



## VERTICALITY ANALYSIS HOLE 4B

COMPANY UNIVERSITY OF JOHANNESBURG  
WELL HOLE 4B  
FIELD BARBERTON  
PROVINCE/COUNTY MPUMALANGA  
COUNTRY/STATE SOUTH AFRICA  
LOCATION BARBERTON

Latitude  
Longitude  
Other Services

Permanent Datum , Elevation metres  
Log Measured From metres above Permanent Datum  
Drilling Measured From

Elevations:  
KB  
DF  
GL  
metres  
0.00

Date	29-MAR-2022	
Run Number	---	
Service Order	---	
Depth Driller	355.00	metres
Depth Logger	355.00	metres
First Reading	355.00	metres
Last Reading	0.00	metres
Casing Driller	66.60	metres
Casing Logger	66.60	metres
Bit Size	---	
Hole Fluid Type	WATER	64M
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

05-APR-2022 19:43

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.

Calculated for the entire range of the borehole and the final borehole position is included in the listing.  
 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\raw data\well.wll							
All Co-ordinates With Respect To True North, all depths in metres						Date Processed: 05-APR-2022	
First Depth	0.91,	0.00	North,	0.00	East of Origin	Date Logged:	
DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR	
Log	True	Tilt	Azi	North	East	Brg	Radius
0.91	0.91	45.4	331.8	0.00	0.00	0	0.00
10.00	7.17	47.6	333.6	5.86	-3.02	333	6.59
20.00	13.84	48.7	334.5	12.55	-6.28	333	14.04
30.00	20.49	47.9	336.1	19.34	-9.40	334	21.50
40.00	27.22	47.6	336.0	26.10	-12.41	335	28.90
50.00	33.92	48.2	335.7	32.87	-15.45	335	36.32
60.00	40.58	48.3	335.3	39.66	-18.54	335	43.78
70.00	47.16	49.4	333.8	46.46	-21.78	335	51.31
80.00	53.69	49.0	335.0	53.28	-25.05	335	58.88
90.00	60.25	49.0	334.5	60.11	-28.27	335	66.43
100.00	66.79	49.3	334.5	66.94	-31.53	335	73.99
110.00	73.31	49.3	336.1	73.83	-34.70	335	81.57
120.00	79.83	49.5	335.4	80.75	-37.81	335	89.16
130.00	86.33	49.5	333.9	87.61	-41.06	335	96.76
140.00	92.81	49.7	335.7	94.50	-44.31	335	104.37
150.00	99.28	49.6	336.8	101.48	-47.38	335	111.99
160.00	105.76	49.7	335.8	108.46	-50.44	335	119.61
170.00	112.17	50.5	336.9	115.49	-53.52	335	127.29
180.00	118.54	50.2	338.3	122.61	-56.46	335	134.98
190.00	124.91	50.6	337.3	129.75	-59.37	335	142.69
200.00	131.19	51.5	337.5	136.93	-62.36	336	150.46
210.00	137.40	51.7	338.4	144.20	-65.30	336	158.29
220.00	143.57	52.1	337.7	151.50	-68.25	336	166.16
230.00	149.73	51.8	337.4	158.78	-71.26	336	174.03
240.00	155.91	51.8	337.4	166.03	-74.28	336	181.89
250.00	162.12	51.5	336.6	173.25	-77.34	336	189.73
260.00	168.39	51.0	335.3	180.37	-80.51	336	197.52
270.00	174.65	51.5	337.2	187.50	-83.66	336	205.32
280.00	180.86	51.7	336.6	194.71	-86.73	336	213.15
290.00	187.05	51.9	336.3	201.91	-89.87	336	221.01
300.00	193.21	52.0	335.6	209.10	-93.08	336	228.88
310.00	199.34	52.4	337.2	216.34	-96.24	336	236.78
320.00	205.42	52.8	335.3	223.61	-99.44	336	244.73
330.00	211.45	53.0	335.5	230.86	-102.76	336	252.70

330.00	211.43	53.0	333.9	230.00	-102.76	336	262.70
340.00	217.57	51.5	338.7	238.15	-105.84	336	260.60
350.00	223.70	53.0	337.9	245.49	-108.76	336	268.50

