



VERTICALITY ANALYSIS

COMPANY	UNIVERSITY OF JOHANNESBURG		
WELL	HOLE 4		
FIELD	BARBERTON		
PROVINCE/COUNTY	MPUMALANGA		
COUNTRY/STATE	SOUTH AFRICA		
LOCATION	BARBERTON		
Latitude	Other Services		
Longitude			
Permanent Datum , Elevation	metres		
Log Measured From metres above Permanent Datum		Elevations:	metres
Drilling Measured From		KB	
		DF	
		GL	0.00
Date	27-JAN-2022		
Run Number	---		
Service Order	---		
Depth Driller	340.10	metres	
Depth Logger	320.10	metres	
First Reading	320.10	metres	
Last Reading	0.00	metres	
Casing Driller	340.10	metres	
Casing Logger	320.10	metres	
Bit Size	---		
Hole Fluid Type	NONE		
Density / Viscosity	---	---	
PH / Fluid Loss	---	---	
Sample Source	---		
Rm @ Measured Temp	---		
Rmf @ Measured Temp	---		
Rmc @ Measured Temp	---		
Source Rmf / Rmc	---	---	
Rm @ BHT	---		
Time Since Circulation	---		
Max Recorded Temp	---		
Equipment / Base	---	---	
Recorded By	A. VERMAAK		
Witnessed By	---		

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

Verticality Analysis Interpretation Notes

02-FEB-2022 20:09

All plotted output is automatically scaled to obtain the best visual effect within the physical space available. The maximum scales being 1:50000(metric) and 1:48000(imperial), and the minimum 1:1.

The analysis is derived by integrating 10cm sampled data down the borehole. The listing supplied will contain a maximum of 200 points in multiples of 1, 2, 5, 10, 20, 50 or 100 metres/feet depending on the total range of the analysis. However, the analysis is calculated for the entire range of the borehole and the final borehole position is included in the listing.

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 Computed verticality may only be fully derived in open sections of the borehole, away from the influence of any unusual magnetic effects, (as the azimuth calculations are derived from three solid state magnetometers). So the analysis will generally begin at the end of the casing and all borehole positional information will relate to this depth.

Up to ten cross sections may be requested for any borehole to be displayed at any scale, (the default scale is that of the cross-section for the entire hole).

Given below is a full description of the parameters displayed on the ensuing listing:

LOG DEPTH	The depth recorded on the field logs for the borehole.
TRUE DEPTH	The true vertical depth corresponding to the above depth. Corrected from the start of the analysis.
HOLE TILT AND AZIMUTH	The sampled borehole orientation. Tilt measured from Vertical.
AXIAL COORDINATES	The coordinates North and East from the target origin.
POLAR COORDINATES	The polar or radial coordinates of the borehole.

N.B. The reference point for all bearing angles on this listing is given at the top of each sheet.

Verticality Data Listing

D:\OneDrive - Wireline Africa (PTY) Ltd\Slimline WLA data\University of Johannesburg\BARBERTON\HOLE 4.wll

All Co-ordinates With Respect To Magnetic North, all depths in metres

Date Processed: 02-FEB-2022

First Depth 0.00, 0.00 North, 0.00 East of Origin

Date Logged:

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR	
Log	True	Tilt	Azi	North	East	Brg	Radius
0.00	0.00	45.8	326.4	0.00	0.00	0	0.00
10.01	7.13	43.4	321.9	5.70	-4.10	324	7.02
20.01	14.24	45.9	321.9	11.23	-8.44	323	14.05
30.00	21.34	43.7	321.4	16.75	-12.80	323	21.08
40.01	28.49	45.0	324.0	22.31	-17.04	323	28.08
50.01	35.51	45.8	323.2	28.04	-21.27	323	35.20
60.00	42.43	46.6	320.6	33.72	-25.72	323	42.41
70.01	49.31	46.5	321.6	39.37	-30.28	322	49.67
80.00	56.18	46.6	321.9	45.07	-34.77	322	56.93
90.01	63.11	45.8	320.5	50.71	-39.30	322	64.15
100.01	69.99	47.1	322.7	56.39	-43.79	322	71.40
110.01	76.78	47.4	319.5	62.11	-48.41	322	78.74
120.00	83.44	49.0	321.4	67.85	-53.15	322	86.19
130.00	90.06	48.1	320.6	73.67	-57.86	322	93.68
140.00	96.74	48.1	320.2	79.41	-62.61	322	101.12
150.00	103.40	48.3	321.8	85.20	-67.31	322	108.58
160.00	110.08	47.8	320.9	91.01	-71.95	322	116.02
170.01	116.71	49.3	320.5	96.82	-76.71	322	123.52
180.01	123.24	49.0	320.8	102.67	-81.50	322	131.09
190.01	129.78	49.3	319.9	108.49	-86.33	321	138.65
200.01	136.32	49.1	322.7	114.40	-91.06	321	146.22
210.01	142.83	49.7	320.0	120.33	-95.81	321	153.81
220.00	149.27	50.0	320.0	126.17	-100.72	321	161.44
230.01	155.67	50.6	320.9	132.11	-105.62	321	169.14
240.01	162.00	50.7	322.4	138.18	-110.42	321	176.88
250.01	168.26	51.8	320.8	144.29	-115.26	321	184.67
260.01	174.45	51.8	321.3	150.40	-120.20	321	192.53
270.01	180.60	52.3	322.6	156.61	-125.07	321	200.42
280.01	186.78	51.4	322.4	162.84	-129.85	321	208.28
290.01	192.92	52.9	324.0	169.16	-134.58	321	216.17
300.00	198.92	53.2	322.1	175.54	-139.38	322	224.15
310.01	204.88	53.9	324.7	182.00	-144.18	322	232.19
320.01	210.76	54.1	322.0	188.49	-149.00	322	240.27

