

#55-F-25

HWY. #401

NEAR:

Brockville

33-25  
Materials & Res. Laboratory,  
c/o Room 1422, East Block,  
Parliament Buildings,  
Toronto, Ontario.

January 26th, 1956.

Mr. A. Toye,  
Bridge Engineer.

Dear Sir:

Structure Stn. 171 / 40 Hwy 401 Brockville  
(Top ELIZABETHTOWN, Lot 28-29 Con 1)  
Profile F3417-9 E3035-1

Please find enclosed foundation report for the  
above structure.

Approach fill construction presents a problem in  
the case of the southern approach. Loading in stages is  
recommended. If this proves impossible, further soil study  
will be required.

Yours very truly,

F. C. Brownridge  
Materials & Research Engineer

Per: *M.M.L.*

M. H. Davis

Copies to:

Mr. H. Tregaskes  
Mr. J. Walker  
Mr. L. Walker  
File (2) /

SE F 25

REPORT ON  
THE  
FOUNDATION INVESTIGATION  
AT THE  
SITE OF THE PROPOSED STRUCTURE  
AT STA. 171+49, HAY. 401  
NEAR  
BROCKVILLE

Copies to:

Mr. A. Toye, Bridge Engineer (2)

Mr. J. Walter, Design Engineer (1)

Mr. E. Tregaskes, Const. Engineer (1)

Mr. L. Calkin, District Engineer (1)

File (2)

Bridge Plan E3035-1  
Profile F3417-9

### INTRODUCTION:

Previous preliminary borings in the vicinity of this proposed structure site indicated the presence of bedrock near the surface.

Subsequent detailed power auger boring located the rock levels, and the general soil profile. A drawing is attached which indicates the plan of the boreholes and sections of the soil profile below the abutments and the southern approach fill.

### SOIL PROFILE:

The northern abutment is located over an area of bedrock the elevation of which is constant over the length of the footing. On the other hand, the bedrock level under the southern abutment is very variable and lies between 265.0 - 274.0.

The bedrock appears to run in the form of a ridge which was roughly north - south direction the axis of which lies mainly east of the centerline of the concessional road. The ridge outcrops some 200' from the intersection - the shape being obscured from observation of ground contours.

Overburden consists mainly of clay which when shallow is dry and firm, but in the deeper areas beyond 9'0" of depth, below an elevation of 275.0, tends to be saturated and soft with artesian water rising in one instance (BH #3) to within 30" of the surface at an elevation of 273.6. The clay increases in moisture content as the rock level is approached.

From observation of the locally occurring outcrop the rock appears to be thin bedded limestone.

### THE APPROACH FILLS:

The northern approach appears to be located mainly on shallow firm clay overburden over the thin bedded rock and should present no problem.

Conversely, the southern approach will be built over an area of rock and deep overburden. The overburden in this case appears to be saturated from elevation 275.0 down, and is in a relatively unstable state.

## RECOMMENDATIONS:

### (1) Abutments:

The foundation of this proposed structure should be brought down to rock below any zone of weathering which may be found.

In view of the apparent nature of the rock a bearing pressure of 4-5T-sq. foot would be permissible.

Unfortunately, at one place in the southern abutment the depth of an open excavation will approach 20'0", and will certainly require close sheeting. This represents the condition at one corner of the abutment, and would be pedestalled, or concrete filled to the normal footing elevation.

### (11) Approach Fill:

In the case of the southern approach fill it is thought that the clay material over which it will be partially built, will only carry safely 15'0" of fill.

It is, therefore, further recommended that the fill be brought up to this height, initially, and after a period of time - the longer the better - the fill completed. Otherwise it is probable that a berm will have to be constructed on the easterly side.

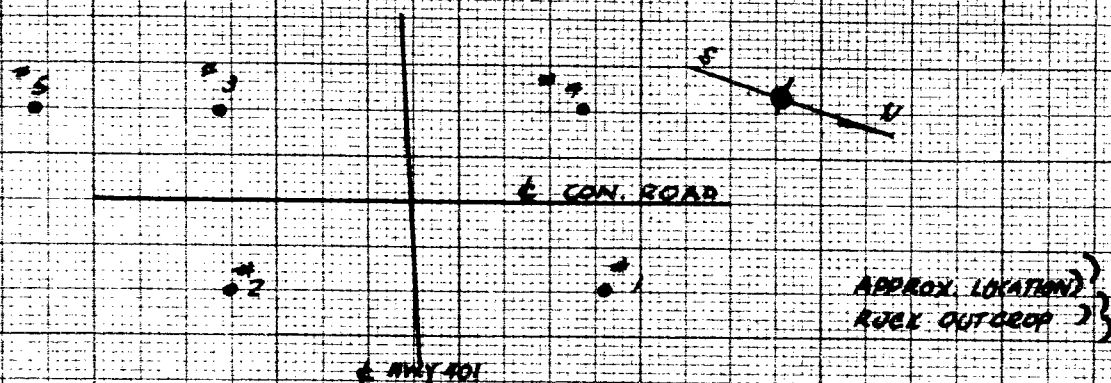
If the fill is to be constructed to full height in one operation, further studies and testing of undisturbed samples to provide data for calculation of berm requirement: will be necessary.

