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BOREHOLE: BHT-01

Project:	Pioneer-Burdekin PHES	Position:	Upper Reservoir	Sheet	1 of 6
Location:	Netherdale/Dalrymple Heights	Coords:	656802.9 m E 7667400.0 m N MGA2020-55		
Client:	Queensland Hydro	Surface RL:	878.5 m AHD	Date Started:	18/9/2023
Job No.:	PS138693	Contractor:	Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-8DTM	Date Completed:	22/9/2023
		Inclination:	-87° Direction: 265°	Logged:	NP

Drilling | **Sampling** | **Field Material Description**

METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/V		Groundwater Not Encountered	0	878.47				CL	TOPSOIL Silty CLAY: low to medium plasticity, red - brown, trace fine grained sand.			TOPSOIL
				0.20 878.27				ML	Clayey SILT: low to medium plasticity, yellow - brown, trace fine to medium grained sand.		VSt	RESIDUAL SOIL
				0.50 877.97					Pale brown and red-brown mottled..			
			1		U 1.50-1.78 m PB-BHT-01-001						St - VSt	
			2		SPT 1.78-2.23 m 5,7,9 N=16 D 1.78-2.23 m PB-BHT-01-002 PP 1.78 m =460-600 kPa							
			3	3.00 875.47	SPT 3.00-3.45 m 3,4,8 N=12 D 3.00-3.45 m PB-BHT-01-003 PP 3.00 m =420-500 kPa				Without pale brown mottled..			
			4									
				4.50 873.98	SPT 4.50-4.95 m 3,4,5 N=9 D 4.50-4.95 m PB-BHT-01-004 PP 4.50 m =300-350 kPa				Brown-red.	w<PL		
	E		5								St	
WB		Groundwater Not Assessed	6		U 6.00-6.40 m PB-BHT-01-005							
				6.70 871.78	SPT 6.40-6.85 m 3,4,7 N=11 D 6.40-6.85 m PB-BHT-01-006 PP 6.40 m =350-450 kPa			CI	CLAY: medium plasticity, brown mottled pale brown, with fine to coarse grained sand.			EXTREMELY WEATHERED MATERIAL
			7									
				7.50 870.98	SPT 7.50-7.95 m 3,6,8 N=14 D 7.50-7.95 m PB-BHT-01-007			ML	Clayey SILT: low to medium plasticity, yellow - brown, trace fine to medium grained sand; rare black veining.		St - VSt	
			8									
			9	9.00 869.48	SPT 9.00-9.45 m 2,4,8 N=12 D 9.00-9.45 m PB-BHT-01-008				Low plasticity clay, mottled white.	w≈PL	St	
			10									

Comments

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BOREHOLE: BHT-01

Project:	Pioneer-Burdekin PHES	Position:	Upper Reservoir	Sheet	2 of 6
Location:	Netherdale/Dalrymple Heights	Coords:	656802.9 m E 7667400.0 m N MGA2020-55		
Client:	Queensland Hydro	Surface RL:	878.5 m AHD	Date Started:	18/9/2023
Job No.:	PS138693	Contractor:	Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-8DTM	Date Completed:	22/9/2023
		Inclination:	-87° Direction: 265°	Logged:	NP

Drilling | **Sampling** | **Field Material Description**

METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	E	Groundwater Not Assessed	10	10.50 867.98				ML	Clayey SILT: low to medium plasticity, yellow - brown, trace fine to medium grained sand; rare black veining.	w≈PL	St	EXTREMELY WEATHERED MATERIAL
			11	12.00 866.49	U 10.50-10.70 m PB-BHT-01-009 SPT 10.70-11.15 m 5,10,15 N=25 PP 10.70 m =500-600 kPa			ML	Clayey Sandy SILT: low plasticity, yellow - brown, sand is fine to coarse grained; trace fine to medium gravel; sub-angular white gravel, black mottled/veining throughout.		VSt	
			12	13.00 865.49	SPT 12.00-12.45 m 9,19,22 N=41 D 12.00-12.45 m PB-BHT-01-010				Brown, sand is fine to medium grained.	w<PL		
	F-H		13	14.50 863.99	SPT 13.50-13.73 m 27,30/80mm N=R D 13.50-13.73 m PB-BHT-01-011			ML	Sandy CLAY: low to medium plasticity, yellow - brown, sand is fine to coarse grained; trace fine to medium gravel.		H	
			14	16.00 862.49	SPT 15.00-15.22 m 24,30/70mm N=R D 15.00-15.22 m PB-BHT-01-012			SM	Silty SAND: fine to coarse grained, yellow - brown, trace fine to medium gravel.			
			15	18.09	SPT 16.50-16.68 m 25,23/30mm N=R D 16.50-16.68 m PB-BHT-01-013				Brown mottled white and black, clay is low to medium plasticity, relict fabric of granite rock present, gravels are sub-angular white to pale green..	M	VD	
			16		SPT 18.00-18.05 m 11/50mm N=R D 18.00-18.05 m PB-BHT-01-014				Continued as Cored Borehole			
			17									
			18									
			19									
			20									

Comments

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BOREHOLE: BHT-01

		Position:	Upper Reservoir	Sheet	3 OF 6
Project:	Pioneer-Burdekin PHES	Coords:	656802.9 m E 7667400.0 m N MGA2020-55		
Location:	Netherdale/Dalrymple Heights	Surface RL:	878.5 m AHD	Date Started:	18/9/2023
Client:	Queensland Hydro	Contractor:	Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-8DTM	Date Completed:	22/9/2023
Job No.:	PS138693	Inclination:	-87° Direction: 265°	Logged:	NP

Drilling						Field Material Description					Defect Information	
METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa) ■ - UCS		DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm)
				10								
				11								
				12								
				13								
				14								
				15								
				16								
				17								
				18	18.09		Continuation from non-cored borehole					
HQ3	10/10/2024, Standpipe piezometer monitoring	100	100	19	860.40 18.32 860.18 18.54 859.96 18.80 859.92 19.03 859.47 19.27 19.47 859.03		SC Gravelly Clayey SAND: fine to coarse grained, brown, clay is low plasticity; gravel is fine to coarse grained, sub-angular to angular; pale green alteration, extremely weathered altered granite. GP GRAVEL: medium to coarse, orange brown, inferred highly fractured, highly weathered corestone. SC Gravelly Clayey SAND: fine to coarse grained, orange brown, clay is low plasticity; gravel is fine to medium grained. GRANITE: medium to coarse grained, red brown and grey, crystalline, massive, moderately to highly altered. Medium grained, dark grey and pale grey. Dark grey, pale grey, orange.	HW MW SW HW to MW SW		18.87: EW, 25°, bk SN, PR, SM 18.98: J, 45°, bk SN, PR, RF 19.00-19.03: EW, PR, 20 mm thick, possibly VL strength highly weathered 19.10: J, 5°, bk SN, PR 19.15: J, 50°, bk SN, IR, SM, incipient, partly open 5 mm 19.23: J, 30°, CN, PR, RF 19.38: J, 75°, bk SN, PR, SM 19.42: J, 90°, bk SN, PR, RF	
		100	60	20	20.00		Medium to coarse grained, orange brown and dark red					

Comments

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BOREHOLE: BHT-01

		Position:	Upper Reservoir	Sheet	4 OF 6
Project:	Pioneer-Burdekin PHES	Coords:	656802.9 m E 7667400.0 m N MGA2020-55		
Location:	Netherdale/Dalrymple Heights	Surface RL:	878.5 m AHD	Date Started:	18/9/2023
Client:	Queensland Hydro	Contractor:	Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-8DTM	Date Completed:	22/9/2023
Job No.:	PS138693	Inclination:	-87° Direction: 265°	Logged:	NP

Drilling

METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL
HQ3		100	60	20	858.50
		100	74	21	21.83 / 856.67
		100	78	22	22.30 / 856.20 / 22.56 / 855.87
		100	100	23	24.85 / 853.65
		100	100	24	25.43 / 853.07
		100	100	25	
		100	100	26	28.23 / 850.28
		100	100	27	28.78 / 849.73
		100	100	28	30.00

Field Material Description

ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING
brown. Grey, dark grey and pale grey, orange staining around joints. GRANITE: medium to coarse grained, grey, dark grey and pale grey.	SW
Green - grey.	
Grey and orange brown.	
Green - grey, orange brown. Dark grey, pale grey, pale green, slightly altered.	
Pale green, grey, moderately altered.	
Dark grey, pale grey, green grey, occasional alteration halo around healed defects.	
Dark grey, pale grey, no alteration.	FR
Dark grey, pale grey, pale green, alteration halo present around most joints.	

INFERRED STRENGTH (MPa) ■ - UCS

Defect Information

DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)

