

G.I.-30 SEPT. 1975

GEOCRES No. 316-183DIST. 7 REGION EASTERN

W.P. No. _____

CONT. No. _____

W. O. No. _____

STR. SITE No. _____

HWY. No. _____

LOCATION CO. RD. 10 & DELISLE
CREEK, PRESCOTT CO

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. _____REMARKS: _____

Plot on 31 G MAP.

BA 1922

INSPECTION SERVICES
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APPRAISALS, RESEARCH
SOIL INVESTIGATIONS

JOHN D. PATERSON & ASSOCIATES

CONSULTING ENGINEERS & GEOLOGISTS
OTTAWA 3, CANADA

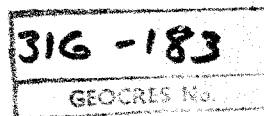
TEL. PA 8-3505

OFFICES AND LABORATORY:
1479 LAPERRIERE AVE.

August 10, 1964.

Your Ref. C-1.

De Leuw, Cather & Company of Canada Limited,
Suite 206, 2277 Riverside Dr.,
Billings Bridge Plaza,
Ottawa 8, Ontario.



Attention: Mr. L. J. Marshall, P. Eng.,
Chief Bridge Engineer

Re: Project 7, Miffee Bridge,
County Road No. 10 over Delisle River,
United Counties of Stormont, Dundas and Glengarry.

Dear Sir:

We have completed the soil investigational program as proposed to you in our letter dated July 7, 1964, re the above project. The original investigation (our Report No. 5343-63) was undertaken on the understanding that there was to be a realignment of the river. Since the proposed crossing does not now involve a realignment of the river, the additional soils work was necessary.

Three test holes were put down, one at each of the proposed abutments, and one in the middle of the river at the bridge. The locations of the holes are shown on the Test Boring Plan.

It was determined in conversations with nearby residents that the abutments of an old wooden crib bridge were still in place when the present bridge was erected. It was considered expedient, therefore, to put down the test holes in the exact position of the proposed abutments in spite of the difficulties of drilling through the boulder fill of the approaches. (Numerous boulders in the fill and glacial till made it necessary to advance the casing by diamond drilling.)

At each of the holes, samples were recovered by means of the split spoon sampler. During the recovery of each granular sample, the Standard Penetration Test was conducted and the results are recorded as "N" values on the Soil Profile Sheets.

Core samples of boulders and bedrock were recovered by diamond drilling and retained in core boxes.

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Details of the bore holes are shown on the Soil Profile Sheets.

At the bridge a layer of glacial till, approximately twenty feet thick, becoming thinner at the extremities of the bridge, overlies bedrock which is more or less flat lying. A thin layer of clay overlies the till which is in turn overlain by the approach fills. Current action has eroded the clay layer so that the river bed is now exposed glacial till with numerous isolated boulders.

In Hole No. 5 (East Side) the remnants of an old log crib were encountered. A similar encounter was not made at Hole No. 6 (West Side) but there is a possibility that old crib work exists between the test hole and the river. It appears from the position of the proposed abutment that any old crib work would be far enough east to eliminate it as a construction problem.

The glacial till directly under the abutments and at the piers is suitable material on which to construct spread footings for the support of the proposed structure. The recommended loadings are shown in Table 1 below.

TABLE 1

<u>Location</u>	<u>Recommended Footing Elevation</u>	<u>Recommended Maximum Soil Loading in pound/sq. ft.</u>
Piers	84.5	4000
West Abutment	94	4000
East Abutment	88	4000

Because glacial till loses strength on saturation, some provision should be made for rapid removal of water which may enter the excavations.

Cont'd.../3

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August 10, 1964.

- 3 -

A considerable amount of granular fill, predominantly large boulders, has been dumped along the edge of the river at the southeast corner of the bridge, probably to control erosion of the bank. This section corresponds to the extremity of a meander where erosion would be the greatest. However, the increased span of the new bridge will reduce the constriction of the river at this point with subsequent reduction in scour. Since the river is now confined for the greater part of the year to a trough of glacial till, no scour of significance has been noticed by local people since the existing bridge has been built.

Stability of the river banks and approach fills is not a problem at this site because nearly all subsoils encountered are medium dense to very dense glacial till, other than a 2-1/2 ft. thick layer of stiff clay found in the west bank.

