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# REPORT OF BOREHOLE: CRR 209

SHEET: 1 OF 5

CLIENT: Aecom Australia Pty Ltd  
 PROJECT: Cross River Rail  
 LOCATION: Go Print  
 JOB NO: 107632034

COORDS: 503264.31 m E 6959807.66 m N MGA94 56  
 SURFACE RL: 12.43 m DATUM: AHD  
 INCLINATION: -90°  
 HOLE DEPTH: 35.00 m

DRILL RIG: FD500  
 CONTRACTOR: Foundril Pty Ltd  
 LOGGED: CA DATE: 24/8/10  
 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			0	12.43			CH	CLAY high plasticity, brown			
			1		SPT 1.00-1.45 m 4, 3, 4 N=7						M F - St
			2	1.80 10.63			CH	CLAY high plasticity, very dark grey to black, trace fine gravel			D S - Fb
			3	2.40 10.03	SPT 2.50-2.95 m 9, 7, 10 N=17		CH	CLAY high plasticity, dark grey with orange and red patches, trace fine gravel			St - VSt
RT			3.10 9.33					becoming orange brown			
			4	3.60 8.83	SPT 4.00-4.43 m 13, 16, 30/130 mm N>46			becoming dark red			M VSt - H
			5		4.43-5.05 m						
			6								
			7								
			8								
			9								
			10								
								For Continuation Refer to Sheet 2			

GAP-8.03 LIB: GLE Log GAP NON-CORED FULL PAGE 107632034\_ACO.GPJ <<DrawingFile>> 08/12/2010 16:22 8.2.007

This report of borehole 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. F01a  
RL3



# REPORT OF BOREHOLE: CRR 209

SHEET: 2 OF 5

CLIENT: Aecom Australia Pty Ltd  
 PROJECT: Cross River Rail  
 LOCATION: Go Print  
 JOB NO: 107632034

COORDS: 503264.31 m E 6959807.66 m N MGA94 56  
 SURFACE RL: 12.43 m DATUM: AHD  
 INCLINATION: -90°  
 HOLE DEPTH: 35.00 m

DRILL RIG: FD500  
 CONTRACTOR: Foundril Pty Ltd  
 LOGGED: CA DATE: 24/8/10  
 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 0.01 L 0.1 M 0.3 H 1 VH 3 EH 10								
				0												
				1												
				2												
				3												
				4												
				5	5.05 7.38		Continuation of Sheet 1									
				6			TUFF fine to coarse grained, grey to pale grey with white and dark grey lithic fragments, red staining is common	EW DW								
			100	7									6.58: J, 0°, Un, Ro, Cn 6.66: J, Un, Ro, Sn, orange, weathered joint			
				8									8.05: DL 8.30: HB			
				9	8.81 3.62 9.09 3.34		CORE LOSS									
			90	10			TUFF fine to coarse grained, pale grey to grey, orange staining is common	SW - DW					9.25-9.27: J, 10°, Un, Sm, Ct, CH clay, orange 9.32-9.36: DS, 40 mm, CH silty clay, pale brown			

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GAP gINT FN. F02b  
RL3

GAP 8\_03 LIB: GLE Log GAP CORED BOREHOLE 1 07632034\_ACO.GPJ <<DrawingFile>> 08/12/2010 16:22 8.2.007



# REPORT OF BOREHOLE: CRR 209

SHEET: 3 OF 5

CLIENT: Aecom Australia Pty Ltd  
 PROJECT: Cross River Rail  
 LOCATION: Go Print  
 JOB NO: 107632034

COORDS: 503264.31 m E 6959807.66 m N MGA94 56  
 SURFACE RL: 12.43 m DATUM: AHD  
 INCLINATION: -90°  
 HOLE DEPTH: 35.00 m

DRILL RIG: FD500  
 CONTRACTOR: Foundril Pty Ltd  
 LOGGED: CA DATE: 24/8/10  
 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 $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
								EL 0.03 VL 0.01 J 0.1 M 0.3 H 1 VH 0			5 0 5 10 15 20
NMLC		90	90	10			TUFF fine to coarse grained, pale grey to grey, orange staining is common	SW - DW		10.00: J, 40°, Un, Ro, Sn, dark red to black 10.23-10.26: DS, 30 mm, open, possible fines washed out during drilling 10.30: J, 25°, Un, Sm, Sn, orange and dark red 10.35: DB 10.40: DL 10.56: DB 10.91: J, 0°, Un, Ro, Sn, dark red 10.96: J, 40°, Un, Ro, Sn, dark red 11.22: J, 60°, Un, 2 mm, cemented by CH clay, pale grey; and weathered infill 11.31: J, 5°, Un, 2 mm, cemented by CH clay, pale grey; and weathered infill 12.37: J, random, Un, Ro, Sn, closed 12.49: J, 0°, Un, Sm, Vr, clay, orange brown, closed 12.58: J, 40°, Un, 2 mm, cemented by CL clay, brown 12.61: J, 40°, Un, 2 mm, cemented by CL clay, brown 12.65: J, 5 mm, cemented by CL clay, brown 12.70: J, 10°, Un, Sm, Vr, CL silty clay, pale grey, closed 12.77: J, 5°, Un, Sm, Sn, orange, closed 12.79-12.82: DS, 30 mm, CH clay, pale grey 12.87: J, 15°, Un, Sm, Vr, CL silty clay, pale grey, closed 13.19: J, 20°, Un, Ro, Vr, clay, orange brown 13.26: J, 30°, Un, Ro, Vr, clay, orange brown 13.27-13.38: DZ, 110 mm, CH clay, pale grey and orange 13.40: DL 13.49: J, 15°, Un, Ro, Sn-Vr, clay, grey 13.62: J, 40°, Un, Ro, Ct, 15 mm, CH clay, pale brown 13.70: J, 0°, Un, Ro, Vr, CH clay, brown, open	
		100	100	12						15.03: J, 15°, Pl, Ro, Vr, clay, brown 15.16: J, 0°, Un, Sm, Ct, 10 mm, CH, silty clay, brown 15.34: J, 35°, Un, Sm, Sn, dark brown	
		100	100	15	15.30 -2.87			CONGLOMERATE fine to coarse grained, polyimictic, grey with orange staining			16.36: J, 20°, Un, Sm, Sn-Vr, brown 16.40: DL 16.50: J, 20°, Un, Ro, Sn, brown, Vr, silt, pale brown 16.73: J, 30°, Un, Ro, Ct, 20 mm, CH clay, pale brown 17.12: J, 30°, Un, Ro, Sn, brown 17.26: J, 0°, Un, Ro, Sn, orange, Ct, silt, pale brown 17.52: J, 10°, Un, Ro, Sn, brown 17.55: HB 17.60: J, 5°, Un, Ro, Sn, brown 18.02: J, 25°, Un, Ro, Cn, possible drilling break 18.07: DB 18.44: J, 15°, Un, Sm, Vr 18.45: J, 15°, Un, Sm, Vr 18.52: B, 40°, Pl-Un, Sm, Cn, possible mechanical break, closed 18.54: B, 40°, Pl-Un, Sm, Cn, possible mechanical break, closed 18.58: B, 40°, Un, Sm, Vr 18.75-19.00: SZ, 250 mm, fragments of rock, fine to medium gravel sized, platy 19.00-19.11: J, 90°, Un, Sm, Cn 19.11: J, 50°, Un, Ro, Cn 19.31: J, 0°, Un, Ro, Cn-Vr, clay, pale grey 19.76: DB
		95	95	19	19.00 -6.57		META SILTSTONE fine grained, foliated, grey, frequent quartz veins	SW - FR			

