GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

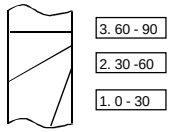
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 1 | ELEVATION: 5.428mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726105.68 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.02m | Y = 53585.103 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						17.20	SILTSTONE	54	1.97			2-3	2-3	3	1	3	7	1	1	2	10	1
1.50	1.50	0.66	44			↓												2	5	8	10	1
1.95	0.45	0.24	53			19.17												3	5	8	10	1
3.00	1.05	0.40	38			**1.97**				0	0	0	0									
3.45	0.45	0.24	53																			
4.50	1.05	0.47	45																			
4.95	0.45	0.37	82			**G1**																
6.00	1.05	0.39	37			19.17	MUDSTONE	30	3.39			2-4	3	5	5	2	12	1	1	2	10	1
6.45	0.45	0.36	80			↓												2	1	2	10	1
7.50	1.05	0.40	38			22.78												3	5	8	10	1
7.95	0.45	0.27	60			**3.61**				0.22	M3/M6	2-4	3									
9.00	1.05	0.65	62																			
9.45	0.45	0.34	76																			
10.50	1.05	0.67	64			**G2**																
10.95	0.45	0.45	100			22.78	GREYWACKE	19	1.40			3-4	2	0	4	6	10	1	0	0	0	0
12.00	1.05	0.54	51			↓												2	5	8	10	1
12.45	0.45	0.45	100			24.40												3	5	8	10	1
13.50	1.05	0.34	32			**1.62**				0.22	M3/M6	3-4	2									
13.95	0.45	0.45	100																			
15.00	1.05	0.64	61																			
15.95	0.95	0.30	32			**G3**																
16.50	0.55	0.50	91			24.40	MUDSTONE	9	0.55			2-3	2-4	4	0	0	4	1	1	2	10	1
16.95	0.45	0.30	67			↓												2	0	0	0	0
18.02	1.07	0.82	77	0.28	26	25.80												3	0	0	0	0
19.52	1.50	1.42	95	0.78	52	**1.40**				0.85	M3/M6	2-3	4									
21.02	1.50	1.13	75	0.36	24																	
22.52	1.50	1.40	93	0.71	47																	
24.02	1.50	1.33	89	0.31	21	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 1
INCLINATION: VERTICAL
FINAL DEPTH: 30.02m

ELEVATION: 5.428mamsl
CO-ORDS: X = 3726105.68
Y = 53585.103

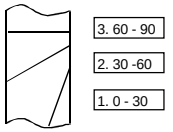
PAGE: 2 OF 2
DATE: 28-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
24.02						25.80	GREYWACKE	2	0.43			3-4	1	10	1	6	17	1	2	2	6	1
25.52	1.50	1.26	84	0.13	9	↓												2	1	2	10	1
27.02	1.50	1.24	83	0.00	0	30.02												3	1	3	10	1
28.52	1.50	0.61	41	0.00	0	**4.22**				3.79	M3/M6	3-4	1									
30.02	1.50	1.13	75	0.10	7																	
END OF HOLE - FINAL DEPTH 30.02m																						
						G5																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

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4.SLICKENSIDED UNDULATING
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6.ROUGH UNDULATING
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
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Soft sheared material, e.g. Talc
3.FINE
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Non-softening sheared material
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1.WALL = ROCK HARDNESS
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MATRIX TYPE
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M2. SHEARS
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M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
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GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 5 | ELEVATION: 12.140mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727221.24 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 29.96m | Y = 52883.806 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						22.55	GREYWACKE	59	4.02			2-3	3	4	5	7	16	1	1	2	10	1
1.50	1.50	0.52	35			↓												2	1	2	10	1
1.95	0.45	0.23	51			26.86												3	1	2	10	1
3.00	1.05	0.47	45			**4.31**				0.29	M5	2	3-4									
3.45	0.45	0.27	60																			
4.50	1.05	0.50	48																			
4.95	0.45	0.21	47			**G1**																
6.00	1.05	0.58	55			26.86	GREYWACKE	41	3.11			2-3	3	6	2	3	11	1	1	2	10	1
6.45	0.45	0.20	44			↓												2	1	2	10	1
7.50	1.05	0.46	44			29.96												3	1	2	10	1
7.95	0.45	0.33	73			**3.10**				0	0	0	0									
9.00	1.05	0.60	57																			
9.45	0.45	0.26	58																			
10.50	1.05	1.10	105			**G2**																
10.95	0.45	0.21	47																			
12.00	1.05	0.98	93																			
12.45	0.45	0.29	64																			
13.50	1.05	0.71	68																			
13.95	0.45	0.28	62																			
15.00	1.05	0.33	31																			
15.95	0.95	0.32	34																			
16.50	0.55	0.64	116																			
16.95	0.45	0.25	56																			
18.00	1.05	0.71	68																			
18.45	0.45	0.21	47																			
19.50	1.05	0.46	44																			
19.95	0.45	0.32	71																			
21.00	1.05	0.54	51																			

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
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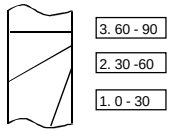
JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
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MICRO
1.POLISHED
2.SMOOTH PLANAR
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INFILL TYPE
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Soft sheared material, e.g. Talc
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JOINT WALL ALT.
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PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 5 | ELEVATION: 12.140mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727221.24 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 29.96m | Y = 52883.806 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																						
21.45	0.45	0.31	69																			
22.46	1.01	0.29	29																			
23.96	1.50	0.81	54	0.63	62																	
25.46	1.50	1.30	87	1.14	76																	
26.96	1.50	1.47	98	0.77	51																	
28.46	1.50	1.47	98	0.54	36																	
29.96	1.50	1.50	100	0.74	49																	
END OF HOLE - FINAL DEPTH 29.96m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
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WEATHERING
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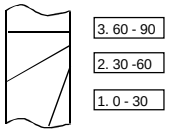
JOINT DISTRIBUTION



JOINT CONDITION
MACRO
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Soft sheared material, e.g. Talc
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MATRIX TYPE
M1. FAULTS
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GEOTECHNICAL BOREHOLE LOG

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Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 6 | ELEVATION: 11.736mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727017.97 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 40.52m | Y = 52985.997 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						14.00	SHALE	12	2.78			2	3	5	5	11	21	1	2	5	3	1
1.50	1.50	0.47	31			↓												2	2	5	3	1
1.95	0.45	0.26	58			16.98												3	1	2	3	1
3.00	1.05	0.55	52			**2.98**				0.20	M5	2	2									
3.45	0.45	0.22	49																			
4.50	1.05	0.51	49																			
4.95	0.45	0.27	60			**G1**																
6.00	1.05	0.55	52			16.98	SHALE	54	1.26			2	1	3	2	8	13	1	1	2	3	1
6.45	0.45	0.29	64			↓												2	1	2	3	1
7.50	1.05	0.49	47			18.27												3	1	2	3	1
7.95	0.45	0.28	62			**1.29**				0.03	M5/M6	2	3									
9.00	1.05	0.51	49																			
9.45	0.45	0.32	71																			
10.50	1.05	0.59	56			**G2**																
10.95	0.45	0.22	49			18.27	GREYWACKE	27	1.51			3	1	3	3	12	18	1	2	6	10	1
12.00	1.05	0.44	42			↓												2	1	2	10	1
12.45	0.45	0.28	62			19.95												3	1	2	10	1
13.50	1.05	0.53	50			**1.68**				0.17	M6	3	1									
13.95	0.45	0.27	60																			
15.00	1.05	0.69	66																			
16.50	1.50	1.29	86	0.25	17	**G3**																
18.00	1.50	1.42	95	0.81	54	19.95	GREYWACKE	61	2.72			3	1	1	1	16	18	1	1	2	10	1
19.50	1.50	1.35	90	0.30	20	↓												2	1	2	10	1
21.00	1.50	1.38	92	0.48	32	22.72												3	1	3	10	1
22.50	1.50	1.44	96	1.19	79	**2.77**				0.05	M6	3	1									
24.00	1.50	1.56	104	1.27	85																	
25.50	1.50	1.35	90	0.83	55																	
27.00	1.50	1.39	93	0.92	61	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
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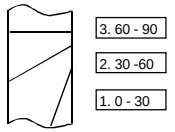
JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
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Soft sheared material, e.g. Talc
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GEOTECHNICAL BOREHOLE LOG

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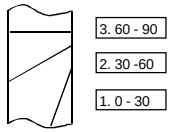
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 6 | ELEVATION: 11.736mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727017.97 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 40.52m | Y = 52985.997 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
27.00						22.72	GREYWACKE	70	3.03			4	1	0	1	11	12	1	0	0	0	0
28.60	1.60	1.60	100	1.43	89	↓												2	2	6	7	1
30.20	1.60	1.57	98	1.40	88	25.75												3	1	2	10	1
31.73	1.53	1.54	101	1.11	73	**3.03**																
33.23	1.50	1.48	99	0.80	53					0	0	0	0									
34.73	1.50	1.49	99	1.29	86																	
36.23	1.50	1.49	99	1.35	90	**G5**																
37.73	1.50	1.47	98	1.42	95	25.75	GREYWACKE											1	3	5	10	1
39.27	1.54	1.50	97	0.93	60	↓			4.75			4	1	1	2	8	11	2	1	2	10	1
40.52	1.25	1.25	100	1.25	100	30.50												3	3	5	10	1
END OF HOLE - FINAL DEPTH 40.52m						**4.75**		80														
										0	0	0	0									
						G6																
						30.50	GREYWACKE											1	1	2	10	1
						↓			3.10			4	1	1	5	12	18	2	1	2	10	1
						33.60												3	3	5	10	1
						3.10		59														
										0	0	0	0									
						G7																
						33.60	GREYWACKE											1	0	0	0	0
						↓			6.92			4	1	0	3	12	15	2	2	5	10	1
						40.52												3	1	2	10	1
						6.92		87														
										0	0	0	0									
						G8																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

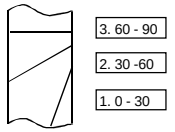
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 7 | ELEVATION: 10.083mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726815.12 | DATE: 03-05-2010
PROJECT No: 385908/42C | FINAL DEPTH: 54.25m | Y = 53069.914 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.40												1	1	3	10	1
1.50	1.50	0.96	64	0.00	0	↓			1.01			3	1-2	4	6	4	14	2	1	2	9	1
1.95	0.45	0.39	87	0.00	0	20.54	GREYWACKE											3	1	2	10	1
3.00	1.05	0.94	90	0.00	0	**1.14**		0														
3.45	0.45	0.41	91	0.00	0																	
4.50	1.05	0.87	83	0.00	0					0.13	M3/M5	3	1-2	Yellowish green stained.								
4.95	0.45	0.45	100	0.00	0	**G1**																
6.00	1.05	0.93	89	0.00	0	20.54												1	1	2	10	1
6.45	0.45	0.44	98	0.00	0	↓			14.71			4	1-2	59	36	51	146	2	1	2	10	1
7.50	1.05	0.87	83	0.00	0	36.43	GREYWACKE											3	1	2	10	1
7.95	0.45	0.39	87	0.00	0	**15.89**		7														
9.00	1.05	0.93	89	0.00	0					1.18	M3/M5	4	1-2									
9.45	0.45	0.35	78	0.00	0																	
10.50	1.05	0.96	91	0.00	0	**G2**																
10.95	0.45	0.40	89	0.00	0	36.43												1	1	2	3	1
12.00	1.05	0.95	90	0.00	0	↓			3.62			4	1	13	3	14	30	2	5	8	3	1
12.45	0.45	0.42	93	0.00	0	40.05	GREYWACKE											3	1	2	10	1
13.50	1.05	1.00	95	0.00	0	**3.62**		29														
13.95	0.45	0.34	76	0.00	0					0	0	0	0	2. Talc / Chlorite <1mm.								
15.00	1.05	0.90	86	0.00	0																	
15.95	0.95	0.37	39	0.00	0	**G3**																
16.50	0.55	0.95	173	0.00	0	40.05												1	1	2	10	1
16.95	0.45	0.43	96	0.00	0	↓			1.94			4	1	6	0	15	21	2	0	0	0	0
18.12	1.17	0.92	79	0.00	0	41.99	GREYWACKE											3	1	2	10	1
18.57	0.45	0.43	96	0.00	0	**1.94**		31														
19.62	1.05	0.33	31	0.00	0					0	0	0	0									
21.11	1.49	1.01	68	0.00	0																	
22.61	1.50	1.40	93	0.42	28	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

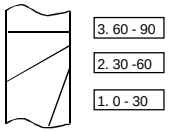
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 7 | ELEVATION: 10.083mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726815.12 | DATE: 03-05-2010
PROJECT No: 385908/42C | FINAL DEPTH: 54.25m | Y = 53069.914 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
22.61						41.99																
24.11	1.50	1.24	83	0.00	0	↓			4.03			4	1	7	8	15	30	1	1	2	10	1
25.61	1.50	1.20	80	0.25	17	46.08	GREYWACKE											2	1	2	10	1
27.11	1.50	1.61	107	0.21	14	**4.09**		45										3	1	2	10	1
28.61	1.50	1.35	90	0.00	0					0.06	M6	4	1									
30.11	1.50	1.07	71	0.15	10																	
31.61	1.50	1.43	95	0.14	9	**G5**																
33.11	1.50	1.44	96	0.00	0	46.08												1	1	2	10	1
34.61	1.50	1.44	96	0.00	0	↓			1.97			3	1	6	4	14	24	2	1	3	6	1
36.11	1.50	1.32	88	0.00	0	48.05	GREYWACKE											3	1	2	10	1
37.61	1.50	1.47	98	0.57	38	**1.97**		27														
39.11	1.50	1.45	97	0.28	19					0	0	0	0									
40.05	0.94	0.90	96	0.19	20																	
41.65	1.60	1.53	96	0.60	38	**G6**																
43.25	1.60	1.65	103	0.73	46	48.05												1	1	3	6	1
44.85	1.60	1.62	101	0.52	33	↓			1.49			4	1	2	0	2	4	2	0	0	0	0
46.45	1.60	1.52	95	0.58	36	49.54	GREYWACKE											3	1	3	10	1
48.05	1.60	1.53	96	0.53	33	**1.49**		64														
49.65	1.60	1.52	95	0.95	59					0	0	0	0									
51.25	1.60	1.50	94	0.27	17																	
52.75	1.50	1.47	98	1.10	73	**G7**																
54.25	1.50	1.26	84	0.40	27	49.54												1	1	2	10	1
END OF HOLE - FINAL DEPTH 54.25m						↓			4.49			3	1	14	1	14	29	2	1	2	10	1
						54.25	GREYWACKE											3	1	2	10	1
						4.71		38														
										0.22	M5/M6	3	1									
						G8																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

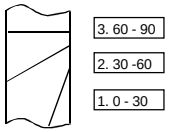
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 8 | ELEVATION: 10.129mamsl | PAGE: 1 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726614.42 | DATE: 02-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 40.45m | Y = 53162.192 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						20.20												1	1	2	10	1
1.50	1.50	0.53	35	0.00	0	↓	GREYWACKE		1.03			2	4	1	1	0	2	2	1	2	10	1
1.95	0.45	0.37	82	0.00	0	21.23												3	0	0	0	0
3.00	1.05	0.32	30	0.00	0	**1.03**		44														
3.45	0.45	0.27	60	0.00	0					0	0	0	0									
4.50	1.05	0.59	56	0.00	0																	
4.95	0.45	0.39	87	0.00	0	**G1**																
6.00	1.05	0.47	45	0.00	0	21.23												1	1	3	10	1
6.45	0.45	0.28	62	0.00	0	↓	GREYWACKE		1.62			2-3	4-5	2	4	2	8	2	1	9	10	1
7.50	1.05	0.51	49	0.00	0	23.95												3	1	9	10	1
7.95	0.45	0.42	93	0.00	0	**2.72**		10														
9.00	1.05	0.81	77	0.00	0					1.10	M5/M6	2-3	4-5									
9.45	0.45	0.43	96	0.00	0																	
10.50	1.05	0.59	56	0.00	0	**G2**																
10.95	0.45	0.29	64	0.00	0	23.95												1	1	2	3	1
12.00	1.05	0.83	79	0.00	0	↓	GREYWACKE		1.08			2	4	4	3	11	18	2	1	3	10	1
12.45	0.45	0.45	100	0.00	0	26.18												3	1	2	10	1
13.50	1.05	0.39	37	0.00	0	**2.23**		35														
13.95	0.45	0.42	93	0.00	0					0.15	M5	2	4									
15.00	1.05	0.45	43	0.00	0																	
15.45	0.45	0.38	84	0.00	0	**G3**																
16.45	1.00	0.75	75	0.00	0	26.18												1	1	2	3	1
17.95	1.50	0.60	40	0.00	0	↓	GREYWACKE		1.60			2	4	4	2	2	8	2	1	2	10	1
18.30	0.35	0.25	71	0.00	0	28.45												3	1	2	10	1
19.45	1.15	0.86	75	0.00	0	**2.27**		0														
19.80	0.35	0.35	100	0.00	0					0.67	M5/M6	2	4									
20.95	1.15	0.75	65	0.45	39																	
22.45	1.50	1.18	79	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG. Soft sheared material, e.g. Talc
2.GOUGE t. < Amplit. of IRREG. Non-softening sheared material
3.FINE
4.MEDIUM
5.COARSE
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

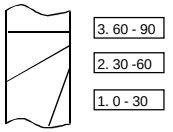
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 8 | ELEVATION: 10.129mamsl | PAGE: 2 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726614.42 | DATE: 02-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 40.45m | Y = 53162.192 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
22.45						28.45																
23.95	1.50	1.30	87	0.28	19	↓			0.90			2	4	2	0	0	2	2	0	0	0	0
25.45	1.50	1.18	79	0.34	23	29.35	GREYWACKE											3	0	0	0	0
26.95	1.50	1.56	104	0.45	30	**0.90**		0														
28.45	1.50	0.98	65	0.00	0					0	0	0	0									
29.95	1.50	1.17	78	0.00	0																	
31.45	1.50	1.02	68	0.35	23	**G5**																
32.95	1.50	1.42	95	0.00	0	29.35												1	0	0	0	0
34.45	1.50	1.17	78	0.29	19	↓			0.60			1-2	4-5	0	0	0	0	2	0	0	0	0
35.95	1.50	1.26	84	0.00	0	29.95	GREYWACKE											3	0	0	0	0
37.45	1.50	1.45	97	0.14	9	**0.60**		0														
38.95	1.50	1.06	71	0.54	36					0	0	0	0									
40.45	1.50	1.03	69	0.11	7	**G6**																
END OF HOLE - FINAL DEPTH 40.45m						29.95												1	1	2	9	1
						↓			2.05			2	4	6	2	5	13	2	1	2	9	1
						32.35	GREYWACKE											3	1	2	10	1
						2.40		15														
										0.35	M5	2	4									
						G7																
						32.35												1	0	0	0	0
						↓			0.00			0	0	0	0	0	0	2	0	0	0	0
						33.10	GREYWACKE											3	0	0	0	0
						0.75		0														
										0.75	M5/M6	2	4									
						G8																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting Engineers and Scientists

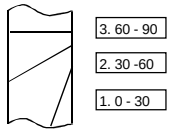
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 8 | ELEVATION: 10.129mamsl | PAGE: 3 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726614.42 | DATE: 02-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 40.45m | Y = 53162.192 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
						33.10 ↓ 33.65	GREYWACKE	55	0.55			3	3	2	1	0	3	1	1	9	10	1
																		2	1	9	3	1
																		3	0	0	0	0
						0.55				0	0	0	0									
						G9																
						33.65 ↓ 35.95	GREYWACKE	13	1.39			2	4	4	3	2	9	1	1	3	10	1
																		2	1	3	10	1
																		3	1	2	10	1
						2.30				0.91	M5/M6	2	4									
						G10																
						35.95 ↓ 37.45	GREYWACKE	9	1.30			3	3	4	1	2	7	1	1	2	10	1
																		2	1	3	9	1
																		3	1	2	10	1
						1.50				0.2	M5/M6	3	3									
						G11																
						37.45 ↓ 40.45	GREYWACKE	22	2.75			3	1	8	3	4	15	1	1	3	10	1
																		2	1	3	10	1
																		3	1	3	10	1
						3.00				0.25	M5/M6	3	1									
						G12																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

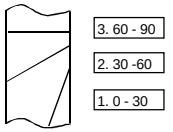
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 9 | ELEVATION: 12.407mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726417.11 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53258.424 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						24.50	GREYWACKE	11	1.35			1	4	3	2	2	7	1	1	2	10	1
1.50	1.50	0.43	29			↓												2	1	2	10	1
1.95	0.45	0.19	42			25.85												3	2	5	10	1
3.00	1.05	0.56	53			**1.35**				0	0	0	0									
3.45	0.45	0.26	58																			
4.50	1.05	0.48	46																			
4.95	0.45	0.23	51			**G1**																
6.00	1.05	0.49	47			25.85	GREYWACKE	10	1.50			2	4	4	1	5	10	1	1	2	10	1
6.45	0.45	0.25	56			↓												2	1	2	9	1
7.50	1.05	0.47	45			27.91												3	1	2	9	1
7.95	0.45	0.24	53			**2.06**				0.56	M3/M5	1-2	4	2. Yellow stained 3. Clayey infill								
9.00	1.05	0.61	58																			
9.45	0.45	0.23	51																			
10.50	1.05	0.46	44			**G2**																
10.95	0.45	0.24	53			27.91	GREYWACKE	33	2.09			2	3	2	4	5	11	1	1	2	10	1
12.00	1.05	0.49	47			↓												2	1	2	9	1
12.45	0.45	0.29	64			30.00												3	1	2	9	1
13.50	1.05	0.54	51			**2.09**				0	0	0	0	2. Yellow stained 3. Yellow stained								
13.95	0.45	0.26	58																			
15.00	1.05	0.51	49																			
15.45	0.45	0.25	56			**G3**																
16.50	1.05	0.45	43																			
16.95	0.45	0.28	62																			
18.00	1.05	0.48	46																			
18.45	0.45	0.26	58																			
19.50	1.05	0.52	50																			
19.95	0.45	0.26	58																			
21.00	1.05	0.51	49																			

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

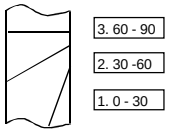
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 9 | ELEVATION: 12.407mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726417.11 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53258.424 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																						
21.45	0.45	0.27	60																			
22.50	1.05	0.51	49																			
22.95	0.45	0.30	67																			
24.00	1.05	0.57	54																			
24.45	0.45	0.25	56																			
25.50	1.05	1.05	100	0.15	14																	
27.00	1.50	1.40	93	0.11	7																	
28.50	1.50	1.36	91	0.23	15																	
30.00	1.50	1.48	99	0.58	39																	
END OF HOLE - FINAL DEPTH 30.00m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

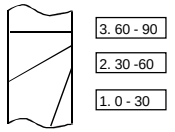
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 10 | ELEVATION: 17.816mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726329.75 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 26.92m | Y = 53060.803 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						20.51	GREYWACKE	5	2.20			2-3	3	8	2	10	20	1	1	2	10	1
1.50	1.50	0.95	63			↓												2	3	6	10	1
1.95	0.45	0.31	69			24.76												3	1	2	10	1
3.00	1.05	0.62	59			**4.25**				2.05	M3/M6	2-3	3									
3.45	0.45	0.20	44																			
4.50	1.05	0.48	46																			
4.95	0.45	0.24	53			**G1**																
6.00	1.05	0.72	69			24.76	GREYWACKE	70	2.16			3-4	2	0	2	10	12	1	0	0	0	0
6.45	0.45	0.22	49			↓												2	5	9	10	1
7.50	1.05	0.70	67			26.92												3	1	2	10	1
7.95	0.45	0.19	42			**2.16**				0	0	0	0	2. Coarse quartz crystals								
9.00	1.05	0.45	43																			
9.45	0.45	0.45	100																			
10.50	1.05	0.77	73			**G2**																
10.95	0.45	0.30	67																			
12.00	1.05	0.97	92																			
12.30	0.30	0.13	43																			
13.50	1.20	0.86	72																			
13.95	0.45	0.23	51																			
15.00	1.05	0.60	57																			
15.45	0.45	0.29	64																			
16.50	1.05	0.51	49																			
16.95	0.45	0.31	69																			
18.00	1.05	0.72	69																			
18.45	0.45	0.14	31																			
19.50	1.05	0.82	78																			
19.75	0.25	0.27	108																			
20.92	1.17	0.58	50																			

