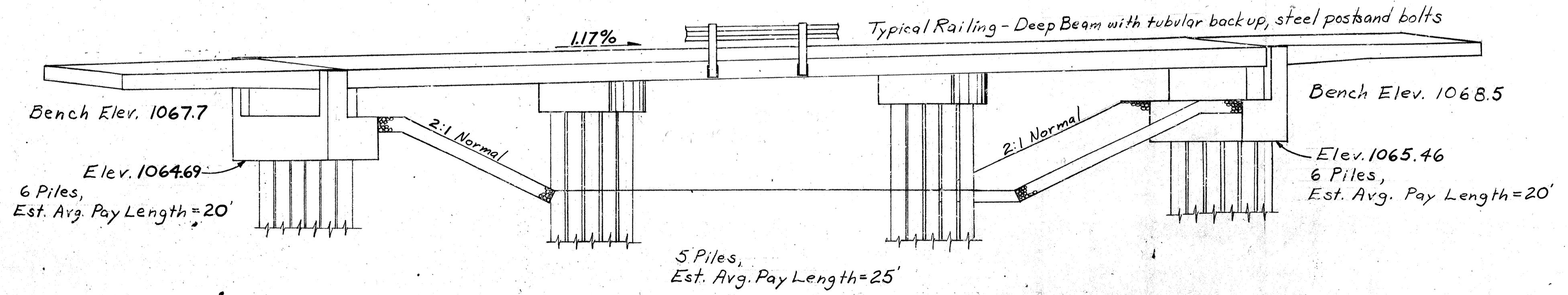
HOL-39-(5.94)
BR-33-81



PLAN

SUMMARY OF QUANTITIES

Item	Total	Unit	Description	Type Code X020 unless otherwise noted.
202	Lump	Sum	Structure removed	
202	375	Lin.ft.	Guardrail removed for re-use or storage	
203	200	Cu.yds.	Excavation not including embankment construction	
203	106	Cu.yds.	Embankment	
402	9	Cu.yds.	Asphalt concrete, AC-20	
404	4	Cu.yds.	Asphalt concrete, AC-20	
408	62	Gals.	Bituminous prime coat (RT-2 or RT-3) (MC-30 or MC-70) (Primer 20)	
411	10	Cu.yds.	Stabilized crushed aggregate	
503	79	Cu.yds.	Unclassified excavation	
505	Lump	Sum	Test pile	
507	270	Lin.ft.	12" cast-in-place reinforced concrete piles (abutments)	
509	16,544	Lbs.	Reinforcing steel	
511	41	Cu.yds.	Class C concrete, abutments	
511	11	Cu.yds.	Class C concrete, piers	
511	84	Cu.yds.	Class S concrete, superstructure	
517	128.6	Lin.ft.	Railing (Deep beam with tubular backup, steel posts and bolts)	
518	11	Cu.yds.	Porous backfill	
601	133	Sq.yds.	Crushed aggregate slope protection	
606	358.9	Lin.ft.	Guardrail rebuilt, Type 5	
606	4	Each	Anchor assembly, rebuilt, Type A	
606	4	Each	Bridge terminal assembly, Type B	
611	93	Sq.yds.	Reinforced concrete approach slab, t=12"	
614	Lump	Sum	Maintaining traffic	
619	Lump	Sum	Field office	
623	Lump	Sum	Construction layout stakes	
624	Lump	Sum	Mobilization	
659	529	Sq.yds.	Seeding and mulching	4005
659	0.24	Tons	Agricultural liming	4005
659	0.05	Tons	Commercial fertilizer	4005
Special	9,045	Lbs.	Epoxy coated reinforcing steel (See Proposal Note 112)	
Special	31	Sq.ft.	Steel drip strip	
507	250	Lin.ft.	14" cast-in-place reinforced concrete piles (piers)	



ELEVATION

Calculated by:	Date	Checked by:	Date
J. Olsavsky	2-10-81	S. Ujcich	2-10-81

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

GENERAL PLAN & ELEVATION
SUMMARY OF QUANTITIES

BRIDGE NO. HOL-39-0594
OVER CRAB RUN

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JLO	JLO		SLU			

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JUL 20 1982

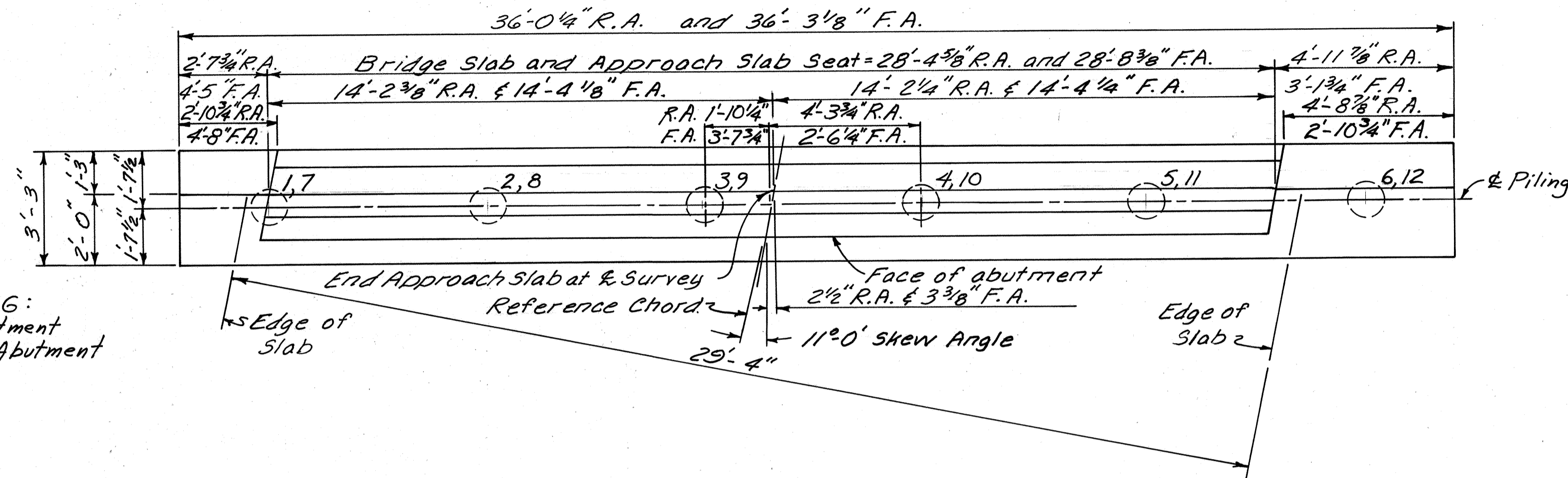
FHWA REGION	STATE	PROJECT
5	OHIO	

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11

HOL-39-(5.94)

