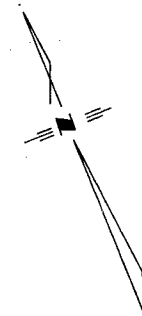


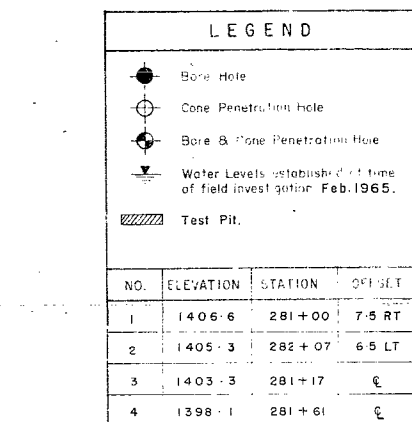
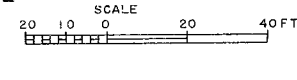
65-F-228
W.P. # 102-65
HWY # 129
NEBSKWASHI
RIVER



PROFILE LINE 'K'

SCALE

20 10 0 20 40 FT



- 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.

[illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION - FOUNDATION UNIT

CONT. NO.

REF. NO. E-4534-I

[illegible]

GEOCON LTD

HEAD OFFICE

420 MICHEL JASMIN, DORVAL, QUEBEC
TELEPHONE 631-9827

DISTRICT OFFICES

14 HAAS ROAD
REXDALE, TORONTO, ONT.
TEL. 244-6476

1425 WEST PENDER ST.
VANCOUVER 5, B.C.
TEL. MU. 1-8926

Rexdale, Ontario,
March 8th, 1965.

Department of Highways, Ontario,
Materials and Testing Division,
Downsview, Ontario.

Attention: Mr. A. G. Stermac, P. Eng.,
Principal Foundation Engineer.

Re: Soil Conditions and Foundations
Proposed Nebskwashi River Bridge
Chapleau, Ontario

Dear Sirs:

This letter accompanies our detailed report on the
above investigation.

We find that the site is covered by a thin deposit of
loose sand, gravel and boulders which overlies bedrock directly.
Detailed information on the soil and bedrock conditions is given
in the report.

The proposed bridge may be carried on spread found-
ations directly on bedrock, at the allowable bearing value and with
other requirements as given in the report. Foundation construc-
tion will require dewatering measures, as discussed.

We believe that this report contains all of the subsur-
face information required from this investigation. Should you have
any questions relative to this report or if we can be of further ser-
vice otherwise, kindly give us a call.

Yours very truly,
GEOCON LTD

M. A. J. Matich
M. A. J. Matich, P. Eng.,
President.

MAJM/reb

ST. JOHN'S

HALIFAX

MONTREAL

TORONTO

VANCOUVER

T7722
REPORT
TO
DEPARTMENT OF HIGHWAYS, ONTARIO
ON
SOIL CONDITIONS AND FOUNDATIONS
PROPOSED NEBSKWASHI RIVER BRIDGE
CHAPLEAU ONTARIO

Distribution:

- 11 copies - Department of Highways, Ontario
Downsview, Ontario
- 3 copies - Geocon Ltd
Rexdale, Ontario

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INTRODUCTION

Geocon Ltd has been retained by the Department of Highways, Ontario by letter dated January 25th, 1965 to carry out a foundation investigation for the proposed bridge over the Nebskwashi River on Highway No. 129, in the Township of Chapleau, District of Sudbury.

The purpose of the investigation was to determine the soil conditions at the proposed bridge site as required for the design of the structure.

SUMMARIZED SOIL CONDITIONS

The site is covered by a maximum thickness of about 5 feet of loose brown sand, gravel and boulders. This stratum overlies bedrock directly.

At the time of the investigation the river level was at elevation 1398.5.