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 10
INCLINATION: VERTICAL
FINAL DEPTH: 26.92m

ELEVATION: 17.816mamsl
CO-ORDS: X = 3726329.75
Y = 53060.803

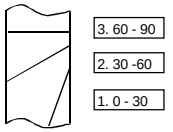
PAGE: 2 OF 2
DATE: 28-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
20.92																						
22.42	1.50	1.02	68	0.13	9																	
23.92	1.50	0.68	45	0.00	0																	
25.42	1.50	1.50	100	0.75	50																	
26.92	1.50	1.57	105	0.86	57																	
END OF HOLE - FINAL DEPTH 26.92m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting Engineers and Scientists

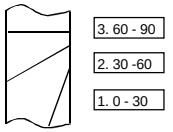
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 11 | ELEVATION: 16.221mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726527.38 | DATE: 03-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 30.13m | Y = 52967.352 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						26.48												1	0	0	0	0
1.50	1.50	1.06	71	0.00	0	↓			0.00			1	5	0	0	0	0	2	0	0	0	0
1.95	0.45	0.19	42	0.00	0	27.26												3	0	0	0	0
3.00	1.05	1.03	98	0.00	0	**0.78**	SHALE	0		0.78	M6	1	5									
3.45	0.45	0.32	71	0.00	0																	
4.50	1.05	1.18	112	0.00	0																	
4.95	0.45	0.21	47	0.00	0	**G1**																
6.00	1.05	1.21	115	0.00	0	27.26												1	5	8	10	1
6.45	0.45	0.20	44	0.00	0	↓			0.56			2	3	5	2	0	7	2	2	5	9	1
7.50	1.05	0.83	79	0.00	0	27.93												3	0	0	0	0
7.95	0.45	0.45	100	0.00	0	**0.67**	GREYWACKE	19		0.11	M5/M6	2	3									
9.00	1.05	0.89	85	0.00	0																	
9.45	0.45	0.41	91	0.00	0																	
10.50	1.05	0.95	90	0.00	0	**G2**																
10.95	0.45	0.35	78	0.00	0	27.93												1	1	2	10	1
12.00	1.05	0.84	80	0.00	0	↓			0.14			1	4-5	2	3	1	6	2	2	5	3	1
12.45	0.45	0.45	100	0.00	0	28.42												3	1	2	10	1
13.50	1.05	0.82	78	0.00	0	**0.49**	GREYWACKE	0		0.35	M5/M6	1	4-5									
13.95	0.45	0.45	100	0.00	0																	
15.00	1.05	0.84	80	0.00	0																	
15.45	0.45	0.45	100	0.00	0	**G3**																
16.50	1.05	0.80	76	0.00	0	28.42												1	2	5	3	1
16.95	0.45	0.42	93	0.00	0	↓			1.46			2-3	2	3	6	0	9	2	1	2	3	1
18.13	1.18	0.84	71	0.00	0	29.88												3	0	0	0	0
18.58	0.45	0.38	84	0.00	0	**1.46**	GREYWACKE	22		0	0	0	0									
19.63	1.05	0.86	82	0.00	0																	
20.08	0.45	0.45	100	0.00	0																	
21.13	1.05	0.78	74	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

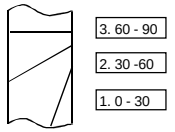
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 11 | ELEVATION: 16.221mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726527.38 | DATE: 03-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 30.13m | Y = 52967.352 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.13						29.88												1	0	0	0	0
21.58	0.45	0.29	64	0.00	0	↓			0.00			2	4	0	1	0	1	2	2	5	3	1
22.63	1.05	0.60	57	0.00	0	30.13	GREYWACKE											3	0	0	0	0
23.08	0.45	0.32	71	0.00	0	**0.25**		0														
24.13	1.05	0.51	49	0.00	0					0.25	M5/M6	2	4									
24.58	0.45	0.31	69	0.00	0																	
25.63	1.05	0.85	81	0.00	0	**G5**																
26.08	0.45	0.28	62	0.00	0													1				
27.13	1.05	0.70	67	0.00	0													2				
28.63	1.50	1.41	94	0.13	9													3				
30.13	1.50	1.41	94	0.32	21																	
END OF HOLE - FINAL DEPTH 30.13m																						
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting Engineers and Scientists

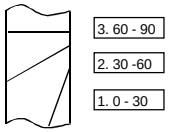
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 12 | ELEVATION: 16.367mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726736.26 | DATE: 03-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 40.14m | Y = 52859.935 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						24.45	GREYWACKE	35	3.58			3	2	3	17	8	28	1	1	3	9	1
1.50	1.50	0.76	51	0.00	0	↓												2	1	2	6	1
1.95	0.45	0.19	42	0.00	0	28.10												3	3	5	9	1
3.00	1.05	0.63	60	0.00	0	**3.65**				0.07	M5/M6	3	2	2. Calcite								
3.45	0.45	0.17	38	0.00	0																	
4.50	1.05	0.62	59	0.00	0																	
4.95	0.45	0.24	53	0.00	0	**G1**																
6.00	1.05	0.77	73	0.00	0	28.10	GREYWACKE	16	3.94			3	2-3	3	4	37	44	1	2	5	3	1
6.45	0.45	0.32	71	0.00	0	↓												2	5	8	9	1
7.50	1.05	0.96	91	0.00	0	32.54												3	2	5	10	1
7.95	0.45	0.31	69	0.00	0	**4.44**				0.50	M5/M6	2-3	2-3	1. Quartz infill 1mm								
9.00	1.05	0.84	80	0.00	0																	
9.45	0.45	0.23	51	0.00	0																	
10.50	1.05	0.91	87	0.00	0	**G2**																
10.95	0.45	0.29	64	0.00	0	32.54	GREYWACKE	50	7.59			4	1	4	11	31	46	1	3	5	10	1
12.00	1.05	0.83	79	0.00	0	↓												2	1	2	3	1
12.45	0.45	0.25	56	0.00	0	40.14												3	2	5	3	1
13.50	1.05	0.71	68	0.00	0	**7.60**				0.11	M6	4	1	Clayey infill								
13.95	0.45	0.38	84	0.00	0																	
15.00	1.05	0.86	82	0.00	0																	
15.45	0.45	0.28	62	0.00	0	**G3**																
16.50	1.05	0.87	83	0.00	0																	
16.95	0.45	0.24	53	0.00	0																	
18.00	1.05	0.59	56	0.00	0																	
18.45	0.45	0.28	62	0.00	0																	
19.50	1.05	0.65	62	0.00	0																	
19.95	0.45	0.26	58	0.00	0																	
21.00	1.05	0.66	63	0.00	0																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 12
INCLINATION: VERTICAL
FINAL DEPTH: 40.14m

ELEVATION: 16.367mamsl
CO-ORDS: X = 3726736.26
Y = 52859.935

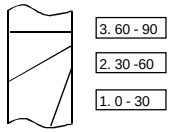
PAGE: 2 OF 2
DATE: 03-04-2009
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																						
21.45	0.45	0.25	56	0.00	0																	
22.50	1.05	0.81	77	0.00	0																	
22.95	0.45	0.29	64	0.00	0																	
24.00	1.05	0.73	70	0.00	0																	
24.45	0.45	0.24	53	0.00	0																	
25.50	1.05	0.93	89	0.59	56																	
27.00	1.50	1.43	95	0.38	25																	
27.40	0.40	0.35	88	0.38	95																	
28.50	1.10	1.04	95	0.32	29																	
30.00	1.50	1.45	97	0.27	18																	
31.50	1.50	1.56	104	0.36	24																	
33.00	1.50	1.46	97	0.38	25																	
34.20	1.20	1.16	97	0.61	51																	
35.80	1.60	1.56	98	0.38	24																	
37.40	1.60	1.59	99	0.85	53																	
38.90	1.50	1.52	101	0.64	43																	
40.14	1.24	1.21	98	1.05	85																	
END OF HOLE - FINAL DEPTH 40.14m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

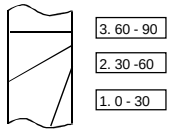
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 13 | ELEVATION: 15.493mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726931.63 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 28.50m | Y = 52768.018 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						22.95												1	0	0	0	0
1.50	1.50	0.44	29	0.00	0	↓			0.00			2-3	3	0	0	0	0	2	0	0	0	0
1.95	0.45	0.21	47	0.00	0	24.00	GREYWACKE											3	0	0	0	0
3.00	1.05	0.43	41	0.00	0	**1.05**		0														
3.45	0.45	0.20	44	0.00	0																	
4.50	1.05	0.37	35	0.00	0					1.05	M5/M6	2-3	3									
4.95	0.45	0.19	42	0.00	0	**G1**																
6.00	1.05	0.37	35	0.00	0	24.00												1	1	2	9	1
6.45	0.45	0.20	44	0.00	0	↓			0.61			2-3	3	2	1	1	4	2	1	2	10	1
7.50	1.05	0.46	44	0.00	0	24.61	GREYWACKE											3	2	6	10	1
7.95	0.45	0.22	49	0.00	0	**0.61**		0														
9.00	1.05	0.49	47	0.00	0																	
9.45	0.45	0.21	47	0.00	0					0	0	2-3	3	1. Clayey Silt.								
10.50	1.05	0.48	46	0.00	0	**G2**																
10.95	0.45	0.19	42	0.00	0	24.61												1	0	0	0	0
12.00	1.05	0.47	45	0.00	0	↓			0			2	4	0	0	0	0	2	0	0	0	0
12.45	0.45	0.17	38	0.00	0	24.80	GREYWACKE											3	0	0	0	0
13.50	1.05	0.51	49	0.00	0	**0.19**		0														
13.95	0.45	0.20	44	0.00	0																	
15.00	1.05	0.55	52	0.00	0					0.19	M3/M5	2	4									
15.45	0.45	0.20	44	0.00	0	**G3**																
16.50	1.05	0.50	48	0.00	0	24.80												1	2	5	9	1
16.95	0.45	0.22	49	0.00	0	↓			2.45			3	2-3	8	6	5	19	2	2	5	9	1
18.00	1.05	0.56	53	0.00	0	27.43	GREYWACKE											3	1	2	9	1
18.45	0.45	0.18	40	0.00	0	**2.63**		15														
19.50	1.05	0.45	43	0.00	0																	
19.95	0.45	0.21	47	0.00	0					0.18	M6	2-3	2-3	1. Clayey Silt Infill. 2. Clayey Silt Infill. 3. Clayey Silt infill.								
21.00	1.05	0.51	49	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

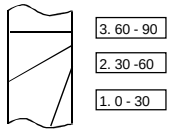
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 13 | ELEVATION: 15.493mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726931.63 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 28.50m | Y = 52768.018 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00						27.43	QUARTZITIC SANDSTONE											1	1	2	9	1
21.45	0.45	0.25	56	0.00	0	↓			1.07			3	1	4	1	6	11	2	1	2	10	1
22.50	1.05	0.50	48	0.00	0	28.50												3	1	2	10	1
22.95	0.45	0.23	51	0.00	0	**1.07**		26														
24.00	1.05	0.39	37	0.00	0					0	0	0	0	1. Clayey Silt Infill.								
25.50	1.50	1.30	87	0.17	11																	
27.00	1.50	1.39	93	0.38	25	**G5**																
28.50	1.50	1.45	97	0.28	19													1				
END OF HOLE - FINAL DEPTH 28.50m																		2				
																		3				
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 14 | ELEVATION: 15.636mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727135.09 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 27.05m | Y = 52676.96 | LOGGED BY: JB

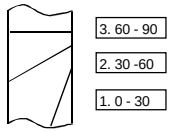
Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.95												1	1	2	10	1
1.50	1.50	0.75	50	0.00	0	↓			3.94			3	1	13	20	8	41	2	1	2	10	1
1.95	0.45	0.12	27	0.00	0	24.26	GREYWACKE											3	1	2	10	1
3.05	1.10	0.46	42	0.00	0	**4.31**		6														
3.50	0.45	0.15	33	0.00	0					0.37	M3/M6	3	1									
4.55	1.05	0.40	38	0.00	0																	
5.00	0.45	0.25	56	0.00	0	**G1**																
6.00	1.00	0.78	78	0.00	0	24.26												1	2	5	10	1
6.45	0.45	0.29	64	0.00	0	↓			1.05			3	2	5	4	0	9	2	1	2	10	1
7.50	1.05	0.65	62	0.00	0	25.70												3	0	0	0	0
7.95	0.45	0.29	64	0.00	0	**1.44**	SHALE	0														
9.00	1.05	0.55	52	0.00	0					0.39	M3/M5	3	2									
9.45	0.45	0.31	69	0.00	0																	
10.50	1.05	0.58	55	0.00	0	**G2**																
10.95	0.45	0.14	31	0.00	0	25.70												1	0	0	0	0
12.00	1.05	0.69	66	0.00	0	↓			1.29			3	1	0	3	7	10	2	2	5	10	1
12.45	0.45	0.30	67	0.00	0	27.05												3	5	9	6	1
13.50	1.05	0.77	73	0.00	0	**1.35**	GREYWACKE	19														
13.95	0.45	0.32	71	0.00	0					0.06	M6	3	1									
15.00	1.05	0.78	74	0.00	0																	
15.45	0.45	0.32	71	0.00	0	**G3**																
16.50	1.05	0.58	55	0.00	0													1				
16.95	0.45	0.45	100	0.00	0													2				
18.00	1.05	0.24	23	0.00	0													3				
18.45	0.45	0.45	100	0.00	0																	
19.50	1.05	0.52	50	0.00	0																	
19.95	0.45	0.45	100	0.00	0																	
21.05	1.10	1.15	105	0.26	24																	

3. Quartz Crystals.

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 14
INCLINATION: VERTICAL
FINAL DEPTH: 27.05m

ELEVATION: 15.636mamsl
CO-ORDS: X = 3727135.09
Y = 52676.96

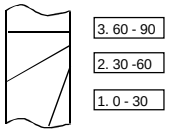
PAGE: 2 OF 2
DATE: 29-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.05																		1				
22.55	1.50	1.54	103	0.00	0													2				
24.05	1.50	1.35	90	0.00	0													3				
25.55	1.50	0.94	63	0.00	0																	
27.05	1.50	1.40	93	0.25	17																	
END OF HOLE - FINAL DEPTH 27.05m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 17 | ELEVATION: 7.149mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727058.02 | DATE: 03-05-2010
PROJECT No: 385908/42C | FINAL DEPTH: 21.58m | Y = 53079.818 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1-5 (MPa)	Weathering 1-5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						16.02												1	1	2	10	1
1.50	1.50	0.85	57	0.00	0	↓			0.97			2	3	9	0	3	12	2	0	0	0	0
1.95	0.45	0.44	98	0.00	0	16.99												3	2	6	10	1
3.00	1.05	0.88	84	0.00	0	**0.97**	SHALE	0														
3.45	0.45	0.39	87	0.00	0					0	0	0	0									
4.50	1.05	0.85	81	0.00	0																	
4.95	0.45	0.34	76	0.00	0	**G1**																
6.00	1.05	0.84	80	0.00	0	16.99												1	1	2	10	1
6.45	0.45	0.29	64	0.00	0	↓			0.82			2-3	2	3	1	0	4	2	1	2	10	1
7.50	1.05	0.81	77	0.00	0	17.81												3	0	0	0	0
7.95	0.45	0.31	69	0.00	0	**0.82**	GREYWACKE	50														
9.00	1.05	0.83	79	0.00	0					0	0	0	0									
9.45	0.45	0.45	100	0.00	0																	
10.50	1.05	0.86	82	0.00	0	**G2**																
10.95	0.45	0.28	62	0.00	0	17.81												1	2	5	10	1
12.00	1.05	0.69	66	0.00	0	↓			0.15			2	4	1	1	3	5	2	1	2	10	1
12.45	0.45	0.17	38	0.00	0	18.08												3	1	2	10	1
13.50	1.05	0.43	41	0.00	0	**0.27**	GREYWACKE	0														
13.95	0.45	0.36	80	0.00	0					0.12	M3	2	4									
15.00	1.05	0.62	59	0.00	0																	
15.45	0.45	0.23	51	0.00	0	**G3**																
16.58	1.13	0.56	50	0.00	0	18.08												1	3	5	9	1
18.08	1.50	1.25	83	0.41	27	↓			1.85			3	1	1	3	0	4	2	2	5	9	1
19.58	1.50	1.27	85	1.15	77	19.93												3	0	0	0	0
21.58	2.00	1.67	84	1.11	56	**1.85**	GREYWACKE	79														
END OF HOLE - FINAL DEPTH 21.58m										0	0	0	0									
						G4																

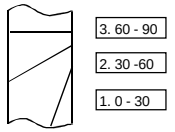
1. Yellowish Green Stained.

3. Yellowish Green Stained.

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting Engineers and Scientists

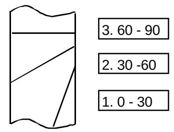
PROJECT: ESKOM GEOTECH INVEST	HOLE NO: KB 17	ELEVATION: 7.149mamsl		PAGE: 2 OF 2
SITE: DUYNEFONTEIN	INCLINATION: VERTICAL	CO-ORDS: X =	3727058.02	DATE: 03-05-2010
PROJECT No: 385908/42C	FINAL DEPTH: 21.58m	Y =	53079.818	LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 $0^0 - 30^0$	2 $30^0 - 60^0$	3 $60^0 - 90^0$	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
						19.96	SHALE	48	1.47			3	1	4	0	1	5	1	1	2	10	1
						↓												2	0	0	0	0
						21.58												3	1	2	10	1
						1.62				0.15	M3	3	1									
						G5																
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

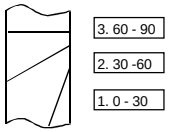
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 18 | ELEVATION: 14.470mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726978.93 | DATE: 03-05-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.10m | Y = 52881.178 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.95												1	1	2	9	1
1.50	1.50	0.60	40	0.00	0	↓			2.80			3	2	6	5	14	25	2	1	2	10	1
1.95	0.45	0.23	51	0.00	0	22.80	GREYWACKE											3	1	2	10	1
3.00	1.05	0.43	41	0.00	0	**2.85**		19														
3.45	0.45	0.24	53	0.00	0					0.05	M3/M6	3	2	1. Yellowish green stained.								
4.50	1.05	0.46	44	0.00	0																	
4.95	0.45	0.27	60	0.00	0	**G1**																
6.00	1.05	0.48	46	0.00	0	22.80												1	1	2	10	1
6.45	0.45	0.21	47	0.00	0	↓			2.60			3	2	6	7	7	20	2	1	2	9	1
7.50	1.05	0.59	56	0.00	0	25.40	GREYWACKE											3	1	2	10	1
7.95	0.45	0.29	64	0.00	0	**2.60**		43														
9.00	1.05	0.53	50	0.00	0					0	0	0	0	2. Iron - stained.								
9.45	0.45	0.24	53	0.00	0																	
10.50	1.05	0.55	52	0.00	0	**G2**																
10.95	0.45	0.21	47	0.00	0	25.40												1	1	2	10	1
12.00	1.05	0.48	46	0.00	0	↓			1.60			4	1	7	4	6	17	2	1	2	10	1
12.45	0.45	0.19	42	0.00	0	27.00	GREYWACKE											3	1	2	9	1
13.50	1.05	0.54	51	0.00	0	**1.60**		13														
13.95	0.45	0.25	56	0.00	0					0	0	0	0	3. Iron - stained.								
15.00	1.05	0.49	47	0.00	0																	
15.45	0.45	0.27	60	0.00	0	**G3**																
16.50	1.05	0.45	43	0.00	0	27.00												1	1	2	10	1
16.95	0.45	0.26	58	0.00	0	↓			3.10			4	1	6	3	11	20	2	1	2	10	1
18.00	1.05	0.56	53	0.00	0	30.10	GREYWACKE											3	1	2	10	1
18.45	0.45	0.28	62	0.00	0	**3.10**		37														
19.50	1.05	0.57	54	0.00	0					0	0	0	0									
19.95	0.45	0.23	51	0.00	0																	
21.00	1.05	0.49	47	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 18
INCLINATION: VERTICAL
FINAL DEPTH: 30.10m

ELEVATION: 14.470mamsl
CO-ORDS: X = 3726978.93
Y = 52881.178

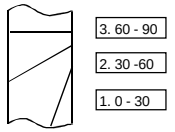
PAGE: 2 OF 2
DATE: 03-05-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																		1				
22.50	1.50	1.53	102	0.40	27													2				
24.00	1.50	1.46	97	0.94	63													3				
25.50	1.50	1.48	99	0.31	21																	
27.00	1.50	1.43	95	0.20	13																	
28.60	1.60	1.57	98	0.21	13																	
30.10	1.50	1.48	99	0.93	62																	
END OF HOLE - FINAL DEPTH 30.10m																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

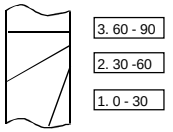
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 19 | ELEVATION: 10.016mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726858.33 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 29.60m | Y = 53167.492 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						23.82												1	0	0	0	0
1.50	1.50	0.36	24	0.00	0	↓			2.49			2-3	2	0	12	5	17	2	1	2	10	1
1.95	0.45	0.22	49	0.00	0	26.31	GREYWACKE											3	1	2	10	1
3.00	1.05	0.46	44	0.00	0	**2.49**		39														
3.45	0.45	0.21	47	0.00	0					0	0	0	0	1. Clayey Silt Infill.								
4.50	1.05	0.39	37	0.00	0																	
4.95	0.45	0.24	53	0.00	0	**G1**																
6.00	1.05	0.47	45	0.00	0	23.61												1	0	0	0	0
6.45	0.45	0.22	49	0.00	0	↓			0.12			2	3-4	0	4	0	4	2	1	2	10	1
7.50	1.05	0.44	42	0.00	0	26.64	GREYWACKE											3	0	0	0	0
7.95	0.45	0.23	51	0.00	0	**3.03**		0														
9.00	1.05	0.36	34	0.00	0					0.21	M3/M5	2	3-4	1. Clayey Silt Infill.								
9.45	0.45	0.22	49	0.00	0																	
10.50	1.05	0.31	30	0.00	0	**G2**																
10.95	0.45	0.22	49	0.00	0	26.64												1	1	2	10	1
12.00	1.05	0.44	42	0.00	0	↓			2.82			2-3	2-3	5	19	3	27	2	1	2	10	1
12.45	0.45	0.21	47	0.00	0	29.60	GREYWACKE											3	1	2	10	1
13.50	1.05	0.45	43	0.00	0	**2.96**		22														
13.95	0.45	0.23	51	0.00	0					0.14	M6	2-3	2-3									
15.00	1.05	0.53	50	0.00	0																	
15.45	0.45	0.23	51	0.00	0	**G3**																
16.50	1.05	0.43	41	0.00	0													1				
16.95	0.45	0.20	44	0.00	0													2				
18.00	1.05	0.46	44	0.00	0													3				
18.45	0.45	0.21	47	0.00	0																	
19.50	1.05	0.52	50	0.00	0																	
19.95	0.45	0.25	56	0.00	0																	
21.00	1.05	0.64	61	0.00	0																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

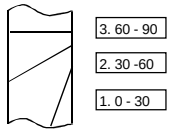
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 19 | ELEVATION: 10.016mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726858.33 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 29.60m | Y = 53167.492 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																		1				
21.45	0.45	0.23	51	0.00	0													2				
22.50	1.05	0.47	45	0.00	0													3				
22.95	0.45	0.24	53	0.00	0																	
24.00	1.05	0.94	90	0.13	12																	
25.50	1.50	1.50	100	0.47	31																	
27.00	1.50	1.38	92	0.48	32																	
28.10	1.10	1.06	96	0.26	24													1				
29.60	1.50	1.35	90	0.29	19													2				
END OF HOLE - FINAL DEPTH 29.60m																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

