

G.I-30 SEPT. 1976

GEOCRES No. 316-184

DIST. 9 REGION EASTERN

W.P. No. \_\_\_\_\_

CONT. No. \_\_\_\_\_

W. O. No. \_\_\_\_\_

STR. SITE No. \_\_\_\_\_

HWY. No. \_\_\_\_\_

LOCATION LOT 12 CON. 19 & 20

SOUTH PLANTAGENET TWR

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. \_\_\_\_\_

REMARKS: \_\_\_\_\_

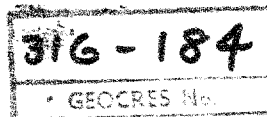
Plot on ST map  
INSPECTION SERVICES  
LABORATORY TESTING  
APPRAISALS, RESEARCH  
SOIL INVESTIGATIONS

# JOHN D. PATERSON & ASSOCIATES

CONSULTING ENGINEERS & GEOLOGISTS  
OTTAWA 3, CANADA

TEL. PA 8-3505

OFFICES AND LABORATORY  
1479 LAPERRIERE AVE.



## REPORT OF SOIL INVESTIGATION

### PROPOSED NEW STRUCTURE

LOT 12 CONCESSION 19 - 20

TOWNSHIP OF SOUTH PLANTAGENET

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ALEX J. GRAHAM

CONSULTING ENGINEER

REPORT NO. S336-63

OTTAWA, AUGUST 8TH, 1963

# JOHN D. PATERSON & ASSOCIATES

CONSULTING ENGINEERS & GEOLOGISTS

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## INTRODUCTION:

At the request of Mr. Alex Graham, Consulting Engineer, on behalf of the Township of South Plantagenet, a soil investigation was conducted at the site of a bridge replacement.

Because the stream is to be rerouted to eliminate a meander, the investigation took place somewhat to the east of the existing bridge.

To accommodate the banks of the new approaches, the replacement structure - a box culvert - is to be approximately 60 feet long.

## FIELD WORK PROCEDURE:

Two test holes were put down at locations predetermined by Mr. Graham. At each location a cone probe was driven to refusal to check the uniformity of the soils. Casing was then driven, the soils sampled and bedrock located at hole no. 1.

The firm of F. E. Johnston Drilling Company was employed for all drilling operations and their work was supervised at all times by a member of our staff. A standard drilling rig mounted on a trailer and fully equipped for soil testing was used in the field.

## SAMPLING AND TESTING:

Samples for testing purposes were all recovered by Shelby tubes and taken to the laboratory for extrusion and testing for unconfined compressive strength.

Two split spoon samples were recovered for soils classification and retained in plastic bags.

A core sample of bedrock was recovered by diamond drilling in hole no. 1.

## OBSERVATIONS:

### (a) Soil Types

At this site a thick layer (46'-48') of soft to medium stiff clay overlies a thin layer of Glacial Till (2'-3') which rests on shaly limestone bedrock.

Details of the test holes are shown on the Soil Profile sheets.

...../2

(b) Ground Water

At the completion of the investigation the ground water level was found to be 7.5 feet below the surface at hole 1. Hole 2 was plugged and dry at 7 feet.

(c) Test Results

The results of the unconfined compressive strength tests indicate that the clay is soft to medium stiff in consistency.

CONCLUSIONS AND RECOMMENDATIONS:

It is assumed that the stream bed of the rerouted portion will be approximately the same elevation as that which exists at the present bridge.

Because considerable backfill over the new culvert is anticipated a stability analysis has been made on the clay using the equation  $S_f = \frac{C}{F \cdot H}$  which limits backfill to elevation 102 using a safety factor of 1.5.

A maximum safe soil loading of 900 pounds per square foot is recommended at elevation 84 the approximate footing elevation.

If the weight of a concrete box culvert exceeds the unit loading then it is our recommendation that piles be used for the support of the proposed culvert. They may be either creosoted timber or steel H piles driven to refusal at bedrock. Their length after cut off is expected to be approximately 40 feet.