DISCUSSION

General

It is understood that it is proposed to construct a new bridge over the Nebskwashi River on Highway 129, immediately to the north and adjacent to the existing bridge. The new bridge will be located on the proposed revision line K as shown on the Department of Highways, Drawing No. E-4534-1.

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General (continued)

As presently planned, the new bridge will consist of a single span structure with approach embankments. Proposed grade at the structure will be at about elevation 1413.

Foundations

The investigation indicates that the overburden consists of a maximum thickness of about 5 feet of loose sand, gravel and boulders then bedrock.

The overburden at the site is of low relative density, frost susceptible and of shallow thickness. It is recommended therefore that the bridge be founded on spread footings on the surface of bedrock. On the west side of the bridge the footings, at the locations proposed, will be founded on sound granite for which an allowable bearing value of 20 tons per square foot is recommended. On the east side of the bridge the bedrock is andesite which is fractured near the surface. At the east abutment, therefore, approximately 3 feet of fractured rock will need to be removed in order to found on bedrock of suitable soundness. The amount of surface scaling of loose or fractured rock that will be required will be determined in the field. Where bedrock surface as exposed is irregular, the space between footing elevation and the bedrock could be filled with concrete. With

Foundations (continued)

removal of loose surface rock, an allowable bearing value of 20 tons per square foot may be used, as before, for design of spread foundations on the bedrock.

With foundations on sound bedrock, other special measures to prevent undermining of footings due to scour will not be necessary.

Approach Embankments

It is understood that the grade of the approach embankments will be about 3 feet higher than the existing bridge embankments. Assuming that clean granular fill, is used for embankment construction and that normal side slopes of 1 vertical to 2 horizontal are adopted, it is considered that the stability of the approach embankments will adequate.

It is recommended that the backfill to the abutments and retaining walls consist of well compacted free draining non-frost susceptible granular material. It is further recommended that adequate provision be made for drainage of the backfill behind the abutment, and protection against erosion and scour where exposed to river flow. With backfill as above, a coefficient of lateral earth pressure of 0.5 is recommended for design of the abutments. The abutments should

Approach Embankments (continued)

have a factor of safety of at least 1.5 against lateral sliding. In this regard, a coefficient of friction of 0.35 should be used between concrete and bedrock. Alternatively, resistance to lateral sliding could be provided by dowels into bedrock, acting in tension or shear.

Construction

On the east side of the river the bedrock surface occurs above the river level at the time of the investigation, although below reported extreme high river level. On the west side of the river, excavation will be required below river level, for a depth of about 5 feet in order to found on bedrock. Some means will therefore be required to control water inflow, and depending on the river stage, similar means may also be required on the east side.

A number of means could be used for dewatering foundation excavations such as a sheeted cofferdam to bedrock with pumping from sumps, or the use of well points. Because of the limited thickness of the overburden and the presence of the boulders, installation of either sheeting or well points would be facilitated by the removal of the overburden and replacement with sand and gravel in the working area. Otherwise the boulders would prevent effective seating of the sheeting on bedrock, and would call for special measures such as hole punching

Construction (continued)

for installation of well points. From practical considerations either method would be facilitated by construction of a low berm on the river side of the excavation.

CONCLUSIONS AND RECOMMENDATIONS

1. The overburden consists of up to 5 feet of loose sand, gravel and boulders. This stratum directly overlies bedrock.
2. At the time of the investigation the river level was at elevation 1398.5.
3. It is recommended that the structure be founded directly on bedrock, at the allowable bearing value and with other provisions as given in the report.
4. Recommendations covering lateral earth pressures, drainage and scour protection to the abutment backfill and embankment fill are given.
5. Construction of the bridge foundation on both sides of the river may involve excavation below river level, depending on river stage, and dewatering measures will be required during construction, as discussed.