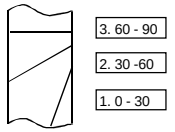
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 21 | ELEVATION: 5.836mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726674.66 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 54.95m | Y = 53284.895 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.00												1	2	5	9	1
1.50	1.50	0.53	35	0.00	0	↓			0.34			1	4	5	0	1	6	2	0	0	0	0
1.95	0.45	0.21	47	0.00	0	19.95	GREYWACKE											3	3	5	10	1
3.00	1.05	0.53	50	0.00	0	**1.95**		10														
3.45	0.45	0.24	53	0.00	0					1.61	M3/M5	1	4	1. Clayey Silt Infill.								
4.50	1.05	0.43	41	0.00	0																	
4.95	0.45	0.26	58	0.00	0	**G1**																
6.00	1.05	0.39	37	0.00	0	19.95												1	1	2	10	1
6.45	0.45	0.18	40	0.00	0	↓			8.40			2-3	3	24	10	26	60	2	1	2	10	1
7.50	1.05	0.50	48	0.00	0	29.45	GREYWACKE											3	1	2	10	1
7.95	0.45	0.18	40	0.00	0	**9.50**		16														
9.00	1.05	0.50	48	0.00	0					1.10	M3/M5	2-3	3									
9.45	0.45	0.25	56	0.00	0																	
10.50	1.05	0.49	47	0.00	0	**G2**																
10.95	0.45	0.16	36	0.00	0	29.45												1	1	2	9	1
12.00	1.05	0.37	35	0.00	0	↓			3.79			3	1	5	3	13	21	2	1	3	10	1
12.45	0.45	0.24	53	0.00	0	33.24	GREYWACKE											3	1	3	10	1
13.50	1.05	0.55	52	0.00	0	**3.79**		43														
13.95	0.45	0.22	49	0.00	0					0	0	0	0	1. Clayey Silt Infill.								
15.00	1.05	0.50	48	0.00	0																	
15.45	0.45	0.24	53	0.00	0	**G3**																
16.50	1.05	0.70	67	0.00	0	33.24												1	0	0	0	0
16.95	0.45	0.20	44	0.00	0	↓			0.56			3	3	0	0	0	0	2	0	0	0	0
18.00	1.05	0.59	56	0.00	0	33.80	SHALE											3	0	0	0	0
18.45	0.45	0.22	49	0.00	0	**0.56**		39														
19.95	1.50	1.12	75	0.19	13						M1	3	3	FAULT								
20.45	0.50	0.48	96	0.00	0																	
21.95	1.50	1.46	97	0.17	11	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting — Engineers and Scientists

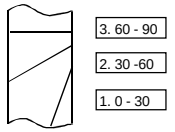
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 21 | ELEVATION: 5.836mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726674.66 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 54.95m | Y = 53284.895 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.95						33.80																
23.45	1.50	1.45	97	0.31	21	↓			7.65			4	1	18	10	21	49	1	1	2	6	1
24.95	1.50	1.47	98	0.47	31	41.45	GREYWACKE											2	1	2	10	1
26.45	1.50	1.44	96	0.42	28	**7.65**		26										3	1	2	10	1
27.95	1.50	1.47	98	0.00	0																	
29.45	1.50	1.20	80	0.13	9					0	0	0	0	1. Greenish Talc / Calc <2mm.								
30.95	1.50	1.43	95	0.40	27	**G5**																
32.45	1.50	1.45	97	0.85	57	41.45												1	1	2	6	1
33.95	1.50	1.49	99	0.55	37	↓			11.95			5	1	29	11	13	53	2	1	2	6	1
35.45	1.50	1.43	95	0.41	27	53.40	GREYWACKE											3	1	2	6	1
36.95	1.50	1.41	94	0.41	27	**11.95**		54														
38.45	1.50	1.42	95	0.17	11					0	0	0	0	1. Calc <1mm. 2. Calc <1mm. 3. Calc <1mm.								
39.95	1.50	1.37	91	0.72	48																	
41.45	1.50	1.41	94	0.27	18	**G6**																
42.95	1.50	1.40	93	0.67	45	53.40												1	5	8	6	1
44.55	1.60	1.49	93	0.79	49	↓			1.55			4	1	1	1	1	3	2	5	8	6	1
46.15	1.60	1.56	97	0.51	32	54.95	GREYWACKE											3	5	8	6	1
47.55	1.40	1.52	109	0.67	48	**1.55**		70														
49.05	1.50	1.47	98	0.79	53					0	0	0	0	1. Calc <1mm. 2. Calc <1mm. 3. Calc / Quartz <10mm.								
50.35	1.30	1.23	95	0.83	64																	
51.90	1.55	1.54	99	0.97	63	**G7**																
53.40	1.50	1.44	96	1.26	84													1				
54.95	1.55	1.47	95	1.09	70													2				
END OF HOLE - FINAL DEPTH 54.95m																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG. Soft sheared material, e.g. Talc
2.GOUGE t. < Amplit. of IRREG. Non-softening sheared material
3.FINE
4.MEDIUM
5.COARSE
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

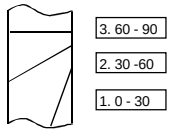
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 25 | ELEVATION: 4.724mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726697.64 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 24.00m | Y = 53361.561 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.50												1	0	0	0	0
1.50	1.50	0.77	51			↓			0.00			1	4	0	0	0	0	2	0	0	0	0
1.95	0.45	0.27	60			18.91	SILTSTONE											3	0	0	0	0
3.00	1.05	0.78	74			**0.41**		0														
3.45	0.45	0.28	62							0.41	M5/M6	1	4									
4.50	1.05	0.39	37																			
4.95	0.45	0.22	49			**G1**																
6.00	1.05	0.46	44			18.91												1	0	0	0	0
6.45	0.45	0.29	64			↓			0.59			2	4	0	2	1	3	2	1	2	10	1
7.50	1.05	0.68	65			19.60	SILTSTONE / SHALE											3	1	3	10	1
7.95	0.45	0.28	62			**0.69**		100														
9.00	1.05	0.58	55							0.10	M5	2	4									
9.45	0.45	0.29	64																			
10.50	1.05	0.56	53			**G2**																
10.95	0.45	0.29	64			19.60												1	0	0	0	0
12.00	1.05	0.85	81			↓			0.00			1	4-5	0	0	0	0	2	0	0	0	0
12.45	0.45	0.25	56			20.02												3	0	0	0	0
13.50	1.05	0.56	53			**0.42**	SHALE	0														
13.95	0.45	0.28	62							0.42	M5/M6	1	4-5									
15.00	1.05	0.49	47																			
15.45	0.45	0.20	44			**G3**																
16.50	1.05	0.54	51			20.02												1	0	0	0	0
16.95	0.45	0.21	47			↓			0.54			1	3-4	0	2	1	3	2	1	3	9	1
18.00	1.05	0.71	68			20.56												3	1	3	9	1
18.45	0.45	0.20	44			**0.54**	SHALE	0														
19.50	1.05	1.03	98	0.71	68					0	0	0	0									
21.00	1.50	1.48	99	0.47	31																	
22.50	1.50	1.36	91	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

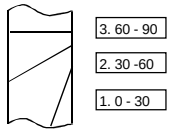
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 25 | ELEVATION: 4.724mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726697.64 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 24.00m | Y = 53361.561 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
22.50						20.56												1	0	0	0	0
24.00	1.50	1.40	93	0.31	21	↓			0.00			1	4-5	0	0	0	0	2	0	0	0	0
END OF HOLE - FINAL DEPTH 24.00m						21.02	SILTSTONE											3	0	0	0	0
						0.46		0		0.46	M5/M6	1	4-5									
						G5																
						21.02												1	1	2	10	1
						↓			0.83			1	4-5	5	0	0	5	2	0	0	0	0
						22.55												3	0	0	0	0
						1.53	SHALE	0		0.70	M5/M6	1	4-5									
						G6																
						22.55												1	1	2	10	1
						↓			1.04			1-2	4	3	2	0	5	2	1	3	10	1
						24.00												3	0	0	0	0
						1.45	SHALE	21		0.41	M5/M6	1-2	4									
						G7																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

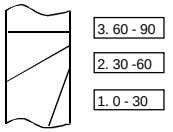
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 26 | ELEVATION: 5.178mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727099.40 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53180.532 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.50	GREYWACKE	16	4.70			1	4-5	10	15	8	33	1	1	2	10	1
1.50	1.50	0.55	37			↓												2	1	2	10	1
1.95	0.45	0.32	71			23.64												3	1	2	10	1
3.00	1.05	0.39	37			**5.14**				0.44	M3/M5	1	4-5	Clayey silt infill								
3.45	0.45	0.31	69																			
4.50	1.05	0.53	50																			
4.95	0.45	0.29	64			**G1**																
6.00	1.05	0.44	42			23.64	GREYWACKE	0	0.23			1	4-5	1	1	0	2	1	2	5	10	1
6.45	0.45	0.30	67			↓												2	2	5	10	1
7.50	1.05	0.50	48			24.23												3	0	0	0	0
7.95	0.45	0.26	58			**0.59**				0.36	M3/M5	1	4-5	Clayey silt infill								
9.00	1.05	0.58	55																			
9.45	0.45	0.28	62																			
10.50	1.05	0.57	54			**G2**																
10.95	0.45	0.26	58			24.23	GREYWACKE	4	1.10			2-3	3	8	3	6	17	1	3	5	10	1
12.00	1.05	0.42	40			↓												2	2	5	10	1
12.45	0.45	0.25	56			27.35												3	2	5	10	1
13.50	1.05	0.56	53			**3.12**				2.02	M3/M5	2-3	3									
13.95	0.45	0.24	53																			
15.00	1.05	0.52	50																			
15.45	0.45	0.26	58			**G3**																
16.50	1.05	0.49	47			27.35	GREYWACKE	28	2.65			2-3	2	3	4	12	19	1	5	8	10	1
16.95	0.45	0.33	73			↓												2	5	8	10	1
18.00	1.05	0.54	51			30.00												3	1	2	10	1
18.45	0.45	0.30	67			**2.65**				0	0	0	0	3. Coarse quartz crystals								
19.50	1.05	1.00	95	0.28	27																	
21.00	1.50	1.42	95	0.00	0																	
22.50	1.50	1.46	97	0.28	19	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 26
INCLINATION: VERTICAL
FINAL DEPTH: 30.00m

ELEVATION: 5.178mamsl
CO-ORDS: X = 3727099.40
Y = 53180.532

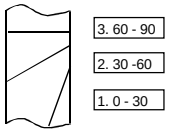
PAGE: 2 OF 2
DATE: 28-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
22.50																						
24.00	1.50	1.40	93	0.24	16																	
25.50	1.50	1.30	87	0.00	0																	
27.00	1.50	1.39	93	0.11	7																	
28.50	1.50	1.40	93	0.27	18																	
30.00	1.50	1.47	98	0.48	32																	
END OF HOLE - FINAL DEPTH 30.00m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

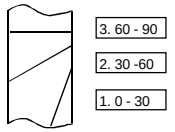
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 27 | ELEVATION: 5.985mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727181.33 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 22.63m | Y = 53090.174 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.50												1	2	5	3	1
1.50	1.50	0.45	30	0.00	0	↓			1.16			2	3	1	2	11	14	2	1	2	3	1
1.95	0.45	0.13	29	0.00	0	19.75	MUDSTONE											3	3	5	3	1
3.00	1.05	0.71	68	0.00	0	**1.25**		43														
3.45	0.45	0.30	67	0.00	0					0.09	M6	2	3	Clayey infill								
4.50	1.05	0.82	78	0.00	0																	
4.95	0.45	0.24	53	0.00	0	**G1**																
6.00	1.05	0.75	71	0.00	0	19.75												1	1	2	3	1
6.45	0.45	0.25	56	0.00	0	↓			2.78			2	3	7	16	14	37	2	1	2	3	1
7.50	1.05	0.84	80	0.00	0	22.63	MUDSTONE											3	3	5	3	1
7.95	0.45	0.26	58	0.00	0	**2.88**		11														
9.00	1.05	0.80	76	0.00	0					0.10	M5/M6	2	3	Clayey infill								
9.45	0.45	0.27	60	0.00	0																	
10.50	1.05	0.77	73	0.00	0	**G2**																
10.95	0.45	0.35	78	0.00	0																	
12.00	1.05	0.94	90	0.00	0																	
12.45	0.45	0.30	67	0.00	0																	
13.50	1.05	0.82	78	0.00	0																	
13.95	0.45	0.20	44	0.00	0																	
15.00	1.05	0.96	91	0.00	0																	
15.45	0.45	0.28	62	0.00	0																	
16.50	1.05	0.80	76	0.00	0																	
16.95	0.45	0.30	67	0.00	0																	
18.00	1.05	0.62	59	0.00	0																	
18.45	0.45	0.19	42	0.00	0																	
18.77	0.32	0.40	125	0.00	0																	
19.75	0.98	1.03	105	0.54	55																	
21.15	1.40	1.34	96	0.11	8																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 27
INCLINATION: VERTICAL
FINAL DEPTH: 22.63m

ELEVATION: 5.985mamsl
CO-ORDS: X = 3727181.33
Y = 53090.174

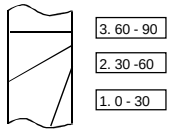
DATE: 17-07-2008
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.15																						
22.63	1.48	1.37	93	0.20	14																	
END OF HOLE - FINAL DEPTH 22.63m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

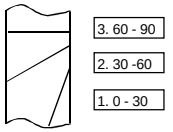
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 29 | ELEVATION: 6.567mamsl | PAGE: 1 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726781.60 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53267.456 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.45												1	1	2	10	1
1.50	1.50	0.54	36	0.00	0	↓			0.27			1	4-5	3	0	0	3	2	0	0	0	0
1.95	0.45	0.18	40	0.00	0	19.50	GREYWACKE											3	0	0	0	0
3.00	1.05	0.59	56	0.00	0	**1.05**		0														
3.45	0.45	0.22	49	0.00	0					0.78	M3/M5	1	4-5									
4.50	1.05	0.58	55	0.00	0																	
4.95	0.45	0.24	53	0.00	0	**G1**																
6.00	1.05	0.47	45	0.00	0	19.50												1	0	0	0	0
6.45	0.45	0.24	53	0.00	0	↓			0.68			2	4	0	3	0	3	2	1	2	10	1
7.50	1.05	0.59	56	0.00	0	20.18	GREYWACKE											3	0	0	0	0
7.95	0.45	0.23	51	0.00	0	**0.68**		21														
9.00	1.05	0.60	57	0.00	0					0	0	0	0									
9.45	0.45	0.23	51	0.00	0																	
10.50	1.05	0.55	52	0.00	0	**G2**																
10.95	0.45	0.27	60	0.00	0	20.18												1	1	2	9	1
12.00	1.05	0.63	60	0.00	0	↓			0.46			1-2	4	5	1	0	6	2	5	8	10	1
12.45	0.45	0.28	62	0.00	0	20.87	SHALE											3	0	0	0	0
13.50	1.05	0.60	57	0.00	0	**0.69**		0														
13.95	0.45	0.23	51	0.00	0					0.23	M3/M5	1-2	4	1. Black stained.								
15.00	1.05	0.74	70	0.00	0																	
15.45	0.45	0.23	51	0.00	0	**G3**																
16.50	1.05	0.53	50	0.00	0	20.87												1	2	5	10	1
16.95	0.45	0.28	62	0.00	0	↓			2.18			2	4	3	4	2	9	2	1	2	10	1
18.00	1.05	0.44	42	0.00	0	23.25	GREYWACKE											3	5	8	10	1
18.45	0.45	0.32	71	0.00	0	**2.38**		9														
19.50	1.05	0.66	63	0.00	0					0.20	M5/M6	2	4									
21.00	1.50	1.34	89	0.14	9																	
22.50	1.50	1.23	82	0.21	14	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

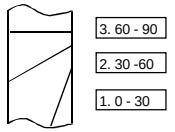
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 29 | ELEVATION: 6.567mamsl | PAGE: 2 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726781.60 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53267.456 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
22.50						23.25	SHALE	8	0.33			1-2	4-5	1	2	0	3	1	3	5	10	1
24.00	1.50	1.25	83	0.00	0	↓												2	1	2	10	1
25.50	1.50	1.38	92	0.12	8	24.80												3	0	0	0	0
27.00	1.50	0.82	55	0.00	0	**1.55**				1.22	M3/M5	1	5									
28.50	1.50	1.52	101	0.67	45																	
30.00	1.50	1.38	92	0.21	14	**G5**																
END OF HOLE - FINAL DEPTH 30.00m						24.80	GREYWACKE	0	0.35			2	3	2	0	2	4	1	1	2	10	1
						↓												2	0	0	0	0
						25.15												3	3	5	10	1
						0.35				0	0	0	0									
						G6																
						25.15	GREYWACKE	0	1.68			1-2	4-5	6	0	2	8	1	1	2	10	1
						↓												2	0	0	0	0
						27.00												3	1	2	10	1
						1.85				0.17	M3/M5	1-2	4-5									
						G7																
						27.00	GREYWACKE	78	0.86			2	4	2	2	1	5	1	1	2	10	1
						↓												2	1	2	10	1
						27.86												3	1	2	10	1
						0.86				0	0	0	0									
						G8																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

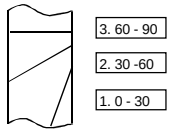
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 29 | ELEVATION: 6.567mamsl | PAGE: 3 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726781.60 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53267.456 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
						27.86 ↓ 28.50	GREYWACKE	0	0			2	4	2	0	0	2	1	1	2	10	1
																		2	0	0	0	0
																		3	0	0	0	0
						0.64		0		0.64	M3/M5	2	4									
						G9																
						28.50 ↓ 30.00	GREYWACKE	14	1.50			2-3	2	6	8	2	16	1	1	2	10	1
																		2	1	2	10	1
																		3	1	2	10	1
						1.50				0	0	0	0									
						G10																
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

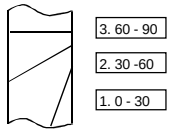
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 30 | ELEVATION: 4.909mamsl | PAGE: 1 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726580.47 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 25.50m | Y = 53356.720 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.00												1	1	2	9	1
1.50	1.50	0.86	57	0.00	0	↓			0.30			2	4-5	3	0	0	3	2	0	0	0	0
1.95	0.45	0.36	80	0.00	0	19.50	SHALE											3	0	0	0	0
3.00	1.05	0.87	83	0.00	0	**1.50**		15														
3.45	0.45	0.38	84	0.00	0					1.20	M3/M5	2	4-5	1. Clayey Silt.								
4.50	1.05	0.95	90	0.00	0																	
4.95	0.45	0.34	76	0.00	0	**G1**																
6.00	1.05	0.98	93	0.00	0	19.50												1	1	2	10	1
6.45	0.45	0.27	60	0.00	0	↓			3.00			2-3	3	7	0	1	8	2	0	0	0	0
7.50	1.05	0.70	67	0.00	0	22.50	SHALE											3	3	5	10	1
7.95	0.45	0.36	80	0.00	0	**3.00**		45														
9.00	1.05	0.59	56	0.00	0					0	0	0	0									
9.45	0.45	0.19	42	0.00	0																	
10.50	1.05	0.49	47	0.00	0	**G2**																
10.95	0.45	0.35	78	0.00	0	22.50												1	1	2	10	1
12.00	1.05	0.68	65	0.00	0	↓			3.00			2	2	6	2	0	8	2	3	5	10	1
12.45	0.45	0.29	64	0.00	0	25.50	SHALE											3	0	0	0	0
13.50	1.05	0.41	39	0.00	0	**3.00**		62														
13.95	0.45	0.29	64	0.00	0					0	0	0	0									
15.00	1.05	0.52	50	0.00	0																	
15.45	0.45	0.27	60	0.00	0	**G3**																
16.50	1.05	0.97	92	0.00	0													1				
16.95	0.45	0.45	100	0.00	0													2				
18.00	1.05	0.80	76	0.00	0													3				
19.50	1.50	1.10	73	0.22	15																	
21.00	1.50	1.38	92	0.60	40																	
22.50	1.50	1.07	71	0.76	51																	
24.00	1.50	1.24	83	0.91	61																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 30
INCLINATION: VERTICAL
FINAL DEPTH: 25.50m

ELEVATION: 4.909mamsl
CO-ORDS: X = 3726580.47
Y = 53356.720

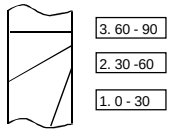
PAGE: 2 OF 2
DATE: 29-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
24.00																		1				
25.50	1.50	1.50	100	0.95	63													2				
																		3				
END OF HOLE - FINAL DEPTH 25.50m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

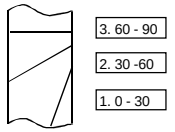
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 31 | ELEVATION: 6.610mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727292.05 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.18m | Y = 53093.098 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						22.95												1	1	2	10	1
1.50	1.50	0.70	47	0.00	0	↓			1.15			3	2	4	3	1	8	2	1	2	10	1
3.00	1.50	0.70	47	0.00	0	24.10	MUDSTONE											3	5	8	10	1
3.45	0.45	0.22	49	0.00	0	**1.15**		55														
4.50	1.05	0.66	63	0.00	0					0	0	0	0									
4.95	0.45	0.16	36	0.00	0																	
6.00	1.05	0.60	57	0.00	0	**G1**																
6.45	0.45	0.25	56	0.00	0	24.10												1	1	2	10	1
7.50	1.05	0.48	46	0.00	0	↓			0.00			2-3	2	2	0	1	3	2	0	0	0	0
7.95	0.45	0.21	47	0.00	0	25.53	GREYWACKE											3	1	2	10	1
9.00	1.05	0.69	66	0.00	0	**1.43**		68														
9.45	0.45	0.28	62	0.00	0					0	0	0	0									
10.50	1.05	0.58	55	0.00	0																	
10.95	0.45	0.23	51	0.00	0	**G2**																
12.00	1.05	0.74	70	0.00	0	25.53												1	1	2	10	1
12.45	0.45	0.26	58	0.00	0	↓			2.21			2-3	1	7	0	4	11	2	0	0	0	0
13.50	1.05	0.54	51	0.00	0	27.85	MUDSTONE											3	1	3	9	1
13.95	0.45	0.30	67	0.00	0	**2.32**		58														
15.00	1.05	0.61	58	0.00	0					0.10	M6	2-3	1	3. Yellow stained.								
15.45	0.45	0.23	51	0.00	0																	
16.50	1.05	0.66	63	0.00	0	**G3**																
16.95	0.45	0.21	47	0.00	0	27.85												1	1	3	10	1
18.00	1.05	0.85	81	0.00	0	↓			2.18			3	1	7	5	7	19	2	1	2	10	1
18.45	0.45	0.23	51	0.00	0	30.18	SILTSTONE											3	1	2	10	1
19.50	1.05	0.87	83	0.00	0	**2.33**		26														
19.95	0.45	0.24	53	0.00	0					0.05	M5	3	1									
21.00	1.05	0.80	76	0.00	0																	
21.45	0.45	0.24	53	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG. Soft sheared material, e.g. Talc
2.GOUGE t. < Amplit. of IRREG. Non-softening sheared material
3.FINE
4.MEDIUM
5.COARSE
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

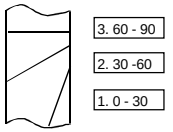
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 31 | ELEVATION: 6.610mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727292.05 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.18m | Y = 53093.098 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.45																		1				
22.50	1.05	0.77	73	0.00	0													2				
22.95	0.45	0.21	47	0.00	0													3				
24.10	1.15	1.31	114	0.63	55																	
25.68	1.58	1.44	91	0.97	61																	
27.03	1.35	1.28	95	0.54	40																	
28.63	1.60	1.48	93	0.81	51																	
30.18	1.55	1.48	95	0.57	37													1				
																		2				
END OF HOLE - FINAL DEPTH 30.18m																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting — Engineers and Scientists

