

61-F-255m

GLOVER BRIDGE

CON IV/V LOT 11

WHITBY

Twp.

Mr. A. M. Toye.

Bridge Engineer.

Materials & Research Division,

(Foundation Section)

Attention: Mr. K. L. Kleinsteinber,
Municipal Bridge Liaison Engr.

February 16, 1962.

REVIEW OF REPORT BY RAYMOND

CONCRETE PILE CO., LTD.

Re: Proposed Bridge Reconstruction
Glover Bridge
Con. IV/V, Lot 11, Twp. of Whitby,
County of Ontario - Report File BA1356.

We have reviewed the above-mentioned report and have found that the bridge is designed in accordance with the foundation report recommendations.

The soil is granular material and since the water table is above foundation level, dewatering will have to be applied. Attention is drawn to the fact that boiling could easily take place if proper measures are not undertaken.

It is suggested that the consultant shows the proposed dewatering procedure.

AGS/MdeF

[Signature]
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Foundations Office
Gen. Files.



ONTARIO

DEPARTMENT OF HIGHWAYS

Bridge Division.

Memo to Mr. A. Stermac,
Principal Foundation Eng.,
Materials & Research Section

From G. C. E. Burkhardt

Date February 16, 1962.

Subject County of Ontario
Glover Br. Reconstruction
Twp. of Whitby, Con IV/V, Lot 11
Report file #BA1356

We are enclosing, herewith, a copy of the
Foundation Report, by Raymond Concrete Pile Company
Limited, for your comments.

The structure is a 40 foot single span concrete
rigid frame. Footings are founded at Elevation 45.0.
The structure has been designed by Mr. Robinson, P. Eng.
of the Consulting Company Walvin Limited.

Using Timber piles.

GCBB/ea

G. C. E. Burkhardt
G. C. E. Burkhardt
for K. L. Kleinsteinber,
Municipal Bridge Liaison Engineer.

MAILING ADDRESS
P.O. Box 216, Postal Station "K"
TORONTO 12, ONT.



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MONTREAL, QUEBEC
620 CATHCART ST.
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RAYMOND

CONCRETE PILE COMPANY, LIMITED

HIGHWAY NO. 7, UNIONVILLE, ONTARIO

293-2486

TELEPHONES

364-3644

SOIL INVESTIGATION REPORT

PROJECT: Proposed Bridge Reconstruction

SITE: Glover Bridge
Concession 5, Whitby Township

CLIENT: County of Ontario
Whitby, Ontario

TOPOGRAPHY: At the time of the field work, a location plan and profile were supplied by the client. Elevations were supplied, and are based on bench marks as shown on the borehole location plan, the bench marks were established by County surveyors.

PERIOD OF FIELD WORK: 22 November to 23 November 1961

OUR JOB NUMBER: Raylim B-1231-T

CLIENT'S PROJECT NUMBER: B - 77

DATE OF REPORT: 1 December 1961.

INTRODUCTION

Two boreholes were completed by the Raymond Concrete Pile Co. Ltd. at the above site, for purposes of evaluating soil conditions for foundation design of the proposed bridge.

The borings were made by standard exploratory techniques, using 2 $\frac{1}{2}$ " casing. The Standard Penetration Test was performed every 2 to 3 feet to a depth of 15 feet, and at 5 foot intervals thereafter.



INTRODUCTION - Continued

A record was kept of the number of blows required to drive the 2" O.D. Sampling Spoon one foot, using a 140 lb. weight falling freely 30". Soil samples were obtained after completion of each driving test.

Ground water levels were not observed at the respective borehole locations. However, due to the granular nature of the soil deposits, and nearness of the stream, for all intent and purpose the ground water level would be that of the stream.

SOIL CONDITIONS

Generally the soil deposits found at the two locations are similar, with a definite varying in density. The soil profile is as follows: Ground surface to a depth of 5.5 feet - 10 feet, was loose to medium dense brown sand containing traces of organic matter. Underlying the brown sand is a very loose to very dense grey sand. At the location of Borehole #2, this sand extended to a depth of 29 feet. The grey sand is followed by a hard grey gravelly clay (till) to completion of borehole #2 at a depth of 31'.

