SRK Consulting
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BOREHOLE NO : KB1

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.02m
DATE START : 08 February 2008
DATE FINISH : 11 February 2008

NORTHING : 3726105.684
EASTING : 53585.103
ELEVATION : 5.428
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	44												1		**0.00-3.50m** Light brown, loose, fine to medium SAND. Aeolian.
1.95	SPT	53			8									2		
3.00	NWD4	38												3		
3.45	SPT	53			5									4		**3.50-6.00m** Beige, very loose to loose, intact, fine to coarse SAND with shell fragments. Marine (beach deposits).
4.50	NWD4	45												5		
4.95	SPT	82			4									6		
6.00	NWD4	37												7		**6.00-9.00m** Off-white, medium dense to dense, intact, fine SAND becoming fine to medium sand with increasing depth. Marine.
6.45	SPT	80			25									8		
7.50	NWD4	38												9		
7.95	SPT	60			33									10		**9.00-13.50m** Off-white to light grey, medium dense, and dense layers, intact, fine to medium SAND. Marine.
9.00	NWD4	62												11		
9.45	SPT	76			61									12		
10.50	NWD4	64														
10.95	SPT	100			38											
12.00	NWD4	51														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB1

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.02m
DATE START : 08 February 2008
DATE FINISH : 11 February 2008

NORTHING : 3726105.684
EASTING : 53585.103
ELEVATION : 5.428
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	100			52									13		
13.50	NWD4	32														
13.95	SPT	100			45									14		**13.50-17.20m** Layered light and grey-brown speckled white, very dense, intact, fine to medium SAND with fine shell fragments. Marine.
15.00	NWD4	61														
15.45	SPT	67			64									15		
16.50	NWD4	48												16		
16.95	SPT	67			73											
18.02	NWD4	77	26	4		24.10								17		**17.20-19.17m** Grey, moderately weathered, medium jointed, medium hard rock, SILTSTONE. Tygerberg Formation. Malmesbury Group. Joints: subvertical and subhorizontal, narrow, planar (vertical), silt filled, undulating (subhorizontal), minor iron staining.
19.52	NWD4	95	52	2			24.80	11.50	0.13					18		
21.02	NWD4	75	24	12		22.39								19		
22.52	NWD4	93	47	7										20		**19.17-22.78m** Laminated and convoluted dark and light grey, moderately weathered (highly weathered 19.17-19.40m), closely jointed, soft rock and medium hard rock, MUDSTONE. Malmesbury Group. Joints: 45^0 - 75^0 to core axis, planar, undulating or stepped, narrow, minor silt coating, often weak joint walls.
24.02	NWD4	89	21											21		
						37.73								22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB1

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.02m
DATE START : 08 February 2008
DATE FINISH : 11 February 2008

NORTHING : 3726105.684
EASTING : 53585.103
ELEVATION : 5.428
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.52	NWD4	84	9	>20										25		**22.78-24.40m** Greenish grey, slightly weathered, closely to medium jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: steeply dipping, weathered joint surfaces, wide, thick clayey silt or broken rock.
27.02	NWD4	83	0											26		**24.40-25.80m** Dark grey, slightly weathered, highly weathered along narrow steeply, very closely to closely jointed, dipping shears, medium hard rock, with layers soft rock, MUDSTONE. Malmesbury Group. Joints: mainly steeply dipping, soft joint walls, often sheared, some thick clayey silt infill.
28.52	NWD4	41	0											27		
30.02	NWD4	75	7											28		**25.80-30.02m** Light grey, unweathered, closely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: vertical, subhorizontal, core extensively broken, planar, narrow, slight joint alteration, otherwise clean.
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

Note:
1. Borehole stopped at 30.02m.
2. Complete lost of drill water below 25.52m.

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB10

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 26.92m
DATE START : 23 February 2008
DATE FINISH : 06 March 2008

NORTHING : 3726329.754
EASTING : 53060.803
ELEVATION : 17.816
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	63												1		**0.00-3.50m** Layered light grey, off-white and light orangey brown, loose, intact, fine to medium SAND with coarse shell fragments. Aeolian.
1.95	SPT	69			4											
3.00	NWD4	59								0	92	0	8	2		
3.45	SPT	44			8									3		
4.50	NWD4	46												4		**3.50-9.00m** Variably off-white or light brown speckled white, loose to medium dense, intact, fine to medium SAND, occasionally coarse sand and abundant shell fragments. Aeolian.
4.95	SPT	53			12									5		
6.00	NWD4	69												6		
6.45	SPT	49			11											
7.50	NWD4	67												7		
7.95	SPT	42			6									8		
9.00	NWD4	43												9		
9.45	SPT	100			66											**9.00-10.50m** Dark brown, very dense, intact, medium to coarse SAND with coarse shell fragments. Marine?
10.50	NWD4	73												10		
10.95	SPT	67			59											
12.00	NWD4	92												11		**10.50-16.50m** Light grey-brown, very dense, intact, fine to medium SAND with fine shell fragments. Marine?
12.30	SPT	43			Ref									12		
13.50	NWD4	72												13		
13.95	SPT	51			64											
15.00	NWD4	57								0	94	3	3	14		
														15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB10

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 26.92m
DATE START : 23 February 2008
DATE FINISH : 06 March 2008

NORTHING : 3726329.754
EASTING : 53060.803
ELEVATION : 17.816
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	64			67					0	94	3	3	16		
16.50	NWD4	49														
16.95	SPT	69			76									17		**16.50-19.75m** Off-white or light brown, very dense, intact, fine to medium SAND with coarse shell fragments. Marine.
18.00	NWD4	69												18		
18.45	SPT	31			56											
19.50	NWD4	78												19		
19.75	SPT	100			Ref									20		**19.75-20.51m** Very coarse shells and coral within an inferred sand matrix. Marine.
20.92	NWD4	50	0	5										21		
22.42	NWD4	68	9											22		**20.51-24.76m** Greenish grey, moderately weathered, closely jointed (in places very closely jointed), medium hard rock, GREYWACKE (sandstone) with highly weathered sections. Tygerberg Formation. Malmesbury Group. Joints: Subvertical, cross-joints and subhorizontal, planar and undulating, generally wide, narrow, occasionally wide, infilled with clay soft joint walls
23.92	NWD4	45	0											23		
25.42	NWD4	100	50				25.30	28.40	0.24					24		
26.92	NWD4	100	57	6		35.88								25		**24.76-26.92m** Light grey, slightly weathered, medium jointed occasionally widely jointed, hard rock, GREYWACKE (sandstone) with abundant leached/healed fractured. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints and subhorizontal joints, planar, rough, wide, fractured rock, infill, or quartz crystals. Many healed quartz filled fractures.
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB11

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.13m
DATE START : 08 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726527.384
EASTING : 52967.352
ELEVATION : 16.221
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	71												1		**0.00-2.00m** Off-white and light yellow, loose, slightly silty, fine to medium SAND (slightly calcretised - silt contact). Aeolian with poorly formed calcrete.
1.95	SPT	42			4											
3.00	NWD4	98												2		**2.00-13.00m** Off-white to light grey, loose to medium dense, fine SAND with fine shell fragments. Aeolian.
3.45	SPT	71			10									3		
4.50	NWD4	100												4		
4.95	SPT	47			8									5		
6.00	NWD4	100												6		
6.45	SPT	44			8											
7.50	NWD4	79												7		
7.95	SPT	100			12									8		
9.00	NWD4	85														
9.45	SPT	91			12									9		
10.50	NWD4	90												10		
10.95	SPT	78			16											
12.00	NWD4	80												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB11

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.13m
DATE START : 08 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726527.384
EASTING : 52967.352
ELEVATION : 16.221
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	100			13									13		
13.50	NWD4	78														**13.00-17.00m** Light grey, loose, fine SAND with fine shell fragments. Aeolian?
13.95	SPT	100			9									14		
15.00	NWD4	80												15		
15.45	SPT	100			7									16		
16.50	NWD4	76														
16.95	SPT	93			9									17		
18.13	NWD4	71												18		
18.58	SPT	84			14											
19.63	NWD4	82												19		
20.08	SPT	100			15									20		**17.00-24.58m** Variable light grey brownish off-white, medium dense, fine SAND with fine shell fragments. Marine.
21.13	NWD4	74														
21.58	SPT	64			16									21		
22.63	NWD4	57												22		
23.08	SPT	71			21									23		
24.13	NWD4	49												24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB11

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.13m
DATE START : 08 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726527.384
EASTING : 52967.352
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LOGGED BY : John Brown
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
24.58	SPT	69			25									25		
25.63	NWD4	81														**24.58-26.48m** Greenish grey and off-white, medium dense to dense, slightly clayey SAND with coarse to very coarse shell fragments and pieces of shale. GRAVEL. Marine.
26.08	SPT	62			29									26		
27.13	NWD4	67	0	>20										27		**26.48-27.26m** Greenish grey, completely weathered, soft rock, SHALE fragments within a sandy or clayey sand matrix. Tygerberg Formation. Malmesbury Group.
28.63	NWD4	94	9	6										28		**27.26-27.93m** Greenish grey, completely weathered, closely to medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping (2 sets), planar, wide, clayey silt infilled, healed quartz vein.
				>20												
30.13	NWD4	94	21	6		42.8	10.7	22.5	0.218					29		**27.93-28.42m** Greenish grey, highly to completely weathered, very closely jointed, friable very soft rock, GREYWACKE. Joints: Steeply dipping, wide, clayey silt infilled, soft joint walls.
						14.6										
				>20										30		**28.42-29.88m** Grey, slightly weathered, medium jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (45^0 - 2 sets), planar, narrow and wide, clean or some calcite? infill.
														31		
														32		**29.88-30.13m** Greenish grey, highly weathered, very closely jointed, friable soft rock, GREYWACKE (core broken).
														33		END OF BOREHOLE
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB12

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.14m
DATE START : 07 February 2008
DATE FINISH : 13 February 2008

NORTHING : 3726736.263
EASTING : 52859.935
ELEVATION : 16.367
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	51								0	95	2	3	1		**0.00-4.60m** Light orangey brown and off-white, loose becoming medium dense, intact, fine SAND. Aeolian.
1.95	SPT	42			5									2		
3.00	NWD4	60												3		
3.45	SPT	38			10									4		
4.50	NWD4	59												5		**4.60-5.00m** Off-white, medium dense, silty, fine SAND with some poorly formed calcrete. Pedogenic.
4.95	SPT	53			13									6		**5.00-6.50m** Off-white, medium dense, intact, slightly silty, fine SAND with medium shell fragments. Aeolian.
6.00	NWD4	73												7		
6.45	SPT	71			15									8		**6.50-10.50m** Dark, grey brown speckled white, medium dense, intact, fine to medium SAND with medium to coarse shell fragments. Marine? (beach deposit).
7.50	NWD4	91												9		
7.95	SPT	69			17									10		
9.00	NWD4	80								0	96	1	3	11		**10.50-11.00m** Grey-brown, medium dense, intact, fine to coarse SAND. Marine.
9.45	SPT	51			19									12		
10.50	NWD4	87												13		
10.95	SPT	64			22									14		
12.00	NWD4	79												15		
12.45	SPT	56			23											
13.50	NWD4	68								0	94	2	3			
13.95	SPT	84			31					0	98	0	2			
15.00	NWD4	82														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB12

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.14m
DATE START : 07 February 2008
DATE FINISH : 13 February 2008

NORTHING : 3726736.263
EASTING : 52859.935
ELEVATION : 16.367
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	62			37									16		**11.00-18.00m** Light greyish brown, medium dense becoming dense, intact, fine to medium SAND. Marine.
16.50	NWD4	83														
16.95	SPT	53			39									17		
18.00	NWD4	56														
18.45	SPT	62			48									18		**18.00-24.45m** Light brown speckled white, dense, intact, fine to coarse SAND with very coarse shell fragments. Marine.
19.50	NWD4	62												19		
19.95	SPT	58			43											
21.00	NWD4	63												20		
21.45	SPT	56			45											
22.50	NWD4	77												21		
22.95	SPT	64			46											
24.00	NWD4	70								0	98	0	2	22		
24.45	SPT	53			53									23		
25.50	NWD4	89	56	>20 4										24		**24.45-28.10m** Dark greenish grey with white quartz veins, slightly weathered, variably closely and medium jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Predominantly steeply dipping (70^0 - bedding), planar, very wide, open or with quartz infill (often vuggy), many planes healed? with quartz. Two other sets of cross joints 45^0 dip, often sheared with slickensided surfaces, narrow and very wide, often with quartz crystal growth. Occasional thin shear zones present.
27.00	SPT	95	25	11										25		
27.40	NWD4	88	95											26		
28.63	NWD4	95	29											27		
30.13	NWD4	97	18	>20										28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB12

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.14m
DATE START : 07 February 2008
DATE FINISH : 13 February 2008

NORTHING : 3726736.263
EASTING : 52859.935
ELEVATION : 16.367
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
31.50	NWD4	100	24	10		153.3	34.6	58	0.17					31		**28.10-32.54m** Dark greenish grey with white quartz veins, slightly weathered, moderately weathered where shear zones present, closely to very closely jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Prominent subvertical joint, planar, wide (2-3mm), infilled with quartz (vuggy), some pyrite. Cross-joints, planar, stepped or undulating, narrow occasionally wide, often quartz filled. Sheared in places.
33.00	NWD4	97	25											32		
34.20	NWD4	97	51	5										33		
35.80	NWD4	98	24											34		
37.40	NWD4	99	53											35		**32.54-40.14m** Dark greenish grey, largely unweathered, medium to widely jointed, hard rock to very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Predominantly steeply dipping (70^0 - bedding), planar, either clean or with quartz cyrstal growth on joint walls, wide (1-5 mm), either vuggy or healed with quartz. Two sets cross joints (45^0 dip), planar to undulating, 1-2 mm, wide, clean or quartz filled (vuggy in places).
38.90	NWD4	100	43			129.3								36		
40.14	NWD4	98	85			198.9								37		
														38		
														39		
														40		END OF BOREHOLE
														41		
														42		
														43		
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB13

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 28.50m
DATE START : 10 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3726931.630
EASTING : 52768.018
ELEVATION : 15.493
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	29												1		**0.00-3.00m** Light grey speckled white, loose, fine to medium SAND with shell fragments. Aeolian.
1.95	SPT	47			4									2		
3.00	NWD4	41												3		**3.00-3.50m** Light yellowish brown, loose, slightly cemented, fine SAND. Aeolian?
3.45	SPT	44			4									4		**3.50-8.00m** Layered light grey, off-white and yellowish brown, loose, fine to medium SAND. Aeolian.
4.50	NWD4	35												5		
4.95	SPT	42			7									6		
6.00	NWD4	35												7		
6.45	SPT	44			7									8		**8.00-18.50m** Grey brown, medium dense, fine to medium SAND. Marine?
7.50	NWD4	44												9		
7.95	SPT	49			9									10		
9.00	NWD4	47												11		
9.45	SPT	47			11									12		
10.50	NWD4	46														
10.95	SPT	42			13											
12.00	NWD4	45														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB13

