MATTHEWS & SON LLP

Chartered Surveyors

Gilston Park Estate

East Hertfordshire

Minerals Evaluation

for

Hertfordshire County Council

on behalf of

Places for People

Original Report June 2015
Revised Report December 2016

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Appendices

1 Introduction

1.1 Places for People are promoting Gilston Park Estate (GPE) for inclusion in the East Herts District Plan (EHDP) for a proposed housing project extending to 8,500 houses accommodated across 6 villages. The development area extends to some 1005 hectares of which the built development is limited to 175 hectares leaving the majority of the land as existing or landscaped open space. The project has evolved to combine with the landowners and promoters of the neighbouring Briggens Estate adding one further village to bring the total capacity to 10,000 houses. The combined landholding is referred to collectively as GPE within this report.

1.2 GPE was identified as a Broad Location in the EHDP at the time of drafting the original Mineral Evaluation report. At an extraordinary Meeting on 22nd September 2016 on the East Herts Pre-Submission District Plan the Council confirmed that the Gilston Area (villages 1 -7) should be reclassified to a full Site Allocation.

1.3 Representations on the EHDP by Hertfordshire County Council (HCC) as the relevant Mineral Planning Authority identified the potential for mineral sterilisation through built development contrary to national and local planning policy. The National Planning Framework and Practice Guidance (NPPF and NPPG) include provision for mineral safeguarding. NPPF paragraph 143 incorporates a requirement for ensuring that Mineral Safeguarding Areas and Mineral Consultation Areas (MCA) are defined and delineated on maps. This process is designed to ensure that known resources are not needlessly sterilised by non mineral development.

1.4 Hertfordshire has an established MCA, as a safeguarding measure for sand and gravel deposits in the county, supported by information produced by the British Geological Society (BGS). GPE is located fully in the MCA. Designation of land in the MCA may not mean mineral extraction will be permitted or that alternative development will be prevented. Given that the majority of the GPE area shows a continuous or near continuous bed of sand and gravel HCC advised that the potential for mineral sterilisation would need to be investigated and prior extraction considered to “inform appropriate decision making and factor into the timing of housing and associated infrastructure

delivery the need to extract minerals on a phased approach to development or delayed until prior extraction has occurred". In summary the HCC Collated response dated 22nd May 2014 stated that "If studies conclude that there are no mineral reserves then the site or broad location could come forward for development sooner".

1.5 The presumption in favour of protecting minerals in the MCA is further supported by Policy 5 – Mineral Sterilization in the current Mineral Local Plan 2002 – 2016, adopted 27th March 2007. Minerals Policy 5 states that '*…The County Council will object to any development proposals within, or adjacent to areas of potential mineral resource, which would prevent, or prejudice potential future mineral extraction*" Policy 5 includes provision for development within areas of potential mineral resources to demonstrate that;

- the land does not contain potentially workable mineral deposits; and/or
- there is an overriding need for the development; and
- the mineral cannot be practically extracted in advance.

1.6 The Minerals Local Plan is in the early stages of review. A call for sites, where operators/landowners were invited to nominate land areas for future extraction, was undertaken between February 2016 to April 2016. It is presumed that none of the PfP Gilston land or the Briggens Estate land was put forward for consideration for future extraction. The Plan programme anticipated a draft Minerals Plan would be issued in autumn 2016 although this has not be published for consultation as yet.

1.7 HCC reserved its position in representations dated 22nd May 2014 and stated that "Previous Duty to Co-operate discussions have been held with East Herts Council regarding the avoidance of unacceptable sterilisation of mineral resources as a result of the proposed allocation of sites for future development. Built development should accord with Policy 5: Minerals Sterilisation, of the Minerals Local Plan Review 2002-2016, adopted March 2007." HCC concluded "There is potential for mineral sterilisation in this area"

1.8 The purpose of the Mineral Evaluation report was to demonstrate that there are not potentially workable mineral deposits in the GPE area, meeting element i) of Policy 5. This was undertaken by review of available geological and borehole data as summarised in Section 2 of this report. The potential for opportunistic prior extraction under item iii) of Policy 5 was not directly considered and may only become apparent once ground works start in earnest and the material quality tested for selective utilisation on site. The overriding need for the housing development is beyond the scope of this report.

1.9 The Mineral Evaluation report dated June 2015 was submitted to HCC for consideration and HCC's response dated 14th July 2015, appended, confirmed that

"I am grateful of the detail that your report goes into and am inclined to agree that any substantial mineral working on this area would not prove beneficial. As discussed at the meeting, it should still be considered that some material could be used within the construction of the residential development itself.

Our standard response to planning applications where this may be applied is;

'The development may give rise to 'opportunistic' use of some minerals at the site that could be utilised in the development itself. Examination of these opportunities would be consistent with the principles of sustainable development."

1.10 It has been sufficiently demonstrated to HCC that the GPE land does not contain potentially workable mineral deposits and therefore satisfies Minerals Policy 5 i). A policy objection to a planning application for the housing proposal on mineral sterilisation grounds cannot be substantiated. Selective prior extraction could be undertaken whilst developing the site for housing.

2 Mineral Resource Assessment

2.1 The sand and gravel resources of the UK were surveyed by the Industrial Minerals Assessment Unit on a regional scale from 1968 to 1990. This was an initial mapping initiative and there was no obligation to review or repeat the process once geological information about each area had been captured. In a series of Mineral Assessment Reports produced by the British Geological Society (BGS) using the data for each area surveyed a report was issued describing and quantifying the resources of sand and gravel, with an accompanying 1:25 000 map. The survey included drilling and sampling of the sand and gravel resources, logging of the borehole material and particle-size analysis to determine the proportion of gravel, sand and fines present. The maps categorise the sand and gravel resources as: exposed, present beneath overburden or potentially not workable.

2.2 The purpose of the BGS survey was "*estimation of resources, which include deposits which are not currently exploitable but have a foreseeable use, rather than reserves which can only be assessed in the light of current, locally prevailing, economic consideration.*" The sampling and testing frequency therefore had to be sufficiently robust to provide confidence about the underlying and surface geology for current and potential future exploitation. The BGS reports note however that "*It follows that the whereabouts of reserves must still be established and their size and quality proved by the customary detailed exploration and evaluation undertaken by the industry*".

2.3 The BGS assessed and analysed the potential for sand and gravel across a wide area of Hertfordshire. A network of shell and auger boreholes were drilled and graded showing a range of thicknesses of sand and gravel and overburden and the occurrence of surface deposits mapped. The BGS determined the position and frequency of borehole locations based on existing knowledge of geology from previous mapping exercises, patterns of commercial exploitation of reserves and statistical analysis. The BGS report for this area is Mineral Assessment Report number 46, the Sand and Gravel Resources of country north of Harlow, Essex. The purpose of the report was to provide reliable reference material to allow minerals resources over a wide area to be considered both as future

working areas and to protect potential extraction areas from sterilisation from other development.

2.4 There are 17 BGS boreholes located within the GPE boundary of which 8 are located in the vicinity of the proposed villages. The borehole locations are shown on Plan 13419/1. The BGS borehole results and outcrop map provides an indication of the presence of sand and gravel although this information alone is insufficient to justify future development for minerals extraction or rule out permanent alternative built development. Places for People commissioned additional exploratory drilling in 2013 across the proposed GPE Village 1 to 6 development areas to supplement the BGS information. The additional borehole investigation was undertaken by AECOM and this ground Investigation was specifically designed to meet the objectives of an exploratory investigation to identify abnormal geo-environmental risk issues; the investigation was not designed to identify potential mineral reserves. The borehole information additional to the BGS data for villages 1 to 6 is not to industry standard in terms of frequency of boreholes and type of drilling. However industry would likely not have undertaken additional drilling of this area in the first instance because the BGS boreholes are on the whole not encouraging about the resource potential of the land. Full resource testing is expensive and industry would require a compelling case for investigating the land further.

2.5 AECOM drilled 13 shell & auger boreholes, to full depth recording the sequences to bedrock, and an additional 16 geotechnical terrier 2000 technique boreholes, limited to a maximum 6.45m below the surface, located within the village development footprint areas. This data is representative of the sand and gravel resources for the village development areas. The village footprints superimposed on the BGS mapping information together with borehole locations are annotated on Plan 13419/1. A limited number of the AECOM boreholes do however contribute to the mineral resource assessment and support the information produced by the BGS and referred to in the Mineral Evaluation for HCC. The additional borehole information provides sufficient supplementary supporting information adequate to conclude that there is not sufficient thickness or extent of sand and gravel deposits within the village 1 to 6 footprints to justify establishment of a new independent mineral working. As safeguarding issues arise where

economically workable mineral may be permanently sterilised by other forms of development only the village built footprint areas have been subject of further exploratory drilling. Land outside of the built development area has not been investigated further as open land will be available for future exploration.

2.6 The Briggens Estate land, to the west of the main area, identified for Village 7, was outside of the scope of the AECOM supplementary drilling. However in addition to the single BGS borehole on the southern boundary of this area exploratory drilling was undertaken in 1992 and 2005 and 29 boreholes drilled in approximately a third of the Village 7 area. The additional boreholes on the Briggens Estate land of village 7 has been drilled to industry standard, the frequency of boreholes per acre is greater in this investigation as the operator was seeking to model the full extent of the deposit and potential complications to extraction including overburden thicknesses, silts and thickness of the deposit. Although grading analysis is not available the results provided show the thickness of overburden and sand and gravel. The borehole locations together with the thickness of overburden and deposit are shown on Plan 13419/2. The concentration of boreholes in this area, undertaken by a mineral operator, is significantly higher than the BGS study, partly as a function of cost, and due to the borehole results and interpretation of the geology in this area indicating better potential for a viable resource. However as referred to in 2.10 below it does not meet economic or operational criteria.

2.7 HCC site identification criteria used in previous mineral plan processes applied in 2009 and accepted by industry, include;

- Minimum resource 1 million tonnes for a new site
- Mean thickness of sand and gravel 5m
- Ratio overburden to sand and gravel no worse than 1:1
- Fines content no worse than 15%

2.8 The BGS and Places for People borehole results are considered in more detail on a Village by Village basis in the narrative of Appendix 1 and borehole logs attached in Appendix 2. The boreholes do not support the mean thickness or overburden ratio factors. A number

of the boreholes record outwash sand and gravel in the Lowestoft Beds which are known to be of poor quality with an unfavourable silt content, poor grading and contamination with chalk. The borehole evidence does not indicate that economically viable deposits underlie land at GPE proposed for housing development.

2.9 Borehole information available outside of the proposed built development footprint of the GPE project as referred to in para 2.5 above may indicate potentially viable resources. BGS borehole SE35 to the east of the GPE land recorded 6.9m of sand and gravel under 2.9m of overburden, with a good balance of sand and gravel and low silt content, which is a very favourable geological sequence. The land located around this borehole is identified as a Mineral Resource Block, Site 4, as having future potential for extraction. However built development from the project is not intended for these areas and the land will be available in the future so sterilization or pre extraction issues do not arise.

2.10 Land to the south of Village 7 is also included in a Mineral Resource Block, Site 1, on the strength of BGS borehole SW21. This borehole similarly inspired investigation of the Briggens Estate land and borehole results including part of Village 7 drilled in 1992 and 2005 by Lafarge indicating a potential reserve of 1.3 million tonnes. The borehole data refers only to the thickness of the overburden and the deposit, there is no information on the grading including silt content, fines, sand fraction and size of gravel. However the parameters of this assessment were an overburden to sand and gravel ratio of 1.3:1 and a variation in the thickness of the deposit from 3m to 6m resulting in a mean average thickness of 4.5m. The reserve potential of this land has been known for over 20 years. Previous discussions have been held with both HCC and operators. CPP did receive interest from aggregate extraction companies dating back to 2008, however their area of interest was land containing mineral deposits situated to the west of the Briggens Estate close to Abbots Langley. Village 7 is some distance away from the main area of mineral deposits and has never been considered by operators to be of sufficient size and volume to warrant extraction given the levels of overburden and the associated costs of extraction. Accordingly, given the lack of operator interest for viable extraction of these limited reserves, it is not considered that this location would be appropriate for mineral extraction.

3 Conclusions

3.1 The geological data available confirms the presence of sand and gravel within the site. However the deposit does not meet minimum criteria stipulated by HCC for site identification of economic resources.

3.2 BGS data supports the safeguarding provisions of the Mineral Consultation Area unless the prospective developer of an alternative land use, which may sterilize mineral resources, proves otherwise. The borehole information supplementing the BGS data forms a fuller picture of the site geology and indicates that economic resources are not present in the development footprints of the proposed Villages in GPE.

3.3 The tests of planning policy in the Minerals Local Plan are met in respect of GPE as from information available the land does not contain potentially workable deposits and there is no opportunity for prior working because the deposits are not economic to extract.

3.4 The borehole results for Village 7 indicated a potential reserve of 1.3 million tonnes at an overburden to sand and gravel ratio of 1.3:1 and a mean average thickness of 4.5m. The identified resource parameters are only marginally above the criteria considered for site allocation. Given the lack of operator interest for extraction and the challenges associated to viably extracting from this location, this location is not considered appropriate for any future mineral allocation.

Appendix 1 – Village Mineral Resource Assessment

Village 1

A1.1 There are some 7 boreholes in the curtilege of Village 1. Significantly the BGS borehole SW30, located in the northern tip of this development area, shows 2 horizons of sand and gravel the first at 2.3m thick under 8.2m of overburden and the second horizon 5.4m thick after a further 1.3m of clay. This equates to a total of 9.5m of overburden to 7.7m of sand and gravel which does not meet the HCC criteria overburden to sand and gravel ratio for an economic deposit although the mean thickness is exceeded. This is the most significant thickness of deposit within the whole development site.

A1.2 However borehole BH13 to the south east of SW30 records clay from the Lowestoft beds. There is no correlation between these two boreholes. This suggests that the geology is interrupted and the deposit does not continue south into the main part of Village 1.

