1965
Year

Job. No. 06601

Changes ________________

005841

County	MADISON
Bridge No.	MAD-70-1028
Section	MAD-70-7.60.
	☐ over [✓ ☒ under]
Location	SR 29

FES-113

File No. 18-D-07

DESIGN BY FRANKLIN ENGINEERING LIMITED

	RECON	AUGER	CORE	DRIVE ROD
By			Shumesser	Ryther.
Dates			7/26-29/65	7/9-14/65
No. of Holes or Soundings			2	5
Footage			76.3.	166.6.
Samples Tested			20.	

SITE PLANS	
Date Rec'd	6-23-65.
Revised Plan	

Topo Sheet 434-14-NE.

☐ Samples Accounted For

Transmittal Date 9-7-65

No. of Tracings 3

Filed with year FEV-47

Revisions ________________

Remarks 4-17-173

Refer To ________________

Auger Data			Drive Rod		Core Data		
No. of Holes	Footage	Samples	No. of Soundings	Footage	No. of Holes	Footage	Samples
—	—	—	5	166.6	2	76.3	20.

FIELD DATA - SOIL LOG

Location No B-8 **County:** Madison

Forward **Pier - Abut.** **Bridge No.** Mad 70-1028

Station: 564+35 **Over:** I-70 under S.R. 29

Offset: 41' Lt.

Started: 7-28-65 **Equipment:** Core Drill #11

Completed: 7-29-65 **Diameter**

Proposed Footer:

Water Level:

Elevation 977.5 **Ground Line**

Depth Feet	Log	Samples	
0			
2.5		1	7/8 Brown - Grey Silt with Coarse Sand & limestone fragments
5		2	10/15 Brown - Grey Silt with Coarse Sand & limestone - gravels
7.5		3	16/20 Brown Silt with Coarse Sand & gravel
10		4	16/26 Brown till with Coarse Sand & gravel
12.5	Casing	12.5	No sample available boulders had to Case off Sand & gravel to 15'
15		5	19/31 Brown silty Sand & gravel
17.5		6	17/20 Grey silty Sand & gravel
20		7	16/22 Grey silty Sand & gravel
25		8	50 blows (0.9) penetration grey silty Sand & gravel

26			
30	Casing	9	50/6" blows = .5 penetration Grey silty Sand & gravel
35		10	50/4" blows = .5 penetration Grey dense till
40		11	50/6" blows = .5 penetration dense grey till
45			937.5
50			
55			
60			

Remarks:

Party Jones McGough

Chief of Party Hazmesser

FIELD DATA - SOIL LOG

Location No. R-2
Rear [redacted] **Abut.**
Station: 560+10
Offset: 25' Lt.
Started: 7-26-65
Completed: 7-28-65

County: Madison
Bridge No. Mad-70-1028
Over: I-70 Under S.R. 29
Equipment: Core Drill #11
Diameter ______
Proposed Footer: ______
Water Level: ______

Depth Feet	Log	Samples	Elevation	979.8 Ground Line
0			~~975.2~~	
2.5	/	1		8/12 Brown - Grey Silt with
				Coarse Sand
5	/	2	~~970.2~~	9/10 Brown - Grey Silt with
				Coarse Sand
7.5	/	3		10/15 Brown sand dense silt
10	/	4	~~965.2~~	9/16 Brown dense with coarse
				sand
12.5	Casing			No sample available boulders had
				to use barrel to advance boring.
15	/	5	~~960.2~~	15/25 Brown silty sand & gravel
				with broken limestone & sandstone
				Casing driving very hard
				No sample at 17.5' due to large
				gravel or boulders had to case
20	/	6	955.2	50* blows (0.6) Brown till with
				broken limestone & gravel
25	/	7	950.2	50* blows (0.4) penetration dense
				gray till

Brown Water
Grey Water

Depth Feet	Log	Samples	Elevation	
26				
	Casing			boulders had to use 2' barrel
				to advance boring
30		8	~~945.2~~	50* blows (0.4) penetration
				Grey Silty dense sand & gravel
				Drill Chattering on boulders
				Boulders - limestone & granite
				300 lb hammer bouncing on
35		9	~~944.2~~	Casing - used 2' barrel - 50* blow =
			944.8	(0.8) penetration 35' to 35.8
				grey sand & gravel
40				
45				
50				
55				
60				

Grey Water

Remarks: Boulders 30' to 35' 4" to 6" thick

Party Jones McGough

Chief of Party Heumesser

SUMMARY OF SOIL TEST DATA ON FOUNDATION SAMPLES

County, Rt. No., Section MAD- 70-

Bridge No. #1028 (HAUMESSER)

Lab. No. So.-	Sample No.	Station No.	Represents Feet	Mechanical Analysis					Physical Characteristics			Ohio Class.	Remarks
				Agg. %	C Sand	F Sand	Silt %	Clay %	L.L.	P.I.	Water Cont.		
95032	1	564435 41'LT	2.5-3.5	12	13	13	32	30	26	9	8	Br A-4a	SM
3	2	"	5-6	12	9	13	37	29	24	8	11	Br A-4a	SM
4	3	"	7.5-8.5	23	43	10	15	9	NP		13	Br A-3a	MGS
5	4	"	10-11	22	9	11	30	28	25	7	12	Br A-4a	SGM
6	5	"	15-16	67	15	6	12		NP		9	Br.	MSG
7	6	"	17.5-18.5	60	25	8	7		NP		11	Br.	SG
8	7	"	20-21	57	25	9	9		NP		9	Br. Gr.	SG
9	8	"	25-25.9	58	17	14	11		NP		9	Gr.	MSG
95040	9	"	30-30.5	67	17	5	11		NP		10	Gr.	MSG
1	10	"	35-35.5	11	9	17	33	30	26	11	9	Gr	SC
95042	11	"	40-40.5	24	8	13	29	26	22	8	9	Gr.	SGM