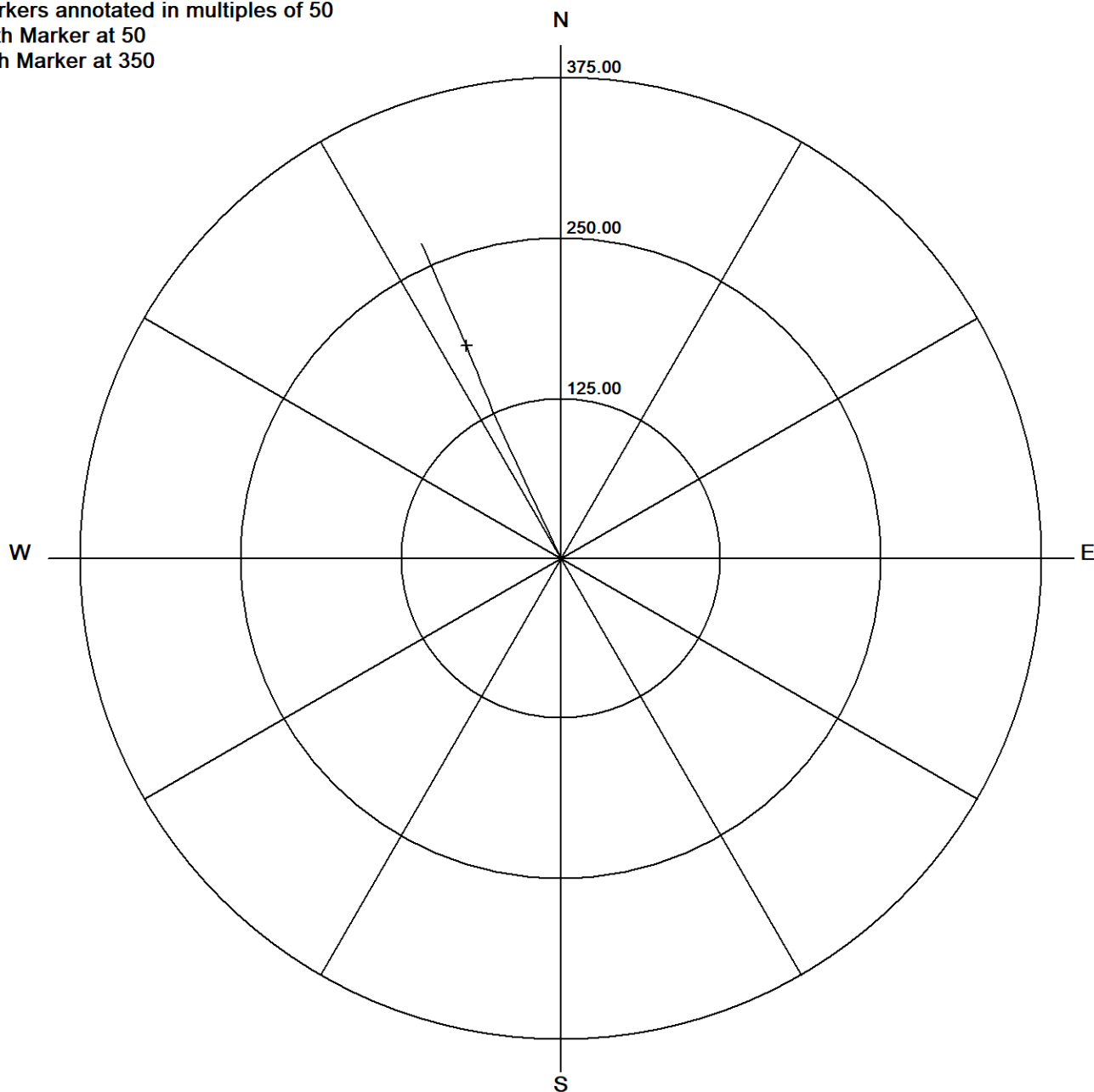
## Cross Section

All Figures are Log Depths in metres

Plot With Respect to True North

Target Origin Depth 0.91  
 Last Plotted Depth 350.00  
 Depth Markers annotated in multiples of 50  
 First Depth Marker at 50  
 Last Depth Marker at 350

Scale 1:5000  
 Declination 20.0 deg West



Final Borehole Position

The last plotted depth is at  
 245.49 metres North  
 108.76 metres West  
 ie 268.50 metres from the origin  
 336 deg from True North

