

DESIGN DESIGNATION-PARTS I&II

CURRENT (1964) A.D.T. = 4,410
 DESIGN YEAR (1984) A.D.T. = 7,718
 D.H.V. = 900
 D (DIRECTIONAL DISTRIBUTION) = 60%
 T (PERCENT B&C VEHICLES) = 30%
 V (DESIGN SPEED) = 50 M.P.H.

MICROFILMED
 APR 16 1979
 REPRODUCTION

STATE OF OHIO
 DEPARTMENT OF HIGHWAYS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	STATE

HUR-224-(15.81)(16.40)

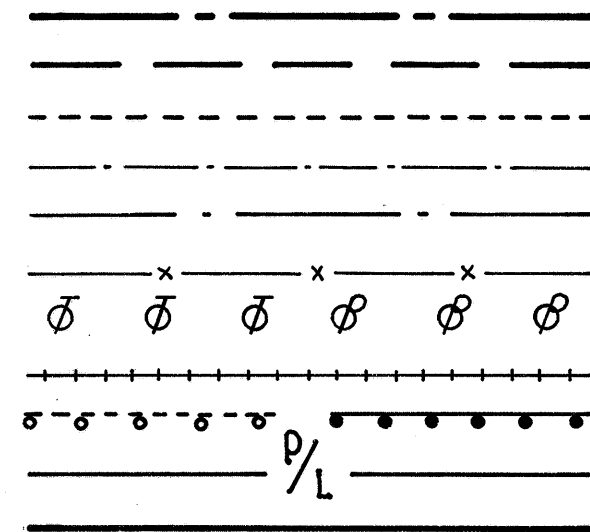
HUR-224-(15.81)(16.40)

HURON COUNTY

RIPLEY AND GREENWICH TOWNSHIPS

CONVENTIONAL SIGNS

COUNTY LINE
 TOWNSHIP LINE
 SECTION LINE
 CORPORATION LINE
 CENTER LINE
 FENCE LINE
 POLE LINE (TELEPHONE & POWER)
 RAILROAD
 GUARD RAIL (EXISTING & PROPOSED)
 PROPERTY LINE
 RIGHT OF WAY

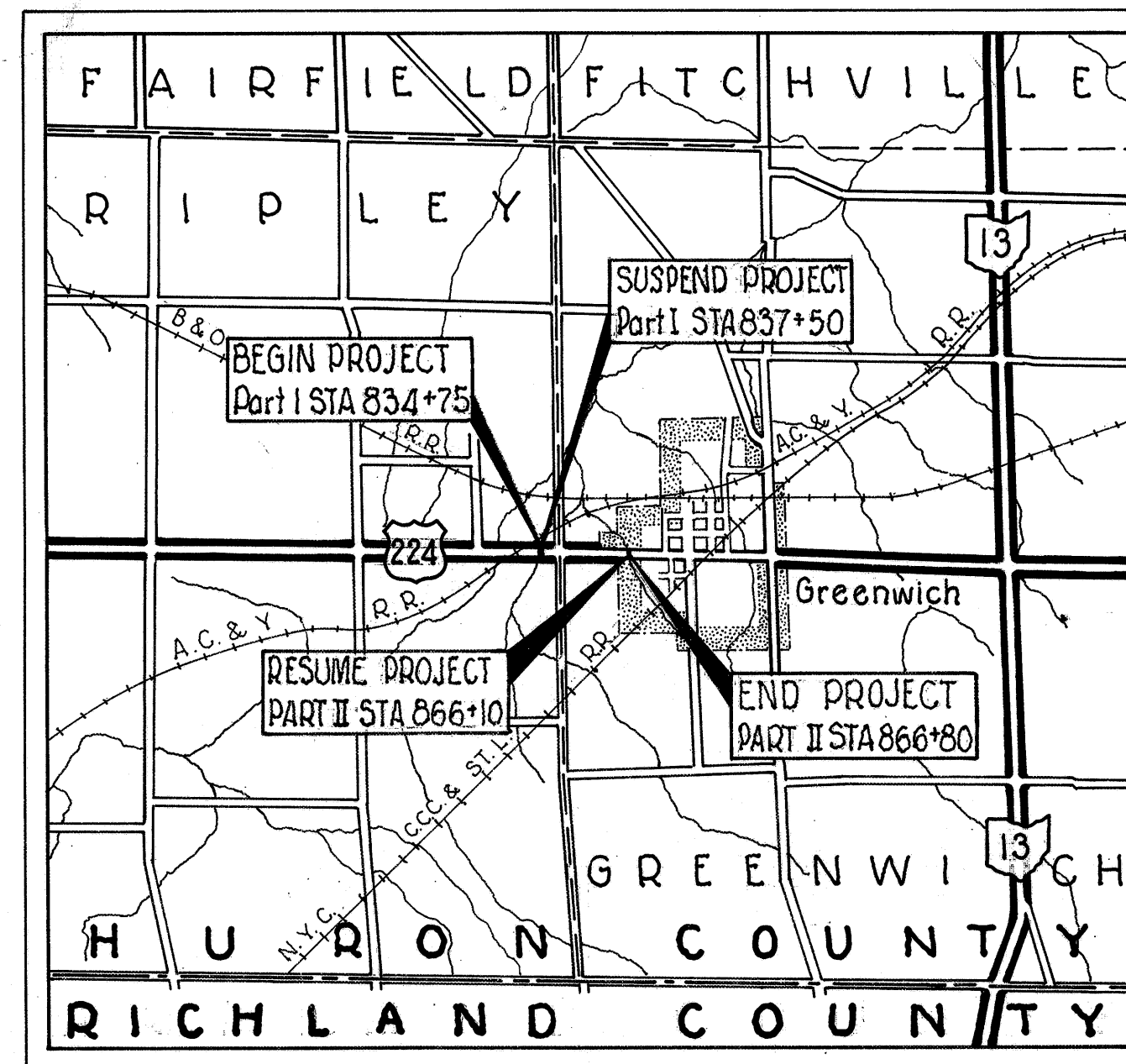


INDEX OF SHEETS

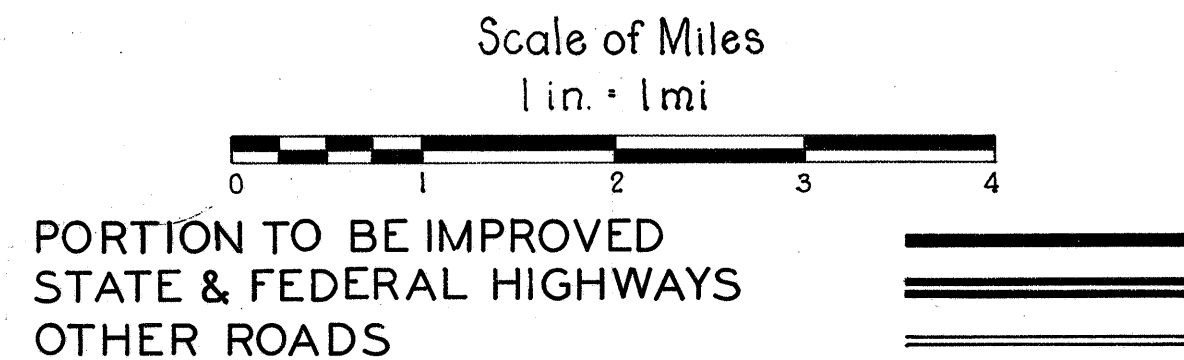
TITLE SHEET	1
TYPICAL SECTION	2
GUARD RAIL DETAILS	3
GENERAL NOTES	4
CALCULATIONS	5
GENERAL SUMMARY	5
PLAN & PROFILE	6 & 11
CROSS SECTIONS	7-8 & 12-13
CULVERT AND CHANNEL DETAILS	9-10 & 14-15
STRUCTURE OVER 20' SPAN	16-18
RIGHT OF WAY	19-20

LINE DATA

	PROJECT	WORK
HUR-224-15.81 (PART I)		
BEGIN	STA 834 +75'	STA 832+50'
SUSPEND	STA 837+50	STA 840+50
NO ADDITIONS OR DEDUCTIONS		
NET LENGTH (PART I)	275.00' LIN.FT. OR 0.052' MILES	800.00' LIN.FT. OR 0.151' MILES
HUR-224-16.40 (PART II)		
RESUME	STA 866 +10'	STA 863+21.12'
END	STA 866+80	STA 869+78.88
NO ADDITIONS OR DEDUCTIONS		
NET LENGTH (PART II)	70.00' LIN.FT. OR 0.013' MILES	657.76' LIN.FT. OR 0.124' MILES
TOTAL NET LENGTH FOR PARTS I&II	345.00' LIN.FT. OR 0.065' MILES	1,457.76' LIN.FT. 0.276' MILES



LOCATION MAP



SCALES

PLAN	1" = 50'
PROFILE-HORIZONTAL	1" = 50'
PROFILE-VERTICAL	1" = 5'
CROSS SECTIONS	1" = 10'
OTHER SHEETS AS SHOWN	

1967 SPECIFICATIONS

The Standard Specifications of the State of Ohio, Department of Highways, 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 not require the closing to traffic of the highway and that provision for the maintenance and safety of traffic will be as set forth on the plans and estimates.