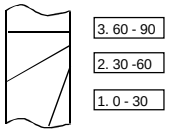
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 32 | ELEVATION: 6.981mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726897.19 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 40.20m | Y = 53267.65 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1-5 (MPa)	Weathering 1-5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.95																
1.50	1.50	0.40	27	0.00	0	↓			0.20			1	4-5	3	0	0	3	2	0	0	0	0
1.95	0.45	0.22	49	0.00	0	21.10	GREYWACKE											3	0	0	0	0
3.00	1.05	0.43	41	0.00	0	**1.15**		0														
3.45	0.45	0.22	49	0.00	0					0.95	M3/M5	1	4-5									
4.50	1.05	0.40	38	0.00	0																	
4.95	0.45	0.23	51	0.00	0	**G1**																
6.00	1.05	0.32	30	0.00	0	21.10												1	1	2	9	1
6.45	0.45	0.23	51	0.00	0	↓			0.67			2	4	1	0	6	7	2	0	0	0	0
7.50	1.05	0.42	40	0.00	0	21.77	GREYWACKE											3	1	2	9	1
7.95	0.45	0.19	42	0.00	0	**0.67**		0														
9.00	1.05	0.40	38	0.00	0					0	0	0	0	1. Iron-stained. 3. Iron-stained.								
9.45	0.45	0.24	53	0.00	0																	
10.50	1.05	0.42	40	0.00	0	**G2**																
10.95	0.45	0.19	42	0.00	0	21.77												1	1	2	10	1
12.00	1.05	0.39	37	0.00	0	↓			0.00			1	4-5	4	0	1	5	2	0	0	0	0
12.45	0.45	0.21	47	0.00	0	22.63	GREYWACKE											3	1	2	10	1
13.50	1.05	0.34	32	0.00	0	**0.86**		0														
13.95	0.45	0.23	51	0.00	0					0.86	M2/M3	1	4-5									
15.00	1.05	0.41	39	0.00	0																	
15.45	0.45	0.22	49	0.00	0	**G3**																
16.50	1.05	0.30	29	0.00	0	22.63												1	2	5	9	1
16.95	0.45	0.25	56	0.00	0	↓			1.15			2	3	10	6	3	19	2	2	5	9	1
18.00	1.05	0.39	37	0.00	0	24.88	GREYWACKE											3	2	5	9	1
18.45	0.45	0.21	47	0.00	0	**2.25**		0														
19.50	1.05	0.39	37	0.00	0					1.10	M3/M5	2	3	1. Iron-stained/clayey silt. 2. Iron-stained /clayey silt. 3. Clayey silt.								
19.95	0.45	0.23	51	0.00	0																	
21.00	1.05	1.03	98	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

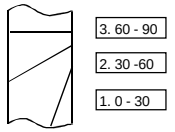
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 32 | ELEVATION: 6.981mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726897.19 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 40.20m | Y = 53267.65 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00						24.88												1	0	0	0	0
22.50	1.50	1.39	93	0.00	0	↓			0.00			1	4-5	0	0	0	0	2	0	0	0	0
24.00	1.50	1.26	84	0.00	0	25.50	GREYWACKE											3	0	0	0	0
25.50	1.50	1.37	91	0.00	0	**0.62**		0														
27.00	1.50	1.34	89	0.00	0					0.62	M3/M5	1	4-5	Could be driller's induced.								
28.50	1.50	1.39	93	0.00	0																	
30.00	1.50	1.42	95	0.15	10	**G5**																
31.50	1.50	1.42	95	1.35	90	25.50												1	3	5	10	1
33.10	1.60	1.55	97	1.01	63	↓			0.00			2-3	3	4	5	7	16	2	1	2	10	1
34.10	1.00	1.00	100	0.16	16	26.90	GREYWACKE											3	1	2	10	1
35.70	1.60	1.48	92	0.56	35	**1.40**		0														
37.30	1.60	1.52	95	1.06	66					1.40	M3/M5	2-3	3									
38.90	1.60	1.48	92	0.10	6																	
40.20	1.30	1.20	92	0.85	65	**G6**																
END OF HOLE - FINAL DEPTH 40.20m						26.90												1	1	2	10	1
						↓			0.93			2-3	3	17	13	9	39	2	1	2	10	1
						29.90	GREYWACKE											3	1	2	10	1
						3.00		0														
										2.07	M3	2-3	3									
						G7																
						29.90												1	3	5	10	1
						↓			9.86			3	1	28	4	25	57	2	2	5	10	1
						40.20	SHALE											3	1	2	10	1
						10.30		51														
										0.44	M3/M5	3	1									
						G8																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG. Soft sheared material, e.g. Talc
2.GOUGE t. < Amplit. of IRREG. Non-softening sheared material
3.FINE
4.MEDIUM
5.COARSE
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting — Engineers and Scientists

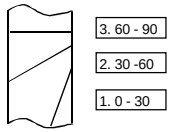
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 33 | ELEVATION: 4.757mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726498.54 | DATE: 03-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53449.088 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						13.95												1	2	5	3	1
1.50	1.50	0.63	42			↓			1.30			3	3	1	4	4	9	2	2	5	3	1
1.95	0.45	0.23	51			15.25	GREYWACKE											3	5	9	10	1
3.00	1.05	0.44	42			**1.30**		47														
3.45	0.45	0.23	51							0	0	0	0									
4.50	1.05	0.63	60																			
4.95	0.45	0.24	53			**G1**																
6.00	1.05	0.77	73			15.25												1	5	9	10	1
6.45	0.45	0.28	62			↓			1.12			2-3	3	3	7	0	10	2	3	6	9	1
7.50	1.05	0.91	87			16.37	GREYWACKE											3	0	0	0	0
7.95	0.45	0.27	60			**1.12**		30														
9.00	1.05	0.77	73							0	0	0	0									
9.45	0.45	0.26	58																			
10.50	1.05	0.85	81			**G2**																
10.95	0.45	0.23	51			16.37												1	2	6	7	1
12.00	1.05	0.85	81			↓			4.25			3	2	6	17	7	30	2	2	6	3	1
12.45	0.45	0.27	60			21.00	GREYWACKE											3	5	9	3	1
13.50	1.05	0.49	47			**4.63**		29														
13.95	0.45	0.29	64							0.38	M5/M6	3	2	2. Clayey infill 1mm.								
15.00	1.05	1.04	99	0.61	58																	
16.50	1.50	1.50	100	0.34	23	**G3**																
18.00	1.50	1.37	91	0.79	53	21.00												1	1	3	10	1
19.50	1.50	1.26	84	0.33	22	↓			2.95			3	1	5	5	11	21	2	2	5	10	1
21.00	1.50	1.52	101	0.22	15	24.00	GREYWACKE											3	1	2	9	1
22.50	1.50	1.51	101	0.82	55	**3.00**		39														
24.00	1.50	1.44	96	0.36	24					0.05	M6	3	1	3. Staining								
25.50	1.50	1.46	97	0.68	45																	
27.00	1.50	1.49	99	0.79	53	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

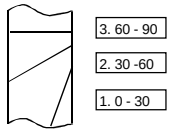
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 33 | ELEVATION: 4.757mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726498.54 | DATE: 03-04-2009
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53449.088 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
27.00						24.00	GREYWACKE		3.10			4	1	5	3	14	22	1	1	2	10	1
28.50	1.50	1.42	95	0.14	9	↓												2	2	6	10	1
30.00	1.50	1.41	94	0.10	7	27.20												3	1	2	10	1
END OF HOLE - FINAL DEPTH 30.00m						**3.20**		50		0.10	M6	4	1									
						G5																
						27.20	GREYWACKE		1.28			3	1	11	3	2	16	1	3	5	10	1
						↓												2	2	5	10	1
						30.00												3	2	5	10	1
						2.80		4		1.52	M5/M6	3	1									
						G6																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG. Soft sheared material, e.g. Talc
2.GOUGE t. < Amplit. of IRREG. Non-softening sheared material
3.FINE
4.MEDIUM
5.COARSE
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

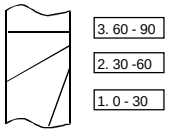
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 34 | ELEVATION: 7.621mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726541.48 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.14m | Y = 53249.274 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.60												1	1	2	10	1
1.50	1.50	0.94	63	0.00	0	↓			1.60			1	4-5	4	3	0	7	2	1	2	9	1
1.95	0.45	0.38	84	0.00	0	21.94	GREYWACKE											3	0	0	0	0
3.00	1.05	0.98	93	0.00	0	**3.34**		4														
3.45	0.45	0.34	76	0.00	0					1.74	M5	1	4-5	2. Clayey Silt.								
4.50	1.05	1.01	96	0.00	0																	
4.95	0.45	0.45	100	0.00	0	**G1**																
6.00	1.05	0.95	90	0.00	0	21.94												1	1	2	10	1
6.45	0.45	0.31	69	0.00	0	↓			0.70			2	4	1	0	0	1	2	0	0	0	0
7.50	1.05	1.12	107	0.00	0	22.64	GREYWACKE											3	0	0	0	0
7.95	0.45	0.25	56	0.00	0	**0.70**		85														
9.00	1.05	1.01	96	0.00	0					0	0	0	0									
9.45	0.45	0.28	62	0.00	0																	
10.50	1.05	1.06	101	0.00	0	**G2**																
10.95	0.45	0.30	67	0.00	0	22.64												1	1	2	9	1
12.00	1.05	1.05	100	0.00	0	↓			0.20			1	4-5	3	0	0	3	2	0	0	0	0
12.45	0.45	0.29	64	0.00	0	24.14	GREYWACKE											3	0	0	0	0
13.50	1.05	0.96	91	0.00	0	**1.50**		0														
13.95	0.45	0.36	80	0.00	0					1.30	M3/M5	1	4-5	1. Clayey Silt.								
15.00	1.05	0.91	87	0.00	0																	
15.45	0.45	0.42	93	0.00	0	**G3**																
16.50	1.05	0.85	81	0.00	0	24.14												1	2	5	9	1
16.95	0.45	0.45	100	0.00	0	↓			3.60			2	3-4	8	3	3	14	2	1	2	9	1
18.00	1.05	0.81	77	0.00	0	28.49	GREYWACKE											3	2	5	9	1
18.45	0.45	0.45	100	0.00	0	**4.35**		48														
19.60	1.15	1.02	89	0.00	0					0.95	M3/M5	2	3-4	1. Clayey Silt. 2. Clayey Silt. 3. Clayey Silt.								
21.14	1.54	1.22	79	0.12	40																	
21.44	0.30	0.27	90	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 34
INCLINATION: VERTICAL
FINAL DEPTH: 30.14m

ELEVATION: 7.621mamsl
CO-ORDS: X = 3726541.48
Y = 53249.274

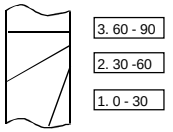
PAGE: 2 OF 2
DATE: 29-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.44						28.49												1	2	5	9	1
22.64	1.20	1.05	88	0.57	48	↓			1.32			2-3	3	4	0	2	6	2	0	0	0	0
24.14	1.50	1.18	79	0.00	0	30.14												3	5	8	9	1
25.64	1.50	1.32	88	0.84	56	**1.65**	GREYWACKE	10						Vertical joint throughout (M3).								
27.14	1.50	1.47	98	0.82	55					0.33	M5/M6	2-3	3									
28.64	1.50	1.43	95	0.42	28																	
30.14	1.50	1.43	95	0.17	11	**G5**																
END OF HOLE - FINAL DEPTH 30.14m																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

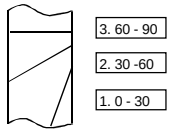
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 36 | ELEVATION: 10.125mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726939.14 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.04m | Y = 53080.390 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						15.00												1	1	2	9	1
0.08	0.08	0.08	100	0.00	0	↓			0.55			3	2	3	6	0	9	2	1	2	9	1
1.50	1.42	0.85	60	0.00	0	15.55	HORNFELS											3	0	0	0	0
1.95	0.45	0.39	87	0.00	0	**0.55**		0														
3.04	1.09	0.32	29	0.00	0																	
3.49	0.45	0.45	100	0.00	0					0	0	0	0	Yellow oxide stained.								
4.54	1.05	0.39	37	0.00	0	**G1**																
4.99	0.45	0.40	89	0.00	0	15.55												1	1	2	3/6	1
6.04	1.05	0.30	29	0.00	0	↓			5.49			4	1	15	25	10	50	2	1	2	10	1
6.49	0.45	0.39	87	0.00	0	21.04	HORNFELS											3	1	2	10	1
7.54	1.05	0.42	40	0.00	0	**5.49**		27														
7.99	0.45	0.26	58	0.00	0																	
9.04	1.05	0.52	50	0.00	0					0	0	0	0	1. Powder and Calcite.								
9.49	0.45	0.44	98	0.00	0	**G2**																
10.54	1.05	0.75	71	0.00	0	21.04												1	1	2	10	1
10.99	0.45	0.45	100	0.00	0	↓			5.72			4	1	11	13	0	24	2	1	2	10	1
12.04	1.05	0.61	58	0.00	0	26.76	HORNFELS											3	0	0	0	0
12.49	0.45	0.45	100	0.00	0	**5.72**		51														
13.54	1.05	0.29	28	0.00	0																	
13.99	0.45	0.32	71	0.00	0					0	0	0	0									
15.04	1.05	0.70	67	0.00	0	**G3**																
16.54	1.50	1.42	95	0.66	44	26.76												1	2	6	10	1
18.04	1.50	1.53	102	0.14	9	↓			0.00			3	1	2	0	0	2	2	0	0	0	0
19.54	1.50	1.51	101	0.29	19	27.04	HORNFELS											3	0	0	0	0
21.04	1.50	1.41	94	0.41	27	**0.28**		0														
22.54	1.50	1.61	107	0.65	43																	
24.04	1.50	1.48	99	0.96	64					0.28	m2	3	1									
25.54	1.50	1.40	93	0.83	55	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

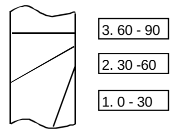
PROJECT: ESKOM GEOTECH INVEST	HOLE NO: KB 36	ELEVATION: 10.125mamsl	PAGE: 2 OF 2
SITE: DUYNEFONTEIN	INCLINATION: VERTICAL	CO-ORDS: X = 3726939.14	DATE: 29-04-2010
PROJECT No: 385908/42C	FINAL DEPTH: 30.04m	Y = 53080.390	LOGGED BY: JB

Drilling Interval	Recovery m Drill	Recovery m Rec	Recovery % Rec	RQD m	RQD %	Geotech Interval	Rock Type	Int. RQD %	Rock Competence Solid m	Rock Competence Matrix m	Rock Competence Matrix Type	Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution 1 $0^0 - 30^0$	Joint Distribution 2 $30^0 - 60^0$	Joint Distribution 3 $60^0 - 90^0$	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
25.54						27.04	HORNFELS	19	3.00			4	1	6	16	5	27	1	2	5	10	1
27.04	1.50	1.29	86	0.50	33	↓												2	1	2	6	1
28.54	1.50	1.41	94	0.47	31	30.04												3	5	8	10	1
30.04	1.50	1.43	95	0.12	8	**3.00**				0	0	0	0	1. Calc <1mm.								
END OF HOLE - FINAL DEPTH 30.04m						G5																
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

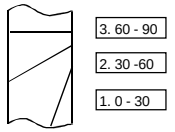
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 37 | ELEVATION: 11.173mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727139.66 | DATE: 03-05-2008
PROJECT No: 385908/42C | FINAL DEPTH: 30.17m | Y = 52987.447 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.50												1	3	5	10	1
1.50	1.50	0.90	60	0.00	0	↓			3.19			3-4	1	3	10	5	18	2	1	2	10	1
1.95	0.45	0.35	78	0.00	0	23.55	SILTSTONE											3	1	2	10	1
3.00	1.05	0.82	78	0.00	0	**4.05**		6														
3.45	0.45	0.28	62	0.00	0					0.86	M3/M6	3-4	1									
4.50	1.05	1.00	95	0.00	0																	
4.95	0.45	0.20	44	0.00	0	**G1**																
6.00	1.05	0.83	79	0.00	0	23.55												1	1	2	10	1
6.45	0.45	0.45	100	0.00	0	↓			2.12			3	1	7	7	2	16	2	1	2	10	1
7.50	1.05	0.85	81	0.00	0	25.67	SILTSTONE											3	1	2	10	1
7.95	0.45	0.45	100	0.00	0	**2.12**		31														
9.00	1.05	0.81	77	0.00	0					0	0	0	0									
9.45	0.45	0.45	100	0.00	0																	
10.50	1.05	0.56	53	0.00	0	**G2**																
10.95	0.45	0.19	42	0.00	0	25.67												1	1	2	10	1
12.00	1.05	0.55	52	0.00	0	↓			0.78			3	1	3	0	4	7	2	0	0	0	0
12.45	0.45	0.23	51	0.00	0	26.70	SILTSTONE											3	1	2	10	1
13.50	1.05	0.55	52	0.00	0	**1.03**		42														
13.95	0.45	0.24	53	0.00	0					0.25	M3/M5	3	1									
15.00	1.05	0.47	45	0.00	0																	
15.45	0.45	0.25	56	0.00	0	**G3**																
16.50	1.05	0.56	53	0.00	0	26.70												1	1	2	10	1
16.95	0.45	0.33	73	0.00	0	↓			3.39			3-4	1	7	5	3	15	2	2	5	10	1
18.00	1.05	1.00	95	0.00	0	30.17	SILTSTONE											3	2	5	10	1
18.45	0.45	0.27	60	0.00	0	**3.47**		49														
19.50	1.05	0.91	87	0.00	0					0.08	M3/M6	3-4	1									
20.08	0.58	0.24	41	0.00	0																	
21.58	1.50	1.03	69	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 37
INCLINATION: VERTICAL
FINAL DEPTH: 30.17m

ELEVATION: 11.173mamsl
CO-ORDS: X = 3727139.66
Y = 52987.447

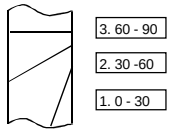
PAGE: 2 OF 2
DATE: 03-05-2008
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.58																		1				
22.67	1.09	1.04	95	0.26	24													2				
24.17	1.50	1.24	83	0.00	0													3				
25.67	1.50	1.37	91	0.66	44																	
27.17	1.50	1.48	99	0.78	52																	
28.67	1.50	1.54	103	0.85	57																	
30.17	1.50	1.24	83	0.49	33																	
END OF HOLE - FINAL DEPTH 30.17m																		1				
																		2				
																		3				
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
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2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
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4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting — Engineers and Scientists

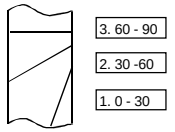
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 38 | ELEVATION: 14.016mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727093.42 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 25.56m | Y = 52876.429 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.80	GREYWACKE	0	0.37			4	1	1	1	0	2	1	2	5	10	1
1.50	1.50	0.54	36	0.00	0	↓												2	3	5	10	1
1.95	0.45	0.34	76	0.00	0	21.06												3	0	0	0	0
3.00	1.05	0.39	37	0.00	0	**1.26**				0.89	M5/M6	4	1	Depth of rock could be wrong?								
3.45	0.45	0.24	53	0.00	0																	
4.50	1.05	0.67	64	0.00	0																	
4.95	0.45	0.31	69	0.00	0	**G1**																
6.00	1.05	0.53	50	0.00	0	21.06	SILTSTONE / MUDSTONE	6	1.67			3	1-2	12	8	1	21	1	2	5	10	1
6.45	0.45	0.27	60	0.00	0	↓												2	1	2	10	1
7.50	1.05	0.50	48	0.00	0	25.56												3	5	9	10	1
7.95	0.45	0.26	58	0.00	0	**4.50**				2.83	M3/M6	3	1-2									
9.00	1.05	0.95	90	0.00	0																	
9.45	0.45	0.25	56	0.00	0																	
10.50	1.05	0.72	69	0.00	0	**G2**																
10.95	0.45	0.25	56	0.00	0													1				
12.00	1.05	0.46	44	0.00	0													2				
12.45	0.45	0.25	56	0.00	0													3				
13.50	1.05	0.55	52	0.00	0																	
13.95	0.45	0.26	58	0.00	0																	
15.00	1.05	0.71	68	0.00	0																	
15.45	0.45	0.30	67	0.00	0																	
16.50	1.05	0.37	35	0.00	0													1				
16.95	0.45	0.23	51	0.00	0													2				
18.00	1.05	0.68	65	0.00	0													3				
18.45	0.45	0.32	71	0.00	0																	
19.50	1.05	0.74	70	0.00	0																	
19.80	0.30	0.23	77	0.00	0																	
21.06	1.26	0.44	35	0.00	0																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

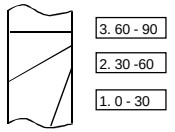
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 38 | ELEVATION: 14.016mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727093.42 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 25.56m | Y = 52876.429 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.06																		1				
22.56	1.50	1.21	81	0.00	0													2				
24.06	1.50	1.27	85	0.13	9													3				
25.56	1.50	1.35	90	0.12	8																	
END OF HOLE - FINAL DEPTH 25.56m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
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4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

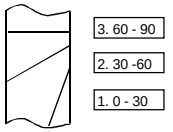
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 40 | ELEVATION: 6.654mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727398.61 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53065.497 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.95												1	3	5	9	1
1.50	1.50	0.60	40	0.00	0	↓			2.30			3	2-3				0	2	2	5	10	1
1.95	0.45	0.23	51	0.00	0	22.50	GREYWACKE											3	3	5	10	1
3.00	1.05	0.42	40	0.00	0	**2.55**		16														
3.45	0.45	0.23	51	0.00	0					0.25	M3/M5	2-3	3-4	2. Clayey Silt / Yellow Stained.								
4.50	1.05	0.47	45	0.00	0																	
4.95	0.45	0.23	51	0.00	0	**G1**																
6.00	1.05	0.49	47	0.00	0	22.50												1	1	2	10	1
6.45	0.45	0.24	53	0.00	0	↓			5.87			2-3	2	31	9	10	50	2	3	5	10	1
7.50	1.05	0.47	45	0.00	0	30.00												3	1	2	10	1
7.95	0.45	0.22	49	0.00	0	**7.50**	SHALE	6														
9.00	1.05	0.42	40	0.00	0					1.63	M2/M3	2-3	2									
9.45	0.45	0.21	47	0.00	0																	
10.50	1.05	0.35	33	0.00	0	**G2**																
10.95	0.45	0.31	69	0.00	0													1				
12.00	1.05	0.42	40	0.00	0													2				
12.45	0.45	0.24	53	0.00	0													3				
13.50	1.05	0.52	50	0.00	0																	
13.95	0.45	0.23	51	0.00	0																	
15.00	1.05	0.39	37	0.00	0																	
15.45	0.45	0.21	47	0.00	0																	
16.50	1.05	0.42	40	0.00	0													1				
16.95	0.45	0.29	64	0.00	0													2				
18.00	1.05	0.49	47	0.00	0													3				
18.45	0.45	0.22	49	0.00	0																	
19.50	1.05	0.49	47	0.00	0																	
19.95	0.45	0.21	47	0.00	0																	
21.00	1.05	1.07	102	0.00	0																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

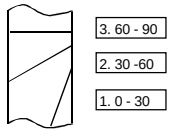
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 40 | ELEVATION: 6.654mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727398.61 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.00m | Y = 53065.497 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																		1				
22.50	1.50	1.24	83	0.41	27													2				
24.00	1.50	1.42	95	0.00	0													3				
25.50	1.50	1.43	95	0.00	0																	
27.00	1.50	1.35	90	0.17	11																	
28.50	1.50	1.32	88	0.16	11																	
30.00	1.50	1.33	89	0.00	0																	
END OF HOLE - FINAL DEPTH 30.00m																		1				
																		2				
																		3				
																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
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4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
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3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

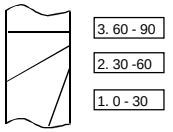
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 41 | ELEVATION: 9.952mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726491.50 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 23.75m | Y = 53158.993 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						18.75												1	1	2-3	9	1
1.50	1.50	0.48	32	0.00	0	↓			0.76			2	3	5	7	2	14	2	3	5	10	1
1.95	0.45	0.23	51	0.00	0	19.60	GREYWACKE											3	2	6	10	1
3.00	1.05	0.42	40	0.00	0	**0.85**		0		0.09	M3/M6	1-2	3-4	1. Clayey infill.								
3.45	0.45	0.24	53	0.00	0																	
4.50	1.05	0.41	39	0.00	0																	
4.95	0.45	0.23	51	0.00	0	**G1**																
6.00	1.05	0.46	44	0.00	0	19.60												1	1	2	10	1
6.45	0.45	0.22	49	0.00	0	↓			0.00			3-4	1-2	8	23	4	35	2	1	2	10	1
7.50	1.05	0.51	49	0.00	0	23.75	GREYWACKE											3	1	2	10	1
7.95	0.45	0.29	64	0.00	0	**4.15**		38		4	0.15	0	0	1. Iron-stained occasionally oxide.								
9.00	1.05	0.47	45	0.00	0																	
9.45	0.45	0.19	42	0.00	0																	
10.50	1.05	0.48	46	0.00	0	**G2**																
10.95	0.45	0.18	40	0.00	0													1				
12.00	1.05	0.44	42	0.00	0													2				
12.45	0.45	0.20	44	0.00	0													3				
13.50	1.05	0.45	43	0.00	0																	
13.95	0.45	0.20	44	0.00	0																	
15.00	1.05	0.53	50	0.00	0																	
15.45	0.45	0.26	58	0.00	0																	
16.50	1.05	0.46	44	0.00	0													1				
16.95	0.45	0.25	56	0.00	0													2				
18.00	1.05	0.54	51	0.00	0													3				
18.45	0.45	0.24	53	0.00	0																	
19.50	1.05	0.71	68	0.00	0																	
20.75	1.25	1.22	98	0.73	58																	
22.25	1.50	1.26	84	0.41	27																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 41
INCLINATION: VERTICAL
FINAL DEPTH: 23.75m