A1.3 BGS borehole SW37 on the southern boundary of Village 1 is promising with 1.1m overburden overlying 3.3m mineral which meets HCC ratio criteria but the sand and gravel is significantly shallower than the mean thickness of 5m. Boreholes BH11 and BH12 to the immediate east and west of SW37 indicate sand and gravel of 1.3m and 2.65m thick below a thin layer of overburden.

A1.4 Within the body of the Village 1 area boreholes WS13 and WS14 provide useful corroborating information to build a picture of the underlying geology. They record only clay from the Lowestoft formation up to the maximum drilling depth of 6.45m. This differs from the borehole records on the southern boundary, SW37, BH11 and BH12 referred to in A1.3 above, showing the overburden to thicken significantly to the centre of Village 1.

A1.5 The results for Village 1 do not support an economic deposit.

Village 2

A1.6 There is not a BGS borehole marginal to or within the area of Village 2. Three shell and auger boreholes were located at or close to the margins of the area and two geotechnical boreholes within the site. BH10 which is on the southern boundary of this area close to existing development recorded a favourable ratio of 2m overburden to 5.5m mineral. However the mineral is referred to as outwash gravel part of the Lowestoft formation, previously known as boulder clay. Although classified as sand and gravel this is likely to be commercially less favourable than glacio-fluvial deposits due to the grading, percentage silt content and contaminants including chalk in the deposit.

A1.7 The potential of the BH10 result is tempered by the findings of WS11 and WS12 towards the centre of Village 2 which capture only clay in the Lowestoft formation beds up to 6.45m. So if the potential of BH10 was to be realised indications are it peters out as the thickness of overburden has increased significantly.

A1.8 WS10 is on the very northern most point of Village 2 and it supports the view that sand and gravel is either absent or at significant depth in this area. Furthermore the findings show chalk in the deposit which is undesirable for sand and gravel produced to go into concrete products.

A1.9 The borehole findings for Village 2 do not support an argument for safeguarding this area from other development.

Village 3

A1.10 All the borehole information relating to Village 3 is restricted to the margins of the area. Of the three BGS boreholes, all located within the river corridor, only one, SE33 on the furthest north boundary of this area, proved the presence of sand and gravel. A slightly more encouraging thickness at 4.2m under overburden at 2.6m. This would meet ratio limits although be marginal when evaluated by mean thickness of deposit.

A1.11 However, borehole BH06 is located close to SE33 and it indicates 1.75m outwash gravel under 2.8m overburden. This suggests that the deposit identified by SE33 does not extend south in to the Village 3 area. Outwash gravels appear in boreholes BH04 and BH07 located in the river corridor on the western boundary of this village area. Although the thickness in BH07 is more encouraging at 4.5m under 2.6m of overburden the outwash classification means this deposit will be unsuitable.

A1.12 Borehole information is limited largely to the margins of this Village area. WS10 in Village 2, close to the southern Village 3 boundary, and WS09 just outside the Village 3 footprint both only record clay.

A1.13 The borehole data for Village 3 indicate it is unlikely that economic deposits are located here.

Village 4

A1.13 The BGS borehole SW28 on the western boundary proved clay only as did SW32 on the northern most tip of the village area. Borehole BH05 on the northern boundary, to the south of SW32, also recorded clay.

A1.14 WS04 and WS06 on the west and east margins to the area respectively recorded sand. These deposits are 1.25 and 1.85m respectively. WS05 in the centre of the site proved the presence of clay only. WS07 on the eastern boundary picked up 0.48m outwash gravel.

A1.15 The borehole information for Village 4 does not support the presence of economic deposits of sand and gravel.

Village 5

A1.16 Village 5 does not have a BGS borehole located within it although SW30 in Village 1 is nearby.

A1.17 Borehole BH03 shows 2.83m of outwash sand under 5.6m overburden, and WS16 on the western boundary proves 0.9m gravel under 2.5m overburden. WS15 towards the centre of the site identified two horizons of outwash sand totalling 0.9m thickness with 4.5m overburden.

A1.18 The thickness of deposit, overburden and type of sand and gravel make this of no interest for commercial exploitation.

Village 6

A1.19 BGS borehole SW25 just outside the Village footprint, on the north eastern corner of Village 6, and the inferred boundary of the deposit, recorded clay only. Close to this borehole BH02 also proved clay only and borehole BH01 on the eastern boundary of the village proved clay only as well.

A1.20 WS02 close to the centre of this area found 1m of outwash sand under 5.45m overburden. Conversely WS01 found a fractured horizon of outwash gravel interleaved with clay of over 3.1m thickness under 1.9m overburden but the mineral proportion amounted to only 1.8m.

A1.21 Village 6 information does not support evidence of a viable deposit.

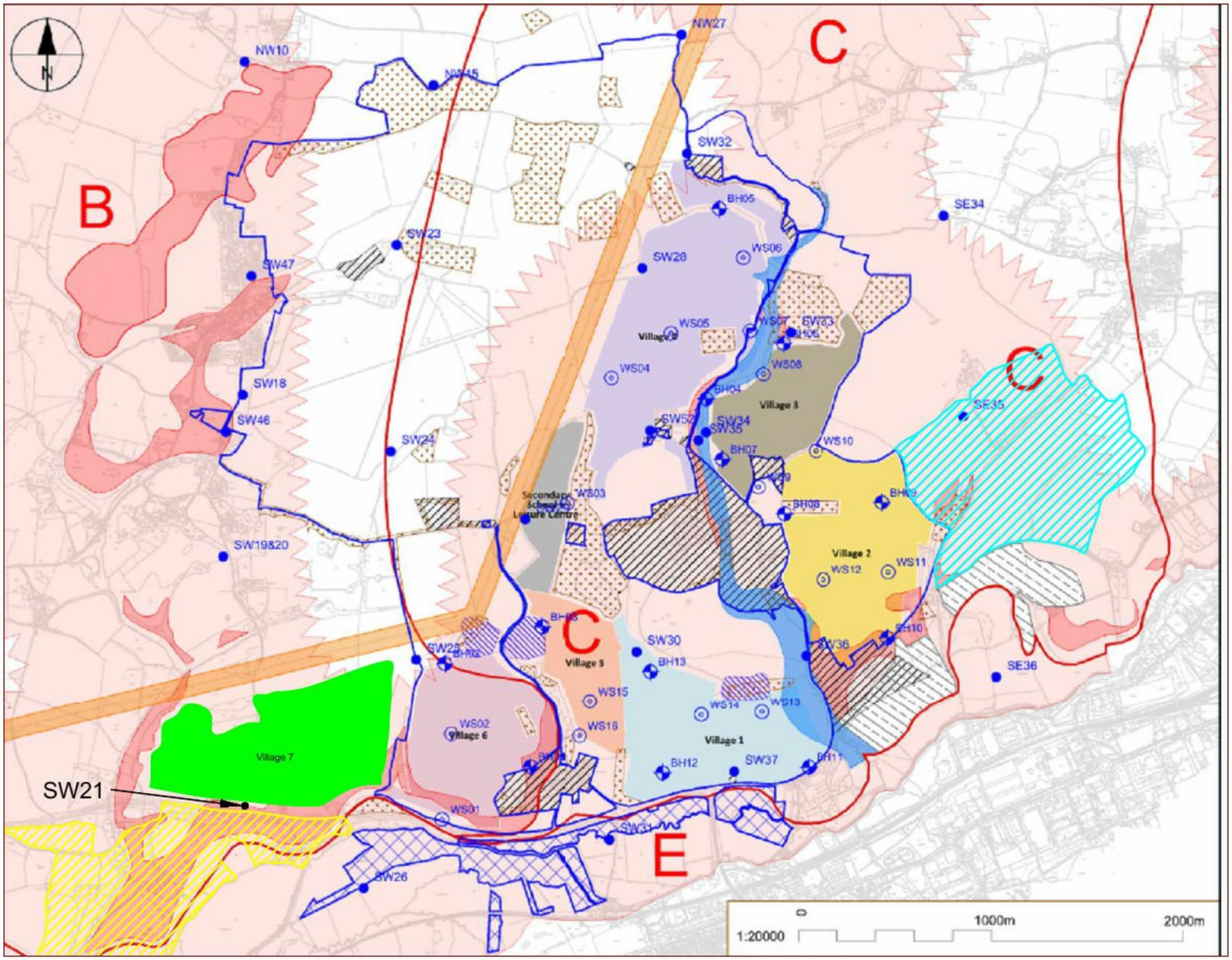
Village 7

A1.22 A single BGS borehole SW21 on the southern boundary of this area proved 2 horizons of sand and gravel totalling 4.9m under an overburden thickness of 3.5m. The BGS boreholes

indicated a favourable grading. It is likely that this BGS information lead to Lafarge identifying the area for further investigation.

A1.22 Lafarge drilled 29 boreholes in the area relating to Village 7 which proved the presence of two horizons over half the area with a mineral thickness increasing from 3m close to the road up to 6m to the north and overburden varying from 4m to 10m. The ratio was calculated at 1.3:1.

A1.23 The reserve potential is 1.3 million tonnes. However, although grading results are not available, the thickness of the deposit is variable and the overburden ratio is marginal for an economic operation in today's terms. The site has not been progressed by industry as a prospect for more than 12 years. HCC has not concluded that this is a potential resource for protection from sterilisation.



Key

Site Ownership Boundary

BGS Mineral Assessment

- Resource Block Boundary
- Inferred Boundary Between Recognized Categories of Deposits
- Sand and Gravel Absent or Not Potentially Workable
- Continuous or Almost Continuous Spreads of Minerals Beneath Overburden
- Exposed Mineral
- Made Ground
- C — Resource Block Designation

Excluded Areas

- Southern Zone*
- Existing Development
- River Corridor
- Ecological Feature
- Archaeological Feature
- Major Infrastructure (50m Buffer)

Exploratory Sampling

- SW#
- BH#
- WS#

Sites

- Site 1
- Site 4

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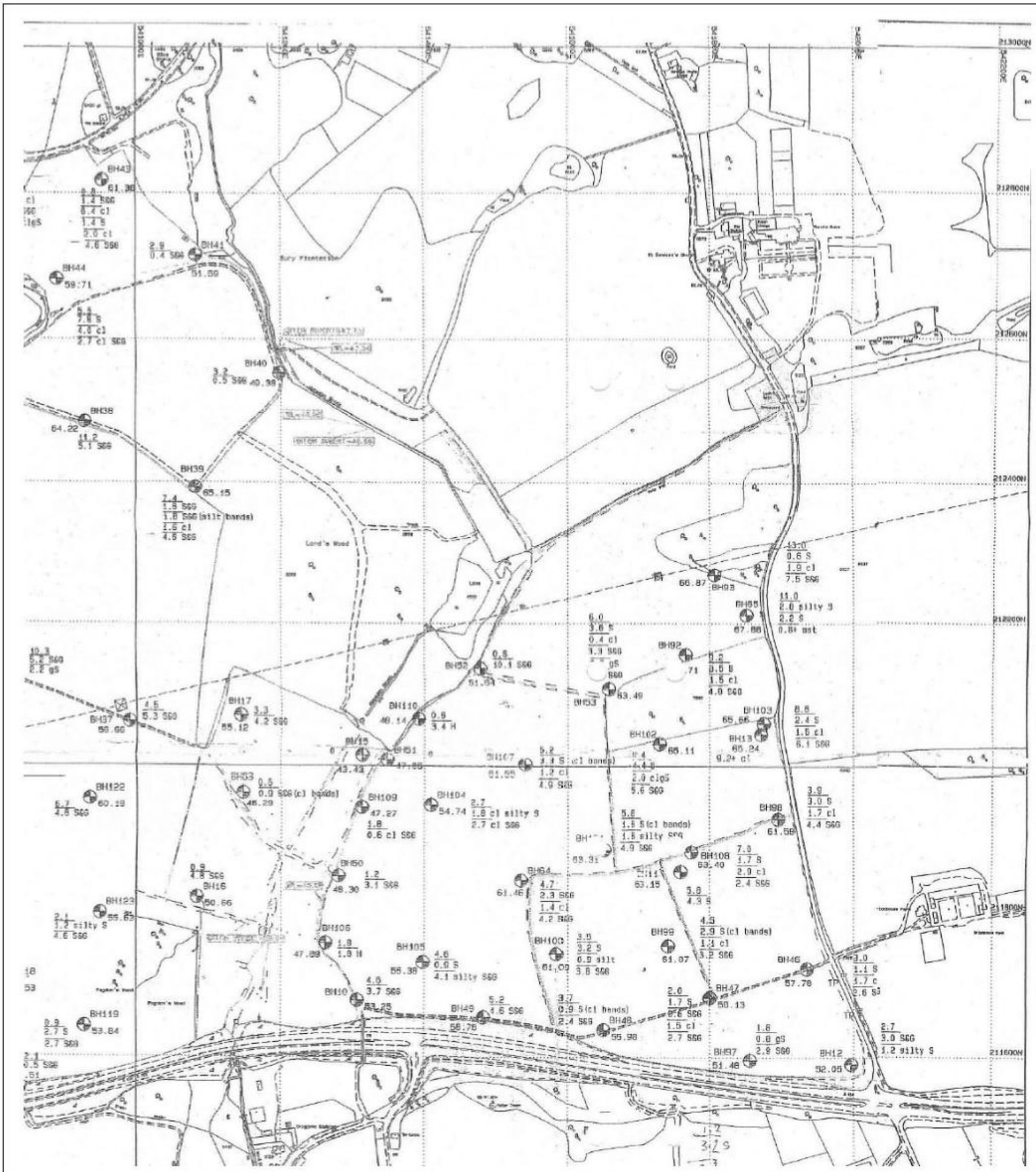
Drawing

Minerals Evaluation

Project

Gilston Park Estate

Drawn	Date	Scale	Drawing No
MPB	June 2015	Not to Scale	13419/1



Drawing

Village 7 Boreholes

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Project

Gilson Park Estate

Drawn	Date	Scale	Drawing No
MPB	11/06/2015	Not To Scale	13419/2

Geotechnical Engineering Limited

BOREHOLE LOG

BH11

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 6 June 2013 Easting 544736.9 Scale 1 : 50

End Date 6 June 2013 Northing 211805.1 Ground level 49.35mOD Depth 9.95 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 0800hrs	1B	0.10						Orangish brown slightly gravelly silty fine SAND. Gravel is subangular to subrounded fine to coarse siliceous. (TOPSOIL)	0.30	49.05	
	2D*	0.10									
	3D	0.10									
	4B	0.50						Loose orangish brown slightly gravelly silty fine to medium SAND. Gravel is angular to subangular fine to coarse flint. (GLACIO-FLUVIAL DEPOSITS)			
	5D*	0.50									
	6B	1.00									
	7D	1.20	1.65	1.20	S 6						
	8B	1.60							1.60	47.75	
								Firm becoming stiff orangish brown mottled grey and white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium locally coarse chalk. (LOWESTOFT FORMATION)			
	9D	2.20	2.65	1.70	S 17						
	11D	3.00	3.45	2.60	S 16				3.10	46.25	
	10B	3.00	4.00					Stiff dark grey mottled white slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. (LOWESTOFT FORMATION)			
	12D	4.00	4.45	2.60	S 22						
	13D	5.00	5.45	2.60	S 23						
	14D	6.00									
	15D	6.50	6.95	2.60	S 18				6.50	42.85	
								Stiff brown locally grey and white slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. (LOWESTOFT FORMATION)			
	16D	7.50									
								Continued Next Page	(8.00)		

EQUIPMENT: Light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-9.95m.