SD-7

SUMMARY OF SOIL TEST DATA ON FOUNDATION SAMPLES

1/1

County, Rt. No., Section MAD- 70-

Bridge No. # 1028 (HAYMESSER)

Lab. No. So.-	Sample No.	Station No.	Represents Feet	Mechanical Analysis Agg. %	C Sand	F Sand	Silt %	Clay %	Physical Characteristics L.L.	P.I.	Water Cont.	Ohio Class.	Remarks
95099	1	560+10 25L	25-3.5	30	22	9	21	18	28	9	14	4a Br	MGS
95100	2	"	5 -6	27	9	11	31	22	28	10	13	4a Br-4a	SGM
1	3	"	7.5-8.5	35	27	10	14	14	20	4	15	A-2-4 Br	MGS
2	4	"	10 -11	0	10	15	40	35	25	9	11	Br A4a	CM
3	5	"	15 -16	83	7	2	-8-		N	P	11	Br	G
4	6	"	20-20.6	45	10	11	21	13	22	6	12	Br	MSG
5	7	"	25-25.4	27	7	18	32	16	17	3	16	Gr	SGM
6	8	"	30-30.4	61	19	10	7	3	N	P	10	Gr	SG
95107	9	"	35-35.8	26	57	7	5	5	N	P	12	Gr	GS

40.5
35.8
76.3

SO-7

FE-25

VISUAL CLASSIFICATION OF DRIVE SAMPLES

PROJECT: MAD-70-1028

BORING LOCATION: 560+10 25'Lt

DRILLER: HAUMESSER, CLASSIFIED BY: D.A.P. DATE: 3-Aug-65

Field No.	Visual Description	No. Of Blows	Density	Moist. Cont.
1	BR. mC & S w/Some St. Frags.	8/12		m+
2	BR-GR. SCM w/Little St. Frags.	9/10		m
3	BR. cm & S w/Some gravel	10/15		m+
4	BR. Scm w/Little St. Frags.	9/16		m
5	BR. mS & St. Frags.	15/25		m+
6	BR. Scm & St. Frags.	50=0.6		m
7	GR. CSm w/Little gravel & St. Frags.	50=0.4	Dense	m
8	GR. S & gravel	50=0.4		m+
9	GR. S w/Some gravel	50=0.8		m+

EE-23

VISUAL CLASSIFICATION OF DRIVE SAMPLES

PROJECT: MAD-70-1028

BORING LOCATION: 564+35 41'Lt

DRILLER: HAUMESSER, CLASSIFIED BY: D.A.P. DATE: 3-Aug-65

Field No.	Visual Description	No. Of Blows	Density	Moist. Cont.
1	BR.-GR. CM W/ Little gravel & St. Frags.	2/8		M
2	BR.-GR. SCM W/ Little St. Frags.	10/15		M
3	BR. MS W/ Some gravel	16/20		M+
4	BR. CM W/ Little St. Frags.	16/26	Dense	M
5	BR. S & St. Frags.	19/31		M
6	BR. S & gravel & St. Frags.	17/20		M
7	BR.-GR. S & gravel	18/22		M+
8	GR. D.O.	50=0.9		M+
9	D.O. & St. Frags.	50=0.5		M+
10	GR. SMC W/ Little gravel & St. Frags.	50=0.5	Stiff	M
11	GR. SMC W/ Some small gravel & St. Frag.	50=0.5	Stiff	M

STATE OF OHIO

DEPARTMENT OF HIGHWAYS

Columbus 15, Ohio

P. E. MASHETER
Director

JAMES A. RHODES
Governor

C. H. MAKEEVER
Chief Engineer

September 7, 1965

COPY

Franklin Engineering Ltd.
829 E. Granville Road
Columbus, Ohio 43224

Attention: Mr. H. W. Zimmerman

Re: Structure Foundation Investigation
MAD -IR 70-1028
Under SR 29
Fed. Proj. No. I-70-3(11)

File: 13-4-1
Madison

Dear Mr. Zimmerman:

Transmitted herewith are the results of the foundation investigation made for the SR 29 structure over IR 70, on project MAD-IR 70-7.60.

Enclosures consist of reproducible tracings which are to be attached to the plans.

Very truly yours,

F. M. Williams
Engineer of Tests

Per: R. E. Calvin
R. E. Calvin
Assistant Engineer

RDR:slb
Encl.
cc: R. E. M. des Islets(no encl.)
C. H. Altvater, Attn: Ray Grover
Frank M. Williams, Attn: Ralph Wood (no encl.)
Attn: H. E. Stritmatter (no encl.)
Attn: M. Richey (no encl.)
Ohio State Geological Survey, Attn: Karl Hoover & J. L. Forsyth
W. E. Reed
R. E. Calvin (4)

(5)

Murray D. Shaffer — Chairman
Harry W. Zimmerman — Manager
Sec'y-Treas.
Carl E. Vogelgesang — Ass't. Mgr.

