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55-F-2010

CANTHRA. ROAD

Q. E. W

RACEY, MacCALLUM AND ASSOCIATES
LIMITED

55-F-201C

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A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers
AND ASSOCIATED STAFF



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JACQUES POULIN,
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THE VIBRATION ENGINEERING COMPANY

REPORT NO. S-500/516/55/T-130-2

310 Odeon Building,
20 Carlton Street,
Toronto, Ontario.

August 12th, 1955.

Ontario Department of Highways,
c/o Murray Associates Limited,
130 Queen's Quay East,
Toronto, Ontario.

Attention: Mr. W. Dickinson

Dear Sirs: RE: FOUNDATION INVESTIGATION PROPOSED
BRIDGE SITE AT THE INTERSECTION OF
CAWTHRA ROAD & QUEEN ELIZABETH HWY.

In accordance with your instructions, we have carried out the drilling of four (4) boreholes at the above site. We are now in the position to report on our findings as follows:

THE LOCATION OF THE BRIDGE SITE & OF THE BOREHOLES

The site is located approximately 140' northeast of the present intersection of Cawthra Road and Queen Elizabeth Way, 2 miles west of Long Branch (see topographical sketch, enclosure No. 1).

The four (4) boreholes, as proposed by the client, are located as shown on the lower sketch of enclosure No. 1. Boreholes Nos. 1 and 3 are situated diagonally across the highway near the shoulder, and boreholes Nos. 2 and 4 are located similarly, but at 60' distance from the centre of the Queen Elizabeth Way.

THE DRILLING WORK

The drillers' equipment was brought to the site on July 13th, 1955. Borehole No. 1 was begun the same day and

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August 12th, 1955.

completed on July 15th. Borehole No. 2 was brought down from the 16th to 18th of July. Borehole No. 3 was begun and completed the same day and after an interruption due to necessary repairs on the equipment, Borehole No. 4 was carried out on the 21st and 22nd of July. The equipment was loaded and returned to the warehouse the same day.

DISCUSSION OF THE RESULTS & CONCLUSIONS

A preliminary report on the soil conditions was given on July 29th, 1955. The following will, in general, give the same information.

The results of the field investigation are plotted in the attached Engineering Data Sheets (enclosures Nos. 2 to 5).

Sampling with the standard 2" split barrel sampler was carried out at 2.5 ft. intervals. The number of blows with an energy of 4,200 in. lbs. per ft. of penetration on the sampler was recorded and plotted in the diagrams of the enclosures.

The soil and rock samples will be stored on our premises for one-half year from now and shall be destroyed thereafter if no instructions are received to the contrary.

The soils body at the site consists of four different types of soil. The topmost layer represents fine sand, apparently a recent deposit, in a loose to compact state of compaction with a recommendable soil pressure at 5' depth of about 1.5 tons per square foot with the possibility of little settlement which will occur when the load is transferred and without any noticeable further settlement.

The underlying soil, below a sandy and gravelly transition zone, is a mixture of very stiff and extremely stiff grey clay with gravel which is considered to be a glacial till.

The soil in the transition zone, between approximately 7.5 and 9.5 foot depth (elevation 331.5 to 329.5), will carry a load of two (2) tons per square foot with little, if any, immediate settlement up to perhaps one-half inch.

The glacial till at nine (9) foot depth (elevation 330) is extremely dense and we feel that a load of three (3) tons per square foot will be allowable without the danger of noticeable settlement or differential settlement.

Underlying the glacial till there was found a layer of fine to medium gravel in Boreholes Nos. 1 and 3, however, this layer was found to be dense and of no influence on the suitability of the subsoil for foundation purposes.

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Bedrock, a clay shale, being a relatively soft rock type, was encountered (in Borehole No. 1) at 26 ft. depth (elevation 312.9). On account of the depth of rock, we feel that no consideration of the bearing capacity will be necessary.

The present groundwater conditions at the site were determined by re-opening three of the boreholes on August 8th, 1955, by means of a hand auger. It was found that the groundwater level developed in the fine sand at elevation 334.1 M.S.L. \pm 0.2'. Depending on the time construction work will commence, this level is liable to be slightly lower (autumn) or considerably higher, presumably near the present ground surface (Spring).

