

**ENGINEERING CHARACTERISATION OF WEATHERED
GRANITE - PHASE 1**



**BIRO PENYELIDIKAN DAN PERUNDINGAN
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR
MALAYSIA**

**DISEDIAKAN OLEH
PROF. MADYA IR ZAINAB MOHAMED**

AUGUST 2001

PENGHARGAAN

Penyelidik ingin merakamkan setinggi penghargaan dan ucapan ribuan terima kasih kepada Fakulti Kejuruteraan Awam,UiTM dan Jabatan Geologi,UKM atas kebenaran menggunakan makmal-makmal bagi tujuan penyelidikan.

Sekalung penghargaan dan terima kasih juga ditujukan kepada En.Kamaruddin, Nazroel,Lily,Wan Norlis, Suzana,Burhanuddin,Khairul Nizam dan Md Nizam atas pertolongan mereka membantu menjalankan ujian-ujian makmal . Tidak ketinggalan kepada semua yang telah membantu secara langsung atau tidak langsung sehingga membolehkan penyelidikan ini disiapkan dengan jayanya.

Ucapan terima kasih kepada Biro Penyelidikan dan Perundingan,Universiti Teknologi MARA kerana membaiayai kos penyelidikan ini.

Prof.Madya Ir Zainab Mohamed

TABLE OF CONTENT

Abstract

	page
1.0 INTRODUCTION	1
2.0 LITERATURE REVIEW	8
3.0 GEOLOGICAL DESCRIPTIONS OF GRANITE	10
4.0 LABORATORY WORKS	16
5.0 DATA ANALYSIS AND DISCUSSION	18
5.1 Physical properties	18
5.1.1 Colour	18
5.1.2 Density and Porosity	19
5.1.3 Mineralogy	21
5.1.4 Chemical test	22
5.1.5 Jar slake	22
5.2 Engineering properties	23
5.2.1 Schmidt Rebound hardness	23
5.2.2 Durability index	25
5.2.3.1 Slake durability index	25
5.2.3.2 L.A abrasion test	26
5.2.3 Point load index	27
5.2.4 Uniaxial compressive strength	29
5.2.5 Stress-strain profile	30
5.2.6 Residual soil	32

6.0	CONCLUSION	33
7.0	REFERENCES	33
List of Tables		
List of Figures		
Appendix A	:	Petrographic description of weathered rock
Appendix B	:	Laboratory result of weathered rock
Appendix C	:	Laboratory result of residual soil

Abstract

The continuous tropical weathering effects on the granite rocks' physical and mechanical decomposition and deterioration as compared to its fresh state is very obvious and significant from the research study conducted. The laboratory study on the engineering properties of weathered granite had showed a significant decrease in its relative strength and durability. The factors and causes of relative increase and decrease in its properties was discussed in the report. The stress-strain profiles of weathered granite differ very much from its intact fresh sample. However, the engineering characterisation index from phase I scope of study need to be further looks indepth by carrying out more sampling and testing so as the probability of overlapping data tabulated can be further investigated.