



ONTARIO

DEPARTMENT OF HIGHWAYS

*Fate*

Memo to Mr. H. Lamont Date May 9, 1955  
Bridge Engineer Subject Re: Foundation Investigation  
From F.C. Brownridge Sydenham River - Hwy. #79

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Attached are two copies of the report covering the foundation investigation for the above proposed structure.

You will note this structure can be founded on bedrock found within a reasonable distance below the ground surface.

FCB:JH

  
F.C. Brownridge  
Materials & Research Engr.

Att.

REPORT OF  
FOUNDATION INVESTIGATION  
SYDENHAM RIVER BRIDGE  
ON HIGHWAY No. 79.

Copies to: H. Lamont  
Bridge Engineer (2)

J. Walter  
Construction Engineer (1)

G. U. Howell  
Division Engineer, Oatham. (1)

Project 7-55-1

G. Farantatos (1)

File (1)

### Introduction

A new bridge is to be constructed about 4 miles South of Alvinston where Highway No. 79 crosses the Spadenham River.

The present bridge is truss structure in a very good state resting on masonry abutments. It is very narrow allowing only one way traffic, and due to the requirements of nearby highways this is going to be replaced by a new structure.

A subsurface investigation was therefore conducted on the above site to discover the best founding method for the new bridge.

### Procedure

Four boreholes were driven on the site between the period April 12 and April 16, 1955.

The locations of the boreholes and their logs can be found in Plan F-55-1A and Appendix I.

### Soil Profile

Topsoil and fragments of rock were found overlying the bedrock. This soil profile is found in all the boreholes as can be seen from the logs in Appendix I.

### Water Condition

The elevation of the bottom of the creek is about 619.

The river shows a difference for high water level and low water level of approximately 18 ft.

### Recommendation

Bedrock was found on the East side at elevation 619, and on the West side at elevation 617.

Recommendation (cont.)

It is recommended that the footings be brought down to the bedrock and dowelled to it. The bedrock is hard limestone. Laboratory tests on rock core samples proved that the rock could provide a bearing capacity about 18 tons per square foot. The standard code of practice, where load tests on rock are not provided, allows 10 tons per square foot for limestone bedrock.

Conclusion

Footings should be brought down to the bedrock and be dowelled there.

F.C. Brownridge  
Materials & Research Engr.

Per:



( G.W. Farantatos )

CEP:JH

APPENDIX I

# 55-F-1  
Hwy. #79 AT  
SYDENHAM  
RIVER BRIDGE

EDITED  
FOR MICROFILMING  
BY K.T. DATE 2/6/10

[illegible]

DRILL RIG CORE DRILL

CASING BX (STANDARD SAMPLERS TO FIT UNLESS NOTED)

SAMPLER HAMMER WT 450 DROPPING INCHES 24.75

JOB F-55-1

DATUM 6316.51 400+72 (RT 33)

COMPILED BY J.B. CHECKED BY W. WOODBORING

BORING NO. 2

DATE REPORT 14<sup>th</sup> APRIL 1955

**SAMPLE CONDITION**

DISTURBED

GOOD

LOST

**SAMPLE TYPES**

CS - CHUCK

DO - DRIVE OPEN

D.F. - DRIVE FOOT VALVE

TO - THIN WALLED OPEN

VS - WASHED SAMPLE

RC - ROCK CORE

**ABBREVIATIONS**

V - INSITU VANE SHEAR TEST

M - MECHANICAL ANALYSIS

U - UNCONFINED COMPRESSION

Q - TRIAXIAL CONSOLIDATED QUICK

S - TRIAXIAL SLOW

γ - UNIT WEIGHT

K - PERMEABILITY

C - CONSOLIDATION

CL - CASING

WL - WATER LEVEL IN CASING

WT - WATER TABLE IN SOIL

SOIL PROFILE			SHEAR STRENGTH TONS/100 FT OR Q <sub>u/2</sub>		WATER CONTENT W %		SAMPLES									
ELEV. DEPTH	WATER CONDITIONS	DESCRIPTION	STRAT. PLOT	ELEVATION SCALE	PENETRATION TEST RESISTANCE BLOWS PER FOOT STANDARD ENERGY 4200 IN LBS.		D	PW	Δ	LV	OTHER TESTS	CONDITION TYPE	NO.	PENETRATION RESISTANCE	ELEV. RECOVER	
6316				7' 6"	50	100	150									
		TOP SOIL	/ / / / /	2												
				4												
				6												
				7' 6"												
	WL	FRAGMENTS OF ROCK	/ / / / /	8												
				8' 6"												
				10												
				12												
619.35				12' 6"												
				14												
				16												
		BEDROCK		18												
				20												
				22												
608.5				23' 1"												
				24												

VS 1

RC 2

100