CASING: 150mm diam to 2.60m.

BACKFILL: On completion, a slotted standpipe (50mm) with geosock was installed 3.00-9.95m, granular response zone 3.00-9.50m, bentonite seal 2.00-3.00m, a second slotted standpipe (50mm) with geosock was installed 1.00-2.00m, granular response zone 1.00-2.00m, bentonite seal 0.10-0.50m, concrete and raised cover 0.00-0.10m.

REMARKS: Soakaway test carried out in borehole 1.70-2.20m. Gas monitoring during drilling @ every 1m throughout the borehole reported combex 0.0%, CO 0.0%, H2S 0.0%, O2 20.8%. PID readings obtained from samples @ every 1m throughout the borehole reported 0.0ppm.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH11

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 6 June 2013 Easting 544736.9 Scale 1 : 50

End Date 6 June 2013 Northing 211805.1 Ground level 49.35mOD Depth 9.95 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	17D	8.00 - 8.45	2.60	S 20						
	19D	9.00								
	18B	9.00 - 9.50								
06/06/13 1700hrs dry	20D	9.50 - 9.95	2.60	S 19						
							Borehole completed at 9.95m.	9.95	39.40	
								(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

Groundwater not encountered.

CONTRACT 28182

CHECKED EW

Geotechnical Engineering Ltd. Tel. 01452 527743 28182.GPJ TRIAL.GPJ GEOTECH.GLB 17/09/2013 14:55:18 RS EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH12

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 12 June 2013 Easting 543986.7 Scale 1 : 50

End Date 13 June 2013 Northing 211775.9 Ground level 45.99mOD Depth 10.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
12/06/13 1200hrs	1B	0.10						Orangish brown mottled grey slightly clayey very sandy subangular fine to coarse flint and siliceous GRAVEL. (POSSIBLE MADE GROUND)	0.40	45.59	
	2D*	0.10						Dense orangish brown and grey clayey very sandy subangular to rounded fine to coarse flint and siliceous GRAVEL with a low cobble content of flint. (GLACIO-FLUVIAL DEPOSITS)			
	3D	0.10									
	4B	0.50									
	5D*	0.50									
	6B	1.00									
		1.20	1.65	1.20	C 49						
	7B	1.20	1.65								
12/06/13 1700hrs dry	8B	1.50	2.00								
13/06/13 0730hrs dry		2.00	2.45	2.00	C 56				2.50	43.49	
	9B	2.00	2.50					Orangish brown and grey very gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint and siliceous. (GLACIO-FLUVIAL DEPOSITS)			
	10D	3.05						Firm reddish brown slightly sandy CLAY. (GLACIO-FLUVIAL DEPOSITS)	3.05	42.94	
	11B	3.05	4.00								
	12UT	4.00	4.45	3.50				Stiff dark brownish grey silty CLAY. (LONDON CLAY)	4.10	41.89	
	13D	4.50	4.95	3.50	S 20						
	14B	4.20	5.00								
	15UT	5.00	5.45	3.50							
	16D	5.50	5.95	3.50	S 19			Stiff indistinctly thinly laminated dark grey CLAY. (LONDON CLAY)	5.50	40.49	
	17D	6.25									
	18UT	6.50	6.95	3.50							
	19D	7.00	7.45	3.50	S 23						
								Continued Next Page	(8.00)		

EQUIPMENT: Light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-10.45m.

CASING: 150mm diam to 3.50m.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 3.10-10.00m, a slotted standpipe (50mm) with geosock was installed 1.10-3.10m, granular response zone 1.10-3.10m, bentonite seal 0.20-1.10m, concrete and raised cover 0.00-0.20m.

REMARKS: Soakaway test carried out in borehole 1.70-2.00m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

AGS

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH12

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 12 June 2013 Easting 543986.7 Scale 1 : 50

End Date 13 June 2013 Northing 211775.9 Ground level 45.99mOD Depth 10.45 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	20UT	8.00 - 8.45								
	21D	8.50 - 8.95	3.50	S 23						
	22D	9.25								
	23UT	9.50 - 9.95	3.50							
								9.80	36.19	
13/06/13 1230hrs dry	24D	10.00 - 10.45	3.50	S 46			Very stiff dark brownish grey slightly sandy silty CLAY. (LONDON CLAY)			
								10.45	35.54	
							Borehole completed at 10.45m.			
								(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

Groundwater not encountered.

AGS

CONTRACT 28182

CHECKED EW

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BOREHOLE LOG

BH13

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 3 June 2013 Easting 543923.9 Scale 1 : 50

End Date 4 June 2013 Northing 212299.9 Ground level 63.27mOD Depth 7.94 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
03/06/13 1515hrs	1B	0.10						Soft brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk and siliceous (TOPSOIL)	0.25	63.02	
	2D*	0.10						Firm locally stiff light brown slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subrounded fine to medium chalk. (LOWESTOFT FORMATION)			
	3D	0.10							1.20	62.07	
	4B	0.50						Firm light brown slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subrounded fine to medium chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00									
	7UT	1.20	1.65	nil							
	9X	1.20	2.20								
	8D	1.65	2.10	nil	S 8						
	10UT	2.20	2.65	nil				2.20m: Locally stiff.			
	12X	2.20	3.20								
									2.70	60.57	
03/06/13 1700hrs 2.42m	11D	2.65	3.10	nil	S 9			Soft light grey slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subrounded fine to medium chalk. (LOWESTOFT FORMATION)	3.00	60.27	
									3.20	60.07	
04/06/13 0800hrs 2.38m	13UT	3.20	3.65	3.20				Soft off white mottled orangish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	15X	3.20	4.20								
	14D	3.65	4.10	3.20	S 27			Stiff brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk with rare siliceous. (LOWESTOFT FORMATION)			
	UT	4.20	4.65	3.20				3.20 - 4.20m: Limited recovery.			
	18X	4.20	5.20								
	16UT	4.65	5.10	3.20				4.65m: Locally very stiff.			
									5.50	57.77	
	17D	5.10	5.55	4.20	S 37			Very stiff dark brown slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk with rare siliceous . (LOWESTOFT FORMATION)			
	19X	5.20	6.00								
	20D	6.00	6.45	4.20	S 43						
	21X	6.00	7.50								
04/06/13 1400hrs 5.23m	22D	7.50	7.94	4.20	S*52				7.94	55.33	
								Borehole completed at 7.94m.	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (146mm) 1.20-3.20m, (113mm) 3.20-6.00m and (98mm) 6.00-9.20m.

CASING: 140mm diam to 4.20m.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 7.50-4.00m, a slotted standpipe (50mm) with geosock was installed 4.00-1.90m, granular response zone 4.00-1.90m, bentonite seal 1.90-1.00m, a second slotted standpipe (50mm) with geosock was installed 1.00-0.40m, granular response zone 1.00-0.40m, bentonite seal 0.40-0.20m, concrete and raised cover 0.20-0.00m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
2.80	Nil	2.00	20	

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

WS13

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 4 June 2013 — Easting 544495.7 — Scale 1 : 50

End Date 4 June 2013 — Northing 212089.9 — Ground level 53.70mOD — Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
04/06/13 0840hrs	1B	0.10	0.20					Soft brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk and siliceous. (TOPSOIL)	0.30	53.40	
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60		H 59			Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00	1.10		H 50						
	7D	1.20	1.65	Nil	S 16						
	8X	1.20	2.00								
	9D	2.00	2.45	Nil	S 21				1.90	51.80	
	10X	2.00	3.00					Stiff brown mottled grey slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to medium chalk. (LOWESTOFT FORMATION)			
	11D	3.00	3.45	Nil	S 32						
	12X	3.00	4.00					3.00m: becoming very stiff 3.10 - 3.40m: gravel is subangular to rounded fine to coarse siliceous			
	13D	4.00	4.45	Nil	S 35						
	14X	4.00	5.00								
	15D	5.00	5.45	Nil	S 40				4.80	48.90	
	16X	5.00	6.00					Very stiff brown mottled grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to medium chalk. (LOWESTOFT FORMATION) 5.00 - 6.45m: light grey			
04/06/13 1000hrs Dry	17D	6.00	6.45	Nil	S 34				6.45	47.25	
								Borehole completed at 6.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (74mm) 3.00-4.00m and (64mm) 4.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS14

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 3 June 2013 Easting 544184.5 Scale 1 : 50

End Date 3 June 2013 Northing 212075.5 Ground level 52.43mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
03/06/13 1400hrs	1B	0.10	0.20					Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. (TOPSOIL)	0.30	52.13	
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60		H 60			Firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00	1.10		H 45						
	7D	1.20	1.65	Nil	S 14				1.20	51.23	
	8X	1.20	2.00					Firm light brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous. (LOWESTOFT FORMATION) 1.40m: Subangular cobble.			
	9D	2.00	2.45	Nil	S 20				2.05	50.38	
	10X	2.00	3.00					Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium chalk. (LOWESTOFT FORMATION)			
	11D	3.00	3.45	Nil	S 25			2.80 - 3.00m: Frequent decomposing rootlets.	3.10	49.33	
	12X	3.00	4.00					Stiff becoming very stiff dark brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to medium chalk. (LOWESTOFT FORMATION) 3.60 - 3.80m: Frequent decomposing rootlets.			
	13D	4.00	4.45	Nil	S 30						
	14X	4.00	5.00								
	15D	5.00	5.45	Nil	S 36						
	16X	5.00	6.00					5.50 - 6.00m: Locally gravelly.			
03/06/13 1730hrs Dry	17D	6.00	6.45	Nil	S 34			5.90m: 2 No subangular chalk cobbles.	6.45	45.98	
								Borehole completed at 6.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

TL 41 SW 30 4385 1240 Gilston Park, Gilston **Block C**

Surface level +61.4 m
Water not struck
Shell 152 mm diameter
November 1975

Overburden 8.2 m
Mineral 2.3 m
Waste 1.3 m
Mineral 5.4 m
Bedrock 1.8 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Boulder Clay	Clay, chalky, pebbly, brown to light grey, soft	3.7	3.9
	Clay, chalky, silty, pebbly, grey blue, firm	0.7	4.6
	Sand, clayey, firm	0.2	4.8
	Clay, silty, chalky, flinty, grey blue, firm	3.2	8.0
	Clay, chalky, pebbly, sandy, silty, brown, firm	0.2	8.2
Glacial Sand and Gravel	a Sand, clayey and pebbly at base Sand: medium with some fine and a trace of coarse, predominantly quartz, yellow brown Gravel: fine and coarse, angular to subrounded flint, with rounded chalk and some quartz, quartzite and sandstone	2.3	10.5
Boulder Clay	Clay, sandy, silty, chalky, pebbly, brown, firm	0.4	10.9
	Clay, chalky, pebbly, silty, blue grey, firm	0.6	11.5
	Clay, silty, pebbly, sandy and chalky in parts, brown, firm	0.3	11.8
Glacial Sand and Gravel	b Gravel, clayey at top becoming coarser with depth Sand: medium with coarse and fine, predominantly quartz, with some angular coarse flint, brown Gravel: fine and coarse with a trace of cobble, angular to subrounded flint, with some quartz and quartzite, and a trace of sandstone	5.4	17.2
London Clay (Basement Bed)	Clay, sandy, silty, olive grey to blue grey, with selenite crystals, pyrite nodules, glauconite, wood fragments and decalcified shell debris, firm	1.8+	19.0

TL 41 SW 37 **4435 1178** **Lodge House, Eastwick** **Block C**

Surface level +46.0 m
Water not struck
Shell 152 mm diameter
November 1975

Overburden 1.1 m
Mineral 3.3 m
Bedrock 1.5 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Head	Clay, silty, sandy, pebbly at base, yellow brown, soft	0.9	1.1
Glacial Sand and Gravel	Gravel, 'clayey' at top becomes coarser with depth Sand: medium and coarse with some fine, predominantly quartz, with some angular coarse flint, ochre brown Gravel: coarse and fine, angular to well rounded flint, with some rounded to subrounded quartz, quartzite and sandstone, and a trace of ironstone	3.3	4.4
London Clay	Clay, silty, drab olive grey, broken shells, pyrite nodules and glauconite, soft becoming stiff	1.5+	5.9

Grading

Mean for deposit *percentages*			Depth below surface (m)	*percentages*					
Fines	Sand	Gravel		Fines	Sand			Gravel	
				−$\frac{1}{16}$	+$\frac{1}{16}$ −$\frac{1}{4}$	+$\frac{1}{4}$−1	+1−4	+4−16	+16
6	32	62	1.1–2.1	14	6	14	11	28	27
			2.1–3.1	3	4	14	15	30	34
			3.1–4.4	2	4	14	14	25	41
			Mean	6	5	14	13	27	35

Composition

Depth below surface (m)	Percentages by weight in + 4–16 mm fraction					
	Chalk	Flint	Quartz and Quartzite	Fossil debris	Sandstone	Others
1.1–2.1	–	80	12	–	4	4
2.1–3.1	–	73	15	–	4	8
3.1–4.4	–	69	16	–	7	8
Mean	–	74	14	–	5	7

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BOREHOLE LOG

BH08

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 2

Start Date 11 June 2013 — Easting 544611.2 — Scale 1 : 50

End Date 11 June 2013 — Northing 213110.3 — Ground level 58.10mOD — Depth 8.19 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
11/06/13 1230hrs	1B	0.10						Stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse flint. (TOPSOIL)	0.30	57.80	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H>120			Stiff orangish brown mottled white and grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. With low cobble content of flint. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00									
	7D	1.20	1.65	nil	S 28						
	8X	1.20	2.20						2.20	55.90	
	9UT	2.20	2.65	nil				Stiff orangish brown slightly sandy clayey SILT. (LOWESTOFT FORMATION)			
	11X	2.20	3.20						2.70	55.40	
	10D	2.65	3.10	nil	S 20			Stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk. (LOWESTOFT FORMATION)			
	12UT	3.20	3.65	nil							
	14X	3.20	4.20								
	13D	3.65	4.10	nil	S 27				3.90	54.20	
	15UT	4.20	4.65	nil				Stiff dark grey mottled white gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	17X	4.20	5.20								
	16D	4.65	5.10	nil	S 26						
	18D	5.20	5.65	nil	S 33			5.10 - 5.30m: band of orangish brown and grey clayey gravelly fine to medium sand, gravel is subangular fine to medium siliceous			
	19X	5.20	6.60								
	20D	6.60	7.05	nil	S 49			Very stiff dark grey mottled white gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)	6.60	51.50	
	21X	6.60	7.80								
11/06/13 1715hrs 3.83m	22D	7.80	8.19	nil	S*64			Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (143mm) 1.20-2.20m, (128mm) 2.20-5.20m, (113mm) 5.20-6.60m and (98mm) 6.60-7.80m.

