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REPORT OF BOREHOLE: CRR 210

SHEET: 1 OF 5

CLIENT: Aecom Australia Pty Ltd

COORDS: 502960.55 m E 6958824.11 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 33.24 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Boggo Rd

INCLINATION: -90°

LOGGED: SRT

DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 40.00 m

CHECKED: NK

DATE: 18/10/10

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	0.10 33.14	SPT 0.50-0.95 m 11, 17, 30 N=47			CL- CI	Gravelly CLAY low medium plasticity, grey brown, fine to medium gravel	M	F	Distinctly weathered tuff exposed at 0.5 m depth in cutting 10.0 m away
								CL	Silty CLAY low plasticity, orange brown, with some gravel	D - M	VSt	
			1						For Continuation Refer to Sheet 2			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: CRR 210

SHEET: 2 OF 5

DRILL RIG: FD500

CONTRACTOR: Foundril Pty Ltd

LOGGED: SRT DATE: 2/8/10

CHECKED: NK DATE: 18/10/10

CLIENT: Aecom Australia Pty Ltd

COORDS: 502960.55 m E 6958824.11 m N MGA94 56

PROJECT: Cross River Rail

SURFACE RL: 33.24 m DATUM: AHD

LOCATION: Boggo Rd

INCLINATION: -90°

JOB NO: 107632034

HOLE DEPTH: 40.00 m

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)	
				0									
				0.60			Continuation of Sheet 1						
				32.64			TUFF fine grained, grey and brown	EW					
				1									
				2									
				3									
				3.00			very low to low strength	DW					
				30.24									
				3.57			CORE LOSS						
				29.67									
				4									
				4.53			TUFF fine to coarse grained, grey and yellow brown	EW					
				28.71									
				5									
				6									
				7									
				7.81			CORE LOSS						
				7.93			TUFF fine to coarse grained, pale grey and pale red, iron staining	DW					
				25.31									
				8									
				9									
				10									

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: CRR 210

SHEET: 3 OF 5

CLIENT: Aecom Australia Pty Ltd
PROJECT: Cross River Rail
LOCATION: Boggo Rd
JOB NO: 107632034

COORDS: 502960.55 m E 6958824.11 m N MGA94 56
SURFACE RL: 33.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 40.00 m

DRILL RIG: FD500
CONTRACTOR: Foundril Pty Ltd
LOGGED: SRT DATE: 2/8/10
CHECKED: NK DATE: 18/10/10

Drilling					Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
								EL 0.03 VL 0.1 J 0.1 M 0.3 H 1 VH 0 Eh				mm
NMLC			100	100	10		TUFF fine to coarse grained, pale grey and pale red, iron staining	DW		10.10: J, 35°, Un, Sl, Sn, Fe0		
								SW				
			90	90	11					11.23: J, 45°, Pl-Un, Ro, Sn, Fe0 11.47: J, 0°, Pl, Ro, Vr, silt		
					12					11.75: J, 30°, Un-St, Ro, Sn, Feo 11.89: J, 45°, St, Ro, Sn, Fe0 12.08: J, 30°, Un-St, Ro, Sn, FeO		
			100	75	13	13.10 20.14	grey and pale grey	DW		13.13: CS, 60°, Un, Ro, 2-20mm 13.32: CS, 25°, Un, 50 mm 13.44: SS, 20°, Un, 60 mm, angular gravel and silt infill 13.65: J, 10°, Pl-Un, Ro, 4 mm, silty gravel infill		
			85	50	14					14.34: DS, 10°, Un, Ro, 15 mm, gravely clay infill 14.55: DS, 15°, Un, 10 mm, gravely silt infill		
					15					15.15: CS, 15°, Un, 50 mm, silty gravel infill		
					15.64		CORE LOSS					
			45	25	16	15.80 15.92 17.32	TUFF fine to coarse grained, pale green grey SANDSTONE medium grained, brown grey, bedding where apparent is 5-10° occasional zones with dark grey gravel clasts to 20 mm tending conglomerate	SW DW SW		15.92: C, 0°, Un, Sl 16.00-16.08: DS, 5°, extremely weathered rock 16.20: J, 45°, Un, 15 mm, extremely weathered around joint 16.27: J, 5°, Pl, Ro, 7 mm, clayey infill 16.38-16.49: DZ, 15°, Un, completely weathered rock and silty clay		
			100	90	17							
			0	0	18	18.00 15.24	CORE LOSS					
			55	0	19	19.37 13.87	CONGLOMERATE coarse grained, grey, quartz gravel clasts to 30 mm	MW				
					20	19.75 13.40	MUDSTONE fine grained, brown grey					

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: CRR 210

SHEET: 4 OF 5

CLIENT: Aecom Australia Pty Ltd
PROJECT: Cross River Rail
LOCATION: Boggo Rd
JOB NO: 107632034

COORDS: 502960.55 m E 6958824.11 m N MGA94 56
SURFACE RL: 33.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 40.00 m

DRILL RIG: FD500
CONTRACTOR: Foundril Pty Ltd
LOGGED: SRT DATE: 2/8/10
CHECKED: NK DATE: 18/10/10

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)	
NMLC		55	0	20			CORE LOSS						
				20.23	13.01		MUDSTONE	SW		20.42: B, 5°, Pl, Sm, Cn			
		100	85				fine grained, grey, horizontal bedding						
				20.70			CORE LOSS						
				20.86	12.38		MUDSTONE	EW		21.10: B, 5°, Pl, Sm, Cn			
				21			fine grained, grey, distinct horizontal bedding, occasional beds to 250 mm tending sandstone	SW		21.26: B, 0°, Pl, Sm, Cn			
										21.30: B, 0°, Pl, Sm, Cn			
										21.43: B, 0°, Pl, Sm, Cn			
										21.53: B, 0°, Pl, Sm, Ct, 15 mm, thin very low strength band			
		95	80	22									
				23				HW		22.80: DZ, 0°, 160 mm, fine gravel in clayey matrix			
								SW		23.00: DS, 0°, 50 mm, medium gravel and silt			
										23.40: DS, 0°, 50 mm, extremely weathered mudstone			
										23.48: DS, 0°, 30 mm, extremely weathered mudstone			
				24				SW - FR					
										24.55: B, 0°, Pl, Ro, Ct, 3 mm, clay coating			
										24.82: B, 0°, St, Ro, Cn			
		100	100	25						25.05: B, 0°, Pl, Sm, Cn			
										25.44: B, 5°, Pl, Sm, Ct, 3 mm, clay coating			
										25.80: B, 5°, Un, Sm, Ct, 2 mm, clay coating			
				26						26.11: B, 5°, Pl, Sm, Cn			
										26.37: B, 5°, Pl, Sm, Cn			
										26.40: B, 5°, St, Sm, Cn			
										26.58: J, 70°, Un, Sm, Vr, clay			
				27						26.80: B, 0°, Pl, Sm, Ct, 3 mm, clay high plasticity			
										26.82: B, 5°, Pl, Sm, Ct, 2 mm, clay high plasticity			
										26.90: B, 0°, Pl, Sm, Ct, 3 mm, clayey gravel			
										27.14: B, 0°, Pl, Sm, Ct, 2 mm, clay high plasticity			
										27.16: B, 5°, Pl, Sm, Vr, clay			
										27.30: DS, 5°, 20 mm, gravelly clay			
										27.37: B, 0°, Un, Ro, Cn			
										27.64: B, 0°, Pl, Sm, Ct, 10 mm, clay high plasticity			
				28						27.95: J, 80°, Un, Sm, Vr, clay			
		100	70							28.10: B, 5°, Pl, Sm, Ct, 2 mm, clay high plasticity			
										28.21: B, 0°, Pl, Sm, Ct, 10 mm, clay high plasticity			
										28.48: B, 0°, Un, Ro, Ct, 2 mm, silt			
				29						28.90: B, 5°, Un, Ro, Cn			
										29.09: B, 5°, Pl, Ro, Cn			
										29.20: DS, 5°, 30 mm, clayey gravel			
										29.27: DS, 5°, 40 mm, clayey gravel			
		95	80	30						29.34: B, 5°, Pl, Sm, Cn			

