

HOLE No: LR1
Sheet 1 of 1

JOB NUMBER: H475702

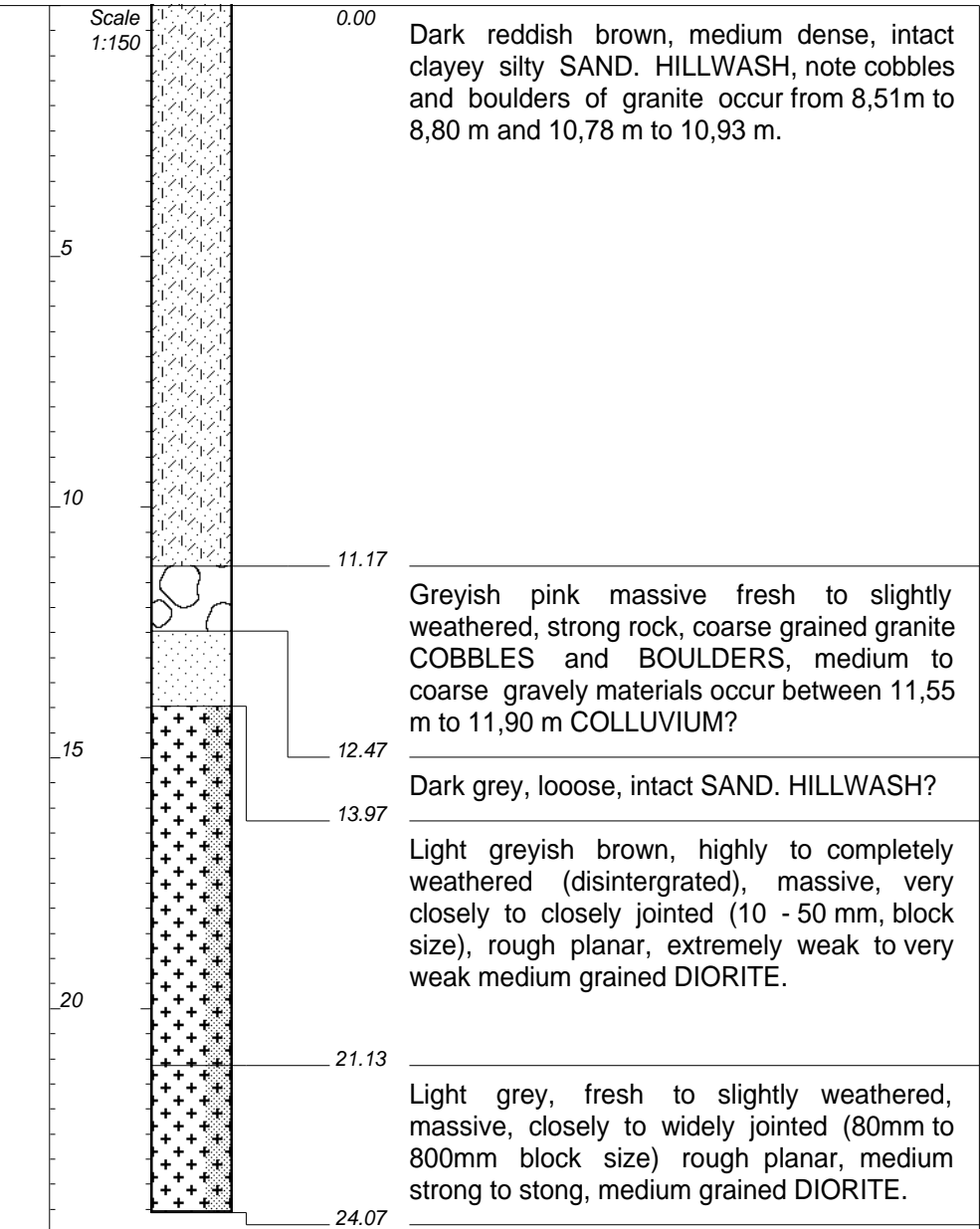
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR1
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE	FABRIC	FABRIC SPACING	FABRIC INCL	J SETS	J INCL	JS (mm)	JR	FILL TYPE	FILL THICK (mm)	FREQ FREQ	DRILLING METHOD	PLT (MPa)	SPT	DESCRIPTION
96												AUGER			Dark reddish brown, medium dense, intact clayey silty SAND. HILLWASH, note cobbles and boulders of granite occur from 8,51m to 8,80 m and 10,78 m to 10,93 m.
93															
87															
81															
74															
67															
77															
78															
82															
90															
86															
31															
39															
54															
100															
70															
83															
84		MG	MF		3		0-10 40-60 80-89		RPJ RPJ SPJ	MS MS MS	2 2 1				
95															
71															
95															
93															
87															



NOTES

- Excavation depths of clay core is at 15m and of concrete dam is at 21,20m
- A prominent sub-vertical to vertical joint occur between 22,26 m and 22,93 m.

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,043.47
 MACHINE: SULLIVAN DIAM: X-COORD: 2,780,028.00
 DRILLED BY: RASTA DATE: 12/09/2006 Y-COORD: -83,358.00
 PROFILED BY: N. G. NTENGO DATE: 0/Jan/00
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:53
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HOLE No: LR1

HOLE No: UR1

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JOB NUMBER: H475702

ROCK FABRIC: MF -massive, BF -bedded, FF -foliated, CF -cleaved, SF -schistose, GF -gneissose, LF -laminated

GRAIN SIZE: FG -fine grained, MG -medium grain, CG -coarse grain

JOINT SPACING: VCJ -very close spacg, CJ -close spacing, MJ -medium spacing, WJ -wide spacing, VWJ -very wide spacng

JOINT ROUGHNESS: SLJ -slickensided, SJ -smooth, RJ -rough

JOINT SHAPE: CUR -curvilinear, PLA -planar, UND -undulating, STE -stepped, IRR -irregular

ROCK HARDNESS: EHR -extremely hard rock, VHR -very hard rock, HR -hard rock, MHR -medium hard rock, SR -soft rock, VSR -very soft rock

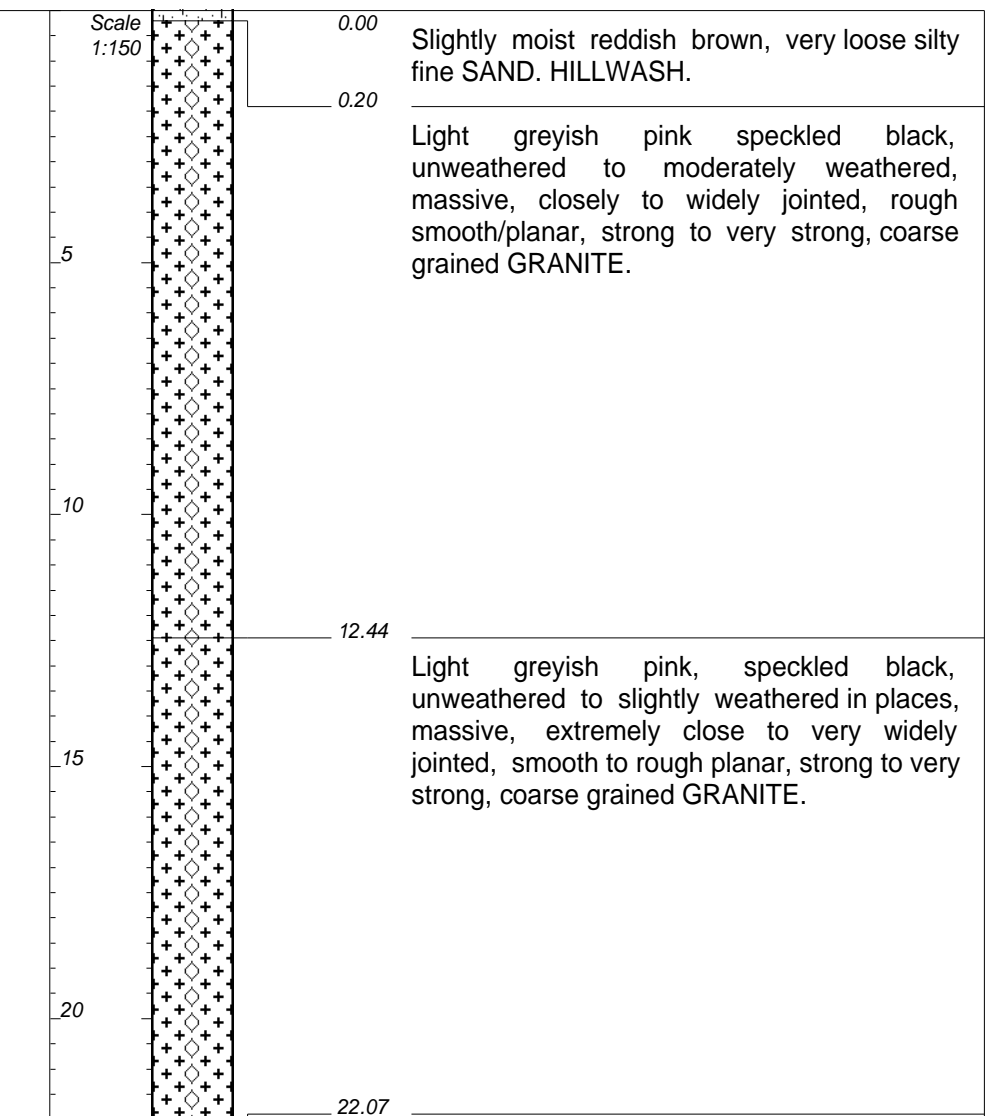
ESKOM PROJECT LIMA PHASE 2

HOLE No: UR1

Sheet 1 of 1

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
100	57	52											8	NXC		
52	52	33											4			
29	29	29											7			
34	25	0											6			
100	93	77											10			
92	92	63											4			
88	80	77					3		0-10 40-60 80-89	10-1170 200-5000	R/SPJ RPJ SSJ	MS MS CF	2 2 1			
96	96	80											0			
42	42	42											2			
91	91	84											10			
59	59	0	CG	MF	-	-							6	TNW		
100	100	57											4			
99	94	85											2			
71	71	61											0			
100	100	100											1			
69	69	65											3			
100	100	100					2		0-30 70-89	10-1770	S/RPJ SPJ	MS CF	1 <1			
100	100	77											4			
		85											2			
		92											1			
99	99	99											0			
100	100	100														



NOTES

- 1) Corestones are with highly to completely weathered zones at 2,16 - 2,22 m; 2,66 - 3,52 m; 4,62 - 4,88 m and 6,21 - 6,32 m; the section between 11,59 - 12,43 m is highly weathered.
- 2) Joint surfaces are predominantly weathered, probably water bearing.
- 3) Moderately weathered joint at 14,94 - 14,98 m. Sub-horizontal jointing is predominant (i.e. 0 - 10 joint inclination).

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,695.87
MACHINE: SULLIVAN DIAM: X-COORD: 2,778,189.88
DRILLED BY: RASTA DATE: 29/08/2006 Y-COORD: -80,703.85
PROFILED BY: N G NTENGNODU DATE: 31/08/06 - 02/09/06
TYPE SET BY: R Steenkamp DATE: 15/01/07 10:54
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HOLE No: UR1

HOLE No: UR2
Sheet 1 of 1

JOB NUMBER: H475702

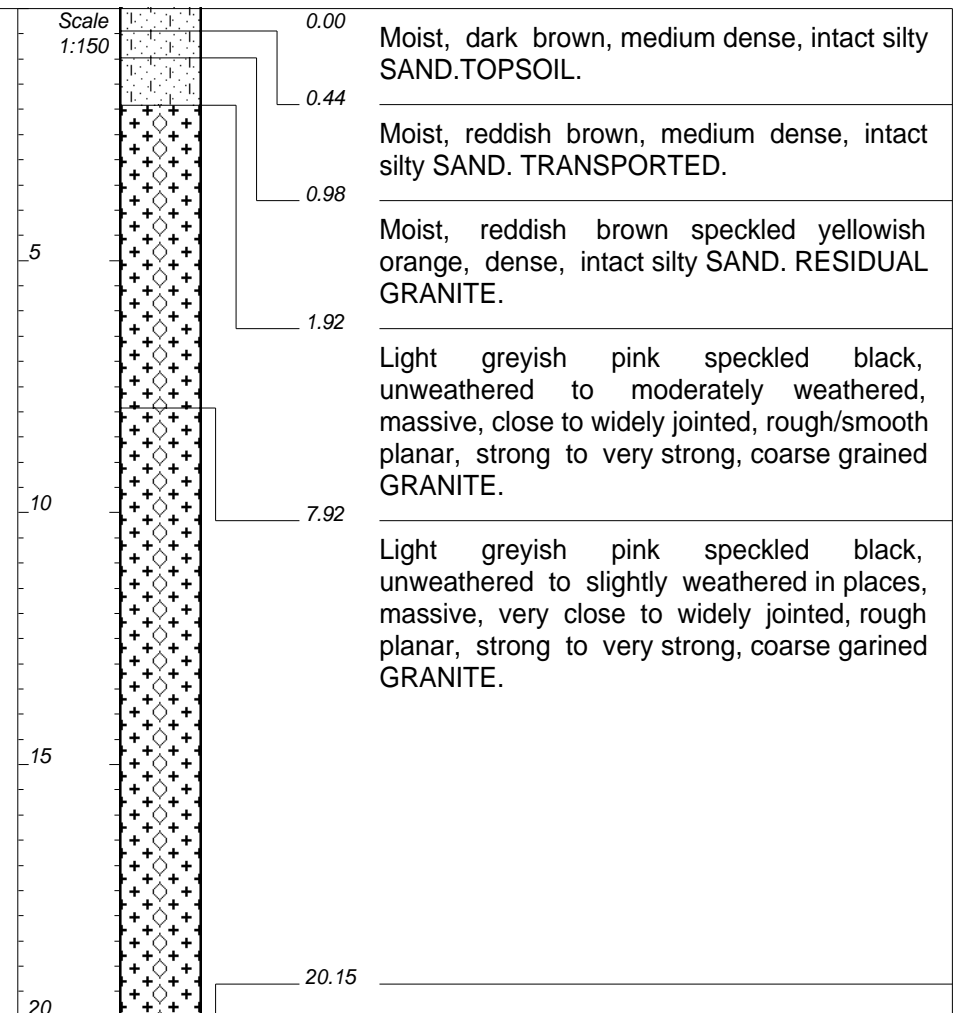
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
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 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: UR2
Sheet 1 of 1

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
74	26															
100	43															
88	0	100														
100	100	63											3			
72	63												4			
97	80	61					2	0-10	100-770	SPJ	MS	5	>20			
72	72	72						40-70	170-450	RPJ	MC	<1	1			
91	91	91											4			
67	60	53											5			
54	54	54											1			
100	100	97	CG	MF									2			
		94											10			
92	92	91											3			
95	95	95					3	0-30	30-2012	SPJ	MS	1/2	1			
								50-80	200-8000	SPJ	MS	1	1			
								80-89		SSJ	CF	<1	2			
													0			
													0			
100	100	100											4			
													1			
													2			
													1			



- NOTES
- 1) Corestones are with high to completely weathered zones at 2,30 - 2,43 m; 4,13 - 4,55 m and 7,72 - 7,92 m.
 - 2) Joints surfaces are predominantly weathered or stained, probably water bearing. 0
 - 3) Sub-horizontal joints up to 11 m, show reddish pink discoloration (i.e. due to weathering).
 - 4) The recorded very steeply dipping joints are not prominent, but show greenish brown staining.
 - 5) Drillers break on the last core run.