## Vertical Sections

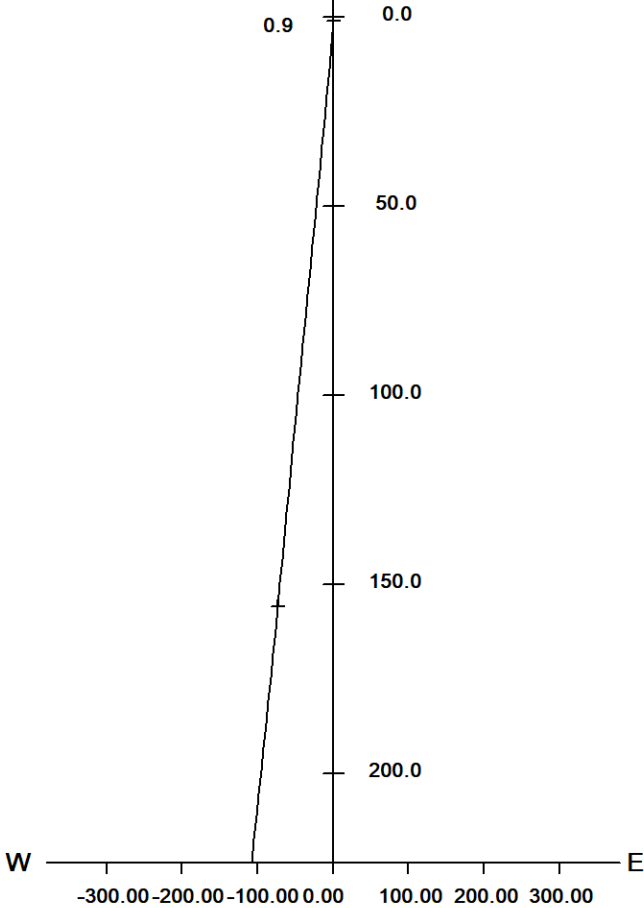
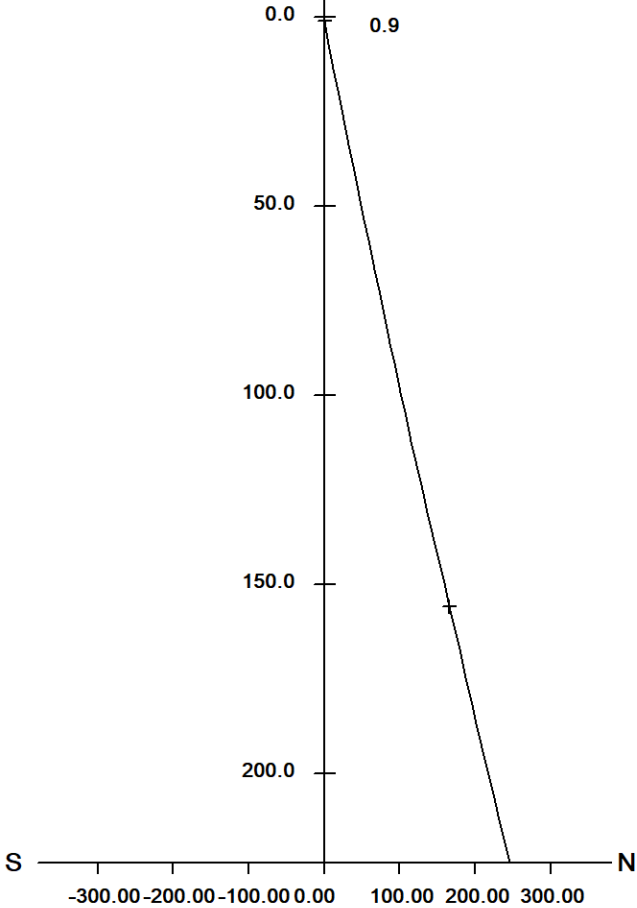
North-South Section

East-West Section

(True Depth vs Displacement)

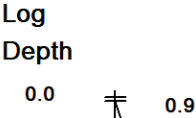
Vertical Scale 1:2000  
Horizontal Scale 1:10000