19.46: CS /DB, br, PR, infill recovered as sandy gravel, possibly drilling induced
19.52: J, 15°, IR, incipient
19.57: J, 30°, bk SN, PR, SM
19.61: J, 35°, bk SN, PR, RF, incipient
19.67: J, 40°, bk and pl or CN, PR, RF
19.76: J, 20°, bk SN, PR
19.79: J, 10°, bk, RF, incipient
19.88-20.44: PLT (A) is = 7.0 MPa (M) : PLT (D) is 50 = 13 MPa (M)
19.85: J, 5°, bk CN, PR, SM
19.86: J, 35°, bk SN, PR, RF
19.90: J, 10°, CN, PR, SM
19.92: J, 15°, bk SN, PR, RF
20.46: CS, 20°, bk SN, PR, SM, Infill recovered as sandy gravel, possibly drilling induced
20.60: J, 35°, CN, PR, RF
21.16: J, 40°, bk SN, PR, RF
21.40: J, 85°, PR, incipient
21.44: J, 40°, bk SN, UN, RF
21.51: J, 25°, bk SN, PR, SM
21.59: J, 0°, bk SN, IR, RF
21.81: J, 20°, IR, incipient
21.83: J, 20°, bk CN, IR, SM
21.96: J, 30°, bk SN, PR, RF
22.01: J, 20°, bk SN, PR, SM
22.03: J, 85°, bk SN, PR, RF, incipient
22.07: J, 40°, bk SN, PR, RF
22.30: J, 20°, bk SN, PR, RF
22.32: J, 15°, PR
22.30-22.38: FZ, core recovered as broken rock, possibly drilling induced
22.35: J, 20°, bk SN, PR, RF
22.38: J, 15°, bk SN, PR, SM
22.40: J, 60°, bk SN, PR, RF
22.56: J, 15°, wh mi and bk sn CT, PR, RF, up to 3 mm thick, dendrites
22.61: J, 25°, wh mi and bk sn CT, PR, SM
22.63: J, 45°, br with bk sn with br halo VN, PR, RF, clay, up to 10 mm highly weathered, very low strength
22.67: J, 20°, CN, PR, RF
22.80: J, 25°, bk SN, UN, RF
23.00-23.48: PLT (A) is = 6.7 MPa (M) : PLT (D) is 50 = 8.4 MPa (W)
23.01: J, 65°, gr mi, PR
23.03: J, 70°, gr, PR
23.06: J, 85°, wh mi, PR, incipient
23.57: J, 80°, PR, incipient
23.60: J, 80°, PR, incipient
24.12: J, 45°, CN, UN, RF, possible db
24.29: J, 35°, wh mi VN, PR, SM
24.70: J, 25°, wh mi CT, PR, RF, possibly vein
26.75: J, 20°, bk mi CN, PR, RF
27.12: J, 10°, bk and dk gy mi CN, PR, RF
27.27: J, 10°, bk and dk gy mi CN, PR, SM
27.45: J, 20°, bk and br SN, PR, RF
27.76: J, 50°, gr mi, PR, incipient
28.23-28.72: PLT (A) is = 12.0 MPa (M) : PLT (D) is 50 = 12.0 MPa (M)
28.78: J, 20°, gr SN, PR, RF
29.02: J, 35°, wh and pl yl mi, PR, up to 5 mm
29.21: J, 5°, CN, UN, RF, possible db
29.22: J, 60°, wh mi, PR, up to 5 mm
29.23: J, 40°, gr mi, PR, up to 2 mm
29.24: J, 30°, wh mi, PR, up to 3 mm

AVERAGE DEFECT SPACING (mm)

Comments

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BOREHOLE: BHT-01

		Position:	Upper Reservoir	Sheet	5 OF 6
Project:	Pioneer-Burdekin PHES	Coords:	656802.9 m E 7667400.0 m N MGA2020-55		
Location:	Netherdale/Dalrymple Heights	Surface RL:	878.5 m AHD	Date Started:	18/9/2023
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Job No.:	PS138693	Inclination:	-87° Direction: 265°	Logged:	NP

Drilling

METHOD	WATER	TCR	RQD
HQ3		100	100
		100	100
		100	100
		100	100
		100	79
		100	91
		100	70

Field Material Description

DEPTH (metres)	DEPTH RL	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING
30	848.51	Medium to coarse grained, dark grey, pale grey, pale green, alteration halo present around most joints.	FR
31			
32			
33			
34			
35			
	35.55 / 842.97	fabric of rock dipping at 60 degrees	
	35.95 / 842.57	Pale green grey, grey, highly altered.	
36			
37			
38			
39			
	39.30 / 839.22	Pink grey, moderately altered.	
	39.53 / 838.99	Green grey, slightly altered.	
40	40.00		

GRAPHIC LOG

INFERRED STRENGTH (MPa) ■ - UCS: VL <2, L 2-5, M 5-20, H 20-80, VH 80-200, EH >200

Defect Information

DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)

30.83-31.00: PLT (A) is = 10.0 MPa (M) : PLT (D) is 50 = 11.0 MPa (B)

33.77: J, 50°, pl yl mi, PR

34.80: J, 5°, CN, ST, RF

35.39: J, 10°, pl yl and gr mi CN, IR, RF

36.02: J, 45°, CN, IR, RF, incipient possible db
36.07: J, 80°, wh CT, UN, RF
36.32: J, 90°, wh and pl gr mi CT, IR, RF
36.34: J, 5°, pl gr mi CT, PR, RF
36.18-36.53: J, 90°, wh and pl gr mi CT, PR, SM
36.39: J, 40°, CN, PR, RF
36.33-36.48: J, 90°, pl gr mi CT, PR, RF
36.41: J, 10°, pl gr mi CT, PR, SM
36.35-36.50: J, 90°, pl gr mi CT, PR, SM
36.53: J, 65°, pl gr mi CT, PR, RF
36.42-36.66: J, 85°, pl gr mi CT, PR, RF, incipient
36.54: J, CN, IR, SM
36.58: J, 90°, wh mi CT, IR, RF
36.62: J, 40°, CN, UN, RF
37.14: J, 30°, CN, IR
37.23: J, 5°, CN, IR
37.24: J, 5°, CN, IR, RF
37.50-38.00: PLT (A) is = 7.9 MPa (M) : PLT (D) is 50 = 6.1 MPa (W)
38.02: J, 10°, ph br mi VN, PR, SM, to St

38.62: J, 35°, ph or SN, IR
38.71: J, 15°, CN, PR, RF
38.80: J, 70°, or SN, PR, incipient, partly healed
38.90: J, 90°, or SN, IR, incipient, partly healed
38.98: J, 30°, CN, PR, RF
39.11: J, 85°, or and br SN, UN, RF
39.18: J, 55°, pl gr SN, PR, PO
39.24: J, 20°, CN, PR, SM
39.30-39.50: PLT (A) is = 4.7 MPa (W) : PLT (D) is 50 = 14.0 MPa (M)
39.29: J, 20°, CN, PR, RF
39.52: J, 35°, pl or SN, PR, SM

AVERAGE DEFECT SPACING (mm): 10, 30, 100, 300, 1000, 3000

Comments

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BOREHOLE: BHT-01

		Position:	Upper Reservoir	Sheet	6 OF 6
Project:	Pioneer-Burdekin PHES	Coords:	656802.9 m E 7667400.0 m N MGA2020-55		
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Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa) ■ - UCS VL<2 L 2-5 M 5-20 H 20-60 VH 60-200 EH>200	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm) 10 30 100 300 1000 3000
HQ3		100	70	40	40.19	+ +	GRANITE: medium to coarse grained, green grey.	FR		39.53: J, 10°, wh, pl or sn CT, PR, RF 39.55: J, 50°, wh mi, ph or sn CT, PR, RF, incipient 39.58: J, 20°, CN, PR, SM 39.81: J, 10°, CN, PR, RF 39.86: J, 20°, pl gr mi, IR, incipient 39.89-39.99: Js, 35°, br SN, x5, incipient, partly open 40.01: J, 20°, ph pl pu-br mi VN, PR, RF 40.16: J, 35°, pl pu-br mi CT, PR, RF	
					838.30		LAMPROPHYRE: fine grained, dark grey, crystalline, massive. Hole Terminated at 40.23 m Target depth. Standpipe Piezometer Installed.				
				41							
				42							
				43							
				44							
				45							
				46							
				47							
				48							
				49							
				50							

Comments

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Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHT-01 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
18.87					EW		25		bk	SN	PR	SM					
18.98					J		45		bk	SN	PR	RF					
19	19.03				EW		15				PR						20 mm thick, possibly VL strength highly weathered
19.09	19.27				hJ				bk mi		IR						BMI
19.1					J				bk	SN	PR						
19.15					J				bk	SN	IR	SM					incipient, partly open 5 mm
19.23					J					CN	PR	RF					
19.38					J				bk	SN	PR	SM					
19.42					J				bk	SN	PR	RF					
19.46					CS	/DB	0		br		PR						infill recovered as sandy gravel, possibly drilling induced
19.48					hJ				pk and gy-gr mi		PR						
19.5					hJ				pl yl-gr mi		IR						
19.52					J						IR						incipient
19.57					J				bk	SN	PR	SM					
19.58					hJ				pl gy-gr mi		PR						
19.59					hJ				pl gy-gr mi		PR						
19.61					J				bk	SN	PR	RF					incipient
19.62					hJ				pl br mi		PR						incipient
19.64					hJ				pl br mi		PR						
19.67					J				bk and pl or	CN	PR	RF					
19.74					V				pl gr mi		PR						3-5mm
19.76					J				bk	SN	PR						
19.79					J				bk			RF					incipient
19.85					J				bk	CN	PR	SM					
19.86					J				bk	SN	PR	RF					
19.9					J					CN	PR	SM					
19.9	20.00				hJs				pl gr mi		PR						x 5, 10-20spacing
19.92					J				bk	SN	PR	RF					
19.95					hJ				pl gr mi		PR						
20.02					hJ				pl gr mi		PR						
20.04					hJ				pl gr mi		PR						
20.08					hJ				pl gr mi		PR						
20.09					hJ				pl gr mi		PR						incipient
20.11					hJ				pl gr mi		PR						incipient
20.12					hJ						PR						
20.17					hJ				pl gr mi		PR						
20.18					hJ				pl gr mi		PR						
20.22					hJ				pl gr mi		PR						
20.29					hJ				pl gr mi		PR						
20.3					hJ				pl gr mi		PR						
20.32					hJ				pl gr mi		PR						
20.35					hJ				pl gr mi		PR						
20.37					hJ		0		pl gr mi		IR						
20.42					hJ				wh mi		PR						
20.46					CS				bk	SN	PR	SM					Infill recovered as sandy gravel, possibly drilling induced
20.6					J					CN	PR	RF					
20.74					hJ				pl gr mi		PR						
20.8					hJ						IR						incipient
20.85					hJ				pl gr mi		PR						
20.92					hJ		0		pl gr mi		PR						
20.93					hJ				pl gr mi		PR						
20.97					hJ				pl gr mi		PR						
21.14					hJ		0		wh mi		PR						
21.16					J				bk	SN	PR	RF					
21.23					hJ				pl gr mi		IR						incipient
21.26					hJ				pl gr mi		PR						
21.28					hJ		0		pl gr and br mi		PR						
21.3					hJ				pl br mi		PR						
21.36					hJ				pl gr mi		PR						
21.39					hJ				pl br mi	CN	PR						incipient
21.4					J						PR						incipient
21.44					J				bk	SN	UN	RF					
21.51					J				bk	SN	PR	SM					
21.54					hJ				pl gr mi		PR						
21.59					J				bk	SN	IR	RF					
21.65					hJ				pl gr mi		PR						incipient
21.7					hJ				pl gr mi		PR						incipient
21.77					hJ				pl gr mi		PR						incipient
21.81					J						IR						incipient
21.83					J				bk	CN	IR	SM					
21.85					hJ		0		pl gr mi		PR						
21.9	22.67				hJs		0	15			IR						very closely spaced zone of healed joints and veins up to 3 mm thick
21.96					J		30		bk	SN	PR	RF					
21.97					V		0		pl gr mi		IR						up to 3 mm thick
21.98					V		0		pl gr mi		IR						up to 3 mm thick
22.01					J		20		bk	SN	PR	SM					
22.03					J		85		bk	SN	PR	RF					incipient
22.07					J		40		bk	SN	PR	RF					
22.09					hJ		15		wh mi		PR						

