SGS MATROLAB (PTY) LTD
- CIVIL ENGINEERING SERVICES -
Reg.No.: 2003/029180/07 - VAT. Reg.No.: 4040210587

60 Columbine Place, Glen Anil, Durban, 4051
60 Columbine Place, Glen Anil, Durban, 4051
Tel. : (031) 579 1220/1
Fax : (031) 579 1344
Email : rasalis.bhikam@sgs.com

TEST RESULTS

BVI Consulting Engineers
P.O. BOX 86
Century City
7446, Cape Town
Attention: Mr Gert Saayman

Project : R.022-050-2012/1 The Widening Of National Route R022
: Section 5 Through Kwangwanase Town
Your Ref : G2/11/B
Our Ref : G2/11/B
Date Reported : 25.11.2021

SIEVE ANALYSIS, ATTERBERG LIMITS(SANS 3001:GR1,GR10,GR12)

SAMPLE NO.	S 2202	S 2203	S 2204		Preparation Method:
HOLE NO.	N/A	N/A	N/A		Sample was scalped on the 37.5mm sieve
ROAD NO.	N/A	N/A	N/A		
DEPTH	N/A	N/A	N/A		
CHAINAGE	Afrimat Hluhluwe	Afrimat Hluhluwe	Afrimat Hluhluwe		
LAYER TYPE	G2 Material	G2 Material	G2 Material		
STABILISED WITH	Natural	Natural	Natural		
SUPPLIER	Afrimat	Afrimat	Afrimat		
CURING METHOD	N/A	N/A	N/A		
DATE TESTED	24.11.2021	24.11.2021	24.11.2021		
DESCRIPTION	Dark Grey Crushed Basalt	Dark Grey Crushed Basalt	Dark Grey Crushed Basalt		Specification Min : Max
SIEVE ANALYSIS (% PASSING)					
100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm	100	100	100		
28.0 mm	95	95	90		
20.0 mm	79	79	78		
14.0 mm	68	67	68		
5.0 mm	49	48	49		
2.0 mm	33	32	33		
0.425 mm	17	17	17		
0.075 mm	8	8	8		
SOIL MORTAR					
COARSE SAND <2.0mm >0.425mm	48	49	49		
FINE SAND <0.425mm >0.075mm	28	28	28		
MATERIAL <0.075mm	24	23	23		
CONSTANTS					
GRADING MODULUS	2,43	2,43	2,43		
PRA CLASSIFICATION	A-1-a(0)	A-1-a(0)	A-1-a(0)		
LIQUID LIMIT (%)	-	-	-		
PLASTICITY INDEX (0.425mm)	NP	NP	NP		
LINEAR SHRINKAGE (%)	0,0	0,0	0,0		

Approved

25/11/2021

Remarks :

FORM: GR40

25/11/2021 @ 16:5

4.4.1(SGS)(2019.12.04)

Technical Signatory : Clifford G Abushama

MATROLAB IS NOW PART OF SGS, THE WORLDS'S LEADING INSPECTION, VERFICATION, TESTING AND CERTIFICATION COMPANY.

This document is issued by the Company under its General Condition of Service accessible at http://www.sgs.com/en/Terms and Conditions.aspx Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SGS MATROLAB

SGS MATROLAB (PTY) LTD
- CIVIL ENGINEERING SERVICES -
Reg.No.: 2003/029180/07 - VAT. Reg.No.: 4040210587

60 Columbine Place, Glen Anil, Durban, 4051
60 Columbine Place, Glen Anil, Durban, 4051
Tel. : (031) 579 1220/1
Fax : (031) 579 1344
Email : rasalis.bhikam@sgs.com

TEST RESULTS

BVI Consulting Engineers
P.O. BOX 86
Century City
7446, Cape Town
Attention: Mr Gert Saayman

Project : R.022-050-2012/1 The Widening Of National Route R022
: Section 5 Through Kwangwanase Town
Your Ref : G2/07
Our Ref : G2/07
Date Reported : 26.11.2021

SIEVE ANALYSIS, ATTERBERG LIMITS(SANS 3001:GR1,GR10,GR12)

SAMPLE NO.	S 2162	S 2163	S 2164	S 2165	Preparation Method:
HOLE NO.	N/A	N/A	N/A	N/A	Sample was scalped on the 37.5mm sieve
ROAD NO.	N/A	N/A	N/A	N/A	
DEPTH	N/A	N/A	N/A	N/A	
CHAINAGE	Afrimat Stockpile	Afrimat Stockpile	Afrimat Stockpile	Afrimat Stockpile	
LAYER TYPE	G2	G2	G2	G2	
STABILISED WITH	Natural	Natural	Natural	Natural	
SUPPLIER	Afrimat	Afrimat	Afrimat	Afrimat	
CURING METHOD	N/A	N/A	N/A	N/A	
DATE TESTED	24.11.2021	26.11.2021	26.11.2021	26.11.2021	
DESCRIPTION	Light Grey Crushed Basalt	Lught Grey Crushed Basalt	Light Grey Crushed Basalt	Light Grey Crushed Basalt	Specification Min : Max
SIEVE ANALYSIS (% PASSING)					
100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm	100	100	100	100	
28.0 mm	94	94	93	97	
20.0 mm	81	79	78	84	
14.0 mm	68	66	61	72	
5.0 mm	44	43	37	47	
2.0 mm	28	27	24	30	
0.425 mm	14	13	11	14	
0.075 mm	7	6	5	7	
SOIL MORTAR					
COARSE SAND <2.0mm >0.425mm	52	52	52	54	
FINE SAND <0.425mm >0.075mm	23	25	25	25	
MATERIAL <0.075mm	25	23	23	21	
CONSTANTS					
GRADING MODULUS	2,51	2,53	2,59	2,49	
PRA CLASSIFICATION	A-1-a(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)	
LIQUID LIMIT (%)	-	-	-	-	
PLASTICITY INDEX (0.425mm)	NP	NP	NP	NP	
LINEAR SHRINKAGE (%)	0,0	0,0	0,0	0,0	

