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63-F-280 m

NEW BRIDGE

LOT G-3 CON. 6

E. HAWKESBURY

Twp.

BA 1587

JOHN D. PATERSON & ASSOCIATES

CONSULTING ENGINEERS & GEOLOGISTS

OTTAWA 3, CANADA

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INSPECTION SERVICES
LABORATORY TESTING
APPRAISALS, RESEARCH
SOIL INVESTIGATIONS

REPORT OF SOIL INVESTIGATION

PROPOSED NEW BRIDGE

LOT G-3, CONCESSION 6

TOWNSHIP OF EAST HAWKESBURY

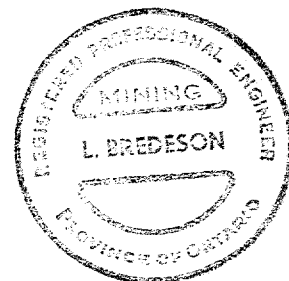
ALEX. J. GRAHAM

63-P-2804

CONSULTING ENGINEER

REPORT NO. S 308 - 63

OTTAWA, JANUARY 16, 1963



Introduction:

At the request of Mr. Alex. J. Graham, Consulting Engineer, on behalf of East Hawkesbury Township, a soil investigation was conducted at the site of a proposed bridge over the East Branch Rigaud River on Lot G-3, Concession VI.

The bridge is to be relocated approximately 430 feet upstream in order to eliminate a sharp turn in the road.

Fieldwork Procedure:

As suggested two bore holes were put down, one on either side of the river, on Line B, the established centre line of the bridge, within a few feet of the recommended locations.

The hole locations are shown on the Test Boring Plan.

At Hole 1 a cone probe was driven to refusal, casing driven, the soils sampled and bedrock located. A similar procedure was followed at Hole 2, excluding the cone probe.

The firm of Geo. Downing Estate Drilling, Ltd., Calumet, P.Q., was employed for all drilling operations. Their work was supervised and directed at all times by a member of our staff.

The equipment used consisted of a standard drilling rig mounted on skids and moved into place by means of a small all-track vehicle.

Sampling and Testing:

Samples of the soil near the surface were recovered by driving the BX casing, withdrawing it from the hole and knocking out the sample.

The remaining samples all in granular material were recovered by means of the split spoon sampler and each sample was retained in a plastic bag. With each split spoon sample taken the Standard Penetration Test was conducted and the results are recorded on the Soil Profile Sheet as "N" values.

Core samples recovered from the bedrock by diamond drilling were classified and retained in a core box.

Observations:

(a) Soil Types.

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(a) Soil Types.

In Hole No. 1 the following soil profile occurs:

- 0 - 0.5' Clayey topsoil.
- 0.5' - 1.5' Clay with organic inclusions.
- 1.5' - 10.0' Medium dense Glacial Till.
- 10.0' - 15.5' Bedrock 10.0' - 12.5' Limestone with minor Calcite and thin Shale lenses.
12.5' - 13.3' Shale with Limestone.
13.3' - 15.5' Limestone.

In Hole No. 2 the following soil profile occurs:

- 0 - 0.5' Clayey topsoil.
- 0.5' - 2.5' Clay with some Sand.
- 2.5' - 6.5' Loose Glacial Till.
- 6.5' - 9.0' Medium dense Glacial Till.
- 9.0' - 12.5' Very dense Glacial Till with boulders.
- 12.5' - 17.5' Bedrock 12.5' - 14.0' Limestone with minor Calcite and Shale lenses.
14.0' - 16.8' Shale with Limestone.
16.8' - 17.5' Limestone.

(b) Ground Water.

Observations in Hole 1 indicate that the ground water level in the hole is the same as the water level in the stream. It can be assumed that the ground water level will fluctuate with high and low water levels in the stream.

(c) Test Results.

The results of the Standard Penetration Tests indicate that the Glacial Till varies in density from loose to very dense.

Conclusions and Recommendations:

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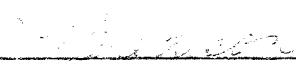
The footings of the northernmost abutment can be placed directly on the bedrock surface with a safe loading of 20,000 pounds per square foot.

Because the bedrock surface dips to the south at a rate of 3 in 100 the footings can be placed either on the very dense Glacial Till with a safe soil loading of 4000 pounds per square foot or carried to bedrock and loaded as before.

If a winter works program is contemplated and the southernmost footing placed on till, then care must be taken to prevent the till from freezing either before or after the concrete in the footings is placed.