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: CRR 210

SHEET: 5 OF 5

CLIENT: Aecom Australia Pty Ltd
PROJECT: Cross River Rail
LOCATION: Boggo Rd
JOB NO: 107632034

COORDS: 502960.55 m E 6958824.11 m N MGA94 56
SURFACE RL: 33.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 40.00 m

DRILL RIG: FD500
CONTRACTOR: Foundril Pty Ltd
LOGGED: SRT DATE: 2/8/10
CHECKED: NK DATE: 18/10/10

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)	
				30			MUDSTONE fine grained, grey, distinct horizontal bedding, occasional beds to 250 mm tending sandstone	SW - FR		30.11: J, 30°, Un, Sm, Vr			
			95 80	31				EW		30.48: DZ, 140 mm, rock structure visible, crumbles to clayey gravel			
								SW - FR		30.50: DZ, 300 mm, clayey gravel			
										30.68: J, 10°, Pl, Sm, Cn			
										30.74-37.40: J, 70°, Un, Sm, Cn			
										30.84: J, 10°, Pl, Sm, Cn			
										30.93: J, 10°, Pl, Sm, Cn			
										30.96: DS, 10 mm, clay high plasticity			
				32				DW					
								SW - FR		32.22: DS, 30 mm, angular rock fragments with some clay			
										32.47: 80 mm, angular rock fragments with some clay			
										32.74: B, 5°, St, Sm, Cn			
				33	33.15 0.09		CONGLOMERATE medium to coarse grained, grey, gravel clasts to 45 mm, some quartz gravels in matrix	SW		32.95: B, 5°, Un, Ro, Ct, 10 mm, angular rock fragments with some clay			
										33.13: J, 5°, Pl, Sm, Cn, 10 mm, sandy clay			
			100 90	34									
										34.74: J, 90°, Pl, Ro, Ct, 10 mm, fine gravel			
				35									
			100 100	36									
										36.66: J, 5°, Pl, Sm, Cn			
										36.71: J, 20°, Un-St, Ro, Ct, 5 mm, fine gravel			
										36.81: J, 40°, Un, Sm, Ct, 10 mm, fine clayey gravel			
										36.94: J, 0°, Pl, Ro, Vr, fine gravel			
			100 90	37									
										37.85-38.55: DZ, extremely weathered			
				38									
				39									
			100 100	40	40.00		END OF BOREHOLE @ 40.00 m TARGET DEPTH LEFT OPEN Water level @ 6.5m 7.00 am 30/7/2010 water level @9.3m 7.00am 31/07/2010 water level @10.15m 02/08/10. NW casing left in hole to 4.0m depth.						

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GAP gINT FN. F02b
RL3

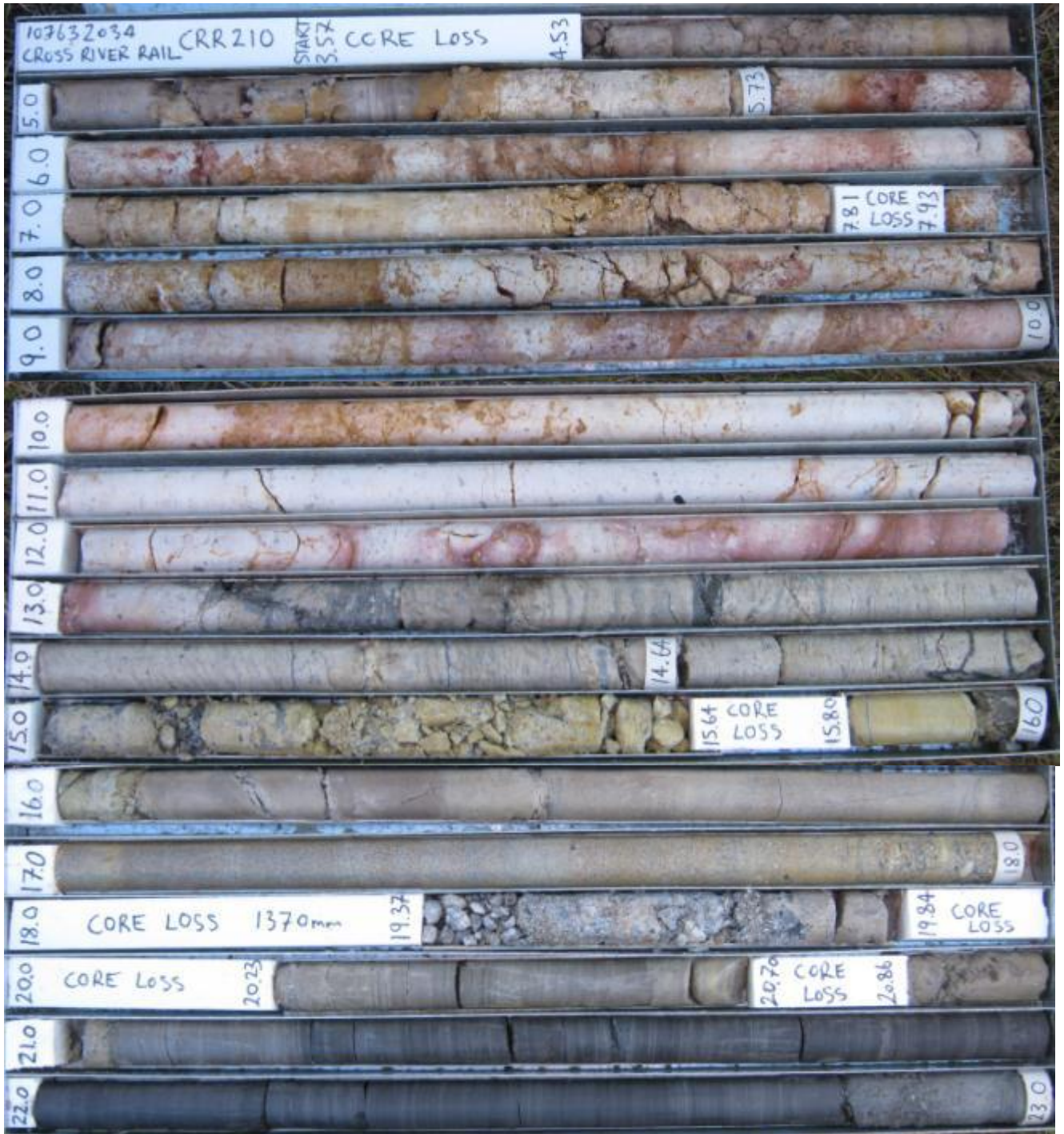


REPORT OF CORE PHOTOGRAPHS: CRR 210

CLIENT: Aecom Australia Pty Ltd
PROJECT: Cross River Rail
LOCATION: Boggo Road
JOB NO: 107632034

COORDS: 0502960 m E 6958824 m N
SURFACE RL: 33.24 DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 40.0 m

DEPTH RANGE: 3.57-23.0 m
DRILL RIG: FD 500
DRILLER: Foundril Pty Ltd
LOGGED: ST DATE: 29/07/10
CHECKED: NK DATE: 4/10/10





REPORT OF CORE PHOTOGRAPHS: CRR 210

CLIENT: Aecom Australia Pty Ltd
PROJECT: Cross River Rail
LOCATION: Boggo Road
JOB NO: 107632034

COORDS: 0502960 m E 6958824 m N
SURFACE RL: 33.24 DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 40.0 m

