

G.I.-30 SEPT. 1976

GEOCRES No. 316-182DIST. 9 REGION EASTERN

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

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

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

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

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

LOCATION SOUTH NATION RIVER IN  
INKERMAN DUNDAS CO.

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

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

316 map

BA 1844

MCROSTIE & ASSOCIATES LTD.

CONSULTING ENGINEERS

OTTAWA 1

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316-182

GEOCREs No.

1. TERMS OF REFERENCE

We were authorized by Mr. D. C. Cramm, Manager, Bridge Department of C. C. Parker and Associates, Consulting Engineers to carry out a foundation investigation for a new bridge to replace the existing one, crossing the North Branch of the South Nation River at Inkerman, Ontario. The new bridge is to be about the same span as the existing bridge, of prestressed concrete slabs simply supported; or if soil conditions were good, of concrete rigid frame.

2. CONCLUSIONS AND RECOMMENDATIONS

2.1 Foundation Type

Footings resting on the rock would be the most economical foundation for this site. The boreholes have been located as close as possible to the proposed abutment locations, and the results of the borehole findings are likely representative of the subsurface conditions to be expected at the abutment locations. Should however at the time of construction, the conditions at the abutments are unlike that of the borehole results, the matter should be immediately referred to the Engineer for suitable action.

2.2 Rock Bearing Values

A bearing capacity of 15,000 POUNDS PER SQUARE FOOT can be recommended for the sound rock below the weathered and fractured layers at elevation 82 or lower. A bearing capacity of 40,000 POUNDS PER SQUARE FOOT is possible here, but would require confirmation drilling at the abutment locations during the time of construction.

Protection of the footings from scour and frost should be considered in the foundation design.

### 2.3 Construction Precautions

The bearing strata cannot be disturbed by construction operations, however, the sides of the excavation will likely need to be retained by continuous sheeting since the silty tills below water level would flow into the excavation if inadequately retained.

Rock elevation at the abutment location could vary from that as presented from the two boreholes, and contract specifications should cover as to who should pay for the extra amount of rock excavation over and above that as might be interpreted from the boreholes.

### 3. SITE INVESTIGATION

#### 3.1 Field Work

The drilling and sampling work was carried out by our own drill rig under the supervision of a soils engineer.

Sampling in the approach fills and natural soils above the rock was by two inch split barrel samplers with standard penetration test carried out simultaneously. Where casing refusal was encountered, the material was diamond core drilled to confirm bedrock surface or presence of boulders. During the diamond coring operations, a careful watch was made for any drops or loss of drill rods since these along with core percentage recoveries helped to indicate the soundness of the rock. All soil and rock samples were field identified, logged and sent to our laboratory for further study.

Boreholes and levels were referred to C. C. Parker and Associates Ltd. site plan P 1.

#### 3.2 Laboratory Testing

Moisture content tests and classification tests were made on all soil samples and classification tests made on drilled core samples. These tests confirmed the field identification of the samples, helped to determine the strength of the soils, their likely construction behaviour and the strength properties of the rock.