Because Glacial Till loses strength on saturation care must also be taken to prevent an accumulation of water in the south excavation.

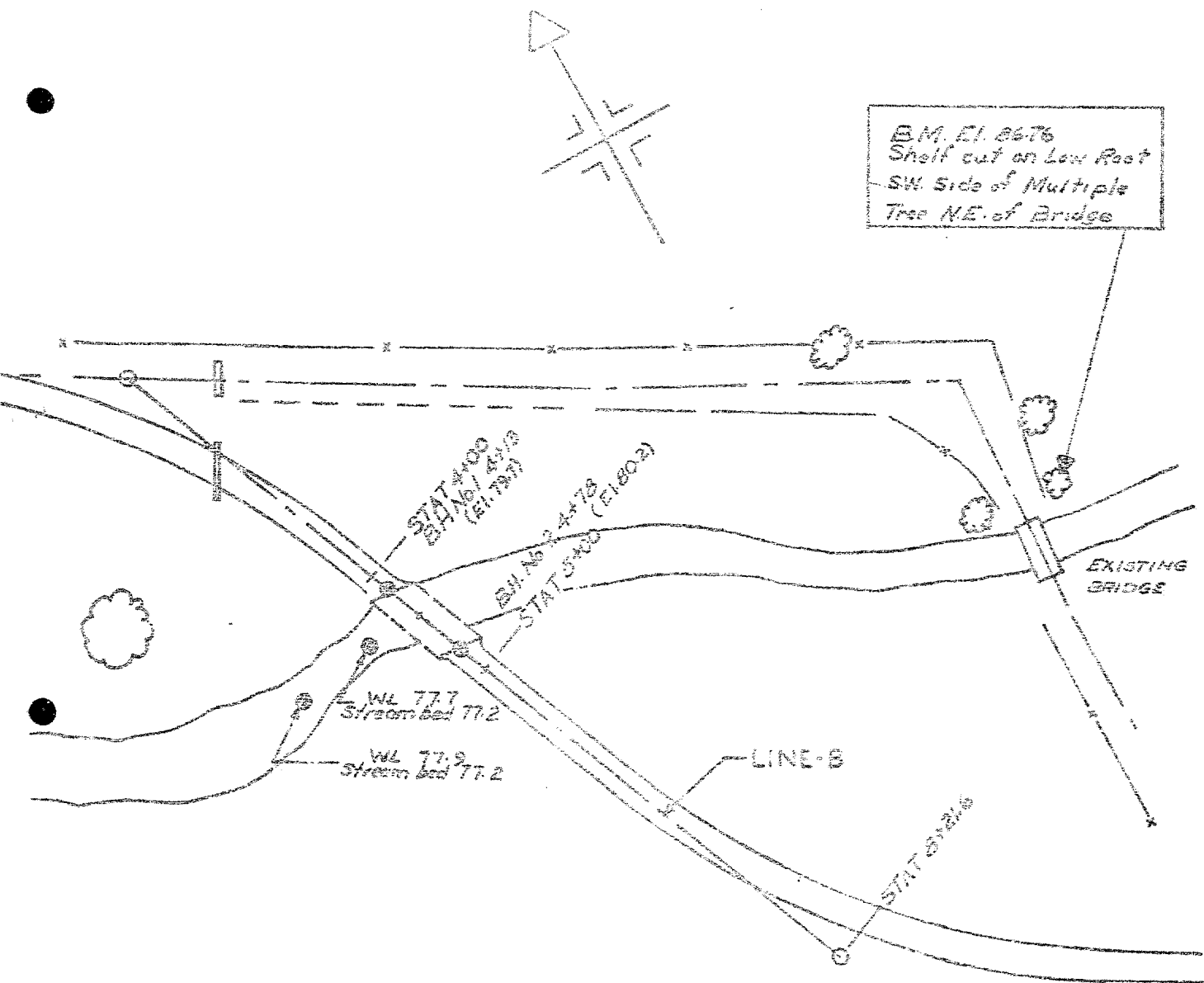
Report No. S 308-63.



John D. Paterson & Associates.

Ottawa, January 16, 1963.

JDP/MMC.



TEST BORING PLAN
 PROPOSED BRIDGE
 LOT 6-3 CONVI
 EAST HAWKESBURY TOWNSHIP
 ONTARIO

SCALE 1" = 100'

JAN 1963