Markers annotated as above

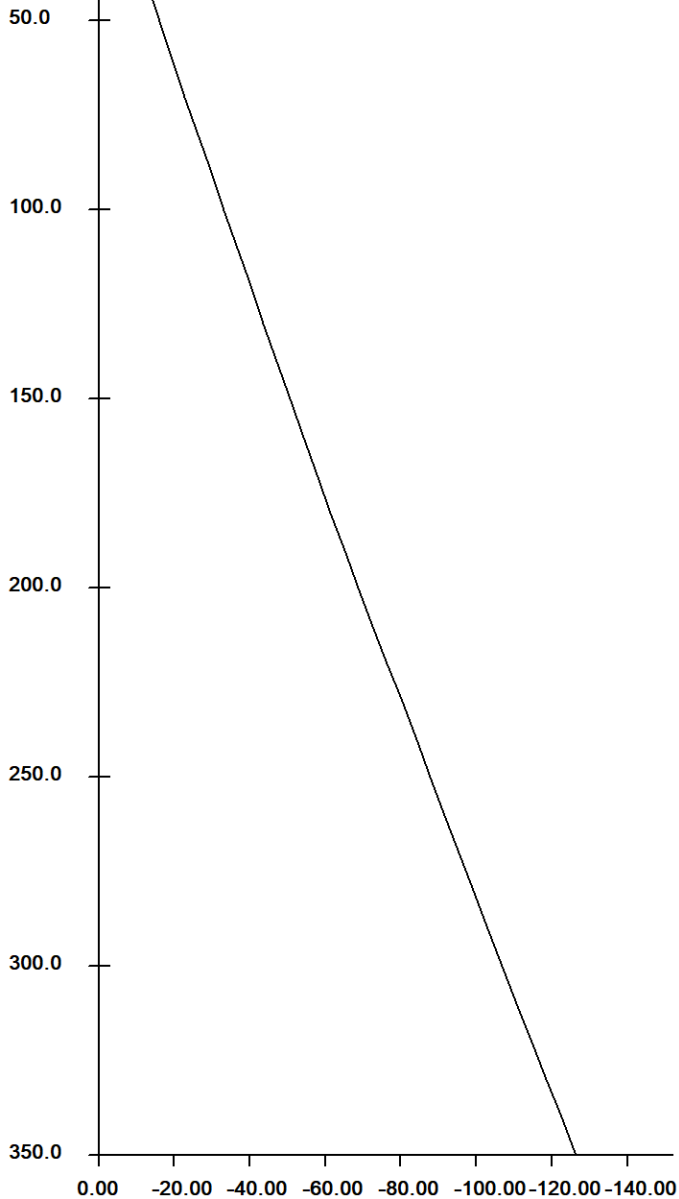


Depth Correction Analysis

Vertical Scale 1:2000  
Horizontal Scale 1:2000



Depths	Log	True
0.91	0.91	
10.00	7.17	
20.00	13.84	
30.00	20.49	
40.00	27.22	
50.00	33.92	
60.00	40.58	
70.00	47.16	
80.00	53.69	
90.00	60.25	
100.00	66.79	
110.00	73.31	
120.00	79.83	
130.00	86.33	