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 28.50m
DATE START : 10 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3726931.630
EASTING : 52768.018
ELEVATION : 15.493
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	38			16									13		**8.00-18.50m** Grey brown, medium dense, fine to medium SAND. Marine?
13.50	NWD4	49														
13.95	SPT	44			18									14		
15.00	NWD4	52														
15.45	SPT	44			20									15		
16.50	NWD4	48														
16.95	SPT	49			20									16		
18.00	NWD4	53														
18.45	SPT	40			16									17		
19.50	NWD4	43														
19.95	SPT	47			13									18		
21.00	NWD4	49														**18.50-22.50m** Light grey-brown speckled white, medium dense, fine to coarse SAND with coarse shell fragments. Marine.
21.45	SPT	56			18									19		
22.50	NWD4	48														
22.95	SPT	51			20									20		
24.00	NWD4	37	0	>20										21		
														22		
														23		**22.50-22.95m** Greenish grey speckled white, medium dense, medium to coarse SAND with very coarse shell fragments. Marine.
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB13

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 28.50m
DATE START : 10 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3726931.630
EASTING : 52768.018
ELEVATION : 15.493
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	87	11	11.5 >20		22.6								25		**22.95-24.00m** Light greenish grey, moderately weathered, very closely jointed, medium hard rock, GREYWACKE (sample recovered of coarse gravel due to grinding). Tygerberg Formation. Malmesbury Group.
27.00	NWD4	93	25	8.6		17.6								26		**24.00-24.61m** Light grey, moderately weathered, closely jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping and subhorizontal, planar, narrow, minor silt (some core grinding at top).
28.50	NWD4	97	19	8		39.3								27 28		**24.61-24.80m** Light grey, highly weathered, very closely fractured, soft rock, GREYWACKE. **24.80-27.43m** Light greenish grey, slightly weathered, locally moderately weathered, closely and medium weathered, generally hard rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping (70^0 bedding), planar, narrow occasionally wide, silt coated.
														29 30 31 32 33 34 35 36		**27.43-28.50m** Light grey, largely unweathered, closely jointed (occasional medium jointed), hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping, END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB14

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 27.05m
DATE START : 26 January 2008
DATE FINISH : 01 February 2008

NORTHING : 3727135.092
EASTING : 52676.960
ELEVATION : 15.636
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	50												1		**0.00-3.00m** Off-white, generally medium dense, (dense between 1.0-1.5m), slightly to moderately calcretised fine SAND. Pedocrete.
1.95	SPT	27			14									2		
3.05	NWD4	42												3		
3.50	SPT	33			21									4		**3.00-6.00m** Light brown, medium dense, slightly silty, fine SAND. Aeolian.
4.55	NWD4	38												5		
5.00	SPT	56			19									6		
6.00	NWD4	78								0	94	1	5	7		**6.00-19.95m** Greyish brown, loose, intact, fine SAND. Aeolian/Marine?
6.45	SPT	64			9									8		
7.50	NWD4	62												9		
7.95	SPT	64			5									10		
9.00	NWD4	52												11		
9.45	SPT	69			4									12		
10.50	NWD4	55												13		
10.95	SPT	31			4									14		
12.00	NWD4	66												15		
12.45	SPT	67			4											
13.50	NWD4	73														
13.95	SPT	71			4											
15.00	NWD4	74														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB14

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 27.05m
DATE START : 26 January 2008
DATE FINISH : 01 February 2008

NORTHING : 3727135.092
EASTING : 52676.960
ELEVATION : 15.636
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	71			4									16		**6.00-19.95m** Greyish brown, loose, intact, fine SAND. Aeolian/Marine?
16.50	NWD4	55								0	98	0	2			
16.95	SPT	100			5					0	95	2	3	17		
18.00	NWD4	23														
18.45	SPT	100			4									18		
19.50	NWD4	50														
19.95	SPT	100			57									19		
21.05	NWD4	100	24				63.40	55.0	0.25					20		**19.95-24.26m** Greenish grey, unweathered, closely to medium jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subvertical and cross joints, planar, stepped, narrow to wide, clean or quartz filled.
22.55	NWD4	100	0	8										21		
24.05	NWD4	90	0	18		196.5								22		
25.55	NWD4	63	0	9										23		
27.05	NWD4	93	17	8		42.7								24		**24.26-25.70** Greenish grey with light green laminations, slightly weathered, closely to very closely jointed, hard rock, SHALE. Malmesbury Group. Joints: Steeply dipping bedding, planar, smooth, sheared central section.
				12										25		**25.70-27.05** Grey with thin white quartz veinlets, unweathered, closely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal to cross joints, wide clean or quartz crystals, vuggy subvertical healed joints.
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB17

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 21.58m
DATE START : 31 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3727058.022
EASTING : 53079.818
ELEVATION : 7.149
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	57												1		**0.00-2.00m** Orangey brown, loose, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	98			4											
3.00	NWD4	84												2		
3.45	SPT	87			6									3		**2.00-4.50m** LIght grey, loose, fine to medium SAND with medium shell fragments. Aeolian.
4.50	NWD4	81												4		
4.95	SPT	76			6											
6.00	NWD4	80												5		
6.45	SPT	64			9									6		**4.50-9.00m** Light grey, loose to medium dense, fine to medium SAND with medium shell fragments. Aeolian.
7.50	NWD4	77												7		
7.95	SPT	69			10											
9.00	NWD4	79												8		
9.45	SPT	100			8									9		**9.00-9.15m** Light grey, loose to medium dense, fine to coarse SAND (oxidised). Possible beach deposit.
10.50	NWD4	82												10		
10.95	SPT	62			12											
12.00	NWD4	66												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB17

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 21.58m
DATE START : 31 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3727058.022
EASTING : 53079.818
ELEVATION : 7.149
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	38			12									13		**9.15-15.50m** Light grey, medium dense, fine SAND with fine shell fragments. Marine.
13.50	NWD4	41														
13.95	SPT	80			14									14		
15.00	NWD4	59														
15.45	SPT	51			15									15		
16.58	NWD4	50	0	17.5		82.9								16		**15.50-16.02m** No recovery sand inferred.
18.08	NWD4	83	27	4.9			14.8	21	0.177					17		**16.02-16.99m** Dark greenish grey, moderately weathered, closely jointed, soft rock, SHALE (laminated). Tygerberg Formation. Malmesbury Group. Joints: Subvertical (bedding) and subhorizontal, wide, mainly clean or pyrite filled, minor silt.
				22										18		**16.99-17.81m** Light grey, slightly weathered, medium jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping, planar, narrow, minor silt coatings.
19.58	NWD4	85	77	1.7		56.4								19		**17.81-18.08m** Grey, highly weathered, very closely jointed, soft rock, GREYWACKE decomposed joint planes.
21.58	NWD4	84	56	2		34.2								20		**18.08-19.96m** Light grey, unweathered, widely jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Shallow angle, undulating, narrow, clean.
						68.3								21		**19.96-21.58m** Light grey, largely unweathered, medium to widely jointed, hard rock, SHALE (muddy). Tygerberg Formation. Malmesbury Group. Joints: Mainly steep (bedding), planar, clean, or minor silt, sheared at 20.50 - 20.60 m.
														22		END OF BOREHOLE
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB18

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.10m
DATE START : 28 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3726978.932
EASTING : 52881.178
ELEVATION : 14.470
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	40												1		**0.00-3.50m** Beige, very loose, fine to medium SAND with coarse shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	41												3		
3.45	SPT	53			4									4		**3.50-15.00m** Beige alternating with grey layers, loose to medium dense, fine to medium SAND, possibly slightly silty (grey layers), medium shell fragments. Lagoonal environment.
4.50	NWD4	44												5		
4.95	SPT	60			7									6		
6.00	NWD4	46												7		
6.45	SPT	47			8									8		
7.50	NWD4	56												9		
7.95	SPT	64			8									10		
9.00	NWD4	50												11		
9.45	SPT	53			9									12		
10.50	NWD4	52														
10.95	SPT	47			10											
12.00	NWD4	46														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB18

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.10m
DATE START : 28 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3726978.932
EASTING : 52881.178
ELEVATION : 14.470
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	42			11									13		**3.50-15.00m** Beige alternating with grey layers, loose to medium dense, fine to medium SAND, possibly slightly silty (grey layers), medium shell fragments. Lagoonal environment.
13.50	NWD4	51														
13.95	SPT	56			13											
15.00	NWD4	47												14		
15.45	SPT	60			16									15		
16.50	NWD4	43														**15.00-19.95m** Light greyish off-white, medium dense to dense, fine to medium SAND with some coarse shell fragments. Marine?
16.95	SPT	58			20									16		
18.00	NWD4	53														
18.45	SPT	62			21									17		
19.50	NWD4	54														
19.95	SPT	51			25									18		
21.00	NWD4	47	0	8.6		86.8								19		
22.50	NWD4	100	27											20		**19.95-22.80m** Light greenish grey, slightly weathered, closely jointed, hard rock, GREYWACKE with abundant vuggy quartz veins (subvertical). Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping and cross-joints, planar, narrow, minor silt. Quartz veins wide, vuggy, often healed.
24.00	NWD4	97	63	5.4		104.1	10.7	54.4	0.163					21		
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB18

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.10m
DATE START : 28 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3726978.932
EASTING : 52881.178
ELEVATION : 14.470
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	99	21											25		**22.80-25.40m** Grey to dark grey, slightly weathered, medium jointed, medium hard rock to hard rock, GREYWACKE with abundant quartz veins. Malmesbury Group. Joints: Cross and steeply dipping, wide, weathered joint surfaces, quartz crystal formation, minor silt.
27.00	NWD4	95	13	9.3		59.8								26		**25.40-27.00m** Grey, unweathered, closely to medium jointed, very hard rock, GREYWACKE, thin healed quartz veins. Malmesbury Group. Joints: Cross and steeply dipping, planar, narrow, clean, occasional vuggy quartz veins.
28.60	NWD4	98	13	5		59.8								27		
30.10	NWD4	99	62	18.6 / 1.9		187.9								28		**27.00-30.10m** Grey, unweathered, generally widely jointed locally closely jointed, very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross and subvertical, planar, narrow, clean.
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB19

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 29.60m
DATE START : 16 April 2008
DATE FINISH : 17 April 2008

NORTHING : 3726858.326
EASTING : 53167.492
ELEVATION : 10.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	24												1		**0.00-5.00m** Brown speckled white, very loose to loose, fine to medium SAND with abundant coarse rounded shell fragments. Marine (beach deposit).
1.95	SPT	49			4									2		
3.00	NWD4	44												3		
3.45	SPT	47			4									4		
4.50	NWD4	37												5		
4.95	SPT	53			5									6		**5.00-8.00m** Brown speckled white, loose, fine to medium SAND with abundant coarse rounded shell fragments. Marine (beach deposit).
6.00	NWD4	45												7		
6.45	SPT	49			8									8		
7.50	NWD4	42												9		
7.95	SPT	51			8									10		
9.00	NWD4	34												11		**8.00-14.00m** Brown speckled white, loose to medium dense, fine to medium SAND with subangular medium to coarse shell fragments. Marine.
9.45	SPT	49			8									12		
10.50	NWD4	30														
10.95	SPT	49			11											
12.00	NWD4	42														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB19

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 29.60m
DATE START : 16 April 2008
DATE FINISH : 17 April 2008

NORTHING : 3726858.326
EASTING : 53167.492
ELEVATION : 10.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	47			12									13		
13.50	NWD4	43														
13.95	SPT	51			12									14		
15.00	NWD4	50														
15.45	SPT	51			16									15		
16.50	NWD4	41														
16.95	SPT	44			17									16		
18.00	NWD4	44														
18.45	SPT	47			21									17		
19.50	NWD4	50														
19.95	SPT	56			23									18		**14.00-23.00m** Grey brown and light grey, medium dense, fine to medium SAND with subangular medium to coarse shell fragments. Marine.
21.00	NWD4	61														
21.45	SPT	51			26									19		
22.50	NWD4	45														
22.95	SPT	53			29									20		
24.00	NWD4	90	12													
						31.7								21		
														22		
														23		**23.00-23.82m** Greenish grey, dense, thin layers of slightly clayey, fine SAND and fine GRAVEL consisting mainly of angular shell fragments, some quartz. Marine.
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB19

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 29.60m
DATE START : 16 April 2008
DATE FINISH : 17 April 2008