Approved

27/11/2021

Remarks :

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory : Clifford G Abushama

27/11/2021

This document is issued by the Company under its General Condition of Service accessible at http://www.sgs.com/en/Terms_and_Conditions.aspx Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

MATROLAB IS NOW PART OF SGS, THE WORLDS'S LEADING INSPECTION, VERFICATION, TESTING AND CERTIFICATION COMPANY.

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 - 7004325 TELEFAX : 031 - 7001909 email : soilslab@mweb.co.za

T 0213

Date : 2021-09-01

For the Attention of : Vernon Volker

Customer Name : Leomat Construction via BSM Laboratories

Address : P.O Box 949
Richards Bay
3900

Project Information : R22 - Kwangwanase Road

Job Card Number : 234075

Sample Number / s : 2674

Dear Sir / Madam,

Herewith, please find the report(s), pertaining to the above project. All tests conducted are in accordance with prescribed test method(s). Information herein consists of the following : -

Materials Report and Reference No.	Test Conducted	Prescribed Method	No. of Pages
Aggregate Test Report (Soilco SF 56)	Determination of Flakiness Index	SANS 3001 AG 4	
Aggregate Test Report (Soilco SF 56)	The Determination of Aggregate Crushing Value (Dry)	SANS 3001 AG 10	
Aggregate Test Report (Soilco SF 56)	The Determination of Aggregate Crushing Value (Wet)	SANS 3001 AG 10	
Aggregate Test Report (Soilco SF 56)	The Determination of the 10% fines Aggregate Crushing Value (Dry)	SANS 3001 AG 10	1
Aggregate Test Report (Soilco SF 56)	The Determination of the 10% fines Aggregate Crushing Value (Wet)	SANS 3001 AG 10	
Aggregate Test Report (Soilco SF 56)	The Determination of the DBD, ARD & Water Absorption of Aggregate retained on the 4.75mm Sieve	SANS 3001 AG 20	
Aggregate Test Report (Soilco SF 56)	Ethylene Glycol Durability	SANS 3001 AG 14 *	
Durability Mill Index Test Report	Durability Mill Index Test Report	SANS 3001 AG 16	1

We thank you for your valued support and look forward to assisting you in the near future.

Yours faithfully,

For Soilco (Technical Signatory)

Any test results contained in this report and marked with * in the table above are " Not SANAS Accredited ", and are Not included in the Schedule of Accreditation for this Laboratory.

Any information contained in this test report pertain only to the areas and / or samples tested. Documents may only be reproduced or published in their full context. Any information in relation to the client and associated test results, gained by the laboratory prior, during or after the test process will be treated as confidential and will not be reproduced or disclosed to any person or organization, without the prior written consent from the client, unless required by law or covered by legally enforceable, signed confidentiality undertakings (i.e. SANAS Assessors or Internal Auditors). If the arrangement is not suitable to you, our client, please contact the Management of Soilco Materials Investigations (Pty) Ltd.

While every care is taken to ensure that all tests are carried out in accordance with recognised standards, neither Soilco Materials Investigations (Pty) Ltd nor its employees shall be liable in any way whatsoever for any error made in the execution or reporting of tests or any erroneous conclusions drawn therefrom or for any consequences thereof.

All interpretations, Interpolations, Opinions and / or Classifications contained in this report falls outside our scope of accreditation.

Unless otherwise requested or stated, all samples will be discarded after a period of 3 months.

Deviation from Test Method : - Moisture Contents Dried Overnight at 105°C to 110°C.

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O. BOX 15318 WESTMEAD 3608 KWA ZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T 0213

Customer : Leomat Construction via BSM Laboratories

Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No : 234075

Date Received : 2021-08-02

Date Tested : 2021-08-06 to 2021-09-09

Date Reported : 2021-09-09

AGGREGATE TEST REPORT - GRADED CRUSHED ROCK

Laboratory No.		2674				
Field No.						
Position in Field						
Depth	(mm)					
Material Description		Du.B.Dolerite. C/Rock				

Sieve Analysis (% Passing) - SANS 3001 AG 1

Sieve Aperture	**75.0**	**mm**					
	63.0	**mm**					
	50.0	**mm**					
	37.5	**mm**	100				
	28.0	**mm**	93				
	20.0	**mm**	80				
	14.0	**mm**	70				
	5.00	**mm**	48				
	2.00	**mm**	27				
	0.425	**mm**	13.7				
	0.075	**mm**	7.5				