- Approved [Signature]
 Date 6-4-68 Division Deputy Director
- Approved [Signature]
 Date 7-2-68 Engineer of Bridges
- Approved [Signature]
 Date 7-23-68 Engineer of Location and Design
- Approved [Signature]
 Date 7-23-68 Deputy Director of Design and Construction
- Approved [Signature]
 Date 8-9-68 Deputy Director of Right of Way
- Approved [Signature]
 Date 8-9-68 Deputy Director of Planning and Programming
- Approved [Signature]
 Date 8-9-68 First Assistant Director
- Approved [Signature]
 Date 8-9-68 Director of Highways

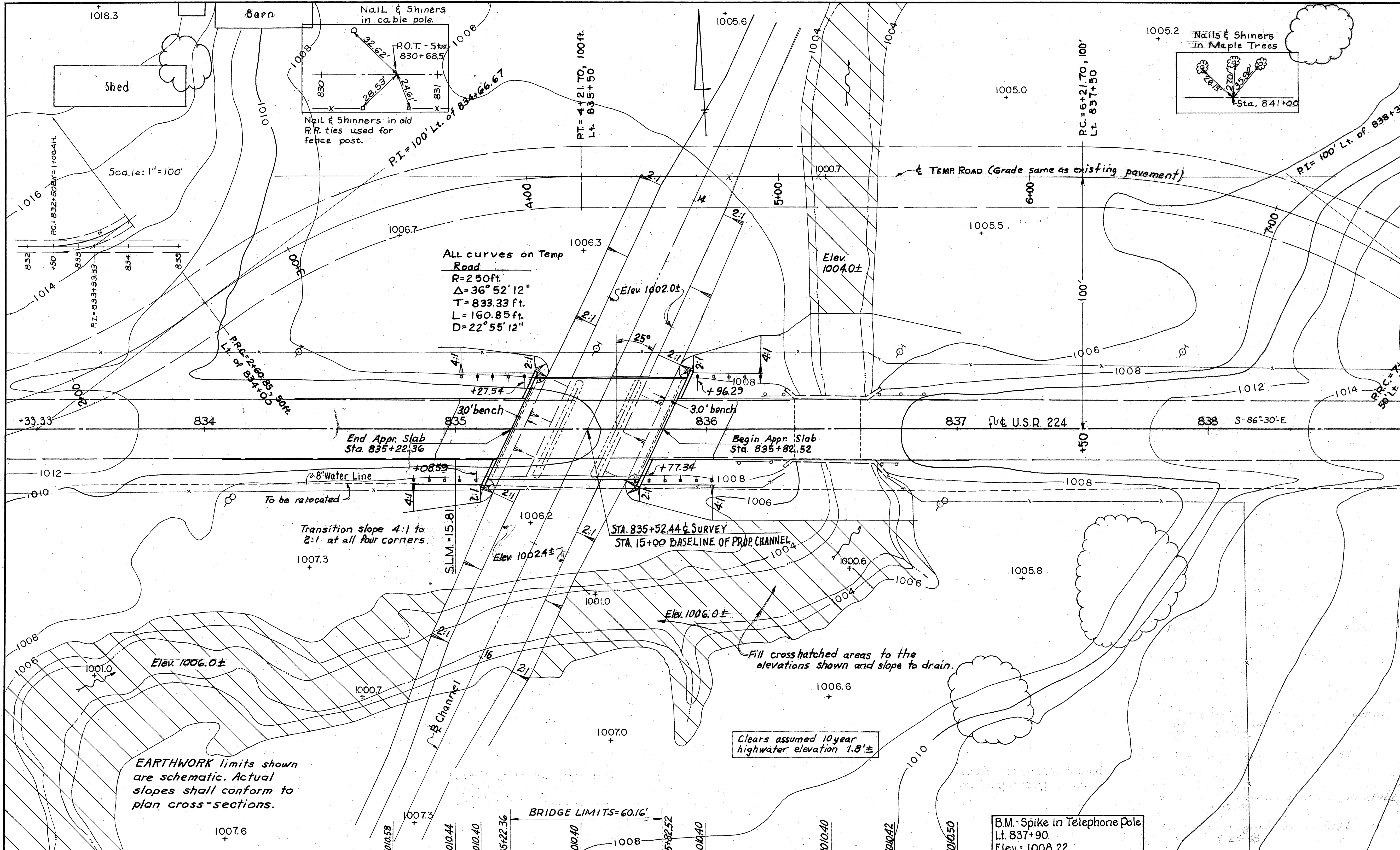
WARR
 4-BV-7
 7-21-67

FILE N ^o	HURON COUNTY	HUR-224-(15.81)(16.40)
	DATE OF LETTING	
	CONTRACT N ^o	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
BP-1	6-1-65	HW-E	6-1-65	AS-1-67	1-11-68
BP-3	5-1-68	L-1	6-1-65	SP-53	6-30-61
BP-4	1-10-67	MC-1	10-1-67	CS-1-65	6-1-65
BP-5	6-1-65	MC-3	5-1-66	A-1-54	11-8-65
GR-1	1-1-67	MC-4	6-1-65	P-1-54	11-8-65
		MH-1	6-1-65		
GR-2B	2-15-68	MH-1A	8-1-66		

SUPPLEMENTAL SPECIFICATIONS	
1001	3-21-66
808	1-13-67
825	12-19-67

HUR-224 (15.61) (16.40)
 Located 0.5 miles west of GREENWICH



TRAFFIC: 1984 Daily Design Volume = 7720
 DESIGN Q₂₅ = 880 cfs

EXISTING BRIDGE DATA
 HUR-224 - 1584

TYPE:	CONCRETE BEAM
SPAN:	26'-4" CLEAR
ROADWAY:	24'-1"
LOADING:	H-15
SKEW:	0'
WEARING SURFACE:	3" BITUMINOUS
SUBSTRUCTURE:	STONE & CONCRETE - GRAVITY
CONDITION:	POOR
ALIGNMENT:	TANGENT
DATE BUILT:	UNKNOWN

DRAINAGE AREA: 4.09 SQ. MILES

PROPOSED STRUCTURE

TYPE: Continuous reinforced concrete slab with capped pile substructure

SPANS: 18.0'-22.5'-18.0' c/c bearings

ROADWAY: 40.0' f/a guard rails

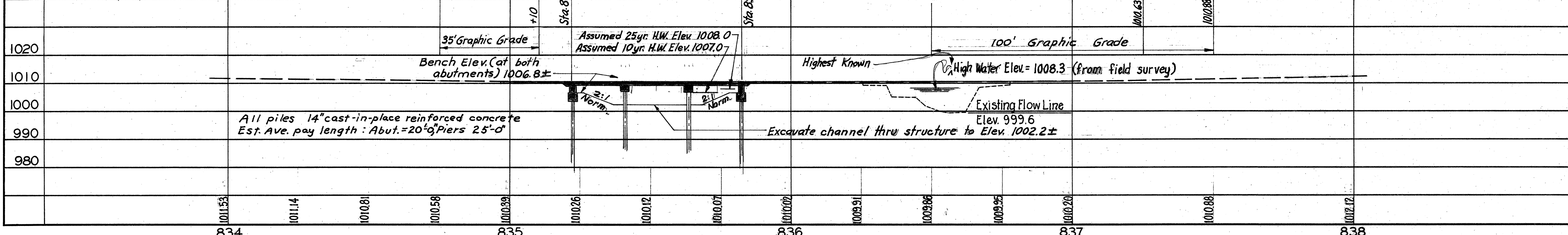
LOADING: HS 20-44

SKEW: 25° L.F.

WEARING SURFACE: 1" monolithic concrete

APPROACH SLAB: AS-1-G7 (25' long)

ALIGNMENT: Tangent



STATE OF OHIO
 DEPARTMENT OF HIGHWAYS
 BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. HUR-224 - 1584
 OVER BRANCH OF SOUTHWEST BRANCH OF VERMILION RIVER

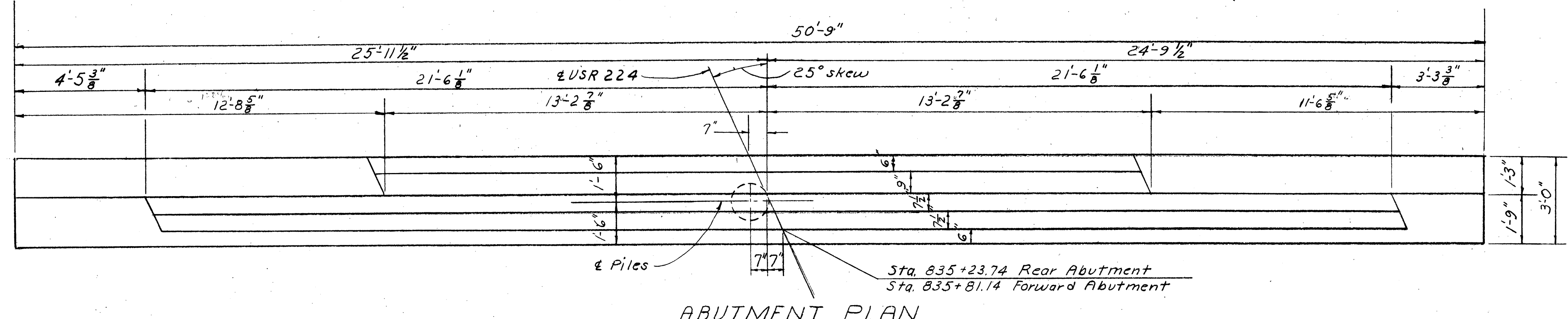
HURON CO SR 224
 SEC. 1584 STA. 835+22.36