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Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHT-01 Defects List

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PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
22.1					hJ		5		pl gr mi		PR						
22.12					hJ		30		pl gr mi		PR						
22.3					J		20		bk	SN	PR	RF					
22.3	22.38				FZ		0	5									core recovered as broken rock, possibly drilling induced
22.32					J		15				PR						
22.35					J		20		bk	SN	PR	RF					
22.38					J		15		bk	SN	PR	SM					
22.4					J		60		bk	SN	PR	RF					
22.56					J		15		wh mi and bk sn	CT	PR	RF					up to 3 mm thick, dendrites
22.61					J		25		wh mi and bk sn	CT	PR	SM					
22.63					J		45		br with bk sn with br halo	VN	PR	RF					clay, up to 10 mm highly weathered, very low strength
22.67					J		20			CN	PR	RF					
22.73					hJ		90		pl gr mi		IR						
22.75					hJ		25		pl gr mi		PR						
22.79					hJ		20		pl gr mi		PR						
22.8					J		25		bk	SN	UN	RF					
22.84					V		20		wh mi		PR						up to 5 mm
22.88					hJ		20		gr mi		PR						
22.88	23.09				hJs		0	20	gr mi		IR						very closely spaced healed joints
23.01					J		65		gr mi		PR						
23.03					J		70		gr		PR						
23.06					J		85		wh mi		PR						incipient
23.08					V		60		gr mi		IR						up to 3 mm, incipient
23.17					hJ		75		wh mi		PR						incipient
23.18					hJ		60		gr mi		PR						incipient
23.19					hJs		65		gr mi		PR						healed, 10 mm halo of healed incipient joints
23.25					hJ		35		gr mi		PR						
23.3					hJ		0		gr mi		PR						incipient
23.31					hJ		70		wh mi		PR						incipient
23.35	23.40				hJs		0		gr mi		IR						very closely spaced healed joints
23.37					V		65		wi and gr mi		IR						up to 5 mm, incipient
23.43					hJ		15		gr mi		IR						
23.48					hJ		30		gr mi		IR						
23.57					J		80				PR						incipient
23.59					hJs		45		gr mi		IR						up to 5 mm halo, incipient
23.6					J		80				PR						incipient
23.62					hJ		0		gr mi		IR						incipient
23.66					hJ		75		gr mi		IR						incipient
23.77					hJ		0		gr mi		IR						incipient
23.79					hJ		0		gr mi		IR						incipient
23.8	24.90				hJs		0		gr mi and rare wi mi		IR						very closely spaced veins and healed joints up to 5 mm, planar to irregular, some incipient
23.83					V		55				PR						up to 3 mm
23.84					hJ		0		gr mi		IR						incipient some rock fragments
23.86					hJ		0		gr mi		PR						
23.89					hJ		55		gr mi		PR						planar to undulating
23.93					hJ		55		gr mi		PR						planar to undulating
23.97					V		80		gr mi		PR						up to 2 mm
23.98					V		80		gr mi		PR						up to 2 mm, healed
24.04					V		25				PR						up to 4 mm
24.09					hJ		50		gr mi		PR						
24.1					V		45		gr mi		PR						up to 3 mm
24.12					J		45			CN	UN	RF					possible db
24.14					V		30		gr mi		PR						up to 3 mm
24.15					hJ		55		wh mi		PR						
24.18					hJ		45		gr mi		PR						
24.2					hJ		60		wh mi		PR						
24.21					hJ		30		gr mi		PR						
24.24					V		30		gr mi		PR						up to 3 mm
24.29					J		35		wh mi	VN	PR	SM					
24.32					V		20		gr mi		PR						up to 2 mm
24.35					hJ		25		gr mi		IR						
24.36	24.62				hJ		90		br and wh mi		UN						incipient up to 30 mm halo of parallel healed vertical healed incipient joints
24.38					V		55		gr mi		IR						vein up to 3 mm, incipient
24.4					V		25		gr mi		PR						up to 3 mm
24.43					V		75		gr mi		IR						x2, up to 5 mm
24.43					Vs		75		gr mi		IR						x2, up to 5 mm
24.45					V		20		gr mi		PR						up to 2 mm
24.48					V		0		gr mi		IR						up to 5 mm
24.52					hJ		40		gr mi		PR						
24.56					hJ		25		gr mi		PR						
24.57	24.94				hJ		90		br and wh mi		UN						incipient
24.59					V		15		gr mi		IR						up to 5 mm, incipient
24.61					hJ		40		gr mi		IR						incipient
24.63					hJ		55		gr mi		IR						
24.7					J		25		wh mi	CT	PR	RF					possibly vein
24.74					hJ		40		gr mi		PR						
24.76					hJ		40		gr mi		PR						
24.78					hJ		40		gr mi		PR						
24.79					hJ		40		gr mi		PR						

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PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
24.82	25.10				hJ		80		br and wh mi		UN						incipient
24.83					hJ		30		wh mi		PR						
24.85					V		0		gr mi		IR						up to 5 mm
24.87							20		wh and gr mi		PR						
25.05	25.31				hJ		80		wh mi, bk halo		PR						1 mm halo
25.19	25.38				hJ		75		wh mi, bk halo		PR						2 mm halo
25.29	25.43				hJ		75		br mi		PR						
25.55							65		gr mi		PR						2 mm
25.6	25.82				V		0				IR						up to 3 mm
25.65					hJ		75		gr mi		PR						
25.74					hJ		60		gr mi		PR						
25.75	25.93				hJ		75		wh mi		PR						
25.79					hJ		5		gr mi		IR						
25.91					hJ		70		gr mi		PR						3 mm
26.04					hJ		60		gr mi		PR						
26.07					hJ		90		br	CN	PR						incipient
26.15					hJ		15		gr mi		PR						
26.22					hJ		70		or		PR						incipient
26.26					hJ		70		gr mi		PR						incipient
26.33					hJ		70		gr mi		PR						incipient
26.37					hJ		45		gr mi		PR						
26.58					hJ		65		gr mi		PR						
26.66					hJ		20		gr mi		PR						
26.75					J		20		bk mi	CN	PR	RF					
26.79					hJ		40				PR						incipient
26.83					hJ		58				PR						incipient
26.86					hJ		50		bk mi		PR						
26.93					hJ		60		gr mi		IR						
27.03					hJ		40		gr mi		PR						
27.07					hJ		90		gr mi		IR						incipient
27.12					J		10		bk and dk gy mi	CN	PR	RF					
27.15					hJ		30		wh mi		PR						
27.25					hJ		80		gr mi		IR						
27.27					J		10		bk and dk gy mi	CN	PR	SM					
27.32					hJ		25		gr mi		PR						
27.34					hJ		45		gr mi		PR						
27.41					hJ		55		gr mi		PR						
27.45					J		20		bk and br	SN	PR	RF					
27.47					hJ		40		wh mi		PR						
27.5					hJ		5		wh mi		PR						
27.51					hJ		5		wh mi, br sn halo		PR						halo <1 mm
27.52					hJ		50		br sn halo		IR						halo 1 mm
27.53					hJ		15				PR						
27.55					hJ		15		gr mi		PR						
27.62					V		50		wh mi		PR						up to 5 mm
27.65					hJ		45		wh mi		UN						
27.68					hJ		50		gr mi		PR						
27.71					hJ		10		gr mi		PR						
27.73					V		25		gr mi		PR						2 mm
27.76					J		50		gr mi		PR						incipient
27.8					hJs		30		gr mi		PR						5 mm halo of incipient healed joints
27.94					hJ		55		gr mi		PR						
27.96					hJ		0		gr mi		IR						
28					hJ		50		wh to gr mi		PR						2 mm
28.04					hJ		70		gr mi		PR						
28.08					hJ		10		gr mi		PR						
28.13					hJ		20		gr mi		PR						
28.15					hJ		60		gr mi		PR						incipient
28.17					hJ		55		gr mi		PR						
28.18					hJ		65		gr mi		PR						
28.3					hJ		20				PR						
28.4					hJ		45				PR						
28.43					hJ		0				PR						
28.44					hJ		5				PR						
28.45					hJ		20				PR						
28.47					hJ		5				PR						
28.52					hJ		20				PR						
28.54					hJ		55		gr mi		PR						
28.65					hJ		30				PR						
28.69					hJ		25				PR						
28.72					hJ		55				PR						
28.76					hJ		25				PR						
28.78					J		20		gr	SN	PR	RF					
28.79					hJ		20		gr mi		PR						
28.83					hJs		50		gr mi		PR						x2
28.85					hJ		50		gr mi		PR						
28.9					hJ		40		gr mi		PR						incipient
28.91					hJ		45		gr mi		PR						
28.94					hJs		52		gr mi		PR						x2

