APPENDIX 8.3

FURTHER GEO ENVIRONMENTAL INFORMATION

CAPITA

Former Nestle Factory, Hayes - Proposed Commercial Development

Further Geo-environmental Assessment

6 June 2016

We | Listen Create Deliver

Quality Management

Job No	CS-075666		
Project	Former Nestlé Factory, Hayes Proposed Commercial Development		
Location	Hayes, London Borough of Hillingdon		
Title	Further Geo-environmental Assessment		
Client	SEGRO plc		
Document Ref	CS-075666-PE-16-113-R		
File Reference	U:\CS-075666 - Project Lightning Hayes\Geotech\Reports\2016\CS-075666-PE-16-113-R Rev A.docx		
Date	6 June 2016		
Prepared by	PWE	Signature (for file)	
Authorised by	NRB	Signature (for file)	

Revision Status / History

Rev	Date	Issue / Purpose/ Comment	Prepared	Authorised
-	31/5/16	First Issue	PWE	NRB
A	6/6/16	Revision A – minor amendment to reflect project manager comments.	PWE	NRB

Report Conditions

This document has been prepared by Capita Property and Infrastructure Limited (Capita) for the titled project (or named part thereof) and should not be relied upon or used for any other project without prior written authorization being obtained from Capita. Capita accepts no responsibility or liability for the consequences of the use of this document, wholly or in part, for any other purpose than that for which it was commissioned. Any persons so using or relying upon this document for such other purpose do so at their own risk.

This report was prepared for the sole use of the named Client, and shall not be relied upon or transferred to any other party without the express written authorisation of Capita. It may contain material subject to copyright or obtained subject to license; unauthorised copying of this report will be in breach of copyright/license.

The findings and opinions provided in this document are given in good faith and are subject to the limitations and constraints imposed by the methods and information sources described in this report. Factual information, including, where stated, a visual inspection of the site, has been obtained from a variety of sources. Capita assumes the third party data to be reliable, but has not independently confirmed this; therefore, Capita cannot and does not guarantee the authenticity or reliability of third party information it has relied upon.

The findings and opinions presented in this report are relevant to the dates when the assessment was undertaken, but should not necessarily be relied upon to represent conditions at a substantially later date. Further information, ground investigation, construction activities, change of site use, or the passage of time may reveal conditions that were not indicated in the data presented and therefore could not have been considered in the preparation of the report. Where such information might impact upon stated opinions, Capita reserves the right to modify the opinions expressed in this report.

Where opinions expressed in this report are based on current available guidelines and legislation, no liability can be accepted by Capita for the effects of any future changes to such guidelines and legislation.

The limitations of liability of Capita for the contents of this document have been agreed with the Client, as set out in the terms and conditions of offer and related contract documentation.

Contents

Appendices

1. Summary

1.1 Capita Property and Infrastructure Limited was appointed by SEGRO plc (the Client) to undertake a Further Geo-environmental Assessment of the former Nestlé UK Ltd premises at North Hyde Gardens in Hayes, Middlesex. The assessment follows previous phases of investigation undertaken by Capita and others in 2014, and specifically relates to an area of just over 5 hectares proposed for commercial redevelopment. The remainder of the Nestle site (about 7 hectares) is to be developed separately for residential use and is not covered by this report.

1.2 The site was previously used for coffee manufacturing and, as of May 2016, remained occupied by numerous factory, office and warehouse-type buildings. External areas comprised either concrete service yards or macadam car parking and access routes. Manufacturing at the site ceased at the end of 2014 and it has been disused since June 2015.

1.3 The 2016 Capita ground investigation comprised five boreholes by conventional cable percussion (BH201 to BH205, maximum 5.4m deep) and six mechanically excavated trial pits (TP201 to TP206, maximum 2.5m deep), all located in external areas. Four further boreholes (BH206 to BH209, maximum 10.5m deep) were drilled inside the former Main Building using a reduced head-room cable percussion rig. Monitoring wells were installed in each of the boreholes.

1.4 Reinforced concrete hardstandings were typically found to be about 0.3m thick, and the tarmacadam ranged between 0.1 and 0.25m. Underlying Made Ground generally comprised grey or brown sandy and/or clayey gravel with varying amounts of concrete, brick and tile fragments, with an average thickness of 0.9m.