SCALE 1"=20' 835+82.52

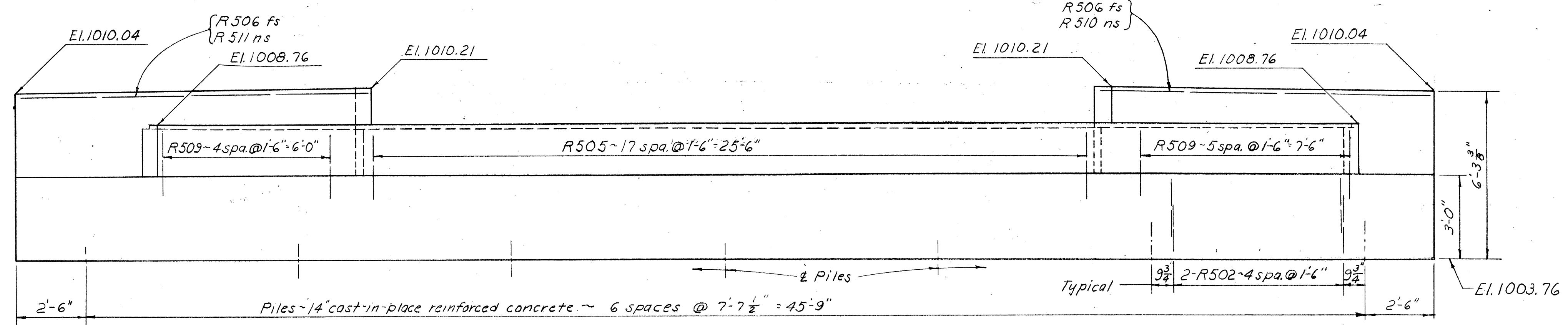
PRESENT TOPOGRAPHY		PROPOSED WORK		
SURVEYED AERIAL SURVEY	DRAWN AERIAL SURVEY	DESIGNED D.H.S.	DRAWN D.H.S.	CHECKED N.J.B.

REVIEWED P.E. S.

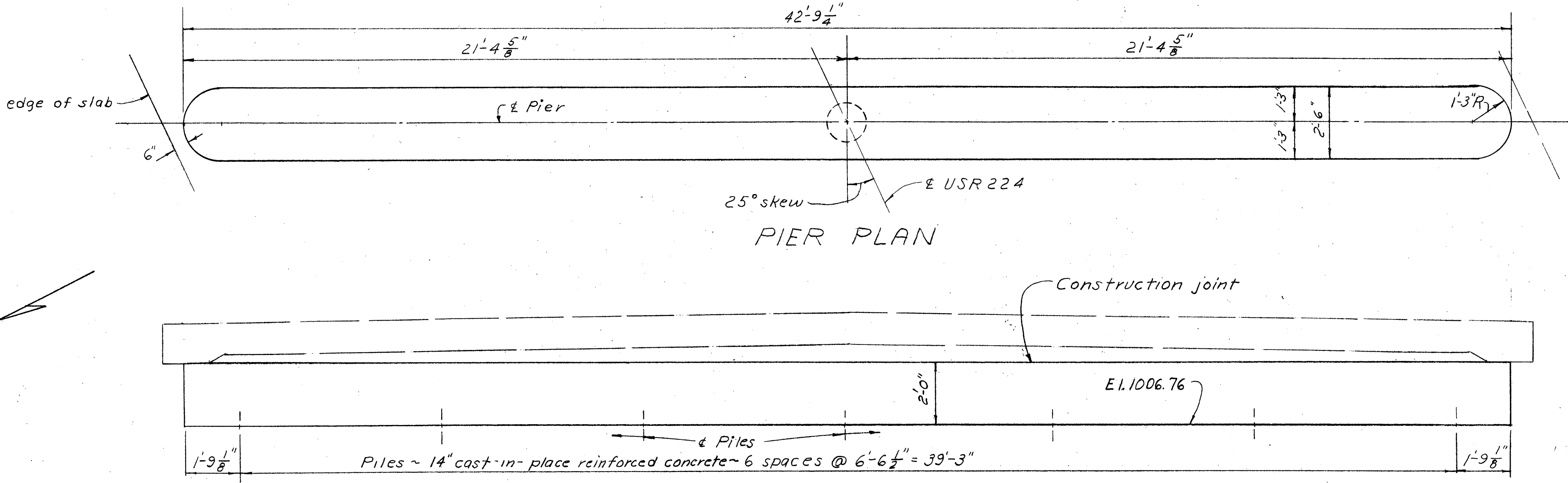
BFG 6-28-68



ABUTMENT PLAN

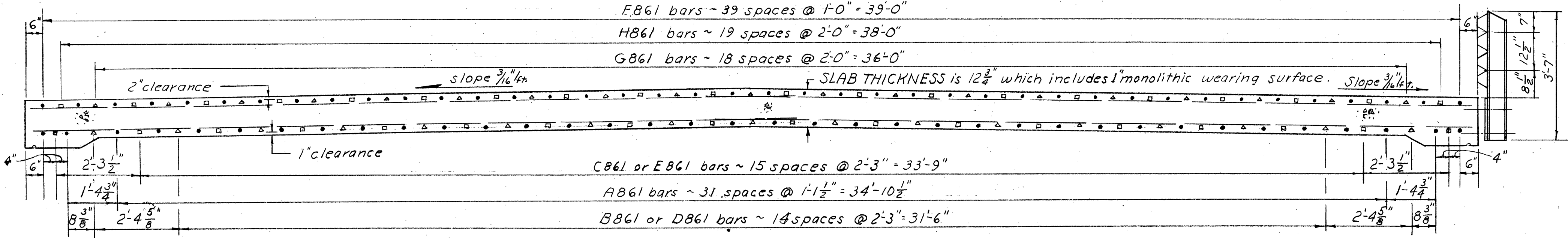


ELEVATION



PIER PLAN

ELEVATION



COMPOSITE TRANSVERSE SECTION

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp.	Bending Diagrams	Mark	No.	Length	Weight	Shp.	
Superstructure						Abutments Cont.					
A8G1	108	21'-7"	6224	S		R509	22	8'-5"	193	B	
B8G1	34	17'-3"	1566	B		R510	2	11'-2"	23	S	
C8G1	36	15'-8"	1506	B		R511	2	12'-4"	26	S	
D8G1	17	16'-10"	764	S		Piers					
E8G1	18	13'-2"	633	S		P1001	16	23'-6"	1618	S	
F8G1	80	19'-11"	4254	S		P901	16	21'-5"	1165	S	
G8G1	38	11'-4"	1150	S		P701	84	4'-0"	687	S	
H8G1	40	10'-4"	1104	S		P501	8	20'-10"	174	S	
J6G1	40	11'-2"	671	S		P502	60	9'-0"	563	B	
K6G1	10	8'-0"	120	S		P503	8	6'-4"	53	B	
M7G1	52	43'-6"	4624	S	Replacement bars						
N6G1	44	43'-6"	2875	S	RE1001	1	8'-2"	-	S		
Abutments						RE301	1	7'-10"	-	S	
R1001	16	22'-11"	1578	S	RE801	1	7'-6"	-	S		
R801	16	26'-8"	1139	S	RE701	1	7'-2"	-	S		
R501	16	26'-3"	438	S	REG01	1	6'-11"	-	S		
R502	136	6'-7"	934	B	RE501	1	6'-7"	-	S		
R503	8	22'-2"	185	S	RE401	1	5'-5"	-	B		
R504	24	5'-4"	133	S							
R505	36	7'-11"	297	B							
R506	4	11'-10"	49	S							
R507	16	4'-11"	82	S							
R508	22	6'-8"	153	B							

ESTIMATED QUANTITIES						
Item	Total	Unit	Description	Abuts.	Piers	Super.
202	Lump	Sum	Existing structure removed			
502	Lump	Sum	Temporary run-around bridge			
503	95	Cu.Yds.	Unclassified excavation	95		
505	Lump	Sum	First test pile			
507	630	Lin.Ft.	14" cast-in-place reinforced concrete piles	280	350	
509	35387	Lbs.	Reinforcing steel	5433	4463	25491
511	115	Cu.Yds.	Class C concrete, superstructure and pier caps		16	99
511	52	Cu.Yds.	Class C concrete, abutments	52		
517	120.32	Lin.Ft.	Railing (Two deep beam rails with steel posts and bolts)			120.32
518	16	Cu.Yds.	Porous backfill	16		
601	153	Sq.Yds.	Crushed aggregate slope protection			153
808	99	Units	Water-reducing, set-retarding admixture			99
825	285	Sq.Yds.	Concrete surface treatment			285

For additional details see Standard Drawings CS-1-65 sheet 1f2, A-1-54 and P-1-54. Use Load Frequency CF=2000.