CASING: None used.

BACKFILL: On completion, borehole collapsed 7.20-7.80m, a slotted standpipe (50mm) with geosock was installed 2.40-7.20m, granular response zone 2.40-7.20m, bentonite seal 2.00-2.40m, a second slotted standpipe (50mm) with geosock was installed 0.90-2.00m, granular response zone 0.90-2.00m, bentonite seal 0.20-0.90m, concrete and raised cover 0.00-0.20m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
4.70	nil	4.80	20	Water encountered in run 4.20-5.20m.

CONTRACT 28182 — CHECKED EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH08

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 11 June 2013 Easting 544611.2 Scale 1 : 50

End Date 11 June 2013 Northing 213110.3 Ground level 58.10mOD Depth 8.19 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
									Borehole completed at 8.19m.	8.19	49.91	
										(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

AGS

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Geotechnical Engineering Limited

BOREHOLE LOG

BH09

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 12 June 2013 Easting 545116.2 Scale 1 : 50

End Date 12 June 2013 Northing 213168.8 Ground level 60.51mOD Depth 8.54 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
12/06/13 0800hrs	1B	0.10						Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium locally coarse flint. (TOPSOIL)	0.30	60.21	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H 110			Stiff orangish brown mottled white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00			H 80						
	7D	1.20	1.65	nil	S 14						
	8X	1.20	2.20					1.35 - 1.40m: chalk cobble			
								1.73 - 1.85m: flint cobble			
	9D	2.20	2.65	nil	S 20						
	10X	2.20	3.20						2.50	58.01	
								Very stiff dark grey locally brown mottled white slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk with rare flint. (LOWESTOFT FORMATION)			
	11D	3.20	3.65	nil	S 39						
	12X	3.20	4.20								
	13D	4.20	4.65	nil	S 38						
	14X	4.20	5.20								
	15D	5.20	5.65	nil	S 44						
	16X	5.20	6.60								
	17D	6.60	7.05	nil	S 47						
	18X	6.60	8.10								
									7.25	53.26	
								Stiff dark grey silty CLAY. (LOWESTOFT FORMATION)			
								Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (146mm) 1.20-3.20m, (128mm) 3.20-4.20m, (113mm) 4.20-5.20m, (98mm) 5.20-6.60m and (84mm) 6.60-8.10m.

CASING: None used.

BACKFILL: On completion, a slotted standpipe (50mm) with geosock was installed 3.00-8.54m, granular response zone 3.00-8.10m, bentonite seal 2.00-3.00m, a second slotted standpipe (50mm) with geosock was installed 0.90-2.00m, granular response zone 0.90-2.00m, bentonite seal 0.20-0.90m, concrete and raised cover 0.00-0.20m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH09

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 12 June 2013 Easting 545116.2 Scale 1 : 50

End Date 12 June 2013 Northing 213168.8 Ground level 60.51mOD Depth 8.54 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
12/06/13 1700hrs dry	19D	8.10	8.54	nil	S*52				Very stiff dark grey mottled white slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk with rare flint. (LOWESTOFT FORMATION)	8.10	52.41	
										8.54	51.97	
									Borehole completed at 8.54m.			
										(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

Groundwater not encountered.

CONTRACT 28182

CHECKED EW

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BOREHOLE LOG

BH10

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 11 June 2013 Easting 545144.7 Scale 1 : 50

End Date 12 June 2013 Northing 212473.4 Ground level 48.45mOD Depth 9.95 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
11/06/13 1130hrs	1B	0.10						Firm brown locally grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and siliceous with rare brick and tile fragments. (MADE GROUND)	0.45	48.00	
	2D*	0.10									
	3D	0.10									
	4B	0.50									
	5D*	0.50									
	6B	1.00						Firm brown locally grey and white slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium locally coarse chalk and flint. (LOWESTOFT FORMATION)			
	7D	1.20	1.65	1.20	S 12						
11/06/13 1700hrs dry									1.80	46.65	
	8D	1.80						Soft orangish brown mottled grey and white slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and siliceous. (LOWESTOFT FORMATION)	2.00	46.45	
12/06/13 0730hrs dry	9D	2.00	2.45	1.70	S 13						
	10D	2.75						Medium dense orangish brown and grey silty very sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
	11D	3.00	3.45	3.00	S 26						
	12B	3.00	3.50								
	13B	3.50	4.00								
	14D	3.75									
		4.00	4.45	4.00	C 29						
	15B	4.00	4.50								
	16D	4.75									
		5.00	5.45	5.00	C 33			5.00m: Locally dense.			
	17B	5.00	5.50								
	18B	6.00	6.50								
		6.50	6.95	6.50	C 25						
	19B	6.50	7.00								
	20D	7.05						Firm light orangish brown slightly sandy CLAY. (LONDON CLAY)	7.05	41.40	
	21B	7.40	8.00					Stiff indistinctly laminated dark grey slightly sandy CLAY. (LONDON CLAY)	7.40	41.05	
								Continued Next Page	(8.00)		

EQUIPMENT: Light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-9.95m.

CASING: 150mm diam to 7.30m.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 7.50-9.95m, a slotted standpipe (50mm) with geosock was installed 5.50-7.50m, granular response zone 5.50-7.50m, bentonite seal 4.00-5.50m, a second slotted standpipe (50mm) with geosock was installed 1.00-4.00m, granular response zone 1.00-4.00m, bentonite seal 0.20-1.00m, concrete and raised cover 0.00-0.20m.

REMARKS: Soakaway test carried out in borehole 1.50-2.00m. Gas monitoring during drilling @ every 1m throughout the borehole reported combex 0.0%, CO 0.0%, H2S 0.0%, O2 20.8%. PID readings obtained from samples @ every 1m throughout the borehole reported 0.0ppm.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
5.75	5.00	5.45	20	

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BOREHOLE LOG

BH10

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 11 June 2013 Easting 545144.7 Scale 1 : 50

End Date 12 June 2013 Northing 212473.4 Ground level 48.45mOD Depth 9.95 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	22D	8.00	8.45	7.30	S 19						
	23D	9.00									
12/06/13 1200hrs dry	24D	9.50	9.45	7.30	S 29						
								Borehole completed at 9.95m.	9.95	38.50	
									(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

WS10

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 6 June 2013 Easting 544773.3 Scale 1 : 50

End Date 6 June 2013 Northing 213434.4 Ground level 71.06mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 0800hrs	1B	0.10	0.20					Stiff friable brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk with rare brick. (MADE GROUND)	0.20	70.86	
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60					Stiff light orangish brown mottled grey slightly sandy gravelly locally slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00	1.10								
	7D	1.20	1.65	Nil	S 24						
	8X	1.20	2.00						1.45	69.61	
								Stiff orangish brown mottled black and grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	1.80	69.26	
	9D	2.00	2.45	Nil	S 10						
	10X	2.00	3.00					White and brownish grey mottled orangish brown slightly sandy gravelly SILT. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	2.35	68.71	
								Firm light brownish grey slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	11D	3.00	3.45	Nil	S 11						
	12X	3.00	4.00								
	13D	4.00	4.45	Nil	S 14						
	14X	4.00	5.00						4.45	66.61	
								Stiff greyish brown slightly gravelly locally gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	15D	5.00	5.45	Nil	S 14						
	16X	5.00	6.00								
06/06/13 1730hrs Dry	17D	6.00	6.45	Nil	S 16				6.45	64.61	
								Borehole completed at 6.45m.			
									(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

WS11

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 6 June 2013 Easting 545148.0 Scale 1 : 50

End Date 6 June 2013 Northing 212811.4 Ground level 57.62mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 1010hrs	1B	0.10	0.20						Firm friable brown slightly gravelly sandy CLAY. Gravel is subangular to rounded chalk and rare brick with low cobble content. (MADE GROUND)	0.20	57.42	
	2D	0.10										
	3D*	0.10										
	4B	0.50	0.60						Firm brown mottled grey and white slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk . (LOWESTOFT FORMATION)			
	5D*	0.50										
	6B	1.00	1.10									
	7D	1.20	1.65	Nil	S 16					1.20	56.42	
	8X	1.20	2.00						Stiff brown mottled grey and white slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk . (LOWESTOFT FORMATION)			
	9D	2.00	2.45	Nil	S 25							
	10X	2.00	3.00									
										2.50	55.12	
	11D	3.00	3.45	Nil	S 24				Stiff dark brown mottled white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine and medium chalk. (LOWESTOFT FORMATION)			
	12X	3.00	4.00									
	13D	4.00	4.45	Nil	S 21							
	14X	4.00	5.00									
	15D	5.00	5.45	Nil	S 20							
	16X	5.00	6.00									
06/06/13 1115hrs Dry	17D	6.00	6.45	Nil	S 20					6.45	51.17	
									Borehole completed at 6.45m.			
										(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

WS12

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 6 June 2013 Easting 544813.8 Scale 1 : 50

End Date 6 June 2013 Northing 212773.0 Ground level 55.25mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 1200hrs	1B	0.10	0.20					Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded chalk. (LOWESTOFT FORMATION)	0.30	54.95	
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60								
	5D*	0.50									
	6B	1.00	1.10					Stiff light brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk with rare flint. (LOWESTOFT FORMATION)			
	7D	1.20	1.65	Nil	S 18						
	8X	1.20	2.00						1.30	53.95	
								White and orangish brown sandy gravelly SILT. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	1.40	53.85	
	9D	2.00	2.45	Nil	S 25			Stiff light brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	10X	2.00	3.00						2.45	52.80	
								Stiff dark brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine and medium chalk. (LOWESTOFT FORMATION)			
	11D	3.00	3.45	Nil	S 18						
	12X	3.00	4.00								
	13D	4.00	4.45	Nil	S 21						
	14X	4.00	5.00								
	15D	5.00	5.45	Nil	S 23						
	16X	5.00	6.00								
									5.40	49.85	
								Stiff dark brown slightly sandy sightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk and rare flint. (LOWESTOFT FORMATION)			
06/06/13 1430hrs Dry	17D	6.00	6.45	Nil	S 27						
								Borehole completed at 6.45m.	6.45	48.80	
									(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

BH04

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 5 June 2013 Easting 544209.4 Scale 1 : 50

End Date 6 June 2013 Northing 213700.5 Ground level 51.50mOD Depth 10.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
05/06/13 1500hrs	1B	0.10						Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint with rare tile fragments. (MADE GROUND)	0.25	51.25	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H 98			Soft to firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium locally coarse flint and chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00			H 88						
	7D	1.20	1.65	nil	S 7						
	8X	1.20	2.20						1.80	49.70	
	9D	2.20	2.65	1.50	S 8			Orangish brown and grey slightly clayey sandy subangular to subrounded fine to medium locally coarse flint and siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	2.20	49.30	
	10X	2.20	3.20								
								Soft grey slightly sandy clayey SILT. (LOWESTOFT FORMATION)	2.70	48.80	
								Orangish brown and grey clayey sandy subangular to rounded fine to coarse flint and siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	3.00	48.50	
	11D	3.20	3.65	1.50	S 18						
	12X	3.20	4.20	3.20							
								Stiff brownish grey slightly sandy clayey SILT. (LOWESTOFT FORMATION)			
	13D	4.20	4.65	3.20	S 23						
	14X	4.20	5.20					4.20 - 4.55m: gravelly, gravel is subangular fine to medium flint and siliceous	4.55	46.95	
								Very stiff grey slightly sandy silty CLAY. (LONDON CLAY)			
	15D	5.20	5.65	3.20	S 38						
	16X	5.20	6.20								
05/06/13 1830hrs 1.56m											
	17D	6.20	6.65	3.20	S 37						
06/06/13 0745hrs 3.42m	18X	6.20	7.70	6.20							
	19D	7.70	8.15	6.20	S 34						
	20X	7.70	9.00								
								Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (143mm) 1.20-2.20m, (113mm) 2.20-9.00m and (98mm) 9.00-10.00m.

CASING: 140mm diam to 6.20m.

