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ACCREDITED FOR
TECHNICAL
COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing

For All Civil Testing
Servicing South East Queensland

TEST REPORT

CQA Laboratory Accredited for compliance with ISO/IEC 17025 - testing

Determination of thermal conductivity of soil and soft rock(thermal needle method)ASTM D5334

Project: **Quality Testing on Sand**

Requested By: **O/N**

Date Tested: **15-9-2020**

Client: **Tharwa Sand**

Report No. **733**

Laboratory Test Procedure:

ASTM D5334 (Determination of thermal conductivity of soil and soft rock by thermal needle probe procedure) AS1289 2.1.1 Soil moisture content test-determination of the moisture content of a soil-oven drying method(standard method), AS1289 5.1.1 (Soil compaction and density tests-determination of the dry density/moisture content relation of a soil using standard compactive effort),

Sample method:

By Client/ results applies to the sample received/(abnormalities may contribute to the report being compromised)

Sample Description:

Tube/reconstituted

Sample No:

N/A

Specification Requirements (mK/W):
(Resistivity)

1.2

Probe Number:

00318

Maximum Degree of Uncertainty:

Three standard deviations

Average Diameter (nearest 0.01mm):

100.00

Average Length (nearest 0.01mm):

200.00

Needle insertion (pushed or pre drilled):

Guide tube

Length of test time (s)(nearest 0.1sec):

300.00

If rock does it have the following and where:

N/A

Sample Preparation by:

C. Templeton

Laboratory Number:	733.1	733.1	733.1	733.1
Sample Location:	Unknown			
Measurement Depth below Surface(mm):	Unknown			
Soil Description:	Silty SAND, medium grained, brown, moist (SM)			
Calibration Factor (TR known/TR measured):	1.00	1.00	1.00	1.00
Date Tested:	15-9-20	16-9-20	18-9-20	19-9-20
Mass of dry specimen nearest 0.01g	2971.14	2971.14	2971.14	2971.14
Placement Moisture Content (%) (nearest 0.1)	13.6	10.5	4.1	0.0
Field Dry Density (t/m3)(if applicable)(nearest 0.01):	n/a	n/a	n/a	n/a
Laboratory Tested Dry Density (t/m3)(nearest 0.1):	1.9	1.9	1.9	1.9
Maximum Dry Density (t/m3) (nearest 0.1)	1.9	1.9	1.9	1.9
Density Ratio (%)	100	100	100	100
Initial Temperature (nearest 0.01 degrees)	19.1	18.6	18.8	19.3
Optimum Moisture Content (%):	13.6	10.5	4.1	0.0
Thermal Conductivity (W/mK)(nearest 0.01):	2.23	1.88	1.17	0.81
Standard Deviation	0.03	0.01	0.00	0.01
Thermal Resistivity (mK/W) (nearest 0.01):	0.45	0.53	0.85	1.23

Tests and sampling results relate only to the items tested or sampled. results applies to the sample received/(abnormalities may contribute to the report being compromised) Reports shall not be reproduced except in full

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NATA accredited facility number: 20084

6 Mill Lane Nambour

ABN 21 613397934

CQA Laboratory

Form R25 December 2019

Approved Person:

Date Reported:

C. Templeton

20-9-2020