



## VERTICALITY ANALYSIS BASE 2

COMPANY	UNIVERSITY OF JOHANNESBURG		
WELL	BASE 2		
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	14-MAR-2022		
Run Number	---		
Service Order	---		
Depth Driller	367.80	metres	
Depth Logger	367.20	metres	
First Reading	367.20	metres	
Last Reading	0.00	metres	
Casing Driller	138.20	metres	
Casing Logger	138.20	metres	
Bit Size	---		
Hole Fluid Type	WATER	99M	
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

22-MAR-2022 12:16

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\raw data\well.wll

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

Date Processed: 22-MAR-2022

First Depth 0.82, 0.00 North, 0.00 East of Origin

Date Logged:

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR	
Log	True	Tilt	Azi	North	East	Brg	Radius
0.82	0.82	44.8	312.5	0.00	0.00	0	0.00
7.01	5.24	44.1	312.2	2.92	-3.20	312	4.34
17.01	12.41	44.2	310.5	7.52	-8.43	312	11.30
27.01	19.62	43.6	312.6	12.12	-13.62	312	18.23
37.01	26.87	43.5	313.7	16.83	-18.64	312	25.12
47.01	34.14	43.2	312.3	21.52	-23.67	312	31.99
57.01	41.46	42.6	313.1	26.13	-28.67	312	38.79
67.01	48.83	42.4	313.2	30.75	-33.60	312	45.55
77.01	56.21	42.5	313.2	35.37	-38.52	313	52.30
87.00	63.57	42.6	310.9	39.90	-43.53	313	59.05
97.01	70.92	43.0	312.8	44.44	-48.60	312	65.85
107.01	78.19	43.8	311.8	49.06	-53.68	312	72.72
117.00	85.37	44.2	313.0	53.74	-58.81	312	79.66
127.00	92.52	44.5	310.3	58.38	-64.03	312	86.65
137.01	99.61	45.2	312.6	63.06	-69.32	312	93.71
147.01	106.61	46.0	310.8	67.82	-74.66	312	100.86
157.00	113.50	46.7	312.5	72.62	-80.06	312	108.09
167.00	120.33	47.2	312.1	77.54	-85.47	312	115.40
177.00	127.11	47.3	311.5	82.44	-90.94	312	122.75
187.00	133.89	47.3	312.6	87.36	-96.40	312	130.10
197.02	140.65	47.8	311.3	92.30	-101.90	312	137.49
207.01	147.41	47.2	312.2	97.21	-107.39	312	144.85
217.01	154.20	47.2	314.3	102.23	-112.74	312	152.19
227.01	160.98	47.6	313.3	107.32	-118.05	312	159.54
237.00	167.75	47.0	313.9	112.38	-123.36	312	166.88
247.00	174.51	48.0	310.5	117.33	-128.83	312	174.25
257.01	181.22	47.9	314.6	122.35	-134.30	312	181.68
267.00	187.99	46.7	313.9	127.48	-139.56	312	189.02
277.00	194.85	46.7	313.7	132.52	-144.81	312	196.29
287.01	201.63	48.0	318.0	137.80	-149.93	313	203.64
297.01	208.40	46.9	316.0	143.18	-154.95	313	210.98
307.02	215.22	47.1	312.6	148.30	-160.19	313	218.30
317.01	222.04	46.9	318.1	153.49	-165.32	313	225.59
327.01	228.86	47.3	315.6	158.83	-170.33	313	232.89

327.01	228.88	47.3	315.8	158.83	-170.33	313	232.89
337.01	235.59	48.0	318.0	164.21	-175.39	313	240.26
347.00	242.25	48.4	316.5	169.69	-180.44	313	247.70
357.01	248.87	48.7	315.5	175.09	-185.65	313	255.19
367.00	255.43	49.2	316.2	180.50	-190.90	313	262.72

