

References

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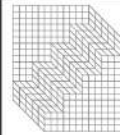
Figures

Figure 1 Site Location Plan

Figure 2 Exploratory Hole Plan

INFORMATION

Status of drawing



Buro Happold
Consulting Engineers

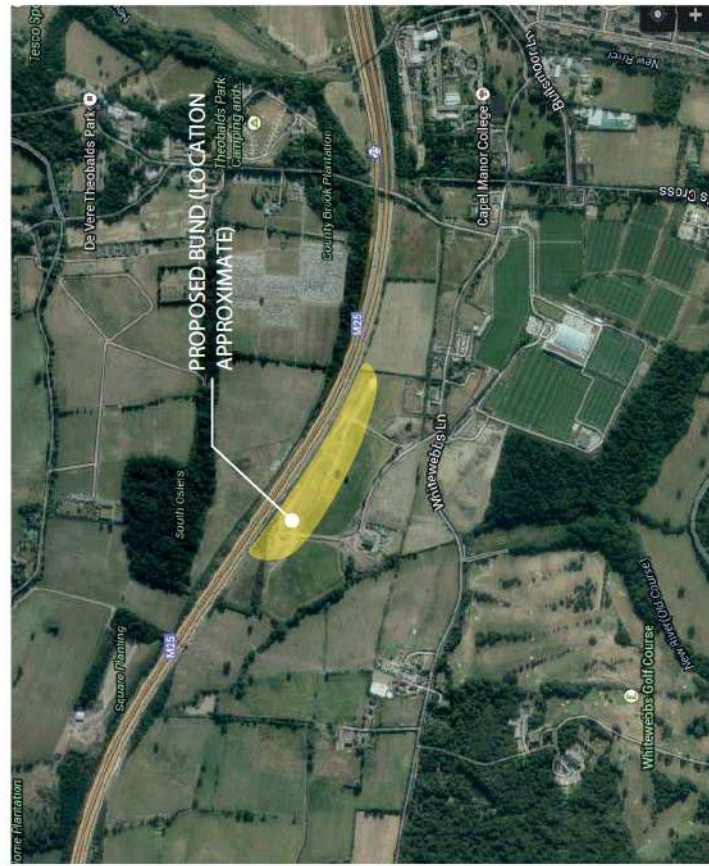
Carden Hill
The Old Rectory
Bath BA2 3JQ
Tel: +44 (0)1225 300600
Fax: +44 (0)1225 300601
Email: enquiries@burohappold.com
Web: www.burohappold.com

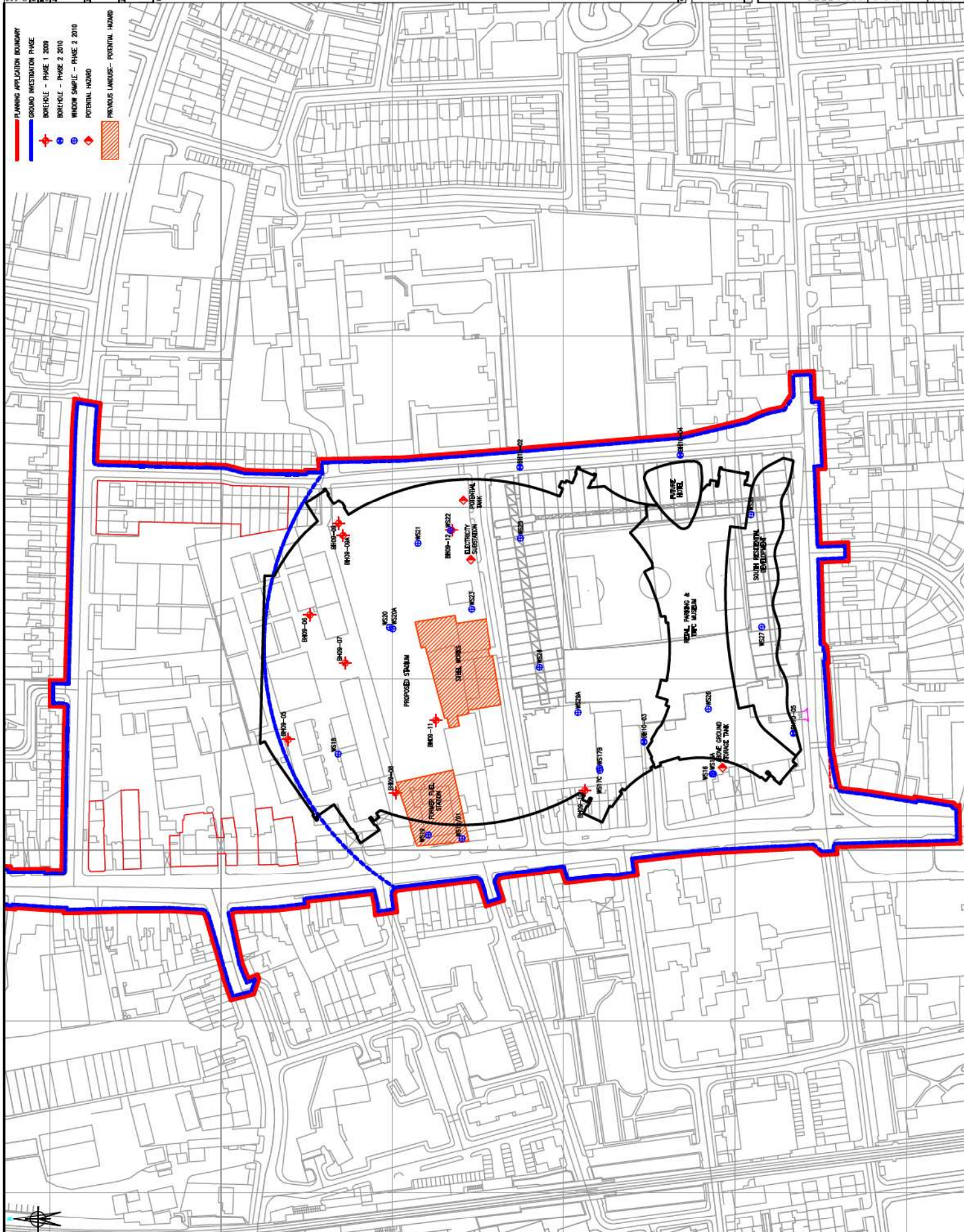
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MATERIAL TRANSPORT ROUTE

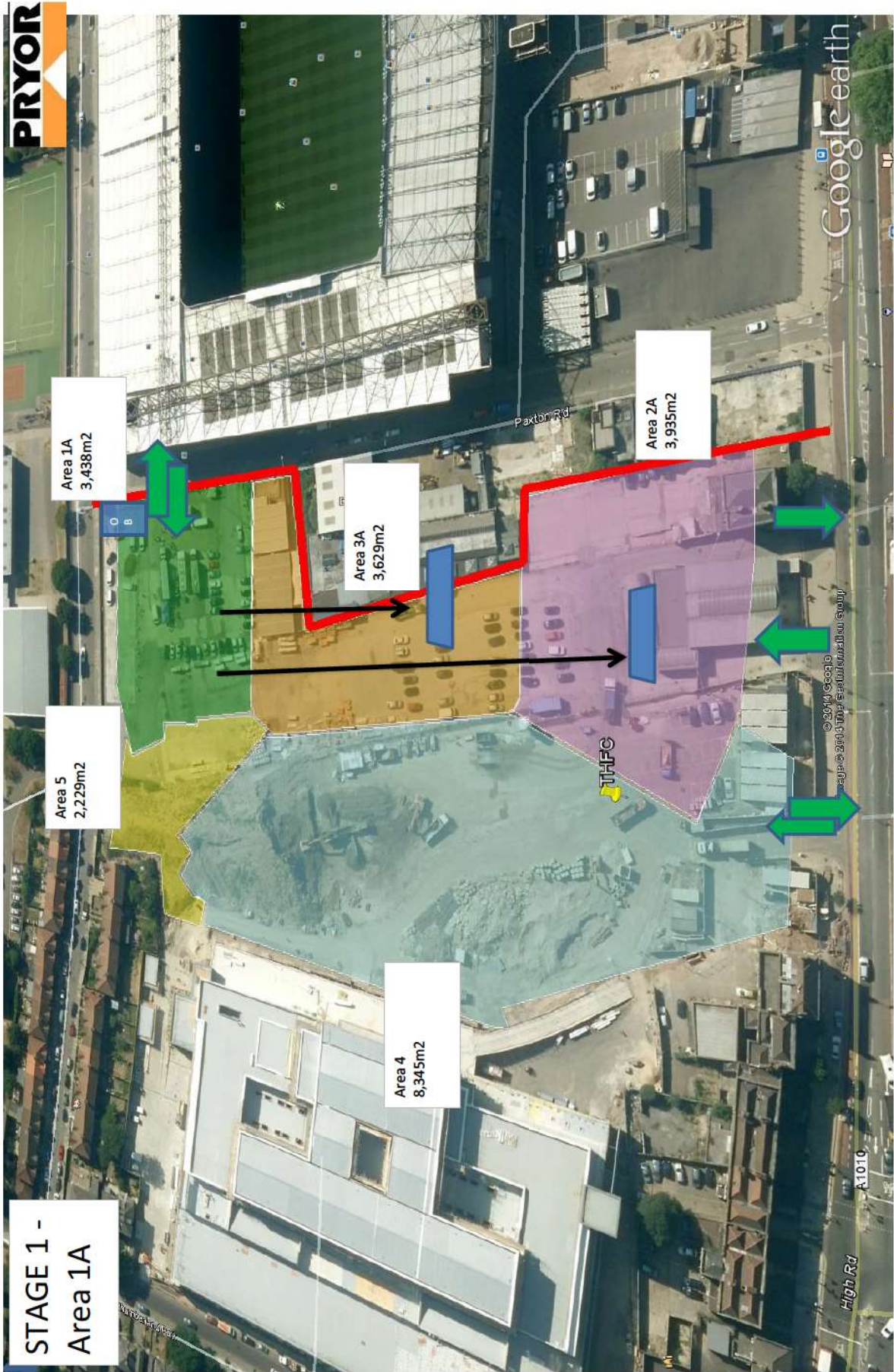
Scales@A3 NTS
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Checked by GP
Date JUNE 2014