We trust that this information is in satisfactory accordance with your requirements and shall be pleased to consult further with you if you so desire.

Yours very truly,

RACEY, MacCALLUM & ASSOCIATES LIMITED

K. Tubbesing

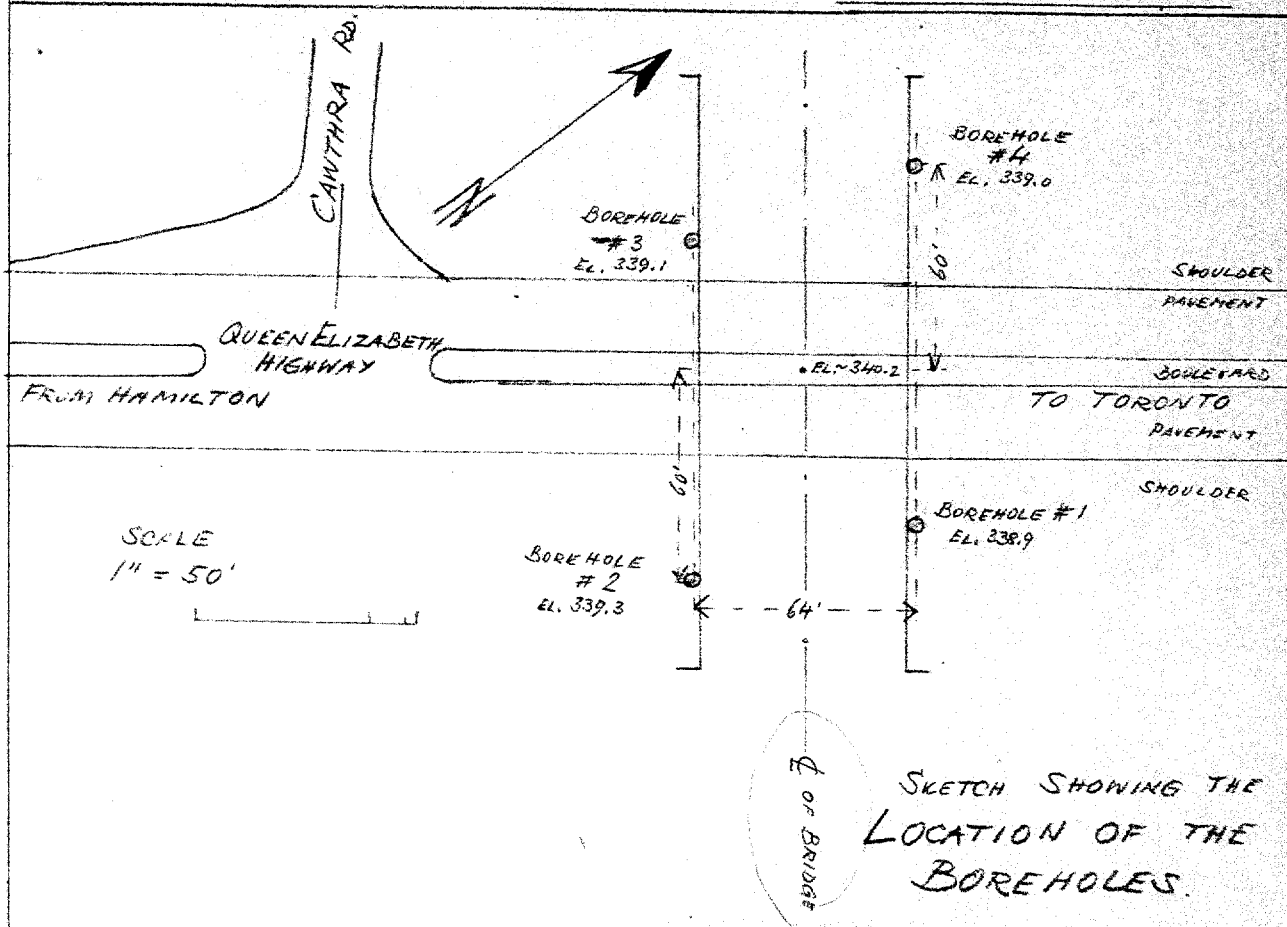
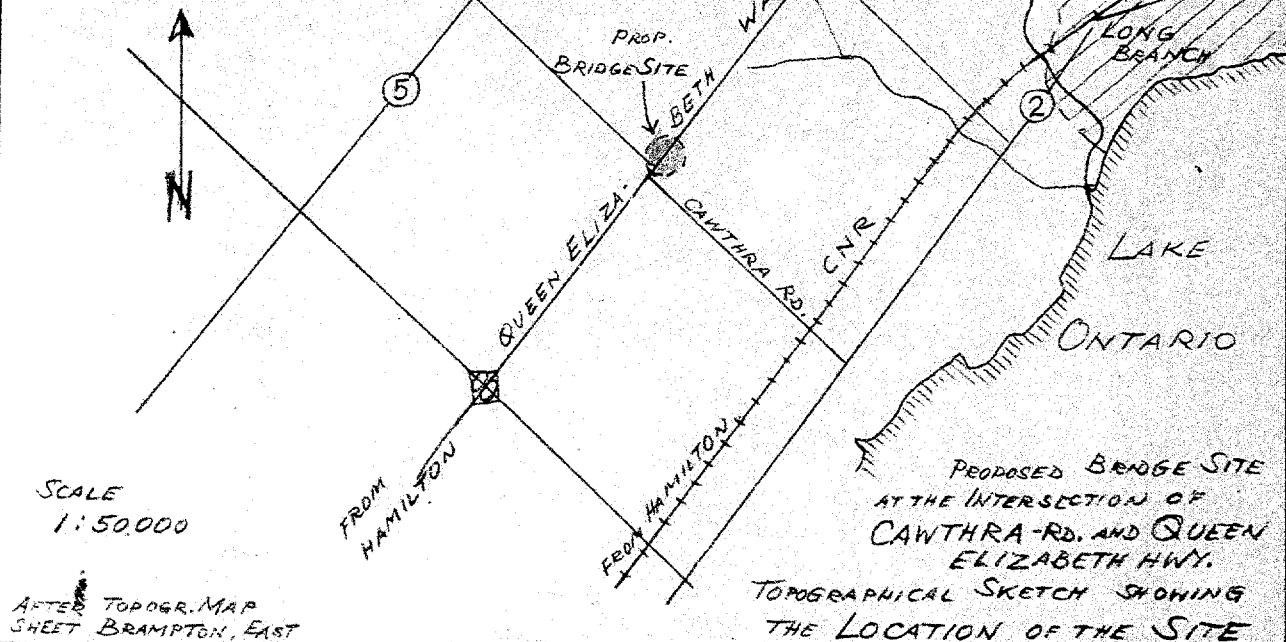
KT/SM