ELEVATION: 9.952mamsl
CO-ORDS: X = 3726491.50
Y = 53158.993

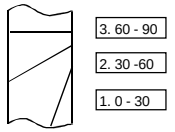
PAGE: 2 OF 2
DATE: 28-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
22.25																		1				
23.75	1.50	1.47	98	0.44	29													2				
END OF HOLE - FINAL DEPTH 23.75m																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

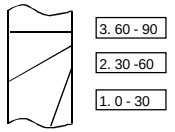
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 42 | ELEVATION: 17.674mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726452.93 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.04m | Y = 53041.468 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						27.07	GREYWACKE	47	2.97			2-3	1	5	2	1	8	1	1	2	10	1
1.50	1.50	0.61	41	0.00	0	↓												2	5	8	10	1
1.95	0.45	0.26	58	0.00	0	30.04												3	2	6	10	1
3.00	1.05	0.37	35	0.00	0	**2.97**				0	0	0	0									
3.45	0.45	0.41	91	0.00	0																	
4.50	1.05	0.45	43	0.00	0																	
4.95	0.45	0.39	87	0.00	0	**G1**																
6.00	1.05	0.95	90	0.00	0													1				
6.45	0.45	0.30	67	0.00	0													2				
7.50	1.05	0.65	62	0.00	0													3				
7.95	0.45	0.23	51	0.00	0																	
9.00	1.05	0.46	44	0.00	0																	
9.45	0.45	0.25	56	0.00	0																	
10.50	1.05	0.60	57	0.00	0																	
10.95	0.45	0.17	38	0.00	0													1				
12.00	1.05	0.42	40	0.00	0													2				
12.45	0.45	0.39	87	0.00	0													3				
13.50	1.05	0.49	47	0.00	0																	
13.95	0.45	0.29	64	0.00	0																	
15.00	1.05	0.73	70	0.00	0																	
15.45	0.45	0.24	53	0.00	0																	
16.50	1.05	0.76	72	0.00	0													1				
16.95	0.45	0.45	100	0.00	0													2				
18.00	1.05	0.82	78	0.00	0													3				
18.45	0.45	0.54	120	0.00	0																	
19.50	1.05	0.74	70	0.00	0																	
19.95	0.45	0.45	100	0.00	0																	
21.00	1.05	0.76	72	0.00	0																	

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

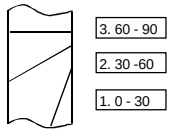
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 42 | ELEVATION: 17.674mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726452.93 | DATE: 28-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.04m | Y = 53041.468 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																		1				
21.30	0.30	0.37	123	0.00	0													2				
22.50	1.20	1.00	83	0.00	0													3				
22.80	0.30	0.27	90	0.00	0																	
24.04	1.24	0.19	15	0.00	0																	
25.54	1.50	0.19	13	0.00	0																	
27.04	1.50	0.50	33	0.00	0																	
28.54	1.50	1.22	81	0.91	61													1				
28.54	0.00	0.00	0	0.00	0													2				
30.04	1.50	0.74	49	0.48	32													3				
END OF HOLE - FINAL DEPTH 30.04m																						

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

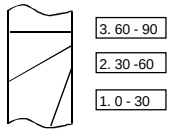
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 43 | ELEVATION: 12.264mamsl | PAGE: 1 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727317.80 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 31.46m | Y = 52844.077 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0⁰ - 30⁰	2 30⁰ - 60⁰	3 60⁰ - 90⁰	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00																		1				
1.50	1.50	0.59	39	0.00	0	↓			0.00			0	0				0	2				
1.65	0.15	0.11	73	0.00	0													3				
3.00	1.35	0.58	43	0.00	0	**0.00**		0														
3.45	0.45	0.21	47	0.00	0					0.00	0	0	0									
4.50	1.05	0.59	56	0.00	0																	
4.95	0.45	0.45	100	0.00	0	**G1**																
6.00	1.05	0.86	82	0.00	0													1				
6.45	0.45	0.42	93	0.00	0	↓			0.00			0	0				0	2				
7.50	1.05	0.90	86	0.00	0													3				
7.95	0.45	0.45	100	0.00	0	**0.00**		0														
9.00	1.05	0.87	83	0.00	0					0.00	0	0	0									
9.45	0.45	0.42	93	0.00	0																	
10.50	1.05	0.84	80	0.00	0	**G2**																
10.95	0.45	0.24	53	0.00	0													1				
12.00	1.05	0.76	72	0.00	0	↓			0.00			0	0				0	2				
12.45	0.45	0.45	100	0.00	0													3				
13.50	1.05	0.96	91	0.00	0	**0.00**		0														
13.95	0.45	0.34	76	0.00	0					0.00	0	0	0									
15.00	1.05	1.03	98	0.00	0																	
15.45	0.45	0.33	73	0.00	0	**G3**																
16.50	1.05	1.04	99	0.00	0													1				
16.95	0.45	0.26	58	0.00	0	↓			0.00			0	0				0	2				
18.00	1.05	0.96	91	0.00	0													3				
18.45	0.45	0.39	87	0.00	0	**0.00**		0														
19.50	1.05	0.90	86	0.00	0					0.00	0	0	0									
19.95	0.45	0.34	76	0.00	0																	
21.00	1.05	1.03	98	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

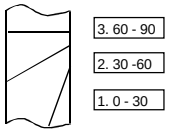
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 43 | ELEVATION: 12.264mamsl | PAGE: 2 OF 3
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727317.80 | DATE: 17-07-2008
PROJECT No: 385908/42C | FINAL DEPTH: 31.46m | Y = 52844.077 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00																		1				
21.45	0.45	0.28	62	0.00	0	↓			0.00			0	0				0	2				
22.50	1.05	0.85	81	0.00	0													3				
22.95	0.45	0.34	76	0.00	0	0.00																
23.96	1.01	0.48	48	0.00	0					0.00	0	0	0									
25.46	1.50	0.76	51	0.00	0																	
26.96	1.50	1.40	93	0.16	11	G5																
28.46	1.50	1.45	97	0.28	19													1				
28.46	0.00	0.00	0	0.00	0	↓			0.00			0	0				0	2				
29.96	1.50	1.32	88	0.35	23													3				
31.46	1.50	1.36	91	0.70	47	0.00																
END OF HOLE - FINAL DEPTH 31.46m										0.00	0	0	0									
						G6																
																		1				
						↓			0.00			0	0				0	2				
																		3				
						0.00																
										0	0	0	0									
						G7																
																		1				
						↓			0.00			0	0				0	2				
																		3				
						0.00																
										0	0	0	0									
						G8																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 43
INCLINATION: VERTICAL
FINAL DEPTH: 31.46m

ELEVATION: 12.264mamsl
CO-ORDS: X = 3727317.80
Y = 52844.077

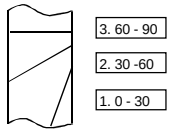
PAGE: 3 OF 3
DATE: 17-07-2008
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
						↓			0.00			0	0				0	1				
																		2				
																		3				
						0.00				0	0	0	0									
						G9																
						↓			0.00			0	0				0	1				
																		2				
																		3				
						0.00				0	0	0	0									
						G10																
						↓			0.00			0	0				0	1				
																		2				
																		3				
						0.00				0	0	0	0									
						G11																
						↓			0.00			0	0				0	1				
																		2				
																		3				
						0.00				0	0	0	0									
						G12																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

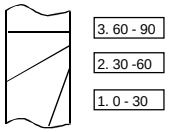
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 44 | ELEVATION: 17.109mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726855.62 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 54.78m | Y = 52868.65 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						19.95												1	2	5	10	1
1.50	1.50	0.70	47	0.00	0	↓			2.86			3	2	10	3	0	13	2	5	9	10	1
1.95	0.45	0.36	80	0.00	0	23.10	GREYWACKE											3				
3.00	1.05	0.78	74	0.00	0	**3.15**		19		0.29	M3/M6	3	2									
3.45	0.45	0.42	93	0.00	0																	
4.50	1.05	0.87	83	0.00	0																	
4.95	0.45	0.44	98	0.00	0	**G1**																
6.00	1.05	0.95	90	0.00	0	23.10												1	0	0	0	0
6.45	0.45	0.39	87	0.00	0	↓			0.21			3-4	1	0	0	0	0	2	0	0	0	0
7.50	1.05	0.87	83	0.00	0	23.60	SHEAR ZONE											3	0	0	0	0
7.95	0.45	0.44	98	0.00	0	**0.50**		0		0.29	M2	3-4	1	VUGGY / QUARTZ								
9.00	1.05	0.87	83	0.00	0																	
9.45	0.45	0.43	96	0.00	0																	
10.50	1.05	0.93	89	0.00	0	**G2**																
10.95	0.45	0.38	84	0.00	0	23.60												1	2	6	6	1
12.00	1.05	0.94	90	0.00	0	↓			11.08			3-4	1	13	21	34	68	2	1	2	6	1
12.45	0.45	0.41	91	0.00	0	35.01	GREYWACKE											3	1	3	10	1
13.50	1.05	0.91	87	0.00	0	**11.41**		39		0.33	M6	3-4	1	1. Quartz Crystals. 2. Calc <1mm.								
13.95	0.45	0.40	89	0.00	0																	
15.00	1.05	0.88	84	0.00	0																	
15.45	0.45	0.41	91	0.00	0	**G3**																
16.50	1.05	0.90	86	0.00	0	35.01												1	5	9	6	1
16.95	0.45	0.41	91	0.00	0	↓			0.90			3	1-2	3	2	3	8	2	1	2	10	1
18.00	1.05	0.94	90	0.00	0	35.91	GREYWACKE											3	1	2	10	1
18.45	0.45	0.38	84	0.00	0	**0.90**		0		0	0	0	0	2. Quartz Crystals.								
19.50	1.05	0.95	90	0.00	0																	
19.95	0.45	0.36	80	0.00	0																	
21.00	1.05	0.56	53	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 44 | ELEVATION: 17.109mamsl | PAGE: 2 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726855.62 | DATE: 29-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 54.78m | Y = 52868.65 | LOGGED BY: JB

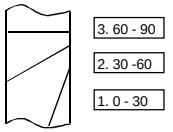
Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1-5 (MPa)	Weathering 1-5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.00						35.91																
22.50	1.50	1.39	93	0.47	31	↓			4.40			4	1	3	4	13	20	2	3	6	9	1
24.00	1.50	1.57	105	0.40	27	40.31	GREYWACKE											3	2	6	10	1
25.55	1.55	1.56	101	1.04	67	**4.40**		58														
27.05	1.50	1.16	77	0.28	19					0	0	0	0	1. Calc <1mm.								
28.30	1.25	1.20	96	0.67	54									2. Yellow stained.								
29.15	0.85	0.83	98	0.20	24	**G5**																
30.65	1.50	1.43	95	0.66	44	40.31												1	5	9	6	1
31.95	1.30	1.33	102	0.22	17	↓			8.67			3-4	1	1	7	18	26	2	2	5	6	1
33.06	1.11	1.05	95	0.23	21	49.05												3	1	2	9	1
34.46	1.40	1.31	94	0.87	62	**8.74**	META - GREYWACKE	69														
35.01	0.55	0.58	105	0.00	0					0.07	M6	3-4	1	1. Quartz crystals.								
36.61	1.60	1.58	99	0.00	0									2. Calc <1mm.								
38.11	1.50	1.54	103	1.24	83	**G6**								3. Iron-staining and Pyrite.								
39.11	1.00	1.00	100	0.31	31	49.05												1	1	2	6	1
40.31	1.20	1.21	101	1.00	83	↓			4.80			3	1-2	3	8	24	35	2	2	5	6	1
40.92	0.61	0.61	100	0.34	56	54.79												3	1	2	10	1
42.52	1.60	1.60	100	1.20	75	**5.74**	META - SHALE	30														
43.29	0.77	0.76	99	0.42	55					0.93	M3/M6	3	1-2	1. Brown staining and Calc 1mm.								
44.75	1.46	1.43	98	1.36	93									2. Calc <1mm.								
45.58	0.83	0.80	96	0.67	81	**G7**																
47.18	1.60	1.56	97	0.92	58													1				
48.78	1.60	1.63	102	1.04	65													2				
50.28	1.50	1.37	91	0.45	30													3				
51.88	1.60	1.57	98	0.31	19																	
53.48	1.60	1.62	101	0.38	24																	
54.78	1.30	1.30	100	0.70	54																	

END OF HOLE - FINAL DEPTH 54.78m

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
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6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

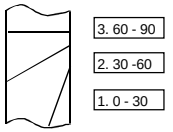
PROJECT: ESKOM GEOTECH INVEST | HOLE NO: KB 45 | ELEVATION: 13.798mamsl | PAGE: 1 OF 2
SITE: DUYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3727058.86 | DATE: 30-04-2010
PROJECT No: 385908/42C | FINAL DEPTH: 30.06m | Y = 52777.735 | LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						20.98												1	5	9	10	1
1.50	1.50	0.56	37	0.00	0	↓			1.98			2-3	3-4	1	7	12	20	2	2	5	9	1
1.95	0.45	0.29	64	0.00	0	23.06	GREYWACKE											3	1	3	10	1
3.00	1.05	0.50	48	0.00	0	**2.08**		8														
3.45	0.45	0.42	93	0.00	0					0.10	M5/M6	2-3	3-4	2. Clayey Silt Infill.								
4.50	1.05	0.93	89	0.00	0																	
4.95	0.45	0.43	96	0.00	0	**G1**																
6.00	1.05	0.94	90	0.00	0	23.06												1	0	0	0	0
6.45	0.45	0.37	82	0.00	0	↓			1.45			3	2	0	1	9	10	2	1	3	10	1
7.50	1.05	1.00	95	0.00	0	24.51	GREYWACKE											3	2	6	10	1
7.95	0.45	0.38	84	0.00	0	**1.45**		60														
9.00	1.05	1.00	95	0.00	0					0	0	0	0									
9.45	0.45	0.37	82	0.00	0																	
10.50	1.05	0.93	89	0.00	0	**G2**																
10.95	0.45	0.39	87	0.00	0	24.51												1	0	0	0	0
12.00	1.05	0.92	88	0.00	0	↓			2.57			4	2	0	13	13	26	2	3	6	6	1/2
12.45	0.45	0.31	69	0.00	0	27.31	GREYWACKE											3	1	2	10	1
13.50	1.05	1.02	97	0.00	0	**2.80**		33														
13.95	0.45	0.36	80	0.00	0					0.23	M6	4	2	2. Quartz Crystals / Calc 2mm.								
15.00	1.05	1.01	96	0.00	0																	
15.45	0.45	0.32	71	0.00	0	**G3**																
16.50	1.05	1.05	100	0.00	0	27.31												1	1	2	10	1
16.95	0.45	0.31	69	0.00	0	↓			2.65			4-5	1	6	10	5	21	2	1	2	10	1
18.00	1.05	0.92	88	0.00	0	30.06	GREYWACKE											3	2	5	10	1
18.45	0.45	0.35	78	0.00	0	**2.75**		44														
19.50	1.05	0.95	90	0.00	0					0.10	M6	4-5	1									
19.95	0.45	0.36	80	0.00	0																	
21.06	1.11	0.57	51	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
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4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
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7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
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JOINT WALL ALT.
1.WALL = ROCK HARDNESS
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3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

SRK Consulting
Engineers and Scientists

PROJECT: ESKOM GEOTECH INVEST
SITE: DUYNEFONTEIN
PROJECT No: 385908/42C

HOLE NO: KB 45
INCLINATION: VERTICAL
FINAL DEPTH: 30.06m

ELEVATION: 13.798mamsl
CO-ORDS: X = 3727058.86
Y = 52777.735

PAGE: 2 OF 2
DATE: 30-04-2010
LOGGED BY: JB

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0^0 - 30^0	2 30^0 - 60^0	3 60^0 - 90^0	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
21.06																		1				
22.56	1.50	1.12	75	0.00	0													2				
24.06	1.50	1.42	95	0.92	61													3				
25.56	1.50	1.42	95	0.61	41																	
27.06	1.50	1.47	98	0.42	28																	
28.56	1.50	1.38	92	0.50	33																	
30.06	1.50	1.52	101	0.70	47																	
END OF HOLE - FINAL DEPTH 30.06m																		1				
																		2				
																		3				
																		1				
																		2				
																		3				

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
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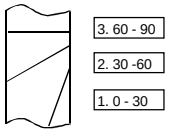
JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
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7.SLICKENSIDED STEPPED
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9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
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7.MEDIUM
8.COARSE
9.STAINING
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JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

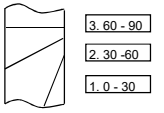
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 46 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726651.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 51866 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						30.00																
1.50	1.50	0.00	0			↓			0.78			1	4-5	13	4	5	22	2	1	2	9-10	1
1.95	0.45	0.45	100			34.50	SHALE											3	1	2	9-10	1
3.00	1.05	0.00	0			**4.50**		2%														
3.45	0.45	0.45	100							3.72	M5/M6	1	4-5									
4.00	0.55	0.00	0																			
4.55	0.55	0.00	0			**G1**																
5.00	0.45	0.45	100			34.50												1	1	2	9-10	1
6.00	1.00	0.00	0			↓			0.92			1	4-5	2	3	2	7	2	2	5	9-10	1
6.45	0.45	0.45	100			36.30												3	2	5	9-10	1
7.50	1.05	0.00	0			**1.80**	SHALE	35%														
7.95	0.45	0.45	100							0.88	M5/M6	1	4-5	Iron-stained, reddish brown, flaky								
9.00	1.05	0.00	0																			
9.45	0.45	0.45	100			**G2**																
10.00	0.55	0.00	0			36.30												1	2	8	9-10	1
10.00	0.00	0.00	0			↓			0.39			1	4-5	2			2	2				
10.50	0.50	0.00	0			39.60												3				
10.95	0.45	0.45	100			**3.30**	SHALE	11%														
12.00	1.05	0.00	0							2.91	M5/M6	1	4-5									
12.50	0.50	0.50	100																			
12.95	0.45	0.45	100			**G3**																
13.50	0.55	0.00	0			39.60												1	2	8	9-10	1
13.85	0.35	0.35	100			↓			2.12			1	4-5	10		4	14	2				
15.00	1.15	0.00	0			43.96												3	4	7	9	1
15.25	0.25	0.25	100			**4.36**	SHALE	31%														
16.00	0.75	0.00	0							2.24	M5/M6	1	4-5	Extended vertical joints								
16.20	0.20	0.20	100																			
16.50	0.30	0.00	0			**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

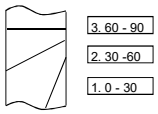
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 46 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726651.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 51866 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
16.70	0.20	0.20	100			43.96												1				
18.00	1.30	0.00	0			↓			0.00			1	4-5				0	2				
18.45	0.45	0.45	100			45.56												3				
19.50	1.05	0.00	0			**1.60**	SHALE	0%														
19.95	0.45	0.45	100							1.60	M5/M6	1	4-5									
21.00	1.05	0.50	48																			
21.45	0.45	0.45	100			**G5**																
22.00	0.55	0.00	0			45.56												1				
22.50	0.50	0.50	100			↓			1.04			1-2	4-5		1	2	3	2	1	2	9-10	1
22.95	0.45	0.45	100			47.56												3	4	5	9	1
24.00	1.05	0.55	52			**2.00**	SHALE	37%														
24.45	0.45	0.45	100							0.96	M5/M6	1	4-5	Iron stained								
25.50	1.05	0.00	0																			
25.95	0.45	0.45	100			**G6**																
27.00	1.05	0.00	0			47.56												1	3	5	10	1
27.45	0.45	0.45	100			↓			0.37			1	2-3	3	3	3	9	2	2	5	10	1
28.00	0.55	0.00	0			49.40												3	2	2	10	1
28.30	0.30	0.30	100			**1.84**	SILTSTONE	11%														
28.50	0.20	0.00	0							1.47	M5/M6	1	4-5									
28.95	0.45	0.45	100																			
30.00	1.05	1.05	100			**G7**																
30.00	0.00	0.00	0			49.40												1	1	2	9-10	1
31.95	1.95	1.30	67	0.10	8	↓			2.24			1-2	4-5	12	2	8	22	2	3	5	10	1
33.30	1.35	1.00	74	0.00	0	56.56												3	1	2	9-10	1
34.20	0.90	0.60	67	0.00	0	**7.16**	SHALE	31%														
35.30	1.10	0.85	77	0.23	27					4.9	M5/M6	1	4-5									
36.30	1.00	0.95	95	0.40	42																	
37.20	0.90	0.80	89	0.00	0	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

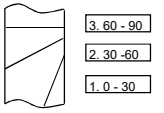
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 46 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726651.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 51866 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
38.10	0.90	0.75	83	0.36	48	56.56	SILTSTONE	38%	2.00			1	3	16	15	2	33	1	4	5	10	1
39.60	1.50	0.60	40	0.00	0	↓												2	1	2	10	1
40.60	1.00	0.45	45	0.00	0	64.00												3	4	9	9	1
41.40	0.80	0.75	94	0.19	25	**7.44**				4.54	M5/M6	1	3-4	Brown stained, hard								
42.46	1.06	1.06	100	0.18	17																	
43.96	1.50	1.35	90	0.96	71																	
44.56	0.60	0.35	58	0.00	0	**G9**																
45.56	1.00	1.00	100	0.00	0	64.00	SHALE	37%	1.47			2-3	1	3	1		4	1	1	5	9	1
46.56	1.00	0.77	77	0.45	58	↓												2	5	9	9	1
47.56	1.00	1.00	100	0.29	29	65.56												3				
49.06	1.50	1.35	90	0.20	15	**1.56**				0.09	M6	2-3	1									
50.26	1.20	1.20	100	0.00	0																	
51.76	1.50	1.05	70	0.49	47																	
53.26	1.50	1.50	100	0.90	60	**G10**																
54.76	1.50	1.35	90	0.56	41	65.56	SILTSTONE/INTERBED. Q. SSTONE	48%	1.50			2-3	1	6	7	3	16	1	4	6	9	1
55.56	0.80	0.60	75	0.00	0	↓												2	2	5	9	1
56.56	1.00	0.78	78	0.27	35	68.60												3	4	9	9	1
58.06	1.50	1.10	73	0.36	33	**3.04**				1.44	M5/M6	2-3	1	Brown stained								
59.31	1.25	1.25	100	0.74	59																	
60.81	1.50	1.45	97	0.80	55																	
61.81	1.00	0.95	95	0.00	0	**G11**																
62.56	0.75	0.70	93	0.34	49	68.60	QUARTZITIC SANDSTONE	39%	1.02			3	1	2			2	1	2	6	9-10	1
63.26	0.70	0.70	100	0.35	50	↓												2				
64.45	1.19	1.19	100	0.31	26	70.20												3				
65.56	1.11	1.11	100	0.58	52	**1.60**				0.58	M5/M6	3	1	Abundant quartz veins, black stained								
66.66	1.10	1.10	100	0.51	46																	
68.06	1.40	1.40	100	0.80	57																	
70.20	2.14	2.14	100	0.79	37	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

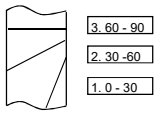
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 46 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726651.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 51866 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution					Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
71.10	0.90	0.90	100	0.34	38	70.20	SHALE	54%	2.17			2-3	1	1	3	1	5	1	4	2	10	1
73.21	2.11	2.10	100	1.54	73	↓												2	1	2	10	1
76.20	2.99	3.00	100	1.84	61	73.09												3	1	2	10	1
78.63	2.43	2.43	100	1.88	77	**2.89**				0.72	M6	2-3	1									
80.00	1.37	1.37	100	0.53	39																	
END OF HOLE - FINAL DEPTH 80.00m						**G13**																
						73.09	Q. SSTONE / INTERB. SHALE	60%	2.58			2-3	1	7		2	9	1	4	9	7	1
						↓												2				
						76.20												3	1	2	10	1
						3.11				0.53	M6	2-3	1	Fault / shear								
						G14																
						76.20	SHALE	63%	3.60			2-3	1	1	4	1	6	1	3	5	10	1
						↓												2	3	5	10	1
						80.00												3	5	8	10	1
						3.80				0.20	M6	2-3	1									
						G15																
						↓																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

