

65-F-261

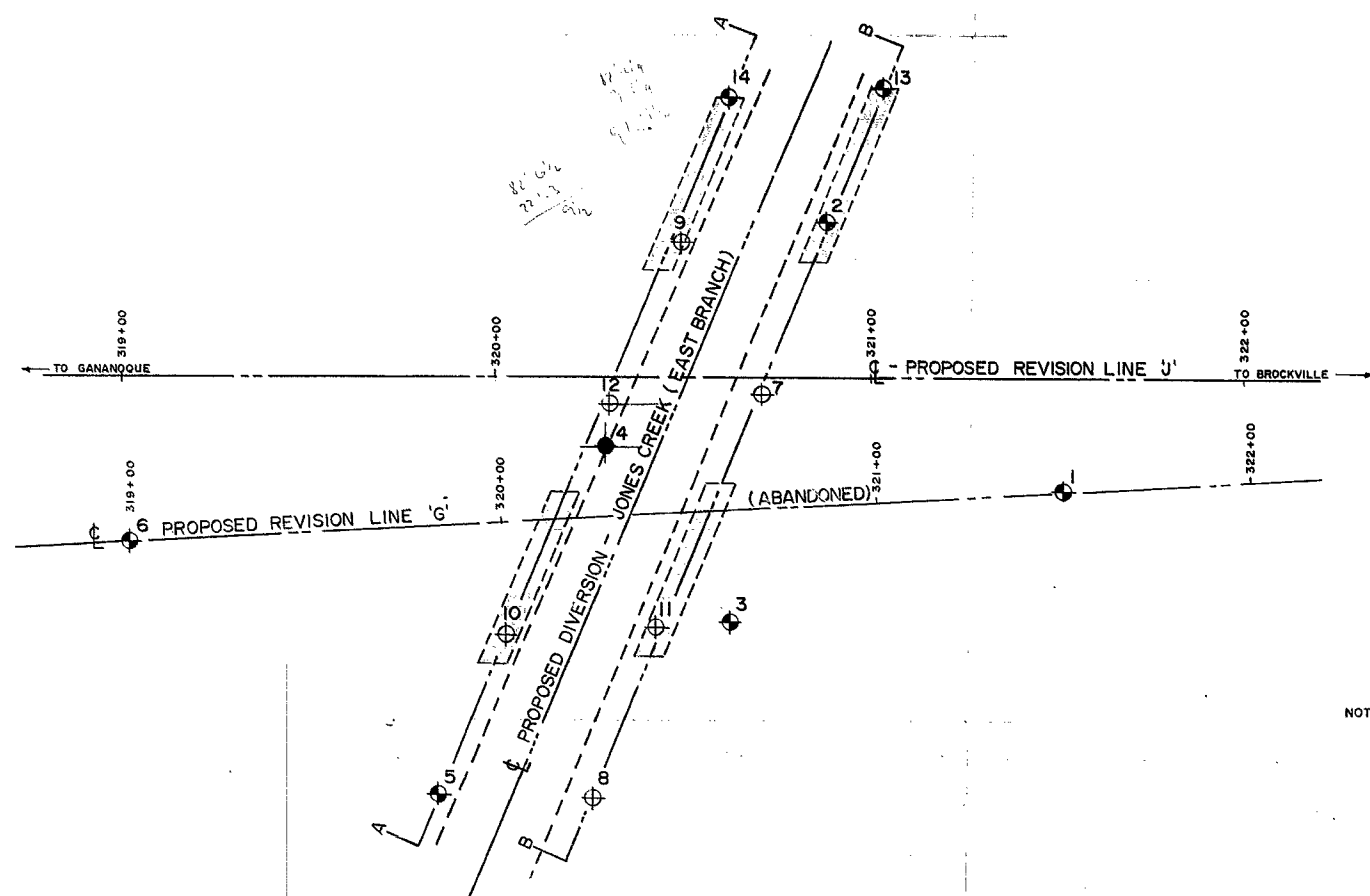
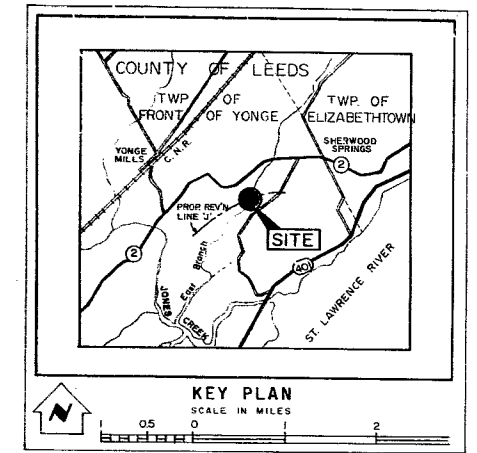
W.P. # 179-61

Hwy. # 401 :

JONES CREEK

(EAST BRANCH)

455600 E
4227000 N 18 31 12



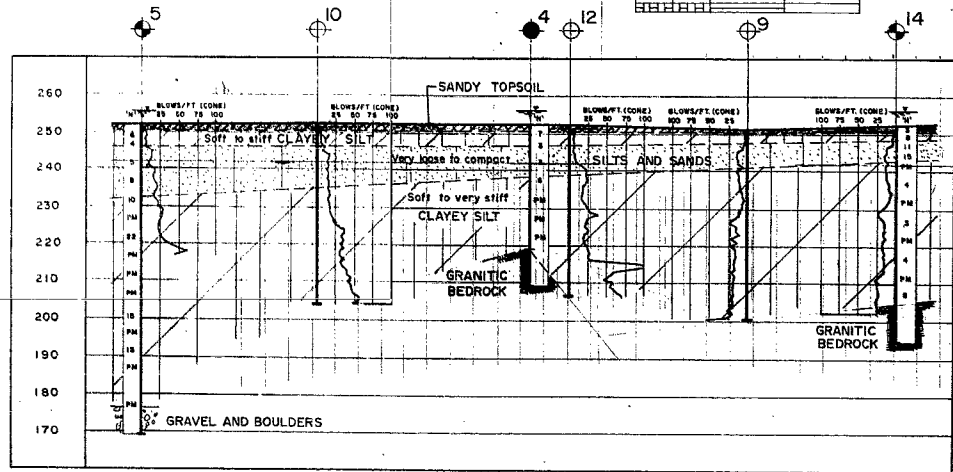
NOTE: BORINGS NUMBERED 1 TO 12 PUT DOWN IN PREVIOUS INVESTIGATION, GOLDER AND ASSOCIATES REPORT NO. 6265 DATED DECEMBER, 1962.

LEGEND			
	Bore Hole		
	Cone Penetration Hole		
	Bore & Cone Penetration Hole		
	Water Levels established at time of field investigation.		

