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27th April 2015

Our Ref: 14512/SGRA/Rev1.01

F.A.O. Jonathan Wilson (j.wilson@highwoodgroup.co.uk)

RE: Soil-Gas Risk Assessment; Dukes Meadow, Waterlooville, Hampshire PO7 7UF

Dear Jonathan,

This letter report is issued in an addendum to the previously submitted Soils Limited Phase II Ground Investigation Report (ref. 14512/GIR, dated October 2014). As part of the works undertaken Soils Limited were commissioned to undertake three rounds of soil-gas monitoring within wells installed across two development land parcels (proposed Nursing Home and Extra Care sites) in order to supplement an earlier soil-gas risk assessment undertaken by WSP for the wider site that included both land parcels.

The full soil-gas risk assessment contained within the WSP report (Project Number 12220124, dated December 2006) for the site concluded that no soil-gas protection measures were necessary for the proposed development. The results of the WSP soil gas risk assessment are presented within Table 1.

Table 1 Soil Gas Assessment Summary - WSP										
BH	Methane (%)		Carbon Dioxide (%)		Oxygen (%)		Hydrogen Sulphide (ppm)		Flow (l/h)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
BH1	<0.1	<0.1	0.1	0.2	20.5	20.8	0.2	0.2	<0.1	<0.1
BH2	<0.1	<0.1	<0.1	0.8	19.8	20.7	0.1	0.2	<0.1	<0.1
BH3	<0.1	<0.1	<0.1	<0.1	20.7	21.1	0.1	0.1	<0.1	<0.1
BH4	<0.1	<0.1	<0.1	1.3	17.4	20.8	0.1	0.2	<0.1	<0.1
BH5	<0.1	<0.1	<0.1	0.2	20.5	20.9	0.1	0.2	<0.1	<0.1
BH6	<0.1	<0.1	<0.1	0.2	20.5	20.8	<0.1	0.2	<0.1	<0.1
BH7	<0.1	<0.1	<0.1	0.1	20.7	20.8	0.1	0.1	<0.1	<0.1
BH8	<0.1	<0.1	<0.1	0.9	19.9	20.9	<0.1	0.2	<0.1	<0.1
BH9	<0.1	<0.1	0.1	0.5	20.3	20.7	0.1	0.3	<0.1	<0.1
BH10	<0.1	<0.1	<0.1	0.2	18.0	20.8	0.1	0.2	<0.1	<0.1
BH11	<0.1	<0.1	<0.1	2.2	16.6	20.9	0.1	0.2	<0.1	<0.1
BH12	<0.1	<0.1	<0.1	0.8	19.4	20.9	<0.1	0.2	<0.1	<0.1

Table I
Soil Gas Assessment Summary - WSP

BH	Methane (%)		Carbon Dioxide (%)		Oxygen (%)		Hydrogen Sulphide (ppm)		Flow (l/h)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
BH13	<0.1	<0.1	<0.1	0.2	20.6	20.9	0.1	0.2	<0.1	<0.1
WS1	<0.1	<0.1	<0.1	0.6	19.6	20.8	0.1	0.2	<0.1	<0.1
WS2	<0.1	<0.1	<0.1	0.1	20.5	20.8	0.1	0.2	<0.1	<0.1
WS3	<0.1	<0.1	<0.1	<0.1	20.6	20.8	0.1	0.1	<0.1	<0.1
WS4	<0.1	<0.1	<0.1	0.22	14.0	20.8	0.1	0.2	<0.1	<0.1
WS5	<0.1	<0.1	0.1	1.6	15.9	20.8	0.1	0.3	<0.1	<0.1
WS6	<0.1	<0.1	<0.1	6.7	13.1	21.0	0.1	0.2	<0.1	<0.1
WS7	<0.1	<0.1	<0.1	5.0	15.3	21.0	0.1	0.2	<0.1	<0.1
WS8	<0.1	<0.1	<0.1	0.2	20.6	21.0	0.1	0.2	<0.1	<0.1
WS9	<0.1	<0.1	<0.1	0.5	20.5	21.0	<0.1	0.2	<0.1	<0.1
WS10	<0.1	<0.1	0.1	2.2	11.2	20.8	0.1	0.1	<0.1	<0.1
WS11	<0.1	<0.1	<0.1	0.8	20.2	20.9	<0.1	0.2	<0.1	1.3
WS12	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA
WS13	<0.1	<0.1	<0.1	1.6	17.4	20.8	0.1	0.2	<0.1	<0.1
WS14	<0.1	<0.1	<0.1	0.4	20.4	20.9	0.1	0.2	<0.1	<0.1