BR-33-81

N Forward Abutment
Rear Abutment N

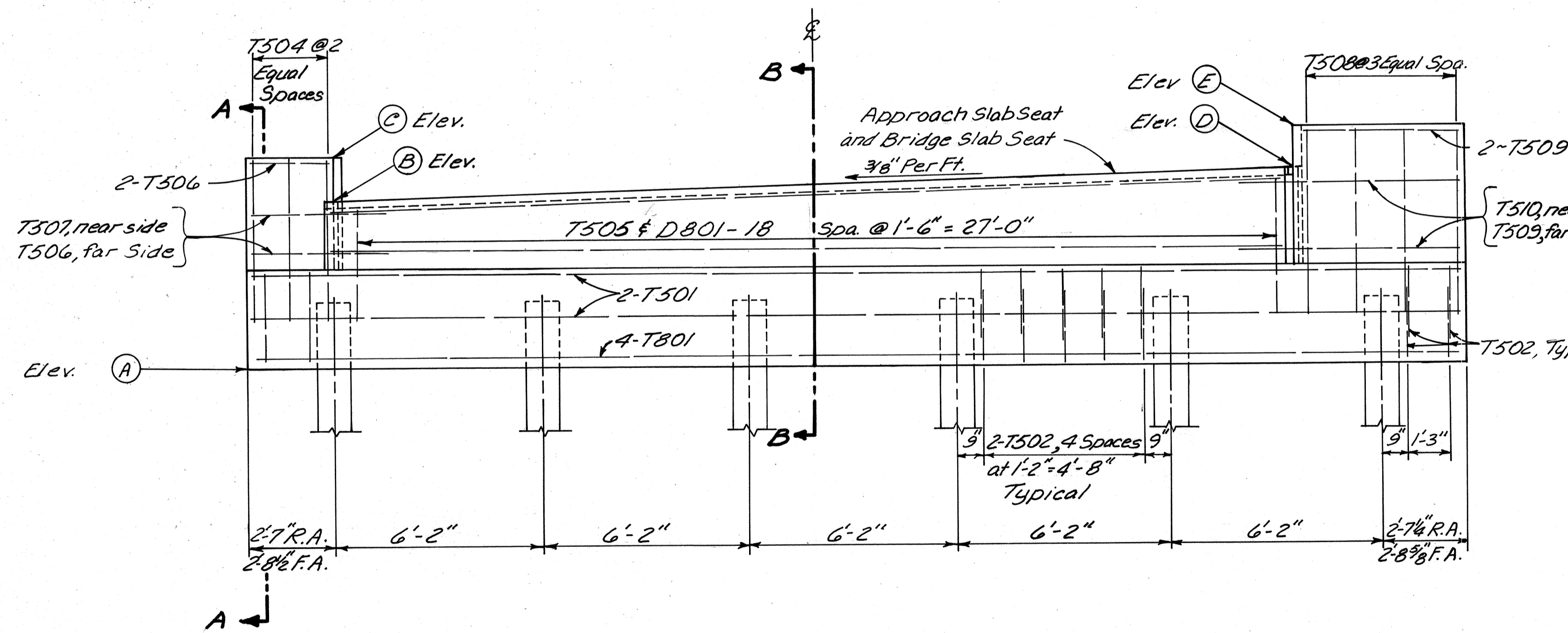


PILE NUMBERING:
Piles 1-6 Rear Abutment
Piles 7-12 Forward Abutment

LOCATION	A	B	C	D	E
REAR	1064.69	1069.71	1071.05	1070.54	1071.87
FORWARD	1065.46	1071.28	1072.61	1070.48	1071.81

Note: Elevations computed at end approach slab.