1.5 The Langley Silt Formation ('Brickearth') was encountered below the Made Ground in the majority of exploratory holes, consisting of about 0.7m firm silty sand clay. This overlay between 0.9 and 3.3m of Lynch Hill Gravel, a unit of dense sandy flint gravel which thickened towards the west (and was absent from one borehole on the site's eastern boundary). The deepest lithology encountered was the London Clay Formation, reached at between 2.6 and 5.3mbgl. The base of the Clay was not proven (>10.5mbgl).

1.6 Monitoring of borehole standpipes indicated resting groundwater depths to be between about 0.9 and 1.5 mbgl and an indicative flow towards the south-east has been inferred. No free phase substances (LNAPL or DNAPL) were detected.

1.7 Laboratory chemical analysis was carried out on representative samples of soil and groundwater. The data was compared to Generic Assessment Criteria applicable to sites with a Commercial end use and protective of a Principal aquifer.

1.8 The laboratory data and field observations did not indicate severe or unacceptable chemical impacts to soils or groundwater. However previous phases of investigation did detect isolated impacts to soil from PAH and lead, and asbestos was detected in many of the Made Ground samples during the Capita investigations, particularly below the Main Building undercroft.

1.9 It is recommended that a watching brief be maintained during demolition of existing buildings. Where feasible, any asbestos observed in/on the ground should be hand picked by suitably qualified and experienced personnel, and removed from site to a licenced facility. Where this is not feasible, soils entrained with asbestos fragments may need to be removed in bulk.

1.10 The majority of the site will be surfaced with concrete hardstandings in the site's developed condition so risks to future site users will be low. Risks to demolition and construction workers can be mitigated through the use of appropriate PPE and damping down of soils. A cover layer (circa 600mm thick) of imported topsoil should be placed over areas of soft landscaping to protect new planting and mitigate any slight risks associated with potential direct human contact / ingestion.

1.11 Characteristic gas situation 1 is considered to apply in respect of ground gases and as such no special protection measures are necessary for the proposed new commercial buildings.

1.12 Soil infiltration rate testing undertaken as part of the 2016 investigation determined that soakaway drainage will not be suitable at the site.

2. Introduction

2.1 Appointment

2.1.1 Capita Property and Infrastructure Limited was appointed by SEGRO plc (the Client) to undertake a Further Geo-environmental Assessment of part of the former Nestlé UK Ltd premises at North Hyde Gardens in Hayes, Middlesex.

2.2 Background and Report Purpose

2.2.1 The former Nestle site comprises a coffee manufacturing plant which ceased production and closed at the end of 2014. SEGRO intends to bring forwards a new commercial development of light industrial / warehouse units covering the eastern part of the site. The remainder of the former Nestle property is to be redeveloped separately, by others, for residential use.

2.2.2 Prior to its closure Capita undertook a due diligence geo-environmental investigation covering the whole of the former factory. The findings of that investigation are presented in the following report:

- Geo-environmental Investigation and Assessment, ref. CS075666-PE-14-211-R Revision A dated 24 November 2014.

2.2.3 This 2016 further assessment specifically relates to that part of the former Nestle facility being developed by SEGRO for new commercial properties. A drawing illustrating the development area boundaries is provided in Appendix A.

2.2.4 In the context of the above, the following objectives have been defined:

- Summarise existing information regarding potential geo-environmental constraints.
- Confirm the stratigraphy underlying the site through physical investigation.
- Undertake further Generic Quantitative Risk Assessments to determine the potential significance of any ground contamination encountered.
- Produce a Remediation Strategy based on the findings of the GQRA process.

2.3 Previous Reports

2.3.1 The following reports were produced for Nestlé UK Ltd by Geosyntec Consultants Ltd and were reviewed as part of Capita's November 2014 assessment:

- Phase 1 Environmental Assessment of the Nestlé UK Ltd Facility in Hayes, Middlesex. Project ref. GCU0124020 dated September 2013.
- Phase 2 Environmental Assessment of the Nestlé UK Ltd Facility in Hayes, Middlesex. Project ref. GCU0124024 dated June 2014.
- Subsurface Asbestos Investigation: Main Building Undercroft & South-Eastern Surrounding Area. Project ref. GCU0124025 dated July 2014.

- Letter report titled *Update on Groundwater Monitoring Results post September-14 round* dated 23 October 2014.