The WSP soil gas monitoring results were collected over a total of six visits targeting periods of rising, falling, steady, high and low barometric pressures. Marginally elevated levels of Carbon Dioxide were recorded within WS6 and WS7 (peak 6.7%V/V). Flow rates were considered negligible as only one location (WS11) recorded a flowrate (1.3l/hr). WSP characterised the site as Characteristic Situation 1 using the Wilson and Card gas flow rate limiting method.

Given that the WSP risk assessment was carried out for the wider site, identified areas with slightly elevated Carbon Dioxide levels and only included a poor quality trial hole location plan which did not enable the confident delineation of these areas, Soils Limited were commissioned to carry out an additional three rounds of soil-gas monitoring across both the proposed Nursing Home and Extra Care sites.

Furthermore, Made Ground was encountered, typically around 0.50m thick, within the majority of boreholes drilled across the two land parcels. The NHBC document "Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present" Report edition No.04 dated June 2007, suggested that Made Ground could be considered as a potential source for soil-gas such as methane and carbon dioxide.

Soil-gas and groundwater monitoring wells were installed in BH101 and BH103 (Nursing Home site) and within BH201 (Extra Care site) to allow for soil-gas monitoring by Soils Limited.

Intrusive Investigation – Soils Limited

The intrusive works were carried out between the 8th and 10th September 2014 and comprised the drilling of 5No. cable percussion boreholes (BH101, 102, 103, 201, 202) to depths of between 10.00 and 15.00m bgl at locations across the site where access was available and clear of services.

Dual-purpose groundwater and soil-gas monitoring wells were installed in three locations BH101 and BH103 (Nursing Home site) and within BH201 (Extra Care site) to facilitate the requested return monitoring programme.

No soil-gas sources had been identified across the wider site within the previously submitted WSP report and this supplementary soil-gas risk assessment was designed to support the conclusions drawn within the WSP report. As such, a limited monitoring period comprising three visits was appropriate.

A copy of the borehole logs showing the well installation is provided in Appendix B.

Supplementary Soil-Gas Risk Assessment

The Soils Limited Phase II Ground Investigation identified Made Ground typically comprising slightly sandy clay with variable quantities of brick, flint and chalk gravel with underlying natural cohesive soils of Head over London Clay Formation. No visual or olfactory evidence of contamination or putrescible material was encountered within the Made Ground or underlying natural soils that raised any concern in respect to soil-gas.

Monitoring was undertaken on three occasions, including targeting periods of low and falling pressure where possible. The results of the monitoring are provided within Table 2.

Table 2 Soil-Gas Readings – Soils Limited												
Date	Barometric Trend*	BH	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	H ₂ S (ppm)	CO (ppm)	LEL (%)	aP (mb)	Flow (l/h)	H ₂ O (m bgl)	Well Depth (m bgl)
26.09.14	Rising	ATM	0.0	0.0	21.0	0	0	0.0	1018	-0.6	---	---
		BH101	0.0	0.9	18.9	0	0	0.0	1018	-0.3	3.20	10.05
		BH103	0.0	0.7	19.5	0	0	0.0	1018	-0.1	2.22	9.94
		BH201	0.0	0.0	20.9	0	0	0.0	1019	0.0	0.92	7.99
15.10.14	Falling & Low	ATM	0.0	0.0	20.7	0	0	0.0	995	-0.1	---	---
		BH101	0.0	0.0	20.7	0	0	0.0	997	0.0	0.88	10.04
		BH103	0.0	0.0	20.7	0	0	0.0	996	0.0	1.83	5.99
		BH201	0.0	0.1	20.7	0	0	0.0	998	0.0	0.25	8.02
22.10.14	Falling	ATM	0.0	0.0	20.4	0	0	0.0	1022	0.0	---	---
		BH101	0.0	0.0	20.2	0	0	0.0	1022	0.1	1.57	7.97
		BH103	0.0	0.0	20.3	0	0	0.0	1022	0.0	0.98	10.04
		BH201	0.0	0.0	20.2	0	0	0.0	1022	0.3	0.22	9.93

*Please refer to Appendix A for published barometric pressure trend data obtained for each monitoring period (data from Denmead Weather Station).