PERSONNEL

6

The investigation was carried out under the supervision of Mr. G. Carriere. This report was written by Mr. D. B. Oates and reviewed by Mr. M. A. J. Matich, P. Eng.,

DBO/reb

D. B. Oates.

D. B. Oates, P. Eng.,
District Soils Engineer.



APPENDIX I

PROCEDURE

SITE AND GEOLOGY

SOIL CONDITIONS

WATER CONDITIONS

OFFICE REPORTS ON SOIL EXPLORATION

PROCEDURE

The field work for this investigation was carried out between February 3rd and February 13th, 1965. Four boreholes were put down using a standard skid mounted machine drill rig and a mobile "Porta" drill. The second drill was used to enable boreholes to be put down at the locations of the proposed abutments which because of the steepness of the river banks and unfrozen condition of the river made access to these locations difficult to the larger machine. On the west side of the bridge, a test pit was excavated to expose the bedrock and to enable a more detailed examination of the overburden.

A complete log of each borehole is given on the Office Reports on Soil Exploration in this Appendix. The locations of the boreholes are shown on Drawing T7722-1, located in the pocket at the rear of this report.

All samples recovered will be stored until March 1st, 1966 at which time you will be contacted for instructions regarding their disposal.

All elevations are referred to Geodetic datum. The location of the bench mark used is given on the Department of Highways, Ontario, Drawing No. E-4534-1 and is a nail in the top of a Poplar stump, 95 feet left of Station 279+46. The nail has an elevation of 1411.19.

The proposed crossing is located adjacent and to the north of the existing bridge on Highway 129 which crosses the Nebskwashi River in the Township of Chapleau, District of Sudbury. The bridge is located about 1-1/2 miles south of Chapleau. The surrounding ground at the bridge is hilly, with the river banks adjacent to the bridge steeply sloping. Information obtained from the Superintendent at the Power-house immediately south of the bridge indicates that the river was widened at the time of bridge construction. It is understood that the construction required some excavation of the bedrock by blasting. The south side of the east abutment of the existing bridge was observed to be founded on bedrock.

From available geological information and inspection of the area, it is known that the site is covered by shallow depths of overburden overlying bedrock. The predominant bedrock type in the area is igneous extrusive volcanics. The geology of the area indicates that younger igneous intrusive bedrock, in the form of batholithic structures commonly intrude the volcanics in Northern Ontario. The igneous bedrock is of the Archean and Proterozoic eras of Precambrian time.

At one of the borehole locations and adjacent outcrops a fractured dark grey andesite bedrock was encountered. At the

other borehole locations a sound grey granite bedrock was encountered. It is inferred that the igneous coarse grained granite is part of a batholithic structure which intrudes the older volcanic fine grained andesite bedrock.

SOIL CONDITIONS

The principal soil conditions encountered in the boreholes are as follows:

Topsoil

Boreholes 1 and 2 put down at crest of the river banks encountered about 4 inches of sandy topsoil.

Loose Brown Sand, Gravel and Boulders

Underlying the topsoil in boreholes 1 and 2 is a stratum of sand, gravel and boulders. The thickness in the above boreholes varied from about 4 to 5 feet. Boreholes 3 and 4 were put down at the edge of the river using the mobile "Porta" drill and encountered zero to 5 feet of this stratum. Since the results of the boreholes 1 and 2 indicated that the depth of overburden was shallow, it became feasible to use a light weight machine to determine the depth of bedrock at the locations of the proposed abutments. Because of thin overburden cover and nature of the material, suitable representative samples were not recovered in the boreholes. A test pit was there-

Loose Brown Sand, Gravel and Boulders (continued)

fore excavated by hand on the west bank of the river close to borehole 2. The exposed sides of the test pit were observed to consist of fine to medium sand containing some gravel and traces of silt, and numerous cobbles and boulders. The boulders in the test pit were observed to have a maximum size of about 2 feet, and larger sizes may be present elsewhere.

This stratum exists on the bed of the river although it is probable that some of the material in the river was deposited in relatively recent times; that is, since blasting was carried out.

