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55-F-208C

WEST ALDERSHOT

HIDDEN VALLEY

B A 442

RACEY, MacCALLUM AND ASSOCIATES
LIMITED

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A COMPANY OWNED, DIRECTED AND OPERATED BY

Consulting Engineers
AND ASSOCIATED STAFF



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THE E. B. ALLEN INSPECTION COMPANY

ISOTOPE PRODUCTS LIMITED,
RADIOGRAPHERS

IRVING P. KNICK, PH.D.,
METEOROLOGIST

JACQUES POULIN,
QUEBEC LAND SURVEYOR

THE VIBRATION ENGINEERING COMPANY

REPORT NO. S-500-505/55/T-93-1

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

July 19th, 1955.

Ontario Department of Highways,
c/o C. C. Parker and Associates Limited,
195 Main Street, West,
HAMILTON, Ontario.

Attention: Mr. D. C. Cramm

RE: FOUNDATION INVESTIGATION - HIGHWAY BRIDGE
WEST OF ALDERSHOT - CROSSING AT HIDDEN
VALLEY

Dear Sirs:

In accordance with your instructions, we have carried out the drilling of six (6) boreholes at the above site. We now wish to report on our findings as follows:

LOCATION OF THE SITE AND OF THE BOREHOLES (Enclosure No. 1)

The bridge site is located approximately one mile west of Aldershot in the Hidden Valley (Grindstone Creek) just west of the existing C.N.R. Railway Bridge.

The boreholes were located and numbered as shown on the accompanying reduced scale copy of the client's working plan (Enclosure No. 1). The spotting of the boreholes was done by the client's representative in the field and the determination of the elevations of the boreholes was carried out by our field engineer.

REPORT NO. S-500-505/55/T-93-1 Cont'dTHE DRILLING WORK

The drilling equipment was sent to the site on June 9th, 1955. Work commenced the same day on Borehole No. 1 and was completed on June 10th. Borehole No. 2 was started and completed on June 11th. Borehole No. 3 was started and completed on June 13th. Borehole No. 4 was carried out on June 13th and 14th. Borehole No. 5 was started and completed on June 14th. Borehole No. 6 was drilled on June 15th and the equipment subsequently removed from the site and returned to the warehouse in Toronto.

Drilling was performed with a standard diamond core drill, manufactured by Longyear. The soil was penetrated with a three-inch diameter extra-heavy duty drive pipe driven by a 300 lb. drive hammer dropped 24 inches. Due to the shallow depth of bedrock, only one sample was taken with the standard 2" split spoon sampler. When refusal was met on bedrock, core samples were taken by drilling with an AXT diamond bit. The water supply for Boreholes Nos. 1, 2 and 3 was by means of a water tank supply and for boreholes Nos. 4, 5 and 6 the water could be supplied directly from the Grindstone Creek.

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.

DISCUSSION OF THE RESULTS AND CONCLUSIONS

Only a thin layer of overburden is overlying bedrock at the subject site. It is a stiff red and in places grey-green silty clay. The thickness of this layer proved to be only 2.5 feet in all the boreholes except Borehole No. 1 where it amounted to 4.3 feet.

REPORT NO. S-500-505/55/T-93-1 Cont'd

DISCUSSION OF THE RESULTS AND CONCLUSIONS Cont'd

Bedrock was found to be a red slightly calcareous clay shale with green interbeds; bedding appeared to be close to the horizontal. It is a soft rock type with fissility along the bedding planes.

In spite of the relative softness of this rock, the bearing capacity is still far beyond the requirements for the proposed bridge structure. The 1953 Edition of the National Building Code of Canada shows an allowable bearing value of 10 tons per square foot for hard shale; for soft shale or hard glacial till, a bearing value of 5 tons per square foot is given. We feel that the rock properties lie between hard and soft shale, and the permissible bearing value, therefore, may be considered to lie within the cited values.

With regard to the shallow depth of bedrock, the foundation of the structure should rest on rock. To increase the resistance against lateral thrust, it will be advantageous to excavate about 2' or 3' into rock.

For the record, we wish to give the determined elevations of the surface of bedrock in the following table:-

Borehole No. 1 -	Surface of bedrock at	Elevation	307.7
" No. 2 -	" " " "	"	310.6
" No. 3 -	" " " "	"	306.5
" No. 4 -	" " " "	"	304.7
" No. 5 -	" " " "	"	306.5
" No. 6 -	" " " "	"	307.0

We trust that this information will be satisfactory and shall be pleased to consult further with you if you deem it advisable.

