UCP AFRICA

Unique Core Products Africa (PTY) LTD.

Geotechnical borehole logging

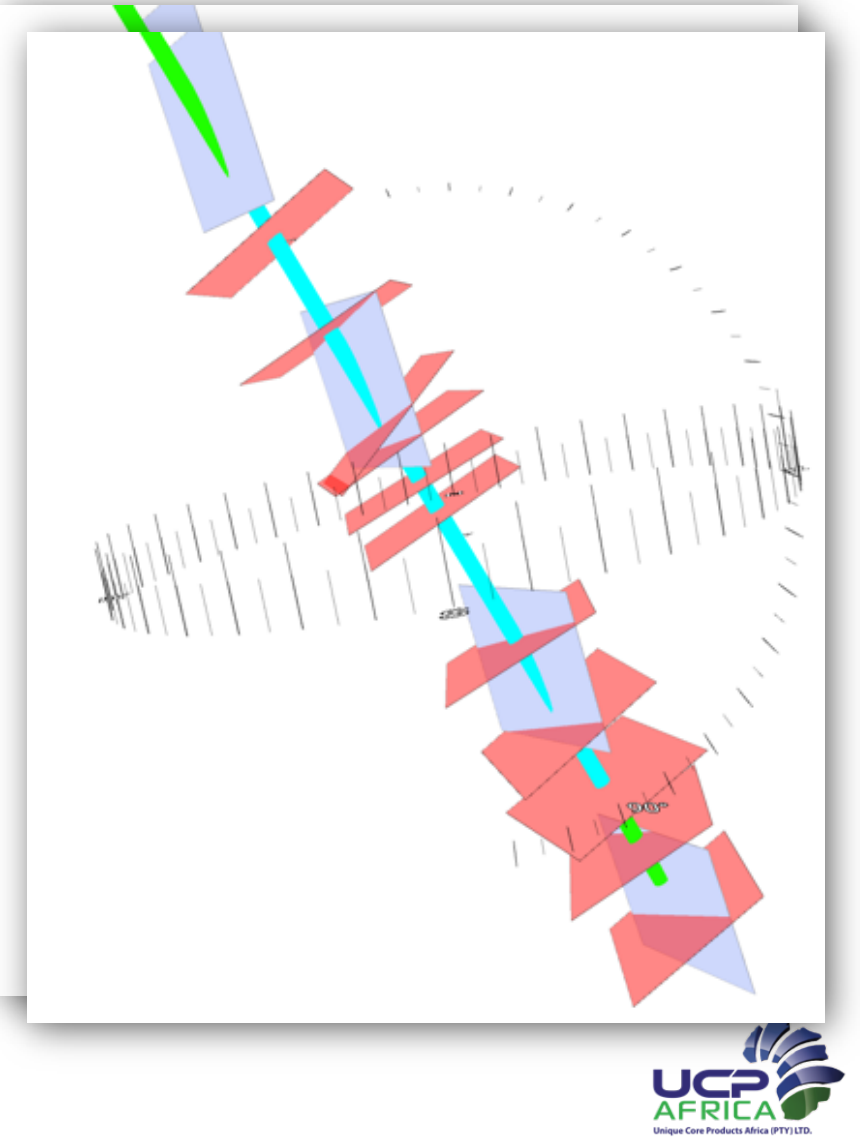
Introduction

Recording structural data using ScanIT effectively turns structural core logging from a 1D into a 3D operation, providing an order of magnitude of accurate reliable data. The program calculates the precise X,Y,Z coordinates for each joint or fault etc. recorded in the core and by expanding the planes provides a structural 3D model that if necessary can imported into any geotechnical or mine modelling software.

As an example, instead of just measuring the Joint Frequency along the borehole, then applying complicated factors as in the Terzaghi Correction to illuminate bias, the program automatically calculates the True Joint Spacing (TJS) of individual structural features exposed in the core.

The quality of the data that can be produced from ScanIT is totally reliant on the quality of the input data, implying that the borehole should be properly and reliable orientated, this can only be achieved if;

- the borehole should be inclined at $<75^0$,
- only core larger than NQ should be drilled,
- all the Orientation Discontinuities, represented by broken or crushed core and loss zones should be recorded on the core.



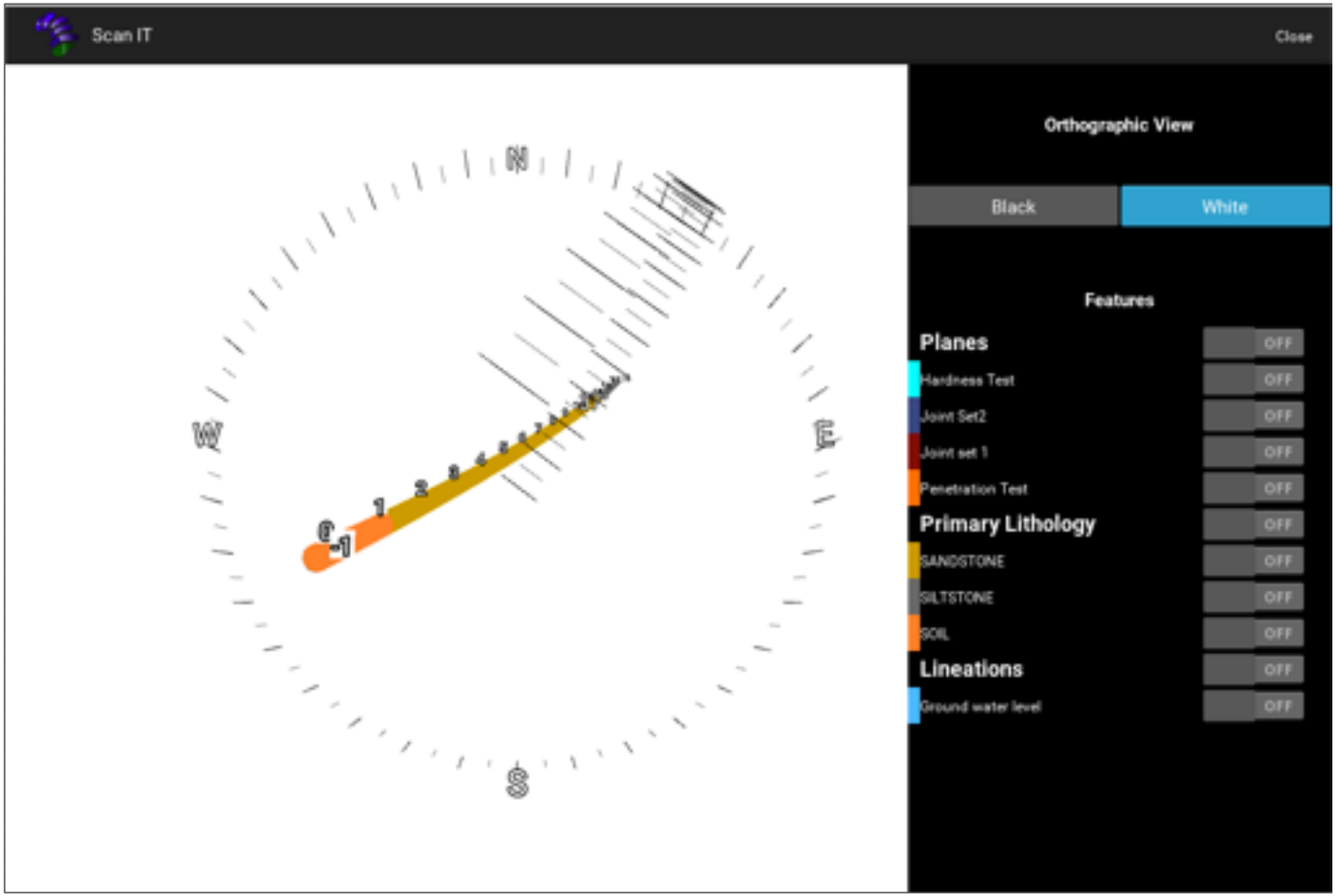
Preamble

To demonstrate the potential and unique attributes of ScanIT in a geotechnical environment a mock 50m deep hole, dipping at approximately $70^0/040^0$ was established.

It is presumed that the borehole has been downhole surveyed and properly orientated using the TOC as a reference plane.

Images from a previously bored hole were imported into ScanIT, all the automatically detected gaps/breaks were adjusted , core losses allocated and the images accurately depth referenced.

Geotechnical dictionaries containing typical geological descriptors are setup in Excel and imported into ScanIT to log the borehole.



Geotechnical Dictionaries

Weathering	Secondary Description	Material Descpriton	Modifier 1	Colour mod	Colour 2	Colour 3	Moisture	Fabric	MICROFABRIC
Decomposed to a soil with no evidence of texture of original rock,	Silty	SOIL	with a trace clay or silt.	Pale	grey	/grey	Dry	thinly laminated	brecciated
Totally weathered, exibits soil properties but there is still	Clayey	CLAY	with clay or silt clayey or silty in plac	Dark	brown	/brown	moist	coarse grained	medium bedded
Highly weathered, with evidence of limonite staining or bleaching	Sandy	METAGREYWACKE	with trace of sand or gravel.	Light	black	/black	wet	medium grained	widely bedded
Mildly weathered with evidence of limonite staining or bleaching	Carbanaceous	SANDTONE	with gravelly sections.	Dull	green	/green		massive	
Slightly weathered with only partial staining or discolouration and		QUARTZITE		Shiney	orange	/cream			
Unweathered, the rock substance is uneffected.		SILTSONE			cream	/buff			
		GRANITE			buff				
		MUD							

LITHOLOGICAL DICTIONARY | STRUCTURAL DICTIONARY | +

STRUCTURE	Apeture of Discontinuity Surface	Roughness	Defect spacing	Waviness	Infill type	Weathering		Hardness		Strength		Groundwater	
JOINT SET 1	Wide apeture	with pollished surface	Extremely Close Spacing (<20mm)	Discontinious	Calcite infill.	of original rock,	5	Hard	10	Extremely Weak 0.25-1MPa	6	Dry	0 l/m
JOINT SET 2	Moderatly wide apeture	with a rough surface	Very close spacing (20 - 60mm)	Planar	Carbonate infill.	there is still evidenceof the yexture of the original	4	9	9	Very Weak	5	Weak flow rate	< 10 l/m
FAULT	Moberatly narrow apeture (10-60mm)	with a smooth surafce	Close spacing (60 - 200mm)	Stepped	Clay infill.	staining or bleaching and the colour of the	3	8	8	Weak	4	Moderate flow rate	10 - 25 l/m
TEST SAMPLE	Narrow apeture (6-20mm)	with slightly rough surfa	Medium spacing (200 - 600mm)	Undulating	Graphite infill.	staining or bleaching and the colour of the	2	7	7	Medium Strong	3	Strong flow rate	25 - 125 l/m
	Very Narrow apeture (2-6mm)	wih a very rough surface	Wide spacing (600 - 2000mm)	Irregular	Pyrite infill.	discolouration and the colour and texture of the	1	6	6	Strong	2	Very strong flow rate	> 125 l/m
	Extremely narrow apeture (0-2mm)		Very wide spacing (2000 - 6000mm)		Talc infill.	Unweathered, the rock substance is uneffected.	0	5	5	Very Strong	1		
	Tight (0mm)		Extermly wide (>6000mm)					4	4	Extremely Strong . 250MPa	0		
								3	3				
								2	2				
								1	1				
								soft	0				

LITHOLOGICAL DICTIONARY | STRUCTURAL DICTIONARY | +

Existing corporate dictionaries can be imported into ScanIT, otherwise the various Dictionaries can be set up at the beginning of a project, to form the background or basis of the geological and structural log.

The Dictionaries are customizable and easy to use, the descriptors can either be descriptive and included into the geological log or quantifiable and included as graphical presentation in the log.

Individual items can be included, or altered into the dictionary and the individual descriptors changed and reimported back into the program.

As the program is not reliant on the traditional codes to import the descriptions, individual descriptors are expanded to " Long Text" format to produce readable logs and eliminate the necessity for large A3 code tables or conversion programs.