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PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
28.98					hJ		35		gr mi		PR						
29.02					J		35		wh and pl yl mi		PR						up to 5 mm
29.05					hJ		15		gr mi		PR						
29.09					hJ		15				PR						
29.11					hJ		55		gr mi		PR						
29.15					hJ		55		gr mi		PR						
29.17					hJ		45		gr mi		PR						
29.19					hJ		0				PR						
29.21					J		5			CN	UN	RF					possible db
29.22					J		60		wh mi		PR						up to 5 mm
29.23					J		40		gr mi		PR						up to 2 mm
29.24					J		30		wh mi		PR						up to 3 mm
29.28					hJ		40				PR						
29.33					V		30		wh mi		PR						up to 5 mm
29.4					hJ		60				PR						incipient
29.42					hJ		40				PR						
29.45					hJ		40				PR						
29.49					hJ		30				PR						
29.51					V		15		yl-gr mi		PR						incipient up to 5 mm
29.53					V		55		gr mi		PR						up to 10 mm
29.54					hJ		70		gr mi		PR						
29.67					V		65		pl yl-gr mi		UN						up to 5 mm
29.87					hJ		60		gr mi		PR						x2
29.88					hJ		60		gr mi		PR						
29.91					hJ		70				PR						
29.97					hJ		5				PR						up to 5 mm, slightly bleached halo
30					hJ		15				PR						up to 5 mm slightly bleached halo
30.02					hJ		60				PR						incipient
30.05					hJ		40		pl yl mi		PR						up to 2 mm
30.07					hJ		20				PR						
30.08					hJ		0				PR						
30.12					hJ		55				PR						8 mm pale yellow change to vein
30.21					V		50		yl-gr mi		PR						2 mm
30.28					V		50		yl-gr mi		PR						6 mm
30.29					hJ		45		wh-pk mi		PR						incipient
30.31					hJ		35		yl-gr mi		PR						
30.35					hJ		35		yl-gr mi		PR						
30.4					hJ		25		yl-gr mi		PR						
30.48					hJ		60		yl-gr mi		PR						
30.51					hJ		10		yl-gr mi		PR						
30.56					hJ		55		wh mi		PR						incipient
30.58					V		40		yl-gr mi		PR						up to 8 mm halo
30.61					hJ		40		yl-gr mi		PR						
30.63					hJ		5		yl-gr mi		PR						
30.64					V		45		yl-gr mi		IR						
30.71					V		5		pl yl mi		PR						up to 2 mm
30.76					V		65		yl-gr mi and gr halo		PR						up to 6 mm
30.8					hJ		28		yl-gr mi		PR						
30.81					V		35		pl gr		PR						up to 4 mm
30.84					V		5		pl yl		PR						8 mm
30.86					hJ		5		pl yl mi		PR						
30.88					hJ		30		pl yl mi		PR						
30.89					hJ		5		pl yl mi		PR						
30.92					hJ		30		gr mi		IR						
30.99					V		5		gr m		PR						2 mm
31.03					V		25		yl mi		PR						up to 20 mm
31.07					hJ		5		yl mi		PR						
31.1					hJ		25		yl mi		PR						
31.13					hJ		10		yl mi		PR						
31.2					hJ		20		yl mi		PR						
31.31					hJ		45		yl mi		PR						
31.33					hJ		45		yl mi		PR						
31.36					hJ		55		yl mi		PR						
31.37					hJ		55		yl mi		PR						up to 2 mm
31.4					hJ		60		yl mi		PR						
31.42					hJ		45		yl mi		PR						
31.45					hJ		15		yl mi		PR						
31.48					hJ		30		yl mi		PR						
31.51					hJ		50		yl mi		PR						
31.52					hJ		10		yl mi		PR						
31.54					hJ		0		yl mi		PR						
31.56					hJ		30		yl mi		PR						
31.66					V		20		yl-gr mi		PR						up to 3 mm
31.7					V		30		yl-gr mi		IR						up to 3 mm
31.71					hJ		5		yl-gr mi		PR						
31.72					hJ		15		yl-gr mi		PR						
31.84					V		15		pl yl mi		PR						up to 3 mm
31.96					V		25		wh-yl mi		PR						up to 6 mm
32					hJ		5		yl mi		PR						

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32.03					hJ		30		yl-gr		PR						
32.06					V		5		pl yl mi		PR						up to 2 mm
32.1					hJ		60		pl yl mi		PR						
32.12					hJ		60		pl yl		PR						
32.22					hJ		60		pl yl		PR						
32.27					hJ		65		pl yl		PR						
32.34					V		60		yl-gr mi		PR						up to 20 mm
32.39					hJ		0		pl yl mi		PR						
32.45					V		30		yl-gr mi		PR						up to 14 mm
32.48					hJ		5		yl-gr mi		PR						
32.49					V		0		pl yl and pl br mi		PR						up to 6 mm
32.5					V		5		pl yl mi		PR						up to 3 mm
32.53					hJ		0		pl yl mi		PR						
32.62					hJ		0		pl yl mi		PR						
32.63					hJ		0		pl yl mi		PR						
32.69					V		5				PR						up to 2 mm
32.8					V		60		pl yl mi		PR						up to 3 mm
32.87					hJ		5		pl yl mi		IR						
32.92					hJ		55		pl yl mi		PR						
32.96					hJ		30		pl yl		PR						
33.05					hJ		20		pl yl mi		PR						
33.07					hJ		75		pl yl mi		PR						
33.09					hJ		5		pl yl mi		PR						
33.16					V		15		pl yl mi		PR						up to 4 mm
33.17					hJ		20		pl yl mi		PR						
33.2					hJ		0		pl yl mi		PR						
33.24					V		15		pl yl mi		PR						up to 2 mm
33.26					V		20		pl yl mi		IR						up to 6 mm, splits in two
33.27					V		15		pl yl mi		IR						up to 10 mm, splits in two
33.28					V		0		pl yl mi		PR						up to 2 mm, splits in two
33.31					V		0		pl yl mi		PR						up to 2 mm, splits in two
33.33					hJ		5		pl yl mi		PR						
33.4					hJ		10		pl yl mi		PR						
33.46					hJ		35		pl yl mi		PR						
33.51					hJ		28		yl-gr mi		PR						
33.54					hJ		60		yl-gr mi		PR						
33.59					hJ		10		pl yl mi		PR						
33.6					hJ		10		pl yl mi		PR						
33.61					hJ		45		pl yl mi		PR						
33.64					hJ		70		pl yl mi		PR						
33.65					hJ		65		pl yl mi		PR						
33.67					hJ		5		pl yl mi		PR						
33.7					V		70				PR						
33.77					J		50		pl yl mi		PR						
33.84					hJ		0		pl yl mi		IR						
33.86					hJ		0		pl yl mi		IR						
33.91					V		15		pl yl mi		PR						up to 7 mm
33.94					hJ		10		pl yl mi		PR						
33.96					hJ		5		pl yl mi		PR						
34.03					hJ		55		pl yl mi		PR						
34.09					hJ		15		pl yl mi		PR						
34.12					hJ		90		pl yl mi		PR						
34.29					hJ		25		pl yl mi		PR						
34.31					hJ		0		pl yl mi		PR						
34.36					hJ		70		pl yl mi		PR						
34.39					hJ		15		pl yl mi		PR						
34.4					hJ		70		pl yl mi		PR						
34.43					V		5		pl yl mi		PR						up to 4 mm
34.46					hJ		5		pl yl mi		PR						
34.49					hJ		5		pl yl mi		PR						
34.51					V		75		pl yl mi		PR						2 mm, incipient
34.57					V		0		pl yl mi		IR						
34.59					hJ		0		pl yl mi		PR						
34.64					V		0		pl yl mi		UN						up to 6 mm
34.67					hJ		0		pl yl mi		PR						incipient
34.68					hJ		10		pl yl mi		PR						incipient
34.72					hJ		90		pl yl mi		UN						
34.8					J		5			CN	ST	RF					
34.81					V		75		pl yl mi		PR						up to 3 mm
34.85					hJ		90		wh mi		PR						incipient
34.87					V		0		pl yl mi		PR						1 mm
34.92					hJ		25		pl yl mi		PR						incipient 4 mm selvege halo
34.93					V		0		pl yl mi		PR						1 mm
34.94					V		5		pl yl mi		PR						1 mm
34.98					hJ		35		pl yl mi		PR						
35.01					V		0		pl yl mi		PR						9 mm
35.04					V		85		pl yl mi		PR						1 mm, incipient
35.05					V		80		pl yl mi		PR						3 mm
35.07					hJ		40				PR						

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Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHT-01 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
35.11					V		0		pl yl mi		PR						up to 2 mm
35.13					V		40		pl yl mi		IR						incipient
35.14					V		65		pl yl mi		IR						incipient
35.15					V		20		pl yl mi		PR						up to 2 mm
35.16					V		0		pl yl mi		PR						up to 13 mm, some rock fragments and quartz
35.17					V		25		pl yl mi and quartz		PR						up to 5 mm
35.22					V		0		pl yl mi		PR						1 mm
35.25					hJ		40				PR						
35.29					hJ		90				PR						incipient
35.31					hJ		75		pl yl to wh mi		PR						
35.39					J		10		pl yl and gr mi	CN	IR	RF					
35.4					V		0		pl yl mi		PR						2 mm
35.46					hJ		30		pl yl mi		IR						
35.5					hJ		60		pl yl mi		PR						
35.51					hJ		30		pl yl mi		PR						incipient
35.56					hJ		85		pl yl mi		PR						incipient
35.64					hJ		75		pl yl mi		PR						
35.76					hJ		50		yl mi		PR						
35.79					hJ		65				PR						
35.81					V		5		pl yl mi		PR						1 mm
35.88					hJ		90				IR						
35.9					hJ		60				IR						
35.92					hJ		90				IR						
35.94					V		0		pl yl mi		PR						1 mm
35.95					V		0		pl yl mi		PR						1 mm
35.96					hJ		0				PR						
36					hJ		20				PR						
36.01					V		75		wh and gr mi		PR						up to 4 mm
36.02					J		45			CN	IR	RF					incipient possible db
36.07					J		80		wh	CT	UN	RF					
36.12					V		75		wh mi		UN						3 mm
36.18	36.53				J		90		wh and pl gr mi	CT	PR	SM					
36.25					V		80		pl yl-gr mi		PR						up to 2 mm
36.32					J		90		wh and pl gr mi	CT	IR	RF					
36.33	36.48				J		90		pl gr mi	CT	PR	RF					
36.34					J		5		pl gr mi	CT	PR	RF					
36.35	36.50				J		90		pl gr mi	CT	PR	SM					
36.39					J		40			CN	PR	RF					
36.41					J		10		pl gr mi	CT	PR	SM					
36.42	36.66				J		85		pl gr mi	CT	PR	RF					incipient
36.53					J		65		pl gr mi	CT	PR	RF					
36.54					J		0			CN	IR	SM					
36.58					J		90		wh mi	CT	IR	RF					
36.62					J		40			CN	UN	RF					
36.67					V		78		pl gr mi		PR						up to 3 mm
36.72					hJ		70		pl yl-gr mi		PR						5 mm halo
36.84					hJ		0		pl yl-gr mi		IR						incipient
36.85					hJ		0		pl yl-gr mi		IR						incipient
36.89					V		70		yl-gr mi		PR						up to 3 mm
36.9					V		70		yl-gr mi		PR						up to 3 mm, incipient
36.95					hJ		75		pl yl mi		PR						
36.96					hJ		25		pl yl mi		PR						
36.97					hJ		45		pl yl mi		PR						
37.01					hJ		40		pl yl mi		IR						
37.02					hJ		70		pl yl mi		IR						
37.04					V		35		pl yl mi		PR						up to 2 mm
37.06					V		85		pl yl mi		PR						up to 1 mm
37.07					S		70				PR						healed up to 5 mm displacement
37.08					S		85				PR						healed up to 2 mm displacement
37.09					V		15		pl yl mi		PR						up to 6 mm
37.14					J		30			CN	IR						
37.19					V		30				PR						2 mm
37.2					S		45				PR						healed up to 4 mm displacement
37.23					J		5			CN	IR						
37.24					J		5			CN	IR	RF					
37.27					hJ		40				PR						
37.35					hJ		0				IR						
37.37					hJ		55				PR						
37.44					hJ		20		wh to pl yl mi		PR						
37.47					hJ		45				PR						
37.48					hJ		0				PR						
37.55					V		30				PR						2 mm thick
37.58					V		85				PR						1 mm
37.61					hJ		40		pl br mi		PR						
37.64					V		0		pl yl mi		PR						up to 10 mm splits into two
37.69					hJ		0		pl yl-gr mi		IR						
37.73					V		50		pl yl-gr mi		PR						up to 5 mm
37.81					hJ		35		pl yl and gr mi		PR						x6, incipient
37.82					hJ		0		pl yl-gr mi		IR						

