

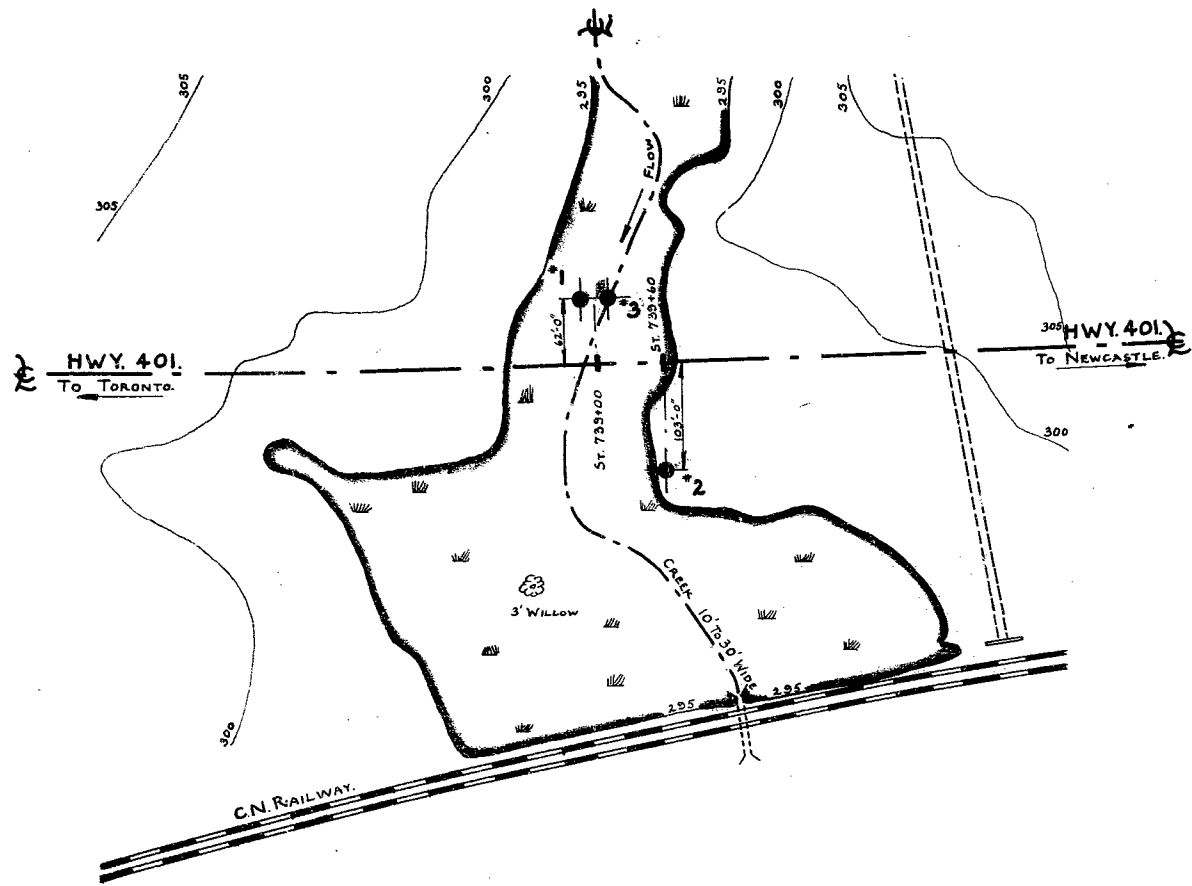
54-F-31

HWY. 401

CULVERT

W. OF HWY 35

3015-34



LEGEND:-
 ● BORE HOLE.

SCALE:- 1 INCH = 100 FEET.

PRINT RECORD		
NO.	FOR	DATE

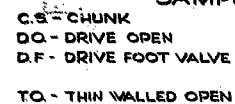
REVISIONS:	DATE		BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS:-ONTARIO-					
BRIDGE OFFICE:-TORONTO					
HWY. 401 CULVERT AT					
ST. 739+60 NEAR NEWCASTLE					
THE KING'S HIGHWAY No. 401.			DIV. No. 7.		
CO. DURHAM			TWP. DARLINGTON LOT 21. CON. I		
PLAN OF BORE HOLE POSITIONS					
APPROVED					
CHIEF BRIDGE ENGINEER			CHIEF ENGINEER		
DESIGN	CHECK	CONTRACT	NUMBERS		
DRAWING	MLF. CHECK	P.L.			
TRACING	CHECK	LOADING	DRAWING NUMBER		
DATE 6 TH MAY. 1955.			F-54-31.		