A standard penetration test carried out at a depth of about 5 feet experienced refusal after advancing about 2 inches and is therefore not representative. The results of the adjacent dynamic penetration tests however, indicate that the relative density of the stratum is probably in the loose range.

Bedrock

Bedrock was cored in boreholes 1 and 2 in AXT size for depths ranging from about 12 to 14 feet. In boreholes 3 and 4 the bedrock was cored in EXT size for depths ranging from about 4 to 10 feet. Because of the hard condition of the bedrock in borehole 4 the "Porta" drill could not penetrate the rock when the stones

SOIL CONDITIONS (continued)

V

in the diamond bit became slightly polished. This borehole was therefore terminated before the usual 10 feet of core was recovered. Further, the low recovery reported in borehole 4 was due to our inability to recover all the core from the borehole. The actual condition of the rock as indicated by the sustained bit pressure is sound. Full penetration of 10 feet was obtained with the "Porta" drill in borehole 3 because of the difference in rock type, as discussed below.

Examination of the cores recovered, the bedrock exposure in the test pit and the outcrop at the south side of the east abutment of the existing bridge indicates the presence of two rock types. The above outcrop and the core from borehole 3 were the same and identified as andesite. The remaining boreholes and test pit which were located either side of the east abutments, both present and proposed, encountered sound granite bedrock.

The andesite bedrock in borehole 3 was fractured, probably as a result of the blasting described earlier. In this respect, the surficial 3 feet in borehole 3 has been described as fractured rock.

WATER CONDITIONS

At the time of the investigation the river level was at elevation 1398.5. Observations in borehole 2 over a period of 2 days

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indicated that the water level in the boreholes was within the bedrock at the same elevation as river level. Within the experience of the Superintendent at the power house, the highest river level corresponded approximately to the bottom of the bridge girders which are about 8.7 feet above present water level.

EXPLANATION OF THE FORM "OFFICE REPORT ON SOIL EXPLORATION"

The object of this form is to enable a comprehensive study of the soil to be made by combining on one sheet all of the information obtained from the boring. An explanation of the various columns of the report follows.

ELEVATION AND DEPTH

This column gives the elevation and depth of boundaries between the various soil strata. The elevation is referred to the datum shown in the general heading.

WATER CONDITIONS

In this column the water level in the casing at the time of boring or the water table in the ground, determined by a series of observations in a piezometer or standpipe, is indicated to scale by a horizontal line with the symbol W.L. or W.T. above the line. A notation of any complicated groundwater conditions will be made in this column.

DESCRIPTION

A description of the soil, using standard terminology, is contained in this column. The consistency of cohesive soils and the relative density of non-cohesive soils are described by the following terms:

<u>Consistency</u>	<u>U-Strength Tons/sq. ft.</u>	<u>Relative Density</u>	<u>Standard Penetration Resistance. Blows/ft.</u>
Very soft	0.03 to 0.25	Very loose	0 to 4
Soft	0.25 to 0.5	Loose	4 to 10
Firm	0.5 to 1.0	Compact	10 to 30
Stiff	1.0 to 2.0	Dense	30 to 50
Very stiff	2.0 to 4.0	Very dense	over 50
Hard	over 4.0		

STRATIGRAPHIC PLOT

The stratigraphic plot follows the standard symbols of the National Research Council, Canada.

ELEVATION SCALE

The information in all columns is plotted to a true elevation scale which is shown in this column.

GRAPHS

The main body of the report forms a graph which is used to plot to correct elevation the important soil properties which are obtained through field and laboratory tests. The scales and symbols for the plotting are shown at the head of the column.

OTHER TESTS

In this column are shown, by symbol, the other field or laboratory tests which have been performed on the soil and for which the results have not been plotted on the above graph.

SAMPLES

The first three columns describe the condition, type and number of each sample obtained from the boring. The location and extent of each sample is plotted to scale.