Job No. 031627
Dwg No. FIGURE 1

Rev 00





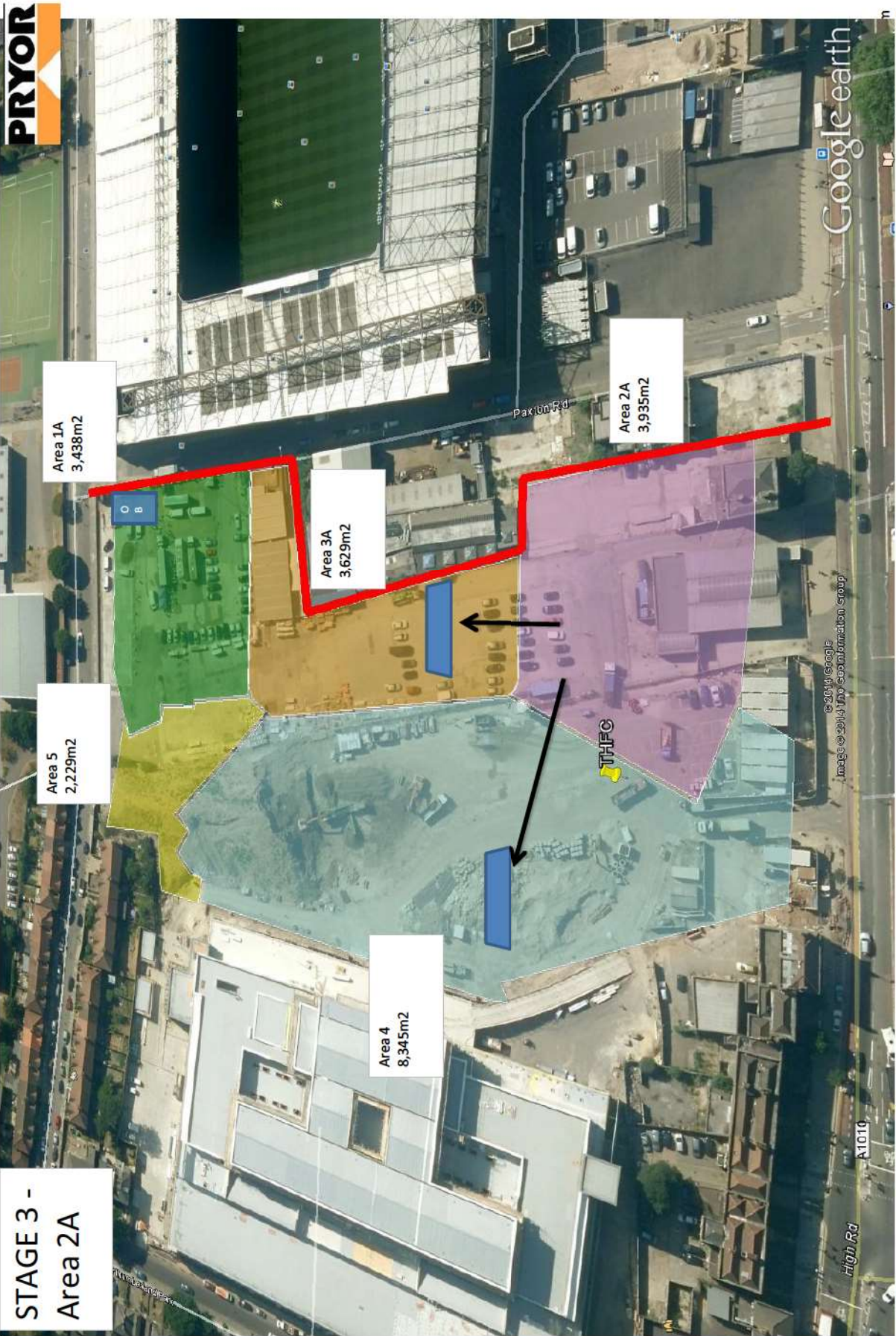


Sequence	Loc	Vol	Duration	Temporary Stockpiling Area Max 11,000m3, 4.0m High, 1:2 slopes	Access / Egress	Loc	Tot Vol m3	Top 1m	Rem m3
1	Area 1A	18251 m³	7 Weeks		Area 1A Area 5 Area 2A Area 3A Area 4	Area 1A	18251	3438	14813
2	Area 5	5424 m³	2 Weeks			Area 5	5424	2229	3195
3	Area 2A	16351 m³	6 Weeks			Area 2A	16351	3935	12416
4	Area 3A	7908 m³	3 Weeks			Area 3A	7908	3629	4279
5	Area 4	8732+(19992) m³	10 Weeks			Area 4	28724	8345	20379
				(19,991m3 added in revised horseshoe plan)					



Sequence	1	2	3	4	5	7 Weeks	2 Weeks	6 Weeks	3 Weeks	10 Weeks	Rem m3
	Area 1A	Area 5	Area 2A	Area 3A	Area 4	18251 m³	5424 m³	16351 m³	7908 m³	8732+(-19992) m³	14813
										(19,991m3 added in revised horseshoe plan)	3195
											12416
											4279
											20379