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GAP gINT FN. F02b  
RL3

GAP 8\_03 LIB: GLE Log GAP CORED BOREHOLE 107632034\_ACO.GPJ <<DrawingFile>> 08/12/2010 16:22 8.2.007





# REPORT OF BOREHOLE: CRR 209

SHEET: 5 OF 5

CLIENT: Aecom Australia Pty Ltd  
 PROJECT: Cross River Rail  
 LOCATION: Go Print  
 JOB NO: 107632034

COORDS: 503264.31 m E 6959807.66 m N MGA94 56  
 SURFACE RL: 12.43 m DATUM: AHD  
 INCLINATION: -90°  
 HOLE DEPTH: 35.00 m

DRILL RIG: FD500  
 CONTRACTOR: Foundril Pty Ltd  
 LOGGED: CA DATE: 24/8/10  
 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 $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)	
								EL 0.03 VL 0.01 J 0.1 M 0.3 H 1 VH 10 EH					
NMLC			100	100	30		META SILTSTONE fine grained, foliated, grey, frequent quartz veins	DW		30.34-30.36: CS, 20 mm, clayey gravel, fine, grey, subangular 30.54: DB 30.60: J, 20°, Pl, Sm, Vr, CL silty clay, grey 30.68: HB 30.72: DB 30.85: J, 5°, Un, Sm, Vr, clay, grey, talc 31.19: J, 20°, Un, Sm-Ro, Vr, CL sandy clay, grey, talc			
					31		32.07: J, 40°, Un, Sm, Cn-Vr 32.34: J, 35°, Un, Sm, Cn, possible drilling break 32.66: DB 32.86: DB 32.98: J, 60°, Pl-Un, Sm, Ct, CL silty clay, grey, talc						
			100	100	32		33.28: J, 60°, Un, Sm, Vr, clay, grey, talc 33.45: J, 60°, Un, Sm, Vr, clay, grey, talc 33.65-34.65: J, 60°, Un, Sm, Vr, clay, grey, talc						
					33		becoming red stained						
					34		33.80 -21.37						
			100	100	35		35.00 -22.57	END OF BOREHOLE @ 35.00 m	34.84: J, 20°, Un, Sm, Sn, red brown 34.89: J, 30°, Un, Sm, Vr, clay, grey, talc				
					36								
					37								
					38								
					39								
				40									

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GAP gINT FN. F02b  
RL3

GAP 8\_03 LIB: GLE Log GAP CORED BOREHOLE 107632034\_ACO.GPJ <<DrawingFile>> 08/12/2010 16:22 8.2.007

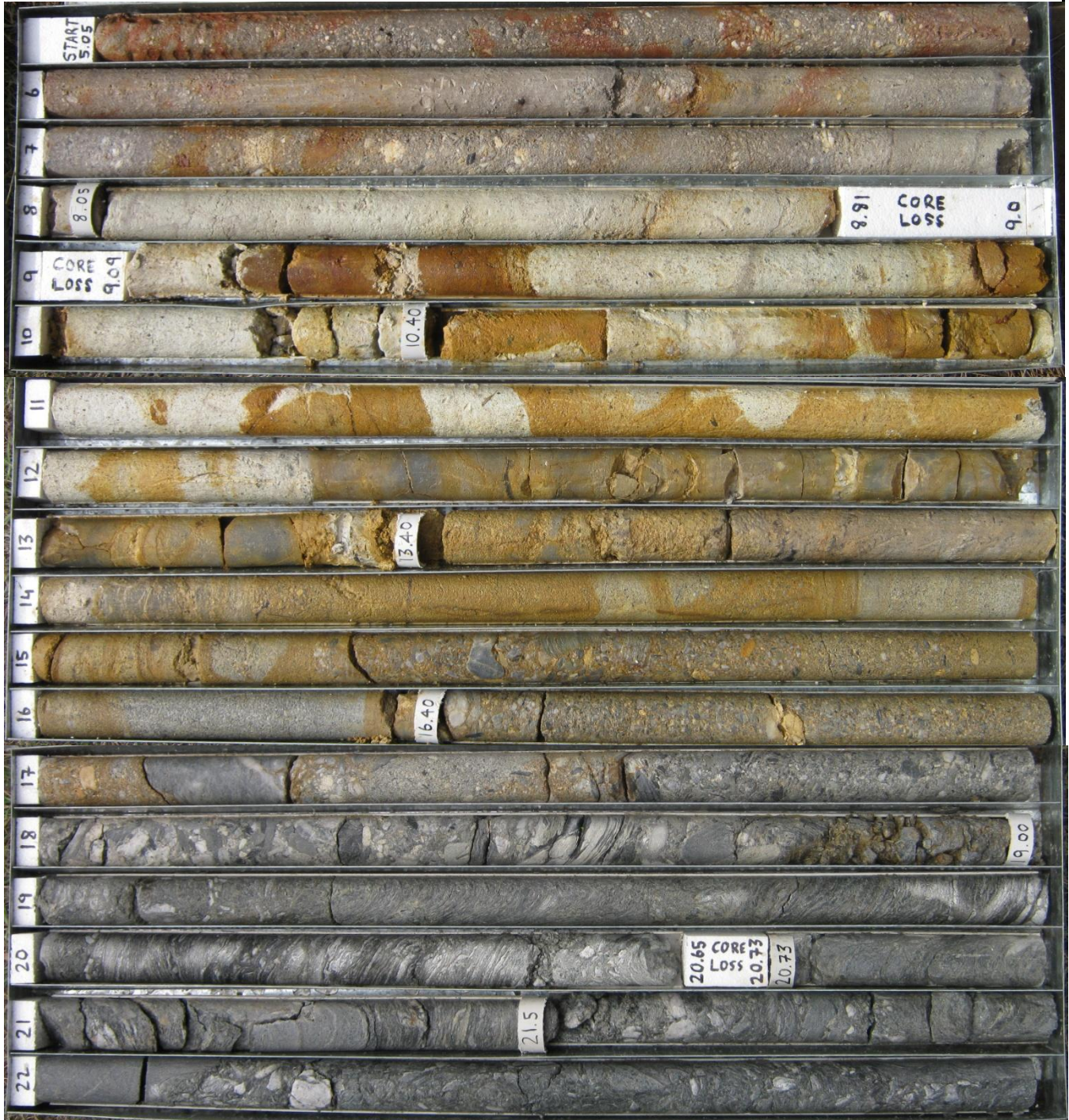


# REPORT OF CORE PHOTOGRAPHS: CRR 209

CLIENT: Aecom Australia Pty Ltd  
PROJECT: Cross River Rail  
LOCATION: GoPrint site  
JOB NO: 107632034

COORDS: 0503264 m E 6959807 m N  
SURFACE RL: 12.43 DATUM: AHD  
INCLINATION: -90°  
HOLE DEPTH: 35.0 m

DEPTH RANGE: 5.05-23.0 m  
DRILL RIG: FD 500  
DRILLER: Foundril Pty Ltd  
LOGGED: ST/CA DATE: 24/08/10  
CHECKED: NK DATE: 4/10/10





# REPORT OF CORE PHOTOGRAPHS: CRR 209

CLIENT: Aecom Australia Pty Ltd  
PROJECT: Cross River Rail  
LOCATION: GoPrint site  
JOB NO: 107632034

COORDS: 0503264 m E 6959807 m N  
SURFACE RL: 12.43 DATUM: AHD  
INCLINATION: -90°  
HOLE DEPTH: 35.0 m

DEPTH RANGE: 23.0-35.0 m  
DRILL RIG: FD 500  
DRILLER: Foundril Pty Ltd  
LOGGED: ST/CA DATE: 24/08/10  
CHECKED: NK DATE: 4/10/10