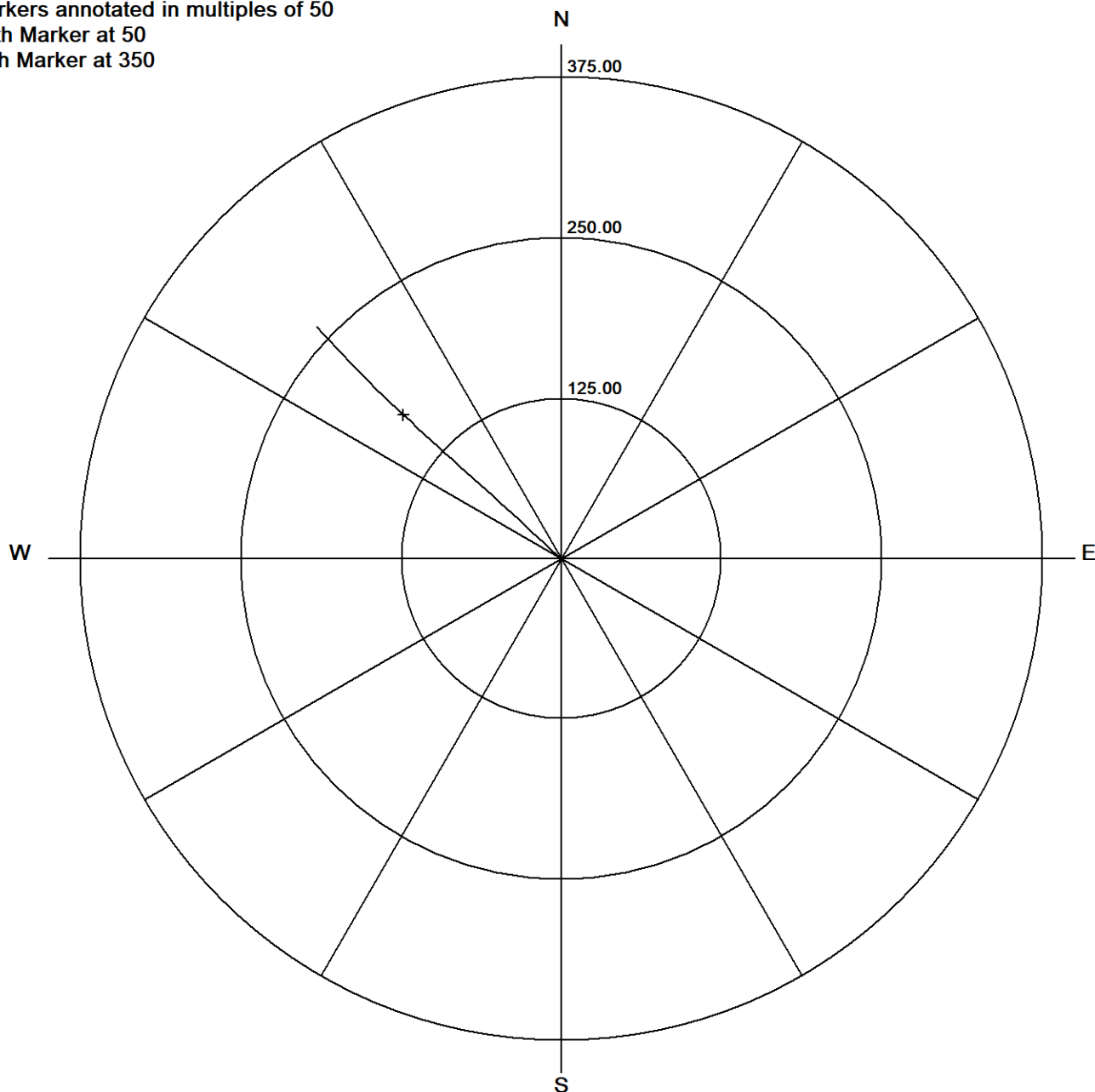
## Cross Section

All Figures are Log Depths in metres

Plot With Respect to True North

Target Origin Depth 0.82  
 Last Plotted Depth 367.00  
 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  
 180.50 metres North  
 190.90 metres West  
 ie 262.72 metres from the origin  
 313 deg from True North

