

62-F-4

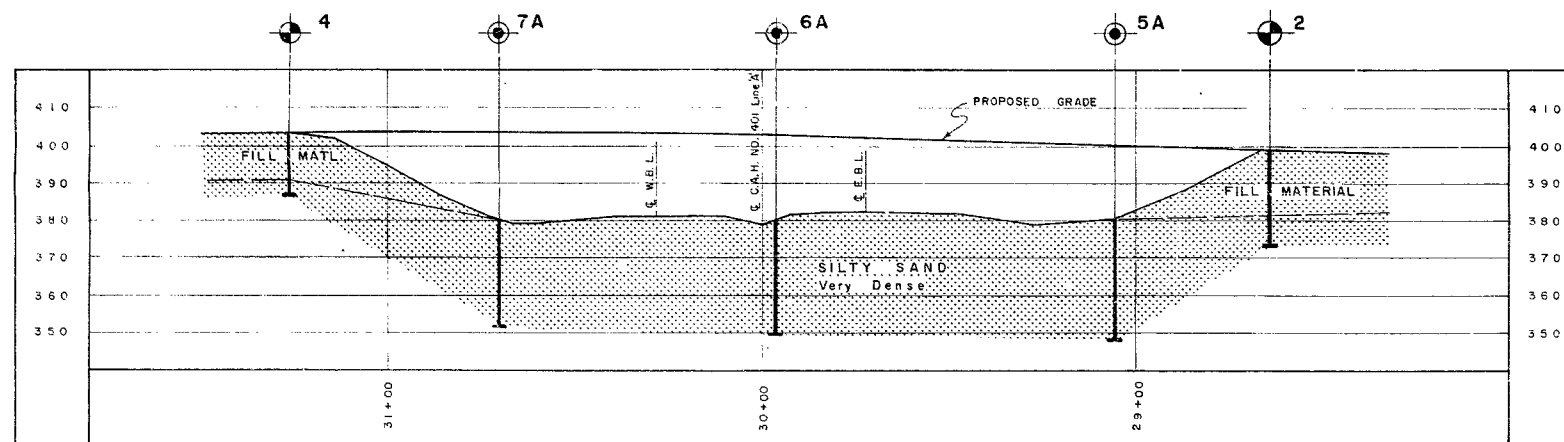
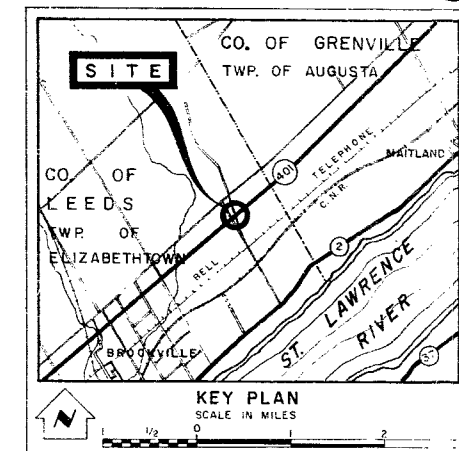
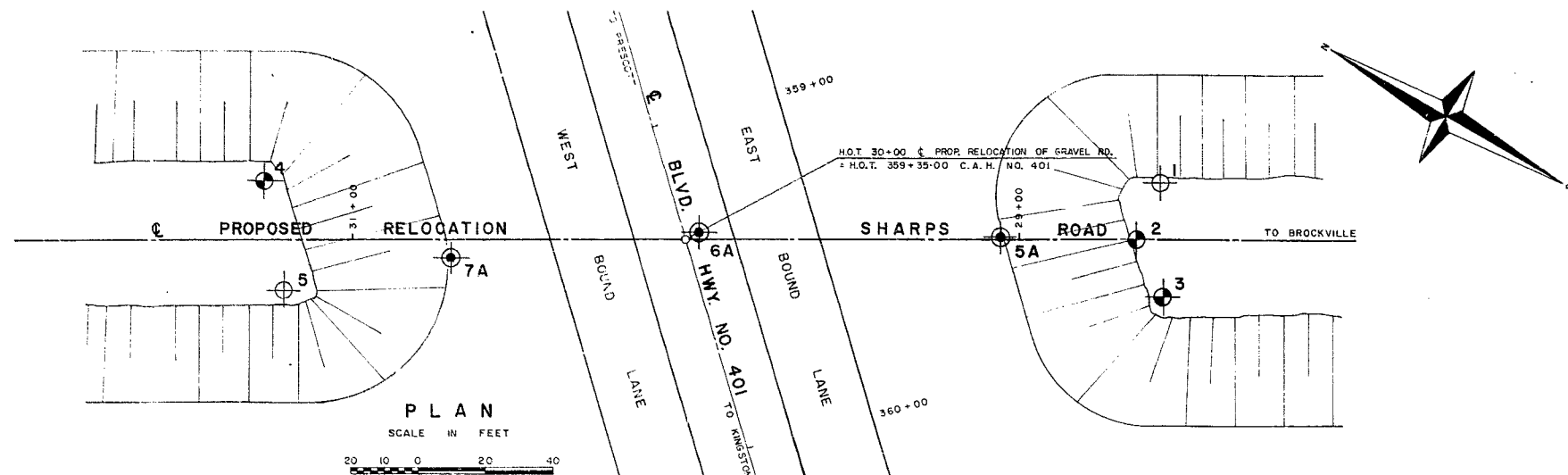
W.P. # 76-59

Hwy. # 401 E

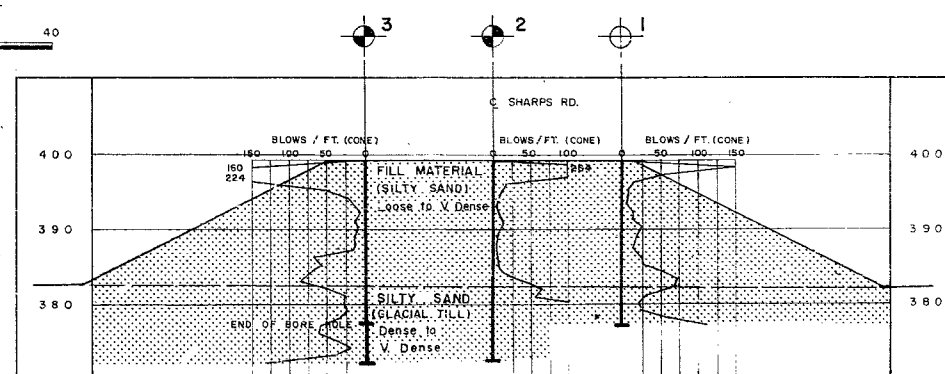
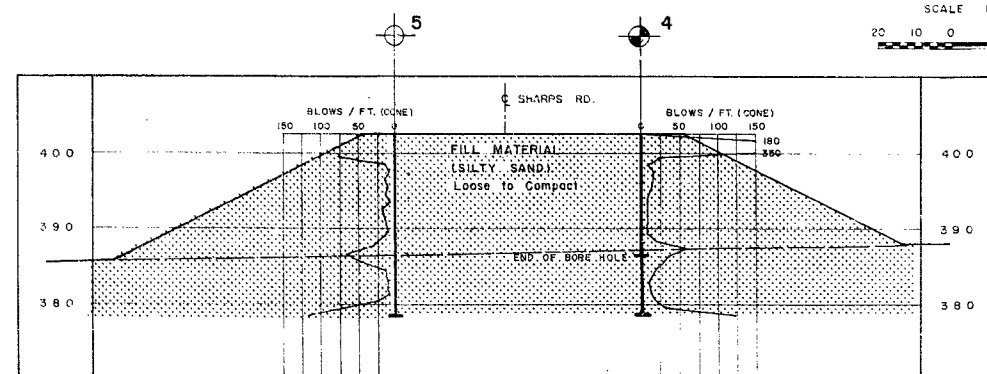
SHARPS RD. REV.

ELIZABETH TOWN

TWP.



LEGEND			
	Bore Hole		
	Cone Penetration Hole		
	Bore & Cone Penetration Hole		
	Water Levels established at time of field investigation		
	Bore Holes done by RACEY, McCALLUM & ASSOCIATES LTD. (Oct. 1961)		
NO.	ELEVATION	STATION	OFFSET
1	399.2	28+58	17' RT.
2	399.2	28+65	CL
3	399.2	29+57	17' LT.
4	402.7	31+26	18' RT.
5	402.7	31+20	15' LT.