3. Site Location, Description and History

3.1 Location

3.1.1 The site is located off North Hyde Gardens in Hayes, approximately centred on post code UB3 4RF and at Ordnance Survey National Grid Reference 510100, 179190. A location plan is provided in Appendix B.

3.2 Site Description

3.2.1 The area covered by this assessment covers approximately 5.15 hectares in the eastern and northern part of the former Nestle premises, which extended to over 12 hectares in total. The study area was occupied by several buildings and areas of hardstanding (both macadam and concrete) and the main features were:

- The Green Bean Warehouse, previously used for the storage of coffee beans. Comprised a double bay, single storey warehouse with reinforced concrete frame, masonry panels and duo pitched roof.
- The Eden Building, used for packing and loading of finished products. Comprised a single storey warehouse with reinforced concrete frame, masonry panels and a flat roof. There was a canopy roof along the northern side of the building.
- The Lodge, a former residential property in the south-eastern corner of the site. This was a two-storey (plus basement and attic) red brick building with mock timber framing.
- The Main Building, of varying construction types and modified / added to on a number of occasions. The building occupied land to be developed by both SEGRO and the residential developer, with the SEGRO parts predominantly of reinforced concrete frame construction with masonry infill panels, and mostly 3 or 4 levels high. There is a large undercroft area, including support sleeper walls, below much of this building.
- The Gatehouse, located in the central eastern part of the site.
- A macadam surfaced car park covering much of the southern end of the site.

3.2.2 The site is relatively flat and reference to a recent topographical survey (see Appendix C) indicates ground levels range between about 31.4 and 30.5 mAOD, with a slight fall towards the west.

3.2.3 The site is bounded by Nestles Avenue to the south, North Hyde Gardens to the east and the Grand Union Canal to the north. The western boundary is not defined by physical features as it comprises the remainder of the former Nestle factory to be redeveloped separately.

3.3 Previous Development History

3.3.1 Information on the site's previous land use has been obtained from the 2013/14 Geosyntec reports and a Heritage Statement produced by CgMs in March 2016 (ref. HS/HB/21254).

3.3.2 The site is indicated to have comprised agricultural land from at least the 1860s until the 1910s, and the earliest part of the Main Building was completed circa 1914 for a cocoa factory.

3.3.3 During the First World War much of the site was commandeered for a munitions factory. The land surrounding the single factory building was occupied by numerous wooden huts used for shell manufacturing, with the huts linked to each other by raised walkways. Railway sidings connected the munitions works to the mainline to the north.

3.3.4 The munitions factory closed in 1919 and the site reverted to cocoa (and later coffee) production. The Main Building was extended in the 1930s and further modified and added to in the 1960s. The factory complex continued to expand throughout the second half of the twentieth century and many of the larger warehouse-type buildings were constructed in the 1970s.

3.3.5 The factory ceased production at the end of 2014 and the site was vacated by Nestle at the end of June 2015, since when it has been disused.

4. Environmental Setting

4.1 Geology

4.1.1 British Geological Survey online mapping indicates the site to be underlain by 'Worked Ground' over natural soils of the Lynch Hill Gravel Member. The Lynch Hill Gravel is part of the Maidenhead Formation and typically comprises river terrace sands and gravels. The underlying bedrock comprises the London Clay Formation (silty clay), which is expected to be circa 60m thick.

4.1.2 The 2014 Capita investigation recorded stratigraphy typically comprising:

Made Ground

Concrete or macadam hard surfacing (0.1 to 0.4m thick) over

0.15 to 1.5m (average 0.8m) clayey gravel or gravelly clay with fragments of concrete, brick and stone. The coarse grained fraction also included chalk, charcoal, ash, slag and metal fragments.

Discontinuous Langley Silt Formation ('Brickearth')

Observed in about half of the exploratory holes at an average thickness of 0.5m (ranging between 0.1 and 1.6m) and comprising firm gravelly and/or sandy silty clay.

Lynch Hill Gravel

Medium dense and dense orange-brown and dark brown sandy flint gravel, with occasional sand lenses, between 0.9 and 4.8m thick (average 3.2m).

London Clay

Reached at between 2.9 and 6.1mbgl and consisting of firm to stiff grey-brown silty clay.