Temporary Stockpiling Area
Max 2,500m3, 4.0m High, 1:2 slopes



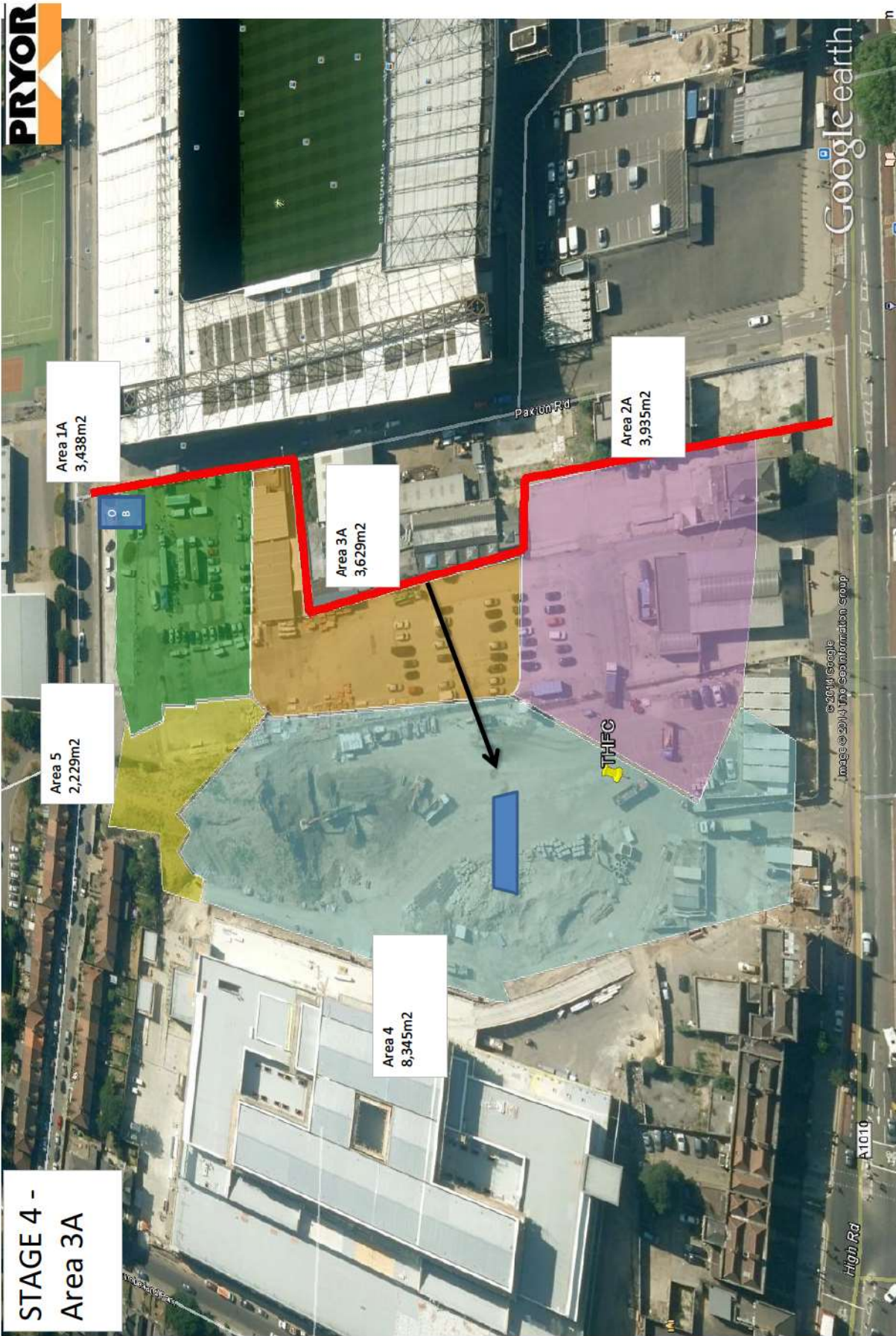
STAGE 3 -
Area 2A



Sequence	1	2	3	4	5	7 Weeks	2 Weeks	6 Weeks	3 Weeks	10 Weeks	Rem m3
Area 1A	18251 m³										14813
Area 5	5424 m³										3195
Area 2A	16351 m³										12416
Area 3A	7908 m³										4279
Area 4	8732+(-19992) m³										20379
(19,991m3 added in revised horseshoe plan)											

Temporary Stockpiling Area

Max 9,000m3, 4.0m High, 1:2 slopes



Sequence	1	Area 1A	18251 m³	7 Weeks	Area 1A	18251	3438	14813	Rem m³
2	Area 5	5424 m³	2 Weeks	Area 5	5424	2229	3195		
3	Area 2A	16351 m³	6 Weeks	Area 2A	16351	3935	12416		
4	Area 3A	7908 m³	3 Weeks	Area 3A	7908	3629	4279		
5	Area 4	8732+(-19992) m³	10 Weeks	Area 4	28724	8345	20379		

(19,991m³ added in revised horseshoe plan)

Temporary Stockpiling Area

Max 3,000m³, 4.0m High, 1:2 slopes

STAGE 5 - Area 4

Area 1A 3,438m²

Area 2A 3,935m²

Area 3A 3,629m²

Area 4 8,345m²

Area 5 2,229m²

THFC

Paxton Rd

High Rd

PRYOR

Google earth

Sequence		18251 m³	7 Weeks	18251	3438	14813	Rem m³
1	Area 1A	18251 m³	7 Weeks	Area 1A	3438	14813	
2	Area 5	5424 m³	2 Weeks	Area 5	2229	3195	
3	Area 2A	16351 m³	6 Weeks	Area 2A	3935	12416	
4	Area 3A	7908 m³	3 Weeks	Area 3A	3629	4279	
5	Area 4	8732+(19992) m³	10 Weeks	Area 4	8345	20379	

(19,991m³ added in revised horseshoe plan)

Appendix A Borehole Logs

Sample Types		Groundwater		Strata, Continued	
B	Bulk disturbed sample	Water Strike		Mudstone	
BLK	Block sample	Depth Water Rose To		Siltstone	
C	Core sample	Instrumentation		Metamorphic Rock	
D	Small disturbed sample (tub/jar)			Fine Grained	
E	Environmental test sample	Seal		Medium Grained	
ES	Environmental soil sample	Filter		Coarse Grained	
EW	Environmental water sample			Igneous Rock	
G	Gas sample			Fine Grained	
L	Liner sample			Medium Grained	
P	Piston sample (PF - failed piston sample)	Seal		Coarse Grained	
TW	Thin walled push in sample			Backfill Materials	
U -	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)	Strata			
V	Vial sample	Made Ground Type 1		Arisings	
W	Water sample	Type 2		Bentonite Seal	
#	Sample Not Recovered	Topsoil		Concrete	
		Cobbles and Boulders		Fine Gravel Filter	
		Gravel		General Fill	
		Sand		Gravel Filter	
		Silt		Grout	
		Clay		Sand Filter	
		Peat		Tarmacadam	
		Note: Composite soil types shown by combined symbols			
		Chalk			
		Limestone			
		Sandstone			
		Coal			
Insitu Testing / Properties					
S	Standard Penetration Test (SPT)				
C	SPT with cone				
VN	Strength from Insitu Vane				
HV	Strength from Hand Vane				
PP	Strength from Pocket Penetrometer				
	(All other strengths from undrained triaxial testing)				
w%	Water content				
N	SPT Result				
-/-	Blows/penetration (mm) after 150mm seating.				
*/- (mm)	Total blows/penetration				
()	Extrapolated value				
Rotary Core					
RQD	Rock Quality Designation (% of intact core >100mm)				
FRACTURE INDEX Fractures/metre					
FRACTURE SPACING (mm)	Maximum				
	Minimum				
NI	Non-intact core				
NR	No core recovery				
(where core recovery is unknown it is assumed to be at the base of the run)					

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD

Project No PC104225

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

National Grid Coordinates 533910.328E 191261.112N

Ground Level 11.37 m OD

Sampling			Properties		Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description		Depth	Legend	Level m OD
0.20- 0.30	B				Concrete. [MADE GROUND]		G.L.		11.37
0.20	D				Greyish brown clayey sandy gravel. Gravel is subangular to rounded fine to coarse brick, quartzite, flint, occasional concrete and clinker. [MADE GROUND]		0.20		11.17
0.20	E						0.30		11.07
							0.45		10.92
					Concrete. [MADE GROUND] At 0.45m, 80mm diameter black plastic pipe.				
					End of Borehole				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.45		Inspection Pit	DC/LC	G.I. 0.45	NIL	DRY	14/05/10 14/05/10	08:00 18:00						None encountered during excavation.

Remarks Break out concrete (1.50hr)
 Hand excavated inspection pit terminated at 0.45m due to buried services, moved to BH10/01A.
 E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

Logged by
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 Figure

DF
 CPL
 1 of 1
 15/07/2010

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Sampling			Properties		Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description		Depth	Legend	Level m OD
					Concrete. [MADE GROUND]		G.L.		11.37
					Dark brown clayey sandy gravel with a low cobble content of subangular brick and concrete. Gravel is angular to subrounded fine to coarse brick, concrete, quartzite, occasional flint and clinker. [MADE GROUND]		0.20		11.17
							0.40		10.97
					Concrete. [MADE GROUND] At 0.60m, two 100mm diameter black fuel pipes with pea gravel surround.		0.60		10.77
					End of Borehole				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.60		Inspection Pit	DC/LC	G.I. 0.60	NIL	DRY	14/05/10 14/05/10	08:00 18:00						None encountered during excavation.

Sampling			Properties		Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description		Depth	Legend	Level m OD
					Concrete. [MADE GROUND]		G.L.		11.32
					Dark brown clayey sandy gravel with a low cobble content of subangular brick. Gravel is angular to subrounded fine to coarse quartzite, brick, flint and occasional clinker. [MADE GROUND]		0.20		11.12
					At 0.70m, concrete.		0.70		10.62
					End of Borehole				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.70		Inspection Pit	DC/LC	G.L. 0.70	NIL	DRY	14/05/10 14/05/10	08:00 18:00						None encountered during excavation.

