














British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL						Site M1 WIDENING JCT 22-23 & JCT 25-28 - CONTRACT 1 PRELIMINARY GI		Borehole Number RC1189			
Machine:			Casing Diameter 170mm cased to 15.00m			Ground Level (mOD) 139.95		Client Highways Agency		Job Number WAL050092	
Flush :			Location 445238.6 E 356294.6 N			Dates 21/07/2005		Project Contractor Fugro Engineering Services		Sheet 1/3	
Core Dia: mm											
Method :											
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00	OH		0	0	2,2/2,2,3,3 SPT N=10			MADE GROUND (driller's description).			
						138.95	1.00	MADE GROUND: Boulder clay (driller's description)			
1.50-1.95	100		0	0			(1.00)				
					2,3/5,5,6,7 SPT N=23	137.95	2.00	MADE GROUND: Weathered mudstone (driller's description)			
							(0.50)				
2.50-2.95 2.50						137.45	2.50	MADE GROUND: Firm mottled yellow grey brown locally thinly laminated slightly sandy slightly gravelly clay. Sand is fine and occasionally medium. Gravel is subangular to subrounded, fine siltstone and flint. Slight odour of hydrocarbons. With pockets of ash and soft decomposed organic matter.			
3.20-3.40	17		0	0	C1	137.20	2.75	MADE GROUND: Soft yellow sandy gravelly clay. Sand is fine to coarse, gravel is subrounded, fine and medium weak sandstone.			
					137.15	2.80					
							(1.20)				
4.00						135.95	4.00	MADE GROUND: Firm becoming stiff mottled yellow grey brown slightly sandy, fissured clay. Sand is fine, fissures are randomly orientated and extremely closely spaced. Red brown discolouration to fracture surfaces due to oxidation. Below 3.30m; becoming gravelly with a slight discolouration to fissure surfaces, slightly weathered. Gravel is subangular, fine to coarse siltstone and flint with occasional pseudofibrous plant remains.			
								No recovery Between 4.00m and 6.50m; core loss.			
			0	0			(2.50)				
6.50					6,10/10,12,14,16 SPT N=52	133.45	6.50	Stiff grey slightly sandy slightly gravelly fissured CLAY. Sand is fine. Gravel is subrounded, medium and coarse ironstone with many angular fine to coarse very weak mudstone lithorelics. Fissures are extremely closely spaced, subhorizontal and subvertical.			
7.00-7.45 7.00	63	33	23	0		132.95	7.00	No recovery Between 7.00m and 8.10m; no recovery.			
			0	0			(1.10)				
8.10						131.85	8.10	Very weak to weak thinly laminated slightly sandy grey MUDSTONE with occasional bands of very strong subangular coarse gravel of ironstone, partially weathered. Fractures are very closely to closely spaced, subhorizontal and subvertical. Generally planar, tight and smooth. Between 8.10m and 8.20m; with thin laminations of hard black carboniferous mudstone. Between 8.90m and 9.00m; very weak thinly laminated black coal with much decomposed organic matter.			
	90	71	62	0							
10.00											
<b>Remarks</b> Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located. The borehole was backfilled with grout on completion.									Scale (approx) 1:50	Logged By SMH	
									Figure No.		



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Flush :			Location 445238.6 E 356294.6 N			Dates 21/07/2005		Project Contractor Fugro Engineering Services		Sheet 2/3	
Core Dia: mm											
Method :											
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.55-10.70					C2		(4.20)				
	48	40	34	0				Between 11.25m and 11.30m; band of very strong light brown ironstone.			
12.50						127.65 127.45	12.30 (0.20) 12.50	Weak thinly laminated black COAL, low density.			
	100	85	82	0				Moderately weak to moderately strong very thinly bedded grey brown becoming grey MUDSTONE with occasional bands of angular coarse ironstone, gravel and some pseudofibrous plant remains. Partially weathered. Fractures are very closely to closely spaced, subhorizontal and subvertical, generally planar, tight and smooth.			
15.00							(3.20)	Between 13.85m and 14.00m; very closely spaced, subhorizontal fractures infilled up to 10mm with very weak angular fine and medium mudstone gravel and very strong subrounded coarse ironstone gravel.			
15.65-15.90 15.70			0	0	C3	124.25	15.70	Between 15.05m and 15.10m; band of very strong light brown ironstone. Between 15.10m and 15.30m; with thin interlaminae of very weak dark brown carboniferous mudstone with some fine charcoal fragments.			
	100	79	60	0			(2.30)	Strong thinly to thickly laminated, locally cross laminated light and dark grey slightly sandy SILTSTONE thinly interbedded with weak thinly laminated grey mudstone. Fractures are closely to medium spaced, subhorizontal, planar, tight, rough and 45 to 60 degrees undulating, open and rough.			
17.25-17.60					C4						
18.00						121.95	18.00	Moderately strong thickly laminated to thinly bedded grey MUDSTONE partially weathered with occasional bands of very strong light brown ironstone. Fractures are closely spaced, subhorizontal and subvertical, generally tight, undulating and smooth.			
								At 18.80m; subhorizontal fracture infilled up to 5mm with soft grey clay and subangular fine mudstone gravel.			
19.55-19.70	100	92	85	0	C5		(2.75)	Between 19.34m and 19.40m; very strong light brown ironstone.			
Remarks									Scale (approx) 1:50	Logged By SMH	
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		Location 445238.6 E 356294.6 N		Dates 21/07/2005		Project Contractor Fugro Engineering Services		Sheet 3/3		
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
21.00			0	0	C6	119.20	20.75 (0.75)	Weak thinly laminated black COAL, low density, thinly interbedded with moderately weak thickly laminated dark brown carboniferous clay.		
21.50 21.55-22.00						118.45	21.50	Strong very thinly to thickly laminated locally cross laminated light and dark grey slightly sandy SILTSTONE. Fractures are closely to medium spaced, subhorizontal to 20 degrees and 70 degrees to subvertical, undulating, rough, tight, occasionally open.		
23.00-23.45	100	88	85	0	C7		(2.50)			
24.00			0	0	C8	115.95	24.00 (1.20)	Moderately weak thinly to thickly laminated grey MUDSTONE with occasional bands of very strong light brown ironstone. Fractures are subhorizontal and subvertical, closely spaced, planar, smooth and open.		
25.20						114.75	25.20	Strong to medium, bedded light grey fine grained SANDSTONE with occasional subrounded coarse gravel of ironstone. Fractures are medium spaced, subhorizontal, planar, open and rough.		
26.20-26.65	100	87	52	0			(1.80)			
27.00	Sample / Tests		Casing Depth (m)	Water Depth (m)		112.95	27.00	Strong very thinly to thickly laminated locally cross laminated light and dark grey slightly sandy SILTSTONE. Fractures are closely to medium spaced, subhorizontal to 20 degrees and 70 degrees to subvertical, undulating, rough, tight, occasionally open.		
27.30-27.70	C9						(3.00)	Between 28.00m and 29.70m; 70 degree fractures closely spaced (100mm), undulating, open and smooth.		
						109.95	30.00			
Remarks								Scale (approx) 1:50	Logged By SMH	
								Figure No.		