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,694.57
 MACHINE: TROUTSTIHL DIAM: X-COORD: 2,778,507.41
 DRILLED BY: ELIAS DATE: 30/08/2006 Y-COORD: -80,315.15
 PROFILED BY: N G NTENGO DATE: 01/09/06 - 02/09/06
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HOLE No: UR2

HOLE No: UR3

Sheet 1 of 1

JOB NUMBER: H475702

ROCK FABRIC: MF -massive, BF -bedded, FF -foliated, CF -cleaved, SF -schistose, GF -gneissose, LF -laminated

GRAIN SIZE: FG -fine grained, MG -medium grain, CG -coarse grain

JOINT SPACING: VCJ -very close spacg, CJ -close spacing, MJ -medium spacing, WJ -wide spacing, VWJ -very wide spacng

JOINT ROUGHNESS: SLJ -slickensided, SJ -smooth, RJ -rough

JOINT SHAPE: CUR -curvilinear, PLA -planar, UND -undulating, STE -stepped, IRR -irregular

ROCK HARDNESS: EHR -extremely hard rock, VHR -very hard rock, HR -hard rock, MHR -medium hard rock, SR -soft rock, VSR -very soft rock

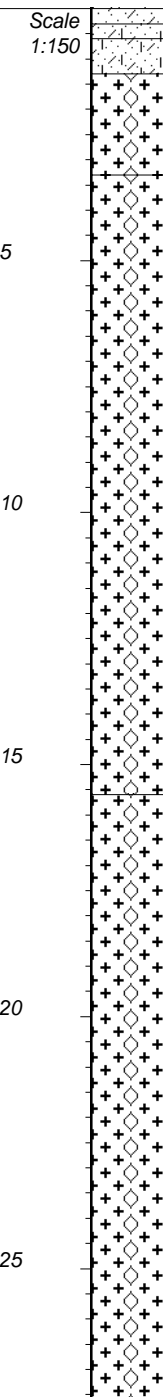
ESKOM PROJECT LIMA PHASE 2

HOLE No: UR3

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JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
63	0	0											>20	NXC		
74	59	22											15	TNW		
91	58	17											15			
63	63	0											>20	NWD4		
48	48	50											0			
26	16	20											>20			
81	80	51											9			
54	40	19											15			
35	11	0											6			
51	35	11		M/C			3		30-700	RPJ	MS	3	10			
44	44	18							15-250	SSJ	MS	1-3				
67	57	27								SSJ	MS	<1				
30	26	17											>20			
100	0	0											11			
39	10	0											5			
95	69	30											3			
46	36	21											1	TNW		
100	56	0	CG										3			
92	84	49											6			
95	91	83											4			
87	87	87											8			
97	97	83											2			
100	100	91											0			
96	96	96		MF			2		40-700	SSJ	MS	1-2	1			
96	96	96								SSJ	MS	1	0			
100	100	100											1			
80	80	66											0			
96	96	79														
97	97	97														
100	100	100														



0.00 Brown, very loose, intact clayey SAND. TOPSOIL.

0.30 Moist, dark reddish brown, loose, intact clayey silty SAND.HILLWASH.

0.60 Moist, orange brown, medium dense, fissured clayey silty SAND. RESIDUAL GRANITE.

1.30 Light pinkish orangish brown, highly weathered, massive, medium jointed, rough planar, very weak to weak, medium to coarse grained GRANITE.

3.30 Light pinkish grey speckled black, fresh to moderately weathered, massive, medium jointed, rough stepped/planar, strong to medium strong, coarse garined GRANITE.

15.60 Light greyish pink speckled black, unweathered but slightly weathered at joint, massive, close to medium jointed, widely jointed from 26,50 to 27,6 , rough/smooth planar, strong to very strong, coarse grained GRANITE.

NOTES

1) Corestones are with highly to completely weathered zones estimated ranging from 0,1 to 1,0 m wide between corestones blocks, some joints are filled with clay and silt.

2) Joints are narrow stained with silt, clay infill in places. Dolerite dyke at 25,08 - 25,18 m.

CONTRACTOR : RWBE GEOTECHNICAL ENGINEERING ELEVATION : 1,690.45
 MACHINE : YWE DIAM : X-COORD : 2,779,102.78
 DRILLED BY : CARLINGTON DATE : 23/08/2006 Y-COORD : -80,836.20
 PROFILED BY : N G NTENGNOU DATE : 25/08/06 - 30/08/06
 TYPE SET BY : R Steenkamp DATE : 15/01/07 10:54
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HOLE No: UR3

HOLE No: UR4

Sheet 1 of 2

JOB NUMBER: H475702

ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
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 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

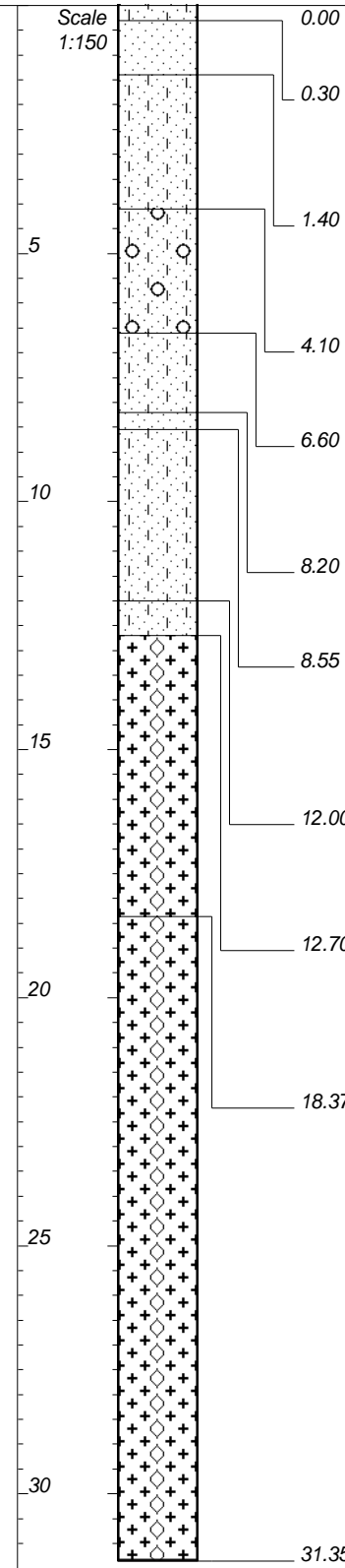
ESKOM
PROJECT LIMA PHASE 2

HOLE No: UR4

Sheet 1 of 2

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150	
																	0.00	Brown, loose to medium dense, intact silty fine SAND.TOPSOIL
																	0.30	Light reddish brown, dense to very dense in profile but potentially collapsible gravelly silty fine SAND. HILLWASH
																	1.40	Light reddish brown mottled pinkish brown, loose and potentially collapsible silty SAND. RESIDUAL GRANITE.
																	4.10	Light reddish brown mottled pink, loose gravelly silty SAND.RESIDUAL GRANITE
																	6.60	Reddish brown speckled black and light pink, loose intact gravelly silty SAND with scattered cobbles. RESIDUAL GRANITE
																	8.20	Reddish brown, loose SAND. RESIDUAL GRANITE/ note wash out during drilling.
																	8.55	Pinkish brown mottled yellow and speckled black, medium dense in profile but potentially collapsible, intact silty SAND. RESIDUAL GRANITE.
																	12.00	Reddish brown speckled white and mottled orange, loose, intact silty SAND. RESIDUAL GRANITE.
																	12.70	Light pinkish grey fresh unweathered to completely weathered, massive, closely jointed, rough planar, strong to very weak, coarse grained GRANITE.
																	18.37	Light greyish pink speckled black, fresh unweathered but slightly to moderately weathered at joints, massive, very close to medium jointed, rough planar /stepped, strong to very strong, coarse grained GRANITE.
																	31.35	



HOLE No: UR4
Sheet 2 of 2

JOB NUMBER: H475702

ROCK FABRIC MF -massive BF -bedded FF -foliated CF -cleaved SF -schistose GF -gneissose LF -laminated	GRAIN SIZE FG -fine grained MG -medium grain CG -coarse grain	JOINT ROUGHNESS SLJ-slickensided SJ -smooth RJ -rough	ROCK HARDNESS EHR-extremely hard rock VHR-very hard rock HR -hard rock MHR-medium hard rock SR -soft rock VSR-very soft rock
	JOINT SPACING VCJ-very close spacg CJ -close spacing MJ -medium spacing WJ -wide spacing VWJ-very wide spacng	JOINT SHAPE CUR-curvilinear PLA-planar UND-undulating STE-stepped IRR-irregular	

ESKOM
PROJECT LIMA PHASE 2

HOLE No: UR4
Sheet 2 of 2

JOB NUMBER: H475702

NOTES

- 1) Corestones are with highly to to completely weathered zones estimated ranging from 0,1 to 1,5 m wide between corestone blocks.
- 2) 22,44 - 22,52 m, 23,39 - 23,64 m and 24,78 - 24,83 m are highly weathered zones and rock mass broken into pieces of 10 to 20 mm, Iron oxide along joint surfafces.

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT

DEPTH Scale 1:150
CONTRACTOR: RWBE GEOTECHNICAL DRILLING
MACHINE: TROUTSTIHL
DRILLED BY: ELIAS
PROFILED BY: N G NTENGNOD
ELEVATION: 1,693.65
X-COORD: 2,778,743.32
Y-COORD: -81,118.88
DATE: 24/08/2006
DATE: 25/08/06 - 30/08/06
DATE: 15/01/07 10:54
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HOLE No: UR4

HOLE No: UR5
Sheet 1 of 1

JOB NUMBER: H475702

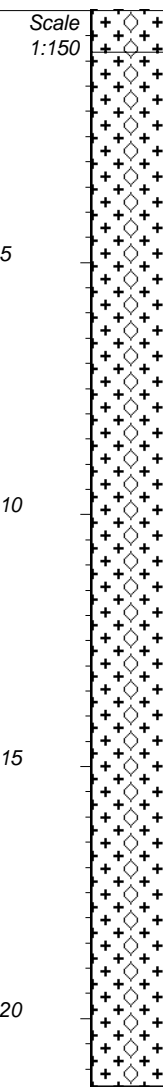
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
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 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: UR5
Sheet 1 of 1

JOB NUMBER: H475702

92	92	61							140-330	MS	1-3	5	NXC				
100	100	55							650	MS	1	1					
99	99	100										0					
100	100	96										2					
100	100	100										10					
47	47	47										8					
59	59	59										0					
96	93	85										3					
46	46	35										0					
100	100	100										1					
80	80	65										0					
100	100	100	CG	MF	-	-	2	-	20-2000 330-6000	RPJ RPJ	MS/C MS	1-2 <1-2	TNW				
85	85	85										10					
100	100	100										5					
97	97	97										0					
92	92	65										8					
99	99	97										1					
100	100	100										0					
57	57	0															
100	100	100															
98	98	98															



Light pinkish grey speckled black, unweathered but slightly weathered to completely weathered at joints, massive, close to medium jointed, rough planar, strong to very strong, coarse grained GRANITE / note the the joints are open and filled with reddish brown sandy silt.

Light pinkish grey speckled black, fresh unweathered, massive, very widely to medium jointed, rough planar, strong to very strong, coarse grained GRANITE.

NOTES
 1) Joints at 4,12; 4,23; 7,35; 7,66 and 7,77 are open filled with silty clay.
 2) The remaining joints are narrow and slightly weathered (stained)-possibly water bearing. 70 cm of core loss between 6,41 and 7,71 m.

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
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CONTRACTOR: RWBE GEOTECHNICAL DRILLING ELEVATION: 1,703.63
 MACHINE: SULLIVAN DIAM: X-COORD: 2,779,102.30
 DRILLED BY: RASTA DATE: 29/08/2006 Y-COORD: -81,436.32
 PROFILED BY: N G NTENGNOD DATE: 4/08/06 - 29/08/06
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:54
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HOLE No: UR5

HOLE No: LR2
Sheet 1 of 1

JOB NUMBER: H475702

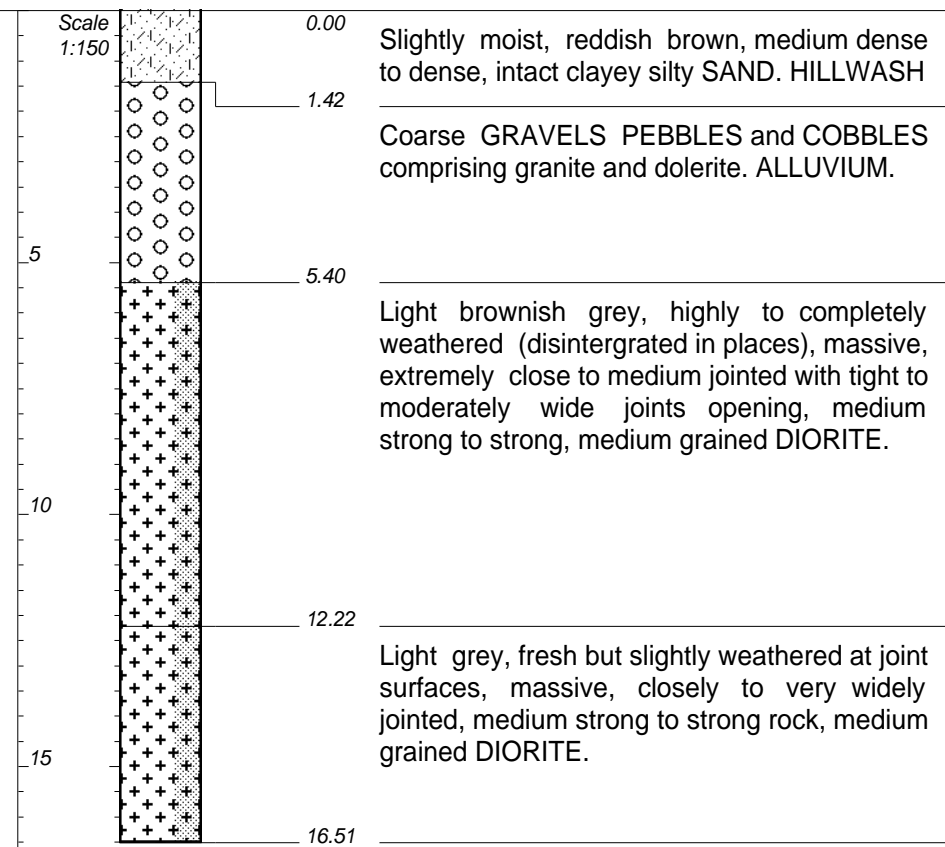
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
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ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR2
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE (mm)	FABRIC	JOINT SPACING	JOINT ROUGHNESS	JOINT SHAPE	ROCK HARDNESS	FILL TYPE	FILL THICK (mm)	FREQ	DRILLING METHOD	PLT (MPa)	SPT
0.00	100	-	-	-	-	-	-	-	-	NXC	-	-
0.37	100	F/C	-	-	-	-	-	-	>20	-	-	-
0.65	100	-	-	-	-	-	-	-	5	-	-	-
0.93	95	-	-	-	-	-	-	-	1	-	-	-
1.22	74	MF	-	-	-	0-30 80-89	10-200	SS/PJ SPJ	MS MS	1-2 1	-	TNW
1.56	100	MG	-	-	-	-	-	-	0	-	-	-
1.89	60	-	-	-	-	0-30 40-70	120-1660 500-3800	SPJ SPJ	CF CF	<1 <1	-	-
2.22	100	-	-	-	-	-	-	-	-	-	-	-