Yours truly,

JOHN D. PATERSON & ASSOCIATES.

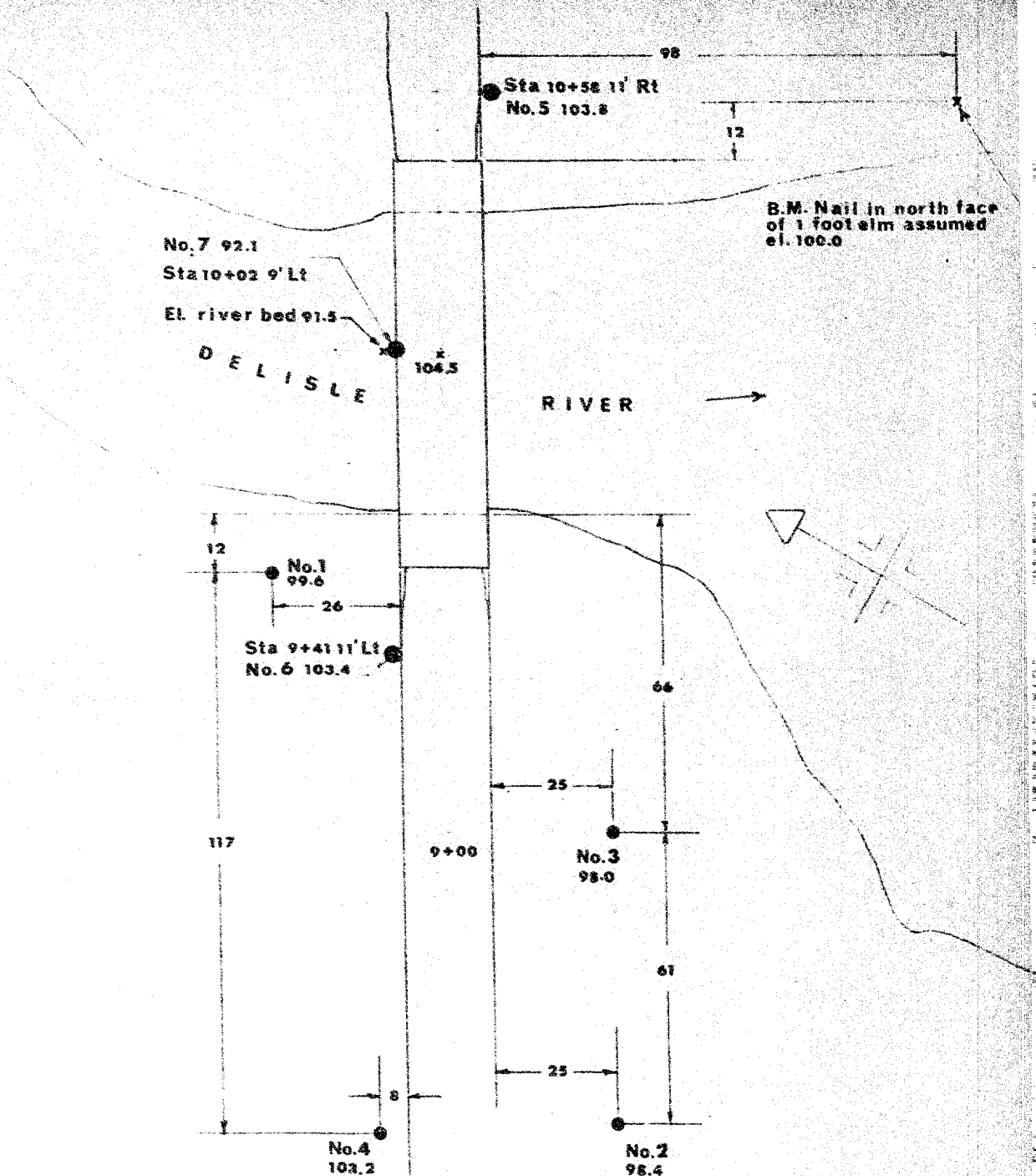
L. Bredeson

LB:bc

L. Bredeson, P. Eng.

REPORT NO. S343-63 (Addendum No. 1)