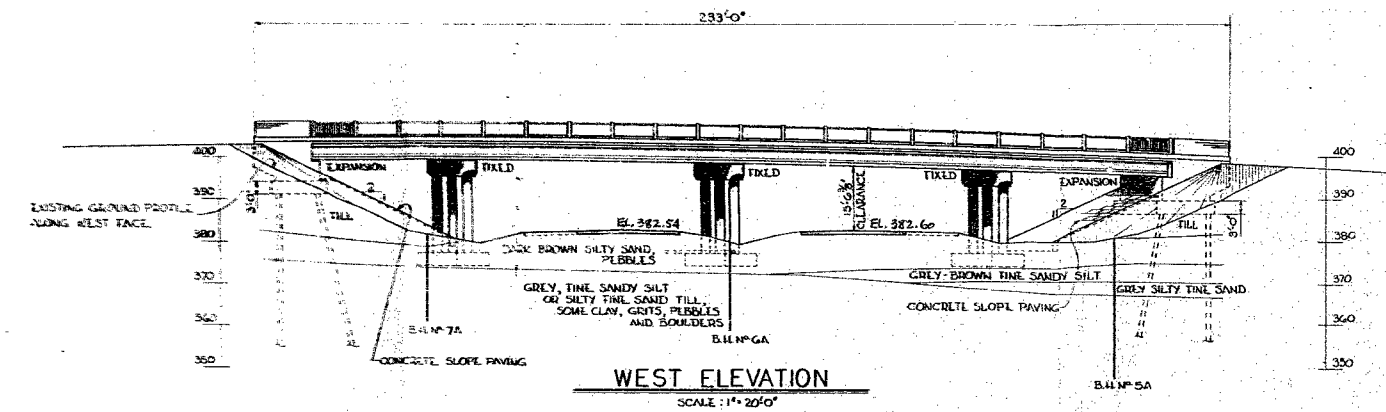
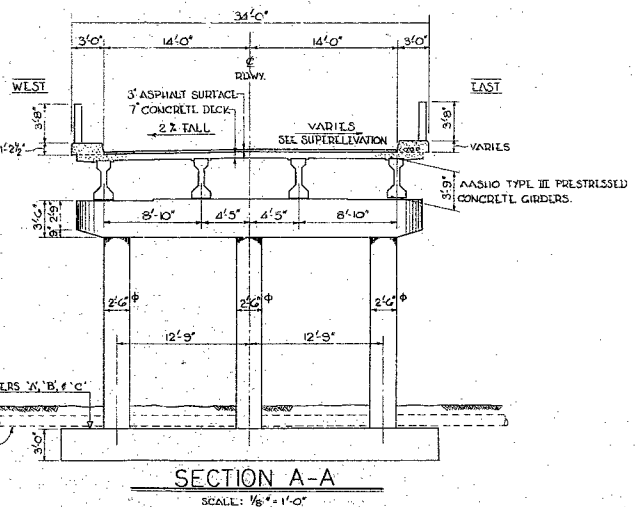
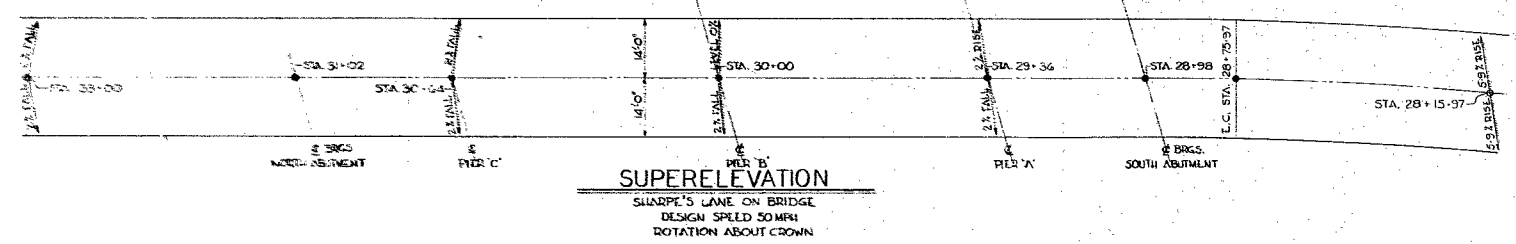
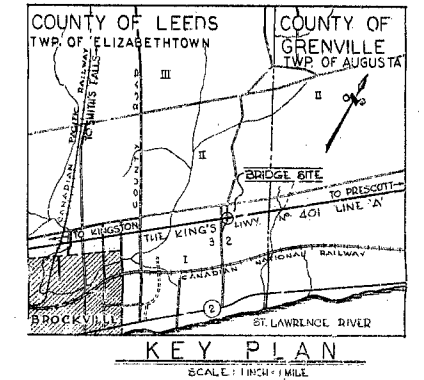
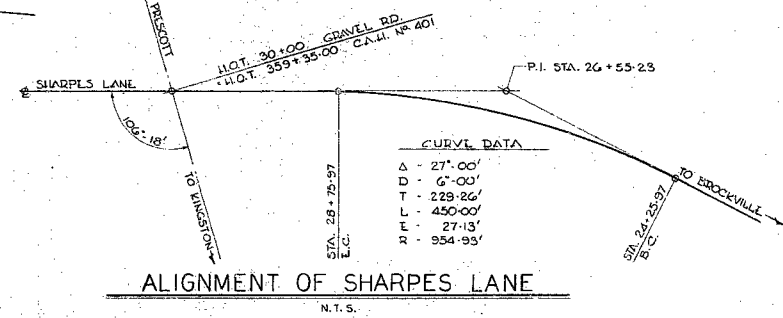
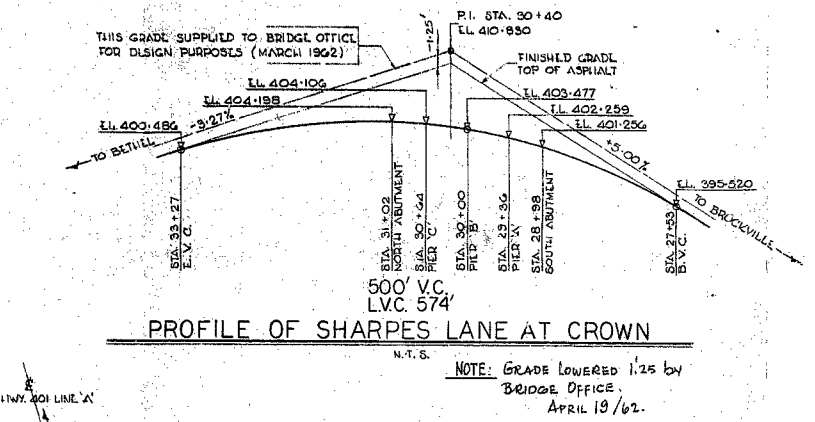
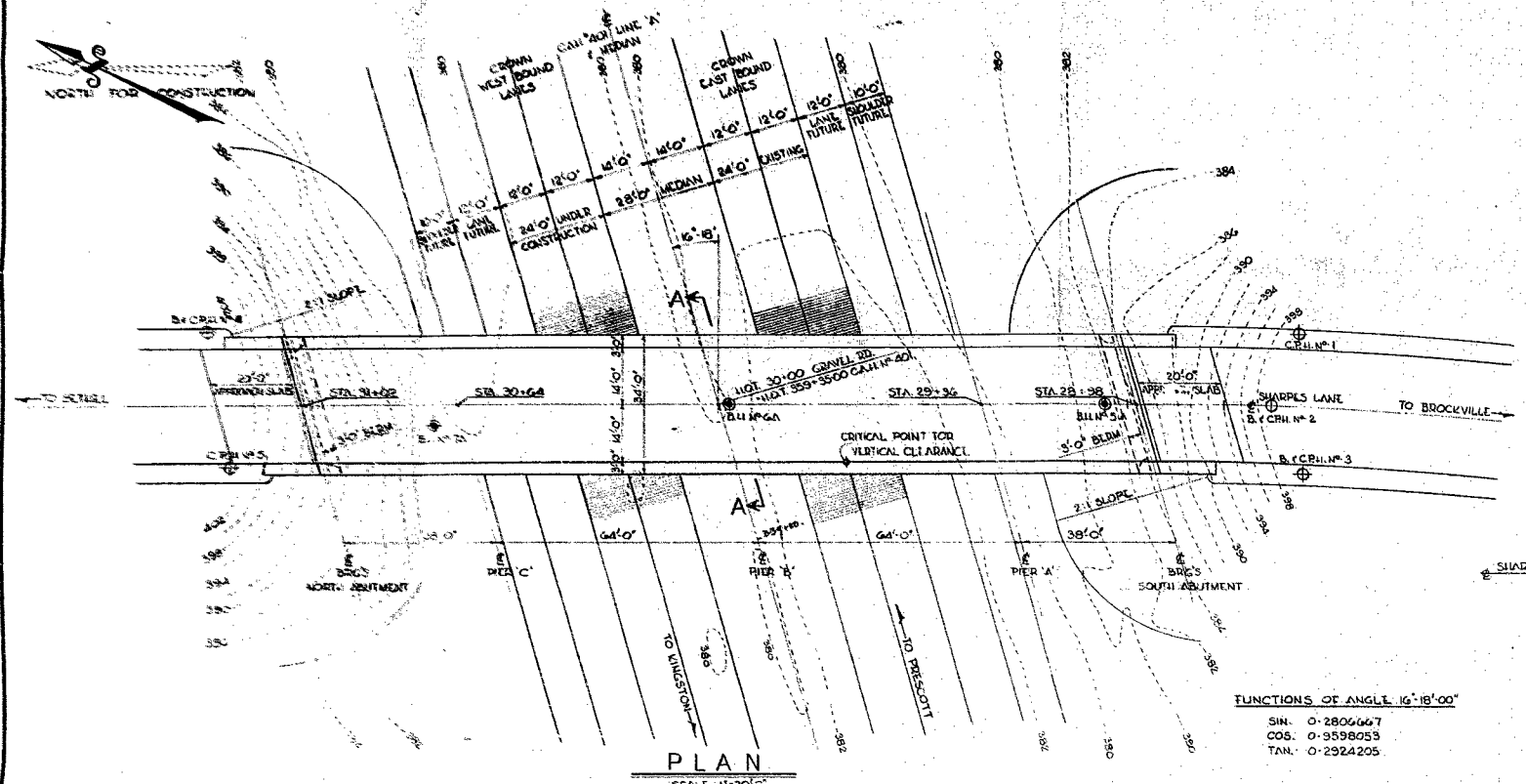