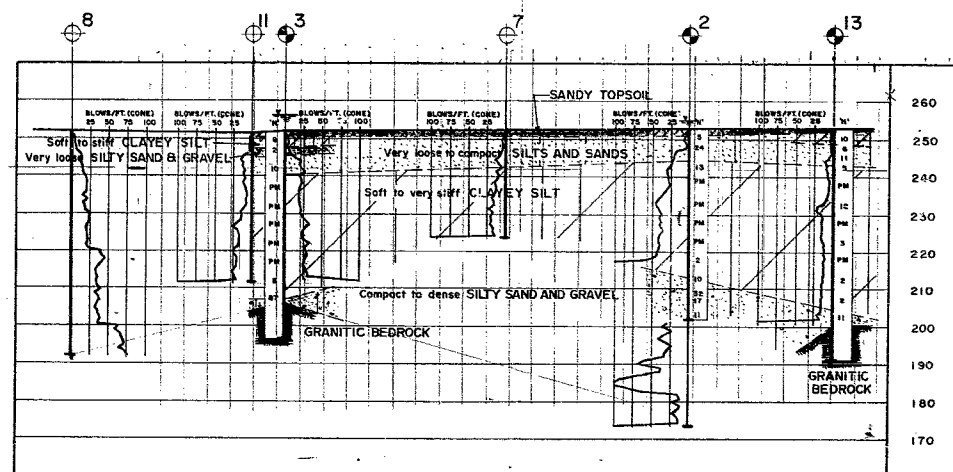
NO.	ELEVATION	STATION	OFFSET
1	252.4	321+52	30' RT.
2	253.0	320+88	42' LT.
3	252.1	320+63	65' RT.
4	252.6	320+30	19' RT.
5	252.3	319+86	112' RT.
6	252.9	319+03	44' RT.
7	252.5	320+72	5' RT.
8	252.0	320+27	113' RT.
9	251.2	320+50	36' LT.
10	252.9	320+04	69' RT.
11	251.7	320+44	67' RT.
12	252.6	320+31	7' RT.
13	253.3	321+03	78' LT.
14	252.6	320+62	75' 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.

PRINT RECORD		
NO.	FOR	DATE



SECTION A-A



SECTION B-B

REVISIONS	DATE	BY	DESCRIPTION

H. Q. GOLDER & ASSOCIATES LIMITED
DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & TESTING DIVISION - FOUNDATION SECTION

JONES CREEK - EAST BRANCH
PROPOSED REVISION LINE 'J'

KING'S HIGHWAY NO. 401 DIST. NO. 8
CO. LEEDS
TWP. OF FRONT OF YONGE LOTS 3 & 4 CON. 1

BORING PLAN & SOIL STRATIGRAPHY

SUBM'D.	CHECKED	W.P. NO. 179-61	DRAWING NO.
DRAWN J.A.	CHECKED R.D.	JOB NO. 65054	1
DATE JUNE 30, 1965	SITE NO.	BRIDGE DRAWING NO.	
APPROVED [Signature]	CONT. NO.		

#61-F-229C

WP# 76-59

Hwy # 401 & #29

E. OF BROCKVILLE

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

October 26, 1961.

FOUNDATION INVESTIGATION REPORT
By: Racey, MacCallum & Assoc.,
Ltd.

Attention: Mr. S. McCombie.

Re: Highway #401 Underpass,
East of Brockville, Ontario.
W.P. 76-59.

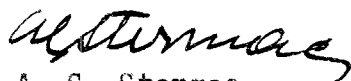
The attached report has been prepared and submitted
by the Consultants, Racey, MacCallum and Associates, Ltd.

Upon reviewing this report, we have found the
factual data and recommendations contained therein, to be adequate
for your future design work.

However, should there be need for clarification, or
additional information, 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,
PRINCIPAL FOUNDATION ENGINEER

RACEY, MacCALLUM AND ASSOCIATES

LIMITED

A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers

AND ASSOCIATED STAFF

MONTREAL



VANCOUVER

TORONTO

DONALD C. MACCALLUM, B.ENG., M.E.I.C., P.ENG.

H. JOHN RACEY, B.Sc., M.E.I.C., P.ENG.

GEORGE L. HOUGHTON, A.M.I.MECH.E., M.E.I.C., P.ENG.

TORONTO DIVISION
27 CARLTON STREET

Reference: S-500/T-3388
- Report -

October 19, 1961.

Department of Highways of Ontario,
Materials and Research Section,
c/o Parliament Buildings,
TORONTO, Ontario.

Attention: Mr. A. Rutka, P.Eng.

RE: FOUNDATION INVESTIGATION,
HIGHWAY #401 UNDERPASS,
EAST OF BROCKVILLE, ONTARIO.

W.P. 76-59

Dear Sirs:

The enclosed report presents the results of our
soil investigation at the above location.

We hope the report is satisfactory to you; if you
have any questions about it please do not hesitate to get in
touch with us.

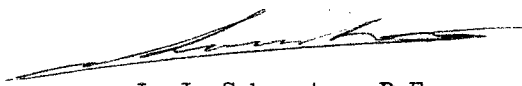
Thank you for this opportunity of being of service
to you.

Yours very truly,

RACEY, MacCALLUM AND ASSOCIATES LIMITED

JJS/KA

(14 copies to D.H.O.)


J. J. Schoustra, P.Eng.,
Divisional Soil Engineer

Department of Highways of Ontario,
Materials and Research Section,
c/o Parliament Buildings,
Toronto, Ontario.

FOUNDATION INVESTIGATION,
HIGHWAY #401 UNDERPASS,
EAST OF BROCKVILLE, ONTARIO.

W.P. 76-59

Reference: S-500/T-3388
- Report -

Racey, MacCallum and Associates
Limited

October 19, 1961.

RACEY, MACCALLUM AND ASSOCIATES LIMITED

A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers
AND ASSOCIATED STAFF

MONTREAL



VANCOUVER

TORONTO

DONALD C. MACCALLUM, B.ENG., M.E.I.C., P.ENG.

H. JOHN RACEY, B.SC., M.E.I.C., P.ENG.

GEORGE L. HOUGHTON, A.M.I.MECH.E., M.E.I.C., P.ENG.

TORONTO DIVISION
27 CARLTON STREET

Reference: S-500/T-3388
- Report -

October 19, 1961

FOUNDATION INVESTIGATION,
HIGHWAY #401 UNDERPASS,
EAST OF BROCKVILLE, ONTARIO.

W.P. 76-59

INTRODUCTION:

In October 1954, Racey, MacCallum and Associates Limited carried out a foundation investigation for a proposed single-span structure to carry the gravel road between Lots 2 and 3 of Elizabethtown Township over Highway 401, about one-and-a-half miles east of Brockville. Two deep and two shallow boreholes were put down and the results of the investigation are given in Report No. S-500-504/54/T-26/1 of October 22nd, 1954.

It has since been proposed to elongate the structure to four spans and additional borings were requested by the Client to verify that the recommendations and findings of the 1954 report are still valid for the revised structure. The following report covers this additional work.

FIELD WORK:

Three boreholes were put down close to the proposed centre line of the gravel road crossing Highway 401. These boreholes were designated Nos. 5, 6 and 7 and their locations, together with those of the two deep boreholes of the 1954 investigation, are shown on the accompanying site plan (Enclosure No. 1).

The line of the proposed road and the levels and chainages of the boreholes were obtained by an Ontario Highways survey crew at the beginning of the investigation. Elevations quoted are true geodetic.

Operations were carried out by a skid-mounted diamond drill using wash boring techniques in the soft soils.

Reference: S-500/T-3388

- 2 -

October 19, 1961

FIELD WORK - Continued

Each of the boreholes was preceded by a dynamic cone probe in which a two-inch diameter steel cone was driven by a 140-lb. weight falling a distance of 30 inches. The number of blows required to drive the cone each foot were recorded and provide a comparison of the densities of the soil through which the cone passed. These values have been plotted on the borehole data sheets (Enclosures 3, 4 and 5).

Soil samples at intervals of a few feet were taken with a two-inch diameter split spoon sampler. The sampler was driven by the same falling weight as the cone and the blows required to drive it twelve inches constitute the well-known standard penetration test. These values are also plotted on the data sheets.

