

ATT-64/96, MUSKEG TESTING, BEARING VALUE

1.0 SCOPE

This method describes the procedures for determining the depth and bearing value of muskegs with a muskeg bearing probe.

2.0 EQUIPMENT

probe indicator with pressure gauge	
calibration chart (for pressure gauge of hydraulic probe)	
carrying box	T-handle
15 rod extensions (0.914 m lengths)	2 probe ends
block and tackle	2 seats
tripod and extensions	2 pipe wrenches

Data Sheet: Muskeg Probe Data (MAT 6-21)

3.0 PROCEDURE

Bearing probes are used to determine the extent and depth of muskegs encountered within the alignment of soil surveys.

3.1 Equipment Assembly

Assemble the bearing probe as follows:

1. Screw two extensions together to form a rod length of 1.83 m.
2. Screw a cone shaped probe end onto one end of the rod and a seat on the other.
3. Hand tighten each fitting.

3.2 Determination of Bearing Value

1. Force the assembled rod, probe end down, vertically into the ground by hand, far enough so that it stands by itself.
2. Position the probe indicator, as shown in Figure 1, on the seat so that the ball bearing fits into the recess.

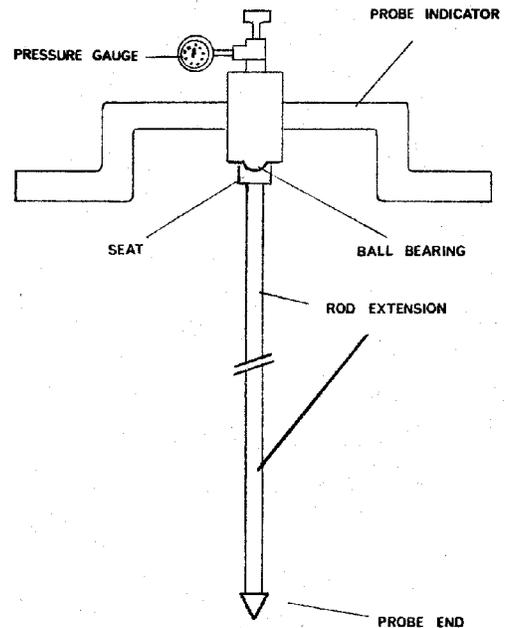


Figure 1

3. Keep the indicator vertical and force the probe down into the soil.
4. Take a dial reading at 0.5 m intervals and record the value in the Muskeg Probe Data sheet (MAT 6-21) as shown in Figure 2.

DEPTH	DIAL READING	(A) CALIBRATION CHART RESISTANCE	(B) CORRECTION FACTOR FOR LENGTH OF ROD	(C) RESISTANCE TO PENETRATION (A + B) N
0 - 0.5 m	22	170	9	179
0.5 - 1.0 m	18	130	18	148
1.0 - 1.5 m	44	350	18	368
1.5 - 2.0 m	65	530	26	556
2.0 - 2.5 m	76	620	26	646
2.5 - 3.0 m	98	790	34	824
3.0 - 3.5 m			34	
3.5 - 4.0 m			43	
4.0 - 4.5 m			43	
4.5 - 5.0 m			52	
5.0 - 5.5 m			60	
5.5 - 6.0 m			60	
6.0 - 6.5 m			68	
6.5 - 7.0 m			68	
7.0 - 7.5 m			77	
7.5 - 10.0 m				

NOTE KEEP ONE CALIBRATION CHART WITH PROJECT'S TEST DATA

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MATERIALS TECHNOLOGIST R. JAMES**Figure 2**

5. Plot the hydraulic probe gauge reading on the vertical scale of the calibration chart as shown in Figure 3. Pick off the horizontal scale of the chart the Resistance to Penetration in Newtons. For the spring type probe, the reading in pounds (or Newtons) is taken directly from the gauge.