Material Characteristics

Coarse Sand Ratio			**SANS 3001 PR 5**	48.3			
Flakiness Index -28.0mm +20mm		**(%)**	**SANS 3001 AG 4**	12.3			
Flakiness Index -20.0mm +14mm				18.3			
Ethylene Glycol Durability Index		**@ 1 Day**	**SANS 3001 AG 14 ***	0.0			
		@ 5 Days		0.0			
		@ 10 Days		0.0			
		@ 20 Days		0.0			
Ethylene Glycol Index Ratio				0.0			
Aggregate Crushing Value (Dry)		**(%)**	**SANS 3001 AG 10**	10.9			
Aggregate Crushing Value (Wet)		**(%)**		13.0			
10% Fact	**(Dry)**	**(Kn)**		370			
	(Wet)	**(Kn)**		325			
	Wet / Dry Ratio	**(%)**		87.8			
Organic Impurity			**TMH 1 B6**				
Sand Equivalent			**SANS 3001 AG 5**				
Water Absorption		**(%)**	**SANS 3001 AG 20**	1.2			
Bulk Density		**(kg / m³)**		2853			
Apparent Density		**(kg / m³)**		2947			

Remarks :

For Soilco : _____ (Technical Signatory)

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965/09585/07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

Client	**Leomat Construction via BSM**	**Job Card No**	**234075**
Project	**R22 Kwangwanase Road**	**Date Received**	**2021-08-02**
Sample Delivered by Customer		**Date Tested**	**2021-08-16 to 2021-08-18**
		Date Reported	**2021-08-27**

DURABILITY MILL INDEX - SANS AG 16

Laboratory Number	2674
Field Number	
Position in field	
Depth (mm)	
Sample Description	Du.B.Dolerite C/Rock
Stabilising Agent	Natural

Method of Testing	A1 Original Sample	B1 Wet Sample Ball & Mill	C1 Dry Sample Ball & Mill	D1 Wet Sample Mill Only
Original Sample Mass; (g)	3682.9	3642.6	3642.0	3698.0
Liquid Limit; (%)	CBD	CBD	CBD	CBD
Plastic Limit; (%)	CBD	CBD	CBD	CBD
Plasticity Index; (%)	NP	NP	NP	NP
Linear Shrinkage; (%)	0.0	0.0	0.0	0.0
Passing 0.425mm; (%)	12.6	16.6	15.3	12.5
Durability Mill Index = (Max. PI x Max. % passing 0.425mm sieve)				**0**

The above test results are pertinent only to the samples received and tested at the laboratory. This report shall not be reproduced, except in full, without the prior consent of SOILCO MATERIALS INVESTIGATIONS (PTY) LTD.

For Soilco: Technical Signatory

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 - 7004325 TELEFAX : 031 - 7001909 email : soilslab@mweb.co.za

sanas T 0213

Date : 2021-10-15

For the Attention of : Vernon Volker

Customer Name : Leomat Construction

Address : P.O Box 949
Richards Bay
3900

Project Information : R22 - Kwangwanase Road

Job Card Number : 234001A

Sample Number / s : 2711

Dear Sir / Madam,

Herewith, please find the report(s), pertaining to the above project. All tests conducted are in accordance with prescribed test method(s). Information herein consists of the following : -

Materials Report and Reference No.	Test Conducted	Prescribed Method	No. of Pages
Materials Report (Soilco SF 33)	Sieve Analysis	SANS 3001 GR 1	1
	Atterberg Limits	SANS 3001 GR 10 - GR 12	
	The Determination of Maximum Dry Density & Optimum Moisture Content	SANS 3001 GR 30	
	California Bearing Ratio	SANS 3001 GR 40	
Moisture / Density Relationship (Soilco SF 38)	The Determination of Maximum Dry Density & Optimum Moisture Content	SANS 3001 GR 30	1
Aggregate Test Report-Graded C/Rock (Soilco SF56)	Sieve Analysis to 75 mic	SANS 3001 AG 1	1

We thank you for your valued support and look forward to assisting you in the near future.

Yours faithfully,

For Soilco (Technical Signatory)

Any test results contained in this report and marked with * in the table above are " Not SANAS Accredited ", and are Not included in the Schedule of Accreditation for this Laboratory.

Any information contained in this test report pertain only to the areas and / or samples tested. Documents may only be reproduced or published in their full context. Any information in relation to the client and associated test results, gained by the laboratory prior, during or after the test process will be treated as confidential and will not be reproduced or disclosed to any person or organization, without the prior written consent from the client, unless required by law or covered by legally enforceable, signed confidentiality undertakings (i.e. SANAS Assessors or Internal Auditors). If the arrangement is not suitable to you, our client, please contact the Management of Soilco Materials Investigations (Pty) Ltd.

While every care is taken to ensure that all tests are carried out in accordance with recognised standards, neither Soilco Materials Investigations (Pty) Ltd nor its employees shall be liable in any way whatsoever for any error made in the execution or reporting of tests or any erroneous conclusions drawn therefrom or for any consequences thereof.

All interpretations, Interpolations, Opinions and / or Classifications contained in this report falls outside our scope of accreditation.

Unless otherwise requested or stated, all samples will be discarded after a period of 3 months.

Deviation from Test Method : - Moisture Contents Dried Overnight at 105°C to 110°C.

