



Appendix C Borehole Records



ENCLOSURE A
EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records

Borehole Logs

Trial Pit Logs

Window Sampler Hole Logs

Dynamic Probe Logs

Discontinuity Survey

Key

BH1 to 12

TP1 to 6

WSDP2 to 5, 9 to 19

DP2 to 5, 9 to 19

A1

Key to Exploratory Hole Records

SAMPLES

Undisturbed

U	Driven tube sample	} nominally 100 mm diameter and full recovery unless otherwise stated
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
L	Liner sample (from Windowless or similar sampler), full recovery unless otherwise stated	
CBR	CBR mould sample	
BLK	Block sample	
CS	Core sample (from rotary core) taken for laboratory testing	

Disturbed

D	Small sample
B	Bulk sample

Other

W	Water sample
G	Gas sample

	Environmental chemistry samples (in more than one container where appropriate)
ES	Soil sample
EW	Water sample

TESTS

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C)
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The Standard Penetration Test is defined in BS 1377 : Part 9 (1990). The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 (either in total or for a single increment) the total blow count beyond the seating drive is given (without the N = prefix).

IV	In situ vane test, peak (p) and remoulded (r)
HV	Hand vane test, peak (p) and remoulded (r)
PP	Pocket penetrometer test, strength value
KFH, KRH, KPI	Variable head permeability tests (KFH = falling head test, KRH = rising head test, KPI = packer test), permeability value

Test results provided in Field Records column

DRILLING RECORDS

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930 (1999)

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacings are presented. The term non-intact (NI) is used where the core is fragmented.

Flush returns, estimated percentage with colour where relevant, are given in the Records column

CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss

GROUNDWATER

▼	Groundwater strike
▽	Groundwater level after standing period

INSTALLATION

Standpipe/ piezometer Details of standpipe/piezometer installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill.

	The types of instrument installed is indicated by a code in the Legend column at the depth of the response zone:
SP	Standpipe
SPIE	Standpipe piezometer
PPIE	Pneumatic piezometer
EPIE	Electronic piezometer







Notes:

Project	NEW ANFIELD - SITE INVESTIGATION PHASE 1
Project No	A2207
Carried out for	Liverpool F.C.

Key

Sheet 1 of 2

Key to Exploratory Hole Records

INSTALLATION LEGENDS		A legend describing the installation is shown in the rightmost column. Legends additional to BS5930 are used to describe the backfill materials as indicated below.					
		Arisings	Concrete	Grout	Bentonite	Sand	Gravel
							
NOTES							
1		Strata legends are in accordance with BS 5930 (1999).					
2		Water level observations of discernible events during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced below groundwater level. Under certain conditions groundwater cannot be observed, for instance, drilling with water flush or overwater, or boring at a rate much faster than water can make its way into the borehole (ref BS5930 : 1999, Clause 47.2.7). In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.					
3		Evidence of the occurrence of very coarse particles (cobbles and boulders) is presented on the logs, however, because of their size in relation to the exploratory hole these records may not be fully representative of their size and frequency in the ground mass.					
4		The borehole logs present the results of Standard Penetration Tests recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.					
5		The declination of bedding and joints is given with respect to the normal to the core axis. Thus in a vertical borehole this will be the dip.					
6		The assessment of SCR, RQD and Fracture Spacing excludes artificial fractures					
REFERENCES							
BS 1377 : 1990 : British Standard Methods of test for soils for civil engineering purposes. British Standards Institution							
BS 5930 : 1999 : Code of Practice for site investigations. British Standards Institution							
Notes:		Project				NEW ANFIELD - SITE INVESTIGATION PHASE 1	
		Project No				A2207	
		Carried out for				Liverpool F.C.	
						Key	
						Sheet 2 of 2	

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 07/01/2003 End 10/01/2003		Equipment, Methods and Remarks Rotary coring, TNW and PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. 50mm gas standpipe installed on completion. Mechanical core information based on TNW and PWF core.		Depth from 0.00m to 38.90m Diameter 121mm Casing Depth 1.60m		Ground Level Coordinates National Grid		+57.69 mOD E 336278.45 N 393307.43					
Samples and Tests						Strata									
Depth		Type & No		Records		Date Casing Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments	
1.20-1.50		SPT C		50 (7,11/27,23)				TOPSOIL with brown sand. (Foreman's description)		(1.20)					
1.20-4.10 m		47 46 14		HPD test pocket				Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely becoming medium spaced, planar, rough. Occasional black mottling. Rare subrounded fine to medium gravel of predominantly quartz and limestone. (SHERWOOD SANDSTONE)		1.20 +56.49					
4.10-4.29				SPT C 50 (7,18/50 for 35mm)				1.20-2.74 m AZCL.							
4.10-6.20 m		71 68 14		HPD test pocket				3.30-3.80 m brown coarse grained.							
6.20-6.31				SPT C 50 (25/50 for 30mm)		07/01/2003 1800 1.60 dry		4.10-4.70 m AZCL.							
6.20-8.20 m		70 60 33		HPD test pocket		08/01/2003 0800 1.60 dry		4.76-4.90 m brown coarse, grained.							
8.20-8.38				SPT C 50 (11,24/50 for 30mm)				6.20-6.80 m AZCL.							
8.20-10.30 m		60 38 30		HPD test pocket				6.90-7.03 m light grey brown fine to medium grained.							
								8.20-9.03 m AZCL.							
								Stratum continued next sheet							
Depth		TSC ROD		If		Records/Samples		Date Casing Time Water							
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)						Depth sealed (m)		Depth Related Remarks From to (m) 0.00 1.20 Hand dug inspection pit.				Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.						Borehole 1 Sheet 1 of 4			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:33:57 AGS															

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 07/01/2003 End 10/01/2003		Equipment, Methods and Remarks			Depth from 0.00m to 38.90m Diameter 121mm Casing Depth 1.60m		Ground Level Coordinates National Grid		+57.69 mOD E 336278.45 N 393307.43			
Samples and Tests							Strata							
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments		
10.30-12.30 m		100 98 68		Flush: 1.20-20.00 air mist, 100 % HPD test pocket	08/01/2003 1.60	1800 dry	Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely becoming medium spaced, planar, rough. Occasional black mottling. Rare subrounded fine to medium gravel of predominantly quartz and limestone. (SHERWOOD SANDSTONE)							
12.30-15.20 m		100 86 66					10.90-11.03 m light grey brown fine to medium grained.							
15.20-15.38				SPT C 50 (8,17/50 for 30mm)			12.10-12.17 m light grey brown fine to medium grained. 12.30-12.65 m NI. Recovered as gravel size fragments (HPD test pocket) 12.75-12.95 m light brown.							
15.20-17.10 m		100 100 28	NI 220 610	HPD test pocket	09/01/2003 1.60	1800 dry	14.80-14.95 m light brown.							
17.10-20.00 m		100 99 79			10/01/2003 1.60	0800 dry	17.80-17.85 m NI.							
							Stratum continued next sheet							
Depth		TCR ROD	If	Records/Samples	Date Casing	Time Water								
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)							Depth sealed (m)			Depth Related Remarks From to (m)			Chiselling Depths (m)	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.							Project Project No. Carried out for			NEW ANFIELD - SITE INVESTIGATION PHASE 1 A2207 Liverpool F.C.			Borehole 1 Sheet 2 of 4	
Scale 1:50							(c) MESG HBIII (281), 16/06/2003 13:34:03			AGS				

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH			Start 07/01/2003 End 10/01/2003			Equipment, Methods and Remarks			Depth from 0.00m to 38.90m Diameter 121mm Casing Depth 1.60m			Ground Level +57.69 mOD Coordinates E 336278.45 National Grid N 393307.43		
Samples and Tests						Strata								
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments		
20.00-20.10				SPT C 50 (25/50 for 20mm)			Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely becoming medium spaced, planar, rough. Occasional black mottling. Rare subrounded fine to medium gravel of predominantly quartz and limestone. (SHERWOOD SANDSTONE) 21.02-21.20 m light grey brown. Occasional carbonaceous laminae. 23.45-23.75 m coarse grained, locally NI. 25.00-25.15 m light brown. 25.70-25.93 m light brown. 28.00-28.10 m NI. 28.35-28.38 m NI, weak. Stratum continued next sheet			(37.70)				
20.00-23.05 m		100 98 88												
23.05-26.10 m		100 95 65	NI 220 610											
26.10-26.21				SPT C 50 (25/50 for 30mm)										
26.10-29.00 m		100 91 63												
				Flush: 20.00-38.90 air mist, 100 %										
Depth		TCR ROD	If	Records/Samples	Date Casing	Time Water								
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)			Chiselling Depths (m)				
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 1 Sheet 3 of 4					
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:34:11 AGS														

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Drilled by IM/LT Logged by MJS Checked by PH		Start 07/01/2003 End 10/01/2003		Equipment, Methods and Remarks		Depth from 0.00m to 38.90m Diameter 121mm Casing Depth 1.60m		Ground Level +57.69 mOD Coordinates E 336278.45 National Grid N 393307.43	
Samples and Tests					Strata				
Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
29.00-32.00 m	98 93 71		SPT C 50 (8,17/50)			Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely becoming medium spaced, planar, rough. Occasional black mottling. Rare subrounded fine to medium gravel of predominantly quartz and limestone. (SHERWOOD SANDSTONE)			
32.00-32.23									
32.00-33.10 m	100 65 45								
33.10-35.90 m	96 89 59	NI 220 610				34.26-34.31 m NI, weak.			
35.90-38.90 m	100 91 73					36.70-37.00 m NI.			
38.90-39.00			SPT C 50 (25/50 for 25mm)	10/01/2003 1.60	1800 dry	38.24-38.32 m light brown.			
						EXPLORARY HOLE ENDS AT 38.90 m	38.90 +18.79		SP
Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Depth Related Remarks From to (m)	Chiselling Depths (m)		
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.	Borehole 1 Sheet 4 of 4		

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 17/12/2002 End 20/12/2002		Equipment, Methods and Remarks Rotary coring, TNW and PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. 50mm gas standpipe installed on completion. Mechanical core information based on TNW and PWF core.		Depth from 0.90m to 38.35m Diameter 121mm Casing Depth 5.00m		Ground Level +48.37 mOD Coordinates E 336558.74 National Grid N 393295.74 Chainage		
Samples and Tests					Strata					
Depth	Type & No	Records	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
0.90-1.28	SPT C	51 (5.7/11,21,19)			Tarmac, stone fill, soil, red sand. (Foreman's description) (MADE GROUND)			(0.90)		
0.90-3.10 m	45 9 0	HPD test pocket			Moderately strong thinly becoming medium bedded, red brown medium grained SANDSTONE. 0.90-2.10 m AZCL. 0.90-5.00 m predominantly NI. Fractures are closely to medium spaced, planar, rough. (SHERWOOD SANDSTONE)			0.90 +47.47		
3.10-3.20		SPT C 50 (25/50 for 25mm)	17/12/2002 0.90	1800 dry	3.10-4.00 m AZCL.					
3.10-5.00 m	53 0 0	HPD test pocket	18/12/2002 0.90	0800 dry						
5.00-5.12		SPT C 50 (25/50 for 40mm)			5.00-5.50 m AZCL.					
5.00-7.00 m	75 60 12	NI 80 160 HPD test pocket			6.00-6.45 m NI. Recovered as gravel sized fragments (HPD test pocket)					
7.00-7.10		SPT C 50 (25/50 for 25mm)			7.00-7.35 m AZCL.					
7.00-8.80 m	81 67 32	HPD test pocket			7.85-9.95 m medium to coarse grained.					
8.80-8.89		SPT C 50 (25/50 for 15mm)	18/12/2002 5.00	1800 dry	8.80-9.25 m AZCL.					
			19/12/2002 5.00	0800 dry						
					Stratum continued next sheet					
Depth	TSR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries						Depth Related Remarks			Chiselling Depths (m)	
No.	Struck (m)	Post strike behaviour		Depth sealed (m)		From	to (m)			
1	29.50	No rise		-		0.00	0.90	Hand dug inspection pit.		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1			Borehole	
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:35:52 AGS						Project No. A2207			2	
						Carried out for Liverpool F.C.			Sheet 1 of 4	

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 17/12/2002 End 20/12/2002		Equipment, Methods and Remarks			Depth from 0.90m to 38.35m Diameter 121mm Casing Depth 5.00m		Ground Level +48.37 mOD Coordinates E 336558.74 National Grid N 393295.74 Chainage		
Samples and Tests						Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
8.80-11.20 m		77 67 32		SPT C 50 (25,-/50 for 45mm)			Moderately strong thinly becoming medium bedded, red brown medium grained SANDSTONE. Fractures are closely to medium spaced, planar, rough. (SHERWOOD SANDSTONE) Below 11.00m, moderately strong to strong. Occasional subrounded to rounded gravel of predominantly quartz.				
11.20-11.40											
11.20-13.90 m		97 84 81		HPD test pocket			11.00-11.28 m grey fine to medium grained. 1 No. subvertical fracture, planar, rough, tight.				
13.90-15.70 m		28 8 0	NI 170 500								
15.70-15.87				SPT C 50 (11,15/50 for 20mm)			13.90-15.20 m AZCL.				
15.70-18.30 m		100 78 56									
18.30-21.00 m		100 97 77	NI 260 480	Flush: 0.00-38.35 air mist, 100 %			15.70-15.92 m NI. Recovered as fine to medium gravel (SPT effect). 15.92-16.11 m light grey brown, locally very weak. Reduced to clayey fine to medium sand. 17.83-17.94 m NI.		(37.45)		
Stratum continued next sheet											
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries						Depth Related Remarks		Chiselling			
No.	Struck (m)	Post strike behaviour		Depth sealed (m)			From to (m)		Depths (m)		
1	29.50	No rise		-							
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:35:58 AGS						Project No. A2207		2			
						Carried out for Liverpool F.C.		Sheet 2 of 4			

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Drilled by IM/LT Logged by MJS Checked by PH		Start 17/12/2002 End 20/12/2002		Equipment, Methods and Remarks		Depth from 0.90m to 38.35m Diameter 121mm Casing Depth 5.00m		Ground Level +48.37 mOD Coordinates E 336558.74 National Grid N 393295.74 Chainage		
Samples and Tests					Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
21.00-21.13				SPT C 50 (25/50 for 55mm)	19/12/2002 5.00	1800 dry	Moderately strong thinly becoming medium bedded, red brown medium grained SANDSTONE. Fractures are closely to medium spaced, planar, rough. (SHERWOOD SANDSTONE)	19.18-20.25 m NI.		
21.00-23.35 m		100 90 79			20/12/2002 5.00	0800 dry	Below 11.00m, moderately strong to strong. Occasional subrounded to rounded gravel of predominantly quartz.	20.58-20.62 m NI. Very weak. Reduced to gravelly sand. 20.80-20.95 m brown layering.		
23.35-26.40 m		100 98 66	NI 260 480					22.10-22.30 m light brown.		
26.40-29.40 m		100 97 69						23.14-23.18 m NI, locally weak.		
								24.60-24.75 m brown, micaceous.		
								27.33-27.46 m light brown, fine grained.		
								28.60-28.90 m 2 No. 70-80 deg fracture, closely spaced, planar, rough, tight, clean.		
								29.40-29.62 m frequent subrounded to rounded gravel of various lithologies.		
								29.45-29.62m, NI.		
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Stratum continued next sheet			
Groundwater Entries					Depth Related Remarks			Chiselling Depths (m)		
No.	Struck (m)	Post strike behaviour		Depth sealed (m)	From to (m)					
1	29.50	No rise		-						
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1			Borehole		
Scale 1:50					Project No. A2207			2		
(c) MESG HBIII (281), 16/06/2003 13:36:05					Carried out for Liverpool F.C.			Sheet 3 of 4		

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH			Start 17/12/2002 End 20/12/2002			Equipment, Methods and Remarks			Depth from 0.90m to 38.35m Diameter 121mm Casing Depth 5.00m			Ground Level +48.37 mOD Coordinates E 336558.74 National Grid N 393295.74 Chainage		
Samples and Tests						Strata								
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description			Depth, Level/ (Thickness)		Legend	Backfill/ Instruments	
29.40-32.35 m		100 92 58					Moderately strong thinly becoming medium bedded, red brown medium grained SANDSTONE. Fractures are closely to medium spaced, planar, rough. (SHERWOOD SANDSTONE) Below 11.00m, moderately strong to strong. Occasional subrounded to rounded gravel of predominantly quartz. 30.77-30.94 m weak light greenish grey marl. 30.87-30.94m, frequent extremely closely spaced carbonaceous laminae. 31.40-31.47 m 30 deg fracture, planar, rough, tight. 32.61-32.70 m subvertical fracture, planar, rough, tight.							
32.35-35.35 m		100 97 84		NI 260 480										
35.35-38.35 m		100 96 88					36.39-36.48 m light brown. 36.41-36.47m, subvertical fracture, planar, rough, tight. 36.64-36.73 m light brown. 36.90-36.96 m light brown. 37.20-37.24 m NI. 37.35-37.38 m NI, locally weak.							
					20/12/2002 5.00	1800 29.50	EXPLORATORY HOLE ENDS AT 38.35 m			38.35 +10.02			SP	
Depth		TCR ROD	If	Records/Samples	Date Casing	Time Water								
Groundwater Entries					Depth sealed (m)		Depth Related Remarks			Chiselling Depths (m)				
No.	Struck (m)	Post strike behaviour					From to (m)							
1	29.50	No rise												
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.							Project NEW ANFIELD - SITE INVESTIGATION PHASE 1					Borehole		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:36:12 AGS							Project No. A2207 Carried out for Liverpool F.C.					2 Sheet 4 of 4		