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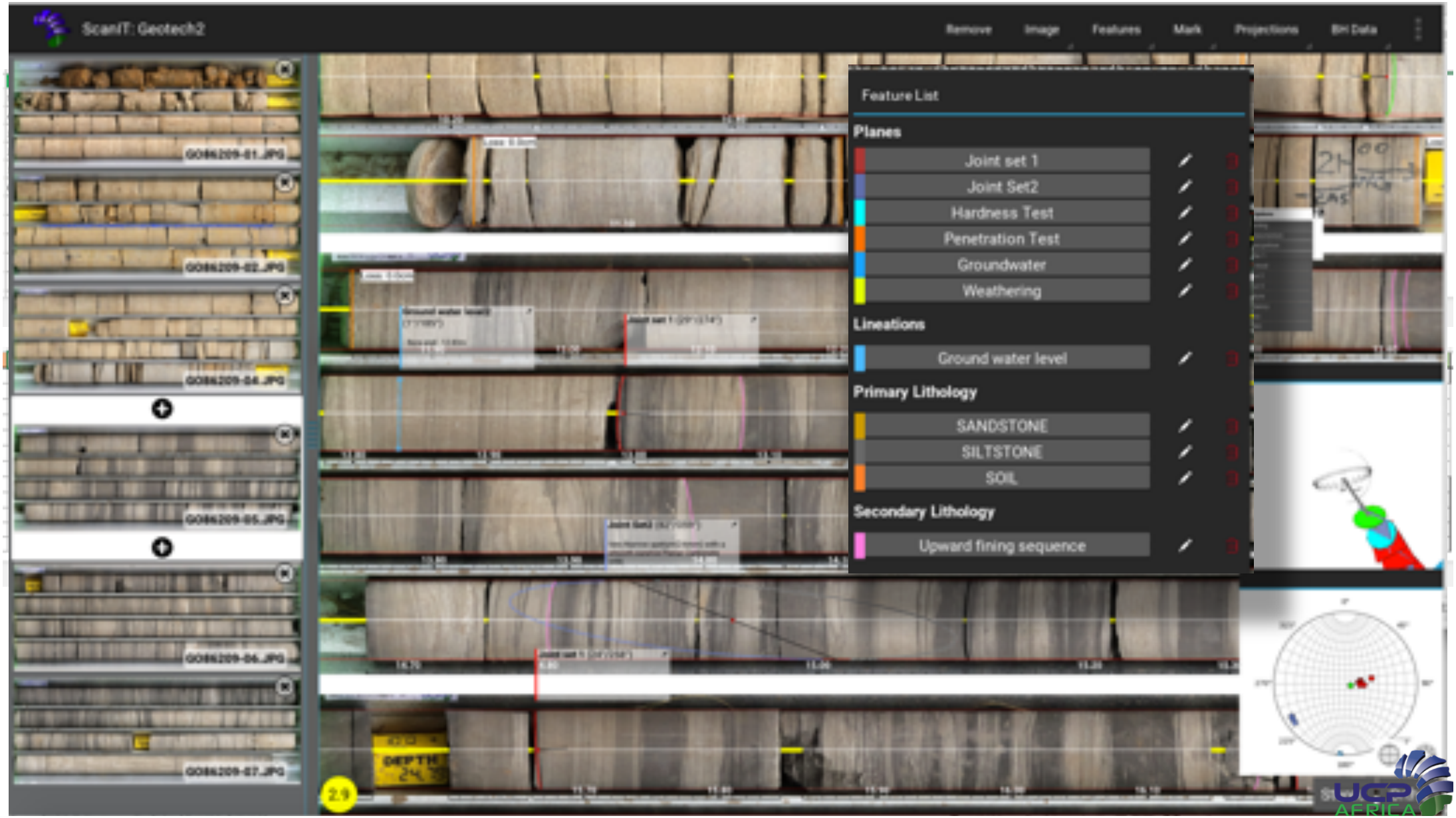
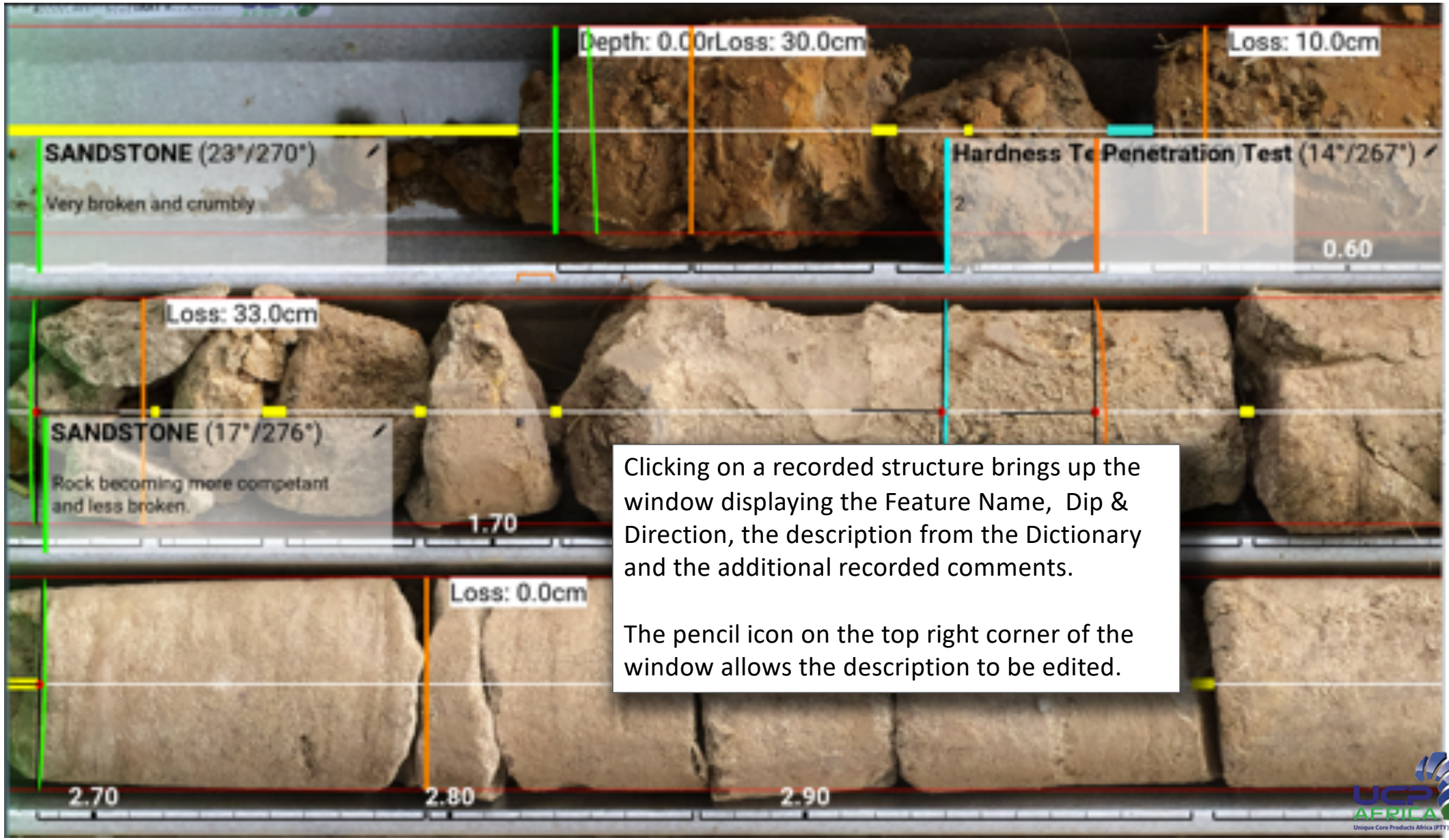
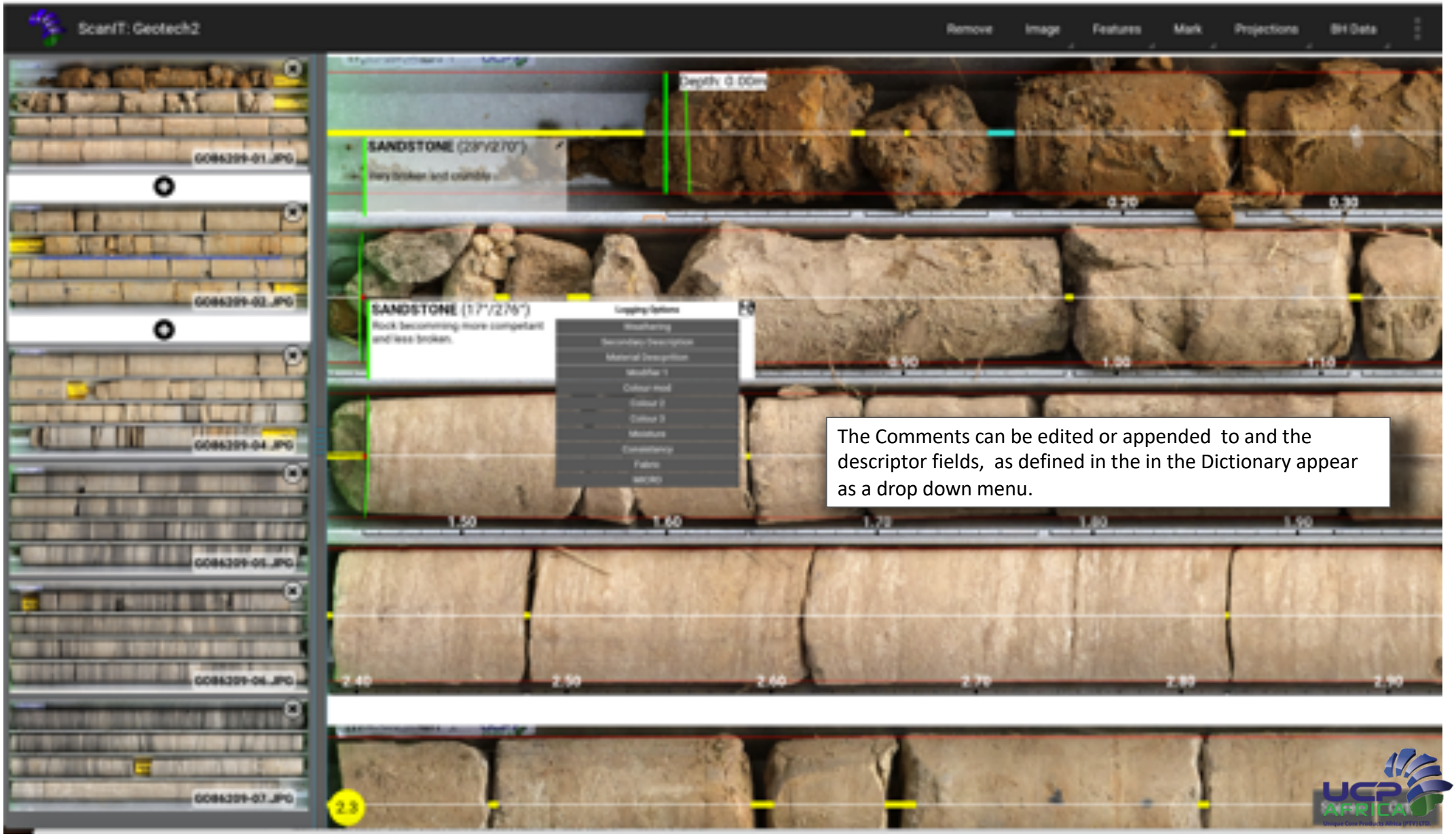
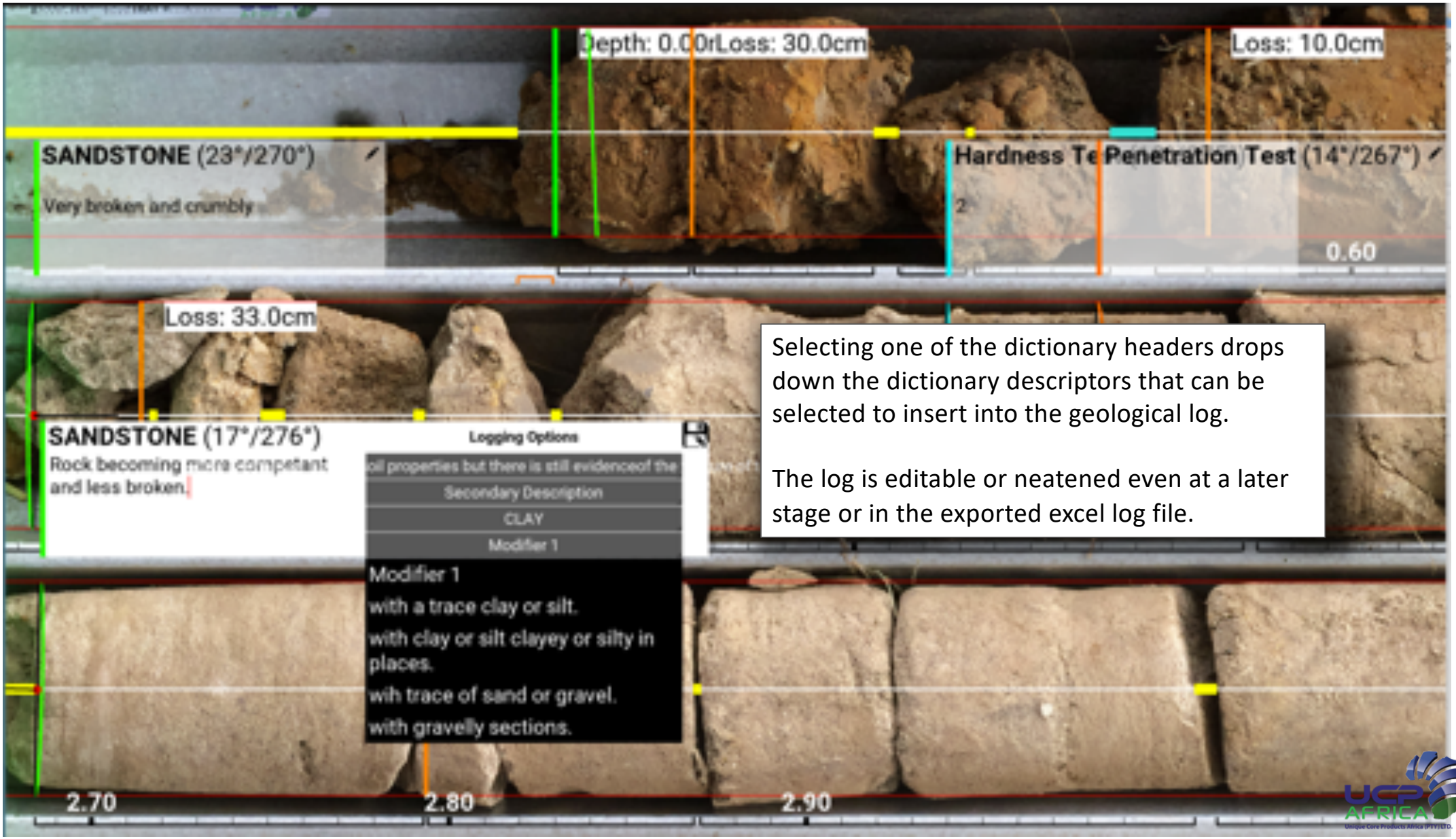

ScanIT: Geotech2
Remove
Image
Features
Mark
Projections
BH Data
GO86209-01.JPG
GO86209-02.JPG
GO86209-04.JPG
GO86209-05.JPG
GO86209-06.JPG
GO86209-07.JPG
Feature List
Planes
Joint set 1
Joint Set2
Hardness Test
Penetration Test
Groundwater
Weathering
Lineations
Ground water level
Primary Lithology
SANDSTONE
SILTSTONE
SOIL
Secondary Lithology
Upward fining sequence
DEPTH
2.9



Clicking on a recorded structure brings up the window displaying the Feature Name, Dip & Direction, the description from the Dictionary and the additional recorded comments.

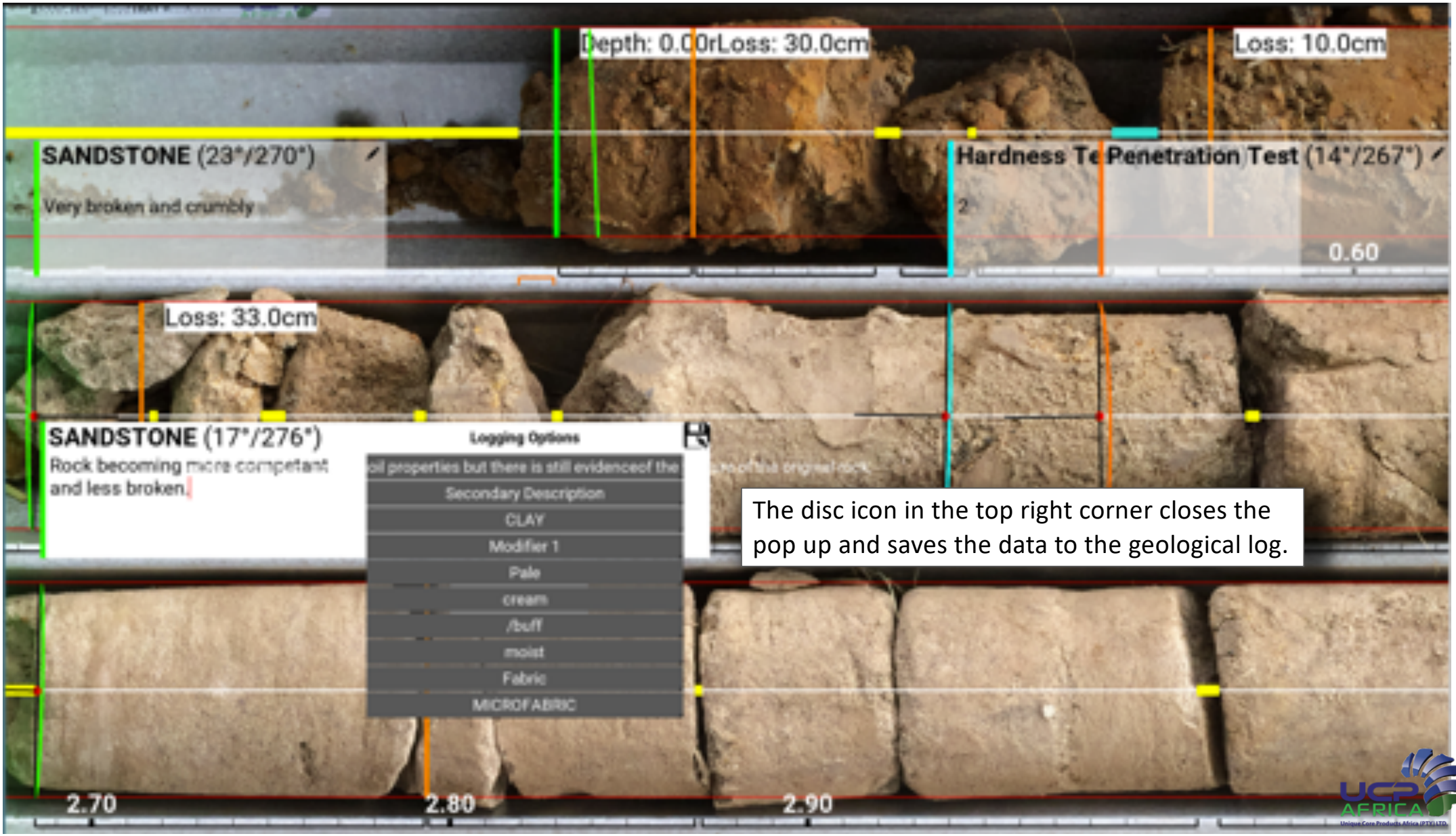
The pencil icon on the top right corner of the window allows the description to be edited.


ScanIT: Geotech2
Remove
Image
Features
Mark
Projections
BH Data
SANDSTONE
SANDSTONE
The Comments can be edited or appended to and the descriptor fields, as defined in the in the Dictionary appear as a drop down menu.