L. Bredeson

L. Bredeson, P. Eng.

REPORT NO. S 336-63  
August 8th, 1969





JOHN D. PATERSON &amp; ASSOCIATES

CONSULTING ENGINEERS

OTTAWA

CANADA

## SOIL PROFILE AND LABORATORY TESTS

Locations: LOT 12 CON. 19 and 20  
South Plantagenet Township

Elevation (Zero Depth): 91.7

Remarks: Cone probe and test boring

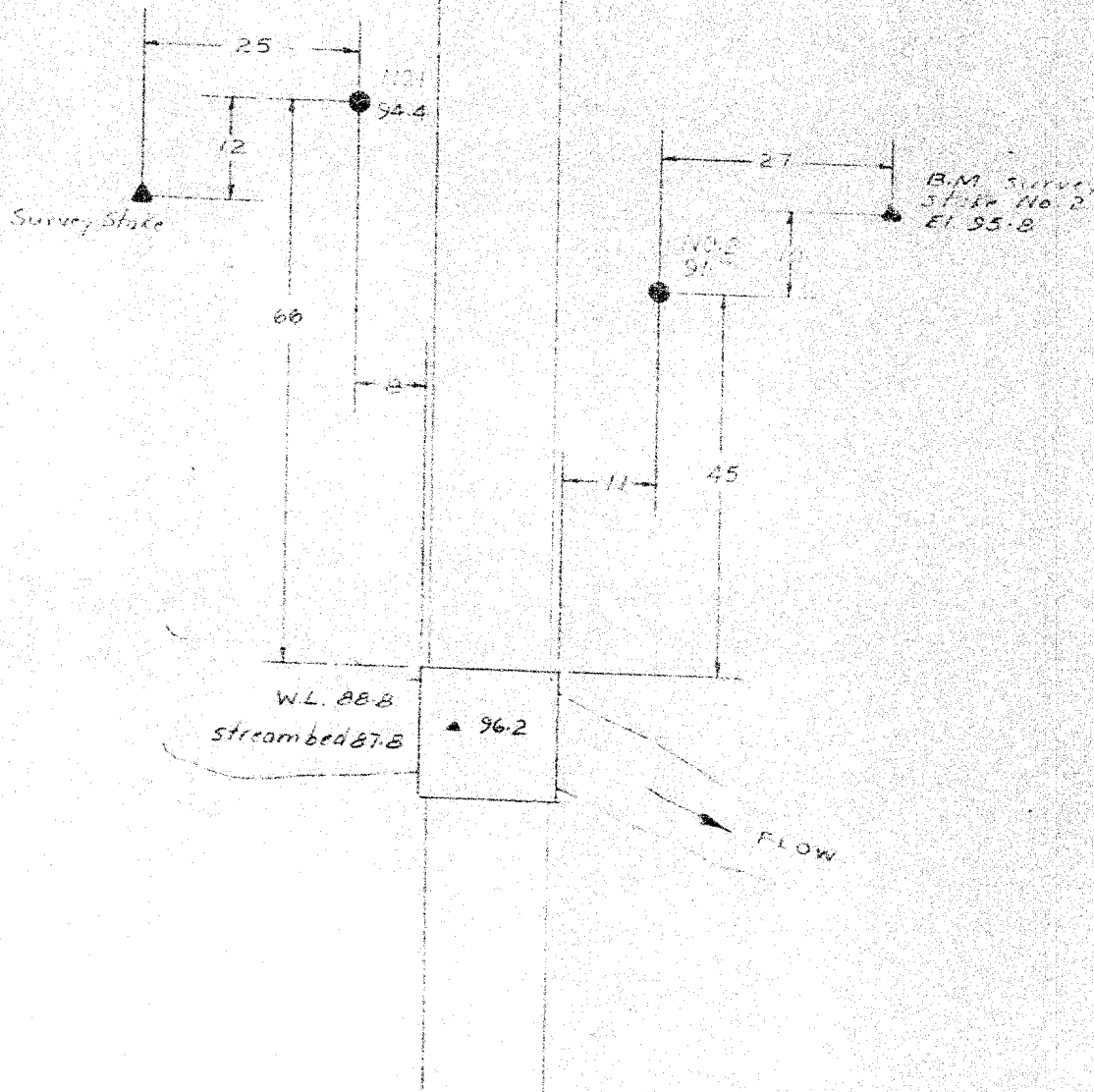
Borings by: F. E. Johnston Drilling Co.

Date: July 24, 1963

Sheet Nos  
2 of 2

Hole Nos 2

Blows per Foot	Soil Description	Samples		U <sup>1</sup> a	N	Depth in Feet	Elev.	Moisture Content Per Cent.				
		Type	No.					30	40	50	60	70
	Ground Surface											
1	Very soft silty Clay					0	91.7					
1												
2												
6						4						
7	Soft, pinkish grey, silty clay with inclusions of black organic mottling											
6												
7						8						
7		TW	9	0.19								
6		TW	10	0.45								
5						12	79.7					
3												
4												
4		TW	11	0.40		16						
4												
5						20						
6												
3												
6						24	67.7					
5												
7						28						
8												
8						32						
7												
6						36	55.7					
7												
6						40						
8												
9												
10	Dense Glacial Till					44						
8												
12						48	43.7					
32												
65 for 0.4'	Probably bedrock					52						
						56						
						60	31.7					



TEST BYPASS PLAN  
PROPOSED CONCEPT  
LOT 12 CONTIGUOUS  
TWP. 66 SOUTH PLANTAGENET  
JOB 1314

SCALE 1" = 20'