PLAN

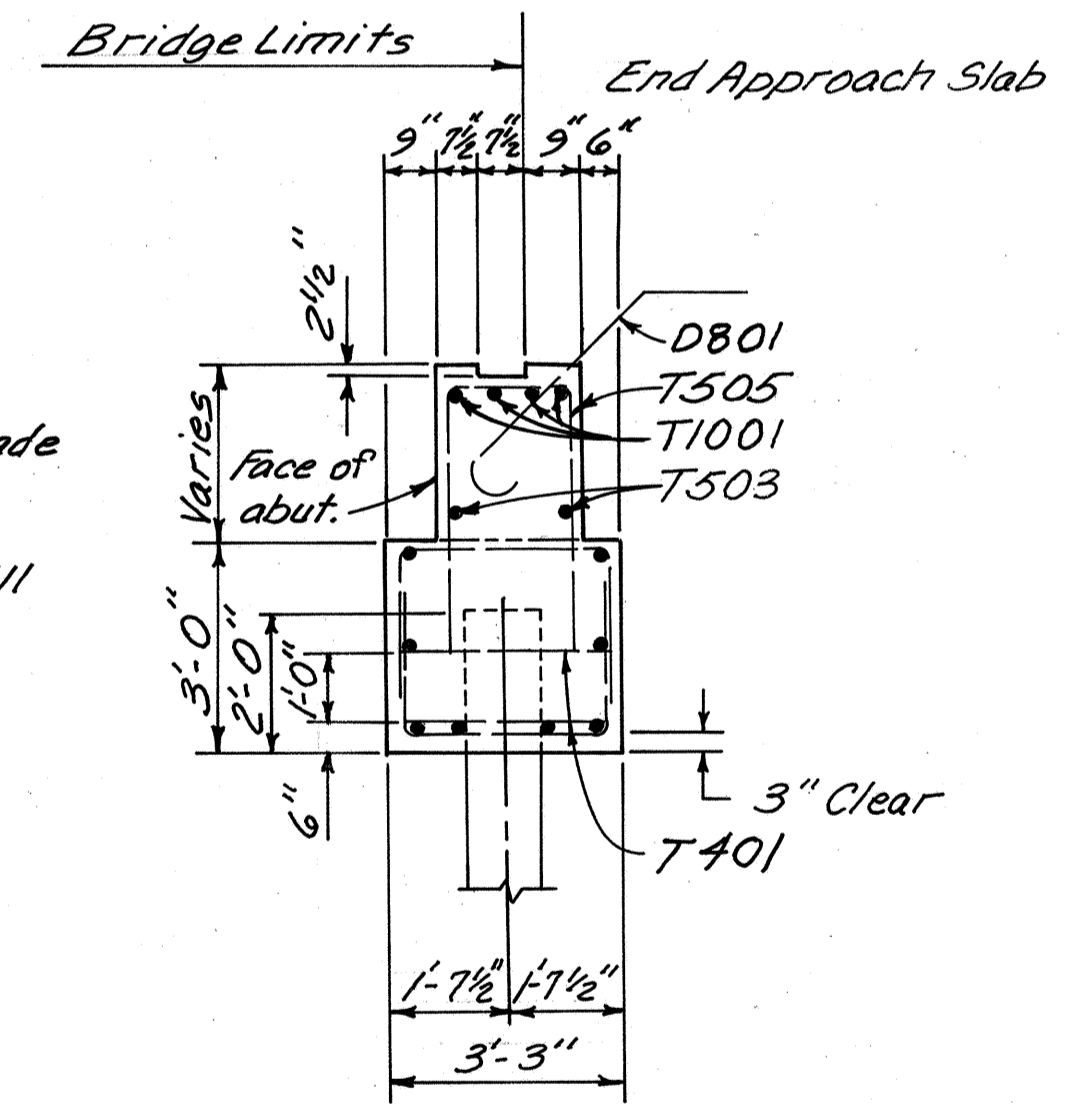


ELEVATION

(Rear Abutment is shown)
(Forward Abutment is as dimensioned,
with reinforcing steel to match dimensions.)

Piles are 12" cast-in-place reinforced concrete or alternate.

R.A. Indicates Rear Abutment Dimension.
F.A. Indicates Forward Abutment Dimension.



SECTION A-A

NOTE: For details not shown see Standard Drawing CPA-2-73.

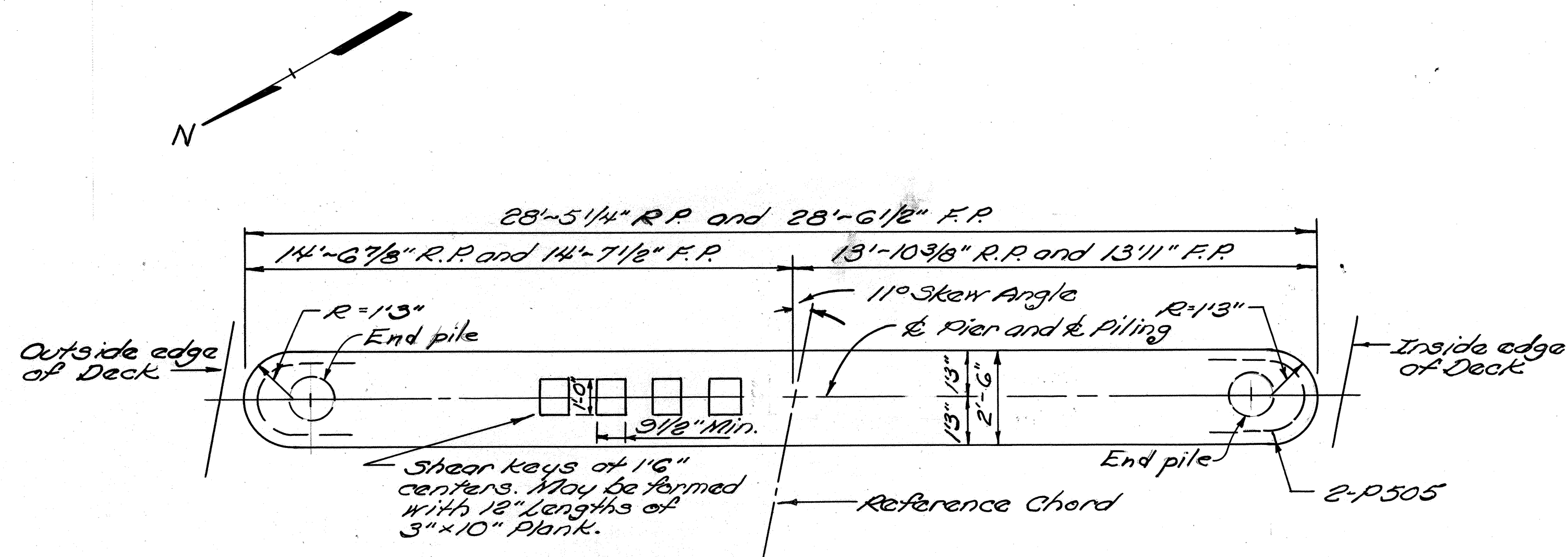
SECTION B-B
Showing Piling

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF MAINTENANCE					
ABUTMENT DETAIL					
BRIDGE NO. HOL-39-0594 OVER CRAB RUN					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
Dist. II	Dist. II	Dist. II	Dist. II		
JLO	JLO	JN	JUN		

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JUL 1982

HOL-39-(5.94)