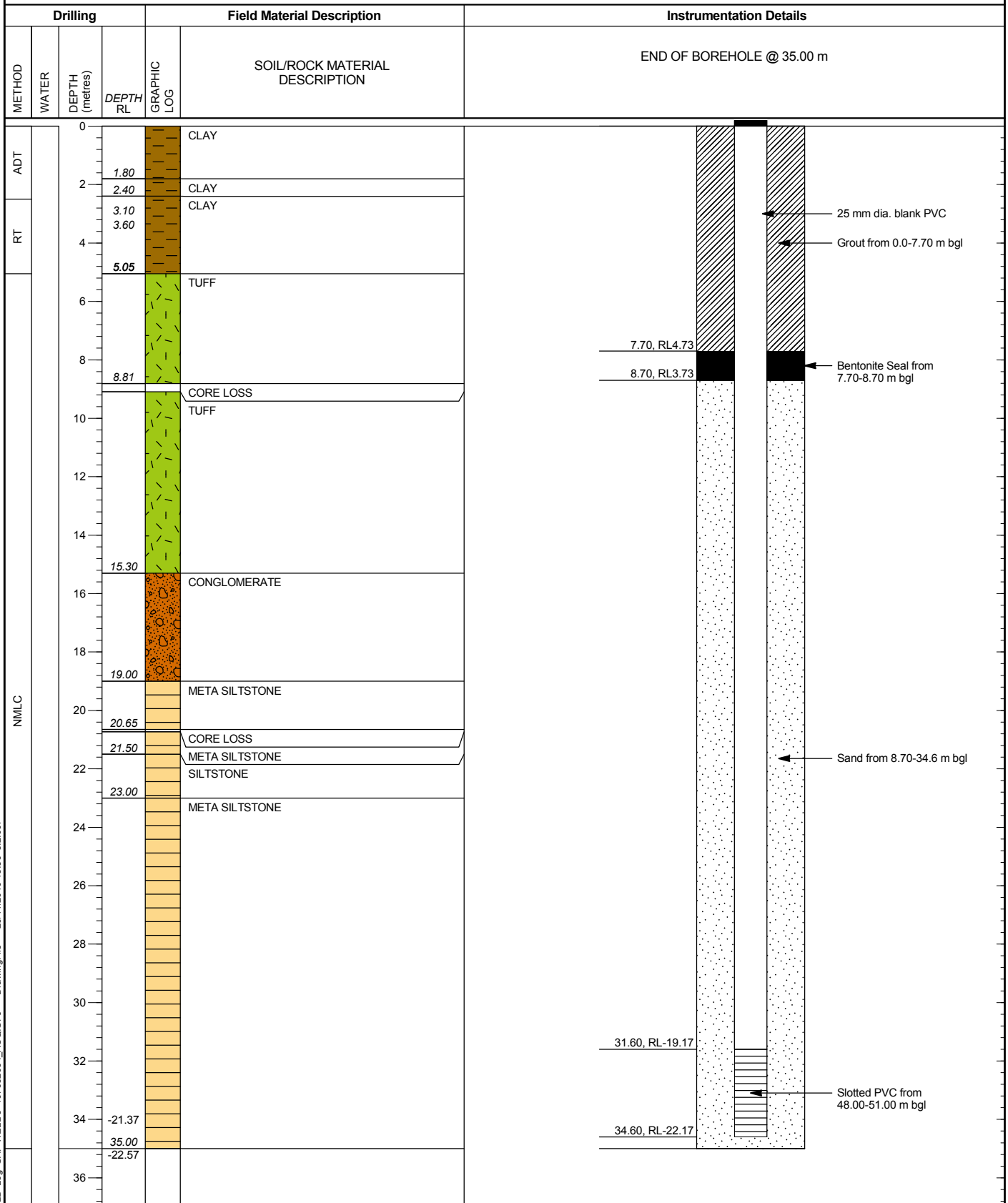
# REPORT OF STANDPIPE INSTALLATION: CRR 209

SHEET: 1 OF 1

CLIENT: Aecom Australia Pty Ltd  
 PROJECT: Cross River Rail  
 LOCATION: Go Print  
 JOB NO: 107632034

COORDS: 503264.31 m E 6959807.66 m N MGA94 56  
 SURFACE RL: 12.43 m DATUM: AHD  
 INCLINATION: -90°  
 HOLE DEPTH: 35.00 m

DRILL RIG: FD500  
 CONTRACTOR: Foundril Pty Ltd  
 LOGGED: CA DATE: 24/8/10  
 CHECKED: NK DATE: 18/10/10



GAP 8.03 LIB: GLE Log GAP WELL 3 107632034\_ACO.GPJ <-DrawingFile>> 29/11/2010 15:36 8.2.007

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.

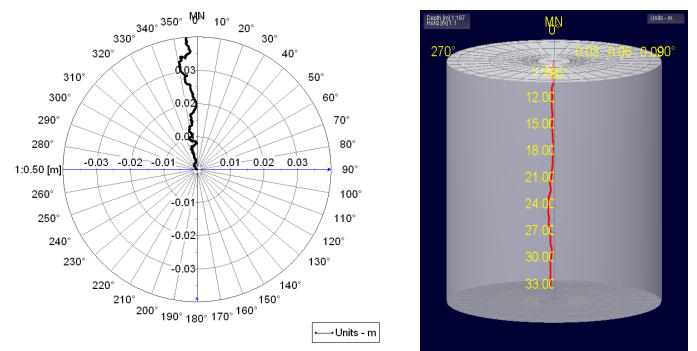
GAP gINT FN. F17  
 RL1



**GEOPHYSICAL RECORD OF BOREHOLE: CRR 209**

PROJECT	Cross River Rail	PROJECT #	107632034
CLIENT	Department of Transport and Main Roads	DATE	12/10/2010