The soil-gas data presented in Table 1 and Table 2 shows the **highest concentration of carbon dioxide was recorded as 6.5% by volume** in WS6.

The **lowest oxygen concentration was recorded as 11.2%** in WS10.

The **highest positive flow rate was recorded as 1.3l/h** within WS11.

The **highest concentration of hydrogen sulphide was recorded at 0.2ppm** during the WSP investigation.

The soil-gas monitoring did not detect any concentrations of methane (either total or LEL) or carbon monoxide during any of the nine visits.

Based on the documentation presented in "BS 8485:2007, Code of practice for the characterization and remediation from ground gas in affected developments", the hazardous gas flow rate (Q_{hg}) should be calculated using:

$$Q_{hg} = C_{hg}/100 * q$$

Where:

C_{hg} is the measured hazardous gas concentration (in percentage volume-by-volume);

q is the flow rate (in litres per hour) of combined gases found by direct measurement. If gas flow within the borehole was not detectable, it should be assumed to be at the detection limit of the equipment used.

Consequently, the Q_{hg} for carbon dioxide was calculated to be:

$$Q_{hg} \text{ (l/hr)} = 6.5 \text{ (gas concentration)} / 100 * 1.3 \text{ (measured borehole flow rate)}$$

$$= 0.065 * 1.3$$

$$Q_{hg} = 0.0845 \text{ l/hr}$$

The maximum carbon dioxide concentration was taken as the gas concentration and the flow rate was taken as the maximum recorded positive borehole flow rate (1.3l/h within WS11), thus increasing the degree of conservatism adopted.

BS 8485:2007 stipulates that "individual gas measurements obtained from several monitoring locations over a number of visits should be considered collectively to establish a characteristic hazardous gas flow rate for the site as a whole". Readings were taken for periods of falling, rising and low atmospheric pressure.

The *Site Characteristic hazardous gas flow rate* (Q_{hgs}) has been taken as the hazardous gas flow rate of **0.0845 l/hr** for the site. This has been based on evaluating all of the soil-gas concentrations detected and having confidently established the absence of any sources of the gas generation through completion of a Desk Study (WSP) and intrusive Ground Investigation (WSP and Soils Limited) for the site.

Based on a *Site Characteristic hazardous gas flow rate* (Q_{hgs}) of 0.0845 l/hr, this would indicate the site to fall into a Characteristic Gas Situation '2', where the hazard potential is considered as 'low'. Furthermore there were no additional limiting factors as methane levels were recorded at <1%.

However, as it was possible to identify the location of WS6 as off site (ref. WSP Figure 00021263), it was possible to exclude the 6.5% carbon dioxide reading from the calculation of the Characteristic Gas Situation. Whilst it was considered likely that the other marginally elevated carbon dioxide concentration (5.0% within WS7) and the only significant flow rate (1.3l/hr in WS11) were also located off site, the image quality of the plan did not allow this to be confidently established. Therefore adopting the revised maximum carbon dioxide concentration (5.0%) the *hazardous gas flow rate* (Q_{hg}) was recalculated:

$$Q_{hg} \text{ (l/hr)} = 5.0 \text{ (gas concentration)} / 100 * 1.3 \text{ (measured borehole flow rate)}$$

$$= 0.05 * 1.3$$

$$Q_{hg} = 0.065 \text{ l/hr}$$

Based on a *Site Characteristic hazardous gas flow rate* (Q_{hgs}) of 0.065 l/hr, this would indicate the site to fall into a **Characteristic Gas Situation '1'**, where the hazard potential is considered as '**very low**'.

Conclusions

Given the results of the supplementary Soils Limited gas monitoring along with a review of the data previously obtained and presented by WSP the proposed Nursing Home and Extra Care sites the required gas protection by characteristic situation and type of building was established as Characteristic Gas Situation '1', therefore no gas protection measures were necessary for the proposed developments.

In summary the results of the Soils Limited Soil-Gas Risk Assessment concur with the findings of the earlier WSP 'Assessment of Ground Gas'.

If you have any queries regarding the above please do not hesitate to contact the undersigned.