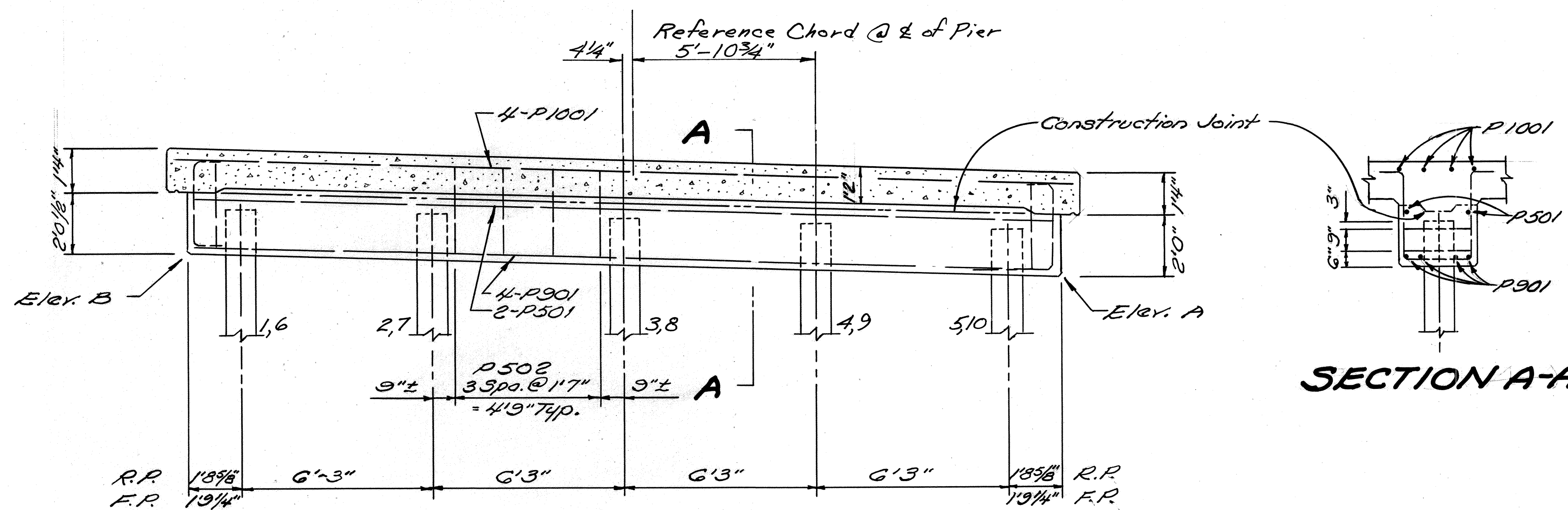
BR-33-81



PLAN

NOTE: R.P. indicates Rear Pier.
F.P. indicates Forward Pier

PIER ELEVATION		
Location	A	B
Rear	1067.93	1068.75
Forward	1068.22	1069.02



ELEVATION

FILE NUMBERING
Piles 1-5 Rear Pier
Piles 6-10 Forward Pier

Piles are 14" cast-in-place reinforced concrete.
Refer to Standard Drawing CPP-2-73 for details not shown.

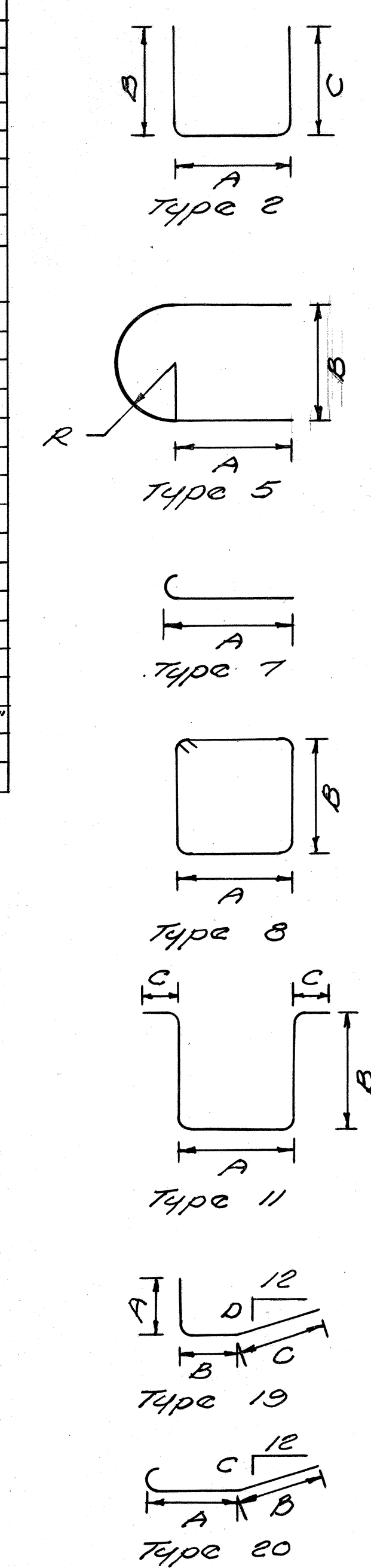
REINFORCING STEEL LIST

Mark	Number			Length	Weight	Type	Dimensions				
	Rear	Fwd.	Total				A	B	C	D	R
ABUTMENTS											
D801	19	19	38	6'0"	609	20	37"	16"	12"		
T1001	4	4	8	28'0"	964	Str.					
T801	4	4	8	35'6"	758	Str.					
T501	4	4	8	35'6"	296	Str.					
T502	58	58	116	6'10"	827	Str.					
T503	2	2	4	28'0"	117	Str.					
T504	3	3	6	10'4"	65	2	11"	4'10"	4'10"		
T505	19	19	38	Varies 7'11"-9'5"	343	2	18"	Varies 3'3"-4'0"			
T506	4	4	8	2'4"	19	Str.					
T507	2	2	4	4'2"	17	Str.					
T508	4	4	8	12'0"	100	2	11"	5'8"	5'8"		
T509	4	4	8	4'7"	34	Str.					
T510	2	2	4	5'11"	25	Str.					
T401	12	12	24	9'2"	147	Str.					
PIERS											
P1001	4	4	8	Epoxy-coated (see below)							
P901	4	4	8	26'0"	707	Str.					
P501	2	2	4	26'0"	108	Str.					
P502	16	16	32	8'7"	286	11	22"	2'8 1/2"	10 1/2"		
P503	2	2	4	8'5"	35	11	20"	2'8 1/2"	10 1/2"		
P504	2	2	4	4'3"	18	2	29"	10 1/2"	10 1/2"		
P505	4	4	8	6'4"	53	5	17"±	20 1/4"			1 1/2"
P401	10	10	20	8'0"	107	8					

Mark	Number	Length	Weight	Type	Dimensions			
					A	B	C	D
SUPERSTRUCTURE								
A819	87	23'0"	5,343	Str.				
B819	24	17'4"	1,111	7	16'3"			
C819	24	16'0"	1,025	7	14'11"			
D819	12	15'6"	487	Str.				
E819	12	13'2"	422	Str.				
M601	57	29'4"	2,511	Str.				
EPOXY COATED REINFORCING STEEL, TOP MAT ONLY								
F819	60	16'1"	2,577	Str.				
G819	26	9'0"	625	Str.				
H819	26	6'6"	451	Str.				
J819	60	13'9"	2,203	Str.				
K819	30	11'6"	921	Str.				
N401	65	29'4"	1,274	Str.				
M401	98	4'0"	262	19	10 1/2"	1'1"	20"	7
P1001	8	21'3"	732	Str.				