NORTHING : 3726858.326
EASTING : 53167.492
ELEVATION : 10.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	100	31	7		38.8	10.6	24.9	0.0217					25		**23.82-26.31m** Light grey, slightly weathered, medium jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (2 sets), narrow and wide, slight clayey silt infill.
27.00	NWD4	92	32	>20		44.1 17.6								26		**26.31-26.64m** Light grey, moderately and highly weathered, very closely and closely jointed, soft rock, GREYWACKE. Joints: Cross-joints, wide, friable soft joint wall, clayey silt infill.
28.10	NWD4	96	24	10		34.2 17.1								27		**26.64-29.60m** Light grey and greenish grey, slightly weathered in places moderately weathered, closely jointed, medium hard rock, (in places soft rock), GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (2 sets), planar, silt coated, in places some soft joint walls.
29.60	NWD4	90	19			25.6								28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	35								0	97	1	2	1		**0.00-3.50m** Grey brown speckled white, very loose, medium to coarse SAND with shell fragments. Aeolian.
1.95	SPT	47			4									2		
3.00	NWD4	50												3		
3.45	SPT	53			4											
4.50	NWD4	41												4		
4.95	SPT	58			4									5		
6.00	NWD4	37												6		
6.45	SPT	40			6											
7.50	NWD4	48												7		**3.50-12.00m** Light grey speckled white, loose, fine to medium SAND with coarse shell fragments. Aeolian?
7.95	SPT	40			7									8		
9.00	NWD4	48								0	97	1	2			
9.45	SPT	56			7									9		
10.50	NWD4	47												10		
10.95	SPT	36			8									11		
12.00	NWD4	35												12		
12.45	SPT	53			9											
13.50	NWD4	52								0	96	1	3	13		
13.95	SPT	49			9									14		
15.00	NWD4	48												15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	53			11									16		**12.00-18.50m** Dark grey-brown, speckled white, medium dense, fine to medium SAND, slightly silty in places, medium shell fragments. Marine.
16.50	NWD4	67														
16.95	SPT	44			13											
18.00	NWD4	56								0	95	2	3	17		
18.45	SPT	49			14									18		
19.95	NWD4	75	13	>20										19		**18.50-19.95m** Greenish grey, highly weathered, closely and very closely jointed, soft rock, GREYWACKE, in places completely weathered. Malmesbury Group. Joints: Indistinct fractured core, soft joint walls.
20.45	NWD4	96	0											20		
21.95	NWD4	97	11	8		17.1								21		
23.45	NWD4	97	21			42.7								22		
24.95	NWD4	98	31											23		**19.95-29.45m** Dark greenish grey, moderately weathered, closely occasionally medium jointed, soft rock and medium hard rock, GREYWACKE. Malmesbury Group. Joints: Prominent vertical joint and steeply dipping (bedding), planar, wide, silt or quartz infilled, some thin shear zones present. Highly sheared between 28.29-28.82 m.
26.45	NWD4	96	28	5		59.8	50.90	29.40	0.55					24		
27.95	NWD4	98	0											25		
29.45	NWD4	80	9	>20										26		
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
30.95	NWD4	95	27	3		145.2								31		**29.45-33.24m** Greenish grey, largely unweathered, medium jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Vertical, steeply dipping and cross joints, planar, narrow, smooth, minor silt often clean.
32.45	NWD4	97	57			187.9								32		
33.95	NWD4	99	37											33		
				20												**33.24-33.80m** Fault Zone - Moderately weathered, closely fractured, laminated, SHALE with extensive vuggy quartz infill.
35.45	NWD4	95	27	5		205.0								34		
36.95	NWD4	94	27											35		
38.45	NWD4	95	11											36		
39.95	NWD4	91	48			179.4								37		**33.80-41.45m** Grey, unweathered, variable closely to medium jointed, very hard rock, GREYWACKE (hornfels). Malmesbury Group. Joints: Mainly steeply dipping, cross joints (2 sets), planar, narrow and wide, quartz infill or clean.
41.45	NWD4	94	18			179.4								38		
														39		
														40		
42.95	NWD4	93	45	3			69.50	37.90	0.26					41		
														42		**41.45-53.40m** Dark grey, unweathered, medium to widely jointed, hard rock, becoming extremely hard rock, GREYWACKE (hornfels). Malmesbury Group. Joints: Mainly steeply dipping (2 sets), planar, narrow, clean, minor quartz.
44.55	NWD4	93	49			410.1								43		
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
46.15	NWD4	97	32	8		256.3								46		
47.55	NWD4	100	48											47		
49.05	NWD4	98	53			281.9								48		**41.45-53.40m** Dark grey, unweathered, medium to widely jointed, extremely hard rock, GREYWACKE (hornfels). Malmesbury Group. Joints: Mainly steeply dipping (2 sets), planar, narrow, clean, minor quartz.
50.35	NWD4	95	64	3										49		
51.90	NWD4	99	63			341.7								50		
53.40	NWD4	96	84			256.3	87.2	83.70	0.23					51		
54.95	NWD4	95	70	8 / 3										52		
														53		**53.40-54.95m** Dark grey streaked white, unweathered, closely and widely jointed, very hard rock, GREYWACKE (hornfels) with abundant thin quartz veins. Malmesbury Group. Joints: Steeply dipping and cross joints, undulating, quartz infill.
														54		END OF BOREHOLE
														55		
														56		
														57		
														58		
														59		
														60		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB25

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 24.00m
DATE START : 21 February 2008
DATE FINISH : 22 February 2008

NORTHING : 3726697.643
EASTING : 53361.561
ELEVATION : 4.724
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	51								0	97	1	2	1		**0.00-3.50m** Off-white, loose, intact, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	60			4									2		
3.00	NWD4	74												3		
3.45	SPT	62			4											
4.50	NWD4	37												4		**3.50-7.50m** Off-white, medium dense, intact, fine to medium SAND with medium shell fragments. Aeolian.
4.95	SPT	49			7									5		
6.00	NWD4	44												6		
6.45	SPT	64			8											
7.50	NWD4	65								0	98	0	2	7		
7.95	SPT	62			8									8		**7.50-10.50m** Light grey-brown speckled white, medium dense, intact, medium to coarse SAND with abundant coarse shell fragments. Marine (beach deposit).
9.00	NWD4	55												9		
9.45	SPT	64			9											
10.50	NWD4	53												10		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB25

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 24.00m
DATE START : 21 February 2008
DATE FINISH : 22 February 2008

NORTHING : 3726697.643
EASTING : 53361.561
ELEVATION : 4.724
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
														10		
10.95	SPT	64			10											
12.00	NWD4	81												11		**10.50-15.00m** Light grey-brown speckled whtie, medium dense becoming more dense with increasing depth, intact, fine to medium SAND with coarse shell fragments. Marine.
12.45	SPT	56			11									12		
13.50	NWD4	53												13		
13.95	SPT	62			13									14		
15.00	NWD4	47								0	98	0	2	15		
15.45	SPT	44			16									16		**15.00-18.00m** Dark greenish grey, medium dense, intact, very clayey, fine SAND. Marine.
16.50	NWD4	51												17		
16.95	SPT	47			20									18		**18.00-18.50m** Greenish grey, medium dense, relic bedding, slightly silty, clayey, fine SAND. Residual Siltstone. Malmesbury Group.
18.00	NWD4	68														**18.50-18.91m** Dark greenish grey, highly weathered, very closely jointed and closely jointed, very soft rock, SILTSTONE. Tygerberg Formation. Malmesbury Group. Joints: Abundant healed micro-fractures (mainly steeply dipping - bedding), wide, soft joint walls, thick clay infill.
18.45	SPT	44			21									19		
19.50	NWD4	98	68	8		17.4	2.81	5.34	0.144							
				1												
				>20	25									20		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB25

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 24.00m
DATE START : 21 February 2008
DATE FINISH : 22 February 2008

NORTHING : 3726697.643
EASTING : 53361.561
ELEVATION : 4.724
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
21.00	NWD4	99	31	4 >20		13.9										**18.91-19.60m** Greenish orange, highly weathered, widely jointed, soft rock, SILTSTONE/SHALE. Malmesbury Group. Joints: One subhorizontal (20^0), planar, narrow, slight silt coating.
22.50	NWD4	91	0	>20										21		**19.60-20.02m** Greenish orange, highly to completely weathered, very closely jointed, very soft rock, SHALE. Malmesbury Group. Joints: Core highly fractured, joints/cross joints, subvertical and subhorizontal, planar, wide, clayey silt infill, soft joint walls.
24.00	NWD4	93	21	5 >20		12.1								22 23		**20.02-20.56m** Light greenish yellow, highly to moderately weathered, medium jointed, soft rock, SHALE. Malmesbury Group. Joints: Cross joint, planar, narrow, silt infill. **20.56-21.02m** Greenish grey streaked and mottled orange, highly to completely weathered, very closely jointed, very soft rock, shaly SILTSTONE. Malmesbury Group. Joints: Core highly fractured, soft joint walls, clayey silt infill.
														24 25 26 27 28 29 30		**21.02-22.55m** Light grey, highly to completely weathered, very closely jointed, soft rock and very soft rock, SHALE in places decomposed to silty clay. Malmesbury Group. Joints: Core extensively broken, predominently steeply dipping, planar, narrow, clayey silt infill. **22.55-24.00m** Light grey, highly to completely weathered, very closely jointed, soft rock and very soft rock, SHALE in places decomposed to silty clay. Malmesbury Group. Joints: Core extensively broken, predominently steeply dipping, planar, narrow, clayey silt infill. END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB26

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 02 April 2008
DATE FINISH : 04 April 2008

NORTHING : 3727099.398
EASTING : 53180.532
ELEVATION : 5.178
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	37												1		**0.00-5.00m** Brown speckled white, loose, fine to medium SAND with abundant rounded medium shell fragments. Marine.
1.95	SPT	71			4											
3.00	NWD4	37												2		
3.45	SPT	69			4											
4.50	NWD4	50												3		
4.95	SPT	64			7											
6.00	NWD4	42												4		
6.45	SPT	67			8											
7.50	NWD4	48												5		
7.95	SPT	58			9											
9.00	NWD4	55												6		
9.45	SPT	62			11											
10.50	NWD4	54												7		**5.00-11.00m** Brown speckled white, loose to medium dense, fine to medium SAND with abundant rounded shell fragments with rare rounded quartz and hornfels pebbles. Marine.
10.95	SPT	58			13											
12.00	NWD4	40												8		
														9		
														10		
														11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB26

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 02 April 2008
DATE FINISH : 04 April 2008

NORTHING : 3727099.398
EASTING : 53180.532
ELEVATION : 5.178
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	56			15									13		**11.00-13.00m** Dark grey-brown speckled white, medium dense, slightly silty coarse gritty SAND. Marine.
13.50	NWD4	53														
13.95	SPT	53			18									14		**13.00-15.50m** Dark greenish grey, medium dense, slightly clayey, silty fine SAND. Marine.
15.00	NWD4	50														
15.45	SPT	58			21									15		
16.50	NWD4	47												16		**15.50-18.50m** Grey speckled white, medium dense to dense, fine to coarse "gritty" SAND with abundant coarse shell fragments. Marine.
16.95	SPT	73			24											
18.00	NWD4	51												17		
18.45	SPT	67			42									18		
19.50	NWD4	95	27	8		8.8								19		**18.50-23.64m** Greenish grey, highly weathered (in places completely weathered), closely jointed, very soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Mainly cross-joints and subhorizontal, planar, wide, soft joint walls, clayey silt infill.
21.00	NWD4	95	0			8.8								20		
22.50	NWD4	97	19			8.8								21		
24.00	NWD4	93	16											22		
				>20										23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB26

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 02 April 2008
DATE FINISH : 04 April 2008

NORTHING : 3727099.398
EASTING : 53180.532
ELEVATION : 5.178
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	87	0	6.7		15.9								25		**23.64-24.23m** Greenish grey, highly weathered to completely weathered, very closely jointed? (friable), very soft rock, GREYWACKE, zones completely weathered to clayey silt. Malmesbury Group. Joints: Indistinct, friable broken core, thick clayey silt infill, soft joint walls.
27.00	NWD4	93	7	>20										26		**24.23-27.35m** Light grey, moderately weathered, closely jointed, soft rock and medium hard rock, fine grained GREYWACKE. Malmesbury Group. Sheared/faulted between 26.01 - 26.28 m. Joints: Variable steeply dipping, shallow angle and vertical, narrow and wide, silt coated, hard joints walls, vuggy quartz veins.
28.50	NWD4	93	18	8.3		37.6								27		
30.00	NWD4	98	32			34.2	15.1	9.55	0.146					28		**27.35-30.00m** Light greenish grey, slightly weathered, closely to medium jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal and steeply dipping, planar and undulating, often wide (vuggy quartz infilled), minor silt.
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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BOREHOLE NO : KB27

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 22.63m
DATE START : 04 February 2008
DATE FINISH : 05 February 2008

NORTHING : 3727181.334
EASTING : 53090.174
ELEVATION : 5.985
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	30												1		**0.00-4.70m** Orangey brown speckled white, loose, fine to coarse SAND with abundant coarse subrounded shell fragments, rare hornfels gravel, cobble at 3 m. Marine?
1.95	SPT	29			4									2		
3.00	NWD4	68												3		
3.45	SPT	67			4									4		
4.50	NWD4	78												5		
4.95	SPT	53			7									6		**4.70-9.00m** Light grey brown speckled white, loose, intact, fine to medium SAND with fine shell fragments. Marine (beach deposits).
6.00	NWD4	71												7		
6.45	SPT	56			8									8		
7.50	NWD4	80												9		
7.95	SPT	58			9									10		**9.00-15.50m** Dark greenish grey, medium dense, intact, fine SAND with medium shell fragments. Marine.
9.00	NWD4	76												11		
9.45	SPT	60			11									12		
10.50	NWD4	73														
10.95	SPT	78			13											
12.00	NWD4	90														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB27

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 22.63m
DATE START : 04 February 2008
DATE FINISH : 05 February 2008

NORTHING : 3727181.334
EASTING : 53090.174
ELEVATION : 5.985
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	67			15									13		**9.00-15.50m** Dark greenish grey, medium dense, intact, fine SAND with medium shell fragments. Marine.
13.50	NWD4	78														
13.95	SPT	44			18									14		
15.00	NWD4	91														
15.45	SPT	62			21									15		
16.50	NWD4	76														**15.50-18.30m** Dark greenish grey with abundant white speckles, dense, intact, silty fine SAND with abundant white angular shell fragments. Marine.
16.95	SPT	67			24									16		
18.00	NWD4	59														
18.45	SPT	42			42									17		
18.77	NWD4	100	0	15										18		**18.30-18.50m** Subangular GRAVEL.
19.75	NWD4	100	55	5		15.8								19		**18.50-19.75m** Light greenish grey, moderately weathered, variably very closely and closely jointed, soft rock, MUDSTONE. Tygerberg Formation. Malmesbury Group. Joints: Indistinct but steeply dipping and cross joints, wide, clay infill, soft joint wall. One vertical joint, planar, clean.
21.15	NWD4	96	8	11		16.6								20		
22.63	NWD4	93	14				21.5	9.87	0.155					21		**19.75-22.63m** Light greenish grey, moderately weathered, closely jointed, medium hard rock, MUDSTONE with thin decomposed fractured zones at 22.1 m and 22.55 m. Tygerberg Formation. Malmesbury Group. Joints: Very steeply dipping 75^0 (bedding), planar, narrow to wide, clayey silt infill. Cross joints; wide, silt infilled. Occasional shear zones, decomposed.
														22		
														23		END OF BOREHOLE
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB29

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 25 February 2008
DATE FINISH : 27 February 2008

NORTHING : 3726781.598
EASTING : 53267.456
ELEVATION : 6.567
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	36												1		**0.00-3.50m** Off-white, loose, fine to medium SAND, medium shell fragments. Aeolian.
1.95	SPT	40			4											
3.00	NWD4	56												2		
3.45	SPT	49			5									3		
4.50	NWD4	55												4		**3.50-8.00m** Light greyish off-white speckled white, medium dense, intact, fine to medium SAND with coarse shell fragments. Aeolian.
4.95	SPT	53			8											
6.00	NWD4	45												5		
6.45	SPT	53			7									6		
7.50	NWD4	56												7		
7.95	SPT	51			9											
9.00	NWD4	57												8		
9.45	SPT	51			12									9		**8.00-15.50m** Light greyish off-white speckled white, medium dense, intact, fine to coarse SAND with coarse shell fragments. Marine.
10.50	NWD4	52												10		
10.95	SPT	60			12											
12.00	NWD4	60												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB29