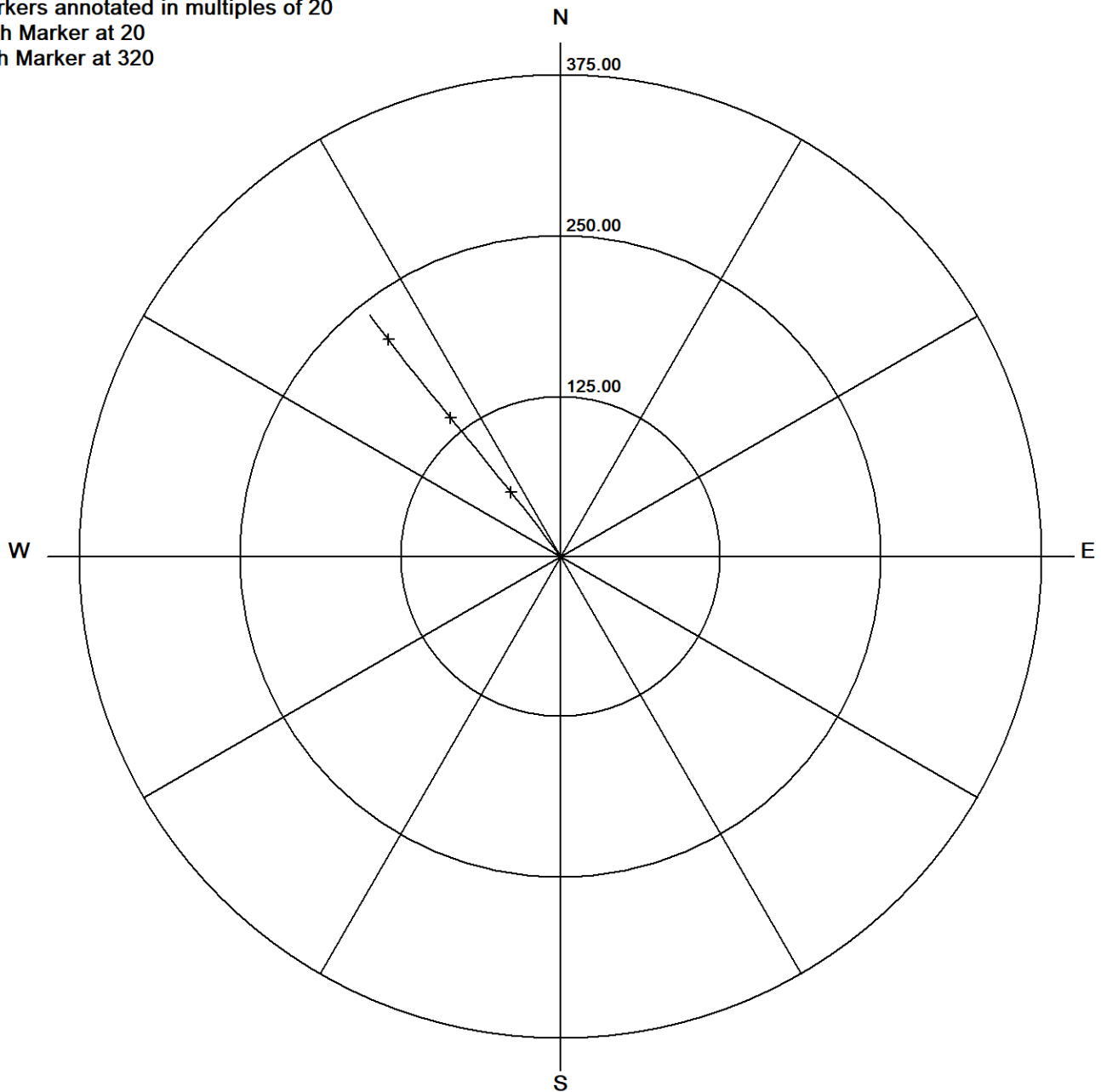
Cross Section

All Figures are Log Depths in metres

Plot With Respect to True North

Target Origin Depth 0.00
Last Plotted Depth 320.01
Depth Markers annotated in multiples of 20
First Depth Marker at 20
Last Depth Marker at 320

Scale 1:5000
Declination 0.0 deg



Final Borehole Position

The last plotted depth is at
188.49 metres North
149.00 metres West
ie 240.27 metres from the origin
322 deg from True North