Yours very truly,

RACEY, MACCALLUM AND ASSOCIATES LTD.

K. Tubbesing
K. Tubbesing, P. Eng.

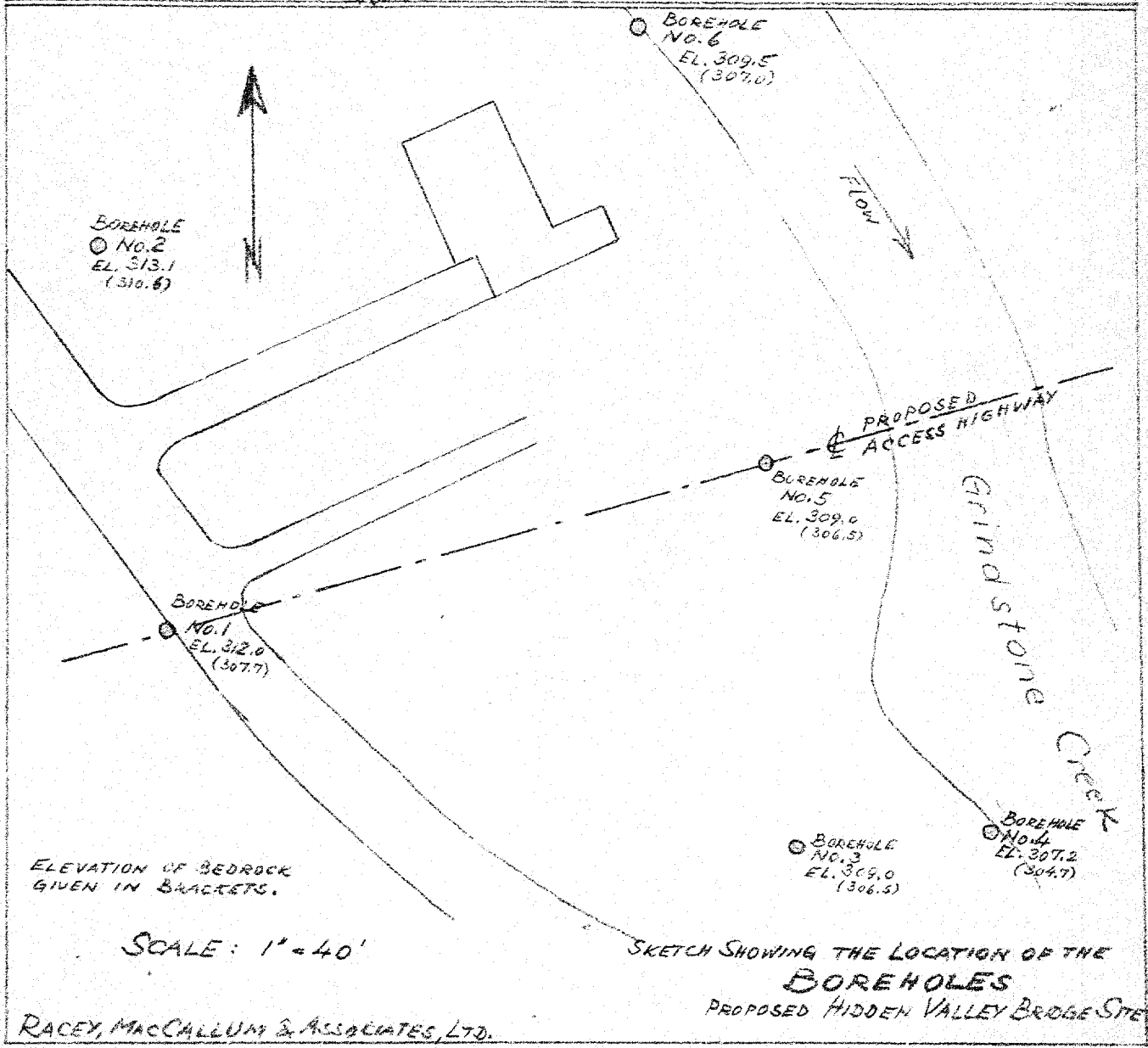
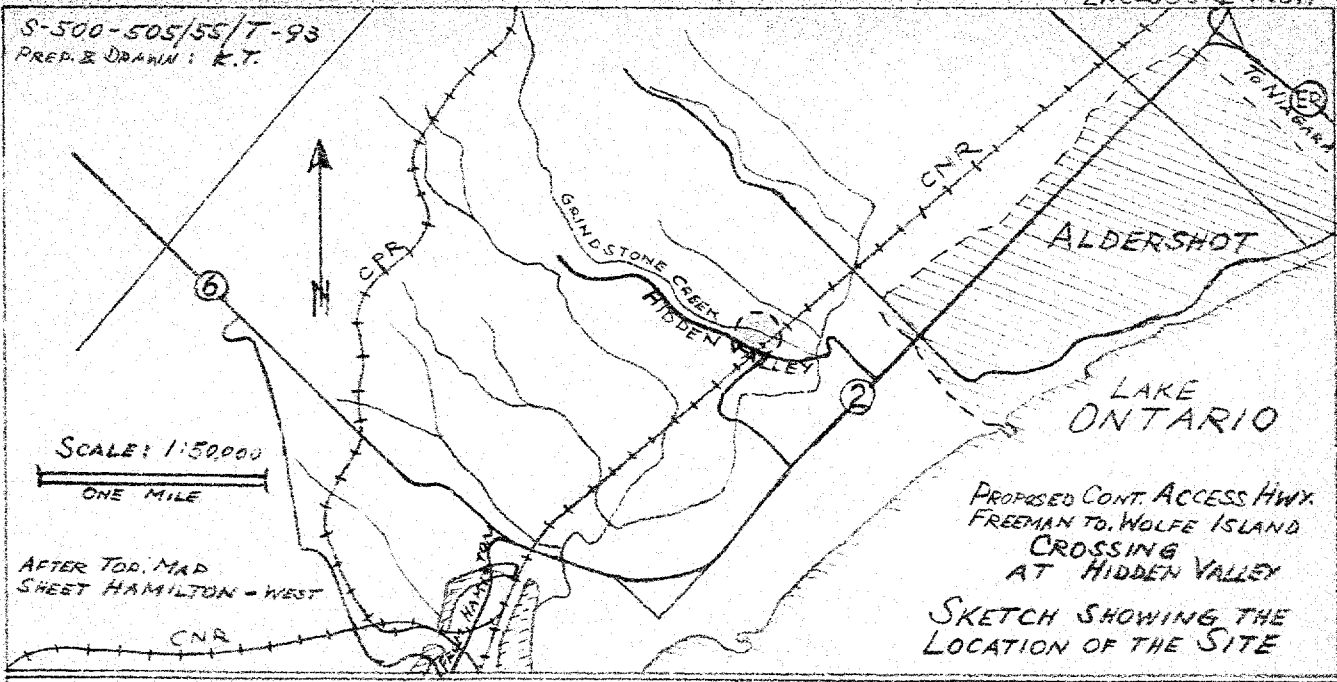
KT/PW