The deposits are alluvial and apparently have been recently laid down by the existing stream. It is common for alluvial deposits to vary in density as observed at this site, with the deposits at the location of borehole #2.

CONCLUSIONS

Terzachi and Peck strongly recommend that foundations not be placed on sands with an N value of 10 or less. Since it is assumed that foundations would be placed 3 to 4 feet below creek level, foundations would be at approximate elevation 45. At this elevation, foundations would be in the brown sand containing a trace of organic material at the location of borehole #1, and in the loose grey sand at the location of borehole #2. Neither location presents very suitable deposits for the use of a spread foundation.

CONCLUSIONS - Continued

Based on the above discussion, it is suggested that the bridge be placed on piles. Since the deposits are sand, becoming denser with depth, friction piles are suggested; and it is felt that they will be relatively short, although, because of the varying density, they would vary in length.

For economy, and since all piles would be below water level, wood piles could be employed. Based on the results of the two boreholes, piles will probably vary in length from 10 to 20 feet. They should be, in no case, exceeding the length of 25 feet from point to cut-off.

In addition, to the use of the piling for foundations; the vibrations resulting from the driving of the piles will consolidate the sand deposits in the immediate area, establishing a more stable site.

RAYMOND CONCRETE PILE COMPANY LIMITED

James Hodd

James Hodd, P. Eng.
Manager - Soil Investigation Department

jh/c

RAYMOND

DEFECTS IN NEGATIVE DUE TO
CONCRETE PILE COMPANY LTD. CONDITION OF ORIGINAL DOCUMENT

LOCATION PLAN

To COUNTY OF ONTARIO

Date

NOVEMBER

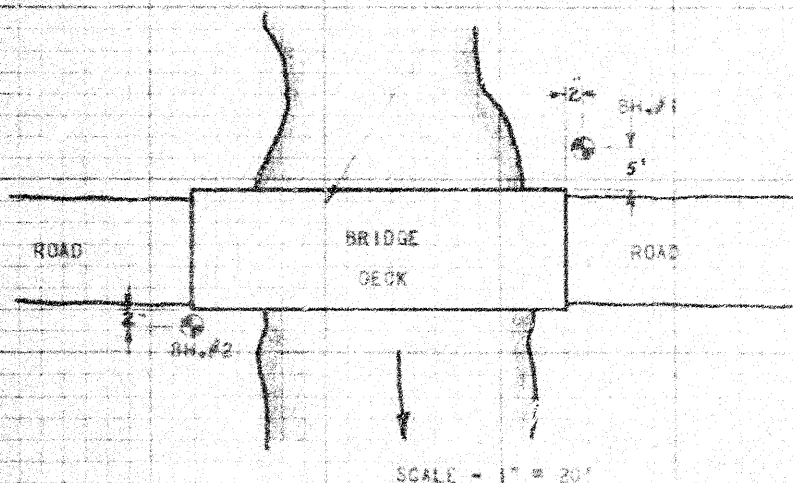
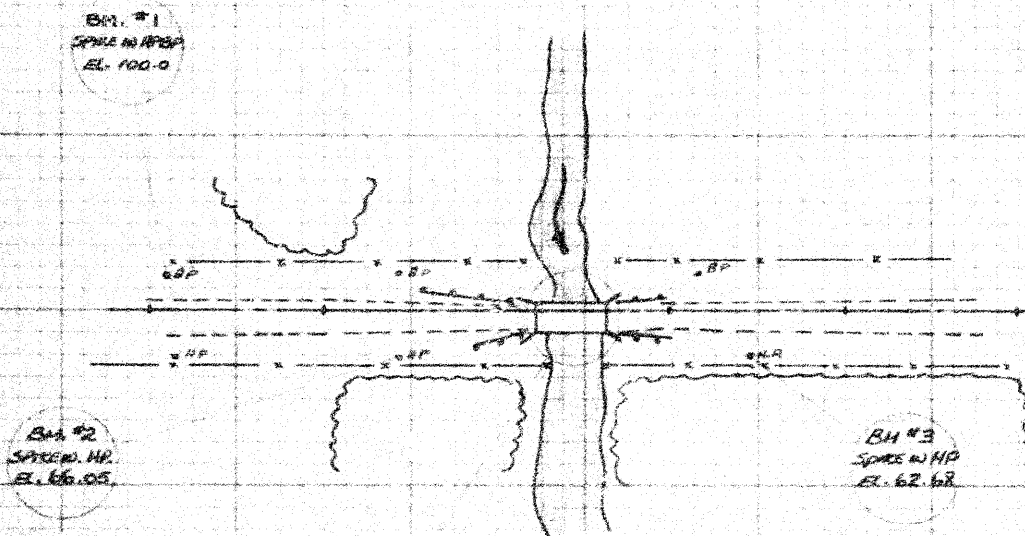
19 61