NOTES
 1) Excavation depth of clay core will be at 5,4m and for concrete dam at 12,8m.
 2) Material from 5,4 m to 12,22 m is highly fractured

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
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CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,031.96
 MACHINE: TROUTSTIHL DIAM: X-COORD: 2,780,125.00
 DRILLED BY: ELIAS DATE: 06/09/2006 Y-COORD: -83,614.00
 PROFILED BY: N. G. NTENGNO DATE: 0/Jan/00
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:53
 SETUP FILE: RICHARD.SET TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: LR2

HOLE No: LR04

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JOB NUMBER: H475702

ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
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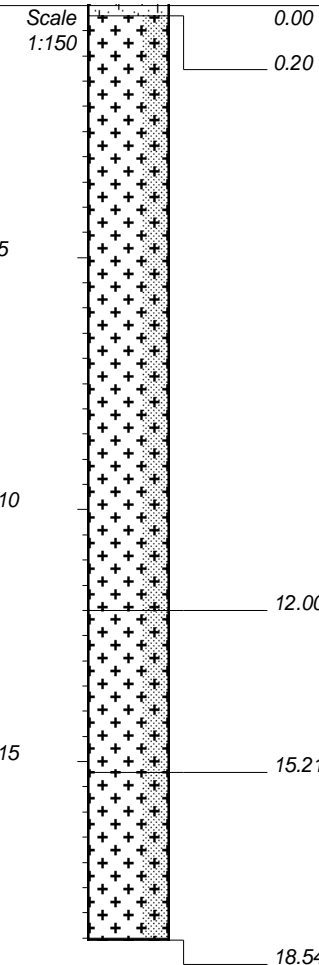
ESKOM PROJECT LIMA PHASE 2

HOLE No: LR04

Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	DEPTH (ft)	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
100	0	0														
79	18	0														
82	82	22														
88	88															
84	84												>20			
59	59															
98	98															
97	97	0														
87	87								0-10 40-50 80-89	10-240 30-300	R/SPJ R/SPJ SPJ	MS MS MS	1 1 <1			
83	83						3									
100	100															
98	98															
74	74	53	MG	MF												
97	97															
48	23	0														
100	100	35														
45	45	0							0-10 40-70 80-89	5-180 20-350						
100	100	31														
85	85	0														
98	98	58														
		88							10-30 40-70	15-860 1000-2260	SPJ SPJ	MS M	1 <1			
							2									



0.00 Dry, dark brown, loose, silty SAND. HILLWASH.
 0.20
 Light yellowish grey to light brownish grey, disintegrated to decomposed, massive, extremely close to closely jointed, rough/smooth planar, extremely weak to weak rock, medium grained DIORITE.
 5
 10
 12.00 Light grey stained yellowish brown, discoloured to disintegrated, massive, extremely to closely jointed, rough/smooth planar, extremely weak to weak rock, medium gravel DIORITE.
 15
 15.21 Light grey stained yellowish brown at joints, fresh but discoloured to disintegrated at joints, massive, closely to widely jointed, medium strong to strong rock, medium grained DIORITE.
 18.54

NOTES
 1) section between 0.20-0.30m; 0.71-1.50m and 9.35-11.82m are completely weathered resemblance of soil, and wash out during drilling. small piece between 9.97 and 10.37m is fresh to discoloured and medium jointed.

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
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CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,055.79
 MACHINE: YWE D90R DIAM: X-COORD: 2,780,500.00
 DRILLED BY: ELIAS DATE: 30/09/2006 Y-COORD: -83,809.00
 PROFILED BY: N G NTENGO DAYESOWA
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:54 HOLE No: LR04
 SETUP FILE: RICHARD.SET TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: LR05
Sheet 1 of 1

JOB NUMBER: H475702

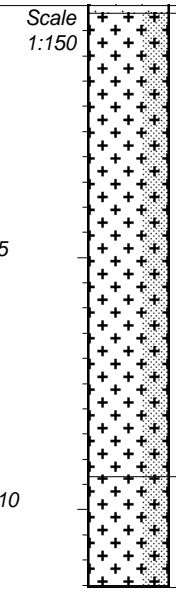
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR05
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	Core Length (m)	%RQD	Grain Size	Fabric type	Fabric Spacing (mm)	Fabric Incl (deg)	J sets	J incl	Js (mm)	Jr	Fill type	Fill thick (mm)	Fraq Freq	Drilling method	PLT (MPa)	SPT
93	0															
90	25												<15	NXC		
83	0												>20	NXC		
95	1												>15	NXC		
83	48	0		MG			3		0-10 40-60 80-89	5-88 15-100	RSJ SPJ SPJ	MS MS MS	1 1 <1			
100	29												9			
100	100			MF									4			
91	91															
100	100	20											0	TNW		
95	54	0														
91	91	40														
93	93	80		MG			1		30-70	25-400	SS/PJ	CF	<0.5			
100	100	72														



0.00 Dry to slightly moist, dark brown, loose, intact, SAND. HILLWASH.

0.15 Light grey to dark brownish grey stained reddish brown to yellowish brown at joints, discoloured to decomposed, massive, extremely close to closely jointed, rough stepped to smooth planar, medium strong rock, medium grained DIORITE.

9.35 Light grey, fresh, massive, very close to medium jointed, smooth stepped/planar, strong rock, medium grained DIORITE/ note fractures are along the pyroxene veins.

NOTES
1) between 0.15-2.29m; 2.59-3.00m; 3.43-3.70m and 8.16-8.45m are decomposed and washed out during drilling operation.

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing (mm)	Fabric Incl (deg)	J sets	J incl	Js (mm)	Jr	Fill type	Fill thick (mm)	Fraq Freq	Drilling method	PLT (MPa)	SPT
--------------	-------------	------	------------	-------------	---------------------	-------------------	--------	--------	---------	----	-----------	-----------------	-----------	-----------------	-----------	-----

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,060.17
 MACHINE: TROUTSTIHL DIAM: X-COORD: 2,780,721.00
 DRILLED BY: ELIAS DATE: 09/10/2006 Y-COORD: -83,761.00
 PROFILED BY: N G NTENGO DATE: 09/10/2006
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:54
 SETUP FILE: RICHARD.SET TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: LR05

HOLE No: LR6

Sheet 1 of 1

JOB NUMBER: H475702

ROCK FABRIC: MF -massive, BF -bedded, FF -foliated, CF -cleaved, SF -schistose, GF -gneissose, LF -laminated

GRAIN SIZE: FG -fine grained, MG -medium grain, CG -coarse grain

JOINT SPACING: VCJ -very close spacg, CJ -close spacing, MJ -medium spacing, WJ -wide spacing, VWJ -very wide spacng

JOINT ROUGHNESS: SLJ -slickensided, SJ -smooth, RJ -rough

JOINT SHAPE: CUR -curvilinear, PLA -planar, UND -undulating, STE -stepped, IRR -irregular

ROCK HARDNESS: EHR -extremely hard rock, VHR -very hard rock, HR -hard rock, MHR -medium hard rock, SR -soft rock, VSR -very soft rock

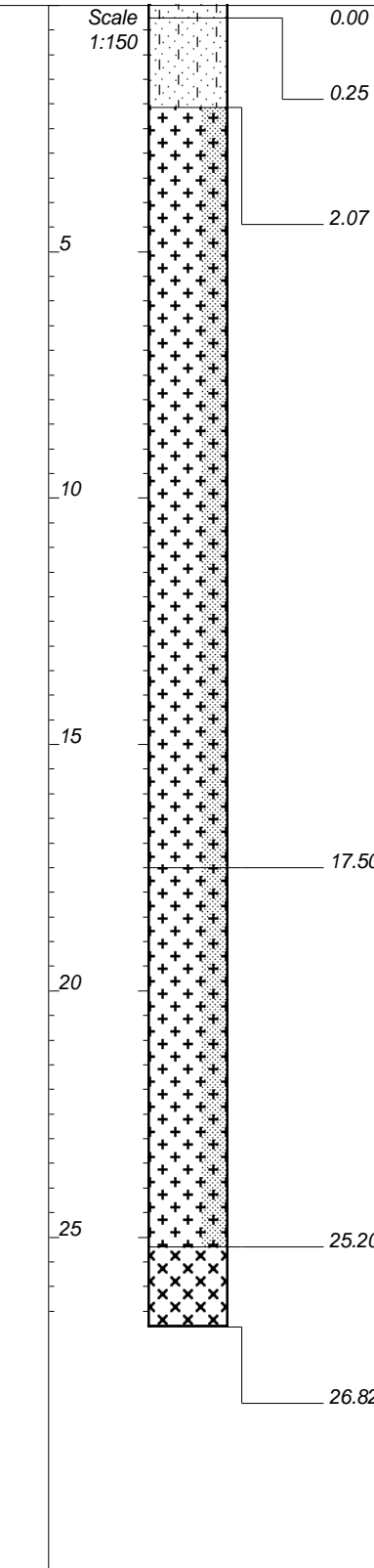
ESKOM PROJECT LIMA PHASE 2

HOLE No: LR6

Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE (mm)	FABRIC	JOINT SPACING (mm)	JOINT SHAPE	JOINT ROUGHNESS	ROCK HARDNESS	PLT (MPa)	SPT	DESCRIPTION
0.00	-	-	-	-	-	-	-	-	Dry, brown, medium dense, intact, silty SAND. HILLWASH.
0.25	-	-	-	-	-	-	-	-	Dry, pinkish white speckled brown, medium dense to dense, intact, silty SAND. RESIDUAL ANORTHOSITE-RICH DIORITE
2.07	-	-	-	-	-	-	-	-	Light orangish brown to grey white stained orange brown at joints, disintegrated to decomposed, massive, very close to medium jointed rough planar, weak to medium strong rock, medium grained ANORTHOSITE-RICH DIORITE.
6.00	60-303 200-300	-	-	-	-	-	-	-	
10.00	-	-	-	-	-	60-303 200-300	1 1	-	
17.50	-	MG	MF	-	-	RPJ RPJ	MS MS	-	
20.00	-	-	-	-	-	-	-	-	Greyish green stained orange brown at joints, disintegrated, massive, very close to medium jointed rough planar, weak to medium strong rock, medium grained ANORTHOSITE-RICH DIORITE.
25.20	10-230	-	-	-	-	-	1 <1	-	
26.82	200-900	-	-	-	-	RPJ	-	-	Whitish grey to greyish green, fresh to discoloured, close to widely jointed, rough planar, strong to very strong rock, medium grained ANORTHOSITE.



%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT

CONTRACTOR: RWBE GEOTECHNICAL DRILLING ELEVATION: 1,068.70
MACHINE: TROUTSTIHL DIAM: X-COORD: 2,780,993.00
DRILLED BY: ELIAS DATE: 134/10/2006 Y-COORD: -83,725.00
PROFILED BY: N G NTENGNODATE: 24/03/2006
TYPE SET BY: R Steenkamp DATE: 15/01/07 10:53
SETUP FILE: RICHARD.SET TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: LR6

HOLE No: LR7
Sheet 1 of 1

JOB NUMBER: H475702

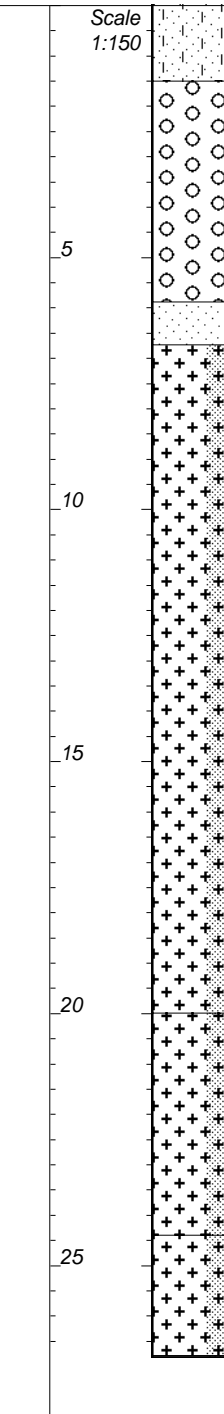
ROCK FABRIC: MF -massive, BF -bedded, FF -foliated, CF -cleaved, SF -schistose, GF -gneissose, LF -laminated
 GRAIN SIZE: FG -fine grained, MG -medium grain, CG -coarse grain
 JOINT SPACING: VCJ -very close spacg, CJ -close spacing, MJ -medium spacing, WJ -wide spacing, VWJ -very wide spacng
 JOINT ROUGHNESS: SLJ -slickensided, SJ -smooth, RJ -rough
 JOINT SHAPE: CUR -curvilinear, PLA -planar, UND -undulating, STE -stepped, IRR -irregular
 ROCK HARDNESS: EHR -extremely hard rock, VHR -very hard rock, HR -hard rock, MHR -medium hard rock, SR -soft rock, VSR -very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR7
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE	FABRIC	JOINT SETS	JOINT INCL	JOINT SPACING	JOINT SHAPE	JOINT ROUGHNESS	ROCK HARDNESS	PLT (MPa)	SPT	DESCRIPTION
0.00 - 1.50											Moist, reddish brown, loose, intact, silty SAND. HILLWASH.
1.50 - 5.88		C/F									Coarse GRAVELS and COBBLES comprising light grey dolorite, greyish pink granite and black magnetite. COLLUVIUM.
5.88 - 6.73											Dark greyish brown to black, loose, intact, SAND. RESIDUAL MAGNETITE.
6.73 - 19.99			3								Light yellowish grey stained reddish brown, disintegrated to decomposed, massive, extremely closed to medium joint spacing, rough planar, extremely weak to weak rock, medium grained DIORITE.
19.99 - 24.40		MG									Light yellowish grey stained reddish brown, discoloured to disintegrated, massive, extremely closed to medium joint spacing, rough planar, weak to medium strong rock, medium grained DIORITE.
24.40 - 26.82			2								Light grey, fresh to discoloured at joints, massive, close to medium jointed, medium strong to strong rock, medium grained DIORITE/ Most of the fractures occur along pyroxene veins.