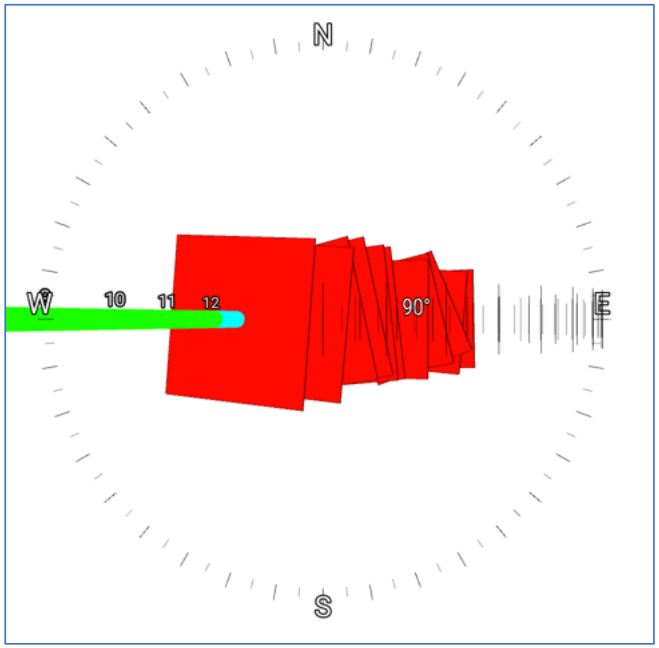


Selecting one of the dictionary headers drops down the dictionary descriptors that can be selected to insert into the geological log.

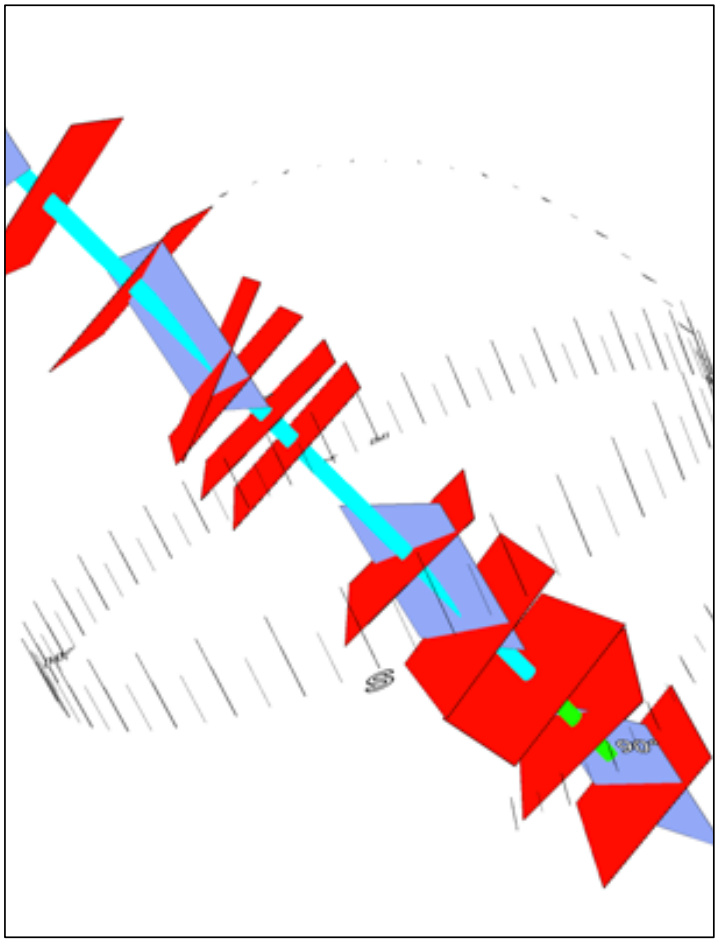
The log is editable or neatened even at a later stage or in the exported excel log file.


Depth: 0.00rLoss: 30.0cm
Loss: 10.0cm
SANDSTONE (23°/270°)
Very broken and crumbly
Hardness Te Penetration Test (14°/267°)
2
0.60
Loss: 33.0cm
SANDSTONE (17°/276°)
Rock becoming more competant
and less broken.
Logging Options
oil properties but there is still evidenceof the
Secondary Description
CLAY
Modifier 1
Pale
cream
/buff
moist
Fabric
MICROFABRIC
The disc icon in the top right corner closes the pop up and saves the data to the geological log.
2.70
2.80
2.90

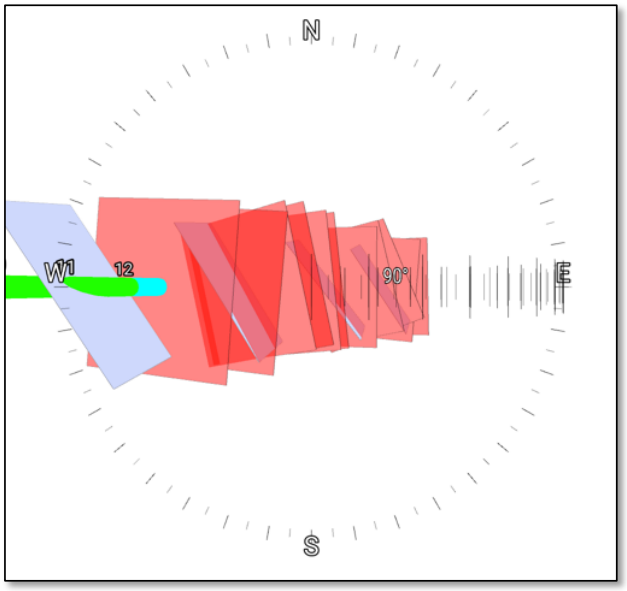
3D orthographic presentation - Joint Set 1



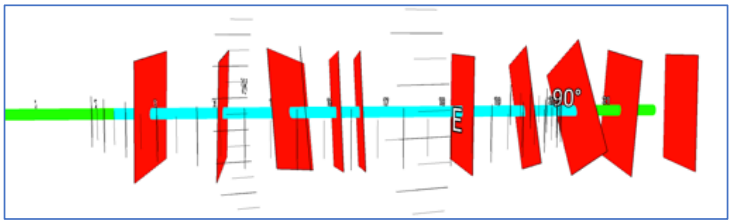
Plan view showing the orientation of the joints.



Orthographic presentation showing the real space orientations of the structures



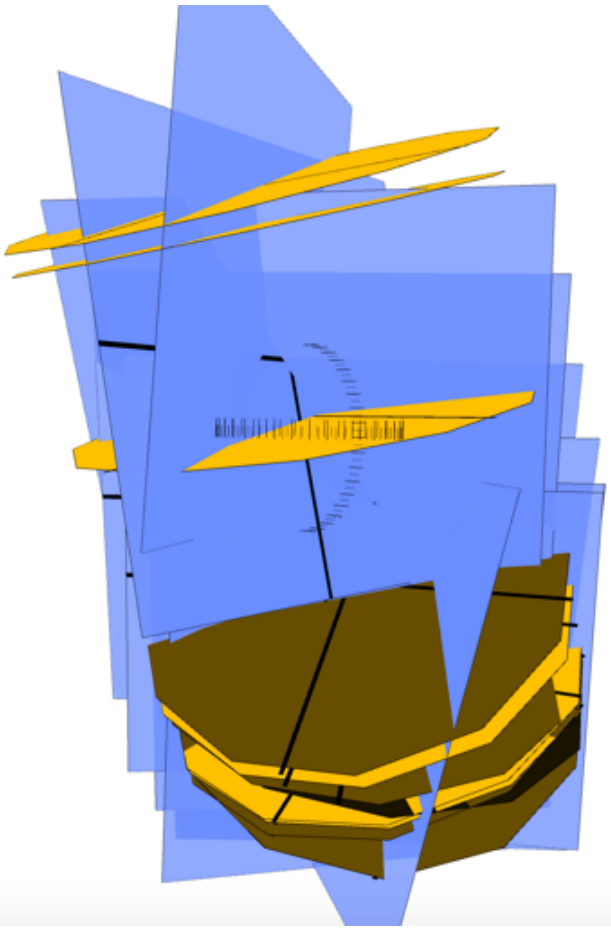
Plan view showing the intersection between the transparent planes with the LOI.

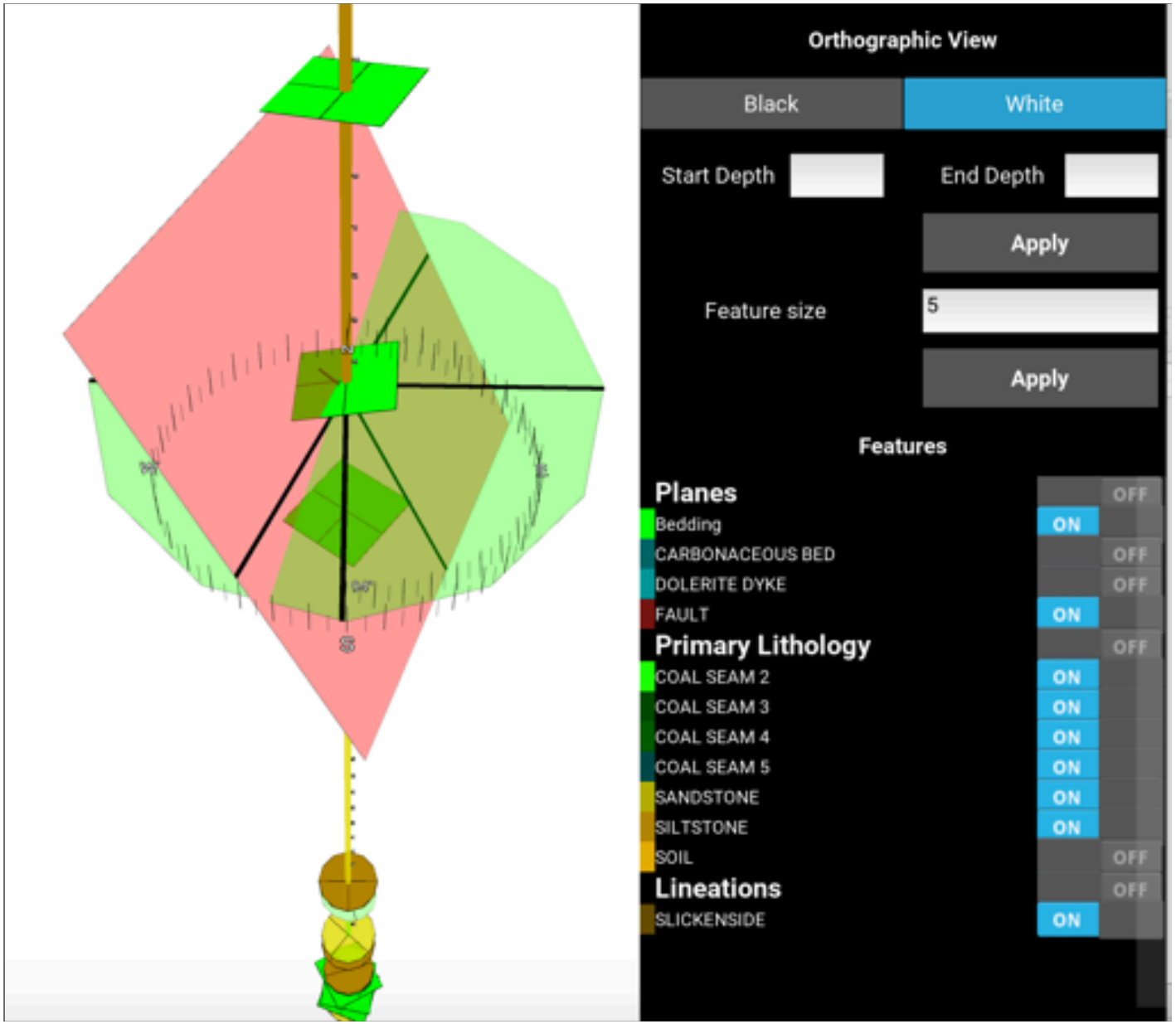


Borehole rotated to the horizontal displaying the disposition of the joints.

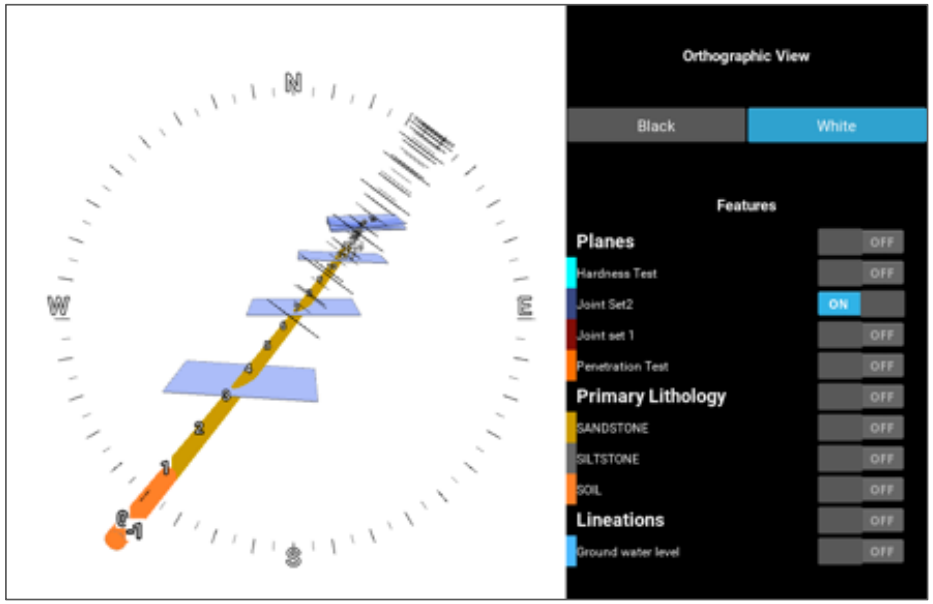
3D orthographic presentation

The orthographic has the ability to expand the size of certain planes to show the intersection between the transparent planes with the LOI.





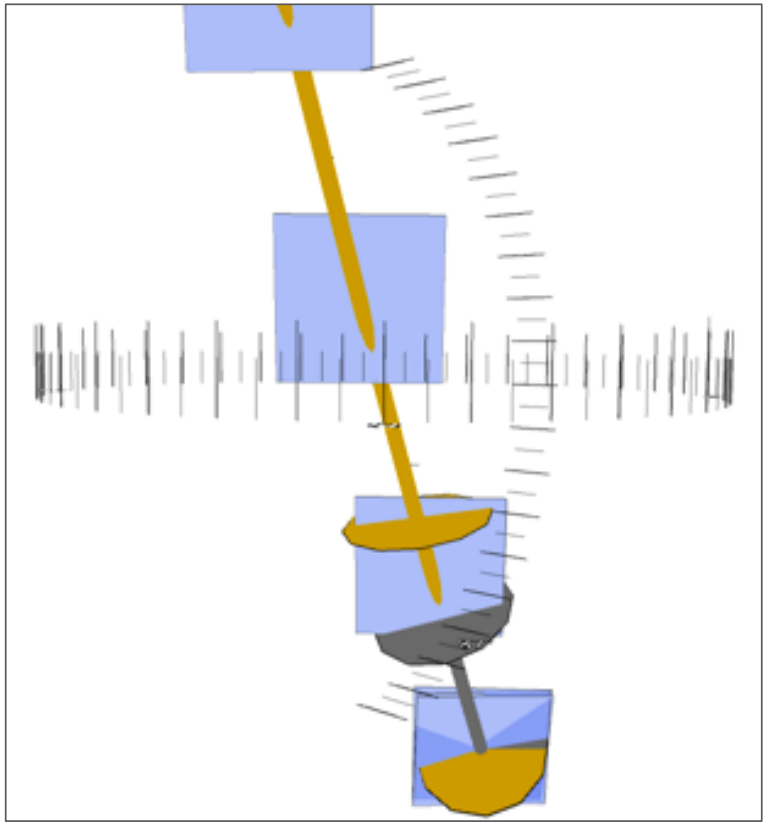
3D orthographic presentation – Joint Set 2

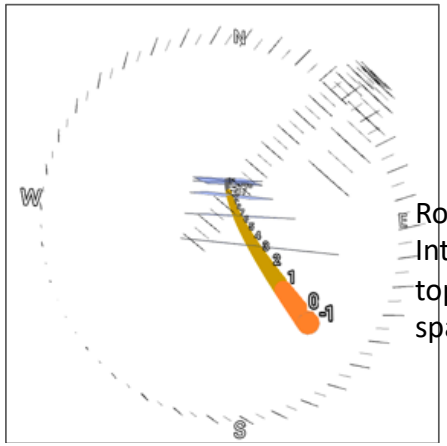


Plan view of the borehole displaying the real space orientation of the recorded Joint Set 2 structures

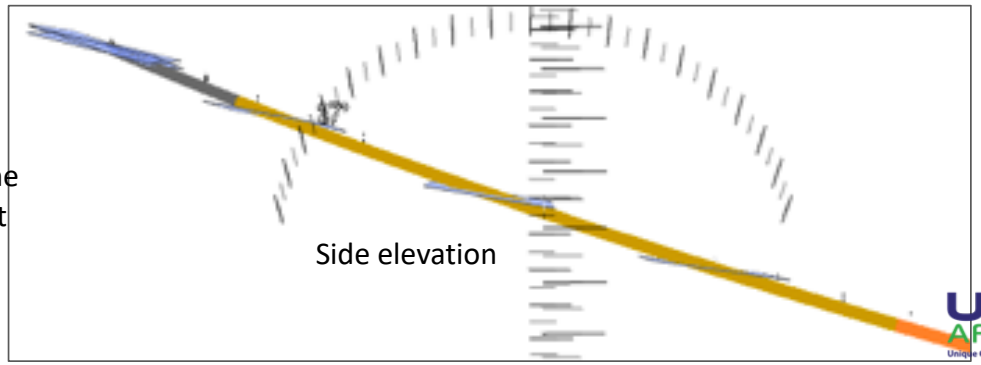
Rotated view displaying the Line of Intersection (LOI) between the Joint Set 2 structures and the lithological units.