K. TUBBESING, P. Eng.

Original &
two copies - Murray Associates Limited, 130 Queen's Quay East,
Toronto, Ontario. Attention: Mr. W. Dickinson

c.c.'s: 2 - Racey, MacCallum & Associates Limited, Montreal.
1 - Soils Engineer

S-500-516/55/T.-130
PREP. & DRAWN: K.T.



Order No. 5-500-516/55/T-130 **RACEY, MACCALLUM AND ASSOCIATES** J. MARYKUCA
 LIMITED
 Driller

Hole Begun 13-7-55 Foundation Engineering Division

S. SCOTT
 Helper

Hole Ended 14-7-55 Engineering Data Sheet for Borehole: # 1

Job Name: PROPOSED HWY BRIDGE AT Q.E. HWY & CAWTHRA RD.

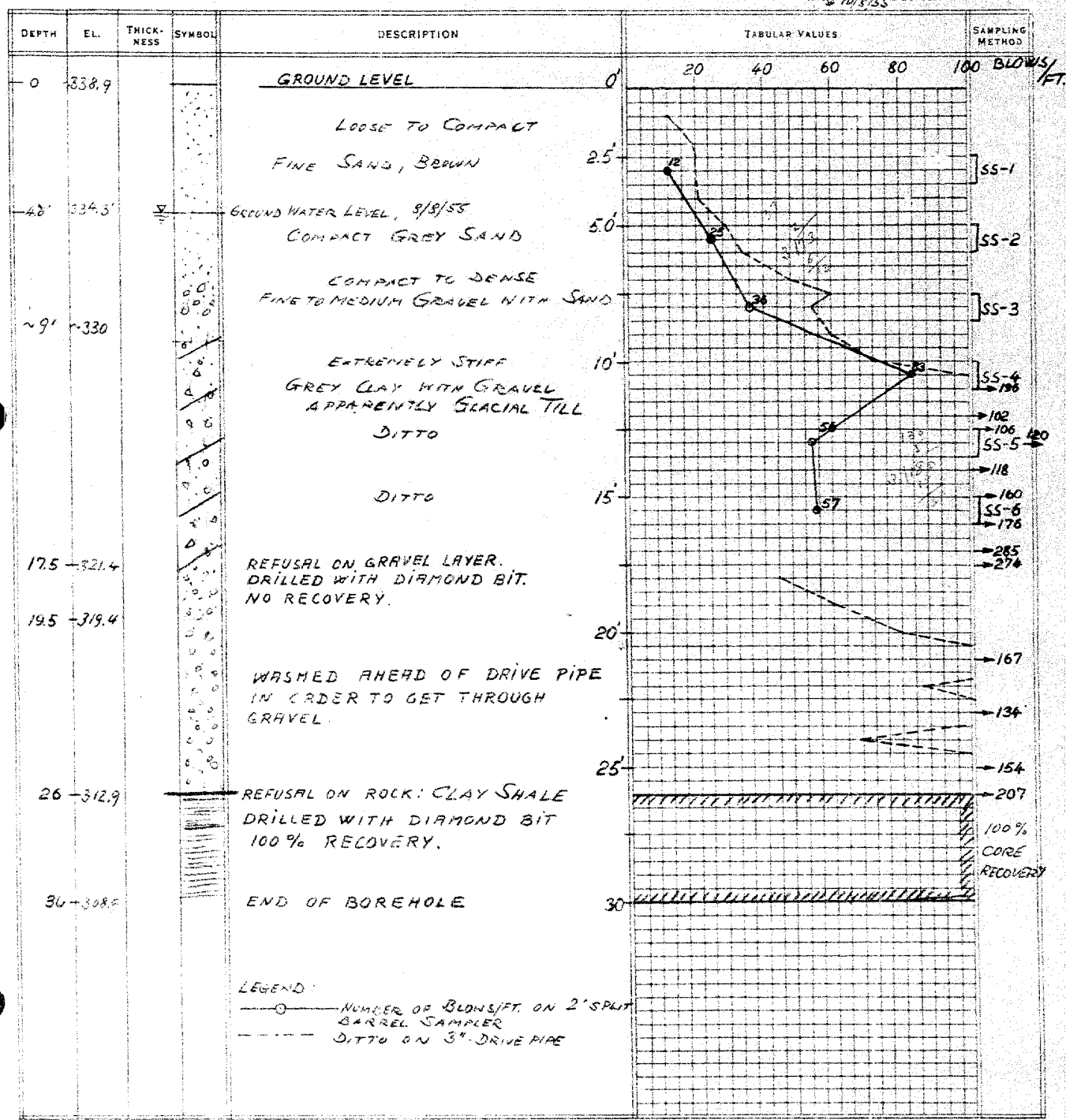
C. O
 Checked by

Job Located: _____

Hole Located: AS SHOWN ON ATTACHED SKETCH PLAN

Hole Elevation: ~338.9 Datum: M.S.L.