Yours sincerely



Craig Morrison
Associate Director
cm@soilslimited.co.uk
For and on behalf of Soils Limited

Figure 1: Trial Hole Layout Plan A (Nursing Home Site)

Figure 2: Trial Hole Layout Plan B (Extra Care Site)

Appendix A: Barometric Pressure Trend Data – Soils Limited Monitoring

Appendix B: Borehole Records – Soils Limited



Project: Waterloo, PO7 7UF – Nursing Home Site

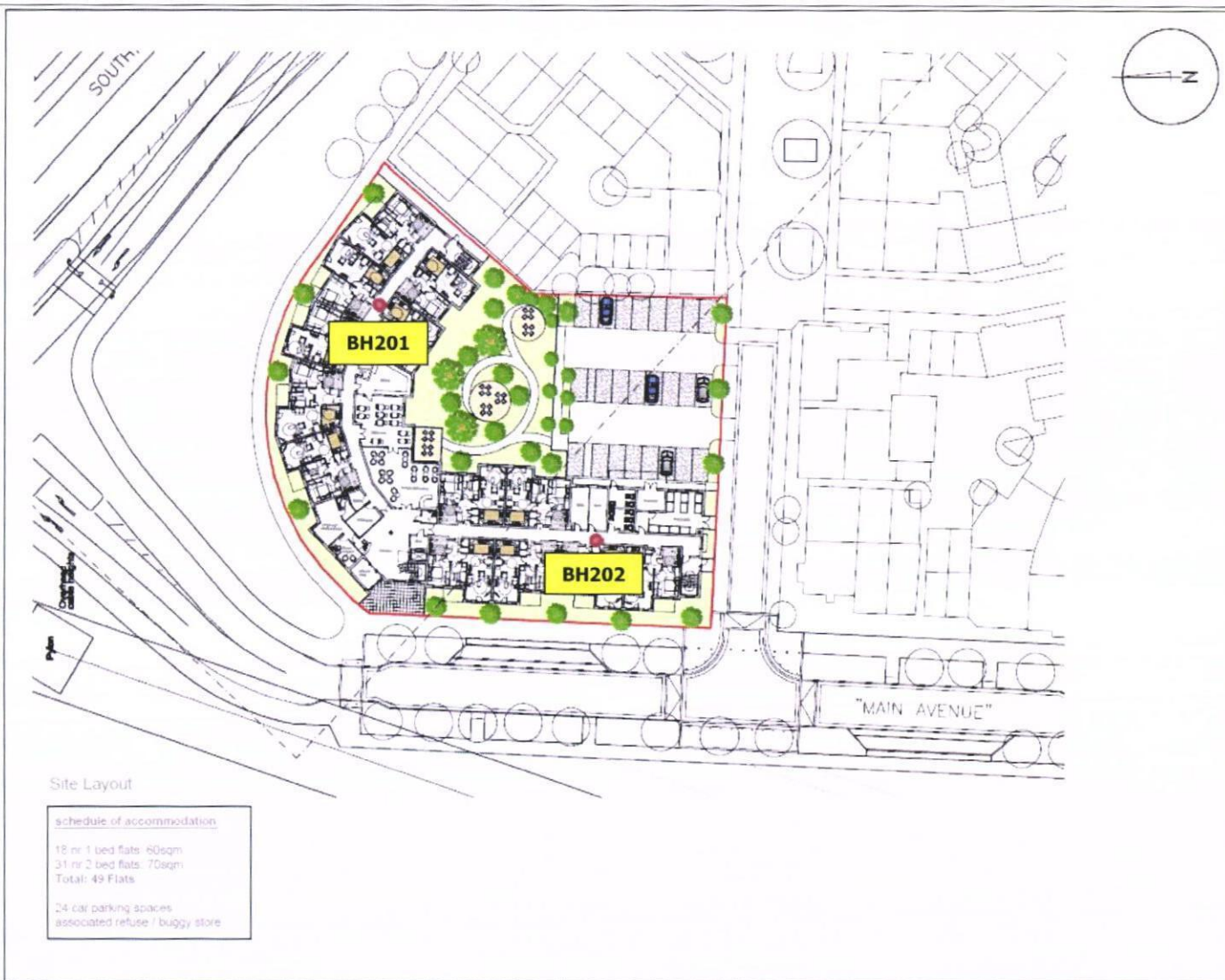
Client: Highwood Construction

