

DOCUMENT MICROFILMING IDENTIFICATION

G.I.-30 SEPT. 1976

GEOCRES No. 31 G - 169

W.P. No. _____

CONT. No. _____

W. O. No. _____

STR. SITE No. 3 - 157

HWY. No. _____

LOCATION NEW BOYD BR. ,
LOT 6, CON'S 7 & 8,
GLOUCESTER TWP.

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT.

NONE

REMARKS: _____

BA 2134

31G-169

GEOCRES No.

STRUCTURE SITE No. 3-157

REPORT OF SOIL INVESTIGATION

NEW BOYD BRIDGE

LOT 6, CONC. 7 AND 8

GLOUCESTER TOWNSHIP

FOR

TOWNSHIP OF GLOUCESTER

ALEX J. GRAHAM
CONSULTING DESIGN ENGINEER
OTTAWA

REPORT NO. S 427-65

JULY 27, 1965



INTRODUCTION:

At the request of Alex J. Graham, P. Eng., Consulting Engineer on behalf of the Township of Gloucester, a soil investigation was conducted at the site of the proposed Boyd Bridge.

The proposed structure is to be constructed somewhat to the west of the existing bridge to accommodate a realignment of Bear Brook.

The structure will be located on the 8th line, Lot 6, Concessions 7 and 8, Township of Gloucester, Carleton County.

FIELD WORK PROCEDURE

Two test boring holes were put down at the locations shown on the Test Boring Plan as close as possible to the locations indicated by Mr. Graham.

At hole 1, casing was driven and the soils sampled to 51.5 feet. A cone probe was driven to 50 feet in conjunction with the sample hole. At hole 2, casing was driven and the soils sampled to 16.5 feet. A cone probe associated with hole 2 was then driven from 10 feet to 59 in an adjacent hole to check the uniformity of the soils.

A standard drilling rig operated by a crew of two was supervised and directed in the field at all times by a Geologist from our staff.

SAMPLING AND TESTING

Several samples of the soils above any possible footing level were recovered by driving, withdrawing and knocking out the samples from BX casing for classification purposes.

One split spoon sample was also recovered from the clay. During the recovery of the split spoon sample the Standard Penetration Test was conducted and the result is recorded as an "N" value.

The remaining samples, recovered by Shelby thin-walled tubes, were taken to our laboratory where they were extruded and tested for unconfined compressive strength.

The BX casing samples and split spoon sample were retained in plastic bags.

Three of the samples from Shelby tubes were tested for unconfined compressive strength by means of the pocket penetrometer.

OBBERVATIONS

(a) Soil Types

In Hole No. 1 the following soil profile occurs:

- 0 - 2 Fine grained silty sand.
- 2 - 85 Medium stiff, greenish and pinkish grey fissured clay with small roots and root holes. Fissure faces stained black.
- 85 - 40 Medium stiff grey and pinkish grey fissured clay with black organic mottling concentrated in bands. Odd small white shell.
- 40 - 51.5 Medium stiff grey silty clay with black organic mottling.

In Hole No. 2 the following soil profile occurs:

- 0 - 10 Loose brown fine grained silty sand.
- 10 - 20 Soft grey and pinkish grey fissured clay with an odd small root.
- 20 - 49 Medium stiff grey fissured clay.
- 49 - 59 Medium stiff grey silty clay.

Details of the test holes are shown on the Soil Profile sheets. The interpretation of the soil profile at Hole No. 2 is based on cone blows per foot below 16.5 feet.

(b) Ground Water

The ground water levels were recorded at the completion of the field work. They were 10.9 feet (el. 49.6) and 5.5 feet (el. 62.0) below ground surface at Holes 1 and 2 respectively. The elevation of the stream is 58.5.

We expect, however, that the ground water levels in the holes will be the same as the level of the stream after a few days.