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 03/12/2002 End 04/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 22.00m Diameter 121mm Casing Depth 1.50m		Ground Level Coordinates National Grid +49.00 mOD E 336392.14 N 393443.00									
Samples and Tests						Strata											
Depth		Type & No		Records		Date Casing		Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments	
0.70-2.20 m		98 63 0 NI 40 60								Brown TOPSOIL. (Foreman's description)		(0.70)					
2.20-4.05 m		100 77 52								Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE, locally micaceous. Fractures: very closely spaced, subhorizontal, planar, rough, clean. (SHERWOOD SANDSTONE)		0.70 +48.30					
4.05-6.08 m		100 95 92								Moderately strong medium, locally thickly bedded red brown medium grained SANDSTONE, locally micaceous. Fractures: medium, locally closely spaced, subhorizontal, planar, rough, clean. Rare black mottling on bedding planes. Rare to occasional subangular to rounded fine to medium gravel of predominantly quartz. (SHERWOOD SANDSTONE)		1.75					
6.08-6.25										2.20-2.34 m NI, locally weak with sandy matrix.		2.45 +46.55					
6.08-9.10 m		100 96 79								3.01-3.05 m NI, clayey. 3.12-3.25 m 70-80 deg, planar, rough, tight fracture. 3.25-3.30 m Weak, NI. 3.30-3.58 m Fine grained. Occasional very closely spaced thin beds of light greenish brown sandstone.							
										5.22-5.35 m 60 deg, planar, rough, open fracture. Occasional black speckling. 5.35-5.40 m Locally weak, NI.							
										6.08-6.14 m NI.							
										6.63-6.68 m NI.							
										7.63-7.78 m Light greyish brown fine to medium grained sandstone. Occasional very closely spaced laminae.							
										8.90-8.93 m 20-30 deg, planar, rough, open fracture. Occasional black mottling.							
Depth		TSCR ROD		If		Records/Samples		Date Casing		Time Water							
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)						Depth sealed (m)		Depth Related Remarks From to (m) 0.00 0.70 Inspection pit.						Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.						Borehole 3 Sheet 1 of 3					
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:36:38 AGS																	

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH		Start 03/12/2002 End 04/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 22.00m Diameter 121mm Casing Depth 1.50m		Ground Level Coordinates National Grid		+49.00 mOD E 336392.14 N 393443.00	
Samples and Tests							Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
9.10-11.95 m				Flush: 0.00-22.00 air mist, 100 % SPT C 50 (25/30,20 for 10mm)			Moderately strong medium, locally thickly bedded red brown medium grained SANDSTONE, locally micaceous. Fractures: medium, locally closely spaced, subhorizontal, planar, rough, clean. Rare black mottling on bedding planes. Rare to occasional subangular to rounded fine to medium gravel of predominantly quartz. (SHERWOOD SANDSTONE)			(19.55)		
11.95-12.19							10.75-10.84 m NI 10.84-10.93 m 2 No. very closely spaced subvertical fractures, planar, rough, open. 10.93-10.96 m NI 10.96-11.22 m Subvertical fracture, undulating, rough, open, locally NI. 11.51-11.57 m 45 deg fracture, planar, rough, very open. Slight clay smearing. 11.57-11.63 m NI, locally weak. 12.46-12.51 m NI, frequent rounded gravel of quartz. 12.85-13.00 m Subvertical fracture, planar, rough, open. Heavy dark grey discolouration. 13.00-13.13 m NI, locally weak. 13.13-13.70 m Subvertical fracture, planar, rough, open. 13.88-14.00 m Interlaminated with orange brown and grey sandstone. 14.00-14.05 m NI, weak. 14.23-14.25 m NI.					
11.95-14.95 m			NI 110 370		03/12/2002 1.50	1800 dry						
14.95-17.00 m					04/12/2002 1.50	dry						
17.00-17.07				SPT C 50 (25 for 30mm/50 for 40mm)			15.85-15.91 m Orange brown. 16.36-16.65 m Subvertical fracture, planar, rough, very open. 16.65-16.80 m Occasional very closely spaced light brown laminations. 17.00-17.23 m AZCL.					
17.00-20.00 m			NI 170 410				19.20-19.40 m Light brown fine to medium grained. 19.45-19.52 m 2 No. very closely spaced 30 deg fracture, planar, rough, up to 50mm					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Stratum continued next sheet					
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)			Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.							Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 3 Sheet 2 of 3		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:36:45 AGS												

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH			Start 03/12/2002 End 04/12/2002			Equipment, Methods and Remarks			Depth from 0.00m to 22.00m Diameter 121mm Casing Depth 1.50m			Ground Level +49.00 mOD Coordinates E 336392.14 National Grid N 393443.00			
Samples and Tests						Strata									
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description					Depth, Level/ (Thickness)		Legend	Backfill/ Instruments
20.00-22.00 m		90 85 70	NI 170 410		04/12/2002 1.50	1800 dry	Moderately strong medium, locally thickly bedded red brown medium grained SANDSTONE locally micaceous. Fractures: medium, locally closely spaced, subhorizontal, planar, rough, clean. Rare black mottling on bedding planes. Rare to occasional subangular to rounded fine to medium gravel of predominantly quartz. (SHERWOOD SANDSTONE) 20.27-20.33 m NI. [] 20.54-20.63 m [] Light brown. 21.40-21.54 m [] Light brown, locally NI. EXPLORATORY HOLE ENDS AT 22.00 m					22.00 +27.00			
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water									
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)					Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.						Borehole 3 Sheet 3 of 3			
Scale 1:50						(c) MESG HBIII (281), 16/06/2003 13:36:53						AGS			

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Drilled by IM/LT Logged by MJS Checked by PH		Start 03/12/2002 End 04/12/2002		Equipment, Methods and Remarks		Depth from 0.00m to 22.00m Diameter 121mm Casing Depth 1.50m		Ground Level +49.00 mOD Coordinates E 336392.14 National Grid N 393443.00			
Samples and Tests						Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
							EXPLORATORY HOLE ENDS AT 22.00 m				
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries						Depth Related Remarks		Chiselling			
No.		Struck		Post strike behaviour		Depth sealed (m)		From		to (m)	
None observed (see Key Sheet)											
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:37:00						Project No. A2207 Carried out for Liverpool F.C.		3 Sheet 4 of 3			

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 11/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. 50mm gas standpipe installed on completion.		Depth from 0.00m to 23.85m Diameter 121mm Casing Depth 1.50m		Ground Level +53.80 mOD Coordinates E 336449.87 National Grid N 393170.21			
Samples and Tests					Strata						
Depth	Type & No	Records	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
1.50-1.72	SPT C	50 (8,17/50 for 70mm)			Tarmac, hardcore brick, red sand. (Foreman's description) (MADE GROUND)			(1.50)			
1.50-4.40 m	88 70 38				Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely to medium spaced, planar, rough. Rare subrounded to rounded fine to medium gravel of predominantly quartz. (SHERWOOD SANDSTONE)			1.50 +52.30			
4.40-4.58	NI 120 460	SPT C 50 (3,22/50 for 25mm)			1.50-1.85 m AZCL. 1.85-2.35 m occasional orange brown banding.						
4.40-7.10 m	93 59 49				3.00-3.08 m light brown. 3.03-3.08m, NI, weak. 3.44-3.49 m NI. 3.63-3.68 m NI. 3.80-3.92 m NI.						
7.10-7.27		SPT C 50 (5,20/50 for 20mm)			4.22-4.35 m 70-80 deg fracture, rough, open. 4.40-4.60 m AZCL. 4.80-5.20 m subvertical fracture, planar, rough, very open, clean.						
7.10-10.15 m	100 89 70				6.66-6.73 m NI, weak. 7.30-7.80 m occasional to frequent subrounded to rounded gravel of quartz, locally coarse grained.						
					9.15-9.20 m light brown.						
					Stratum continued next sheet						
Depth	TCR ROD	If	Records/Samples	Date Casing	Time Water						
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m) 0.00 1.50 Hand dug inspection pit.			Chiselling Depths (m)	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.					Borehole 4 Sheet 1 of 3	
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:37:21 AGS											

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 11/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 23.85m Diameter 121mm Casing Depth 1.50m		Ground Level +53.80 mOD Coordinates E 336449.87 National Grid N 393170.21				
Samples and Tests						Strata							
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments		
10.15-13.10 m		95 79 63	NI 300 500	Flush: 0.00-23.85 air mist, 100 %			Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely to medium spaced, planar, rough. Rare subrounded to rounded fine to medium gravel of predominantly quartz. (SHERWOOD SANDSTONE) 10.03-10.06 m very weak. Recovered as fine to medium sand. 10.33-10.42m, NI. 10.54-10.64m, subvertical fracture, planar, rough, open. 10.65-10.91 m orange brown.		(22.35)				
13.10-13.28				SPT C 50 (4,14/50 for 25mm)			11.73-11.87 m NI.						
13.10-16.15 m		94 90 54					12.16-12.20 m NI, weak. 13.62-13.76 m light brown. 13.68-13.76m, 45 deg fracture, planar, rough, tight. 13.86-14.04 m 70-80 deg fracture, planar, rough, tight.						
16.15-19.15 m		90 86 27	NI 90 170				16.74-17.60 m fine to medium grained. 17.60-18.33 m brown laminated fine to medium grained, micaceous. Occasional black carbonaceous material.						
						Stratum continued next sheet							
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water							
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)						Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project Project No. A2207 Carried out for Liverpool F.C.		NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole 4 Sheet 2 of 3			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:37:27 AGS													

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 11/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 23.85m Diameter 121mm Casing Depth 1.50m		Ground Level +53.80 mOD Coordinates E 336449.87 National Grid N 393170.21		
Samples and Tests						Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
19.15-22.15 m		93 69 43					Moderately strong, thinly to medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely to medium spaced, planar, rough. Rare subrounded to rounded fine to medium gravel of predominantly quartz. (SHERWOOD SANDSTONE) <div>21.38-21.42 m NI. 21.43-21.54 m light brown. 21.48-21.51m, NI.</div>				
22.15-23.85 m		100 92 50									
23.85-24.02				SPT C 50 (7,18/50 for 15mm)			EXPLORARY HOLE ENDS AT 23.85 m		23.85 +29.95		SP
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.				Borehole 4 Sheet 3 of 3	
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:37:34 AGS											

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Rotary coring PWf size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 12.70m Diameter 121mm Casing Depth 1.50m		Ground Level +53.19 mOD Coordinates E 336322.26 National Grid N 393379.64									
Samples and Tests					Strata												
Depth		Type & No		Records		Date Casing		Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments	
0.50-0.79		SPT S		60 (5,7/10,50 for 60mm)						TOPSOIL over brown clay. (Foreman's description)		(0.50)					
0.70-2.20 m		100 50 0		NI 40 70						Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures: very closely spaced, subhorizontal, planar, rough, clean. (SHERWOOD SANDSTONE)		0.50 +52.69					
2.20-2.29				SPT C 50 (25 for 30mm/50 for 60mm)						0.70-1.03 m Recovered as sandy angular to subangular gravel. 1.24-1.34 m Weak. Reduced to sandy gravel. 1.38-1.48 m Weak. NI, clayey matrix. 1.48-1.78 m Weak to moderately weak. Numerous subhorizontal fractures. 2.20-2.94 m AZCL.		(2.70)					
2.20-5.20 m		73 67 57		NI 190 310						2.94-2.97 m 1 No. subrounded cobble of quartz.		3.20 +49.99					
5.20-5.36				SPT C 50 (15,10 for 25mm/ 50 for 60mm)						Moderately strong medium bedded, locally closely bedded red brown medium grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Rare to occasional black mottling. Occasional subrounded to rounded fine to medium gravel of quartz and chert. (SHERWOOD SANDSTONE)							
5.20-8.20 m		98 93 85		Flush: 0.00-12.70 air mist, 100 %						3.87-3.93 m NI. 3.93-3.96 m Light brown. 4.83-4.98 m Light brown, locally weak.							
8.20-11.20 m		100 100 93		20 200 600						6.92-7.00 m Subvertical fracture, planar, rough, tight. 7.69-7.74 m 30-40 deg fracture, planar, rough, open. Heavy black staining.		(9.50)					
Stratum continued next sheet																	
Depth		If		Records/Samples		Date Casing		Time Water									
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)										Depth sealed (m)		Depth Related Remarks From to (m) 0.00 0.50 Inspection pit.		Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.										Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole					
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:37:53										Project No. A2207 Carried out for Liverpool F.C.		5 Sheet 1 of 2					

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks		Depth from 0.00m to 12.70m Diameter 121mm Casing Depth 1.50m		Ground Level +53.19 mOD Coordinates E 336322.26 National Grid N 393379.64		
Samples and Tests					Strata					
Depth	TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
11.20-11.37			SPT C 50 (8,17 for 60mm/50 for 35mm)			Moderately strong medium bedded, locally closely bedded red brown medium grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Rare to occasional black mottling. Occasional subrounded to rounded fine to medium gravel of quartz and chert. (SHERWOOD SANDSTONE)				
11.20-12.70 m	100 100 100					10.20-10.50 m Light brown frequent very closely spaced coarse grained bands (5mm thick). Frequent subrounded fine to medium gravel.				
12.70-12.86			SPT C 50 (20,5 for 10mm/50)	09/12/2002 1.50	dry	EXPLORATORY HOLE ENDS AT 12.70 m		12.70 +40.49		
Depth	TCR SCR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries					Depth sealed (m)		Depth Related Remarks		Chiselling Depths (m)	
No. Struck Post strike behaviour							From to (m)			
None observed (see Key Sheet)										
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:38:00					Project No. A2207 Carried out for Liverpool F.C.		5 Sheet 2 of 2			

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. 50mm gas standpipe installed on completion.		Depth from 0.00m to 13.50m Diameter 121mm Casing Depth 1.50m		Ground Level Coordinates National Grid +50.76 mOD E 336468.44 N 393359.96							
Samples and Tests					Strata										
Depth		Type & No		Records		Date Casing Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments	
1.50-1.73		SPT S		50 (11,13/35,15 for 5mm)				TOPSOIL over black soil. (Foreman's description)		(1.50)					
1.50-3.50 m		63 26 6 NI 40 110						Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures: very closely spaced, subhorizontal, planar, rough, clean. (SHERWOOD SANDSTONE)		1.50 +49.26					
3.50-3.68				SPT C 50 (5,16/50 for 30mm)				2.52-2.85 m NI, locally weak with sand matrix. Rare subrounded fine gravel of quartz and chert. 2.92-3.10 m NI, locally weak with occasional rounded fine to medium gravel of quartz and quartzite. 3.27-3.35 m NI.		(2.10)					
3.50-5.50 m		97 89 46 NI 70 320						Moderately strong, thinly to medium bedded red brown medium, locally coarse grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Rare black mottling. Occasional subangular to rounded fine to medium gravel of quartz, quartzite and chert. (SHERWOOD SANDSTONE)		3.60 +47.16					
5.00				KFH k=4.1E-7 m/s											
5.50-5.70				SPT C 50 (7,19/50 for 50mm)											
5.50-7.50 m		98 93 66 NI 200 700		Flush: 0.00-13.50 air mist, 100 %				6.85-7.05 m Locally strong light brown. 7.36-7.48 m Orange brown.						SP	
7.50-9.50 m		100 95 88								(9.90)					
Stratum continued next sheet															
Depth		TCR ROD		If		Records/Samples		Date Casing Time Water							
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)									Depth sealed (m) Depth Related Remarks From to (m) 0.00 1.20 Inspection pit.			Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.									Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 6 Sheet 1 of 2			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:38:16 AGS															

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH			Start 09/12/2002 End 09/12/2002			Equipment, Methods and Remarks			Depth from 0.00m to 13.50m Diameter 121mm Casing Depth 1.50m			Ground Level +50.76 mOD Coordinates E 336468.44 National Grid N 393359.96		
Samples and Tests						Strata								
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description				Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
9.50-11.50 m		100 100 63					Moderately strong, thinly to medium bedded red brown medium, locally coarse grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Rare black mottling. Occasional subangular to rounded fine to medium gravel of quartz, quartzite and chert. (SHERWOOD SANDSTONE)							
11.50-11.67			NI 150 420	SPT C 50 (8,13/50 for 20mm)			10.10-10.13 m NI. Recovered as subrounded fine to coarse gravel of quartz and limestone. 11.50-11.57 m NI. 11.74-11.80 m NI. Occasional subrounded to rounded fine to medium gravel of various lithologies. 11.95-12.95 m Fine to medium grained. 12.85-12.95 m Very closely spaced green grey banding, up to 10mm thick. 12.95-13.50 m 10mm clay band:							
11.50-13.50 m		100 91 59			09/12/2002 1.50	dry	EXPLORATORY HOLE ENDS AT 13.50 m				13.50	+37.26		
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water								
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)				Chiselling Depths (m)			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project Project No. A2207 Carried out for Liverpool F.C.				Borehole 6 Sheet 2 of 2				
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:38:23 AGS														