In the majority of cases the number of blows required to drive the split spoon sampler exceeded 100 per foot. In these instances, the blows have been plotted at 100 in view of the very favourable conditions reflected by these high values.

SOIL CONDITIONS:

In all three boreholes the stratum through which most of the footage passed was an extremely dense glacial till, grey in colour and consisting of silty fine sand, pebbles and many small boulders. In Borehole No. 7, the most northerly of the three, the silt proportion was slightly higher than in the others so that the material was more of a fine sandy silt than a silty fine sand. The top surface of this till stratum was at a depth of 12'-6" in Borehole No. 5; 8'-0" in Borehole No. 6; 3'-9" in Borehole No. 7 and extended down below the limits of the boreholes (See Enclosure No. 2).

Such was the frequency of small boulders that it was necessary to diamond drill (size BX) to advance the boreholes between split spoon samples below depths of five feet in Boreholes 6 and 7, and fifteen feet in Borehole 5. Some idea of the even distribution of stones and boulders may be deduced from the fact that in nearly every run of about four feet there was close to twelve inches of recovery in the core barrel ranging from half-inch pebbles to three-inch boulder cores - though on one occasion a six-inch boulder was encountered.

In interpreting the split spoon penetration blows in materials containing pebbles and stones, it is commonly found that the interference caused by the stones gives the impression of much higher densities of the finer soil matrix than is truly the case. However, after careful observation of the driving of the split spoon sampler and examination of the samples, it is concluded that the very high numbers of split spoon blows in this material were

Reference: S-500/T-3388

- 3 -

October 19, 1961

SOIL CONDITIONS - Continued

not greatly affected in this way and that the values obtained do reflect the very high density of the silty fine sand which has clearly been subjected to very high pressures in its geological history.

Above the very dense grey till were three different strata, two of which were found only in Borehole No. 5.

Of these three the one common to all three boreholes was a dark brown silty fine sand extending down from the ground surface to depths of 5'-3", 8'-0" and 3'-9" in Boreholes 5, 6 and 7 respectively. This stratum was of medium density near the surface, increasing in density with depth.

Between 5'-9" depth and 10'-3" in Borehole No. 5 was a stratum of very dense grey-brown fine sandy silt overlying a 2'-3" layer of very dense grey silty fine sand.

Enclosure No. 2 shows a cross-section of the stratigraphy based on the results of the three boreholes. It will be noticed that there is no reference to the "black loam" mentioned in the 1954 report of which no trace of material was found answering this description precisely and it therefore may have been a local deposit. In any case, this discrepancy is not likely to be significant since the black loam was apparently only found to extend to three feet below the ground surface, i.e., above the probable foundation level.

WATER CONDITIONS:

In only one borehole (No. 5) was it possible to observe the water level after leaving it overnight. The level was found to be 6'-3" below the ground surface. After 10 hours, the water level in Borehole No. 6 was 4'-0" though it is felt that this is not a sufficient period of time to permit equilibrium to occur.

A very small flow of surface water was observed in the bottom of the drainage ditch at Borehole No. 7. This appeared to originate to the west of the existing embankment for the gravel road.

RECOMMENDATIONS:

The site is an extremely favourable one for the erection of a structure with ordinary footings.

As a minimum cover of four feet will be required for frost protection, the foundations at the north end of the bridge

Reference: S-500/T-3388

- 4 -

October 19, 1961

RECOMMENDATIONS - Continued

would rest on or just above the dense grey till, and a permissible bearing stress of four tons per square foot may be used. However, the upper surface of the till is lower to the south and, at this same elevation (approx. 375), the somewhat less dense soils are encountered and the permissible bearing stress should be reduced to three tons per square foot for normal strip footings. If a uniform bearing stress is required for the whole structure, then the stress of three tons per square foot would, of course, apply. A permissible bearing stress of four tons per square foot for the whole structure may be used at approximately elevation 373.

Settlements should be very small and well within the range which can be accommodated by a normal bridge structure, but a continuous-beam type should not be considered.

There should be no difficulties with ground water during excavation for construction. There is some small amount of surface seepage on the west side of the gravel road and to the north of Highway 401. The soils are generally of low permeability and water seeping along the ground surface will probably collect in the excavations. However, this may be conveniently removed by pumping with the assistance of the natural surface drainage of the area which is located close to the highest point not only in the immediate locality but for some miles around.

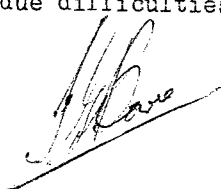
CONCLUSIONS:

The main points of this report may be summarized as follows:

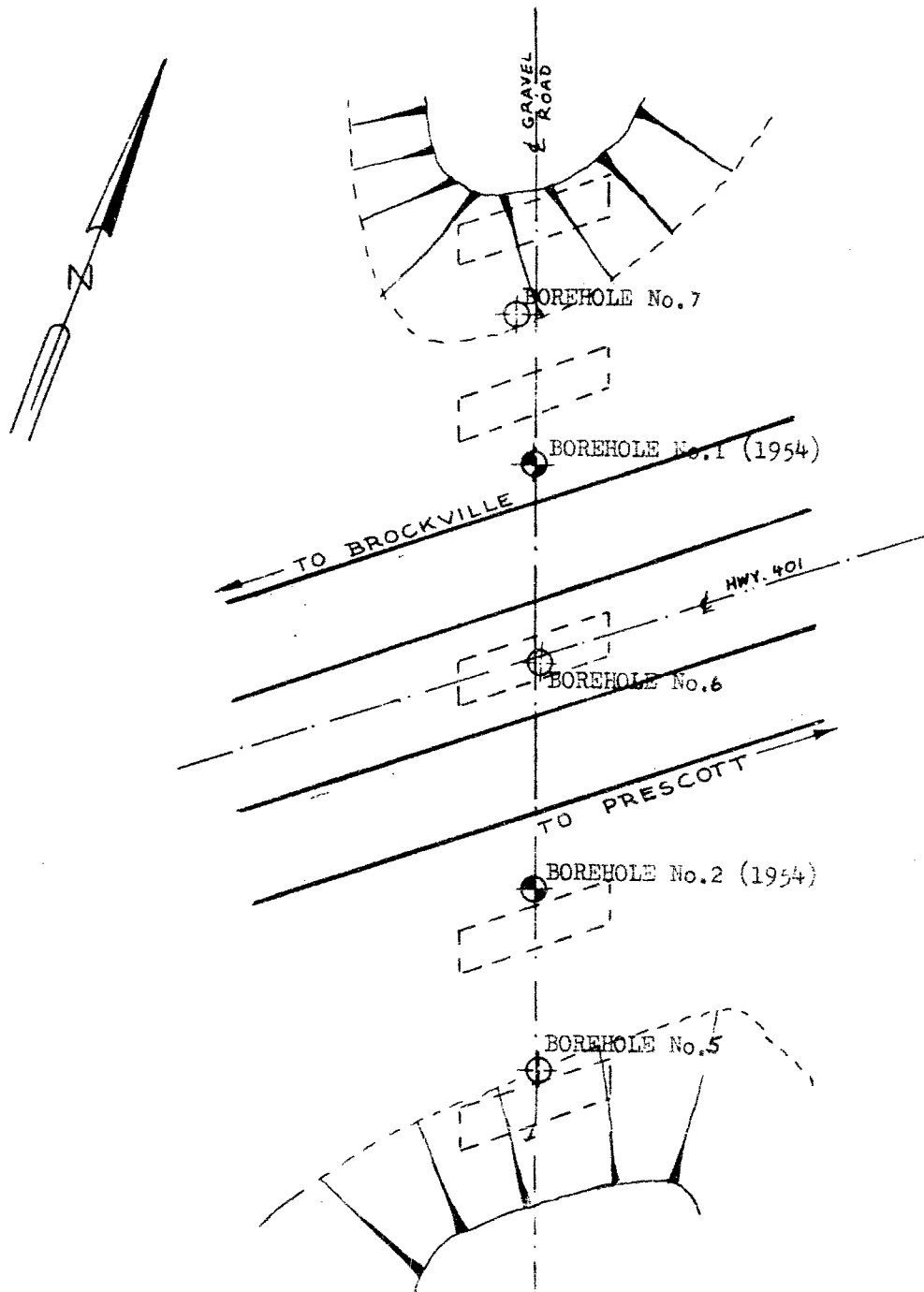
1. The soils in the area are generally dense silty or fine sandy materials of high density.
2. An allowable bearing stress of 6,000 lbs. per square foot for normal abutments at elevation 375 is recommended. This figure may be increased to 8,000 lbs. per square foot at elevation 373 or lower.
3. Settlements should be insignificant enough to be accommodated by a structure of the simply-supported span type.
4. Ground water should not cause any undue difficulties during construction.