In the last column is shown the penetration resistance in blows of 4200 inch-pounds required to drive one foot of the sampler into the ground. When a 2 inch Drive Sampler is used the result obtained is termed the "Standard Penetration Resistance".

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OFFICE REPORT ON SOIL EXPLORATION

CONTRACT T7722 BORING # 1 DATUM GEODETIC CASING BX
BORING DATE FEB 5TH 65 REPORT DATE 23RD FEB 65 COMPILED BY BER CHECKED BY DBO
SAMPLER HAMMER WT. 140 LBS. DROP 30 INCHES (PENETRATION RESISTANCES CONVERTED TO BLOWS OF 4200 IN - LBS. ENERGY)

SAMPLE CONDITION



DISTURBED
FAIR
GOOD
LOST

SAMPLE TYPES

A.S. - AUGER SAMPLE	F.S. - FOIL SAMPLE
S.T. - SLOTTED TUBE	S.O. - SLEEVE-OPEN
W.S. - WASHED SAMPLE	S.F. - SLEEVE-FOOT VALVE
D.O. - DRIVE-OPEN	T.O. - THIN WALLED OPEN
D.F. - DRIVE-FOOT VALVE	R.C. - ROCK CORE
C.S. - CHUNK SAMPLE	

ABBREVIATIONS

ABBREVIATIONS

V - IN-SITU VANE TEST	γ - WET UNIT WEIGHT
M - MECHANICAL ANALYSIS	K - PERMEABILITY
U - UNCONFINED COMPRESSION	C - CONSOLIDATION
QC - TRIAXIAL CONSOLIDATED UNDRAINED	
Q - TRIAXIAL UNDRAINED	WL - WATER LEVEL IN CASING
S - TRIAXIAL DRAINED	WT - WATER TABLE IN SOIL

SOIL PROFILE				SAMPLES					
ELEV. DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT. PLOT	ELEVATION SCALE	OTHER TESTS	CONDITION	TYPE	NUMBER	PENETRATION RESISTANCE BLOW/FT
				WATER CONTENT W% _____ NAT. _____ LW _____ PW _____					
				DYNAMIC PENETRATION TEST BLOWS PER FOOT 20 40 60 80					
1406.0		GROUND LEVEL							
1401.6		LOOSE BROWN SAND GRAVEL & BOULDERS		1405					
				1400					
		SOUND GRANITE BEDROCK		1375					
				1350					
1389.1		END OF HOLE							
				NO ADVANCE END OF PENETRATION TEST AT ELEV. 1402.6					
				RC RECOV. 100% 100% 100% 98%					
				2" DD					
				AXT					
				RC					
				1					
				2					
				3					
				4					
				5					

GEOCON

OFFICE REPORT ON SOIL EXPLORATION

CONTRACT T7722 BORING # 2 DATUM GEODETIC CASING BX
 BORING DATE FEB 6TH 65 REPORT DATE FEB 23RD 65 COMPILED BY BER CHECKED BY SSO
 SAMPLER HAMMER WT. 140 LBS. DROP 30 INCHES (PENETRATION RESISTANCES CONVERTED TO BLOWS OF 4200 IN - LBS. ENERGY)