Remarks Break out concrete (1.50hrs)
 Hand excavated inspection pit terminated at 0.70m due to concrete obstruction. CP Borehole replaced with window sample borehole as WS10/01.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

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 Figure

DF
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 1 of 1
 15/07/2010

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Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

National Grid Coordinates 534123.384E
191225.420N

Ground Level 12.83 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
0.10- 0.40	B					Tarmacadam.	G.I.		12.83
0.10	D					[MADE GROUND]	0.10		12.73
0.10	E								
0.50- 0.70	B					Dark brown clayey sandy gravel with a medium cobble content of subangular brick. Gravel is subangular to rounded fine to coarse brick, quartzite, flint, occasional concrete, clinker and rare glass.	0.50		12.33
0.50	D					[MADE GROUND]	0.90		11.93
0.50	E								
0.90- 1.20	B					Firm dark greyish brown sandy gravelly clay with a moderate hydrocarbon odour. Gravel is angular to subrounded fine to coarse brick, quartzite, ash, clinker and occasional concrete.	1.20		11.63
0.90	D					[MADE GROUND]	1.70		11.13
0.90	E								
1.20- 1.70	B								
1.20	D								
1.20	E								
1.20- 1.65		1.20 (DRY)			C35				
1.70- 2.20	B					Soft to firm orangish brown and grey mottled slightly sandy slightly gravelly clay with occasional pockets up to coarse gravel size of dark grey staining. Gravel is angular to rounded fine to coarse flint, quartzite occasional brick and clinker.			
1.70	D					[MADE GROUND]			
1.70	E								
1.70- 2.15		1.50 (DRY)			C45				
2.00	W								
2.70- 3.20	B					Dense orangish brown and grey mottled clayey sandy gravel with occasional pockets up to coarse gravel size of dark grey staining. Gravel is angular to rounded fine to coarse flint, quartzite occasional brick and clinker.			
2.70	D					[MADE GROUND]			
2.70	E								
2.70- 3.15		2.70 (2.00)			C36				
3.70- 4.20	B					Dense light brown sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 3.70m, medium dense.			
3.70	D								
3.70	E								
3.70- 4.15		3.70 (2.80)			C24				
4.80- 5.30	B					Below 4.80m, light greyish brown slightly clayey and slightly sandy.			
4.80	D								
4.80	E								
4.80- 5.25		4.80 (4.00)			C28				
5.40- 6.10	B					Stiff fissured thinly laminated brownish grey CLAY. Fissures are extremely closely to very closely spaced, randomly orientated, clean and dull.	5.40		7.43
5.40	D								
5.40	E								
6.10- 6.55	U50	5.90 (DRY)	79	30		At 6.10m, high strength			
6.55	D								
7.10- 7.55	D	5.90 (DRY)			S10				
8.20- 8.65	U58	5.90 (DRY)							
8.65	D					Between 8.65-15.90m and 18.30-20.05m, silty with frequent fine to coarse sand sized shell fragments.			
9.30- 9.75	D	5.90 (DRY)			S22				
						Below 10.00m,			

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of G.L.	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20		Inspection Pit	DC/LC	6.1.			20/05/10	08:00	2.50	2.50				
20.20	0.20	Cable Percussion	DC/LC	20.20	5.90	18.10	20/05/10	18:00	20.20	5.90	18.10	20	5.90	Slow inflow.
25.00	0.15	Cable Percussion	DC/LC	20.20	5.90	11.50	21/05/10	08:00	23.00	21.00			N/S	Fast inflow.
				25.00	22.70	24.80	21/05/10	18:00					21.00	Slow inflow.

Remarks

1	Break out tarmac (0.5hrs)
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AGS Inspection pit hand excavated to 1.20m depth.

E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial

A 50mm standpipe was installed to 5.00m with a slotted section from 1.00m to 5.00m with flush lockable protective cover. Detail as follows from base of hole: bentonite seal up to 5.00m, fine gravel filter up to 1.00m, bentonite seal up to 0.50m, concrete up to 0.20m, tarmacadam up to ground level.

All dimensions
are in metres.

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

Logged by DF
 Checked by CPL
 Figure 1 of 3
 15/07/2010

geotechnics

Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD		
10.40-10.85	U70	5.90 (DRY)	151	25		At 10.40m, very high strength					
10.85	D										
11.50-11.95	D	5.90 (DRY)			S22						
11.50	W										
12.70-13.15	U70	5.90 (DRY)									
13.15	D										
13.80-14.25	D	5.90 (DRY)			S30						
14.80-15.25	U60	5.90 (DRY)	201	22		At 14.80m, very high strength					
15.25	D										
15.90-16.35	D	5.90 (DRY)			S32						
17.10-17.55	U65	5.90 (DRY)									
17.55	D										
18.30-18.75	D	5.90 (DRY)			S31						
19.60-20.05	U77	5.90 (DRY)	247	23		At 19.60m, very high strength					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD
 Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED National Grid Coordinates 534123.384E 191225.420N
 Project No PC104225 Ground Level 12.83 m OD

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD	
20.05 20.20	D D						20.20		-7.37	
						Firm dark grey silty sandy CLAY with frequent fine gravel size shell fragments.				
21.00	D					Very stiff bluish grey brown and reddish brown mottled CLAY.	21.00		-8.17	
21.30-21.75	U110	21.00 (DRY)								
21.75 21.80-22.10	D B									
22.40-22.85	D	21.00 (DRY)			S35					
23.50-23.95	D	22.70 (DAMP)			S49					
24.50-24.95	D	22.70 (DAMP)			S51	Below 24.50m, fissured in parts. Fissures are extremely closely to very closely spaced randomly orientated, clean and dull.				
						End of Borehole	25.00		-12.17	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

National Grid Coordinates 533963.146E
191153.086N

Ground Level 11.59 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
						Tarmacadam. [MADE GROUND]	G.L. 0.10 0.25 0.40		11.59 11.49 11.34 11.19
0.40 0.40 0.60- 0.90 0.60 0.60 1.00- 1.20 1.00 1.00 1.20- 1.70 1.20 1.20- 1.65 1.70- 2.20 1.70 1.70 1.70- 2.15 2.00	D E B D E B D B D B D E W	1.20 (DRY) 1.50 (DRY)			C28 C47	Grey roadstone.** [MADE GROUND] Large granite boulders.** [MADE GROUND] Dark brown sandy gravel. Gravel is angular to rounded fine to coarse brick, concrete, quartzite, granite, carbonaceous material and flint. [MADE GROUND] Below 0.60m, clayey with a medium cobble content of subangular concrete. Soft greyish brown and orangish brown mottled slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint, quartzite and occasional carbonaceous material. [PROBABLE MADE GROUND]	1.00 1.20 1.70		10.59 10.39 9.89
2.70- 3.20 2.70 2.70 2.70- 3.15	B D D E	2.70 (2.10)			C39	Firm to stiff greyish brown and orangish brown mottled sandy gravelly CLAY with frequent pockets up to coarse gravel size of carbonaceous material. Gravel is angular to subrounded fine to coarse flint and quartzite.			
3.70- 4.20 3.70 3.70 3.70- 4.15	B D E	3.70 (2.90)			C26	Dense light brown slightly clayey sandy GRAVEL. Gravel is angular to rounded fine to coarse flint and quartzite. Below 3.70m, medium dense and slightly clayey.			
4.70 4.70 4.90- 5.20 4.90 4.90 5.20- 5.65	D E B D E U33	5.20 (DRY)	63	27		Stiff fissured orangish brown CLAY. Fissures are extremely closely to very closely spaced randomly orientated, dull and occasionally iron stained. Stiff fissured thinly laminated brownish grey CLAY with occasional silt partings up to 0.50mm thick. Fissures are extremely closely to very closely spaced, randomly orientated, clean and dull. At 5.20m, medium strength	4.70 4.90		6.89 6.69
5.65	D								
6.30- 6.75	D	5.20 (DRY)			S9				
7.40- 7.85	U41	5.20 (DRY)							
7.85	D								
8.40- 8.85	D	5.20 (DRY)			S17				
9.60-10.05	U58	5.20 (DRY)	82	31		At 9.60m, high strength			

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20		Inspection Pit	DC/LC	G.L.			12/05/10	08:00	2.50	2.50				
18.10	0.20	Cable Percussion	DC/LC	18.10	5.20	16.00	12/05/10	18:00	17.20	5.20	16.00	20	5.20	Slow inflow.
25.00	0.15	Cable Percussion	DC/LC	18.10	5.20	11.00	13/05/10	08:00	23.00	18.50		20	N/S	Fast inflow.
				25.00	18.50	24.00	13/05/10	18:00					18.50	Seepage.

Remarks	 Inspection pit hand excavated to 1.20m depth.
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AGS ** Drillers description.

E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial

A 50mm standpipe was installed to 4.50m with a slotted section from 1.00m to 4.50m with flush lockable protective cover. Detail as follows from base of hole: bentonite seal up to 4.50m, fine gravel filter up to 1.00m, bentonite seal up to 0.30m, concrete up to 0.10m, tarmacadam up to ground level.

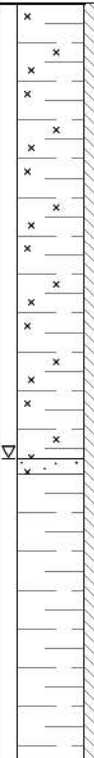
All dimensions are in metres.