IGB/KA

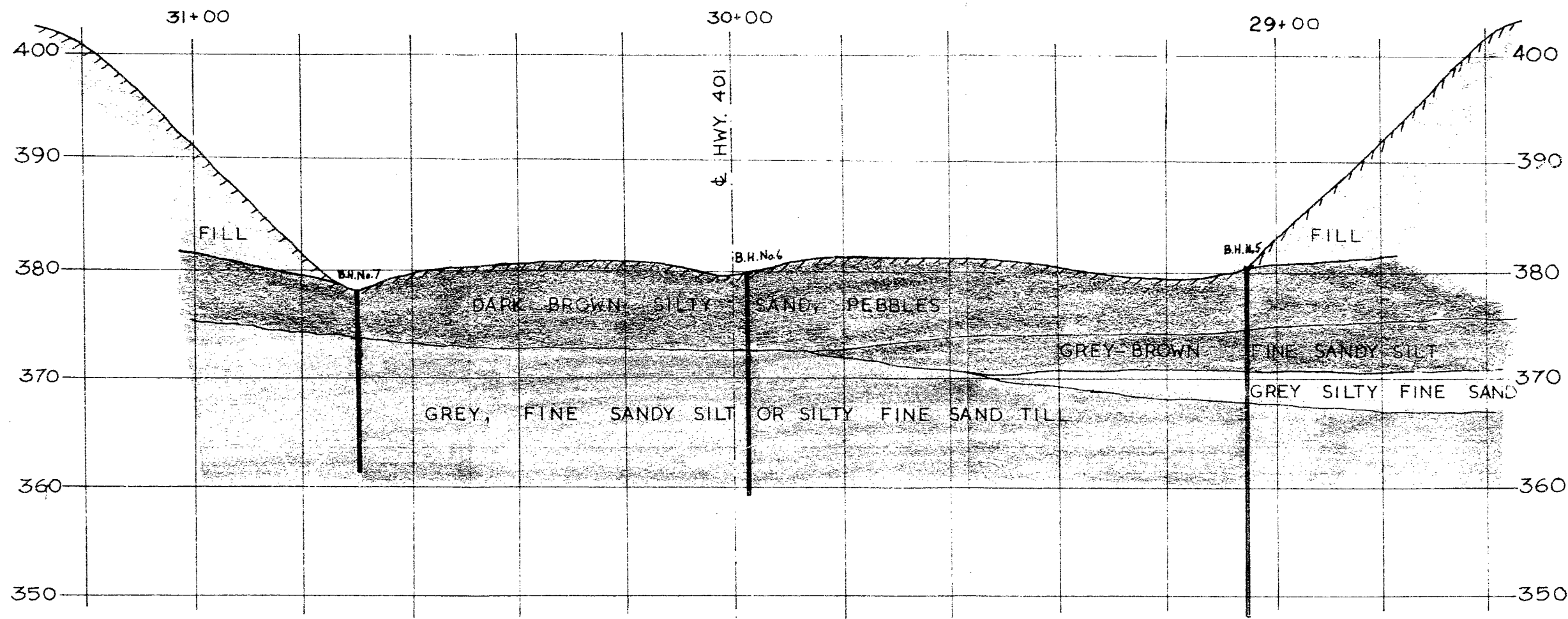



I. G. Bowie, P.Eng.
Project Engineer.

Prep. By I.G.B.



PROPOSED HIGHWAY 401 UNDERPASS
ELIZABETHTOWN TOWNSHIP, BROCKVILLE
LOCATIONS OF TEST BORINGS



REVISIONS			REFERENCE		RACEY, MACCALLUM AND ASSOCIATES LTD. A COMPANY OWNED, OPERATED & DIRECTED BY CONSULTING ENGINEERS TORONTO MONTREAL OTTAWA HIGHWAY 401 UNDERPASS BROCKVILLE, ONTARIO CROSS - SECTION OR STRATIGRAPHY DRAWN BY H.K. ORDER S-500/T-3388 DRAWING NO. CHECKED BY I.G.B. DATE 18 Oct. 1961 Enclosure No 2 APPROVED BY J.J.S. SCALE 1"=20'H & 10'V.
No.	DESCRIPTION	BY APP. DATE	DRAWING TITLE	DRWG. NO.	

RACEY MacCALLUM AND ASSOCIATES LTD.

Foundation Engineering Division

Engineering Data Sheet for Borehole: 5

Project: SOIL INVESTIGATION, HIGHWAY 401 OVERPASS,
 Location: BROCKVILLE, ONTARIO,
 Hole Location: See Enclosure No. 1
 Hole Elevation and Datum: 380.5 (Geodetic)
 Field Supervisor: I.G.B. Prep.: I.G.B.
 Driller: N.O. Checked: J.J.S. Date: 10-10-'61.

LEGEND

Shear Strength (C)