Calc. by: Date Ch'kd. by: Date
JLO 2-4-81 SLU 2-4-81

REINFORCING STEEL SAMPLES
Refer to CMS 106.03, 700, 709.01 thru 709.05. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structure by the additional steel, spliced in accordance with 509.08.



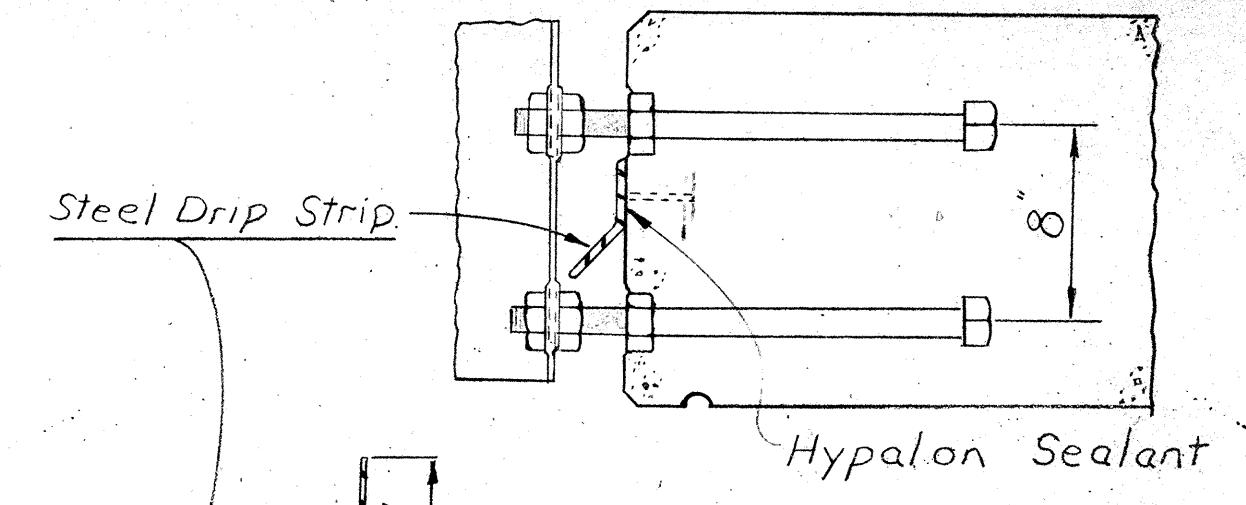
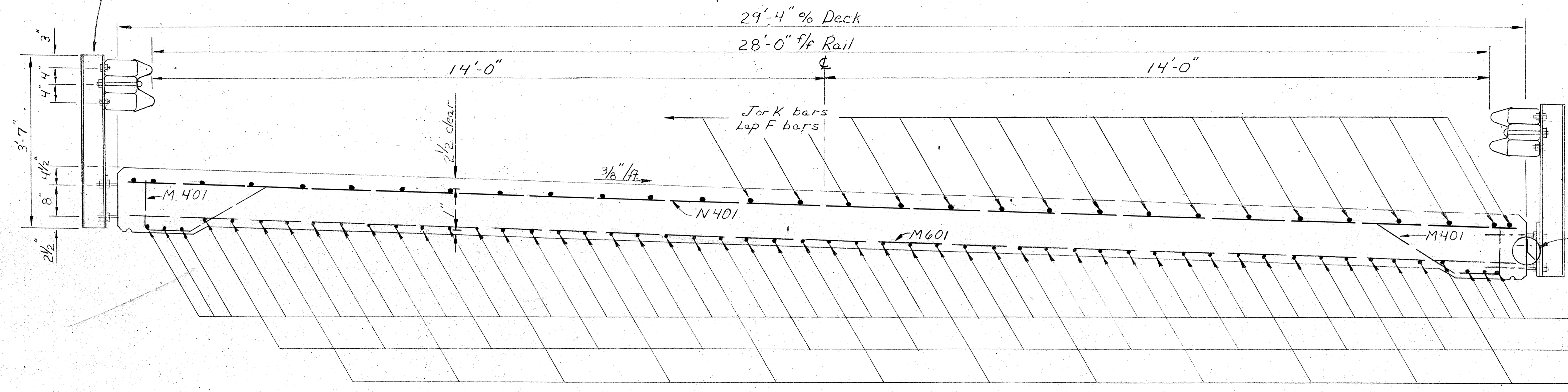
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BUREAU OF MAINTENANCE

PIER DETAILS
& REINFORCING STEEL LIST
BRIDGE NO. HOL-39-0594
OVER CRAB RUN

Design Dist. II	Drawn Dist. II	Checked Dist. II	Ch'kd. Dist. II	Reviewed Dist. II	Date	Revised
JLO	JLO	LJC	JUN			

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JUL 1982

See Standard Drawing No. DBR-2-73 for any Bridge Rail detail not shown.