(c) Test Results

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

CONCLUSIONS AND RECOMMENDATIONS

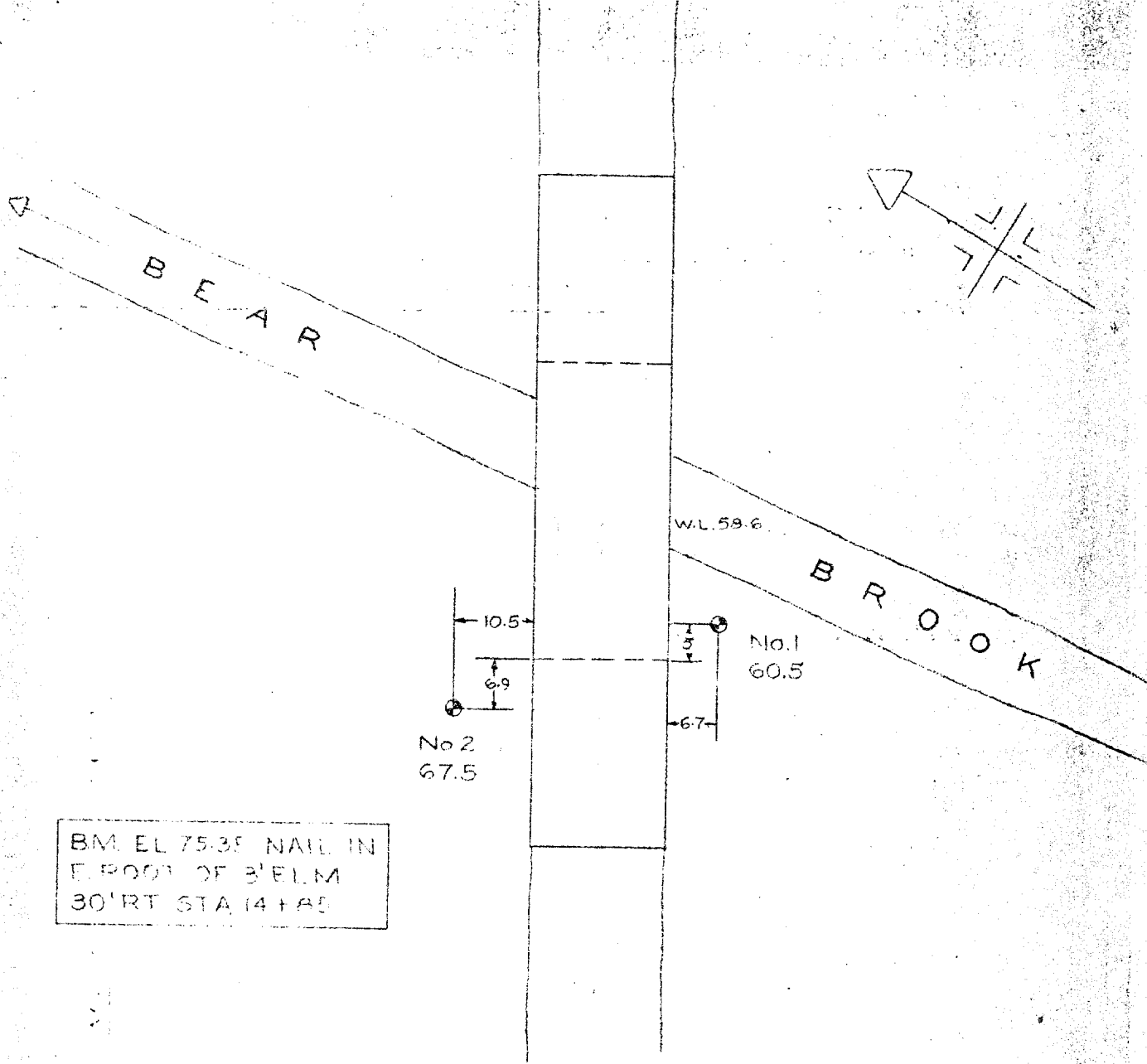
The medium stiff clay is unsatisfactory material on which to place footings for the support of the proposed structure.

It is recommended that the structure be supported by friction piles driven into the clay. Creosoted timber piles will be adequate and the length and loading capacity of the piles can be calculated using a skin friction between piles and clay of 700 pounds per square foot.

When the position and type of structure are determined a stability analysis should be conducted to establish the factor of safety against slope failure of the new approaches. There will be approximately 28 feet of fill above the old stream bed because of the realignment of Bear Brook.

L. Bredeson

L. Bredeson, P. Eng.



TEST BORING PLAN
PROPOSED
BOYD BRIDGE
LOT 6 CON 7 & 8
GLOUCESTER TOWNSHIP

SCALE 1" = 20'

JULY 1965

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

CANADA

Boyd Bridge,
LOCATION: Lot 6, Conc. 7 & 8,
Gloucester Township

| | |
|--|------------------|
| Elevation (Zero Depth): B.M. El. 75.35 Nail 30' RT | Sheet No: 1 of 2 |
| Remarks: Cone probe to 50' Sample hole to 51.5 ft. | |
| Borings By: P.D. = Pocket Penetrometer F.E. Johnston Drilling Co. Date: June 30, 1965 | Hole No: 1 |