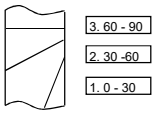
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 47 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726484.00 | DATE:
PROJECT No: 507052/42K | FINAL DEPTH: 81.60m | Y = 52168 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						31.60	GREEN PHYLLITIC SILTSTONE											1	1	2	10	1
1.50	1.50	0.00	0	0.00	0	↓			3.30			1-2	3	12	6	6	24	2	1	2	10	1
1.95	0.45	0.45	100	0.00	0	37.47		m										3	4	2/2	10	1
3.00	1.05	0.00	0	0.00	0	**5.87**		2.98														
3.45	0.45	0.45	100	0.00	0	6.87		%		3.57	M5/M6	1-2	3									
4.00	0.55	0.00	0	0.00	0			51														
4.43	0.43	0.43	100	0.00	0	**G1**																
4.50	0.07	0.00	0	0.00	0	38.47	SANDSTONE PITTED/SHEAR Fa											1	1	2	9	1
4.95	0.45	0.45	100	0.00	0	↓			0.14			3	1-2	9	-	2	11	2	-	-	-	-
6.00	1.05	0.00	0	0.00	0	39.60		m										3	1	2	10	1
6.45	0.45	0.45	100	0.00	0	**1.13**		0.14														
7.50	1.05	0.00	0	0.00	0			%		0.99	M1/M2/M6	3	1-2	*Green-stained Pitted/Shear/Fault								
7.95	0.45	0.45	100	0.00	0			12														
9.00	1.05	0.00	0	0.00	0	**G2**																
9.45	0.45	0.45	100	0.00	0	39.60	SANDSTONE Fine grained											1	1	2	10	1
9.45	0.00	0.00	0	0.00	0	↓			1.76			3-4	1	11	3	6	20	2	1	2	10	1
10.00	0.55	0.00	0	0.00	0	43.20		m										3	1	2	10	1
10.50	0.50	0.00	0	0.00	0	**3.60**		1.76														
10.95	0.45	0.45	100	0.00	0			%		1.84	M6	3-4	1	*Micaceous								
12.00	1.05	0.00	0	0.00	0			49														
12.45	0.45	0.45	100	0.00	0	**G3**																
13.50	1.05	0.00	0	0.00	0	43.20	SANDSTONE FAULT/SHEAR											1	1	3	10	1
14.05	0.55	0.55	100	0.00	0	↓			0.00			3-4	1				0	2	2	5	9	1
14.30	0.25	0.25	100	0.00	0	43.93		m										3	-	-	-	
15.00	0.70	0.00	0	0.00	0	**0.73**		0.00														
15.30	0.30	0.30	100	0.00	0			%		0.73	M1/M2/M6	3-4	1	*Green-stained Micaceous								
16.00	0.70	0.00	0	0.00	0			0														
16.00	0.00	0.00	0	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

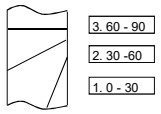
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 47 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726484.00 | DATE:
PROJECT No: 507052/42K | FINAL DEPTH: 81.60m | Y = 52168 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
16.50	0.50	0.00	0	0.00	0	43.93	FINE GRAINED SANDSTONE		1.55			3-4	1	8	16	4	28	1	1	2	10	1
16.95	0.45	0.45	100	0.00	0	↓												2	1	2	10	1
18.00	1.05	0.00	0	0.00	0	47.60		m										3	1	3	9	1
18.45	0.45	0.45	100	0.00	0	**3.67**		1.55														
19.50	1.05	0.00	0	0.00	0	3.67		%		2.12	M3/M6	3-4	1	*pyrite infill/ *MICACEOUS								
19.95	0.45	0.45	100	0.00	0			42														
21.00	1.05	0.00	0	0.00	0	**G5**																
21.10	0.10	0.10	100	0.00	0	47.60	FINE GRAINED SANDSTONE		2.34			3-4	1	68	41	11	120	1	1	2/3	10	1
22.00	0.90	0.00	0	0.00	0	↓												2	1	2	10	1
22.10	0.10	0.10	100	0.00	0	56.94		m										3	1	2	10	1
22.50	0.40	0.00	0	0.00	0	**9.34**		2.34														
22.95	0.45	0.45	100	0.00	0			%		7.00	M3/M6	3-4	1	*GREEN STAINED								
24.00	1.05	0.00	0	0.00	0			25														
24.45	0.45	0.45	100	0.00	0	**G6**																
25.50	1.05	0.00	0	0.00	0	56.94	SANDSTONE with quartz & veins		0.13			3	1	2	-	2	4	1	3/4	5/8	10	1
25.95	0.45	0.45	100	0.00	0	↓												2	-	-	-	-
27.00	1.05	0.00	0	0.00	0	58.00		m										3	5	8	10	1
27.45	0.45	0.45	100	0.00	0	**1.06**		0.13														
28.00	0.55	0.00	0	0.00	0			%		0.93	M1/M2	3	1	*FAULT/SHEAR M5								
28.00	0.00	0.00	0	0.00	0			12														
28.50	0.50	0.00	0	0.00	0	**G7**																
28.75	0.25	0.25	100	0.00	0	58.00	SHALE/SANDSTONE BANDED/LAMINATED		1.39			3-4	1	9	13	2	24	1	4	5/8	10	1
30.00	1.25	0.00	0	0.00	0	↓												2	1	2	10	1
30.20	0.20	0.20	0	0.00	0	61.88		m										3	1	2	10	1
31.50	1.30	0.00	0	0.00	0	**3.88**		1.3														
31.60	0.10	0.10	100	0.00	0			%		2.5	M3/M5/M6	3-4	1									
32.50	0.90	0.90	100	0.29	32			33														
33.86	1.36	1.20	88	0.76	63	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
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8.SMOOTH STEPPED
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
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JOINT WALL ALT.
1.WALL = ROCK HARDNESS
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3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

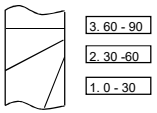
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 47 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726484.00 | DATE:
PROJECT No: 507052/42K | FINAL DEPTH: 81.60m | Y = 52168 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
35.36	1.50	0.95	63	0.54	57	61.88	SHALE		-			3	1	-	2	-	2	1	-	-	-	-
36.75	1.39	1.39	100	0.57	41	↓												2	4/5	8	10	1
37.19	0.44	0.44	100	0.00	0	62.72		m										3	-	-	-	-
38.47	1.28	1.28	100	0.82	64	**0.84**		0.00														
39.75	1.28	1.28	100	0.14	11			%		0.84	M1/M2	3	1									
40.75	1.00	1.00	100	0.66	66			0														
42.05	1.30	1.20	92	0.30	25	**G9**								FAULT/SHEAR								
43.20	1.15	1.15	100	0.80	70	62.72	SHALE INTERBEDDED/ SANDSTONE		2.80			3-4	1	6	10	1	17	1	1	2	10	1
44.10	0.90	0.90	100	0.13	14	↓												2	1	2	9	1
44.58	0.48	0.48	100	0.40	83	66.97		m										3	2	5	10	1
45.25	0.67	0.67	100	0.15	22	**4.25**		2.80														
46.20	0.95	0.95	100	0.16	17			%		1.45	M3/M6	3-4	1	FE-STAINED / CROSS-BENDED								
47.00	0.80	0.80	100	0.53	66			66														
47.60	0.60	0.60	100	0.18	30	**G10**																
47.70	0.10	0.10	100	0.00	0	66.97	SHALE /SANDSTONE		0.10			3-4	1	5	1	-	6	1	4/5	9	9	1
48.50	0.80	0.80	100	0.23	29	↓												2	2	5/8	9	1
48.86	0.36	0.36	100	0.00	0	68.70		m										3	-	-	-	-
49.20	0.34	0.34	100	0.00	0	**1.73**		0.10														
49.65	0.45	0.45	100	0.00	0			%		1.63	M2/M3?	3-4	1	green-stained / iron-stained/SHEAR								
50.08	0.43	0.43	100	0.00	0			6														
50.62	0.54	0.54	100	0.00	0	**G11**																
51.60	0.98	0.98	100	0.30	31	68.70	SANDSTONE/SHALE		1.28			4	1	13	6	-	19	1	1	2	10	1
52.19	0.59	0.59	100	0.40	68	↓												2	2	5/8	10	1
52.75	0.56	0.56	100	0.26	46	71.95		m										3	-	-	-	-
53.42	0.67	0.67	100	0.30	45	**3.25**		1														
53.80	0.38	0.38	100	0.18	47			%		1.97	M3?/M6	4	1									
54.80	1.00	1.00	100	0.30	30			35														
55.20	0.40	0.40	100	0.20	50	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
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8.COARSE
9.STAINING
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JOINT WALL ALT.
1.WALL = ROCK HARDNESS
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MATRIX TYPE
M1. FAULTS
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M3. INTENSE JOINTING
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GEOTECHNICAL BOREHOLE LOG

srk consulting

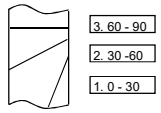
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 47 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726484.00 | DATE:
PROJECT No: 507052/42K | FINAL DEPTH: 81.60m | Y = 52168 | LOGGED BY: LP

Drilling Interval	Recovery m Drill	Recovery m Rec	Recovery % Rec	RQD m	RQD %	Geotech Interval	Rock Type	Int. RQD %	Rock Competence Solid m	Rock Competence Matrix m	Rock Competence Matrix Type	Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution 1 0° - 30°	Joint Distribution 2 30° - 60°	Joint Distribution 3 60° - 90°	Joint Distribution Total	Joint Surface Condition Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
56.53	1.33	1.33	100	0.30	23	71.95	SANDSTONE/PITTED/SILTSTONE PRECCIATED/FOLDED		2.40			3	1-2	34	13	6	53	1	1/2	2/5	9	1
57.60	1.07	1.07	100	0.10	9	↓												2	2	5/8	9	1
58.20	0.60	0.60	100	0.35	58	79.90		m										3	2	9	10	1
60.40	2.20	2.20	100	1.60	73	**7.95**		2.7		5.55	M1/M2	3	1-2	white stained <3mm & FE								
61.20	0.80	0.80	100	0.24	30			%														
						G13		34						FAULT/SHEAR								
						79.90	SANDSTONE/SHALE INTERBEDDED		1.70			4	1	1	2	-	3	1	2	8	9	1
						↓												2	1	2	9	1
						81.60		m										3	-	-	-	-
						1.70		1.7		0.00				Pyrite infill								
						G14		% 100														
END OF HOLE - FINAL DEPTH 81.60m																						
						↓											0	1				
																		2				
																		3				
						0.00																
						G15																
						↓											0	1				
																		2				
																		3				
						0.00																
						G16																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
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4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
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7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
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MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 48 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726223.00 | DATE: 15-07-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52667 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						30.00												1	4/5	8	10	1
1.50	1.50	0.00	0	0.00	0	↓			0.00			3	2	5	2	3	10	2	2	5/8	10	1
1.95	0.45	0.38	84	0.00	0	30.80	SANDSTONE	m										3	1	2	10	1
3.00	1.05	0.00	0	0.00	0	**0.80**		0.00														
3.45	0.45	0.40	89	0.00	0			%		0.80	M3/M6	3	2									
4.00	0.55	0.00	0	0.00	0			0														
4.13	0.13	0.13	100	0.00	0	**G1**																
4.50	0.37	0.00	0	0.00	0	30.80												1	2	5	10	1
4.95	0.45	0.37	82	0.00	0	↓			0.74			2	2	3	2	1	6	2	2	5	10	1
6.00	1.05	0.00	0	0.00	0	32.00	SHALE	m										3	2	5	10	1
6.45	0.45	0.35	78	0.00	0	**1.20**		0.74														
7.50	1.05	0.00	0	0.00	0			%		0.46	M5/M6	2	2									
7.95	0.45	0.38	84	0.00	0			62														
9.00	1.05	0.00	0	0.00	0	**G2**																
9.45	0.45	0.00	0	0.00	0	32.00												1	1	2	10	1
10.00	0.55	0.00	0	0.00	0	↓			0.00			1-2	3-4	14	2	3	19	2	4	5	10	1
10.06	0.06	0.06	100	0.00	0	35.24	PHYLLITIC SHALE	m										3	1	2	10	1
10.50	0.44	0.00	0	0.00	0	**3.24**		0.00														
10.95	0.45	0.23	51	0.00	0			%		3.24	M1/M2	1-2	3/4	3-5 SHEAR/FAULT?								
12.00	1.05	0.00	0	0.00	0			0														
12.45	0.45	0.36	80	0.00	0	**G3**																
13.50	1.05	0.00	0	0.00	0	35.24												1	3	5/8	10	1
13.72	0.22	0.20	91	0.00	0	↓			0.25			3	1	11	7	4	22	2	4	8	10	1
15.00	1.28	0.00	0	0.00	0	37.34	SHALE	m										3	3	5	10	1
15.45	0.45	0.00	0	0.00	0	**2.10**		0.25														
16.00	0.55	0.00	0	0.00	0			%		1.85	M3/M6	3	1									
16.06	0.06	0.06	100	0.00	0			12														
16.50	0.44	0.00	0	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
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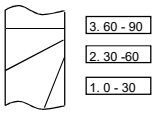
JOINT DISTRIBUTION



JOINT CONDITION
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG. Soft sheared material, e.g. Talc
2.GOUGE t. < Amplit. of IRREG. Non-softening sheared material
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4.MEDIUM
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GEOTECHNICAL BOREHOLE LOG

srk consulting

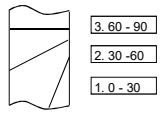
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 48 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726223.00 | DATE: 15-07-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52667 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
16.80	0.30	0.30	100	0.00	0	37.34	SHALE		1.80			3	1	2	-	-	2	1	1	2	10	1
18.00	1.20	0.00	0	0.00	0	↓												2	-	-	-	-
18.30	0.30	0.30	100	0.00	0	39.14		m										3	-	-	-	-
19.50	1.20	0.00	0	0.00	0	**1.80**		1.45		0.00	-	-	-	OCCASIONAL MICACEOUS								
19.95	0.45	0.00	0	0.00	0			%														
21.00	1.05	0.00	0	0.00	0			81														
21.45	0.45	0.32	71	0.00	0	**G5**																
22.00	0.55	0.00	0	0.00	0	39.14	SHALE		1.90			3	1	5	22	1	28	1	1	2/5	10	1
22.30	0.30	0.30	100	0.00	0	↓												2	1	2	10	1
22.50	0.20	0.00	0	0.00	0	43.07		m										3	2	6	9	1
22.95	0.45	0.45	100	0.00	0	**3.93**		1.32		2.03	M3/M6	3	1	PYRITE INFILL / 40.36 SHEAR?								
24.00	1.05	0.00	0	0.00	0			%														
24.45	0.45	0.00	0	0.00	0			34														
25.50	1.05	0.00	0	0.00	0	**G6**																
25.80	0.30	0.30	100	0.00	0	43.07	QUARTZ SANDSTONE		4.73			4	1	7	2	10	19	1	4	8	9	1
27.00	1.20	0.00	0	0.00	0	↓												2	4	9	10	1
27.45	0.45	0.30	67	0.00	0	47.80		m										3	3	5/6	10	1
28.00	0.55	0.00	0	0.00	0	**4.73**		2.94		-	-	-	-	FE-STAINED/ ABUNDANT QUARTZ VEINS / MICACEOUS								
28.50	0.50	0.50	100	0.00	0			%														
28.95	0.45	0.45	100	0.00	0			62														
30.00	1.05	0.30	29	0.00	0	**G7**																
30.58	0.58	0.90	155	0.00	0	47.80	QUARTZ SANDSTONE/SHALE		3.75			4	1	29	21	7	57	1	1	2	10	1
31.14	0.56	0.56	100	0.00	0	↓												2	2	2/5	9	1
32.73	1.59	1.59	100	0.76	48	56.50		m										3	4/5	9	10	1
33.80	1.07	0.81	76	0.00	0	**8.70**		3.6		5.0	M3/M6	4	1	OCCASIONAL FE-STAINED NEAR 56.00M SHALE 53.57-54.20M/ MICACEOUS								
34.14	0.34	0.34	100	0.00	0			%														
34.64	0.50	0.45	90	0.00	0			42														
35.24	0.60	0.60	100	0.00	0	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

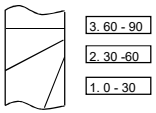
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 48 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726223.00 | DATE: 15-07-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52667 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
35.86	0.62	0.62	100	0.00	0	56.20	SHALE/CLAST											1	-	-	-	-
36.50	0.64	0.64	100	0.20	31	↓			2.50			3	1	-	6	1	7	2	1	2	9	1
37.14	0.64	0.60	94	0.14	23	59.00		m										3	3	5	10	1
40.14	3.00	2.47	82	1.85	75	**2.80**		2.17														
41.48	1.34	1.36	101	0.89	65			%														
43.07	1.59	1.59	100	1.28	81			78		-	-	-	-	FE-STAINED								
44.69	1.62	1.62	100	1.38	85	**G9**								CLAST/SHEARED								
45.47	0.78	0.78	100	0.45	58	59.00	QUARTZ SANDSTONE											1	2	5	10	1
46.14	0.67	0.68	101	0.62	91	↓			0.72			4	1	4	4	3	11	2	3	6	10	1
48.74	2.60	2.50	96	1.91	76	60.85		m										3	1	2	10	1
49.20	0.46	0.56	122	0.38	68	**1.85**		0.70														
50.35	1.15	1.10	96	0.00	0			%		1.30	M3/M6	4	1	MICACEOUS PITTED/QUARTZ CRYSTAL VEINS								
52.10	1.75	1.75	100	0.59	34			38														
53.04	0.94	0.94	100	0.58	62	**G10**																
55.14	2.10	2.03	97	1.04	51	60.85	QUARTZ SANDSTONE/INTERBEDDED											1	3	5	10	1
56.50	1.36	1.36	100	1.02	75	↓			5.15			4	1	1	14	5	20	2	3	2/5	10	1
58.19	1.69	1.69	100	1.48	88	66.00		m										3	3	6	10	1
59.60	1.41	1.41	100	0.76	54	**5.15**		4.56														
60.85	1.25	1.25	100	0.62	50			%		-	-	-	-	MICACEOUS QUARTZ VEINING								
61.60	0.75	0.70	93	0.54	77			89														
64.04	2.44	2.49	102	2.36	95	**G11**																
65.16	1.12	1.12	100	0.97	87	66.00	QUARTZ SANDSTONE											1	3	5	10	1
67.00	1.84	1.84	100	1.35	73	↓			0.75			4	1	8	4	2	14	2	3	6	9	1
67.55	0.55	0.55	100	0.00	0	67.96		m										3	2	3	9	1
70.00	2.45	2.45	100	1.67	68	**1.96**		1														
71.05	1.05	1.05	100	0.84	80			%		1.21	M3/M6	4	1	QUARTZ VEIN <20MM/QUARTZ VEIN <2MM/MICACEOUS/QUARTZ VEIN CRYSTALS AT BOTTOM CONTACT 67.96M (<20MM)								
73.04	1.99	1.99	100	1.85	93			38														
73.80	0.76	0.76	100	0.76	100	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

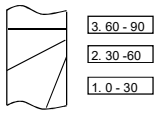
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 48 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726223.00 | DATE: 15-07-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52667 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
75.90	2.10	2.04	97	1.31	64	67.96	SHALE		0.66			3	1	2	4	1	7	1	4	5/8	10	1
76.77	0.87	0.56	64	0.00	0	↓												2	3	5	10	1
78.03	1.26	1.26	100	0.83	66	69.21		m										3	4	8	10	1
80.00	1.97	2.05	104	1.17	57	**1.25**		0.66		0.59	M3/M6	3	1									
0.00	0.00	0.00	0	0.00	0			%														
								53														
END OF HOLE - FINAL DEPTH 80.00m						**G13**																
						69.21	QUARTZ SANDSTONE		2.58			4	1	8	6	10	24	1	1	2	10	1
						↓												2	2	5	9	1
						73.04		m										3	1	3	10	1
						3.83		2.58		1.25	M3/M6	4	1	SLIGHT FE-STAINED /*QUARTZ VEIN <3MM								
								%														
								67														
						G14																
						73.04	GREYWACKE		1.93			4	1	6	1	1	8	1	1	2/3	9	1
						↓												2	4	9	10	1
						75.50		m										3	1	2	10	1
						2.46		1.93		0.53	M3/M6	4	1	SLIGHT FE-STAINED /MICACEOUS								
								%														
								78														
						G15																
						75.50	GREYWACKE		2.00			4	1	6	10	11	27	1	2	5/6	9/10	1
						↓												2	4	5/8	9	1
						80.00		m										3	3	6	9	1
						4.50		2.00		2.50	M3/M6	4	1	QUARTZ VEINS <2MM /WHITE STAINING /GREEN-STAINED /*GRINDING CORE /*MICACEOUS // QUARTZ VEINING <3MM								
								%														
								44														
						G16																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

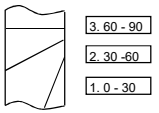
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 49 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726055.00 | DATE: 03-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52932 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						31.05	SANDSTONE		1.18			1-2	3-4	10	4	2	16	1	1	2	10	1
1.50	1.50	0.00	0	0.00	0	↓												2	1	2	10	1
1.95	0.45	0.38	84	0.00	0	36.45		m										3	3	5	10	1
3.00	1.05	0.00	0	0.00	0	**5.40**		0.99		4.22	M5/M6	1	3-4	M3 AT 35.35 AND 36.23M								
3.45	0.45	0.40	89	0.00	0			%														
4.00	0.55	0.00	0	0.00	0			18														
4.37	0.37	0.37	100	0.00	0	**G1**								WITH PHYLLITE LENSES								
4.50	0.13	0.00	0	0.00	0	36.45	SANDSTONE		2.21			2-3	3	7	2	2	11	1	2	5	10	1
4.95	0.45	0.39	87	0.00	0	↓												2	3	5	10	1
6.00	1.05	0.00	0	0.00	0	39.75		m										3	2	5	10	1
6.45	0.45	0.45	100	0.00	0	**3.30**		2.21		1.09	M5/M6	2-3	3									
7.50	1.05	0.00	0	0.00	0			%														
7.86	0.36	0.36	100	0.00	0			67														
9.00	1.14	0.00	0	0.00	0	**G2**																
9.45	0.45	0.45	100	0.00	0	39.75	SANDSTONE		0.48			2-3	3	8	-	2	10	1	4	9	10	1
10.00	0.55	0.00	0	0.00	0	↓												2	-	-	-	-
10.08	0.08	0.08	100	0.00	0	40.70		m										3	4	9	10	1
10.50	0.42	0.00	0	0.00	0	**0.95**		0.48		0.47	M3/M6	2-3	3	VERTICAL QUARTZ FRACTURE								
10.95	0.45	0.31	69	0.00	0			%														
12.00	1.05	0.00	0	0.00	0			51														
12.21	0.21	0.21	100	0.00	0	**G3**																
13.50	1.29	0.00	0	0.00	0	40.70	SHALE		0.69			1-2	3	2	-	-	2	1	2	5	10	1
13.64	0.14	0.14	100	0.00	0	↓												2	-	-	-	-
15.00	1.36	0.00	0	0.00	0	43.15		m										3	-	-	-	-
15.11	0.11	0.11	100	0.00	0	**2.45**		0.69		1.76		1-2	3	*LOSS 1.43 CORE								
16.50	1.39	0.00	0	0.00	0			%														
16.95	0.45	0.45	100	0.00	0			28														
18.00	1.05	0.00	0	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