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

Logged by DF
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 Figure 1 of 3
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geotechnics



Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD	
20.90-21.35	U90	18.50 (DAMP)	109	26	S33	Stiff brownish grey and bluish grey mottled slightly sandy silty CLAY with frequent fine to coarse gravel size shell fragments. Very stiff light bluish grey, orangish brown and reddish brown mottled CLAY. At 23.30m, high strength	23.00 23.10		-11.41 -11.51	
21.35	D									
22.20-22.65	D	18.50 (DAMP)								
23.00 23.10	D D									
23.30-23.60	U130	18.50 (DAMP)								
23.60-24.50 23.60	B D									
24.50-24.95	D	18.50 (24.00)			S48					
End of Borehole							25.00		-13.41	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
0.10- 0.30	B					Tarmacadam.	G.L.		13.23
0.10	D					[MADE GROUND]	0.10		13.13
0.10	E								
0.30- 0.80	B					Dark orangish brown sandy gravel with a low cobble content of subangular brick. Gravel is angular to subangular fine to coarse brick, concrete and occasional clinker.	0.30		12.93
0.30	D					[MADE GROUND]			
0.30	E								
0.80- 1.20	B					Dark brown clayey gravelly sand with a medium cobble content of subangular brick. Gravel is angular to subrounded fine to coarse brick, concrete, quartzite, occasional glass and clinker.	0.80		12.43
0.80	D					[MADE GROUND]			
0.80	E								
1.20- 1.70	B								
1.20- 1.65		1.20 (DRY)			C14				
1.80- 2.30	B						1.80		11.43
1.80	D								
1.80	E								
1.80- 2.25		1.50 (DRY)			C47	Soft to firm orangish brown occasionally grey mottled slightly sandy gravelly clay grading to a clayey very sandy gravel in parts. Gravel is angular to subrounded fine to coarse flint, quartzite, occasional brick and carbonaceous material.			
2.00	W					[MADE GROUND]			
2.80- 3.30	B					Below 1.20m, occasional pockets up to coarse gravel size of black staining.			
2.80	D								
2.80	E								
2.80- 3.25		2.80 (2.00)			C34	Dense light brown sandy GRAVEL. Gravel is angular to rounded fine to coarse flint and quartzite.			
3.80- 4.30	B					Below 3.80m, becoming very sandy.			
3.80	D								
3.80	E								
3.80- 4.25		3.80 (2.90)			C19				
4.80	D						4.80		8.43
4.80	E						4.90		8.33
4.90- 5.20	B					Firm to stiff brownish grey occasionally light grey and orangish brown mottled CLAY.			
4.90	D								
4.90	E								
5.20- 5.65	U30	5.20 (DRY)				Stiff fissured thinly laminated brownish grey CLAY. Fissures are extremely closely to very closely spaced, randomly orientated, clean and dull.			
5.65	D								
6.20- 6.65	D	6.00 (DRY)			S10				
7.20- 7.65	U50	6.00 (DRY)							
7.65	D								
8.30- 8.75	D	6.00 (DRY)			S17	Below 8.30m, silty.			
9.40- 9.85	U73	6.00 (DRY)	135	27		At 9.40m, high strength			
9.85	D								

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20		Inspection Pit	DC/LC	G.L.			17/05/10	08:00	2.50	2.50	2.00	20	4.90	Slow inflow.
22.00	0.20	Cable Percussion	DC/LC	12.00	6.00	DRY	17/05/10	18:00	20.90	6.00	17.60	20	22.20	Fast inflow.
30.00	0.15	Cable Percussion	DC/LC	12.00	6.00	11.90	18/05/10	08:00						
				26.00	22.20	DRY	18/05/10	18:00						
				26.00	22.20	20.00	19/05/10	08:00						
				30.00	30.00	21.10	19/05/10	18:00						

Remarks Break out surface (1hr)

Inspection pit hand excavated to 1.20m depth.

First position abandoned as gas main exposed at 0.70m

E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial

A 19mm vibrating wire piezometer was installed to 10.00m with flush lockable protective cover. Detail as follows from base of hole: bentonite seal up to 10.10m, sand filter up to 9.00m, bentonite seal up to 0.50m, concrete up to 0.20m, tarmacadam up to ground level.

All dimensions are in metres.

Logged by **DF**

Checked by **CPL**

Figure 1 of 3

15/07/2010

geotechnics

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

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Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD
 Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED National Grid Coordinates 534130.488E 191131.923N
 Project No PC104225 Ground Level 13.23 m OD

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD	
10.50-10.95	D	6.00 (DRY)			S24	At 10.50m and 18.35m, occasional light grey silt partings up to 1.0mm thick.				
11.50-11.95	U90	6.00 (DRY)								
11.95	D									
12.60-13.05	D	6.00 (DRY)			S25					
13.60-14.05	U70	6.00 (DRY)	255	22		At 13.60m, very high strength				
14.05	D									
14.70-15.15	D	6.00 (DRY)			S27					
15.80-16.25	U80	6.00 (DRY)								
16.25	D									
16.80-17.25	D	6.00 (DRY)			S32					
17.60	W									
17.90-18.35	U90	6.00 (DRY)								
18.35	D									
18.90-19.35	D	6.00 (DRY)			S28					
19.90-20.35	U95	6.00 (DRY)								

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks  Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres. Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

Logged by 
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 Figure 2 of 3
 15/07/2010

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD
 Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED National Grid Coordinates 534130.488E 191131.923N
 Project No PC104225 Ground Level 13.23 m OD

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD	
20.00	W					At 20.35m, occasional fine gravel size shell fragments.				
20.35	D									
20.90	D					Recovered as soft dark grey occasionally bluish grey mottled sandy SILT with frequent fine gravel size shell fragments and rounded coarse gravel size nodules.	20.90		-7.67	
21.00	D						21.00		-7.77	
21.20-21.75	U110	21.20 (18.00)	99	26		Very stiff bluish grey, orangish brown and reddish brown mottled CLAY. At 21.20m, high strength				
21.75	D									
21.80-22.20	B									
22.20-22.65	D	22.20 (DRY)			S36					
23.30-23.75	U85	22.20 (DRY)								
23.75	D									
24.40-24.85	D	22.20 (DRY)			S37	At 24.40m, with rare reddish brown root traces.				
25.60-26.00	U110	22.20 (DRY)				Below 26.00m, bluish grey and orangish brown mottled and slightly sandy.				
26.00	D									
26.90-27.13	D	26.90 (23.70)			S50/75	Very stiff dark yellowish brown and bluish grey mottled slightly sandy silty CLAY.	26.90		-13.67	
28.10-30.00	B					Very dense yellowish brown and grey mottled silty fine to medium SAND.				
28.30-28.68	D	28.30 (22.30)			S50/225		28.10		-14.87	
29.50-29.80	D	29.50 (21.10)			S52/150					
						End of Borehole	30.00		-16.77	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

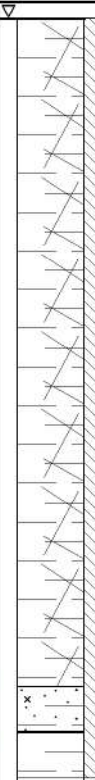
Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
0.20- 0.50	B					Tarmacadam. [MADE GROUND]	G.L.		11.90
0.20	D						0.10		11.80
0.20	E								
0.50	D					Dark brown sandy gravel with a medium cobble content of subangular brick and concrete. Gravel is subangular to subrounded fine to coarse brick, clinker, carbonaceous material, occasional quartzite and concrete.	0.70		11.20
0.50	E								
0.70- 1.00	B								
0.70	D								
0.70	E								
1.20- 1.70	B					[MADE GROUND]	1.20		10.70
1.20- 1.65		1.20 (DRY)			C10	Below 0.50m, becoming orangish brown.			
1.70- 2.20	B					Dark brown clayey sandy gravel with a medium cobble content of subangular concrete. Gravel is angular to subrounded fine to coarse brick, concrete, quartzite, clinker, flint and slate.	1.70		10.20
1.70	D								
1.70	E								
1.70- 2.15	U30	1.50 (DRY)							
2.15	D					Firm dark brown to black sandy gravelly clay. Gravel is angular to subangular fine to coarse brick, concrete, ceramic and occasional flint.			
						[MADE GROUND]			
2.65	W								
2.70	D					Firm light orangish brown and greyish brown mottled slightly sandy slightly gravelly silty clay with pockets up to coarse gravel size of black staining. Gravel is angular to subangular fine to medium flint.	2.80		9.10
2.70	E								
2.80- 3.30	B						3.40		8.50
2.80	D								
2.80	E						3.60		8.30
2.80- 3.25		2.80 (DRY)			C41	[PROBABLE MADE GROUND]			
3.40	D					Below 2.15m, slightly sandy with dark brown root traces.			
3.40	E								
3.60- 4.10	B								
3.60	D					Dense light brown sandy GRAVEL. Gravel is subangular to rounded fine to coarse flint and quartzite.			
3.60	E								
3.60- 4.05		3.40 (2.65)			C42				
4.60- 5.10	B					Stiff light brown slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and quartzite.	4.90		7.00
4.60	D								
4.60	E								
4.60- 5.05		4.60 (3.50)			C22		5.20		6.70
5.20- 5.70	B					Dense light brown sandy GRAVEL. Gravel is subangular to rounded fine to coarse flint and quartzite.			
5.20	D					Below 4.60m, occasional cobble size pockets of firm light brown clay.			
5.20	E								
5.70- 6.15	U40	5.70 (DRY)		32		Stiff greyish brown CLAY.			
6.15	D					Stiff fissured brownish grey CLAY. Fissures are extremely closely to very closely spaced, randomly orientated, clean and dull.			
						Below 6.15m, thinly laminated.			
6.70- 7.15	D	5.70 (DRY)			S11				
7.80- 8.25	U50	5.70 (DRY)							
8.25	D					Below 8.25m, fissures are very closely spaced.			
8.80- 9.25	D	5.70 (DRY)			S19				
9.80-10.25	U51	5.70 (DRY)	88	29		At 9.80m, high strength			