DEPTH RANGE: 23.0-40.0 m
DRILL RIG: FD 500
DRILLER: Foundril Pty Ltd
LOGGED: ST DATE: 29/07/10
CHECKED: NK DATE: 4/10/10





REPORT OF STANDPIPE INSTALLATION: CRR 210

SHEET: 1 OF 1

CLIENT: Aecom Australia Pty Ltd

COORDS: 502960.55 m E 6958824.11 m N MGA94 56

DRILL RIG: FD500

PROJECT: Cross River Rail

SURFACE RL: 33.24 m DATUM: AHD

CONTRACTOR: Foundril Pty Ltd

LOCATION: Boggo Rd

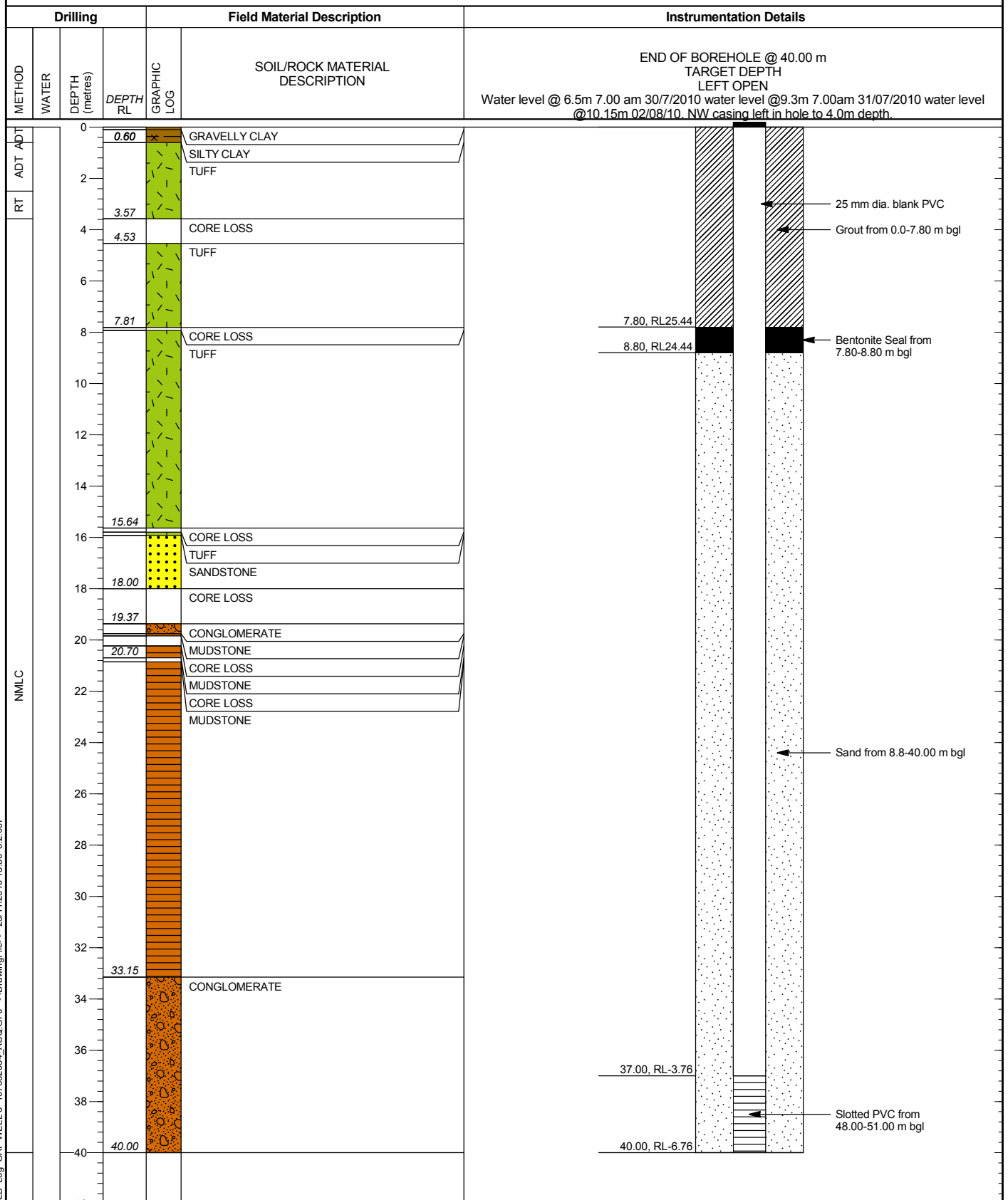
INCLINATION: -90°

LOGGED: SRT DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 40.00 m

CHECKED: NK DATE: 18/10/10



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GEOPHYSICAL RECORD OF BOREHOLE: CRR 210

PROJECTCross River Rail

PROJECT #107632034

CLIENTDepartment of Transport and Main Roads

DATE12/10/2010

LOCATION-BOGGO RD

EASTING-502954.00 m E

NORTHING-6958821.00 m N

ELEVATION-

DRILLED DEPTH-40.00 m

PLUNGE--90°

CASING-

DIAMETER-

AZIMUTH-000

DEPTH-

LOGGED BY-SRT

LOGGED DATE-2/8/10

LOGGING DATUM-

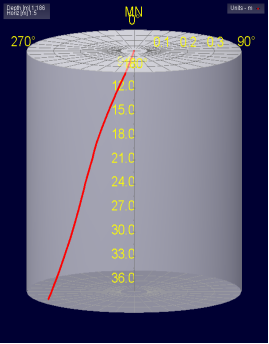
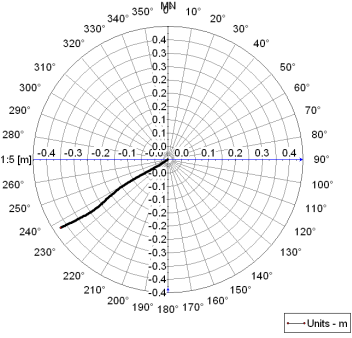
LOGGED DEPTH-37.05 m