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH		Start 11/12/2002 End 11/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 12.95m Diameter 121mm Casing Depth 1.50m		Ground Level Coordinates National Grid +51.28 mOD E 336512.13 N 393218.37			
Samples and Tests					Strata						
Depth	Type & No	Records	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.80-1.01	SPT C	50 (17,8/50 for 55mm)			Tarmac, hardcore and red sand. (Foreman's description) (MADE GROUND)			(0.80)			
0.80-2.30 m	93 59 0	NI 30 70			Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, very closely spaced, planar, rough, clean. (SHERWOOD SANDSTONE)			0.80 +50.48			
2.30-4.50 m	100 80 35	NI 120 440			Moderately strong, locally strong medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely to medium spaced, planar, rough, clean. Rare subangular to subrounded gravel of quartz. (SHERWOOD SANDSTONE)			2.90 +48.38			
4.51-4.68		SPT C 50 (7,18/50 for 20mm)			4.64-4.73 m NI.						
4.50-7.35 m	100 88 70				5.39-5.50 m 70 deg fracture, planar, rough, tight.						
7.35-7.45		NI 300 500			6.90-7.05 m light brown.						
7.35-8.80 m	100 88 83				7.30-7.45 m light grey brown, micaceous.			(10.05)			
					9.04-9.12 m light brown. 9.04-9.06m, clay band.						
					Stratum continued next sheet						
Depth	SCR ROD	If	Records/Samples	Date Casing	Time Water						
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m)			Depth Related Remarks From to (m) 0.00 0.80 Hand dug inspection pit.			Chiselling Depths (m)
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Project No. A2207 Carried out for Liverpool F.C.			Borehole 7 Sheet 1 of 2			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:38:39 AGS											

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Drilled by IM/LT Logged by MJS Checked by PH		Start 11/12/2002 End 11/12/2002		Equipment, Methods and Remarks		Depth from 0.00m to 12.95m Diameter 121mm Casing Depth 1.50m		Ground Level +51.28 mOD Coordinates E 336512.13 National Grid N 393218.37			
Samples and Tests					Strata						
Depth		TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
8.80-11.45 m		98 95 52	NI 300 500				Moderately strong, locally strong medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, closely to medium spaced, planar, rough, clean. Rare subangular to subrounded gravel of quartz. (SHERWOOD SANDSTONE) 10.46-10.48 m light brown. 10.55-10.61 m 45 deg fracture, planar, rough, tight. 10.95-12.22 m locally coarse grained. 12.12-12.22m, 70 deg fracture, planar, rough, open.				
11.45-12.95 m		100 93 75									
12.95-13.02				SP C 50 (25 for 45mm/50 for 20mm)			12.80-12.95 m occasional light brown banding. EXPLORATORY HOLE ENDS AT 12.95 m		12.95 +38.33		
Depth		TCR SCR RQD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Project No. Carried out for		NEW ANFIELD - SITE INVESTIGATION PHASE 1 A2207 Liverpool F.C.		Borehole 7 Sheet 2 of 2		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:38:46					AGS						

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 05/12/2002 End 06/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical testing carried out on completion of coring. 50mm gas standpipe installed on completion.		Depth from 0.00m to 12.45m Diameter 121mm Casing Depth 1.50m		Ground Level +56.40 mOD Coordinates E 336366.46 National Grid N 393238.97			
Samples and Tests					Strata						
Depth	Type & No	Records	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.70-0.97	SPT S	50 (8,12/30,20 for 45mm)			Brown soil. (Foreman's description) (TOPSOIL)			(0.70)			
0.70-2.70 m	78 39 0	NI 40 70			Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures: very closely spaced, subhorizontal, planar, rough, clean. (SHERWOOD SANDSTONE)			0.70 +55.70			
2.70-3.20 m	96 78 68				Moderately strong, medium locally closely bedded red brown medium grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Occasional subangular to subrounded gravel of predominantly quartz. Rare black mottling locally micaceous. (SHERWOOD SANDSTONE)			(2.00)			
3.20-3.43		SPT C 50 (5,19/50)									
3.20-4.20 m	100 100 81										
5.00 5.00 4.20-6.20 m	88 88 67	KFH k=1.4E-8 m/s KFH k=2.4E-8 m/s									
6.20-6.37	NI 150 530	SPT C 50 (13,12/50 for 18mm)			6.20-6.55 m Light brown.						
6.20-8.20 m	100 98 56	Flush: 0.70-12.45 air mist, 100 %			6.81-6.83 m NI.						
8.20-10.25 m	100 100 84				7.80-7.90 m Light brown.			(9.75)			
					Stratum continued next sheet						
Depth	SCR ROD	If	Records/Samples	Date Casing	Time Water						
Groundwater Entries					Depth Related Remarks			Chiselling Depths (m)			
No. Struck (m)		Post strike behaviour		Depth sealed (m)		From to (m)					
None observed (see Key Sheet)						0.00 0.70 Inspection pit.					
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 8 Sheet 1 of 2			
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:39:01											

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 05/12/2002 End 06/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 12.45m Diameter 121mm Casing Depth 1.50m		Ground Level Coordinates National Grid		+56.40 mOD E 336366.46 N 393238.97	
Samples and Tests						Strata						
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
10.25-12.45 m		95 82 74	NI 150 530	SPT C 50 (3,22/50 for 25mm)	06/12/2002 1.50	dry	Moderately strong, medium locally closely bedded red brown medium grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Occasional subangular to subrounded gravel of predominantly quartz. Rare black mottling locally micaceous. (SHERWOOD SANDSTONE)		10.15-10.30 m [Light brown, locally strong.]			
12.30-12.48							10.84-10.92 m [Partially NI.]					
							11.85-12.02 m [Locally weak, partially reduced to clay.] 12.02-12.30 m [Fine to medium grained,]					
							EXPLORATORY HOLE ENDS AT 12.45 m		12.45 +43.95			
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water						
Groundwater Entries No. Struck Post strike behaviour (m)					Depth sealed (m)		Depth Related Remarks From to (m)			Chiselling Depths (m)		
None observed (see Key Sheet)												
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.					Borehole 8 Sheet 2 of 2			
Scale 1:50				(c) MESG HBIII (281), 16/06/2003 13:39:08					AGS			

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 12.80m Diameter 121mm Casing Depth 1.50m		Ground Level +54.80 mOD Coordinates E 336354.86 National Grid N 393307.21		
Samples and Tests					Strata					
Depth	Type & No	Records	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
0.80-1.16	SPT C	60 (4,8/10,50 for 60mm)			TOPSOIL over brown clay. (Foreman's description)			(0.60)		
0.80-2.30 m	70 18 0				Moderately weak, locally moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, very closely spaced, planar, rough, clean. Rare black mottling. (SHERWOOD SANDSTONE)			0.60 +54.20		
2.30-2.51	NI 30 70	SPT C 50 (9,16/50 for 60mm)			0.80-1.25 m AZCL. 1.25-1.95 m locally very weak to weak. Reduced to sandy gravel.			(2.58)		
2.30-5.30 m	100 92 62				2.85-3.20 m light brown. 3.16-3.20m, NI.			3.18 +51.62		
5.30-5.50		SPT C 50 (15,10/50 for 50mm)			Moderately strong to strong, medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, medium spaced, planar, rough, clean. Occasional subrounded to rounded fine to medium gravel of quartz. (SHERWOOD SANDSTONE)					
5.30-8.30 m	100 98 88	NI 300 1000			3.57-3.60 m clay. 6.05-6.20 m occasional light brown banding (20mm thick). 7.00-7.30 m light grey brown.			(9.62)		
8.30-11.30 m	100 96 84	Flush: 0.00-12.80 air mist, 100 %			9.15-9.25 m light grey brown, micaceous, locally moderately weak.					
					Stratum continued next sheet					
Depth	TCR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m) Depth Related Remarks From 0.00 to (m) 0.80 Hand dug inspection pit.			Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 9 Sheet 1 of 2		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:39:23 AGS										

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Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks		Depth from 0.00m to 12.80m Diameter 121mm Casing Depth 1.50m		Ground Level +54.80 mOD Coordinates E 336354.86 National Grid N 393307.21			
Samples and Tests					Strata						
Depth		TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instrument
11.30-11.43		100 97 84	NI 300 1000	SPT C 50 (25/50 for 55mm)			Moderately strong to strong, medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, medium spaced, planar, rough, clean. Occasional subrounded to rounded fine to medium gravel of quartz. (SHERWOOD SANDSTONE)				
11.30-12.80 m							10.00-10.33 m light grey brown, micaceous. Occasional thin carbonaceous laminae.				
12.80-12.94				SPT C 50 (25/50 for 60mm)			11.57-11.67 m light brown, locally NI.		12.80	+42.00	
							EXPLORARY HOLE ENDS AT 12.80 m				
Depth		TCR SCR RQD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Project No. Carried out for		NEW ANFIELD - SITE INVESTIGATION PHASE 1 A2207 Liverpool F.C.		Borehole 9 Sheet 2 of 2		
Scale 1:50 (c) MESH HBIII (281), 16/06/2003 13:39:30					AGS						

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Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 12.95m Diameter 121mm Casing Depth 1.50m		Ground Level +52.14 mOD Coordinates E 336399.33 National Grid N 393359.57							
Samples and Tests					Strata										
Depth		Type & No		Records		Date Casing Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instrument	
0.70-0.84		SPT S		50 (25/50 for 65mm)				Brown TOPSOIL over sand. (Foreman's description)		(0.70)					
0.70-2.70 m		68 25 0 NI 30 50		SPT C 50 (3,17/50 for 70mm)				Moderately weak, locally weak very thinly bedded red brown medium grained SANDSTONE. Fractures: very closely spaced, subhorizontal, planar, rough, clean. Below 2.70m, moderately weak to moderately strong. (SHERWOOD SANDSTONE)		0.70 +51.44					
2.70-2.92								1.35-1.95 m Predominantly NI.		(2.30)					
2.70-4.70 m		93 73 21 NI 80 170						1.95-2.50 m Locally very weak. Reduced to weakly cemented sand.		3.00 +49.14					
4.70-4.88				SPT C 50 (12,13/50 for 25mm)				Moderately strong, thin to medium bedded red brown medium grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Occasional subangular to subrounded fine to medium gravel of quartz. Occasional black mottling. (SHERWOOD SANDSTONE)		(9.95)					
4.70-6.70 m		93 91 70						3.88-3.97 m Subvertical fracture, planar, rough, tight.							
6.70-6.82				SPT C 50 (25/50 for 45mm)				6.30-6.33 m Occasional lenses (<60mm) of marl. 6.35-6.62 m Light grey/brown fine grained sandstone. 6.35-6.40m, clay band (<5mm). 6.62-6.66 m Coarse grained. 6.70-7.75 m AZCL.							
6.70-8.70 m		48 45 35						8.77-8.87 m Light brown, coarse grained.							
Stratum continued next sheet															
Depth		TCR RCD		If		Records/Samples		Date Casing Time Water		Depth Related Remarks From to (m) 0.00 0.70 Inspection pit.		Chiselling Depths (m)			
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)															
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.										Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole 10 Sheet 1 of 2			

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 12.95m Diameter 121mm Casing Depth 1.50m		Ground Level +52.14 mOD Coordinates E 336399.33 National Grid N 393359.57		
Samples and Tests						Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
8.70-11.40 m		96 96 74	NI 170 500	SPT C 50 (25/50 for 60mm)	10/12/2002 1.50	dry	Moderately strong, thin to medium bedded red brown medium grained SANDSTONE. Fractures: closely to medium spaced, subhorizontal, planar, rough. Occasional subangular to subrounded fine to medium gravel of quartz. Occasional black mottling. (SHERWOOD SANDSTONE)		12.95	+39.19	
11.40-12.95 m		100 97 97	NI 220 500				11.64-11.70 m NI. 1 No. subangular coarse grained gravel of chert.				
12.95-13.09							EXPLORATORY HOLE ENDS AT 12.95 m				
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water					
Groundwater Entries				Depth sealed (m)		Depth Related Remarks				Chiselling Depths (m)	
No. Struck (m)		Post strike behaviour				From to (m)					
None observed (see Key Sheet)											
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project NEW ANFIELD - SITE INVESTIGATION PHASE 1				Borehole	
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:34:52 AGS						Project No. A2207 Carried out for Liverpool F.C.				10 Sheet 2 of 2	

Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 11/12/2002 End 11/12/2002		Equipment, Methods and Remarks Rotary open boring to 0.60m. Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 12.60m Diameter 121mm Casing Depth 1.50m		Ground Level +53.40 mOD Coordinates E 336435.37 National Grid N 393239.89	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.60-0.82	SPT C	50 (7,15/50 for 65mm)			Tarmac over clay brick fill. (Foreman's description) (MADE GROUND)	(0.60)			
0.60-2.10 m	57 31 8				Moderately weak, locally moderately strong, very thinly bedded red brown medium grained SANDSTONE, locally micaceous.	0.60 +52.80			
2.10-2.31	NI 30 120	SPT C 50 (15,10/50 for 60mm)			Fractures are subhorizontal, very closely spaced, planar, rough, clean. (SHERWOOD SANDSTONE)	(2.35)			
2.10-5.10 m	97 93 60				Moderately strong to strong, medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, medium spaced, planar, rough. Rare subrounded fine to medium gravel of quartz and limestone. Rare black mottling. (SHERWOOD SANDSTONE)	2.95 +50.45			
5.10-5.27		SPT C 50 (3,10/50 for 15mm)			4.50-4.75 m light brown. 4.57-4.63m, NI.				
5.10-8.10 m	100 95 79	NI 350 690			Flush: 0.00-12.60 air mist, 100 %				
8.10-11.10 m	100 88 81				7.42-7.45 m light brown. 7.87-7.97 m weak marl, locally reduced to clay. 8.55-9.00 m fine to medium grained. 8.59-8.64m, light brown. 8.67-8.88m, 80 deg to subvertical fracture, curved, rough, tight. 8.92-9.00m, very weak to weak, micaceous, locally NI.	(9.65)			
					Stratum continued next sheet				
Depth	SCR ROD	If	Records/Samples	Date Casing	Time Water				
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole 11 Sheet 1 of 2		



Borehole Log



Soil Mechanics

Drilled by IM/LT Logged by MJS Checked by PH		Start 11/12/2002 End 11/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 12.60m Diameter 121mm Casing Depth 1.50m		Ground Level +53.40 mOD Coordinates E 336435.37 National Grid N 393239.89			
Samples and Tests						Strata						
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
11.10-11.24				SPT C 50 (25/50 for 60mm)			Moderately strong to strong, medium bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, medium spaced, planar, rough. Rare subrounded fine to medium gravel of quartz and limestone. Rare black mottling. (SHERWOOD SANDSTONE)					
11.10-12.60 m		NI 350 690										
12.60-12.71		100 100 87		SPT C 50 (25/50 for 30mm)			11.10-11.27 m brown medium to coarse grained, frequent subangular to subrounded gravel of quartz, chert and sandstone. 11.70-12.05 m frequent subrounded to rounded gravel of quartz and limestone.			12.60	+40.80	
							EXPLORATORY HOLE ENDS AT 12.60 m					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water						
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)			Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.							Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 11 Sheet 2 of 2		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:35:14 AGS												

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Drilled by IM/LT Logged by MJS Checked by PH		Start 11/12/2002 End 11/12/2002		Equipment, Methods and Remarks Rotary open hole to 0.60m. Rotary coring PWF size with coreline using air mist flush. Downhole geophysical logging carried out on completion of coring. Borehole grouted up on completion.		Depth from 0.00m to 12.60m Diameter 121mm Casing Depth 1.50m		Ground Level +51.41 mOD Coordinates E 336478.54 National Grid N 393291.27									
Samples and Tests					Strata												
Depth		Type & No		Records		Date Casing Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instrument			
0.60-0.82		SPT C		50 (7,15/50 for 65mm)				Tarmac over topsoil and brick fill. (Foreman's description) (MADE GROUND)		(0.60)							
0.60-2.10 m		67 43 0 NI 30 90						Moderately weak, locally moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures are subhorizontal, planar, rough, very closely spaced. (SHERWOOD SANDSTONE)		0.60-1.10 m AZCL. 1.10-1.40 m very weak to weak. Recovered as sandy gravel.		0.60 +50.81					
3.10-3.22				SPT C 50 (25/50 for 45mm)				Moderately strong, locally strong medium bedded red brown medium grained SANDSTONE		2.52 +48.89							
2.10-5.10 m		100 87 57						Fractures are subhorizontal, medium spaced, planar, rough. Occasional subrounded fine to medium gravel of quartz. (SHERWOOD SANDSTONE)									
5.10-5.22				SPT C 50 (25/50 for 45mm)				4.78-4.86 m 30 deg fracture, planar, rough, tight. 4.90-5.08 m subvertical fracture, planar, rough, open. 5.40-5.48 m light brown. 5.42-5.48m, NI. 5.63-5.68 m light brown. 6.00-6.17 m 70-80 deg fracture, curved, rough, open.									
5.10-8.10 m		100 93 75		NI 300 570 Flush: 0.00-12.60 air mist, 100 %				7.85-7.95 m light grey brown occasional black mottling. 8.82-8.88 m weak, NI.		(10.08)							
8.10-11.10 m		100 97 77						Stratum continued next sheet		9.85-9.95 m NI.							
Depth		ICR RQD		If		Records/Samples		Date Casing Time Water									
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)									Depth sealed (m)			Depth Related Remarks From to (m)			Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.									Project NEW ANFIELD - SITE INVESTIGATION PHASE 1			Borehole					
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:35:30									Project No. A2207			12					
									Carried out for Liverpool F.C.			Sheet 1 of 2					