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.20	Inspection Pit Cable Percussion	DC/LC DC/LC	G.L.	5.70	DRY DRY Damp	10/05/10	08:00	3.60	3.40	2.65	20	5.70	Slow inflow. Seepage.
25.00				9.50			10/05/10	18:00	20.00	5.70			N/s	
				9.50			11/05/10	08:00						
				25.00			11/05/10	18:00						

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
10.25	D								
10.90-11.35	D	5.70 (DRY)			S20				
11.90-12.35	U60	5.70 (DRY)				Below 11.90m, becoming silty.			
12.35	D								
13.00-13.45	D	5.70 (DRY)			S24				
14.00-14.45	U77	5.70 (DRY)	200	28		At 14.00m, very high strength			
14.45	D								
15.00-15.45	D	5.70 (DRY)			S27				
16.10-16.55	U80	5.70 (DRY)							
16.55	D								
17.10-17.55	D	5.70 (DRY)			S30				
18.20-18.65	U85	5.70 (DRY)	280	22		At 18.20m, very high strength			
18.65	D					At 18.65m, slightly sandy with occasional fine gravel size shell fragments.			
18.70-19.00	B								
19.30-19.75	D	5.70 (DRY)			S31				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD
 Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED National Grid Coordinates 533968.133E 191065.988N
 Project No PC104225 Ground Level 11.90 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
20.30-20.75	U80	5.70 (DAMP)	99	24	S29	Below 20.75m, fissures absent.			
20.75	D								
21.30-21.75	D	5.70 (DAMP)							
22.40-22.85	U90	5.70 (DRY)							
22.85	D								
23.50-23.95	D	5.70 (DRY)					S34		
24.40	D								
24.50-24.95	U100	5.70 (DAMP)							
24.95	D								

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 
 Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres. Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

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 15/07/2010



Fieldwork Results - SPT Results Summary

Project NORTHUMBERLAND DEVELOPMENT PHASE 2

Project No PC104225

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
BH10/02	1.20	11.63	C	-	3	4	6	8	10	11	35				*		
BH10/02	1.70	11.13	C	-	6	10	11	11	11	12	45					*	
BH10/02	2.70	10.13	C	-	5	5	8	10	9	9	36				*		
BH10/02	3.70	9.13	C	-	3	3	4	4	7	9	24			*			
BH10/02	4.80	8.03	C	-	6	8	10	7	6	5	28				*		
BH10/02	7.10	5.73	S	-	1	2	2	2	3	3	10	*					
BH10/02	9.30	3.53	S	-	2	3	4	5	6	7	22			*			
BH10/02	11.50	1.33	S	-	2	3	4	5	6	7	22			*			
BH10/02	13.80	-0.97	S	-	4	5	6	8	8	8	30				*		
BH10/02	15.90	-3.07	S	-	4	5	6	8	9	9	32				*		
BH10/02	18.30	-5.47	S	-	3	5	6	8	9	8	31				*		
BH10/02	22.40	-9.57	S	-	6	7	8	8	9	10	35				*		
BH10/02	23.50	-10.67	S	-	7	8	9	12	13	15	49					*	
BH10/02	24.50	-11.67	S	-	6	8	10	11	13	17	51						*
Driller			Dave Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Hammer No.			EQU172														
Energy Ratio, Er (%)			72.63														
Calibration Date			10/09/2009														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

geotechnics

Fieldwork Results - SPT Results Summary

Project NORTHUMBERLAND DEVELOPMENT PHASE 2

Project No PC104225

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
BH10/03	1.20	10.39	C	-	4	5	6	8	6	8	28			*		
BH10/03	1.70	9.89	C	-	7	8	10	12	13	12	47					*
BH10/03	2.70	8.89	C	-	5	6	9	10	10	10	39				*	
BH10/03	3.70	7.89	C	-	4	3	6	8	6	6	26			*		
BH10/03	6.30	5.29	S	-	2	1	2	2	2	3	9	*				
BH10/03	8.40	3.19	S	-	3	3	4	4	4	5	17		*			
BH10/03	10.60	0.99	S	-	4	4	5	5	6	9	25			*		
BH10/03	13.00	-1.41	S	-	4	4	6	6	7	9	28			*		
BH10/03	15.20	-3.61	S	-	4	4	6	7	8	7	28			*		
BH10/03	17.60	-6.01	S	-	6	5	7	6	7	7	27			*		
BH10/03	19.80	-8.21	S	-	5	5	6	8	8	8	30			*		
BH10/03	22.20	-10.61	S	-	6	6	7	8	9	9	33			*		
BH10/03	24.50	-12.91	S	-	7	8	9	11	12	16	48					*
Driller			Dave Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005									
Hammer No.			EQU172													
Energy Ratio, Er (%)			72.63													
Calibration Date			10/09/2009													

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

geotechnics

Fieldwork Results - SPT Results Summary

Project NORTHUMBERLAND DEVELOPMENT PHASE 2

Project No PC104225

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
BH10/04	1.20	12.03	C	-	2	1	2	3	3	6	14	*				
BH10/04	1.80	11.43	C	-	8	8	9	11	13	14	47					*
BH10/04	2.80	10.43	C	-	5	6	8	8	9	9	34			*		
BH10/04	3.80	9.43	C	-	3	3	4	4	5	6	19		*			
BH10/04	6.20	7.03	S	-	1	2	2	2	3	3	10	*				
BH10/04	8.30	4.93	S	-	2	3	3	4	4	6	17		*			
BH10/04	10.50	2.73	S	-	3	4	4	6	6	8	24			*		
BH10/04	12.60	0.63	S	-	4	4	5	7	6	7	25			*		
BH10/04	14.70	-1.47	S	-	4	5	5	7	7	8	27			*		
BH10/04	16.80	-3.57	S	-	4	5	7	8	8	9	32				*	
BH10/04	18.90	-5.67	S	-	5	5	6	7	7	8	28			*		
BH10/04	22.20	-8.97	S	-	7	6	8	9	9	10	36				*	
BH10/04	24.40	-11.17	S	-	6	6	8	9	10	10	37				*	
BH10/04	26.90	-13.67	S	-	16	24	50				50/75					>
BH10/04	28.30	-15.07	S	-	3	8	11	16	23		50/225					>
BH10/04	29.50	-16.27	S	-	7	10	14	18	20/0		52/150					>
Driller			Dave Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005									
Hammer No.			EQU172													
Energy Ratio, Er (%)			72.63													
Calibration Date			10/09/2009													

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

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Fieldwork Results - SPT Results Summary

Project NORTHUMBERLAND DEVELOPMENT PHASE 2

Project No PC104225

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
BH10/05	1.20	10.70	C	-	3	3	3	2	2	3	10	*				
BH10/05	2.80	9.10	C	-	5	11	10	11	10	10	41				*	
BH10/05	3.60	8.30	C	-	7	9	10	10	11	11	42				*	
BH10/05	4.60	7.30	C	-	10	8	7	6	5	4	22		*			
BH10/05	6.70	5.20	S	-	1	1	2	2	3	4	11	*				
BH10/05	8.80	3.10	S	-	3	4	4	5	5	5	19		*			
BH10/05	10.90	1.00	S	-	3	3	4	5	5	6	20		*			
BH10/05	13.00	-1.10	S	-	4	4	5	6	6	7	24		*			
BH10/05	15.00	-3.10	S	-	4	5	5	7	7	8	27			*		
BH10/05	17.10	-5.20	S	-	4	6	6	8	8	8	30			*		
BH10/05	19.30	-7.40	S	-	4	5	7	7	8	9	31			*		
BH10/05	21.30	-9.40	S	-	4	4	6	7	7	9	29			*		
BH10/05	23.50	-11.60	S	-	5	6	8	8	9	9	34			*		
Driller			Dave Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005									
Hammer No.			EQU172													
Energy Ratio, Er (%)			72.63													
Calibration Date			10/09/2009													