DRAWN BY-RCD

REVIEWED BY-TR

FILE NAME-CRR210-U.HED.WCL

Lithology



Interpreted Structures

 Joint - Medium Confidence

 Joint - High Confidence

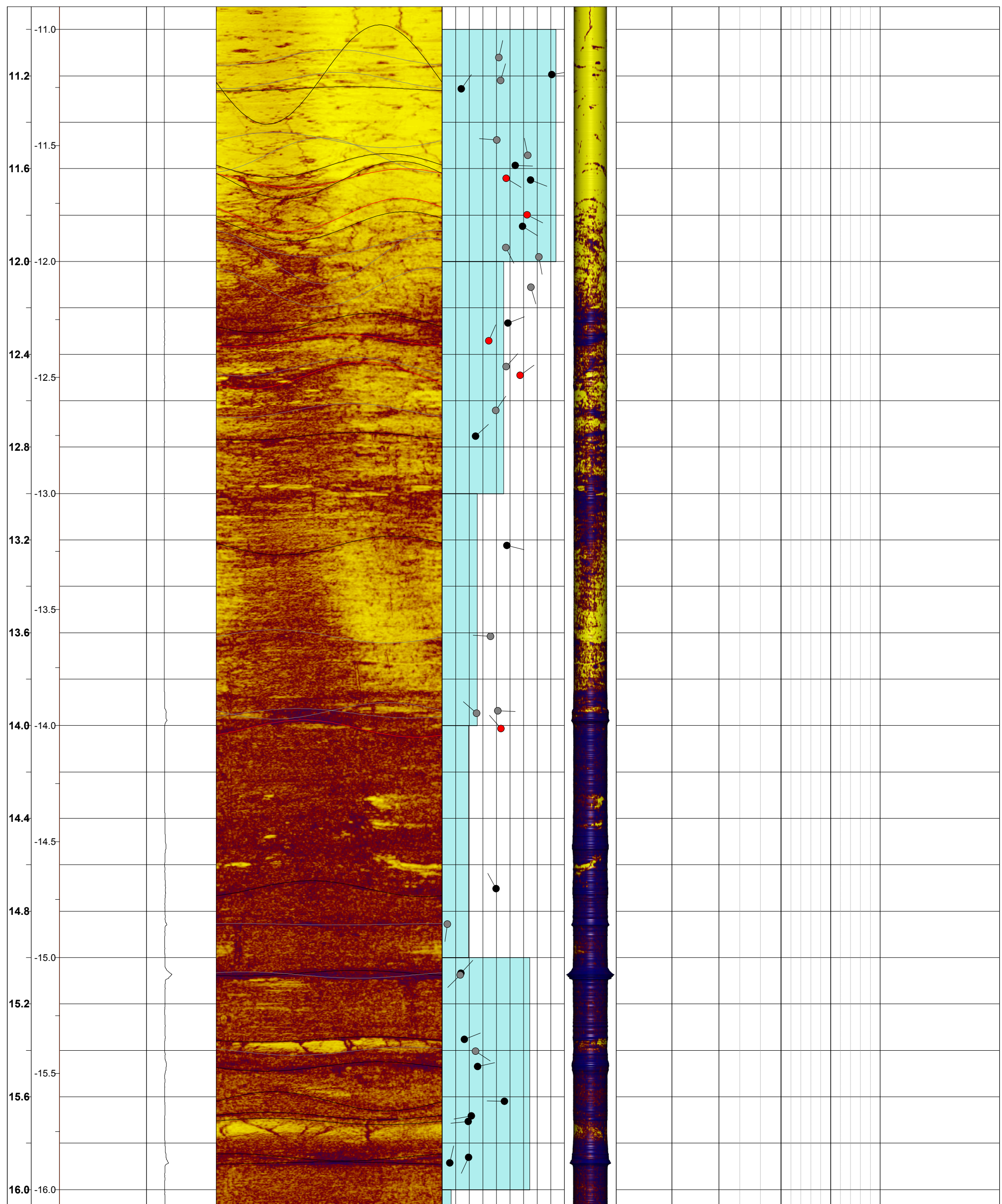
 Bedding - High Confidence

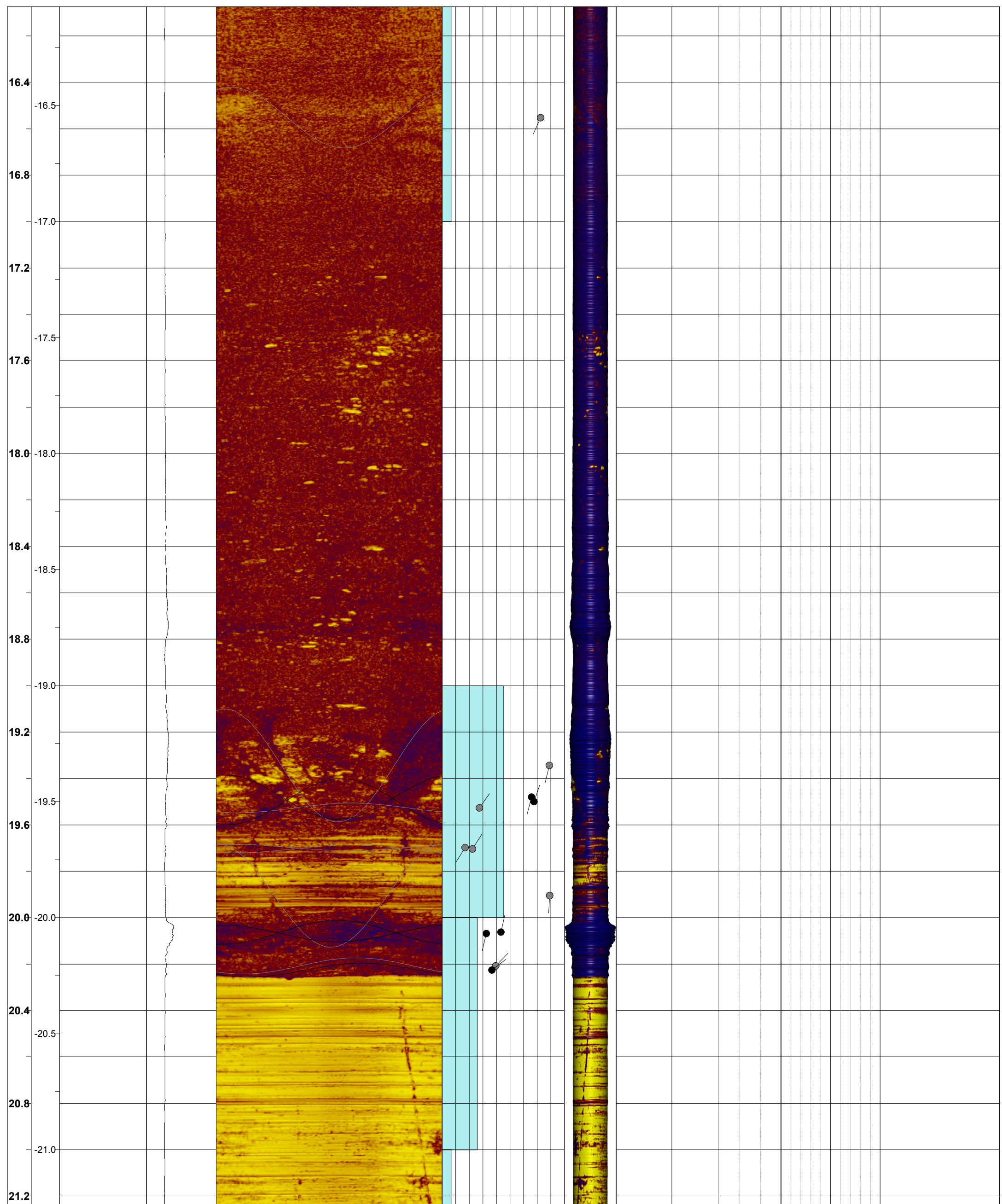
 Bedding - Medium Confidence

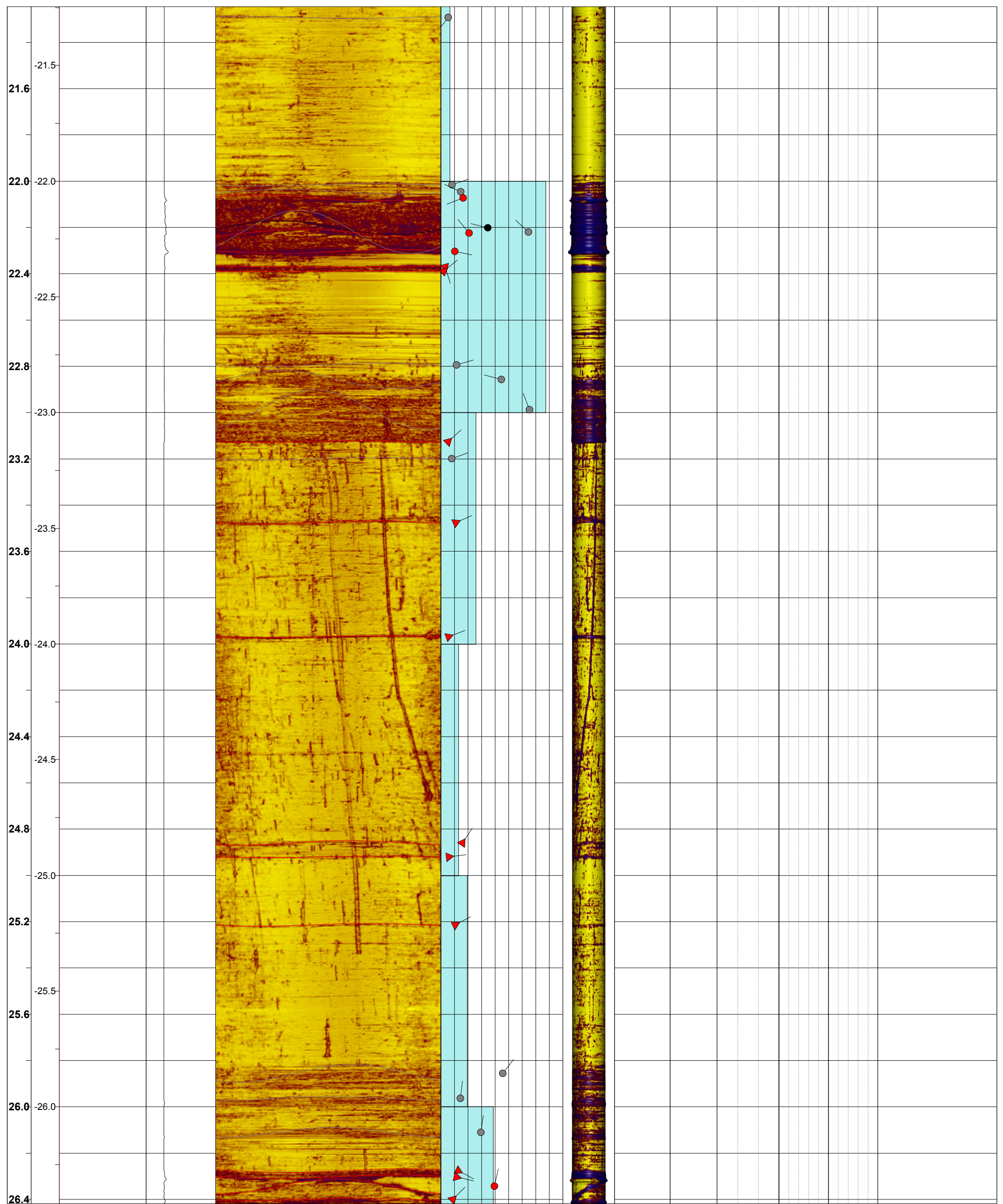
 Bedding - Low Confidence

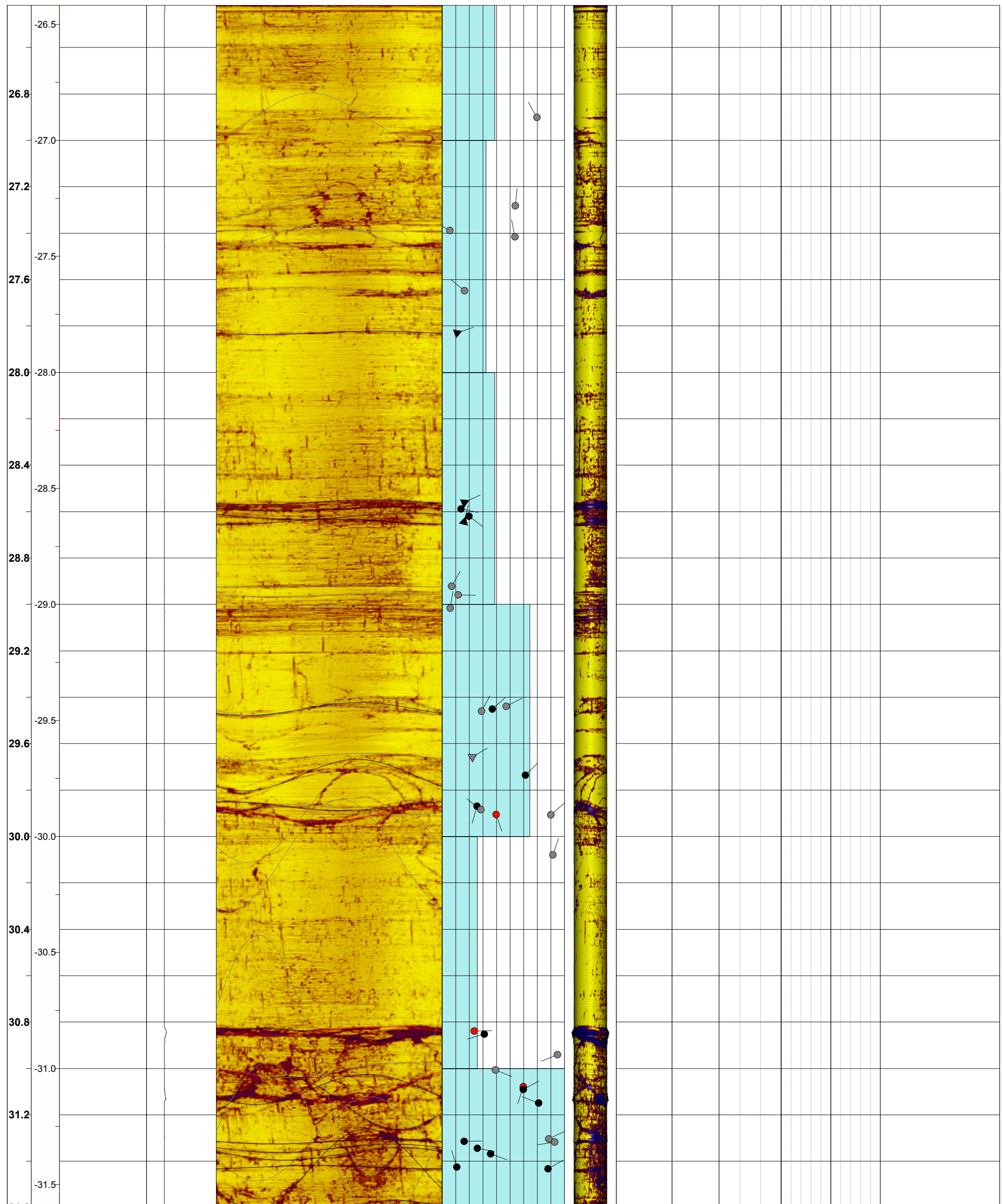