## Vertical Sections

Vertical Sections

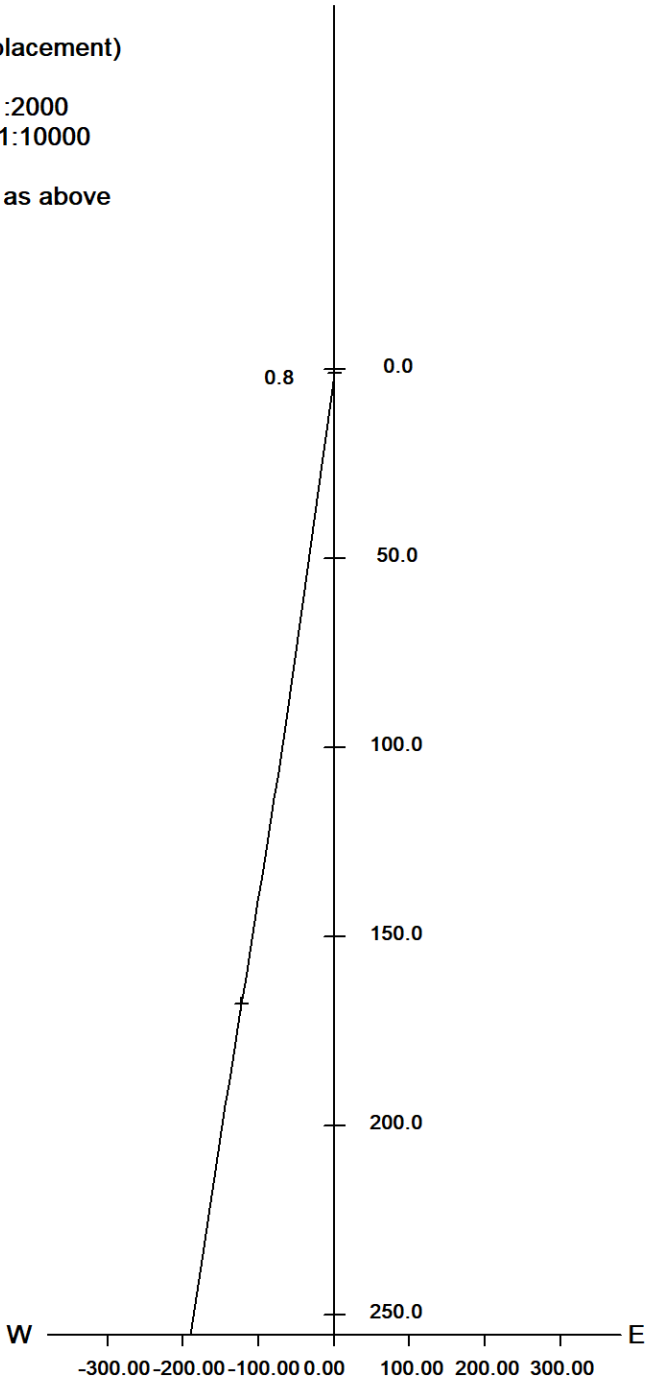
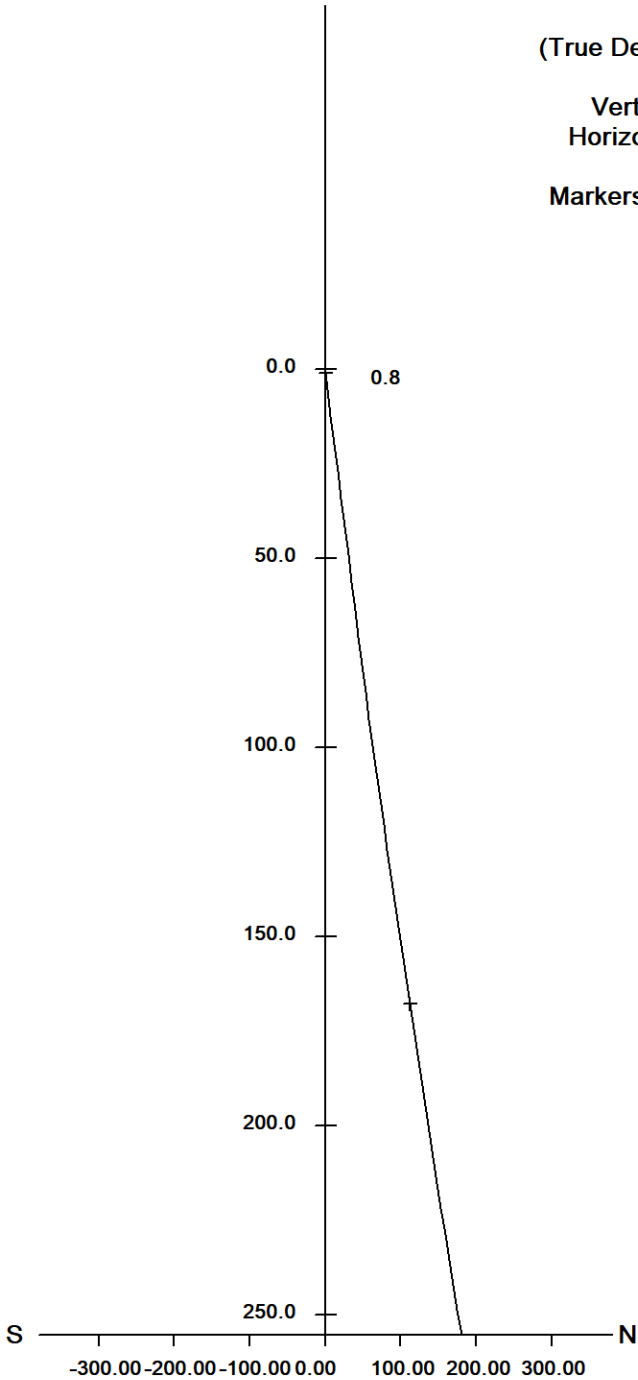
North-South Section