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Investigations and Engineering Reports

FRANKLIN ENGINEERING, LIMITED
CONSULTING ENGINEERS
829 E. Granville Road
COLUMBUS, OHIO 43224
Telephone: 885-3485

MANSFIELD, OHIO OFFICE
672½ Logan Road
Telephone 756-3374

June 18, 1965

Mr. R.E.M. des Islets
Ohio Highway Department
Room 729
25 South Front Street
Columbus, Ohio 43215

Re: MAD-70-7.60

Gentlemen:

We are forwarding herewith four sets of site plans and schematic plans for all major structures within the subject project limits, with suggested boring locations indicated. We will appreciate your office forwarding the attachments to acquire structure borings.

The following structures are included in this submission:

MAD-70-0862 & 0863	USR 42 over I-70
MAD-70-1028	SR-29 over I-70

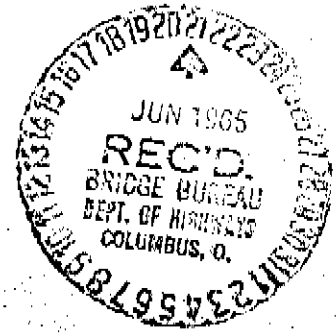
Your early attention to this matter will be appreciated.

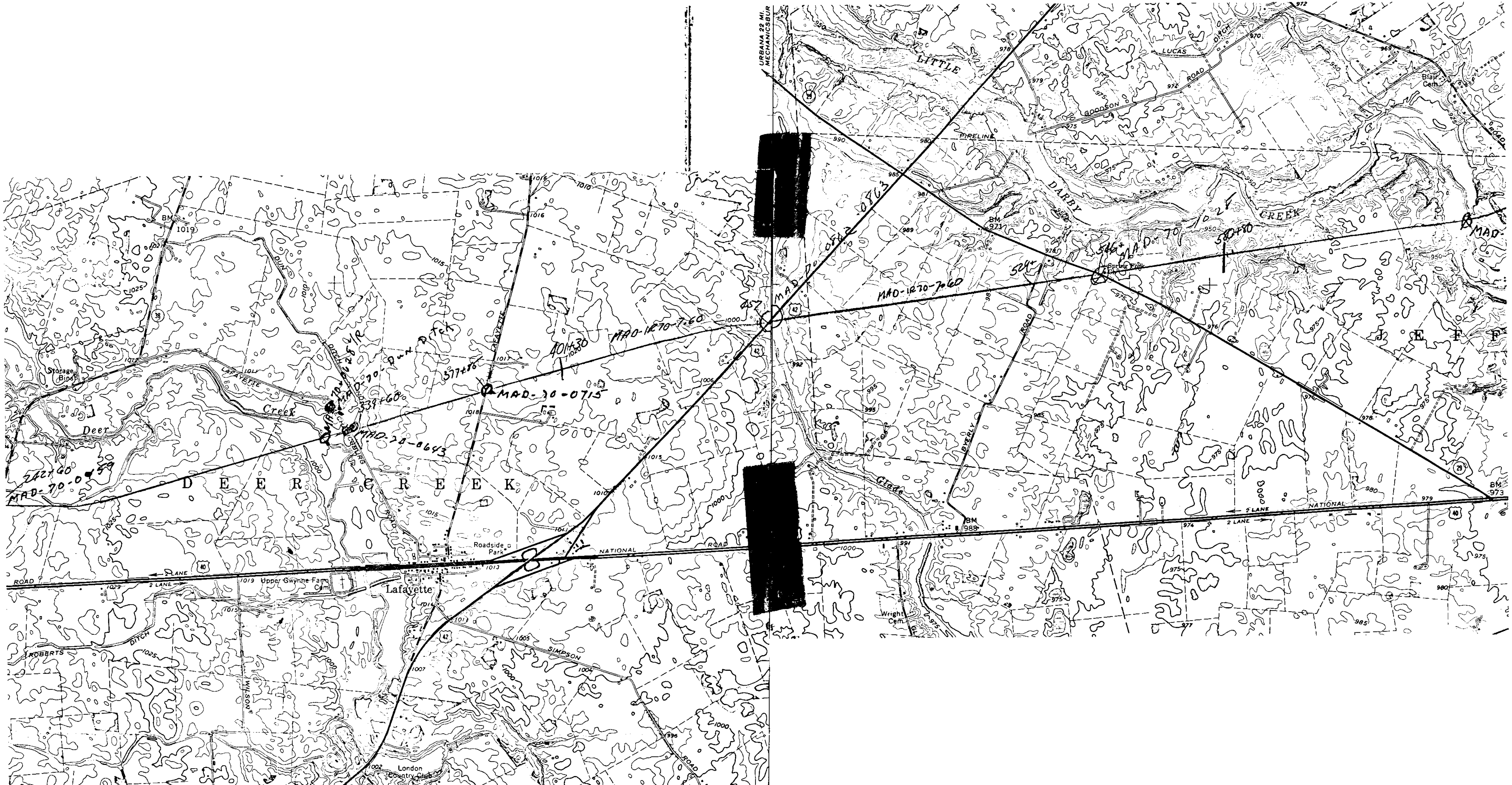
Very truly yours,

H.W. Zimmerman

HWZ/db

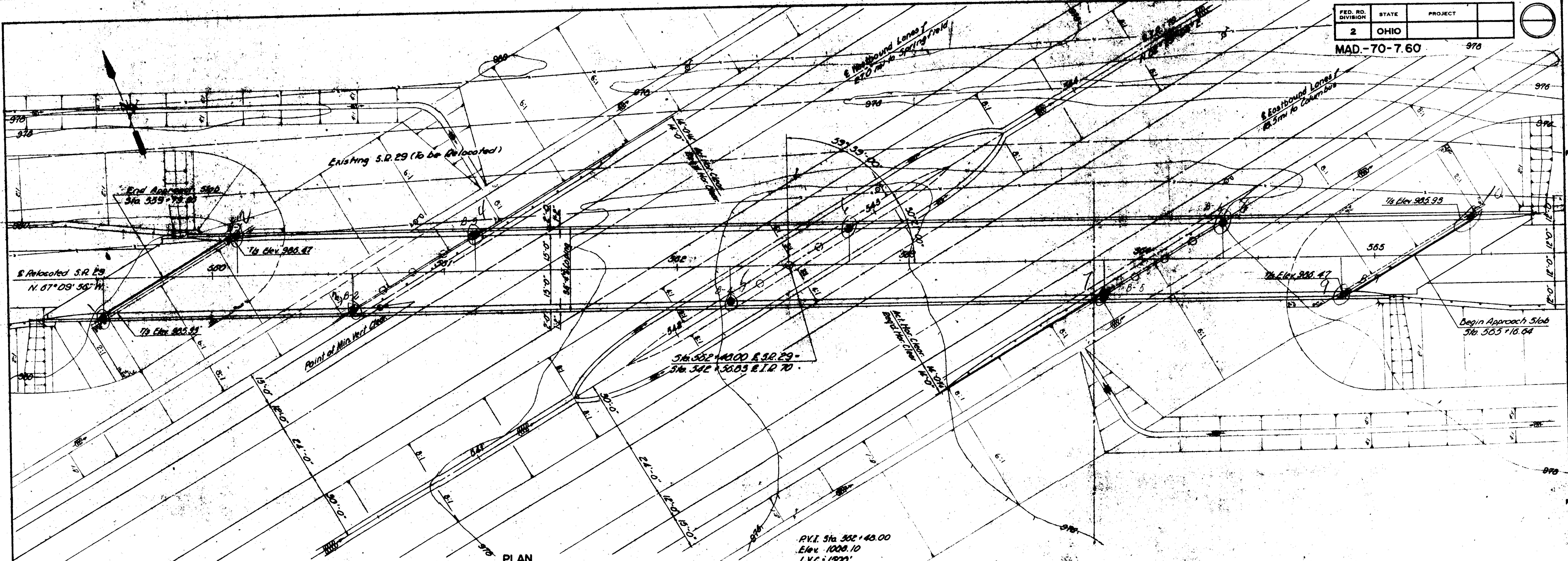
CC: Mr. R. Grover
Mr. D.I. Craven
Mr. F.M. Williams
Mr. W.W. Baker
File (2)



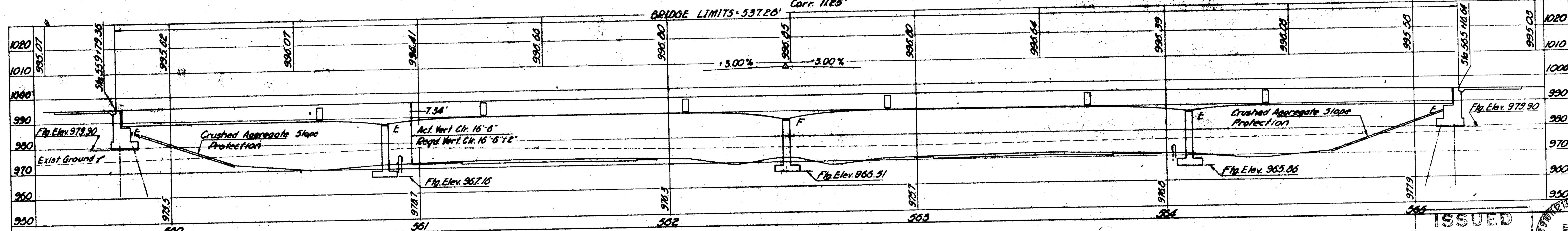

URBANA 22 MI.
MECHANICSBUR
LITTLE
DARBY
CREEK
LUCAS
DITCH
GOODSON
ROAD
PIPELINE
Blair
Cem.
BM
971
Spring Fork
Ch.
J E F F
MAD-
MAD-70-1024
546+
580+80
524+
MAD-IR70-7.60
MAD-70-0763
MAD-70-0742
457
BM
1019
DUN
DITCH
LAFAYETTE
Storage
Bins
Deer
Creek
MAD-70-0715
401+30
377+86
339+60
MAD-70-Dun Ditch
MAD-70-0643
242+60
MAD-70-0459
D E E R C R E E K
ROAD
NATIONAL
2 LANE
Upper Gwynne Farm
Cem
Lafayette
Roadside
Park
ROBERTS
DITCH
WILSON
SIMPSON
London
Country Club
Glade
BYERLY
BM
988
Wright
Cem.
BM
973
2 LANE
NATIONAL