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T0213

Customer : Leomat Construction

Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No. : 234372A

Date Received : 2021-08-03

Date Tested : 2021-08-03 to 2021-08-17

Date Reported : 2021-10-15

MATERIALS TEST REPORT

Laboratory Number			2711				
Field Number							
Position in Field			Afrimat - Hluhluwe Quarry				
Depth	(mm)						
Sample Description			Lt Gr.Basalt				
Stabilising Agent			Natural				

Sieve Analysis (Wet Preparation) SANS 3001 - GR 1

100.0	mm	Percentage Passing					
75.0	mm						
63.0	mm						
50.0	mm						
37.5	mm		100				
28.0	mm		93				
20.0	mm		79				
14.0	mm		67				
5.0	mm		41				
2.0	mm		25				
0.425	mm		12				
0.075	mm		7				
Grading Modulus		SANS 3001 - PR 5	2.56				

Mechanical Analysis - SANS 3001 - GR 1

Coarse Sand	(%)	-				
Coarse - Fine Sand	(%)	-				
Medium - Fine Sand	(%)	-				
Fine - Fine Sand	(%)	-				
Silt and Clay	(%)	-				

Atterberg Limits - SANS 3001 - GR 10 - GR 12

Liquid Limit	(%)	CBD				
Plasticity Index	(%)	SP				
Linear Shrinkage	(%)	1.0				
Classification Group Index		A-1-a(0)				
COLTO Classification	#	**G2**				
TRH 14 Classification (1985)	#	**G2**				

Maximum Dry Density and Optimum Moisture Content - SANS 3001 - GR 30

Optimum Moisture Content	(%)	5.5				
Maximum Dry Density	(kg/m^3)	2407				

California Bearing Ratio - SANS 3001 - GR 40

CBR	@	100 %	Compaction	152			
CBR	@	98 %	Compaction	102			
CBR	@	95 %	Compaction	56			
CBR	@	93 %	Compaction	38			
CBR	@	90 %	Compaction	21			
Swell	@	100 %	Compaction	0.00			

Remarks : - **The Colto / TRH 14 Classifications are only based on the above results. Further testing may be required.**

This test report relating to Job Card No. 234372, Lab No. 2711 supercedes all previous materials reports with the same Job Card No. due to the materials description being amended as per client's request.

For Soilco : - (Technical Signatory)

2002-12-04 Revision 1 Soilco 6F 33

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD - P.O. BOX 15318 - WESTMEAD - 3608 - KWAZULU - NATAL

TELEPHONE : 031 - 7004325 : TELEFAX 031 - 7001909 - email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T 0213

Client :	Leomat Construction	**Job Card No. :**	234372A
Project :	R22 Kwangwanase Road	**Date Received :**	2021-08-03
		Date Tested :	2021-08-11
Sampling Process :	Samples Delivered by Customer	**Date Reported :**	2021-10-15

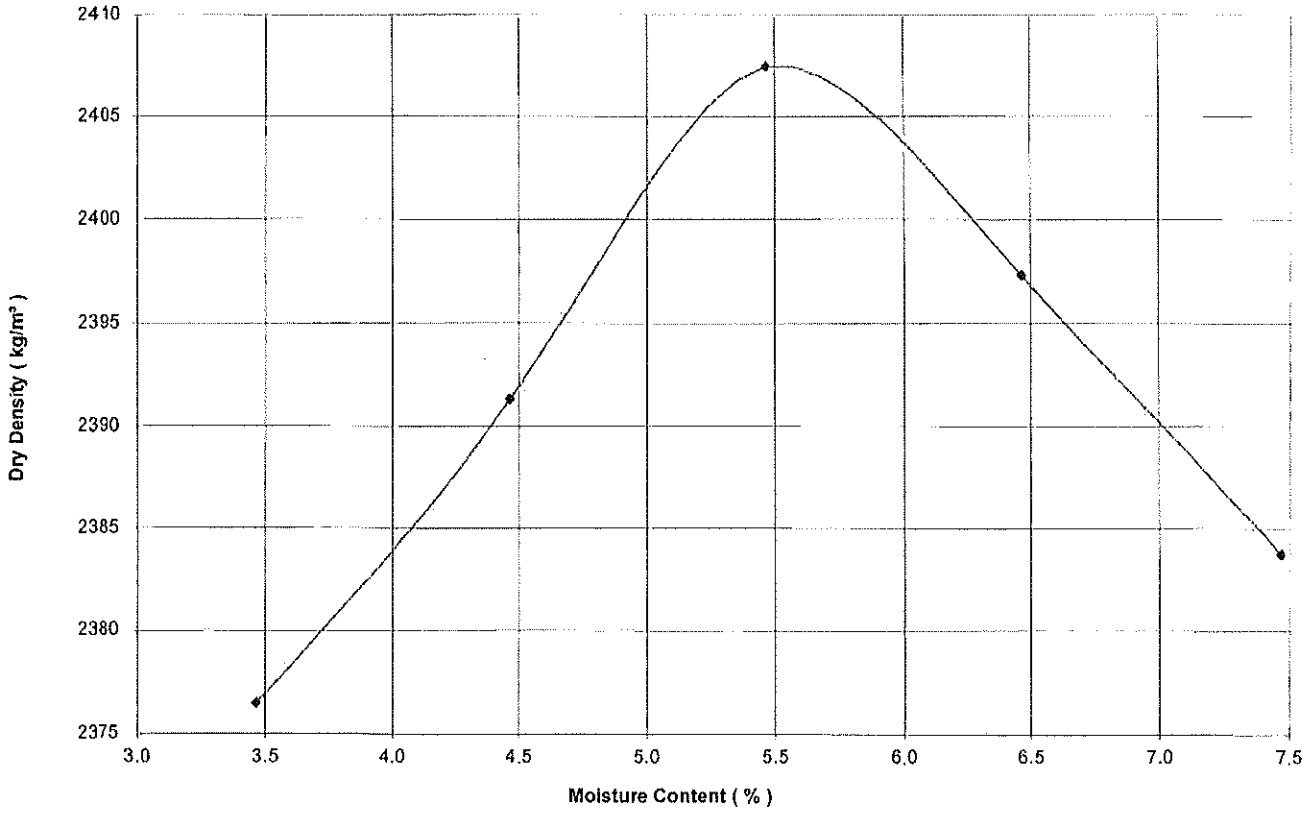
Laboratory Number : 2711 **Field Reference No. :**