Date: October 2014

Trial Hole Location Plan

Job Number: 14512

soils
LIMITED
Geotechnical & Environmental
Consultants



Project: Waterloooville, PO7 7UF – Extra Care Site

Client: Highwood Construction

Date: October 2014

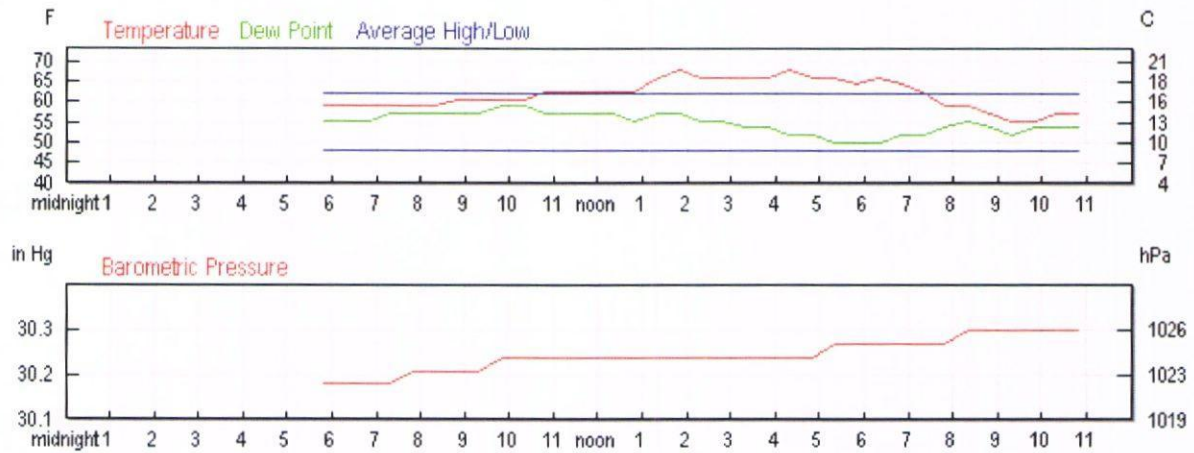
Trial Hole Location Plan

Job Number: 14512

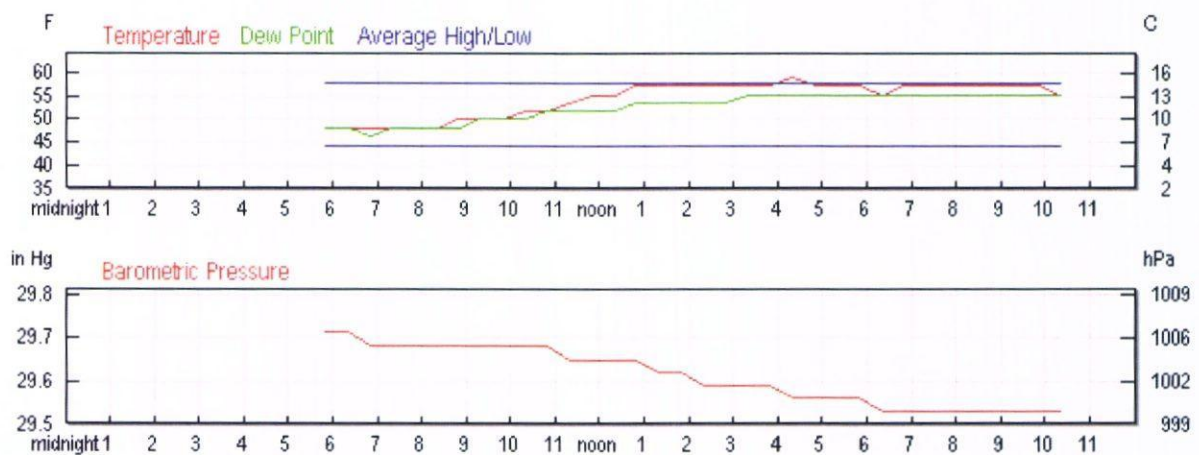
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Appendix A
Published Barometric Pressure Data
(Denmead Weather Station)

