

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 31 G5-123

W.P. No. _____

CONT. No. _____

W. O. No. _____

STR. SITE No. _____

HWY. No. _____

LOCATION NEW CULVERT, CYRVILLE
RD, LOT 7, CON. 3 (O.F.)
GLOUCESTER TWP.

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OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. NONE

REMARKS: _____

BA 13866
3165-123

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3165-123
GLOUCESTER No.

BA 1386

REPORT OF SOIL INVESTIGATION

PROPOSED NEW CULVERT

CYRVILLE ROAD

LOT 7, CONCESSION 3, (O.F.)

GLOUCESTER TOWNSHIP

FOR

OTTAWA SUBURBAN ROADS COMMISSION

REPORT NO. S 245 - 62

OTTAWA, MARCH 7, 1962



Introduction:

At the request of Mr. J. L. Shearer, P. Eng., Ottawa Suburban Roads Commission, a soil investigation was conducted at the site of a proposed culvert at Station 142 + 24 on the Gyrville Road. The existing 12' x 6' x 50' rigid concrete type in poor repair is to be replaced with a 10-foot diameter multiplate type, 126 feet long on a 10° skew.

To eliminate the sharp dip in the road at this location approximately 30 feet of fill is required.

Fieldwork Procedure:

Two test holes were put down at diagonally opposite sides of the existing culvert as shown on the Test Boring Plan. Hole 1 consisted of driving a cone probe to 50 feet, driving casing and sampling to 26.7 feet. At Hole 2 the cone probe was driven to 30 feet, casing driven, and the soils sampled to 26.7 feet. The cone probes were driven to check the uniformity of the soils.

All drilling operations were performed by F. E. Johnston Drilling Company and their work was supervised at all times by a member of our staff.

The equipment used consisted of a standard drilling rig, fully equipped for soil testing and mounted on a trailer. Because of the inaccessibility of the bore hole locations the drill was moved to them on skids.

Sampling and Testing:

Because only clay soils were encountered all sampling was done by means of Shelby, thin-walled tubes. The tubes were taken to the laboratory, extruded, and tested for unconfined compressive strength.

Observations:

(a) Soil Types.

Above Elevation 113 a medium stiff clay with an unconfined compressive strength of 2700 pounds per square foot exists. Below this elevation a fairly uniform soft, low strength clay exists. Details of the bore holes are shown on the Soil Profile and Laboratory Test Sheets which accompany this report.

(b) Groundwater.

The groundwater level at the completion of the investigation was found to be 3 feet below ground surface in Hole 2, which is approximately ice level in the creek.

(c) Test Results.

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(c) Test Results.

The unconfined compressive strength test results are shown on the Soil Profile and Laboratory Test Sheets. No other tests were conducted.

Conclusions & Recommendations:

The soil underlying the site of this culvert is a soft, sensitive clay with low shear strength and for this reason the use of a multiplate culvert pipe is definitely recommended.

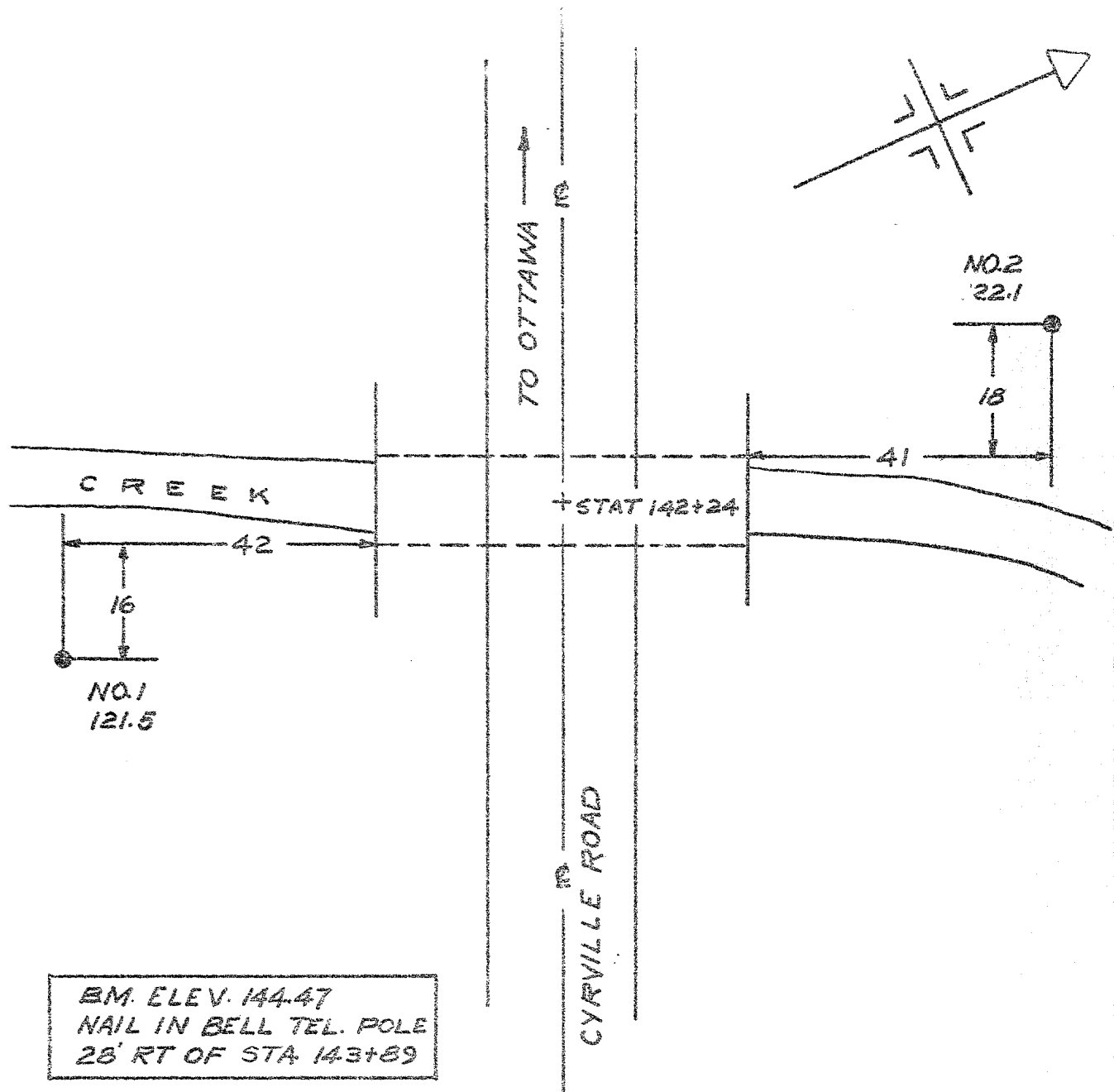
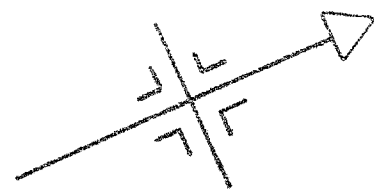
Considering the probable settlement in the soft clay under the weight of 30 feet of fill we would recommend that the pipe be installed with a 12" camber, assuming that the length will be approximately 126 feet.