4.2 Hydrogeology

4.2.1 The Lynch Hill Gravel is designated a Principal aquifer by the Environment Agency. The underlying London Clay Formation is categorised as an Unproductive stratum (i.e. a non aquifer).

4.2.2 The site is not situated within an EA-designated Groundwater Source Protection Zone.

4.2.3 Resting groundwater depths were recorded on three occasions by Geosyntec between December 2013 and May 2014 and ranged between about 0.6 and 2.5m below ground level. Monitoring by Capita indicated depths of between about 0.8 and 2.8mbgl within the Lynch Hill Gravel aquifer. Flow appeared to be generally directed towards the south-east at a gradient of approximately 1:130 to 1:150.

4.3 Hydrology

4.3.1 The nearest significant surface watercourse is the Grand Union Canal, which defines the site's northern boundary.

4.3.2 The River Crane is situated about 175m east and flows in a southerly direction, discharging into the River Thames about 10km to the south.

4.4 Groundwater Abstractions

4.4.1 It has previously been reported that two deep groundwater abstraction wells existed within the site boundaries. One was in use by Nestlé whilst the other is believed never to have been commissioned (apparently due to insufficient productivity).

4.4.2 The operational well was located centrally at the northern end of the Main Building (within the SEGRO demise) and was licensed for use as a boiler feed and for evaporative cooling. The permitted abstraction rate was up to 54m3/hour (1,296 m3/day) and the water was drawn from the deep Chalk aquifer, below the London Clay.

4.4.3 Capita understands that the operational well was decommissioned by Nestle prior to vacating the site and that the abstraction licence was revoked. A copy of the revocation notice is provided in Appendix D.

4.4.4 It is recommended that this well be capped and fully sealed in accordance with current regulations, as part of the demolition / enabling works for the proposed development.

5. Previous Investigations Findings

5.1 Two phases of intrusive investigations were undertaken by Geosyntec Ltd for Nestle in 2014, the first covering the whole of the former factory and the second specifically investigating the presence of asbestos-containing materials in the undercroft below the Main Building.

5.2 These investigations did not identify significant site-wide matters of concern in respect of ground contamination, however there were localised occurrences of suspected chemical impacts.

5.3 The Capita investigation was undertaken in October 2014 as part of SEGRO's pre-acquisition due diligence. It comprised a series of exploratory boreholes which extended into the top of the London Clay lithology and its conclusions broadly corresponded with those reached by Geosyntec.

5.4 Drawings illustrating the locations of the previous exploratory holes are provided in Appendix E. The key findings of the investigations, as presented in the 2014 Capita report, were:

- There was a degree of hydrocarbon impact – both TPH and PAH substances – to shallow Made ground soils at the northern / north-western end of the wider site. This was predominantly around the old boiler house and fuel storage tanks (e.g. at WS14, WS18, WS30, BH9). This is outside the SEGRO retained land and is not expected to impact the proposed commercial development.
- There were marginally elevated hydrocarbons (mostly aromatics C16-C21) in shallow soil at BH1 and WS23 on the northern boundary, within the SEGRO demise.
- Isolated PAH impacts to shallow soils were detected to the south-east of the Main Building (WS102), locally below in the undercroft (U21), and in the south-eastern part of the site (WS28). Some marginally elevated lead concentrations were also recorded. The lead and PAH impacts are most likely attributable to sporadic fragments of ash, slag or similar debris entrained within the Made Ground.
- Fragments of asbestos-containing material and/or loose asbestos fibres were detected in shallow soils locally, including below the former boiler house (WS18, WS30 and WS28 – all outside the SEGRO demise), on the northern boundary (BH104, WS20, WS21) and in the south-eastern sector (BH5, BH109).
- There were also sporadic positive detections of asbestos fibres in shallow soils below the Main Building. It is noted that of 88 soil samples analysed by Geosyntec, 72 recorded "no asbestos detectable" (relating to 17 of 28 sampling locations). 9 recorded "trace" levels and 7 recorded "quantifiable' concentrations up to a maximum of 0.001%.
- Shallow perched groundwater was reported to be locally impacted to some extent by hydrocarbons – notably at BH103 – but again this was outside the proposed commercial development area. It is noted that there was no indication that the Principal gravel aquifer had been affected.

- There were isolated technical exceedances of generic assessment criteria for some metals and metalloids in groundwater at BH1 and BH2.
- There was no indication of elevated concentrations of hazardous ground gases.