Unconfined compression

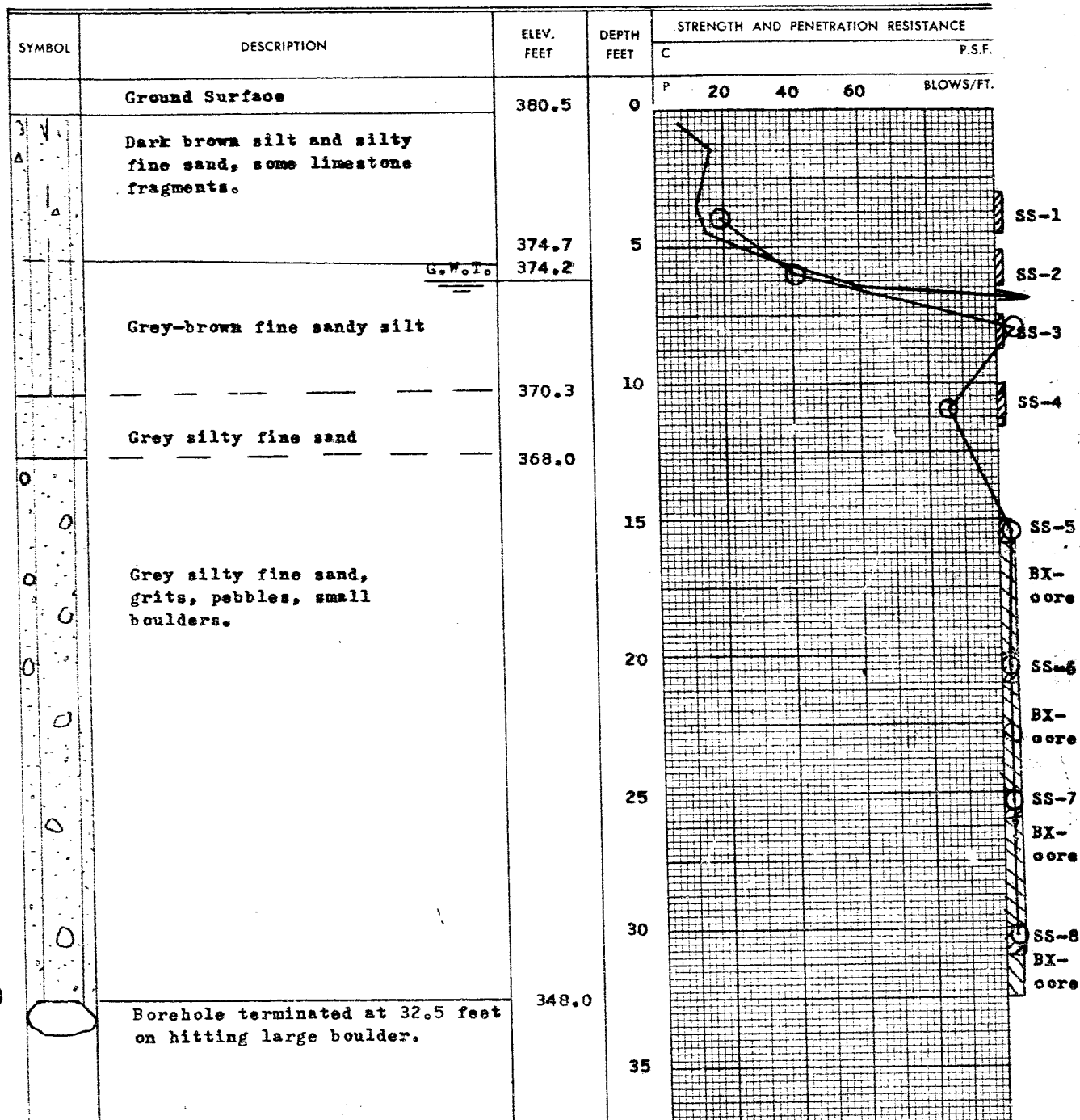
Vane test and sensitivity (S)

Penetration Resistance (P)

2" Split tube

2" Dia. Cone

Casing

⊕
+8

RACEY MacCALLUM AND ASSOCIATES LTD.

Foundation Engineering Division

Engineering Data Sheet for Borehole: 6

Project: SOIL INVESTIGATION, HIGHWAY 401 OVERPASS,
 Location: BROCKVILLE, ONTARIO,
 Hole Location: See Enclosure No. 1,
 Hole Elevation and Datum: 380.5 (Geodetic)
 Field Supervisor: I.G.B. Prep.: I.G.B.
 Driller: N.O. Checked: J.J.S. Date: 12-10-'61.

LEGEND

Shear Strength (C)

Unconfined compression

Vane test and sensitivity (S)

Penetration Resistance (P)

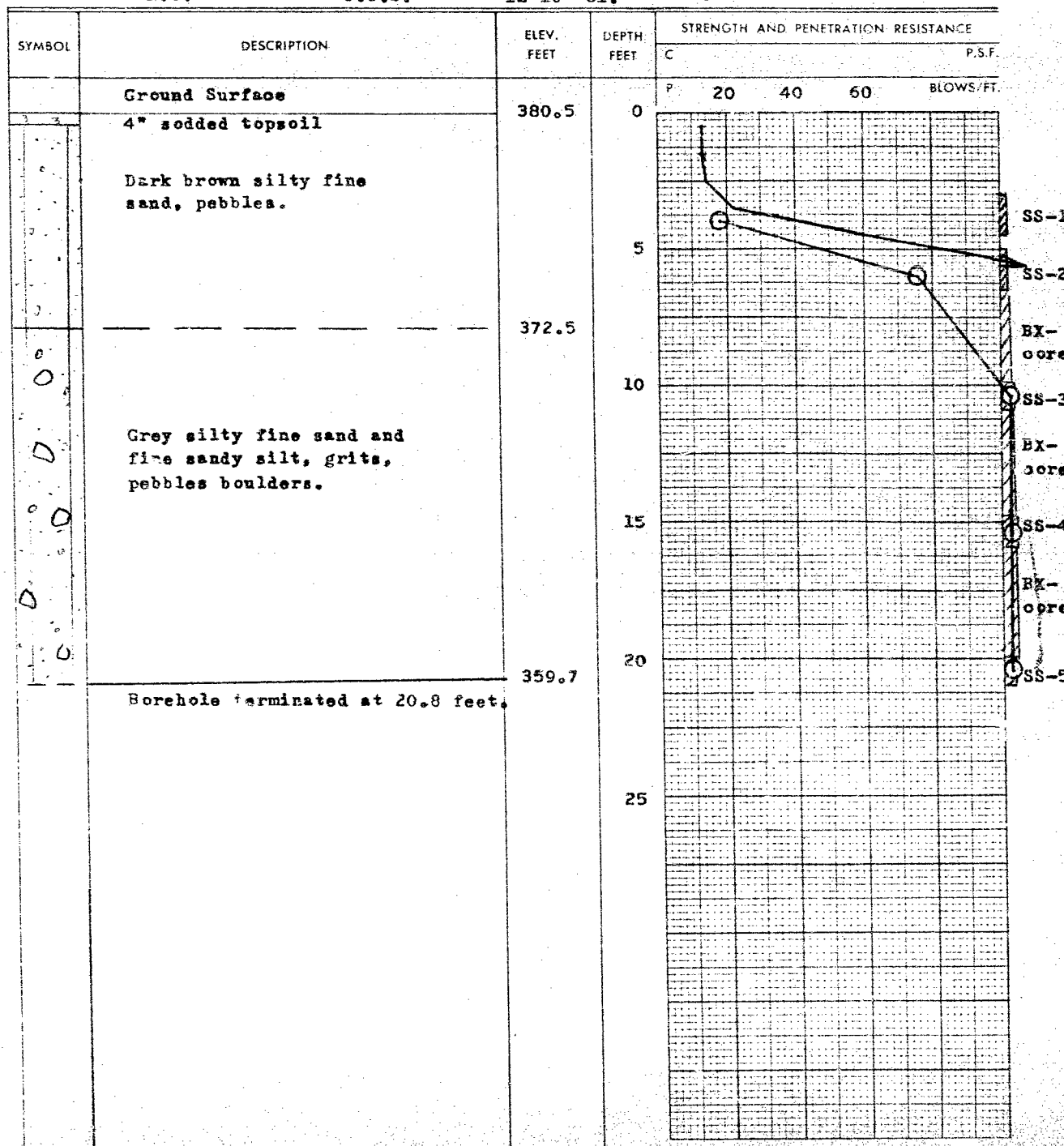
2" Split tube

2" Dia. Cone

Casing

⊕
+3

⊕ ⊕



RACEY MacCALLUM AND ASSOCIATES LTD.