**DEVIATION DATA**



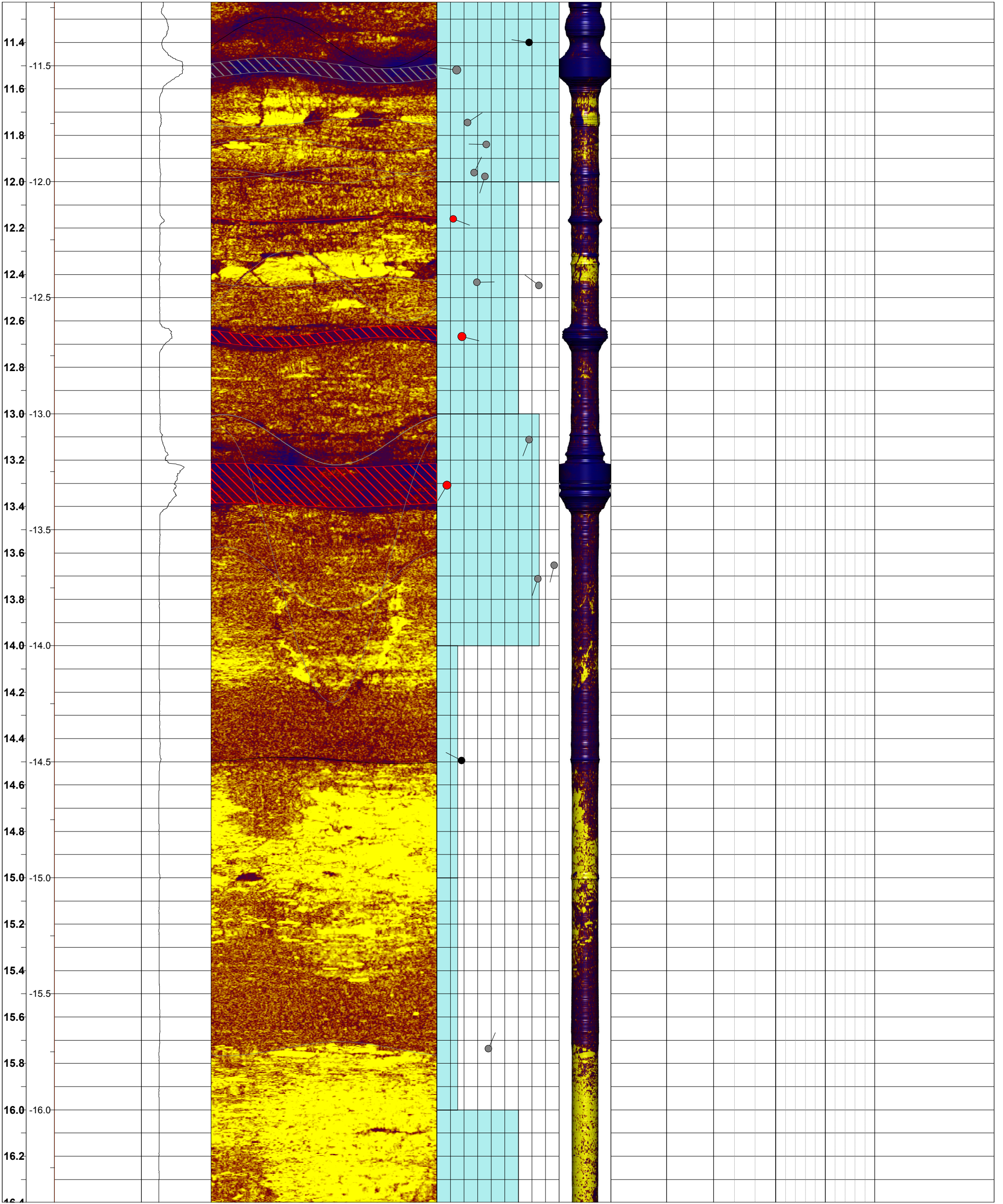
LOCATION-	Go Print parking lot	LOGGED BY-	CA
EASTING-	503261.00 m E	LOGGED DATE-	24/8/10
NORTHING-	6959806.00 m N	LOGGING DATUM-	
ELEVATION-		LOGGED DEPTH-	35.00 m
DRILLED DEPTH-	35.00 m	DRAWN BY-	RCD
PLUNGE-	-90°	REVIEWED BY-	TR
CASING-		FILE NAME-	CRR209-U.HED.WCL