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 25 February 2008
DATE FINISH : 27 February 2008

NORTHING : 3726781.598
EASTING : 53267.456
ELEVATION : 6.567
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	62			13									13		**8.00-15.50m** Light greyish off-white speckled white, medium dense, intact, fine to coarse SAND with coarse shell fragments. Marine.
13.50	NWD4	57														
13.95	SPT	51			18									14		
15.00	NWD4	70														
15.45	SPT	51			18									15		
16.50	NWD4	50												16		**15.50-18.00m** Light greyish off-white speckled white, medium dense becoming dense, intact, fine to coarse SAND with coarse shell fragments. Marine.
16.95	SPT	62			20											
18.00	NWD4	42												17		
18.45	SPT	71			34									18		**18.00-18.45m** Dark greenish grey, very dense, intact, slightly clayey, fine SAND becoming coarse gritty sand at base, coarse shell fragments. Marine.
19.50	NWD4	63	0	>20										19		**18.45-19.50m** Light grey, highly to completely weathered, closely to very closely jointed, very soft rock, GREYWACKE (fine to medium grained sandstone). Tygerberg Formation. Malmesbury Group. Joints: Indistinct, some steeply dipping, probably wide, clayey silt infill, soft joint walls.
21.00	NWD4	89	9											20		**19.50-20.18m** Light grey, highly weathered, closely jointed, soft rock, GREYWACKE. Joints: Mainly cross joints, wide, clayey silt infill.
22.50	NWD4	82	14	6		19.1								21		**20.18-20.87m** Light grey, highly weathered, very closely jointed, soft rock (in places very soft rock), SHALE. Malmesbury Group. Joints: Mainly subvertical, planar, narrow, silt coated, soft joint walls in places.
24.00	NWD4	83	0	>20										22		**20.87-23.25m** Light greenish brown, highly weathered, generally closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly cross-joints and steeply dipping joints, planar, narrow, clean and minir silt infill.
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

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BOREHOLE NO : KB29

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 25 February 2008
DATE FINISH : 27 February 2008

NORTHING : 3726781.598
EASTING : 53267.456
ELEVATION : 6.567
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	92	8	5 >20 5										25		**23.25-24.80m** Light grey, highly weathered in places completely weathered, very closely jointed, very soft rock, SHALE (closely jointed soft rock section 24.0-24.35 m). Malmesbury Group. Joints: Core completely broken up - probable shear zone.
27.00	NWD4	55	0	>20										26		**24.80-25.15m** Light grey, moderately weathered, medium jointed, soft rock, GREYWACKE. Joints: Subhorizontal, narrow, clean or minor silt.
														27		**25.15-27.00m** Light grey, highly weathered (in places completely weathered), very closely jointed, variable soft rock and very soft rock, GREYWACKE. Joints: Mainly subvertical, planar, wide, silt or clay infilled.
28.50	NWD4	100	45	4 >20		22.6								28		**27.00-27.86m** Light greyish off-white, highly weathered, medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: 2 sets cross-joints, planar, narrow and wide, clayey silt infill.
30.00	NWD4	92	14	7			16.90	11.00	0.37					29		**27.86-28.50m** Light grey, highly weathered, very closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly vertical, planar, clean or silt coated.
														30		**28.50-30.00m** Light grey, slightly weathered, closely and medium jointed, soft rock to medium hard rock, GREYWACKE. Tygerberg Formation. Joints: Subvertical and cross joints, planar, narrow, clean.
														31		END OF BOREHOLE
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB30

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.50m
DATE START : 02 April 2008
DATE FINISH : 02 April 2008

NORTHING : 3726580.470
EASTING : 53356.720
ELEVATION : 4.909
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	57												1		**3.50-8.00m** Brown speckled white, loose, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	80			4											
3.00	NWD4	83								0	97	1	2	2		
3.45	SPT	84			6									3		
4.50	NWD4	90												4		**3.50-9.00m** Light grey spekcled white, loose to medium dense, fine to medium SAND with medium shell fragments. Marine.
4.95	SPT	76			9									5		
6.00	NWD4	93												6		
6.45	SPT	60			7											
7.50	NWD4	67												7		
7.95	SPT	80			13									8		
9.00	NWD4	56								0	98	0	2			
9.45	SPT	42			6									9		**9.00-10.00m** Off-white, loose, fine SAND. Marine.
10.50	NWD4	47												10		
10.95	SPT	78			15											**10.00-18.00m** Dark greenish grey speckled white, medium dense, slightly clayey, silty, fine SAND with abundant coarse angular shell fragments. Marine.
12.00	NWD4	65												11		
12.45	SPT	64			14									12		
13.50	NWD4	39												13		
13.95	SPT	64			17									14		
15.00	NWD4	50												15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB30

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.50m
DATE START : 02 April 2008
DATE FINISH : 02 April 2008

NORTHING : 3726580.470
EASTING : 53356.720
ELEVATION : 4.909
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	60			17									16		**10.00-18.00m** Dark greenish grey speckled white, medium dense, slightly clayey, silty, fine SAND with abundant coarse angular shell fragments. Marine.
16.50	NWD4	92								0	93	4	3			
16.95	SPT	100			15									17		
18.00	NWD4	76														
19.50	NWD4	73	15	>20		54.6								18		**18.00-19.50m** Light grey, variably highly to completely weathered, very closely and medium jointed, generally soft rock, SHALE, decomposed to clayey silt in places. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping (70^0 bedding), wide, decomposed surfaces, thick clayey silt infill.
21.00	NWD4	92	40	4.7			29.6	27.3	0.297					19		
22.50	NWD4	71	51			35.3								20		**19.50-22.50m** Light grey, moderately weathered, thinly laminated, medium to widely jointed, medium hard rock to hard rock, SHALE. Malmesbury Group. Joints: Steeply dipping (70^0 bedding), planar, smooth, slight silt coatings.
24.00	NWD4	83	61	1.8										21		
25.50	NWD4	100	63			25.6	8.22	35.0	0.291					22		**22.50-25.50m** Light and dark grey laminations, slightly weathered, widely jointed, soft rock, SHALE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping (70^0 bedding), planar, smooth, slight clayey silt coatings.
						34.2								23		
														24		
														25		
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB31

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.18m
DATE START : 29 January 2008
DATE FINISH : 02 February 2008

NORTHING : 3727292.052
EASTING : 53093.098
ELEVATION : 6.610
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	47								0	94	1	5	1		**0.00-1.40m** Light brown speckled white, loose, intact, fine to medium SAND with coarse subrounded to rounded shell fragments. Aeolian.
3.00	NWD4	47												2		**1.40-1.55m** Hard rock, hornfels BOULDER. **1.55-3.10m** Light brown, medium dense, intact, fine to medium SAND with abundant fine to coarse subrounded shell fragments. Aeolian.
3.45	SPT	49			17									3		**3.10-3.40m** Off-white, medium dense, intact, slightly calcretised SAND with hard calcrete concretions.
4.50	NWD4	63												4		
4.95	SPT	36			21					0	98	0	2	5		
6.00	NWD4	57												6		**3.40-8.00m** Light brown, medium dense, intact, fine to medium SAND with fine to coarse subrounded shell fragments. Aeolian.
6.45	SPT	56			28									7		
7.50	NWD4	46												8		
7.95	SPT	47			31									9		
9.00	NWD4	66								0	98	0	2	10		**8.00-15.00m** Dark greenish grey, dense becoming very dense, intact, fine SAND. Marine.
9.45	SPT	62			44									11		
10.50	NWD4	55												12		
10.95	SPT	51			49											
12.00	NWD4	70														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB31

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.18m
DATE START : 29 January 2008
DATE FINISH : 02 February 2008

NORTHING : 3727292.052
EASTING : 53093.098
ELEVATION : 6.610
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	58			68									13		**8.00-15.00m** Dark greenish grey, dense becoming very dense, intact, fine SAND. Marine.
13.50	NWD4	51														
13.95	SPT	67			56									14		
15.00	NWD4	58														
15.45	SPT	51			71									15		
16.50	NWD4	63								0	89	6	5	16		**15.00-19.50m** Dark grey speckled white, very dense, intact, fine SAND with fine shell fragments. Marine.
16.95	SPT	47			69									17		
18.00	NWD4	81												18		
18.45	SPT	51			62											
19.50	NWD4	83												19		
19.95	SPT	53			67									20		**19.50-20.00m** Light grey, very dense, intact, silty, fine SAND. Marine.
21.00	NWD4	76								0	78	15	7			**20.00-22.95m** Light grey speckled white, very dense, intact, slightly calcretised, silty, fine SAND with some angular shell fragments. Marine.
21.45	SPT	53			70									21		
22.50	NWD4	73												22		
22.95	SPT	47			77											
24.10	NWD4	100	55	5 >20		26.4								23		**22.95-24.10m** Light greenish grey, slightly weathered, medium jointed, medium hard rock, MUDSTONE. Tygerberg Formation. Malmesbury Group.
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB31

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.18m
DATE START : 29 January 2008
DATE FINISH : 02 February 2008

NORTHING : 3727292.052
EASTING : 53093.098
ELEVATION : 6.610
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.68	NWD4	91	61	3		34.1								25		**24.10-25.53m** Light grey, slightly weathered, medium to widely jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: cross joints, planar, smooth, minor silt coatings.
27.03	NWD4	95	40	15										26		**25.53-27.85m** Light grey with darker grey laminations, largely unweathered, generally medium jointed, closely jointed in places, medium hard rock, MUDSTONE with thin lenses or bands of greywacke. Malmesbury Group. Joints: mainly cross joints, some subhorizontal (bedding laminations at 70^0). Generally planar, smooth or stepped, minor silt infill.
28.63	NWD4	93	51	1		59.8								27		
30.18	NWD4	95	37	12			31.7	22.3	0.334					28		**27.85-30.18m** Greenish grey and geen laminations (bedding 65^0) largely unweathered, closely jointed to about 29m thereafter medium jointed, closely jointed 29.90 - 30.18m, hard rock, SILTSTONE with interbedded MUDSTONE. Joints: prominent cross joint (bedding), planar, wide, silt and pyrite infill, some cross joints (90^0 to bedding) as well as subvertical, narrow, planar, minor silt.
				4										29		
				13										30		
														31		END OF BOREHOLE
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB32

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	27												1		**0.00-3.50m** Beige speckled white, very loose, fine to medium SAND with coarse subrounded shell fragments. Marine.
1.95	SPT	49			4											
3.00	NWD4	41												2		
3.45	SPT	49			4									3		
4.50	NWD4	38												4		**3.50-12.50m** Beige speckled white, loose, fine to medium SAND with coarse subrounded shell fragments. Marine.
4.95	SPT	51			5											
6.00	NWD4	30												5		
6.45	SPT	51			5									6		
7.50	NWD4	40												7		
7.95	SPT	42			5									8		
9.00	NWD4	38												9		
9.45	SPT	53			7									10		
10.50	NWD4	40												11		
10.95	SPT	42			9									12		
12.00	NWD4	37														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB32

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	47			10									13		
13.50	NWD4	32														**12.50-17.50m** Grey - brown speckled white, medium dense, fine to medium SAND with coarse subrounded shell fragments. Marine.
13.95	SPT	51			12									14		
15.00	NWD4	39														
15.45	SPT	49			16									15		
16.50	NWD4	29														
16.95	SPT	56			19									16		
18.00	NWD4	37														
18.45	SPT	47			21									17		**17.50-18.00m** Greenish grey, medium dense, slightly clayey, silty, fine SAND. Marine.
19.50	NWD4	37												18		**18.00-19.95m** Lightgreyish brown, medium to dense, slightly silty, fine to medium SAND with shell fragments. Marine
19.95	SPT	51			23									19		
21.00	NWD4	98	0	>20										20		**19.95-21.10m** Light grey, variably highly weathered and completely weathered, very closely, generally very soft rock, GREYWACKE with thin zones decomposed to clayey silt. Malmesbury Group.
22.50	NWD4	93	0	7 >20		8.8								21		**21.10-21.77m** Light grey, highly weathered, closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Subhorizontal, planar, narrow, clay coated.
24.00	NWD4	84	0	10										22		**21.77-22.63m** Light grey, variably highly weathered and completely weathered, very closely, generally very soft rock, GREYWACKE with thin zones decomposed to clayey silt. Malmesbury Group.
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB32

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	91	0	>20										25		**22.63-24.88m** Light grey, moderately weathered, closely jointed (very closely jointed in places), soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping, occasional shallow, planar, narrow, clayey silt coated.
27.00	NWD4	89	0	>20										26		**24.88-25.50m** Light grey, highly to completely weathered, very closely fractured, generally very soft rock, GREYWACKE. Malmesbury Group. Joints: very closely jointed, wide, thick clayey silt infill, soft joint walls.
28.50	NWD4	93	0	15		68.3								27		**25.50-26.90m** Light greenish grey, moderately weathered, very closely jointed, soft rock and medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping (bedding) and shallow angle cross-joints, planar, narrow and wide, clayey silt infill.
30.00	NWD4	95	10											28		
31.50	NWD4	95	90	5		68.3								29		**26.90-29.90m** Light grey, slightly weathered, generally closely jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping and shallow angle cross-joints, planar, narrow, clean or clayey silt coated.
33.10	NWD4	97	63	7		132.2								30		
34.10	NWD4	100	16	>20										31		
35.70	NWD4	92	35			44.0								32		**29.90-40.20m** Dark grey, unweathered, generally medium jointed, (occasional widely jointed), laminated, hard rock, SHALE (meta shale). Malmesbury Group. Joints: Steeply dipping (70° bedding), cross joints (2 sets), plus vertical joint, planar to undulating, narrow, generally clean.
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB32

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
37.30	NWD4	95	66	6		114.6								37		**29.90-40.20m** Dark grey, unweathered, generally medium jointed, (occasional widely jointed), laminated, hard rock, SHALE (meta shale). Malmesbury Group. Joints: Steeply dipping (70° bedding), cross joints (2 sets), plus vertical joint, planar to undulating, narrow, generally clean.
38.90	NWD4	92	6											38		
40.20	NWD4	92	65			170.9 176.3								39 40		
														41 42 43 44 45 46 47 48		END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB33

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 15 February 2008
DATE FINISH : 19 February 2008