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

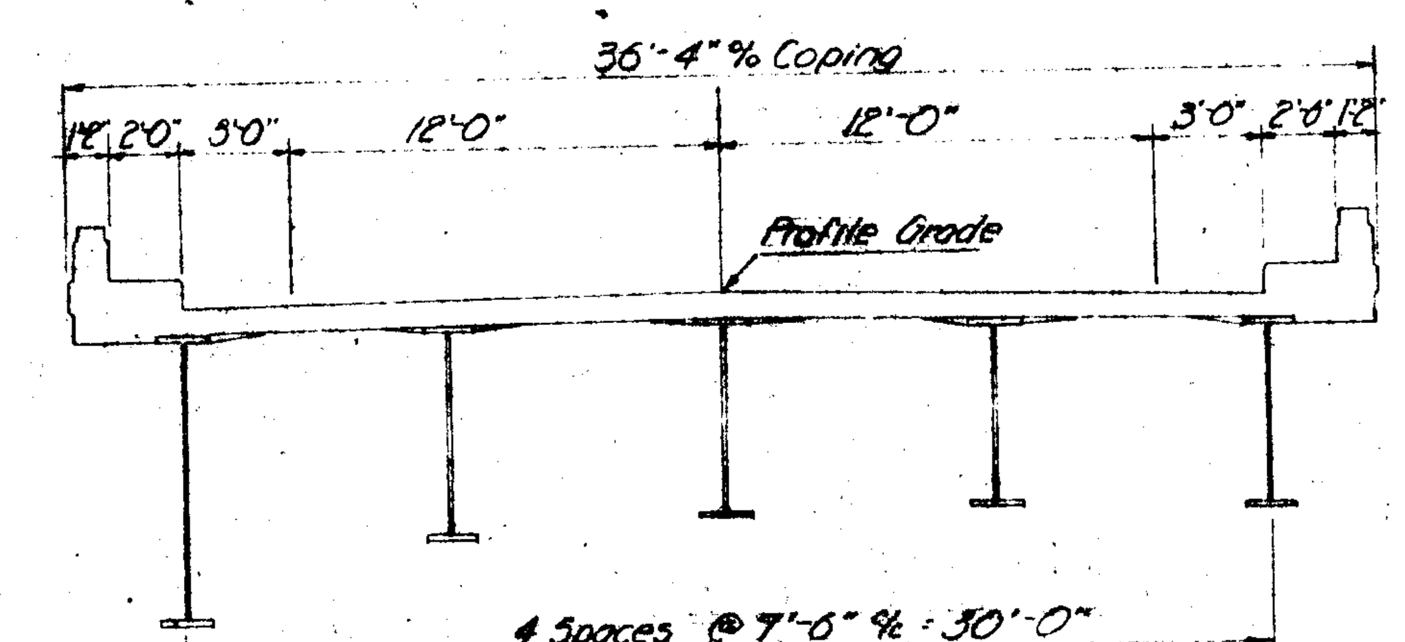
MAD.-70-7.60



PLAN



PROFILE ALONG ℄ RELOCATED S.R.-29



MARK	STATION	OFFSET
B-1	560+07	15'L
B-2	560+61	15'R
B-3	561+12	15'L
B-4	562+23	15'R
B-5	563+84	15'R
B-6	564+35	15'L
B-7	564+88	15'R

PROPOSED STRUCTURE

TYPE: Continuous Haunched Steel Girder Bridge With Reinforced Conc. Deck & Substructure.
SPANS: 104'-10"; 161'-4"; 161'-4"; 104'-10" ℄ Brgs.
ROADWAY: 30'-0" f/f 2'-0" Safety Curbs.
LOAD FREQUENCY: CF 400 (57)
WEARING SURFACE: 1" Monolithic Conc.
SKEW: 59° 39' 00" L.F.
APPROACH SLAB: AS-1-54 Mod. (25'-0" Long)
ALIGNMENT: Tangent.
SUPERELEVATION: None.
AVERAGE DAILY TRAFFIC: 5,040 (1988)

ISSUED JUN 1 8 1965 FRANKLIN ENGINEERING LIMITED COLUMBUS, OHIO

RECEIVED JUN 1965 STATE HIGHWAY TESTING LABORATORY

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

SITE PLAN

BRIDGE Nº. MAD.-70-1028
I-70 UNDER SR.-29

MADISION COUNTY — I.R.-70

STA.-543+13.11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RGB	~~RGB~~	JJL 6-15-65	V.A.D.	JH	6/18-65	

ISSUED
JUN 18 1965
FRANKLIN ENGINEERING
LIMITED
COLUMBUS, OHIO

TE - 118
600 - 11 - 64

MADISON COUNTY
MAD-IR 70-7.60

3

GEOLOGY OF THE SITE

The structure site is located in the glaciated Mississippi Valley Plain, in an area where moderately deep glacial-derived soils overlie dolomitic bedrock, of Silurian age.

EXPLORATION

The exploration consisted of two drive sample borings, made between July 26, and 27, 1965, and five drive rod penetration tests, made between July 7 and 14, 1965.