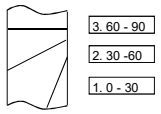
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 49 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726055.00 | DATE: 03-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52932 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
18.45	0.45	0.17	38	0.00	0	43.15	SANDSTONE		1.06			1-2	3	8	2	6	16	1	1	2	10	1
18.50	0.05	0.00	0	0.00	0	↓												2	2	5	10	1
18.92	0.42	0.42	100	0.00	0	45.63		m										3	4	6	10	1
19.50	0.58	0.00	0	0.00	0	**2.48**		0.95		1.42	M5/M6	1-2	3	*VERTICAL JOINT								
19.95	0.45	0.00	0	0.00	0			%														
21.00	1.05	0.00	0	0.00	0			38														
21.45	0.45	0.45	100	0.00	0	**G5**																
22.50	1.05	0.00	0	0.00	0	45.63	SANDSTONE NTERBEDDED SHALE		1.34			1-2	2-3	10	2	1	13	1	3	5	10	1
22.95	0.45	0.45	100	0.00	0	↓												2	4	5	10	1
24.00	1.05	0.00	0	0.00	0	47.95		m										3	4	5	10	1
24.55	0.55	0.55	100	0.00	0	**2.32**		1.23		0.98	M3/M5/M	1-2	2-3	*BANDED/FOLDED?								
25.00	0.45	0.00	0	0.00	0			%														
25.45	0.45	0.45	100	0.00	0			53														
27.00	1.55	0.00	0	0.00	0	**G6**																
27.45	0.45	0.35	78	0.00	0	47.95	SANDSTONE		1.44			1-2	2-3	13	4	1	18	1	2	6	10	1
28.50	1.05	0.00	0	0.00	0	↓												2	3	6	10	1
28.95	0.45	0.28	62	0.00	0	52.85		m										3	1	2	10	1
30.00	1.05	0.00	0	0.00	0	**4.90**		1.10		3.46	M5/M6	1-2	2-3	*CORE LOSS ±1.23MM								
30.27	0.27	0.20	74	0.00	0			%														
31.05	0.78	0.50	64	0.00	0			22														
32.15	1.10	0.35	32	0.10	29	**G7**																
34.15	2.00	0.60	30	0.00	0	52.85	QUARTZITIC SANDSTONE		0.94			2	3	6	-	4	10	1	4	9	9	1
34.75	0.60	0.55	92	0.12	22	↓												2	-	-	-	-
35.62	0.87	0.70	80	0.37	53	54.71		m										3	4	9	10	1
36.45	0.83	0.78	94	0.40	51	**1.86**		0.9		0.9	M3/M5/M	2	3	*QUARTZ CRYSTAL VEINS / *VERTICAL FRACTURES /*GREEN HEALED FRACTURES INTENSE								
37.19	0.74	0.78	105	0.71	91			%														
38.70	1.51	1.15	76	1.00	87			51														
40.15	1.45	1.48	102	0.60	41	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

10
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

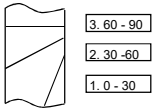
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 49 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726055.00 | DATE: 03-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52932 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
41.85	1.70	1.20	71	0.85	71	54.71	QUARTZITIC SANDSTONE		1.82			3-4	1	12	7	5	24	1	2	3	9	1
43.15	1.30	0.37	28	0.12	32	↓												2	1	2	10	1
43.53	0.38	0.35	92	0.10	29	58.39		m										3	1	2	10	1
43.85	0.32	0.30	94	0.00	0	**3.68**		1.40						QUARTZ VEIN 2MM								
44.43	0.58	0.68	117	0.45	66			%		1.86	M3/M6	3-4	1									
45.10	0.67	0.50	75	0.15	30			38														
45.63	0.53	0.53	100	0.00	0	**G9**								*CROSS BEDDED								
46.17	0.54	0.54	100	0.20	37	58.39	FINE GRAINED SANDSTONE INT		2.94			3-4	1	2	9	1	12	1	1	2	10	1
46.75	0.58	0.50	86	0.37	74	↓												2	1	9	10	1
47.65	0.90	0.80	89	0.52	65	61.98		m										3	1	2	10	1
49.15	1.50	0.85	57	0.00	0	**3.59**		2.64														
50.10	0.95	0.95	100	0.30	32			%		0.65	M6	3-4	1									
51.25	1.15	0.58	50	0.12	21			74														
52.15	0.90	0.40	44	0.25	63	**G10**																
52.85	0.70	0.54	77	0.00	0	61.98	SANDSTONE INTERB SHALE		1.20			3-4	1	5	5	1	11	1	1	5	10	1
53.75	0.90	0.70	78	0.28	40	↓												2	1	2	10	1
54.55	0.80	0.60	75	0.50	83	64.25		m										3	3	5	10	1
55.15	0.60	0.55	92	0.38	69	**2.27**		1.16														
56.20	1.05	1.02	97	0.82	80			%		1.07	M3/M6	3-4	1									
57.20	1.00	1.00	100	0.11	11			51														
58.20	1.00	1.00	100	0.45	45	**G11**																
59.60	1.40	1.30	93	0.85	65	64.25	FINE GRAINED SANDSTONE		0.88			3-4	1	4	3	1	8	1	2	8	9	1
61.20	1.60	1.65	103	1.40	85	↓												2	4	8	10	1
62.80	1.60	1.60	100	1.18	74	66.93		m										3	1	2	10	1
64.20	1.40	1.40	100	0.76	54	**2.68**		1														
66.27	2.07	1.27	61	0.88	69			%		1.80	M6	3-4	1	*GREEN STAINED								
67.20	0.93	0.60	65	0.37	62			33														
67.63	0.43	0.85	198	0.67	79	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

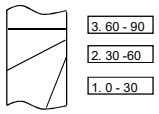
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 49 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726055.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52932 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
68.92	1.29	1.35	105	0.89	66	66.93	SHALE WITH INTERBEDDED SANDSTONE		1.06			2-3	1	2	2	-	4	1	4	9	10	1
70.20	1.28	1.28	100	0.93	73	↓												2	1	2	10	1
72.10	1.90	1.90	100	1.49	78	68.15		m										3	-	-	-	-
73.20	1.10	1.10	100	0.87	79	**1.22**		0.9														
74.80	1.60	1.60	100	1.21	76			%		0.16	M3/M6	2-3	1									
								71														
END OF HOLE - FINAL DEPTH 80.00m						**G13**																
						68.15	QUARTZITIC SANDSTONE		2.44			4	1	8	6	6	20	1	4	5/8	10	1
						↓												2	2	5	10	1
						71.32		m										3	3	5	10	1
						3.17		2.2														
								%		0.73	M3/M6	4	1									
						G14		69														
						71.32	BRECCIATED AND BEDDED SANDSTONE		2.31			2-3	1	2	10	2	14	1	2	5	10	1
						↓												2	1	2	10	1
						74.80		m										3	1	5	10	1
						3.48		2.16														
								%		1.17	M6	2-3	1									
						G15		62														
						74.80	SANDSTONE INTERBEDDED SHALE		2.30			3-4	1-2	10	12	5	27	1	3	6	10	1
						↓												2	2	2/5	10	1
						78.77		m										3	1	2	10	1
						3.97		1.82														
								%		1.67	M3/M6	3-4	1-2	*QUARTZ VEINS2MM								
						G16		46														

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

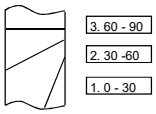
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 49 | ELEVATION: 18.996mamsl | PAGE: 5 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3726055.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 52932 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
						78.77 ↓ 80.00	SANDSTONEINTERBEDDED SHALE	m	0.23			3-4	1	4	9	3	16	1	4	8	9	1
																		2	4	8	10	1
																		3	2	8/9	10	1
						1.23		0.00 % 0		1.00	M5	3-4	1	QUARTZ VEIN 1MM								
						G17								*QUARTZ VEIN 2-5 MM								
						↓											0	1				
																		2				
																		3				
						0.00																
						G18																
						↓											0	1				
																		2				
																		3				
						0.00																
						G19																
						↓											0	1				
																		2				
																		3				
						0.00																
						G20																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

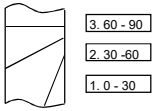
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 50 | ELEVATION: | PAGE: 1 OF 4
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725522.00 | DATE: 01-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 82.89m | Y = 52809 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						35.50	PHYLLITE		0.00			1-2	2-3	2	-	-	2	1	1	3	10	1
1.50	1.50	0.00	0			↓												2	-	-	-	-
1.95	0.45	0.30	67			40.47		m										3	-	-	-	-
3.00	1.05	0.00	0			**4.97**		0.00 %		-	-	-	-	No matric or ordinary concept pieces loss than 0.05mm (Total 0.50m)								
3.45	0.45	0.20	44					0														
4.00	0.55	0.00	0																			
4.55	0.55	0.30	55			**G1**								0.55m Recovered core								
5.00	0.45	0.30	67			40.47	PHYLLITE		5.66			1-2	2-3	28	12	2	42	1	1	2	10	1
6.00	1.00	0.00	0			↓												2	1	2	10	1
6.45	0.45	0.40	89			52.27		m										3	3	5	10	1
7.50	1.05	0.00	0			**11.80**		5.42 %		6.12	M5/M6	1-2	2-3	*Loss 1.07 - Core between (50.98-52.27 m)								
7.95	0.45	0.42	93					46														
9.00	1.05	0.00	0																			
9.45	0.45	0.34	76			**G2**																
10.00	0.55	0.00	0			52.27	Banded SHALE		3.45			1-2	1-2	-	5	-	5	1	-	-	-	-
10.55	0.55	0.16	29			↓												2	1	2	10	1
11.00	0.45	0.40	89			55.96		m										3	-	-	-	-
12.00	1.00	0.00	0			**3.69**		3.65 %		0.24	M6	1-2	1-2	*Bedding/Banded								
12.45	0.45	0.20	44					99														
13.50	1.05	0.00	0																			
13.95	0.45	0.30	67			**G3**																
15.00	1.05	0.00	0			55.96	QUARTZITIC SANDSTONE		4.50			3-4	1	9	12	9	30	1	1	3	9	1
15.45	0.45	0.28	62			↓												2	2	5/8	10	1
16.00	0.55	0.00	0			61.61		m										3	1	2	10	1
16.55	0.55	0.55	100			**5.65**		4.06 %		1.15	M3/M6	3-4	1	Quartz crystals & pyrite infill								
17.00	0.45	0.43	96					72														
18.00	1.00	0.00	0																			
18.45	0.45	0.32	71			**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

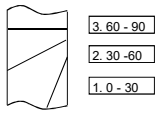
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 50 | ELEVATION: | PAGE: 2 OF 4
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725522.00 | DATE: 01-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 82.89m | Y = 52809 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
19.50	1.05	0.00	0			61.61	SANDSTONE fine grained		2.64			3-4	1	-	5	3	8	1	-	-	-	-
19.95	0.45	0.30	67			↓												2	1	2	9	1
21.00	1.05	0.00	0			65.18		m										3	1	3	10	1
21.12	0.12	0.21	175			**3.57**		2.78						Pyrite Infill								
22.50	1.38	0.00	0					%		0.93	M1/M2/ M5	3-4	1	Cross-bedded (Jointed)								
22.68	0.18	0.23	128					78						SHEAR/Fualt contact (Black Shale) @ 65.00 m								
24.00	1.32	0.00	0			**G5**								*Micaceous								
24.11	0.11	0.18	164			65.18	MUDSTONE? /SANDSTONE		1.40			2	1	1	3	1	5	1	1	2	10	1
25.50	1.39	0.00	0			↓												2	2	5	9	1
25.86	0.36	0.40	111			66.87		m										3	4	5/8	9	1
27.00	1.14	0.00	0			**1.69**		1.40						Pyrite Infill								
27.28	0.28	0.33	118					%		0.29	M3/M5	2	1									
28.50	1.22	0.00	0					83														
28.71	0.21	0.30	143			**G6**																
30.00	1.29	0.00	0			66.87	SHALE		0.42			2-3	1	-	1	-	1	1	-	-	-	-
30.16	0.16	0.31	194			↓												2	4	8	10	1
31.50	1.34	0.00	0			67.29		m										3	-	-	-	-
33.00	1.50	0.93	62			**0.42**		0.38						Foliated/Banded								
33.12	0.12	0.34	283					%		-	-	-	-									
34.47	1.35	0.20	15					90														
35.23	0.76	1.35	178			**G7**																
36.14	0.91	0.40	44	0.00	0	67.29	SHALE		0.31			1-2	1-2	-	3	-	3	1	-	-	-	-
36.96	0.82	0.15	18	0.00	0	↓												2	1	2	10	1
37.49	0.53	0.14	26	0.00	0	68.11		m										3	-	-	-	-
38.49	1.00	0.95	95	0.35	37	**0.82**		0.3														
39.42	0.93	0.36	39	0.20	56			%		0.5	M5/M6	1-2	1-2									
0.00	0.00	0.00	0	0.00	0			38														
35.50	0.00	0.00	0	0.00	0	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

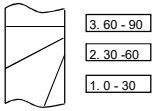
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 50 | ELEVATION: | PAGE: 3 OF 4
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725522.00 | DATE: 01-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 82.89m | Y = 52809 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
35.81	0.31	0.20	65	0.00	0	68.11	SANDSTONE interbedded SHALE											1	-	-	-	-
37.75	1.94	0.00	0	0.00	0	↓			0.43			3-4	1	-	3	-	3	2	4	5/8	10	1
38.26	0.51	0.00	0	0.00	0	68.78		m										3	-	-	-	-
38.83	0.57	0.04	7	0.00	0	**0.67**		0.43														
39.26	0.43	0.00	0	0.00	0			%														
40.47	1.21	0.00	0	0.00	0			64		0.24	M6	3-4	1	Foliated								
41.79	1.32	0.80	61	0.41	51	**G9**																
43.44	1.65	1.63	99	1.08	66	68.78	QUARTZITIC SANDSTONE											1	4	5	10	1
44.94	1.50	1.48	99	1.13	76	↓			0.00			4	1	1	1	-	2	2	4	5	9	1
46.47	1.53	1.56	102	0.99	63	69.10		m										3	-	-	-	-
47.79	1.32	1.32	100	0.96	73	**0.32**		0.00														
49.79	2.00	2.00	100	0.54	27			%														
50.98	1.19	0.76	64	0.31	41			0		0.32	M3/M6	4	1	Black stained								
52.49	1.51	0.50	33	0.13	26	**G10**																
54.29	1.80	1.85	103	1.75	95	69.10	QUARTZITIC SANDSTONE interbedded SILTSTONE											1	4	8	10	1
55.07	0.78	0.85	109	0.85	100	↓			0.27			3-4	1	1	3	1	5	2	3	5	9	1
57.26	2.19	2.22	101	1.99	90	69.55		m										3				
59.28	2.02	1.98	98	1.17	59	**0.45**		0.27														
61.26	1.98	1.99	101	1.47	74			%														
63.26	2.00	1.74	87	1.85	106			60		0.18	M6	3-4	1	Pyrite Infill								
65.18	1.92	1.85	96	1.23	66	**G11**																
67.76	2.58	2.46	95	2.27	92	69.55	QUARTZITIC SANDSTONE BRE											1	-	-	-	-
69.55	1.79	1.76	98	0.90	51	↓			0.66			4	1	-	-	-	0	2	-	-	-	-
72.26	2.71	2.48	92	2.30	93	70.21		m										3	-	-	-	-
75.15	2.89	3.17	110	3.08	97	**0.66**		0.66														
76.51	1.36	1.36	100	0.85	63			%														
78.26	1.75	1.73	99	1.10	64			100		-	-	-	-	Quartzitic SANDSTONE with SILTSTONE BRECCIATE CLAST and quartz vein vertical								
80.60	2.34	2.39	102	1.86	78	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

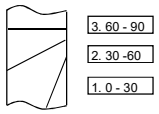
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 50 | ELEVATION: | PAGE: 4 OF 4
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725522.00 | DATE: 01-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 82.89m | Y = 52809 | LOGGED BY: LP

Drilling Interval	Recovery m Drill	Recovery m Rec	Recovery % Rec	RQD m	RQD %	Geotech Interval	Rock Type	Int. RQD %	Rock Competence Solid m	Rock Competence Matrix m	Rock Competence Matrix Type	Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution 1 0° - 30°	Joint Distribution 2 30° - 60°	Joint Distribution 3 60° - 90°	Joint Distribution Total	Joint Surface Condition Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
82.15	1.55	1.40	90	1.16	83	70.21	SANDSTONE		4.62			3-4	1	2	1	4	7	1	4	9	9	1
82.89	0.74	0.74	100	0.00	0	↓												2	1	2	10	1
						75.15		m										3	2	5	10	1
						4.94		4.6						5mm Quartz vein								
								%		0.32	M6	3-4	1									
								94														
END OF HOLE - FINAL DEPTH 82.89m						**G13**								*MICACEOUS								
						75.15	SANDSTONE		1.48			4	1-2	13	3	1	17	1	1	2	9	1
						↓												2	1	2	9	1
						78.73		m										3	3	5	9	1
						3.58		1.48														
								%		2.10	M6	4	1-2	*MMICACEOUS *Brown stained <1mm not calcite *Slight greyish brown								
								41														
						G14																
						78.73	SANDSTONE		2.29			4	1	16	3	5	24	1	1	2/3	9	1
						↓												2	1	2	9	1
						82.89		m										3	2	5	10	1
						4.16		2.29														
								%		1.87	M3/M5/ M6	4	1	*Brown stained <1mm not calcite / *MICACEOUS								
								55														
						G15																
						↓											0	1				
																		2				
																		3				
						0.00																
						G16																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

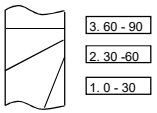
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 51 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725713.00 | DATE: 09-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 83.00m | Y = 53196 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						32.45	SANDSTONE		1.10			2-3	1-2	1	-	-	1	1	3	8	10	1
1.50	1.50	0.00	0	0.00	0	↓												2	-	-	-	-
1.95	0.45	0.45	100	0.00	0	34.05		m										3	-	-	-	-
3.00	1.05	0.00	0	0.00	0	**1.60**		0.88		0.50	M5/M6	2-3	1-2									
3.45	0.45	0.28	62	0.00	0			%														
4.00	0.55	0.00	0	0.00	0			55														
4.40	0.40	0.40	100	0.00	0	**G1**																
4.50	0.10	0.00	0	0.00	0	34.05	Fine Grained /ALFRED SANDSTO		2.22			2-3	1	2	1	1	4	1	2	8	10	1
4.95	0.45	0.45	100	0.00	0	↓												2	4	9	9	1
6.00	1.05	0.00	0	0.00	0	36.27		m										3	1	2	10	1
6.45	0.45	0.45	100	0.00	0	**2.22**		2.22		-	-	-	-	*Green staining /Altered /pyrite infill /Altered and quartz vein / Long vertical /Shear / fault?								
7.50	1.05	0.00	0	0.00	0			%														
7.95	0.45	0.40	89	0.00	0			100														
9.00	1.05	0.00	0	0.00	0	**G2**																
9.45	0.45	0.45	100	0.00	0	36.27	Fine Grained /ALFRED SANDSTO		1.47			2-3	1	11	11	5	27	1	4	5	9	1
10.00	0.55	0.00	0	0.00	0	↓												2	4	8	9	1
10.30	0.30	0.30	100	0.00	0	40.05		m										3	4	8	9	1
10.50	0.20	0.00	0	0.00	0	**3.78**		1.21		2.31	M1/M2/ M3/M6	2-3	1	*green staining /QUARTZ veining *Shear/fault/intensely veining								
10.95	0.45	0.45	100	0.00	0			%														
12.00	1.05	0.00	0	0.00	0			32														
12.45	0.45	0.45	100	0.00	0	**G3**																
13.50	1.05	0.00	0	0.00	0	40.05	Fine Grained /ALFRED SANDSTO		2.16			2-3	1	2	1	17	20	1	4	6	10	1
13.95	0.45	0.45	100	0.00	0	↓												2	4	5	10	1
15.00	1.05	0.00	0	0.00	0	43.05		m										3	1	2	10	1
15.29	0.29	0.29	100	0.00	0	**3.00**		2.16		0.84	M3	2-3	1									
16.00	0.71	0.00	0	0.00	0			%														
16.23	0.23	0.23	100	0.00	0			72														
16.50	0.27	0.00	0	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

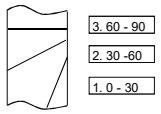
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 51 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725713.00 | DATE: 09-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 83.00m | Y = 53196 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
16.95	0.45	0.45	100	0.00	0	43.05	SANDSTONE		0.30			2-3	1	5	2	-	7	1	1	1	10	1
18.00	1.05	0.00	0	0.00	0	↓												2	4	8	10	1
18.23	0.23	0.23	100	0.00	0	44.00		m										-	-	-	-	-
19.50	1.27	0.00	0	0.00	0	**0.95**		0.22														
19.64	0.14	0.14	100	0.00	0			%		0.65	M2/M3/M	2-3	1	QUARTZ VEINING								
21.00	1.36	0.00	0	0.00	0			23														
21.10	0.10	0.10	100	0.00	0	**G5**								LONG VERTICAL JOINTS/SHEAR								
22.00	0.90	0.00	0	0.00	0	44.00	SANDSTONE		2.59			2-3	1	8	3	3	14	1	1	2	10	1
22.34	0.34	0.34	100	0.00	0	↓												2	1	2	10	1
22.50	0.16	0.00	0	0.00	0	48.62		m										3	1	2	10	1
22.70	0.20	0.20	100	0.00	0	**4.62**		2.46														
24.00	1.30	0.15	12	0.00	0			%		2.03	M3	2-3	1									
24.36	0.36	0.36	100	0.00	0			53														
25.50	1.14	0.00	0	0.00	0	**G6**																
25.95	0.45	0.10	22	0.00	0	48.62	SANDSTONE		0.18			2-3	1	20	4	2	26	1	1	2	10	1
27.00	1.05	0.00	0	0.00	0	↓												2	1	2	10	1
27.45	0.45	0.00	0	0.00	0	52.55		m										3	1	2	10	1
28.50	1.05	0.00	0	0.00	0	**3.93**		0.18														
28.95	0.45	0.00	0	0.00	0			%			M3/M6?	2-3	1									
30.00	1.05	0.00	0	0.00	0			5														
30.45	0.45	0.45	100	0.00	0	**G7**																
31.50	1.05	0.00	0	0.00	0	52.55	SANDSTONE		1.03			2-3	1	20	10	5	35	1	1	2	10	1
31.95	0.45	0.45	100	0.00	0	↓												2	1	2	10	1
32.45	0.50	0.50	100	0.00	0	55.92		m										3	1	2	10	1
33.00	0.55	0.32	58	0.11	34	**3.37**		1.0														
33.40	0.40	0.19	48	0.19	100			%		2.3	M3/M6	2-3	1	PYRITE INFILL								
34.05	0.65	0.80	123	0.51	64			28														
37.05	3.00	3.00	100	2.17	72	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

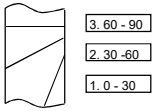
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 51 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725713.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 83.00m | Y = 53196 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
38.15	1.10	1.10	100	0.00	0	55.92	QUARTZITIC SANDSTONE/SHALE		3.98			2-3	1	6	5	12	23	1	3	5	10	1
40.05	1.90	1.85	97	0.96	52	↓												2	3	5	10	1
42.35	2.30	2.25	98	1.62	72	61.35		m										3	2	5	10	1
43.05	0.70	0.75	107	0.56	75	**5.43**		3.66						QUARTZ SANDSTONE (55,92M) PITTED - 57.0								
44.00	0.95	0.95	100	0.22	23			%			M2	2-3	1	BRECCIATED AND BANDED/FOLIATED								
46.05	2.05	1.98	97	1.40	71			67						*SHEAR 60.90 AND 61.35M INTERCALATED SANDSTONE								
49.05	3.00	2.85	95	1.70	60	**G9**																
49.40	0.35	0.40	114	0.00	0	61.35	PHYLLITE/SHALE RESIDUAL		1.30			2	1	2	-	8	10	1	2	2	10	1
49.75	0.35	0.35	100	0.00	0	↓												2	-	-	-	-
51.35	1.60	0.45	28	0.00	0	63.24		m										3	1	2	10	1
52.05	0.70	0.73	104	0.63	86	**1.89**		1.15						BANDED & BRECCIATED								
52.55	0.50	0.55	110	0.12	22			%		0.59	M3	2	1									
54.15	1.60	1.50	94	0.74	49			61														
55.05	0.90	1.08	120	0.52	48	**G10**																
57.65	2.60	2.60	100	1.14	44	63.24	QUARTZITIC SANDSTONE/SHALE		1.10			2-3	1	22	1	6	29	1	1	3	10	1
60.75	3.10	3.10	100	2.66	86	↓												2	2	5	10	1
63.75	3.00	2.85	95	1.58	55	67.60		m										3	1	3	9	1
65.00	1.25	1.40	112	0.61	44	**4.36**		1.10						PYRITE/ CROSS JOINTED/LOUISLINE/QUARTZ VEIN INTERCALATED/BEDDED SHALE								
66.65	1.65	1.50	91	0.75	50			%		3.26	M2/M3 M6	2-3	1									
68.30	1.65	1.80	109	1.10	61			25														
70.30	2.00	2.00	100	1.60	80	**G11**																
73.10	2.80	2.80	100	2.80	100	67.60	SHALE INTERBEDDED SANDST		1.90			2-3	1	4	-	5	9	1	4	8	10	1
76.00	2.90	2.90	100	2.49	86	↓												2	-	-	-	-
79.07	3.07	3.07	100	3.07	100	70.46		m										3	2	5	10	1
81.55	2.48	2.48	100	1.57	63	**2.86**		1.80														
83.00	1.45	1.15	79	1.15	100			%		1.99	M5/M6	2-3	1									
0.00	0.00	0.00	0	0.00	0			63														
0.00	0.00	0.00	0	0.00	0	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