- NOTE -
The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS & RESEARCH DIVISION - FOUNDATION SECTION		
GRAVEL ROAD REVISION (SHARPS ROAD) (BETWEEN LOTS 283 TWP OF ELIZABETHTOWN) AND HIGHWAY NO. 401		
DRAWN D. MUMFORD	DISTRICT NO. 8	DATE 12 MARCH 1962
CHECKED <i>HR</i>	W.P. NO. 76-59	JOB NO. 62-F-4
APPROVED <i>M. Demers</i>	CONTRACT NO.	DRAWING NO. 62-F-4A

REF. NO. E-3760-1

SHEET No.	TOTAL SHEETS
1	1



REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO
BRIDGE DIVISION

UNDERPASS AT SHARPE'S LANE
APPROX 2.7 MILES EAST OF HWY. NO. 29

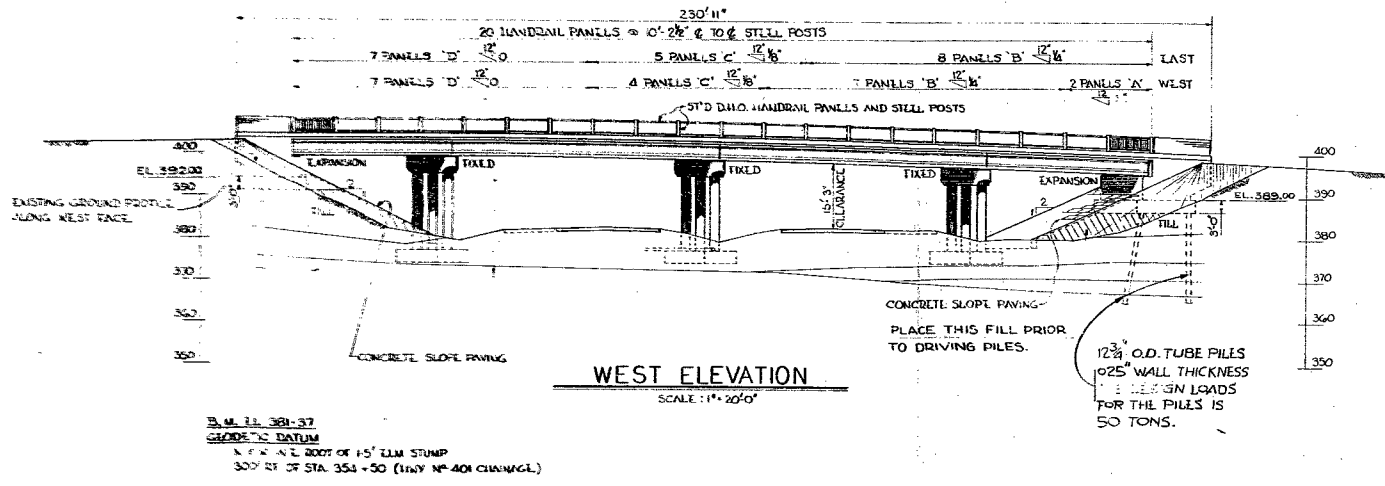
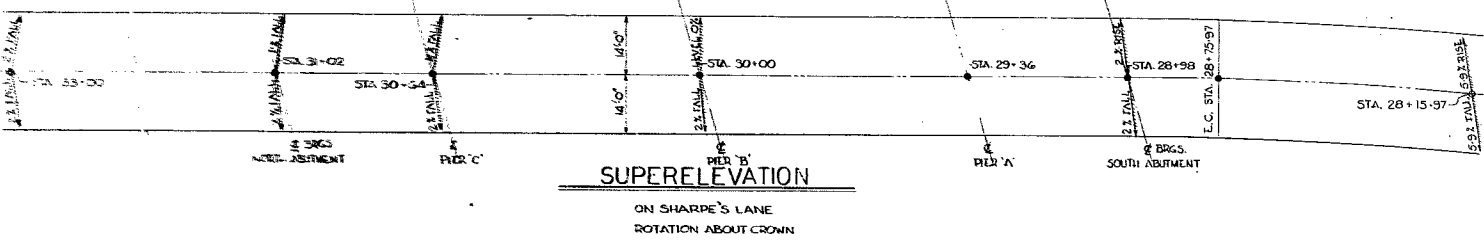
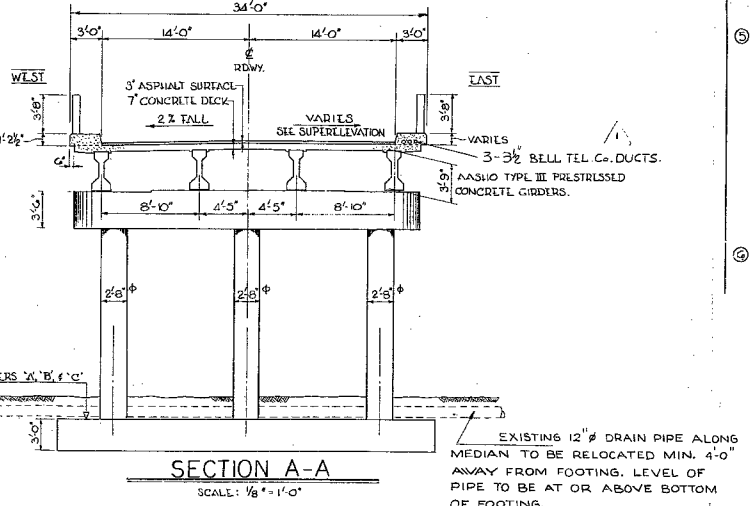
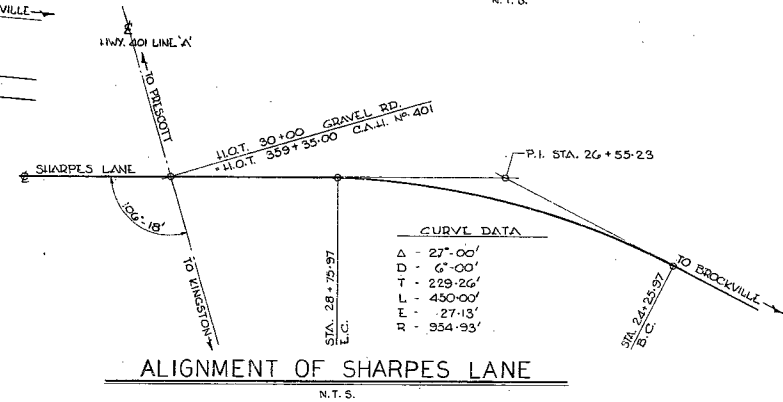
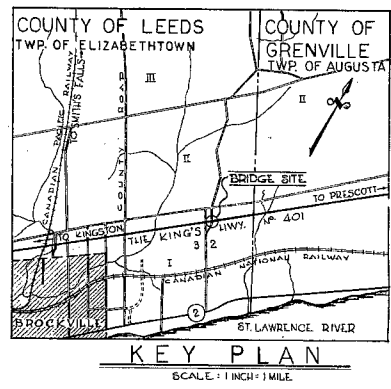
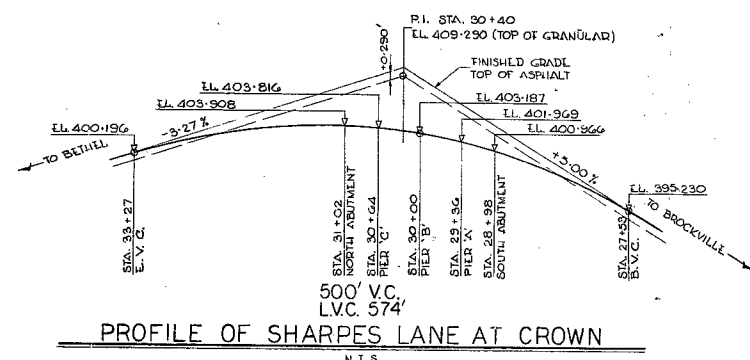
KING'S HIGHWAY No. 401 LINE 'A' DIST. No. 8
CO. LEEDS ELIZABETHTOWN TWP. BRIDGE NO. 19
TWP. ELIZABETHTOWN LOT 2 & 3 CON. I