INVESTIGATIONAL FINDINGS

The borings encountered moist, generally dense to very dense gravels, sands, silts, and boulders. The borings were terminated at 36 and 41-foot depths, elevation, 944 and 937 feet, after penetrating in excess of 30 feet of material requiring in excess of 30 blows per foot in the standard penetration test.

Rod soundings encountered gradual, occasionally erratic, increase in penetration resistance with increase in depth and were terminated upon encounter with high resistance and refusal to penetration at 27 to 37-foot depths, elevation 951 to 940 feet, considered to be in very dense gravels, sands, and silts, as revealed by the borings. Rod sounding number 4, was cased to proposed footing elevation as shown on the site plan.

No free water was encountered in any of the rod sounding holes.

No test penetrated to bedrock surface.

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
- TR — Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y — 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
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

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 post 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 12 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 two 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.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm

LOG OF BORING

Date Started 7-26-65 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 7-28-65 — Casing: Length 35' — Dia. 3 1/2" — Surface Elev. 979.8'
Boring No. B-2 — Station & Offset 560+10, 25' rt. (Rear Abutment)

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
979.8	0														
977.3	2	8/12			Brown Silty Gravelly Sand	1	30	22	9	21	18	28	9	14	
974.8	4	9/10			Brownish-Gray Sandy Gravelly Silt	2	27	9	11	31	22	28	10	13	
972.3	6	10/15			Brown Silty Gravelly Sand	3	35	27	10	14	14	20	4	15	
969.8	8	9/16			Brown Sandy Silt	4	0	10	15	40	35	25	9	11	
	10														
	12														
964.8	14	15/25			Brown Gravel	5	83	7	2	-8-		NP	NP	11	
	16														
959.8	18	50* (0.6)			Brown Silty Sandy Gravel	6	45	10	11	21	13	22	6	12	
	20														
954.8	22	50* (0.4)			Gray Sandy Gravelly Silt	7	27	7	18	38	16	17	3	16	
	24														
949.8	26	50* (0.4)			Gray Sandy Gravel	8	61	19	10	7	3	NP	NP	10	
	28														
	30				BOTTOM OF BORING										
944.8	32														
944.0	34	50#(0.8)			Gray Gravelly Sand	9	26	57	7	5	5	NP	NP	12	
	36														

*Refusal

LOG OF BORING

Date Started 7-28-65 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 7-29-65 — Casing: Length 35' — Dia. 3 1/2" — Surface Elev. 977.5'
Boring No. B-8 — Station & Offset 564+35, 41' Lt. (Forward Pier)

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
977.5	0														
975.0	2	2/8			Brownish-Gray Sandy Silt	1	12	13	13	32	30	26	9	8	
972.5	4	10/15			Brownish-Gray Sandy Silt	2	12	9	13	37	29	24	8	11	
970.0	6	16/20			Brown Silty Gravelly Sand	3	23	43	10	15	9	NP	NP	13	
967.5	8	16/26			Brown Sandy Gravelly Silt	4	22	9	11	30	28	25	7	12	
965.0	10				No sample recovered - boulders (Driller's Description)										
	12														
962.5	14														
960.0	16	19/31			Brown Silty Sandy Gravel	5	67	15	6	-12-		NP	NP	9	
	18	17/20			Brown Sandy Gravel	6	60	23	8	-7-		NP	NP	11	
957.5	20	18/22			Brownish-Gray Sandy Gravel	7	57	23	9	-9-		NP	NP	9	
	22														
	24														
952.5	26	50* (0.9)			Gray Silty Sandy Gravel	8	58	17	14	-11-		NP	NP	9	
	28														
947.5	30	50/*			Gray Silty Sandy Gravel	9	67	17	5	-11-		NP	NP	10	
	32														
	34														
942.5	36	50/*			Gray Sandy Clay	10	11	9	17	33	30	26	11	9	
	38				BOTTOM OF BORING										
937.5	40	50/*			Gray Sandy Gravelly Silt	11	24	8	13	29	26	22	8	9	
937.0					*Refusal										

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. MAD-IR 70-1028
IR 70 UNDER SR 29
SEC. MAD-IR 70-7.60

CHECKED BY	REVIEWED BY	DATE
R.H.P.	R.D.R.	9/8/65

GEOLOGY OF THE SITE

The structure site is located in the glaciated Mississippi Valley Plain, in an area where moderately deep glacial-derived soils overlie dolomitic bedrock, of Silurian age.

EXPLORATION

The exploration consisted of two drive sample borings, made between July 26, and 27, 1965, and five drive rod penetration tests, made between July 7 and 14, 1965.

INVESTIGATIONAL FINDINGS

The borings encountered moist, generally dense to very dense gravels, sands, silts, and boulders. The borings were terminated at 36 and 41-foot depths, elevation, 944 and 937 feet, after penetrating in excess of 30 feet of material requiring in excess of 30 blows per foot in the standard penetration test.

Rod soundings encountered gradual, occasionally erratic, increase in penetration resistance with increase in depth and were terminated upon encounter with high resistance and refusal to penetration at 27 to 37-foot depths, elevation 951 to 940 feet, considered to be in very dense gravels, sands, and silts, as revealed by the borings. Rod sounding number 4, was cased to proposed footing elevation as shown on the site plan.

No free water was encountered in any of the rod sounding holes.

No test penetrated to bedrock surface.

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

TR — Top of Rock

Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.