5.5 It is noted that several historical 'environmental incidents' were listed in the Geosyntec reports. These predominantly related to fuel losses on the western side of the factory, outside the SEGRO development area.

5.6 We also note that Geosyntec made reference to possible mercury impacts to soils, reportedly observed by Nestlé operatives in shallow soils during construction of the coffee ground combustion plant. The source of the mercury was reported to be equipment used within a former boiler house. This is outside the SEGRO demise but the affected area was uncertain and was considered potentially to reach the western edge of the study site. It is noted that soil analysis undertaken for the previous investigations found no evidence of mercury contamination.

6. Supplementary Investigation

6.1 Introduction

6.1.1 Supplementary ground investigation works to provide more detailed information on the SEGRO development area were undertaken by Capita in March 2016. These comprised:

- Five boreholes (BH201 to BH205) by conventional cable percussion, to base depths of between 5.0 and 5.4mbgl.
- Four boreholes (BH206 to BH209) by using a reduced head-room ("cut down") cable percussion rig, to base depths of between 5.0 and 10.5mbgl. These boreholes were located inside the existing Main Building.
- Six mechanically excavated trial pits (TP201 to TP206), to base depths of between 0.7 and 2.5mbgl. Soil infiltration rate testing was undertaken in four of these pits.
- Installation of HDPE monitoring standpipes (50mm internal diameter) in all of the boreholes.
- Collection of representative soil samples for laboratory chemical and geotechnical testing.
- Groundwater samples were collected for chemical analysis from all of the 2016 boreholes and selected pre-existing wells.
- Ground gas and water level monitoring was undertaken at the site on two occasions in March 2016.

6.1.2 Exploratory hole locations are indicated on drawing 502 in Appendix E and the borehole and trial pit logs are presented in Appendix F.

6.2 Chemical Testing

6.2.1 14No soil samples obtained from the exploratory holes were submitted to i2 Analytical Ltd, Watford for analysis of the following potential contaminants:

- Total Petroleum Hydrocarbons (TPH) speciated for the Criteria Working Group (CWG) suite of hydrocarbon bands;
- Speciated (US EPA 16) Polycyclic Aromatic Hydrocarbons (PAH);
- Benzene, toluene, ethyl benzene and xylenes (BTEX)
- Metals and metalloids (As, B (w/s), Cd, Cr, Cu, Hg, Ni, Pb, Se, V, Zn);
- Water soluble sulphate;
- pH;

- Asbestos (including quantification if positively detected)

6.2.2 Eleven groundwater samples, obtained from the 2016 Capita wells (BH201-209) two of the previously installed monitoring points (BH2 and BH109), were tested for some or all the following analysis suite:

- Total Petroleum Hydrocarbons (TPH) speciated for the Criteria Working Group (CWG) suite of hydrocarbon bands;
- Speciated (16) Polycyclic Aromatic Hydrocarbons (PAH);
- Benzene, toluene, ethyl benzene and xylenes (BTEX)
- Volatile Organic Compounds (VOC)
- Metals and metalloids (As, B, Cd, Cr, Cu, Hg, Ni, Pb, Se, V, Zn);
- pH;
- Sulphate.

6.2.3 Results of all the chemical testing are presented in the laboratory reports in Appendix G.

6.3 Geotechnical Testing

6.3.1 In-situ geotechnical testing was undertaken at regular intervals during the investigation in the form of Standard Penetration Tests (SPTs); the results of this testing are presented on the borehole logs. Laboratory geotechnical testing was undertaken as part of the 2014 Capita assessment.

6.4 Gas and Groundwater Monitoring

6.4.1 Follow-up ground gas and groundwater monitoring was carried out on 22nd and 30th March 2016 and the full datasets presented in Appendix H.

7. Ground Conditions

7.1 Introduction

7.1.1 The stratigraphy recorded during the 2016 supplementary investigation was broadly in accordance with that previously encountered.