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Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHT-01 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
37.84					hJ		85		pl yl mi		IR						
37.85					V		40		pl yl mi		PR						
37.87					hJ		90		wh mi		IR						incipient
37.9					hJ		60				PR						
37.91					hJ		50		pl yl mi		PR						
38.02					J		10		ph br mi	VN	PR	SM					to St
38.05					hJ		60				PR						
38.1					V		50				PR						5 mm
38.12					V		75		pl yl mi		PR						1 mm
38.18					hJ		75		pl yl mi		PR						
38.24					hJ		10				PR						
38.34					V		30		pl yl mi		PR						3 mm
38.36					V		20		pl yl mi		PR						up to 2 mm, incipient
38.38					V		30		pl yl mi		PR						up to 5 mm
38.52					V		65		pl yl mi		PR						up to 7 mm, rare rock fragments
38.62					J		35		ph or	SN	IR						
38.64					hJ		50		pl gr mi		PR						
38.66					hJ		70		pl gr mi		PR						
38.67					V		70		pl gr mi		PR						up to 5 mm
38.69					hJ		70		pl gr mi		PR						
38.71					J		15			CN	PR	RF					
38.73					hJ		25		pl gr mi		PR						
38.74					hJ		40				PR						
38.75					hJ		10				PR						
38.77					V		50		pl gr mi		PR						up to 8 mm
38.79					V		50		pl gr mi		PR						up to 5 mm
38.8					J		70		or	SN	PR						incipient, partly healed
38.83					hJ		10		pl gr mi		IR						
38.86					hJ		30		pl gr mi		PR						
38.89					V		40		quartz, pl br, wh and gy		PR						up to 5 mm
38.9					J		90		or	SN	IR						incipient, partly healed
38.91					hJ		45		pl gn mi		PR						
38.93					V		50		pl gn mi		PR						up to 4 mm incipient
38.98					J		30			CN	PR	RF					
39.11					J		85		or and br	SN	UN	RF					
39.13					V		0		wh mi		IR						up to 2 mm
39.18					J		55		pl gr	SN	PR	PO					
39.19					V		55		wh to pl gr mi		PR						up to 15 mm
39.24					J		20			CN	PR	SM					
39.29					J		20			CN	PR	RF					
39.31					V		20		wh and pl gr mi		PR						up to 5 mm
39.32	39.56				V		20		wh, pi, bk, gy		PR						20-35 degree boundaries, 230 mm, aplite, medium to coarse grained, crystalline, possible flow banding, significant
39.32					hJ		20		pl gr mi		PR						
39.34					hJ		80		pl gr mi		PR						
39.38					hJ		45		pl gr mi		PR						
39.41					hJ		0		gr mi		IR						incipient, possibly partly open
39.46					hJ		40				PR						
39.47					hJ		50				PR						
39.48					hJ		85				PR						
39.49					hJ		85				PR						
39.5					hJ		80				PR						
39.52					J		35		pl or	SN	PR	SM					
39.53					J		10		wh, pl or sn	CT	PR	RF					
39.55					J		50		wh mi, ph or sn	CT	PR	RF					incipient
39.58					J		20			CN	PR	SM					
39.59					hJ		50		pl gr mi		PR						
39.6					hJ		40		pl gr mi		PR						
39.62					hJ		60		pl gr mi		PR						incipient
39.64					hJ		10		pl gr mi		PR						incipient
39.68					hJ		65		pl gr mi with pl gr halo		PR						up to 2 mm thick
39.7					hJ		10		pl gr mi		PR						
39.72					hJ		55		pl gr mi		PR						
39.75					V		35		pl gr mi		PR						1 mm
39.78					V		20		wh mi		PR						1 mm
39.81					J		10			CN	PR	RF					
39.86					J		20		pl gr mi		IR						incipient
39.88					hJ		30		pl gr mi		PR						incipient
39.89	39.99				Js		35		br	SN							x5, incipient, partly open
39.92					V		90		pl gr mi		UN						up to 10 mm
39.93					hJ		5		pl gr mi		PR						incipient
39.94					hJ		35		pl gr mi		PR						incipient
40.01					J		20		ph pl pu-br mi	VN	PR	RF					
40.05					hJ		35		pl gr mi		PR						incipient
40.07					V		30		pl gr mi		PR						up to 4 mm, incipient
40.1					V		65		pl gr mi		PR						up to 4 mm, incipient
40.12					hJ		85		dk br to bk sn		IR						possibly partly open, incipient
40.14					V		40		pl gr mi	VN	PR						up to 2 mm
40.15					V		40		pl gr mi		PR						1 mm

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Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHT-01 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
40.16					J		35		pl pu-br mi	CT	PR	RF					
40.2					hJ		75		pl gr mi		PR						

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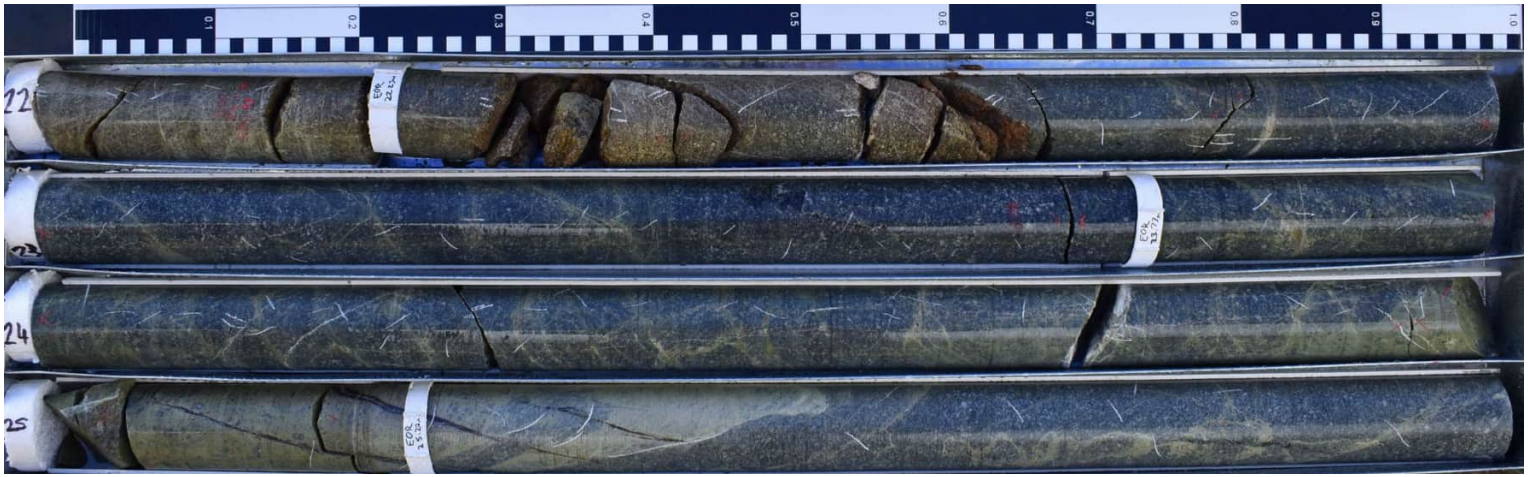
PointID : BHT-01 Depth Range: 18.09 - 22.00 m



PointID : BHT-01 Depth Range: 22.00 - 26.00 m

wsp	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHT-01	DRAWN RC/PL	DATE 20/08/2024
		CHECKED GEM	DATE 7/10/2024
		SCALE Not To Scale	A4
		PROJECT No PS138693	FIGURE No 1/3