X/Y — 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

Weathered Sandstone

Sandstone

Leached Dolomite

Dolomite

Leached Limestone

Limestone

LOG OF BORING

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 12 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 two 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.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm	

W.C.	SHTL Class.

LOG OF BORING

Date Started 7-26-65 | Sampler Type SS | Dia. 1 3/8" | Water Elev. —

Date Completed 7-28-65 | Casing: Length 35' | Dia. 3 1/2"

Boring No. B-2 | Station & Offset 560±10, 25' Lt. (Rear Abutment) | Surface Elev. 979.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
979.8	0														
	2														
977.3	4	8/12			Brown Silty Gravelly Sand	1	30	22	9	21	18	28	9	14	
974.8	6	9/10			Brownish-Gray Sandy Gravelly Silt	2	27	9	11	31	22	28	10	13	
972.3	8	10/15			Brown Silty Gravelly Sand	3	35	27	10	14	14	20	4	15	
969.8	10														
	12	9/16			Brown Sandy Silt	4	0	10	15	40	35	25	9	11	
	14														
964.8	16	15/25			Brown Gravel	5	83	7	2	-8-		NP	NP	11	
	18														
959.8	20														
	22	50* (0.6)			Brown Silty Sandy Gravel	6	45	10	11	21	13	22	6	12	
	24														
954.8	26	50* (0.4)			Gray Sandy Gravelly Silt	7	27	7	18	32	16	17	3	16	
	28														
949.8	30														
	32	50* (0.4)			Gray Sandy Gravel	8	61	19	10	7	3	NP	NP	10	
	34				BOTTOM OF BORING										
944.8															
944.0	36	50*(0.1)			Gray Gravelly Sand	9	26	57	7	5	5	NP	NP	12	

*Refusal

LOG OF BORING

Date Started 7-28-65
Date Completed 7-29-65
Boring No. B-8

Sampler Type SS Dia. 1 3/8"
Casing: Length 35' Dia. 3 1/2"
Station & Offset 564+35, 41' Lt. (Forward Pier)

Water Elev. _____

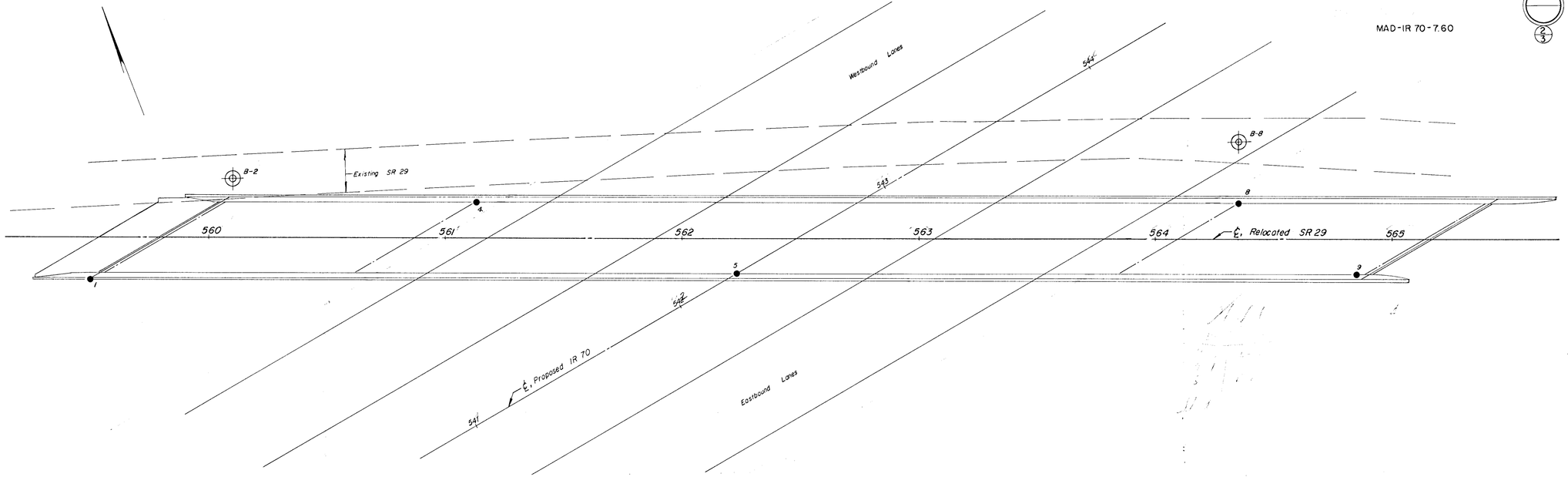
Surface Elev. 977.5'

