Issue date: 04 September 2024
Valid until: 03 August 2029

NO: SAMM 728

LABORATORY LOCATION:
(PERMANENT LABORATORY)

SOILPRO TECHNICAL SERVICES SDN. BHD.
NO. 16, JALAN TIB 1/17
TAMAN INDUSTRI BOLTON
68100 BATU CAVES, SELANGOR
MALAYSIA

FIELD OF TESTING: **MECHANICAL**

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

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SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils	Determination of moisture content	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 3 MS 1056:2013, Part 2, Clause 4 BS EN ISO 17892-1:2014 ASTM D2216-19
	Determination of density	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 7.2 MS 1056:2013, Part 2, Clause 8.2 BS EN ISO 17892-2:2014, Clause 5.1 ASTM D7263-21
	Determination of particle density	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 8.3 MS 1056:2013, Part 2, Clause 9.3 BS EN ISO 17892-3:2015, Clause 5.1 ASTM D854-23

SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of dry density/ moisture content relationship	BS 1377:2016, Part 1 BS 1377:1990, Part 4, Clause 3 MS 1056:2013, Part 4, Clause 4 BS 1377:2022, Part 2, Clause 11 ASTM D698-12(21) ASTM D1557-12(21)
	Determination of shear strength by direct shear	BS 1377:2016, Part 1 BS 1377:1990, Part 7, Clause 4 MS 1056:2013, Part 7, Clause 5 BS EN ISO 17892-10:2018 ASTM D3080/ D3080M-23
	Consolidated-undrained triaxial compression test (or with multistage loading) and with measurement of pore pressure	BS 1377:2016, Part 1 BS 1377:1990, Part 8, Clause 1-7 MS 1056:2013, Part 8, Clause 1-9 BS EN ISO 17892-9:2018, Clause 6.7.2 (CIU) ASTM D4767-11(20) KH Head Vol. 3, Section 18 and 19.2
	Consolidated-drained triaxial compression test (or with multistage loading) and with measurement of volume change	BS 1377:2016, Part 1 BS 1377:1990, Part 8, Clause 1-6, 8 MS 1056:2013, Part 8, Clause 1-8, 10 BS EN ISO 17892-9:2018, Clause 6.7.3 (CID) ASTM D7181-20 KH Head Vol. 3, Section 18 and 19.2
	Determination of the undrained shear strength in triaxial compression (or with multistage loading) and without measurement of pore pressure	BS 1377:2016, Part 1 BS 1377:1990, Part 7, Clause 8 & 9 MS 1056:2013, Part 7, Clause 9 & 10 BS EN ISO 17892-8:2018 ASTM D2850-23

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SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of permeability in triaxial cell	BS 1377:2016, Part 1 BS 1377:1990, Part 6, Clause 6 MS 1056:2013, Part 6, Clause 7 BS EN ISO 17892-11:2019, Clause 6.2.3 ASTM D5084-16a
	Determination of the unconfined compressive strength	BS 1377:2016, Part 1 BS 1377:1990, Part 7, Clause 7.2 MS 1056:2013, Part 7, Clause 8.2 BS EN ISO 17892-7:2018 ASTM D2166/ D2166M-16
	Determination of the one-dimensional consolidation properties	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 3 MS 1056:2013, Part 5, Clause 4 BS EN ISO 17892-5:2017 ASTM D2435/ 2435M-11(20)
	Determination of swelling and collapse characteristics	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 4 MS 1056:2013, Part 5, Clause 5 BS 1377:2022, Part 2, Clause 17 ASTM D4546-21
	Determination of the California Bearing Ratio (CBR)	BS 1377:2016, Part 1 BS 1377:1990, Part 4, Clause 7 MS 1056:2013, Part 4, Clause 8 BS 1377:2022, Part 2, Clause 15
	Determination of liquid limit	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 4 MS 1056:2013, Part 2, Clause 5 BS EN ISO 17892-12:2018 ASTM D4318-17

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SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of plastic limit and plasticity index	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 5 MS 1056:2013, Part 2, Clause 6 BS EN ISO 17892-12:2018 ASTM D4318-17
	Linear shrinkage	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 6.5 MS 1056:2013, Part 2, Clause 7.5 BS1377:2022, Part 2, Clause 7
	Determination of particle size distribution: wet sieving, dry sieving and sedimentation by hydrometer method	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 9.2, 9.3, 9.5 MS 1056:2013, Part 2, Clause 10.2, 10.3, 10.5 BS EN ISO 17892-4:2016, Clause 5.2, 5.3 ASTM D6913/ D6913M-17 ASTM D7928-21
	Determination of particle density- gas jar method	BS 1377:2016, Part 1 BS 1377:1990, Part 2, Clause 8.2 MS 1056:2013, Part 2, Clause 9.2 BS 1377:2022, Part 2, Clause 9.2
	Determination of permeability by the constant-head method	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 5 MS 1056:2013, Part 5, Clause 6 BS EN ISO 17892-11:2019, Clause 6.2.2 ASTM D2434-22

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soils (continued)	Determination of dispersibility-pinhole method	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 6.2 MS 1056:2013, Part 5, Clause 7.2 BS 1377:2022, Part 2, Clause 18.1
	Determination of dispersibility-crumb method	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 6.3 MS 1056:2013, Part 5, Clause 7.3 BS 1377:2022, Part 2, Clause 18.2
	Determination of dispersibility-dispersion method (hydrometer)	BS 1377:2016, Part 1 BS 1377:1990, Part 5, Clause 6.4 MS 1056:2013, Part 5, Clause 7.4 BS 1377:2022, Part 2, Clause 18.3
	Measurement of resistivity: Wenner probe method	ASTM G57-20
	Determination of Emerson class number of a soil	AS 1289.3.8.1, 2017

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Rocks	Unconfined compressive strength of intact rock core specimens	ASTM D7012-23, Method C
	Elastic moduli of intact rock core specimens in uniaxial compression	ASTM D7012-23, Method D
	Determination of the point load strength index of rock	AS 4133.4.1-2007 ASTM D5731-16
Aggregates	Determination of particle size distribution: sieving method	BS EN 933-1:2012

Signatories:

1. **Dr. Wong Kim Yuen**
2. **Dr. Wong Soon Yee**

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