





British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL						Site M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2		Borehole Number RC1261			
Machine:			Casing Diameter 140mm cased to 18.10m			Ground Level (mOD) 91.60		Client Highways Agency		Job Number WAL060099	
Flush :			Location 445287 E 368440 N			Dates 26/10/2006-01/11/2006		Engineer Arup		Sheet 1/4	
Core Dia: mm											
Method :											
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00	PIT		0	0	Driller notes 'very heavy water' at 16.40m(1) at 0.00m.			Open Hole		▽1	
	OH		0	0							
1.20											
	35	0	0	0	26/10/2006:DRY 26/10/2006: 26/10/2006:DRY 27/10/2006:		(4.50)				
4.50-4.88 4.50 4.50					25/2.2.1.2 SPT 25'/75 N=7 D19	87.10	4.50	Poor recovery. MADE GROUND. Dark brown black clayey angular to rounded medium and coarse gravel of mudstone, ironstone, with occasional cobbles of weak mudstone. Possible			
	93	40	10	0			(1.50)				
6.00-6.38 6.00 6.00 6.10					25/4.4.3.3 SPT 25'/75 N=14 D20 P1	85.60	6.00	Generally weak variably very weak dark and light grey thinly colour-laminated MUDSTONE, locally with frequent carbonised plant remains and occasional subrounded medium and coarse gravel-size ironstone nodules. Fractures are horizontal (5-15 deg), very closely and closely spaced (30/50/80), smooth, planar; vertical, smooth, planar; others subhorizontal and subvertical, irregular.			
	96	11	0	0							
7.50-7.58 7.50 7.75					25/50 SPT 25'/75 50/8 P2		(3.20)				
	100	35	26	0							
9.00 9.00-9.16 9.20 9.00 9.57-9.95			0	0	25/41.50 SPT 25'/75 Water strike(2) at 9.00m, no rise after 20 mins. 91/81 D21 U3	82.40	9.20	Moderately strong light grey fine grained SANDSTONE with frequent very narrow brown and black non-persistent wispy interlaminae. Dark grey and brown surface discolouration locally with thinly laminated pyrite mineralisation on fracture surfaces. Fractures are: subvertical (75 deg) apparently closely spaced, smooth, planar; subhorizontal (10 deg)			
	79	9	0	0		81.60	(0.80) 10.00				
Remarks								Scale (approx) 1:50	Logged By TL		
								Figure No.			



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		Location 445287 E 368440 N		Dates 26/10/2006-01/11/2006		Engineer Arup		Sheet 2/4			
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.50								widely spaced, smooth, planar, open.			
11.10	87	34	8	0	P4		(1.70)	Generally weak variably very weak to moderately weak dark grey thinly laminated MUDSTONE. Fractures are: horizontal, extremely closely spaced (20/30/60), smooth, planar, tight; subvertical, smooth, planar and undulating; irregular apparently randomly orientated.			
11.70 11.70-11.80			0	0	25/50 SPT 25'/75 50/22	79.90	11.70	Moderately strong to strong thinly laminated black From 11.70m to 12.60m: generally non-intact, carbonaceous MUDSTONE. Fractures are: horizontal (10-20 deg), very closely to closely spaced (40/70/120), smooth, planar; subvertical, smooth, planar.			
12.60 12.75	86	21	7	0	P5		(2.40)				
13.20	99	55	28	0							
14.80			0	0	25/30.50 27/10/2006:0.60m	77.50	14.10	Generally weak variably very weak to moderately strong light grey SILTSTONE with occasional carbonised plant remains and occasional sub-rounded coarse gravel and cobble sized strong ironstone nodules. Fractures where evident are irregular, apparently randomly orientated.			
15.00 14.80-14.97			0	0	27/10/2006: SPT 25'/75 80/91 D22 27/10/2006:DRY	76.60	15.00	Moderately weak to moderately strong thinly laminated grey SILTSTONE. Fractures are: horizontal (0-15 deg), closely and medium spaced (190/250/330), smooth, planar; subvertical, smooth, planar and undulating; other irregular.			
15.70 15.15 15.95	100	48	23	0	30/10/2006: P6		(2.20)	From 15.70m to 15.95m: medium bed of strong light grey brown ironstone with occasional carbonised plant debris.			
16.40 16.40-16.74			0	0	25/16,19,29,50 SPT 25'/75 114/264						
16.85-17.15					U7						
17.20 17.55 17.55	87	29	0	0		74.40	17.20	Generally weak, variably very weak to moderately weak, thinly laminated dark grey MUDSTONE with occasional subrounded coarse gravel-size nodules of strong brown ironstone. Fractures where evident are: horizontal closely spaced (70/110/180), smooth, planar, tight to open; subvertical locally closely spaced, smooth, planar to irregular; occasional; others irregular randomly orientated.			
18.80 18.90 18.90-19.03	99	33	0	0	P8 25/50 SPT 25'/75 50/55						
Remarks								Scale (approx) 1:50	Logged By TL		
								Figure No.			