#### 3.3 Observations

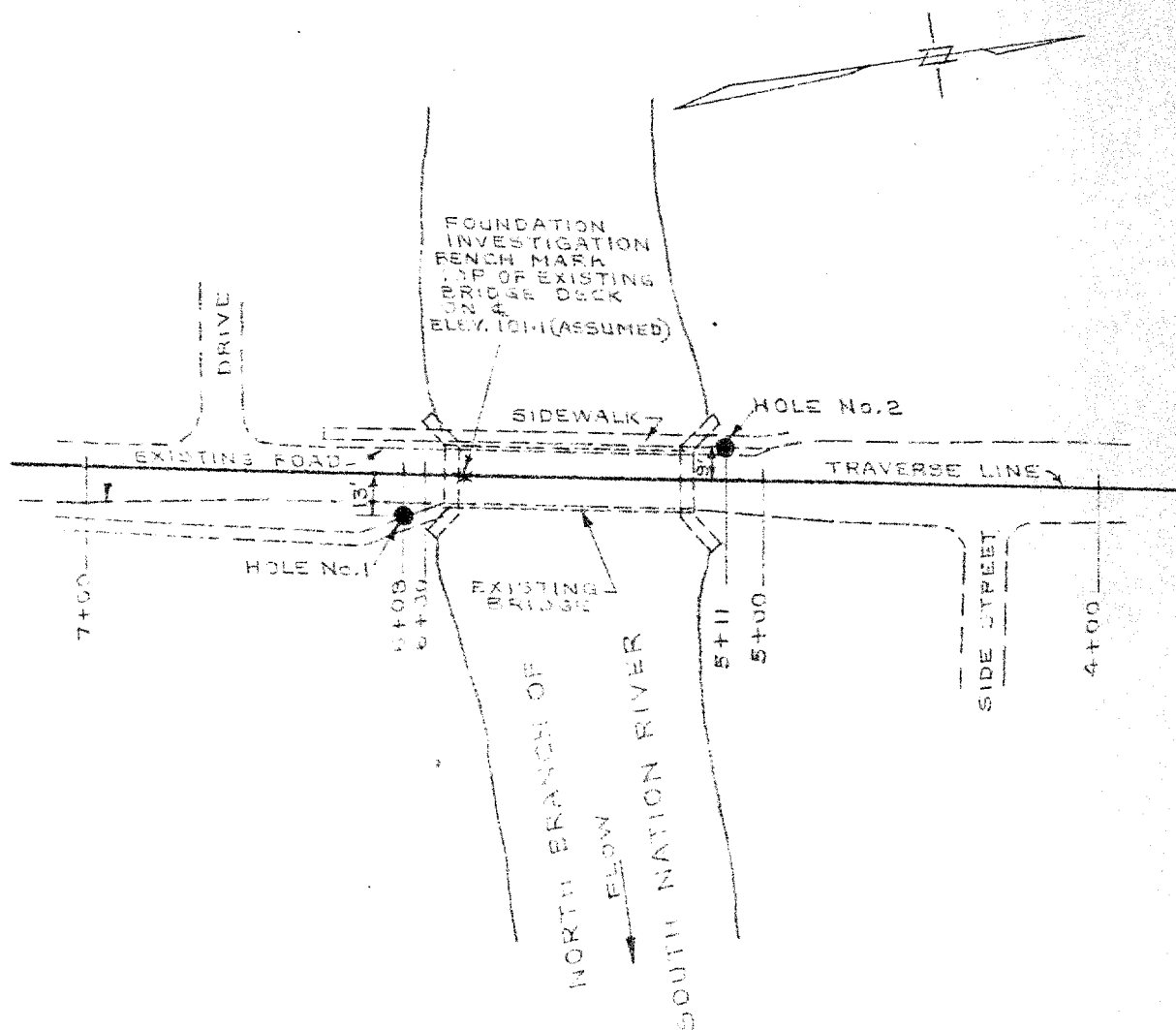
The materials encountered in the boreholes are described in detail on the attached soil profile summary sheets, but in general are as follows:

About 7.5 to 10 feet of fill, underlain by medium dense to dense silty till about 6 feet thick, underlain by weathered and fractured to relatively sound bedrock. The bedrock is a gray to blackish dolomitic rock of the Oxford formation of the Beekmantown sub-epoch.

## COUNTY OF DUNDAS

## TOWNSHIP OF MOUNTAIN

## LOT 18, CON. III



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BOREHOLE LOCATIONS  
INKERMAN BRIDGE

SCALE 1" = 50'