Borehole Log



Drilled by IM/LT Logged by MJS Checked by PH		Start 11/12/2002 End 11/12/2002		Equipment, Methods and Remarks			Depth from 0.00m to 12.60m Diameter 121mm Casing Depth 1.50m		Ground Level Coordinates National Grid		+51.41 mOD E 336478.54 N 393291.27	
Samples and Tests							Strata					
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water	Description		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
11.10-11.23		NI 300 570	100 100 95	SPT C 50 (25/50 for 55mm)			Moderately strong, locally strong medium bedded red brown medium grained SANDSTONE. 9.95-10.10 m occasional black mottling. Fractures are subhorizontal, medium spaced, planar, rough. 10.50-10.65 m light brown. Occasional subrounded fine to medium gravel of quartz. (SHERWOOD SANDSTONE)					
11.10-12.60 m												
12.60-12.73				SPT C 50 (25/50 for 55mm)			11.60-11.85 m light brown. EXPLORATORY HOLE ENDS AT 12.60 m		12.60 +38.81			
Depth		TCR SCR ROD	If	Records/Samples	Date Casing	Time Water						
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)		Depth Related Remarks From to (m)			Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.							Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole 12 Sheet 2 of 2		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:35:36 AGS												

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Logged by MJS Checked by PH		Start 08/01/2003 End 08/01/2003	Equipment and Methods Machine dug trial pit.	Dimensions and Orientation Width 0.80 m Length 3.80 m <div><div>A D B C</div><div>➔ 228 (Deg)</div></div>		Ground Level Coordinates National Grid	+58.64 mOD E 336269.22 N 393296.69	
Samples and Tests			Strata					
Depth	Type & No.	Date Records	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
0.00-0.20 0.00-0.20 0.20-0.90	D 1 B 2 B 3		1 TOPSOIL. Frequent rootlets.					
			2 Reddish brown GRAVEL and COBBLES of moderately weak sandstone. (MADE GROUND)			0.20 +58.44 (0.40)		
			3 Dark brown clayey fine to medium SAND. Occasional angular gravel of sandstone, rare glass and ceramic. Occasional rootlets. (MADE GROUND)			0.60 +58.04 (0.50)		
0.90-1.20	B 4		4 Moderately strong red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)			1.10 +57.54 1.20 +57.44		
			EXPLORATORY HOLE ENDS AT 1.20 m					
Depth	Type & No.	Records Date						
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Remarks Ease of excavation: Easy to 0.20m, moderate to 1.10m, then very difficult.			Stability Stable Shoring None Weather Cold, frosty		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25 (c) MESG HBIII (281), 16/06/2003 13:41:23			Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Trial Pit TP1 Sheet 1 of 1		

Trial Pit Log



Soil Mechanics

Logged by MJS Checked by MJS		Start 19/12/2002 End 19/12/2002		Equipment and Methods Machine dug trial pit.		Dimensions and Orientation Width 1.00 m Length 4.40 m <div><div>A B C</div><div>→ 318 (Deg)</div></div>		Ground Level +47.45 mOD Coordinates E 336587.50 National Grid N 393299.44	
Samples and Tests			Strata						
Depth	Type & No.	Date Records	Description			Depth, Level (Thickness)	Legend	Backfill/ Instruments	
0.00-0.60 0.00-0.60	D 1 B 2		1 Brown TOPSOIL. Frequent rootlets.			(0.60)			
0.60-1.20	B 3		2 Orangish brown slightly clayey, slightly gravelly fine to medium SAND. Gravel is angular to subrounded fine to medium of various lithologies. Occasional roots.			0.60 +46.85 (0.60)			
1.20-2.00	B 4		2 Red brown sandy GRAVEL. Gravel is angular, tabular of sandstone. Frequent cobbles. (Weathered SHERWOOD SANDSTONE)			1.20 +46.25 (1.00)			
2.20-2.60	B 5		3 Moderately weak very thinly bedded red brown medium grained SANDSTONE. Fractures are planar, rough, very closely spaced. Recovered as angular gravel and cobble sized fragments. (SHERWOOD SANDSTONE)			2.20 +45.25 (0.40)			
			EXPLORATORY HOLE ENDS AT 2.60 m			2.60 +44.85			
Depth	Type & No.	Records Date							
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Remarks Ease of excavation: Easy to 1.20m, moderate to 2.20m, then very difficult.			Stability Stable Shoring Trench sheeting Weather Cold, cloudy			
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Trial Pit TP2 Sheet 1 of 1			



Trial Pit Log



Soil Mechanics

Logged by MJS Checked by MJS		Start 08/01/2003 End 08/01/2003		Equipment and Methods Machine dug trial pit.		Dimensions and Orientation Width 0.80 m Length 3.70 m <div><div>A B C</div><div>126 (Deg)</div></div>		Ground Level +48.84 mOD Coordinates E 336389.05 National Grid N 393452.05	
Samples and Tests			Strata						
Depth	Type & No.	Date Records	Description				Depth, Level (Thickness)	Legend	Backfill/ Instruments
0.00-0.25 0.00-0.25	D 1 B 2		1 Brown TOPSOIL. Occasional rootlets.						
0.25-0.70	B 3		2 Brown slightly clayey, slightly gravelly fine to medium SAND. Gravel is angular to subrounded of various lithologies. Rare rootlets.				0.25 +48.59 (0.45)		
0.70-0.95	B 4		3 Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures are very closely spaced, planar, rough. (SHERWOOD SANDSTONE)				0.70 +48.14 (0.50)		
EXPLORATORY HOLE ENDS AT 1.20 m							1.20 +47.64		
Depth	Type & No.	Records Date							
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Remarks Ease of excavation: Difficult to 0.70m (ground frozen), very difficult to 1.20m.				Stability Stable Shoring None Weather Cold, frost.		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.				Trial Pit TP3 Sheet 1 of 1		

Scale 1:25

(c) MESG HBIII (281), 16/06/2003 13:41:42

Trial Pit Log



Soil Mechanics

Logged by MJS Checked by MJS		Start 18/12/2002 End 18/12/2002		Equipment and Methods Machine dug trial pit.		Dimensions and Orientation Width 1.00 m Length 3.60 m <div><div>A B C</div><div>→ 228 (Deg)</div></div>		Ground Level +54.62 mOD Coordinates E 336456.08 National Grid N 393144.26	
Samples and Tests			Strata						
Depth	Type & No.	Date Records	Description				Depth, Level (Thickness)	Legend	Backfill/ Instruments
0.00-0.40 0.00-0.40	D 1 B 2		1 Brown TOPSOIL. Frequent rootlets and tree roots.				(0.40)		
0.40-0.70	B 3		2 Moderately weak, locally weak very thinly bedded yellow brown fine to medium grained SANDSTONE. Recovered as sandy angular fine to coarse gravel. Fractures are very closely spaced, subhorizontal, planar, rough. (SHERWOOD SANDSTONE)				0.40 +54.22 (0.30)		
0.70-1.30	B 4		3 Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures are very closely spaced, subhorizontal, planar, rough. Recovered as angular to subangular gravel and cobbles. (SHERWOOD SANDSTONE)				0.70 +53.92 (0.90)		
EXPLORATORY HOLE ENDS AT 1.60 m							1.60 +53.02		
Depth	Type & No.	Records Date							
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Remarks Trial pit terminated at 1.60m due to no penetration. Unable to excavate below 1.60m.				Stability Stable Shoring Trench sheeting Weather Cold, clear.		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25 (c) MESG HBIII (281), 16/06/2003 13:41:51			Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.				Trial Pit TP4 Sheet 1 of 1		

Trial Pit Log



Soil Mechanics

Logged by MJS Checked by MJS		Start 19/12/2002 End 19/12/2002		Equipment and Methods Machine dug trial pit.		Dimensions and Orientation Width 1.00 m Length 4.40 m <div><div>A B C</div><div>50 (Deg)</div></div>		Ground Level +59.79 mOD Coordinates E 336253.19 National Grid N 393249.54	
Samples and Tests			Strata						
Depth	Type & No.	Date Records	Description				Depth, Level (Thickness)	Legend	Backfill/ Instruments
0.00-0.50 0.00-0.50	D 1 B 2		1 Grey brown slightly clayey sandy GRAVEL. Gravel is angular to subangular of brick, ash, slag, concrete, glass and ceramics. Occasional cobble of brick. (MADE GROUND)				(0.50)		
0.60-1.30	B 3		2 Firm dark grey gravelly CLAY. Gravel is angular of brick and slag. (MADE GROUND)				0.50 +59.29		
			3 Moderately weak to moderately strong, very thinly bedded red brown medium grained SANDSTONE. Fractures are very closely spaced, planar, rough. Recovered as gravel and cobble sized fragments. (SHERWOOD SANDSTONE)				0.60 +59.19		
			EXPLORATORY HOLE ENDS AT 1.30 m				1.30 +58.49		
Depth	Type & No.	Records Date							
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Remarks Ease of excavation: Easy to 0.60m, difficult to 1.10m, then very difficult.				Stability Stable Shoring None Weather Cold, clear		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.				Trial Pit TP5 Sheet 1 of 1		

Scale 1:25

(c) MESG HBIII (281), 16/06/2003 13:42:01

Trial Pit Log



Soil Mechanics

Logged by MJS Checked by MJS		Start 19/12/2002 End 19/12/2002		Equipment and Methods Machine dug trial pit.		Dimensions and Orientation Width 1.00 m Length 4.00 m <div><div>A B C</div><div>→ 46 (Deg)</div></div>		Ground Level +46.67 mOD Coordinates E 336537.33 National Grid N 393402.20 Chainage 0	
Samples and Tests			Strata						
Depth	Type & No.	Date Records	Description				Depth, Level (Thickness)	Legend	Backfill/ Instruments
0.00-0.70 0.00-0.70	D 1 B 2		1 Dark brown TOPSOIL. Frequent rootlets and tree roots.				(0.70)		
0.70-1.20	B 3		2 Moderately weak, very thinly bedded red brown medium grained SANDSTONE. Recovered as cobble sized fragments. Below 1.00m, locally moderately strong. Fractures are very closely spaced, planar, rough. (SHERWOOD SANDSTONE)				0.70 +45.97 (0.50)		
			EXPLORATORY HOLE ENDS AT 1.20 m				1.20 +45.47		
Depth	Type & No.	Records Date							
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Remarks Ease of excavation: Easy to 0.70m, difficult to 1.00m, then very difficult.				Stability Stable Shoring None Weather Cold, clear.		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.				Trial Pit TP6 Sheet 1 of 1		



Window Sampler Hole Log



Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.35m Diameter 100mm Casing Depth		Ground Level +50.83 mOD Coordinates E 336321.19 National Grid N 393439.38	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.30	D 1				TOPSOIL.	(0.30)			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.30 +50.53 0.35 +50.48			
					EXPLORATORY HOLE ENDS AT 0.35 m				
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour (m)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP2 Sheet 1 of 1		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:43:46 AGS									

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling		Depth from 0.00m to 0.75m Diameter 100mm Casing Depth		Ground Level +46.12 mOD Coordinates E 336436.21 National Grid N 393537.31 Chainage	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.30	D 1				TOPSOIL.	(0.30)			
0.50-0.70	D 2				Dark brown slightly clayey fine to medium SAND. Occasional rootlets.	0.30 +45.82 (0.40)			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.70 +45.42 0.75 +45.37			
					EXPLORATORY HOLE ENDS AT 0.75 m				
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries			Depth sealed (m)		Depth Related Remarks	Chiselling Depths (m)			
No.	Struck (m)	Post strike behaviour			From to (m)				
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:43:54					Project No. A2207 Carried out for Liverpool F.C.		WSDP3 Sheet 1 of 1		

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.75m Diameter 100mm Casing Depth		Ground Level +46.61 mOD Coordinates E 336508.86 National Grid N 393442.72	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.30	D 1				TOPSOIL.	(0.30)			
0.50	D 2				Dark brown slightly clayey slightly gravelly fine to medium SAND. Gravel is angular to subangular of sandstone.	0.30 +46.31 (0.40)			
0.70	D 3				Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 0.75 m	0.70 +45.91 0.75 +45.86			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries					Depth Related Remarks		Chiselling		
No. Struck		Post strike behaviour		Depth sealed (m)	From to (m)		Depths (m)		
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:44:03 AGS					Project No. A2207 Carried out for Liverpool F.C.		WSDP4 Sheet 1 of 1		

Window Sampler Hole Log



Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 1.00m to 1.00m to 1.40m Diameter 100mm Casing Depth 80mm		Ground Level +45.40 mOD Coordinates E 336614.26 National Grid N 393355.39	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.15 0.20-0.40	D 1 D 2				TOPSOIL. Brown silty fine to medium SAND. Occasional rootlets.	0.15 +45.25 (0.35) 0.50 +44.90			
1.00-1.30	D 3				Red brown silty fine to medium SAND. Occasional angular gravel of sandstone. (Weathered SHERWOOD SANDSTONE) ----- EXPLORATORY HOLE ENDS AT 1.40 m	(0.90) 1.40 +44.00			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m) Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP5 Sheet 1 of 1		



Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.75m Diameter 100mm Casing Depth		Ground Level +55.54 mOD Coordinates E 336314.88 National Grid N 393331.93	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.30	D 1				TOPSOIL	(0.30)			
0.30-0.60	D 2				Dark brown slightly clayey, gravelly fine to medium SAND. Gravel is angular to subangular of sandstone.	0.30 +55.24 (0.35)			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 0.75 m	0.65 +54.89 0.75 +54.79			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries					Depth Related Remarks		Chiselling		
No.	Struck	Post strike behaviour	Depth sealed (m)		From to (m)		Depths (m)		
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:44:20					Project No. A2207 Carried out for Liverpool F.C.		WSDP9 Sheet 1 of 1		

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.45m Diameter 100mm Casing Depth		Ground Level +51.47 mOD Coordinates E 336367.65 National Grid N 393397.55	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.20	D 1				TOPSOIL	0.20 +51.27			
0.30-0.45	D 2				Reddish brown slightly silty fine to medium SAND. Occasional angular gravel of sandstone. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 0.45 m	0.45 +51.02			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP10 Sheet 1 of 1		

Scale 1:50

(c) MESG HBIII (281), 16/06/2003 13:42:18

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 1.00m Diameter 100mm Casing Depth		Ground Level +49.66 mOD Coordinates E 336438.67 National Grid N 393393.90	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.30	D 1				TOPSOIL	(0.30)			
0.50	D 2				Brown clayey, gravelly fine to medium SAND. Gravel is angular to subangular of sandstone.	0.30 +49.36 (0.60)			
0.90-1.00	D 3				Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 1.00 m	0.90 +48.76 1.00 +48.66			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP11 Sheet 1 of 1		



Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.60m Diameter 100mm Casing Depth		Ground Level +49.28 mOD Coordinates E 336510.01 National Grid N 393333.80	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.20-0.40	D 1				TARMAC.	0.18 +49.10			
0.50-0.60	D 2				Dark grey very clayey, gravelly fine to medium SAND. Gravel is angular to subangular of slag, brick, glass and sandstone. (MADE GROUND)	(0.32)			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.50 +48.78			
					EXPLORATORY HOLE ENDS AT 0.60 m	0.60 +48.68			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole WSDP12 Sheet 1 of 1	



Window Sampler Hole Log



Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.60m Diameter 100mm Casing Depth		Ground Level +50.41 mOD Coordinates E 336522.58 National Grid N 393265.16	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.20-0.40	D 1				TARMAC.	0.17 +50.24			
0.50-0.60	D 2				Reddish brown gravelly silty fine to medium SAND. Gravel is angular to subangular of sandstone. (Weathered SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 0.60 m	(0.43) 0.60 +49.87			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP13 Sheet 1 of 1		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:42:45 AGS									