Position in field : Afrimat - Hluhluwe Quarry **Depth (mm) :**

Material Description : Lt.Gr.Basalt

MOISTURE / DENSITY RELATIONSHIP - SANS 3001 - GR30

Moisture Content; (%)	3.5	4.5	5.5	6.5	7.5	Maximum Dry Density	**2407 kg/m³**
Dry Density (kg/m³)	2376	2391	2407	2397	2384	Optimum Moisture Content	**5.5 %**



Remarks : This test report relating to Job Card No. 234372, Lab No. 2711 supercedes all previous MOD reports with the same Job Card No. due to the materials description being amended as per client's request.

Method of Preparation : Scalping Process

For Soilco :

(Technical Signatory)

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O. BOX 15318 WESTMEAD 3608 KWA ZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T 0213

Customer : Leomat Construction

Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No : 234372

Date Received : 2021-08-03

Date Tested : 2021-08-03

Date Reported : 2021-08-18

AGGREGATE TEST REPORT - GRADED CRUSHED ROCK

Laboratory No.		2711				
Field No.						
Position in Field		Afrimat - Hluhluwe Quarry				
Depth	(mm)					
Material Description		Lt.Gr.Basalt				

Sieve Analysis (% Passing) - SANS 3001 AG 1

Sieve Aperture							
	75.0	mm					
	63.0	mm					
	50.0	mm					
	37.5	mm	100				
	28.0	mm	93				
	20.0	mm	79				
	14.0	mm	67				
	5.00	mm	41				
	2.00	mm	25				
	0.425	mm	12.2				
	0.075	mm	6.6				

Material Characteristics

Fineness Modulus			SANS 3001 PR 5					
Flakiness Index -28.0mm +20mm		(%)	SANS 3001 AG 4					
Flakiness Index -20.0mm +14mm								
Atterberg Limit	**Liquid Limit**		SANS 3001 GR 10					
	Plasticity Index	(%)	SANS 3001 GR 12					
	Linear Shrinkage							
Average Least Dimension		(mm)	SANS 3001 AG 2					
Apparent Density		(kg / m^3)	SANS 3001 AG 22					
Aggregate Crushing Value		(%)						
10% Fact	(Dry)	(Kn)	SANS 3001 AG 10					
	(Wet)	(Kn)						
	Wet / Dry Ratio	(%)						
Organic Impurity			TMH 1 B6					
Sand Equivalent			SANS 3001 AG 5					
Water Absorption		(%)						
Bulk Density		(kg / m^3)	SANS 3001 AG 20 or 21					
Apparent Density		(kg / m^3)						

Remarks : This test report relating to Job Card No. 234372, Lab No. 2711 supercedes all previous aggregate test reports with the same Job Card No. due to the materials description being amended as per client's request.

For Soilco : _____ (Technical Signatory)

Annexure A.3

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07
25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL
TELEPHONE : 031 - 7004325 TELEFAX : 031 - 7001909 email : soilslab@mweb.co.za

sanas T 0213

Date : 2021-10-21

For the Attention of : Vernon Volker

Customer Name : Leomat Construction

Address : P.O Box 949
Richards Bay
3900

Project Information : R22 - Kwangwanase Road

Job Card Number : 235024

Sample Number / s : 3923 to 3928

Dear Sir / Madam,

Herewith, please find the report(s), pertaining to the above project. All tests conducted are in accordance with prescribed test method(s). Information herein consists of the following : -

Materials Report and Reference No.	Test Conducted	Prescribed Method	No. of Pages
Materials Report (Soilco SF 33)	Sieve Analysis Atterberg Limits	SANS 3001 GR 1 SANS 3001 GR 10 - GR 12	2

We thank you for your valued support and look forward to assisting you in the near future.

Yours faithfully,

For Soilco (Technical Signatory)

Any test results contained in this report and marked with * in the table above are " Not SANAS Accredited ", and are Not included in the Schedule of Accreditation for this Laboratory.

Any information contained in this test report pertain only to the areas and / or samples tested. Documents may only be reproduced or published in their full context. Any information in relation to the client and associated test results, gained by the laboratory prior, during or after the test process will be treated as confidential and will not be reproduced or disclosed to any person or organization, without the prior written consent from the client, unless required by law or covered by legally enforceable, signed confidentiality undertakings (i.e. SANAS Assessors or Internal Auditors). If the arrangement is not suitable to you, our client, please contact the Management of Soilco Materials Investigations (Pty) Ltd.

While every care is taken to ensure that all tests are carried out in accordance with recognised standards, neither Soilco Materials Investigations (Pty) Ltd nor its employees shall be liable in any way whatsoever for any error made in the execution or reporting of tests or any erroneous conclusions drawn therefrom or for any consequences thereof.

All interpretations, Interpolations, Opinions and / or Classifications contained in this report falls outside our scope of accreditation.

Unless otherwise requested or stated, all samples will be discarded after a period of 3 months.