Address WHITBY, ONTARIO

Project B-77, GLOVER BRIDGE

CON. 5, WHITBY TOWNSHIP

SCALE 1" = 100'



SCALE - 1" = 20'

Compass Points



This boring report prepared in the
 TORONTO OFFICE of the
 Raymond Concrete Pile Company Ltd.

By J. HODG
 Job No. B-1231-1
 Page 25

TEST BORING REPORT RAYMOND

CONCRETE PILE COMPANY LTD.

SOIL TEST DIVISION

To COUNTY OF ONTARIO

Date NOVEMBER 19 61 Job No. B-1231-1

Location of Borings S-08, GLOVER BRIDGE, CON. 5, WHITBY TOWNSHIP

All borings are plotted to a scale of 1" = 5 ft. using BENCH MARKS AS SHOWN as a fixed datum.

No. No. 1 No. No. 2

ELEVATION

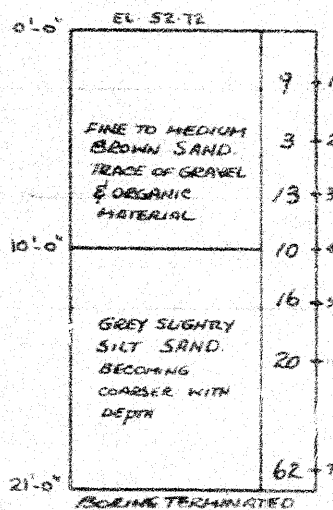
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50.0

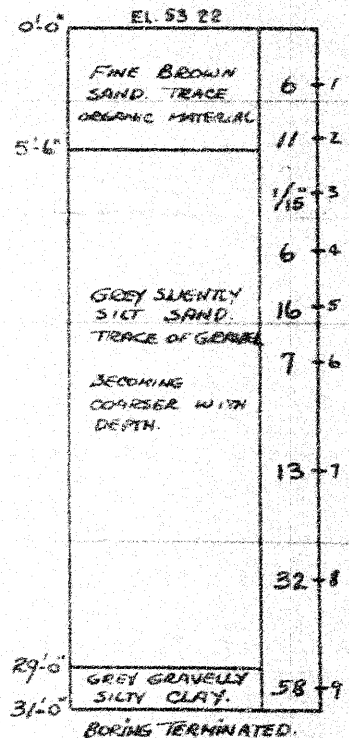
40.0

30.0

20.0



CREEK WATER LEVEL



Classifications are made by VISUAL inspection.

Water levels (WL). Figure indicates time of reading (hours) after completion of boring. Water levels indicated are those observed when borings were made, or as noted. Porosity of the soil strata, variations of rainfall, site topography, etc., may cause changes in these levels.

Figures in right hand column indicate number of blows required to drive 2" O.D. sampling pipe one foot, using 140-lb. weight falling 30 inches.

Total Footage

Foreman K. KITCHENER

Classification by K. KITCHENER

Sheet of