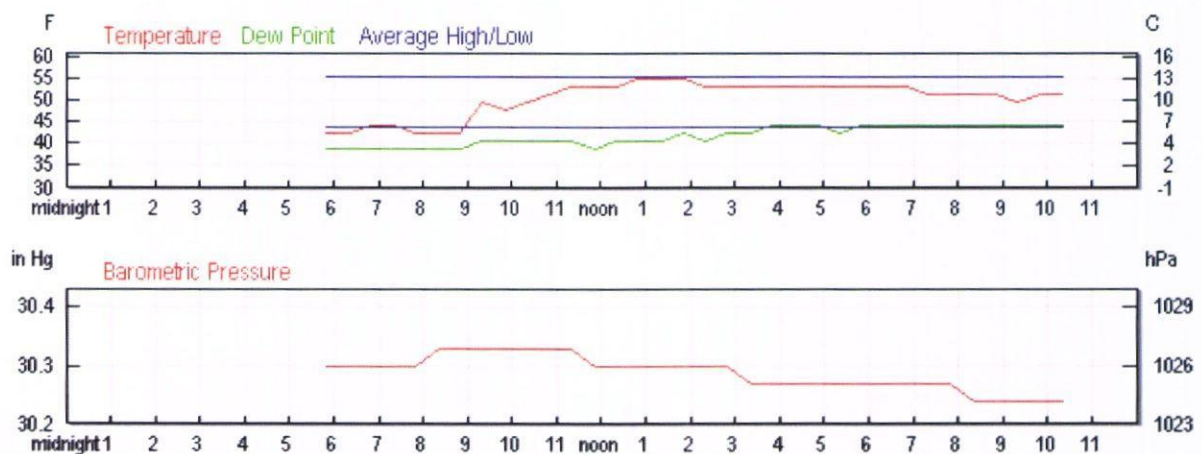
26.09.14



15.10.14



22.10.14



Appendix B
Borehole Records

Borehole Log

Borehole No.

BH101

Sheet 1 of 2

Project Name: Dukes Meadow,

 Project No.
14512

Co-ords: -

 Hole Type
CP

Location: Waterlooville, PO7 7UF

Level:

 Scale
1:50

Client: Highwood Construction

Dates: 10/09/2014 - 10/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.10			Grass over TOPSOIL.	
		0.50 - 0.70	B					Brown slightly gravelly slightly sandy CLAY with occasional fine to coarse brick, chalk and flint gravel. MADE GROUND	
					0.80			Orange brown silty CLAY with occasional fine gravel. HEAD	1
		1.20 - 1.40	U	Ublow=35	1.30			Firm brown pale grey silty CLAY with occasional fine gravel. HEAD	
		1.40	D						2
		2.00		N=10 (1,1/2,2,3,3)					
		2.00 - 2.45	D						
					2.80			Stiff brown becoming blue grey mottled slightly sandy fissured CLAY with occasional orange brown sand pockets. LONDON CLAY FORMATION	3
		3.00 - 3.40	U	Ublow=45					
		3.40	D						
		4.00		N=23 (3,4/5,6,6,6)					4
		4.00 - 4.45	D						
		5.00 - 5.40	U	Ublow=50					5
		5.40	D						
		6.00	D						6
		6.50		N=26 (3,3/5,7,7,7)					7
		6.50 - 6.95	D						
		7.50	D						
		8.00 - 8.35	U	Ublow=55					8
		8.35	D						
		9.00	D						9
		9.50		N=24 (1,3/5,6,6,7)					
		9.50 - 9.95	D						10

Below 5.00m bgl: Becoming dark grey fissured CLAY.

Continued on next sheet

Remarks

1 Hour day work dig pit to 1.20m bgl. 50mm Diameter well installed to 10.00m bgl upon completion.

Borehole Log

Borehole No.

BH101

Sheet 2 of 2

Project Name: Dukes Meadow,

Project No.
14512

Co-ords: -

Hole Type
CP

Location: Waterloooville, PO7 7UF

Level:

Scale
1:50

Client: Highwood Construction

Dates: 10/09/2014 - 10/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	D						
		11.00 - 11.40	U	Ublow=65					11
		11.40	D						
		12.00	D						12
		12.50							
		12.50 - 12.95	D	N=24 (3,3/5,5,7,7) Ublow=5					13
		13.50	D						
		14.00 - 14.20	U	Ublow=70					14
		14.20	D						
		15.00	D		15.00			End of borehole at 15.00 m	15
									16
									17
									18
									19
									20

Remarks

1 Hour day work dig pit to 1.20m bgl. 50mm Diameter well installed to 10.00m bgl upon completion.

Borehole Log

Borehole No.