Deviation from Test Method : - Moisture Contents Dried Overnight at 105°C to 110°C.

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T0213

Customer : Leomat Construction

Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No. : 235024

Date Received : 2021-10-18

Date Tested : 2021-10-21

Date Reported : 2021-10-21

MATERIALS TEST REPORT

Laboratory Number		3923	3924	3925	3926
Field Number		Afrimat G2 Hluhluwe,			
Position in field		Existing Stockpile at Dibilza			
Depth	(mm)				
Sample Description		Lt.G.Basalt	Lt.G.Basalt	Lt.G Basalt	Lt.G.Basalt
Stabilising Agent		Natural	Natural	Natural	Natural
Sieve Analysis (Wet Preparation) SANS 3001 - GR 1					
100.0	mm				
75.0	mm				
63.0	mm				
50.0	mm				100
37.5	mm	Percentage Passing	100	100	100	99
28.0	mm		96	97	97	96
20.0	mm		79	83	81	79
14.0	mm		63	72	70	64
5.0	mm		41	44	44	37
2.0	mm		26	27	28	22
0.425	mm		12	12	13	9
0.075	mm		6	6	7	4
Grading Modulus		SANS 3001 - PR 5	2.55	2.55	2.51	2.65
Mechanical Analysis - SANS 3001 - GR 1						
Coarse Sand		(%)	52	55	52	61
Coarse - Fine Sand		(%)	8	7	7	7
Medium - Fine Sand		(%)	7	6	7	6
Fine - Fine Sand		(%)	8	7	8	7
Silt and Clay		(%)	25	24	26	19
Atterberg Limits - SANS 3001 - GR 10 - GR 12						
Liquid Limit		(%)	CBD	CBD	CBD	CBD
Plasticity Index		(%)	SP	SP	SP	SP
Linear Shrinkage		(%)	1.0	1.0	1.5	1.0
Classification Group Index						
COLTO Classification		#				
TRH 14 Classification (1985)		#				
Maximum Dry Density and Optimum Moisture Content - SANS 3001 - GR 30						
Optimum Moisture Content		(%)				
Maximum Dry Density		(kg/m^3)				
California Bearing Ratio - SANS 3001 - GR 40						
CBR	@ 100 %	Compaction				
CBR	@ 98 %	Compaction				
CBR	@ 95 %	Compaction				
CBR	@ 93 %	Compaction				
CBR	@ 90 %	Compaction				
Swell	@ 100 %	Compaction				

Remarks : - The Colto / TRH 14 Classifications are only based on the above results. Further testing may be required.

For Soilco : - (Technical Signatory)

2021-10-04 Revision 1 Form SF 33

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T0213

Customer : Leomat Construction

Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No. : 235024

Date Received : 2021-10-18

Date Tested : 2021-10-21

Date Reported : 2021-10-21

MATERIALS TEST REPORT

Laboratory Number			3927	3928			
Field Number			Afrimat G2 Hluhluwe, New G2 Crush, Haul				
Position in field			Commence 16/10/2021				
Depth	(mm)						
Sample Description			Lt G.Basalt	Lt.G.Basalt			
Stabilising Agent			Natural	Natural			
Sieve Analysis (Wet Preparation) SANS 3001 - GR 1							
100.0	mm						
75.0	mm						
63.0	mm						
50.0	mm	Percentage Passing					
37.5	mm		100	100			
28.0	mm		92	91			
20.0	mm		72	65			
14.0	mm		63	54			
5.0	mm		37	32			
2.0	mm		19	17			
0.425	mm		8	8			
0.075	mm		4	4			
Grading Modulus		SANS 3001 - PR 5	2.69	2.72			
Mechanical Analysis - SANS 3001 - GR 1							
Coarse Sand		(%)	57	56			
Coarse - Fine Sand		(%)	8	7			
Medium - Fine Sand		(%)	5	7			
Fine - Fine Sand		(%)	7	7			
Silt and Clay		(%)	24	24			
Atterberg Limits - SANS 3001 - GR 10 - GR 12							
Liquid Limit		(%)	CBD	CBD			
Plasticity Index		(%)	SP	SP			
Linear Shrinkage		(%)	1.5	1.5			
Classification Group Index							
COLTO Classification		#					
TRH 14 Classification (1985)		#					
Maximum Dry Density and Optimum Moisture Content - SANS 3001 - GR 30							
Optimum Moisture Content		(%)					
Maximum Dry Density		(kg/m^3)					
California Bearing Ratio - SANS 3001 - GR 40							
CBR	@	100 %	Compaction				
CBR	@	98 %	Compaction				
CBR	@	95 %	Compaction				
CBR	@	93 %	Compaction				
CBR	@	90 %	Compaction				
Swell	@	100 %	Compaction				

The Colto / TRH 14 Classifications are only based on the above results. Further testing may be required.

Remarks : -

For Soilco : - (Technical Signatory)

2002-10-04 Revision 1 Form SF 32

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 - 7004325 TELEFAX : 031 - 7001909 email : soilslab@mweb.co.za

sanas T 0213

Date : 2021-10-15

For the Attention of : Vernon Volker

Customer Name : Leomat Construction

Address : P.O Box 949
Richards Bay
3900

Project Information : R22 - Kwangwanase Road

Job Card Number : 235010

Sample Number / s : 3839 to 3841 & 3910 to 3911

Dear Sir / Madam,

Herewith, please find the report(s), pertaining to the above project. All tests conducted are in accordance with prescribed test method(s). Information herein consists of the following : -

Materials Report and Reference No.	Test Conducted	Prescribed Method	No. of Pages
Materials Report (Soilco SF 33)	Sieve Analysis Atterberg Limits	SANS 3001 GR 1 SANS 3001 GR 10 - GR 12	1

We thank you for your valued support and look forward to assisting you in the near future.