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

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SPT Calibration Report

Hammer Energy Measurement Report

Type of Test SPT Hammer
 Project DAVE COWLING
 Test No EQU172
 Test Depth (m) 6.55
 Date of Test 10 September 2009
 Hammer ID EQU172
 Mass of the hammer $m = 63.5$ kg
 Falling height $h = 0.76$ m
 $E_{theor} = m \times g \times h = 473$ J



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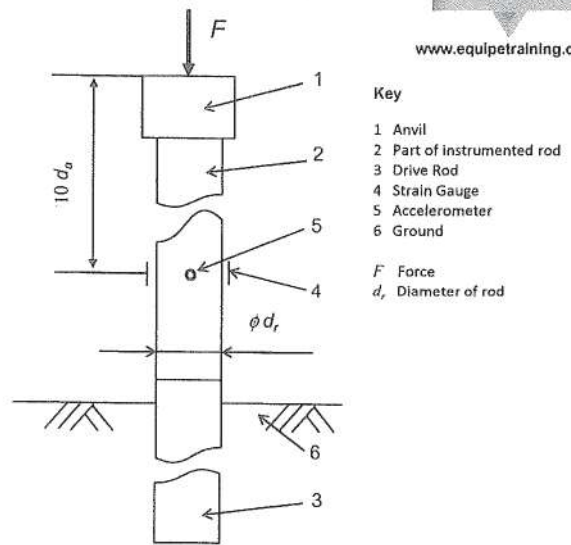
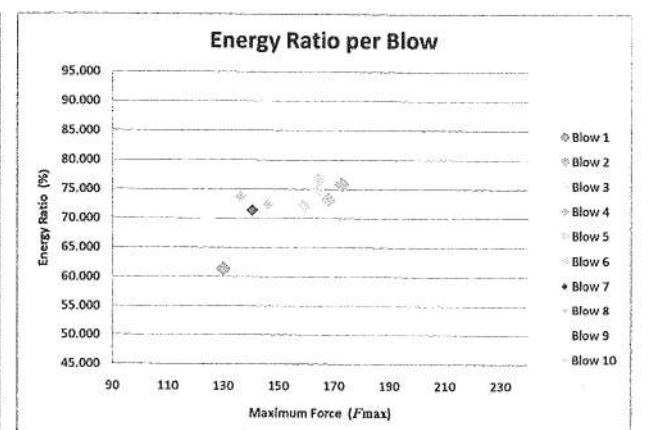
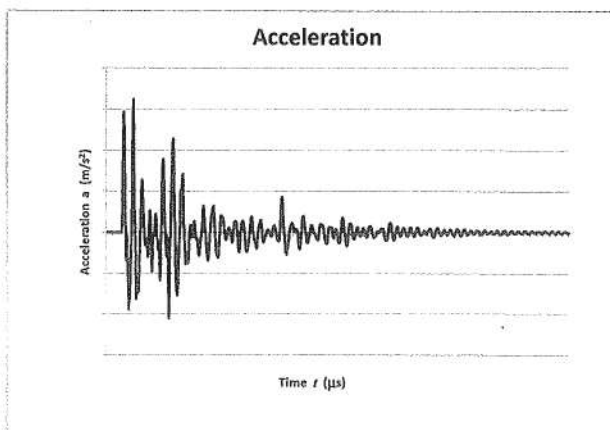
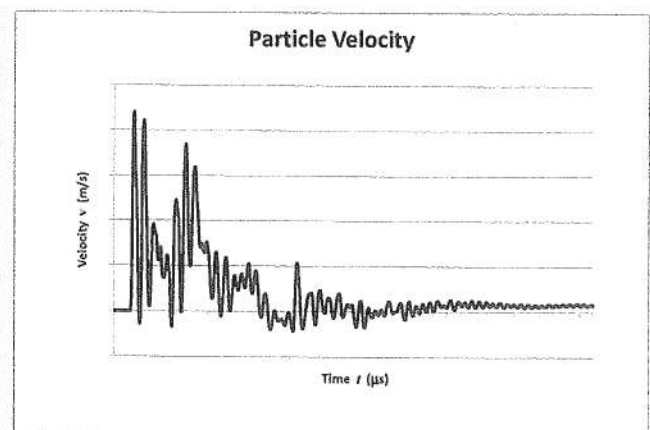
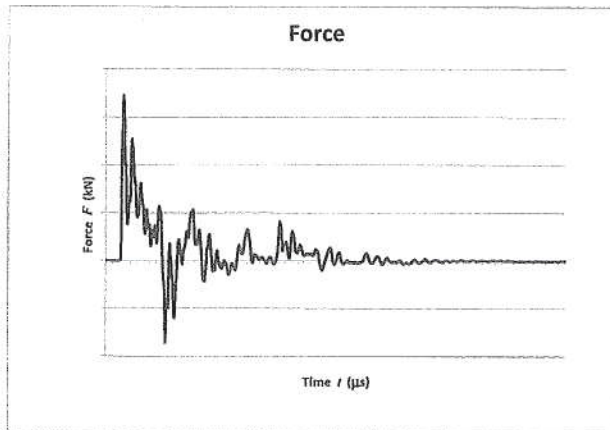


Fig. B.1 and B.2 BS EN ISO 22476-3: 2005



Observations:

1. Blow 1 not used in the calculation for measured energy.
2. Drop height measured at 785mm.

$E_{meas} = 0.344$ kN-m

$E_{theor} = 0.473$ kN-m

$$\text{Energy Ratio} = \frac{E_{meas}}{E_{theor}} = 72.63\%$$

Equipe SPT Analyzer Operators:

Prepared by:

[Signature]

Checked by:

[Signature]

Date

11/09/2009

BOREHOLE RECORD - Hollow Stem Auger

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD Borehole Project No WS10/01 PC104225
Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED National Grid Coordinates 533906.362E 191259.435N Ground Level 11.31 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %		Description	Depth	Legend	Level m OD
						Concrete. [MADE GROUND]	G.L.		11.31
0.70- 0.80	E					Brown clayey gravelly sand with a medium cobble content of subangular brick. Gravel is angular to subrounded fine to coarse brick and concrete. [MADE GROUND]	0.25		11.06
1.10- 1.20	E					Concrete. [MADE GROUND]	0.60		10.71
						Light brown gravelly sand with a medium cobble content of subangular brick. Gravel is angular to subrounded fine to coarse brick, concrete and occasional quartzite. [MADE GROUND]	0.70		10.61
						Soft orangish brown occasionally grey mottled slightly gravelly sandy clay with pockets up to medium gravel size of carbonaceous material and with no odour. Gravel is angular to subrounded fine to coarse flint, quartzite. [PROBABLE MADE GROUND]	1.10		10.21
3.00	E					Brown very clayey sandy GRAVEL with a slight hydrocarbon odour. Gravel is subangular to rounded fine to coarse flint and quartzite.	2.50		8.81
4.00	E								
5.00	E								
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20 6.50	0.20	Inspection Pit Hollow Stem Auger	AM/TB AM/TB	G.I. 6.50		Dry	17/05/10 17/05/10	08:00 18:00	2.50					

Remarks Break out surface (0.50hr)
Inspection pit hand excavated to 1.20m depth.
E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial
A 50mm standpipe was installed to 6.50m with a slotted section from 1.00m to 6.50m with flush lockable protective cover. Detail as follows from base of hole: fine gravel filter up to 1.00m, bentonite seal up to 0.20m, concrete up to ground level.

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BOREHOLE RECORD - Hollow Stem Auger

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD Borehole Project No WS16A PC104225
 Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED National Grid Coordinates 533944.347E 191112.636N Ground Level 11.77 m OD

Sampling			Properties		Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description	Depth	Legend	Level m OD
					Tarmacadam. [MADE GROUND]	G.L.		11.77
					Black angular to subangular fine to coarse gravel of tarmac fragments. [MADE GROUND]	0.10 0.20		11.67 11.57
					Dark brown slightly clayey gravel with a medium cobble content of subangular brick. Gravel is angular to subrounded fine to coarse concrete, brick and quartzite. [MADE GROUND]	0.50		11.27
					Soft to firm dark brown occasionally grey mottled sandy gravelly clay with a low cobble content of subangular brick. Gravel is angular to subangular fine to coarse flint, quartzite, brick and occasional carbonaceous material. [MADE GROUND]	1.50		10.27
					At 0.65m, side of concrete slab.	1.80		9.97
					Firm greyish brown and orange brown mottled slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite. Below 1.65m, gravelly.	2.50		9.27
					Brown clayey sandy GRAVEL. Gravel is angular to rounded flint and quartzite. Below 2.00m, with a moderate hydrocarbon odour.			
					End of Borehole			

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20 2.50	0.20	Inspection Pit Hollow Stem Auger	AM/TB AM/TB	G.I. 2.50		Dry	18/05/10 18/05/10	08:00 18:00						None encountered during excavation.