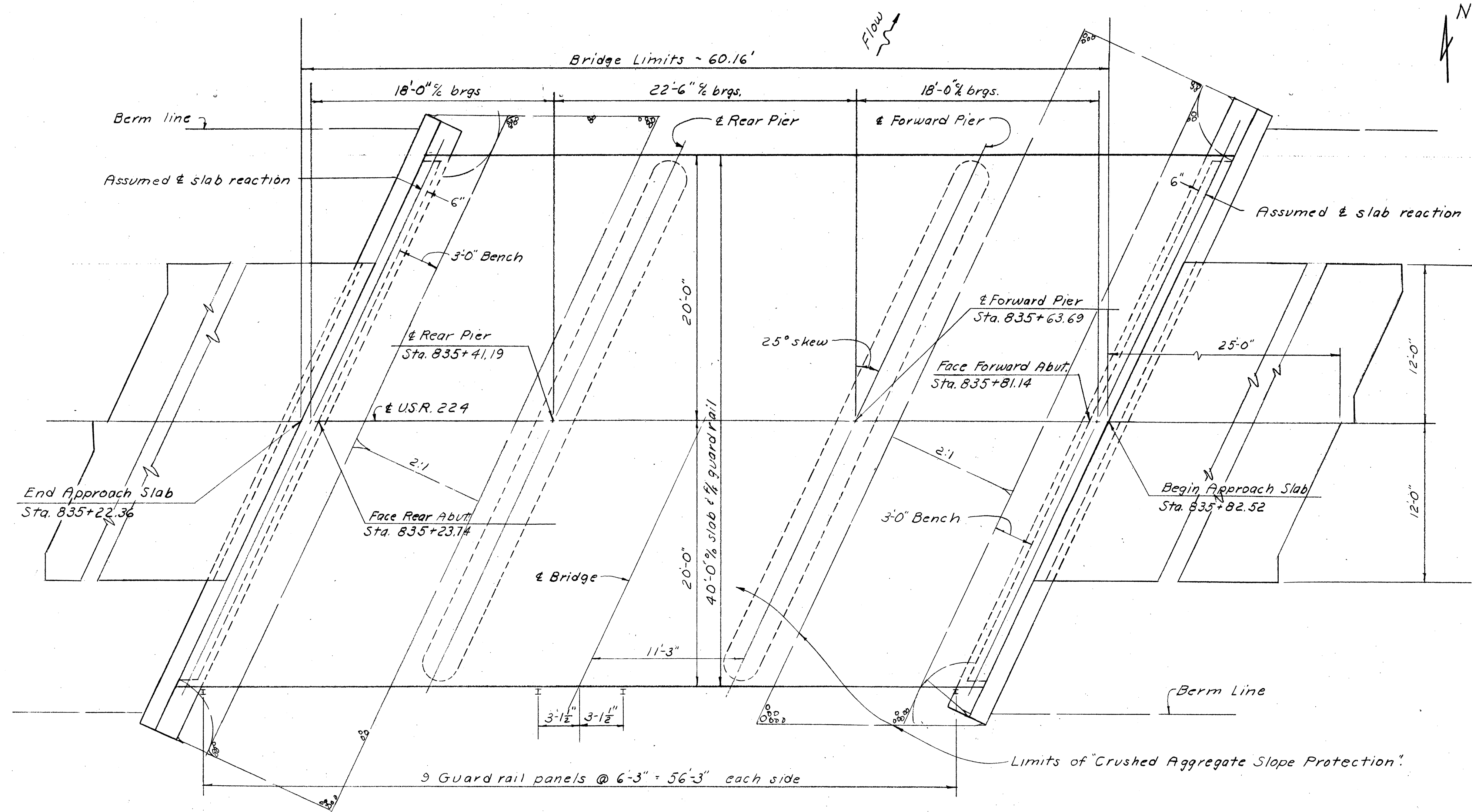
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

3/3

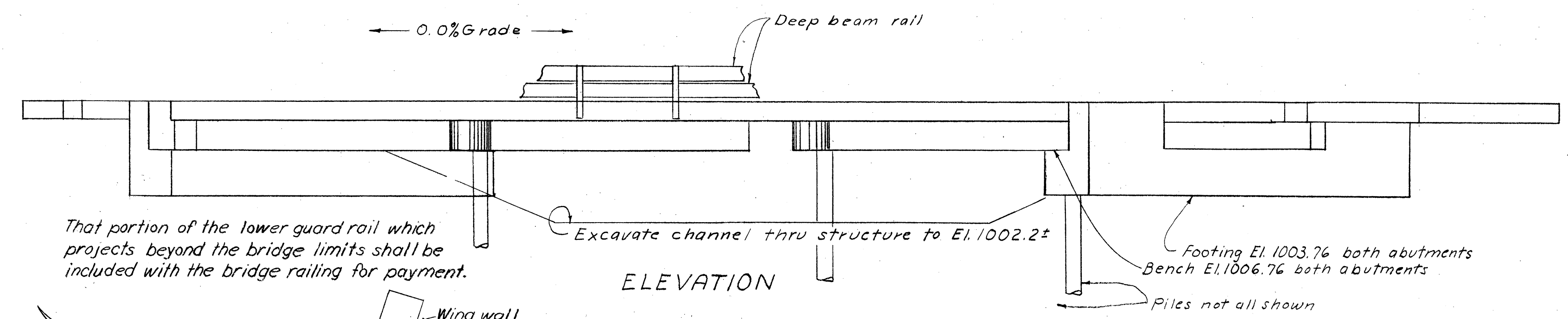
ABUTMENT & PIER DETAILS
ESTIMATED QUANTITIES
and REINFORCING STEEL LIST
BRIDGE NO. HUR-224-1584
over SOUTHWEST BRANCH VERMILION RIV.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FPK	FPK		6/1	BFG	6-28-68	

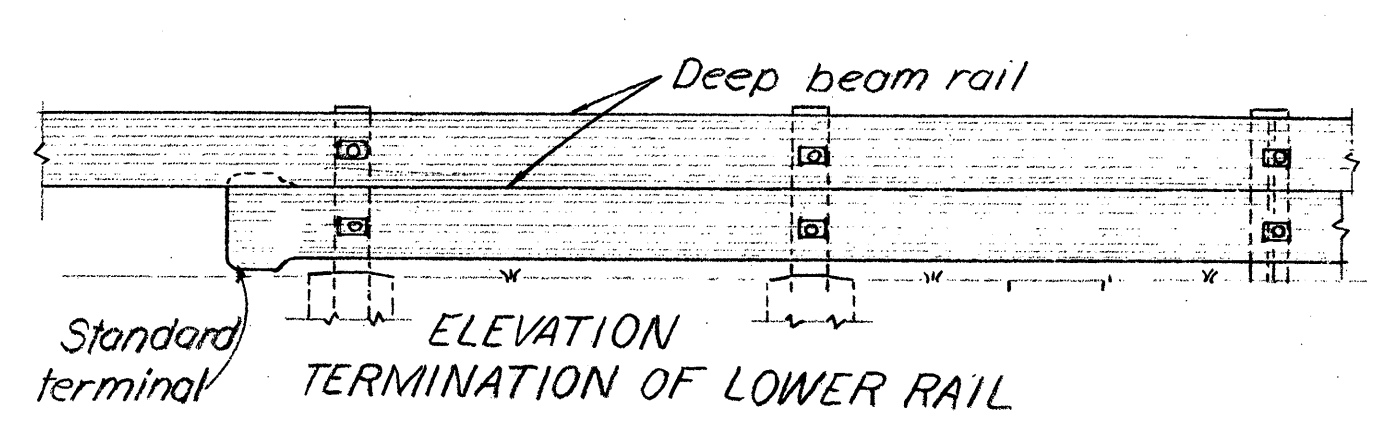
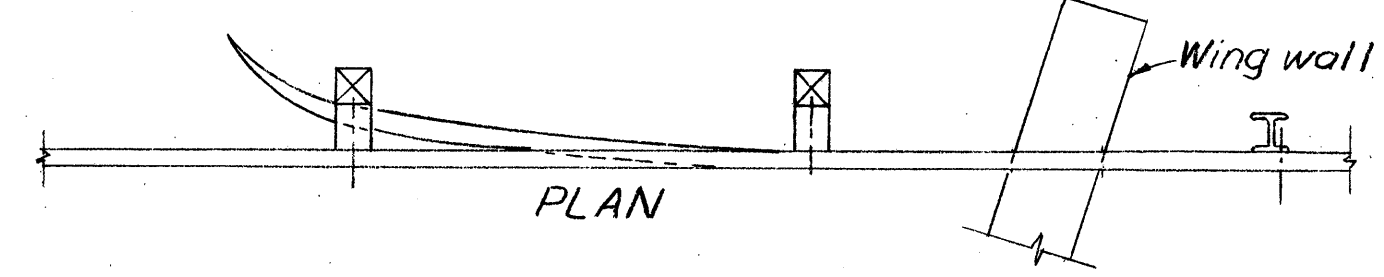
HUR-224 (15.8) (16.40)



GENERAL PLAN



ELEVATION



1/16" x 1 1/2" oval hole, same shape as post bolt shoulder

3" diameter hole

8 ga.

SPECIAL WASHER

Use under head of all post bolts.

GENERAL NOTES

REFERENCE shall be made to Standard Drawings CS-1-G5, dated 6-1-65, sheets 1 and 2, A-1-54 revised 11-8-65 and P-1-54 revised 11-8-65 and to Supplemental Specifications 808 dated 1-13-67 and 825 dated 12-19-67.