NOTES
1) Depth of excavations of clay core will be at 9m and for concrete dam at 24,4m

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING
 MACHINE: SULLIVAN
 DRILLED BY: RASTA
 PROFILED BY: N G NTENGNODAT S MUA 800
 DATE: 19/10/2006
 DATE: 15/01/07 13:52
 ELEVATION: 1,061.89
 X-COORD: 2,780,015.00
 Y-COORD: -83,150.00
 TYPE SET BY: R Steenkamp
 SETUP FILE: RICHARD.SET
 TEXT: ..C:\DOT4000\TEXT\LR7.TXT

HOLE No: LR7

HOLE No: LR08
Sheet 1 of 1

JOB NUMBER: H475702

ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR08
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH Scale 1:150	%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DESCRIPTION
0.00															NXC		N=	Dry, reddish brown, loose to dense, intact, clayey SAND. HILLWASH
1.95															SPT		N=	Slightly moist, reddish brown speckled black, loose, intact, SAND with scattered gravels and cobbles. HILLWASH
7.67															TNW		N=	GRAVELS COBBLES and BOULDERS comprising greyish pink granite, grey dolorite (maximum size = 240mm block size) in a matrix of reddish brown to yellowish brown silty SAND. COLLUVIUM.
15.50					F/C										SPT		N=	
19.65					MF										TNW		N=	Light yellowish grey to light brownish grey, disintegrated to decomposed, massive, extremely close to closely jointed, smooth stepped/planar,extremely weak to weak rock, medium grained DIORITE.
23.52					MG			2		0-10 80-89	5-90	SS/PJ SPJ	2 <1	0			N=	Light grey, fresh unweathered, massive, widely jointed, smooth planar, strong rock, medium grained, DIORITE.
										0-10 50-70	10-1606 130-750	SPJ SPJ	1 1				N=	

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,038.30
 MACHINE: YWE DIAM: X-COORD: 2,780,050.00
 DRILLED BY: BLACK LABEL DATE: 30/09/2006 Y-COORD: -83,500.00
 PROFILED BY: N G NTENGNOU DATE: 30/08/06
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:54
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HOLE No: LR08

HOLE No: LR9
Sheet 1 of 1

JOB NUMBER: H475702

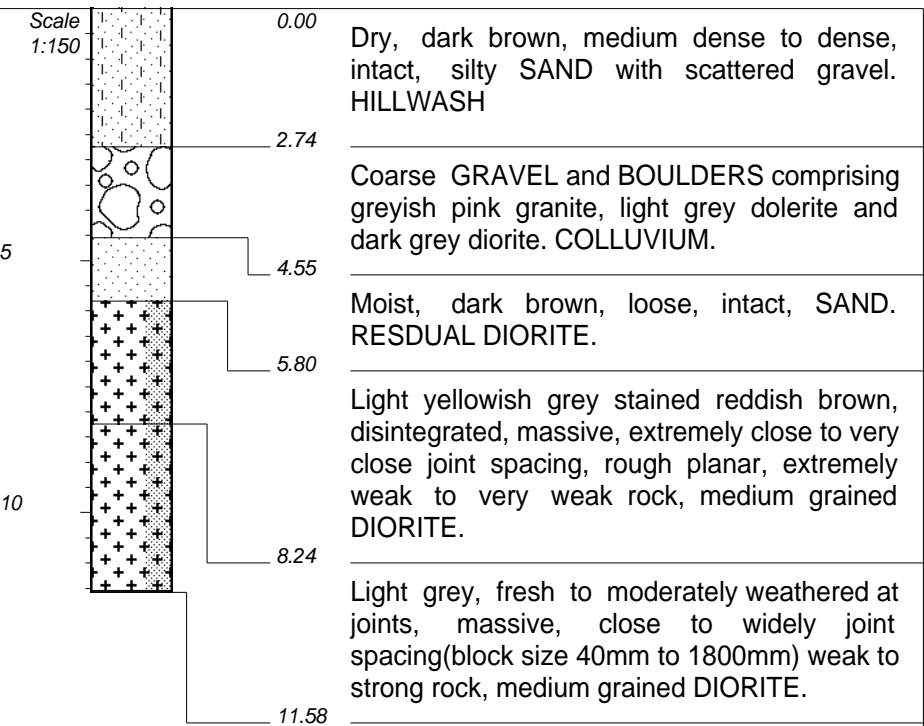
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR9
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE	FABRIC	JOINT SPACING	JOINT ROUGHNESS	JOINT SHAPE	ROCK HARDNESS	PLT (MPa)	SPT
95	16							
93	84							
100	100							
30	30	C/M	MF					
100	100							
80	92							
37	0							
100	100							
59	59							
53	53							
90	90	MG	MF					
99	99							
100	100							



NOTES

1) Excavation depths for clay core = 6m and for concrete dam =8,24m.

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,031.52
 MACHINE: TROUTSTIHL DIAM: X-COORD: 2,780,180.00
 DRILLED BY: BLACK LABEL DATE: 27/09/2006 Y-COORD: -83,665.00
 PROFILED BY: N. G. NTENGO DATE: 9/10/06
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:53
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HOLE No: LR9

HOLE No: LR 10
Sheet 1 of 1

JOB NUMBER: H475702

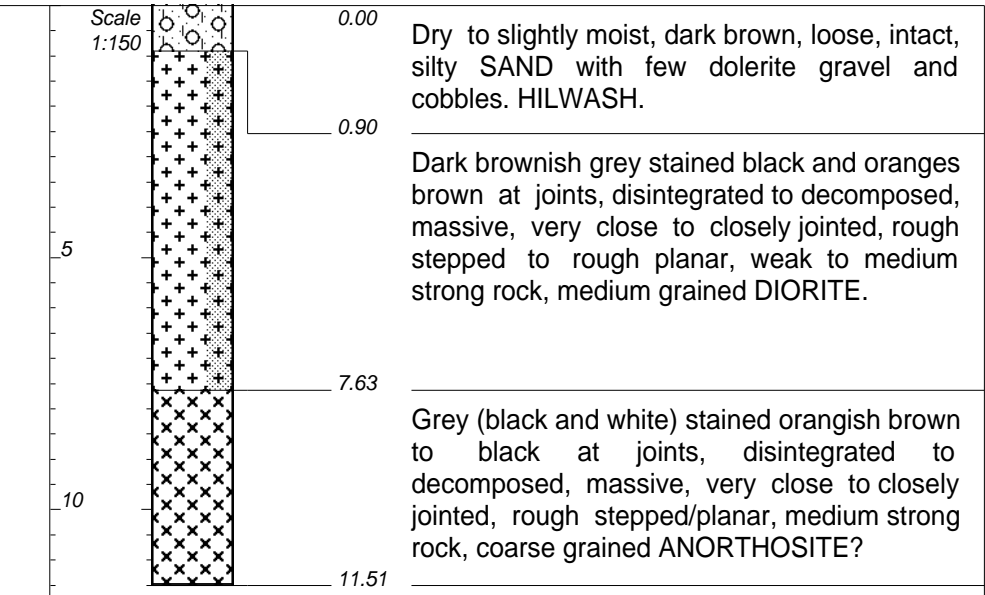
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR 10
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	DEPTH (ft)	%RQD	Grain Size	Fabric type	Fabric Spacing (mm)	Fabric Incl (deg)	J sets	J incl	Js (mm)	Jr	Fill type	Fill thick (mm)	Fraq Freq	Drilling method	PLT (MPa)	SPT
98	322															
85	278															
79	259															
87	283															
88	288															
89	291															
90	294															
100	328															
100	328															
100	328															
91	298															
84	275															
54	177															
85	278															
87	283															
72	236															
83	273															
100	328															
100	328															
86	280															
83	273															
100	328															



%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing (mm)	Fabric Incl (deg)	J sets	J incl	Js (mm)	Jr	Fill type	Fill thick (mm)	Fraq Freq	Drilling method	PLT (MPa)	SPT
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CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING
 MACHINE: TROUTSTIHL
 DRILLED BY: ELIAS
 PROFILED BY: N G NTENGO
 DATE: 26/10/2006
 DATE: 15/01/07 10:54
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 Y-COORD: -83,170.00
 HOLE No: LR 10

HOLE No: LR11
Sheet 1 of 1

JOB NUMBER: H475702

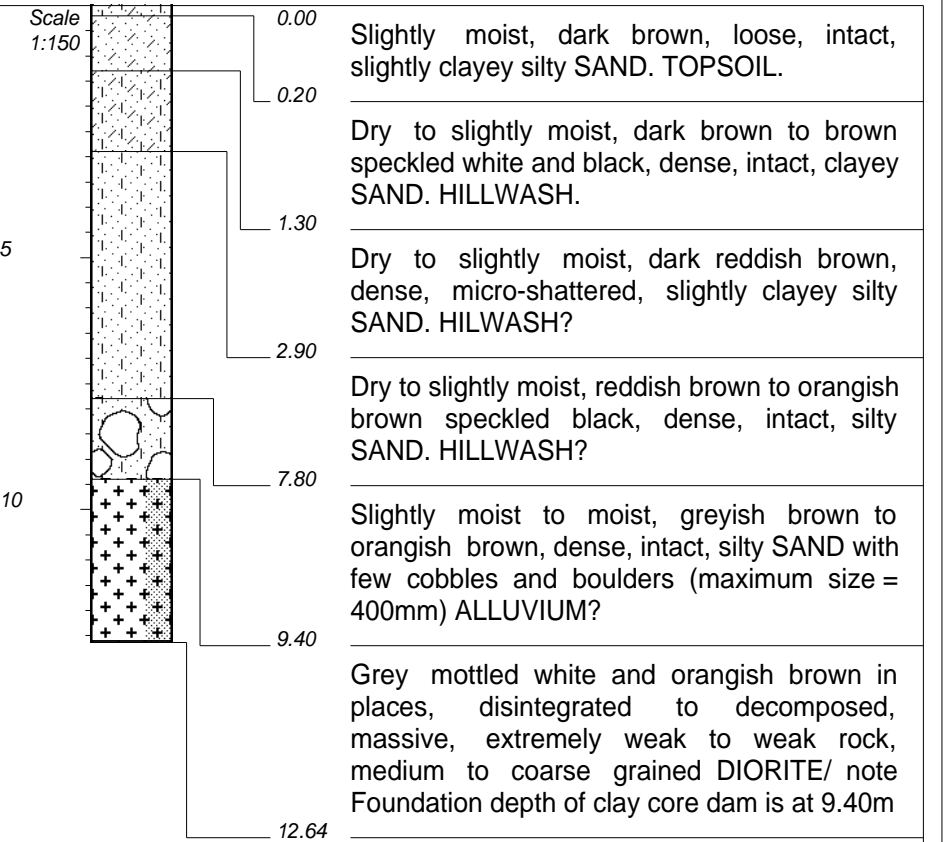
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR11
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE	FABRIC	JOINT SPACING	JOINT ROUGHNESS	JOINT SHAPE	ROCK HARDNESS	PLT (MPa)	SPT
0.00								
0.20								
1.30								
2.90								
7.80								
9.40	M/C	MF						
12.64								



%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT

CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING
 MACHINE: TROUTSIHL
 DRILLED BY: ELIAS
 PROFILED BY: N. G. NTENGNO
 DATE: 31/10/2006
 DATE: 31/10/2006
 DATE: 15/01/07 10:54
 ELEVATION: 1,057.22
 X-COORD: 2,780,365.00
 Y-COORD: -83,120.00
 TYPE SET BY: R Steenkamp
 SETUP FILE: RICHARD.SET
 TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: LR11

HOLE No: LR12
Sheet 1 of 1

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ -very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ -very wide spacng

JOINT ROUGHNESS
SLJ -slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR -curvilinear
PLA -planar
UND -undulating
STE -stepped
IRR -irregular

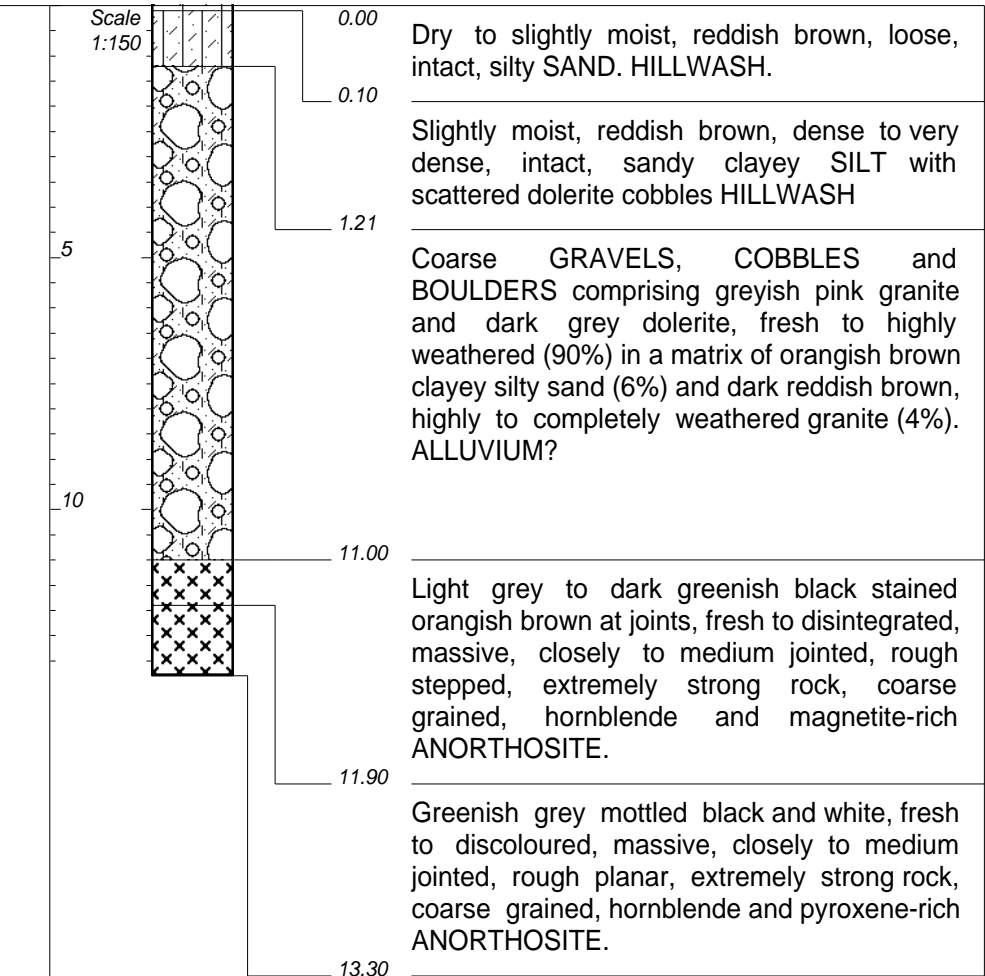
ROCK HARDNESS
EHR -extremely hard rock
VHR -very hard rock
HR -hard rock
MHR -medium hard rock
SR -soft rock
VSR -very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: LR12
Sheet 1 of 1

JOB NUMBER: H475702

DEPTH (m)	GRAIN SIZE	FABRIC	JOINT SPACING	JOINT ROUGHNESS	JOINT SHAPE	ROCK HARDNESS	PLT (MPa)	SPT		
100	89									
92	92									
100	100									
87	87									
88	97									
84	88									
100	100									
93	58									
89	89	0	-	-						
88	82									
87	87									
78	78									
100	100									
82	61									
100	100									
95	95	56	CG	MF	1	10-40	40-250	RSJ	CMS	2
99	85	64				10-30.	40-270	RPJ		<1
100	100	93								



NOTES

1) Foundation depth of clay core dam is 11.00m and foundation depth for concrete dam is 11.00m.