SAMPLE CONDITION

☒ DISTURBED
☐ FAIR
☐ GOOD
☐ LOST

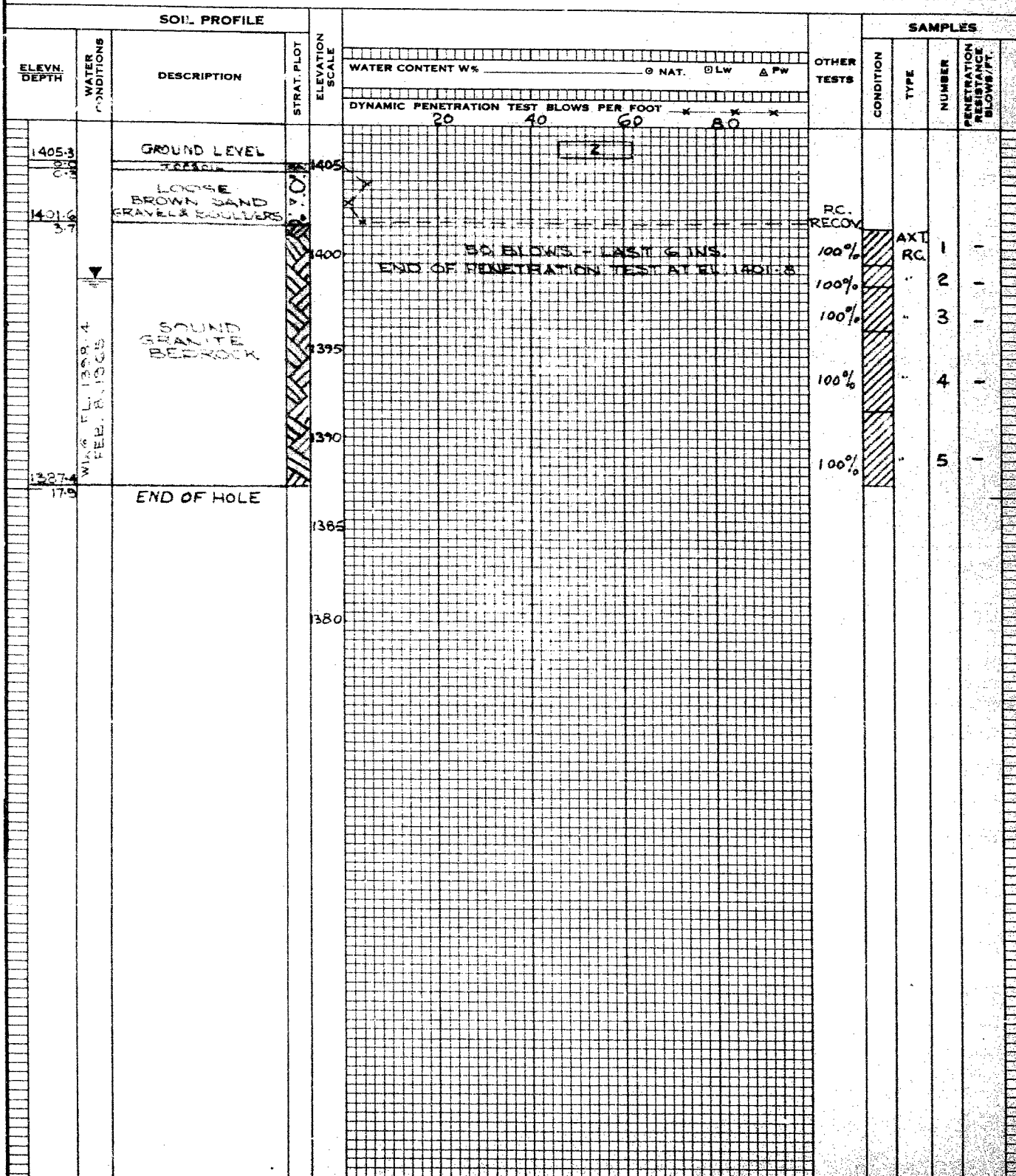
SAMPLE TYPES

A.S. - AUGER SAMPLE
 S.T. - SLOTTED TUBE
 W.S. - WASHED SAMPLE
 D.O. - DRIVE-OPEN
 D.F. - DRIVE-FOOT VALVE
 C.S. - CHUNK SAMPLE