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1965, including the Ohio "Supplement" to these specifications.

DESIGN DATA:
 Design Loading - HS20-44
 Concrete Class C - unit stress 1200 p.s.i. for superstructure
 unit stress 1333 p.s.i. for substructure
 Reinforcing Steel - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Unit stress 20,000 p.s.i.

TEMPORARY RUN-AROUND BRIDGE: Loading for bridge, HS20-44, with unit stresses increased 50%. 24' roadway.

PILES shall be driven to a minimum bearing capacity of 23 tons per pile for the abutments and 27 tons per pile for the pier.

PIER PILE ENCASEMENT as shown on Standard Drawing No. P-1-54 may be omitted provided that the tapered portion, if any, of all pier piles does not extend above the stream bed or the proposed surface of the ground. If the tapered portion of any pile extends above these limitations, the encasement will be required for all the pier piles. If the encasement is omitted the pile casings shall have a thickness of metal not less than No. 7 gauge, and the painting of the piles shall extend to low water elevation or, if the proposed surface of the ground is above low water, the painting shall extend to at least one foot below the proposed surface of the ground.

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

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owner. The Contractor and Owner are requested to cooperate by arranging their work in such a manner that inconvenience to either would be held to a minimum.

EXISTING STRUCTURE shall be removed.

ABUTMENT EXCAVATION QUANTITY, in addition to 503.10, includes the removal of material bounded by the proposed bench, by the front vertical plane described in 503.10 and by the finished slope of the cut.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES							2/3
GENERAL PLAN, ELEVATION & GENERAL NOTES							
BRIDGE NO. HUR-224-1584 OVER BRANCH OF SOUTH WEST BRANCH OF VERMILION RIVER							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
FPK	FPK			BFG	6-28-68		

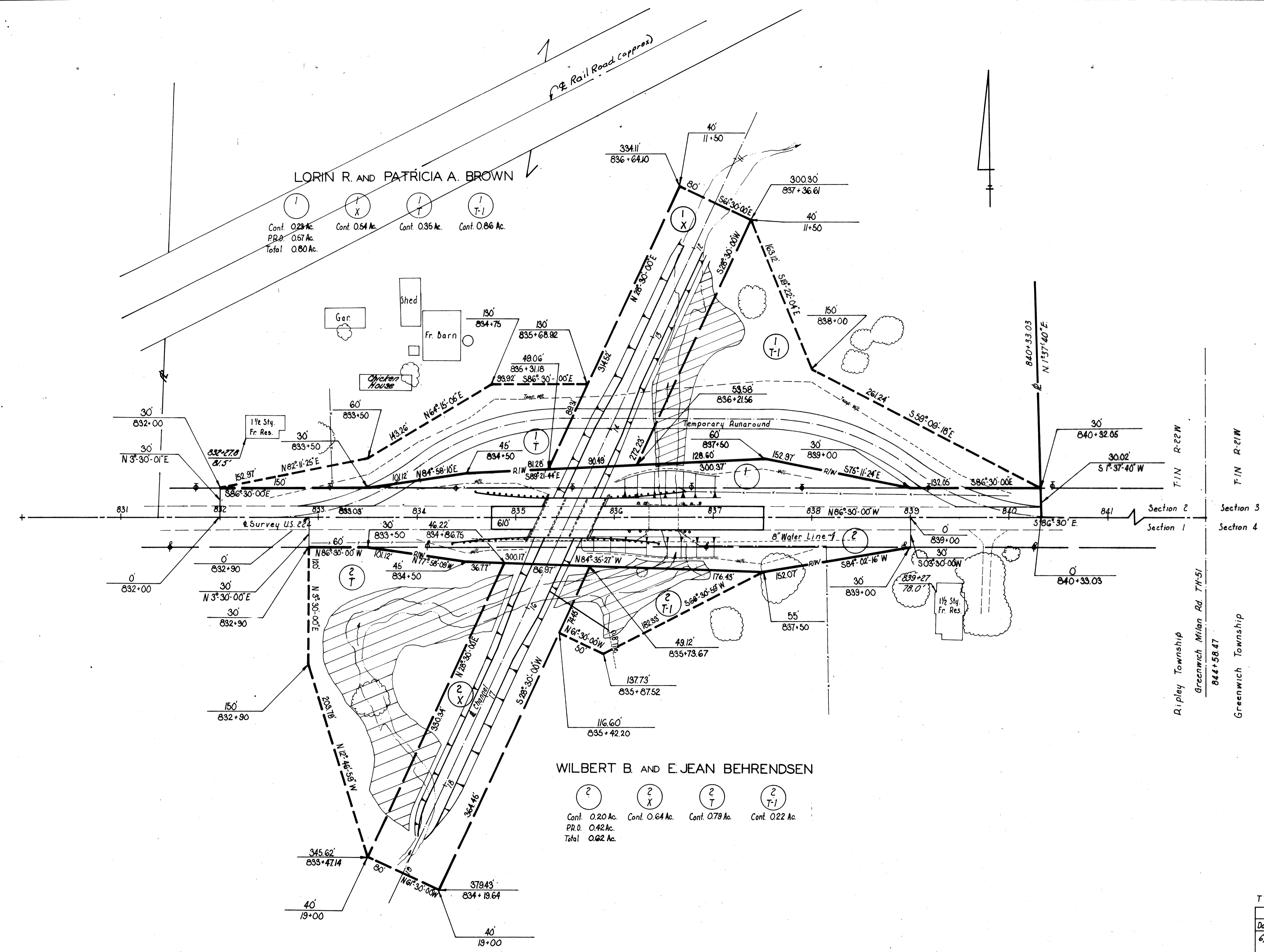
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

19
20

HUR-224 - (15.81) - (16.40)
RIGHT OF WAY PLAN
SCALE 1"=50'

1
2

STRU. NO. HUR-224-1584



HURON COUNTY
RIPLEY TOWNSHIP SEC-1 AND 2 T-1N R-22W

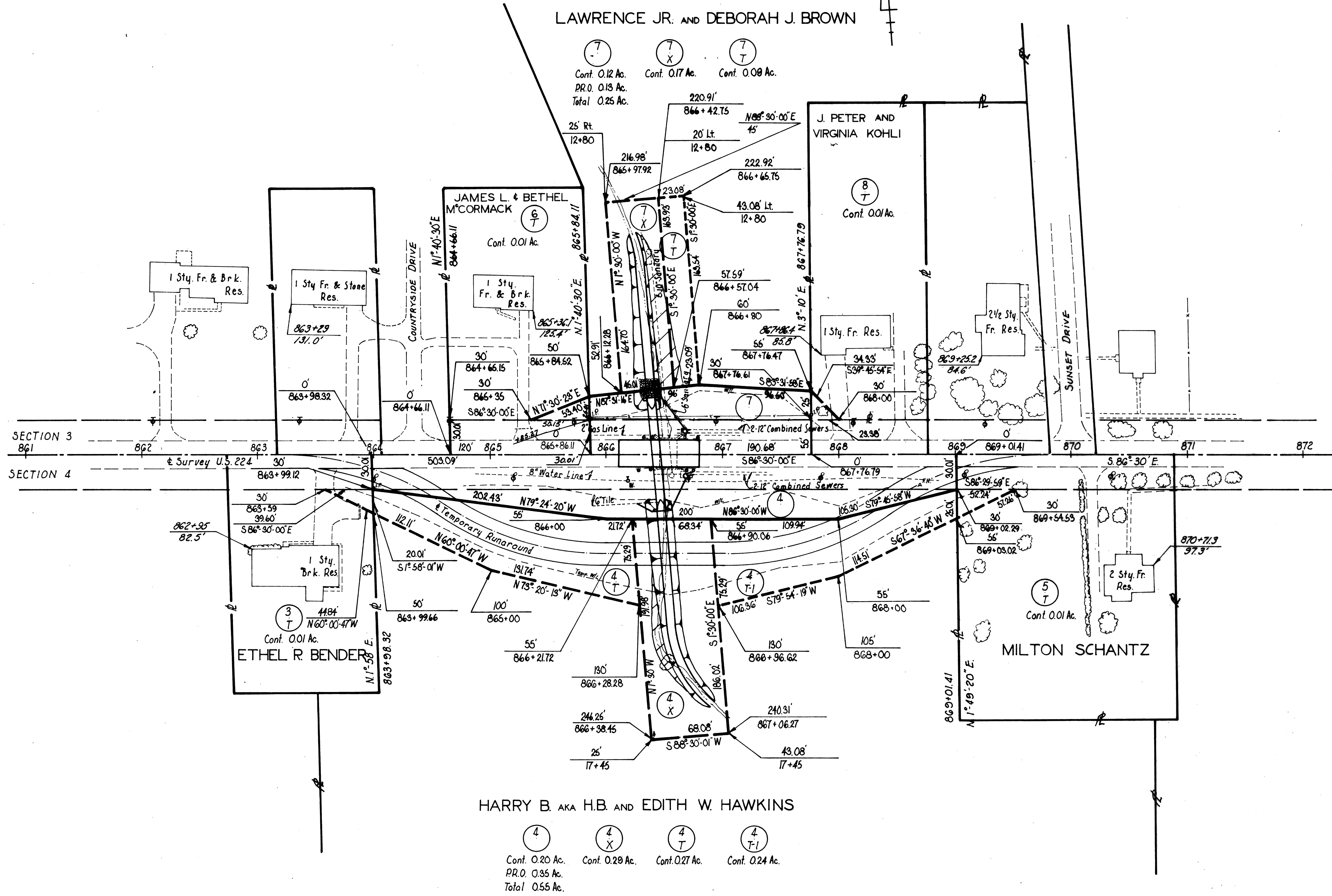
TYPE FUNDS - STATE	
PLAN	COMPLETED 6/4/68
Date Rev	Description
6/19/68	Added distances to buildings

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

20
20
2
2

HUR-224-(15.81)-(16.40)
RIGHT OF WAY PLAN
SCALE: 1"=50'

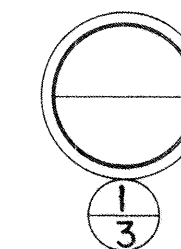
STRU. NO. HUR-224-1641



HARRY B. AKA H.B. AND EDITH W. HAWKINS
 (4) Cont. 0.20 Ac. P.R.O. 0.35 Ac. Total 0.55 Ac.
 (4) Cont. 0.29 Ac.
 (4) Cont. 0.27 Ac.
 (4) Cont. 0.24 Ac.