BACKFILL: On completion, a slotted standpipe (50mm) with geosock was installed 1.70-10.00m, granular response zone 1.70-10.00m, bentonite seal 1.00-1.70m, a second slotted standpipe (50mm) with geosock was installed 0.50-1.00m, granular response zone 0.50-1.00m, bentonite seal 0.20-0.50m, concrete and raised cover 0.00-0.20m.

REMARKS: Gas monitoring during drilling @ every 1m throughout the borehole reported combex 0.0%, CO 0.0%, H2S 0.0%, O2 20.8%. PID readings obtained from samples @ every 1m throughout the borehole reported 0.0ppm.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks	CONTRACT	CHECKED
6.20				Groundwater not encountered prior to use of water flush to drive casing.	28182	EW

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BOREHOLE LOG

BH04

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 5 June 2013 Easting 544209.4 Scale 1 : 50

End Date 6 June 2013 Northing 213700.5 Ground level 51.50mOD Depth 10.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
									8.60	42.90	
	21D	9.00	9.45	6.20	S 35			Stiff brown and reddish brown slightly sandy silty CLAY. (LONDON CLAY)			
	22X	9.00	10.00						9.10	42.40	
06/06/13 1115hrs 4.86m								Very stiff light grey locally mottled reddish brown silty CLAY. (LONDON CLAY)			
									10.00	41.50	
								Borehole completed at 10.00m.			
									(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

BH06

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 2

Start Date 4 June 2013 — Easting 544606.7 — Scale 1 : 50

End Date 5 June 2013 — Northing 213985.9 — Ground level 57.86mOD — Depth 9.64 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
04/06/13 1400hrs	1B	0.10						Firm orangish brown mottled white and grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. (TOPSOIL)	0.30	57.56	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H 64			Firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium locally coarse flint and chalk. (LOWESTOFT FORMATION)	0.60	57.26	
	5D*	0.50									
	6B	1.00			H 84						
	7UT	1.20	1.65	nil				Stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium locally coarse flint and chalk. (LOWESTOFT FORMATION) 1.20 - 2.00m: gravel is fine			
	9X	1.20	2.20								
	8D	1.65	2.10	nil	S 21						
	10UT	2.20	2.65	nil				2.00 - 2.45m: gravel is fine to coarse			
	12X	2.20	3.20						2.45	55.41	
	11D	2.65	3.10	nil	S 36			Stiff light orangish brown slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	2.80	55.06	
	13UT	3.20	3.65	nil				Dense orangish brown clayey sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
	15X	3.20	4.20								
	14D	3.65	4.09	nil	S*52						
	16D	4.20	4.65	nil	S 41			Dense orangish brown slightly clayey sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	3.95	53.91	
	17X	4.20	5.20	4.20							
								Firm brown sandy CLAY. (LONDON CLAY)	4.55	53.31	
								Stiff to very stiff dark grey slightly sandy CLAY with rare sand sized pyrite crystals. (LONDON CLAY)	4.90	52.96	
	UT	5.20	5.65	4.20							
	19X	5.20	6.20								
04/06/13 1830hrs 4.64m	18D	5.65	6.10	4.20	S 31						
	UT	6.20	6.65	6.20					6.20	51.66	
05/06/13 0800hrs 4.22m	21X	6.20	6.65					Very stiff indistinctly laminated dark grey slightly sandy CLAY with rare sand sized pyrite crystals. (LONDON CLAY)			
	22D	6.65	7.10	6.20	S 43						
	23X	6.65	7.70								
	24D	7.70	8.15	6.20	S 43						
	25X	7.70	9.20								
								Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (143mm) 1.20-2.20m, (128mm) 2.20-4.20m, (113mm) 4.20-7.70m and (98mm) 7.70-9.20m.

CASING: 140mm diam to 6.20m.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 5.00-9.64m, a slotted standpipe (50mm) with geosock was installed 5.00-2.70m, granular response zone 5.00-2.70m, bentonite seal 2.70-2.00m, a second slotted standpipe (50mm) with geosock was installed 2.00-0.90m, granular response zone 2.00-0.90m, bentonite seal 0.90-0.20m, concrete and raised cover 0.20-0.00m.

REMARKS: 05/06/13 borehole collapsed overnight back from 6.20m to 4.30m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
3.87	Nil	4.18	20	Encountered in run 3.20-4.20m

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BOREHOLE LOG

BH06

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 2 of 2

Start Date 4 June 2013 — Easting 544606.7 — Scale 1 : 50

End Date 5 June 2013 — Northing 213985.9 — Ground level 57.86mOD — Depth 9.64 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
05/06/13 1500hrs 5.14m	26D	9.20	9.64	6.20	S*54						
								Borehole completed at 9.64m.	9.64	48.22	
									(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

BH07

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 2

Start Date 7 June 2013 — Easting 544291.5 — Scale 1 : 50

End Date 11 June 2013 — Northing 213390.6 — Ground level 58.01mOD — Depth 9.95 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp./core range	instru-ment	description	depth (m)	reduced level (m)	legend
07/06/13 0800hrs	1B	0.10						Soft brown mottled off white and grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium locally coarse flint chalk and siliceous with rare brick and tile fragments. (MADE GROUND)	0.30	57.71	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H 75						
	5D*	0.50									
	6B	1.00			H 118			Stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse flint with rare chalk. (LOWESTOFT FORMATION)	1.20	56.81	
	7D	1.20	1.65	1.20	S 14			Firm to stiff becoming very stiff light brown slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous with rare flint. (LOWESTOFT FORMATION)			
	8D	1.80									
	9D	2.00	2.45	1.20	S 26				2.60	55.41	
	10D	2.75						Dense orangish brown clayey very sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
	11B	2.70	3.00								
		3.00	3.45	3.00	C 31						
	12B	3.00	3.50								
	13B	3.50	4.00								
		4.00	4.45	4.00	C 33						
	14B	4.00	4.50								
07/06/13 1700hrs Added	15B	4.50	5.00								
11/06/13 0800hrs 4.91m		5.00	5.45	5.00	C 18			5.00m: Locally medium dense.			
	16B	5.00	5.50								
		6.50	6.95	6.50	C 35						
	17B	6.50	7.00								
									7.10	50.91	
								Stiff orangish brown mottled grey slightly sandy CLAY. (LONDON CLAY)	7.25	50.76	
	18B	7.25	8.00								
								Stiff brownish grey slightly sandy silty CLAY. Rarely thinly laminated with silt partings. (LONDON CLAY)			
								Continued Next Page	(8.00)		

EQUIPMENT: Light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm)1.20-9.50m.

CASING: 150mm diam to 7.20m.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 7.10-9.95m, a slotted standpipe (50mm) with geosock was installed 3.10-7.10m, granular response zone 3.00-7.10m, bentonite seal 2.00-3.00m, a second slotted standpipe (50mm) with geosock was installed 1.00-2.00m, granular response zone 0.90-2.00m, bentonite seal 0.20-0.90m, concrete and raised cover 0.00-0.20m.

REMARKS: Soakage test carried out at 2.75m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
5.00				Water added to assist boring throughout.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH07

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 7 June 2013 Easting 544291.5 Scale 1 : 50

End Date 11 June 2013 Northing 213390.6 Ground level 58.01mOD Depth 9.95 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
	19D	8.00 - 8.45	7.20	S 17							
	20D	9.00 - 9.00									
11/06/13 Dry	21D	9.50 - 9.95	7.20	S 19					9.95	48.06	
								Borehole completed at 9.95m.	(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

CONTRACT 28182

CHECKED EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS08

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 5 June 2013 Easting 544503.5 Scale 1 : 50

End Date 5 June 2013 Northing 213827.9 Ground level 56.12mOD Depth 5.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
05/06/13 0800hrs	1B	0.10	0.20					Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse siliceous . (TOPSOIL)	0.25	55.87	
	2D	0.10							0.50	55.62	
	3D*	0.10						Firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse siliceous . (LOWESTOFT FORMATION)			
	4B	0.50	0.60								
	5D*	0.50									
	6B	1.00	1.10					Soft orangish brown slightly gravelly locally gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse siliceous . (LOWESTOFT FORMATION)			
	7D	1.20	1.65	Nil	S 7						
	8X	1.20	2.00						1.40	54.72	
								Loose orangish brown slightly sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	1.85	54.27	
	9D	2.00	2.45	Nil	S 45						
	10X	2.00	3.00					Dense orangish brown very sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
	11D	3.00	3.45	Nil	S 47						
	12X	3.00	4.00								
									3.60	52.52	
								Firm locally stiff dark grey mottled orangish brown slightly sandy silty CLAY. (LOWESTOFT FORMATION)			
	13D	4.00	4.45	Nil	S 9						
	14X	4.00	5.00								
	15D	5.00	5.45	Nil	S 43				5.05	51.07	
05/06/13 1730hrs 3.72m								Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous. (LOWESTOFT FORMATION)	5.45	50.67	
								Borehole completed at 5.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (84mm) 2.00-3.00m, (74mm) 3.00-4.00m and (64mm) 4.00-5.00m.

CASING: 113mm diam to 2.60m.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
3.27	Nil	2.87	20	

AGS

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS09

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 5 June 2013 Easting 544477.5 Scale 1 : 50

End Date 5 June 2013 Northing 213248.4 Ground level 63.84mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
05/06/13 1245hrs	1B	0.10 - 0.20					Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint locally chalk. (TOPSOIL)	0.30	63.54	
	2D	0.10								
	3D*	0.10								
	4B	0.50 - 0.60		H 80			Stiff brown mottled white and grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. With a low cobble content of chalk and flint. (LOWESTOFT FORMATION)			
	5D*	0.50								
	6B	1.00 - 1.10		H 75						
	7D	1.20 - 1.65	Nil	S 16				1.20	62.64	
	8X	1.20 - 2.00					Stiff light brown mottled orangish brown and white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	1.70	62.14	
	9D	2.00 - 2.45	Nil	S 20			Stiff dark brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	10X	2.00 - 3.00								
	11D	3.00 - 3.45	Nil	S 22						
	12X	3.00 - 4.00								
	13D	4.00 - 4.45	Nil	S 22						
	14X	4.00 - 5.00								
	15D	5.00 - 5.45	Nil	S 24						
	16X	5.00 - 6.00								
05/06/13 1720hrs Dry	17D	6.00 - 6.45	Nil	S 19				6.45	57.39	
							Borehole completed at 6.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS10

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 6 June 2013 Easting 544773.3 Scale 1 : 50

End Date 6 June 2013 Northing 213434.4 Ground level 71.06mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 0800hrs	1B	0.10	0.20					Stiff friable brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk with rare brick. (MADE GROUND)	0.20	70.86	
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60					Stiff light orangish brown mottled grey slightly sandy gravelly locally slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00	1.10								
	7D	1.20	1.65	Nil	S 24						
	8X	1.20	2.00						1.45	69.61	
								Stiff orangish brown mottled black and grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	1.80	69.26	
	9D	2.00	2.45	Nil	S 10						
	10X	2.00	3.00					White and brownish grey mottled orangish brown slightly sandy gravelly SILT. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	2.35	68.71	
								Firm light brownish grey slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	11D	3.00	3.45	Nil	S 11						
	12X	3.00	4.00								
	13D	4.00	4.45	Nil	S 14						
	14X	4.00	5.00						4.45	66.61	
								Stiff greyish brown slightly gravelly locally gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	15D	5.00	5.45	Nil	S 14						
	16X	5.00	6.00								
06/06/13 1730hrs Dry	17D	6.00	6.45	Nil	S 16				6.45	64.61	
								Borehole completed at 6.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

TL 41 SW 32 **4411 1496** **Actons Farm, High Wych** **Block C**

Surface level +72.1 m
Water struck at +63.6 m
Shell (modified) 152 mm diameter
April 1976

Waste 18.6 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Boulder Clay	Clay, chalky, brown, soft to firm	4.1	4.3
	Clay, chalky, pebbly, dark grey, firm	4.2	8.5
	Clay, silty, very sandy, dark grey, soft	0.7	9.2
	Clay, chalky, silty, blue grey, stiff	9.4+	18.6

TL 41 SW 33 **4464 1404** **Golden Grove, Gilston** **Block C**

Surface level +69.6 m
Water struck at +63.0 m
Shell 152 mm diameter
November 1975

Overburden 2.6 m
Mineral 4.2 m
Bedrock 1.8 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Boulder Clay	Clay, sandy, silty, pebbly, brown, soft	2.4	2.6
Glacial Sand and Gravel	'Clayey' sandy gravel, with chalky clay band between 5.1 and 5.3 m Sand: medium with some fine and coarse, predominantly quartz, with angular coarse flint, yellow brown Gravel: fine and coarse, angular to subrounded flint, with some quartz, quartzite and sandstone, and a trace of rounded chalk	4.2	6.8
London Clay	Clay, silty, sandy, brown, soft	0.2	7.0
	Clay, sandy, silty, drab olive green, with a trace of glauconite, pyritic wood fragments and selenite crystals, firm	1.6+	8.6

Grading

Mean for deposit *percentages*			Depth below surface (m)	*percentages*					
Fines	Sand	Gravel		Fines	Sand			Gravel	
				$-\frac{1}{16}$	$+\frac{1}{16}$ $-\frac{1}{4}$	$+\frac{1}{4}$–1	+1–4	+4–16	+16
13	53	34	2.6–3.6	28	9	20	6	18	19
			3.6–5.1	8	12	51	6	11	11
			5.3–6.3	8	10	30	11	27	14
			6.3–6.8	11	10	18	14	29	18
			Mean	13	11	34	8	19	15

Composition

Depth below surface (m)	Percentages by weight in +4–16 mm fraction					
	Chalk	Flint	Quartz and Quartzite	Fossil debris	Sandstone	Others
2.6–3.6	2	80	12	–	4	2
3.6–5.1	1	80	10	–	7	2
5.3–6.3	2	75	13	–	8	2
6.3–6.8	–	74	17	–	7	2
Mean	1	78	12	–	7	2