Window Sampler Hole Log



Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 1.00m Diameter 100mm Casing Depth 80mm		Ground Level +52.84 mOD Coordinates E 336467.70 National Grid N 393203.74	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.20-0.40	D 1				TARMAC.	0.18 +52.66 (0.32)			
0.50-0.70	D 2				Dark grey brown clayey, gravelly fine to medium SAND. Gravel is angular to subangular of slag, tarmac, brick and sandstone. (MADE GROUND)	0.50 +52.34 (0.80)			
1.00-1.30	D 3				Reddish brown silty fine to medium SAND. (Weathered SHERWOOD SANDSTONE)	1.30 +51.54 (0.30)			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	1.60 +51.24			
					EXPLORATORY HOLE ENDS AT 1.60 m				
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole WSDP14 Sheet 1 of 1	



Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 10/12/2002 End 10/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.40m Diameter 100mm Casing Depth		Ground Level +54.65 mOD Coordinates E 336412.09 National Grid N 393203.97	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.20-0.40	D 1				TARMAC. Dark grey brown sandy GRAVEL. Gravel is angular to subangular of brick, slag and sandstone. (MADE GROUND) Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 0.40 m	0.15 +54.50 0.38 +54.27 0.40 +54.25			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP15 Sheet 1 of 1		



Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.35m Diameter 100mm Casing Depth		Ground Level +57.12 mOD Coordinates E 336334.54 National Grid N 393265.37	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.15 0.15-0.35	D 1 D 2				TOPSOIL. Reddish brown slightly gravelly fine to medium SAND. Gravel is angular to subangular of sandstone. (Weathered SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 0.35 m	0.15 +56.97 0.35 +56.77			
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour (m)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.		Borehole WSDP16 Sheet 1 of 1		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:43:11									

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.75m Diameter 100mm Casing Depth		Ground Level +54.10 mOD Coordinates E 336395.20 National Grid N 393273.23	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.20	D 1				TOPSOIL	0.20 +53.90			
0.50	D 2				Dark brown clayey, gravelly fine to medium SAND. Gravel is angular to subangular of predominantly sandstone. Rare slag. (MADE GROUND)	(0.50)			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.70 +53.40 0.75 +53.35			
					EXPLORATORY HOLE ENDS AT 0.75 m				
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)			Depth sealed (m)		Depth Related Remarks From to (m)		Chiselling Depths (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1 Project No. A2207 Carried out for Liverpool F.C.			Borehole WSDP17 Sheet 1 of 1	
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:43:19 AGS									

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.47m Diameter 100mm Casing Depth		Ground Level +52.15 mOD Coordinates E 336439.09 National Grid N 393325.08	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.25	D 1				TOPSOIL	0.25 +51.90			
0.25-0.40	D 2				Reddish brown gravelly fine to medium SAND. Gravel is angular to subangular of sandstone.	0.45 +51.70			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.47 +51.68			
					EXPLORATORY HOLE ENDS AT 0.47 m				
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries			Depth sealed (m)		Depth Related Remarks		Chiselling Depths (m)		
No.	Struck	Post strike behaviour			From to (m)				
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:43:28 AGS					Project No. A2207 Carried out for Liverpool F.C.		WSDP18 Sheet 1 of 1		

Window Sampler Hole Log



Soil Mechanics

Drilled by JH Logged by MJS Checked by MJS		Start 09/12/2002 End 09/12/2002		Equipment, Methods and Remarks Window sampling.		Depth from 0.00m to 0.66m Diameter 100mm Casing Depth		Ground Level +52.99 mOD Coordinates E 336417.18 National Grid N 393299.06	
Samples and Tests					Strata				
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
0.00-0.25	D 1				TOPSOIL	0.25 +52.74			
0.25-0.60	D 2				Dark brown slightly clayey fine to medium SAND. Gravel is angular to subangular of sandstone.	0.60 +52.39			
					Red brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.66 +52.33			
					EXPLORATORY HOLE ENDS AT 0.66 m				
Depth	Type & No	Records	Date Casing	Time Water					
Groundwater Entries			Depth sealed (m)		Depth Related Remarks		Chiselling Depths (m)		
No.	Struck (m)	Post strike behaviour			From to (m)				
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project NEW ANFIELD - SITE INVESTIGATION PHASE 1		Borehole		
Scale 1:50 (c) MESG HBIII (281), 16/06/2003 13:43:37 AGS					Project No. A2207 Carried out for Liverpool F.C.		WSDP19 Sheet 1 of 1		



ENCLOSURE A
EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records
Rotary Borehole Logs
Dynamic Sampler Hole Logs
Trial Pit Logs

Key
RH01 to RH04
BH1 to 4
TP1 to 8, HP1 to 4

Key to Exploratory Hole Records



Soil Mechanics

SAMPLES

Undisturbed

U	Driven tube sample	} nominally 100 mm diameter and full recovery unless otherwise stated
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
L	Liner sample (from Windowless or similar sampler), full recovery unless otherwise stated	
CBR	CBR mould sample	
BLK	Block sample	
CS	Core sample (from rotary core) taken for laboratory testing	
AMAL	Amalgamated sample	

Disturbed

D	Small sample
B	Bulk sample

Other

W	Water sample
G	Gas sample

	Environmental chemistry samples (in more than one container where appropriate)
ES	Soil sample
EW	Water sample

Comments

Sample reference numbers are assigned to every sample taken. A sample reference of 'NR' indicates that attempt was made to take a tube sample, however, there was no recovery.

Monitoring samples taken after completion of hole construction are not shown on the exploratory hole logs.

TESTS

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C)
----------------	--

The Standard Penetration Test is defined in BS 1377 : Part 9 (1990). The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 (either in total or for a single increment) the total blow count beyond the seating drive is given (without the N = prefix).

IV	<i>in situ</i> Vane shear strength, peak (p) and remoulded (r)
HV	Hand vane shear strength, peak (p) and remoulded (r)
PP	Pocket penetrometer test, converted to shear strength
KFH, KRH, KPI	Variable head permeability tests (KFH = falling head test, KRH = rising head test, KPI = packer test), permeability value

Test results provided in Field Records column

DRILLING RECORDS

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930 (1999)

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacings are presented. The term non-intact (NI) is used where the core is fragmented.

Flush returns, estimated percentage with colour where relevant, are given in the Records column

CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss
NR	Not recovered

GROUNDWATER



Groundwater strike



Groundwater level after standing period

Notes:

Project LIVERPOOL FC STADIUM
Project No. A6177
Carried out for Liverpool Football Club

Key

Sheet 1 of 2

Key to Exploratory Hole Records



Soil Mechanics

INSTALLATION

Standpipe/ piezometer

Details of standpipe/piezometer installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill.

SP
SPIE
PPIE
EPIE
GMP



The type of instrument installed is indicated by a code in the Legend column at the depth of the response zone:

Standpipe
Standpipe piezometer
Pneumatic piezometer
Electronic piezometer
Gas Monitoring Point

Inclinometer or Slip Indicator

The installation of vertical profiling instruments is indicated on the Record. The base of tubing is shown in the Legend column.

The type of instrument installed is indicated by a code in the Legend column at the base of the tubing:

Biaxial inclinometer
Inclinometer tubing for use with probe
Slip indicator

ICE
ICM
SLIP



Settlement Points or Pressure Cells

The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

The type of instrument installed is indicated by a code in the Legend column:

Electronic settlement cell/gauge
Magnetic extensometer settlement point
Electronic embedment pressure cell
Electronic push in pressure cell

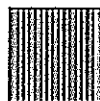
ESET
ETM
EPCE
PPCE



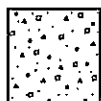
INSTALLATION LEGENDS

A legend describing the installation is shown in the rightmost column. Legends additional to BS5930 are used to describe the backfill materials as indicated below.

Arisings



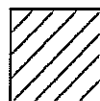
Concrete



Grout



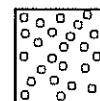
Bentonite



Sand



Gravel



Tarmac



NOTES

- 1 Strata legends are in accordance with BS 5930 (1999).
- 2 Water level observations of discernible entries during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced below groundwater level. Under certain conditions groundwater cannot be observed, for instance, drilling with water flush or overwater, or boring at a rate much faster than water can make its way into the borehole (ref BS5930 : 1999, Clause 47.2.7). In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.
- 3 Evidence of the occurrence of very coarse particles (cobbles and boulders) is presented on the logs, however, because of their size in relation to the exploratory hole these records may not be fully representative of their size and frequency in the ground mass.
- 4 The borehole logs present the results of Standard Penetration Tests recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.
- 5 The declination of bedding and joints is given with respect to the normal to the core axis. Thus in a vertical borehole this will be the dip.
- 6 The assessment of SCR, RQD and Fracture Spacing excludes artificial fractures

REFERENCES

BS 1377 : 1990 : British Standard Methods of test for soils for civil engineering purposes. British Standards Institution
BS 5930 : 1999 : Code of Practice for site investigations. British Standards Institution

Updated February 2007

Notes:

Project LIVERPOOL FC STADIUM
Project No. A6177
Carried out for Liverpool Football Club

Key

Sheet 2 of 2

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 03/01/2007 End 10/01/2007	Equipment, Methods and Remarks Beretta T41 Rotary core drilling (TNW and PWF size) using water flush.		Depth from 0.00m to 30.00m	Diameter 121mm	Casing Depth 2.60m	Ground Level Coordinates National Grid Chainage	+46.97 mOD E 336576.48 N 393322.09	
Samples and Tests				Strata					
Depth	Type & No	Records	Date Casing	Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments	
		0.00-1.20 m Hand dug Inspection pit			TARMAC (MADE GROUND)	0.15 +46.82			
					Black sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of tarmac and brick. (MADE GROUND)	0.30 +46.67 0.40 +46.57 (0.30)			
			03/01/2007 1.20		Red/brown sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of brick. Occasional cobbles. (MADE GROUND)	0.70 +46.27 0.80 +46.17			
			04/01/2007 1.20	0800	1.20-1.89 m AZCL				
1.20-2.00	14 0 0	N/A			Grey/black sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of slag, sandstone and occasional brick and clinker. (MADE GROUND)	1.89-2.00 m NI, recovered as subrounded medium gravel			
2.45 2.50					Red/brown fine to medium SAND.	2.00-2.05 m NI, recovered as gravelly sand			
2.00-3.50	100 90 13	NI 50 100		CS 1 CS 2	Weak to moderately weak, locally thinly to thickly laminated, red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg very closely to closely spaced, planar and smooth. Below 3.24m, moderately weak. (SHERWOOD SANDSTONE)	2.05-2.74 m 90 deg planar smooth fracture 2.26-2.38 m 80-90 deg undulose smooth fracture 3.02-3.06 m 90 deg planar smooth fracture 3.06-3.11 m NI, rounded gravel of quartzite 3.12-3.24 m stained green/grey 3.24-3.35 m 90 deg planar smooth fracture 3.45-3.58 m multiple 90 deg planar to undulose smooth fractures 3.57-4.19 m fractures are closely to medium spaced 4.19-5.53 m	(4.73)		
3.07				CS 3					
3.71				CS 4					
3.89	100	170		CS 23					
3.50-4.40	100	310							
4.11	67	450		CS 18					
4.31				CS 5					
4.36				CS 6					
4.40-5.10	91 91 17	10 70 120		CS 7					
4.76									
5.46				CS 8					
5.61				CS 19					
5.10-6.60	97 97 61								
6.36		90 130 330		CS 9					
6.60-8.00	100 100 59	20 90 140							
8.00-9.50	100 100 100			CS 20					
8.75		20 240 550							
					Stratum continues to 24.35 m				
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)				Depth sealed (m)	Depth Related Remarks * From to (m)	Chiselling Depths (m)	Time	Tools used	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project LIVERPOOL FC STADIUM	Borehole RH01			
Project No. A6177					Carried out for Liverpool Football Club				
Scale 1:50					Sheet 1 of 3				

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 03/01/2007 End 10/01/2007	Equipment, Methods and Remarks Baratta T41 Rotary core drilling (TNW and PWF size) using water flush.			Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 2.50m	Ground Level Coordinates National Grid Chainage +46.97 mOD E 336576.48 N 393322.09					
Samples and Tests					Strata						
Depth	TOR SCR RED	If	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 1)	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments		
10.00	100		CS 24			Moderately weak to locally moderately strong, locally thickly laminated, red/brown medium to coarse grained SANDSTONE. Occasional rounded quartz pebbles up to 30mm in diameter. Fractures are 0-10 deg closely to medium spaced, planar, smooth to rough. (SHERWOOD SANDSTONE)					
9.50-11.00	100 100 92										
10.50			CS 10								
		100 120 140									
11.00-12.70			HPD Test Pocket								
		0 0 0									
12.70			CS 11	04/01/2007 2.10							
		20 30 80		08/01/2007 2.10	0800 2.60		12.70-12.79 m AZCL				
13.27 13.33			CS 12 CS 21								
12.70-14.70	95 96 27	80 140 210	HPD Test Pocket								
13.86			CS 13								
		50 80 120				14.00-14.17 m multiple 60-70 deg undulose rough fractures					
14.70			CS 25								
14.70-15.50 15.22	100 100 91	30 120 320	CS 14			14.70-14.74 m light grey band 14.90-14.98 m light grey band	(18.82)				
15.93			CS 15			15.43-15.47 m light grey band 15.50-16.36 m AZCL					
15.50-17.50	57 57 19	20 60 160	HPD Test Pocket								
16.88 17.00			CS 16 CS 26								
17.50			CS 17	08/01/2007 2.10							
				09/01/2007 2.10	0800 4.70	17.50-17.57 m AZCL					
17.93			CS 22			17.87-18.04 m light brown band					
17.50-19.00	95 95 69	60 110 220				18.95-19.00 m 50 deg planar smooth fracture 19.00-19.72 m AZCL					
Stratum continues to 24.35 m											
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)			Depth sealed (m)			Depth Related Remarks * From to (m)	Chiselling Depths (m) Time Tools used				
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club			Borehole RH01 Sheet 2 of 3		

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked		Start 03/01/2007 End 10/01/2007		Equipment, Methods and Remarks Beretta T41 Rotary core drilling (TNW and PWF size) using water flush.		Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 2.60m		Ground Level +46.97 mOD Coordinates E 336576.48 National Grid N 393322.09 Chainage		
Samples and Tests						Strata				
Depth	TCR & CR RCD	IF	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 2)		Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
19.00-21.00	64 64 0	20 30 60	HPD Test Pocket			Moderately weak to locally moderately strong, locally thickly laminated, red/brown medium to coarse grained SANDSTONE. Occasional rounded quartz pebbles up to 30mm in diameter. Fractures are 0-10 deg closely to medium spaced, planar, smooth to rough. (SHERWOOD SANDSTONE)				
				09/01/2007 2.60	3.20	20.49-20.52 m weak red/brown marl band 20.52-20.54 m 50 deg planar smooth fracture 21.00-21.16 m AZCL 21.16-21.28 m light brown/gray band 21.47-21.62 m light brown/gray band				
21.00-22.50	89 89 89									
		20 150 270				22.29-22.35 m pink/red coarse grained band 22.50-22.61 m AZCL 22.78-22.84 m pink red coarse grained band 22.85-22.92 m multiple 70-90 deg planar smooth fracture 23.12-23.28 m pink/red coarse grained band 23.42-23.55 m pink/red coarse grained band 23.73-23.93 m multiple thin light grey/brown bands, <20mm in thickness 23.93-24.00 m 60 deg planar rough fracture 24.00-24.20 m AZCL 24.20-24.35 m light brown/gray band 24.44-24.49 m 50 deg planar rough fracture		24.35	+22.62	
24.00-25.50	87 87 70									
25.50-27.00	97 97 72					26.23-26.37 m light brown bands <15mm in thickness 26.62-26.68 m 90 deg planar rough fracture 27.00-27.38 m AZCL				
		30 100 240						(5.65)		
27.00-28.50	75 75 61									
28.50-30.00	99 99 65					28.43-28.50 m 90 deg planar rough fracture 28.74-28.80 m 70 deg planar rough fracture 29.02-29.03 m light brown band 29.18-29.22 m light brown band 29.55-29.76 m light brown band 29.84-29.94 m				
Depth	TCR & CR RCD	IF	Records/Samples	Date Casing	Time Water	EXPLORATORY HOLE ENDS AT 30.00 m				
Groundwater Entries				Depth sealed (m)		Depth Related Remarks *		Chiselling Depths (m) Time Tools used		
No. Struck Post strike behaviour						From to (m)				
None observed (see Key Sheet)										
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Borehole RH01 Sheet 3 of 3		