Vertical Sections

North-South Section

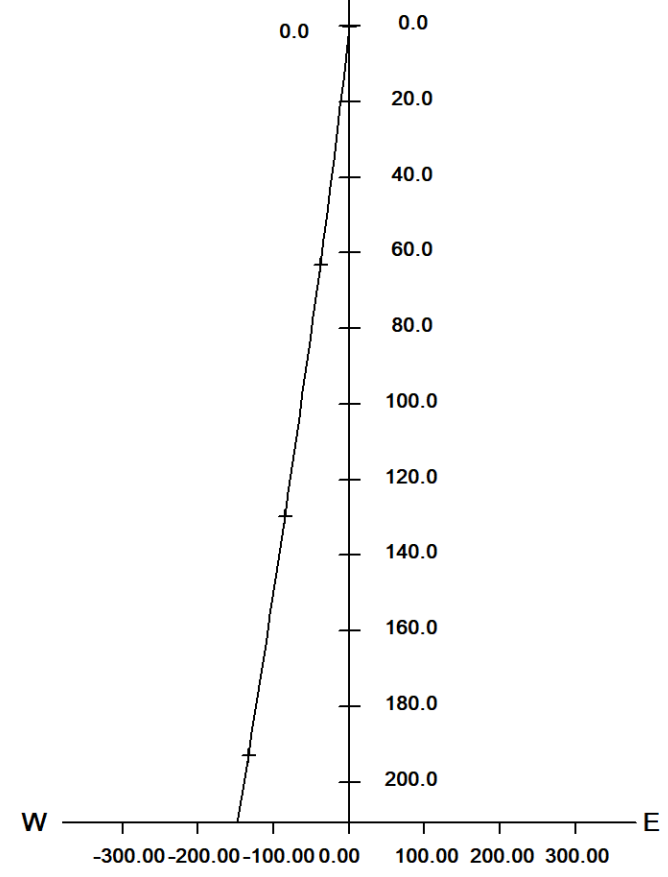
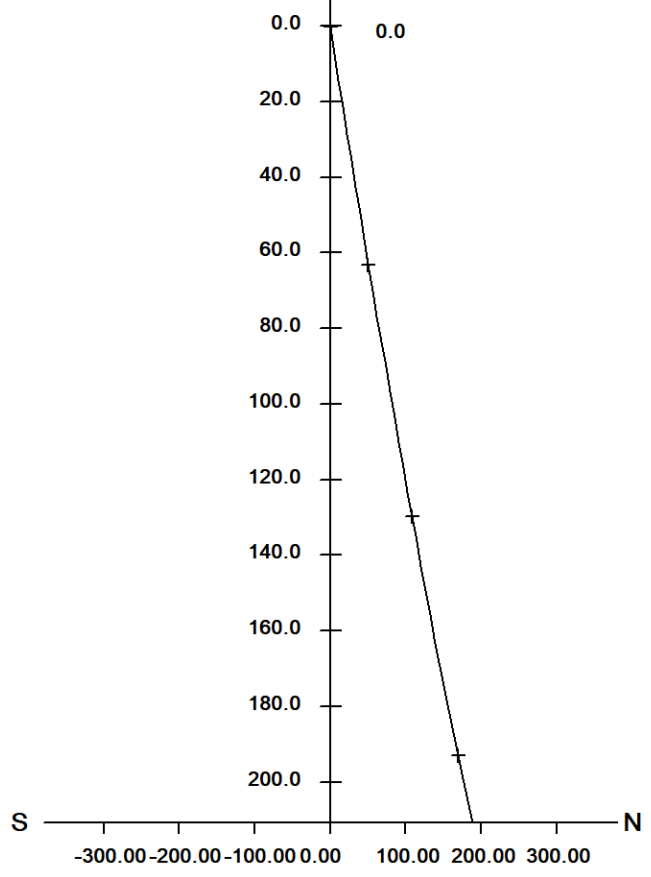
East-West Section

(True Depth vs Displacement)

(True Depth vs Displacement)

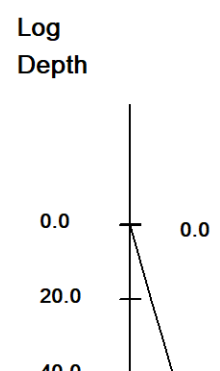
Vertical Scale 1:2000
Horizontal Scale 1:10000