By 2x clicking on the net reverts the image to plan providing the true orientation of the LOI.





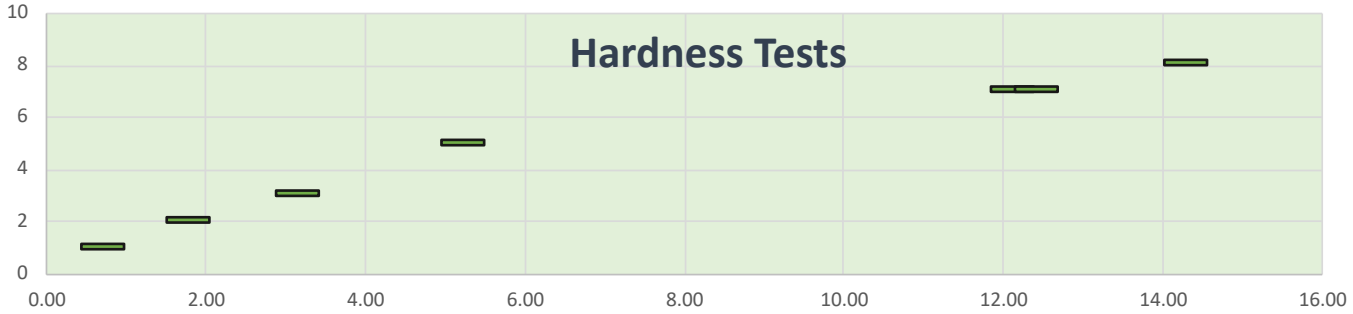
Rotated view displaying the Line of Intersection (LOI) the joints viewed from the top, providing an indication of the true joint spacing .

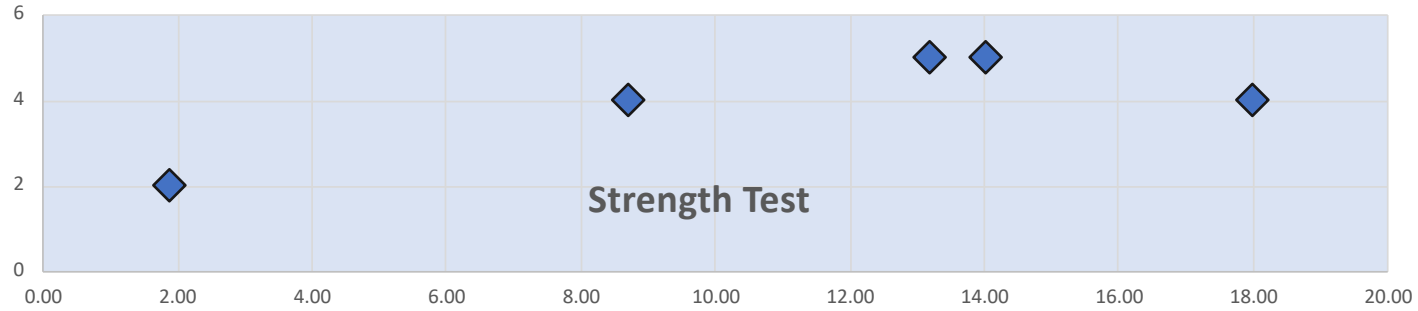


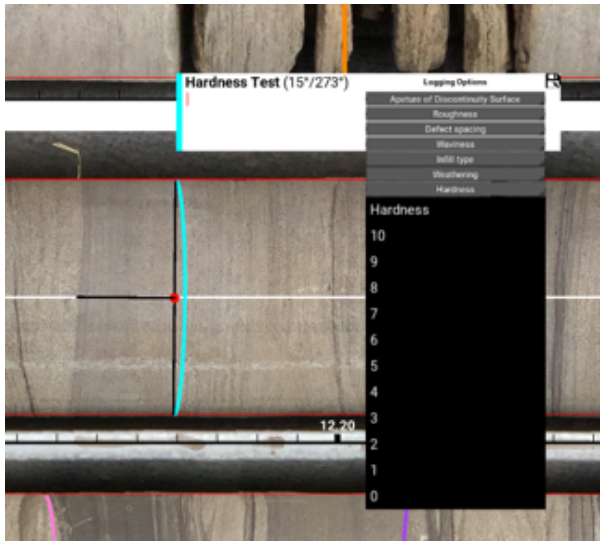
Side elevation

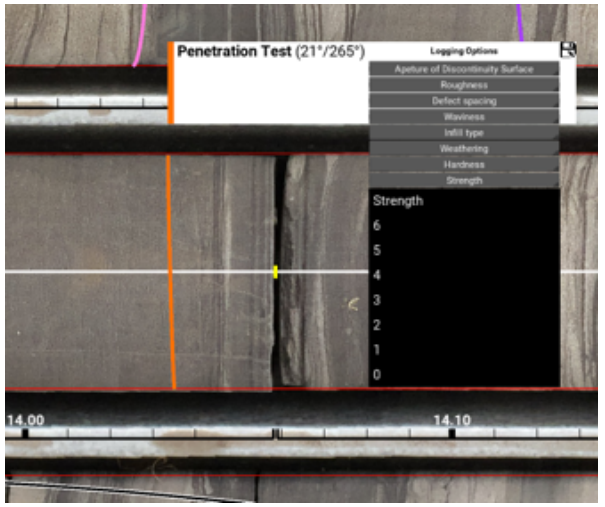
Sampling

Some descriptors can be input either as descriptive “Long Text” format , or standard qualitative codes or numbers that can be represented graphically in the geotechnical log.





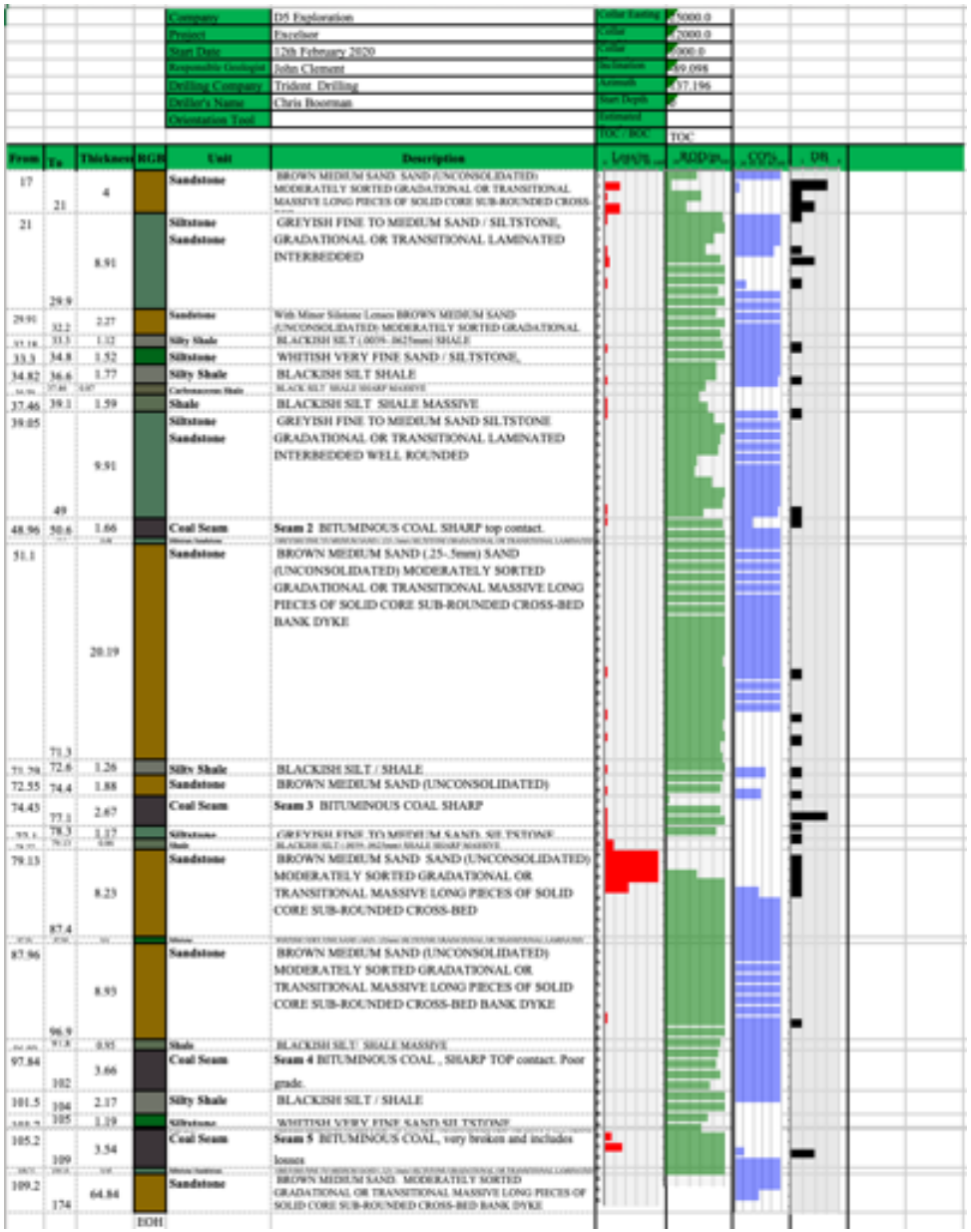




Geological Strip log

ScanIT directly exports the data to an Excel spread sheet with the Lithological Description and all additional Comments in proper “Long Text”, readable format and presents a scalable geological log.

The format and presentation of the log is highly customizable.



				Company	D5 Exploration	Collar Easting	5000.0			
				Project	Fayelluw	Collar	7000.0			
				Start Date	12th February 2020	Collar	300.0			
				Responsible Geologist	John Clement	Inclination	-89.098			
				Drilling Company	Trident Drilling	Azimuth	37.196			
				Driller's Name	Chris Boorman	Start Depth				
				Orientation Tool		Estimated				
						TOC? BOC	TOC			
From	To	Thickness	RGB	Unit	Description	Lith%	RQD%	CO2	DB	
17	21	4		Sandstone	BROWN MEDIUM SAND. SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-					
21	29.9	8.91		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND / SILTSTONE, GRADATIONAL OR TRANSITIONAL LAMINATED INTERBEDDED					
29.91	32.2	2.27		Sandstone	With Minor Siltstone Lenses BROWN MEDIUM SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL					
32.18	33.3	1.12		Silty Shale	BLACKISH SILT (0039- 0625mm) SHALE					
33.3	34.8	1.52		Siltstone	WHITISH VERY FINE SAND / SILTSTONE,					
34.82	36.6	1.77		Silty Shale	BLACKISH SILT SHALE					
36.59	37.46	0.87		Carbonaceous Shale	BLACK SILT SHALE SHARP MASSIVE					
37.46	39.1	1.59		Shale	BLACKISH SILT SHALE MASSIVE					
39.05	49	9.91		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND SILTSTONE GRADATIONAL OR TRANSITIONAL LAMINATED INTERBEDDED WELL ROUNDED					
48.96	50.6	1.66		Coal Seam	**Seam 2** BITUMINOUS COAL SHARP top contact.					
51.1	71.3	20.19		Sandstone	BROWN MEDIUM SAND (.25- 5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE					
71.79	72.6	1.26		Silty Shale	BLACKISH SILT / SHALE					
72.55	74.4	1.88		Sandstone	BROWN MEDIUM SAND (UNCONSOLIDATED)					
74.43	77.1	2.67		Coal Seam	**Seam 3** BITUMINOUS COAL SHARP					
77.1	78.3	1.17		Siltstone Shale	GREYISH FINE TO MEDIUM SAND. SILTSTONE BLACKISH SILT (0039- 0625mm) SHALE SHARP MASSIVE					
79.13	87.4	8.23		Sandstone	BROWN MEDIUM SAND SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED					
87.96	96.9	8.93		Sandstone	BROWN MEDIUM SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE					
96.91	97.84	0.93		Shale	BLACKISH SILT SHALE MASSIVE					
97.84	102	3.66		Coal Seam	**Seam 4** BITUMINOUS COAL , SHARP TOP contact. Poor grade.					
101.5	104	2.17		Silty Shale	BLACKISH SILT / SHALE					
103.7	105	1.19		Siltstone	WHITISH VERY FINE SAND/ SILTSTONE					
105.2	109	3.54		Coal Seam	**Seam 5** BITUMINOUS COAL, very broken and includes losses					
109.2	174	64.84		Sandstone	BROWN MEDIUM SAND. MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE					
			EOH							

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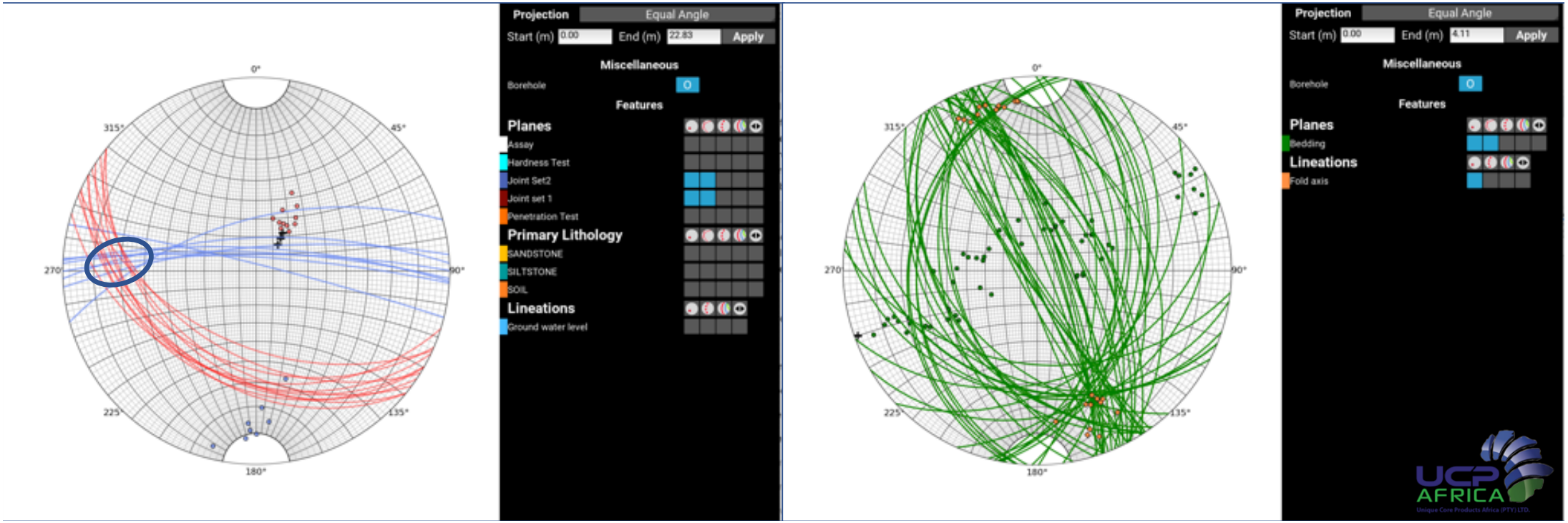
Stereographic analysis

The Key on the right displays all the Features that have been recorded in the borehole with a sequence of header icons

1. Displays the poles to the planes and the plot of the lineations,
2. Is the Lines icon that plots the lower hemisphere great circles of the planes,
3. Statistically calculates and plots mean vector, standard deviations and the mean great circle.
4. Projects the smoothed Kamb contours
5. Sorts or filters and removes all the the un-oriented or un-reliable recordings.