NORTHING : 3726498.541
EASTING : 53449.088
ELEVATION : 4.757
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	42												1		**0.00-3.00m** Off-white, very loose to loose, intact, fine to medium SAND with shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	42												3		**3.00-3.50m** Dark grey-brown, loose, intact, slightly organic, fine to medium SAND with shell fragments. Inter-dune deposit.
3.45	SPT	51			6									4		
4.50	NWD4	60												5		**3.50-8.00m** .Light grey-brown, medium dense, intact, fine to medium SAND with coarse subrounded shell fragments. Aeolian/Beach deposit.
4.95	SPT	53			8									6		
6.00	NWD4	73												7		
6.45	SPT	62			9									8		
7.50	NWD4	87												9		
7.95	SPT	60			11									10		**8.00-12.00m** Grey-brown, medium dense, intact, fine to medium SAND with medium shell fragments. Marine.
9.00	NWD4	73												11		
9.45	SPT	58			13									12		
10.50	NWD4	81														
10.95	SPT	51			14											
12.00	NWD4	81														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB33

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 15 February 2008
DATE FINISH : 19 February 2008

NORTHING : 3726498.541
EASTING : 53449.088
ELEVATION : 4.757
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	60			18									13		**12.00-13.95m** Dark greenish grey becoming grey-brown, medium dense, intact, fine sand becoming fine to medium SAND with increasing depth. Marine.
13.50	NWD4	47														
13.95	SPT	64			25									14		**13.95-15.25m** Light greenish grey, moderately weathered, medium jointed, very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: 2 sets cross joints (~45^0 dip), narrow and very wide, undulating irregular surfaces, silty sand infill. One 8 mm joint infilled with fine sand and shell fragments.
15.00	NWD4	99	58	4		104.1	95.4	39.00	0.34					15		
16.50	NWD4	100	23	6		153.8								16		**15.25-16.37m** Dark greenish grey, moderately weathered, in places highly weathered, closely jointed, medium hard rock, healed fault breccia within GREYWACKE. Malmesbury Group. Joints: FAULT ZONE, containing healed breccia, leached subvertical fractures, open (leached) surfaces, quartz veins.
18.00	NWD4	91	53	2										17		
19.50	NWD4	84	22	4		111.0								18		**16.37-21.00m** Dark greenish grey with white quartz veins, slightly weathered, closely and medium jointed, hard rock, GREYWACKE containing abundant quartz veins (brecciated in places). Joints: Mainly cross joints (~45^0 dip) occasional steeply dipping (70^0), undulating, rough, stepped, wide, infilled with quartz, crushed rock or silty sand.
21.00	NWD4	100	15	12										19		
22.50	NWD4	100	55	6		85.4								20		
24.00	NWD4	96	24			51.3								21		**21.00-24.00m** Greenish grey with white quartz veins, largely unweathered, closely jointed with healed shears, hard rock, GREYWACKE. Malmesbury Group. Joints: Cross joints and steeply dipping 70^0 (inferred bedding), narrow and wide, rough leached surfaces, some quartz veining, some stained surfaces. Abundant healed quartz veins (joint infill).
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB33

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 15 February 2008
DATE FINISH : 19 February 2008

NORTHING : 3726498.541
EASTING : 53449.088
ELEVATION : 4.757
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	97	45											25		**24.00-27.20m** Light greenish grey, unweathered, closely and medium jointed, hard rock, GREYWACKE (not sheared). Malmesbury Group. Joints: Predominently steeply dipping bedding (70^0), planar, slightly rough, clean, occasional subhorizontal joints, undulating narrow, minor silt.
27.00	NWD4	99	53	4		51.3 51.3	6.23	203.9	0.18					26 27		
28.50	NWD4	95	9	>20 6										28		**27.20-30.00m** Light greenish grey, slightly weathered (moderately weathered in places), variably closely and very closely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subvertical and subhorizontal, planar, stepped, narrow (in places wide), clean or with clayey silt infill. Highly fractured between 27.65-28.02 m, 28.50-28.70 m and 29.45-29.60 m.
30.00	NWD4	94	7	>20 4 ~~>20~~ 7		51.3								29 30		END OF BOREHOLE
														31 32 33 34 35 36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB34

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.14m
DATE START : 04 April 2008
DATE FINISH : 07 April 2008

NORTHING : 3726541.484
EASTING : 53249.274
ELEVATION : 7.621
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	63								0	98	0	2	1		**0.00-3.00m** Off-white, loose, fine to medium SAND with fine to medium shell fragments. Aeolian.
1.95	SPT	84			4					0	97	1	2	2		
3.00	NWD4	93												3		
3.45	SPT	76			4											
4.50	NWD4	96								0	98	0	2	4		**3.00-7.00m** Orangey brown, loose, medium SAND with some coarse rounded shell fragments. Marine (beach environment?).
4.95	SPT	100			8									5		
6.00	NWD4	90												6		
6.45	SPT	69			6											
7.50	NWD4	100												7		**7.00-9.20m** Dark greenish grey, loose to medium dense, fine to coarse SAND with shell fragments. Marine.
7.95	SPT	56			8									8		
9.00	NWD4	96												9		
9.45	SPT	62			9											
10.50	NWD4	100												10		**9.20-10.55m** Dark greenish grey, loose to medium dense, slightly clayey, fine SAND. Marine or Lacustrine?
10.95	SPT	67			10											
12.00	NWD4	100								0	97	1	2	11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB34

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.14m
DATE START : 04 April 2008
DATE FINISH : 07 April 2008

NORTHING : 3726541.484
EASTING : 53249.274
ELEVATION : 7.621
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	64			12					0	97	1	2	13		**10.55-13.50m** Light grey speckled white, medium dense, rounded medium to coarse SAND (quartz), abundant coarse rounded shell fragments. Marine.
13.50	NWD4	91														
13.95	SPT	80			13									14		**13.50-15.30m** Greenish grey speckled white, medium dense, subrounded and angular gritty SAND (quartz and shell fragments in equal proportions). Marine.
15.00	NWD4	87												15		
15.45	SPT	93			15											
16.50	NWD4	81												16		**15.30-18.60m** Light grey, medium dense, fine to coarse SAND with abundant coarse shell fragments, medium gravel at base. Marine.
16.95	SPT	100			14											
18.00	NWD4	77								0	98	0	2	17		
18.45	SPT	100			12					0	97	1	2	18		
19.60	NWD4	89	0	7										19		**18.60-21.94m** Light grey, highly to completely weathered, closely jointed, very soft rock (in places decomposed to fine sand), GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subvertical and cross-joints, wide to very wide, soft decomposed joint walls, clayey silt infill.
21.14	NWD4	79	40											20		
21.44	SPT	90			Ref									21		
22.64	NWD4	88	48	1		35.3	1.21	6.1	0.576					22		**21.94-22.64m** Greenish grey, highly weathered, medium to widely jointed, soft rock, GREYWACKE. Joints: Subvertical, wide, clayey silt infill.
24.14	NWD4	79	0	>20										23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
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ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB34

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.14m
DATE START : 04 April 2008
DATE FINISH : 07 April 2008

NORTHING : 3726541.484
EASTING : 53249.274
ELEVATION : 7.621
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.64	NWD4	88	56	4										25		**22.64-24.14m** Greenish grey, highly to completely weathered, very closely jointed, very soft rock, GREYWACKE (decomposed to fine sand in places). Malmesbury Group. Joints: Prominent subvertical, wide, soft friable joint walls, clayey silt infilled.
27.14	NWD4	98	55			26.4								26		**24.14-28.49m** Greenish grey, moderately to highly weathered, variable closely and medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping and cross-joints, wide, soft joint walls, clayey silt infill.
28.64	NWD4	95	28			27.3								27		
30.14	NWD4	95	11	5		27.3								28		**28.49-30.14m** Light greenish grey, moderately weathered, closely jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Prominent vertical joint, planar, narrow, clayey silt coated, hard joint walls. Some very widely spaced dipping joints. Subhorizontal breaks due to drilling.
														29		END OF BOREHOLE
														30		
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB36

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 02 February 2008
DATE FINISH : 07 February 2008

NORTHING : 3726939.137
EASTING : 53080.390
ELEVATION : 10.125
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NWD4	60												1		**0.00-0.08m** Hornfels BOULDER. **0.08-1.70m** Grey-brown, medium dense to dense, intact, fine to medium SAND with some coarse subrounded shell fragments. Aeolian.
1.95	SPT	87			44											
3.04	NWD4	29												2		
3.49	SPT	100			4									3		**1.70-5.00m** Brownish off-white, loose, intact, fine to medium SAND with coarse shell fragments. Aeolian.
4.54	NWD4	37												4		
4.99	SPT	89			4									5		
6.04	NWD4	29												6		**5.00-7.00m** Light brown, dense, intact, fine to coarse SAND with fine shell fragments. Marine. (Beach Deposit?)
6.49	SPT	87			64											
7.54	NWD4	40												7		**7.00-8.00m** Off-white speckled orange, loose, intact, fine to medium SAND with fine shell fragments. Marine?
7.99	SPT	58			4									8		
9.04	NWD4	50												9		**8.00-13.50m** Light brown, dense, intact, fine SAND with some medium shell fragments. Marine.
9.49	SPT	98			53									10		
10.54	NWD4	71												11		
10.99	SPT	100			39									12		
12.04	NWD4	58														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB36

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 02 February 2008
DATE FINISH : 07 February 2008

NORTHING : 3726939.137
EASTING : 53080.390
ELEVATION : 10.125
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.49	SPT	100			32									13		
13.54	NWD4	28														**13.50-14.00m** Light brown, dense, intact, coarse SAND with some medium shell fragments. Marine.
13.99	SPT	71			49									14		**14.00-15.00m** Light brown, dense, intact, fine to medium SAND with fine shell fragments. Marine.
15.04	NWD4	67	0											15		**15.00-15.55m** Grey, slightly weathered, closely jointed, hard rock, HORNFELS. Tygerberg Formation. Malmesbury Group. Joints: Steep (70^0), probably bedding, planar, wide, 1-2 mm calcite or silt.
16.54	NWD4	95	44	12 / 3										16		
18.04	NWD4	100	9			86.0								17		
19.54	NWD4	100	19	9		103.8 / 138.0								18		**15.55-21.04m** Grey, unweathered, medium and widely jointed, very hard rock, HORNFELS. Malmesbury Group. Joints: steeply dipping joint sets, planar, narrow, minor green alterations product, hard joint walls.
21.04	NWD4	94	27											19		
22.54	NWD4	107	43			94.6								20		
24.04	NWD4	99	64	4		98.9								21		**21.04-26.76m** Grey, unweathered, medium jointed (occasionally widely jointed), very hard rock, HORNFELS. Malmesbury Group. Joints: mainly steeply dipping (70^0- bedding), some cross joints, mainly planar, clean occasionally with thick gauge - fractured joint walls altered to clayey silt - occasionally vuggy in plane of joint.
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB36

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 02 February 2008
DATE FINISH : 07 February 2008

NORTHING : 3726939.137
EASTING : 53080.390
ELEVATION : 10.125
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.54	NWD4	93	55			187.9								25		**21.04-26.76m** Grey, unweathered, medium jointed (occasionally widely jointed), very hard rock, HORNFELS. Malmesbury Group. Joints: mainly steeply dipping (70^0- bedding), some cross joints, mainly planar, clean occasionally with thick gauge - fractured joint walls altered to clayey silt - occasionally vuggy in plane of joint.
27.04	NWD4	86	33				123	101.5	0.313					26		
				>20										27		**26.76-27.04m** Shear zone - hard rock, HORNFELS.
28.54	NWD4	94	31											28		**27.04-30.04m** Grey, unweathered, closely jointed, very hard rock, HORNFELS. Tygerberg Formation. Malmesbury Group. Joints: mainly intersecting steeply dipping, planar, very narrow, clean, occasionally wide, vuggy, calcite filled.
30.04	NWD4	95	8	9										29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB37

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.17m
DATE START : 14 March 2008
DATE FINISH : 14 March 2008

NORTHING : 3727139.662
EASTING : 52987.447
ELEVATION : 11.173
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	60												1		**0.00-3.45m** Beige, loose, intact, fine to medium SAND. Aeolian.
1.95	SPT	78			8											
3.00	NWD4	78												2		
3.45	SPT	62			8									3		
4.50	NWD4	95												4		**3.45-4.95m** Beige, loose, intact, fine to medium SAND with lenses of coarse gritty sand. Alluvium/Marine?
4.95	SPT	44			10									5		
6.00	NWD4	79												6		
6.45	SPT	100			11											
7.50	NWD4	81												7		**4.95-10.50m** Greyish brown, medium dense, intact, fine to medium SAND. Marine.
7.95	SPT	100			14									8		
9.00	NWD4	77												9		
9.45	SPT	100			19											
10.50	NWD4	53												10		
10.95	SPT	42			18									11		**10.50-10.95m** Grey, medium dense, intact, fine to medium SAND with lenses of coarse gritty sand. Marine.
12.00	NWD4	52												12		**10.95-12.45m** Dark brown, medium dense, intact, silty, fine SAND. Marine.