25 - 7 - 55
 Day Month Year



Order No.: 5-500-514/55/T-130 RACEY, MacCALLUM AND ASSOCIATES

LIMITED

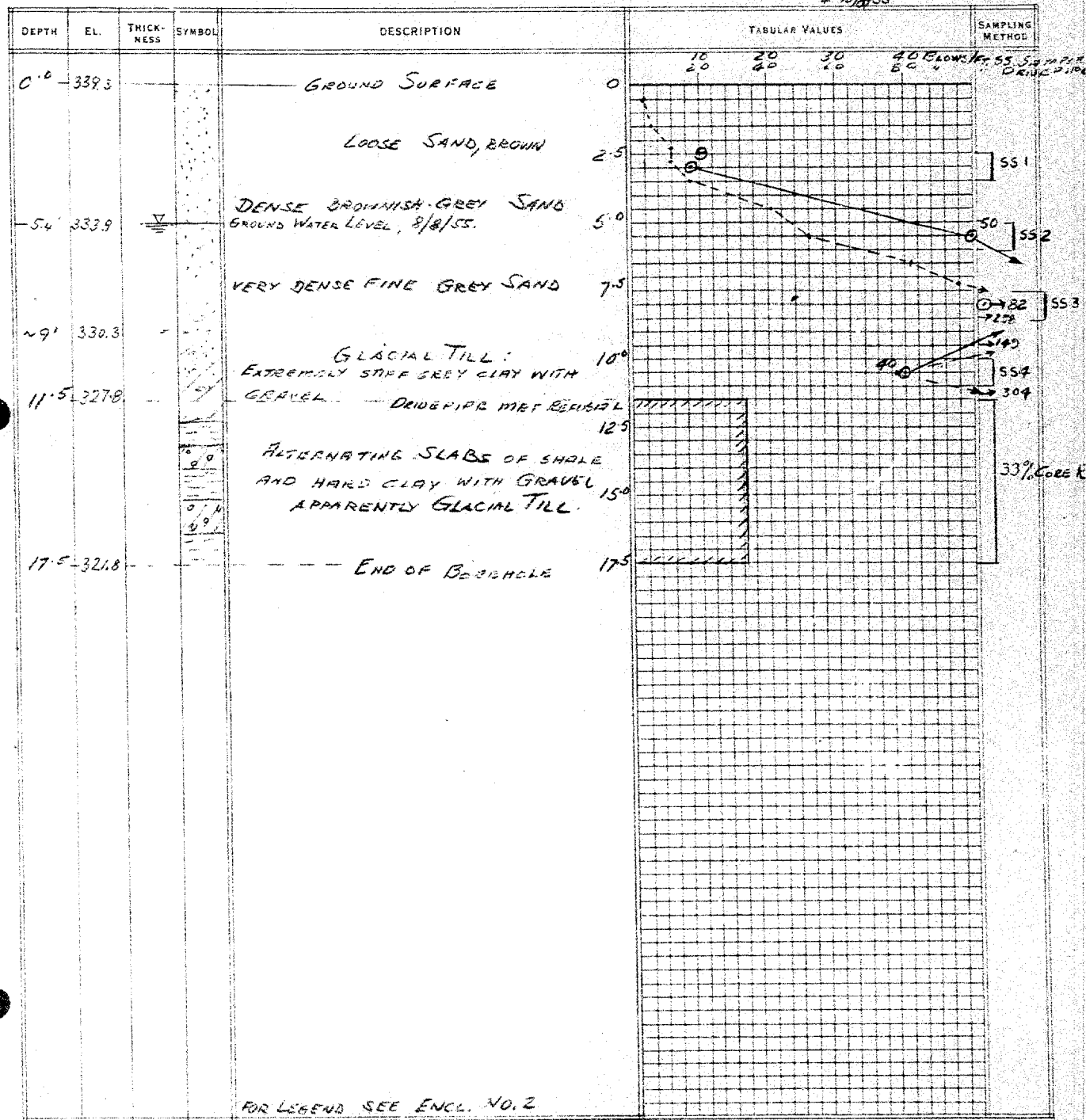
J. MARYKWA
DrillerHole Begun 16/7/55

Foundation Engineering, Division

S. SCOTT
HelperHole Ended 18/7/55Engineering Data Sheet for Borehole: 2Job Name: PROPOSED HWY. BRIDGE AT Q.E. HWY AND CANTHRA RD.C.O.

Job Located: _____

Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH PLANHole Elevation: 339.3 Datum: (M.S.L.)24/7/55
Day Month Year