F.S. - FOIL SAMPLE
 S.O. - SLEEVE-OPEN
 S.F. - SLEEVE-FOOT VALVE
 T.O. - THIN WALLED OPEN
 R.C. - ROCK CORE

ABBREVIATIONS

V - IN-SITU VANE TEST
 M - MECHANICAL ANALYSIS
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 QC - TRIAXIAL CONSOLIDATED UNDRAINED
 Q - TRIAXIAL UNDRAINED
 S - TRIAXIAL DRAINED
 γ - WET UNIT WEIGHT
 K - PERMEABILITY
 C - CONSOLIDATION
 WL - WATER LEVEL IN CASING
 WT - WATER TABLE IN SOIL



SOIL PROFILE				ELEVATION SCALE		OTHER TESTS		SAMPLES			
ELEV. DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT. PLOT	ELEVATION SCALE	WATER CONTENT W%	OTHER TESTS	CONDITION	TYPE	NUMBER	PENETRATION RESISTANCE BLOWS/FT	

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OFFICE REPORT ON SOIL EXPLORATION

CONTRACT T7722 BORING # 4 DATUM GEODETIC CASING EXT
 BORING DATE FEB 13 1965 REPORT DATE FEB 23 1965 COMPILED BY BER CHECKED BY DBO
 SAMPLER HAMMER WT. — LBS. DROP — INCHES (PENETRATION RESISTANCES CONVERTED TO BLOWS OF 4200 IN - LBS. ENERGY)

SAMPLE CONDITION

 DISTURBED
 FAIR
 GOOD
 LOST

SAMPLE TYPES

A.S. - AUGER SAMPLE
 S.T. - SLOTTED TUBE
 W.S. - WASHED SAMPLE
 D.O. - DRIVE-OPEN
 D.F. - DRIVE-FOOT VALVE
 C.S. - CHUNK SAMPLE
 F.S. - FOIL SAMPLE
 S.O. - SLEEVE-OPEN
 S.F. - SLEEVE-FOOT VALVE
 T.O. - THIN WALLED OPEN
 R.C. - ROCK CORE

ABBREVIATIONS

V - IN-SITU VANE TEST
 M - MECHANICAL ANALYSIS
 U - UNCONFINED COMPRESSION
 OC - TRIAXIAL CONSOLIDATED UNDRAINED
 Q - TRIAXIAL UNDRAINED
 S - TRIAXIAL DRAINED
 T - WET UNIT WEIGHT
 K - PERMEABILITY
 C - CONSOLIDATION
 WL - WATER LEVEL IN CASING
 WT - WATER TABLE IN SOIL

SOIL PROFILE				SAMPLES						
ELEV. DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT. PLOT	ELEVATION SCALE	WATER CONTENT W% ⊙ NAT. ⊠ LW Δ Pw	OTHER TESTS	CONDITION	TYPE	NUMBER	PENETRATION RESISTANCE BLOWS/FT.
1338.1		GROUND LEVEL		1400						
332.0	W.L. 6 EL. 1007.9 FEB 13, 1965	BROWN SAND SOME GRAVEL AND BOULDERS		375						
332.0		SOUND GRANITE BEDROCK		390						
332.0		END OF HOLE		385						

Hwy. 401 & Keele St.,
Downsview, Ontario.

Materials and Testing Division

January 25, 1965

Geccon, Limited,
14 Hans Road,
Parsdale, Ontario.

Attention: Mr. D. Laher

Re: C.F. 904-04, Hwy. 17, Walker River Bridge in
Desbarats, site 385-179. ✓
Hwy. 129, Nehakwashi River Bridge in Chapleau,
site 46-236. -- Dist. 18, Sault Ste. Marie --

Dear Sir:

Please consider this your authority to carry out foundation investigations at the above sites. Plans and profiles were provided to your representative on January 19, 1965.

It is understood that a qualified Soils Engineer will be in charge of the field work at all times.

Seven copies of each completed foundation report, with one additional copy of each subsoil profile, should be submitted to the Foundation Section prior to February 17, 1965. Previous requirements as to preliminary borehole information and laboratory testing program, should be followed.