— PRELIMINARY PLAN —

APPROVED	BRIDGE ENGINEER	SITE No.	W.P. No.
DESIGN	A.R.B.	CHECK	M.M.
DRAWING	J.A.L.	CHECK	M.M.
DATE	APRIL 1962	LOADING	1120 S/G
DRAWING No.		D-5037-PI	

REFERENCE PLANS
SITE PLAN T-3760-1
PLAN T-3417
PROFILE T-3417-2
SOILS BA 391
BA 1260
BA 1260A

PRINT RECORD	No.	FOR	DATE



NOTES

TO DISTRICT ENGINEER

CONCRETE WORK ON THIS STRUCTURE MUST NOT BE COMMENCED UNTIL MONUMENTS TO FIX CONTROL POINTS HAVE BEEN SET AND CHECKED BY THE DISTRICT ENGINEER.

TO CONTRACTOR

STRUCTURE TO BE BUILT IN ACCORDANCE WITH FORM NO. 9 AND THE SPECIAL PROVISIONS, EXTRA COPIES OF WHICH MAY BE OBTAINED FROM THE DISTRICT ENGINEER.

① **CONCRETE MIX**

PRESTRESSED GIRDERS - MINIMUM STRENGTH @ 28 DAYS 5,000 p.s.i., MAXIMUM SIZE OF AGGREGATE $\frac{3}{8}$ INCH. DECK 4000 P.S.I. AGGREGATE $\frac{3}{4}$ INCH. DIMANDLER - 3,000 p.s.i., AGGREGATE $\frac{3}{4}$ INCH.

APPROVED ADMIXTURES SUPPLIED BY THE CONTRACTOR WILL BE ADDED TO ALL CONCRETE AS SPECIFIED BY THE ENGINEER.

② **BORING DATA**

THE COMPLETE SOIL INVESTIGATION REPORT FOR THIS STRUCTURE MAY BE EXAMINED AT THE BRIDGE OFFICE AND FOUNDATION OFFICE, DOWNSVIEW, AT ANY REGIONAL OFFICE AND AT THE KINGSTON DISTRICT OFFICE.

③ **CLEAR COVER ON REINFORCING STEEL**

FOOTING, ABUTMENTS, & PIER COLUMNS 3" PIER CAPS, DIAPHRAGMS, CURBS, & END POSTS, APPROACH SLAB 2" DECK 1" AT TOP & BOTTOM, 2" AT ENDS OR AS NOTED.

④ **CONSTRUCTION NOTES**

- ALL EXPOSED EDGES TO BE CHAMFERED 1" x 1" EXCEPT WHERE NOTED ON PLANS
- ALL CONSTRUCTION JOINTS MUST BE APPROVED BY THE BRIDGE ENGINEER.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FINISHING THE BRIDGE SEATS DEAD LEVEL TO THE SPECIFIED ELEVATIONS WITH A TOLERANCE OF PLUS OR MINUS $\frac{1}{8}$ INCH. IF THEY ARE CAST TOO HIGH THEY SHALL BE GROUND DOWN BY THE GENERAL CONTRACTOR. IF THEY ARE CAST TOO LOW THE GENERAL CONTRACTOR SHALL ~~BE RESPONSIBLE FOR~~ BRING THEM UP TO THE CORRECT ELEVATIONS.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE FINAL DECK ELEVATIONS CONFORM WITH THE ELEVATIONS SHOWN.
- NO CONCRETE SHALL BE PLACED ABOVE THE BRIDGE SEAT UNTIL CONCRETE IN THE DECK HAS BEEN PLACED.

⑤ **CONSTRUCTION SEQUENCE**

THE CONTRACTOR'S ATTENTION IS DRAWN TO THE CONSTRUCTION SEQUENCE AND CONDITIONS AS OUTLINED IN THE SPECIAL PROVISIONS.

REVISIONS			
	26-8-63		Δ BTC _o DUCTS ADDED (EAST CURB)
	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO									
BRIDGE DIVISION									
UNDERPASS AT SHARPES LANE									
APPROX 2.7 MILES EAST OF HWY. NO. 29									
KING'S HIGHWAY No. 401					DIST. No. 8				
CO. LELDS					LIZABETH TOWN TWP. BRIDGE NO. 19				
TWP. LIZABETH TOWN					LOT 2 & 3		CON. I		
—GENERAL ARRANGEMENT—									
APPROVED					SITE No. 17/125		W.P. No. 76-59		
BRIDGE ENGINEER									
DESIGN	M. M.	CHECK	/	CONTRACT					
DRAWING	J. H. I.	CHECK	/	Nos.					
DATE	APRIL 1963	LOADING	1120 S LG	DRAWING		D-5037-1			
				No.					

DRAWING LIST	
D-5037-1	GENERAL ARRANGEMENT
-2	BORING DATA
-3	ABUTMENTS, WINGWALLS & END POSTS
-4	TOOTING LAYOUT - PIER DETAILS
-5	PRESTRESSED GIRDERS
-6	LAYOUT OF SUPERSTRUCTURE
-7	TABLE OF ELEVATIONS FOR DECK AND CURBS
-8	DECK, DIAPHRAGMS, AND CURBS
-9	APPROACH SLAB DETAILS
-10	STANDARD HANDRAIL PANELS & POSTS
-11	CONCRETE SLOPE PAVING
-12	REINFORCING STEEL SCHEDULE
D-5037-13	do do do

REFERENCE PLANS
SITE PLAN F-3760-1
PLAN T-3417
PROFILE F-3417-2
SOILS BA 391
BA 1260
BA 1260A

Con: 23-66-205

Mr. A. M. Toye,
Bridge Engineer.
Materials & Research Division,
(Foundation Section)
Attention: Mr. S. McCombie.