Order No. S-500-574/57-30 RACEY, MACCALLUM AND ASSOCIATES

LIMITED

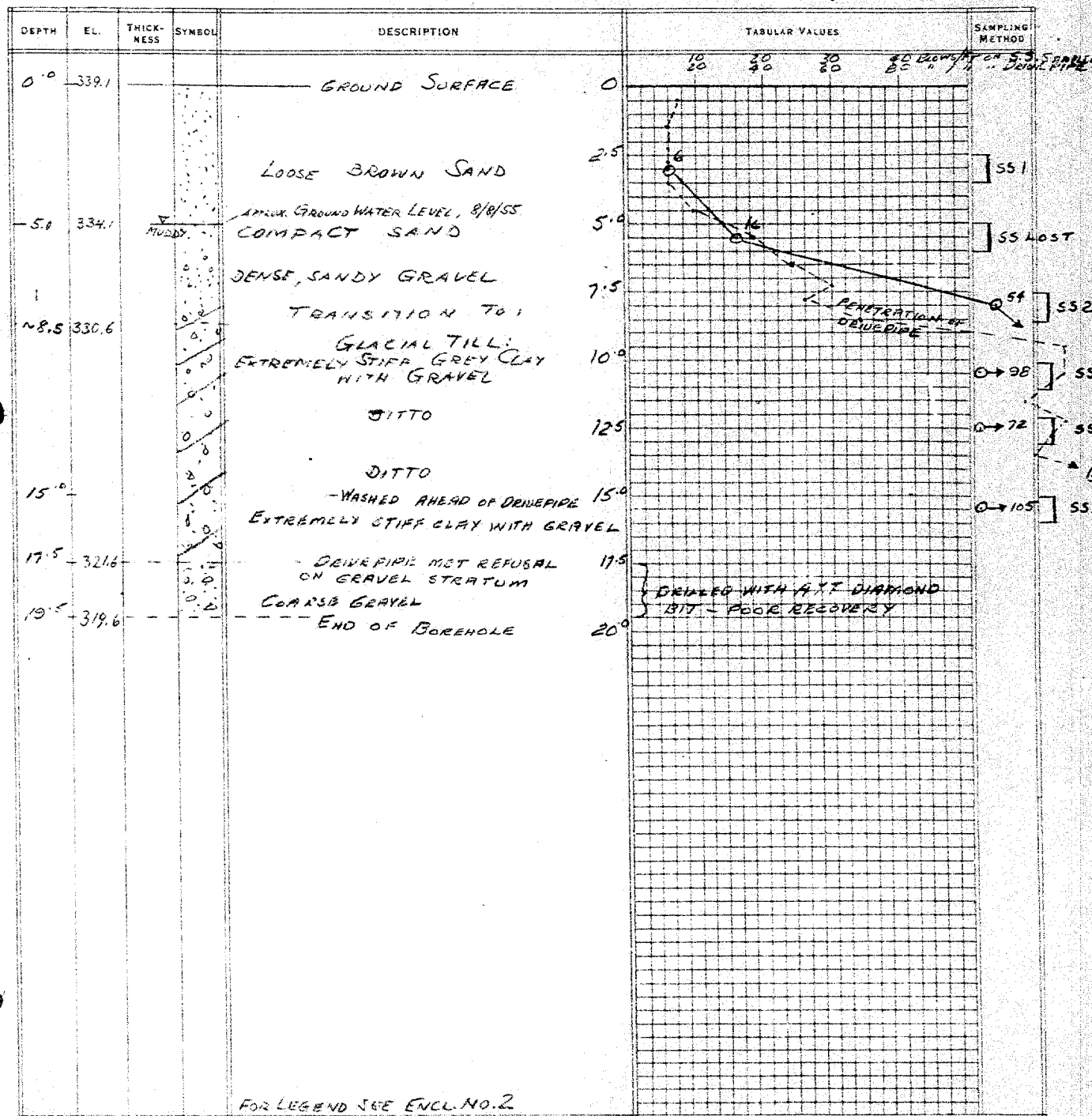
J. MARYKUGA
DrillerHole Begun 18/7/55

Foundation Engineering Division

Hole Ended 18/7/55Engineering Data Sheet for Borehole: 3S. SCOTT
HelperJob Name: PROPOSED HWY BRIDGE Q.E. HWY & CANTARA RDC.O.

Job Located: _____

Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH PLANHole Elevation: 339.1 Datum: (M.S.L.)Day 24/7/55 Month _____ Year _____

Order No.: S-500-50/55/T-130 RACEY, MacCALLUM AND ASSOCIATES
LIMITED

J. MARYKKA
Driller

Hole Begun 21/7/55 Foundation Engineering Division

Hole Ended 22/7/55 Engineering Data Sheet for Borehole: 4

S. S. COTT
Helper

Job Name: PROPOSED HWY BRIDGE AT Q.E. HWY & CANTHRA RD.

Job Located: _____

C.O.
Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH PLAN

Hole Elevation: 339.0 Datum: M.S.L.

Day 22/7/55 Month Year