East-West Section

(True Depth vs Displacement)

Vertical Scale 1:2000  
Horizontal Scale 1:10000

Markers annotated as above



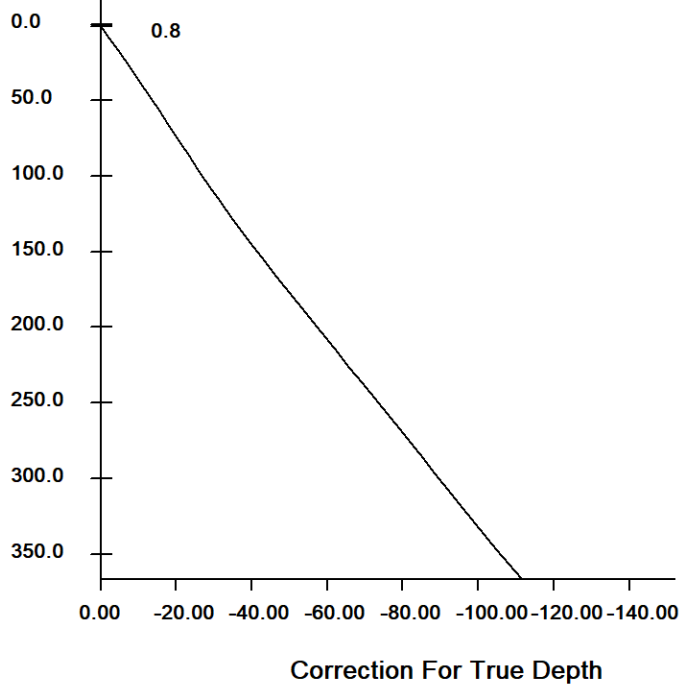
Depth Correction Analysis

Vertical Scale 1:5000  
Horizontal Scale 1:2000

Log  
Depth

Depths Log	True
0.82	0.82
7.01	5.24
17.01	12.41
27.01	19.62
37.01	26.87
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57.01	41.46
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177.00	127.11
187.00	133.89
197.02	140.65
207.01	147.41
217.01	154.20
227.01	160.98
237.00	167.75
247.00	174.51
257.01	181.22
267.00	187.99
277.00	194.85
287.01	201.63
297.01	208.40
307.02	215.22
317.01	222.04
327.01	228.86
337.01	235.59
347.00	242.25
357.01	248.87
367.00	255.43



## 3D Borehole Deviation

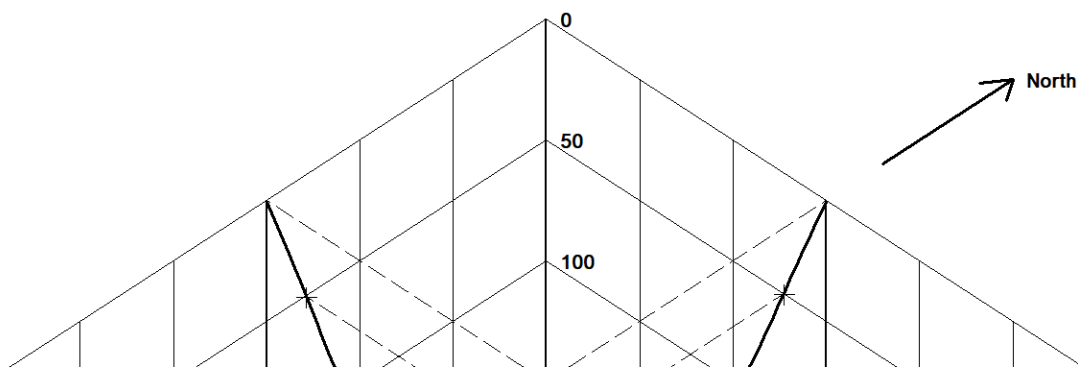
All figures are True Depths / displacements in metres