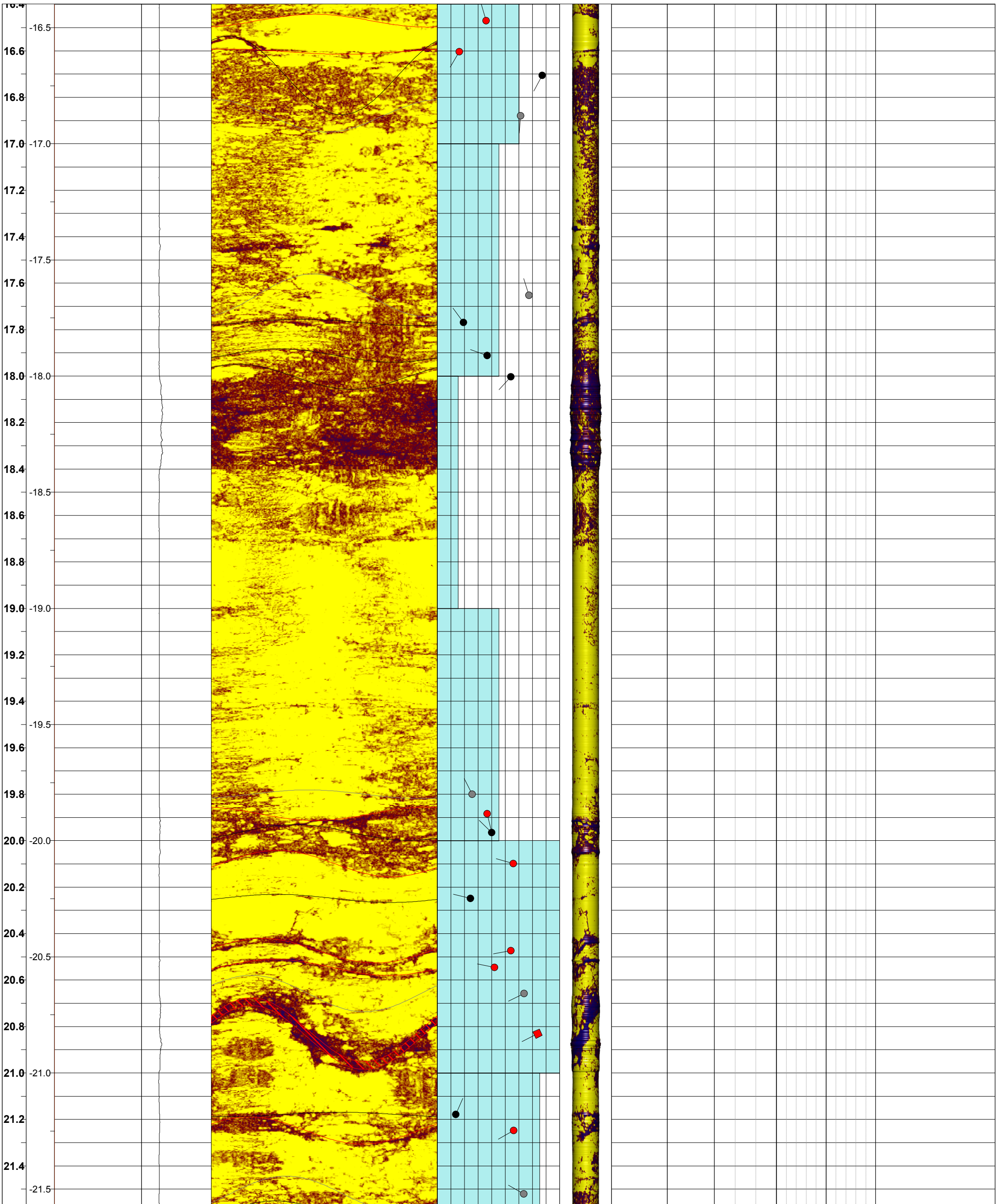
**Lithology**

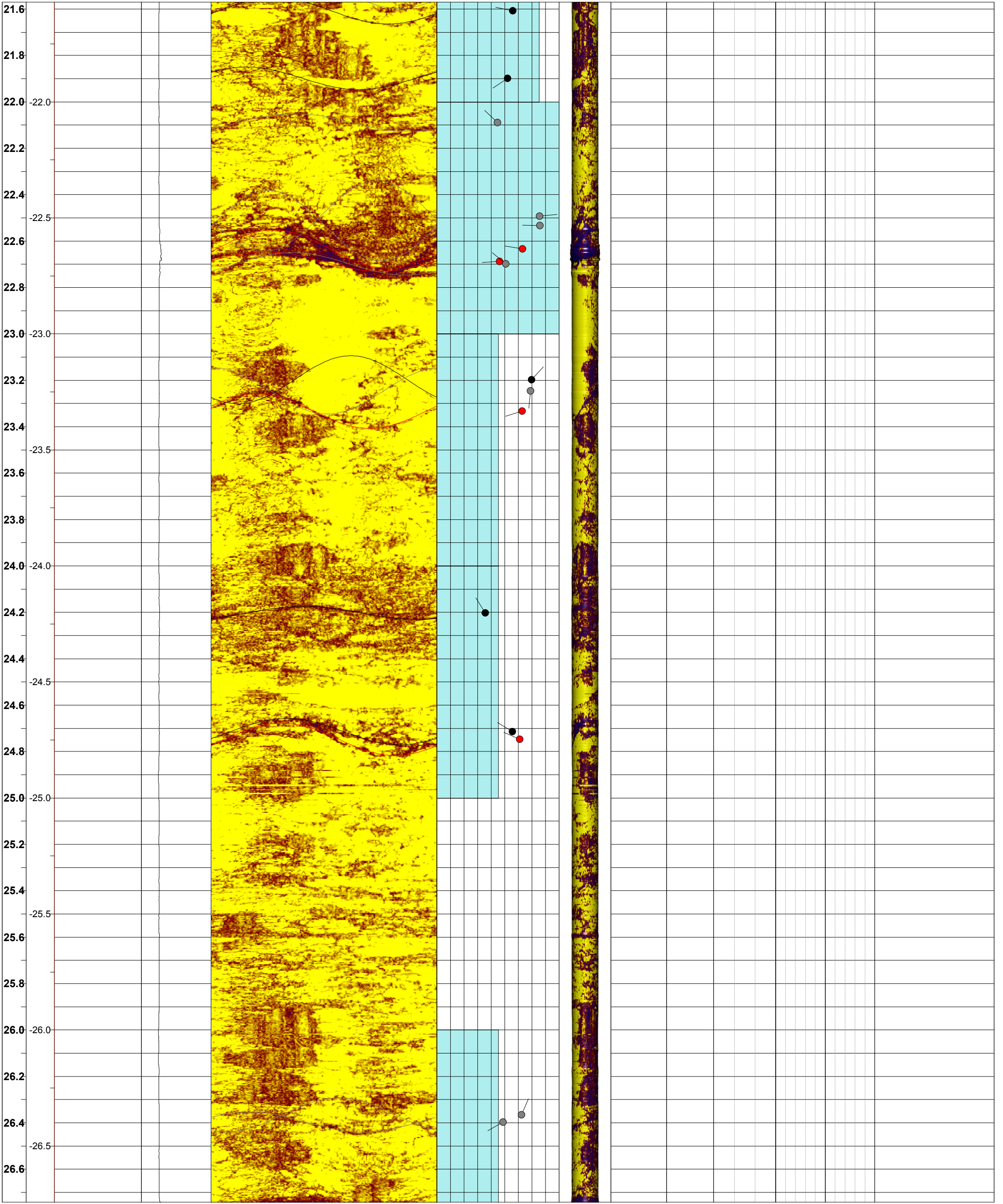
**Interpreted Structures**

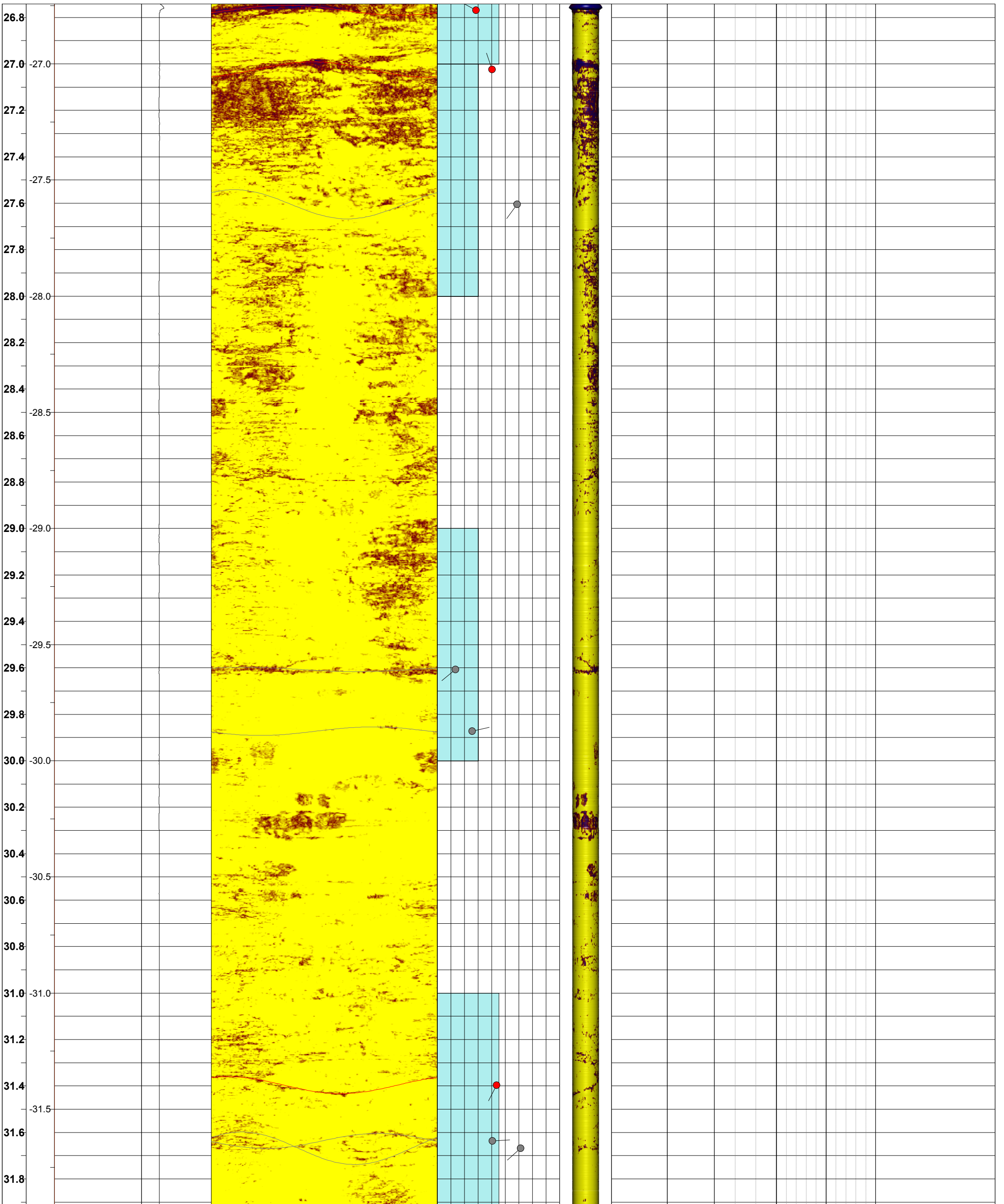
- Decomposed Seam - Low Confidence
- Joint - Medium Confidence
- Joint - High Confidence
- Decomposed Seam - High Confidence
- ◆ Crushed Seam - High Confidence
- Joint - Low Confidence