7.1.2 The table below summarises conditions encountered in the exploratory holes situated within the SEGRO development area:

Stratum	Thickness range (m)	Depth range to top of stratum (mbgl)	Depth range base depth (mbgl)
Concrete / Macadam	0.07 to 0.80	GL	0.06 to 0.80
Made Ground	0.15 to 2.3 Average: 0.85	0.07 to 0.8 Average: 0.25	0.45 to 2.45 Average: 1.1
Langley Silt / Brickearth	0.2 to 1.6 Average: 0.7	0.35 to 2.5 Average: 1.0	0.85 to 3.0 Average: 1.7
Lynch Hill Gravel	0.9 to 3.3 Average: 2.3	0.85 to 3.0 Average: 1.5	2.6 to 5.3 Average: 4.0
London Clay	Not proven	2.6 to 5.3 m Average: 3.2	Not proven

7.2 Surfacing

7.2.1 All of the exploratory holes were positioned in areas surfaced with either reinforced concrete or tarmacadam.

7.2.2 The concrete ranged in thickness between about 0.2 and 0.8 m, typically circa 0.3m. The tarmacadam was generally between 0.1 and 0.25m thick.

7.3 Made Ground

7.3.1 Made Ground was encountered below the hard surfacing in all exploratory holes and ranged in thickness between 0.15 and 2.3 m, averaging 0.85 m. The stratum typically comprised grey or brown sandy and/or clayey gravel with varying amounts of concrete, brick and tile fragments. The coarse grained fraction also locally included fragments of chalk, charcoal, ash, slag and metal.

7.4 Brickearth / Langley Silt

7.4.1 A thin horizon of fine grained soils corresponding with the Langley Silt / Brickearth lithology was encountered in the majority of exploratory holes and comprised soft to firm silty sandy clay. Its thickness ranged between 0.35 and 2.5 m.

7.5 Lynch Hill Gravel

7.5.1 The Lynch Hill Gravel Member was present in all locations where the base of the Made Ground or Langley Silt was reached, except at BH202 situated on the site's eastern boundary. Its typically thickness ranged between 0.9 m (BH4) and 3.3 m (BH209) and increased towards the west. The stratum comprised medium dense and dense orange-brown and dark brown sandy flint gravel, with occasional sand lenses.

7.5.2 It is noted that the base of the gravel was not reached in BH209 (>8.5 mbgl).

7.6 London Clay

7.6.1 The London Clay Formation was encountered below the Lynch Hill Gravel in all of the cable percussion boreholes, at depths of between 2.6 and 5.3 mbgl. The lithology comprised firm brown and grey silty clay.

7.7 Visual/ Olfactory Evidence of Contamination

7.7.1 There were no observations of suspected ground contamination in the exploratory holes located within the SEGRO development area.

7.8 Obstructions

7.8.1 Buried obstructions were recorded during the two phases of investigation at the following locations and depths:

Borehole ID	Depth (mbgl)	Details (as indicated on the logs)
BH109A	0.6	Concrete obstruction (borehole re-positioned 10m south as BH109)
TP203	0.65	Two armoured cables observed – assumed to be redundant electrical supply. The trial pit was abandoned.

7.9 Groundwater / NAPL

7.9.1 Measurement of resting groundwater levels in selected monitoring wells was undertaken on two occasions in March 2016 using an oil/water interface probe. This is in addition to extensive monitoring undertaken across the site by Capita in October / November 2014.

7.9.2 Free phase hydrocarbons (LNAPL and DNAPL) were not detected on or below groundwater in any of the monitoring wells.

7.9.3 Water depth and level data for March 2016 data is presented in the following table:

Borehole ID	Water depth (mbgl)	Water level (mAOD)
BH1	0.89	29.62
BH2	1.01	29.43
BH3	1.00	29.19
BH5	1.40	27.87

Borehole ID	Water depth (mbgl)	Water level (mAOD)
WS22	0.80	29.59
BH109	1.55	28.27
BH201	1.56	28.52
BH202	1.18	29.27
BH203	0.76	29.60
BH204	0.40	28.96
BH205	1.16	28.97
BH206	1.64	29.46
BH207	1.72	29.38
BH208	1.65	29.45
BH209	1.71	29.39

7.9.4 This data concurs with the previous assessments that groundwater flow is directed towards the south-east, at an approximate gradient of 1:150 (0.66%).

8. Soil Infiltration Rate Testing

8.1 Soil infiltration rate testing was undertaken by Capita in four of the six trial pits formed at the site in March 2016.