Foundation Engineering Division

Engineering Data Sheet for Borehole: 7

Project: SOIL INVESTIGATION, HIGHWAY 401 OVERPASS,
 Location: BROCKVILLE, ONTARIO,
 Hole Location: See Enclosure No. 1,
 Hole Elevation and Datum: 377.7 (Geodetic)
 Field Supervisor: I.G.B. Prep.: I.G.B.
 Driller: N.O. Checked: J.J.S. Date: 13-10-'61.

LEGEND

Shear Strength (C)

 Unconfined compression
 Vane test and sensitivity (S)

Penetration Resistance (P)

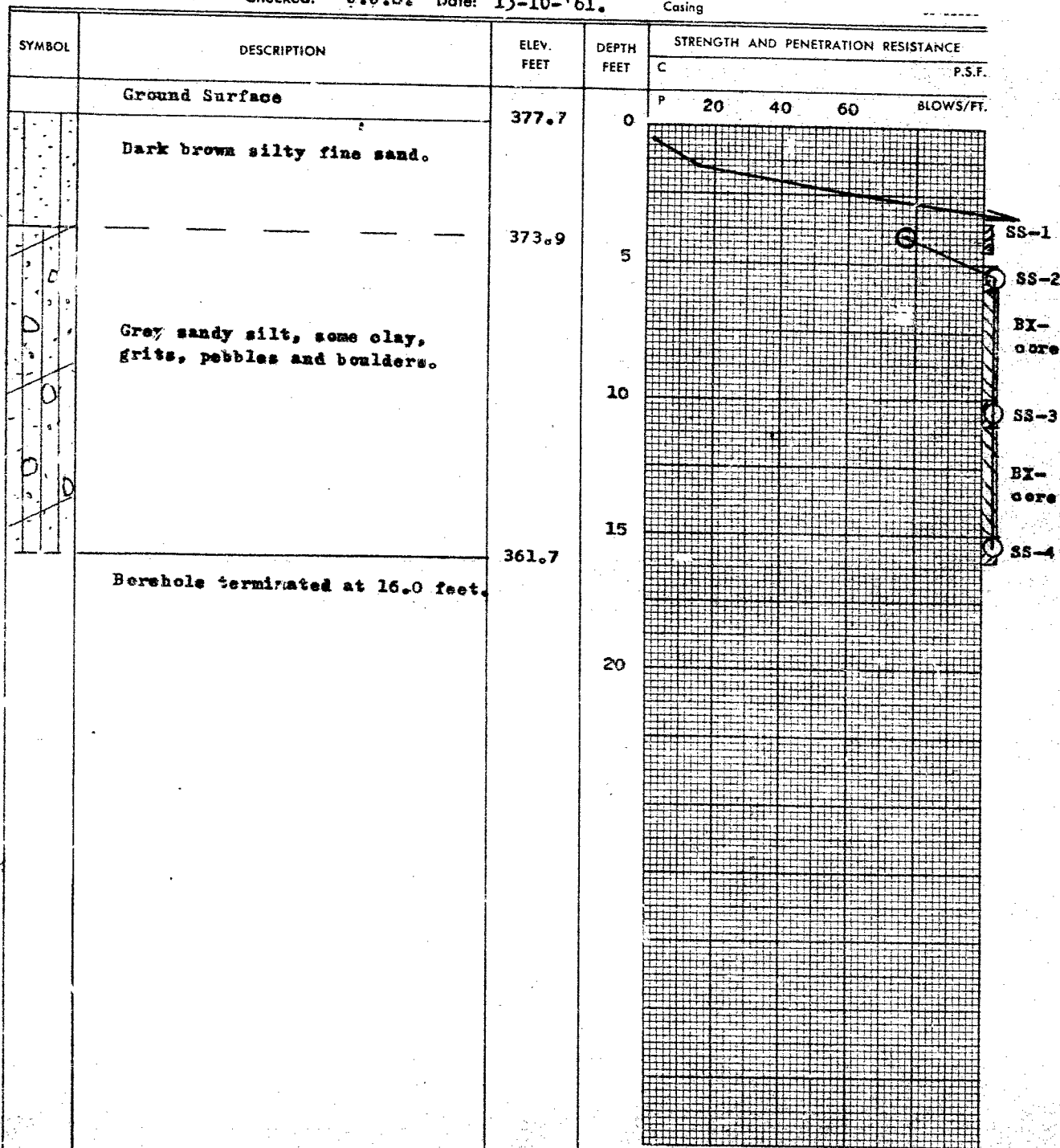
2" Split tube

2" Dia. Cone

Casing

⊕
+s

⊕ ⊕



RACEY, MacCALLUM AND ASSOCIATES LIMITED

A COMPANY OWNED, DIRECTED AND OPERATED BY

Directors:

W. D. C. MacCALLUM, B.ENG., M.E.I.C., P.ENG.
H. JOHN RACEY, B.SC., M.E.I.C., P.ENG.
JOHN S. LOCHHEAD, B.ENG., M.E.I.C., P.ENG.
JOHN A. NORLIN, B.A., M.SC.
ROBERT H. QUINTAL, M.A.SC., M.E.I.C., P.ENG.
A. ERIC RANKINE, B.SC., A.M.I.E.E., M.E.I.C., P.ENG.
J. B. CHALLIES, D.ENG., LL.D., M.E.I.C., P.ENG.

Consulting Engineers AND ASSOCIATED STAFF

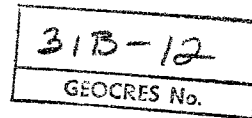


MONTREAL: 4123 SHERBROOKE STREET WEST, FITZROY 5261
TORONTO: 33 BLOOR STREET EAST, WALNUT 2-9371

Affiliations:

THE E. B. ALLEN INSPECTION COMPANY
ISOTOPE PRODUCTS LIMITED,
RADIOGRAPHERS
IRVING P. KRICK, PH.D.,
METEOROLOGIST
JACQUES POULIN,
QUEBEC LAND SURVEYOR
THE VIBRATION ENGINEERING COMPANY

Report No. S-500-504/54/T-26/1



Toronto, Ont.
October 22nd, 1954

Department of Highways of Ontario,
c/o Sir Alexander Gibb and Partners,
4 Wellington St. East,
Toronto, Ont.

Re: Foundation Investigations, Bridge Number 19,
Highway Number 401, Elizabethtown Township
Road, Brockville, Ontario.

Dear Sirs:

At your request we have carried out a soil exploration program at the subject site. We are now pleased to report as follows:

Following a discussion of the requirements, equipment was brought to the site to start drilling operations on October 5th, 1954. The holes were spotted by Mr. Reeve, of your organization, with our Mr. Quintal and elevations were measured using the level of the ground at the intersection of the two centre lines as a bench mark, this elevation being obtained from the official plan and profile.

The attached boring logs entitled "Driller's Daily Field Report" describe the operations day by day and include information on both principal holes and on supplementary probes carried out to obtain information of a more general nature. The Engineering Data sheets for the two principal holes are also attached to this report and give, in condensed form, the soil profile and the penetration diagram which was obtained when such was of significance.

As will be seen on those last sheets, the soil generally consists of a superficial layer of black loam, some three feet (3 ft.) in thickness, underlain in the case of Borehole 2 by a thin layer of soft sandy silt. Immediately below the loam in Borehole 1 and below the silt in Borehole 2, the soil consists of a sand containing gravel particles up to $1\frac{1}{2}$ inches in size. This formation in turn rests upon glacial till at Elevation 377 in one hole and 372 in the other. Boring operations were suspended at 27 feet in Borehole 1 and 32 feet in Borehole 2 without any reduction in the resistance of the glacial till.