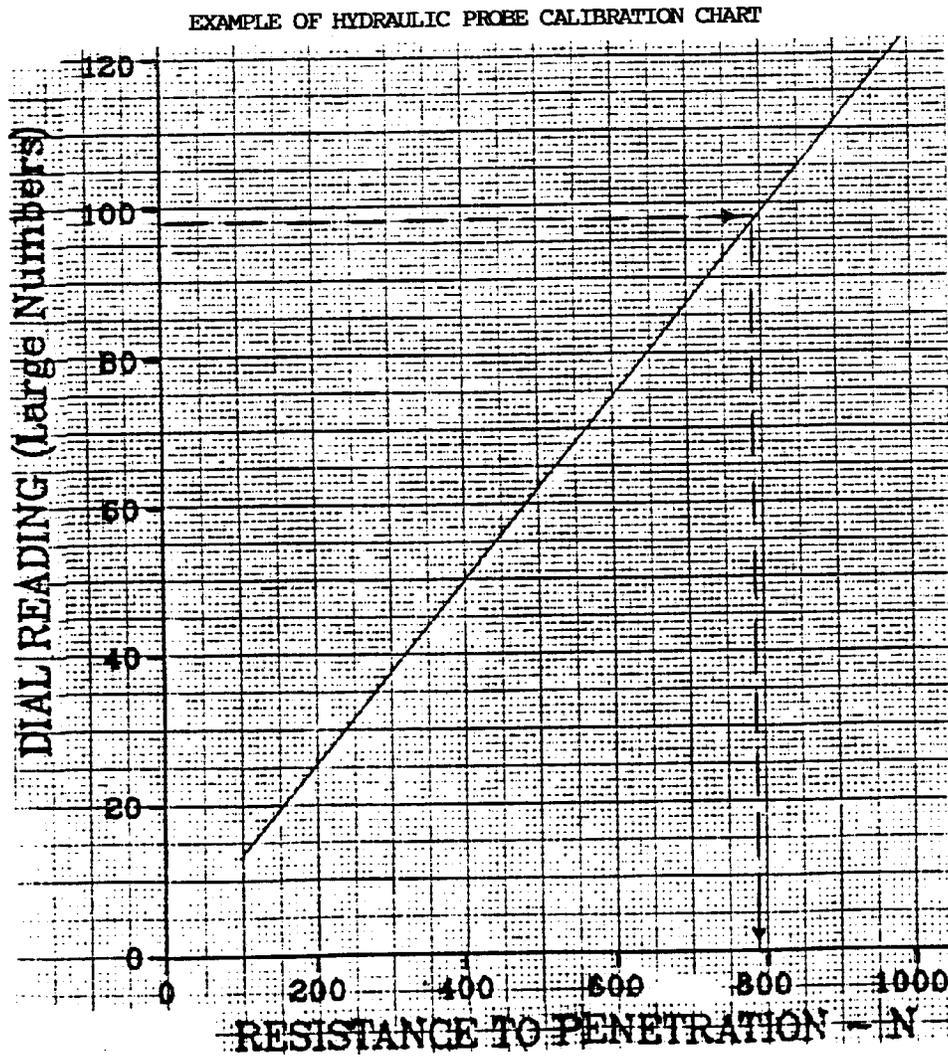


Figure 3

6. Record the chart reading as Calibration Chart Resistance in Column "A" of the data sheet.
7. A correction factor must be applied to the resistance taken from the chart to compensate for the weight of rod added to the probe. Calculate the corrected Resistance to Penetration in Newtons (column "C") using the formula:

$$= \text{Chart Resistance}(\text{column "A"}) + \text{Correction Factor for Length of Rod}(\text{column "B"})$$

8. Add extensions by removing the probe indicator, unscrewing the seat, screwing on as many extensions as required, and reassembling the seat and the indicator. Hand tighten each new fitting.

Be careful when adding extensions in soft soils as the probe rod may sink by itself before the next extension is assembled.

9. Continue probing until a value of 700 Newtons is reached.
10. Remove the probe indicator and unscrew the seat.
11. Screw the T-handle onto the end of the rod and pull the probe out of the ground disassembling the equipment as it is removed.
12. If it is difficult to retrieve the rods, set up the block and tackle and the tripod to pull the equipment out of the soil.

4.0 Hints and Precautions

1. During the preliminary survey of a muskeg, muskeg samples may be obtained with a sampling probe for visual description and identification.
2. The bearing probe must be maintained as described in the equipment section E40.
3. After each test site, check the probe end to ensure that it is tightly screwed on.