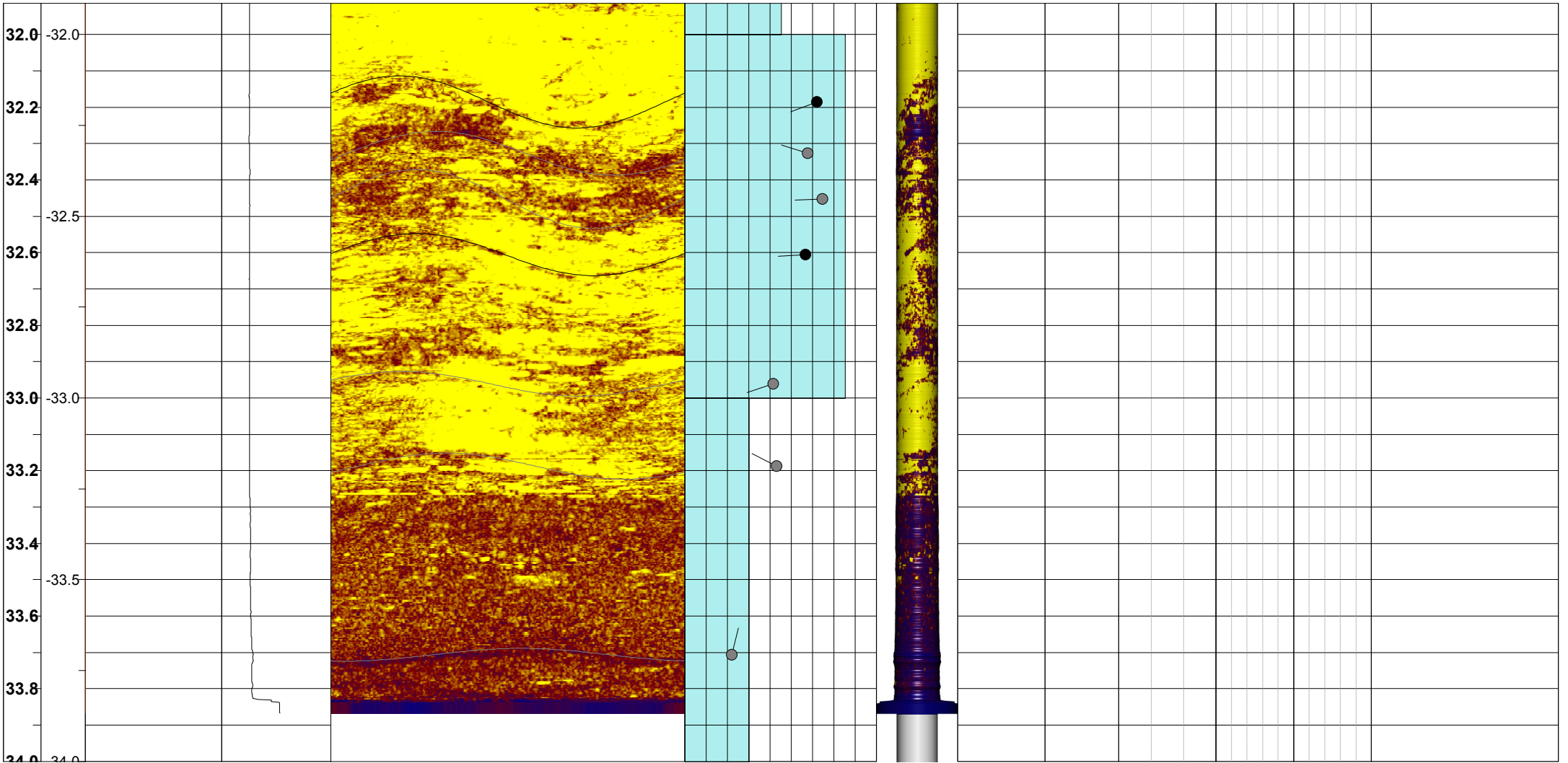
Depth 1:15	RL	TELEVIEWER DATA					CORE DATA													
		NATURAL GAMMA 0 cps 300	ATV - Caliper 0 mm 300	Amplitude 0° 90° 180° 270° 0°	ATV FF 0 counts/m 6	3D log 142°	Core Photo	Lithology	Logged FF 0 30	RQD 0 100	TCR 0 100	Defect Description								
		Interpreted Structures					(Refer to detailed core log, provided separately)													
		Structure Orientations																		
7.8																				
8.0	-8.0																			
8.2																				
8.4																				
8.5	-8.5																			
8.6																				
8.8																				
9.0	-9.0																			
9.2																				
9.4																				
9.5	-9.5																			
9.6																				
9.8																				
10.0	-10.0																			
10.2																				
10.4																				
10.5	-10.5																			
10.6																				
10.8																				
11.0	-11.0																			
11.2																				



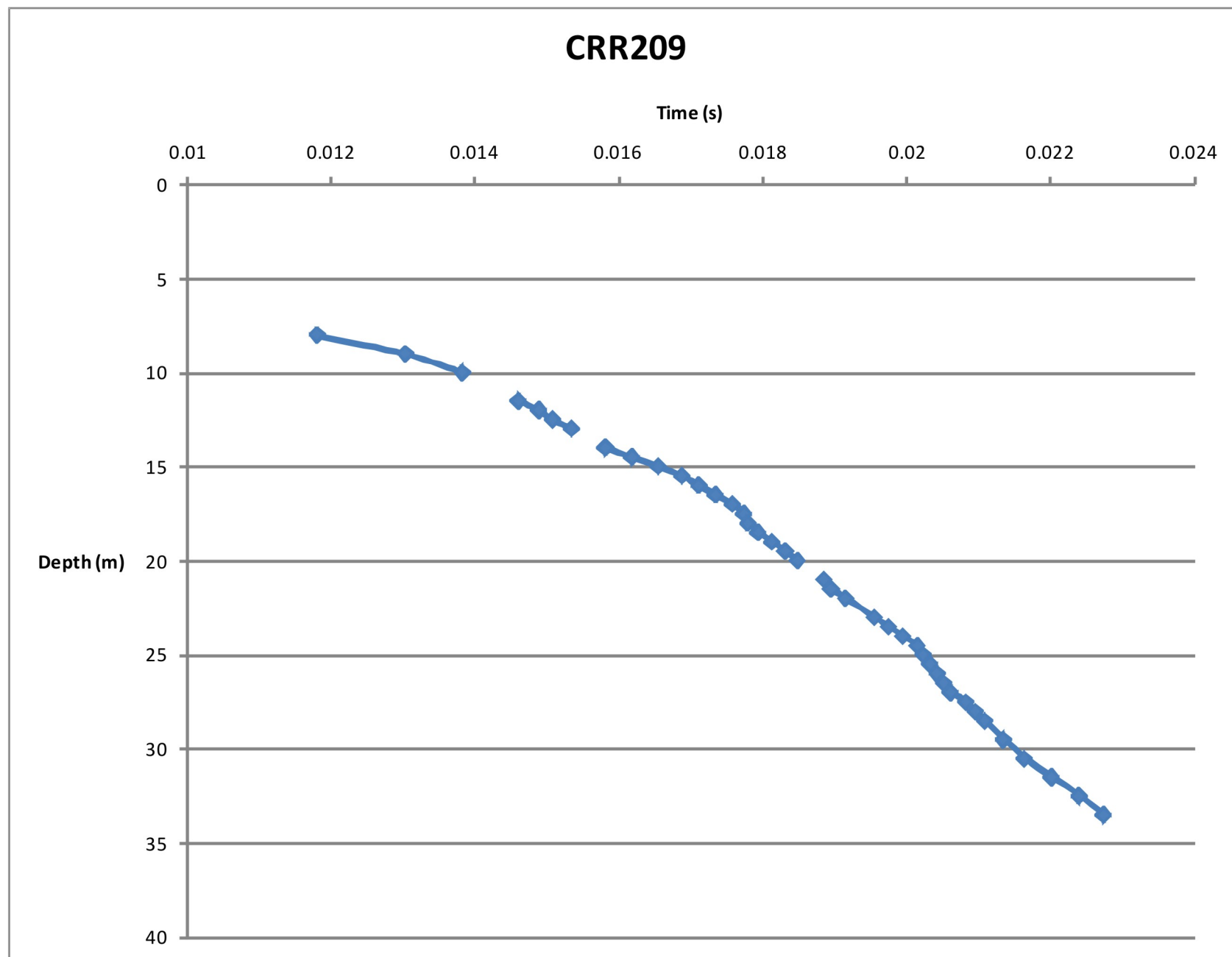








GA-BQ-291 RL1  
 Issued 31/03/10



Geophone Depth (m)		Interval velocity (P wave m/s)
from	to	
8	9	816
9	10	1260
10	11	*
11	11.5	*
11.5	12	1726
12	12.5	2695
12.5	13	1901
13	13.5	*
13.5	14	*
14	14.5	1366
14.5	15	1367
15	15.5	1513
15.5	16	2139
16	16.5	2140
16.5	17	2142
17	17.5	3062
17.5	18	9289
18	18.5	3515
18.5	19	2660
19	19.5	2661
19.5	20	2905
20	20.5	*
20.5	21	*
21	21.5	5126
21.5	22	2498
22	23	2499
23	23.5	2500
23.5	24	2500
24	24.5	2501
24.5	25	6188
25	25.5	5229
25.5	26	5231
26	26.5	5232
26.5	27	5233
27	27.5	2340
27.5	28	3869
28	28.5	3870
28.5	29.5	3870
29.5	30.5	3438
30.5	31.5	2626
31.5	32.5	2626
32.5	33.5	2913
33.5	34.5	5202