March 21, 1962.

D.H.O. FOUNDATION INVESTIGATION
REPORT.
W.J. 62-F-4 -- W.P. 76-59.

Re: Gravel Road Revision (Sharps Road)
Between Lots 2 & 3, Twp. of Elizabethtown,
and Hwy. No. 401, District No. 8.

Attached, we are forwarding to you, our detailed
report on additional borings carried out at the above
structure location.

We believe you will find the factual data and
recommendations contained therein, adequate for your future
design work. If clarification, or further information is
required, please do not hesitate to contact our Office.

AGS/MdeF
Attach.

cc: Messrs. A. M. Toye (2)
H. A. Tregaskes
H. D. McMillan
J. Ford
E. A. Cash
J. E. Gruspier
T. J. Kovich
J. Roy
E. R. Saint
F. Norman
A. Watt
Foundations Office ✓
Gen. Files.

A. G. Stermac
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

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 2. DESCRIPTION OF SITE & GEOLOGY
 3. FIELD INVESTIGATION PROCEDURE
 4. SUBSOIL CONDITIONS
 - 4.1) General
 - 4.2) Fill Material
 - 4.3) Sandy Till
 5. WATER LEVEL OBSERVATIONS
 6. DISCUSSION AND RECOMMENDATIONS
 7. SUMMARY
 8. MISCELLANEOUS
-

FOUNDATION INVESTIGATION

For

Gravel Road Revision (Sharps Road)
Between Lots 2 & 3, Twp. of Elizabethtown
and Highway No. 401, District No. 8
W.J. 62-F-4A -- W.P. 76-59

1. INTRODUCTION:

The Foundation Section carried out additional borings at the crossing of Hwy. #401 and the proposed relocated Sharps Rd., 2.7 miles east of Hwy. #29, District #8. The purpose of this investigation was to determine the soil properties of the constructed approaches. These approaches were constructed under Contract 54-146 during 1955.

Two foundation investigations were carried out by Racey, MacCallum and Associates at this site in 1954 and 1961. These investigations considered the possibility of constructing a single-span and a four-span bridge, respectively. It has since been decided that the abutments for the structure will be placed in the existing approach embankments. This report describes the properties of the existing fill including the underlying subsoil at the proposed abutment locations and contains recommendations pertaining to the proposed foundations.

2. DESCRIPTION OF SITE & GEOLOGY:

The proposed Centre Line of Sharps Rd. intersects Hwy. #401 some 600 ft. east of the existing Centre Line. The approaches for the proposed structure are already constructed and have a maximum height of 16.0 ft. The site area is surrounded by cultivated fields and is free of buildings and utilities. The immediate area has a rolling topography.

cont'd. /2 ...

2. DESCRIPTION OF SITE & GEOLOGY: (cont'd.) ...

The proposed crossing is located in the south end of the Smith Falls Limestone Plain. The surrounding land form is a drumlin located in the drumlinized and fluted Till Plain.

3. FIELD INVESTIGATION PROCEDURE:

In order to determine the soil properties of the existing approach fills, three sampled boreholes and five dynamic cone penetration tests were carried out. The denseness of the cohesionless material was determined by the Standard Penetration Tests. Samples recovered in the split-spoon were used for classification purposes.

The locations and elevations of the boreholes are shown on the site plan, Drawing No. 62-F-4A.

4. SUBSOIL CONDITIONS:

4.1) General:

The stratigraphy of the subsoil at the site was found to be generally uniform.

Detailed descriptions of the various strata encountered are shown in Appendix I of this report. The estimated stratigraphical profile of Drawing No. 62-F-4A is based on this information, and also on the information contained in Racey, MacCallum's report prepared October, 1961.

cont'd. /3 ...

4. SUBSOIL CONDITIONS: (cont'd.) ...

4.2) Fill Material:

Approximately 16.0 ft. of fill material was established at both abutment locations. The material consisted of brown silty sand with some fine to medium gravel. A measure of the relative density was obtained from the 'N' values which varied from 3 to 60 blows/ft., in general, increasing with depth. From these values, the upper 10 ft. may be described as loose to compact, and the lower portion as compact to very dense. The moisture contents of samples of this material ranged from 9.0% to 12%.

4.3) Sandy Till:

This stratum underlies the sandy fill and extends to maximum depths tested: 4.5 ft. and 8.0 ft. in B.H.'s #2 and #3, respectively. This deposit consists of a silty sand with traces of clay and gravel. The relative density is compact to very dense with the 'N' values ranging from 25 to over 100 blows/ft. In boreholes #2 and #3, an organic silty sand layer of 3" and 6", respectively, original topsoil, was found between the fill material and the natural sandy till stratum.

5. WATER LEVEL OBSERVATIONS:

No ground water was observed in the boreholes during the time of investigation.

cont'd. /4 ...

6. DISCUSSION AND RECOMMENDATIONS:

The 16 ft. high approach embankments are constructed of non-uniformly compacted silty sand. The relative density of the fill material varies from loose to very dense. Below the fill material, the subsoil consists of dense sandy till.

It is recommended that the abutments be supported on short piles of large displacement. For 12-3/4" diameter steel tubular piles, a design load of 50 tons per pile may be used if the piles are driven to approximate elev. 375'. Pile driving should be controlled by the use of the Hiley Formula as per D.H.O. Standards DD 1218 and 1219.

As an alternative, spread footings with a maximum safe load of 1-1/2 tons/ft.² may be used in the fill material at or below elev. 390'. With this load a maximum settlement of 1 inch can be anticipated. The major part of the settlement, however, will occur during construction.

No dewatering problems during construction are anticipated.

7. SUMMARY:

The approach fills are constructed of granular material consisting of loose to very dense silty sand.

It is recommended to use 12-3/4" diameter steel tubular piles for the abutment footings. A safe design load of 50 tons/pile may be obtained at an estimated elev. of 375'. Pile driving should be controlled by means of the Hiley Formula as per D.H.O. standards.

cont'd. /5 ...

7. SUMMARY: (cont'd.) ...

As an alternative, spread footings with a maximum safe load of 1-1/2 tons/ft.² at or below elev. 390' may be used. A maximum settlement of 1 inch can be anticipated, the major part of which will occur during construction.

No dewatering problems during construction are anticipated.

8. MISCELLANEOUS:

The field work was carried out from January 24 to February 1, 1962 by Dominion Soil Investigation, Ltd., using a diamond core drill adapted for soil testing. The work was supervised by I. Holubec for the Ontario Department of Highways.

March 1962.

REPORT PREPARED BY: *I. Holubec*
for I. Holubec,
PROJECT FOUNDATION ENGINEER

REPORT APPROVED BY: *M. Devata*
M. Devata,
SR. PROJECT FOUNDATION ENGR.

APPENDIX I

FOUNDATION SECTION

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT			LIQUID LIMIT ——— w _L PLASTIC LIMIT ——— w _p WATER CONTENT ——— w			BULK DENSITY P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F.			w _p ——— w ——— w _L WATER CONTENT %			
399.2 0.0	Groundlevel					400.0							
	Probable Fill material (Silty sand)												
381.5 17.7	Probable silty sand (Glacial Till)					390.0							
377.2 22.0	End of dynamic cone penetration test.					380.0							
						370.0							

DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS & RESEARCH DIVISION			RECORD OF BOREHOLE NO. 3				FOUNDATION SECTION		
JOB <u>62-F-4</u>		LOCATION <u>Sta. 28/58, 17' Lt. of E</u>		ORIGINATED BY <u>I.H.</u>					
W. P. <u>76-59</u>		BORING DATE <u>Jan. 25, 1962.</u>		COMPILED BY <u>H.S.</u>					
DATUM <u>399.2</u>		BOREHOLE TYPE <u>Dry continuous sampled borehole.</u>		CHECKED BY _____					
SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — *L PLASTIC LIMIT — *P WATER CONTENT — *W		BULK DENSITY X P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	20 40 60 80 100	*P — *L WATER CONTENT % 10 20 30		
399.2	Groundlevel				400.0				
	<u>Fill Material</u>								
	<u>(Silty Sand)</u>	1	S.S.	34			O		Gr = 11%
	with traces of rounded gravel (1 1/2" max. diam.)	2	S.S.	45			O		Sa = 50%
	Loose to very dense brown.	3	S.S.	13			O		Si&Cl = 39%
		4	S.S.	5	390.0		O		
		5	S.S.	10			O		Gr = 8%
		6	S.S.	26			O		Sa = 52%
	(Organic silty sand between elev. 382.7 and elev. 382.2)	7	S.S.	23			O		Si&Cl = 40%
		8	S.S.	60			O		
382.2		9	S.S.	22			O		
17.0	Silty sand with traces of rounded gravel, compact to very dense, brown (Glacial Till)	10	S.S.	57	380.0		O		
		11	S.S.	31			O		
377.7		12	S.S.	26			O		
21.5	End of borehole.								
372.2									
27.0	End of dynamic cone penetration test.				370.0				

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 5

FOUNDATION SECTION

JOB 62-F-4

LOCATION Sta. 31+26, 15 ft. Lt. of E

ORIGINATED BY I.H.