VILLAGE OF GREENWICH
 HURON COUNTY
 GREENWICH TOWNSHIP SEC 3 AND 4 T-IN R-21W

TYPE FUNDS - STATE	
DATE	PLAN COMPLETED 6/4/68
DATE REV.	DESCRIPTION
6/19/68	Added distances to Buildings 1/2



GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE GLACIATED MISSISSIPPI VALLEY PLAIN, IN AN AREA DISSECTED BY A TRIBUTARY TO VERMILION RIVER, WHERE MODERATELY DEEP GLACIAL DRIFT OVERLIES SHALE BEDROCK, OF MISSISSIPPIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS AND FOUR DRIVE ROD PENETRATION TESTS, MADE BETWEEN APRIL 9 AND 24, 1968.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED LOOSE TO DENSE SILTS, SANDS, GRAVELS AND BOULDERS TO BEDROCK SURFACE ENCOUNTERED AT 30 AND 35-FOOT DEPTHS, ELEVATIONS 980 AND 975 FEET. THE BORINGS WERE TERMINATED AT 45-FOOT DEPTHS, ELEVATION 965 FEET, AFTER PENETRATING 10 AND 15 FEET OF BEDROCK.

ROD SOUNDINGS ENCOUNTERED INCREASING PENETRATION RESISTANCE WITH INCREASING DEPTH AND WERE TERMINATED DUE TO REFUSAL TO PENETRATION AT 22 TO 28-FOOT DEPTHS, ELEVATIONS 988 TO 982 FEET, CONSIDERED TO BE UPON ENCOUNTER WITH BOULDERS OR DENSE SANDS, SILTS AND GRAVELS, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

LEGEND

- 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
- Top of Rock

- 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.
- 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.

SYMBOLS OF ROCK TYPES

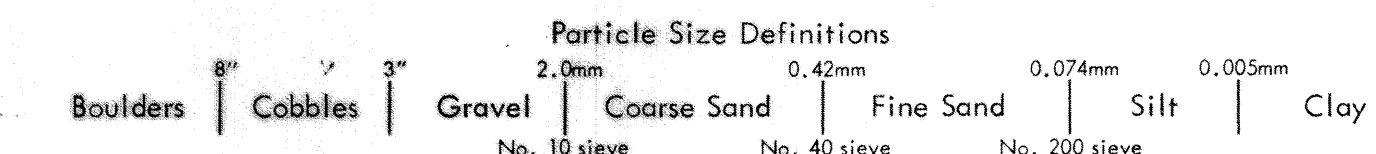
- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Boulders
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

LOG OF BORING
Date Started 4-18-68 Sampler Type SS Dia. 1 3/8" Water Elev. _____
Date Completed 4-18-68 Casing Length _____ Dia. _____
Boring No. B-1 Station & Offset 835+13, 15' Lt. (Rear Abutment) Surface Elev. 1009.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.			
1009.9	0																
1004.9	2	1/1			Brownish-Gray Clayey Silt, Trace of Organic	1	0	2	11	49	38	29	10	28	A-4a		
999.9	6	13/15			Gray Sandy Silt	2	9	6	15	29	41	NP	NP	14	A-4a		
994.9	10	11/15			Gray Silty Gravelly Sand	3	18	42	19	-21	-	NP	NP	19	A-1-b		
989.9	14	8/10			Gray Silty Sandy Gravel	4	39	13	19	15	14	23	8	12	A-2-4		
984.9	18				No Sample Recovered - Boulders(Driller's Des.)		V	I	S	U	A	L					
979.9	22				TOP OF ROCK												
974.4	24				Shale, gray (Driller's Description).		V	I	S	U	A	L					
964.9	30	4.2	0.3		Shale, dark-gray, medium-firm, carbonaceous, fissile, with clay seams, broken and jointed. Core Loss 5%.												
	32	4.8	0.2														
	34																
	36																
	38																
	40																
	42																
	44																

LOG OF BORING
Date Started 4-23-68 Sampler Type SS Dia. 1 3/8" Water Elev. _____
Date Completed 4-24-68 Casing Length 30' Dia. 3 1/2"
Boring No. B-2 Station & Offset 835+92, 15' Lt. (Forward Abutment) Surface Elev. 1009.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.			
1009.9	0																
1004.9	2	4/5			Brown Sandy Silt	1	0	7	44	23	26	22	5	23	A-4a		
1002.4	4				Boulders												
999.9	6	6/10			Brown Gravelly Sandy Silt with Boulders	2	V	I	S	U	A	L	-	-	19	-	
997.4	8				Boulders												
994.9	10	5/6			Gray Silty Sand	3	13	29	24	15	19	18	3	15	A-3a		
992.4	12	6/8			Gray Sandy Silt	4	0	6	14	58	22	22	4	18	A-4b		
989.9	14	5/10			Gray Sandy Silt	5	7	7	12	40	34	23	3	17	A-4a		
984.9	16																
984.9	18				Gray Sand(Wash Sample)	6	13	55	23	-	-	NP	NP	23	A-1-b		
979.9	20	16/16			Gray Gravelly Clay	7	16	3	2	33	46	38	13	15	A-6a		
974.9	22																
964.9	24	4.8	0.2		TOP OF ROCK												
	26	5.0	0.0		Shale, dark-gray, firm, carbonaceous, with thin clay seams, broken and jointed. Core Loss 2%.												
	28																
	30																
	32																
	34																
	36																
	38																
	40																
	42																
	44																