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB37

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.17m
DATE START : 14 March 2008
DATE FINISH : 14 March 2008

NORTHING : 3727139.662
EASTING : 52987.447
ELEVATION : 11.173
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	51			18									12		
13.50	NWD4	52												13		**12.45-15.45m** Off-white speckled orange, medium dense, intact, fine SAND. Marine.
13.95	SPT	53			20											
15.00	NWD4	45												14		
15.45	SPT	56			21									15		
16.50	NWD4	53												16		**15.45-19.50m** Beige speckled orange, medium dense, intact, fine SAND. Marine.
16.95	SPT	73			21											
18.00	NWD4	95												17		
18.45	SPT	60			25									18		
19.50	NWD4	87												19		
20.08	NWD4	41	0											20		**19.50-23.55m** Light greenish grey, unweathered, very closely to closely jointed, hard rock to very hard rock, SILTSTONE, Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal and subvertical, narrow, clean with some greenish crystal joint infill between 22.67 - 23.55m.
21.58	NWD4	69	0											21		
22.67	NWD4	95	24	>20		173.5								22		
24.17	NWD4	83	0											23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB37

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.17m
DATE START : 14 March 2008
DATE FINISH : 14 March 2008

NORTHING : 3727139.662
EASTING : 52987.447
ELEVATION : 11.173
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.67	NWD4	91	44	9		61.7								25		**23.55-25.67m** Light grey, unweathered, medium to widely jointed, hard rock, SILTSTONE, Malmesbury Group. Joints: Vertical, narrow, smooth and planar.
27.17	NWD4	99	52	>20		81.9								26		**25.67-26.70m** Light grey, unweathered, very closely jointed, occasional widely jointed, hard rock, SILTSTONE/MUDSTONE, Malmesbury Group. Joints: Subhorizontal, narrow, clean and undulating.
28.67	NWD4	100	57	8		141.0	67.8	56.8	0.236					27 28		**26.70-30.17m** Light grey, unweathered, widely jointed, occasionalyl medium joints, variably hard rock and very hard rock, SILTSTONE, Tygerberg Formation. Malmesbury Group. Joints: Cross joints, narrow, curved with occasional clayey silt infill.
30.17	NWD4	83	33			70.5								29 30		
														31 32 33 34 35 36		END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB38

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.56m
DATE START : 11 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3727093.424
EASTING : 52876.429
ELEVATION : 14.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	36												1		**0.00-1.95m** Off-white, loose, fine SAND. Aeolian
1.95	SPT	76			5											
3.00	NWD4	37												2		**1.95-4.95m** Beige layered off-white and orange brown, loose, fine SAND. Aeolian.
3.45	SPT	53			6									3		
4.50	NWD4	64												4		
4.95	SPT	69			8									5		**4.95-9.00m** Off-white beige, medium dense, intact, fine to medium SAND. Marine.
6.00	NWD4	50												6		
6.45	SPT	60			15									7		
7.50	NWD4	48												8		
7.95	SPT	58			19									9		**9.00-10.50m** Brown, dense, intact, slightly cemented, fine to medium SAND. Marine.
9.00	NWD4	90												10		
9.45	SPT	56			35									11		**10.50-12.45m** Greyish brown, medium dense to dense, intact, fine to medium SAND with subrounded sandstone and quartzitic fine gravel. Marine.
10.50	NWD4	69												12		
10.95	SPT	56			27									13		
12.00	NWD4	44												14		
12.45	SPT	56			40									15		
13.50	NWD4	52														
13.95	SPT	58			?											
15.00	NWD4	68														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB38

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.56m
DATE START : 11 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3727093.424
EASTING : 52876.429
ELEVATION : 14.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	67			28									16		**12.45-18.45m** Off-white and light grey, medium dense to dense, becoming very dense at depth, fine SAND. Marine.
16.50	NWD4	35														
16.95	SPT	51			46									17		
18.00	NWD4	65														
18.45	SPT	71			58									18		
19.50	NWD4	70												19		**18.45-19.80m** Light grey, very dense, intact, fine SAND with abundant coarse shell fragments. Marine.
19.80	SPT	77			Ref											
21.06	NWD4	35	0	>20		86.8								20		**19.80-21.06m** Light grey, unweathered, closely jointed, very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal, narrow and clean.
22.56	NWD4	81	0			17.4								21		
24.06	NWD4	85	9	>20		26.0								22		**21.06-25.56m** Light grey, slightly weathered to unweathered, closely to very closely jointed, medium hard rock to hard rock, SILTSTONE/MUDSTONE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal and subvertical, narrow and smooth.
25.56	NWD4	90	8	11.3										23		
				>20		27.8								24		
														25		
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB40

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727398.605
EASTING : 53065.497
ELEVATION : 6.654
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	40												1		**0.00-2.00m** Light grey, very loose, fine to medium SAND. Aeolian.
1.95	SPT	51			4											
3.00	NWD4	40												2		**2.00-3.50m** Off-white and beige, very loose to loose, fine SAND with thin calcretised lenses. Aeolian.
3.45	SPT	51			4									3		
4.50	NWD4	45												4		
4.95	SPT	51			6									5		
6.00	NWD4	47												6		
6.45	SPT	53			7									7		**3.50-10.00m** Light grey occasionally speckled white, loose, fine SAND with occasional medium shell fragments. Marine.
7.50	NWD4	45												8		
7.95	SPT	49			8									9		
9.00	NWD4	40												10		
9.45	SPT	47			9									11		
10.50	NWD4	33												12		
10.95	SPT	69			12											
12.00	NWD4	40														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB40

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727398.605
EASTING : 53065.497
ELEVATION : 6.654
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	53			15									13		**10.00-18.50m** Light grey, medium dense, fine SAND with medium and coarse shell fragments. Marine.
13.50	NWD4	50														
13.95	SPT	51			20									14		
15.00	NWD4	37														
15.45	SPT	47			21									15		
16.50	NWD4	40														
16.95	SPT	64			23									16		
18.00	NWD4	47														
18.45	SPT	49			28									17		
19.50	NWD4	47														**18.50-19.95m** Light grey, dense, fine SAND with medium and coarse shell fragments. Marine.
19.95	SPT	47			31									18		
21.00	NWD4	100	13	10		27.3								19		
22.50	NWD4	83	14	7.5		25.6								20		**19.95-22.50m** Light grey, slightly weathered in places moderately weathered, closely to medium jointed, hard rock, shaly GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (2 sets) and steeply dipping (bedding), wide, planar, clayey silt infill. Decomposed fractured zones 20.46 - 20.59 m and 22.06 - 22.50 m.
24.00	NWD4	95	0	>20										21		
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB40

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727398.605
EASTING : 53065.497
ELEVATION : 6.654
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	95	8											25		
27.00	NWD4	90	0	>20		17.0								26		**22.50-30.00m** Light grey, slightly weathered, thinly laminated, very closely to closely jointed, medium hard rock, SHALE. Malmesbury Group. Joints: Highly fractured rock mass. Prominent steeply dipping stepped joint, planar, narrow, clay coated. Cross-joints and random stepped joints, narrow to very wide, clay infilled. Rock mass sheared in places.
28.50	NWD4	88	45				20.8	8.82	0.324					27		
30.00	NWD4	89	14											28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB41

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 23.75m
DATE START : 05 April 2008
DATE FINISH : 08 April 2008

NORTHING : 3726491.498
EASTING : 53158.993
ELEVATION : 9.952
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	32												1		**0.00-3.50m** Light greyish off-white, very loose, fine SAND with occasional medium rounded shell fragments. Aeolian.
1.95	SPT	51			4											
3.00	NWD4	40												2		
3.45	SPT	53			4									3		
4.50	NWD4	39												4		**3.50-8.00m** Light greyish brown, loose, fine SAND with occasional medium shell fragments. Aeolian.
4.95	SPT	51			6									5		
6.00	NWD4	44												6		
6.45	SPT	49			8											
7.50	NWD4	49												7		
7.95	SPT	64			8									8		
9.00	NWD4	45												9		**8.00-14.00m** Light grey, medium dense, fine SAND. Marine.
9.45	SPT	42			11											
10.50	NWD4	46												10		
10.95	SPT	40			14											
12.00	NWD4	42												11		
12.45	SPT	44			16									12		
13.50	NWD4	43												13		
13.95	SPT	44			19											
15.00	NWD4	50												14		
														15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB41

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 23.75m
DATE START : 05 April 2008
DATE FINISH : 08 April 2008

NORTHING : 3726491.498
EASTING : 53158.993
ELEVATION : 9.952
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	58			23									16		**14.00-18.75m** Alternating layers of grey and light brown, medium dense becoming dense, with increasing depth, slightly clayey gritty, fine to coarse SAND containing layers of coarse angular shell fragments. Marine.
16.50	NWD4	44														
16.95	SPT	56			24									17		
18.00	NWD4	51														
18.45	SPT	53			29									18		
19.50	NWD4	68	0	16										19		**18.75-19.60m** Light grey, moderately weathered, closely jointed, soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Mainly cross-joints (2 sets), planar, wide, silt coated.
20.75	NWD4	98	58			33.5	53.1	24.3	0.202					20		
22.25	NWD4	84	27	6		47.8 85.4								21		**19.60-23.75m** Light grey, slightly weathered, closely and medium jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Mainly cross-joints (shallow and steep), planar, narrow, silt coated.
21.45	NWD4	98	29	11		85.4	28.0	59.7	0.176					22 23		
														24		END OF BOREHOLE
														25 26 27 28 29 30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB42

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 18 February 2008
DATE FINISH : 21 February 2008

NORTHING : 3726452.932
EASTING : 53041.468
ELEVATION : 17.674
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	41								0	97	1	2	1		**0.00-6.00m** Off-white, medium dense, intact, fine to medium SAND with some coarse shell fragments. Aeolian.
1.95	SPT	58			5											
3.00	NWD4	35								0	97	1	2	2		
3.45	SPT	91			12									3		
4.50	NWD4	43												4		
4.95	SPT	87			22									5		
6.00	NWD4	90												6		
6.45	SPT	67			49											**6.00-9.20m** Light greyish off-white, dense to very dense, intact, fine to medium SAND with fine to coarse shell fragments. Aeolian?
7.50	NWD4	62												7		
7.95	SPT	51			42											
9.00	NWD4	44												8		
9.45	SPT	56			63									9		
10.50	NWD4	57								0	97	1	2	10		**9.20-9.50m** Dark grey to black, very dense, intact, organic-rich, very clayey, fine SAND. Pan Deposit? **9.50-10.50m** Light grey-brown, very dense, intact, fine to medium SAND. Transported (Aeolian?)
10.95	SPT	38			68											
12.00	NWD4	40												11		**10.50-10.75m** Dark grey to black, very dense, organic-rich, very clayey, fine SAND. Pan Deposit.
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB42

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 18 February 2008
DATE FINISH : 21 February 2008

NORTHING : 3726452.932
EASTING : 53041.468
ELEVATION : 17.674
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	87			66									13		**10.75-16.50m** Light greyish brown, very dense, intact, fine to medium SAND with fine shell fragments. Marine/Beach.
13.50	NWD4	47														
13.95	SPT	64			?									14		
15.00	NWD4	70														
15.45	SPT	53			72									15		
16.50	NWD4	72														
16.95	SPT	100			53					0	97	1	2	16		**16.50-17.00m** Dark grey to black, very dense, organic-rich, very clayey, coarse SAND. Pan Deposit.
18.00	NWD4	78												17		
18.45	SPT	100			73											
19.50	NWD4	70								0	97	1	2	18		
19.95	SPT	100			85									19		**17.00-22.80m** Light grey brown, very dense, fine to medium SAND with fine shell fragments. Marine.
21.00	NWD4	72												20		
21.30	SPT	100			Ref									21		
22.50	NWD4	83												22		
22.80	SPT	90			Ref									23		
24.04	NWD4	15												24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB42

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 18 February 2008
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.54	NWD4	13												25		**22.80-25.54m** Light grey speckled white, very dense, intact, silty, fine to coarse SAND with very coarse white shell fragments. Marine.
27.04	NWD4	33								0	89	8	3	26		**25.54-27.04m** Light grey, very dense, intact, fine to medium SAND with fine shell fragments. Marine.
28.54	NWD4	81	61	2		17.4								27		**27.07-30.04m** Light greenish grey, unweathered, generally widely jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: 2 sets cross-joints 45-60^0, planar, narrow, slight silt coatings. Bedding traces 70^0 dip.
30.04	NWD4	49	32	2		36.4	10.7	42.4	0.132					28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB43

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 31.46m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727317.798
EASTING : 52844.077
ELEVATION : 12.264
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	39												1		**0.00-3.50m** Off-white becoming yellowish brown, loose, fine SAND, thin calcrete layer 1.50 - 1.65m. Aeolian.
1.65	SPT	73			Ref											
3.00	NWD4	43												2		
3.45	SPT	47			6									3		
4.50	NWD4	56												4		**3.50-9.50m** Light grey-brown, loose to medium dense, fine SAND with fine to medium shell fragments. Aeolian.
4.95	SPT	100			7									5		
6.00	NWD4	82												6		
6.45	SPT	93			10											
7.50	NWD4	86												7		
7.95	SPT	100			8									8		
9.00	NWD4	83														
9.45	SPT	93			12									9		
10.50	NWD4	80												10		**9.50-16.50m** Greenish grey brown, loose to medium dense, fine SAND with angular shell fragments. Marine?
10.95	SPT	53			12											
12.00	NWD4	72												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB43

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 31.46m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727317.798
EASTING : 52844.077
ELEVATION : 12.264
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	100			12									13		**9.50-16.50m** Greenish grey brown, loose to medium dense, fine SAND with angular shell fragments. Marine?
13.50	NWD4	91														
13.95	SPT	76			10									14		
15.00	NWD4	98														
15.45	SPT	73			10									15		
16.50	NWD4	99														
16.95	SPT	58			10									16		
18.00	NWD4	91														**16.50-23.96m** Dark greenish grey, medium dense, fine SAND with angular fine shell fragments and medium gravels at base. Marine.
18.45	SPT	87			15									17		
19.50	NWD4	86												18		
19.95	SPT	76			14									19		
21.00	NWD4	98												20		
21.45	SPT	62			13									21		
22.50	NWD4	81												22		
22.95	SPT	76			15									23		
23.96	NWD4	48	0											24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB43