Note:

\* - 1st arrival not clear due to noise

Calculations done without accounting for borehole deviation



CLIENT <b>Department of Transport and Main Roads</b>		PROJECT <b>Cross River Rail</b>	
DRAWN <b>GDK</b>	DATE <b>OCT 4</b>	TITLE <b>CRR209 VSP</b>	
CHECKED <b>TR</b>	DATE		
SCALE <b>NTS</b>	PROJECT No <b>000-107632034</b>	FIGURE No	REV No <b>A3</b>





# WATER PRESSURE TEST

Revision No : 12.00

Job No. : 107632034	Hole No. : CRR209	Drilling Method : NMLC	Vertical depth to Groundwater	Immediately prior to test (m bgl) :
Client : AECOM	Dip (Deg) : -90	Hole Diameter (m) : 0.0757	Tested Length (m) : 6.00	Used in analysis (m bgl) :
Project : Cross River Rail	Interval Top (m) : 13.00	Mechanical - Non-Wireline - Single		Pressure Gauge Height (m agl) : 1.70
Location : Go Print Parking Lot	Interval Base (m) : 19.00	Packer Type :		Presumed Water Temperature : 25
Tested By : CJA	Computed By : CJA	Rock tested :		Casing Inner Diameter (mm) : 60.300
Date : 23/08/2010	Date : 23/08/2010	Water Meter Reading in Litres	Checked By : NK	Date : 28/10/2010

Pressure Stage	Gauge Pressure kPa	No	Actual Time		Water Meter Readings	Volume (L)	Discharge (L/min)	Discharge/m (L/min/m)	Remarks
			Time (h:m:s)	Intervals (min)					
P1	30	0	0:00:00	0	17909.50	0.00	0.00	0.00	c : 1
		1	0:01:00	01:00	17911.30	1.80	1.80	0.30	
		2	0:02:00	01:00	17913.05	1.75	1.75	0.29	
		3	0:03:00	01:00	17914.65	1.60	1.60	0.27	
		4	0:04:00	01:00	17916.25	1.60	1.60	0.27	
		5	0:05:00	01:00	17918.00	1.75	1.75	0.29	
		6	0:06:00	01:00	17919.65	1.65	1.65	0.28	
		7	0:07:00	01:00	17921.25	1.60	1.60	0.27	
		8	0:08:00	01:00	17922.90	1.65	1.65	0.28	
		9	0:09:00	01:00	17924.60	1.70	1.70	0.28	
		10	0:10:00	01:00	17926.35	1.75	1.75	0.29	
Total :						16.85	2.81		
Average:						1.685	0.281		
P2	60	0	0:11:00	0	17936.00	0.00	0.00	0.00	c : 1
		1	0:12:00	01:00	17938.80	2.80	2.80	0.47	
		2	0:13:00	01:00	17941.50	2.70	2.70	0.45	
		3	0:14:00	01:00	17944.20	2.70	2.70	0.45	
		4	0:15:00	01:00	17946.85	2.65	2.65	0.44	
		5	0:16:00	01:00	17949.40	2.55	2.55	0.43	
		6	0:17:00	01:00	17952.00	2.60	2.60	0.43	
		7	0:18:00	01:00	17954.60	2.60	2.60	0.43	
		8	0:19:00	01:00	17957.10	2.50	2.50	0.42	
		9	0:20:00	01:00	17959.50	2.40	2.40	0.40	
		10	0:21:00	01:00	17962.05	2.55	2.55	0.42	
Total :						26.05	4.34		
Average:						2.605	0.434		
P3	90	0	0:22:00	0	17976.50	0.00	0.00	0.00	c : 1
		1	0:23:00	01:00	17979.90	3.40	3.40	0.57	
		2	0:24:00	01:00	17983.20	3.30	3.30	0.55	
		3	0:25:00	01:00	17986.45	3.25	3.25	0.54	
		4	0:26:00	01:00	17989.65	3.20	3.20	0.53	
		5	0:27:00	01:00	17992.80	3.15	3.15	0.52	
		6	0:28:00	01:00	17995.85	3.05	3.05	0.51	
		7	0:29:00	01:00	17998.95	3.10	3.10	0.52	
		8	0:30:00	01:00	18002.00	3.05	3.05	0.51	
		9	0:31:00	01:00	18004.85	2.85	2.85	0.47	
		10	0:32:00	01:00	18007.80	2.95	2.95	0.49	
Total :						31.30	5.22		
Average:						3.130	0.522		
P4	60	0	0:33:00	0	18025.50	0.00	0.00	0.00	c : 1
		1	0:34:00	01:00	18027.55	2.05	2.05	0.34	
		2	0:35:00	01:00	18029.70	2.15	2.15	0.36	
		3	0:36:00	01:00	18031.85	2.15	2.15	0.36	
		4	0:37:00	01:00	18034.00	2.15	2.15	0.36	
		5	0:38:00	01:00	18036.20	2.20	2.20	0.37	
		6	0:39:00	01:00	18038.35	2.15	2.15	0.36	
		7	0:40:00	01:00	18040.50	2.15	2.15	0.36	
		8	0:41:00	01:00	18042.75	2.25	2.25	0.38	
		9	0:42:00	01:00	18044.90	2.15	2.15	0.36	
		10	0:43:00	01:00	18047.15	2.25	2.25	0.38	
Total :						21.65	3.61		
Average:						2.165	0.361		
P5	30	1	0:44:00	0	18052.00	0.00	0.00	0.00	c : 1
		2	0:45:00	01:00	18053.50	1.50	1.50	0.25	
		3	0:46:00	01:00	18054.90	1.40	1.40	0.23	
		4	0:47:00	01:00	18056.40	1.50	1.50	0.25	
		5	0:48:00	01:00	18057.90	1.50	1.50	0.25	
		6	0:49:00	01:00	18059.60	1.70	1.70	0.28	
		7	0:50:00	01:00	18061.20	1.60	1.60	0.27	
		8	0:51:00	01:00	18062.90	1.70	1.70	0.28	
		9	0:52:00	01:00	18064.50	1.60	1.60	0.27	
		10	0:53:00	01:00	18066.15	1.65	1.65	0.28	
		11	0:54:00	01:00	18067.85	1.70	1.70	0.28	
Total :						15.85	2.64		
Average:						1.585	0.264		