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		Location 445287 E 368440 N		Dates 26/10/2006- 01/11/2006		Engineer Arup		Sheet 3/4		
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.20								MUDSTONE (as previous sheet)		
21.45 21.60	21	14	0	0	P9		(6.70)			
22.30	86	16	0	0						
23.05	81	6	0	0	P10			At 23.05m: ironstone nodule.		
23.80					30/10/2006:1.15m	67.70	23.90	From 23.80m: becoming very dark grey carbonaceous mudstone.		
23.80			0	0	30/10/2006: W24 30/10/2006:1.08m		(0.60)	Weak brittle black COAL. Fractures are: horizontal and vertical, extremely closely to very closely spaced, smooth, planar.		
24.50					31/10/2006:	67.10	24.50	Weak to moderately weak light grey MUDSTONE with frequent narrow carbonised plant remains. Fractures where evident are: subvertical, smooth, undulating; others are irregular apparently randomly orientated.		
	98	66	64	0			(1.10)			
25.40 25.40-25.49 25.60			0	0	25/50 SPT 25'/75 50/14	66.00	25.60	Generally moderately weak to moderately strong, variably weak, grey MUDSTONE occasionally grading to siltstone, with occasional subrounded and rounded medium and coarse gravel-size nodules and very thin beds of strong brown ironstone. Fractures are: horizontal (0-10 deg), medium spaced (200/380/510), smooth, planar, open; subvertical (70-80 deg) smooth, planar. From 25.60m to 26.00m: carbonised plant remains.		
26.00-26.40	100	63	54	0	U11					
26.80										
	92	58	33	0						
28.15 28.15-28.24					25/50 SPT 25'/75 50/10		(5.20)			
	100	24	9	0						
29.30					P12					
29.75										
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Core Dia: mm			Location			Dates		Engineer		Sheet	
Method :			445287 E 368440 N			26/10/2006-01/11/2006		Arup		4/4	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
30.80			0	0	P13	60.80	(5.20)	MUDSTONE (as previous sheet)			
	90	19	0	0			30.80	Weak brittle black COAL very thinly and thinly interbedded with weak to moderately weak thinly laminated black carbonaceous mudstone and grey mudstone. Fractures are subhorizontal (20-25 deg) and vertical, extremely closely to closely spaced, smooth, planar.			
31.25					P13	58.90	(1.90)				
31.65	94	34	34	0			32.70	Moderately weak thinly laminated grey MUDSTONE thinly interbedded with weak brittle black coal. Frequent carbonised plant remains and occasional subrounded coarse gravel-size ironstone nodules. Fractures are generally irregular, apparently randomly orientated.			
32.80					25/50 31/10/2006:1.07m	57.65	(1.25)				
32.80-32.92			0	0	31/10/2006: SPT 25'/75 50/48 31/10/2006:1.06m		33.95	Moderately strong light and dark grey thinly and thickly colour-laminated SILTSTONE with occasional very thin beds, and rounded medium gravel-sized nodules, of strong brown ironstone. Fractures are: subhorizontal (20 deg) closely and medium spaced (100/150/330), smooth, planar; subvertical (75 deg), smooth, planar.			
33.95	91	77	58	0	U14	54.80	(2.85)	At 35.05m: very thin bed of ironstone.			
34.10-34.35					25/50 SPT 25'/75 50/37		36.80	At 35.50m: very thin bed of ironstone			
34.40					P15	51.90	(2.90)				
34.40-34.51	100	28	0	0			39.70	Moderately weak to moderately strong thinly laminated light becoming dark grey MUDSTONE with occasional very thin beds of strong brown ironstone. Fractures are: subhorizontal (15-20 deg), closely spaced (90/110/240), smooth, planar, tight to open; subvertical (70 deg), smooth, planar.			
35.20					U17						
36.00	89	48	29	0							
36.50			0	0	25/50 SPT 25'/75 50/16						
36.50-36.59					P16						
36.80	89	54	30	0							
37.40					U17						
38.10											
38.40-38.63					P18 01/11/2006:2.15m			Below 38.90m: becoming dark grey to black carbonaceous mudstone.			
39.60											
Complete at 39.70m											
Remarks									Scale (approx) 1:50	Logged By TL	
									Figure No.		