BH102

Sheet 1 of 1

Project Name: Dukes Meadow,

 Project No.
14512

Co-ords: -

 Hole Type
CP

Location: Waterlooville, PO7 7UF

Level:

 Scale
1:50

Client: Highwood Construction

Dates: 09/09/2014 - 10/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.10			Grass over TOPSOIL.	
		0.50 - 0.70	B					Brown slightly gravelly slightly sandy CLAY with occasional fine to coarse brick, chalk and flint gravel. MADE GROUND	
					0.80				
		1.20 - 1.55	U	Ublow=30				Firm orange brown silty CLAY with occasional sand pockets and occasional fine gravel. HEAD	1
		1.55	D						
		2.00							
		2.00 - 2.45	D	N=12 (1,2/3,3,3,3)					2
		3.00 - 3.45	U	Ublow=40	2.80			Grey brown fissured CLAY. LONDON CLAY FORMATION	3
					3.10				
		3.50	D					Stiff dark grey fissured CLAY with occasional pale grey silt / fine sand partings. LONDON CLAY FORMATION.	
		4.00							
		4.00 - 4.45	D	N=19 (2,2/4,4,5,6)					4
		5.00 - 5.35	U	Ublow=45					5
		5.35	D						
		6.00	D						6
		6.50							
		6.50 - 6.95	D	N=24 (3,3/5,5,6,8)					7
		7.50	D						
		8.00 - 8.35	U	Ublow=50					8
		8.35	D						
		9.00	D						9
		9.50							
		9.50 - 9.95	D	N=26 (3,5/5,6,6,9)					
					10.00				10

End of borehole at 10.00 m

Remarks

1 Hour day work dig pit to 1.20m bgl. Backfilled with arisings upon completion. No water present at start of second shift (depth of borehole 3.0m bgl)

Borehole Log

Borehole No.

BH103

Sheet 1 of 2

Project Name: Dukes Meadow,

Project No.
14512

Co-ords: -

Hole Type
CP

Location: Waterlooville, PO7 7UF

Level:

Scale
1:50

Client: Highwood Construction

Dates: 08/09/2014 - 09/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.10			Grass over TOPSOIL.	
		0.50 - 0.70	B					Firm orange brown silty sandy CLAY with occasional fine gravel. HEAD	
		1.20 - 1.60	U	Ublow=40					1
		1.70	D						
		2.00		N=9 (1,2/2,2,2,3)					2
		2.00 - 2.45	D						
		3.00 - 3.35	U	Ublow=45	2.90			Orange brown silty CLAY with blue grey mottling. LONDON CLAY FORMATION	3
		3.35	D						
		4.00		N=18 (1,3/3,4,5,6)	3.80			Stiff dark grey fissured CLAY with occasional silt / fine sandy partings. LONDON CLAY FORMATION	4
		4.00 - 4.45	D						
		5.00 - 5.40	U	Ublow=45					5
		5.40	D						
		6.00	D						6
		6.50		N=24 (3,4/4,6,7,7)					
		6.50 - 6.95	D						7
		7.50	D						
		8.00 - 8.40	U	Ublow=55					8
		8.45	D						
		9.00	D						9
		9.50		N=25 (2,3/4,6,6,9)					
		9.50 - 9.95	D						10

Continued on next sheet

Remarks

1 Hour day work dig pit to 1.20m bgl. 50mm diameter standpipe installed to 10.00m bgl upon completion. Water dipped at 3.70m bgl at start of second shift. (depth of borehole 4.00m bgl)

Borehole Log

Borehole No.

BH103

Sheet 2 of 2

Project Name: Dukes Meadow,

Project No.
14512

Co-ords: -

Hole Type
CP

Location: Waterloooville, PO7 7UF

Level:

Scale
1:50

Client: Highwood Construction

Dates: 08/09/2014 - 09/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	D						
		11.00 - 11.30	U	Ublow=60					11
		11.30	D						
		12.00	D						12
		12.50		N=28 (4,5/6,6,7,9)					
		12.50 - 12.95	D						13
		13.50	D						
		14.00 - 14.45	U	Ublow=65					14
		14.45	D						
		15.00	D		15.00			End of borehole at 15.00 m	15
									16
									17
									18
									19
									20

Remarks

1 Hour day work dig pit to 1.20m bgl. 50mm diameter standpipe installed to 10.00m bgl upon completion. Water dipped at 3.70m bgl at start of second shift. (depth of borehole 4.00m bgl)

Borehole Log

Borehole No.