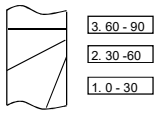
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 51 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725713.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 83.00m | Y = 53196 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00	0.00	0.00	0	0.00	0	70.49	SHALE		-			2	1	-	-	-	0	1	-	-	-	-
0.00	0.00	0.00	0	0.00	0	↓												2	-	-	-	-
0.00	0.00	0.00	0	0.00	0	70.88		m										3	-	-	-	-
0.00	0.00	0.00	0	0.00	0	**0.39**		0.00		0.39	M2/M5/ M6	2	1	*Intensely Fractured								
0.00	0.00	0.00	0	0.00	0			%														
								0														
END OF HOLE - FINAL DEPTH 80.00m						**G13**																
						70.88	SHALE		1.56			2	1	-	-	5	5	1	-	-	-	-
						↓												2	-	-	-	-
						72.44		m										3	3	5	10	1
						1.56		1.56		-	-	-	-									
								%														
								100														
						G14																
						72.44	SHALE /QUARTZITIC SANDSTONE		1.02			2-3	1	-	1	-	1	1	-	-	-	-
						↓												2	4	8	10	1
						73.46		m										3	-	-	-	-
						1.02		1.02		-	-	-	-	*Sheared but healed 72.44-72.88m								
								%														
								100														
						G15																
						73.46	QUARTZITIC SANDSTONE /SHALE		1.44			3	1	2	2	5	9	1	3	9	10	1
						↓												2	2	9	10	1
						75.25		m										3	1	2	10	1
						1.79		1.44		0.35	M12 /M15 /M6	2-3	1	QUARTZ , PYRITE, SHEAR ZONE 73.68-73.77 (SHALE), SHEAR ZONE 74.60-75.25 - HEALED, FRACTURE WITH QUARTZ VEIN [QUARTZITIC SANDSTONE								
								%														
								80														
						G16																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 51 | ELEVATION: 18.996mamsl | PAGE: 5 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725713.00 | DATE: 09-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 83.00m | Y = 53196 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
						75.25												1	1	2	10	1
						↓			7.18			3	1	5	-	3	8	2	-	-	-	-
						82.70	GREYWACKE	m										3	2	5	10	1
						7.45		6.98						3mm Quartz veining								
								%		0.27	M6	3	1									
						G17		94						*occasional quartz veining								
						↓											0	1				
																		2				
																		3				
						0.00	GREYWACKE							*Hole depth 83.00 but 0.30 left in hole								
						G18																
						↓											0	1				
																		2				
																		3				
						0.00																
						G19																
						↓											0	1				
																		2				
																		3				
						0.00																
						G20																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
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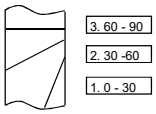
JOINT DISTRIBUTION



JOINT CONDITION

MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

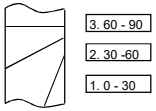
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 52 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725763.00 | DATE: 09-09-2021
PROJECT No: 507052/42K | FINAL DEPTH: 72.50m | Y = 53468 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						22.55												1	1	2/3	6/9	1
1.50	1.50	0.00	0	0.00	0	↓			4.20			3-4	1	26	13	7	46	2	1	2/3	6/9	1
1.95	0.45	0.15	33	0.00	0	29.61	SANDSTONE	m										3	1	2	10	1
3.00	1.05	0.00	0	0.00	0	**7.06**		4.20						QUARTZ - Green staind								
3.45	0.45	0.20	44	0.00	0			%		2.86	M3/M6	3-4	1									
4.00	0.55	0.00	0	0.00	0			59														
4.20	0.20	0.20	100	0.00	0	**G1**								Sample (25.13-25.31) (27.55-27.74)								
4.50	0.30	0.00	0	0.00	0	29.61												1	1	3	6/9	1
4.95	0.45	0.45	100	0.00	0	↓			1.64			3-4	1	22	3	10	35	2	4	8	9	1
6.00	1.05	0.00	0	0.00	0	35.39	SANDSTONE	m										3	4	9	9	1
6.45	0.45	0.45	100	0.00	0	**5.78**		1.64														
7.50	1.05	0.00	0	0.00	0			%		4.14	M3/M6	3-4	1	QUARTZ - crystal-green staind /Sample(32.44-32.73m)								
7.95	0.45	0.45	100	0.00	0			28														
9.00	1.05	0.00	0	0.00	0	**G2**																
9.45	0.45	0.45	100	0.00	0	35.39												1	2	6	9	1
10.00	0.55	0.00	0	0.00	0	↓			1.62			3-4	1	4	3	5	12	2	4	9	10	1
10.15	0.15	0.15	100	0.00	0	38.09	SANDSTONE /Joints Pitted	m										3	4	6	10	1
10.50	0.35	0.00	0	0.00	0	**2.70**		1.62														
10.95	0.45	0.45	100	0.00	0			%		1.08	M3/M6	3-4	1	green stained								
12.00	1.05	0.00	0	0.00	0			60														
12.45	0.45	0.45	100	0.00	0	**G3**																
13.50	1.05	0.00	0	0.00	0	38.09												1	3	5	9	1
13.95	0.45	0.45	100	0.00	0	↓			1.84			3-4	1	5	9	4	18	2	3	5/8	9	1
15.00	1.05	0.00	0	0.00	0	42.08	SANDSTONE /Joints Pitted	m										3	4	6	10	1
15.28	0.28	0.28	100	0.00	0	**3.99**		1.84														
16.00	0.72	0.00	0	0.00	0			%		2.15	M3/M6	3-4	1	*QUARTZ -crystal-green stained /*Sample (38.30-38.50) (40.09-40.44)								
16.05	0.05	0.05	100	0.00	0			46														
16.50	0.45	0.00	0	0.00	0	**G4**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

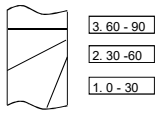
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 52 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725763.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 72.50m | Y = 53468 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
16.57	0.07	0.05	71	0.00	0	42.08	Fine grained SANDSTONE		2.24			4	1	5	5	6	16	1	2	5	9	1
18.00	1.43	0.00	0	0.00	0	↓												2	4	6/8	9	1
18.29	0.29	0.29	100	0.00	0	45.10		m										3	2	5	10	1
19.50	1.21	0.00	0	0.00	0	**3.02**		2.09						Green stained at Pyrite infill								
19.78	0.28	0.28	100	0.00	0			%		0.78	M3/M6?	4	1	Green stained								
21.00	1.22	0.00	0	0.00	0			69														
21.45	0.45	0.25	56	0.00	0	**G5**																
22.00	0.55	0.00	0	0.00	0	45.10	Fine grained SANDSTONE - green fractures		1.03			4	1	1	-	1	2	1	4	8	9	1
22.50	0.50	0.00	0	0.00	0	↓												2	-	-	-	-
22.55	0.05	0.05	100	0.00	0	46.13		m										3	4	9	10	1
23.45	0.90	0.90	100	0.63	70	**1.03**		0.97						Green stained								
24.95	1.50	1.50	100	1.08	72			%		0.00	-	-	1									
25.52	0.57	0.58	102	0.52	90			94														
25.70	0.18	0.17	94	0.00	0	**G6**																
27.30	1.60	1.60	100	0.70	44	46.13	Fine grained SANDSTONE QUARTZ veins (<10mm)		1.27			4	1	2	4	4	10	1	1	3	9	1
28.25	0.95	0.95	100	0.67	71	↓												2	2	5	10	1
30.00	1.75	1.75	100	0.60	34	48.22		m										3	1	2	10	1
30.94	0.94	0.94	100	0.00	0	**2.09**		1.27						QUARTZ crystals /Quartz crystals 5mm								
32.09	1.15	1.15	100	0.67	58			%		0.82	M3/M5?	4	1									
33.24	1.15	1.15	100	0.54	47			61														
34.19	0.95	0.95	100	0.13	14	**G7**																
35.39	1.20	1.20	100	0.30	25	48.22	Fine grained SANDSTONE (micaceous)		2.04			4	1	13	12	11	36	1	1	2	10	1
37.29	1.90	1.90	100	1.42	75	↓												2	3	5	10	1
38.24	0.95	0.95	100	0.36	38	52.26		m										3	3	5	10	1
39.19	0.95	0.95	100	0.54	57	**4.04**		1.65						Sample (50.82-50.98m)								
39.94	0.75	0.75	100	0.00	0			%		2.0	M3/M5	4	1									
41.67	1.73	1.73	100	1.10	64			41														
41.97	0.30	0.30	100	0.10	33	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

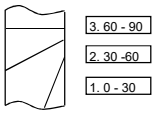
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 52 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725763.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 72.50m | Y = 53468 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
42.97	1.00	1.00	100	0.90	90	52.26	FINE GRAINED SANDSTONE INTENSE VEINING		2.76			3-4	1	17	20	2	39	1	2	5/6	9	1
44.47	1.50	1.50	100	0.77	51	↓												2	1	2	10	1
46.13	1.66	1.66	100	1.39	84	58.10		m										3	1	2	10	1
48.43	2.30	2.30	100	1.51	66	**5.84**		2.76														
49.20	0.77	0.77	100	0.10	13			%		3.08	M3/M6	3-4	1									
50.65	1.45	1.45	100	0.65	45			47														
51.95	1.30	1.30	100	0.90	69	**G9**								Sample (55.27-55.44) (57.59-57.77m)								
53.75	1.80	1.80	100	1.20	67	58.10	FINE GRAINED SANDSTONE INTENSE VEINING		1.68			3-4	1	13	8	6	27	1	1	2	10	1
55.15	1.40	1.35	96	0.81	60	↓												2	3	6	6/9	1
55.95	0.80	0.85	106	0.57	67	62.53		m										3	1	3	10	1
57.15	1.20	1.20	100	0.48	40	**4.43**		1.68														
58.10	0.95	0.95	100	0.77	81			%		2.75	M3/M6	3-4	1									
60.20	2.10	2.10	100	0.39	19			38														
61.20	1.00	1.00	100	0.73	73	**G10**								White Stained								
63.20	2.00	2.00	100	1.25	63	62.53	FINE GRAINED SANDSTONE		1.75			4	1	1	5	5	11	1	4	8	10	1
64.20	1.00	1.00	100	0.85	85	↓												2	3	5	6/9	1
66.30	2.10	2.10	100	1.03	49	65.13		m										3	3	5	6/9	1
67.20	0.90	0.90	100	0.57	63	**2.60**		1.75														
69.10	1.90	1.90	100	1.16	61			%		0.85	M3/M6	4	1									
70.25	1.15	1.14	99	0.88	77			67														
72.50	2.25	2.26	100	1.37	61	**G11**								Sample (64.83-65.10m)								
						65.13	FINE GRAINED SANDSTONE		2.16			4	1	8	7	16	31	1	1	2	10	1
END OF HOLE - FINAL DEPTH 72.50m						↓												2	3	5	10	1
						70.12		m										3	3	5	6/9	1
						4.99		2.16														
								%		2.83	M3/M6	4	1									
								43														
						G12								White Stained /Sample (68.30-68.52m)								

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

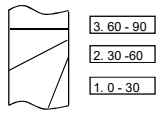
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 52 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725763.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 72.50m | Y = 53468 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00	0.00	0.00	0	0.00	0	70.12	SANDSTONE fine grained QUARTZ veining and pitted		1.75			3-4	1	2	8	4	14	1	5	9	8	1
0.00	0.00	0.00	0	0.00	0	↓												2	4	9	9	1
0.00	0.00	0.00	0	0.00	0	72.50		m										3	3	5	8/9	1
0.00	0.00	0.00	0	0.00	0	**2.38**		1.48						Pytite and white staining								
0.00	0.00	0.00	0	0.00	0			%		0.63	M3/M6	3-4	1	Green-stained								
								62						Pitted								
END OF HOLE - FINAL DEPTH 80.00m						**G13**																
						↓											0	1				
																		2				
																		3				
						0.00																
						G14																
						↓											0	1				
																		2				
																		3				
						0.00																
						G15																
						↓											0	1				
																		2				
																		3				
						0.00																
						G16																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

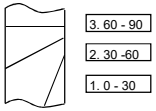
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 53 | ELEVATION: | PAGE: 1 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725884.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 53163 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
0.00						39.00	PHYLLITIC SANDSTONE											1	1	2	10	1
1.50	1.50	0.00	0	0.00	0	↓			1.93			1-2	3-4	10	12	4	26	2	1	2	10	1
1.95	0.45	0.31	69	0.00	0	42.90		m										3	1	2	10	1
3.00	1.05	0.00	0	0.00	0	**3.90**		1.41														
3.45	0.45	0.38	84	0.00	0			%		1.97	M5/M6	1-2	3-4									
4.00	0.55	0.00	0	0.00	0			36														
4.40	0.40	0.40	100	0.00	0	**G1**								*Core loss								
4.95	0.55	0.43	78	0.00	0	42.90	PHYLLITIC SANDSTONE											1	1	2	10	1
6.00	1.05	0.00	0	0.00	0	↓			0.20			1-2	3-4	11	5	-	16	2	2	5	10	1
6.45	0.45	0.41	91	0.00	0	46.10		m										3	-	-	-	-
7.50	1.05	0.00	0	0.00	0	**3.20**		0.12														
7.95	0.45	0.37	82	0.00	0			%		3.00	M3/M5/ M6	1-2	3-4									
9.00	1.05	0.00	0	0.00	0			4														
9.45	0.45	0.37	82	0.00	0	**G2**								*Core loss /*Micaceous								
10.00	0.55	0.00	0	0.00	0	46.10	PHYLLITIC SANDSTONE/SHALE											1	1	2	10	1
10.35	0.35	0.35	100	0.00	0	↓			0.10			1-2	3-4	24	3	-	27	2	2	5	10	1
10.50	0.15	0.00	0	0.00	0	50.05		m										3	-	-	-	-
10.95	0.45	0.39	87	0.00	0	**3.95**		0.10														
12.00	1.05	0.00	0	0.00	0			%		3.85		1-2	3-4									
12.21	0.21	0.27	129	0.00	0			3														
13.50	1.29	0.00	0	0.00	0	**G3**								*Core loss								
13.95	0.45	0.38	84	0.00	0	50.05	PHYLLITIC SANDSTONE											1	4	8	9	1
15.00	1.05	0.00	0	0.00	0	↓			1.52			1-2	3	3	3	1	7	2	2	5	9	1
15.30	0.30	0.34	113	0.00	0	53.57		m										3	4	8	10	1
16.00	0.70	0.00	0	0.00	0	**3.52**		1.21														
16.16	0.16	0.16	100	0.00	0			%		2.00	M5/M6	1-2	3									
16.50	0.34	0.00	0	0.00	0			34														
16.67	0.17	0.17	100	0.00	0	**G4**								Green stained / *Core loss								

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

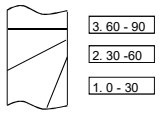
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 53 | ELEVATION: 18.996mamsl | PAGE: 2 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725884.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 53163 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
18.00	1.33	0.00	0	0.00	0	53.57	Brecciated/intercalated SHALE Sandstone		2.53			1-2	1-2	14	5	9	28	1	2	5	10	1
18.36	0.36	0.15	42	0.00	0	↓												2	2	5/8	10	1
19.50	1.14	0.35	31	0.00	0	59.30		m										3	1	3	9	1
19.95	0.45	0.45	100	0.00	0	**5.73**		2.40		3.20	M5/M6	1-2	1-2	Pyrite infill								
21.00	1.05	0.10	10	0.00	0			%														
22.50	1.50	0.57	38	0.00	0			42						Quartz vein at 58.87m								
22.95	0.45	0.45	100	0.00	0	**G5**								53.57 Core grained (0.64m) →G4								
24.00	1.05	0.00	0	0.00	0	59.30	Brecciated /banded SHALE		1.36			1-2	1-2	15	5	8	28	1	1	1/2	10	1
24.45	0.45	0.45	100	0.00	0	↓												2	4	5	10	1
25.50	1.05	0.20	19	0.00	0	64.20		m										3	3	5	10	1
25.73	0.23	0.23	100	0.00	0	**4.90**		1.36		3.54	M5/M6	1-2	1-2									
27.00	1.27	0.00	0	0.00	0			%														
27.35	0.35	0.35	100	0.00	0			28														
28.50	1.15	0.05	4	0.00	0	**G6**																
28.85	0.35	0.35	100	0.00	0	64.20	SHALE		1.75			1-2	1	6	1	6	13	1	1	1/2	10	1
30.00	1.15	0.75	65	0.00	0	↓												2	1	1/2	10	1
30.35	0.35	0.35	100	0.00	0	67.24		m										3	1	3	9	1
31.50	1.15	0.80	70	0.00	0	**3.04**		1.63		1.29	M5/M6	1-2	1	Slickensided / Pyrite infill								
31.95	0.45	0.45	100	0.00	0			%														
33.80	1.85	1.85	100	0.00	0			54														
34.50	0.70	0.00	0	0.00	0	**G7**																
34.95	0.45	0.45	100	0.00	0	67.24	SANDSTONE brecciated SHALE		0.10			3	1	7	-	4	11	1	1	3	10	1
35.64	0.69	0.70	101	0.00	0	↓												2	-	-	-	-
36.00	0.36	0.10	28	0.00	0	68.43		m										3	3	6	9	1
36.31	0.31	0.31	100	0.00	0	**1.19**		0.1		1.1	M6	3	1	Pyrite infill								
37.50	1.19	0.94	79	0.00	0			%														
37.71	0.21	0.21	100	0.00	0			8														
39.00	1.29	0.99	77	0.00	0	**G8**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
1.POLISHED
2.SMOOTH PLANAR
3.ROUGH PLANAR
4.SLICKENSIDED UNDULATING
5.SMOOTH UNDULATING
6.ROUGH UNDULATING
7.SLICKENSIDED STEPPED
8.SMOOTH STEPPED
9.ROUGH STEPPED / IRREGULAR

INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG.
Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE
Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
2.WALL > ROCK HARDNESS
3.WALL < ROCK HARDNESS

MATRIX TYPE
M1. FAULTS
M2. SHEARS
M3. INTENSE JOINTING
M4. INTENSE MINERALISATION
M5. DEFORMABLE MATERIAL
M6. INTENSE DRILLING FRACTURES

GEOTECHNICAL BOREHOLE LOG

srk consulting

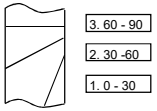
PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 53 | ELEVATION: 18.996mamsl | PAGE: 3 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725884.00 | DATE: 11-07-2012
PROJECT No: 507052/42K | FINAL DEPTH: 80.00m | Y = 53163 | LOGGED BY: LP

Drilling Interval	Recovery			RQD		Geotech Interval	Rock Type	Int. RQD %	Rock Competence			Hardness 1 - 5 (MPa)	Weathering 1 - 5	Joint Distribution				Joint Surface Condition				
	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
40.20	1.20	0.95	79	0.42	44	68.43	SANDSTONE/SHALE BRECCIA															
41.70	1.50	1.30	87	0.72	55	↓			0.96			2-3	1	1	3	5	9	2	2	6	9	1
42.90	1.20	1.25	104	0.27	22	70.10		m										3	2	6	9	1
45.00	2.10	0.80	38	0.00	0	**1.67**		0.79						Pyrite infill								
45.50	0.50	0.60	120	0.00	0			%														
46.10	0.60	0.22	37	0.12	55			47		0.71	M6	2-3	1									
46.80	0.70	0.95	136	0.10	11	**G9**																
47.75	0.95	0.50	53	0.00	0	70.10	SANDSTONE/SHALE BRECCIA /															
48.45	0.70	0.45	64	0.00	0	↓			2.01			2-3	1	2	8	5	15	2	1	2	10	1
48.95	0.50	0.30	60	0.00	0	73.30		m										3	1	2	10	1
49.10	0.15	0.20	133	0.00	0	**3.20**		1.68														
49.65	0.55	0.25	45	0.00	0			%		1.19	M3/M5/ M6	2-3	1									
50.05	0.40	0.55	138	0.00	0			52														
50.80	0.75	1.02	136	0.29	28	**G10**																
52.20	1.40	0.05	4	0.00	0	73.30	SANDSTONE															
52.50	0.30	0.34	113	0.28	82	↓			0.77			3	1	12	8	11	31	2	1	2	10	1
52.90	0.40	0.00	0	0.00	0	76.20		m										3	1	2	10	1
53.30	0.40	0.10	25	0.00	0	**2.90**		0.77														
53.55	0.25	0.09	36	0.00	0			%		2.13	M3/M5/ M6	3	1	Vertical long joint/5mm quartz vein								
53.84	0.29	0.94	324	0.94	100			27														
54.35	0.51	0.00	0	0.00	0	**G11**																
55.20	0.85	0.15	18	0.00	0	76.20	SANDSTONE occasional banded															
55.43	0.23	0.55	239	0.00	0	↓			0.73			2-3	1	4	2	5	11	2	4	5/8	9	1
56.10	0.67	0.77	115	0.12	16	77.91		m										3	1	3	9	1
56.88	0.78	0.87	112	0.44	51	**1.71**		1														
58.20	1.32	1.25	95	1.01	81			%		0.98	M3/M6	2-3	1	Pyrite infill/Thinly layered shale infill								
59.30	1.10	1.10	100	0.53	48			43														
61.20	1.90	1.67	88	0.83	50	**G12**																

HARDNESS (MPa)
1.VERY SOFT (0-5)
2.SOFT (5-25)
3.HARD (25-45)
4.VERY HARD (45-105)
5.EXTREMELY HARD (105+)

WEATHERING
1.UNWEATHERED
2.SLIGHTLY
3.MODERATELY
4.HIGHLY
5.COMPLETELY

JOINT DISTRIBUTION



JOINT CONDITION
MACRO
1.STRAIGHT
2.SLIGHT UNDULATION
3.CURVED
4.UNI DIRECTIONAL WAVY
5.MULTI DIRECTIONAL WAVY

MICRO
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INFILL TYPE
1.GOUGE t. > Amplit. of IRREG.
2.GOUGE t. < Amplit. of IRREG. Soft sheared material, e.g. Talc
3.FINE
4.MEDIUM
5.COARSE Non-softening sheared material
6.FINE
7.MEDIUM
8.COARSE
9.STAINING
10.NONE

JOINT WALL ALT.
1.WALL = ROCK HARDNESS
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PROJECT: ESKOM DSSR UPDATE | HOLE NO: KB 53 | ELEVATION: 18.996mamsl | PAGE: 4 OF 8
SITE: DYNEFONTEIN | INCLINATION: VERTICAL | CO-ORDS: X = 3725884.00 | DATE: 11-07-2012
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	m Drill	m Rec	% Rec	m	%				Solid m	Matrix m	Matrix Type			1 0° - 30°	2 30° - 60°	3 60° - 90°	Total	Jt	Macro 1 - 5	Micro 1 - 9	Infill Type 1 - 10	Wall Alter 1 - 3
62.40	1.20	1.37	114	0.70	51	77.91	SANDSTONE		0.13			3-4	1	3	4	-	7	1	3	5	10	1
64.20	1.80	1.75	97	0.29	17	↓												2	3	5	10	1
66.75	2.55	2.55	100	1.65	65	79.08		m										3	-	-	-	-
68.06	1.31	1.19	91	0.46	39	**1.17**		0.13														
69.30	1.24	1.24	100	0.70	56			%		1.04	M3/M6	3-4	1									
								11														
END OF HOLE - FINAL DEPTH 80.00m						**G13**																
						79.08	SANDSTONE		0.44			3-4	1	-	-	2	3	1	-	-	-	-
						↓												2	-	-	-	-
						80.00		m										3	1	2	10	1
						0.92		0.28														
								%		0.48	M6	3-4	1									
								30														
						G14																
						↓											0	1				
																		2				
																		3				
						0.00																
						G15																
						↓											0	1				
																		2				
																		3				
						0.00																
						G16																

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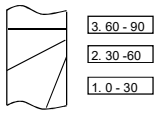

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