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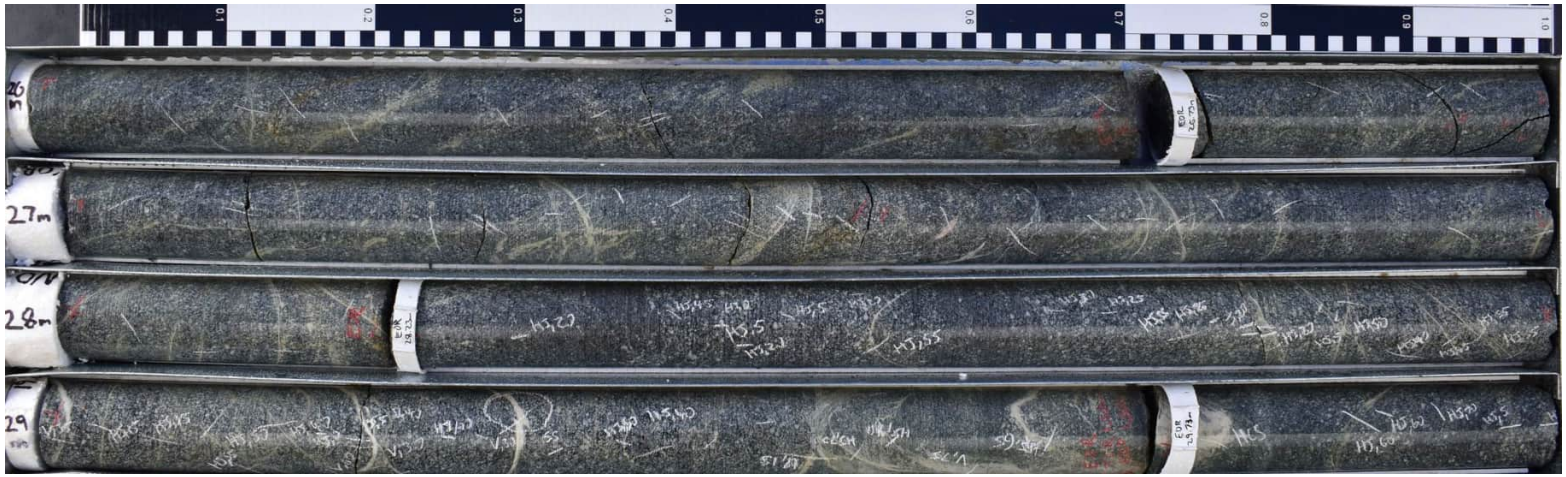
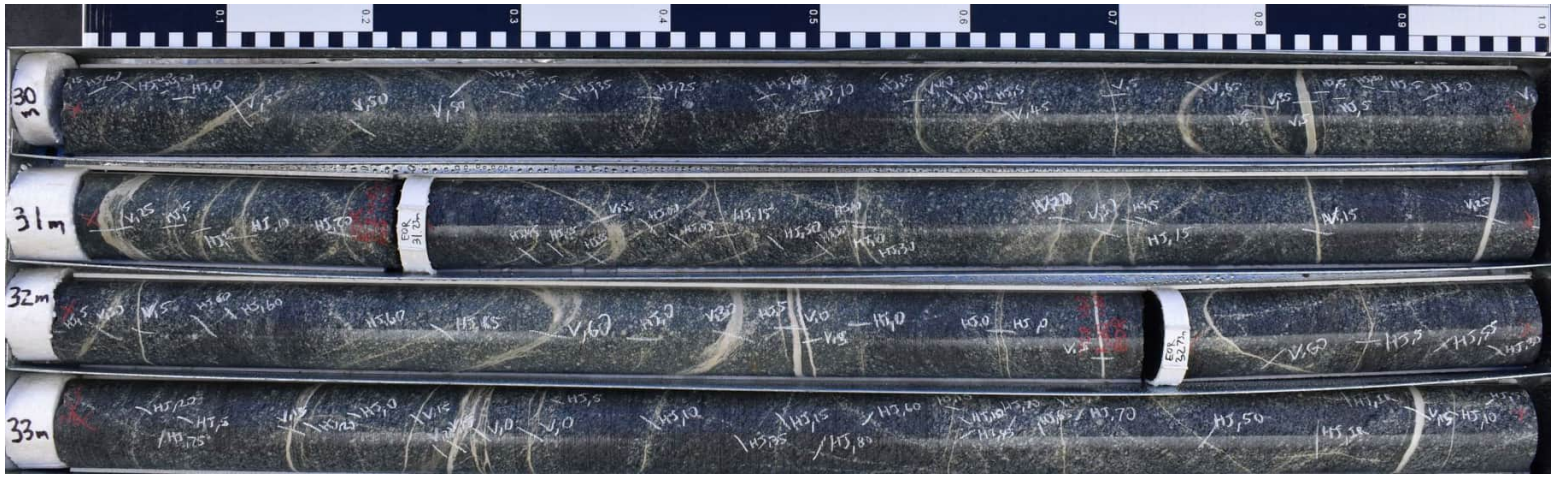


PointID : BHT-01 Depth Range: 26.00 - 30.00 m



PointID : BHT-01 Depth Range: 30.00 - 34.00 m

wsp	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHT-01	DRAWN RC/PL	DATE 20/08/2024
		CHECKED GEM	DATE 7/10/2024
		SCALE Not To Scale	A4
		PROJECT No PS138693	FIGURE No 2/3

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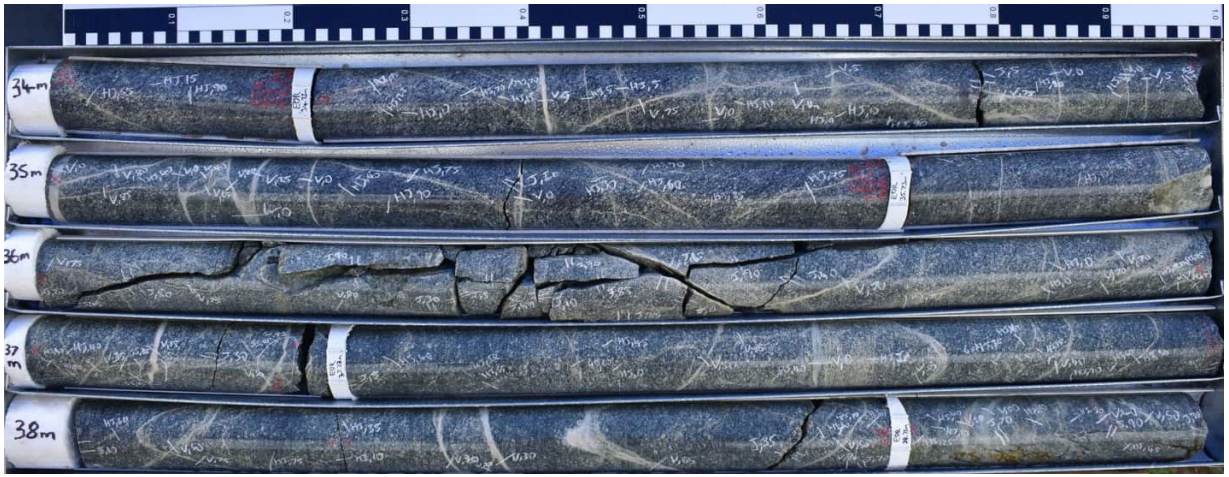
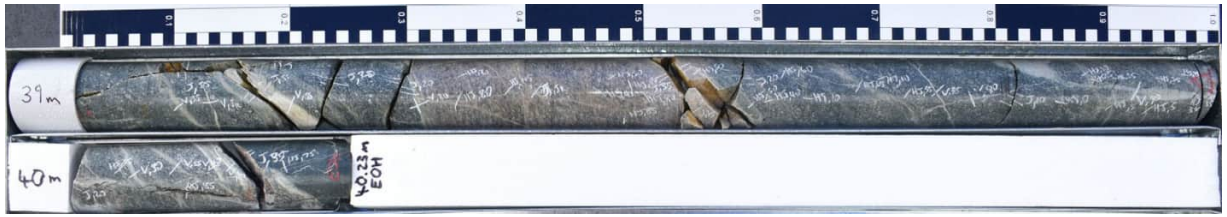


PointID : BHT-01 Depth Range: 34.00 - 39.00 m



PointID : BHT-01 Depth Range: 39.00 - 40.23 m

wsp	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHT-01	DRAWN RC/PL	DATE 20/08/2024
		CHECKED GEM	DATE 7/10/2024
		SCALE Not To Scale	A4
		PROJECT No PS138693	FIGURE No 3/3

BHT-01 Structural Log

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WSP Australia Pty Limited
Level 12, 900 Ann Street
Fortitude Valley
QLD 4006
Australia

GEOPHYSICAL RECORD OF BOREHOLE: BHT-01

PROJECT:	Pioneer-Burdekin PHES	JOB #	PS138693
CLIENT:	Queensland Hydro	DATE:	02/11/2023

BOREHOLE DETAILS

LOCATION:	Upper Reservoir	BH DEPTH:	40.23
EASTING:	656802.93 m	BH DIAMETER:	HQ
NORTHING:	7667399.95 m	BH AZIMUTH:	265°
ELEVATION:	878.47 m	BH PLUNGE:	-87°
COORD SYSTEM:	MGA2020-55	CASING DEPTH:	21.03 m
LOGGING DATUM:	Ground Level	CASING TYPE:	HW

DOCUMENT DETAILS

LOGGED BY:	GH
LOGGED DATE:	22-23/09/2023
DRAWN BY:	SB
REVIEWED BY:	GH
FILE:	BHT-01_Structure_RevC
LOGGED DEPTH:	39.90 m

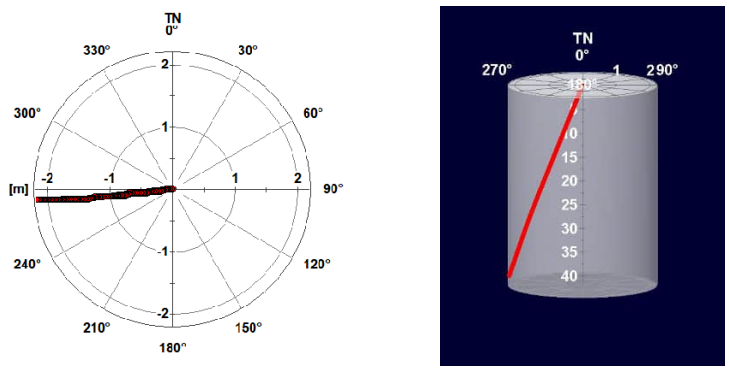
NOTES

Image logs are oriented relative to borehole high side. Final structure log is oriented relative to true north using magnetic declination of 8.2° East.

Mechanical calliper log used for structure dip corrections.

All logs zerored to ground level. Cased section assumed straight for deviation calculations.