 Joint - Low Confidence

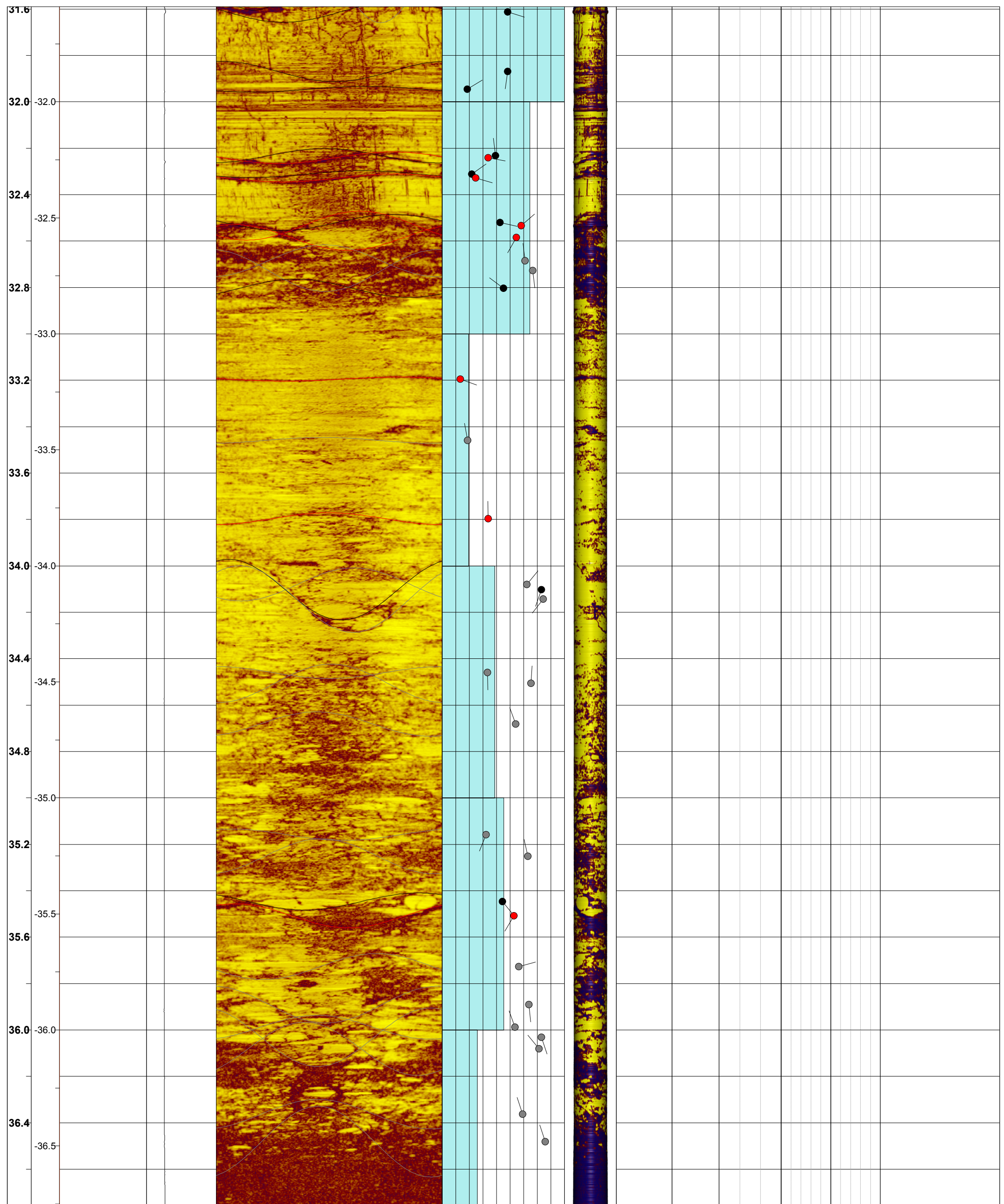
Depth 1:15	RL	TELEVIEWER DATA					CORE DATA					
		NATURAL GAMMA	ATV - Caliper	Amplitude	Structure Orientations	3D log	Core Photo	Lithology	Logged FF	RQD	TCR	Defect Description
		0 cps 300	0 mm 300	0° 90° 180° 270° 0°	0 90	293°			0 30	0 100	0 100	
				Interpreted Structures	ATV FF		(Refer to detailed core log, provided separately)					