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
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CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING
MACHINE: TROUTSTIHL
DRILLED BY: ELIAS
PROFILED BY: N. G. NTENGO
DATE: 06/11/2006
DATE: 15/01/2006

ELEVATION: 1,046.83
X-COORD: 2,780,377.15
Y-COORD: -83,326.67

TYPE SET BY: R Steenkamp
SETUP FILE: RICHARD.SET
DATE: 15/01/07 10:54
TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: LR12

HOLE No: MH 1
Sheet 1 of 10

JOB NUMBER: 0

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT ROUGHNESS
SLJ-slicksided
SJ -smooth
RJ -rough

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 1 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150	
40	20												0				0.00	Coarse GRAVELS and COBBLES comprising light greyish pink granite and light grey dolerite. COLLUVIUM.
33	33											0						
59	59	0										0						
22	22											0						
32	32											0						
43	43	11										0						
63	63											0						
43	43	0										0						
78	78											0						
39	39	24										0						
87	87	86										0						
80	80											0						
100	100											0						
29	29											0						
10	10	0										0						
40	40											0						
13	4											0						
89	89	28										>15	0					
76	61	0										>20	0					
100	95	0										>20	0					
83	83	39	M/CG					20-40	3-150	RS/PJ		>15	0					
99	99	18						80-89	-	RPJ		>16	0					
80	80	9										20	0					
97	97	28										15	0					
21	21	0										17	0					
65	65	60										15	0					
100	100	76										>15	0					
85	85											8	0					
99	99	99										2	0					
99	99											0	0					
99	99						2					0	0					
98	98	95										0	0					
98	98											1	0					
98	98											1	0					
98	98											0	0					
98	98											0	0					
100	100	100										0	0					
100	100							10-20	40-4200	SPJ		0	0					
100	100							30-40	110-17500	SPJ		0	0					
100	100											4	0					

0.00 Coarse GRAVELS and COBBLES comprising light greyish pink granite and light grey dolerite. COLLUVIUM.

9.55 Light brownish grey, disintegrated, massive, extremely close to closely jointed, rough/smooth planar, weak rock, medium to coarse grained, DIORITE.

21.50 Light grey speckled olive and stained black at joints, fresh unweathered, massive, medium to very widely jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE.

HOLE No: MH 1
Sheet 2 of 10

JOB NUMBER: 0

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 2 of 10

JOB NUMBER: 0

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
		97											4	0			35
		93											1	0			
83	83	0											2	0			
	100	99											2	0			
100		100											2	0			
	100	100											1	0			
		97											1	0			
98	98	97											1	0			
		87											1	0			
87	87	87											5	0			43.30
		87											2	0			
		87											10	0			
		81							5-20	30-360			8	0			
		81							30-40	5-440	-	-	4	0			
		40							50-60	40-2202			6	0			
		73							75-89				7	0			
100	100	40											5	0			
		96											10	0			
		98											13	0			
		93											18	0			
		69											6	0			54.44
90	90	69											1	0			
		85											4	0			
		100											3	0			
		100											3	0			
													0				
													5	0			
													4	0			
													6	0			
													7	0			
													5	0			
													1	0			
													0	0			
								4		SPJ SPJ SPJ							

Light grey speckled olive and stained black at joints, fresh unweathered, massive, very closely to medium jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE.

Grey speckled olive and stained black at joints, fresh unweathered, massive, closely to widely jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE.

HOLE No: MH 1
Sheet 3 of 10

JOB NUMBER: 0

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
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VSR-very soft rock

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 3 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
85	85	67								SPJ			0	0			67
85	85	75											10	0			75
100	100	90											4	0			90
100	100	27						5-20	5-3240		CHF	0.1	5	0			27
97	97	97						30-40	40-760		CHF	0.1	3	0			97
97	97	97						50-60	40-5604		CHF	0.1	>10	0			97
100	100	97						80-89	-		CHF	0.1	0	0			97
97	97	97											0	0			97
100	100	97											4	0			97
97	97	90											1	0			90
100	100	100											1	0			100
97	97	97											2	0			97
100	100	97											2	0			97
97	97	90											4	0			90
100	100	99											2	0			99
95	95	94											4	0			94
100	100	98											2	0			98
83	83	32					2	10-30	10-400	SPJ	CHF	0.1	>15	0			32
100	100	99						70-89	-	SPJ	CHF	0.1	>20	0			99
99	99	74											9	0			74
100	100	100											10	0			100
99	99	66											8	0			66
													2	0			97.22
													6	0			
													0	0			
													0	0			
													1	0			

Dark grey speckled olive and stained black at joints, fresh unweathered, massive, very closet to medium jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE.

HOLE No: MH 1
Sheet 4 of 10

JOB NUMBER: 0

ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 4 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
99	99	66											0	0			
98	98	98											0	0			
96	96	48											0	0			
100	100	97											5	0			
86	86	80					3	25-35	1003-3602	SPJ	-	-	6	0			
								50-60	40-4601	SPJ			0	0			
								70-89	-	SPJ			2	0			
100	100	100											1	0			
100	100	91											10	0			
													6	0			
99	99	78											3	0			
													2	0			
													2	0			
93	93	57											1	0			
													1	0			
100	100	52											6	0			
													>15	0			
33	33	0						0-10	10-900				10	0			
								30-40	40-1502				4	0			
27	27	5						60-70	100-1703				1	0			
								80-89					>20	0			
100	100	88											15	0			
													>20	0			
													10	0			
													6	0			
													4	0			
													12	0			
													18	0			

Light grey speckled olive and stained black at joints, fresh unweathered, massive, very closely to widely jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE/note:1. A grey mottled black and beige pyroxenite-rich anorthosite appear between 108.40 to 108.80m.

Light grey speckled olive and stained black at joints, fresh unweathered, massive, extremely closely to medium jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE.

HOLE No: MH 1
Sheet 5 of 10

JOB NUMBER: 0

ROCK FABRIC: MF -massive, BF -bedded, FF -foliated, CF -cleaved, SF -schistose, GF -gneissose, LF -laminated
 GRAIN SIZE: FG -fine grained, MG -medium grain, CG -coarse grain
 JOINT SPACING: VCJ -very close spacg, CJ -close spacing, MJ -medium spacing, WJ -wide spacing, VWJ -very wide spacng
 JOINT ROUGHNESS: SLJ -slickensided, SJ -smooth, RJ -rough
 JOINT SHAPE: CUR -curvilinear, PLA -planar, UND -undulating, STE -stepped, IRR -irregular
 ROCK HARDNESS: EHR -extremely hard rock, VHR -very hard rock, HR -hard rock, MHR -medium hard rock, SR -soft rock, VSR -very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 5 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
		47															135
		0															135.40
99	99	80											8	0			
													7	0			
													10	0			
80	80	59											8	0			
													8	0			
100	100	100											1	0			
95	95	48											10	0			
100	100	40											17	0			
100	91	60											15	0			
91	95	51											10	0			
95	95	53											6	0			
92	92	19											10	0			
95	95	51											16	0			
100	100	38											13	0			
96	96	0											17	0			
102	102	22											17	0			
99	99	31											20	0			
100	100	46											>20	0			
82	82	94											11	0			
100	100	82											1	0			
													2	0			
													5	0			
87	87	76											0	0			
													1	0			
													2	0			
80	80	98		MF			4						3	0			
													1	0			
98	98	100											2	0			
													5	0			
100	100	91											1	0			
88	88	62											2	0			
100	100	100	CG										8	0			
													4	0			
								0-20	5-15250			0.1		0			

Light grey speckled olive and stained black at joints, fresh unweathered, massive, very closely to widely jointed, smooth planar, very strong rock, coarse grained, OLIVINE DIORITE.

HOLE No: MH 1
Sheet 6 of 10

JOB NUMBER: 0

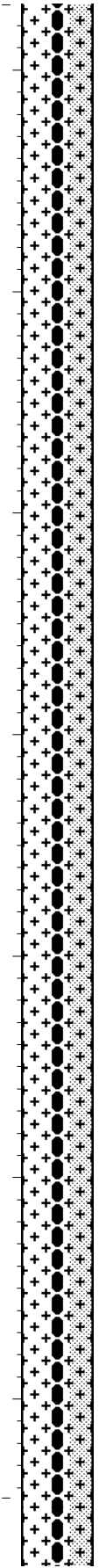
ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 6 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
96	96	64							45-55	30-2730		0.1	1				170
100	100	98							60-70	60-6830		0.1	6	0			170
99	99	82							8089	-		0.1	5	0			170
		100											6	0			170
		97											7	0			170
100	100	100											5	0			170
		91											1	0			170
		93											0	0			170
		100											1	0			170
96	96	91											1	0			170
98	98	93											0	0			170
100	100	100											0	0			170
		94											0	0			170
		78											1	0			170
100	100	100											0	0			170
		94											0	0			170
		97											1	0			170
99	99	78											1	0			170
100	100	100											11	0			170
		92											5	0			170
		97											2	0			170
		92											2	0			170
		78											1	0			170
													3	0			170
													2	0			170
													1	0			170
													6	0			170
													4	0			170
													2	0			170
													3	0			170



HOLE No: MH 1
Sheet 7 of 10

JOB NUMBER: 0

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

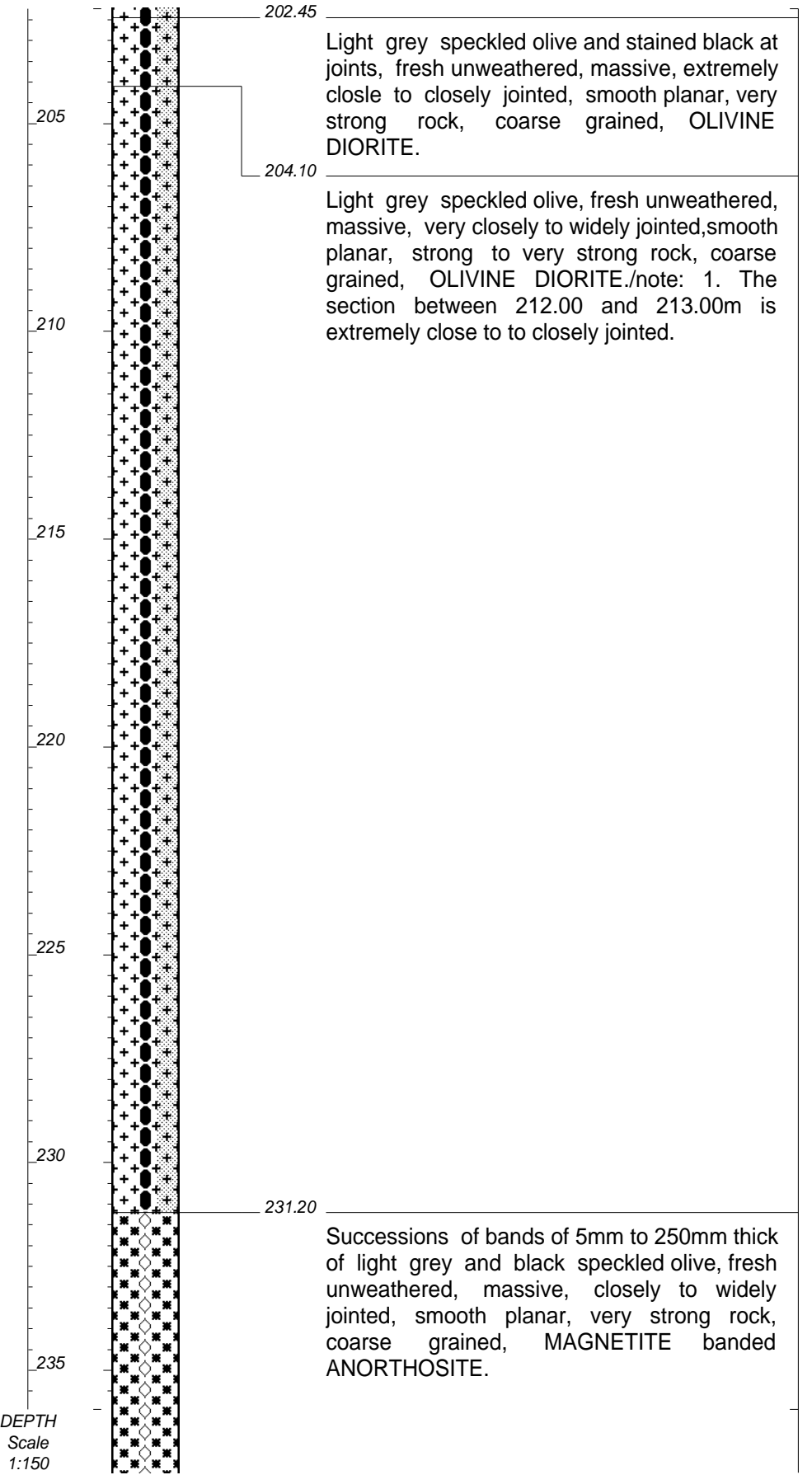
ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
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MHR-medium hard rock
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ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 7 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
100	100	50					1	10-40	10-90	SPJ	CHF	0.1	>15	0		
97	97	0											>20	0		
53	53	33											6	0		
100	100	92											6	0		
													0			
96	96	94											7			
													2	0		
													2			
100	100	25											4	0		
		0											1	0		
95	95	32											>20	0		
		58											1	0		
97	51	87											4	0		
		87											8			
100	100	100					3	30-40	200-2380	SPJ	CHF	0.1	1	0		
								60-70	60-5410	SPJ	CHF	0.1	0	0		
								80-89	-	SPJ	CHF	0.1	0	0		
98	98												1	0		
													1			
98	98	98											1	0		
													1			
100	100												0			
													0	0		
													1			
98	98	90											0	0		
													2			
													1			
100	100	100											1	0		
													1	0		
													0	0		
99	99	99											0	0		
													1			
													0			
													1			



%Mater recov %Core recov %RQD Grain Size Fabric type Fabric Spacing mm Fabric Incl deg J sets J incl Js mm Jr Fill type Fill thick mm Fraq Freq Drilling method PLT (MPa) SPT

HOLE No: MH 1
Sheet 8 of 10

JOB NUMBER: 0

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
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JOINT SPACING
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JOINT SHAPE
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PLA-planar
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STE-stepped
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ROCK HARDNESS
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ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 8 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
98	98	98															
96	96	91							0-20 50-70	160-1400 20-4100			1 2 1 1 0 3 3 0 0 3 1 1 0 10	0 0 0 0 0 0 0 0 0 0 0 0 0 0			
98	98	98									CHF CHF	0.1 0.1					
100	100	97															
90	90	84							0-20 70-80	60-2340 1000-1760			0 3 1 1 0 10	0 0 0 0 0 0			
100	100	99					2				SPJ SPJ						
90	90	61											8	0			
100	100	54											9	0			
100	100	77											4	0			
92	92	59											10	0			
100	100	100							20-30 70-80	30-1240 30-940			7	0			
99	99	29											>15	0			
97	97	56											10	0			
97	97	56											6	0			
82	82	80											6	0			
82	82	80											1	0			
82	82	80											0	0			
98	98	81							10-30 70-80	40-250 30-1750			1	0			
100	100	100											4	0			
82	82	82											7	0			
100	100	96											1	0			
82	82	82											1	0			
100	100	96											7	0			
97	97	72							10-30 50-60 80-89	40-400 25-1000 -	SPJ SPJ SPJ						
97	97	72					3						5	0			
97	97	72											8	0			
97	97	72											8	0			
97	97	72											0	0			

242.80
Black streaked grey in places, fresh unweathered, massive, closely to widely jointed, smooth planar, coarse grained, MAGNETITE with scattered bands of ANORTHOSITE.

249.55
Gery with some zones of greyish white and greyish pale green, fresh unweathered, massive, smooth planar, very closely to medium jointed, very strong rock, coarse grained DIORITE/ note:1. Section between 255.45 and 257.00m is very closely jointed. 2. Section between 251.15 and 252.10m is the combination of magnetite-rich anorthosite, diorite and pyroxenite.

262.30
Black streaked grey in places, fresh unweathered, massive, close to medium jointed, smooth planar, coarse grained, DIORITE rich MAGNETITE.

264.05
Light grey, fresh unweathered, massive, widely jointed, smooth planar, very strong rock, coarse grained, feldspar and MAGNETITE rich DIORITE.