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 31.46m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727317.798
EASTING : 52844.077
ELEVATION : 12.264
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.46	NWD4	51	0	>20										25		**23.96-24.07m** Hornfels GRAVEL. **24.07-25.46m** Light green, highly to completely weathered, very closely fractured, very soft rock, GREYWACKE with sections decomposed to clayey silt. Tygerberg Formation. Malmesbury Group. Joints: Indistinct, decomposed joint walls, wide, thick clay infill.
26.96	NWD4	93	11	11		41.0								26		**25.46-27.26m** Greenish grey, moderately weathered, closely jointed, soft rock to medium hard rock, GREYWACKE. Malmesbury Group. Joints: Cross-joints and steeply dipping, planar, narrow, clayey silt coated.
28.46	NWD4	97	19	11		17.1								27		**27.26-28.31m** Greenish grey, moderately weathered in places highly weathered, very closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Prominent vertical joint, some cross-joints, wide, thick clay infill.
29.96	NWD4	88	23	4		32.5								28		**28.31-29.14m** Greenish grey, highly weathered, very closely jointed, hard rock (in places decomposed to clayey sand), GREYWACKE. Joints: Cross-joints, narrow, minor silt.
31.46	NWD4	91	47	20		32.0								29		**29.14-29.96m** Greenish grey, highly weathered, very closely jointed, soft rock (in places decomposed to clayey sand), GREYWACKE. Joints: Mainly subvertical, wide, soft joint walls, thick clay sand infill.
				5		31.0	11.2	2.94	0.66					30		**29.96-31.46m** Greenish grey, slightly weathered, medium jointed (but closely jointed 31.10 - 31.46 m), medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints, narrow and wide, planar, clayey silt infill.
				19										31		END OF BOREHOLE
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	47												1		**0.00-3.50m** Beige, very loose, fine SAND with medium shell fragments. Aeolian.
1.95	SPT	80			4									2		
3.00	NWD4	74												3		
3.45	SPT	93			4									4		**3.50-12.00m** Beige, loose, fine SAND with medium shell fragments. Aeolian.
4.50	NWD4	83												5		
4.95	SPT	98			5									6		
6.00	NWD4	90												7		
6.45	SPT	87			6									8		
7.50	NWD4	83												9		
7.95	SPT	98			6									10		
9.00	NWD4	83												11		
9.45	SPT	96			6									12		**12.00-19.95m** Grey-brown, loose to medium dense, fine SAND with fine to medium shell fragments. Marine?
10.50	NWD4	89												13		
10.95	SPT	84			7									14		
12.00	NWD4	90												15		
12.45	SPT	91			8											
13.50	NWD4	87														
13.95	SPT	89			10											
15.00	NWD4	84														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	91			13									16		**12.00-19.95m** Grey-brown, loose to medium dense, fine SAND with fine to medium shell fragments. Marine?
16.50	NWD4	86														
16.95	SPT	91			8									17		
18.00	NWD4	90														
18.45	SPT	84			10									18		
19.50	NWD4	90														
19.95	SPT	80			13									19		
21.00	NWD4	53	0											20		**19.95-23.10m** Greenish grey streaked white, slightly weathered, on average closely joints (with zones very closely jointed and medium jointed), hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Mainly steeply dipping, undulating, rough, both narrow and very wide, vuggy quartz infilled.
22.50	NWD4	93	31	5		42.7								21		
24.00	NWD4	100	27	>20		85.4								22		**23.10-23.60m** Greenish grey and white, SHEAR ZONE infilled with vuggy quartz (crystaline).
25.55	NWD4	100	67											23		
27.05	NWD4	77	19	5.9		128.1								24		**23.60-35.01m** Greenish grey streaked white (quartz veins), largely unweathered, generally medium jointed, hard rock to very hard rock, GREYWACKE. Malmesbury Group. Joints: Steep and shallow angle, often wide, undulating, altered joints walls, vuggy quartz infill.
28.30	NWD4	96	54											25		
29.15	NWD4	98	24			111.0								26		
30.65	NWD4	95	44			222.1								27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
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CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
														31		**23.60-35.01m** Greenish grey streaked white (quartz veins), largely unweathered, generally medium jointed, hard rock to very hard rock, GREYWACKE. Malmesbury Group. Joints: Steep and shallow angle, often wide, undulating, altered joints walls, vuggy quartz infill.
31.95	NWD4	100	17											32		
33.06	NWD4	95	21											33		
34.46	NWD4	94	62	7		136.7								34		
35.01	NWD4	100	0											35		**35.01-35.91m** Dark greenish grey, unweathered but slighlty weathered along joints, closely jointed, hard rock, GREYWACKE. Joints: Subvertical, planar, very rough, altered joints walls, thick crystaline quartz infill.
36.61	NWD4	99	0			162.3								36		
38.11	NWD4	100	83			213.6								37		**35.91-40.31m** Dark greenish grey with thick white quartz veins, unweathered but slightly weathered along joints, medium to widely jointed, very hard rock, META-GREYWACKE (hornfels) with 5-30 mm vuggy quartz veins. Joints: Predominantly subvertical, undulating, rough and irregular, altered joint walls, vuggy quartz infill.
39.11	NWD4	100	31	4		128.1								38		
40.31	NWD4	100	83			256.3								39		
40.92	NWD4	100	56			170.9								40		**40.31-49.05m** Grey, unweathered, medium and widely jointed, very hard rock, META-GREYWACKE (hornfels). Healed breccia at 47.53-49.05m. Shallow angle few cross joints, planar, very narrow, little joint wall alteration, minor quartz infill some pyrite. Abundant healed thin quartz veinlets.
42.52	NWD4	100	75											41		
43.29	NWD4	99	55			273.4								42		
44.75	NWD4	98	93											43		
				3		170.9								44		
														45		

GRAIN SIZE DESCRIPTIONS
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
45.58	NWD4	96	81											46		**40.31-49.05m** Grey, unweathered, medium and widely jointed, very hard rock becoming hard rock, META-GREYWACKE (hornfels). Healed breccia at 47.53-49.05m. Shallow angle few cross joints, planar, very narrow, little joint wall alteration, minor quartz infill some pyrite. Abundant healed thin quartz veinlets.
47.18	NWD4	97	58			68.3								47		
48.78	NWD4	100	65											48		
50.28	NWD4	91	30	7										49		
						68.3								50		
51.88	NWD4	98	19	>20										51		**49.05-54.78m** Grey, unweathered but slightly weathered along joints, variable very closely jointed to closely jointed, hard rock, META-SHALE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping (bedding) and shallow angle, wide, infilled with vuggy quartz, some altered joint walls, sheared in places.
				>20		68.3										
53.48	NWD4	100	24	3										52		
54.78	NWD4	100	54											53		
														54		
														55		END OF BOREHOLE
														56		
														57		
														58		
														59		
														60		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB45

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.06m
DATE START : 16 April 2008
DATE FINISH : 18 April 2008

NORTHING : 3727058.860
EASTING : 52777.735
ELEVATION : 13.798
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	37												1		**0.00-5.00m** Off-white, very loose, fine to medium SAND with shell fragments. Aeolian.
1.95	SPT	64			6											
3.00	NWD4	48												2		
3.45	SPT	93			4											
4.50	NWD4	89												3		
4.95	SPT	96			5											
6.00	NWD4	90												4		
6.45	SPT	82			8											
7.50	NWD4	95												5		
7.95	SPT	84			8											**5.00-9.00m** Off-white, loose, fine to medium SAND with shell fragments. Aeolian.
9.00	NWD4	95												6		
9.45	SPT	82			8											
10.50	NWD4	89												7		
10.95	SPT	87			12											
12.00	NWD4	88												8		
														9		
														10		**9.00-13.00m** Dark grey-brown speckled white, loose to medium dense, slightly organic, silty fine to coarse SAND with shell fragments. Lacustrine Deposit?
														11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB45

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.06m
DATE START : 16 April 2008
DATE FINISH : 18 April 2008

NORTHING : 3727058.860
EASTING : 52777.735
ELEVATION : 13.798
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	69			12									13		
13.50	NWD4	97														**13.00-16.00m** Beige speckled white, loose to medium dense, fine to medium SAND with medium shell fragments. Marine.
13.95	SPT	80			10									14		
15.00	NWD4	96														
15.45	SPT	71			10									15		
16.50	NWD4	100												16		
16.95	SPT	69			11											**16.00-20.00m** Grey-brown, medium dense, fine to medium SAND with medium shell fragments. Marine.
18.00	NWD4	88												17		
18.45	SPT	78			15									18		
19.50	NWD4	90												19		
19.95	SPT	80			9									20		
21.06	NWD4	51														**20.00-20.98m** Greenish grey speckled white, medium dense, clayey, fine to coarse SAND with abundant coarse shell fragments. Marine.
22.56	NWD4	75	0	12		54.6								21		**20.98-23.06m** Light greenish grey, moderately weathered but highly weathered in places, closely jointed, medium hard rock, GREYWACKE with thin quartz veins. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints and steeply dipping, undulating, wide, clayey silt infill, hard joint wall.
24.06	NWD4	95	61	7		63.2								22		
						85.4								23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB45

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.06m
DATE START : 16 April 2008
DATE FINISH : 18 April 2008

NORTHING : 3727058.860
EASTING : 52777.735
ELEVATION : 13.798
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LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
25.56	NWD4	95	41											25		**23.06-24.51m** Light grey with white quartz veins, slightly weathered, medium jointed, hard rock, GREYWACKE with the quartz veins. Malmesbury Group. Joints: Cross-joints, narrow, planar, rough, minor silt infill.
27.06	NWD4	98	28	12		114.6								26		**24.51-27.31m** Light grey with abundant white quartz veins, slightly weathered, closely jointed, very hard rock, GREYWACKE with abundant quartz veins, some tight? vuggy. Malmesbury Group. Joints: Mainly cross-joints and steeply dipping joints, wide to very wide, open, quartz filled or vuggy quartz.
28.56	NWD4	92	33			213.6								27		
30.06	NWD4	100	47	8		132.2	53.1	85.5	0.25					28		**27.31-30.06m** Grey, largely weathered, closely and medium jointed, hard rock to very hard rock, GREYWACKE with occasional quartz veins. Tygerberg Formation. Malmesbury Group. Joints: Cross and subvertical, narrow or tight, planar, minor silt coatings.
						185.1								29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB5

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 29.96m
DATE START : 07 March 2008
DATE FINISH : 10 March 2008

NORTHING : 3727221.241
EASTING : 52883.806
ELEVATION : 12.140
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	35												1		**0.00-6.50m** Light brownish off-white with some orangey brown layers, loose, intact, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	45												3		
3.45	SPT	60			5									4		
4.50	NWD4	48												5		
4.95	SPT	47			7									6		
6.00	NWD4	55												7		**6.50-9.00m** Light grey, loose, intact, fine to medium SAND with medium shell fragments. Aeolian.
6.45	SPT	44			8									8		
7.50	NWD4	44												9		
7.95	SPT	73			9									10		**9.00-15.00m** Variable dark greenish grey and light grey, medium dense, intact, slightly silty, fine SAND. Aeolian.
9.00	NWD4	57												11		
9.45	SPT	58			16									12		
10.50	NWD4	100														
10.95	SPT	47			19											
12.00	NWD4	93														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB5

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 29.96m
DATE START : 07 March 2008
DATE FINISH : 10 March 2008

NORTHING : 3727221.241
EASTING : 52883.806
ELEVATION : 12.140
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	64			24									13		**9.00-15.00m** Variable dark greenish grey and light grey, medium dense, intact, slightly silty, fine SAND. Aeolian.
13.50	NWD4	68														
13.95	SPT	62			27									14		
15.00	NWD4	31														
15.45	SPT	71			29									15		**15.00-18.50m** Dark greenish grey, dense, intact, slightly clayey, silty, fine SAND. Marine.
16.50	NWD4	61												16		
16.95	SPT	56			36											
18.00	NWD4	68												17		
18.45	SPT	47			36									18		
19.50	NWD4	44												19		**18.50-21.50m** Light grey-brown, dense, intact, fine to medium SAND with coarse shell fragments. Marine.
19.95	SPT	71			40											
21.00	NWD4	51												20		
21.45	SPT	69			37									21		
22.46	NWD4	29												22		**21.50-22.55m** Light grey, coarse hornfels GRAVEL/COBBLES within an inferred sand matrix. Marine.
23.96	NWD4	54	62											23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB5

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 29.96m
DATE START : 07 March 2008
DATE FINISH : 10 March 2008

NORTHING : 3727221.241
EASTING : 52883.806
ELEVATION : 12.140
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.46	NWD4	87	76	2		17.97	13.10	0.24	0.23					25		**22.55-26.86m** Light greenish grey, moderately weathered, medium jointed, medium hard rock, GREYWACKE (fine sandstone) with some highly to completely weathered zones approximately 100 m thick at 25.71-25.92 m; 26.24-26.36 m and 26.67-26.86 m. Joints: Subhorizontal, cross-joints and subvertical, planar, narrow, silt coated, some soft weathered joint walls.
26.96	NWD4	98	51	>20 0 0 >20										26		
28.46	NWD4	98	36	6		29.50								27 28		**26.86-29.96m** Light grey, moderately weathered, becoming slightly weathered, medium jointed, soft rock becoming medium hard rock, GREYWACKE (fine sandstone). Tygerberg Formation. Malmesbury Group. Joints: Mainly cross-joints and steeply dipping joints, planar, smooth, slight silt coated, hard joint walls.
29.96	NWD4	100	49			65.94								29		
														30 31 32 33 34 35 36		END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

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Engineers and Scientists

BOREHOLE NO : KB6

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.52m
DATE START : 03 March 2008
DATE FINISH : 07 March 2008

NORTHING : 3727017.974
EASTING : 52985.997
ELEVATION : 11.736
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	31												1		**0.00-5.00m** Light brownish off-white, very loose, intact, fine to medium SAND with some coarse shell fragments. Aeolian.
1.95	SPT	58			4											
3.00	NWD4	52												2		
3.45	SPT	49			4									3		
4.50	NWD4	49												4		
4.95	SPT	60			6									5		
6.00	NWD4	52												6		
6.45	SPT	64			8											**5.00-9.00m** Light greyish brown, loose, intact, fine to medium SAND with fine shell fragments. Marine? (beach deposit).
7.50	NWD4	47												7		
7.95	SPT	62			8									8		
9.00	NWD4	49												9		
9.45	SPT	71			12											
10.50	NWD4	56												10		
10.95	SPT	49			11											**9.00-14.00m** Light brown, medium dense, intact, fine to medium SAND with medium shell fragments. Marine.
12.00	NWD4	42												11		
12.45	SPT	62			14									12		
13.50	NWD4	50												13		
13.95	SPT	60			16									14		
15.00	NWD4	66	0											15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB6

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.52m
DATE START : 03 March 2008
DATE FINISH : 07 March 2008

NORTHING : 3727017.974
EASTING : 52985.997
ELEVATION : 11.736
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
16.50	NWD4	86	17	7										16		**14.00-16.98m** Dark grey, moderately weathered but highly weathered along joint planes, closely jointed, soft rock, SHALE. Tygerberg Formation. Malmesbury Group. Joints: Mainly steeply dipping (70^0), planar, stepped, very wide, filled with thick clay, crushed rock, or quartz (veins).
18.00	NWD4	95	54	4		17.4 24.4								17		**16.98-18.27m** Dark grey, largely unweathered, medium jointed, soft rock, SHALE. Malmesbury Group. Joints: Subhorizontal and steeply dipping (bedding), planar, narrow, clean. One thick weathered joint at 17.90 m.
19.50	NWD4	90	20	8										18		**18.27-19.95m** Light grey, unweathered, closely jointed, hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Subhorizontal and cross joints (steeply dipping joints healed), planar, wide, clean or slight silt infill, occasional quartz crystals.
21.00	NWD4	92	32	6		120.7								19		**19.95-22.72m** Light grey, unweathered, closely to medium jointed, hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Mainly subhorizontal, one cross-joint, planar, narrow and wide, clean, quartz crystal growth.
22.50	NWD4	96	79	5		173	180	93.4	0.447					20		
24.00	NWD4	100	85	1		129.7								21		**22.72-25.75m** Light grey, unweathered, medium to widely jointed, very hard rock, GREYWACKE (sandstone) with abundant 3 mm - 10 mm vuggy quartz veins. Malmesbury Group. Joints: Cross-joints (healed), vuggy, quartz infilled.
25.50	NWD4	90	55	4		77.8								22		
27.00	NWD4	93	61											23		
28.60	NWD4	100	89	0.8		181.1								24		**25.75-30.50m** Light grey, unweathered, widely to very widely jointed, very hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Mainly steeply dipping (70^0), planar, slightly rough, clean or healed (probably bedding).
30.20	NWD4	98	88			165.4								25		
														26		
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB6