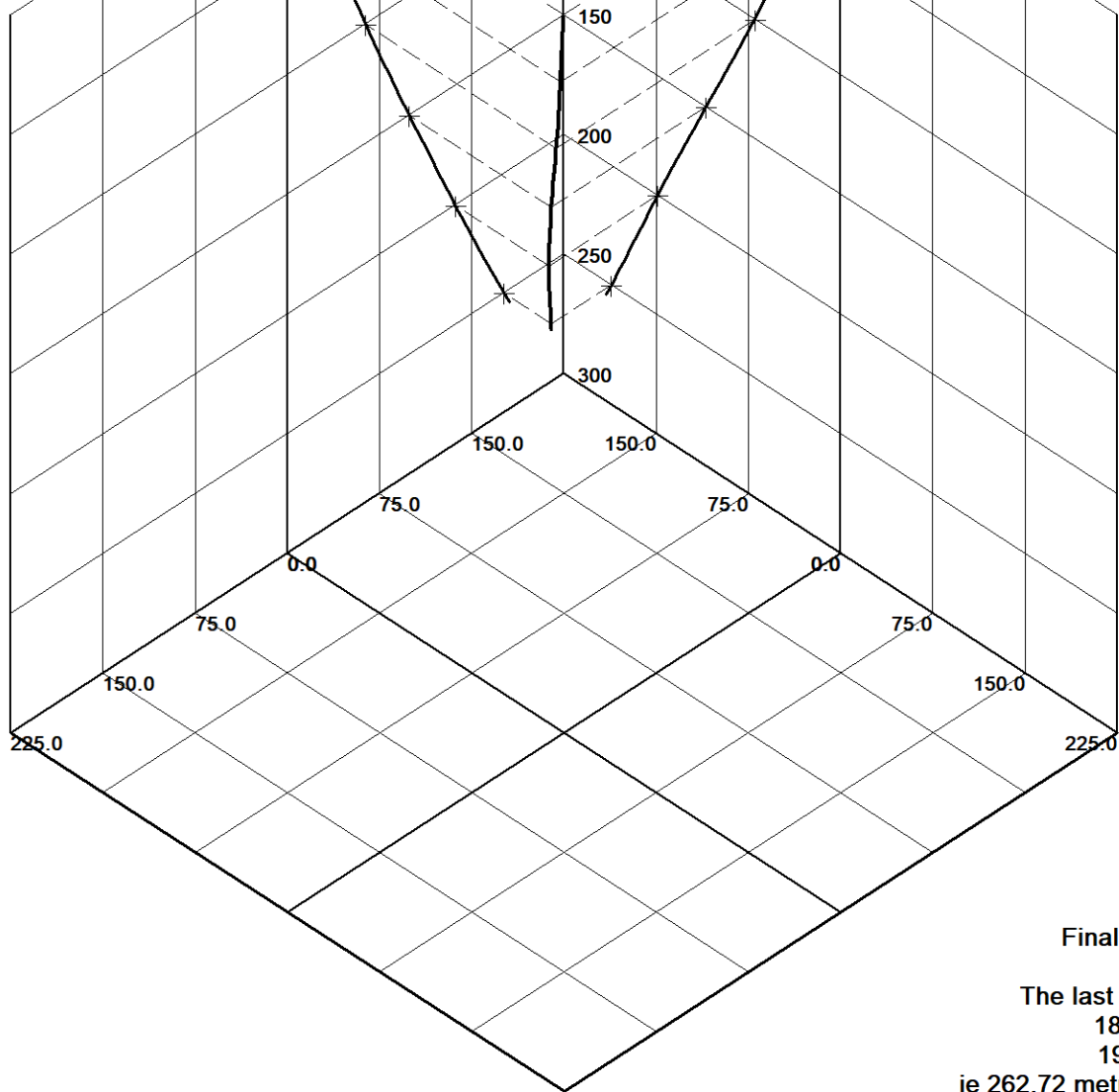
Origin Depth 0.82

Last Plotted Depth 367.00

Plot With Respect to True North

Declination 20.0 deg West





Final Borehole Position

The last plotted depth is at  
180.50 metres North  
190.90 metres West  
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WELL	BASE 2
FIELD	BARBERTON
PROVINCE/COUNTY	MPUMALANGA
COUNTRY/STATE	SOUTH AFRICA

Elevation Kelly Bushing	metres	First Reading	367.20	metres
Elevation Drill Floor	metres	Depth Driller	367.80	metres
Elevation Ground Level	0 metres	Depth Logger	367.20	metres



VERTICALITY ANALYSIS  
BASE 2