Clicking on the header icon plots all the features for all the structures in the group, whereas clicking on boxes below the header icon only effects recordings for a specific feature.

The "Lines" tab displays the great circles plotted on a lower hemisphere projection.

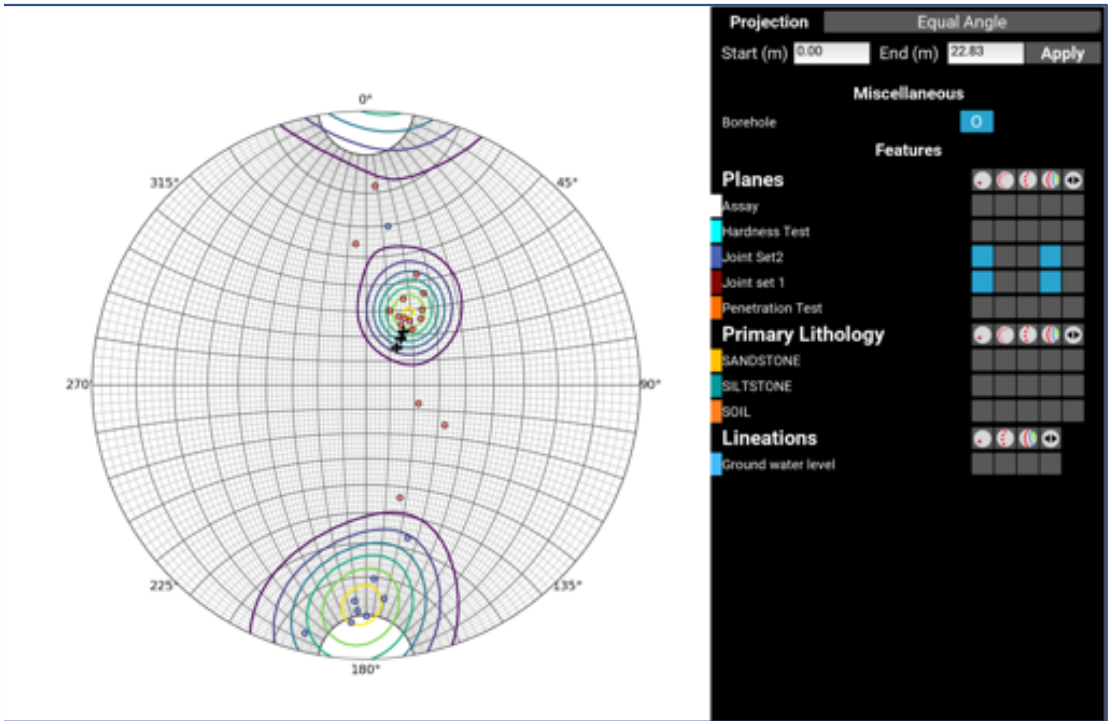


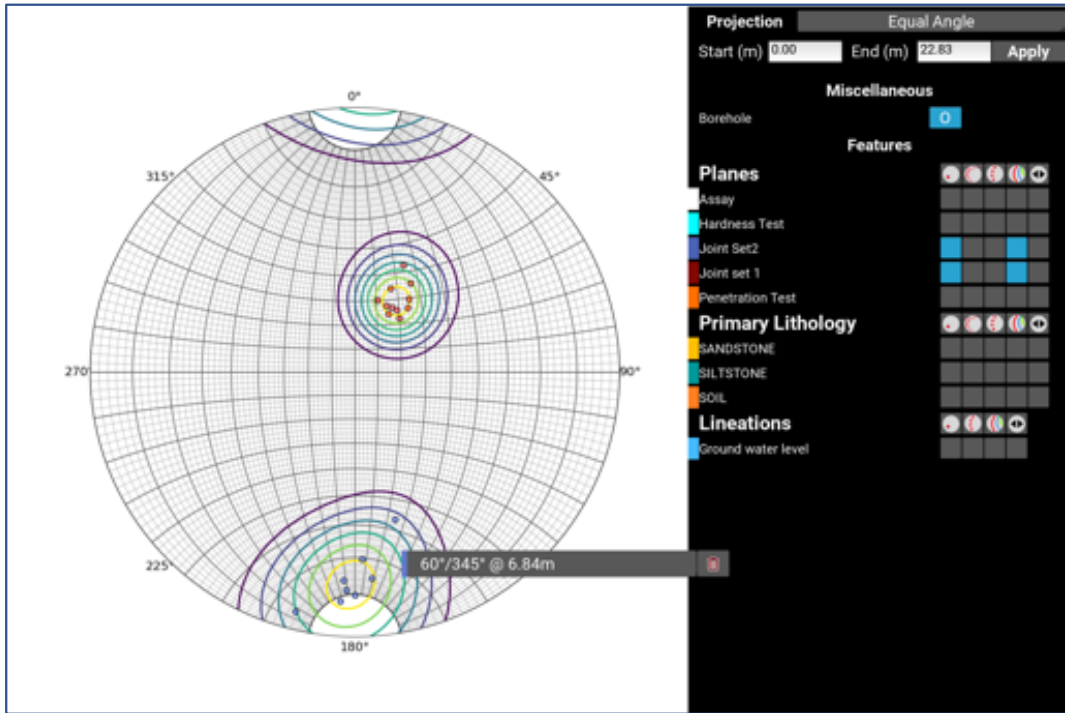
Stereographic analysis

The “Contours” tab displays the logometrically smoothed distribution Kamb contours.

The Kamb distribution contours can be used to assist in ‘clean’ data sets, any obvious erroneous data points can be selected and immediately a pop-up tab displays the Dip & Dip Direction and the depth of the recording.

Before simply deleting a particular structure the user should examine the original plot on the image by simply 2x clicking on the window.





Stereographic analysis

The “Mean” tab statistically calculates the mean vector and the population standard deviation.

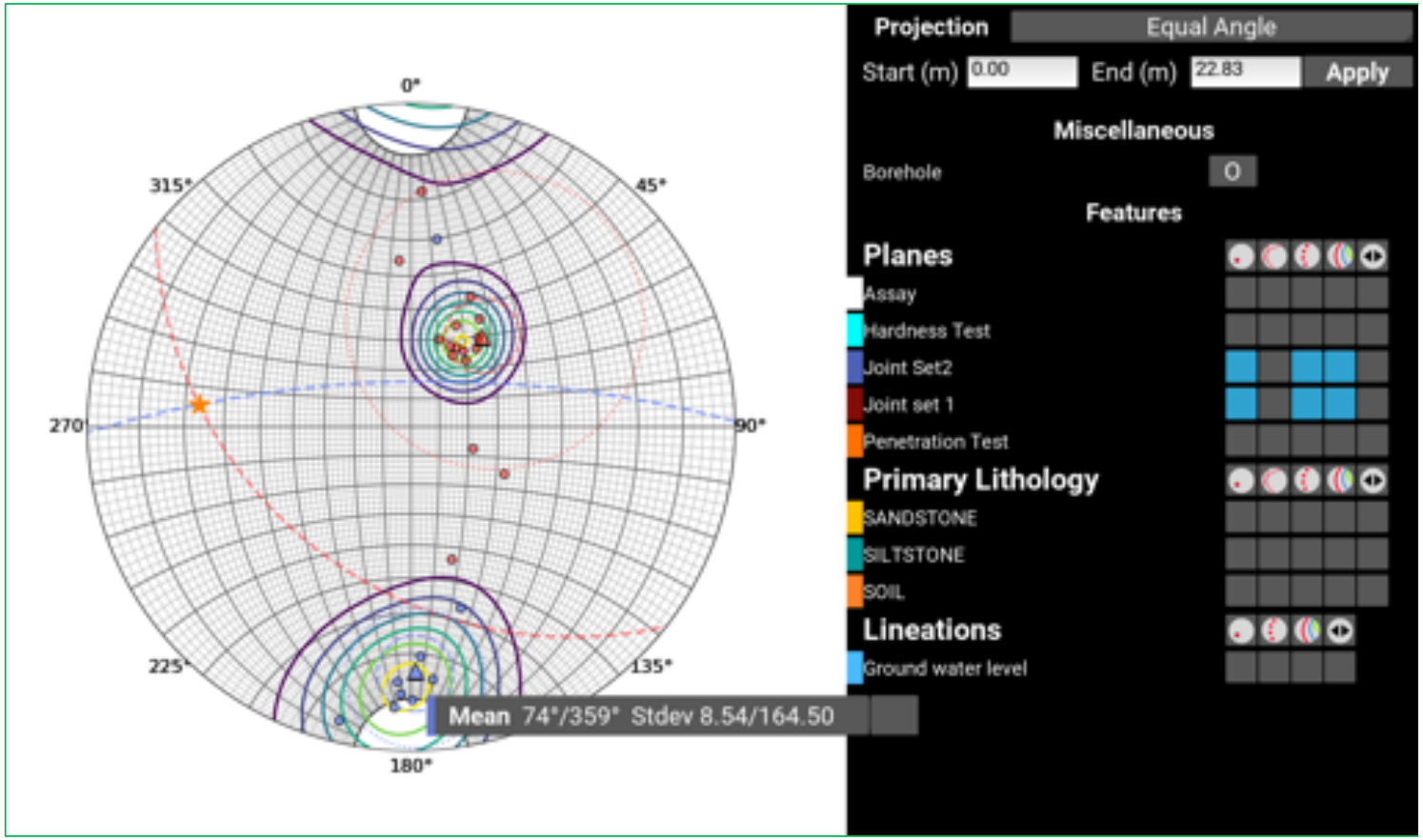
The program plots the mean vector as a large triangle, the standard deviations as a dashed or dotted circle around the mean and the great circle representing the average plane of the structures.

Selecting a particular structure brings up a pop-p displaying the Dip & Dip Direction and the epth at which the structure is located in the orehole,

the trash icon on the right side of the tab removes the structure and automatically recalculates the mean and re-plots the Great Circle.

double clicking on the box transfers to the structure recorded on the core tray image displaying the structure where the recording can be audited, replotted or removed.

The intersection point between two average mean great circles is platted as a coloured star and clicking on the star displays the plunge and trend of the LOI.



Statistical analysis and editing of structural data, should not be used flippantly, deleting datum permanently removes the structure from the data set. The circular mean is not fool proof, it does not work with small data sets, when the structures are folded or in situations where a single set actually comprises two individual sets.

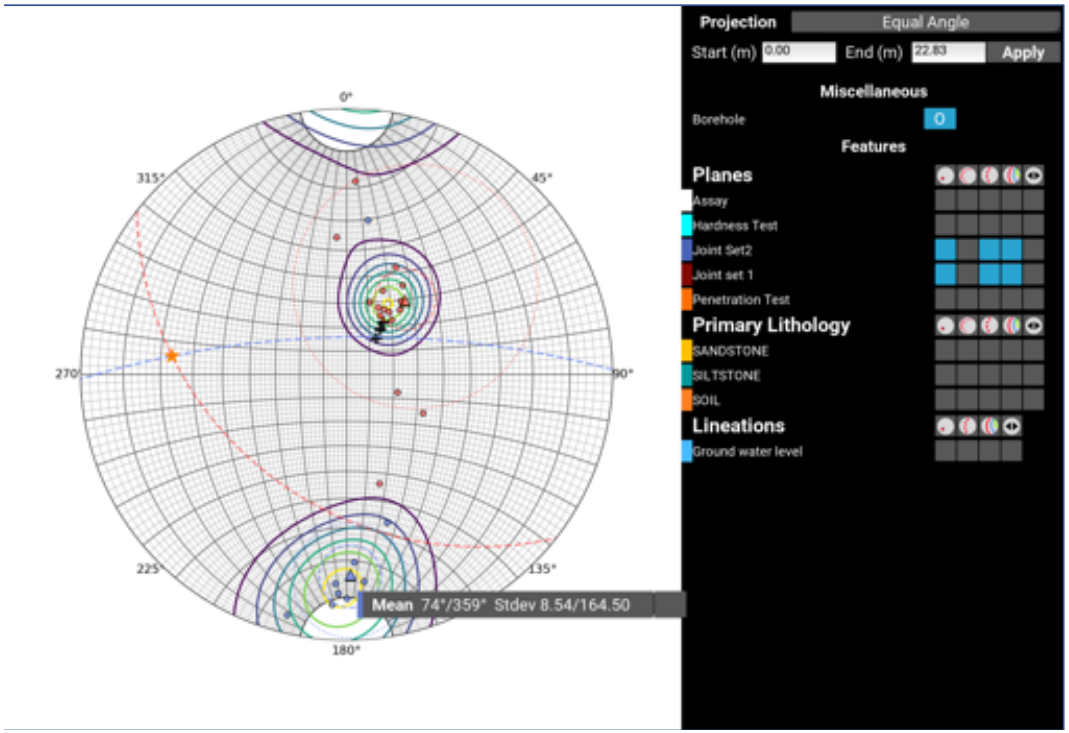
Sorting / filtering

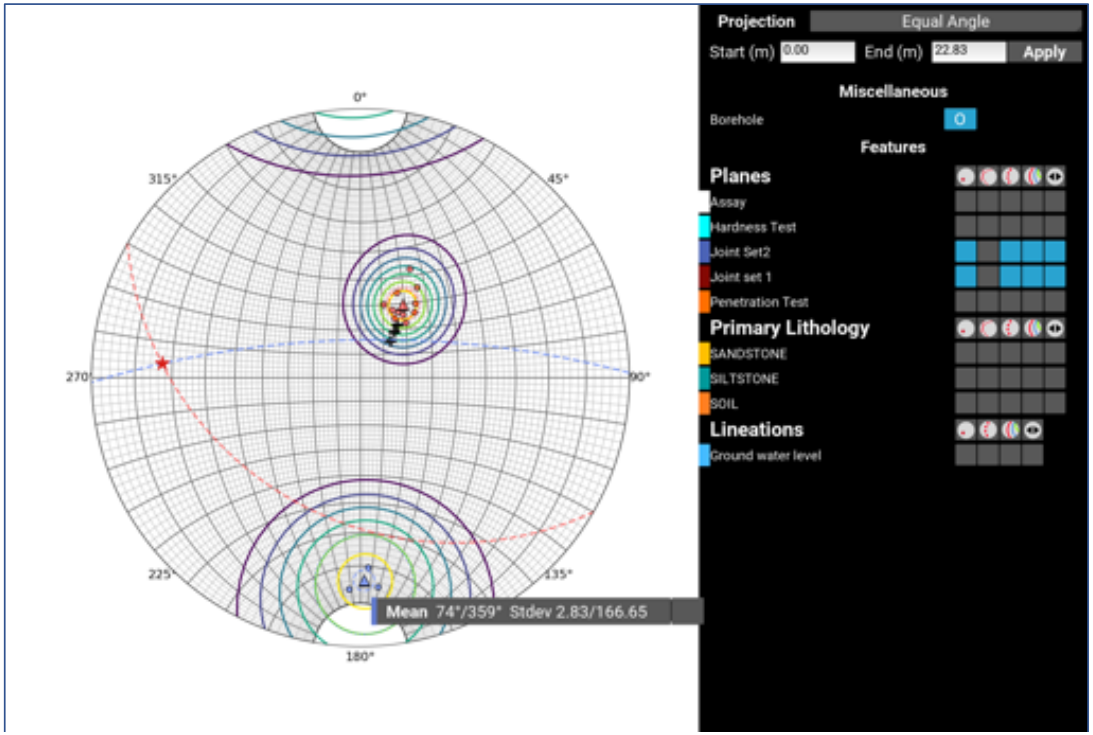
The “Sort” tab filters the un-oriented or un-reliable recordings providing more accurate and precise data sets.