TL 41 SW 34 4421 1353 Overhall Farm, Gilston **Block C**

Surface level +50.1 m
Water not struck
Shell 152 mm diameter
December 1975

Waste 1.5 m
Bedrock 2.4 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.1	0.1
Head	Clay, silty, sandy, rarely pebbly, brown, soft	0.8	0.9
	Clay, silty, pebbly, yellow brown mottled red, soft	0.6	1.5
London Clay	Clay, silty, sandy in parts, blue grey, with glauconite, carbonaceous fragments and rare pyrite nodules, soft	2.4+	3.9

TL 41 SW 35 4417 1349 Overhall Farm, Gilston **Block C**

Surface level +49.8 m
Water struck at +47.5 m and +26.8 m
Shell (modified) 152 mm diameter
May 1976

Waste 2.5 m
Bedrock 25.7 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil and subsoil, clay, pebbly, mid-brown	0.6	0.6
Head	Clay, silty, sandy, flint and chalk pebbles, brown, soft	0.5	1.1
	Clay, silty, very sandy, gravelly at base, brown and grey, soft	1.4	2.5
London Clay	Clay, silty, sandy, dark grey mottled brown at top, with pockets of green glauconitic fine sand, soft	0.7	3.2
	Clay, very sandy, becomes very clayey fine sand, grey green with patches of green glauconitic sand, laminated with bands of decalcified shell debris, firm	2.6	5.8
London Clay (Basement Bed)	Silt and fine sand, grey green, very hard	0.1	5.9
	Sand, fine, clayey, silty, dark grey green, with comminuted shells and race nodules, pyritic and glauconitic in pockets, firm	4.6	10.5
Woolwich and Reading Beds	Clay, silty, pebbly, mottled green grey and red, packed with broken shells and flint pebbles	0.3	10.8
	Clay, silty, mottled grey green, red and pale cream, with some fine flint pebbles	0.4	11.2
	Clay, pale grey blue streaked green and brown, with large race nodules up to 2 cm diameter	0.6	11.8
	Sand, clayey, pale grey blue	0.5	12.3
	Clay, silty, becomes sandy, grey mottled red and green becomes red brown mottled grey and light blue	2.3	14.6
	Clay, silty, fine sandy, brown streaked grey green, waxy	1.7	16.3
	Clay, silty, brown mottled grey blue, with abundant race nodules up to 1 cm diameter, waxy	0.5	16.8
	Clay, red brown mottled blue grey, stiff, waxy	0.2	17.0
	Sand, fine, clayey, dark brown, micaceous	0.2	17.2
	Sand, fine, dark brown, micaceous	1.0	18.2
	Sand, fine, clayey, dark brown mottled grey green and red, micaceous	0.7	18.9
	Sand, fine, clayey, brown mottled red, micaceous	0.3	19.2
	Sand, fine, dark brown mottled red and grey green, with many fine gravel sized pebbles of rounded black flint and a trace of rounded white quartz	0.1	19.3
	Sand, fine, increasingly clayey, dark brown mottled blue, micaceous	0.3	19.6
	Sand, fine, and clay, olive green mottled brown and red, with rounded fine black flints	0.9	20.5
Thanet Beds (Thanet Sand)	Sand, clayey, blue green, micaceous	1.0	21.5
	Sand, fine to medium, clayey, blue green mottled grey green, grey and orange brown, glauconitic	3.2	24.7
	Sand, fine, clayey, pellets of clay. Grey green becomes purple grey and green from 27.0 m, dark brown and green glauconitic burrows, laminated, micaceous	3.0	27.7
(Bullhead Bed)	Clay, silty, bright olive green, with large angular to subrounded black flints, glauconitic, firm	0.1	27.8
	Sand, fine, bright olive green, laminated, glauconitic with chalk putty and well rounded black flints	0.1	27.9
Upper Chalk	Chalk, soft puggy, white, with angular black and blue flints	0.3+	28.2

[Summary of this log published in IGS Boreholes 1976, *Rep. Inst. Geol. Sci.*, 77/10, p. 9.]

Geotechnical Engineering Limited

BOREHOLE LOG

BH05

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 6 June 2013 Easting 544277.2 Scale 1 : 50

End Date 6 June 2013 Northing 214678.0 Ground level 66.70mOD Depth 7.64 m

progress date/time water depth	sample no & type	depth (m) from	to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 1115hrs	1B	0.10						Firm friable brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to coarse siliceous and rare chalk and brick. (MADE GROUND)	0.30	66.40	
	2D*	0.10									
	3D	0.10									
	4B	0.50						Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous and chalk with low cobble content. (LOWESTOFT FORMATION)	0.80	65.90	
	5D*	0.50									
	6B	1.00									
	7D	1.20	1.65	nil	S 30				1.20	65.50	
	8X	1.20	1.70					Firm orangish brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous and chalk. (LOWESTOFT FORMATION)			
	9D	1.70	2.15	nil	S 31						
	10X	1.70	2.20					Stiff orangish brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous and chalk. (LOWESTOFT FORMATION) 1.70m: Chalk cobble.			
	11D	2.20	2.65	nil	S 27				2.20	64.50	
	12X	2.20	3.20								
								Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine and medium chalk with rare flint. (LOWESTOFT FORMATION)			
	UT	3.20	3.65	nil							
	13X	3.20	4.20								
	14D	3.65	4.10	nil	S 25						
	15D	4.20	4.65	nil	S 28						
	16X	4.20	5.20								
	17D	5.20	5.65	nil	S 34						
	18X	5.20	6.20					5.20m: Becoming very stiff.			
	UT	6.20	6.65	6.20							
	19X	6.20	7.20								
	20D	6.65	7.10	6.20	S 41						
06/06/13 1830hrs 5.32m	21D	7.20	7.64	6.20	S*53						
									7.64	59.06	
								Borehole completed at 7.64m.	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (143mm) 1.20-2.20m, (128mm) 2.20-3.65m, (113mm) 3.65-7.20m.

CASING: 140mm diam to 6.20m.

BACKFILL: On completion, a slotted standpipe (50mm) with geosock was installed 5.00-7.20m, granular response zone 5.00-7.64m, bentonite seal 2.00-5.00m, a second slotted standpipe (50mm) with geosock was installed 0.90-2.00m, granular response zone 0.90-2.00m, bentonite seal 0.20-0.90m, concrete and raised cover 0.00-0.20m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
2.20				Water encountered in SPT.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS04

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 5 June 2013 — Easting 543724.6 — Scale 1 : 50

End Date 5 June 2013 — Northing 213808.4 — Ground level 71.59mOD — Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
05/06/13 1000hrs	1B	0.10	0.20					Soft brown locally friable slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous with rare brick fragments. (MADE GROUND)	0.35	71.24	
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60		H 75			Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk with rare siliceous. (LOWESTOFT FORMATION)	0.80	70.79	
	5D*	0.50									
	6B	1.00	1.10		H 58						
	7D	1.20	1.65	Nil	S 19			Firm light brown slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to medium chalk. (LOWESTOFT FORMATION)	1.40	70.19	
	8X	1.20	2.00								
	9D	2.00	2.45	Nil	S 23			Stiff orangish brown mottled grey slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	1.90	69.69	
	10X	2.00	3.00								
	11D	3.00	3.45	Nil	S 13			Stiff dark brown mottled grey and white slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	12X	3.00	4.00					1.90m: chalk cobble 2.10 - 2.75m: Rare rounded cobbles	3.80	67.79	
	13D	4.00	4.45	Nil	S 13			Firm greyish brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	4.45	67.14	
	14X	4.00	5.00								
	15D	5.00	5.45	Nil	S 13			Medium dense yellowish brown clayey fine to coarse SAND. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	5.70	65.89	
	16X	5.00	6.00								
								Soft yellowish brown sandy CLAY. (LOWESTOFT FORMATION)	5.95	65.64	
05/06/13 1120hrs Dry	17D	6.00	6.45	Nil	S 11			Firm greyish brown silty CLAY. (LOWESTOFT FORMATION)	6.45	65.14	
								Borehole completed at 6.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
5.21	Nil	5.15	20	

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS05

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 4 June 2013 Easting 544028.9 Scale 1 : 50

End Date 4 June 2013 Northing 214038.2 Ground level 69.28mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
04/06/13 1630hrs	1B	0.10 - 0.20					Firm brown mottled white and grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and flint. (TOPSOIL)	0.25	69.03	
	2D	0.10								
	3D*	0.10								
	4B	0.50 - 0.60		H 40			Firm orangish brown and white locally grey slightly sandy gravelly to locally very gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk locally flint. (LOWESTOFT FORMATION) 0.60 - 1.20m: stiff	1.20	68.08	
	5D*	0.50								
	6B	1.00 - 1.10		H 85						
	7D	1.20 - 1.65	Nil	S 18						
	8X	1.20 - 2.00					Stiff brown mottled orangish brown and grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	9D	2.00 - 2.45	Nil	S 18						
	10X	2.00 - 3.00						2.40	66.88	
	11D	3.00 - 3.45	Nil	S 18			Firm brown mottled orangish brown and grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)	2.90	66.38	
	12X	3.00 - 4.00					Stiff brown mottled grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous . (LOWESTOFT FORMATION)			
	13D	4.00 - 4.45	Nil	S 19				3.85	65.43	
	14X	4.00 - 5.00					Stiff grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous . (LOWESTOFT FORMATION)	4.50	64.78	
	15D	5.00 - 5.45	Nil	S 25			Stiff grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous . (LOWESTOFT FORMATION)			
	16X	5.00 - 6.00								
04/06/13 1745hrs Dry	17D	6.00 - 6.45	Nil	S 32			5.90m: siliceous cobble	6.45	62.83	
							Borehole completed at 6.45m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS06

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 5 June 2013 — Easting 544399.6 — Scale 1 : 50

End Date 5 June 2013 — Northing 214426.4 — Ground level 62.56mOD — Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
05/06/13 0815hrs	1B	0.10	0.20					Firm brown slightly sandy gravelly CLAY. Gravel is subangular fine to coarse chalk with rare siliceous . (LOWESTOFT FORMATION)			
	2D	0.10									
	3D*	0.10									
	4B	0.50	0.60		H 65						
	5D*	0.50							0.90	61.66	
	6B	1.00	1.10		H 62			Stiff brown mottled white slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular fine to medium chalk with rare siliceous . (LOWESTOFT FORMATION)			
	7D	1.20	1.65	Nil	S 16						
	8X	1.20	2.00								
	9D	2.00	2.45	Nil	S 23						
	10X	2.00	3.00						2.50	60.06	
	11D	3.00	3.45	Nil	S 16			Stiff brown mottled white slightly sandy slightly gravelly locally gravelly CLAY. Gravel is subangular fine to medium chalk with rare siliceous . (LOWESTOFT FORMATION)			
	12X	3.00	4.00						3.40	59.16	
	13D	4.00	4.45	Nil	S 9			Loose orangish brown gravelly silty SAND. Gravel is subangular fine to medium chalk. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
	14X	4.00	5.00								
	15D	5.00	5.45	Nil	S 15						
	16X	5.00	6.00						5.25	57.31	
								Stiff grey and brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium chalk. (LOWESTOFT FORMATION)			
05/06/13 0945hrs Dry	17D	6.00	6.45	Nil	S 26						
									6.45	56.11	
								Borehole completed at 6.45m.			
									(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

WS07

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 4 June 2013 — Easting 544435.2 — Scale 1 : 50

End Date 4 June 2013 — Northing 214051.0 — Ground level 60.96mOD — Depth 3.28 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
04/06/13 1500hrs	1B	0.10	0.20					Stiff brown mottled white and grey slightly sandy slightly gravelly CLAY. (TOPSOIL)	0.25	60.71	
	2D	0.10						Stiff orangish brown mottled white locally grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk locally flint. (LOWESTOFT FORMATION)			
	3D*	0.10									
	4B	0.50	0.60		H 120						
	5D*	0.50									
	6B	1.00	1.10		H 90						
	7D	1.20	1.65	Nil	S 23				1.20	59.76	
	8X	1.20	2.00					Stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous . (LOWESTOFT FORMATION)			
	9D	2.00	2.45	Nil	S 19						
	10X	2.00	2.80						2.10	58.86	
	11X	2.80	3.00					Stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous . (LOWESTOFT FORMATION)			
04/06/13 1645hrs Dry	12D	3.00	3.45	Nil	S*120				2.80	58.16	
	13X	3.00	3.28					Very dense orangish brown sandy subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	3.28	57.68	
								2.80m: 2 rounded quartzite cobbles			
								Borehole completed at 3.28m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-2.80m, (74mm) 2.80-3.00m and (64mm) 3.00-3.28m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

REMARKS: (64mm) Sample barrel refused at 3.28m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

AGS

CONTRACT	CHECKED
28182	EW

TL 41 SW 28 4388 1437 Overhall Farm, Gilston **Block C**

Surface level +74.6 m
Water struck at +51.8 m
Shell 152 mm diameter
November–December 1975

Overburden 15.0 m
Mineral 8.5 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.1	0.1
Boulder Clay	Clay, chalky, silty, pebbly, brown, soft	3.9	4.0
	Clay, very silty, chalky, grey becoming blue grey, hard	10.8	14.8
	Clay, silty, sandy, pebbly, brown, firm	0.2	15.0
Glacial Sand and Gravel	'Clayey' sandy gravel, chalky in upper 5.0 m Sand: medium with fine and coarse, predominantly rounded quartz, with coarse angular flint Gravel: fine with coarse, angular to subrounded white, brown and black flint, with some rounded quartz and quartzite, with a trace of sandstone, chalk, and rare fossil debris	8.5+	23.5

Grading

Mean for deposit *percentages*			Depth below surface (m)	*percentages*					
Fines	Sand	Gravel		Fines	Sand			Gravel	
				$-\frac{1}{16}$	$+\frac{1}{16}$ $-\frac{1}{4}$	$+\frac{1}{4}$–1	+1–4	+4–16	+16
15	51	34	15.0–16.0	16	13	28	9	20	14
			16.0–17.0	13	12	38	10	20	7
			17.0–18.0	11	13	36	10	21	9
			18.0–19.0	14	17	38	8	16	7
			19.0–20.0	25	19	21	11	19	5
			20.0–21.0	18	15	22	10	21	14
			21.0–22.0	15	11	22	13	29	10
			22.0–23.0	10	10	19	15	29	17
			23.0–23.5*	2	7	18	11	23	39
			Mean	15	13	27	11	22	12