Scale 1:50

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408.24 09/03/2007 10 01:03



Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 12/01/2007 End 17/01/2007	Equipment, Methods and Remarks Borella T41 Rotary core drilling (TNW and PWF size) using water flush.		Depth from 0.00m to 30.10m Diameter 121mm Casing Depth 9.85m	Ground Level +47.86 mOD Coordinates E 336449.86 National Grid N 393436.78 Chainage
Samples and Tests				Strata	
Depth	Type & No	Records	Date Casing	Time Water	Description
		0.00-0.50 m Hand dug inspection pit			TOPSOIL
					Red/brown sandy GRAVEL. Gravel is angular to subangular fine to coarse of sandstone. Frequent cobbles.
					0.50-0.74 m AZCL
					0.74-0.99 m NI
0.50-1.70	80 59 33	N/A			Very weak to weak thinly laminated red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg closely spaced, planar, smooth.
1.59	70 100 170		CS 1		(SHERWOOD SANDSTONE)
2.00			CS 2		Weak to moderately weak, locally thinly to thickly laminated, red/brown fine to coarse grained SANDSTONE. Fractures are 0-10 deg very closely to closely spaced, planar, smooth to rough.
1.70-3.20	95 95 7	30 70 120			(SHERWOOD SANDSTONE)
2.90 3.00			CS 3 CS 4		1.17-1.25 m 90 deg planar incipient fracture 1.30-1.35 m 70 deg undulose rough fracture 1.34-1.47 m 70 deg planar rough fracture with red clay on surface 1.47-1.60 m light brown/red sandstone 1.70-1.78 m AZCL 1.86-1.90 m 90 deg planar rough fracture 2.02-2.06 m 90 deg planar rough fracture 2.22-2.29 m 90 deg planar rough fracture
3.88 3.20-4.70	90 90 53		CS 5		
4.37			CS 14		Moderately weak to locally moderately strong, locally thickly laminated, red/brown medium to coarse grained SANDSTONE. Fractures are 0-10 deg closely spaced, planar, smooth to rough. Occasional subrounded quartz pebbles up to 30mm in size.
5.05 5.25 4.70-6.20 5.60	97 97 73	100 130 450	CS 6 CS 7 CS 12		4.21-4.26 m 70 deg planar rough fracture 4.70-4.74 m AZCL 4.98-5.53 m light grey/brown sandstone with occasional orange/brown staining on fractures 5.00-5.04 m 90 deg planar rough fracture 5.35-5.36 m very weak clayey sandstone band 6.45-6.57 m light brown/grey band
6.20-7.70	100 100 100	330 360 480			Moderately weak to moderately strong, locally thickly laminated red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles, up to 30mm in size. Fractures are 0-10 deg closely to medium spaced, planar, smooth to rough.
7.70-8.80	100 100 89				(SHERWOOD SANDSTONE)
8.80-9.20	100 100 63			12/01/2007 1800 6.45 4.10 15/01/2007 0800 6.45 7.00	8.16-8.20 m 70 deg undulose rough fracture 8.45-8.52 m 70 deg planar rough fracture 8.61-8.78 m multiple 70 deg planar rough fractures 8.86-9.15 m 90 deg undulose rough fracture 9.00-9.15 m weak light brown coarse grained sandstone 9.69 m
9.85 9.20-10.70	100 100 80		CS 13		
Depth	IF	Records/Samples	Date Casing	Time Water	Stratum continues to 20.26 m
Groundwater Entries			Depth Related Remarks *		Chiselling
No.	Struck (m)	Post strike behaviour	Depth sealed (m)	From to (m)	Depths (m)
None observed (see Key Sheet)					Time Tools used
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Borehole RH02 Sheet 1 of 4
Project LIVERPOOL FC STADIUM Project No. A5177 Carried out for Liverpool Football Club		Scale 1:50 (c) Soil Mechanics www.soil-mechanics.com 408.24 05/03/2007 10 01:23			

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 12/01/2007 End 17/01/2007	Equipment, Methods and Remarks Beretta T41 Rotary core drilling (TNW and PWF size) using water flush.		Depth from 0.00m	to 30.10m	Diameter 121mm	Casing Depth 9.85m	Ground Level +47.86 mOD Coordinates E 336449.86 National Grid N 393436.78 Chainage
Samples and Tests				Strata				
Depth	TCR SCR RCD	If	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 1)		Depth, Level/ (Thickness)
		30 140 200				Moderately weak to moderately strong, locally thickly laminated red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles, up to 30mm in size. Fractures are 0-10 deg closely to medium spaced, planar, smooth to rough. (SHERWOOD SANDSTONE)		
10.70-12.20	92 92 71		CS 15			orange/brown staining on fracture surface 10.70-10.82 m AZCL 10.93 m grey/brown marl on fracture surface 11.15-11.35 m light brown band 11.35-11.40 m 80 deg undulose rough fracture 11.79 m orange/brown staining on fracture surface		(13.69)
12.20-13.70	100 100 89	170 250 540				12.57 m light brown staining on fracture surface		
13.70-15.20	87 87 67	40 80 410				13.70-13.90 m AZCL		
14.99 15.10			CS 8 CS 9			14.92-14.97 m multiple 90 deg planar rough fractures 15.20-15.52 m AZCL		
15.20-17.20 16.38	84 84 5	20 50 100	HPD Test Pocket CS 10					
17.20			CS 11	15/01/2007 9.85	1800 10.40			
17.20-18.10	89 89 89	170 370 630		16/01/2007 9.85	0800 6.20	17.20-17.30 m AZCL		
18.10-19.60	97 97 65	60 150 300				18.10-18.14 m AZCL 18.56-18.62 m multiple 60-90 deg undulose rough fractures 19.17-19.28 m light brown/grey band 19.34-19.60 m occasional thin red marl bands <5mm in thickness		
Depth	TCR SCR RCD	If	Records/Samples	Date Casing	Time Water	Stratum continues to 20.26 m		
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)				Depth sealed (m)		Depth Related Remarks * From to (m)		Chiselling Depths (m) Time Tools used
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Borehole RH02 Sheet 2 of 4		



Borehole Log

PRELIMINARY



Drilled MA Logged RC Checked		Start 12/01/2007 End 17/01/2007		Equipment, Methods and Remarks Beretta T41 Rotary core drilling (TNW and PWF size) using water flush.		Depth from 0.00m to 30.10m		Diameter 121mm	Casing Depth 9.85m	Ground Level +47.86 mOD Coordinates E 336449.86 N 393436.78 Chainage	
Samples and Tests						Strata					
Depth	TCR SCR RCD	If	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 2)			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
19.60-21.10	100 100 77					Moderately weak to moderately strong, locally thickly laminated red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles, up to 30mm in size. Fractures are 0-10 deg closely to medium spaced, planar, smooth to rough. (SHERWOOD SANDSTONE)			20.26 +27.60		
21.10-22.60	93 93 63	60 110 220				Moderately weak to moderately strong, locally thickly laminated, red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles up to 30mm in size. Fractures are 0-20 deg closely spaced, planar to undulose, rough. Below 21.65m, locally pink/red in colour. (SHERWOOD SANDSTONE)					
22.60-24.10	94 94 73					20.02-20.26 m thinly laminated brown/gray sandstone 20.45 m light gray band 21.10-21.20 m AZCL 21.45-21.50 m weak light brown band with frequent subrounded pebbles 21.54-21.65 m 80 deg undulose rough fracture 22.60-22.69 m AZCL 22.91-22.95 m yellow/brown staining around fracture with clay on surface					
24.10-25.60	98 98 92					24.04-24.07 m light brown band 24.10-24.13 m AZCL 24.13-24.26 m light brown band			(9.84)		
25.60-27.10	96 96 69	20 200 410		16/01/2007 9.65	1800 7.00	25.55-25.96 m light brown/gray band 25.60-25.66 m AZCL 25.94-26.02 m multiple 90 deg planar rough fractures 26.24-26.33 m light brown band 26.62-27.06 m 90 deg planar rough fracture 27.05-27.10 m light brown band 27.10-27.13 m AZCL					
27.10-28.60	98 98 79					27.76-27.77 m light brown band					
28.60-30.10	100 100 85					29.12-29.25 m 70 deg planar rough fracture with dark brown/gray staining					
17/01/2007 1800											
Depth	TCR RCD	If	Records/Samples	Date Casing	Time Water	Stratum continues to 30.10 m					
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)				Depth sealed (m)		Depth Related Remarks * From to (m)			Chiselling Depths (m) Time Tools used		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club			Borehole RH02 Sheet 3 of 4		



Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked		Start 12/01/2007 End 17/01/2007		Equipment, Methods and Remarks Beretta T41 Rotary core drilling (TNW and PWF size) using water flush.		Depth from 0.00m to 30.10m Diameter 121mm Casing Depth 9.85m		Ground Level Coordinates National Grid Chainage		+47.86 mOD E 336449.86 N 393436.78											
Samples and Tests						Strata															
Depth		TCR SCR RSD		If		Records/Samples		Date Casing Time Water		Description (Continued from Sheet 3)		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments					
								9.85		Moderately weak to moderately strong, locally thickly laminated, red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles up to 30mm in size. Fractures are 0-20 deg closely spaced, planar to undulose, rough. Below 21.65m, locally pink/red in colour. (SHERWOOD SANDSTONE)		30.01-30.10 m 70 deg planar rough fracture		30.10 +17.76							
										EXPLORATORY HOLE ENDS AT 30.10 m											
Depth		TCR SCR RSD		If		Records/Samples		Date Casing Time Water													
Groundwater Entries						Depth Related Remarks *						Chiselling									
No.		Struck		Post strike behaviour		Depth sealed		(m)		From		to (m)		Depths (m)		Time		Tools used			
None observed (see Key Sheet)																					
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.										Project Project No. Carried out for				LIVERPOOL FC STADIUM A6177 Liverpool Football Club				Borehole RH02 Sheet 4 of 4			
Scale 1:50 (c) Soil Mechanics www.soil-mechanics.com 426 24 05/03/2007 10:01:47										AGS											

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 18/01/2007 End 25/01/2007	Equipment, Methods and Remarks Beretta T41 Rotary core drilling (PWF size) using water flush.	Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 4.30m	Ground Level +48.96 mOD Coordinates E 335349.04 National Grid N 393471.67 Chainage			
Samples and Tests			Strata				
Depth	Type & No	Records	Date Casing Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
		0.00-1.20 m Hand dug inspection pit		TOPSOIL	(0.40)		
			18/01/2007	Red/brown gravelly SAND. Gravel is subangular fine to coarse of very weak red/brown medium grained sandstone.	0.40 +48.56		
1.20-1.60	100 65 0	If NI/NI/NI	19/01/2007 0800	Very weak to weak, locally thinly to thickly laminated red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg, very closely spaced, planar, rough. (SHERWOOD SANDSTONE)	1.20 +47.76		
1.60-3.10	96 96 10			1.20-1.34 m NI, recovered as gravelly sand 1.60-1.66 m AZCL 1.66-1.74 m multiple 70-80 deg undulose rough fractures 2.10-2.13 m 80 deg planar rough fracture 2.25-2.44 m 70 deg planar rough fracture	(2.18)		
2.74	40 80 160	CS 1					
3.40	100 100 67	CS 2			3.38 +45.58		
3.10-4.00		CS 10		Weak to moderately weak, locally thickly laminated red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg closely to medium spaced, planar, smooth. (SHERWOOD SANDSTONE)			
3.70	40 200 350	CS 5		3.57-3.74 m multiple 70 deg planar smooth fracture 4.00-4.10 m AZCL	(1.31)		
4.10	83 83 65			4.18-4.69 m weak to moderately weak yellow/brown medium grained sandstone band	4.69 +44.27		
4.00-4.60		CS 3 CS 6		4.60-4.62 m AZCL			
4.60	98 98 74			Moderately weak, locally thickly laminated, red-pink/brown, fine to medium grained SANDSTONE. Fractures are 0-10 deg, closely to medium spaced, planar, smooth. (SHERWOOD SANDSTONE)	(0.89)		
4.60-5.70		CS 4		5.04-5.45 m 70-90 deg undulose smooth fracture			
5.58				5.49-5.54 m very weak brown/orange band	5.58 +43.38		
5.70-7.20	100 100 95			Moderately weak to moderately strong, locally thickly laminated, red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles, up to 30mm in size. Fractures are 0-10 deg, closely to medium spaced, planar, smooth. (SHERWOOD SANDSTONE)			
7.75	80 400 700	CS 7		6.50-6.55 m subrounded quartz nodules up to 30mm in size 6.69-6.99 m light grey coarse grained band			
7.20-8.70	100 100 100						
8.70-10.20	100 100 77						
	20 90 200						
Depth	100 65 0	If	Records/Samples	Date Casing Time Water	Stratum continues to 23.13 m		
Groundwater Entries No. Struck Post strike behaviour None observed (see Key Sheet)				Depth sealed (m)	Depth Related Remarks * From to (m)		
Chiselling Depths (m) Time Tools used							
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Borehole RH03 Sheet 1 of 3	
Scale 1:50 (c) Soil Mechanics www.soil-mechanics.com AGS 408 24 09/03/2007 12:02:00							

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked		Start 18/01/2007 End 25/01/2007		Equipment, Methods and Remarks Beretta T41 Rotary core drilling (PWF size) using water flush.		Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 4.30m		Ground Level +48.96 mOD Coordinates E 336349.04 National Grid N 393471.67 Chainage	
Samples and Tests						Strata			
Depth	TCR SCR RQD	IF	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 1)		Depth, Level/ (Thickness)	Legend
10.20			CS 8			Moderately weak to moderately strong, locally thickly laminated, red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles, up to 30mm in size. Fractures are 0-10 deg, closely to medium spaced, planar, smooth. (SHERWOOD SANDSTONE)			
10.20-11.70	100 100 94								
11.90			CS 11						
11.70-13.20	100 100 100								
13.20-14.70	100 100 69								
14.70-14.90	50 150 350		TCR 100, SCR 100, RQD 100	19/01/2007 2.80	4.50				
15.46			CS 9	24/01/2007 2.80	0800 4.20				
14.90-16.50	96 96 96								
16.50-18.00	530 530 530								
18.00-19.50	96 96 75								
	100 100 87								
Stratum continues to 23.13 m									
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)						Depth sealed (m)		Depth Related Remarks * From to (m)	
Chiselling Depths (m) Time Tools used									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Borehole RH03 Sheet 2 of 3	

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 18/01/2007 End 25/01/2007	Equipment, Methods and Remarks Beretta T41 Rotary core drilling (PWF size) using water flush.		Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 4.30m	Ground Level +48.95 mOD Coordinates E 336349.04 National Grid N 393471.57 Chainage				
Samples and Tests			Strata						
Depth	TCR SCR RSD	If	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 2)	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
19.50-21.00	100 100 74	10 150 290				Moderately weak to moderately strong, locally thickly laminated, red-pink/brown medium to coarse grained SANDSTONE. Occasional subrounded quartz pebbles, up to 30mm in size. Fractures are 0-10 deg, closely to medium spaced, planar, smooth. (SHERWOOD SANDSTONE)			
21.00-22.50	93 93 67					fracture 20.33-20.46 m light brown/orange band 20.78-20.83 m multiple 60-90 deg undulose rough fractures 21.00-21.11 m AZCL 21.55-21.70 m weak light brown fine grained sandstone with frequent subrounded quartz pebbles <30mm in size. 21.78-21.82 m 80-90 deg undulose rough fracture 21.94-21.99 m 80-90 deg undulose rough			
22.50-24.00	100 100 83					Moderately weak to moderately strong, locally thinly to thickly laminated, red-pink/brown, medium to locally coarse grained SANDSTONE. Fractures are 0-10 deg, closely spaced, planar, smooth to rough. Occasional subrounded quartz pebbles, up to 30mm in size. (SHERWOOD SANDSTONE)	23.13 +25.83		
24.00-25.50	100 100 53					fracture 22.50-22.74 m weak thinly laminated grey fine grained sandstone 22.74-23.12 m multiple 70-80 deg planar rough fractures 22.74-23.13 m weak light brown/orange medium grained sandstone 23.30-23.58 m 70-80 deg undulose rough fracture 24.34-24.41 m light brown band 24.51-24.62 m light brown/orange band 24.62-24.79 m multiple 70-80 deg undulose rough fractures 24.96-25.02 m 80-90 deg undulose smooth fracture 25.43-25.55 m multiple 90 deg planar rough fractures 25.61-25.62 m light brown band 25.67-26.08 m light brown/orange bands 25.68-25.92 m large rounded quartz pebble 26.57-26.60 m light brown band 27.00-27.26 m AZCL 27.48-27.50 m light brown/grey clayey sandstone band 28.27-28.30 m multiple 60-80 deg planar rough fractures 28.50-28.54 m AZCL 29.46-29.74 m dark grey bands <5mm thick parallel to laminations	(5.76)		
25.50-27.00	100 100 88	20 150 340		24/01/2007 4.30					
27.00-28.50	83 83 45			25/01/2007 4.30	0600				
28.50-30.00	97 97 83	60 140 280		25/01/2007 4.30			28.89 +20.07		
			EXPLORATORY HOLE ENDS AT 30.00 m				(1.11)		
Groundwater Entries No. Struck Post strike behaviour (m)			Depth sealed (m)			Depth Related Remarks * From to (m)		Chiselling Depths (m) Time Tools used	
None observed (see Key Sheet)									
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Borehole RH03 Sheet 3 of 3	