A. Thorley

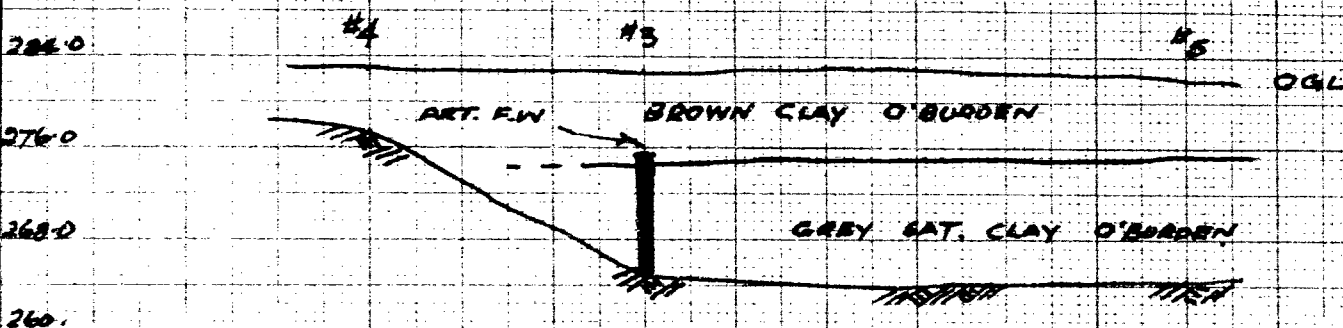
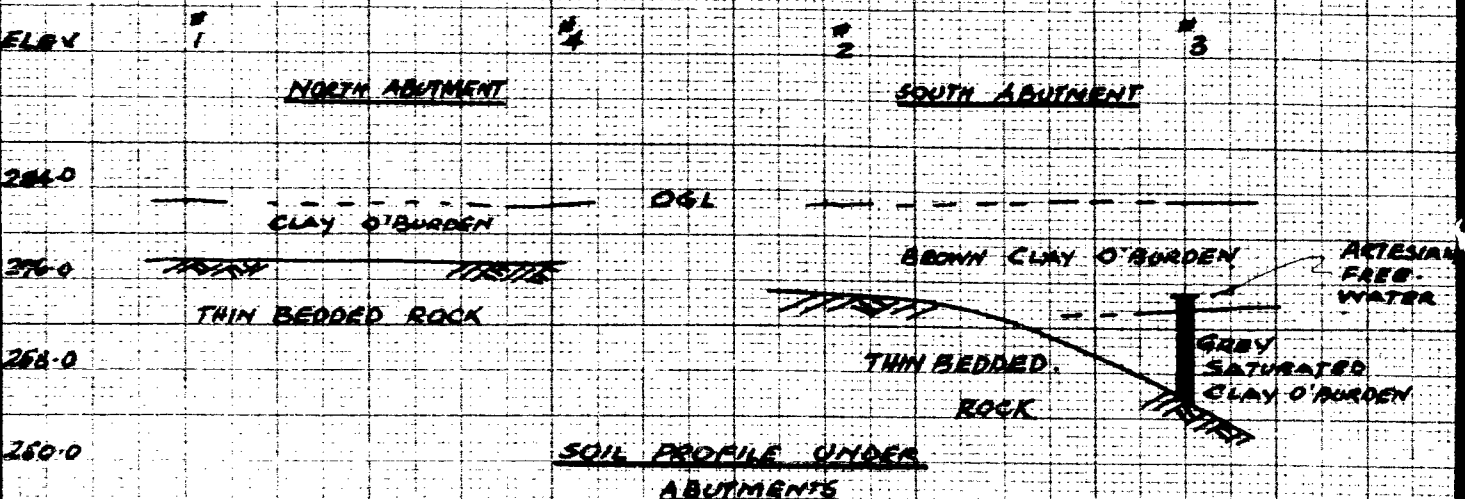
PROPOSED STRUCTURE AT INTERSECTION OF MILCH CREEK  
 ROAD AT STN 171+49.2 ON HWY NO 401 NEAR BROOKVILLE  
 (LOT 28-29 CONT TWP ELIZABETHTOWN)

BOOK F3017-9

PLAN F3036-1



PLAN OF BOREHOLES (SCALE 1" = 20')



SOIL PROFILE UNDER SOUTHERN  
 APPROACH FILL

**PROPOSED STRUCTURE AT INTERSECTION OF MULCH CON.  
ROAD AT STN 171+99. ON HWY NO 401 NEAR BROCKVILLE  
(LOT 28-29 CON I TWP. ELIZABETH TOWNSHIP)**

PROJ F3417-9  
PLAN E3035-1