PLATE 1

# McROSTIE & ASSOCIATES LTD.

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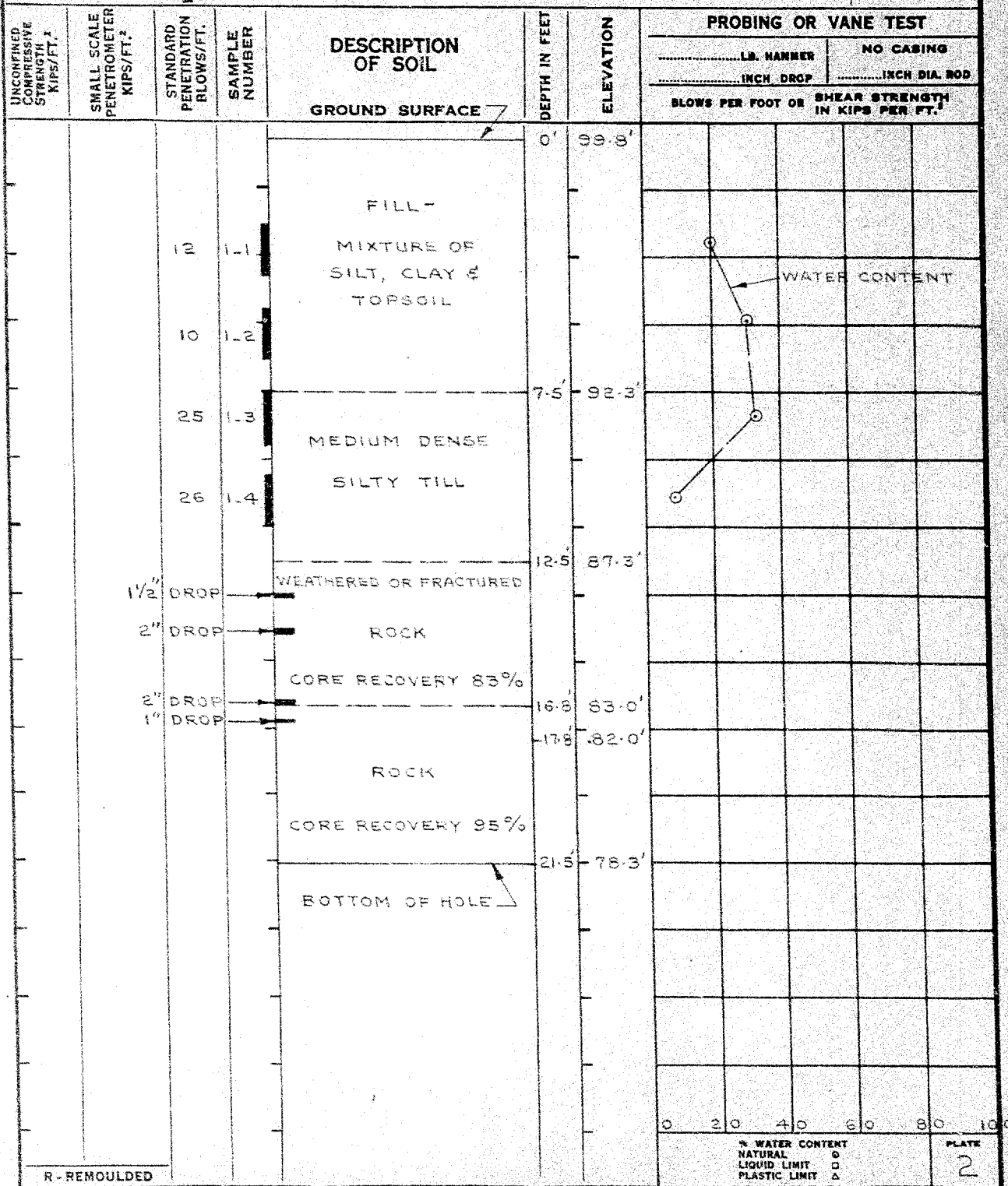
### OTTAWA CANADA

#### SOIL PROFILE AND SUMMARY OF FIELD AND LABORATORY TESTS

INKERMAN BRIDGE

ELEVATION OF GROUND SURFACE (ZERO DEPTH) 99.8' DATE APRIL 20, 1964HOLE NO. 1REMARKS B.M. (EL 101.1') ASSUMED - TOP OF EXISTING BRIDGE DECK

ON #



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### OTTAWA CANADA

#### SOIL PROFILE AND SUMMARY OF FIELD AND LABORATORY TESTS

INKERMAN BRIDGE

ELEVATION OF GROUND SURFACE (ZERO DEPTH) 100.3'

DATE APRIL 21, 1964

HOLE NO.

REMARKS SEE PLATE No. 2

2