264.50

HOLE No: MH 1
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JOB NUMBER: 0

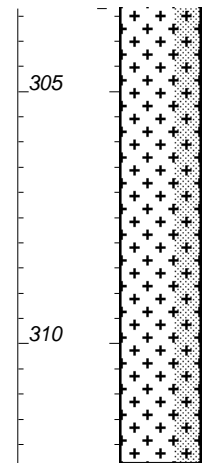
ROCK FABRIC: MF -massive, BF -bedded, FF -foliated, CF -cleaved, SF -schistose, GF -gneissose, LF -laminated
 GRAIN SIZE: FG -fine grained, MG -medium grain, CG -coarse grain
 JOINT SPACING: VCJ -very close spacg, CJ -close spacing, MJ -medium spacing, WJ -wide spacing, VWJ -very wide spacng
 JOINT ROUGHNESS: SLJ -slickensided, SJ -smooth, RJ -rough
 JOINT SHAPE: CUR -curvilinear, PLA -planar, UND -undulating, STE -stepped, IRR -irregular
 ROCK HARDNESS: EHR -extremely hard rock, VHR -very hard rock, HR -hard rock, MHR -medium hard rock, SR -soft rock, VSR -very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: MH 1
Sheet 10 of 10

JOB NUMBER: 0

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
		73					2	10-30 40-60	20-830 40-5300	SPJ SPJ			12 12 6 6 7 5 4 6 10			0 0 0
97	97	91														
100	100	90														



Grey, fresh unweathered, massive, closely to medium jointed, smooth planar, strong to very strong rock, coarse grained, feldspar-rich DIORITE/ note; Section between 204.80 and 205.25m is the combination of pyrite, pyroxenite, anorthosite, magnetite and diorite.

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
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CONTRACTOR: RWBE GEOTECHNICAL DRILLING
 MACHINE: 0
 DRILLED BY: 0
 PROFILED BY: N. G. NTENGO
 DATE: 31/12/2006
 ELEVATION: 1,246.93
 X-COORD: 2,779,840.84
 Y-COORD: -82,392.18
 TYPE SET BY: R Steenkamp
 SETUP FILE: RICHARD.SET
 DATE: 15/01/07 10:53
 TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: MH 1

HOLE No: PT1
Sheet 1 of 12

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 1 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150	
26	26	13																
44	44																	
100	100																	
42	42																	
31	31	0																
50	50																	
29	29																	
100	100																	
90	90	41																
48	48	0																
100	100	24																
69	69	0																
32	32	30																
65	65	40																
58	58	12																
44	25	0							5-70	RPJ	MS	1	>8					
7	7	43											>20					
100	100	90											2					
99	99	99											0					
100	100	100											1					
95	95	95											2					
100	100	100											0					
91	91	91											1					
97	97	97											0					
100	100	93											1					
99	99	91											0					
99	99	89											1					
99	99	89											0					
95	95	83											5					
100	100	100					1		30-1440	SPJ			0					
95	95	95											1					
100	85	75											1					
100	85	75											2					
100	85	75											4					
100	85	75											2					

Scale 1:150

0.00

Coarse GRAVELS, COBBLES and BOULDERS comprising pink granite, light grey dolerite and highly to completely weathered greyish brown diorite. COLLUVIUM.

10.70

Light yellowish grey stained reddish brown disintergrated to decomposed, massive, extreme close to very close joint spacing, rough planar,extremely weak to very weak rock, medium grained, DIORITE.

12.55

Light grey stained reddish brown in few joints, fresh unweathered, massive, medium to widely jointed, smooth planar, strong to very strong rock, medium grained, olivine DIORITE.

HOLE No: PT1
Sheet 3 of 12

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
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LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

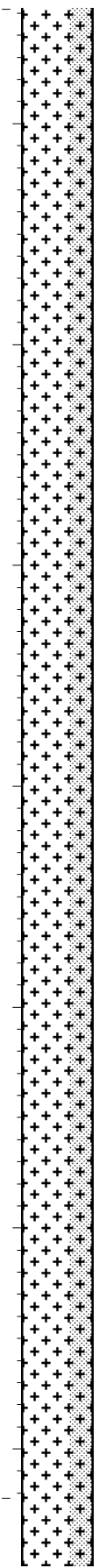
ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 3 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
100	100	97											3				70
		80											2				
		100											5				
		93											10				
97	97	90											8				
		92											1				
100	100	81											1				
		100											1				
99	99	97											2				
		99											0				
99	99	37											6				
		34											>10				
98	98												8				
68	68												8				
													>11				
													>10				



HOLE No: PT1
Sheet 4 of 12

JOB NUMBER: H475702

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JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
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VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 4 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
90	90	43											>13				100
		89											0				105
100	100	96											6				110
		77											8				115
99	99	74											8				120
		77											6				125
99	99	74											1				130
		74											>13				
98	98	73											4				
		73											>13				
100	100	100											6				
		100											>10				
99	99	99											10				
		99											0				
93	93	78											2				
		78											3				
96	96	76											3				
		76											3				
		84											2				
100	100	0											3				
		0											2				
		59											3				
		59											4				
98	98	72											>12				
		72											>5				
		72											4				
		72											4				
		72											>4				
		72											>6				
		72											>10				
		72											8				
		72											7				
		72											1				
		72											2				
		72											2				
		72											4				
		72											7				
		72											1				
99	99	89											1				
		89											1				

HOLE No: PT1
Sheet 5 of 12

JOB NUMBER: H475702

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JOINT SHAPE
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ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
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VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 5 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
97	97	87											2				135
100	100	81											4				
99	99	85							20-2700				6				
55	55	38							50-2000				6				
100	100	76		MG									3				
99	99	83											6				
97	97	89											3				
97	97	88					3			SPJ			5				
		75								SPJ			5				
100	100	94								SPJ			>10				
99	99	85											4				
97	97	97											5				
100	100	90											3				
92	92	79											1				
		86											3				
													>9				
													1				
													2				
													0				
													2				
													2				
													5				
													7				
													1				

HOLE No: PT1
Sheet 8 of 12

JOB NUMBER: H475702

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CG -coarse grain

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ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 8 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
100	100	15											>20				236.00
86	86	0											>11				
43	43	29											>11				
100	100	34											>15				
		46											>17				
73	73	24											>20				
		0											>20				
100	100	29											>20				
		0											>20				
95	95	20											>15				
		36											>15				
97	100	34											>15				
		0											>10				
	97	35							5-1150				>10				
100	100	38							20-600				>10				
		0							-				>20				
98	98	19											>20				
		0											8				
100	100	40											11				
		49											>12				
100	100	71											6				
		37											7				
91	91	60											>20				
		35											5				
99	99	85											7				
		63											>12				
100	100	91											5				
		25											5				
86	86	96											5				
		96											4				
99	99	97											2				
		97											2				
100	100	97											4				
		97											4				
97	97	90											4				
		90											4				
97	97	73											4				
		73											4				

Grey stained black at joints, fresh, massive, very close to medium jointed, smooth planar, strong to very strong rock, medium grained DIORITE.

Grey stained black at joints, fresh, massive, close to widely jointed, smooth planar, strong to very strong rock, medium grained DIORITE.

HOLE No: PT1
Sheet 9 of 12

JOB NUMBER: H475702

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ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 9 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
100	100	100											2				270
99	99	97					2		20-2000 100-3640	SPJ SPJ			3				
100	100	100											2				
91	91	76											0				
100	100	83											2				
98	98	94											0				
98		54											2				
100	100	97											1				
		95											3				
85	85	85											>8				
100	100	100											6				
100	100	90					3		50-2240 300-1060	SU/PJ SU/PJ SU/PJ	CHF CHF C	<1 <1 1	4				287.10
87	87	0											2				
100	100	68											1				
													5				
													2				
													1				
													6				
													2				
													4				
													6				
													6				
													2				
													>8				
													>10				
													7				

Interbedded horizons of very dark grey to black and pale grey speckled and blotched olive and pale grey, fresh unweathered, massive, closely to widely jointed smooth undulating/planar, very strong to extremely strong rock, coarse grained olive-rich MAGNETITE with scattered bands of ANORTHOSITE with small quantities of pyrite disseminated throughout (with a large concentration of pyrite appearing between 308.80m and 308.85m.)

HOLE No: PT1
Sheet 10 of 12

JOB NUMBER: H475702

ROCK FABRIC: MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE: FG-fine grained, MG-medium grain, CG-coarse grain
 JOINT SPACING: VCJ-very close spacg, CJ-close spacing, MJ-medium spacing, WJ-wide spacing, VWJ-very wide spacng
 JOINT ROUGHNESS: SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE: CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS: EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 10 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
88	88	78											2				305
92	92	82											5				310
97	97	92											5				311.00
100	100	100											0				315
94	94	78											2				320
97	97	57					2		50-2220	SS/PJ	CHF	<1	1				325
100	100	67							140-3000	SS/PJ	CHF	<1	6				325.40
86	86	67											9				330
100	100	100											>4				326.70
99	99	99											3				329.30
98	98	80					1		100-800	SS/PJ	CHF	<1	1				335
100	100	95							30-2670	RPJ	CHF		8				
									490-10700	RPJ	CAL		2				
													4				
													2				
													0				
													2				
													4				
													5				
													4				
													>6				
													2				

Grey, fresh unweathered, massive, closely to widely jointed, smooth stepped/planar, very strong rock, coarse grained, anorthosite-rich DIORITE.

Interbedded of very dark grey to black and grey, unweathered, massive, closely to medium jointed, smooth stepped/planar, very strong to extremely rock, coarse grained, MAGNETITE with scattered band of anorthosite.

Light grey, fresh unweathered massive, closely to medium jointed, smooth planar, very strong to extremely strong rock, ANORTHOSITE.

Light grey to beige grey, fresh unweathered, massive, closely to widely jointed, rough planar, very strong, coarse grained, feldspar-rich DIORITE.

HOLE No: PT1
Sheet 11 of 12

JOB NUMBER: H475702

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MG -medium grain
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JOINT ROUGHNESS
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JOINT SHAPE
CUR -curvilinear
PLA -planar
UND -undulating
STE -stepped
IRR -irregular

ROCK HARDNESS
EHR -extremely hard rock
VHR -very hard rock
HR -hard rock
MHR -medium hard rock
SR -soft rock
VSR -very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 11 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
		98											1				
		95							20-100	SPJ	CAL		2				
100	100	97	CG										3				
		95											3				
		86											1				
98	98	94											2				
		90											0				
		92							30-200	RPJ	CHF		4				
		65											5				
		66							15-210	SU/PJ			6				
		20							40-370	RPJ	CAL		8				
		10							40-3000	SP/SJ	CAL-CHF	<1	2				
									30-4700	SP/SJ	CAL-CHF	<1	6				
													1				
													0				
													0				
									100-300	RUJ	CHF	<1	4				
													6				
													>15				
													>10				
													5				
													11				
													10				
													>20				
													>20				
													5				
													4				

340
345
350
352.00
355
360
362.80
365
363.30
370
364.50

Light grey, fresh unweathered massive, closely to medium jointed, smooth planar, very strong to extremely strong rock, ANORTHOSITE.

Very dark grey to black, fresh unweathered, massive, extremely close to closely jointed, smooth planar, very strong to extremely strong, coarse grained, MAGNETITE.

Pale green becoming greenish grey with depth, fresh unweathered, massive, closely jointed, rough planar, very strong rock, fine grained becoming coarse grained with depth, hornblende-rich DIORITE.

HOLE No: PT1
Sheet 12 of 12

JOB NUMBER: H475702

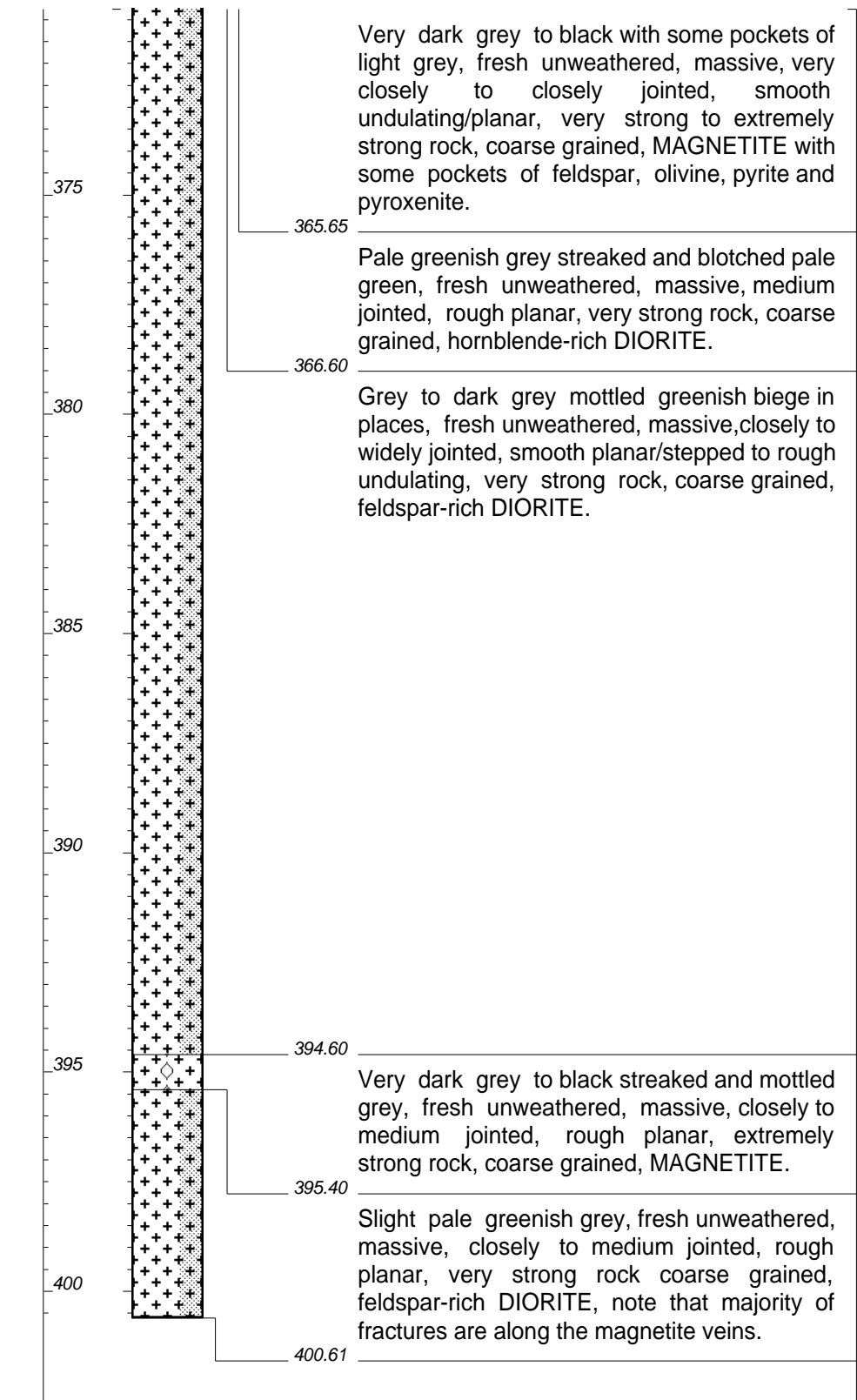
ROCK FABRIC MF-massive, BF-bedded, FF-foliated, CF-cleaved, SF-schistose, GF-gneissose, LF-laminated
 GRAIN SIZE FG-fine grained, MG-medium grain, CG-coarse grain
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 JOINT ROUGHNESS SLJ-slickensided, SJ-smooth, RJ-rough
 JOINT SHAPE CUR-curvilinear, PLA-planar, UND-undulating, STE-stepped, IRR-irregular
 ROCK HARDNESS EHR-extremely hard rock, VHR-very hard rock, HR-hard rock, MHR-medium hard rock, SR-soft rock, VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: PT1
Sheet 12 of 12