### TEST RESULTS

Stage No.	Houlsby (1976) Value	Lugeon Value Curve	Nett Pressures	Pressure Vs Flow	Interpreted Result & Hydraulic Conductivity
P1	9.4		46.6		$H_{LOSS} = 0.09$ kPa Stage No. <b>Average</b> Gauge Pressure 54 kPa Q 2.23 L/min H 7.2 m Interpreted Result 7 uL Reported k at Stage <b>Average</b> Analytical Method 1: (ref = Golder geotechnical field notes draft 1997) $k = Q/H \times 6.10889 \times 10^{-6} \times (\log(2L/D)/L)$ <b><math>k = 7.0E-07</math> m/s</b> 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. <b><math>k = 1.1E-06</math> m/s</b>
P2	7.2		76.6		
P3	5.8		106.5		
P4	6.0		76.6		
P5	8.8		46.6		
Houlsby (1976) method - no pressure corrections for Hf (head losses), nor is the pressure corrected for Hg (location of watertable).		COMMENTS No Flow			
Flow Type	LAMINAR FLOW				



# WATER PRESSURE TEST

Revision No : 12.00

Job No. : 107632034	Hole No. : CRR209	Drilling Method : NMLC	Vertical depth to Groundwater	Immediately prior to test (m bgl) : 2.30
Client : AECOM	Dip (Deg) : -90	Hole Diameter (m) : 0.0757		Used in analysis (m bgl) : 2.30
Project : Cross River Rail	Interval Top (m) : 19.00	Tested Length (m) : 6.00		Pressure Gauge Height (m agl) : 1.70
Location : Go Print Parking Lot	Interval Base (m) : 25.00	Packer Type : Mechanical - Non-Wireline - Single		Presumed Water Temperature : 25
Tested By : CJA	Computed By : CJA	Rock tested :		Casing Inner Diameter (mm) : 60.300
Date : 24/08/2010	Date : 24/08/2010	Water Meter Reading in Litres	Checked By : NK	Date : 28/10/2010

Pressure Stage	Gauge Pressure kPa	No	Time		Water Meter Readings	Volume (L)	Discharge (L/min)	Discharge/m (L/min/m)	Remarks
			Actual (h:m:s)	Intervals (min)					
P1	50	0	0:00:00	0	18181.00	0.00	0.00	0.00	c : 1
		1	0:01:00	01:00	18181.00	0.00	0.00	0.00	
		2	0:02:00	01:00	18181.00	0.00	0.00	0.00	
		3	0:03:00	01:00	18181.00	0.00	0.00	0.00	
		4	0:04:00	01:00	18181.00	0.00	0.00	0.00	
		5	0:05:00	01:00	18181.00	0.00	0.00	0.00	
		6	0:06:00	01:00	18181.00	0.00	0.00	0.00	
		7	0:07:00	01:00	18181.00	0.00	0.00	0.00	
		8	0:08:00	01:00	18181.00	0.00	0.00	0.00	
		9	0:09:00	01:00	18181.00	0.00	0.00	0.00	
		10	0:10:00	01:00	18181.00	0.00	0.00	0.00	
Total :						0.00	0.00	0.000	
Average:						0.000	0.000	0.000	
P2	100	0	0:11:00	0	18181.00	0.00	0.00	0.00	c : 1
		1	0:12:00	01:00	18181.00	0.00	0.00	0.00	
		2	0:13:00	01:00	18181.00	0.00	0.00	0.00	
		3	0:14:00	01:00	18181.00	0.00	0.00	0.00	
		4	0:15:00	01:00	18181.00	0.00	0.00	0.00	
		5	0:16:00	01:00	18181.00	0.00	0.00	0.00	
		6	0:17:00	01:00	18181.00	0.00	0.00	0.00	
		7	0:18:00	01:00	18181.00	0.00	0.00	0.00	
		8	0:19:00	01:00	18181.00	0.00	0.00	0.00	
		9	0:20:00	01:00	18181.00	0.00	0.00	0.00	
		10	0:21:00	01:00	18181.00	0.00	0.00	0.00	
Total :						0.00	0.00	0.000	
Average:						0.000	0.000	0.000	
P3	150	0	0:22:00	0	18181.00	0.00	0.00	0.00	c : 1
		1	0:23:00	01:00	18181.00	0.00	0.00	0.00	
		2	0:24:00	01:00	18181.00	0.00	0.00	0.00	
		3	0:25:00	01:00	18181.00	0.00	0.00	0.00	
		4	0:26:00	01:00	18181.00	0.00	0.00	0.00	
		5	0:27:00	01:00	18181.00	0.00	0.00	0.00	
		6	0:28:00	01:00	18181.00	0.00	0.00	0.00	
		7	0:29:00	01:00	18181.00	0.00	0.00	0.00	
		8	0:30:00	01:00	18181.00	0.00	0.00	0.00	
		9	0:31:00	01:00	18181.00	0.00	0.00	0.00	
		10	0:32:00	01:00	18181.00	0.00	0.00	0.00	
Total :						0.00	0.00	0.000	
Average:						0.000	0.000	0.000	
P4	100	0	0:33:00	0	18181.00	0.00	0.00	0.00	c : 1
		1	0:34:00	01:00	18181.00	0.00	0.00	0.00	
		2	0:35:00	01:00	18181.00	0.00	0.00	0.00	
		3	0:36:00	01:00	18181.00	0.00	0.00	0.00	
		4	0:37:00	01:00	18181.00	0.00	0.00	0.00	
		5	0:38:00	01:00	18181.00	0.00	0.00	0.00	
		6	0:39:00	01:00	18181.00	0.00	0.00	0.00	
		7	0:40:00	01:00	18181.00	0.00	0.00	0.00	
		8	0:41:00	01:00	18181.00	0.00	0.00	0.00	
		9	0:42:00	01:00	18181.00	0.00	0.00	0.00	
		10	0:43:00	01:00	18181.00	0.00	0.00	0.00	
Total :						0.00	0.00	0.000	
Average:						0.000	0.000	0.000	
P5	50	1	0:44:00	0	18181.00	0.00	0.00	0.00	c : 1
		2	0:45:00	01:00	18181.00	0.00	0.00	0.00	
		3	0:46:00	01:00	18181.00	0.00	0.00	0.00	
		4	0:47:00	01:00	18181.00	0.00	0.00	0.00	
		5	0:48:00	01:00	18181.00	0.00	0.00	0.00	
		6	0:49:00	01:00	18181.00	0.00	0.00	0.00	
		7	0:50:00	01:00	18181.00	0.00	0.00	0.00	
		8	0:51:00	01:00	18181.00	0.00	0.00	0.00	
		9	0:52:00	01:00	18181.00	0.00	0.00	0.00	
		10	0:53:00	01:00	18181.00	0.00	0.00	0.00	
		11	0:54:00	01:00	18181.00	0.00	0.00	0.00	
Total :						0.00	0.00	0.000	
Average:						0.000	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		89.2		$H_{LOSS} = 0.00$ kPa Stage No. <b>Average</b> Gauge Pressure 90 kPa Q 0.00 L/min H 13.2 m Interpreted Result 0 uL Reported k at Stage <b>Average</b>
P2	0.0		139.2		$k = 0.0E+00$ m/s <small>Analytical Method 1: (ref = Golder geotechnical field notes draft 1997) <math>k = Q/H \times 6.10889 \times 10^{-6} \times (\log(2L/D)/L)</math></small> <small>Analytical Method 2: (ref = Sharp, J.C 1975 Pit Slope Manual, CANMET report) <math>k = 1/(2L \times 3.14) \times (Q/H) \ln(R/r)</math> m/s (convert L/min to m/s). Assume R = radius of influence of 100m &amp; r = radius of borehole.</small>
P3	0.0		189.2		
P4	0.0		139.2		
P5	0.0		89.2		
<b>Flow Type</b>		<b>LOW PERMEABILITY</b>	COMMENTS No Flow	$k = 0.0E+00$ m/s	