



**GEOTECHNICAL ENGINEERING
ENGINEERING SURVEY
SPECIALIST GEOTECHNICAL CONTRACTORS
CONSTRUCTION MATERIALS TESTING FACILITY**

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To: Rockcrete Equipment	To: e-mail
Attention: Chris Buitendag	Time: 2 39 pm
From: Mervin Goslin	Date: 19 June 2017
Ref: <i>Y:\Projects 2017\Rockcrete\Rockseal Report.wpd</i>	
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PROJECT: Rockseal Trials

Further to the completion of the laboratory test work, we comment as follows:-

1 Preamble

Geopractica had been requested to undertake quality control testing on a Polymer type sealant which was to be applied to four Kimberlite samples originating from the Cullinan Diamond Mine.

The project was initiated to determine the sealant's characteristics with regards to it's bond strength and anti-weathering capabilities.

2 Scope of Work

Four samples sealed in plastic bags and individually marked were received namely:-

- | | | |
|---|---|------------------|
| 1 | - | Grey Kimberlite |
| 2 | - | Brown Kimberlite |
| 3 | - | Pale Piebald |
| 4 | - | Dark Piebald |

Each of the afore-mentioned samples were subjected to the following:-

- the sample was cleaned, weighed and completely coated with the sealant.
- after allowing the coat to air dry the samples were weighed again
- the sample was submerged in potable water for a 48 hour period

- after the 48 hour period the sample was dried and weighed again to determine any increase in mass due to water absorption
- a 50 mm diameter core was drilled through the coating and approximately 5mm deep into the substrate
- a 50 mm diameter metal dolly was glued onto the surface of the core and allowed to cure for 12 hours
- the dolly was subjected to a bond strength test ie. a pull-off test

3 Laboratory Testing

A summary of the results obtained are tabulated in table 1 below:-

Table 1					
Sample Desc.	Sample Masses			Bond Strength	Failure Description
	Pre - coat	Post - coat	> 48 Hrs		
	(kg)	(kg)	(kg)	(MPa)	
Grey Kimberlite	14.99	15.09	15.09	1.25 / 1.25	Between sample & sealant
Brown Kimberlite	21.36	21.51	21.51	1.0 / 1.25	Between sample & sealant
Pale Piebald	6.02	6.06	6.06	1.0	Between dolly & sealant
Dark Piebald	2.05	2.07	2.07	2.0	Between dolly & sealant

Refer to appendix 1 for photographs of the coated samples pre and post testing.

4 Communications

Please do not hesitate to contact the writer should you have any queries

Yours faithfully

For:- **Geopractica (Pty) Ltd**



Mervin Goslin

Appendix 1



Grey Kimberlite



Brown Kimberlite

Appendix 1



Pale Piebald



Dark Piebald