Yours faithfully,

For Soilco (Technical Signatory)

Any test results contained in this report and marked with * in the table above are " Not SANAS Accredited ", and are Not included in the Schedule of Accreditation for this Laboratory.

Any information contained in this test report pertain only to the areas and / or samples tested. Documents may only be reproduced or published in their full context. Any information in relation to the client and associated test results, gained by the laboratory prior, during or after the test process will be treated as confidential and will not be reproduced or disclosed to any person or organization, without the prior written consent from the client, unless required by law or covered by legally enforceable, signed confidentiality undertakings (i.e. SANAS Assessors or Internal Auditors). If the arrangement is not suitable to you, our client, please contact the Management of Soilco Materials Investigations (Pty) Ltd.

While every care is taken to ensure that all tests are carried out in accordance with recognised standards, neither Soilco Materials Investigations (Pty) Ltd nor its employees shall be liable in any way whatsoever for any error made in the execution or reporting of tests or any erroneous conclusions drawn therefrom or for any consequences thereof.

All interpretations, Interpolations, Opinions and / or Classifications contained in this report falls outside our scope of accreditation.

Unless otherwise requested or stated, all samples will be discarded after a period of 3 months.

Deviation from Test Method : - Moisture Contents Dried Overnight at 105°C to 110°C.

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T0213

Customer : Leomat Construction

Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No. : 235010

Date Received : 2021-10-11

Date Tested : 2021-10-14 to 2021-10-15

Date Reported : 2021-10-15

MATERIALS TEST REPORT

Laboratory Number		3839	3840	3841	3910	3911
Field Number						
Position in field		Proposed G2	Proposed G2	Proposed G2	Proposed G2	Proposed G2
Depth	(mm)					
Sample Description		Lt.Gr.Basalt	Lt.Gr.Basalt	Lt.Gr.Basalt	Lt Gr.Basalt	Lt.Gr.Basalt
Stabilising Agent		Natural	Natural	Natural	Natural	Natural
Sieve Analysis (Wet Preparation) SANS 3001 - GR 1						
100.0	mm					
75.0	mm					
63.0	mm					
50.0	mm	Percentage Passing				
37.5	mm	100	100	100	100	100
28.0	mm	97	94	92	96	94
20.0	mm	81	77	77	83	73
14.0	mm	67	64	62	64	62
5.0	mm	42	37	36	38	38
2.0	mm	25	23	20	23	23
0.425	mm	10	11	7	11	11
0.075	mm	5	5	4	5	5
Grading Modulus	SANS 3001 - PR 5	2.60	2.60	2.68	2.62	2.62
Mechanical Analysis - SANS 3001 - GR 1						
Coarse Sand	(%)	59	52	64	51	53
Coarse - Fine Sand	(%)	6	9	5	10	10
Medium - Fine Sand	(%)	7	7	5	8	9
Fine - Fine Sand	(%)	8	9	7	10	9
Silt and Clay	(%)	21	23	19	21	20
Atterberg Limits - SANS 3001 - GR 10 - GR 12						
Liquid Limit	(%)	CBD	CBD	CBD	CBD	CBD
Plasticity Index	(%)	SP	SP	SP	SP	SP
Linear Shrinkage	(%)	1.0	1.0	1.0	1.0	1.0
Classification Group Index		A-1-a(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)	A-1-a(0)
COLTO Classification	#					
TRH 14 Classification (1985)	#					
Maximum Dry Density and Optimum Moisture Content - SANS 3001 - GR 30						
Optimum Moisture Content	(%)					
Maximum Dry Density	(kg/m^3)					
California Bearing Ratio - SANS 3001 - GR 40						
CBR @ 100 % Compaction						
CBR @ 98 % Compaction						
CBR @ 95 % Compaction						
CBR @ 93 % Compaction						
CBR @ 90 % Compaction						
Swell @ 100 % Compaction						

The Colto / TRH 14 Classifications are only based on the above results. Further testing may be required.

Remarks : -

For Soilco : - (Technical Signatory)

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 - 7004325 TELEFAX : 031 - 7001909 email : soilslab@mweb.co.za

sanas T 0213

Date : 2021-10-15

For the Attention of : Vernon Volker

Customer Name : Leomat Construction

Address : P.O Box 949
Richards Bay
3900

Project Information : R22 - Kwangwanase Road

Job Card Number : 235005

Sample Number / s : 3837

Dear Sir / Madam,

Herewith, please find the report(s), pertaining to the above project. All tests conducted are in accordance with prescribed test method(s). Information herein consists of the following : -

Materials Report and Reference No.	Test Conducted	Prescribed Method	No. of Pages
Aggregate Test Report-Graded C/Rock (Soilco SF 85)	Sieve Analysis to 75 mic Atterberg Limits	SANS 3001 AG 1 SANS 3001 GR 10 - GR 12	1

We thank you for your valued support and look forward to assisting you in the near future.

Yours faithfully,

For Soilco (Technical Signatory)

Any test results contained in this report and marked with * in the table above are " Not SANAS Accredited ", and are Not included in the Schedule of Accreditation for this Laboratory.