DRIP STRIP DETAILS
FOR MONOLITHIC CONCRETE WEARING SURFACE
(Low side of deck only)

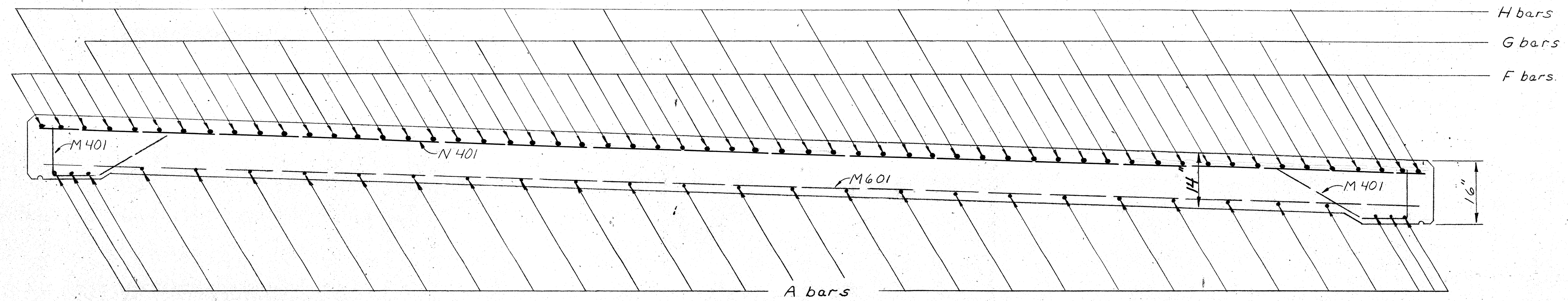
SECTION AT ABUTMENT AND CENTER OF SPANS

DRIP STRIP

Note: Top mat of deck shall be epoxy coated reinforcing steel.

See Standard Drawing No. CS-2-73 for any details not shown.

A bent drip strip shall be installed along the right edge of the deck as shown. The drip strips shall be embedded in a 1/8"x3" layer of hypalon sealant. The strips shall be fastened at 1'-6" c/c maximum with 1 1/2" x 3/8" x 1/4" flat head drive pin and washer (length x shank dia x head dia) or #10 galvanized screws and expansion anchors subject to the approval of the engineer. The strips shall be placed the full length of the deck, ending at the face of the abutment wingwall. Where splices are required the individual pieces shall be butted together, not lapped. Steel for galvanized strips shall be 6"x0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel alternate shall be 20 gauge ASTM A167, Type 304, mill finish. Payment shall be at the contract price bid for item Special Sq.Ft. steel drip strip, which shall include all materials, labor, tools, and incidentals necessary to complete item.
Sealant shall meet Government Specification TT-S-0023C, Type II.



SECTION AT PIER
(Reinforcing steel detail only)

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN						
SUPERSTRUCTURE DETAILS						
BRIDGE NO. HOL-39-0594						
Over						
CRAB RUN						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SLU	SLU		JLO			

UNRECORDED
JUL 19 1982

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE DISSECTED GLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION, ON THE NARROW FLOODPLAIN OF AND OVER CRAB RUN, IN AN AREA WHERE EXTREMELY DEEP GLACIAL-DERIVED MATERIAL OVERLIES BEDROCK, OF MISSISSIPPIAN AGE.

EXPLORATION








THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED BETWEEN FEBRUARY 26 AND MARCH 3, 1981.








INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS ENCOUNTERED INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE STRATIFIED CLAYS AND GRAVEL MODIFIED WITH SILTS AND SAND THAT GRADUALLY INCREASE (ERRATICALLY FLUCTUATING) IN DENSITY WITH INCREASE IN DEPTH. A BOULDER ZONE WAS ENCOUNTERED IN BORING B-1 AT 22 TO 24-FOOT DEPTH, ELEVATION 1046 TO 1044 FEET. THE BORINGS WERE TERMINATED AT 52 TO 61-FOOT DEPTH, ELEVATION 1016 TO 1008 FEET, AFTER PENETRATING IN EXCESS OF 41 FEET OF MATERIAL REQUIRING IN EXCESS OF 14 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.








BEDROCK SURFACE WAS NOT ENCOUNTERED IN EITHER OF THE TEST BORINGS PERFORMED.

NO FREE WATER OBSERVATIONS WERE MADE DURING OR AT THE CONCLUSION OF DRILLING OPERATIONS, HOWEVER WET ZONES WERE NOTED IN BOTH BORINGS. BORING B-1 ENCOUNTERED A WET ZONE AT 3 TO 9-FOOT DEPTH, ELEVATION 1065 TO 1059 FEET. BORING B-2 ENCOUNTERED A WET ZONE AT 6 TO 9-FOOT DEPTH, ELEVATION 1063 TO 1060 FEET.










-  Auger Boring Location - Plan View.
-  Press and / or Drive Sample and / or Core Boring Location - Plan View.
-  Drive Rod Penetration Resistance Sounding Location - Plan View.
-  Capped Pile
-  Footing
-  Footing on Pile
-  TR Top of Rock

-  Coal
-  Weathered Mudstone or Claystone
-  Mudstone or Claystone
-  Weathered Shale
-  Shale
-  Weathered Siltstone
-  Siltstone

SYMBOLS OF ROCK TYPES

-  Weathered Sandstone
-  Sandstone
-  Leached Dolomite
-  Dolomite
-  Leached Limestone
-  Limestone
-  Boulders or Cobbles

LEGEND

-  Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
-  Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
X = Number of Blows for First 6 inches.
Y = Number of Blows for Second 6 inches.
Z = Number of Blows for Third 6 inches.
-  Drive Rod Penetration Resistance Sounding Log - Profile
-  Casing
-  Resistance "R" < 10,000 lbs.
-  Resistance "R" > 10,000 lbs.
-  Z Indicates Final Measurement of Penetration, in Inches.
-  W Indicates Free Water Elevation.
-  Indicates Static Water Elevation.