Composition

Depth below surface (m)	Percentages by weight in +4–16 mm fraction					
	Chalk	Flint	Quartz and Quartzite	Fossil debris	Sandstone	Others
15.0–16.0	11	60	16	1	9	3
16.0–17.0	8	63	14	1	11	3
17.0–18.0	6	68	16	1	6	3
18.0–19.0	10	59	21	1	6	3
19.0–20.0	3	74	13	–	5	5
20.0–21.0	–	79	16	–	4	1
21.0–22.0	–	83	13	–	4	–
22.0–23.0	–	80	12	–	6	2
23.0–23.5	–	78	13	–	4	5
Mean	4	71	15	1	6	3

TL 41 SW 32 4411 1496 Actons Farm, High Wych **Block C**

Surface level +72.1 m
Water struck at +63.6 m
Shell (modified) 152 mm diameter
April 1976

Waste 18.6 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Boulder Clay	Clay, chalky, brown, soft to firm	4.1	4.3
	Clay, chalky, pebbly, dark grey, firm	4.2	8.5
	Clay, silty, very sandy, dark grey, soft	0.7	9.2
	Clay, chalky, silty, blue grey, stiff	9.4+	18.6

TL 41 SW 33 4464 1404 Golden Grove, Gilston **Block C**

Surface level +69.6 m
Water struck at +63.0 m
Shell 152 mm diameter
November 1975

Overburden 2.6 m
Mineral 4.2 m
Bedrock 1.8 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Boulder Clay	Clay, sandy, silty, pebbly, brown, soft	2.4	2.6
Glacial Sand and Gravel	'Clayey' sandy gravel, with chalky clay band between 5.1 and 5.3 m Sand: medium with some fine and coarse, predominantly quartz, with angular coarse flint, yellow brown Gravel: fine and coarse, angular to subrounded flint, with some quartz, quartzite and sandstone, and a trace of rounded chalk	4.2	6.8
London Clay	Clay, silty, sandy, brown, soft	0.2	7.0
	Clay, sandy, silty, drab olive green, with a trace of glauconite, pyritic wood fragments and selenite crystals, firm	1.6+	8.6

Grading

Mean for deposit *percentages*			Depth below surface (m)	*percentages*					
Fines	Sand	Gravel		Fines	Sand			Gravel	
				−$\frac{1}{16}$	+$\frac{1}{16}$ −$\frac{1}{4}$	+$\frac{1}{4}$–1	+1–4	+4–16	+16
13	53	34	2.6–3.6	28	9	20	6	18	19
			3.6–5.1	8	12	51	6	11	11
			5.3–6.3	8	10	30	11	27	14
			6.3–6.8	11	10	18	14	29	18
			Mean	13	11	34	8	19	15

Composition

Depth below surface (m)	Percentages by weight in + 4–16 mm fraction					
	Chalk	Flint	Quartz and Quartzite	Fossil debris	Sandstone	Others
2.6–3.6	2	80	12	–	4	2
3.6–5.1	1	80	10	–	7	2
5.3–6.3	2	75	13	–	8	2
6.3–6.8	–	74	17	–	7	2
Mean	1	78	12	–	7	2

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BOREHOLE LOG

BH03

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 2

Start Date 7 June 2013 — Easting 543369.9 — Scale 1 : 50

End Date 10 June 2013 — Northing 212529.9 — Ground level 61.68mOD — Depth 8.43 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
07/06/13 1000hrs	1B	0.10						Firm brown mottled white locally grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint locally chalk. (TOPSOIL)	0.20	61.48	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H 55			Firm orangish brown mottled white slightly sandy slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00			H 70						
	7D	1.20	1.65	nil	S 17						
	8X	1.20	2.20								
	9D	2.20	2.65	nil	S 21						
	10X	2.20	3.20								
	11D	3.20	3.65	nil	S 32				3.20	58.48	
	12X	3.20	4.20					Stiff becoming very stiff orangish brown mottled white slightly sandy slightly gravelly to gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	13D	4.20	4.64	nil	S 41						
	14X	4.20	5.20								
07/06/13 1530hrs dry	15D	5.20	5.65	nil	S 48						
10/06/13 0730hrs 3.31m	16X	5.20	6.50						5.60	56.08	
	17D	6.50	6.94	nil	S*53			Very dense orangish brown locally grey clayey locally gravelly fine to medium SAND. Gravel is subangular fine to coarse flint and siliceous . (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
	18X	6.50	8.00								
								Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (146mm) 1.20-2.20m, (128mm) 2.20-4.20m, (113mm) 4.20-5.20m, (98mm) 5.20-6.50m and (84mm) 6.50-8.00m.

CASING: None used.

BACKFILL: On completion, a slotted standpipe (50mm) with geosock was installed 5.00-8.00m, granular response zone 5.00-8.00m, bentonite seal 2.00-5.00m, a second slotted standpipe (50mm) with geosock was installed 0.90-2.00m, granular response zone 0.90-2.00m, bentonite seal 0.20-0.90m, concrete and raised cover 0.00-0.20m.

REMARKS: Gas monitoring during drilling @ every 1m throughout the borehole reported combex 0.0%, CO 0.0%, H2S 0.0%, O2 20.8%, PID readings obtained from samples @ every 1m throughout the borehole reported 0.0ppm.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
5.20				Water at 3.31m over weekend 10/06/13.

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

BH03

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 7 June 2013 Easting 543369.9 Scale 1 : 50

End Date 10 June 2013 Northing 212529.9 Ground level 61.68mOD Depth 8.43 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
10/06/13 0800hrs 5.62m	19D	8.00 - 8.43	nil	S*53							
									8.43	53.25	
								Borehole completed at 8.43m.			
									(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

CONTRACT 28182

CHECKED EW

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BOREHOLE LOG

WS15

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 4 June 2013 — Easting 543612.8 — Scale 1 : 50

End Date 4 June 2013 — Northing 212145.1 — Ground level 54.66mOD — Depth 5.39 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
04/06/13 1200hrs	1B	0.10	0.20					Soft brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. (TOPSOIL)	0.25	54.41	
	2D	0.10						Firm orangish brown mottled white slightly sandy gravelly locally very gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. (LOWESTOFT FORMATION)			
	3D*	0.10									
	4B	0.50	0.60								
	5D*	0.50									
	6B	1.00	1.10								
	7D	1.20	1.65	Nil	S 28				1.20	53.46	
	8X	1.20	2.00					Medium dense orangish brown very clayey very gravelly fine to coarse SAND, locally tending to sandy clay. Gravel is subangular to rounded fine and medium chalk and rare flint. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	1.65	53.01	
	9D	2.00	2.45	Nil	S 33						
	10X	2.00	3.00					Stiff light brown and orangish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk with rare flint. (LOWESTOFT FORMATION) 2.50 - 3.60m: Gravelly.			
	11D	3.00	3.45	Nil	S 18						
	12X	3.00	4.00								
	13D	4.00	4.45	Nil	S 21				3.90	50.76	
	14X	4.00	5.00					Stiff dark brown and grey slightly sandy gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			
04/06/13 1400hrs Dry	15D	5.00	5.39	Nil	S*63				4.95	49.71	
								Recovered as white subrounded fine to coarse chalk GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	5.39	49.27	
								Borehole completed at 5.39m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (74mm) 3.00-4.00m and (64mm) 4.00-5.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS16

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 1

Start Date 4 June 2013 Easting 543559.7 Scale 1 : 50

End Date 4 June 2013 Northing 211965.3 Ground level 46.55mOD Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
04/06/13 1000hrs	1B	0.10 - 0.20					Firm locally stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded siliceous with rare brick fragments. (MADE GROUND)	0.30	46.25	
	2D	0.10					Firm orangish brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium siliceous . (HEAD)			
	3D*	0.10								
	4B	0.50 - 0.60								
	5D*	0.50								
	6B	1.00 - 1.10								
	7D	1.20 - 1.65	Nil	S 16						
	8X	1.20 - 2.00						1.40	45.15	
							Firm orangish brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous . (HEAD)			
	9D	2.00 - 2.45	Nil	S 18				2.00	44.55	
	10X	2.00 - 3.00					Very soft orangish brown very sandy CLAY. (Drilling disturbed?). (HEAD)			
								2.50	44.05	
							Loose orangish brown very clayey very sandy subangular to rounded fine to coarse siliceous GRAVEL AND COBBLES. (GLACIO-FLUVIAL DEPOSITS)			
	11D	3.00 - 3.45	3.00	S 8						
	12X	3.00 - 4.00								
								3.40	43.15	
							Soft orangish brown slightly sandy silty CLAY. (Drilling disturbed?). (GLACIO-FLUVIAL DEPOSITS)			
	13D	4.00 - 4.45	3.00	S 13						
	14X	4.00 - 5.00					4.30 - 4.70m: greyish brown			
								4.70	41.85	
							Firm light grey slightly sandy silty CLAY. (LONDON CLAY)			
	15D	5.00 - 5.45	3.00	S 9						
	16X	5.00 - 6.00					5.00 - 6.00m: Limited recovery; recovered as very soft slight sandy silty clay			
04/06/13 1200hrs 3.84m	17D	6.00 - 6.45	3.00	S 9						
								6.45	40.10	
							Borehole completed at 6.45m.			
								(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m, (74mm) 4.00-5.00m and (64mm) 5.00-6.00m.

CASING: 113mm diam to 3.00m.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
2.28	Nil	1.14	20	

AGS

CONTRACT	CHECKED
28182	EW

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BOREHOLE LOG

BH01

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 10 June 2013 Easting 543308.9 Scale 1 : 50

End Date 10 June 2013 Northing 211806.7 Ground level 46.94mOD Depth 11.65 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
10/06/13 1130hrs	1B	0.10						Stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint with rare brick and tile fragments. (MADE GROUND)	0.30	46.64	
	2D*	0.10									
	3D	0.10									
	4B	0.50			H 55			Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium locally coarse flint and siliceous . (LOWESTOFT FORMATION)			
	5D*	0.50									
	6B	1.00			H 70						
	7D	1.20 - 1.65		nil	S 8						
	8X	1.20 - 2.20									
	9D	2.20 - 2.65		nil	S 7						
	10X	2.20 - 3.20									
	11D	3.20 - 3.65		nil	S 7						
	12X	3.20 - 4.20									
	13D	4.20 - 4.65		nil	S 8						
	14X	4.20 - 5.20									
								Firm grey mottled orangish brown silty CLAY. (LONDON CLAY)	4.60	42.34	
	15D	5.20 - 5.65		nil	S 10						
	16X	5.20 - 6.70									
	17D	6.70 - 7.15		nil	S 11						
	18X	6.70 - 8.20									
								Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (143mm) 1.20-3.20m, (128mm) 3.20-5.20m, (113mm) 5.20-8.20m and (98mm) 8.20-11.20m.

CASING: None used.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 5.00-11.65m, a slotted standpipe (50mm) with geosock was installed 2.00-5.00m, granular response zone 2.00-5.00m, bentonite seal 1.00-2.00m, a second slotted standpipe (50mm) with geosock was installed 0.50-1.00m, granular response zone 0.50-1.00m, bentonite seal 0.20-0.50m, concrete and raised cover 0.00-0.20m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
2.40	nil	2.30	20	

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH01

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 10 June 2013 Easting 543308.9 Scale 1 : 50

End Date 10 June 2013 Northing 211806.7 Ground level 46.94mOD Depth 11.65 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	19D 20X	8.20 - 8.65 8.20 - 9.70	nil	S 22				8.40	38.54	
							Firm to stiff grey mottled orangish brown silty CLAY. (LONDON CLAY)	8.70	38.24	
							Firm grey mottled orangish brown silty CLAY. (LONDON CLAY)			
	21D 22X	9.70 - 10.15 9.70 - 11.20	nil	S 28				9.70	37.24	
							Stiff grey silty CLAY. (LONDON CLAY)	10.20	36.74	
							Firm grey slightly sandy clayey SILT. (drilling disturbed?). (LONDON CLAY)			
10/06/13 1700hrs 4.03m	23D	11.20 - 11.65	nil	S 39			11.20 - 11.65m: stiff	11.65	35.29	
							Borehole completed at 11.65m.	(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

AGS

CONTRACT 28182

CHECKED EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH02

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 1 of 2

Start Date 11 June 2013 Easting 542870.3 Scale 1 : 50

End Date 11 June 2013 Northing 212341.3 Ground level 62.79mOD Depth 8.14 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
11/06/13 0800hrs	1B	0.10						Stiff brown mottled grey and white slightly sandy slightly gravelly CLAY. Gravel is angular to subangular locally subrounded fine to coarse flint and chalk. (TOPSOIL)	0.25	62.54	
	2D*	0.10									
	3D	0.10									
	4B	0.50									
	5D*	0.50									
	6B	1.00						Firm orangish brown mottled white slightly sandy gravelly locally very gravelly CLAY. Gravel is subangular to subrounded chalk and flint. Low cobble content of chalk. (LOWESTOFT FORMATION)			
	7D	1.20	1.65	nil	S 13						
	8X	1.20	2.20								
	9D	2.20	2.65	nil	S 19						
	10X	2.20	3.20								
									2.80	59.99	
	11D	3.20	3.65	nil	S 29			Stiff dark grey mottled orangish brown and white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine and medium chalk, siliceous and flint. (LOWESTOFT FORMATION)			
	12X	3.20	4.20								
	UT	4.20	4.65	nil							
	14X	4.20	5.20								
	13D	4.65	5.10	nil	S 30						
									5.00	57.79	
	15UT	5.20	5.65	nil				Very stiff dark grey mottled orangish brown and white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine and medium chalk, siliceous and flint. (LOWESTOFT FORMATION)			
	17X	5.20	6.20								
	16D	5.65	6.10	nil	S 44						
	18UT	6.20	6.65	nil							
	20X	6.20	7.70								
	19D	6.65	7.10	nil	S 47						
11/06/13 1230hrs Dry	21D	7.70	8.14	nil	S*52			Continued Next Page	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (143mm) 1.20-3.20m, (128mm) 3.20-5.20m, (113mm) 5.20-6.20m and (98mm) 6.20-7.70m.