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
97	97	77											5			
100	100	83											8			
97	97	92											5			
													5			
													4			
													2			
100	100	93											6			
													3			
99	99	93											2			
									25-1160				2			
													3			
96	96	96					1			RPJ			4			
													3			
													1			
													3			
100	100	90											3			
													0			
													0			
													3			
93	93	67											5			
													5			
													2			
													4			
													3			
									100-300		CHF	<1	3			
100	100	87											>10			
													7			
													2			
									25-1160		-	-	2			
													2			
													5			
51	51	51											6			
													0			



CONTRACTOR: RWBE GEOTECHNICAL DRILLING
 MACHINE: XY-42
 DRILLED BY: MESHACK KATJED
 PROFILED BY: N. G. NTENGNDA
 DATE: 11/09/2006
 ELEVATION: 1,247.25
 X-COORD: 2,779,881.88
 Y-COORD: -82,376.95
 TYPE SET BY: R Steenkamp
 SETUP FILE: RICHARD.SET
 DATE: 25/01/07 15:38
 TEXT: ..C:\DOT4000\TEXT\PT1-1.TXT

HOLE No: PT1

HOLE No: SC 1
Sheet 2 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
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ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 2 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
90	90	0											>15				35
83	83	19											>15				
26	26	0											>15				
91	91	43											>15				39.00
		81											8				
100	100	83											8				
		83											4				
97	97	66											9				
		66											6				
100	100	74											>7				
		74											>18				
98	98	42											>6				
		42											>11				
100	100	73											>20				
		73											>17				
		73											>8				
99	99	46											2				
		46											7				
99	99	79											11				
		79											5				
100	100	70											10				
		70											12				
99	99	46											9				
		46											9				
99	99	79											7				
		79											10				
100	100	70											12				
		70											3				
97	97	50											6				
		50											1				
95	95	92											5				
		92															

Grey speckled olive brown stained black at joints with some bands of pale green mottled black and white, fresh, massive, very close to very wide jointed, smooth undulating/planar, very strong to extremely strong rock, medium to coarse grained, OLIVINE DIORITE.

HOLE No: SC 1
Sheet 3 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

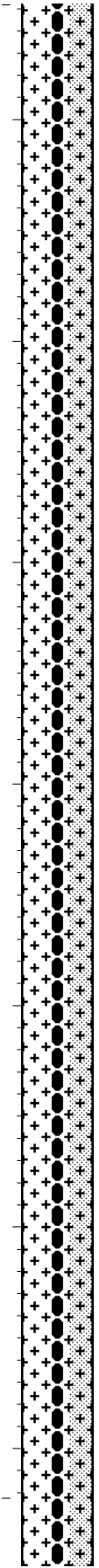
ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 3 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
		83											3				70
		83											2				71
		64											1				72
		96											6				73
		78											7				74
		79											10				75
		79											5				76
		77											3				77
		77											3				78
		79											5				79
		79											2				80
		86											3				81
		76											4				82
		68											>7				83
		80											>12				84
		80											5				85
		80											2				86
		92											4				87
		92											5				88
		46											7				89
		0											7				90
		78											<20				91
		42											9				92
		0											>11				93
		0											>20				94
		0											>11				95
		62											13				96
		42											1				97
		66											0				98
		90											2				99
		90											7				100
		100											9				101
		100											7				102
		89											7				103
		89											2				104



HOLE No: SC 1
Sheet 4 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 4 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
98	98	63		MG									4				105
97	97	97											6				
100	100	100											11				
98	98	77											10				
86	86	86											0				
100	100	102					3		0-30 40-60 70-89				1				
91	91	91											1				
100	100	56											0				
95	95	76											5				
100	100	99											2				
92	92	92											2				
87	87	85							5-600 20-3000 -	SPJ SU/PJ SU/PJ	CHF CAL-CHF CAL-CHF	<1<1<1	4				
100	100	100											3				
97	97	71											12				
99	99	64											3				
													2				
													2				
													4				
													5				
													3				
													2				
													1				
													2				
													0				
													7				
													7				
													3				
													>12				
													7				
													11				
													13				

HOLE No: SC 1
Sheet 5 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 5 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
		33											>20				135
		68											>7				
100	100	51											>12				
		49											>8				
		0											>15				
		86											3				140
97	97	80											4				
													4				
													4				
100	100	85											10				145
													3				
90	90	74											1				
													7				
100	100	97		MF	-	-							3				150
													1				
		100											0				
													0				
99	99	99											0				
													1				155
													0				
100	100	83											>7				
													1				
													1				
													0				160
													3				
99	99	95											1				
													1				
													3				
91	91	91											1				165
													2				
													2				

HOLE No: SC 1
Sheet 6 of 9

JOB NUMBER: H475702

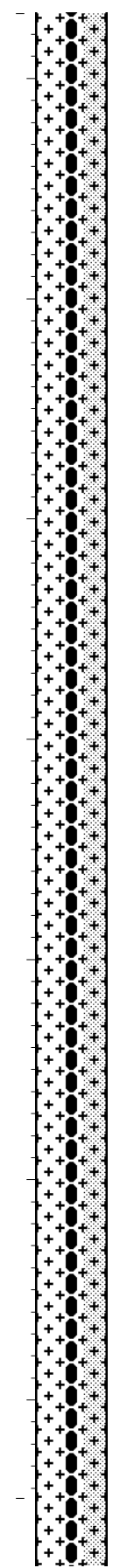
ROCK FABRIC	GRAIN SIZE	JOINT ROUGHNESS	ROCK HARDNESS
MF -massive	FG -fine grained	SLJ-slickensided	EHR-extremely hard rock
BF -bedded	MG -medium grain	SJ -smooth	VHR-very hard rock
FF -foliated	CG -coarse grain	RJ -rough	HR-hard rock
CF -cleaved			MHR-medium hard rock
SF -schistose	JOINT SPACING	JOINT SHAPE	SR-soft rock
GF -gneissose	VCJ-very close spacg	CUR-curvilinear	VSR-very soft rock
LF -laminated	CJ -close spacing	PLA-planar	
	MJ -medium spacing	UND-undulating	
	WJ -wide spacing	STE-stepped	
	VWJ-very wide spacng	IRR-irregular	

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 6 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
100	100	100											3				
31	31	31											1				
		100											0				
100	100	98											2				
		86											2				
92	92	86											1	NQ			
		87											1				
100	100	100											1				
		98											1				
92	92	79											1				
		27											1				
32	32	27											3				
		100											3				
		0											1				
100	100	34											>10				
		35											>15				
		0											5				
		62											>20				
94	94	94											7				
		92											1				
92	92	92											0				
		100											0				
		100											0				
		68											0				
		68											0				
		100											0				
		100											0				



HOLE No: SC 1
Sheet 7 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

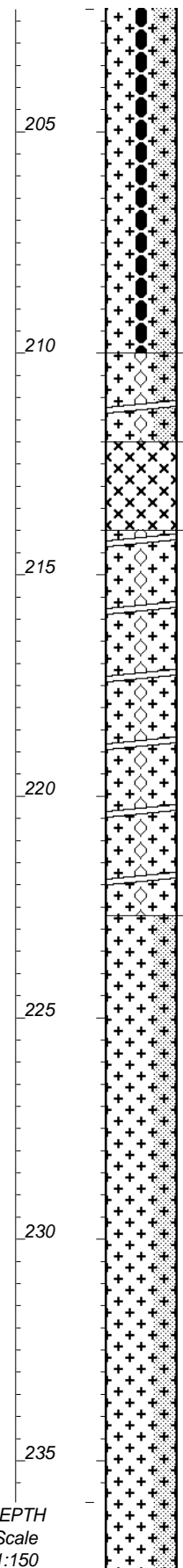
ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 7 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
91	91	100											>10				
65	65	0											>15				
100	100	100											0				
79	79	77											0				
													0				
													2				
													0				
100	100	93											4				
							1		70-89	250-1250	RPJ	-	-			1	
													3				
95	95	65							40-60	40-200	SU/SJ	CHF	<1			>16	
									70-89	-	SPJ	-	-			5	
													0				
99	99	97											0				
													0				
100	100	100					2		0-20	980-4800	RPJ	-	<1			0	
									70-80	1000-9000	RPJ	CAL-	1			1	
													0				
98	98	96											0				
													0				
100	100	100											1				
													0				
													3				
													1				
96	96	80											3				
													5				
													3				
100	100	85											7				
													4				
													3				
99	99	96											2				
													1				
													4				
													8				



210.00
Interbedded horizons of very dark grey to black and light grey speckled and blotched olive and light grey, fresh unweathered, massive, medium to widely jointed, rough planar, very strong rock, coarse grained, MAGNETITE note with scattered bands of DIORITE.

212.00
Light grey stained pale green at joints, fresh unweathered, massive, very closely to medium jointed, smooth undulating/planar, extremely strong rock, medium to coarse grained, ferromagnesium ANORTHOSITE, note that joints are along magnetite veins.

214.00
Interbedded horizons of very dark grey to black and light grey speckled and blotched olive and light grey, fresh unweathered, massive, medium to widely jointed, rough planar, very strong rock, coarse grained, olive-rich MAGNETITE and scattered bands of ANORTHOSITE.

222.70
Grey stained black at joints, fresh unweathered, massive, closely to widely jointed, rough planar, strong to very strong rock, medium to coarse grained, feldspar- rich DIORITE.

HOLE No: SC 1
Sheet 8 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 8 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
98	98	69											9				240
		86							15-3000 25-1450	RPJ RPJ RPJ			8				
99	99	82											6				
		73	CG										2				
100	100	73											2				
		82											9				
99	99	82					3		0-10 40-60 70-89				4				
		93											3				
100	100	93											4				
		97											10				
94	94	83											6				
		32							50-2000 230-1300				3				245
100	100	32											0				
		57											>15				
97	97	57											>20				
		71											>20				
100	100	71											13				
		37											10				
99	99	37							15-2900 30-3200	RPJ RPJ RPJ			10				
		12											6				
95	95	12											16				
		69											>15				
84	84	69											>5				
																	250
																	255
																	257.00
																	259.20
																	260
																	265

Light grey stained black at joints, fresh unweathered, massive, closely to widely jointed, rough planar, very strong to extremely strong rock, coarse grained, ANORTHOSITE.

Grey stained black at joints, fresh unweathered, massive, extremely closely to widely jointed, smooth planar, strong to very strong rock, medium to coarse grained, OLIVINE-rich DIORITE.

HOLE No: SC 1
Sheet 9 of 9

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slicksided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

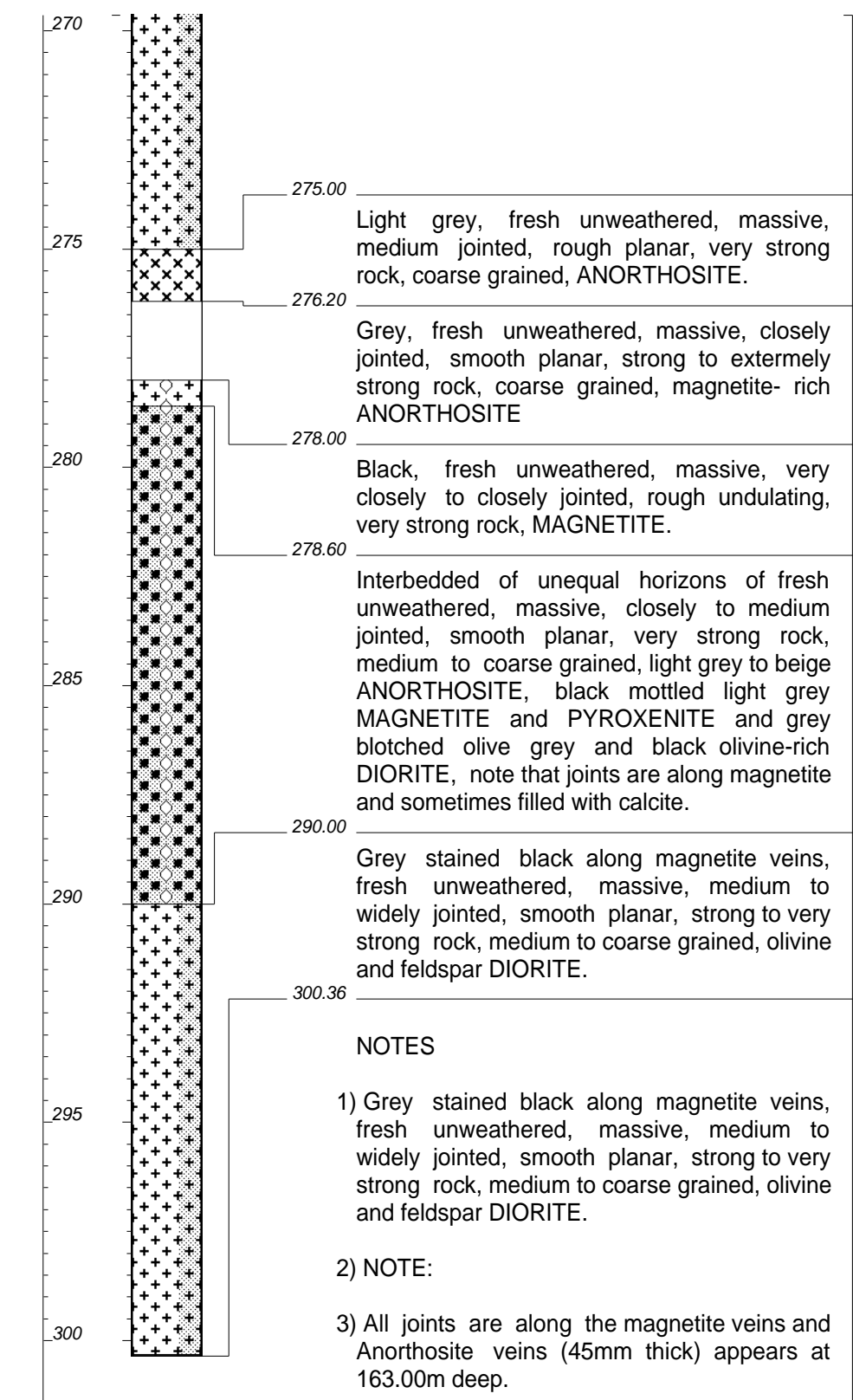
ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: SC 1
Sheet 9 of 9

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain size	Fabric type	Fabric spacing (mm)	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
84	84	69											0			
100	100	97											3			
													1			
													1			
94	94	91							40-60	10-350	-	-	4			
									60-70	15-	-	-	2			
									80-89	1650-	-	-	>5			
100	100	50					1		60-70	750-3550	SPJ	-	>6			
									40-60	40-175	RPJ	-	>15			
76	76	53											3			
100	100	50											>15			
													8			
91	91	91											10			
100	100	92					3		40-60	20-6600	SPJ	-	0			
									60-70	30-4260	SPJ	CAL-	0			
									71-89	-	SPJ	-	0			
89	89	89											0			
													1			
													1			
100	100	100		M/CG									0			
													0			
86	86	86											0			
													0			
100	100	100											1			
													0			
													0			
99	99	99					1		60-70	750-3550	SPJ	-	0			
													0			
													1			
98	98	97											0			
													3			
													0			



CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING
MACHINE: XY-44
DIAM: 150
DRILLED BY: WILLEM YOHANES
DATE: 03/10/2006
PROFIED BY: N. G. NTENGO
DATE: 9/Jan/07

ELEVATION: 1,217.46
X-COORD: 2,779,927.48
Y-COORD: -82,455.24

TYPE SET BY: R Steenkamp
DATE: 25/01/07 15:39
SETUP FILE: RICHARD.SET
TEXT: ..C:\DOT4000\TEXT\SC1-1.TXT

HOLE No: SC 1

HOLE No: TR1
Sheet 1 of 5

JOB NUMBER: H475702

ROCK FABRIC	GRAIN SIZE	JOINT ROUGHNESS	ROCK HARDNESS
MF -massive	FG -fine grained	SLJ-slickensided	EHR-extremely hard rock
BF -bedded	MG -medium grain	SJ -smooth	VHR-very hard rock
FF -foliated	CG -coarse grain	RJ -rough	HR -hard rock
CF -cleaved			MHR-medium hard rock
SF -schistose	JOINT SPACING	JOINT SHAPE	SR -soft rock
GF -gneissose	VCJ-very close spacg	CUR-curvilinear	VSR-very soft rock
LF -laminated	CJ -close spacing	PLA-planar	
	MJ -medium spacing	UND-undulating	
	WJ -wide spacing	STE-stepped	
	VWJ-very wide spacng	IRR-irregular	

ESKOM
PROJECT LIMA PHASE 2

HOLE No: TR1
Sheet 1 of 5

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150	
35	35																	0.00
40	40																	
32	32																	
59	59																	
46	46																	
38	38																	
13	13																	
22	22																	
28	28																	
17	17																	
24	0	0																
28																		
21	21																	
25	25												>10					
37	29												>10					
47	47												>10					
100	100												>10					
69	69												9					
100	100	74											9					
25	13	0											>10					
84	84	45											>10					
100	100	49											>12					
67	67	22											10					
19	0	0											>12					
45	45	17	M/C				3		15-320	RPJ	MS	1	>5					
15	13	0							50-500	RPJ	MS	1	0					
	74	48							-	RPJ	MS	1	>9					
89	89	54											>5					
94	94	29											0					
64	64	0											>8					
98	98	32											11					
55	55	25											>15					
													>17					
													>6					
													13					

Scale 1:150

Grey stained reddish brown gravel and cobbles of dolerite and pinkish grey stained reddish brown granite alternating with slightly moist dark grey to dark brown speckled orange brown, loose, intact, SAND. RESIDUAL OLIVINE DIORITE. TALUS.

11.40
Orangish grey brown stained orangish brown and black at joints, disintegrated to decomposed, massive, closely to medium jointed, rough planar, extremely weak to medium strong rock, medium to coarse grained, residual DIORITE.

HOLE No: TR1
Sheet 2 of 5

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: TR1
Sheet 2 of 5

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
99	99	10											13				35
54	54	0											>18				
99	99	0											>15				
63	63	0											>20				
96	96	16											>12				
90	90	0											>20				
92	92	66											>16				40
100	100	97											7				39.80
97	97	75											2				
100	100	61											2				
97	97	0											6				
100	100	88											11				45
82	82	71											11				
100	100	98											7				
98	98	93											>3				
96	96	73											10				
97	97	75											0				
100	100	81											1				
98	98	92											2				
98	98	66											4				
96	96	73											0				
97	97	75											2				
100	100	81											6				
98	98	92											3				
98	98	91											7				
98	98	91											1				
97	97	97											2				
97	97	97											4				
97	97	97											>15				
97	97	97											1				
97	97	97											6				
97	97	97											0				
97	97	97											5				
97	97	97											0				

Dark grey speckled white and olive, fresh unweathered, massive, closely to widely jointed, smooth planar, very strong rock, medium grained olivine DIORITE.

HOLE No: TR1
Sheet 3 of 5

JOB NUMBER: H475702

ROCK FABRIC
MF -massive
BF -bedded
FF -foliated
CF -cleaved
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

JOINT ROUGHNESS
SLJ-slickensided
SJ -smooth
RJ -rough

JOINT SPACING
VCJ-very close spacg
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ-very wide spacng

JOINT SHAPE
CUR-curvilinear
PLA-planar
UND-undulating
STE-stepped
IRR-irregular

ROCK HARDNESS
EHR-extremely hard rock
VHR-very hard rock
HR -hard rock
MHR-medium hard rock
SR -soft rock
VSR-very soft rock

ESKOM
PROJECT LIMA PHASE 2

HOLE No: TR1
Sheet 3 of 5

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT	DEPTH Scale 1:150
99	99	99											1				70
		65											4				
96	96	78											5				
100	100	83	MG						30-1960	SPJ	-	-	10				
93	93	36											12				
100	100	96											6				
95	95	74											3				
100	100	93											6	TNW			75
99	99	89						2					7				
96	96	90		MF									3				
99	99	92											6				
91	91	47											0				
100	100	46											5				
		12											2				
97	97	90											2				
98	98	96											2				
87	87	37											2				
100	100	50											>5				
88	88	65											>10				
		100											>10				
100	100	90											>10				
98	98	65											>20				
99	99	77											3				
													2				
													10				
													>10				
													>10				
													4				
													0				
													5				
													6				
													6				
													14				
													4				

HOLE No: TR1
Sheet 5 of 5

JOB NUMBER: H475702

ROCK FABRIC
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JOINT SHAPE
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STE-stepped
IRR-irregular

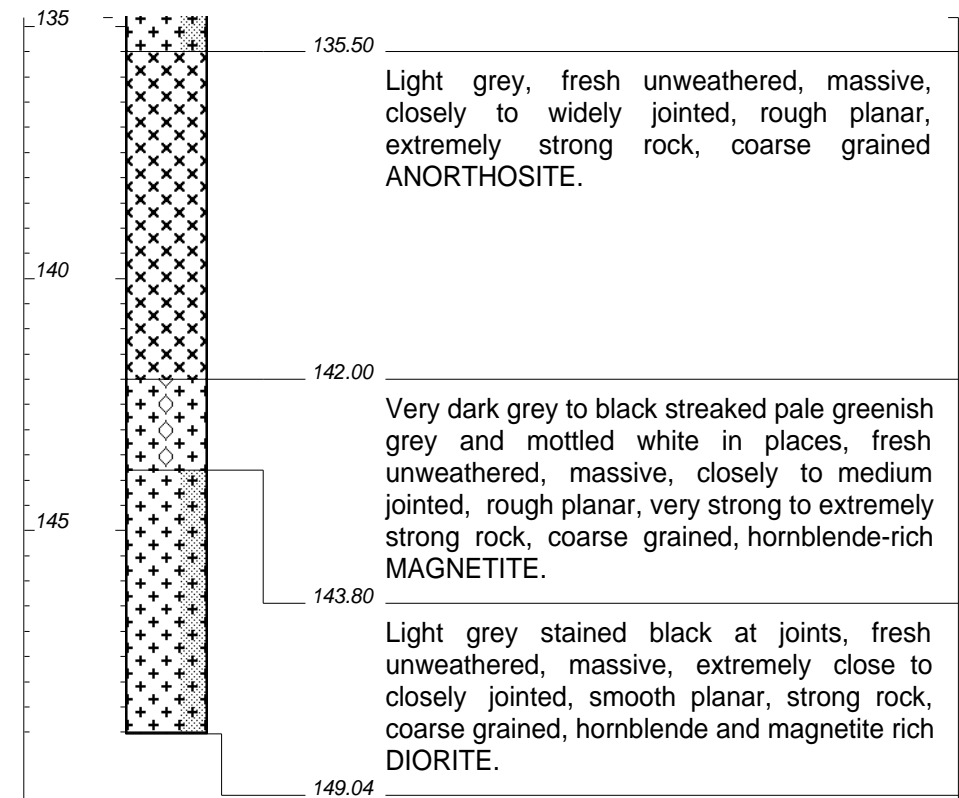
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ESKOM
PROJECT LIMA PHASE 2

HOLE No: TR1
Sheet 5 of 5

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
98	98	82											11			
		98					3		20-1750	SU/RPJ	CAL		3			
									40-770	SU/RPJ	CAL		2			
									-	SUJ	CAL		2			
											CAL		6			
											CAL		4			
											CAL		>20			
99	99	66					1		10-260	RPJ	CALCITE	<1	10			
													7			
98	98	67											16			
87	87	48											20			
97	97	14											20			
97	97	23											20			
98	98	57					2		20-140	SPJ	-	-	15			
									20	SPJ	-	-	15			
96	96	15							200				>15			
100	100	0											>20			
100	100	28											>20			
93	93												0			



NOTES

- 1) Fractures are narrow, dry and are along magnetite veins and sections between 44.19 -44.32m; 45.04 - 45.25m; 45.90 - 46.00m; 48.20 -48.50m; 57.80 -57.98m; 61.40 -61.90m; 70.55-72.35m; 85.5-86.34m; 87.00-88.90m; 97.94-99.78m and 101.00-101.57m are extremely close to closely fractured.

CONTRACTOR: RWBE GEOTECHNICAL DRILLING
MACHINE: YWE
DRILLED BY: BLACK LABEL
PROFILED BY: N. G. NTENGNO
DATE: 9/Jan/07

ELEVATION: 1,108.71
X-COORD: 2,780,019.38
Y-COORD: -82,845.72

DATE: 25/01/07 15:40
TEXT: ..C:\DOT4000\TEXT\TR1.TXT

HOLE No: TR1

HOLE No: TR2
Sheet 1 of 1

JOB NUMBER: H475702

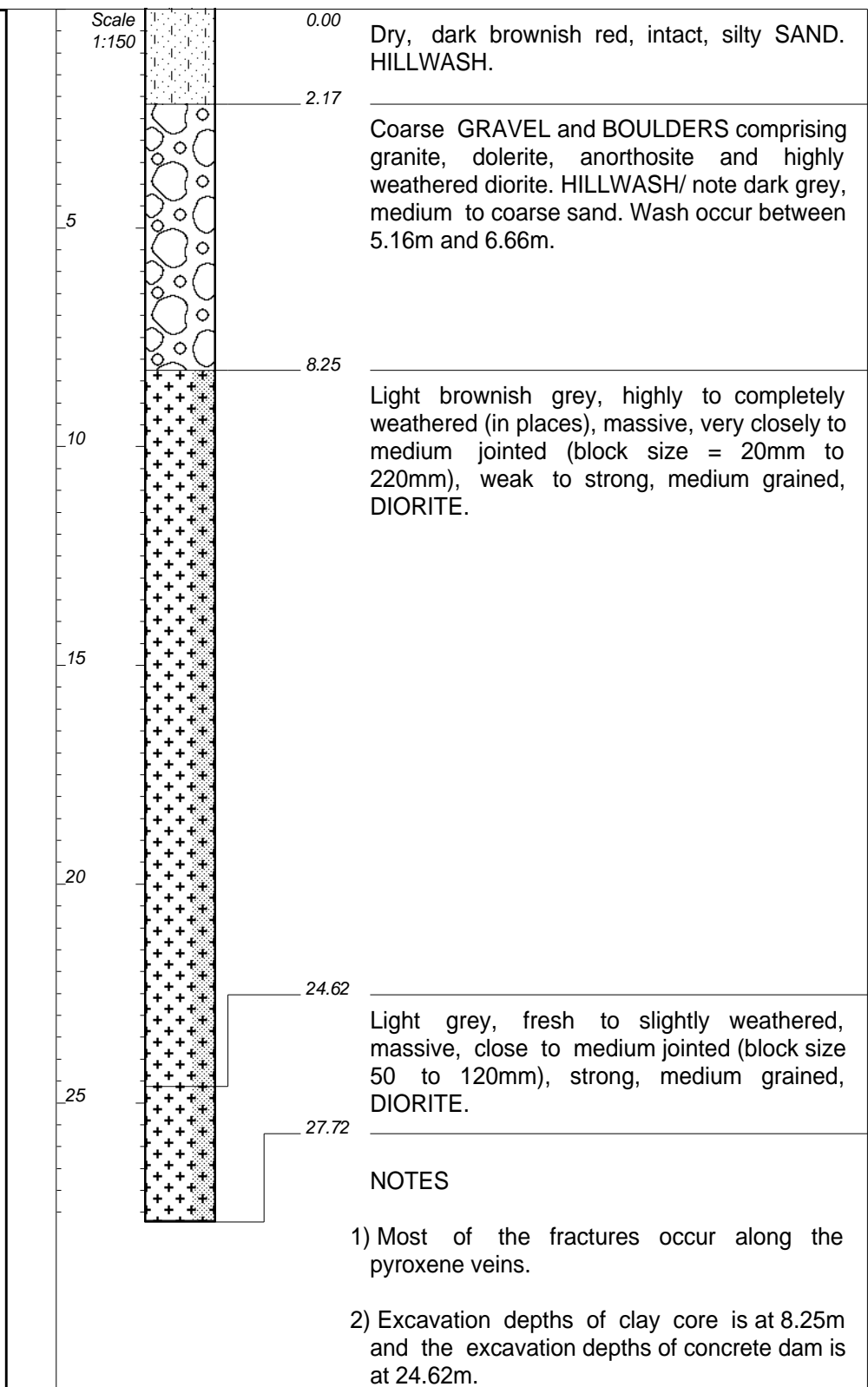
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ESKOM
PROJECT LIMA PHASE 2

HOLE No: TR2
Sheet 1 of 1

JOB NUMBER: H475702

%Mater recov	%Core recov	%RQD	Grain Size	Fabric type	Fabric Spacing mm	Fabric Incl deg	J sets	J incl	Js mm	Jr	Fill type	Fill thick mm	Fraq Freq	Drilling method	PLT (MPa)	SPT
88	0															
53	53															
68	68															
61	39	0														
100	100															
36	36															
31	31															
41	41	14														
47	0															
92	92															
73	49	0														
52	52															
79	79															
100	100	27														
53	53	0														
100	100	25														
92	92	0														
56	56															
94	94	44														
50	50	10														
67	67	22														
100	100	100					4		0-30 40-60 70-80 80-89		10-200 20-600 250 -		RPJ RPJ RPJ RPJ	MS MS MS CF	1 1 1 <1	15 10 4
17	17	0	MG	MF												
100	100															
98	98	36														
100	100	27														
86	86															
100	100															
57	57	0														
13	13															
17	17															
91	91	43														
17	17															
99	99	68					2		0-30 60-80		50-290 170-750		SPJ SSJ	CF CF	<1 <1	



CONTRACTOR: RWBE GEOTECHNICAL ENGINEERING ELEVATION: 1,058.16
 MACHINE: TROUTSTIHL DIAM: X-COORD: 2,780,127.00
 DRILLED BY: ELIAS DATE: 14/09/2006 Y-COORD: -83,166.00
 PROFILED BY: N. G. NTENGO DATE: 9/Jan/06
 TYPE SET BY: R Steenkamp DATE: 15/01/07 10:54
 SETUP FILE: RICHARD.SET TEXT: ..C:\DOT4000\TEXT\ALL.TXT

HOLE No: TR2