				0° 90° 180° 270° 0°	0 counts/m 14							
7.6	-7.5											
8.0	-8.0											
8.4	-8.5											
8.8	-9.0											
9.2	-9.5											
9.6	-10.0											
10.0	-10.5											
10.4	-10.5											
10.8												

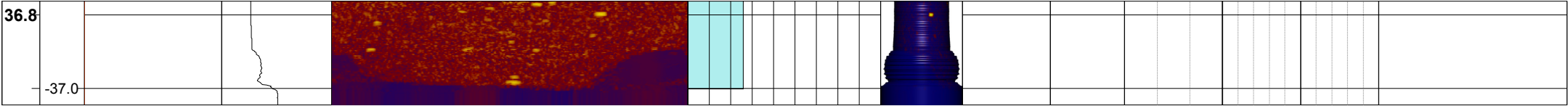




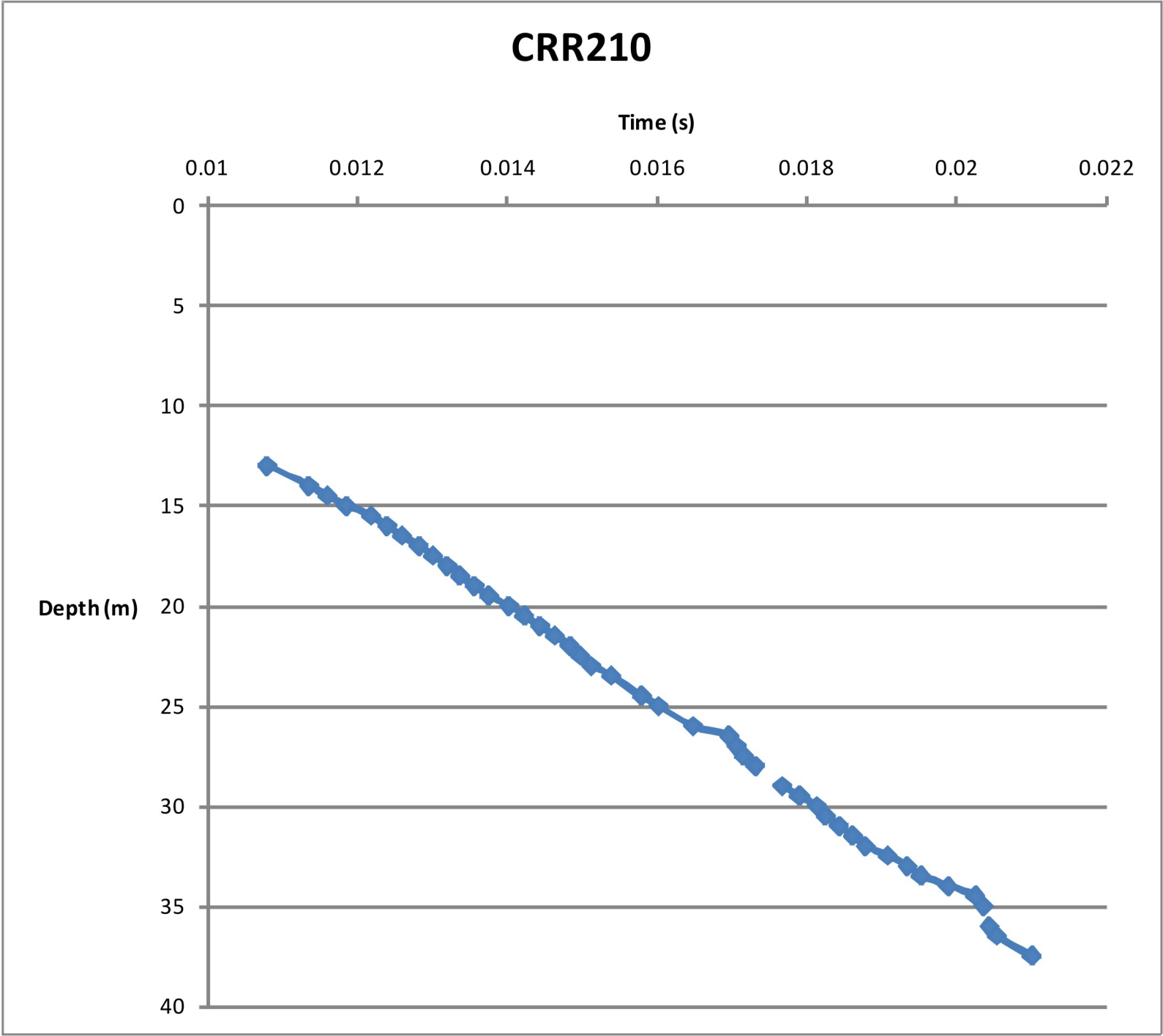








GA-BQ-291 RL1
Issued 31/03/10



Note:

* - 1st arrival not clear due to noise

Calculations done without accounting for borehole deviation

Geophone Depth (m)		Interval velocity (P wave m/s)
from	to	
13	14	1781
14	14.5	2022
14.5	15	2023
15	15.5	1487
15.5	16	2416
16	16.5	2418
16.5	17	2209
17	17.5	2662
17.5	18	2663
18	18.5	2936
18.5	19	2611
19	19.5	2612
19.5	20	1827
20	20.5	2450
20.5	21	2451
21	21.5	2451
21.5	22	2531
22	22.5	3462
22.5	23	3463
23	23.5	1900
23.5	24.5	2473
24.5	25	2166
25	26	2167
26	26.5	1050
26.5	27	5097
27	27.5	5098
27.5	28	3155
28	28.5	*
28.5	29	*
29	29.5	2168
29.5	30	2168
30	30.5	4266
30.5	31	2743
31	31.5	2743
31.5	32	2954
32	32.5	1671
32.5	33	1921
33	33.5	2743
33.5	34	1373
34	34.5	1373
34.5	35	4796
35	35.5	*
35.5	36	*
36	36.5	4797
36.5	37.5	2135



CLIENT Department of Transport and Main Roads		PROJECT Cross River Rail		
DRAWN GDK	DATE OCT 4	TITLE CRR210 VSP		
CHECKED TR	DATE			
SCALE NTS	PROJECT No 000-107632034	FIGURE No	REV No	A3



WATER PRESSURE TEST

Job No. : 107632034	Hole No. : CRR210	Drilling Method : NMLC	Vertical depth to Groundwater	Revision No : 12.00
Client : AECOM	Dip (Deg) : -90	Hole Diameter (m) : 0.0757	Immediately prior to test (m bgl) : 9.30	
Project : Cross River Rail	Interval Top (m) : 30.30	Tested Length (m) : 6.07	Used in analysis (m bgl) : 9.30	
Location : Boggo Road	Interval Base (m) : 36.37	Packer Type : Mechanical - Non-Wireline - Single	Pressure Gauge Height (m agl) : 1.70	
Tested By : CJA	Computed By : CJA	Rock tested :	Presumed Water Temperature : 25	
Date : 31/07/2010	Date : 31/07/2010	Water Meter Reading in Litres	Checked By : NK	Date : 28/10/2010

Pressure Stage	Gauge Pressure kPa	No	Actual	Time	Water Meter Readings		Volume	Discharge	Discharge/m	Remarks	
			Time (h:m:s)	Intervals (min)	Reading (Litres)		(L)	(L/min)	(L/min/m)		
P1	90	0	0:00:00	0	17571.90		0.00	0.00	0.00	c : 1	
		1	0:01:00	01:00	17571.90		0.00	0.00	0.00		
		2	0:02:00	01:00	17571.90		0.00	0.00	0.00		
		3	0:03:00	01:00	17571.90		0.00	0.00	0.00		
		4	0:04:00	01:00	17571.90		0.00	0.00	0.00		
		5	0:05:00	01:00	17571.90		0.00	0.00	0.00		
		6	0:06:00	01:00	17571.90		0.00	0.00	0.00		
		7	0:07:00	01:00	17571.90		0.00	0.00	0.00		
		8	0:08:00	01:00	17571.90		0.00	0.00	0.00		
		9	0:09:00	01:00	17571.90		0.00	0.00	0.00		
		10	0:10:00	01:00	17571.90		0.00	0.00	0.00		
		Total :						0.00	0.00		
		Average:						0.000	0.000		
P2	180	0	0:11:00	0	17572.00		0.00	0.00	0.00	c : 1	
		1	0:12:00	01:00	17572.00		0.00	0.00	0.00		
		2	0:13:00	01:00	17572.00		0.00	0.00	0.00		
		3	0:14:00	01:00	17572.10		0.10	0.10	0.02		
		4	0:15:00	01:00	17572.10		0.00	0.00	0.00		
		5	0:16:00	01:00	17572.10		0.00	0.00	0.00		
		6	0:17:00	01:00	17572.20		0.10	0.10	0.02		
		7	0:18:00	01:00	17572.20		0.00	0.00	0.00		
		8	0:19:00	01:00	17572.30		0.10	0.10	0.02		
		9	0:20:00	01:00	17572.40		0.10	0.10	0.02		
		10	0:21:00	01:00	17572.50		0.10	0.10	0.02		
		Total :						0.50	0.08		
		Average:						0.050	0.008		
P3	270	0	0:22:00	0	17572.80		0.00	0.00	0.00	c : 1	
		1	0:23:00	01:00	17573.00		0.20	0.20	0.03		
		2	0:24:00	01:00	17573.20		0.20	0.20	0.03		
		3	0:25:00	01:00	17573.40		0.20	0.20	0.03		
		4	0:26:00	01:00	17573.60		0.20	0.20	0.03		
		5	0:27:00	01:00	17573.80		0.20	0.20	0.03		
		6	0:28:00	01:00	17574.00		0.20	0.20	0.03		
		7	0:29:00	01:00	17574.20		0.20	0.20	0.03		
		8	0:30:00	01:00	17574.40		0.20	0.20	0.03		
		9	0:31:00	01:00	17574.60		0.20	0.20	0.03		
		10	0:32:00	01:00	17574.80		0.20	0.20	0.03		
		Total :						2.00	0.33		
		Average:						0.200	0.033		
P4	180	0	0:33:00	0	17575.20		0.00	0.00	0.00	c : 1	
		1	0:34:00	01:00	17575.30		0.10	0.10	0.02		
		2	0:35:00	01:00	17575.30		0.00	0.00	0.00		
		3	0:36:00	01:00	17575.40		0.10	0.10	0.02		
		4	0:37:00	01:00	17575.50		0.10	0.10	0.02		
		5	0:38:00	01:00	17575.50		0.00	0.00	0.00		
		6	0:39:00	01:00	17575.60		0.10	0.10	0.02		
		7	0:40:00	01:00	17575.70		0.10	0.10	0.02		
		8	0:41:00	01:00	17575.80		0.10	0.10	0.02		
		9	0:42:00	01:00	17575.90		0.10	0.10	0.02		
		10	0:43:00	01:00	17576.00		0.10	0.10	0.02		
		Total :						0.80	0.13		
		Average:						0.080	0.013		
P5	90	1	0:44:00	0	17576.30		0.00	0.00	0.00	c : 1	
		2	0:45:00	01:00	17576.30		0.00	0.00	0.00		
		3	0:46:00	01:00	17576.30		0.00	0.00	0.00		
		4	0:47:00	01:00	17576.30		0.00	0.00	0.00		
		5	0:48:00	01:00	17576.30		0.00	0.00	0.00		
		6	0:49:00	01:00	17576.30		0.00	0.00	0.00		
		7	0:50:00	01:00	17576.30		0.00	0.00	0.00		
		8	0:51:00	01:00	17576.30		0.00	0.00	0.00		
		9	0:52:00	01:00	17576.30		0.00	0.00	0.00		
		10	0:53:00	01:00	17576.30		0.00	0.00	0.00		
		11	0:54:00	01:00	17576.30		0.00	0.00	0.00		
		Total :						0.00	0.00		
		Average:						0.000	0.000		

TEST RESULTS

Stage No.	Houlsby (1976) Value	Lugeon Value Curve	Nett Pressures	Pressure Vs Flow	Interpreted Result & Hydraulic Conductivity
P1	0.0		197.9		H _{LOSS} 0.00 kPa
P2	0.0		287.9		Stage No. Av P1,P2,P4,P5
P3	0.1		377.9		Gauge Pressure 135 kPa
P4	0.1		287.9		Q 0.03 L/min
P5	0.0		197.9		H 24.8 m
Houlsby (1976) method - no pressure corrections for Hf (head losses), nor is the pressure corrected for Hg (location of watertable).					Interpreted Result 0 uL
					Reported k at Stage Av P1,P2,P4,P5
					Analytical Method 1: (ref = Golder geotechnical field notes draft 1997) $k = Q/H \times 6.10889 \times 10^{-6} \times (\log(2L/D))/L$
					k = 2.9E-09 m/s
					Analytical Method 2: (ref = Sharp, J.C 1975 Pit Slope Manual, CANMET report) $k = 1/(2L \times 3.14) \times (Q/H) \ln(R/r)$ m/s (convert L/min to m/s). Assume R = radius of influence of 100m & r = radius of borehole.
Flow Type	DILATION	COMMENTS	No Flow		k = 4.5E-09 m/s