CASING: None used.

BACKFILL: On completion, borehole was backfilled with bentonite pellets 4.00-8.14m, a slotted standpipe (50mm) with geosock was installed 0.90-4.00m, granular response zone 0.90-4.00m, bentonite seal 0.20-0.90m, concrete and raised cover 0.00-0.20m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

BH02

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW

Sheet 2 of 2

Start Date 11 June 2013 Easting 542870.3 Scale 1 : 50

End Date 11 June 2013 Northing 212341.3 Ground level 62.79mOD Depth 8.14 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
									Borehole completed at 8.14m.	8.14	54.65	
										(18.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

Groundwater not encountered.

AGS

CONTRACT 28182

CHECKED EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS01

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 6 June 2013 — Easting 542855.3 — Scale 1 : 50

End Date 6 June 2013 — Northing 211535.9 — Ground level 37.44mOD — Depth 5.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/13 1530hrs	1B	0.10	0.20					Stiff friable brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous. (HEAD)			
	2D	0.10							0.60	36.84	
	3D*	0.10						Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse siliceous. (HEAD)			
	4B	0.50	0.60								
	5D*	0.50									
	6B	1.00	1.10								
	7D	1.20	1.65	Nil	S 3				1.60	35.84	
	8X	1.20	2.00								
								Very soft orangish brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse siliceous. (HEAD)	1.90	35.54	
	9D	2.00	2.45	Nil	S 12						
	10X	2.00	3.00					Medium dense orangish brown silty very sandy subrounded and rounded fine to coarse siliceous and chalk GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS) 2.30 - 2.45m: Tending to slightly gravelly clayey fine and medium sand.	2.70	34.74	
	11D	3.00	3.45	Nil	S 13						
	12X	3.00	4.00					Soft orangish brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse siliceous. (Drilling disturbed?). (LOWESTOFT FORMATION)	3.45	33.99	
								Limited recovery. Recovered as orangish brown sandy clayey subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	3.80	33.64	
	13D	4.00	4.45	Nil	S 17						
	14X	4.00	5.00	Nil							
								Limited recovery . Recovered as soft orangish brown slightly gravelly sandy CLAY. (LOWESTOFT FORMATION)	4.45	32.99	
06/06/13 1730hrs Dry								Limited recovery. Recovered as orangish brown sandy clayey subangular to rounded fine to coarse siliceous GRAVEL. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)	5.00	32.44	
								Borehole completed at 5.00m.	(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-4.00m and (74mm) 4.00-5.00m.

CASING: at base of borehole 113mm diam reamed to 3.25m. Casing refused at 3.25m.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

REMARKS: At 5.00m hole collapsed back to 3.90m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
3.33	Nil	2.98	20	

AGS

CONTRACT	CHECKED
28182	EW

Geotechnical Engineering Limited

BOREHOLE LOG

WS02

CLIENT PLACES FOR PEOPLE DEVELOPMENTS LIMITED

SITE GILSTON PARK ESTATE, HARLOW — Sheet 1 of 1

Start Date 7 June 2013 — Easting 542902.7 — Scale 1 : 50

End Date 7 June 2013 — Northing 211975.7 — Ground level 61.29mOD — Depth 6.45 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
07/06/13 0800hrs	1B	0.10	0.20					Stiff brown slightly sandy silty CLAY with rare subangular fine to medium chalk gravel. (TOPSOIL)	0.25	61.04	
	2D	0.10									
	3D*	0.10						Stiff light brown mottled white slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			
	4B	0.50	0.60		H 105						
	5D*	0.50									
	6B	1.00	1.10		H 88						
	7D	1.20	1.65	Nil	S 19				1.20	60.09	
	8X	1.20	2.00					Stiff light brown orangish brown and white slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous. (LOWESTOFT FORMATION)			
	9D	2.00	2.45	Nil	S 20						
	10X	2.00	3.00					2.10m: slightly gravelly			
								2.50m: Flint gravel.			
								2.80m: Subangular chalk cobble.	2.90	58.39	
	11D	3.00	3.45	Nil	S 21				3.10	58.19	
	12X	3.00	3.80					Stiff light brown orangish brown and white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous. With decomposing rootlets. (LOWESTOFT FORMATION)			
	13X	3.80	4.00								
	14D	4.00	4.45	Nil	S 30			Stiff becoming very stiff light brown orangish brown and white slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and siliceous. (LOWESTOFT FORMATION)			
	15X	4.00	5.00								
	16D	5.00	5.45	Nil	S 36						
	17X	5.00	6.00								
									5.35	55.94	
								Stiff thinly laminated orangish brown and grey sandy CLAY. (LOWESTOFT FORMATION)	5.45	55.84	
								Dense orangish brown silty fine and medium SAND. (LOWESTOFT FORMATION - OUTWASH SANDS AND GRAVELS)			
07/06/13 1200hrs Dry	18D	6.00	6.45	Nil	S 38				6.45	54.84	
								Borehole completed at 6.45m.			
									(8.00)		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.00m, (98mm) 2.00-3.00m, (84mm) 3.00-3.80m, (74mm) 3.80-5.00m and (64mm) 5.00-6.00m.

CASING: Not used.

BACKFILL: On completion, hole backfilled with local materials and bentonite pellets.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m) casing (m) rose to (m) time to rise (min) remarks

Groundwater not encountered.

CONTRACT	CHECKED
28182	EW

TL 41 SW 25 **4272 1236** **¼ km N.E. of Brickhouse Farm, Eastwick** **Block B**

Surface level +64.9 m
Water not struck
Shell 152 mm diameter
September 1975

Waste 18.6 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.1	0.1
Boulder Clay	Clay, silty, flinty, brown, stiff	0.2	0.3
	Clay, silty, very chalky, some flints, brown becoming yellow, stiff	3.8	4.1
	Clay, silty, very chalky, rare flints, mottled grey and brown, stiff	0.9	5.0
	Clay, silty, chalky, dark blue grey, with flint and quartz pebbles, stiff	6.5	11.5
	Clay, silty, sandy, olive grey, soft	0.3	11.8
	Clay, silty, laminated coarsely below 13.3 m with bands of chalky grey shaley clay, olive grey, firm	4.2	16.0
	Clay, shaley, many small chalk pellets, grey, stiff	0.3	16.3
	Clay, silty, many small chalk pellets, fossil fragments, blue black, stiff	2.3+	18.6

TL 41 SW 21 **4178 1165** **Brickhouse Farm, Hunsdon** **Block B**

Surface level +55.5 m
Water not struck
Shell 152 mm diameter
September 1975

Overburden 1.2 m
Mineral 2.0 m
Waste 2.3 m
Mineral 2.9 m
Bedrock 0.3 m+

Log

Geological classification	*Lithology*	*Thickness* m	*Depth* m
	Soil	0.2	0.2
Boulder Clay	Clay, chalky, flinty, brown mottled yellow, soft	1.0	1.2
Glacial Sand and Gravel	**a** Sand Sand: fine and medium with a trace of coarse, yellow brown Gravel: coarse and fine, angular flint, with rounded chalk and quartz, with a trace of sandstone	2.0	3.2
	Silt, chalky, fine sandy, yellow, hard	1.0	4.2
	'Very clayey' sand, trace of pebbles Sand: fine and medium with a trace of coarse, yellow brown Gravel: fine and coarse, angular flint, with a trace of chalk, quartz and sandstone	0.6	4.8
Boulder Clay	Clay, chalky, flinty, olive grey becoming blue grey, firm	0.7	5.5
Glacial Sand and Gravel	**b** 'Clayey' sandy gravel, 'very clayey' pebbly sand becoming 'clayey' gravel Sand: medium, fine and coarse, brown to yellow brown Gravel: fine with coarse, angular flint, with rounded quartz,with a trace of chalk, sandstone and fossil debris	2.9	8.4
London Clay	Clay, silty, becoming sandy, mottled brown, mauve and blue at top, becoming blue grey, stiff	0.3+	8.7

Grading

	Mean for deposit *percentages*			Depth below surface (m)	*percentages*					
	Fines	Sand	Gravel		Fines	Sand			Gravel	
					$-\frac{1}{16}$	$+\frac{1}{16}$ $-\frac{1}{4}$	$+\frac{1}{4}$–1	+ 1–4	+ 4–16	+ 16
a	7	90	3	1.2–2.2	5	68	22	1	–	4
				2.2–3.2	8	27	60	2	2	1
				Mean	7	47	41	2	1	2
	35	62	3	4.2–4.8	35	32	28	2	2	1
b	18	46	36	5.5–6.5	34	29	23	5	6	3
				6.5–7.5	6	12	17	11	38	16
				7.5–8.4	16	8	18	18	24	26
				Mean	18	16	19	11	22	14

Composition

	Depth below surface (m)	Percentages by weight in + 4–16 mm fraction					
		Chalk	Flint	Quartz and Quartzite	Fossil debris	Sandstone	Others
a	1.2–2.2	29	43	14	–	–	14
	2.2–3.2	7	66	13	–	10	4
	Mean	18	54½	13½	–	5	9
	4.2–4.8	13	61	13	–	8	5
b	5.5–6.5	1	66	21	2	4	6
	6.5–7.5	Sample missing					
	7.5–8.4	½	67	21½	–	5	6
	Mean	1	67	21	1	4	6

Chief Executive and Director of Environment: John Wood

Mr Murphy
Quod
via email

Spatial and Land Use Planning
Minerals and Waste Team
CHN216
County Hall
Hertford, Herts SG13 8DN

spatialplanning@hertfordshire.gov.uk
Telephone : 01992 556249
Minicom : 01992 556611
Fax : 01992 556180
Contact : Julie Greaves
My ref : SP&E/JG/EHLP
Your ref :

Date : 14 July 2015

Dear Mr Murphy,

Location: Gilston Park Estate – East Hertfordshire, Mineral Evaluation

I am writing in response to the above report written by Matthews & Son LLP, which I have received from Quod.

As you are aware, mineral resources are essential to the wider community. To prevent their permanent loss, and in accordance with national guidance, the Minerals Local Plan and most of the district local plans include policies to resist the sterilisation of minerals when other development is proposed, by encouraging its prior extraction.

Accordingly, the county council (as MPA) encourages mineral extraction prior to other development taking place where any significant mineral resource would otherwise be sterilised.

Given the presence of a potentially viable sand and gravel resource within the area, and in light of the established principle of mineral safeguarding within national planning policy, and Minerals Local Plan policy 5, the developer was asked to establish the extent and quality of the resource and the likelihood of being able to work it in an environmentally acceptable way.

Following a meeting with Fiona Sibley and Sian Holmes to discuss these issues, I can confirm that I have received and read the Mineral Evaluation report (June 2015) along with the supporting borehole logs.

Para 2.8 of that report states that borehole SE35 lies within 'site 4' which is a Minerals Resource Block. This resource block was identified as part of the site selection study for the previous Minerals Local Plan review (in 2002). These resource blocks were assessed and some were taken forward as Areas for Further Study.

The Gilston Park Estate land lies adjacent to AFS4 (Southwest of Sawbridgeworth). These areas/sites were identified in the Key Issues Document. Following public and statutory consultation, the site/areas were grouped regarding their progression in to the draft plan. AFS4 was grouped in the least favourable; Group 4, due to the outstanding highway objections.

The Gilston Park Estate area is also adjacent to the historic and existing site of Pole Hole. The map attached shows that the area has been subject to a number of planning applications over time, including mineral extraction and infill with inert waste. Whilst the area of proposed development does not overlay this site, we could be happy to provide further information on the planning history of this area if required.

I am grateful of the detail that your report goes into and am inclined to agree that any substantial mineral working on this area would not prove beneficial. As discussed at the meeting, it should still be considered that some material could be used within the construction of the residential development itself.

Our standard response to planning applications where this may be applied is; 'The development may give rise to 'opportunistic' use of some minerals at the site that could be utilised in the development itself. Examination of these opportunities would be consistent with the principles of sustainable development.'

I hope that you find this information helpful, please contact me if you require anything further.

Yours sincerely,

[redacted]

Mrs Julie Greaves
Team Leader – Minerals and Waste Planning
Encs.
cc. Jenny Pierce - Planning Policy Team, East Herts DC

Hertfordshire

Carters
Stonards
Gangies
Gangies Hill
Hoskins Farm
Fryars
Noons Cottages
Actons Farm
High Trees
Moat
Maplecroft Wood
The Manor of Groves Golf Club
CH
Bonny's Row
The Grove
Hotel
Jeffs
Mabletts
Great Pennys Farm
Queen's Wood
Battles Wood
Bakers Farm
Keeper's
Golden Brook
Golden Grove
Sayes Coppice
Sch
High-Wych Grange
Sayes Park Farm
High Wych Road
GILSTON CP
Overhall Farm
Golden Hill
Channocks Farm
Rectory Plantation
Cock robin Lane
Gibson's Shaw
Fox Earths
Resr
Redricks Lane
Home Wood
Eastwick Hall Lane
Gilston Park
The Old Rectory
Text
Pole Hole Farm
Rederickes Farm
Harcamlow Way
Weirs
Fiddlers' Brook
Gravel Pit
Hollingson Meads
Three Forests Way
ROMAN TEMPLE (site of)
Gilston
Pye Corner
Latton Island
Lock
FBs
FB
Fiddlers' Bridge
Eastwick
Eastwick Lodge Farm
Burntmill Corner
Harlow Marsh Nature Reserve
Temple Fields
Eastwick Manor
A414
River Stort
Stort Valley Way
Towing Path
Ford
Outdoor Centre
Harlow Town Station
Burnt Mill
A1019
Town Park
Netteswell Cross
Schs
Mark Hall North
Mark Hall South
Liby
Netteswell
Parndon
Oak

Legend

- Mineral Resource Blocks 2000
- CM Applications
- Historic Landfill

0 1 2 Km