GEOCRES No 30M15-34

JOB F-54-31 HWY 401 NE NEWCASTLE BORING NO 1
DATUM 2969 (ST 729+00 LT 62) DATE REPORT
COMPILED BY PBL CHECKED BY BORING DATE 7-3-55

ABBREVIATIONS



V-INSITU VANE SHEAR TEST γ - UNIT WEIGHT
 M-MECHANICAL ANALYSIS K - PERMEABILITY
 U-UNCONFINED COMPRESSION C - CONSOLIDATION
 Q_c- TRIAXIAL CONSOLIDATED QUICK CA - CASING
 Q - TRIAXIAL QUICK WL - WATER LEVEL IN CASING
 S - TRIAXIAL SLOW WT - WATER TABLE IN SOIL

SAMPLES

[illegible]

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SAMPLES

ELEVATION DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT PLOT	ELEVATION SCALE	PENETRATION TEST RESISTANCE BLOWS PER FOOT	OTHER TESTS	CONDITION	TYPE	Nº	PENETRATION RESISTANCE	R.
297.00					TONS/SQ.FT. OR Q _u /2						%
280.00		MED CLAY			50 100 150						
264.00		TILL			20 40 60						
254.00		LIMIT OF PENETRATION									
233.00		LIMIT OF BORE HOLE									
297.00				4							
290.00				8				To 3"	4	25 B _p /ft	100%
284.00				12				To 3"	5	40 B _p /ft	100%
276.00				16				Df	1	20 B _p /ft	580%
267.75				20				NB Penetration Of 4"	2	Rate Of 524 B _p /ft	
264.00				24				W.S	3		

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[illegible]



ONTARIO

DEPARTMENT OF HIGHWAYS

B.A. 425

Memo to Mr. A. Toye

Date May 17, 1955.

Acting Bridge Engineer.

Subject Re: Proposed Culvert Hy. #401

From Mr. F. C. Brownridge, Mat. Laboratory.

Sta. 739+60 - Newcastle.

Attached are two copies of the report of the investigation of the foundation conditions for the proposed culvert and embankment at the above location.

Satisfactory soil conditions are revealed for the construction of the proposed structures.

F. C. Brownridge
Materials & Research Engineer.

FCB:OD

Att.

cc: Mr. J. Walter
Mr. H. D. Duff, Div. Eng. Port Hope.
Mr. G. Farantatos.

B 79425

30M15-34

GEOCRES No.

30M15-34

Report on
Foundation Investigation for the
Proposed Culvert on Highway 401 at
Sta. 739~~60~~

Copies to: H. Lamont, (2)
Bridge Eng.

J. Walter, (1)
Const. Eng.

Division Eng., Port Hope (1)

G. Farantatos (1)

File (1)

Project 54-F-31

Introduction

A subsurface investigation for the proposed culvert on Hwy. 401 at Sta. 739/60 has been carried out to find if Subsoil could support the proposed fill, and, recommend bearing values for the clay.

Procedure

The investigation started on March 7 and ended March 15; two boreholes and penetration tests were completed, a log of each borehole with its location is shown in appendix I.

Soil Stratigraphy & Tests

A clay layer varying from $13\frac{1}{2}$ to 17' was found to overlay clay till. Samples of 2" & 3" diameter were taken for the determination of the consolidation and bearing properties of the soil.

Recommendations

The clay till will support a fill over 25' in height. The shear strength of the clay is approximately 1000 lbs/sq.ft. indicating that a bearing of 1 to $1\frac{1}{2}$ tons/sq. foot could be taken by the soil. If greater loads are going to be applied, then short piles penetrating a few feet into the till could be used.

In order to prevent scour, the construction forms should be left in place.

Conclusion

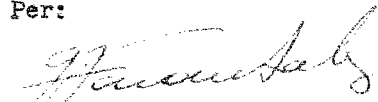
The subsurface soil could be subjected to 25' of fill or better.

It will support $1-1\frac{1}{2}$ tons/sq. foot of load.

The construction forms should be left in place for scour protection.

If heavier loads are to be applied short piles are recommended.

F. C. Brownridge
Materials & Research Engineer
Per:


(G. N. Farantatos)