Any information contained in this test report pertain only to the areas and / or samples tested. Documents may only be reproduced or published in their full context. Any information in relation to the client and associated test results, gained by the laboratory prior, during or after the test process will be treated as confidential and will not be reproduced or disclosed to any person or organization, without the prior written consent from the client, unless required by law or covered by legally enforceable, signed confidentiality undertakings (i.e. SANAS Assessors or Internal Auditors). If the arrangement is not suitable to you, our client, please contact the Management of Soilco Materials Investigations (Pty) Ltd.

While every care is taken to ensure that all tests are carried out in accordance with recognised standards, neither Soilco Materials Investigations (Pty) Ltd nor its employees shall be liable in any way whatsoever for any error made in the execution or reporting of tests or any erroneous conclusions drawn therefrom or for any consequences thereof.

All interpretations, Interpolations, Opinions and / or Classifications contained in this report falls outside our scope of accreditation.

Unless otherwise requested or stated, all samples will be discarded after a period of 3 months.

Deviation from Test Method : - Moisture Contents Dried Overnight at 105°C to 110°C.

SOILCO MATERIALS INVESTIGATIONS (PTY) LTD

CIVIL ENGINEERING MATERIALS TESTING LABORATORY

Reg. No. : 1965 / 009585 / 07

25 WESTMEAD ROAD - WESTMEAD P.O.BOX 15318 WESTMEAD 3608 KWAZULU - NATAL

TELEPHONE : 031 7004325 TELEFAX : 031 7001909 email : soilslab@mweb.co.za

a SANAS Accredited Testing Laboratory, No. T0213

T 0213

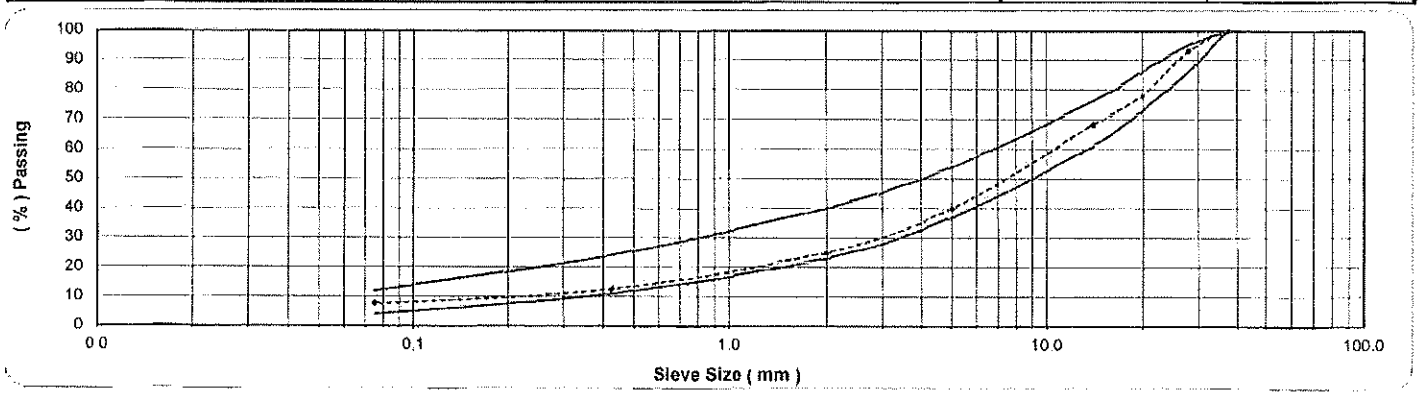
Customer : Leomat Construction
Project : R22 - Kwangwanase Road

Sampling Process : Samples Delivered by Customer

Job Card No. : 235005
Date Received : 2021-10-11
Date Tested : 2021-10-12 to 2021-10-15
Date Reported : 2021-10-15

AGGREGATE TEST REPORT - GRADED CRUSHED ROCK

Laboratory No.			3837	#	
Field No.				***COLTO Specification***	
Position in Field			G2 - Afrimat Hluhluwe Quarry	***(G 2)***	
Depth	(mm)			***37.5 mm***	
Material Description			Lt.G.Basalt	***Graded Crushed Rock***	
Sieve Analysis (%) SANS 3001 AG 1				***Minimum***	***Maximum***
Sieve Aperture	**50.0**	**mm**			
	37.5	**mm**	100	**100**	**100**
	28.0	**mm**	93	**86**	**95**
	20.0	**mm**	78	**73**	**86**
	14.0	**mm**	68	**61**	**76**
	5.0	**mm**	40	**37**	**54**
	2.0	**mm**	25	**23**	**40**
	0.425	**mm**	12.6	**11**	**24**
	0.075	**mm**	7.4	**4**	**12**
Material Characteristics				***Minimum***	***Maximum***
Flakiness Index (%) -28mm +20mm		**SANS 3001 AG 4**		-	**35**
Flakiness Index (%) -20mm +14mm				-	**35**
Liquid Limit (%)			CBD	-	**25**
Plasticity Index (%)		**SANS 3001 GR 10 - GR12**	SP	-	**6**
Linear Shrinkage (%)			1.0	-	**3**
Aggregate Crushing Value (%)		**SANS 3001 AG 10**		-	**29**
10% Fact (kN)				**110**	-



Remarks : The Colto / TRH 14 Classifications are only based on the above results. Further testing may be required.

For Soilco :