W.P. 76-59

BORING DATE Jan. 31, 1962.

COMPILED BY H.S.

DATUM 402.7

BOREHOLE TYPE Dynamic Cone Penetration Test.

CHECKED BY

SOIL PROFILE			SAMPLES		DYNAMIC PENETRATION RESISTANCE			LIQUID LIMIT — WL PLASTIC LIMIT — WP WATER CONTENT — W		BULK DENSITY P.C.F.	REMARKS	
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	20 40 60 80 100	SHEAR STRENGTH P.S.F.	WD — WL WATER CONTENT %			
402.7 0.0	Groundlevel											
	Probable fill material (Silty sand)						400.0					
							390.0					
387.0 15.7	Probable silty sand (Glacial Till)						380.0					
378.7 24.0	End of dynamic cone penetration test.					370.0						

Mr. S. McCombie,
Bridge Planning Engr.,
Bridge Division.

Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

Attn: Mr. A. P. Watt,
Reg. Bridge Location Engr.

August 16, 1965

Underpass at Sharpes Lane, 2.7 Miles East of
Hwy. #29, Hwy. #401, District #8 (Kingston).

W.P. 76-59

--

W.J. 62-F-4

We have reviewed the Bridge Dwg. D-5037-1, showing the general arrangements of the above-mentioned job, and submit the following comments:

1) The tip elevations for the piles supporting the perched abutments are not defined on the bridge drawing.

2) In our Foundation Report, we recommended that tip elevation for the above-mentioned piles be about Elev. 37; however, these piles, during driving, should be controlled by the use of the Hiley formula according to current D.H.C. Standards DD 1217 & DD 1218.

MD/MdeF

cc: Foundations Office
Gen. Files

M. Devata

M. Devata,
SENIOR FOUNDATION ENGR.

For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.

Department of Highways Ontario

Copy for the information of

Mr. N.D. Smith,

Soils & Materials Planning Supervisor,

Room 134A, Lab. Building.

Mr. K.Y. Lo,

Supervising Foundation Engineer,

Room 107, Lab. Building.

Bridge Division,

Downsview, Ontario.

May 27, 1965.

W.P. 76-59 Site # 16-125
Underpass at Sharpes Lane
2.7 Miles East of Highway #29,
Highway # 401 District # 8.

Enclosed please find one copy of the General Arrangement drawing D-5037-1 for the above noted structure.

Would you kindly review the bridge foundations indicated and inform us if they are satisfactory. Would you also inform us if any further foundation information is considered necessary.



APW/kp

c.c. N.D. Smith

R. Fitzgibbon



A.P. Watt,
Regional Bridge Location Engineer.

OFFICE LOCATION -
DOWNSVIEW AVE.,
KEELE ST. - HIGHWAY 401
TORONTO, ONTARIO.



ONTARIO
DEPARTMENT OF HIGHWAYS

POSTAL ADDRESS -
DEPARTMENT OF HIGHWAYS
PARLIAMENT BUILDINGS,
TORONTO 5, ONTARIO.

Bridge Division,
September 29, 1961.

MEMORANDUM TO:

Mr. A. Stermac,
Principal Foundation Eng.,
Department of Highways,
Room 107,
Downsview, Ontario.

Attn.: Mr. K. Selby

RE: W.P. 76-59
Elizabethtown Twp. Br. #19
Hwy. 401 at Sharps Rd.
Approx. 2.7 miles east of Hwy. 29

Enclosed find plan # E 3760-1 indicating the location of the proposed footings for the structure which we are planning for the above location. At present we have a one span structure designed for this location but due to high detour costs etc. we are now proposing a four span structure.

I have also enclosed a copy of the soils report (BA 391) which we had done for the original design. Would you look this over in view of our new proposal and carry out further investigations as you deem necessary that we may proceed with the design. Please return the enclosed report when you have finished with it.

JBC/bm

J. B. Curtis,
Bridge Location Engineer.

c.c. N.D. Smith
R. Fitzgibbon
S. Markiewicz

Contact

to

arrange

about
setting out

(ROAD DESIGN)
Local 541

Arranged
agv

MEMORANDUM

To: Mr. K.Y. Lo,
Supervising Foundation Engineer,
Room 107, Lab. Building.

From: Bridge Division,
Downsview, Ontario.

Date: May 27, 1965.

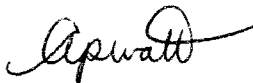
Our File Ref.

IN REPLY TO

SUBJECT: W.P. 76-59 Site # 16-125
Underpass at Sharpes Lane
2.7 Miles East of Highway #29,
Highway # 401 District # 8.

Enclosed please find one copy of the General Arrangement drawing D-5037-1 for the above noted structure.

Would you kindly review the bridge foundations indicated and inform us if they are satisfactory. Would you also inform us if any further foundation information is considered necessary.



APW/kp
c.c. N.D. Smith
R. Fitzgibbon

A.P. Watt,
Regional Bridge Location Engineer.

Mr. A. M. Toye,

May 23, 1962.

Bridge Engineer.

Underpass at Sharpes Lane
Approx. 2.7 miles east of Hwy. 29
Hwy. 401 - Dist. #8, W.P. 76-59
Elizabethtown Township Br. #19.
(Your Memo dated May 10, 1962).

Materials & Research Division,

(Foundation Section)

Attention: Mr. J. E. Curtis,
Bridge Location Engineer.

In his report, the soil consultant, Racey MacCallum & Associates, recommends that a simply-supported structure be designed. A subsequent subsoil investigation was carried out by this Section to determine the density of the existing approach fills.

A reappraisal of the recommendations was made in the light of all the available information, and it was concluded that a semi-continuous structure, as proposed by the bridge designer, is feasible at this particular site.

AGS/MdeF

A. G. Stermac,
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Mr. C. Grebski

Foundations Office ✓
Gen. Files.



ONTARIO

DEPARTMENT OF HIGHWAYS

Memo to Mr. A. Stermac, Date May 10, 1962.
Principal Foundations Engineer,
D.H.O., Room 107, Lab. Bldg., Subject Underpass at Sharpes Lane
DOWNSVIEW, Ontario. Approx. 2.7 miles east of Hwy. 29
From J. B. Curtis Hwy. 401 - Dist. #8, W.P. 76-59
Elizabethtown Twp. Br. #19

Enclosed find a copy of the preliminary plan for the above noted structure.

For the proposed location, you have given us two foundation reports, one done by Racey McCallum in October 1961 and an additional one done by D.H.O. in March of this year.

The Racey McCallum report recommends we do not use a continuous structure while no such recommendation is made in the D.H.O. report. Mr. Grebski the designer has possibly contacted you on this point but we would like something for our files as the proposed design is a continuous type structure.

JBC/bm

J. B. Curtis,
Bridge Location Engineer.

OFFICE LOCATION -
DOWNSVIEW AVE.,
KEELE ST. - HIGHWAY 401
TORONTO, ONTARIO.



ONTARIO
DEPARTMENT OF HIGHWAYS

POSTAL ADDRESS -
DEPARTMENT OF HIGHWAYS
PARLIAMENT BUILDINGS,
TORONTO 5, ONTARIO.

Bridge Division,
January 12, 1962.