Original and
two copies

- C. C. Parker and Associates Ltd., Hamilton, Ontario,
Attention: Mr. D. C. Cramm

c.c.'s: 2 - Racey, MacCallum and Associates Ltd., Montreal, P. Q.
2 - Soils Engineer

S-500-505/55/T-93
PREP. & DRAWN: E.T.



Order No. 5-500-505/55/T-93 RACEY, MACCALLUM AND ASSOCIATES

LIMITED

M. CHEVRIER
Driller

Hole Begun 10/6/55

Foundation Engineering Division

Hole Ended 10/6/55

Engineering Data Sheet for Borehole: N^o 1

Helper

Job Name: HIDDEN VALLEY BRIDGE

P.E.M.M.

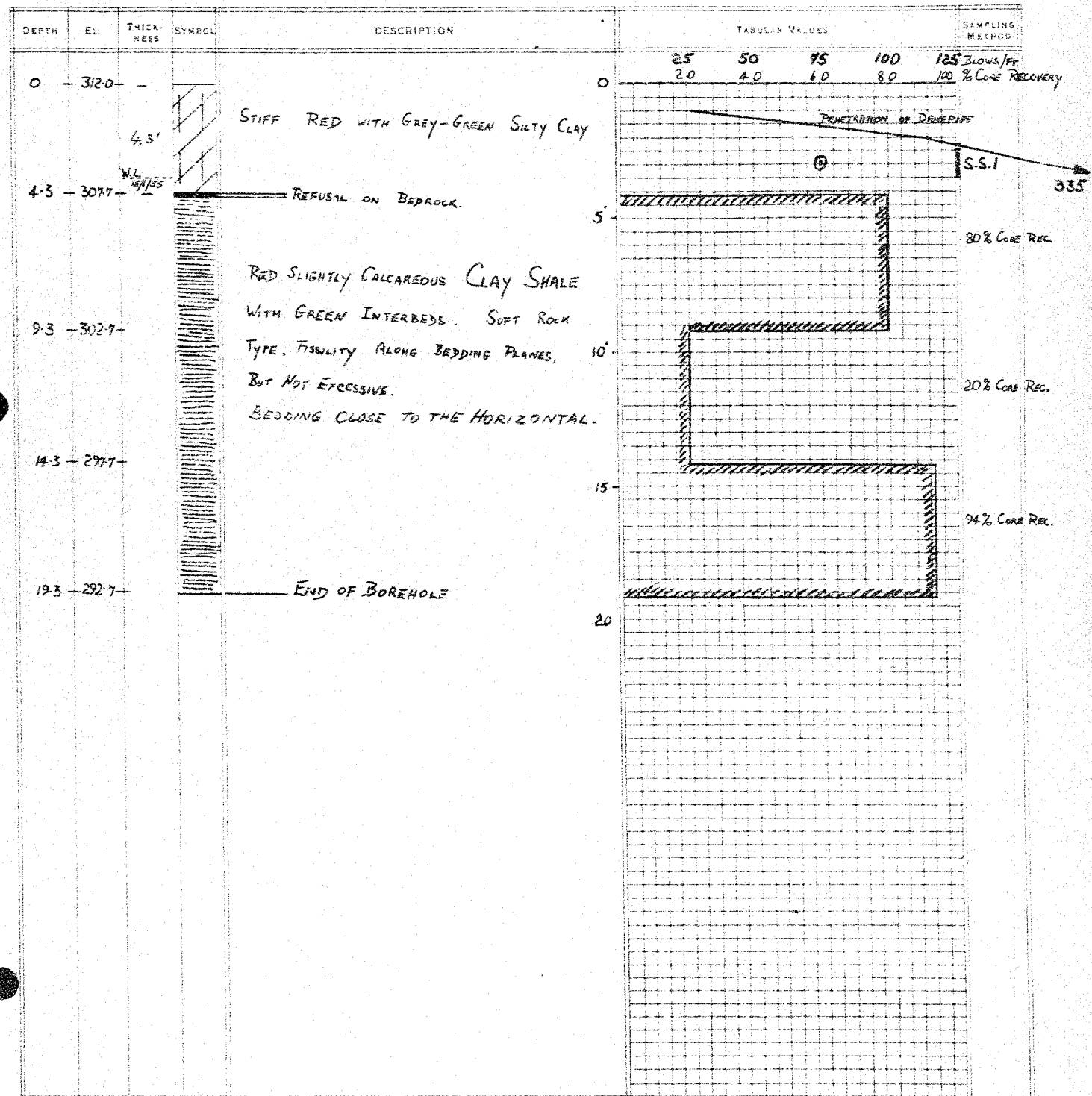
Job Located:

Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH PLAN.

Hole Elevation: 312.0 Datum:

11 Day 7 Month 55 Year



Order No.: 5502-505/55/T-93 RACEY, MacCALLUM AND ASSOCIATES
LIMITEDM. CHEVRIER
DrillerHole Begun 11/6/55