WATER PRESSURE TEST

Job No. : 107632034 Hole No. : CRR210 Drilling Method : NMLC Vertical depth to Groundwater : 12.00
Client : AECOM Dip (Deg) : -90 Hole Diameter (m) : 0.0757 Immediately prior to test (m bgl) : 10.15
Project : Cross River Rail Interval Top (m) : 34.00 Tested Length (m) : 6.00 Used in analysis (m bgl) : 10.15
Location : Boggo Road Interval Base (m) : 40.00 Mechanical - Non-Wireline - Single Pressure Gauge Height (m agl) : 1.70
Tested By : CJA Computed By : CJA Rock tested : Presumed Water Temperature : 25
Date : 2/08/2010 Date : 2/08/2010 Water Meter Reading in Litres Checked By : NK Casing Inner Diameter (mm) : 60.300
Date : 28/10/2010

Pressure Stage	Gauge Pressure kPa	No	Actual	Time	Water Meter Readings		Volume	Discharge	Discharge/m	Remarks	
			Time (h:m:s)	Intervals (min)	Reading (Litres)		(L)	(L/min)	(L/min/m)		
P1	100	0	0:00:00	0	17611.3		0.00	0.00	0.00	Water leaking from collar	
		1	0:01:00	01:00	17611.9		0.60	0.60	0.10		
		2	0:02:00	01:00	17612.1		0.20	0.20	0.03		
		3	0:03:00	01:00	17612.1		0.00	0.00	0.00		
		4	0:04:00	01:00	17612.1		0.00	0.00	0.00		
		5	0:05:00	01:00	17612.1		0.00	0.00	0.00		
		6	0:06:00	01:00	17612.2		0.10	0.10	0.02		
		7	0:07:00	01:00	17612.2		0.00	0.00	0.00		
		8	0:08:00	01:00	17612.2		0.00	0.00	0.00		
		9	0:09:00	01:00	17612.2		0.00	0.00	0.00		
		10	0:10:00	01:00	17612.2		0.00	0.00	0.00		
		Total :						0.90	0.15		
		Average:						0.090	0.015		
P2	200	0	0:11:00	0	17613.5		0.00	0.00	0.00	Water leaking from collar	
		1	0:12:00	01:00	17614.0		0.50	0.50	0.08		
		2	0:13:00	01:00	17614.6		0.60	0.60	0.10		
		3	0:14:00	01:00	17615.2		0.60	0.60	0.10		
		4	0:15:00	01:00	17615.6		0.40	0.40	0.07		
		5	0:16:00	01:00	17616.2		0.60	0.60	0.10		
		6	0:17:00	01:00	17616.5		0.30	0.30	0.05		
		7	0:18:00	01:00	17616.9		0.40	0.40	0.07		
		8	0:19:00	01:00	17617.3		0.40	0.40	0.07		
		9	0:20:00	01:00	17617.7		0.40	0.40	0.07		
		10	0:21:00	01:00	17618.1		0.40	0.40	0.07		
		Total :						4.60	0.77		
		Average:						0.460	0.077		
P3	300	0	0:22:00	0	17621.0		0.00	0.00	0.00	Water leaking from collar	
		1	0:23:00	01:00	17623.2		2.20	2.20	0.37		
		2	0:24:00	01:00	17625.0		1.80	1.80	0.30		
		3	0:25:00	01:00	17627.1		2.10	2.10	0.35		
		4	0:26:00	01:00	17629.0		1.90	1.90	0.32		
		5	0:27:00	01:00	17630.6		1.60	1.60	0.27		
		6	0:28:00	01:00	17632.0		1.40	1.40	0.23		
		7	0:29:00	01:00	17633.0		1.00	1.00	0.17		
		8	0:30:00	01:00	17633.8		0.80	0.80	0.13		
		9	0:31:00	01:00	17634.5		0.70	0.70	0.12		
		10	0:32:00	01:00	17635.2		0.70	0.70	0.12		
		Total :						14.20	2.37		
		Average:						1.420	0.237		
P4	200	0	0:33:00	0	17636.0		0.00	0.00	0.00	Water leaking from collar	
		1	0:34:00	01:00	17636.6		0.60	0.60	0.10		
		2	0:35:00	01:00	17637.2		0.60	0.60	0.10		
		3	0:36:00	01:00	17637.9		0.70	0.70	0.12		
		4	0:37:00	01:00	17638.6		0.70	0.70	0.12		
		5	0:38:00	01:00	17639.2		0.60	0.60	0.10		
		6	0:39:00	01:00	17639.8		0.60	0.60	0.10		
		7	0:40:00	01:00	17640.4		0.60	0.60	0.10		
		8	0:41:00	01:00	17641.1		0.70	0.70	0.12		
		9	0:42:00	01:00	17641.7		0.60	0.60	0.10		
		10	0:43:00	01:00	17642.3		0.60	0.60	0.10		
		Total :						6.30	1.05		
		Average:						0.630	0.105		
P5	100	1	0:44:00	0	17571.9		0.00	0.00	0.00	Water leaking from collar	
		2	0:45:00	01:00	17571.9		0.00	0.00	0.00		
		3	0:46:00	01:00	17571.9		0.00	0.00	0.00		
		4	0:47:00	01:00	17571.9		0.00	0.00	0.00		
		5	0:48:00	01:00	17571.9		0.00	0.00	0.00		
		6	0:49:00	01:00	17571.9		0.00	0.00	0.00		
		7	0:50:00	01:00	17571.9		0.00	0.00	0.00		
		8	0:51:00	01:00	17571.9		0.00	0.00	0.00		
		9	0:52:00	01:00	17571.9		0.00	0.00	0.00		
		10	0:53:00	01:00	17571.9		0.00	0.00	0.00		
		11	0:54:00	01:00	17571.9		0.00	0.00	0.00		
		Total :						0.00	0.00		
		Average:						0.000	0.000		

TEST RESULTS

Stage No.	Houlsby (1976) Value	Lugeon Value Curve	Nett Pressures	Pressure Vs Flow	Interpreted Result & Hydraulic Conductivity
P1	0.2		216.2		H _{LOSS} 0.00 kPa
P2	0.4		316.2		Stage No. Av P1,P2,P4,P5
P3	0.8		416.2		Gauge Pressure 150 kPa
P4	0.5		316.2		Q 0.29 L/min
P5	0.0		216.2		H 27.1 m
Houlsby (1976) method - no pressure corrections for Hf (head losses), nor is the pressure corrected for Hg (location of watertable).					Interpreted Result 0 uL
					Reported k at Stage Av P1,P2,P4,P5
					Analytical Method 1: (ref = Golder geotechnical field notes draft 1997) $k = Q/H \times 6.10889 \times 10^{-6} \times (\log(2L/D)/L)$
					k = 2.4E-08 m/s
					Analytical Method 2: (ref = Sharp, J.C 1975 Pit Slope Manual, CANMET report) $k = 1/(2L \times 3.14) \times (Q/H) \ln(R/r)$ m/s (convert L/min to m/s). Assume R = radius of influence of 100m & r = radius of borehole.
Flow Type	DILATION	COMMENTS	No Flow		k = 3.8E-08 m/s