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.52m
DATE START : 03 March 2008
DATE FINISH : 07 March 2008

NORTHING : 3727017.974
EASTING : 52985.997
ELEVATION : 11.736
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
31.73	NWD4	100	73			155.7								31		
33.23	NWD4	99	53	4										32		**30.50-33.60m** Light grey, unweathered, medium jointed, very hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Subhorizontal, cross-joints and steeply dipping, planar, smooth, clean.
34.73	NWD4	99	86											33		
36.23	NWD4	99	90	0.5		173								34		
37.73	NWD4	98	95			198.9								35		
39.27	NWD4	97	60	>20		286.3								36		**33.60-40.52m** Light grey, unweathered, widely to very widely jointed, very hard rock, GREYWACKE (sandstone). Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping and subhorizontal, planar, very narrow, slight alteration or clean. Closely jointed 37.73 - 37.96 m.
40.52	NWD4	100	100	1.5		216.9	195	68.6	0.263					37		
														38		
														39		
														40		
						190.9								41		END OF BOREHOLE
														42		
														43		
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
DATE FINISH : 05 June 2008

NORTHING : 3726815.117
EASTING : 53069.914
ELEVATION : 10.083
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	64												1		**0.00-4.95m** Orange brown, very loose to loose, intact, fine to medium SAND with occasional medium sized shell fragments. Aeolian?
1.95	SPT	87			4											
3.00	NWD4	90												2		
3.45	SPT	91			4									3		
4.50	NWD4	83												4		
4.95	SPT	100			6											
6.00	NWD4	89												5		**4.95-7.95m** Light greyish brown, loose, intact, fine SAND with abundant fine to medium shell fragments. Marine (beach deposits).
6.45	SPT	98			7									6		
7.50	NWD4	83												7		
7.95	SPT	87			8											
9.00	NWD4	89												8		**7.95-12.45m** Light brown, loose, intact, fine SAND with fine shell fragments. Marine.
9.45	SPT	78			9									9		
10.50	NWD4	91												10		
10.95	SPT	89			8											
12.00	NWD4	90												11		
12.45	SPT	93			9									12		
13.50	NWD4	95												13		**12.45-16.50m** Light grey to off-white, loose to medium dense, intact, fine SAND with fine shell fragments. Marine.
13.95	SPT	76			11									14		
15.00	NWD4	86												15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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CL = Clay %

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UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
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NORTHING : 3726815.117
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LOGGED BY : John Brown
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	82			9									16		
16.50	NWD4	90														
16.95	SPT	96			11									17		**16.50-18.57m** Light grey, medium dense, fine SAND with abundant fine to coarse, angular shell fragments. Marine.
18.12	NWD4	79												18		
18.57	SPT	96														**18.57-19.40m** Grey and white, medium dense, subangular fragments of Greywache within a sand matrix. Transported?.
19.62	NWD4	31	0											19		**19.40-20.54m** Light grey, slightly weathered to unweathered, very closely jointed, hard rock, GREYWACKE, Tygerberg Formation, Malmesbury Group. Joints: Subvertical and subhorizontal, narrow, planar with occasional clay coatings.
21.11	NWD4	68	0	>20										20		
22.61	NWD4	93	28	10										21		
24.11	NWD4	83	0			102.5								22		
25.61	NWD4	80	17	>20										23		
27.11	NWD4	100	14	8		145.2								24		
28.61	NWD4	90	0	>20		162.3								25		**20.54-36.43m** Light grey, slightly weathered to unweathered, very closely to medium jointed, but mainly closely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subvertical (dipping steeply 70°) and subho rizontal, narrow to wide, planar and undulating with some infill.
30.11	NWD4	71	10	6										26		
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
DATE FINISH : 05 June 2008

NORTHING : 3726815.117
EASTING : 53069.914
ELEVATION : 10.083
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
31.61	NWD4	95	9											31		
33.11	NWD4	96	0	>20										32		**20.54-36.43m** Light grey, slightly weathered to unweathered, very closely to medium jointed, but mainly closely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subvertical (dipping steeply 70°) and subho rizontal, narrow to wide, planar and undulating with some infill.
34.61	NWD4	96	0											33		
36.11	NWD4	88	0											34		
37.61	NWD4	98	38	6		299								35		
39.11	NWD4	97	19	>20										36		
40.05	NWD4	96	20	8										37		**36.54-40.05m** Light grey, unweathered, closely to medium jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow and undulating with calcite infill.
41.65	NWD4	96	38	18										38		
43.25	NWD4	100	46	11		128.1								39		
44.85	NWD4	100	33											40		**40.05-41.99m** Light grey, unweathered, medium jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Horizontal and subvertical steeply dipping (70°), narrow, smooth and undulating with some infill.
				11		162.3								41		
														42		
														43		**41.99-46.08m** Light grey, unweathered, medium to widely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow, planar and smooth.
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
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ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
DATE FINISH : 05 June 2008

NORTHING : 3726815.117
EASTING : 53069.914
ELEVATION : 10.083
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
46.45	NWD4	95	36											46		
48.05	NWD4	96	33	19 8			51.6	80.3	0.321					47		**46.08-48.05m** Light grey, unweathered, closely to medium jointed, hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow, planar and smooth.
49.65	NWD4	95	59	3		128.1								48		**48.05-49.54m** Light grey, unweathered, widely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow, planar and smooth.
51.25	NWD4	94	17	13 >20										49		
52.75	NWD4	98	73	8			50.8	94.1	0.281					50		
54.25	NWD4	84	27	13										51		**49.54-54.25m** Light grey, unweathered, closely to medium jointed, hard rock, GREYWACKE, Tygerberg Formation, Malmesbury Group. Joints: Subhorizontal and subvertical steeply dipping (80°), narrow, smooth and planar with some healed vertical fractures. Calcite infill.
														52		
														53		
														54		
														55		END OF BOREHOLE
														56		
														57		
														58		
														59		
														60		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB8

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	35												1		**0.00-1.70m** Light brown, medium dense, fine to medium SAND. Aeolian.
1.95	SPT	82			19											
3.00	NWD4	30												2		**1.70-1.90m** Light brown mottled reddish brown, medium dense, intact, fine to medium SAND with ferricrete concretions. Pedogenic.
3.45	SPT	60			16									3		
4.50	NWD4	56								0	98	0	2	4		**1.90-6.00m** Light orangey brown, medium dense, intact, fine to medium SAND. Aeolian.
4.95	SPT	87			19									5		
6.00	NWD4	45												6		**6.00-6.35m** Light orangey brown, medium dense, intact, coarse SAND. Marine.
6.45	SPT	62			28											**6.35-7.50m** Off-white, medium dense, intact, fine SAND. Marine.
7.50	NWD4	49												7		
7.95	SPT	93			50									8		
9.00	NWD4	77												9		
9.45	SPT	96			42									10		**7.50-12.50m** Light orangey brown, dense, intact, fine to medium SAND with fine shell fragments. Marine.
10.50	NWD4	56														
10.95	SPT	64			?									11		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

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v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB8

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.00	NWD4	79												12		
12.45	SPT	100			51					0	97	1	2			
13.50	NWD4	37												13		**12.50-13.50m** Dark greenish grey, very dense, intact, fine SAND. Marine.
13.95	SPT	93			46											
15.00	NWD4	43												14		**13.50-15.50m** Light greyish brown, dense to very dense, intact, fine to coarse SAND with fine shell fragments. Marine.
15.45	SPT	84			58									15		
16.45	NWD4	75												16		**15.50-16.70m** Alternating layers of greenish grey and off-white, very dense, intact, slightly clayey, fine to coarse SAND with abundant very coarse shell fragments. Marine.
17.95	NWD4	40												17		**16.70-17.90m** Greenish dark grey, very dense, intact, clayey, fine SAND. Marine.
18.30	SPT	71			Ref									18		
19.45	NWD4	75												19		**17.90-19.80m** Greenish grey, very dense, intact, fine to coarse gritty SAND with abundant coarse shell fragments. Marine.
19.80	SPT	100			Ref											
20.95	NWD4	65	39	6		42.7								20		**19.80-20.20m** Dark grey, subrounded, coarse GRAVEL within a gritty sand matrix. Marine.
22.45	NWD4	79	0	>20										21		**20.20-21.23m** Light grey, highly weathered, closely jointed, soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (45^0 dip), very wide, clay infilled.
														22		

GRAIN SIZE DESCRIPTIONS
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ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB8

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
														23		**21.23-23.95m** Light greenish grey, highly weathered, in places completely weathered, very closely jointed, soft rock, in places very soft rock, GREYWACKE. Malmesbury Group. Joints: Highly variable but prominent steep angle (70^0), very wide, decomposed joint walls, thick clay infill, sections decomposed to clayey silt.
23.95	NWD4	87	19	6 >20										24		**23.95-26.18m** Light greenish grey, highly weathered, medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly very steeply dipping bedding joint (70^0), planar, wide, clayey silt infilled (subhorizontal driller breaks).
25.45	NWD4	79	23	4		85.4								25		
26.95	NWD4	100	30			128.1								26		**26.18-28.45m** Light greenish grey, highly weathered, very closely to closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Highly variable, prominent subvertical joint, wide, soft joint walls, thick clayey silt infill.
28.45	NWD4	65	0	>20										27		
29.95	NWD4	78	0	6 >20										28		**28.45-29.35m** Light greenish grey, highly weathered, very closely to closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Highly variable, prominent subvertical joint, wide, soft joint walls, thick clayey silt infill.
31.45	NWD4	68	23	5		111.1								29		**29.35-29.95m** Light greenish grey, highly to completely weathered, very closely jointed, very soft rock and soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly subvertical (possibly sheared), wide, soft joint walls, thick clayey silt infill (5 cm thick in places).
32.95	NWD4	95	0	>20										30		**29.95-32.35m** Light greenish grey, highly weathered, closely and medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping bedding (60-70^0), planar, wide, clayey silt infilled. Thin sheared sections.
														31		
														32		
														33		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB8

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
34.45	NWD4	78	19	1										34		**32.35-33.10m** Light greenish grey, highly to completely weathered, very closely jointed, very soft rock and soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly subvertical (possibly sheared), wide, soft joint walls, thick clayey silt infill (5 cm thick in places).
35.95	NWD4	84	0	>20										35		**3310-33.65m** Greenish grey, moderately weathered, unjointed, medium hard rock, GREYWACKE.
37.45	NWD4	97	9	9										36		**33.65-35.95m** Light greenish grey, highly weathered, variably closely jointed and very closely jointed (sheared), soft rock, GREYWACKE. Malmesbury Group. Joints: Sheared rock mass. Prominent subvertical, planar, very wide, soft joint walls, thick clayey silt infill, some pyrite.
38.95	NWD4	71	36	3		222.1	39.4	14.5	0.212					37		**35.95-37.45m** Light grey, moderately weathered, closely and medium jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping bedding, planar, stepped, hard joint walls, narrow to wide, minor silt infill.
40.45	NWD4	69	7			136.7								38		**37.45-40.45m** Greenish grey, unweathered, medium to widely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping 60-75^0 and subvertical joints, planar, narrow, clean.
														39		
														40		
														41		END OF BOREHOLE
														42		
														43		
														44		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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BOREHOLE NO : KB9

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 09 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726417.107
EASTING : 53258.424
ELEVATION : 12.407
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	29												1		**0.00-3.50m** Off-white, very loose, fine to medium SAND with coarse shell fragments. Aeolian.
1.95	SPT	42			4											
3.00	NWD4	53												2		
3.45	SPT	58			4									3		
4.50	NWD4	46												4		**3.50-6.50m** Light grey speckled white, loose, fine to medium SAND with fine shell fragments. Marine (beach deposit?).
4.95	SPT	51			5											
6.00	NWD4	47												5		
6.45	SPT	56			8									6		
7.50	NWD4	45												7		**6.50-11.00m** Light orange brown, loose, fine to coarse SAND with coarse angular shell fragments. Marine.
7.95	SPT	53			7											
9.00	NWD4	58												8		
9.45	SPT	51			8									9		
10.50	NWD4	44												10		
10.95	SPT	53			9											
12.00	NWD4	47												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB9

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 09 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726417.107
EASTING : 53258.424
ELEVATION : 12.407
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	64			11									13		**11.50-13.50m** Light orange brown, medium dense, fine to coarse SAND with coarse angular shell fragments. Marine.
13.50	NWD4	51														
13.95	SPT	58			12									14		**13.50-19.50m** LIght grey speckled white, medium dense, fine to medium SAND with coarse shell fragments. Marine.
15.00	NWD4	49														
15.45	SPT	56			16									15		
16.50	NWD4	43														
16.95	SPT	62			22									16		
18.00	NWD4	46														
18.45	SPT	58			22									17		
19.50	NWD4	50														
19.95	SPT	58			24									18		
21.00	NWD4	49														
21.45	SPT	60			28									19		
22.50	NWD4	49														
22.95	SPT	67			33									20		**19.50-21.50m** Light grey speckled white, medium dense to dense, fine to coarse SAND with coarse shell fragments. Marine.
24.00	NWD4	54														
														21		
														22		**21.50-24.45m** Greenish grey, dense, coarse SAND consisting mainly of angular shell fragments, quartz (fine sand matrix). Marine.
														23		
														24		

GRAIN SIZE DESCRIPTIONS
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB9

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 09 April 2008
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NORTHING : 3726417.107
EASTING : 53258.424
ELEVATION : 12.407
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LOGGED BY : John Brown
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
24.45	SPT	56			36									25		
25.50	NWD4	100	14	8		102.5										**24.50-25.85m** Greenish grey, highly weathered, closely jointed, very soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints, 1 subvertical joing (bedding), wide, planar, clayey silt infilled.
27.00	NWD4	93	7			119.6								26		**25.85-27.91m** Greenish grey, highly weathered, closely jointed, soft rock, GREYWACKE. Malmesbury Group. Friable between 26.84 - 27.39 m. Joints: Cross-joints and subvertical. Subvertical joints wide, quartz crystal growth. Other joints friable (soft) joint walls, wide, clay infill.
28.50	NWD4	91	15	>20		42.7	3.11	0.748	0.746					27		
30.00	NWD4	99	39	11		42.7								28		**27.91-30.00m** Greenish grey, moderately weathered, medium jointed, soft rock, GREYWACKE grading locally to mudstone. Malmesbury Group. Joints: Mainly cross-joints, narrow and wide, clayey silt infill. Some soft joint walls. Friable joint surfaces in places.
				7										29		
				4										30		END OF BOREHOLE
				>20		42.7								31		
				6										32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

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