| Blows per Foot | Soil Description | Sample | | Cu Tons/ sq ft. | N | Depth in Feet | Elev. | Moisture Content Per Cent. | | | | |
|----------------------|-------------------------|--------|-----|-----------------------|------|---------------------|-------|-------------------------------|----|----|----|----|
| | | Type | No. | | | | | 30 | 40 | 50 | 60 | 70 |
| | Ground Surface | | | | | | | | | | | |
| 2 | Fine grained silty sand | 2 | Bx | 1 | | 0 | 60.5 | | | | | |
| 3 | Medium stiff greenish | | Bx | 2 | | 4 | | | | | | |
| 4 | and pinkish grey | | | | | | | | | | | |
| 3 | fissured clay with | | Tw | 3 | 0.65 | | | | | | | |
| 2 | small roots & root | | Tw | 4 | 0.84 | 8 | 52.5 | | | | | |
| 3 | holes. Fissure faces | | Tw | 5 | 0.40 | | | | | | | |
| 5 | stained black | 8.5 | Tw | 6 | 0.76 | | | | | | | |
| 4 | | | | | | 12 | | | | | | |
| 4 | | | | | | | | | | | | |
| 3 | | | Tw | 7 | 0.67 | 16 | 44.5 | | | | | |
| 3 | Medium stiff | | | | | | | | | | | |
| 8 | grey and pinkish g. | | | | | 20 | | | | | | |
| 7 | fissured clay with | | Tw | 8 | 0.80 | | | | | | | |
| 5 | black organic mottling | | | | | | | | | | | |
| 7 | concentrated in bands. | | | | | 24 | 36.5 | | | | | |
| 6 | Odd small white shell. | | | | | | | | | | | |
| 6 | | | | | | 28 | | | | | | |
| 9 | | | | | | | | | | | | |
| 14 | | | Tw | 9 | 0.62 | | | | | | | |
| 11 | | | | | | 32 | 28.5 | | | | | |
| 11 | | | | | | | | | | | | |
| 11 | | | | | | 36 | | | | | | |
| 10 | | | | | | | | | | | | |
| 10 | | | | | | 40 | 20.5 | | | | | |
| 11 | | 40 | | | | | | | | | | |
| 20 | | | Tw | 10 | 0.85 | | | | | | | |
| 19 | | | | | pp | 44 | | | | | | |
| 17 | | | | | | | | | | | | |
| 16 | Medium stiff grey | | | | | 48 | 12.5 | | | | | |
| 17 | silty clay with black | | | | | | | | | | | |
| 15 | organic mottling | | | | | | | | | | | |
| 15 | | | | | | 52 | | | | | | |
| 16 | | 51.5 | Tw | 11 | 0.75 | | | | | | | |
| | | | | | | 56 | 4.5 | | | | | |

SOIL PROFILE AND LABORATORY TESTS

CANADA

LOCATION:

Boyd Bridge
Lot 6, Conc. 7 & 8
Gloucester Township

Elevation (Zero Depth): B.M. El. 75.35

feet Sheet No. 2 of 2

Remarks: Cone probe from 10 to 59 feet. Sample hole to 16.5

Borings By: F.E. Johnston Drilling Co. Date: July 1, 1965 Hole No: 2

| Blows per Foot | Soil Description | Sample Cu | | M | Depth in Feet | Elev. | Moisture Content Per Cent. | | | | |
|----------------------|--|-----------|-------------------------|----|---------------------|-------|-------------------------------|----|----|----|--------------------------------|
| | | Type | Moisture No. sq. ft. | | | | 30 | 40 | 50 | 60 | 70 |
| | Ground Surface | | | | 0 | 67.5 | | | | | |
| | Loose brown fine grained silty sand | Bx | 11 | | | | | | | | |
| | | Bx | 12 | | 4 | | | | | | Ground Water |
| | | | | | | | | | | | Level 5.5 feet July 1, 1955 |
| | | 10 | ss | 13 | 2 | 8 | 59.5 | | | | Stream bottom |
| 4 | Soft grey and pinkish grey fissured clay with an odd small root | | | | | 12 | | | | | |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 3 | | | | | | | 20 | | | | |
| 2 | | | | | | | | | | | |
| 3 | Medium stiff grey fissured clay | | | | | 24 | 43.5 | | | | |
| 3 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 10 | | | | | | 32 | 35.5 | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 18 | Medium stiff grey silty clay | | | | | 40 | 27.5 | | | | Note: |
| 15 | | | | | | | | | | | Interpretation based |
| 13 | | | | | | | | | | | on cone blows per |
| 13 | | | | | | | | | | | foot below 16.5 feet |
| 13 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 15 | | | | | | 44 | | | | | |
| 13 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 15 | | | | | | 48 | 19.5 | | | | |
| 15 | | | | | | | | | | | |
| 15 | | | | | | 52 | | | | | |
| 15 | | | | | | | | | | | |
| 15 | | | | | | 56 | 11.5 | | | | |
| 15 | | | | | | | | | | | |
| 15 | | | | | | 60 | 7.5 | | | | |