At a distance of 30 feet South of Borehole 2, on the centre line of the intersecting road, a shallow hole was put down and yielded a sample of calcareous clayey sand with angular gravel at a depth of 6 to 7 feet or roughly at Elevation 376. Refusal to a hand driven probe was met at Elevation 375 which is quite consistent with the information obtained in Boreholes 1 and 2.

At a distance 30 feet North of Borehole 1 refusal was met at Elevation 382 approximately.

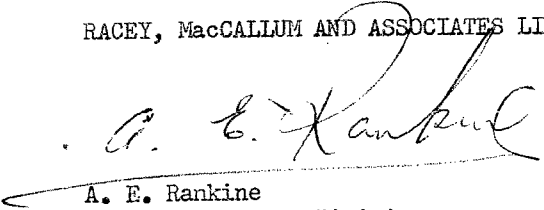
The surface of the glacial till would thus appear to be in the neighborhood of Elevation 382 some 30 feet North of the North abutment, at Elevation 372 at the North abutment, 373 to 370 at the South abutment and 375 30 feet South of that point.

Water table measurements were carried out in the mornings with the expectancy that it would have stabilized during the night. This water level was consistently very close to the surface and as a consequence, in view of the porosity of the underlying sand and gravel, it is felt that surface runoff is of lesser importance and the ground is at present saturated. It should be noted however that the topography at the site is quite rolling and that after a dry spell this ground water may recede considerably. Operating conditions during construction will thus be influenced greatly, we feel, by the climate at the time.

From the above we feel that the structure should be founded on the glacial till at Elevation 377 or so, notwithstanding the difficulties which might be encountered due to seepage. In view of the nature of the soil, no sample could be secured for laboratory testing of its mechanical properties but from the Penetration Index which is of the order of 75 in the first hole at the surface of the till and rises to over 150 in the second hole at a shallow depth below the surface of this till, we consider that this material would correspond to a dense sand and gravel, well bound, which we feel could be loaded to three tons per square foot.

Yours very truly,

RACEY, MACCALLUM AND ASSOCIATES LIMITED


A. E. Rankine

Director Ontario Division

R.Quintal/IH
In triplicate

Order No.: SW-504/54/726 RACEY, MacCALLUM AND ASSOCIATES

Dated _____ Limited

FRED LUSK
Driller

Day _____ Month _____ Year _____

Foundation Engineering Division

Hole Began OCT 8 /54

MINAR CHAUDRIER
Helper

Hole Ended OCT 13/54

Engineering Data Sheet for Borehole _____

Job Name: BRIDGE #10, HIGHWAY #401, D.H.O.

R.S., K.T.,

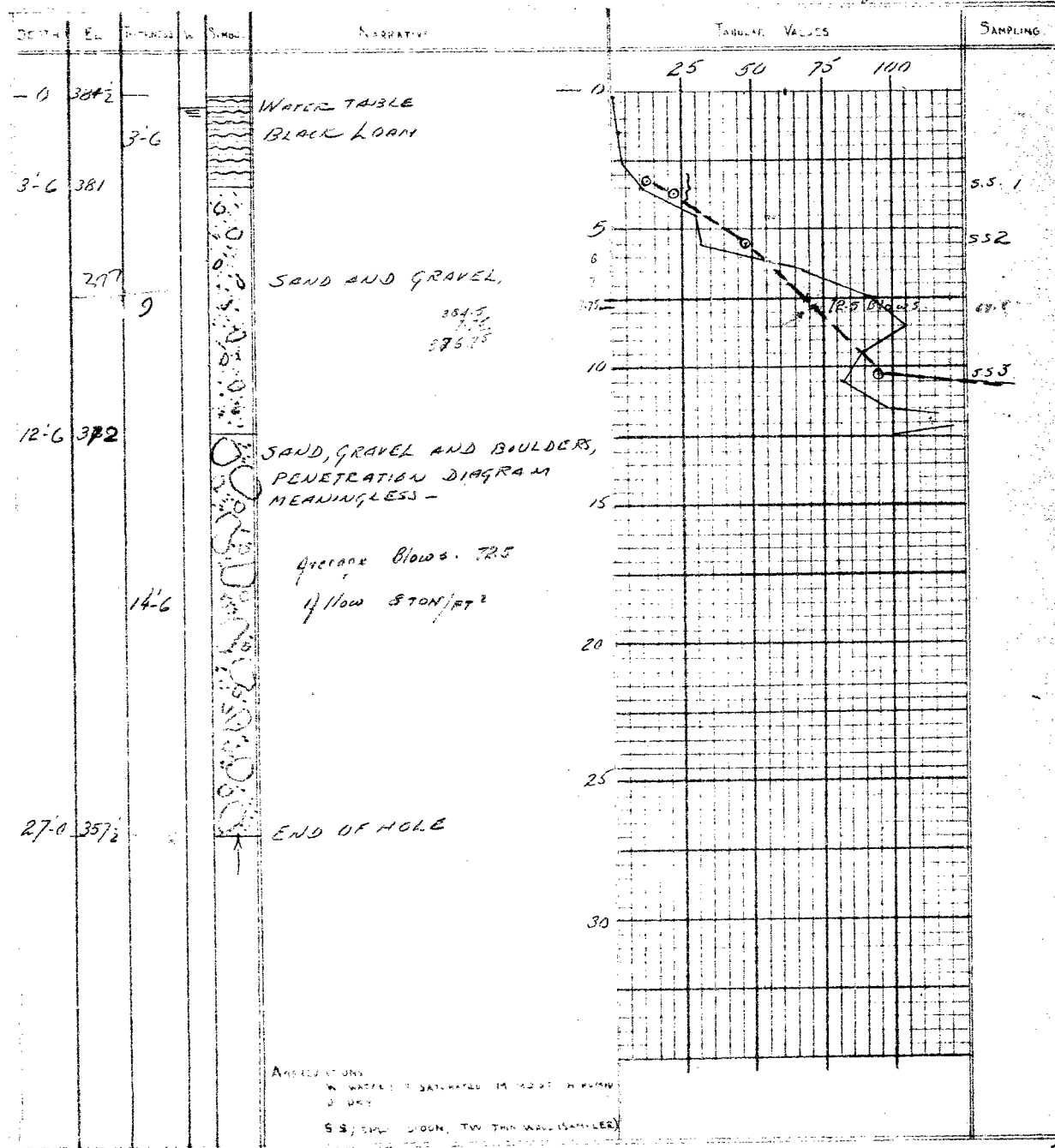
Job Location: ELIZABETHVILLE TWP (BROCKVILLE)