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

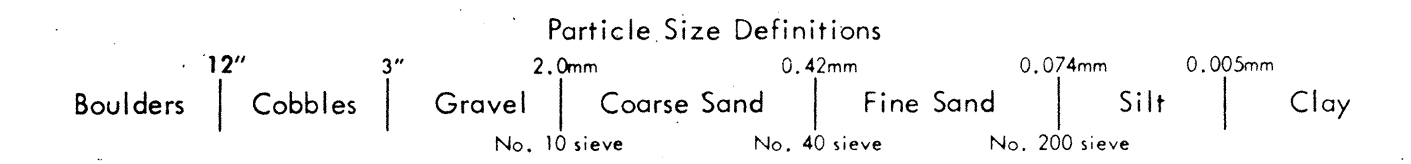
Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

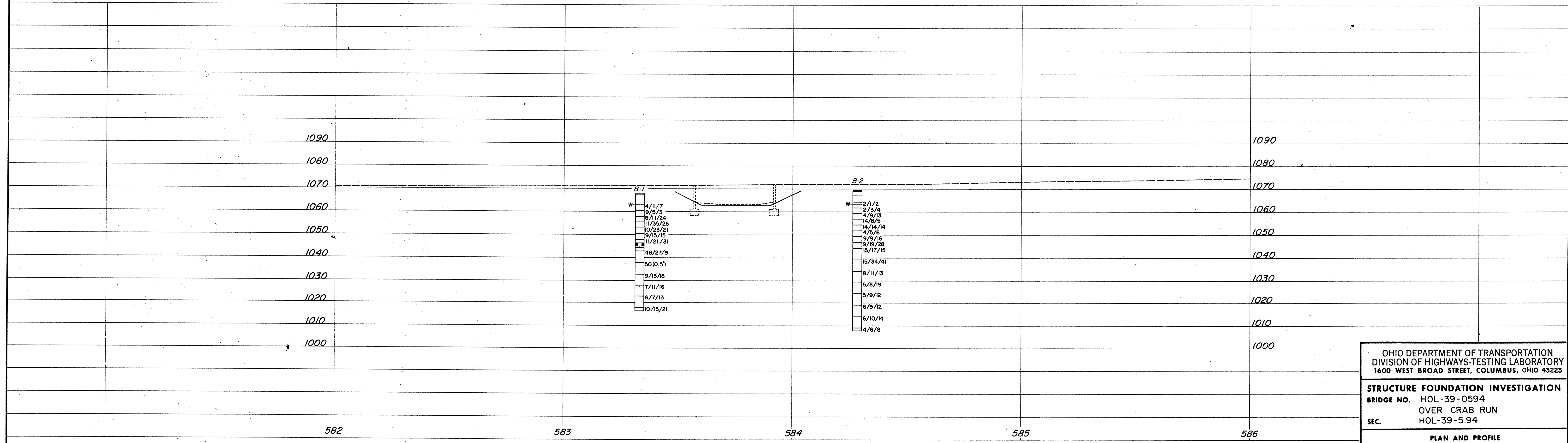
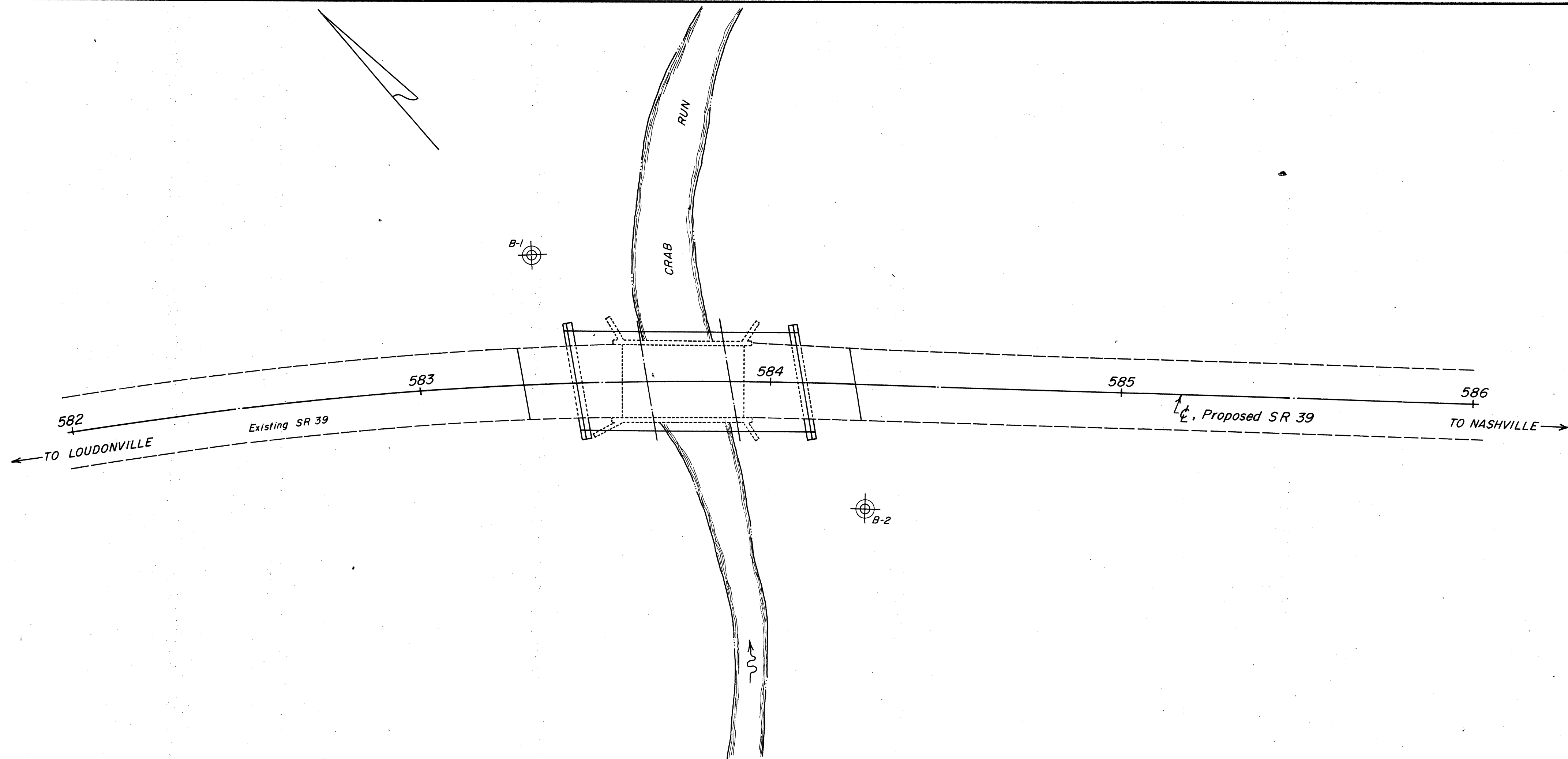
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. HOL-39-0594
OVER CRAB RUN
SEC. HOL-39-5.94

CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 3/16/81
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MICROFILMED
JUL 19 1982



OHIO DEPARTMENT OF TRANSPORTATION
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STRUCTURE FOUNDATION INVESTIGATION
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PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L. N. L.	L. N. L.	R. D. R.	3/16/81

SCALE: 1" = 20'

MICROFILMED
JUL 19 1982

HOL-39-5.94
BR-33-81

LOG OF BORING (MET ZONE)

Date Started 2/26/81 Sampler Type SS Dia 1 3/8" Water Elev 1065.4' to 1068.9'
 Date Completed 3/2/81 Casing Length _____ Dia _____
 Boring No. B-1 Station & Offset 583+33 - 37' LT. (REAR ABUTMENT) Surface Elev 1067.9

Elev.	Depth	Std. Pen. (N)	Rec. Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.	
						% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Visual			
1067.9	0			SOD AND TOPSOIL													VISUAL
1067.6	2	AUGERED		BROWN SANDY SILT (DRILLER'S DESCRIPTION)													VISUAL
1065.4	4	AUGERED		BROWN SILTY SAND AND GRAVEL (DRILLER'S DESCRIPTION)													VISUAL
1062.9	6	4/11/77		BROWN SILTY SANDY GRAVEL	1	51	10	16	14	9	NP	NP	14	A-1-b			
1060.4	8	9/6/73		BROWN SILTY SANDY GRAVEL	2	53	10	15	14	8	NP	NP	13	A-1-b			
1057.9	10	8/11/78		BROWN SILTY SANDY GRAVEL	3	47	17	14	14	8	NP	NP	13	A-1-b			
1055.4	12	11/35/76		BROWN SILTY SANDY GRAVEL	4	48	12	16	15	9	NP	NP	8	A-1-b			
1052.9	14	10/23/72		BROWN SILTY SANDY GRAVEL	5	54	11	15	12	8	NP	NP	13	A-1-b			
1050.4	16	9/16/76		BROWN SILTY SANDY GRAVEL	6	58	20	10	7	5	NP	NP	12	A-1-a			
1047.9	18	11/21/77		BROWN-GRAY SILTY GRAVELLY SAND	7	38	21	19	15	7	NP	NP	16	A-1-b			
1046.4	19			BOULDER ZONE													VISUAL
1042.0	23	4/27/79		GRAY-BROWN SILTY SANDY GRAVEL	8	50	29	8	6	7	NP	NP	8	A-1-a			
1039.2	25	10/6/77		BROWN-GRAY SILTY SANDY GRAVEL	9	65	11	11	6	7	NP	NP	7	A-1-a			
1034.2	31	10/28/76		GRAY SILT	10	1	2	3	71	2	NP	NP	19	A-6b			
1029.2	37	2/7/78		GRAY SILT AND CLAY	11	0	0	0	36	64	41	15	16	A-7-E			
1024.2	43	4/7/73		GRAY SILT AND CLAY	12	0	0	0	27	73	40	12	26	A-6a			
1019.2	49	10/12/72		GRAY SILT AND CLAY	13	0	0	0	28	72	34	11	23	A-6a			

BOTTOM OF BORING

LOG OF BORING (MET ZONE)

Date Started 3/3/81 Sampler Type SS Dia 1 3/8" Water Elev 1063.2' to 1060.2'
 Date Completed 3/3/81 Casing Length _____ Dia _____
 Boring No. B-2 Station & Offset 584+28-35' RT (FORWARD ABUTMENT) Surface Elev 1069.2'

Elev.	Depth	Std. Pen. (N)	Rec. Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.	
						% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Visual			
1069.2	0			SOD AND TOPSOIL													VISUAL
1068.9	2	AUGERED		BROWN SANDY SILT													VISUAL
1066.7	4	AUGERED		GRAY-BROWN SILTY SAND AND GRAVEL													VISUAL
1064.2	6	2/1/72		BROWN-GRAY GRAVELLY SANDY SILT	14	17	11	23	33	16	NP	NP	24	A-4a			
1061.7	8	2/3/4		BROWN SILTY SANDY GRAVEL	15	49	16	16	11	8	NP	NP	19	A-1-b			
1059.2	10	4/9/73		BROWN SILTY SANDY GRAVEL	16	45	20	17	10	8	NP	NP	15	A-1-b			
1056.7	12	14/8/75		BROWN SILTY GRAVELLY SAND	17	33	19	22	17	9	NP	NP	14	A-2-4			
1054.2	14	14/14/74		BROWN SILTY SANDY GRAVEL	18	48	17	14	13	8	NP	NP	15	A-1-b			
1051.7	16	4/5/76		BROWN SILTY SANDY GRAVEL	19	46	25	14	8	7	NP	NP	15	A-1-b			
1049.2	18	9/9/76		BROWN GRAVELLY SANDY SILT	20	22	15	16	26	13	NP	NP	14	A-4a			
1046.7	20	9/19/78		BROWN SILTY SANDY GRAVEL	21	52	16	12	7	7	NP	NP	13	A-1-b			
1044.2	22	15/17/75		BROWN-GRAY SILTY SANDY GRAVEL	22	41	24	11	15	9	NP	NP	11	A-1-b			
1039.2	28	15/34/41		BROWN-GRAY SANDY GRAVELLY SILT	23	18	7	10	61	14	NP	NP	21	A-4b			
1034.2	34	6/11/73		GRAY-BROWN SILT	24	5	1	3	67	24	NP	NP	24	A-6b			
1029.2	40	5/8/79		GRAY SILT	25	0	1	1	67	32	NP	NP	24	A-6b			
1024.2	46	5/5/72		GRAY SILT	26	4	1	1	45	45	27	2	27	A-4a			
1019.2	52	6/9/72		GRAY - BROWN SILTY CLAY	27	0	0	0	1	99	76	1	76	A-7-C			
1014.2	58	6/10/74		GRAY SILT AND CLAY	28	0	0	0	19	81	40	15	25	A-6a			
1009.2	64																
1007.7	67	4/6/78		GRAY SILT AND CLAY	29	3	0	0	68	68	37	13	26	A-6a			

BOTTOM OF BORING

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BORING DATA

TYPED BY J. M. L.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 3/16/81
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