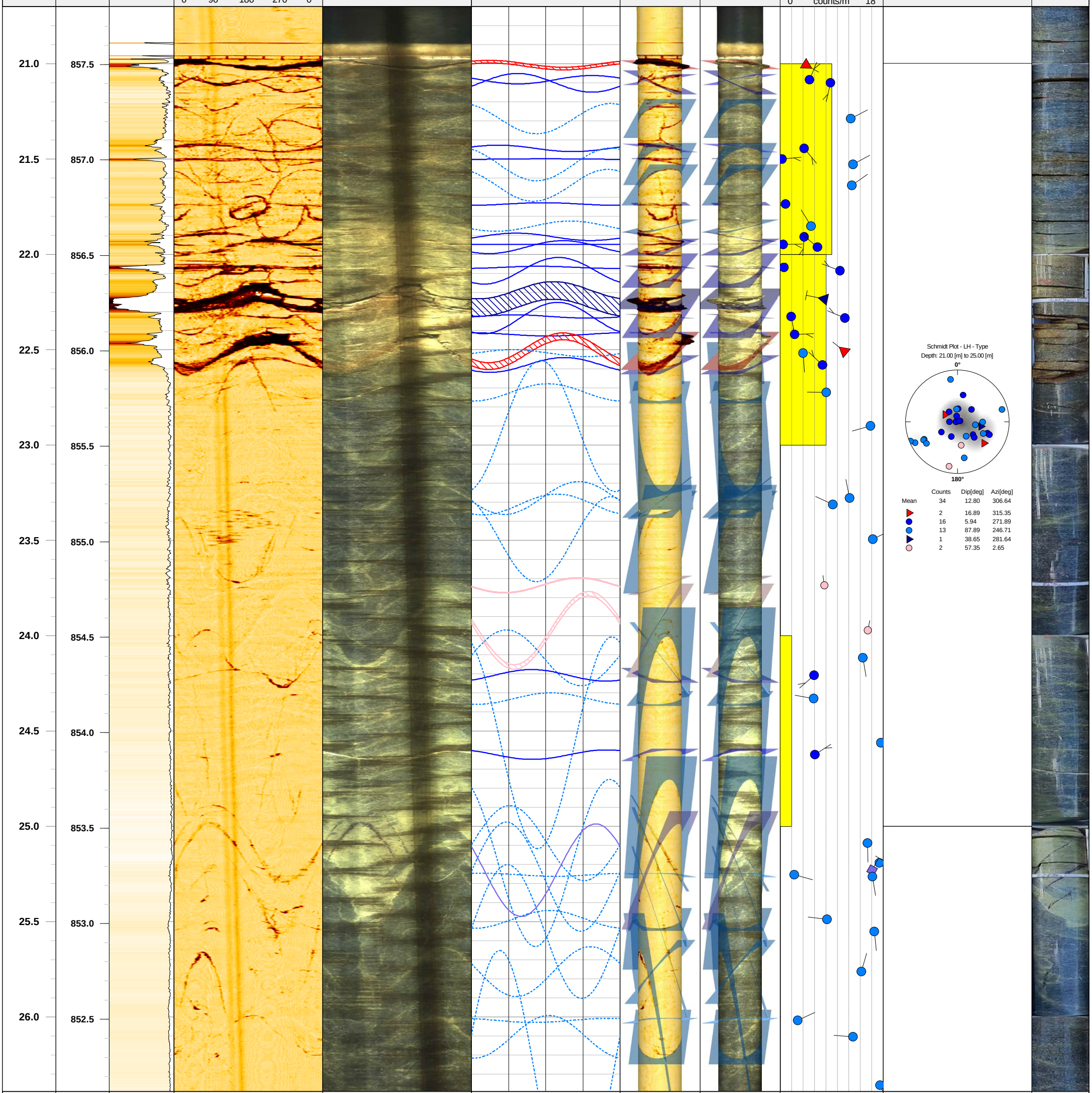
BOREHOLE DEVIATION



INTERPRETED STRUCTURES

Contact | Extremely Weathered Seam | Fracture Zone | Joint | Vein | Healed Joint

BHT-01



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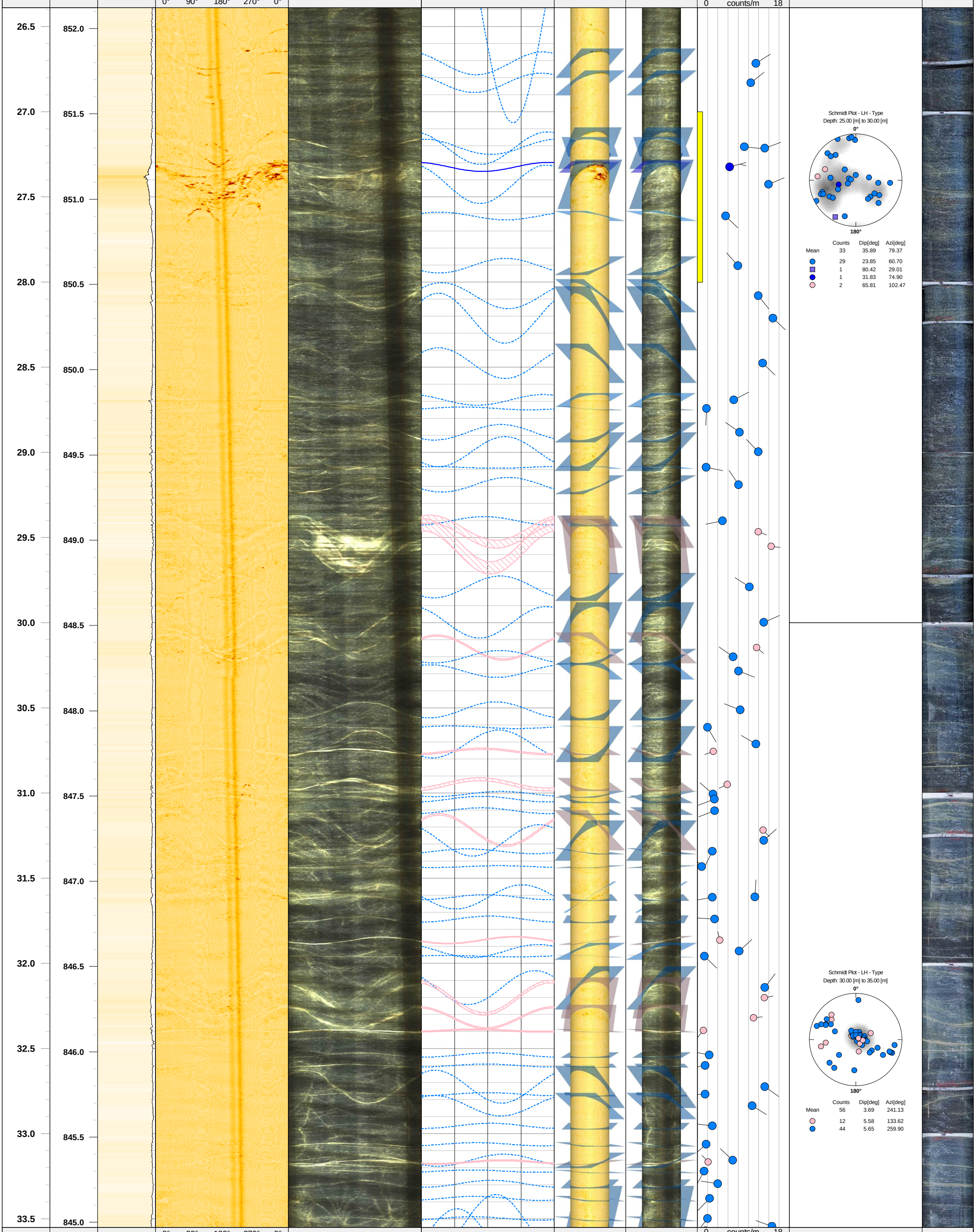
BHT-01



BHT-01

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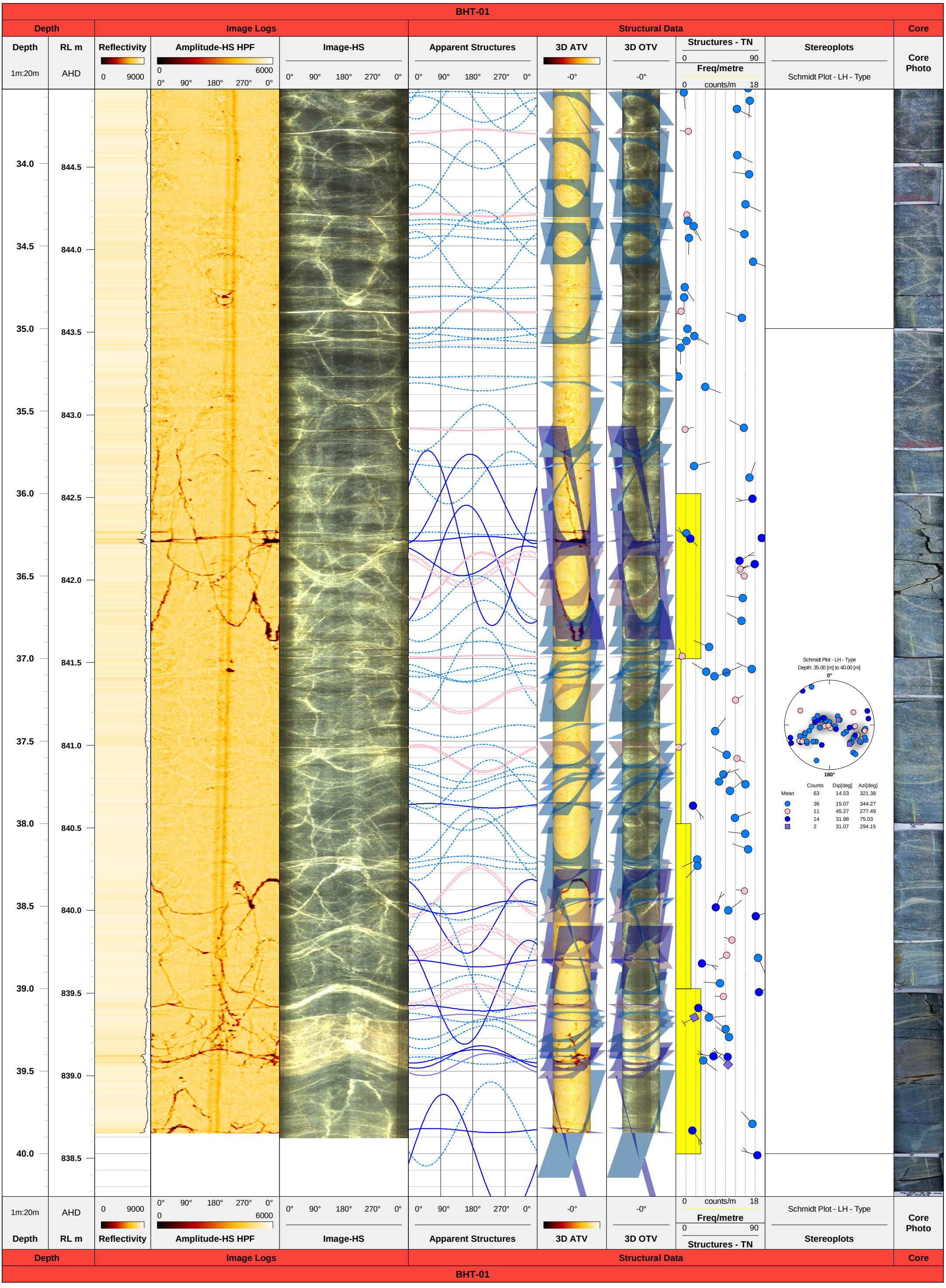