Markers annotated as above

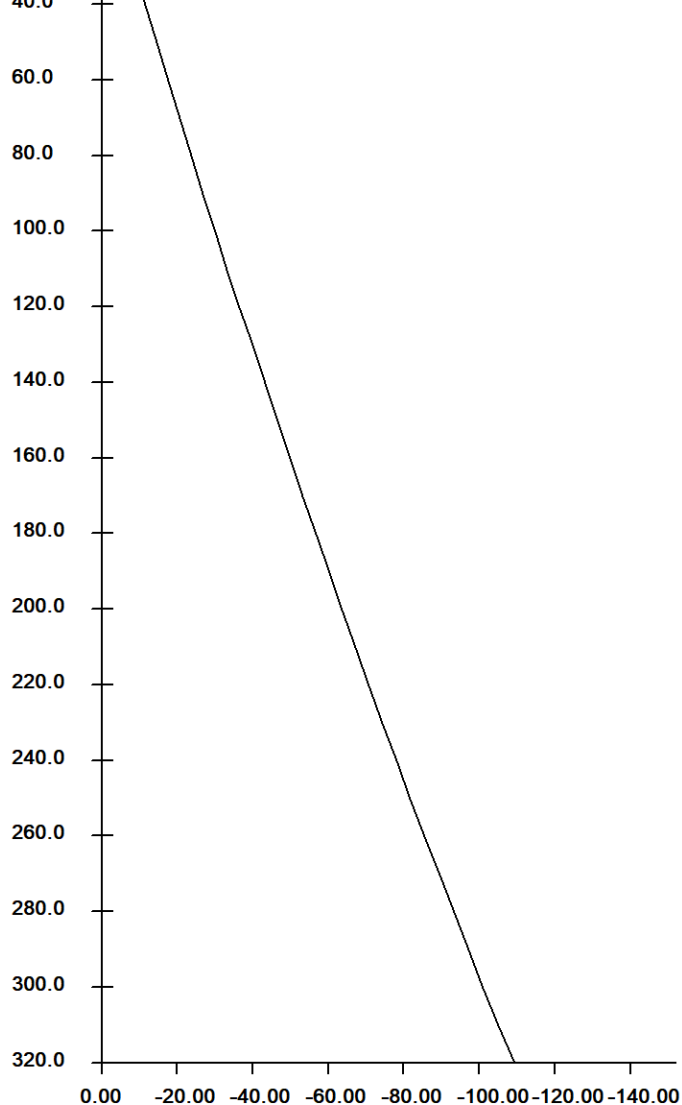


Depth Correction Analysis

Vertical Scale 1:2000
Horizontal Scale 1:2000



Depths	Log	True
0.00	0.00	0.00
10.01	7.13	7.13
20.01	14.24	14.24
30.00	21.34	21.34
40.01	28.49	28.49
50.01	35.51	35.51
60.00	42.43	42.43
70.01	49.31	49.31
80.00	56.18	56.18
90.01	63.11	63.11
100.01	69.99	69.99
110.01	76.78	76.78
120.00	83.44	83.44
130.00	90.06	90.06
140.00	96.74	96.74
150.00	103.40	103.40
160.00	110.08	110.08
170.01	116.71	116.71



Correction For True Depth

170.01	110.71
180.01	123.24
190.01	129.78
200.01	136.32
210.01	142.83
220.00	149.27
230.01	155.67
240.01	162.00
250.01	168.26
260.01	174.45
270.01	180.60
280.01	186.78
290.01	192.92
300.00	198.92
310.01	204.88
320.01	210.76

3D Borehole Deviation

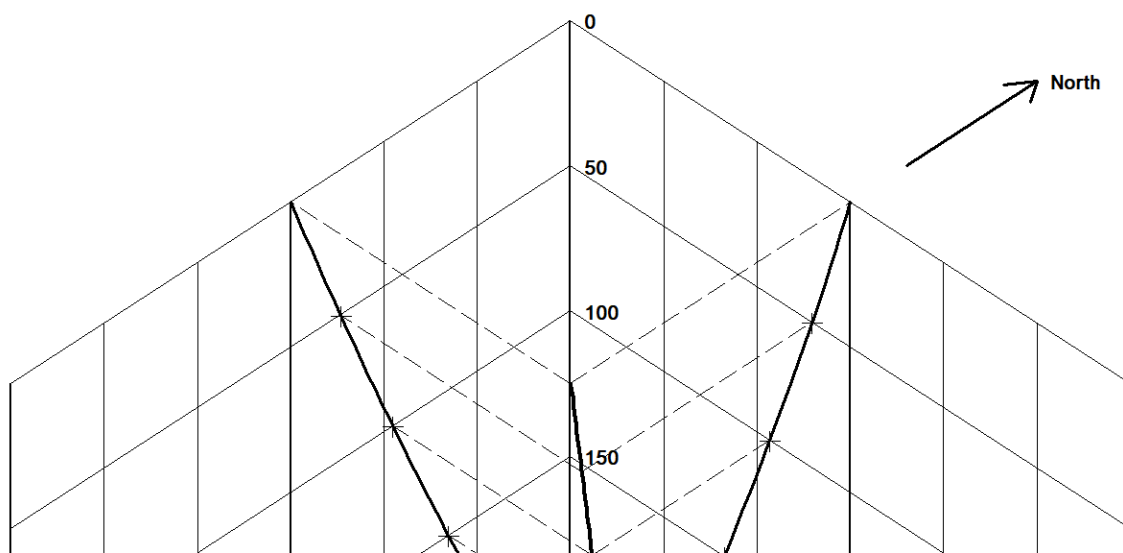
All figures are True Depths / displacements in metres