TEST BORING PLAN
Proposed
BRIDGE REPLACEMENT
County Rd. 10 Lot 30 Con. 142
Lochiel Township

JOHN D. PATERSON & ASSOCIATES LTD.
 Consulting Engineers and Geologists
 1479 LAPERRIERE AVE. OTTAWA 3, CANADA

Scale 1" = 30'

Nov. 1963

JOHN D. PATTERSON & ASSOCIATES
CONSULTING ENGINEERS

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SOIL PROFILE AND LABORATORY TESTS

Station 10+58 11 Ft. RT
LOCATION: County Road No. 10
Glengarry County

Elevation (Zero Depth): 103.8

Remarks: Test boring hole

& 28/64

Boring By: F.E. Johnston Drilling Co.

Date: July 24, 27,

Sheet No. 1 of 3

Hole No: 5

Blows per Foot	Soil Description	Samples		Qu Tons/ sq. ft.	N	Depth in Feet	Elev	Moisture Content Per Cent.				
		Type	No.					30	40	50	60	70
	Ground Surface					0	103.8					
	Gravel Fill	BX	1			3						
2						6	97.8					
	Gravel fill with boulders	SS	2	boulders		9						
10.2		Core	3			12	91.8					
	Old log cribbing with clay fill.	SS	4	log		15						
13.8		SS	5	log		18	85.8					
	Saturated clayey silt	SS	6	65		21						
	Very dense, gravelly glacial till.	SS	7	51		24	79.8					
		SS	8	99		27						
20		SS	9	56		30	73.8					
21						33						
	Very dense gravelly glacial till.	Interval 21 to 30 required drilling				36	67.8					
						39						
30						42	61.8					
	Bedrock	Run	1	Core								
31.5												
	Limestone with thin shale seams.	Run	2	Core								
34.4		48%		recovery								
		Run	3	Core								
39.1		34%		recovery								

Ground Water
Level 11 Feet
July 28, 1964

JOHN D. PATERSON & ASSOCIATES
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SOIL PROFILE AND LABORATORY TESTS

OTTAWA

CANADA

LOCATION:

Station 9+41 11 Ft. LT
County Road No. 10
Glengarry County

Elevation (Zero Depth): 103.4

Sheet No: 2 of 3

Remarks: Test boring hole

Borings By: F.E. Johnston Drilling Co. Date: July 28&29/64

Hole No: 6

Blows per Foot	Soil Description	Samples		Qu Tons/ sq. ft.	N	Depth in Feet	Elev.	Moisture Content Per Cent.				
		Type	No.					30	40	50	60	70
	Ground Surface											
	Gravel fill with boulders.					0	103.4					
			4			3						
	Very stiff, silty, oxidized clay.	SS	10		17	6	97.4					
	Dense, oxidized glacial till.					9						
		SS	11		52							
	Medium dense till.		11.5			12	91.4					
		SS	12		20							
		SS	13		49	15						
	Dense gravelly glacial till.					18	85.4					
		SS	14		39							
		SS	15		41							
			20.9			21						
		SS	16	Boulder								
						24	79.4					

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SOIL PROFILE AND LABORATORY TESTS

Station 10+02 9 Ft. LT.
 LOCATION: County Road No. 10
 Glengarry County

Elevation (Zero Depth): 92.1

Remarks: Test boring hole

Sheet No: 3 of 3

Borings By: F.E. Johnston Drilling Co.

Date: July 29 & 30/64

Hole No: 7

Blows per Foot	Soil Description	Samples		Qu Tons/ sq. ft.	N	Depth in Feet	Elev.	Moisture Content Per Cent.				
		Type	No.					30	40	50	60	70
	Water Level											
	River bottom		0.5			0	92.1					
	Washed glacial till	SS	17		55	3						
	Medium dense gravelly glacial till.	SS	18		23	6	86.1					
		SS	19		21	9						
	Very dense gravelly glacial till.	SS	20	boulder		12	80.1					
		SS	21		53	15						
		SS	22		106	18	74.1					
	Medium dense glacial till.	SS	23		28	21						
	Very dense gravelly glacial till.	SS	24		103	24	68.1					
		SS	25		120	27						
	Bedrock					30	62.1					
	Limestone with thin shale seams.	Core	67%			33						
		Recovery	(some core lost			36	56.1					
		in hole)				39						