MEMORANDUM TO:

Mr. A. G. Stermac,
Principal Foundation Eng.,
Department of Highways,
Room 107, Lab. Building,
DOWNSVIEW, Ontario.

RE: W.P. 76-59
Elizabethtown Twp. Br. #19
Hwy. #401 - District #8
2.7 East of Hwy. #29

The Foundation Report for the subject Structure does not make mention of piles. As the designer will probably want to place the end abutments on piles we would like to know the type of piles the depth to which they can be driven and the load which we might use for design purposes.

Since the approaches are already placed it would appear to be almost certain that the end abutments will be placed on the approaches and that piles will be used.

The report was completed in October, 1961, by Racey McCallum & Associates.

JBC/ea
cc. N. D. Smith

J. B. Curtis,
Bridge Location Engineer.

Curty: maybe it would be good to suggest that the density of the approach fills be investigated in order to find out wheather spread footings could be used. It may happen that the fills are so dense that they will a hell of a time to get the piles through.

Jan. 17, 1962.

70m

Mr. S. McCombie,
Bridge Planning Engr.,
Bridge Division.

Foundation Section,
Materials & Testing Div.,
Room 107, Lab. Bldg.

Attn: Mr. A. P. Watt,
Reg. Bridge Location Engr.

August 16, 1965

Underpass at Sharpes Lane, 2.7 Miles East of
Hwy. #29, Hwy. #401, District #8 (Kingston).

W.P. 76-59

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W.J. 62-F-4

We have reviewed the Bridge Dwg. D-5037-1, showing the general arrangements of the above-mentioned job, and submit the following comments:

1) The tip elevations for the piles supporting the perched abutments are not defined on the bridge drawing.

2) In our Foundation Report, we recommended that tip elevation for the above-mentioned piles be about Elev. 375; however, these piles, during driving, should be controlled by the use of the Hiley formula according to current D.H.S. Standards DD 1217 & DD 1218.

MD/MdeF

cc: Foundations Office
Gen. Files ✓

M. Devata
M. Devata,
SENIOR FOUNDATION ENGR.

For:
A. G. Stermac,
PRINCIPAL FOUNDATION ENGR.



ONTARIO
DEPARTMENT OF HIGHWAYS

Memo to Mr. A. M. Toye, Date April 24, 1962.
Bridge Engineer. Subject D.H.O. FOUNDATION INVESTIGATION REPORT
From Materials & Research Division, W.J. 62-F-4 -- W.P. 76-59.
(Foundation Section)

Attention: Mr. S. McCombie.

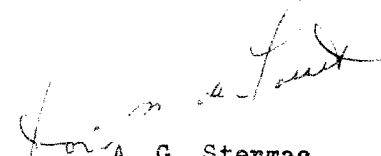
Re: Gravel Road Revision (Sharps Road) -
Between Lots 2 & 3, Twp. of Elizabethtown,
and Hwy. No. 401, District No. 8.

Attached, are the recently completed borelogs
for the above project.

Would you kindly insert these sheets under
Appendix I of your copy(s) of this foundation report.

Thank you.

AGS/MdeF
Attach.


A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Messrs. A. M. Toye (2)
H. A. Tregaskes
H. D. McMillan
J. Ford
E. A. Cash
J. E. Gruspier
T. J. Kovich
J. Roy
E. R. Saint
F. Norman
A. Watt

Foundations Office
Gen. Files.

Order No.: 5410.506/54/136 RACEY, MacCALLUM AND ASSOCIATES
Dated _____ Limited

FRED LUSE
Driller

• Day Month Year Foundation Engineering Division

Hole Begun OCT 8/54

Hole Ended OCT 13/54 Engineering Data Sheet for Borehole: 1

MINNIE CHERTER
Helper

Job Name: BRIDGE #19, HIGHWAY #401, DHD.

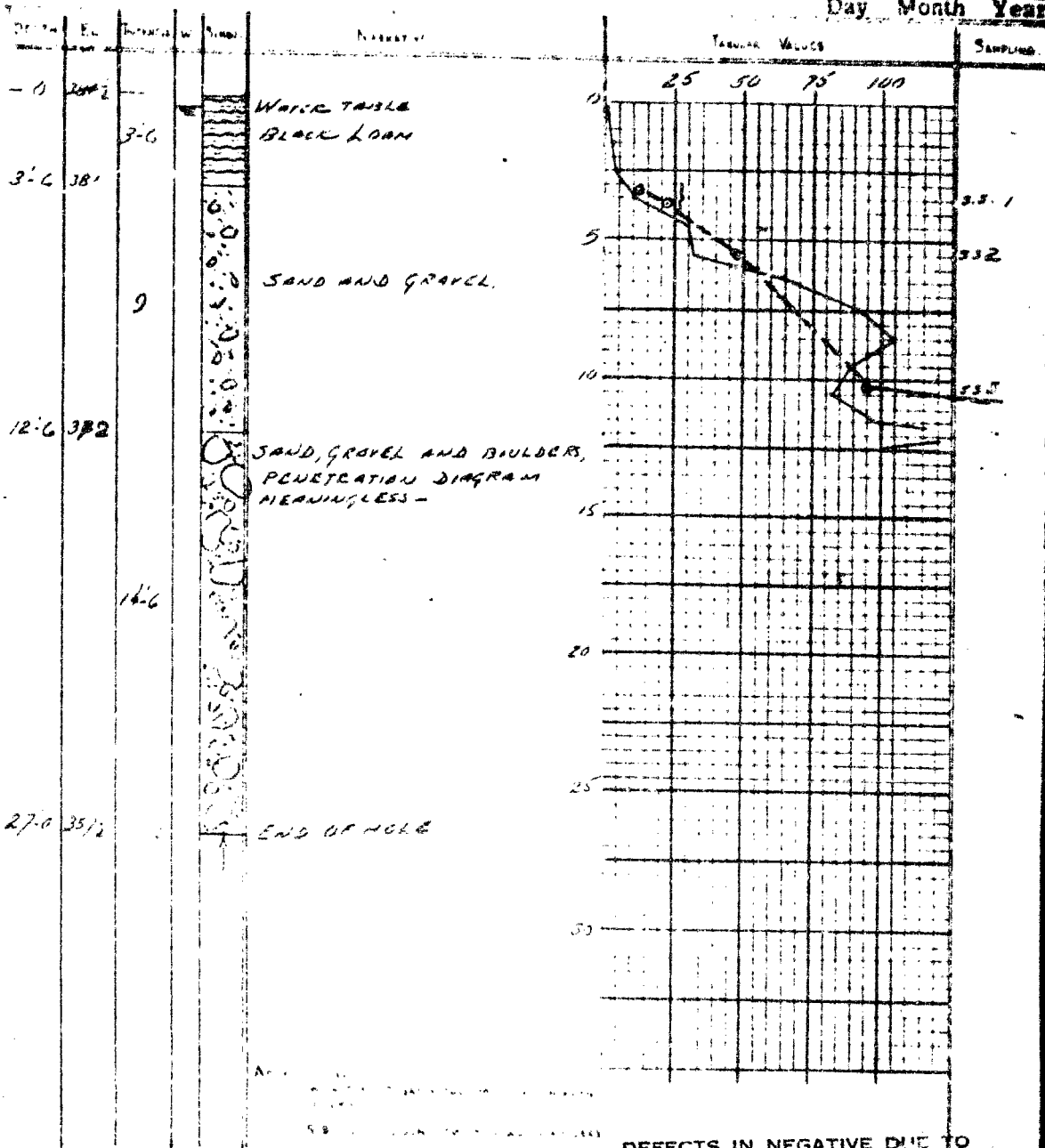
Job Located: ELIZABETHVILLE TWP (BRACKVILLE)

Hole Located: 50' N OF E #401 ALONG E OF BY-PASS

Hole Elevation: 384.4 Datum: FROM PLAN & PROFILE

R.C. K.T.
Checked by

21 OCT 54
Day Month Year



DEFECTS IN NEGATIVE DUE TO
CONDITION OF ORIGINAL DOCUMENT

DEFECTS IN NEGATIVE DUE TO
CONDITION OF ORIGINAL DOCUMENT

23-66-205

Page No. 1 of 1
(do not put more than one
day or one borehole per
sheet)

RACEY, MACCALLUM AND ASSOCIATES LIMITED

Weather: Sunny
Temperature: 55°
Hours work:
Hours delay:

DRILLER'S DAILY FIELD REPORT

Date: October 8th, 1954
(day month year)

Contract No.: 3 500-504/54/T-26
Client's file:

Client: Sir Alexander Gibb & Partners

Borehole No.: 1 Elevation: 384.4 Location: 50 ft North of #401 & on By Pass #
Job Location: Elisabethtown Twp.
Job Name: Bridge # 19, # 401 Highway

Check here if equipment and personnel is the same as on last report.