Before laying the pipe a 6" to 12" thick layer of granular material should be placed as a bed for the pipe. Assuming that the invert of the pipe will be at about Elevation 116, a stability analysis was made to determine the safe height of the fill. Using a safety factor of 1.5 it was found that the maximum safe height of the fill is 33 feet, with side slopes not greater than 2, horizontal, to 1, vertical.



J. D. Paterson, P. Eng.

JDP/MMC.



BM. ELEV. 144.47
NAIL IN BELL TEL. POLE
28' RT OF STA 143+89

TEST BORING PLAN
PROPOSED CULVERT
LOT 7 CON. 3 (OF)
GLOUCESTER TOWNSHIP
CYRVILLE ROAD

SCALE 1"=20' FEB 1962

JOHN D. PATERSON
CONSULTING ENGINEERS
OTTAWA CANADA

SOIL PROFILE AND LABORATORY TESTS

Location: Station 142 + 24, Cyrville Road,
Carleton County

Elevation (Zero Depth): 121.5.

Remarks: Cone Probe and Test Boring.

Sheet No:
1 of 2

Borings by: F.E. Johnston Drilling Co., Ltd. Date: Feb. 16 & 19, 1962.

Hole No:
1

Blows per Foot	Soil Description	Samples	U's T/m'	N	Depth in Feet	Elev.	Moisture Content				
							30	40	50	60	70
Cone	Ground Surface										
123	Clayey Topsoil 1				0	121.5					
22	Stiff, weathered, sandy clay.				2						
9											
12											
11		5			4						
9	Medium stiff, partially weathered, fissured, grey clay.	TW	2	1.39							
9					6						
8											
		8			8						
8	Soft, grey, fissured clay.										
7											
7		TW	3	0.50	10	111.5					
9											
8		13			12						
7	Very soft, grey clay be- coming slightly silty with depth.				14						
6											
6		TW	4	disturbed							
					16						
6											
5					18						
4		19									
7					20	101.5					
11		TW	5	0.37							
10					22						
14	Soft, grey, slightly silty clay.				24						
8											
7		TW	6	0.36							
7					26						
8											
8					28						
7											
12					30	91.5					
14											

Ground Water
Level 3 Feet,
Feb. 21, 1962.

SOIL PROFILE AND LABORATORY TESTS

Location: Station 142 + 24, Cyrville Road,
Carleton County.

Elevation (Zero Depth): 122.1.
Remarks: Cone Probe and Test Soring.

Sheet No: 2 of 2.

Borings by: F.E. Johnston Drilling Co., Ltd. Date: Feb. 20 & 21, 1962.

File No: 2

Blows per Foot	Soil Description	Samples		U'e T/u'	N	Depth in Feet	Elev.	Moisture Content				
								30	40	50	60	70
Cone	Ground Surface.					0	122.1					
78	Clayey Topsoil. 1.											
29	Medium stiff, weathered, sandy clay.					2						
9												
8												
9		5.					4					
7	Medium stiff, grey, weathered, silty to sandy clay with organic inclusions.	TW	8	1.33		6						
8												
12						8						
13		9.										
17	Soft to very soft, grey, and pinkish grey, silty clay with very minor organic inclusions to 11'.	TW	9	0.22		10	112.1					
14						12						
14						14						
8												
7						16						
6						18						
8		TW	10	0.33		20						
10												
11												
12												
13	20.	TW	11	0.52		22	102.1					
16	Soft to medium stiff, grey, silty clay.					24						
17						26						
17						28						
18						30						
19		TW	12	0.77								
14												
13												
15												
16												
16						30	92.1					