The Kamb contours are redrawn, the mean vector and standard deviation are recalculated and the intersection point is recalculated.

Undo the “Sort” tab returns the original data, exiting the Stereonet page permanently deletes the erroneous data from the database.

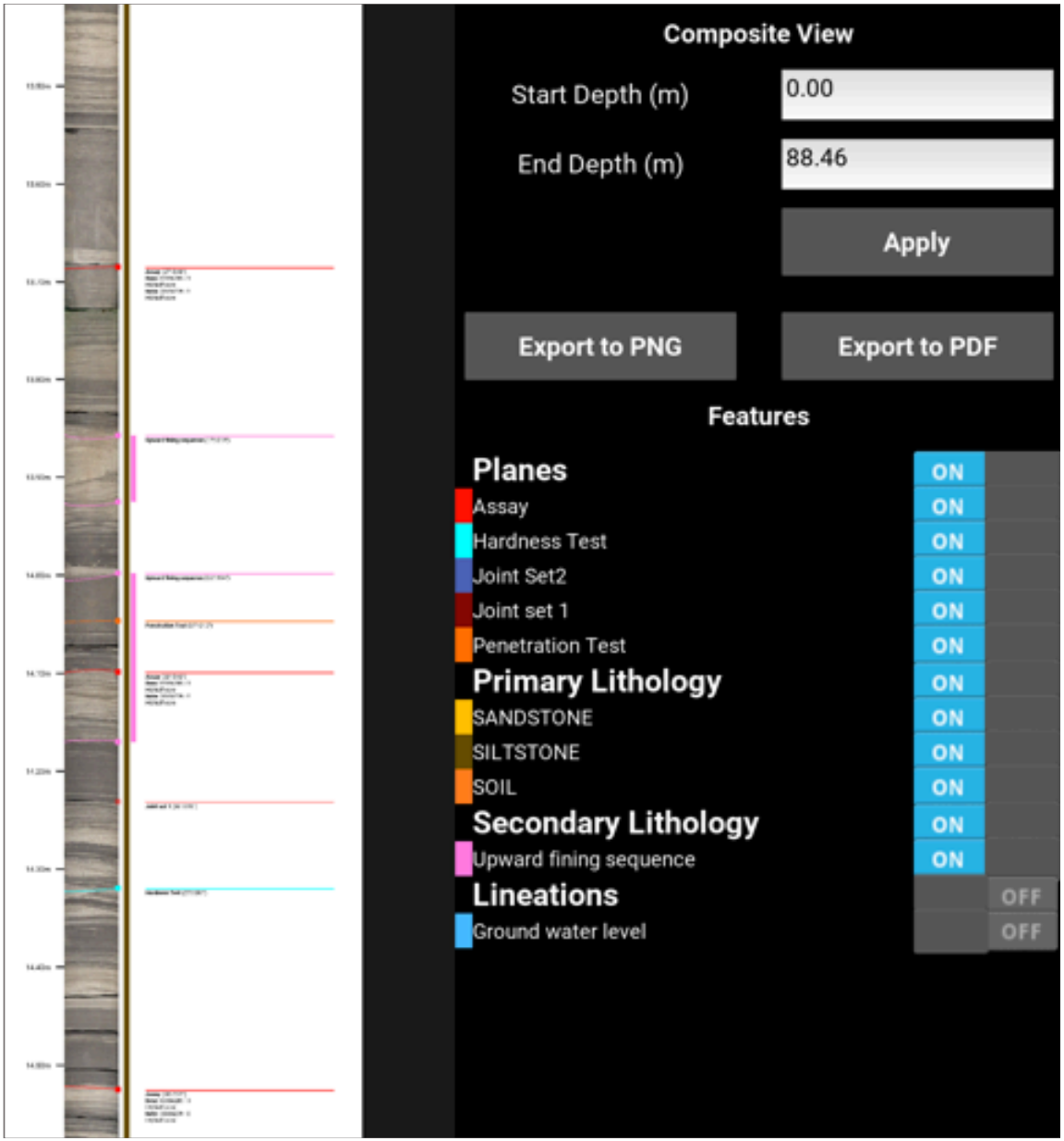
The user must be fully aware and have a good understanding of the consequences of their actions and it is always advisable to make backups of the data sets.



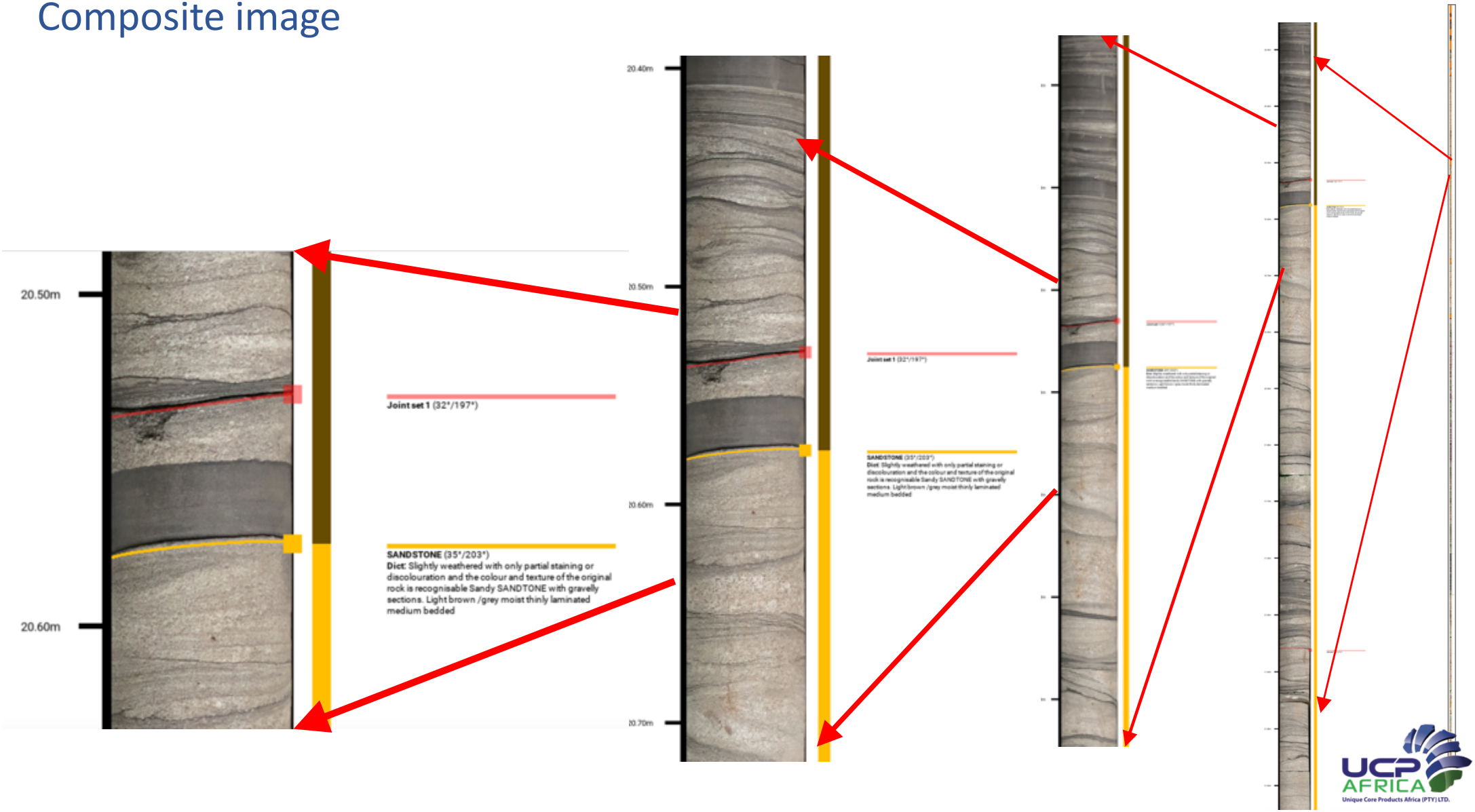


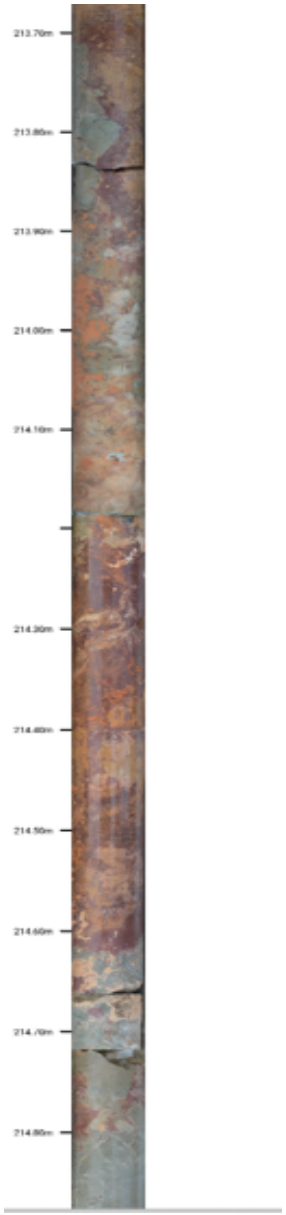
Composite image

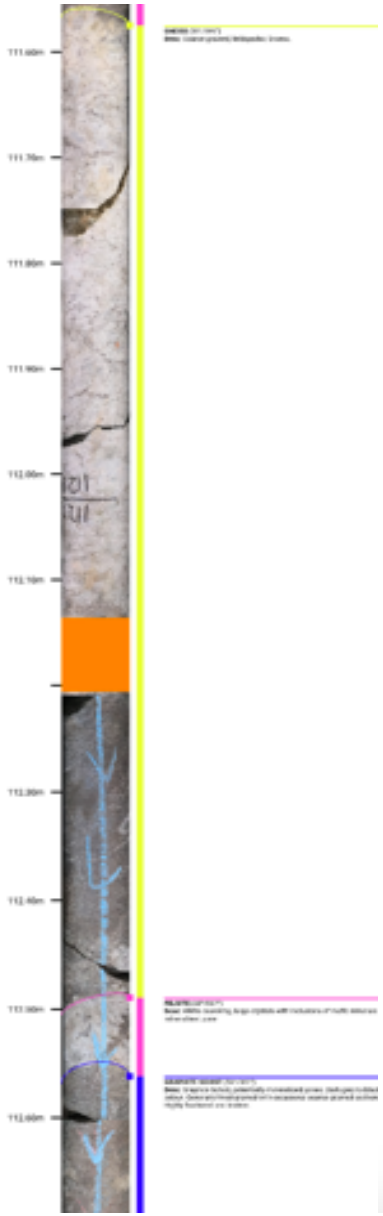
ScanIT produces utilizes the red lines, that denote the edges of the core, to crop the image to only display a single core, all the previously record Gaps and depth marks are removed to produce a clean, uninterrupted image of the borehole. The image is accurately meter-marked, the geological lithological log is plotted next to the image at the position of the contact and the image is colour coded with the unique RBG colour. The recorded structures can be selectively displayed on the image and the real space Dip and Dip Direction is displayed in a pop-up window. All loss zones are demarcated by an orange bar and any drill breaks or orientation discontinuities defined by a thin orange line.

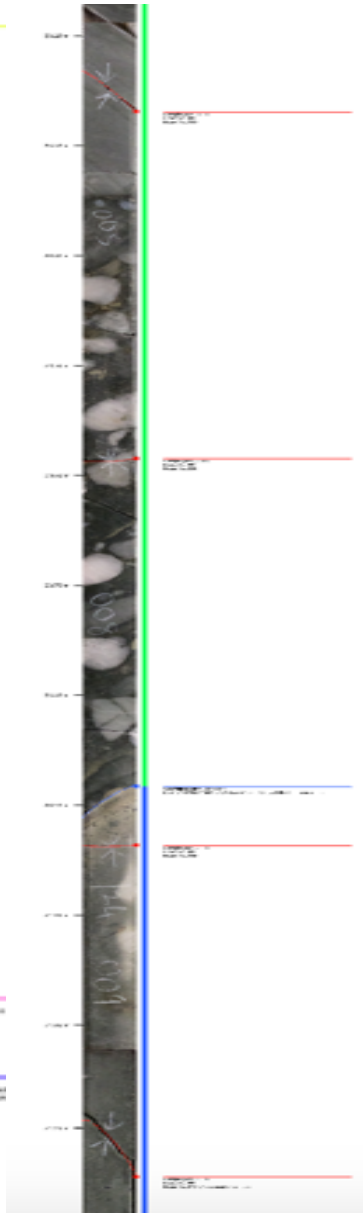


Composite image




213.70m
213.80m
213.90m
214.00m
214.10m
214.30m
214.40m
214.50m
214.60m
214.70m
214.80m

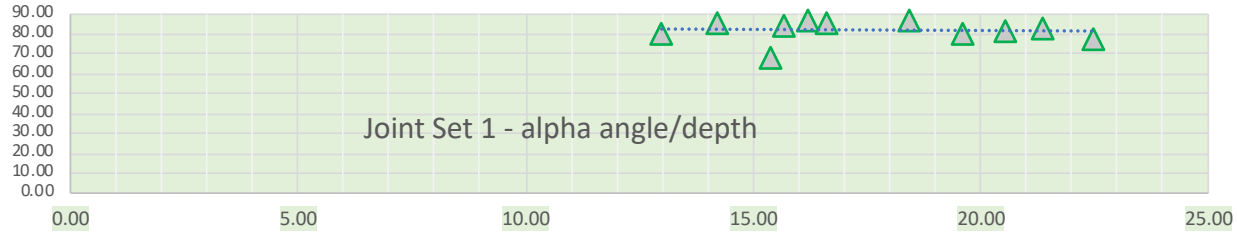

111.60m
111.70m
111.80m
111.90m
112.00m
112.10m
112.30m
112.40m
112.50m
112.60m



Joint analysis - True Joint Spacing

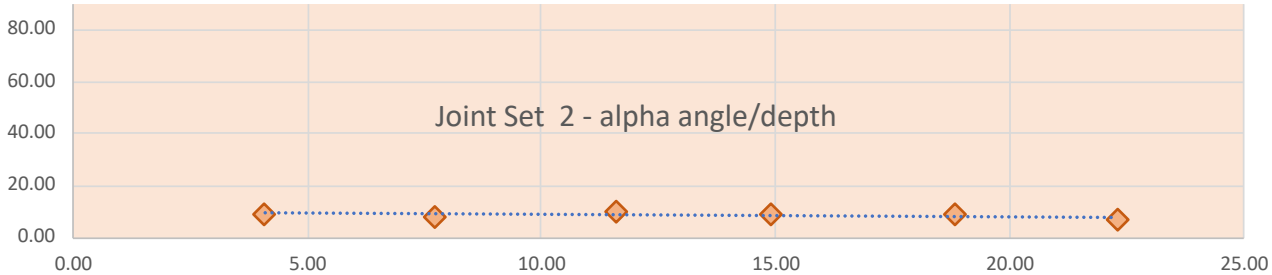
Joint set 1 – represents joints dipping 27^0 / 263^0 with an average alpha angle of 82^0. The average frequency/spacing of the joints is 0.95m with the True Spacing calculated using the alpha angle is 0.94m.

Plotting the joint alpha angle against the recorded depth demonstrates the position of the joints on the borehole and the spacing between the joints and the alpha angle.