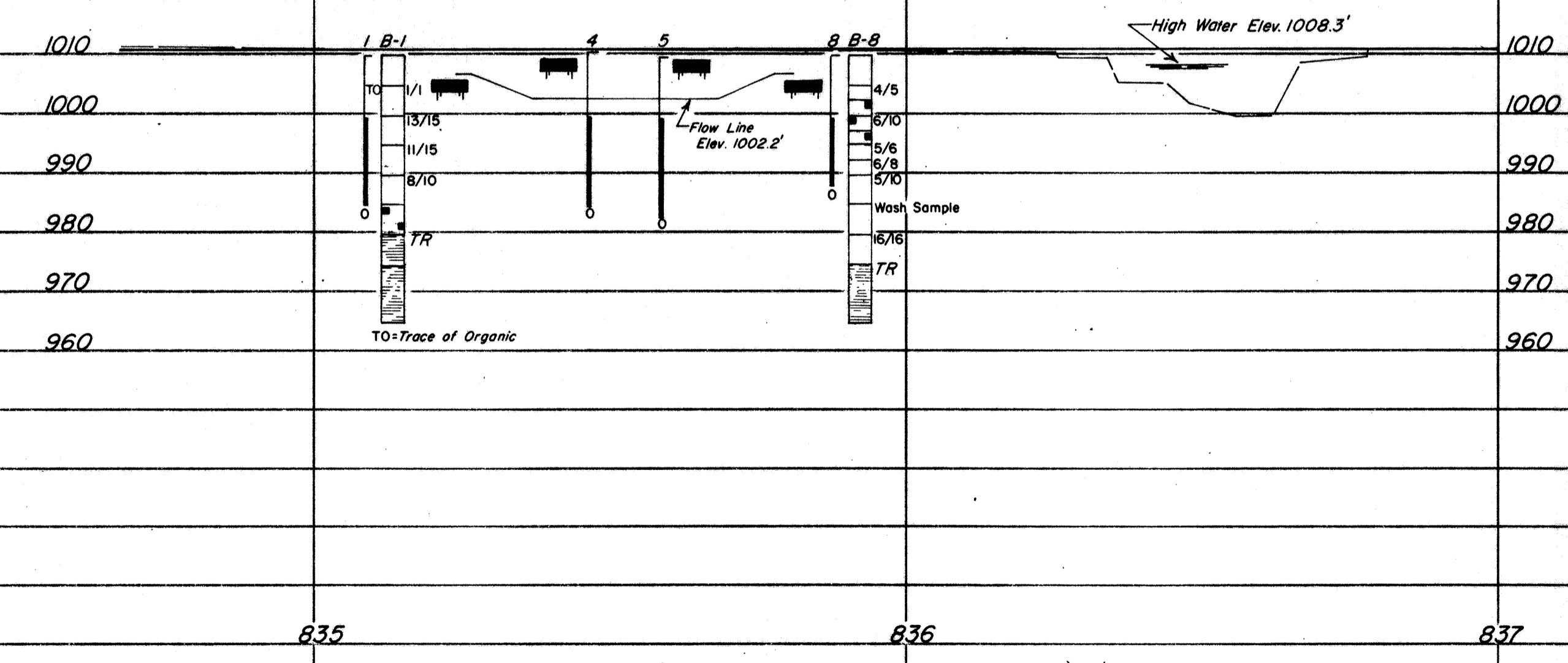
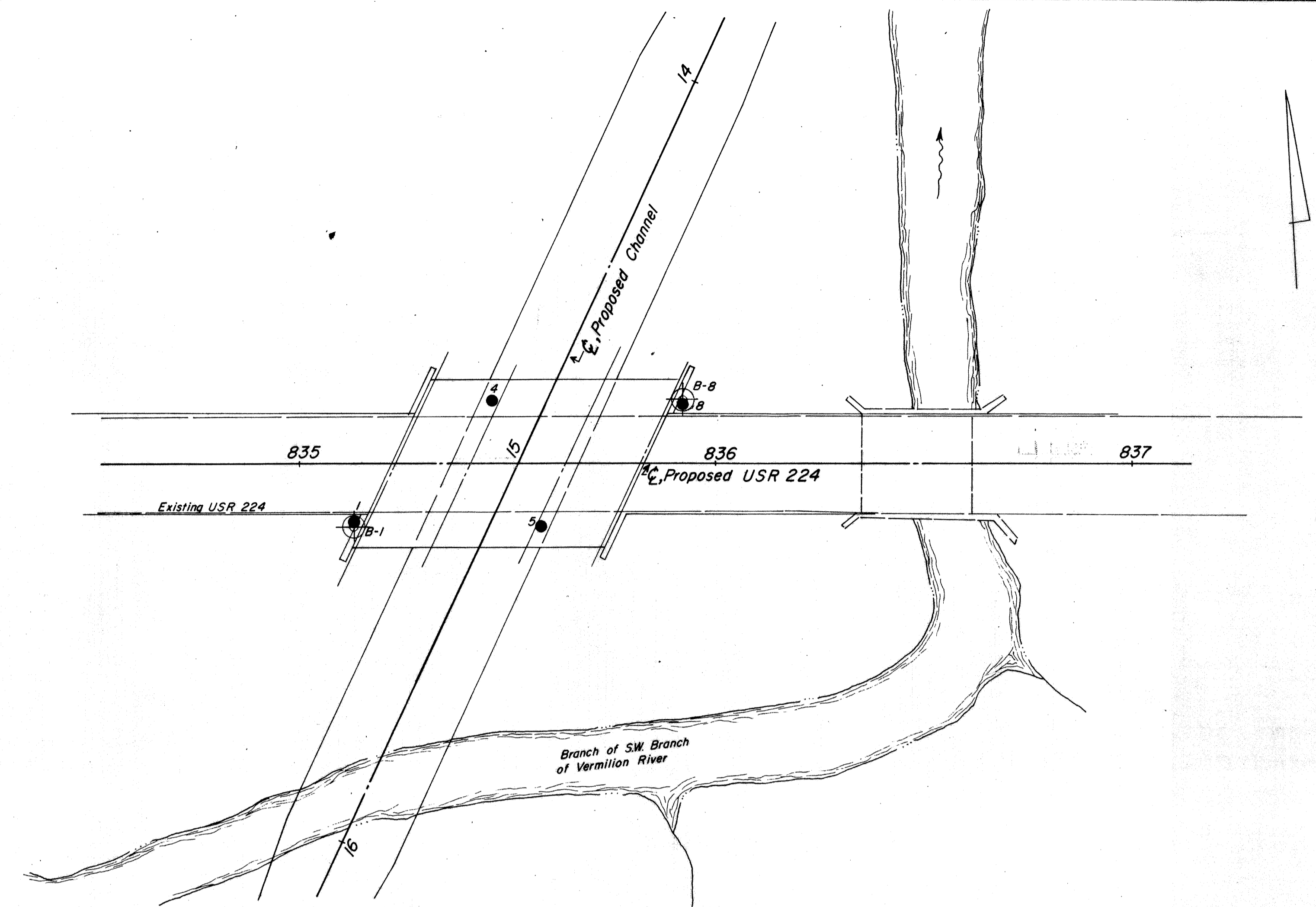


NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

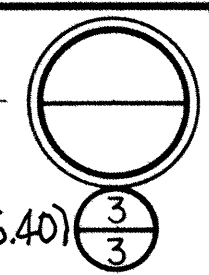
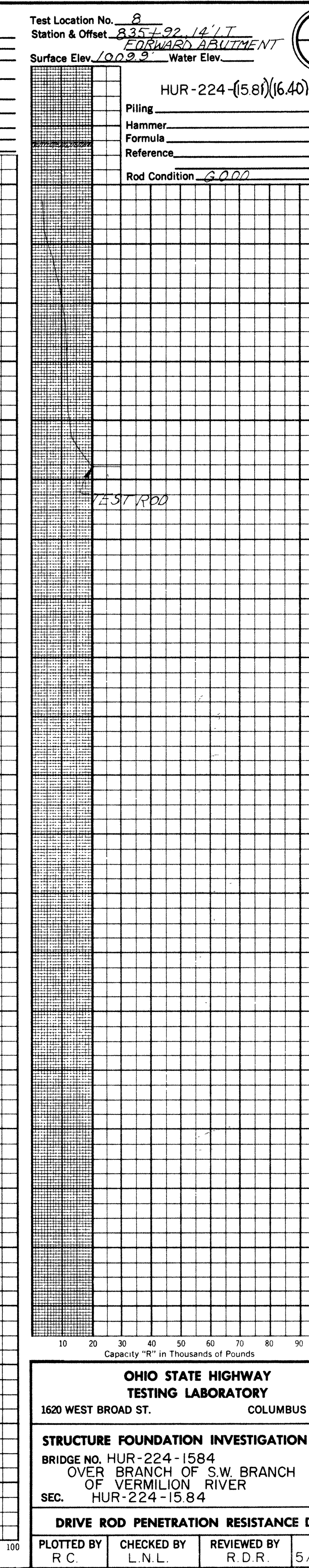
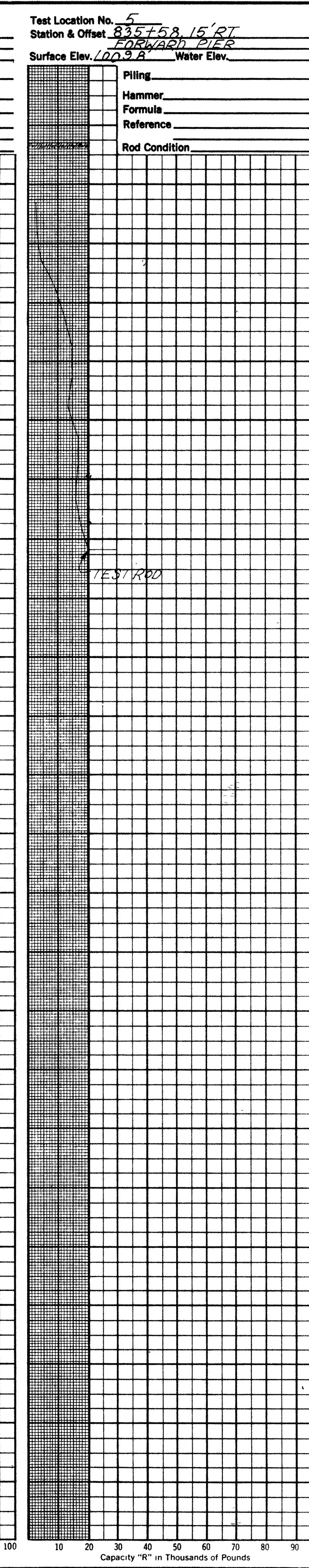
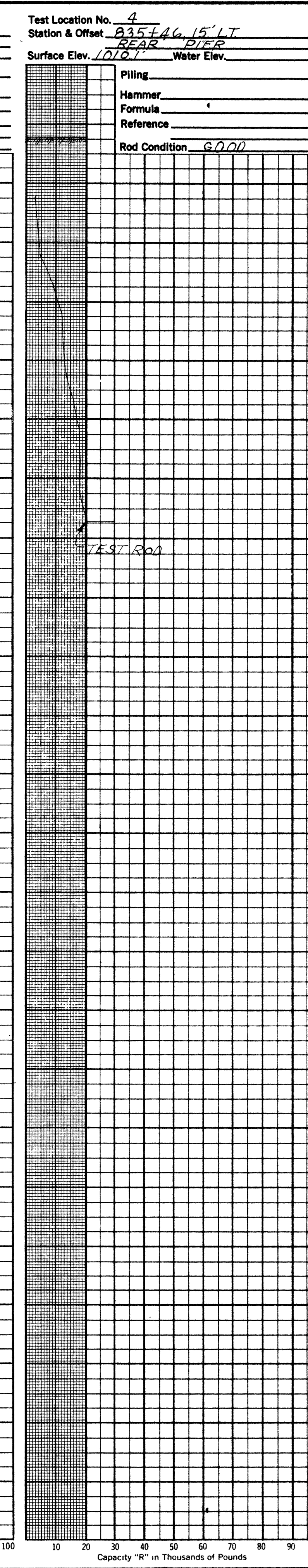
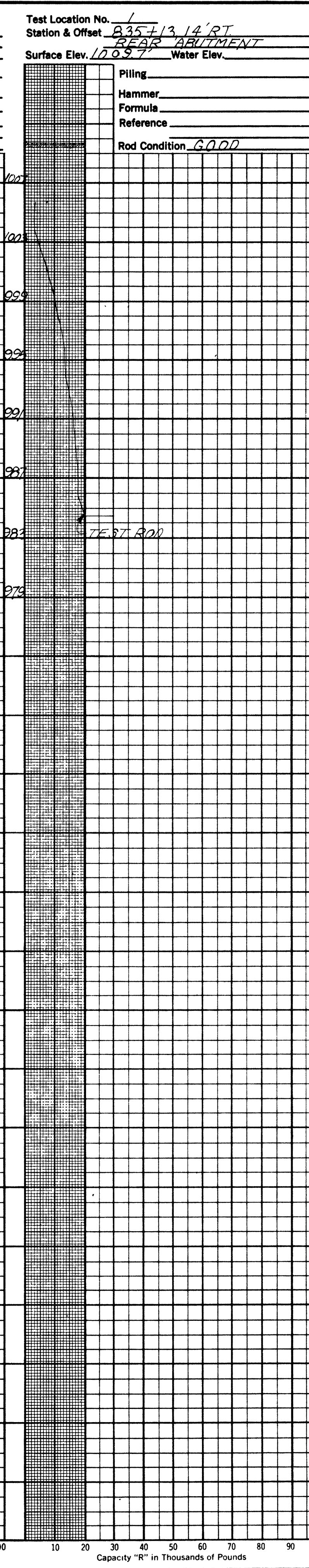
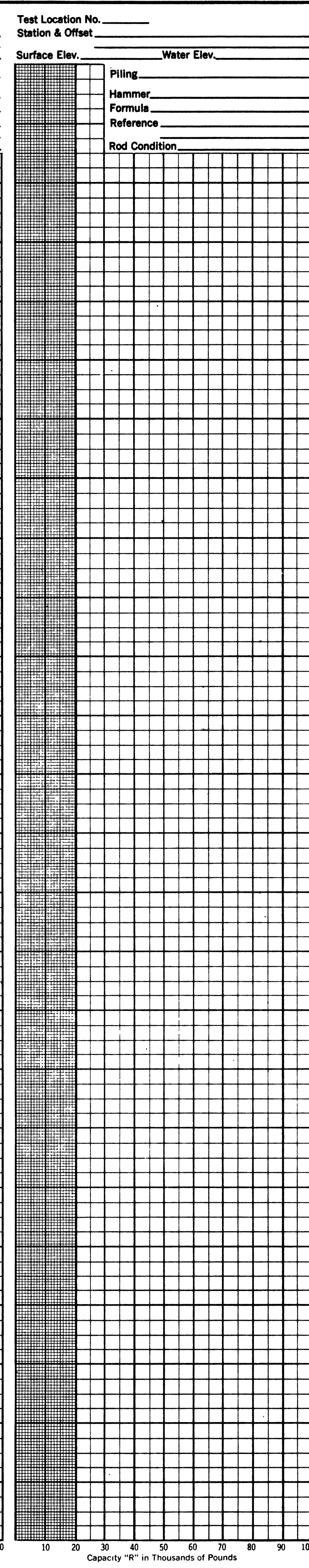
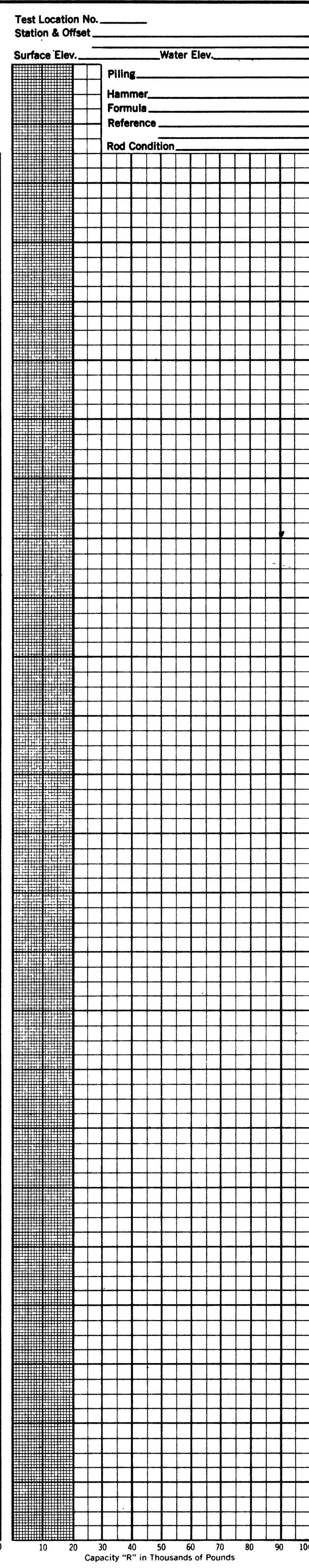
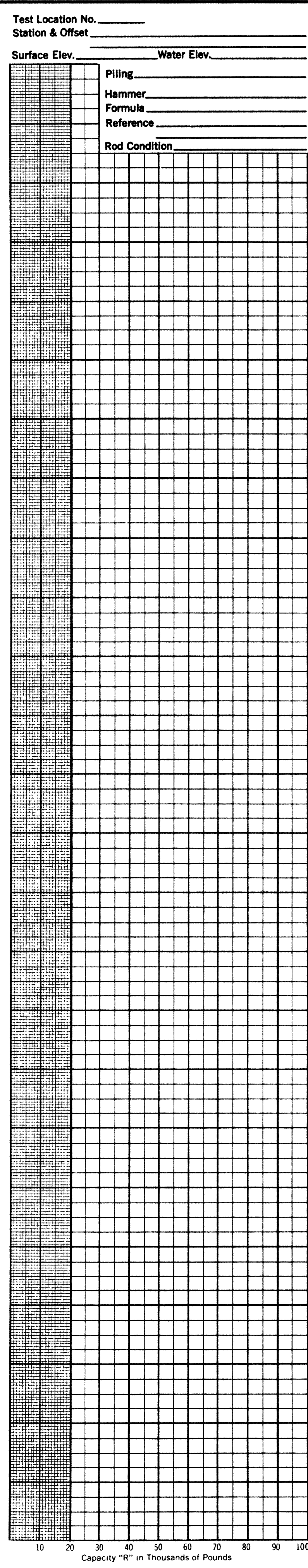
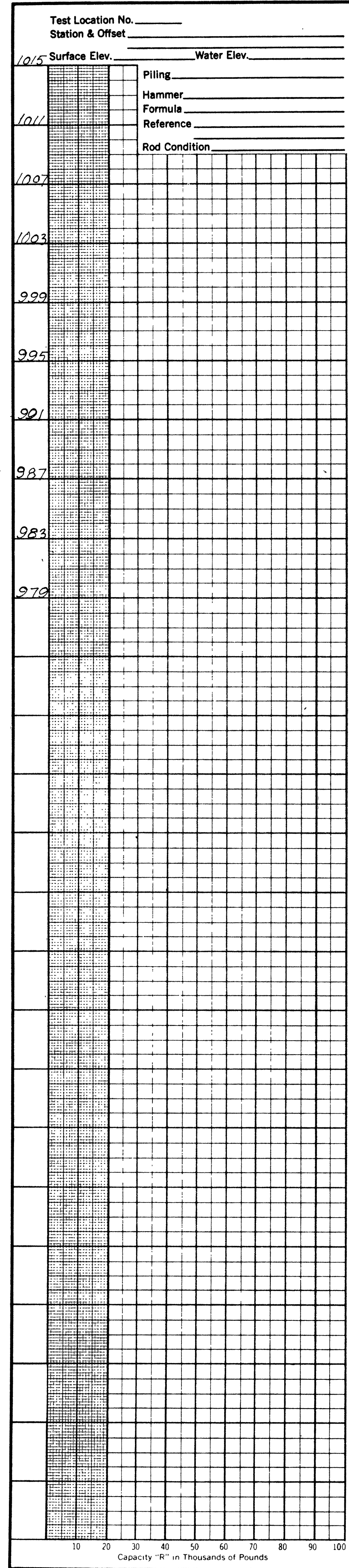
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. HUR-224-1584
OVER BRANCH OF S.W. BRANCH
OF VERMILION RIVER
SEC. HUR-224-1584

CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 5/13/68



OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION			
BRIDGE NO. HUR-224-1584 OVER BRANCH OF S.W. BRANCH OF VERMILION RIVER SEC. HUR-224-15.84			
PLAN AND PROFILE			
DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 5/13/68

SCALE: 1" = 20'



OHIO STATE HIGHWAY TESTING LABORATORY
 1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
 BRIDGE NO. HUR-224-1584
 OVER BRANCH OF S.W. BRANCH OF VERMILION RIVER
 SEC. HUR-224-15.84

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R.C. CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 5/13/68