Checked by

Hole Located: 30' N OF E #401 ALONG E OF BT-PASS

Hole Elevation: 384.4 Datum: FROM PLAN & PROFILE

21 OCT 54
Day Month Year



Order No.: 5500-504/54/726 RACHY, MacCALLUM AND ASSOCIATES
 Dated _____ Limited

LUSK
 Driller

Day _____ Month _____ Year _____ Foundation Engineering Division

Hole Begun OCT 13/54

CHEVRIER
 Helper

Hole Ended OCT 13/54 Engineering Data Sheet for Borehole: 2

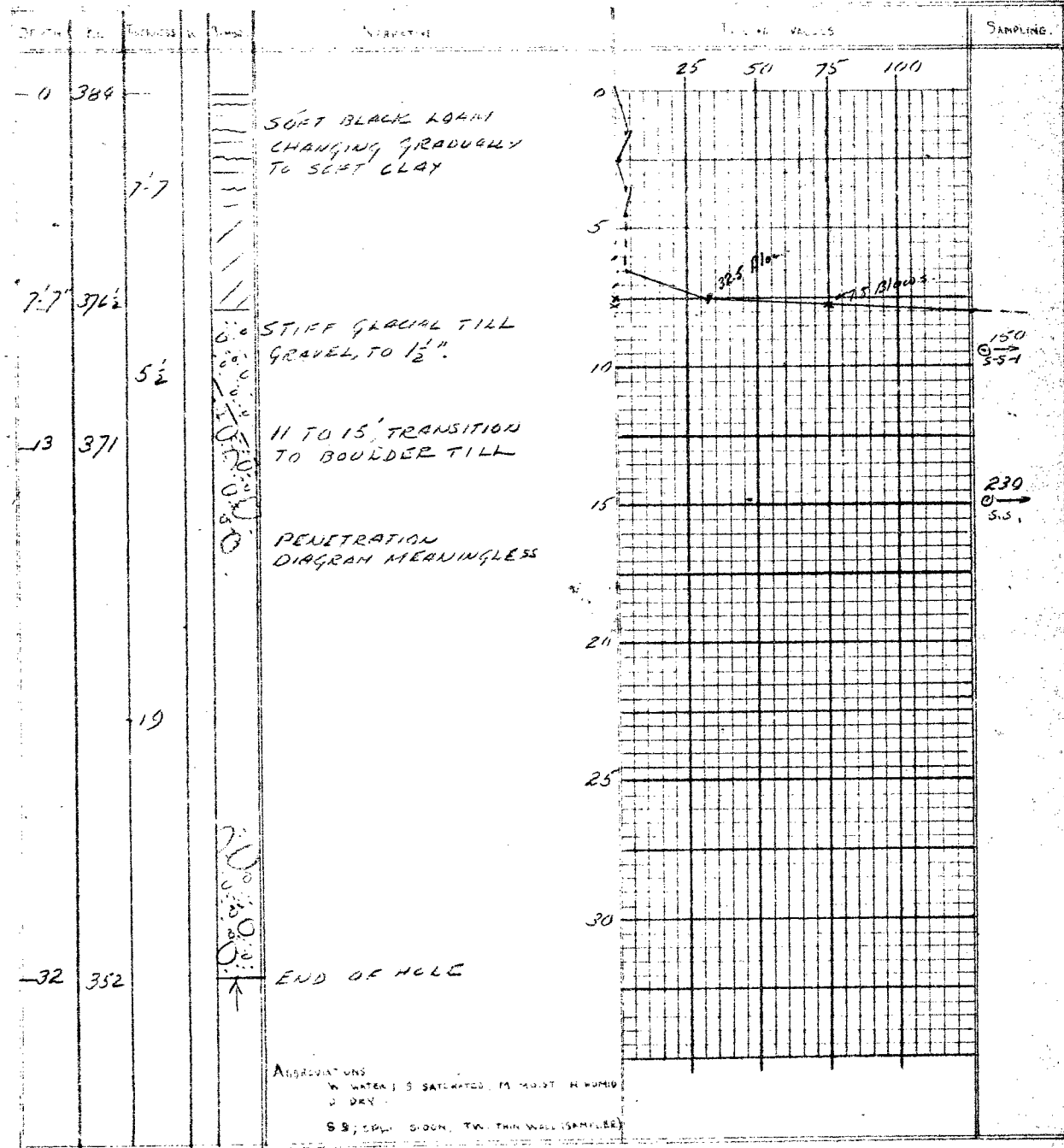
Job Name: BRIDGE #12, HIGHWAY #401, DND

KT, RQ
 Checked by

Job Location: ELIZABETH TWP (BROCKVILLE)

Job Number: 50' S.E. #401E ON BYPASS E.

Hole Elevation: 384.0 OFFICIAL: FROM PLANT PROFILE: 21 OCT 54
 Day _____ Month _____ Year _____



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: 6
Hours delay:

DRILLER'S DAILY FIELD REPORT

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

Contract No.: S 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: EXT Type of head: Screw (hfeed)
Pump Make: R&G Size: 700 gal/hr Length/Water Line: 450 ft. Diam: 1"
Drivepipe: 2 1/2" EHD inches, Casing: --; Drivehammer: 230 lbs. X 30 inches drop
Samplers: 2" D inches; Bit: EXT; 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" 19)	47'		
5'6"		6		6" 28)	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"		10'8"	Refusal	2" 28	SS	3	
			End of Day				

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

Client: Sir Alexander Gibb & Partners

[illegible]

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

RACEY, MACCALLUM AND ASSOCIATES
LIMITED

Weather:.....
Temperature:.....
Hours work: 10
Hours delay:.....

DRILLER'S DAILY FIELD REPORT

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			

Page No. 1 of 3
(do not put more than one
day or one borehole per
sheet)

RACEY, MACCALLUM AND ASSOCIATES
LIMITED

DRILLER'S DAILY FIELD REPORT

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

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 ϕ on bypass ϕ
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 $\frac{1}{2}$ " 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	150	SS	1	375'
			till - stones to 1 $\frac{1}{2}$ ", silt and clay				

Date: October 13th, 1954
(day month year)

Date: October 13th, 1954 Contract No.:
(day month year) Client's file:

Client: Sir Alexander Gibb & Partners

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

Drill Make:	Boyles	Size:	1	Chuck Size:	E	Type of head:	Screw
Pump Make:	"	Size:	700 gal/hr	Length/Water Line:	150	ft. Diam:	
Drivepipe:	2 1/2	inches, Casing:		Drivehammer	230	lbs. X	30 inches drop
Samplers:	2	inches; Bit	EXT	Samplehammer	125	lbs. X	32 inches drop

X Contractor: ; Driller Recorder:
 Helpers: ; Visitors: Mr. Reeve

[illegible]

[illegible]

[illegible]

Page No. 2 of 2,
(do not put more than one
day or one borehole per
sheet.)

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

DRILLER'S DAILY FIELD REPORT

Client: Sir Alexander Gibb & Partners

Contract No.:.....

Client's file:.....

Job Location: Elisabethtown Twp.

Job Name: Bridge # 19, Highway # 401

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**.....; **Sample hammer**.....lb. **X**.....inches drop

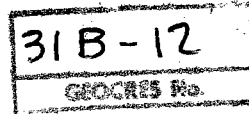
Contractor:; Driller: Recorder:

Helpers:.....; Visitors:.....

[illegible]



ONTARIO
DEPARTMENT OF HIGHWAYS



WP. 76/59

Memo to Mr. J.B. Curtis, Date March 8, 1962
Bridge Location Engineer,
Bridge Section. Subject _____
From Traffic Section.

Re: ^{Lane.} Highway 401 at Sharpeshave - 2.7
miles East of Highway 29 - Bridge #19
in Elizabethtown Township.
District No. 8 - W.P. 76-59
Illumination.

This is in reply to your memorandum dated February 28, 1962,
concerning the above.

Based on the information received from your office, we do
not feel that illumination will be required at this location.

W.Q. Macnee
W.Q. Macnee,
Traffic Engineer.

c.c. Mr. E.A. Cash,
District Engineer, Kingston.
c.c. Mr. R.C. Hobson,
Electrical Superintendent,
Operations Branch.

WQM/RLB/sm

31B-12
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