Scale 1:50

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Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 26/01/2007 End 30/01/2007	Equipment, Methods and Remarks Unimog T41 Rotary core drilling (PWF size) using water flush.	Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 6.15m	Ground Level Coordinates National Grid Chainage +47.95 mOD E 335590.05 N 393255.02			
Samples and Tests			Strata				
Depth	Type & No	Records	Date Casing Time Water	Description	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
		0.00-1.20 m Hand dug inspection pit.		TOPSOIL	(0.40)		
				Red/brown gravelly SAND. Gravel is subangular to subrounded fine to coarse of very weak red/brown sandstone.	0.40 +47.55		
				Very weak red/brown thinly laminated fine to medium grained SANDSTONE. (SHERWOOD SANDSTONE)	0.90 +47.05		
1.20-1.50		TCR 30, SCR 0, RQD 0 11 INIAI	25/01/2007 1.20	1.20-1.44 m AZCL	(0.30)		
			26/01/2007 1.20	Weak to locally moderately weak, locally thinly to thickly laminated, red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg. very closely to closely spaced planar to undulose smooth to rough. (SHERWOOD SANDSTONE)	1.20 +46.75		
2.10	100	10					
1.50-3.00	100	30					
	15	60					
2.78					(3.10)		
3.15							
3.00-4.50	100	20					
	100	60					
	29	220					
4.30							
4.76							
5.19	100						
4.50-6.00	100						
	85						
5.53							
5.63							
6.22							
6.00-7.50	100						
	100						
	79						
7.50							
8.10	71						
7.50-9.00	71						
	55						
9.26							
9.00-10.50	98						
	98						
	86						
Depth	TCR RQD	If	Records/Samples	Date Casing Time Water	Stratum continues to 30.00 m		
Groundwater Entries No. Struck Post strike behaviour (m) Depth sealed (m) None observed (see Key Sheet)					Depth Related Remarks * From to (m)		Chiselling Depths (m) Time Tools used
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Borehole RH04 Sheet 1 of 3
Scale 1:50 (c) Soil Mechanics www.soil-mechanics.com 406.24 (26/03/2007) 10:52:32					AGS		

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 25/01/2007 End 30/01/2007	Equipment, Methods and Remarks Unimog T41 Rotary core drilling (PWF size) using water flush.			Depth from 0.00m to 30.00m Diameter 121mm Casing Depth 6.15m	Ground Level +47.95 mOD Coordinates E 336590.05 National Grid N 393255.02 Chainage			
Samples and Tests					Strata				
Depth	TCR SCR RED	If	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 1)	Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
10.00			CS 10			Moderately weak to locally moderately strong, locally thickly laminated, red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg. closely to medium spaced planar smooth to rough. Below 20.20m occasional subrounded quartz and marl pebbles, up to 30mm in diameter. (SHERWOOD SANDSTONE)			
10.50-12.00	97 97 94			25/01/2007 6.15		9.29-9.35 m 70 deg. planar rough fracture 10.33-10.38 m 70 deg. planar rough fracture 10.50-10.55 m AZCL			
12.00-13.50	91 91 65			29/01/2007 6.15	0800 11.10	11.73-11.77 m multiple 80-90 deg. planar rough fractures 12.00-12.13 m AZCL 12.13-12.25 m multiple 70-80 deg. undulose rough fractures 12.25-12.29 m light brown band 12.67-13.26 m multiple 70-80 deg. undulose smooth fractures			
13.50			CS 16			13.36-13.44 m light brown/grey bands, thinly laminated 13.50-13.59 m AZCL			
13.50-15.00	96 96 75					13.59-13.59 m light brown/orange band 14.06-14.07 m light brown/orange band 14.08-14.44 m multiple 70-80 deg. undulose rough fractures with light brown/orange bands			
15.25			CS 11			15.00-15.03 m AZCL 15.84-15.88 m light brown/orange band 16.06-16.28 m multiple 70-90 deg. undulose rough fractures			
15.00-16.50	98 98 42	30 80 240				16.32-16.45 m 70-90 deg. undulose rough fracture 16.55-16.65 m light brown band 16.90-17.02 m multiple 70-80 deg. planar rough fractures	(25.70)		
16.50-18.00 17.27	100 100 81		CS 12			17.16-17.25 m 80 deg. undulose rough fracture 18.23-18.31 m 50 deg. planar rough fracture 18.48-18.57 m light brown/orange band			
18.00-19.50	100 100 94	30 160 440				19.50-19.70 m AZCL			
Depth	TCR SCR RED	If	Records/Samples	Date Casing	Time Water	Stratum continues to 30.00 m			
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)						Depth sealed (m)	Depth Related Remarks * From to (m)		
Chiselling Depths (m)						Time	Tools used		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club	Borehole RH04 Sheet 2 of 3		

Borehole Log

PRELIMINARY



Soil Mechanics

Drilled MA Logged RC Checked	Start 25/01/2007 End 30/01/2007	Equipment, Methods and Remarks Unimog T41 Rotary core drilling (PWF size) using water flush.		Depth from 0.00m to 30.00m	Diameter 121mm	Casing Depth 6.15m	Ground Level +47.95 mOD Coordinates E 336590.05 National Grid N 393255.02 Chainage
Samples and Tests				Strata			
Depth	TCR RCR RCD	If	Records/Samples	Date Casing	Time Water	Description (Continued from Sheet 2)	Depth, Level/ (Thickness)
19.50-21.00	87 87 59					Moderately weak to locally moderately strong, locally thickly laminated, red/brown fine to medium grained SANDSTONE. Fractures are 0-10 deg. closely to medium spaced planar smooth to rough. Below 20.20m occasional subrounded quartz and marl pebbles, up to 30mm in diameter. (SHERWOOD SANDSTONE)	
21.00-22.50	85 85 52	20 90 150				20.77-20.79 m light brown band 21.00-21.22 m AZCL	
22.50-24.00	91 91 64			29/01/2007 6.15	21.30	22.50-22.63 m AZCL 22.69-22.78 m light brown band 22.94-23.04 m multiple 80-90 deg. undulose rough fractures 23.42-23.45 m light brown/orange band	
24.00-25.50	100 100 96	20 110 330		30/01/2007 6.15	0600		
25.50-27.00	100 100 77					25.62-25.91 m multiple 60-80 deg. planar to undulose smooth fractures 26.18-26.20 m light brown/grey band 26.46-26.62 m in parts thinly laminated light brown stained orange band 26.79-26.86 m thinly laminated brown/grey band	
27.00-28.50	100 100 92	30 200 440				28.34-28.39 m 70 deg. undulose rough fracture 28.50-28.56 m AZCL	
28.50-30.00	96 96 80			30/01/2007 6.15		29.33-29.55 m light brown/grey band 29.66-30.00 m	
Depth	TCR RCR RCD	If	Records/Samples	Date Casing	Time Water	EXPLORATORY HOLE ENDS AT 30.00 m	
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)				Depth sealed (m)		Depth Related Remarks * From to (m)	
Chiselling Depths (m)				Time		Tools used	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:50						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club	
(c) Soil Mechanics www.soil-mechanics.com 408.24 09/03/2007 10:02:50						Borehole RH04 Sheet 3 of 3	

PRELIMINARY
Dynamic Sampler Hole Log



Drilled AN Logged RC Checked		Start 11/12/2006 End 11/12/2006		Equipment, Methods and Remarks Terrier Rig Dynamic Sampling		Depth from 0.00m to 1.13m Diameter 67mm Casing Depth		Ground Level Coordinates National Grid Chainage		+49.47 mOD E 336516.02 N 393316.12					
Samples and Tests						Strata									
Depth		Type & No		Records		Date Casing Time Water		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments	
0.20 0.20 0.30-0.50 0.40 0.40 0.50-0.90 0.70 0.90-1.13		ES 1 ES 2 B 7 ES 3 ES 4 B 8 ES 5 ES 6 SET S		0.00-0.90 m Hand dug Inspection pit. 50 (13.12/49.2 for 5mm)		11/12/2006 dry		TARMAC (MADE GROUND) Black/brown slightly clayey gravelly SAND. Gravel is subangular to subrounded fine to medium of clinker, tarmac and occasional sandstone. (MADE GROUND) Brown/grey slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse of clinker, slag and sandstone. (MADE GROUND) Red/brown gravelly SAND. Gravel is subangular fine to coarse of very weak red/brown sandstone. (Weathered SHERWOOD SANDSTONE) Very weak to weak thinly to thickly laminated red/brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORARY HOLE ENDS AT 1.13 m		0.10 +49.37 0.30 +49.17 0.50 +48.97 (0.40) 0.90 +48.57 1.13 +48.34					
0.90 1.13		D 9 KFH		k=5.2E-7 m/s										GMP	
Depth		Type & No		Records		Date Casing Time Water									
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)						Depth sealed (m)		Depth Related Remarks * From to (m)		Chiselling Depths (m)		Time		Tools used	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.						Project LIVERPOOL FC STADIUM		Project No. A8177		Borehole BH1					
Scale 1:50						Carried out for Liverpool Football Club								Sheet 1 of 1	

PRELIMINARY
Dynamic Sampler Hole Log



Drilled AN Logged RC Checked	Start 11/12/2006 End 11/12/2006	Equipment, Methods and Remarks Terrier Rig Dynamic Sampling	Depth from 0.00m to 1.60m Diameter 67mm Casing Depth	Ground Level Coordinates National Grid Chainage	+52.23 mOD E 336492.59 N 393176.65
Samples and Tests			Strata		
Depth	Type & No	Records	Date Casing Time Water	Description	Depth, Level/ (Thickness) Legend Backfill/ Instruments
0.15-0.40 0.30 0.30 0.50-1.00 0.60 0.60	B 3 ES 1 ES 2 B 6 ES 4 ES 5	0.06-1.10 m Hand dug inspection pit.		TARMAC over black/brown subrounded HARDCORE	0.15 +52.08 0.40 +51.83 (0.70)
1.10-1.47 1.10 1.10-1.60	SPT S D 7 B 8	50 (3,10/15,20,15 for 70mm)	11/12/2006 dry	Red/brown gravelly SAND. Gravel is subangular to subrounded fine to coarse of brick and occasional clinker and tile. (MADE GROUND) Red/brown gravelly SAND. Gravel is subangular to subrounded fine to coarse of very weak red/brown sandstone. (Weathered SHERWOOD SANDSTONE)	1.10 +51.13 (0.50)
1.60	KFH	k=6.5E-7 m/s		Very weak to weak thinly to thickly laminated red/brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 1.60 m	1.60 +50.63 GMP
Depth	Type & No	Records	Date Casing Time Water		
Groundwater Entries No. Struck Post strike behaviour			Depth sealed (m)	Depth Related Remarks *	Chiselling Depths (m) Time Tools used
1	0.15	-	-	From to (m)	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				Project Project No. Carried out for	Borehole BH2 Sheet 1 of 1
Scale 1:50 (c) Soil Mechanics www.soil-mechanics.com 408 24 0000/2007 10.08.06				LIVERPOOL FC STADIUM A6177 Liverpool Football Club	

Dynamic Sampler Hole Log

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PRELIMINARY
Dynamic Sampler Hole Log



Drilled AN Logged RC Checked		Start 11/12/2006 End 11/12/2006		Equipment, Methods and Remarks Terrier Rig Dynamic Sampling		Depth from 0.00m to 1.03m Diameter 67mm Casing Depth		Ground Level +54.26 mOD Coordinates E 336338.08 National Grid N 393340.97 Chainage		
Samples and Tests					Strata					
Depth	Type & No	Records	Date Casing	Time Water	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments
0.20 0.20 0.40-0.60 0.60 0.60 0.80-1.03 0.80 0.80-0.90	ES 1 ES 2 B 5 ES 3 ES 4 SPT S D 6 B 7	0.00-0.80 m Hand dug inspection pit. 50 (11,14/50)	11/12/2006		TOPSOIL Brown/red, locally slightly clayey, gravelly SAND. Gravel is subangular to subrounded fine to coarse of very weak red/brown sandstone. (Weathered SHERWOOD SANDSTONE) Very weak to weak thinly to thickly laminated red/brown medium grained SANDSTONE. (SHERWOOD SANDSTONE) EXPLORATORY HOLE ENDS AT 1.03 m			(0.40) 0.40 +53.86 (0.40) 0.80 +53.46 1.03 +53.23		
Depth	Type & No	Records	Date Casing	Time Water						
Groundwater Entries No. Struck Post strike behaviour (m) None observed (see Key Sheet)					Depth sealed (m)			Depth Related Remarks * From to (m)		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club			Borehole BH4 Sheet 1 of 1		

Trial Pit Log

PRELIMINARY



Soil Mechanics

Logged RC Checked		Start 12/12/2006 End 12/12/2006	Equipment, Methods and Remarks Volvo BL71 Machine excavated		Dimensions and Orientation Width 0.60 m Length 2.00 m 		Ground Level Coordinates National Grid Chainage +47.32 mOD E 336558.09 N 393332.99	
Samples and Tests			Strata					
Depth	Type & No.	Date Records	Description			Depth, Level (Thickness)	Legend	Backfill/ Instruments
			1 TARMAC (MADE GROUND)			0.10 +47.22		
0.30-0.60	B 3		2 Brown/black gravelly SAND. Gravel is subangular to subrounded fine to medium of clinker, sandstone and tarmac.			0.20 +47.12		
0.40	ES 1		(MADE GROUND)			0.30 +47.02		
0.40	ES 2		3 Brown subrounded to rounded fine to coarse sandstone GRAVEL.			(0.30)		
0.60-0.90	B 6		(MADE GROUND)			0.60 +46.72		
0.70	ES 4		4 Brown/black slightly clayey gravelly SAND. Gravel is angular to subrounded fine to coarse of sandstone, brick and clinker. Occasional cobbles. Strong hydrocarbon odour.			(0.30)		
0.70	ES 5		(MADE GROUND)			0.90 +46.42		
0.95	D 7		5 Red/brown slightly gravelly to gravelly SAND. Gravel is subangular fine to medium of very weak red/brown sandstone.			(0.40)		
1.00-1.30	B 8		(Weathered SHERWOOD SANDSTONE)			1.30 +46.02		
1.30-1.50	D 9		6 Very weak thinly to thickly laminated red/brown mottled yellow/brown medium grained SANDSTONE.			(0.30)		
		12/12/2006	dry			1.60 +45.72		
			7 Very weak to weak thinly to thickly laminated red/brown medium grained SANDSTONE.					
			(SHERWOOD SANDSTONE)					
			EXPLORATORY HOLE ENDS AT 1.60 m					
Depth	Type & No.	Records Date						
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks * From to (m) 0.00 0.60 Excavation easy 0.60 1.30 Excavation moderate 1.30 1.60 Excavation difficult			Stability All faces stable Shoring None Weather Cold, overcast		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club			Trial Pit TP1 Sheet 1 of 1		



Soil Mechanics

Scale 1:25

Soil Mechanics

Scale 1:25

Soil Mechanics

Scale 1:25

Trial Pit Log

PRELIMINARY



Soil Mechanics

Logged RC Checked		Start 12/12/2006 End 12/12/2006		Equipment, Methods and Remarks Volvo BL71 Machine excavated		Dimensions and Orientation Width 0.60 m Length 2.00 m <div><div>A B C</div><div>310 (Deg)</div></div>		Ground Level Coordinates National Grid Chainage		+57.20 mOD E 336372.95 N 393205.66			
Samples and Tests			Strata										
Depth		Type & No.		Date Records		Description		Depth, Level/ (Thickness)		Legend		Backfill/ Instruments	
0.00-0.40		B 3		.		1 TOPSOIL		(0.40)					
0.20 0.20		ES 1 ES 2											
0.50-1.00		B 4		.		2 Very weak to weak thinly to thickly laminated brown/yellow medium grained SANDSTONE. (SHERWOOD SANDSTONE)		0.40 +56.80		<div></div>		<div></div>	
				.				(0.60)					
						EXPLORATORY HOLE ENDS AT 1.00 m		1.00 +56.20					
Depth		Type & No.		Records Date									
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)						Depth Related Remarks * From to (m) 0.00 0.40 Excavation easy 0.40 0.60 Excavation moderate 0.60 1.00 Excavation difficult						Stability All faces stable Shoring None Weather Cold, clear	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. <div>(c) Soil Mechanics www.soil-mechanics.com 40024 27/12/2007 16.43.59</div> <div>AGS</div>						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club						Trial Pit TP5 Sheet 1 of 1	

Soil Mechanics

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Soil Mechanics

Scale 1:25

Trial Pit Log

PRELIMINARY



Soil Mechanics

Logged RC Checked		Start 13/12/2006 End 13/12/2006	Equipment, Methods and Remarks Volvo BL71 Machine excavated		Dimensions and Orientation Width 0.60 m Length 2.50 m <div><div><div>A</div><div>B</div><div>C</div></div><div>005 (Deg)</div></div>		Ground Level Coordinates National Grid Chalnage		+47.99 mOD E 336584.38 N 393264.66	
Samples and Tests			Strata							
Depth	Type & No.	Date Records	Description			Depth, Level/ (Thickness)	Legend	Backfill/ Instruments		
			1 TOPSOIL			(0.70)				
			2 Red/brown gravelly SAND. Gravel is subangular to subrounded fine to medium of very weak red/brown medium grained sandstone. (Weathered SHERWOOD SANDSTONE)			0.70 +47.29 (0.50)				
			3 Very weak thinly to thickly laminated brown/red medium grained SANDSTONE. (SHERWOOD SANDSTONE)			1.20 +46.79 (0.60)				
			4 Very weak to weak thinly to thickly laminated red/brown medium grained SANDSTONE. (SHERWOOD SANDSTONE)			1.80 +46.19 (0.70)				
			EXPLORATORY HOLE ENDS AT 2.50 m			2.50 +45.49				
Depth	Type & No.	Records Date								
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks * From to (m) 0.00 1.20 Excavation easy 1.20 1.60 Excavation moderate 1.60 2.50 Excavation difficult			Stability All faces stable Shoring None Weather Cold, clear				
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club			Trial Pit TP8 Sheet 1 of 1				