Drill Make: Boyles Size: 1 Chuck Size: KIT of head: Screw (4feed)
Pump Make: BAG Size: 700 gal/hr Length/Water Line: 450 ft. Diam: 1"
Driveline: 2 1/2 KHD inches; Casing: --- Drivehammer: 230 lbs. X 30 inches drop
Samplers: 2" D inches; Bit: KIT Samplehammer: 125 lbs. X 32 inches drop

Contractor: Valley Drilling Driller: Fred Lusk Recorder: R. Quintal
Helpers: Chevrier Visitors: Mr. Reeves, Fred Johnston

Depth, feet From At To			Comments: Soil description, water measurements; daily incidents, etc.	Blows per ft.	Samples Type No.	Elev.
			Set up equipment at noon, ready to drill at			
			3:40 P.M. using 200 gallon water tank for			
			supply			
0	1		Drove 2 1/2 Extra Heavy Duty pipe	1		
1	2		do	3		
2	3		do	4		
3	3'6"		Drove 2" x 1'0" Split Spoon	6* 6 }	17'	
3'6"	4'0"			6* 11)	SS 1	
3	4		Drove Pipe	11		
4	5			30		
5	5'6"		Drove 2" x 1'0" Split Spoon	6* 15)	47'	
5'6"	6			6* 20)	SS 2	
5	6		Drove Pipe	32		
6	7		do	68		
7	8			92		
8	9			105		
9	10		Washed	89		
10	10'6"		Drove 2" x 1'0" Split Spoon	6* 47	SS	
10'6"	10'10"		Refusal	2* 28	SS 3	
			End of Day			

Weather: Cloudy
Temperature: Very Cool
Hours work: 5
Hours delay:

DRILLER'S DAILY FIELD REPORT

Contract No.: 8-500-504/54/T-26
Client's file:

Client: Sir Alexander Gibb & Partner

Borehole No.: 1 Elevation: _____ Location: _____
 Job Location: _____
 Job Name: _____

☒ Check here if equipment and personnel is the same as on last report.

Drill Make:	Size:	Chuck Size:	Type of head:
Pump Make:	Size:	Length/Water Line:	ft. Diam:
Drivespipe:	inches, Casing:	Drivehammer	lbs. X inches drop
Samplers:	inches; Bit:	Samplehammer	lbs. X inches drop

X Contractor: ; **Driller:** **Recorder:**
Helpers: ; **Visitors:**

[illegible]

Page No. 1 of 1
(do not put more than one
day or one borehole per
sheet)

RACEY, MACCALLUM AND ASSOCIATES
LIMITED

DRILLER'S DAILY FIELD REPORT

Weather:
Temperature:
Hours work: 10
Hours delay:

Date: October 12th, 1954
(day month year)

Contract No.:
Client's file:

Client: Sir Alexander Gibb & Partners

Borehole No.: 1 Elevation: Location:
Job Location:
Job Name:

☒ Check here if equipment and personnel is the same as on last report.

Drill Make: Size: Chuck Size: Type of head:
Pump Make: Size: Length/Water Line: ft. Diam.:
Drivepipe: inches; Casing: Drivehammer lbs. X inches drop
Samplers: inches; Bit: Samplehammer lbs. X inches drop

☒ Contractor: ; Driller: Recorder:
Helpers: ; Visitors:

Depth, feet From At To			Comments. Soil description, water measurements; daily incidents, etc.	Blows per ft.	Samples Type No.	Elev.
	0		Water Table in morning at surface			
12		13	Drove Pipe	200		
13	13'4"		do	4" 104		
			Cleaned Hole and blasted			
13'4"		14	Drove Pipe through break	8" 15		
14	14'2"		Refusal	2" 100		
14'2"		20	Washed & drilled in Boulders &			
14'2"		15	Drove Pipe	100		
14		15	Blasted - Redrove thru break	18		
15		16	Drove Pipe	60		
16		17	do	85		
17		18	do	100		
18		19	do	145		
19		20	do	230		
20		27	Boulders, Gravel and sand. Nature of boulders variable. Cores secured			
	27		Hole abandoned - information considered sufficient			

RACEY, MACCALLUM AND ASSOCIATES
LIMITED

Weather: Cloudy to fair
Temperature:
Hours work: 10
Hours delay:

DRILLER'S DAILY FIELD REPORT

Date: October 13, 1954
(day month year)

Contract No.:
Client's file:

Client: Sir Alexander Gibb & Partners

Borehole No.: 2 Elevation: 384.0 Location: 50' south from #401 & on bypass &
Job Location: Elisabeth Town TWP.
Job Name: Bridge # 19, # 401 Highway

☒ Check here if equipment and personnel is the same as on last report.

Drill Make: Size: Chuck Size: Type of head:
Pump Make: Size: Length/Water Line: ft. Diam:
Drivepipe: inches, Casing: Drivehammer lbs. X inches drop
Samplers: inches; Bit: Samplehammer lbs. X inches drop

☒ Contractor: Driller: Recorder:
Helpers: Visitors:

Depth, feet From At To			Comments: Soil description, water measurements; daily incidents, etc.	Blows per ft.	Samples Type No.		Elev.
			Moved to Borehole 2 and set up				
0		1	Drove pipe in black loam	3			
1		2	do	4			
2		3	Drove pipe in soft brown sandy silty clay	2			
3		4	with some roots	4			
4		5	do	4			
0		5	Washed and cleaned pipe				
5	6	6"	Pushed shelby by hand - soft clay		TW		Sample Lost
5		6	Casing follows shelby without help				
6		7	Drove 2 1/2" Pipe	4			
7	7	7"	Pushed shelby by hand to refusal				Lost sample
	7	7"	Change to stiff glacial till				377.0'
7		8	Drove Pipe	34			
8		9	do	198			
			Washed Pipe				
9		10	Drove 2" Spoon, extremely compact glacial till - stones to 1 1/2", silt and clay	150	SS	1	375'

[illegible]

Weather:
Temperature:
Hours work:
Hours delay:

DRILLER'S DAILY FIELD REPORT

Date: Oct. 13, 1954
(day month year)

Contract No.:
Client's file:

Client:

Borehole No.: 2 A Elevation: 384.0 Location: 8 ft. east of # 2
Job Location: Elizabethtown, Twp.
Job Name: Bridge # 19, Highway # 401

X Check here if equipment and personnel is the same as on last report.

Drill Make:	Size:	Chuck Size:	Type of head:
Pump Make:	Size:	Length/Water Line:	ft. Diam:
Drivepipe:	inches, Casing:	Drivehammer	lbs. X inches drop
Samplers:	inches; Bit:	Samplehammer	lbs. X inches drop

X Contractor:..... Driller:..... Recorder:.....
 Helpers:..... Visitors:.....

[illegible]

[illegible]

Weather:
 Temperature:
 Hours work:
 Hours delay:

DRILLER'S DAILY FIELD REPORT

Date: Oct. 14, 1954
(day month year)

Contract No. :

Client's file:

Client **Sir Alexander Gibb & Partners**

Borshole No.: 1 Elevation: 385.6' Location: 30' beyond Borshole # 1
Job Location: Elizabethtown Twp.
Job Name: Bridge # 19, Highway # 401

X..... Check here if equipment and personnel is the same as on last report.

Drill Make: Size: Chuck Size: Type of head:

Pump Make: _____ Size: _____ Length/Water Line: _____ ft. Diam: _____

Driveline: _____ inches, Casing: _____ : Drivehammer _____ lbs. X _____ inches

Samplers:	Inches:	Bit:	Sample hammer:	lbs. X:	Inches:

Contractor: _____ : Driller: _____ Recorder: _____

Helpers: _____ **Visitors:** _____

[illegible]