Foundation Engineering Division

Hole Ended 11/6/55Engineering Data Sheet for Borehole: N^o 2

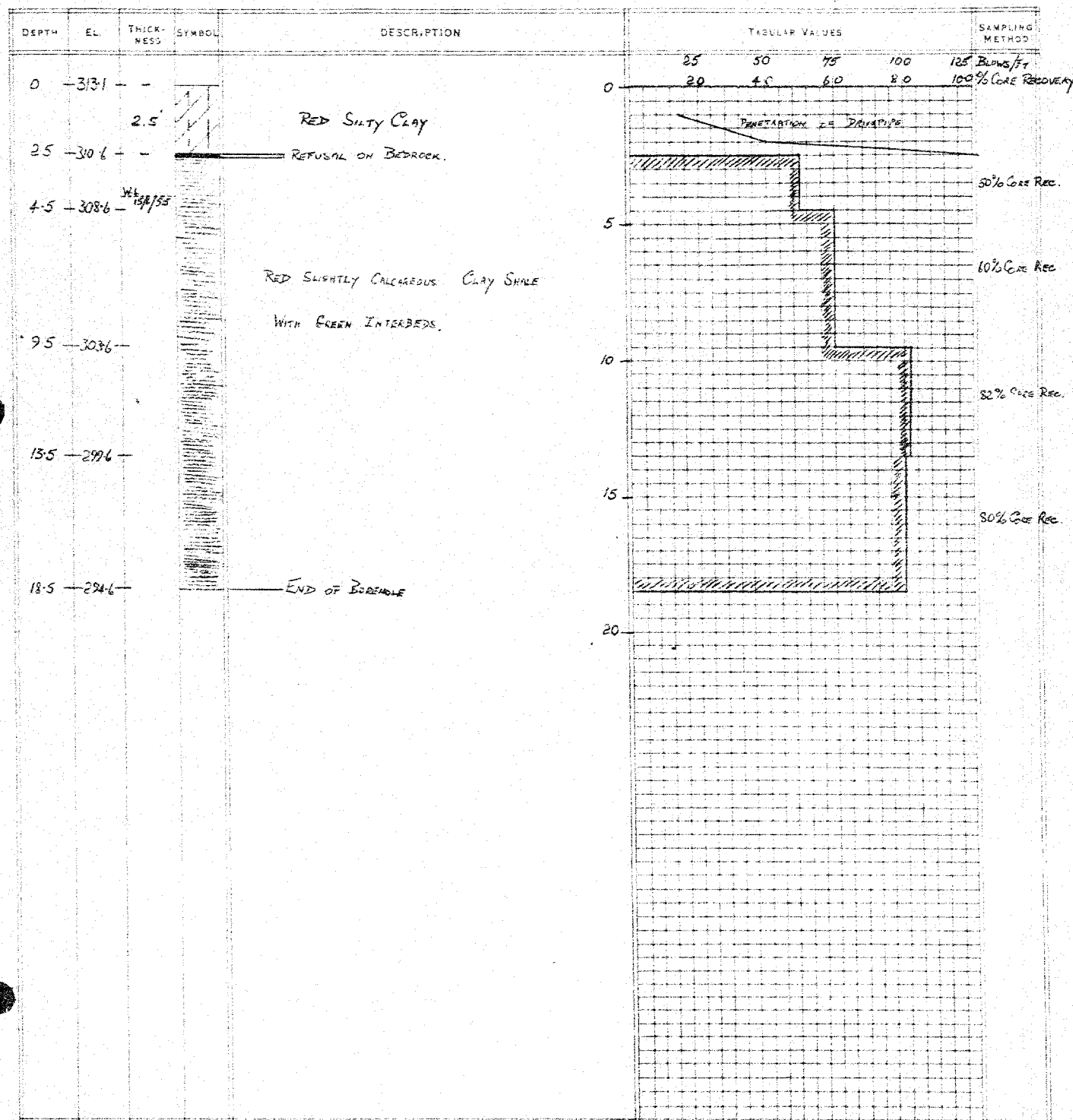
Helper

Job Name:

P.E.M.M.

Job Located:

Checked by

Hole Located: AS SHOWN ON ATTACHED SKETCH PLANHole Elevation: 313.1 Datum:11 7 55
Day Month Year

Order No. 5-500-503/55/T-93 RACEY, MACCALLUM AND ASSOCIATES
LIMITEDM. CHEVRIER
DrillerHole Begun 13/6/55