BH201

Sheet 1 of 2

Project Name: Dukes Meadow,

 Project No.
14512

Co-ords: -

 Hole Type
CP

Location: Waterlooville, PO7 7UF

Level:

 Scale
1:50

Client: Highwood Construction

Dates: 11/09/2014 - 11/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.10			Grass over TOPSOIL.	
		0.50 - 0.70	B		0.60			Brown slightly gravelly slightly sandy CLAY with occasional fine to coarse brick fragments and rootlets. MADE GROUND	
								Orange brown silty CLAY. HEAD	1
		1.20 - 1.55	U						
		1.60	D		1.70				
		2.00		N=8 (1,1/1,2,2,3)				Firm becoming stiff brown CLAY becoming blue grey with depth with occasional sand partings. LONDON CLAY FORMATION	2
		2.00 - 2.45	D						
		3.00 - 3.45	U	Ublow=42					3
		3.45	D						
		4.00		N=17 (3,3/3,4,5,5)					4
		4.00 - 4.45	D						
		5.00 - 5.45	U	Ublow=50					5
		5.45	D						
		6.00	D		5.80			Stiff dark grey fissured CLAY. LONDON CLAY FORMATION	6
		6.50		N=17 (2,3/3,4,4,6)					7
		6.50 - 6.95	D						
		7.50	D						8
		8.00 - 8.45	U	Ublow=55					
		8.45	D						
		9.00	D						9
		9.50		N=23 (2,3/4,5,6,8)					10
		9.50 - 9.95	D						

Continued on next sheet

Remarks

1 Hour day work dig pit to 1.20m bgl. 50mm diameter standpipe installed to 10.00m bgl upon completion.



Borehole Log

Borehole No.

BH201

Sheet 2 of 2

Project Name: Dukes Meadow,

Project No.
14512

Co-ords: -

Hole Type
CP

Location: Waterloooville, PO7 7UF

Level:

Scale
1:50

Client: Highwood Construction

Dates: 11/09/2014 - 11/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	D						
		11.00 - 11.40	U	Ublow=60					11
		11.40	D						
		12.00	D						12
		12.50		N=24 (3,3/5,5,7,7)					
		12.50 - 12.95	D						13
		13.50	D						
		14.00 - 14.30	U	Ublow=35					14
		14.30	D						
		15.00	D		15.00			End of borehole at 15.00 m	15
									16
									17
									18
									19
									20

Remarks

1 Hour day work dig pit to 1.20m bgl. 50mm diameter standpipe installed to 10.00m bgl upon completion.

Borehole Log

Borehole No.

BH202

Sheet 1 of 1

Project Name: Dukes Meadow,

Project No.
14512

Co-ords: -

Hole Type
CP

Location: Waterlooille, PO7 7UF

Level:

Scale
1:50

Client: Highwood Construction

Dates: 12/09/2014 - 12/09/2014

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.10			Grass over TOPSOIL.	
		0.50 - 0.70	D		0.55			Brown slightly gravelly slightly sandy CLAY with occasional fine to coarse brick, chalk and flint gravel. MADE GROUND	
		1.20 - 1.60	U	Ublow=30				Stiff to firm orange brown silty CLAY with occasional fine gravel. HEAD	1
		1.60	D						
		2.00		N=8 (1,1/1,2,2,3)					2
		2.00 - 2.45	D		2.60				
		3.00 - 3.40	U	Ublow=40				Firm to stiff brown pale grey CLAY. LONDON CLAY FORMATION	3
		3.40	D						
		4.00		N=18 (3,3/3,4,5,6)					4
		4.00 - 4.45	D						
		5.00 - 5.45	U	Ublow=45					5
		5.45	D		5.70				
		6.00	D					Stiff dark grey fissured CLAY. LONDON CLAY FORMATION	6
		6.50		N=23 (2,3/4,5,7,7)					7
		6.50 - 6.95	D						
		7.50	D						
		8.00 - 8.40	U	Ublow=55					8
		8.40	D						
		9.00	D						9
		9.50		N=23 (3,4/4,5,6,8)					
		9.50 - 9.95	D		10.00				10
								End of borehole at 10.00 m	

Remarks

1 hour day work dig pit to 1.20m bgl. Backfilled with arisings upon completion.