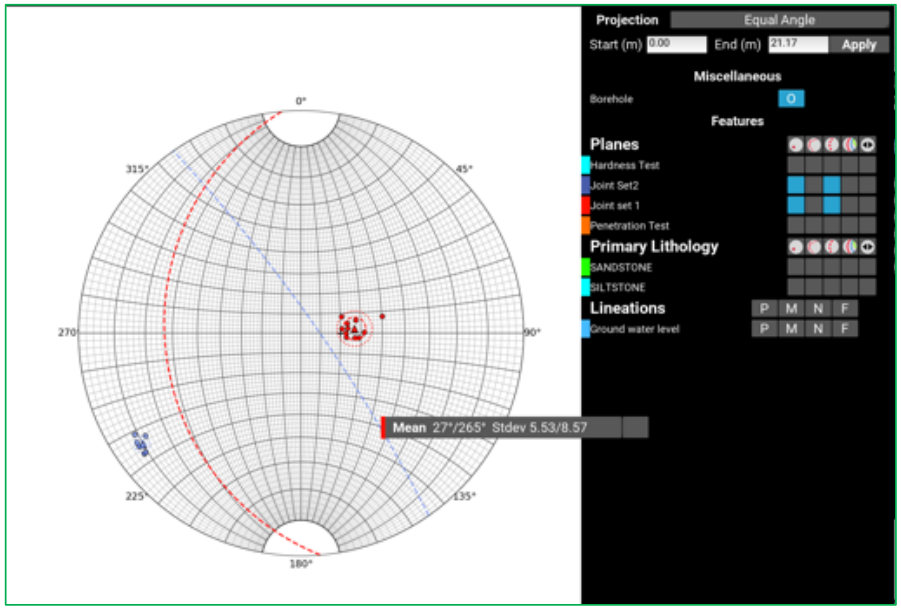


Joint set 2 – represents a set dipping 82^0 / 055^0 with an average alpha angle of 8^0. The average frequency/spacing of the joints 3.64m with the True spacing calculated using the alpha angle is actually only 0.56m

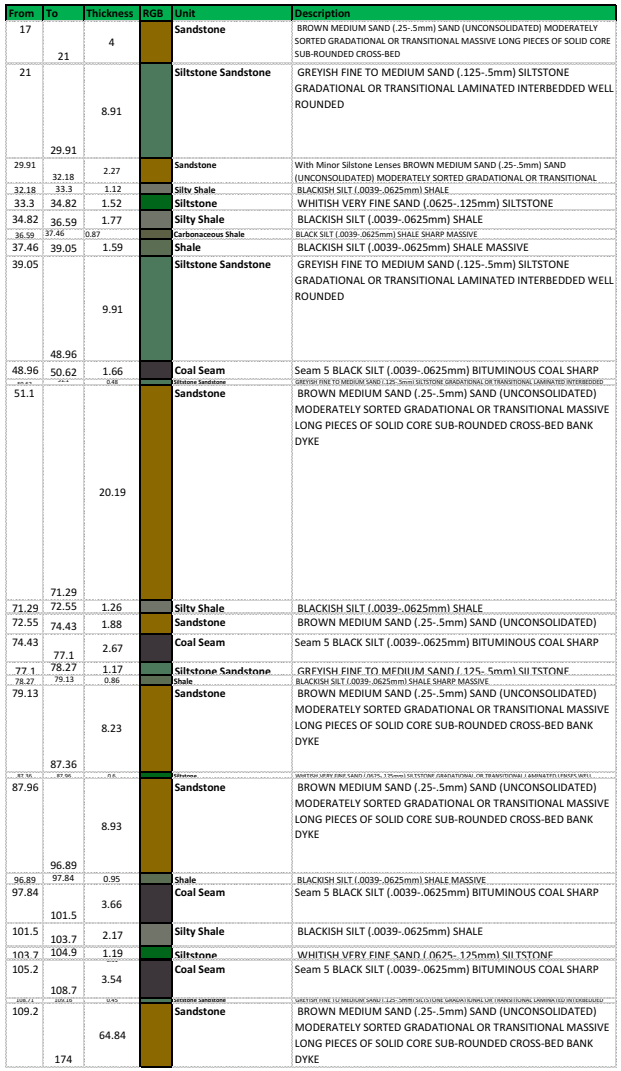
Although the joints appear to be widely spaced along the entire length of the borehole, the joints are misleadingly only spaced 0.56m apart, closer than Set 1.



			PLANAR STRUCTURES						
DEPTH (m)	Spacing	True spacing	Plane ID	Description	Dip	Dip Direction	alpha(0)	beta(0)	Oriented
12.99			Joint set 1		29	274	81	347	TRUE
14.22	1.23	1.23	Joint set 1		23	275	86	327	TRUE
15.41	1.19	1.11	Joint set 1		41	258	68	22	TRUE
15.67	0.25	0.25	Joint set 1		24	258	84	55	TRUE
16.20	0.53	0.53	Joint set 1	Core broken	21	264	88	72	TRUE
16.61	0.42	0.41	Joint set 1		24	264	86	35	TRUE
18.45	1.84	1.83	Joint set 1		23	270	87	359	TRUE
19.59	1.14	1.13	Joint set 1		28	257	80	39	TRUE
20.53	0.94	0.93	Joint set 1		22	247	82	86	TRUE
21.36	0.83	0.82	Joint set 1		27	275	83	343	TRUE
22.50	1.14	1.12	Joint set 1		32	269	78	3	TRUE
AVG	**0.95**	**0.94**			**26.41**	**263.67**	**82.24**		
STDEV	**0.47**	**0.46**			**6.04**	**8.79**	**5.77**		
4.10			Joint Set2		83	55	10	35	TRUE
7.75	3.65	0.55	Joint Set2		83	53	9	38	TRUE
11.60	3.85	0.65	Joint Set2		83	56	10	34	TRUE
14.94	3.34	0.55	Joint Set2		82	59	10	31	TRUE
18.82	3.88	0.62	Joint Set2		83	52	9	38	TRUE
22.29	3.48	0.41	Joint Set2		80	57	7	33	TRUE
AVG	**3.64**	**0.56**			**82.28**	**55.38**	**8.76**	**34.72**	
STDEV	**0.21**	**0.08**			**1.21**	**2.46**	**1.09**	**2.52**	



Geological log



From	To	Thickness	RGB	Unit	Description
17	21	4		Sandstone	BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED
21	29.91	8.91		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND (.125-.5mm) SILTSTONE GRADATIONAL OR TRANSITIONAL LAMINATED INTERBEDDED WELL ROUNDED
29.91	32.18	2.27		Sandstone	With Minor Silstone Lenses BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL
32.18	33.3	1.12		Silty Shale	BLACKISH SILT (.0039-.0625mm) SHALE
33.3	34.82	1.52		Siltstone	WHITISH VERY FINE SAND (.0625-.125mm) SILTSTONE
34.82	36.59	1.77		Silty Shale	BLACKISH SILT (.0039-.0625mm) SHALE
36.59	37.46	0.87		Carbonaceous Shale	BLACK SILT (.0039-.0625mm) SHALE SHARP MASSIVE
37.46	39.05	1.59		Shale	BLACKISH SILT (.0039-.0625mm) SHALE MASSIVE
39.05	48.96	9.91		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND (.125-.5mm) SILTSTONE GRADATIONAL OR TRANSITIONAL LAMINATED INTERBEDDED WELL ROUNDED
48.96	50.62	1.66		Coal Seam	Seam 5 BLACK SILT (.0039-.0625mm) BITUMINOUS COAL SHARP
50.62	51.1	0.48		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND (.125-.5mm) SILTSTONE GRADATIONAL OR TRANSITIONAL LAMINATED INTERBEDDED
51.1	71.29	20.19		Sandstone	BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE
71.29	72.55	1.26		Silty Shale	BLACKISH SILT (.0039-.0625mm) SHALE
72.55	74.43	1.88		Sandstone	BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED)
74.43	77.1	2.67		Coal Seam	Seam 5 BLACK SILT (.0039-.0625mm) BITUMINOUS COAL SHARP
77.1	78.27	1.17		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND (.125-.5mm) SILTSTONE
78.27	79.13	0.86		Shale	BLACKISH SILT (.0039-.0625mm) SHALE SHARP MASSIVE
79.13	87.36	8.23		Sandstone	BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE
87.36	87.96	0.6		Siltstone	WHITISH VERY FINE SAND (.0625-.125mm) SILTSTONE GRADATIONAL OR TRANSITIONAL LAMINATED LENSES WELL
87.96	96.89	8.93		Sandstone	BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE
96.89	97.84	0.95		Shale	BLACKISH SILT (.0039-.0625mm) SHALE MASSIVE
97.84	101.5	3.66		Coal Seam	Seam 5 BLACK SILT (.0039-.0625mm) BITUMINOUS COAL SHARP
101.5	103.7	2.17		Silty Shale	BLACKISH SILT (.0039-.0625mm) SHALE
103.7	104.9	1.19		Siltstone	WHITISH VERY FINE SAND (.0625-.125mm) SILTSTONE
105.2	108.7	3.54		Coal Seam	Seam 5 BLACK SILT (.0039-.0625mm) BITUMINOUS COAL SHARP
108.7	109.2	0.5		Siltstone Sandstone	GREYISH FINE TO MEDIUM SAND (.125-.5mm) SILTSTONE GRADATIONAL OR TRANSITIONAL LAMINATED INTERBEDDED
109.2	174	64.84		Sandstone	BROWN MEDIUM SAND (.25-.5mm) SAND (UNCONSOLIDATED) MODERATELY SORTED GRADATIONAL OR TRANSITIONAL MASSIVE LONG PIECES OF SOLID CORE SUB-ROUNDED CROSS-BED BANK DYKE

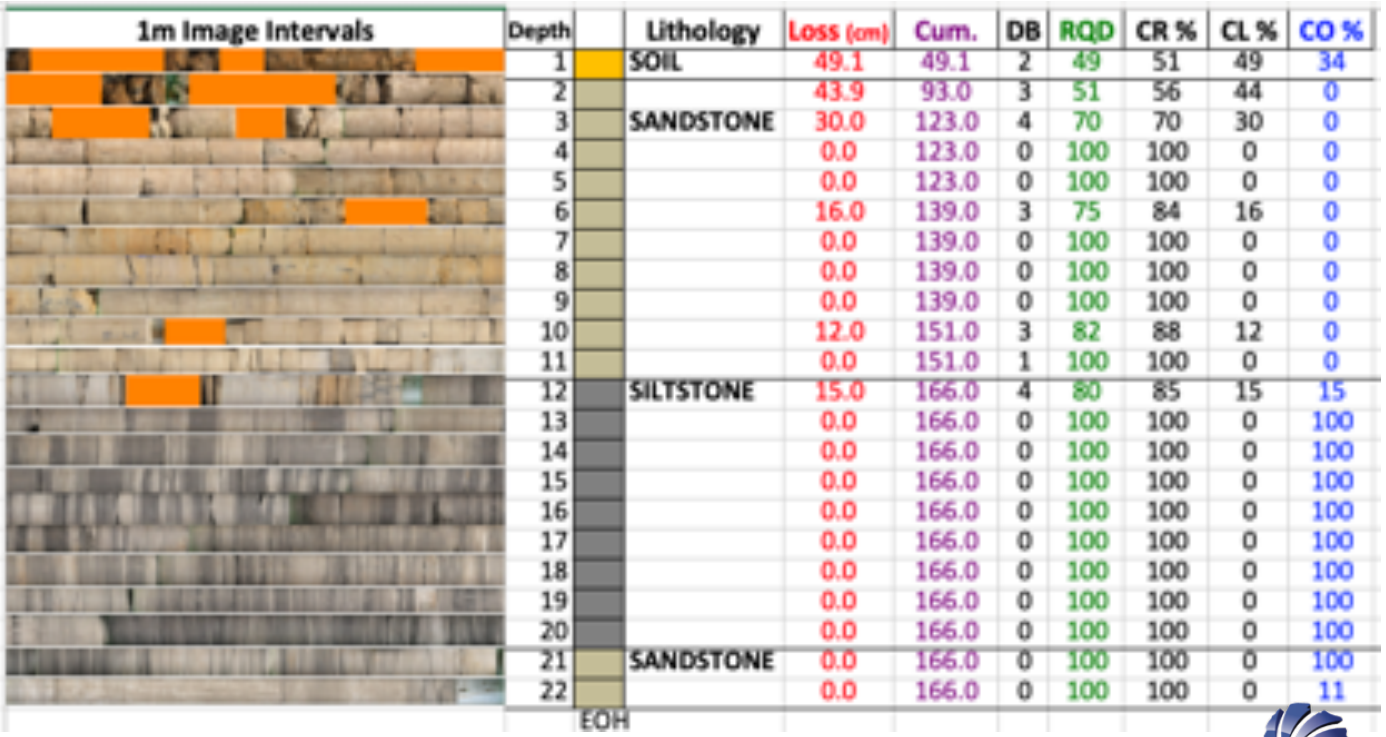
Summary

ScanIT utilises the previously recorded Natural Breaks and core loss zones to automatically calculate the basic geotechnical parameters as per defined 1, 2 or 3m intervals, rather than per run basis to provide more accurate and precise geotechnical data.

RQD's can be accurately reported on a 1.0m interval basis instead of the traditional "per run basis"

The columns include, and are not restricted to:

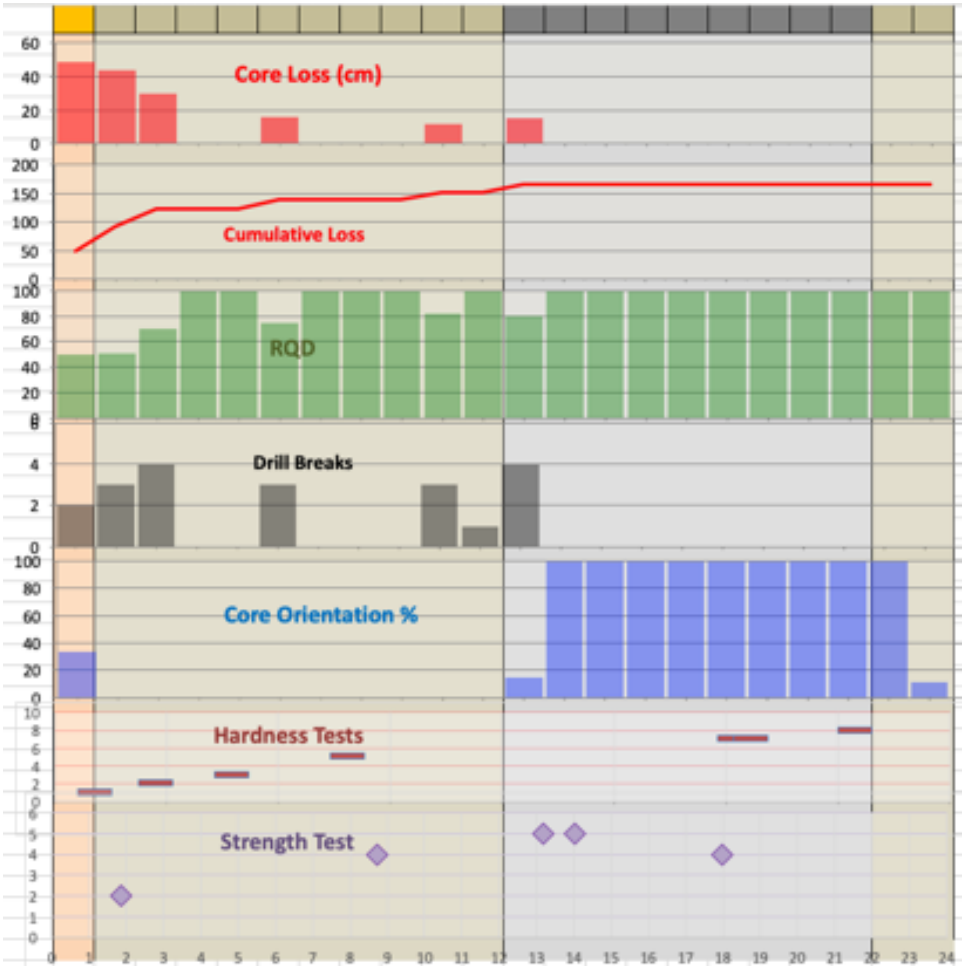
1. **Composite Image**, the program automatically crops the composite image into the prescribed intervals and collates the images in to the first column of the spreadsheet and marks all the loss zones as orange bars.
2. Interval **Depth**
3. Predominant lithological **RGB** colour
4. Predominant **Lithology** over the interval.
5. **Core lost**, measured in cm per the interval
6. **Cumulative Core Loss**
7. No. of **Drill Breaks** or **Orientation Discontinuities** that were recorded over the interval
8. **Core Recovered** recorded as % of the interval
9. **Core Loss** as % of the interval
10. **Core Orientation %** is the amount of core that is potentially orientable
11. Extra columns can be added for additional unrecorded geotechnical parameters as in **Density**, **Rock Hardness** etc.