Foundation Engineering Division

Hole Ended 13/6/55Engineering Data Sheet for Borehole: 1123

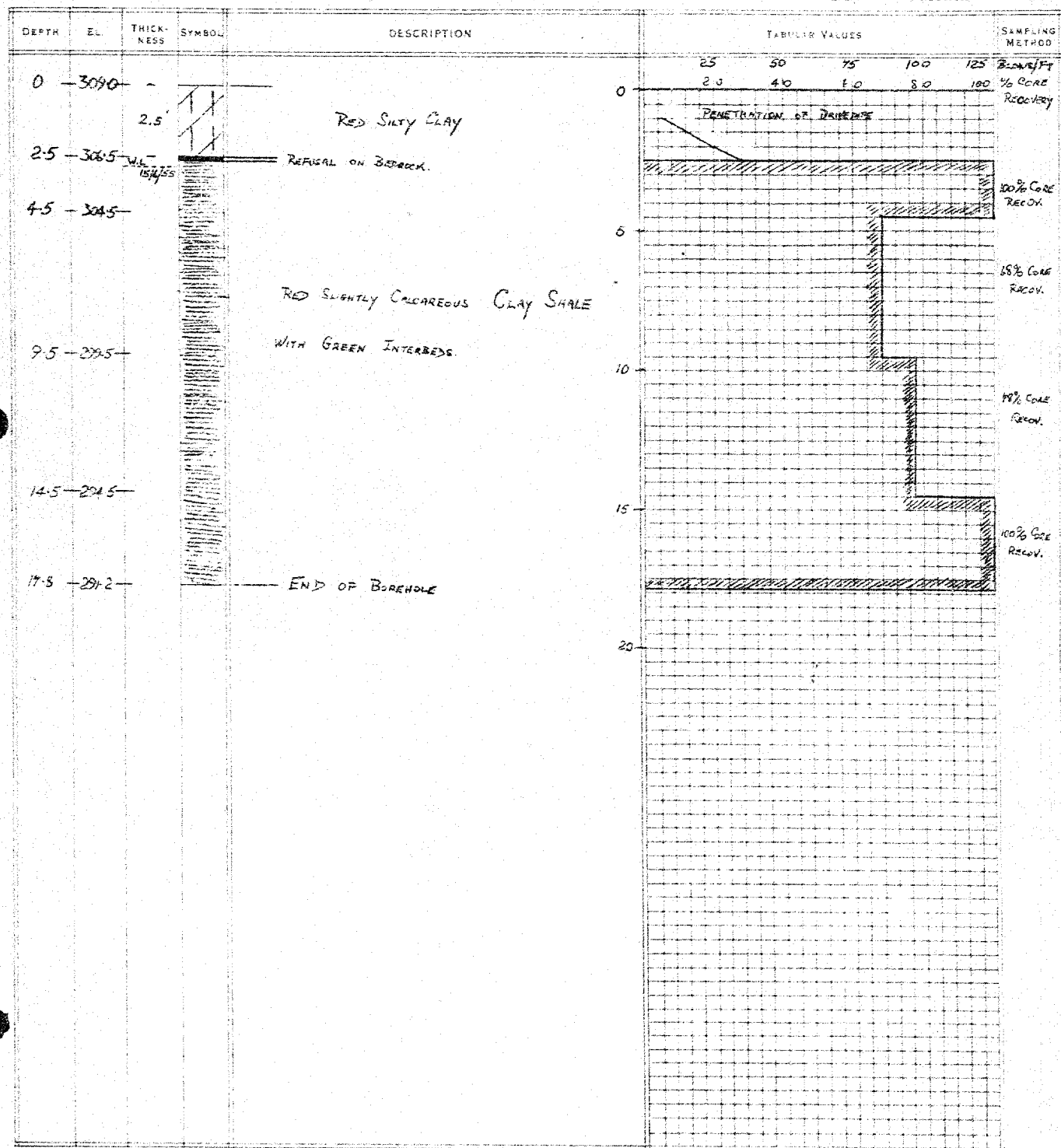
Helper

Job Name:

P.E.M.M.

Job Located:

Checked by

Hole Located: As shown on attached sketch plan.Hole Elevation: 302.0 Datum:11 7 55
Day Month Year

Order No. S-500-505/5/T-93 RACEY, MacCALLUM AND ASSOCIATES
LIMITEDM. CHEVRIER
DrillerHole Begun 13/4/55

Foundation Engineering Division

Hole Ended 14/4/55Engineering Data Sheet for Borehole: N^o 4

Helper

Job Name:

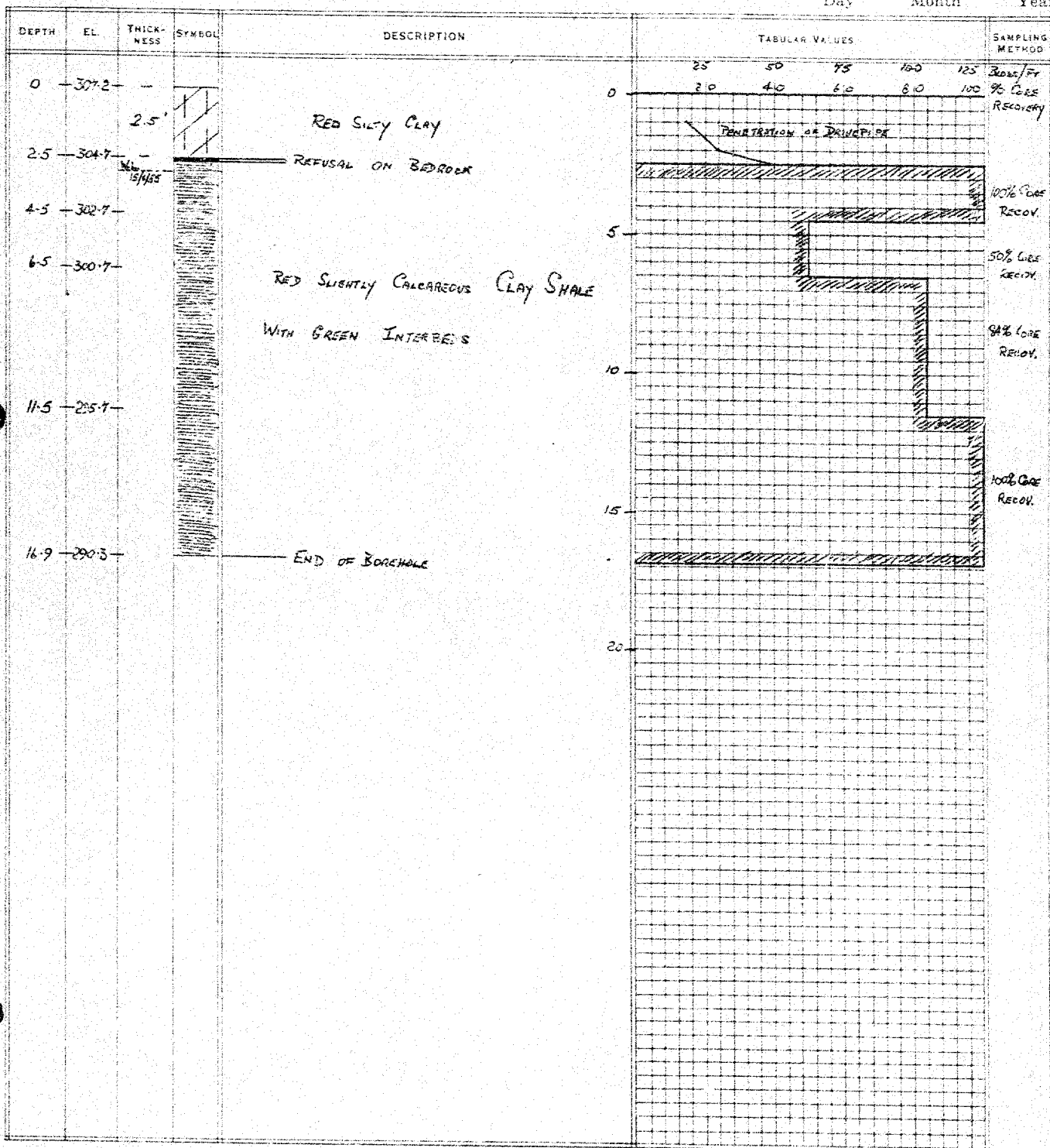
P.E.M.M.

Job Located:

Checked by

Hole Located: As shown on attached sketch planHole Elevation: 307.2 Datum:

11 Day 7 Month 55 Year



Order No. 5-506-SU/55/T-93 RACEY, MACCALLUM AND ASSOCIATES

LIMITED

M. CHEVRIER
DrillerHole Begun 14/1/55

Foundation Engineering Division

Hole Ended 14/1/55Engineering Data Sheet for Borehole: N° 5

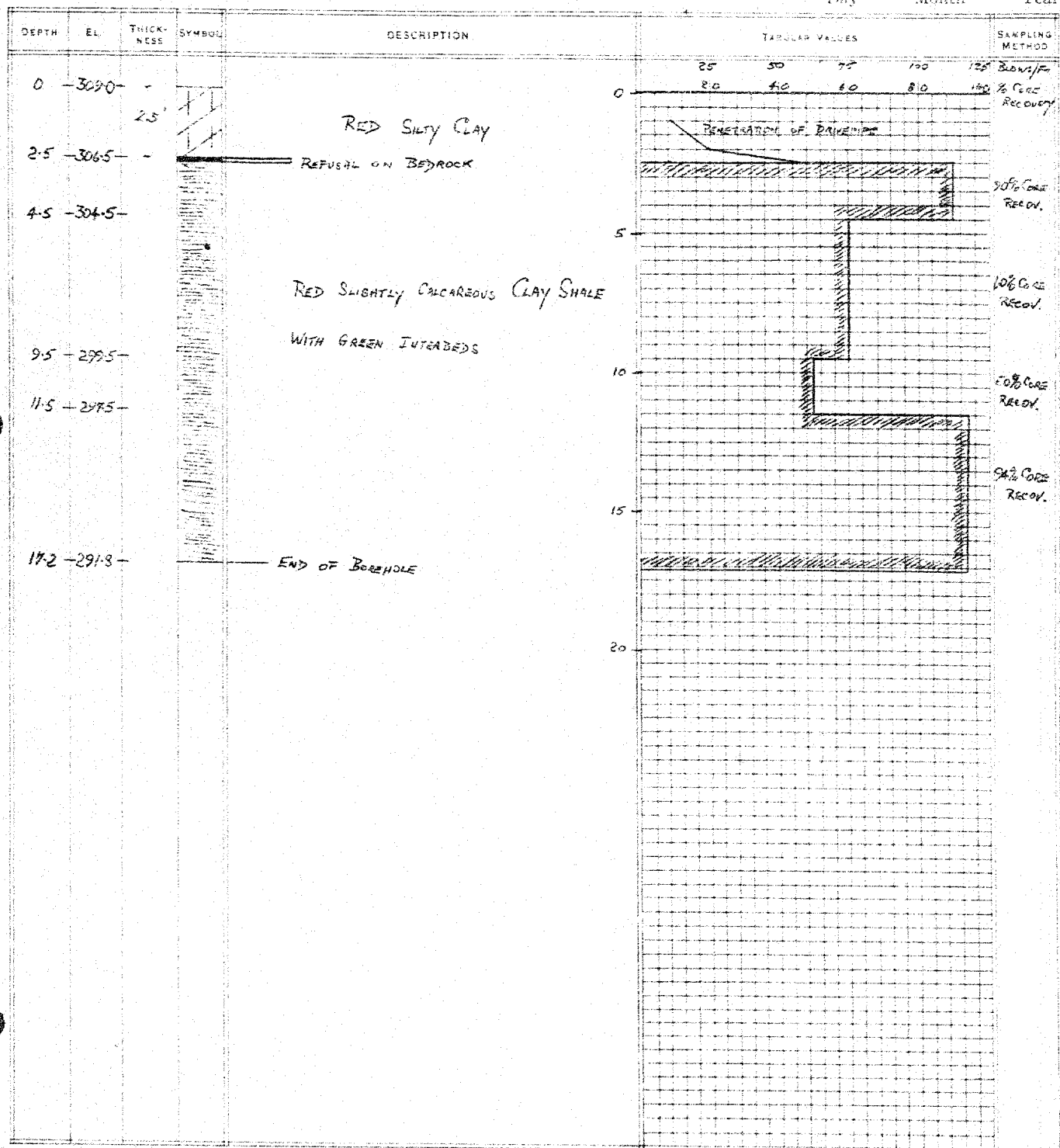
Helper

Job Name:

P.E.M.M.

Job Located:

Checked by

Hole Located: As shown on attached sketch planHole Elevation: 302.0 Datum:12
Day7
Month55
Year

Order No.: S-500-S05/55/T-93 RACEY, MACCALLUM AND ASSOCIATES
LIMITEDM. C. NEYRER
DrillerHole Begun 12/6/55

Foundation Engineering Division

Hole Ended 15/6/55Engineering Data Sheet for Borehole: NB 6

Helper

Job Name:

Job Located:

Hole Located: As shown on attached sketch planHole Elevation: 309.5 Datum:P.E.M.M.
Checked by

12 Day 7 Month 55 Year

DEPTH	EL.	THICK- NESS	SYMBOL	DESCRIPTION	TABULAR VALUES	SAMPLING METHOD
0	309.5	-			25 50 75 100 125 150 175 200	17.5' BRAND/FI 100% CORE RECOVERED
2.5	307.0	2.5		RED Silty Clay	20 40 60 80 100 120 140 160 180 200	
4.5	305.0	-		REFUSAL OF BED ROCK		42% CORE RECOV.
9.5	300.0	-		RED SLIGHTLY CALCAREOUS CLAY SHALE WITH GREEN INTERBEDS		16% CORE RECOV.
14.5	295.0	-		END OF BOREHOLE		40% CORE RECOV.