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BHT-01 Composite Log

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WSP Australia Pty Limited
Level 12, 900 Ann Street
Fortitude Valley
QLD 4006
Australia

GEOPHYSICAL RECORD OF BOREHOLE: BHT-01

PROJECT:	Pioneer-Burdekin PHES	JOB #	PS138693
CLIENT:	Queensland Hydro	DATE:	02/11/2023

BOREHOLE DETAILS

LOCATION:	Upper Reservoir	BH DEPTH:	40.23
EASTING:	656802.93 m	BH DIAMETER:	HQ
NORTHING:	7667399.95 m	BH AZIMUTH:	265°
ELEVATION:	878.47 m	BH PLUNGE:	-87°
COORD SYSTEM:	MGA2020-55	CASING DEPTH:	21.03 m
LOGGING DATUM:	Ground Level	CASING TYPE:	HW

DOCUMENT DETAILS

LOGGED BY:	GH
LOGGED DATE:	22-23/09/2023
DRAWN BY:	SB
REVIEWED BY:	GH
FILE:	BHT-01_Composite_RevC
LOGGED DEPTH:	39.90 m

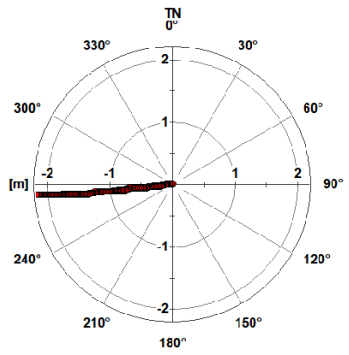
NOTES

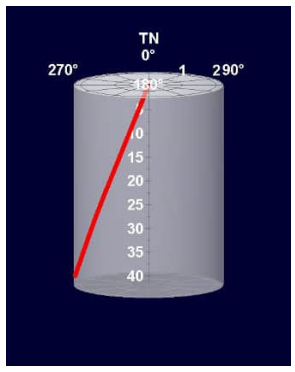
Image logs are oriented relative to borehole high side. Final structure log is oriented relative to true north using magnetic declination of 8.2° East.

Mechanical calliper log used for structure dip corrections.

All logs zerored to ground level. Cased section assumed straight for deviation calculations.

BOREHOLE DEVIATION

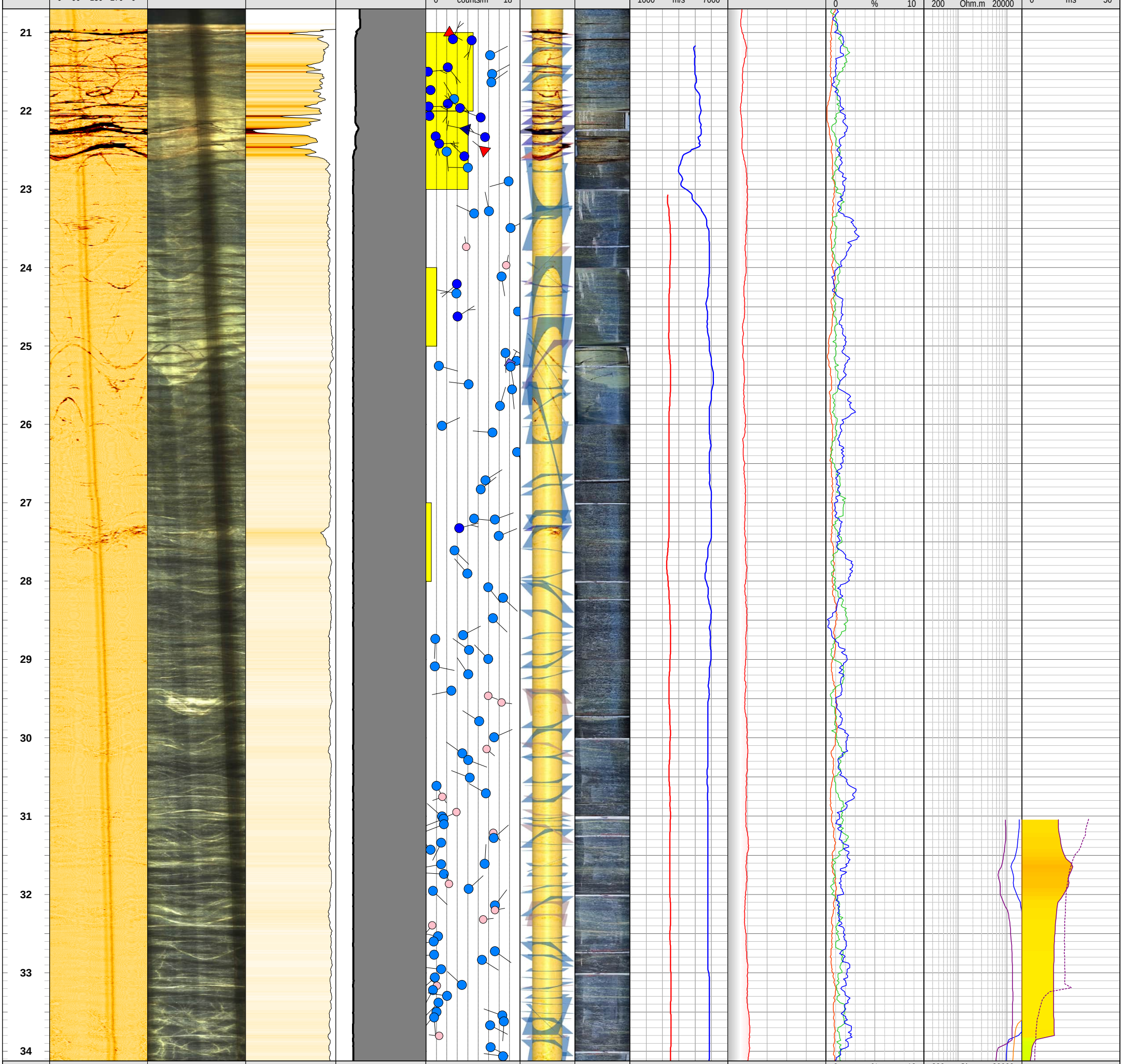




INTERPRETED STRUCTURES

Contact · Extremely Weathered Seam · Fracture Zone · Joint · Vein · Healed Joint

BHT-01



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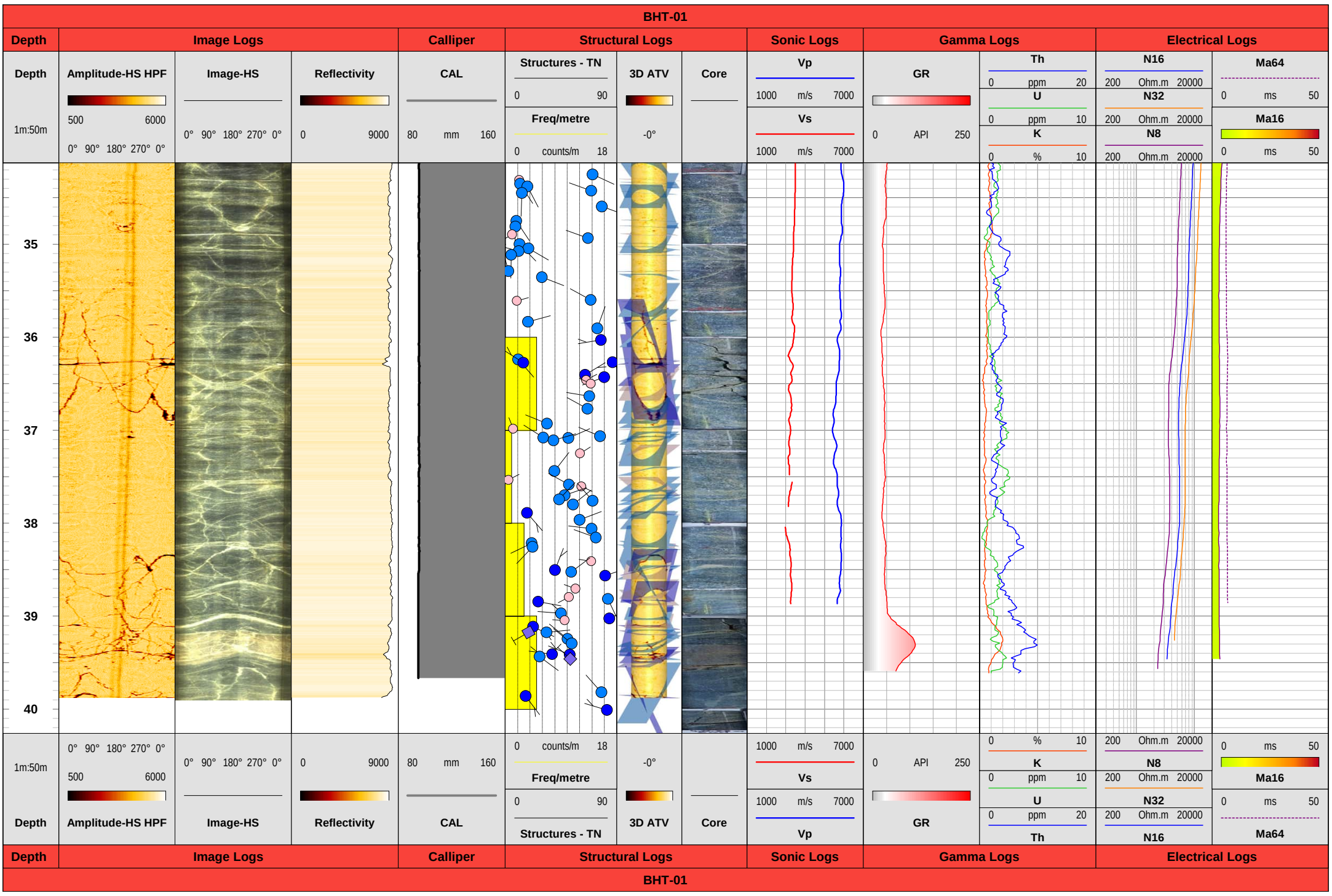

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