1m Image Intervals	Depth		Lithology	Loss (cm)	Cum.	DB	RQD	CR %	CL %	CO %
	1		SOIL	49.1	49.1	2	49	51	49	34
	2			43.9	93.0	3	51	56	44	0
	3		SANDSTONE	30.0	123.0	4	70	70	30	0
	4			0.0	123.0	0	100	100	0	0
	5			0.0	123.0	0	100	100	0	0
	6			16.0	139.0	3	75	84	16	0
	7			0.0	139.0	0	100	100	0	0
	8			0.0	139.0	0	100	100	0	0
	9			0.0	139.0	0	100	100	0	0
	10			12.0	151.0	3	82	88	12	0
	11			0.0	151.0	1	100	100	0	0
	12		SILTSTONE	15.0	166.0	4	80	85	15	15
	13			0.0	166.0	0	100	100	0	100
	14			0.0	166.0	0	100	100	0	100
	15			0.0	166.0	0	100	100	0	100
	16			0.0	166.0	0	100	100	0	100
	17			0.0	166.0	0	100	100	0	100
	18			0.0	166.0	0	100	100	0	100
	19			0.0	166.0	0	100	100	0	100
	20			0.0	166.0	0	100	100	0	100
	21		SANDSTONE	0.0	166.0	0	100	100	0	100
	22			0.0	166.0	0	100	100	0	11
		EOH								

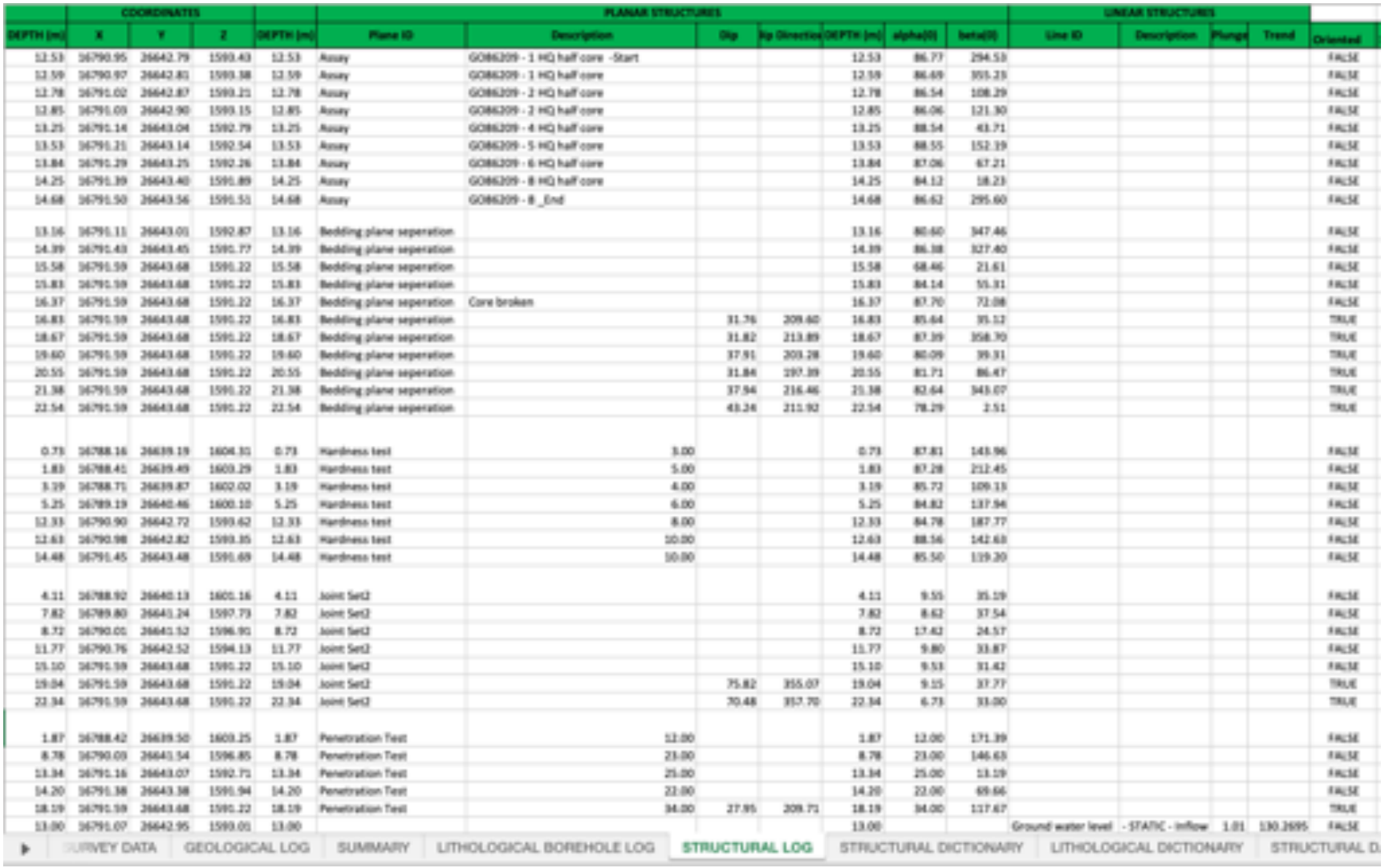
Summary

Graphical Presentation of the various parameters in basic Excel format plotted against the depth down the borehole. The type and look of the graphs can be changed as per the users preferences.



Geotechnical Parameters

All the geotechnical parameters recorded on the core, together with the Depth and X,Y,Z coordinates of each measurement are exported to an excel spread sheet. The data can be sorted, statistically analyzed and presented graphically.



	COORDINATES				PLANAR STRUCTURES							LINEAR STRUCTURES				
DEPTH (m)	X	Y	Z	DEPTH (m)	Plane ID	Description	Dip	Dip Direction	DEPTH (m)	alpha(0)	beta(0)	Line ID	Description	Plunge	Trend	Oriented
12.53	16790.95	26642.79	1593.43	12.53	Assay	GO86209 - 1 HQ half core -Start			12.53	86.77	294.53					FALSE
12.59	16790.97	26642.81	1593.38	12.59	Assay	GO86209 - 1 HQ half core			12.59	86.69	355.23					FALSE
12.78	16791.02	26642.87	1593.21	12.78	Assay	GO86209 - 2 HQ half core			12.78	86.54	108.29					FALSE
12.85	16791.03	26642.90	1593.15	12.85	Assay	GO86209 - 2 HQ half core			12.85	86.06	121.30					FALSE
13.25	16791.14	26643.04	1592.79	13.25	Assay	GO86209 - 4 HQ half core			13.25	88.54	43.71					FALSE
13.53	16791.21	26643.14	1592.54	13.53	Assay	GO86209 - 5 HQ half core			13.53	88.55	152.19					FALSE
13.84	16791.29	26643.25	1592.26	13.84	Assay	GO86209 - 6 HQ half core			13.84	87.06	67.21					FALSE
14.25	16791.39	26643.40	1591.89	14.25	Assay	GO86209 - 8 HQ half core			14.25	84.12	18.23					FALSE
14.68	16791.50	26643.56	1591.51	14.68	Assay	GO86209 - 8 _End			14.68	86.62	295.60					FALSE
13.16	16791.11	26643.01	1592.87	13.16	Bedding plane seperation				13.16	80.60	347.46					FALSE
14.39	16791.43	26643.45	1591.77	14.39	Bedding plane seperation				14.39	86.38	327.40					FALSE
15.58	16791.59	26643.68	1591.22	15.58	Bedding plane seperation				15.58	68.46	21.61					FALSE
15.83	16791.59	26643.68	1591.22	15.83	Bedding plane seperation				15.83	84.14	55.31					FALSE
16.37	16791.59	26643.68	1591.22	16.37	Bedding plane seperation	Core broken			16.37	87.70	72.08					FALSE
16.83	16791.59	26643.68	1591.22	16.83	Bedding plane seperation		31.76	209.60	16.83	85.64	35.12					TRUE
18.67	16791.59	26643.68	1591.22	18.67	Bedding plane seperation		31.82	213.89	18.67	87.39	358.70					TRUE
19.60	16791.59	26643.68	1591.22	19.60	Bedding plane seperation		37.91	203.28	19.60	80.09	39.31					TRUE
20.55	16791.59	26643.68	1591.22	20.55	Bedding plane seperation		31.84	197.39	20.55	81.71	86.47					TRUE
21.38	16791.59	26643.68	1591.22	21.38	Bedding plane seperation		37.94	216.46	21.38	82.64	343.07					TRUE
22.54	16791.59	26643.68	1591.22	22.54	Bedding plane seperation		43.24	211.92	22.54	78.29	2.51					TRUE
0.73	16788.16	26639.19	1604.31	0.73	Hardness test	3.00			0.73	87.81	143.96					FALSE
1.83	16788.41	26639.49	1603.29	1.83	Hardness test	5.00			1.83	87.28	212.45					FALSE
3.19	16788.71	26639.87	1602.02	3.19	Hardness test	4.00			3.19	85.72	109.13					FALSE
5.25	16789.19	26640.46	1600.10	5.25	Hardness test	6.00			5.25	84.82	137.94					FALSE
12.33	16790.90	26642.72	1593.62	12.33	Hardness test	8.00			12.33	84.78	187.77					FALSE
12.63	16790.98	26642.82	1593.35	12.63	Hardness test	10.00			12.63	88.56	142.63					FALSE
14.48	16791.45	26643.48	1591.69	14.48	Hardness test	10.00			14.48	85.50	119.20					FALSE
4.11	16788.92	26640.13	1601.16	4.11	Joint Set2				4.11	9.55	35.19					FALSE
7.82	16789.80	26641.24	1597.73	7.82	Joint Set2				7.82	8.62	37.54					FALSE
8.72	16790.01	26641.52	1596.91	8.72	Joint Set2				8.72	17.42	24.57					FALSE
11.77	16790.76	26642.52	1594.13	11.77	Joint Set2				11.77	9.80	33.87					FALSE
15.10	16791.59	26643.68	1591.22	15.10	Joint Set2				15.10	9.53	31.42					FALSE
19.04	16791.59	26643.68	1591.22	19.04	Joint Set2		75.82	355.07	19.04	9.15	37.77					TRUE
22.34	16791.59	26643.68	1591.22	22.34	Joint Set2		70.48	357.70	22.34	6.73	33.00					TRUE
1.87	16788.42	26639.50	1603.25	1.87	Penetration Test	12.00			1.87	12.00	171.39					FALSE
8.78	16790.03	26641.54	1596.85	8.78	Penetration Test	23.00			8.78	23.00	146.63					FALSE
13.34	16791.16	26643.07	1592.71	13.34	Penetration Test	25.00			13.34	25.00	13.19					FALSE
14.20	16791.38	26643.38	1591.94	14.20	Penetration Test	22.00			14.20	22.00	69.66					FALSE
18.19	16791.59	26643.68	1591.22	18.19	Penetration Test	34.00	27.95	209.71	18.19	34.00	117.67					TRUE
13.00	16791.07	26642.95	1593.01	13.00					13.00			Ground water level	- STATIC - inflow	1.01	130.2695	FALSE

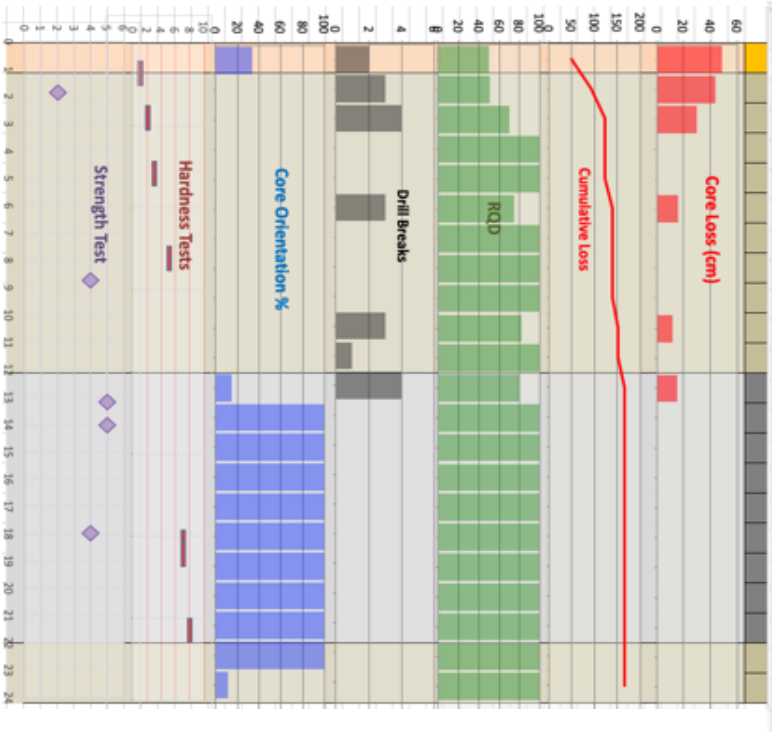
SURVEY DATA | GEOLOGICAL LOG | SUMMARY | LITHOLOGICAL BOREHOLE LOG | STRUCTURAL LOG | STRUCTURAL DICTIONARY | LITHOLOGICAL DICTIONARY | STRUCTURAL D

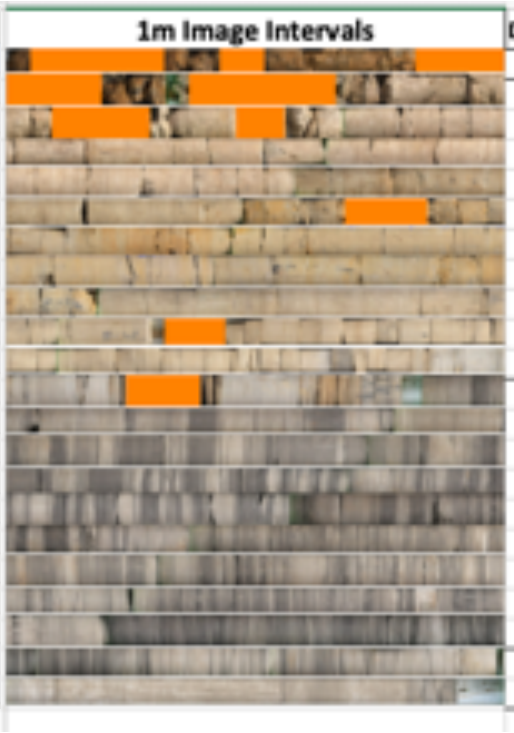
Geotechnical Parameters

Summary

ScanIT utilises the previously recorded Natural breaks to automatically calculate the basic geotechnical parameters as per user defined intervals, normally 1.0m, rather than per run basis. The user can nominate the interval size; 1, 2 or 3m which is designed to provide more accurate and precise geotechnical data.

RQD's can be reported





Depth		Lithology	Loss (cm)	Cum.	DB	RQD	CR %	CL %	CO %
1		SOIL	49.1	49.1	2	49	51	49	34
2			43.9	93.0	3	51	56	44	0
3		SANDSTONE	30.0	123.0	4	70	70	30	0
4			0.0	123.0	0	100	100	0	0
5			0.0	123.0	0	100	100	0	0
6			16.0	139.0	3	75	84	16	0
7			0.0	139.0	0	100	100	0	0
8			0.0	139.0	0	100	100	0	0
9			0.0	139.0	0	100	100	0	0
10			12.0	151.0	3	82	88	12	0
11			0.0	151.0	1	100	100	0	0
12		SILTSTONE	15.0	166.0	4	80	85	15	15
13			0.0	166.0	0	100	100	0	100
14			0.0	166.0	0	100	100	0	100
15			0.0	166.0	0	100	100	0	100
16			0.0	166.0	0	100	100	0	100
17			0.0	166.0	0	100	100	0	100
18			0.0	166.0	0	100	100	0	100
19			0.0	166.0	0	100	100	0	100
20			0.0	166.0	0	100	100	0	100
21		SANDSTONE	0.0	166.0	0	100	100	0	100
22			0.0	166.0	0	100	100	0	11
	EOH								