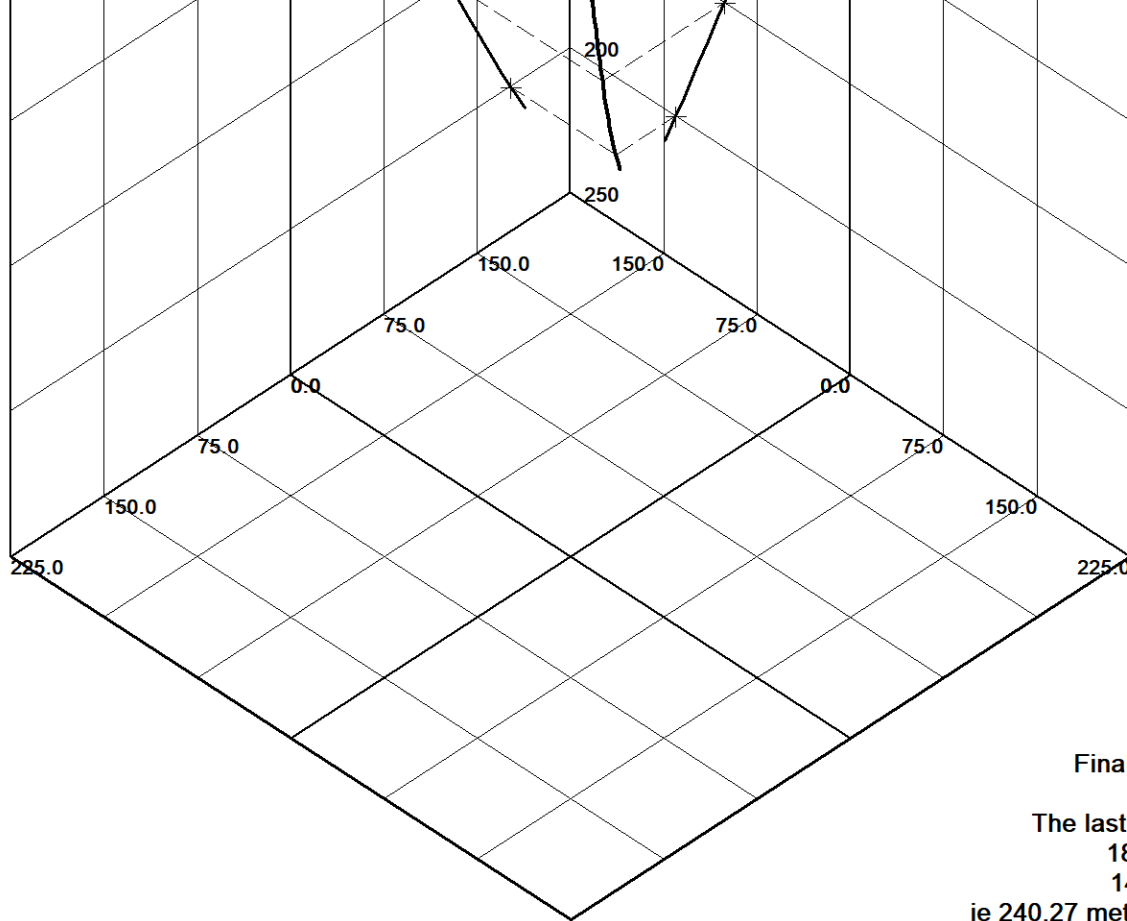
Origin Depth 0.00

Last Plotted Depth 320.01

Plot With Respect to True North

Declination 0.0 deg





Final Borehole Position

The last plotted depth is at
188.49 metres North
149.00 metres West
ie 240.27 metres from the origin
322 deg from True North

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WELL	HOLE 4
FIELD	BARBERTON
PROVINCE/COUNTY	MPUMALANGA
COUNTRY/STATE	SOUTH AFRICA

Elevation Kelly Bushing	metres	First Reading	320.10	metres
Elevation Drill Floor	metres	Depth Driller	340.10	metres
Elevation Ground Level	0 metres	Depth Logger	320.10	metres



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