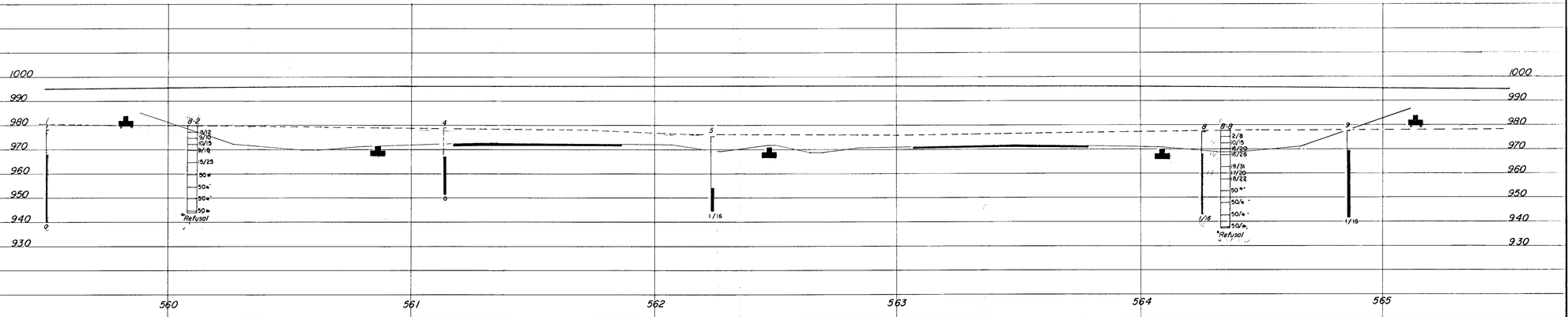
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
977.5	0														
975.0	2														
	4	2/8			Brownish-Gray Sandy Silt	1	12	13	13	32	30	26	9	8	
972.5	6	10/15			Brownish-Gray Sandy Silt	2	12	9	13	37	29	24	8	11	
970.0	8	16/20			Brown Silty Gravelly Sand	3	23	43	10	15	9	NP	NP	13	
967.5	10														
	12	16/26			Brown Sandy Gravelly Silt	4	22	9	11	30	28	25	7	12	
965.0	14				No sample recovered - boulders (Driller's Description)										
962.5	16	19/31			Brown Silty Sandy Gravel	5	67	15	6	-12-		NP	NP	9	
960.0	18	17/20			Brown Sandy Gravel	6	60	25	8	-7	-	NP	NP	11	
957.5	20														
	22	18/22			Brownish-Gray Sandy Gravel	7	57	25	9	-9	-	NP	NP	9	
	24														
952.5	26	50* (0.9)			Gray Silty Sandy Gravel	8	58	17	14	-11	-	NP	NP	9	
	28														
947.5	30	50/*			Gray Silty Sandy Gravel	9	67	17	5	-11	-	NP	NP	10	
	32														
	34														
942.5	36	50/*			Gray Sandy Clay	10	11	9	17	33	30	26	11	9	
	38														
937.5	40				BOTTOM OF BORING										
937.0		50/*			Gray Sandy Gravelly Silt	11	24	8	13	29	26	22	8	9	

*Refusal

TE - 119
500 - 11 - 64

MAD-IR 70-7.60





SCALE: 1" = 20'

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

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. MAD-IR 70-1028
IR 70 UNDER SR 29

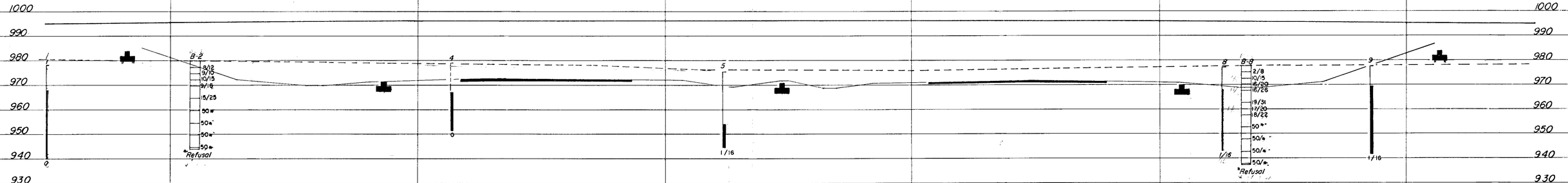
SEC. MAD-IR 70-7.60

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.L.F.	R.H.P.	R.D.R.	9/8/65

MAD-IR 70-7.60

Westbound Lanes
Existing SR 29
B-2
B-8
560
561
562
563
564
565
℄, Relocated SR 29
℄, Proposed IR 70
541
542
543
544
Eastbound Lanes
1
4
5
8
9



OHIO DEPARTMENT OF HIGHWAYS

TR-114
5-00-11-64

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. 1
Station & Offset 553+50.18 RT REAR ABUTMENT
Surface Elev. 978.3 Water Elev DRY Hole Closed at El. 968.3
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ROD BENT 16"
TEST ROD

Test Location No. 4
Station & Offset 561+13.15' LT REAR PIER
Surface Elev. 979.0 Water Elev DRY Hole Closed at El. 963.5'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ROD BENT 12"
TEST ROD

Test Location No. 5
Station & Offset 562+23.15' RT CENTER PIER
Surface Elev. 975.6 Water Elev DRY Hole Closed at El. 968'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ROD BENT 12"
TEST ROD

Test Location No. 8
Station & Offset 564+35.15' LT FORWARD PIER
Surface Elev. 977.2 Water Elev DRY Hole Closed at El. 968.2'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ROD BENT 16"
TEST ROD

Test Location No. 9
Station & Offset 564+85.15' RT FORWARD ABUTMENT
Surface Elev. 977.8 Water Elev DRY Hole Closed at El. 963.8
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD
TEST ROD

MAD-IR70-7.60

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. MAD-IR70-1028
IR70 UNDER SR 29
SEC. MAD-IR70-7.60

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
RC	R.H.P.	R. D. R.	9/8/65