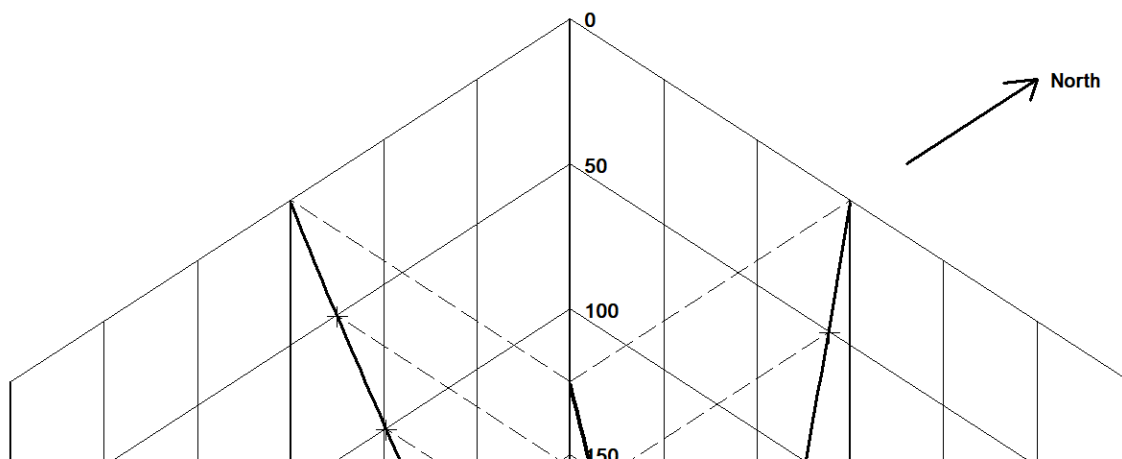
Correction For True Depth

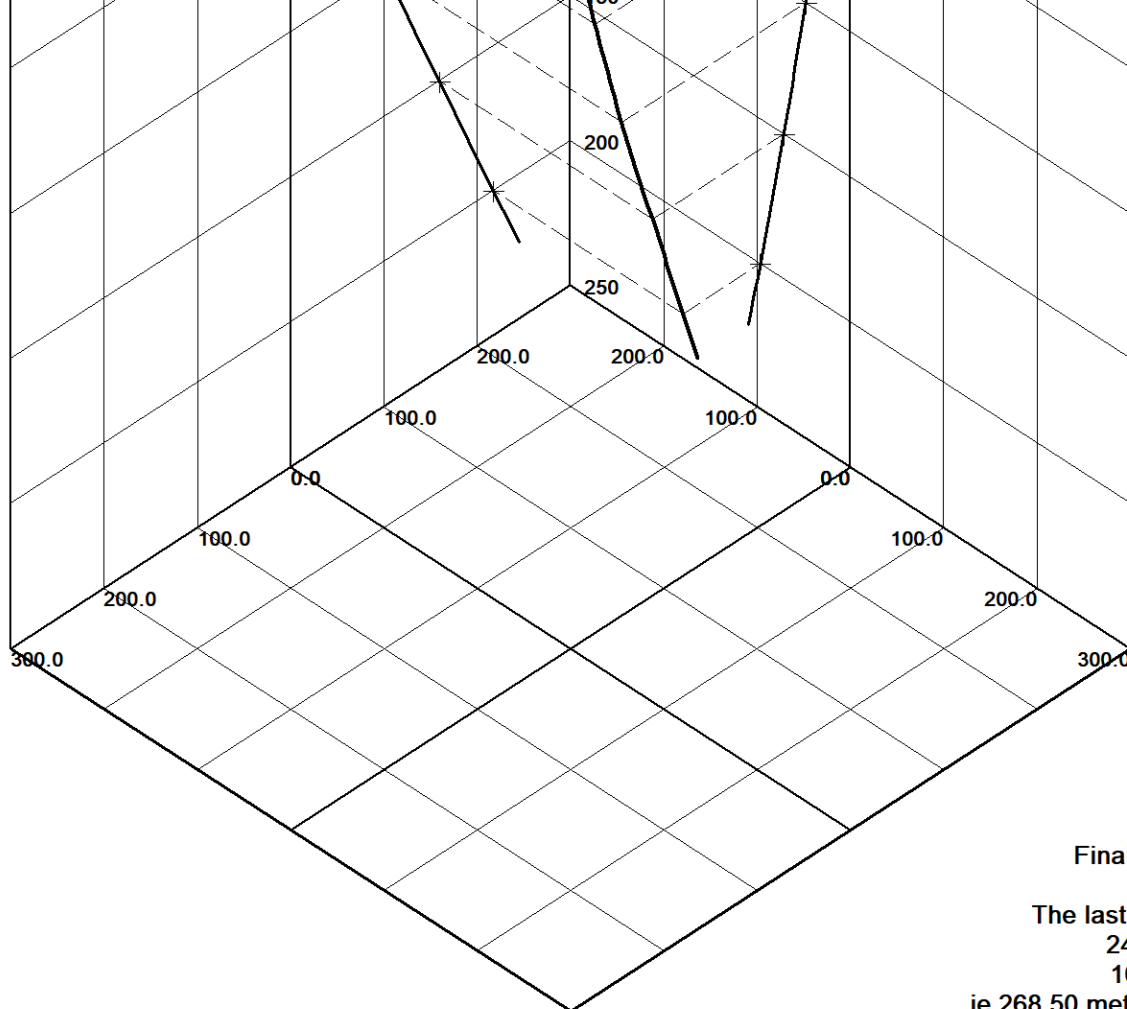
140.00	92.81
150.00	99.28
160.00	105.76
170.00	112.17
180.00	118.54
190.00	124.91
200.00	131.19
210.00	137.40
220.00	143.57
230.00	149.73
240.00	155.91
250.00	162.12
260.00	168.39
270.00	174.65
280.00	180.86
290.00	187.05
300.00	193.21
310.00	199.34
320.00	205.42
330.00	211.45
340.00	217.57
350.00	223.70


## 3D Borehole Deviation

All figures are True Depths / displacements in metres  
Origin Depth 0.91  
Last Plotted Depth 350.00

Plot With Respect to True North  
Declination 20.0 deg West





COMPANY		UNIVERSITY OF JOHANNESBURG	
WELL		HOLE 4B	
FIELD		BARBERTON	
PROVINCE/COUNTY		MPUMALANGA	
COUNTRY/STATE		SOUTH AFRICA	
Elevation Kelly Bushing	metres	First Reading	355.00 metres
Elevation Drill Floor	metres	Depth Driller	355.00 metres
Elevation Ground Level	0 metres	Depth Logger	355.00 metres
		VERTICALITY ANALYSIS HOLE 4B	