Scale 1:25

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Trial Pit Log



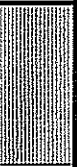

Logged NR Checked	Start 23/01/2007 End 23/01/2007	Equipment, Methods and Remarks Hand dug inspection pit	Dimensions and Orientation Width 0.62 m Length 0.64 m <div><div><div>A</div><div>B</div><div>C</div></div><div>064 (Deg)</div></div>	Ground Level +59.74 mOD Coordinates E 336296.73 National Grid N 393226.79 Chainage		
Samples and Tests			Strata			
Depth	Type & No.	Date Records	Description	Depth, Level (Thickness)	Legend	Backfill/ Instrument
0.15 0.15	ES 1 D 2	23/01/2007	1 Dark brown/black slightly clayey gravelly fine to medium SAND. Gravel is angular to subrounded fine to coarse of sandstone, brick, tile and wood. Occasional rootlets. (MADE GROUND)	(0.52)		
0.65 0.65	ES 3 D 4		2 Dark brown slightly clayey gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse of very weak sandstone. Occasional rootlets. (MADE GROUND)	0.52 +59.22 (0.68)		
1.05 1.05	ES 5 D 6		0.70-0.80 m very gravelly band of subangular to subrounded medium to coarse very weak sandstone.	1.20 +58.54		
			EXPLORATORY HOLE ENDS AT 1.20 m			
Depth	Type & No.	Records Date				
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks * From to (m)	Stability Good Shoring None Weather Sunny		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club	Trial Pit HP1 Sheet 1 of 1		

Trial Pit Log

PRELIMINARY



Soil Mechanics

Logged NR Checked		Start 23/01/2007 End 23/01/2007		Equipment, Methods and Remarks Hand dug inspection pit		Dimensions and Orientation Width 0.61 m Length 0.56 m 		Ground Level Coordinates National Grid Chainage		+58.10 mOD E 336290.63 N 393194.44			
Samples and Tests			Strata										
Depth		Type & No.		Date Records		Description		Depth, Level (Thickness)		Legend		Backfill/ Instruments	
0.10 0.10		ES 1 D 2				1 Dark brown slightly gravelly clayey fine to medium SAND. Gravel is angular to subrounded fine to medium of sandstone, brick and glass. Frequent rootlets. (TOPSOIL)		0.22 +57.88					
0.40 0.40		ES 3 D 4		23/01/2007		2 Dark brown slightly clayey very gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse of sandstone and brick. Occasional cobbles of subrounded very weak sandstone. (MADE GROUND)		0.45 +57.65 0.53 +57.57					
						3 Weak thinly to thickly laminated red/brown fine to medium grained SANDSTONE. (SHERWOOD SANDSTONE)							
						EXPLORATORY HOLE ENDS AT 0.53 m							
Depth		Type & No.		Records Date									
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)						Depth Related Remarks * From to (m)						Stability Good Shoring None Weather Sunny	
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:25						Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club						Trial Pit HP2 Sheet 1 of 1	

Trial Pit Log

PRELIMINARY



Soil Mechanics

Logged NR Checked		Start 23/01/2007 End 23/01/2007	Equipment, Methods and Remarks Hand dug inspection pit	Dimensions and Orientation Width 0.61 m Length 0.68 m <div style="display: inline-block; vertical-align: middle;"> </div>	Ground Level +58.31 mOD Coordinates E 336333.41 National Grid N 393203.69 Chainage		
Samples and Tests			Strata				
Depth	Type & No.	Date Records	Description	Depth, Level (Thickness)	Legend	Backfill/ Instruments	
0.15 0.15	ES 1 D 2	23/01/2007	1 Dark brown/black clayey gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of sandstone, brick, concrete and tile. Frequent rootlets. (TOPSOIL)	0.25 +58.06			
0.45 0.45	ES 3 D 4		2 Dark brown slightly clayey gravelly fine to medium SAND. Gravel is angular to subrounded fine to coarse of sandstone, brick and concrete. Rare tree roots, up to 25 mm in diameter. (MADE GROUND)	(0.60)			
0.75 0.75	ES 5 D 6		0.45-0.55 m band of subangular to subrounded coarse gravel of weak sandstone	0.85 +57.46			
0.90 0.90	ES 7 D 8			3 Red/brown gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium of very weak sandstone. (Weathered SHERWOOD SANDSTONE)			0.95 +57.36
				4 Very weak to weak thinly to thickly laminated red/brown fine to medium grained SANDSTONE. (SHERWOOD SANDSTONE)			1.15 +57.16
			EXPLORATORY HOLE ENDS AT 1.15 m				
Depth	Type & No.	Records Date					
Groundwater Entries No. Struck Post Strike Behaviour (m) None observed (see Key Sheet)			Depth Related Remarks * From to (m)		Stability Good Shoring None Weather Sunny		
Notes: For explanation of symbols and abbreviations see key sheet. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project LIVERPOOL FC STADIUM Project No. A6177 Carried out for Liverpool Football Club		Trial Pit HP3 Sheet 1 of 1		





Appendix D Classification of Sensitivity

Table 8-1: Vulnerability of Proposed use to Contamination

Vulnerability of End Use	Proposed End Use
High Vulnerability	<ul style="list-style-type: none"> Residential development Allotments Schools Nurseries and crèches Playing fields Children's play area Mixed use development including vulnerable proposals
Low Vulnerability	<ul style="list-style-type: none"> Industrial Offices Shops Leisure facilities Mixed use development excluding vulnerable proposals

Table 8-2: Classification of site Sensitivity

Sensitivity assessment	Groundwater	Surface Water	Coastal Water
H1 (Very high)	<ul style="list-style-type: none"> Highly vulnerable aquifer, actively used in vicinity of site with short travel times to sources of supply or sensitive watercourses. Likely to be within an inner or outer groundwater protection zone (Zones I or II under EA protection policy). All contaminant releases to the ground environment of concern. 	<ul style="list-style-type: none"> High quality watercourse (GQA A or B) within close proximity (less than 250m) of site or with potential for rapid transmission of pollutants to that watercourse via a fissured aquifer; Or interconnected unclassified drain or stream. 	<ul style="list-style-type: none"> Within 100m of a sensitive coastal water, that is, a recognised bathing water, a "more sensitive area" (as defined under the Urban Wastewater Treatment Directive); Or a marine SSSI or at a greater distance but with a direct connection via a stream or a highly fissured aquifer to such a coastal water with the potential for rapid flow to that water.
H2 (High)	<ul style="list-style-type: none"> Principal or Secondary vulnerable aquifer with probable use nearby (either direct abstraction or baseflow to sensitive watercourses and springs). Likely to be within Outer or Source Catchment protection zones (Zones II or III). Most contaminant releases to the ground environment of concern. 	<ul style="list-style-type: none"> Site within catchment and reasonable proximity (less than 500m) of high quality watercourse (GQA A/B); Or with potential transmission of pollutants via baseflow from an aquifer with little subsurface attenuation; Or via an interconnected unclassified drain or stream. 	<ul style="list-style-type: none"> As above, within 250m or with a relatively rapid route of transmission or within 100m of a "less sensitive area".

Sensitivity assessment	Groundwater	Surface Water	Coastal Water
M1 (Moderately high)	<ul style="list-style-type: none"> Recognised Principal or Secondary aquifer, moderately vulnerable, with probable use (either direct or via baseflow to a sensitive watercourse). Within formal protection zone or catchment of authorised abstractions for potable or other high quality uses. Minor, short-term releases of contaminants may be tolerable. 	<ul style="list-style-type: none"> Site within catchment and reasonable proximity (less than 500m) of a moderate quality watercourse (GQA C/D) or 500-1000m of a high quality watercourse GQA A/B). Also where there is potential transmission of pollutants via baseflow with little subsurface attenuation or via an interconnected unclassified drain or stream. 	<ul style="list-style-type: none"> Within 500m of a bathing water or a defined sensitive area (see above); with possibility of diffuse flow via groundwater seepages at coastline; Or with connection via nearby watercourses.
M2 (Moderate)	<ul style="list-style-type: none"> Secondary aquifer, low to moderately vulnerable, but with possible uses in general area, particularly for domestic supplies. May provide pathway to surface water. 	<ul style="list-style-type: none"> Site within catchment of and relatively close (less than 1000m) to moderate or poor quality (GQA C to F) watercourse that may be subject to planned improvement by attainment of surface water quality objectives. May be potential for transmission of pollutants via baseflow from a highly permeable formation. 	<ul style="list-style-type: none"> Within 500m of a coastal water (undefined), with possibility of diffuse flow via groundwater seepages at coastline; Or with connection via nearby watercourses.
L1 (Low)	<ul style="list-style-type: none"> Permeable strata/Secondary aquifer near surface, but no apparent use and low vulnerability (may also be a significant aquifer but downgraded by longterm/ permanent degradation of water quality). May provide pathway to surface watercourse at distance. 	<ul style="list-style-type: none"> Within catchment of and over 250m from generally poor quality watercourse (GQA E or F) that is unlikely to improved by current or foreseeable surface water quality objectives; Or at distance (over 1000m) from a good quality watercourse with no interconnecting drains or baseflow from fissured strata. 	<ul style="list-style-type: none"> No coastline nearby (within 1km), but with possibility of diffuse groundwater seepages at coastline; Or connection via nearby watercourses.



Sensitivity assessment	Groundwater	Surface Water	Coastal Water
L2 (Very low)	<ul style="list-style-type: none"> Not a recognised aquifer, but strata beneath site may retain a small amount of contaminated liquid but there is likely to be limited vertical penetration. High potential for surface runoff or ponding. 	<ul style="list-style-type: none"> No surface water within general area of the site (at least 250m); Or closed drainage within site. Little or no potential for significant transmission via baseflow and no interconnecting drains. 	<ul style="list-style-type: none"> No coastline nearby (within 1km) and/or no direct connection via surface or ground water.



Appendix E Risk Assessment Classification



Qualitative Risk Assessment

CONTEXT

CIRIA RP599 Contaminated Land Risk Assessment Guide, provides a guide to good practice in assessing risks from contaminated land. This distinguishes between the processes of;

- **Risk estimation** – process of estimating risk that defined receptors will suffer harm
- **Risk evaluation** - process of evaluation need for risk management action, with regard to magnitude of risks the level of uncertainty and, if remedial action is needed the objectives and broad costs and benefits

At Phase 1 the **risk estimation** will take the form of a qualitative risk assessment, which will be entirely based on the conceptual model for each potential end-use of the site. Comments on level of uncertainty will also need to be included for each source-pathway-target linkage to allow the confidence in the assessed risks to be understood. The results of the qualitative risk assessment will allow the **risk evaluation** to be concisely described in the following chapters.

At Phase 2 (or later stages) the **risk estimation** will comprise a number of sequential steps all based on the conceptual model:

Interpretation of site investigation data with respect to relevant generic assessment criteria (Tier 1);

- 8) Interpretation of site investigation data with respect to site specific assessment criteria if appropriate (Tier 2), [see Quantitative Risk Assessment guidelines];
- 9) Site specific qualitative risk assessment including input from 1 and 2 [this procedure].

Comments on level of uncertainty will also be included for through the interpretation of site investigation data and the qualitative risk assessment. The results of the qualitative risk assessment will allow the **risk evaluation** to be concisely described in the following chapters.

INTRODUCTION

The following classification has been updated from the previous Envirospine in house procedure developed from DOE Guide to Risk Assessment and Risk Management for Environmental Protection and the Draft Statutory Guidance on Contaminated Land (DoE September 1996). The methodology differs from that presented in Contaminated Land Risk Assessment, A Guide to Good Practice (CIRIA C552, 2001), particularly in terms of the definitions of classification of consequence, which include a consideration of immediacy of hazards.

The key to the classification is that the designation of risk is based upon the consideration of both;

- a) **the magnitude of the potential consequence (i.e. severity).**
[takes into account both the potential severity of the hazard and the sensitivity of the receptor]
- b) **the magnitude of probability (i.e. likelihood)**
[takes into account both the presence of the hazard and receptor and the integrity of the pathway]



DEFINITIONS

Hazard:	A property or situation which in certain circumstances could lead to harm. [The properties of different hazards must be assessed in relation to their potential to affect the various different receptors (see Annex A).]
Risk:	A combination of the probability or frequency of the occurrences of a defined hazard <u>AND</u> the magnitude of the consequences of that occurrence.
Probability:	The mathematical expression of the chance of a particular event in a given period of time [e.g. probability of 0.2 is equivalent to 20% or a 1 in 5 chance].
Likelihood:	Probability; the state or fact of being likely.
Consequences:	The adverse effects (or harm) arising from a defined hazard which impairs the quality of the environment or human health in the short or longer term.
Pollution linkage	An identified pathway is capable of exposing a receptor to a contaminant and that contaminant is capable of harming the receptor

CLASSIFICATION OF CONSEQUENCE



Classification	Definition	Examples
Severe	<p>Highly elevated concentrations likely to result in “significant harm” to human health as defined by the EPA 1990, Part IIA, if exposure occurs.</p> <p>Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce.</p> <p>Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long term maintenance of the population.</p> <p>Catastrophic damage to crops, buildings or property.</p>	<p>Significant harm to humans is defined in circular 02/2000 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions</p> <p>Major fish kill in surface water from large spillage of contaminants from site.</p> <p>Highly elevated concentrations of List I and II substances present in groundwater close to small potable abstraction (high sensitivity)</p> <p>Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied)</p>
Medium	<p>Elevated concentrations which could result in “significant harm” to human health as defined by the EPA 1990, Part IIA if exposure occurs.</p> <p>Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce.</p> <p>Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long term maintenance of the population.</p> <p>Significant damage to crops, buildings or property.</p>	<p>Significant harm to humans is defined in circular 02/2000 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions</p> <p>Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability.</p> <p>Ingress of contaminants through plastic potable water pipes.</p>
Mild	<p>Exposure to human health unlikely to lead to “significant harm”.</p> <p>Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce.</p> <p>Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long term maintenance of the population.</p> <p>Minor damage to crops, buildings or property.</p>	<p>Exposure could lead to slight short term effects (e.g. mild skin rash)</p> <p>Surface spalling of concrete</p>

* For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned



Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.	The loss of plants in a landscaping scheme. Discoloration of concrete
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CLASSIFICATION OF PROBABILITY

(only applies if there is a possibility of a pollutant linkage being present)

Category	Definition	Examples
High likelihood	There is pollution linkage and an event would appear very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.	<p>a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden.</p> <p>b) Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50 years.</p>
Likely	There is pollution linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	<p>a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space.</p> <p>b) Ground/ground water contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.</p>
Low likelihood	There is pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.	<p>a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space.</p> <p>b) Ground/ ground water contamination could be present on a light industrial' unit constructed in the 1990s containing a UST in operation over the last 10 years - the tank is double skinned but there is no integrity testing or evidence of leakage.</p>
Unlikely	There is pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.	<p>a) Elevated concentrations of toxic contaminants are present below hardstanding</p> <p>b) Light industrial unit <10 yrs old containing a double-skinned UST with annual integrity testing results available.</p>

Note: A pollution linkage must first be established before probability is classified. If there is no pollution linkage then there is no potential risk. If there is no pollution linkage then there is no need to apply tests for probability and consequence.

For example if there is surface contamination and a major aquifer is present at depth, but this major aquifer is overlain by an aquiclude of significant thickness then there is no pollution linkage and the risks to the major aquifer are not assessed. The report should identify both the source and the receptor but state that because there is no linkage there are no potential risks.

THE CLASSIFICATION OF RISK

Probability (Likelihood)		Consequence			
		Severe	Medium	Mild	Minor
	High likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate/ Low risk	Low risk
	Low likelihood	Moderate risk	Moderate/ low risk	Low risk	Very low risk
	Unlikely	Moderate/ low risk	Low risk	Very low risk	Very low risk

DESCRIPTION OF THE CLASSIFIED RISKS

Very high risk

There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site *without remedial action*, OR there is evidence that severe-harm to a designated receptor is already occurring.

Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remedial works likely to follow in the short term.

High risk

Harm is likely to arise to a designated receptor from an identified hazard at the site without remedial action.

Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remedial works may be necessary in the short term and are likely over the longer term.

Moderate risk

It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild.

Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remedial works may be required in the longer term.



Low risk

It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild.

It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk.

Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remedial works are likely to be relatively limited.

Very Low risk

It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

No potential risk

There is no potential risk if no pollution linkage has been established.

