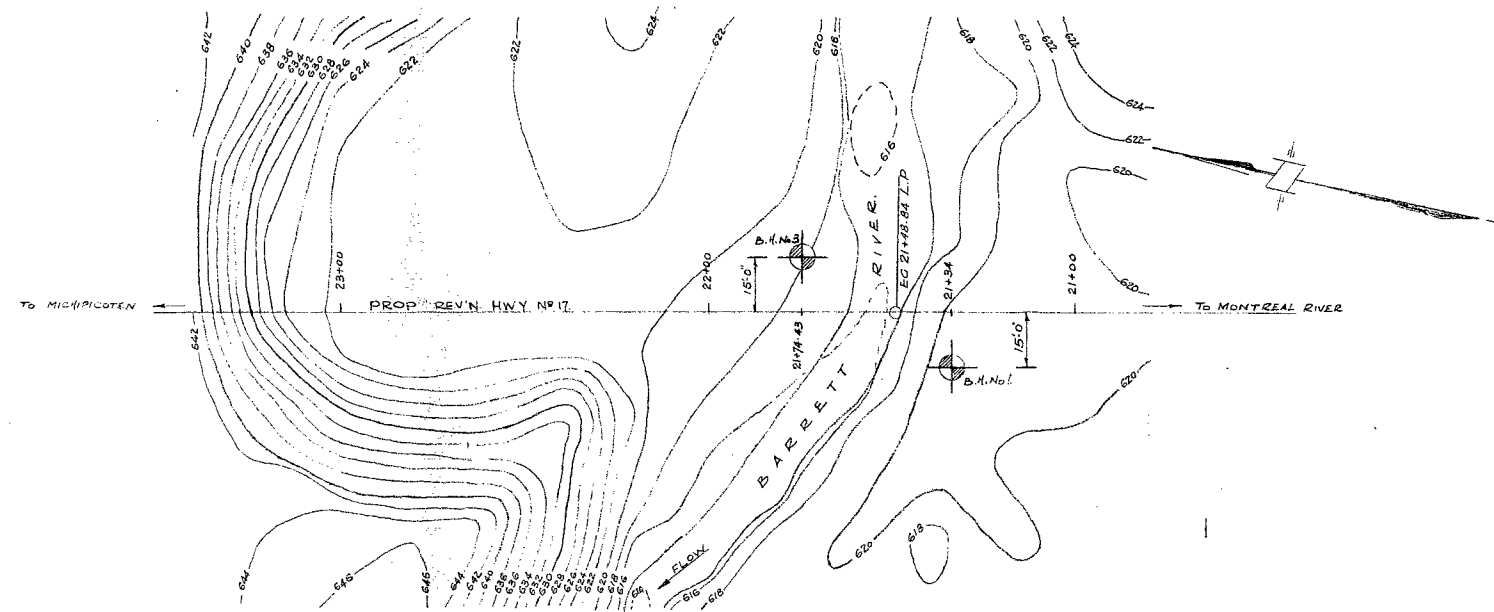


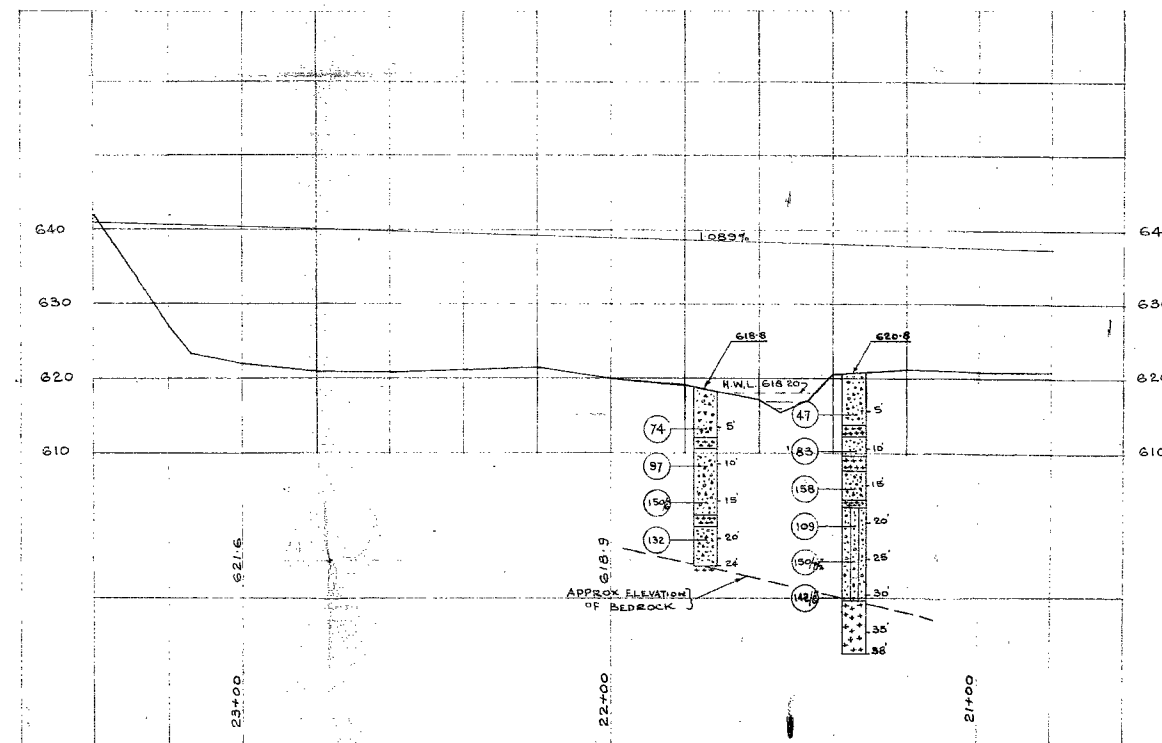
57-F-237C  
W.P. 952-57  
Hwy. # 17  
BARRETT RIVER

# DISTRICT OF ALGOMA



## PLAN

SCALE: 20 FT TO ONE INCH.