Remarks Break out surface (0.50hr)
 Inspection pit hand excavated to 1.20m depth.
 No samples recovered on instruction of the Engineer.
 A 50mm standpipe was installed to 2.50m with a slotted section from 0.50m to 2.50m with flush lockable protective cover. Detail as follows from base of hole: fine gravel filter up to 0.50m, bentonite seal up to 0.20m, concrete up to 0.10m, tarmacadam up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

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BOREHOLE RECORD - Hollow Stem Auger

Project NORTHUMBERLAND DEVELOPMENT PHASE 2				Engineer BURO HAPPOLD				Borehole Project No WS17C PC104225			
Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED				National Grid Coordinates 533946.421E 191178.744N				Ground Level 11.84 m OD			

Sampling			Properties		Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description	Depth	Legend	Level m OD	
					Tarmacadam. [MADE GROUND]	G.L.		11.84	
					Dark brown sandy gravel with occasional lenses up to 30mm of ash. Gravel is subangular to subrounded fine to coarse brick, concrete and quartzite. [MADE GROUND]	0.10		11.74	
					At 0.25m, layer of bricks.	0.30		11.54	
					Concrete. [MADE GROUND]	0.50		11.34	
					Soft dark orangish brown sandy gravelly clay. Gravel is angular to subrounded fine to coarse flint, quartzite, brick, ash and occasional clinker. [MADE GROUND]	1.30		10.54	
					Firm orangish brown and grey mottled slightly gravelly CLAY. Gravel is angular to rounded fine to coarse flint and quartzite.	1.40		10.44	
					Orangish brown sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 1.70m, slightly clayey.	2.50		9.34	
End of Borehole									

Boring				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.20	Inspection Pit	AM/TB	G.L.			18/05/10	08:00	1.70					Damp.
2.50		Hollow Stem Auger	AM/TB	2.50		Damp	18/05/10	18:00						

Remarks Break out surface (0.50hr) Inspection pit hand excavated to 1.20m depth. No samples recovered on instruction of the Engineer. A 50mm standpipe was installed to 2.50m with a slotted section from 0.50m to 2.50m with flush lockable protective cover. Detail as follows from base of hole: fine gravel filter up to 0.50m, bentonite seal up to 0.20m, concrete up to 0.10m, tarmacadam up to ground level.															Logged by Checked by Figure		DF CPL 1 of 1 15/07/2010	
Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres.																		
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BOREHOLE RECORD - Hollow Stem Auger

Project NORTHUMBERLAND DEVELOPMENT PHASE 2				Engineer BURO HAPPOLD				Borehole Project No WS20A PC104225			
Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED				National Grid Coordinates 534028.968E 191299.897N				Ground Level 12.56 m OD			

Sampling			Properties		Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %		Description	Depth	Legend	Level m OD
						Grey subangular to subrounded fine to coarse gravel of flint, quartzite, brick and various granitic lithologies. [MADE GROUND] Reddish brown and grey subangular to subrounded cobbles of brick and occasional concrete. [MADE GROUND] Brown slightly clayey gravelly sand with a medium cobble content of subangular brick with pockets up to coarse gravel size of ash. Gravel is subangular to subrounded fine to coarse brick concrete, clinker and quartzite. [MADE GROUND] Between 1.00-1.10m, concrete boulder. Soft dark brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse brick, quartzite, occasional concrete and ash. [MADE GROUND] Soft to firm orangish brown and grey mottled slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and quartzite. End of Borehole	G.L. 0.05 0.40 1.60 1.70 2.50		12.56 12.51 12.16 10.96 10.86 10.06

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.20	Inspection Pit	AM/TB	G.L.			12/05/10	08:00						None encountered during excavation.
2.50		Hollow Stem Auger	AM/TB	2.50		Dry	12/05/10	18:00						

Remarks Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres.	Break out surface (0.50hr) Inspection pit hand excavated to 1.20m depth. No samples recovered on instruction of the Engineer. A 50mm standpipe was installed to 2.50m with a slotted section from 0.50m to 2.50m with flush lockable protective cover. Detail as follows from base of hole: fine gravel filter up to 0.50m, bentonite seal up to 0.20m, concrete up to ground level.	Logged by Checked by Figure DF CPL 1 of 1 15/07/2010
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BOREHOLE RECORD - Hollow Stem Auger

Project		NORTHUMBERLAND DEVELOPMENT PHASE 2		Engineer		BURO HAPPOLD		Borehole		WS22	
Client		TOTTENHAM HOTSPUR PROPERTY CO LIMITED		National Grid		534086.491E		Project No		PC104225	
				Coordinates		191266.276N		Ground Level		12.08 m OD	

Sampling			Properties		Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description	Depth	Legend	Level m OD	
					Tarmacadam. [MADE GROUND]	G.L. 0.02 0.10		12.08 12.06 11.98	
					Concrete. [MADE GROUND]				
1.50	E				Orangish brown gravelly sand with a medium cobble content of subangular brick and concrete. Gravel is angular to subrounded fine to coarse concrete, brick, tarmac fragments, occasional quartzite and flint. [MADE GROUND] At 0.30m, subangular concrete boulder.	0.70 0.85		11.38 11.23	
2.00	E				Concrete. [MADE GROUND]				
2.50	E				Firm brown sandy gravelly clay. Gravel is angular to subrounded fine to coarse flint quartzite, brick and occasional concrete. [MADE GROUND] From 1.20m, moderate hydrocarbon odour.	2.50		9.58	
End of Borehole									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.20	Inspection Pit	AM/TB	G.L.			14/05/10	08:00						None encountered during boring.
2.50		Hollow Stem Auger	AM/TB	2.50		Dry	14/05/10	18:00						

Remarks Break out surface (0.50hr) Inspection pit hand excavated to 1.20m depth. E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial A 50mm standpipe was installed to 2.50m with a slotted section from 0.50m to 2.50m with flush lockable protective cover. Detail as follows from base of hole: fine gravel filter up to 0.50m, bentonite seal up to 0.20m, concrete up to 0.10m, tarmacadam up to ground level.															Logged by Checked by Figure		DF CPL 1 of 1 15/07/2010	
Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres.																		
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BOREHOLE RECORD - Hollow Stem Auger

Project NORTHUMBERLAND DEVELOPMENT PHASE 2 Engineer BURO HAPPOLD

Borehole Project No WS24 PC104225

Client TOTTENHAM HOTSPUR PROPERTY CO LIMITED

Sampling			Properties		Strata	Scale 1:50	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	Description	Depth	Legend
0.30	D				Concrete. [MADE GROUND]	G.L.	
0.30	E				Dark brown slightly clayey gravelly sand. Gravel is angular to subrounded fine to coarse concrete, brick and flint. [MADE GROUND]	0.18	
1.00	E				Firm dark brown slightly sandy gravelly clay. Gravel is angular to subrounded fine to coarse brick, concrete, flint, quartzite, occasional clinker and carbonaceous material. [MADE GROUND]	0.90	
1.50	E				Firm orangish brown and grey mottled slightly sandy slightly gravelly clay. Gravel is subangular to subrounded fine to medium flint and quartzite. [PROBABLE MADE GROUND]	1.50	
2.50	E				Below 1.80m, gravelly.		
					Brown slightly clayey sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite.	3.50	
					Stiff thinly laminated grey CLAY.	7.10	
					End of Borehole	7.30	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.20	Inspection Pit	IB/KW AM/TB	G.L.			12/05/10	08:00	3.50					Damp
7.30		Hollow Stem Auger		1.20		Dry	12/05/10	18:00						
				1.20		Dry	13/05/10	08:00						
				7.30		Damp	13/05/10	18:00						

Remarks Break out surface (0.50hr)
 Inspection pit hand excavated to 1.20m depth.
 E sample = 1 x 1000ml plastic jar, 2 x 500ml amber jars and 1 x 60ml vial
 A 50mm standpipe was installed to 7.30m with a slotted section from 1.00m to 7.30m with flush lockable protective cover. Detail as follows from base of hole: fine gravel filter up to 1.00m, bentonite seal up to 0.20m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with Amendment 1 published December 2007 to BS5930:1999

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