Because the drawings accompanying the foundation reports, showing the location of borings, the inferred subsoil conditions, etc., are to become contract drawings, you are requested to prepare them in accordance with the P.M.A. standards. To enable you to do this, we are supplying you with sample drawings with all the necessary explanations, together with linen sheets for your drawings. You are also requested to provide the P.M.A. with Crossflex copies of the drawings.

cont'd. /2 ...

Geaccon, Limited,
Attn: Mr. D. Bates.

- 2 -

January 25, 1965

Charges for the work performed will be in accordance with your schedule of Rates, dated March 4, 1960, and invoice to be addressed to the attention of the undersigned.

Yours very truly,

ak.

nda/ndaf

A. Rutka,
MATERIALS & TESTING ENGINEER

cc: Messrs. S. McCombie
F. De Visser
H. McArthur
A. A. Ward
E. R. Saint
H. D. Smith (2)
Mrs. T. Tate

Foundations Office ✓
Gen. Files (2)

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

TO: Mr. A. Stermac,
Principal Foundation Eng.,
Room 107, Lab. Bldg.

FROM: F. DeVisser

DATE: January 7, 1965

OUR FILE REF.

IN REPLY TO

SUBJECT: Nebskwashi River Bridge in Chapleau
Hwy. #129, Dist. #18, Site 46-236

Attached is a print of bridge site plan E 4534-1 showing the proposed footing lay-out for a new structure.

Would you please have a foundation investigation carried out.

The site is readily accessible from Hwy. #129,

FDeV/m
c.c. R. Fitzgibbon
N.D. Smith
S. McCombie

S.M. Combie
for F. DeVisser
Regional Bridge Location Engineer

JOB GIVEN TO
GEOCON
JAN. 19

Mr. A. M. Toye,
Bridge Engineer,
Bridge Division.

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

Attention: Mr. E. McCombs

March 10, 1965

FOUNDATION INVESTIGATION REPORT BY:
Geecon, Limited, Consulting Engineers.
Proposed Kebakwashi River Bridge,
Hwy. 129, Chapleau, Ontario, Dist. #18.

Attached, please find the above-mentioned report submitted by the Consultant, Geecon, Limited. We have reviewed the report and herewith submit our comments for your consideration:

The factual information is well presented and adequate. There doesn't seem to be any problem as far as bearing capacity is concerned because bedrock is within 5 ft. below present ground surface. As far as dewatering during construction is concerned, we feel that a much cheaper and simpler arrangement should be used. The overburden can be removed by either a backhoe or dragline, and a small earth cofferdam built to protect the excavation. The seeping water can easily be handled by ordinary pumping.

A coefficient of earth pressure of 0.5 should only be employed if a rigid type structure is used; otherwise, 0.3 would be more appropriate.

Should there be any other questions that you would like to discuss, please feel free to contact this office.

Altman

A. C. Sternac,
PRINCIPAL FOUNDATION ENGINEER

AGC/MdeF
attach.

cc: Messrs. A. M. Toye (2)
E. A. Fregaskes
H. D. McMillan
E. McArthur
A. A. Ward
E. A. Saint
F. De Visser
A. Watt

Foundations office ✓
Gen. Files

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

Mr. A. Stermac,
Principal Foundation Engineer,
Laboratory Building,
Downsview, Ontario.

FROM: Bridge Division,
777 Memorial Avenue,
Port Arthur, Ontario.

DATE: February 1, 1966.

FILE REF.

IN REPLY

SUBJECT:

Site 46N-236, W. P. 102-65,
Nebskwashi River Bridge
1.5 Miles south of Chapleau,
Highway 129, District 18.

Attached are two prints of the Preliminary
Plan for the subject structure.

If you have any comments please let us
know before February 18, 1966.

F. DeVisser for M.R.

FDV/mcr

F. DeVISSER,
Regional Bridge Location Engineer.

Enc. (2)

NO COMMENT.

~~FEB~~ 7. 1966

AC, STERMAC