## PROFILE

SCALE: HORIZ. 20 FT TO ONE INCH.  
VERT. 10 FT TO ONE INCH.

### LEGEND

- STANDARD PENETRY TEST, BLOW/FOOT (158)
- BOREHOLES (Symbol)
- SAND & GRAVEL WITH BOULDERS (Symbol)
- SILTY SAND WITH GRAVEL (Symbol)
- ROCK (Symbol)



**e.m. peto & associates, inc.**

SOIL SITE INVESTIGATION  
AT  
PROPOSED CROSSING FOR  
BARRETT RIVER  
FOR  
DEPARTMENT OF HIGHWAYS - ONTARIO.  
OUR JOB No. 5792 DATE: 22 JAN '58  
CLIENTS PLAN No. E-3332-1 PER. C.F.F.

e. m. peto associates ltd., 850 roselawn avenue, Toronto 10, Ontario

Job No. 5792

Client's Ref. No.

Date January 23rd/58

Report on

57-237 C

**SOIL SITE INVESTIGATION**

at

**BARRETT RIVER CROSSING**

**HIGHWAY 17 - TRANS CANADA HIGHWAY**

**W. P. 952 - 57**

for

**DEPARTMENT OF HIGHWAYS OF ONTARIO**

**TERMS OF REFERENCE:**

We were retained, by a letter from Mr. J. C. McAllister dated July 10th, 1957, to perform a soil site investigation for the above project. The work was to be carried out much in the same manner as the other river crossing investigations in the area. The final number of test holes was left to our discretion, although it was originally proposed that 4 test holes might be required. Standard sampling was to be used throughout to suit the site conditions; samples being taken at 5 foot intervals or less. Standard penetration test results were to be recorded.

Stream flow observations were also to be made together with any existing water conditions which might affect the construction.

**METHOD OF OPERATIONS:**

The equipment was moved into the site with assistance from a bulldozer on September 8th, 1957, after a rough access track had been cut. Further equipment was taken in on September 9th, on which date the machine was set up over the first test hole location. Sampling commenced on September 10th, with progress being extremely slow due to the presence of very many boulders. There was also some standby time due to heavy seasonal rains. In view of the small size of the stream, and to the high density of the soil encountered almost immediately beneath the surface on each side of the river, it was decided after site discussion that only two test holes would be really necessary. These holes were located as shown on the attached site plan. All samples obtained on this site, including fragments of rock core, were carefully examined in our laboratory and complete borehole logs were drawn up. These are included in this report. The samples will be retained for a period of at least 30 days, from issuance of this report, after which they will be discarded unless we are otherwise notified.

**METHOD OF OPERATIONS:** (Cont'd)

The elevations mentioned in this report and shown on the borehole logs are referred to Geodetic datum, and were supplied by the D.H.O. surveyors on the site.

**SITE AND GEOLOGY:**

The topography in the vicinity of the site is rolling to hilly, and the entire area is heavily wooded. The Barrett River valley is not too well defined, this being particularly so on the South bank.

The stream itself meanders, and has a high velocity. The bed of the stream is composed of sand and gravel. There are many minor rapids, both immediately above and immediately below the proposed highway centre-line. One of our field engineers noted during a visit to the site in October, 1977, that the creek was only some 20 feet wide and 6 inches deep at the highway centre-line.

The site has been glaciated in past geological times.

**SOIL CONDITIONS:**

Soil conditions at the river crossing are quite uniform, and are generally good for foundation purposes. The only soil type encountered was a grey-brown to grey very fine to very coarse sand with gravel and boulders. This material is quite heterogeneous in composition, as are nearly all glacial deposits of granular material. The rock fragments and boulders are of igneous origin. The sand and gravel is very dense, even though saturated. The number of blows in the standard penetration test varied from a low of 47 to a high of well over 150 blows per foot. Some of this variation may well have been due to the interference from large stones and boulders encountered in this deposit. The bedrock elevation indicated on the profile has been shown as approximate, since the rock core recovered was badly fragmented, and may have been the result of drilling through a series of boulders overlying bedrock.

The underlying rock was a multi-coloured broken and faulted granite and pegmatite with occasional micaceous partings.

**WATER CONDITIONS:**

The water table at the test holes was found to be the same as the stream water level, and will vary seasonally with fluctuations in the level of the stream.

RECOMMENDATIONS AND CONCLUSIONS:

The foundation conditions present no problem on this site, and the decision regarding the type of structure to be erected depends rather on drainage and economic requirements, than on the bearing strength of the ground.


Footing depths will be controlled by probable depth of frost penetration and scour requirements in the case of a bridge though we do not consider that scour effects will be felt below normal frost penetration depths.

The site is also well suited to a reinforced concrete box type or parabolic section arch culvert, provided the springing points are tied into a reinforced concrete floor slab.

At a depth of 6 feet a load developing 4 tons per square foot can safely be applied without risk.

Excavation carried out on this site will need normal protection against the ingress of water, and in view of the difficulty encountered in sinking the boreholes, excavation of this material below 5 to 6 feet depth will be difficult.

E. M. PETO ASSOCIATES LTD.,



E. M. Peto, P. Eng.

MM:sd