8.2 Testing was undertaken in accordance with the procedures set out in BRE Digest 365 'Soakaway design' (2007). In summary, this comprised excavation of each trial pit to the required depth – taking due consideration of site stratigraphy and groundwater level – and then filling with clean tap water delivered by tanker. The water level was monitored over a period of hours and on completion each excavation was backfilled with arising.

8.3 The results of the soakaway tests are presented in the table below.

Location	Water depth at test start (mbgl)	Base of Pit (mbgl)	Soil Infiltration Rate, f (m/sec)	Comments
TP202	1.12	1.80	3.76 x 10-6	Data extrapolated
TP204	1.05	1.65	Not determined	Water level did not fall during test period.
TP205	1.25	1.95	Not determined	Water level did not fall during test period.
TP206	1.13	1.75	Not determined	Water level did not fall during test period.

8.4 The data indicates infiltration rates to be negligible, likely due to a very shallow groundwater table. It is therefore concluded that soakaway drainage would not be feasible for the proposed development.

9. Ground Gas Assessment

9.1 Introduction

9.1.1 Capita attended site on three occasions in October / November 2014 to monitor wells installed across the wider Nestle site at that time. Methane was detected at trace concentrations in four of the thirteen locations (maximum 0.7% by volume) and the maximum concentration of carbon dioxide was 3.0%. Both of these maxima were recorded in wells situated outside the SEGRO demise.

9.1.2 The preceding Geosyntec investigation included gas monitoring undertaken in February and May 2014. Methane and carbon dioxide were detected at elevated concentrations in one location only (WS3, again outside the SEGRO demise) but this was attributed to a nearby leaking gas main. Excluding this anomalous and erroneous reading, methane was below limits of detection (<0.3% by volume) at all monitoring points and the carbon dioxide concentration ranged between <0.3% and 1.1% by volume.

9.1.3 The recent Capita wells (BH201 to BH209) were monitored for ground gases in March 2016 using a Geotechnical Instruments GA5000 infra-red gas analyser. This data builds upon and should be considered alongside the earlier information.

9.2 Field Data

9.2.1 The table below summarises the recent field data:

Standpipe	Maximum CH_4 (%v/v)	Maximum CO_2 (%v/v)	Minimum O_2 (%v/v)	Max Flow (l/hr)
BH201	0.0	0.2	19.3	0.2
BH202	0.5	0.4	18.2	0.3
BH203	0.0	0.1	20.7	16.9
BH204	0.0	0.1	21.2	0.0
BH205	0.0	0.3	21.0	2.8
BH206	0.0	0.1	18.9	0.1
BH207	0.0	0.5	19.2	0.0
BH208	0.0	0.1	21.1	0.0
BH209	0.0	0.1	21.5	0.1

NB: Analyser detection limits are 0.1% v/v for gas concentrations and 0.1l/hr for flow rate.

9.3 Assessment and Recommendations

9.3.1 The latest field data indicates very low methane concentrations across the proposed commercial development area. Similarly, elevated concentrations of carbon dioxide were not detected. It is noted that a high gas flow rate was recorded at BH203 (16.9 l/hr) but in the absence of significant hazardous gas concentrations this is not considered to be of concern.

9.3.2 Ground gas risk assessment is based on BS 8485:2015 'Code of Practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings' and CIRIA publication C665 'Assessing Risks posed by Hazardous Ground Gases to Buildings' (2007). The methodology utilises the determination of hazardous gas flow rates based upon gas concentrations multiplied by borehole flow rates, to define a characteristic gas situation ("CS") for the site.

9.3.3 On the basis of the available data it is suggested that the site falls within category CS1 after BS8485, corresponding to a very low hazard potential. As such no special ground gas protection measures are considered necessary for the proposed commercial development.

9.3.4 This corresponds with the findings of the previous Capita and Geosyntec assessments.

10. Generic Quantitative Risk Assessment

10.1 Introduction

10.1.1 In line with CLR11 (DEFRA & EA, 2004), a Generic Quantitative Risk Assessment (GQRA) has been undertaken to determine the significance of any recorded chemical impacts at the site. The GQRA comprises the comparison of the measured 'contaminant' concentrations with Generic Assessment Criteria (GACs).

10.1.2 The GACs for soil concentrations comprise either DEFRA Category 4 Screening Values (C4SLs), Land Quality Management Suitable 4 Use Levels (S4ULs) or values derived in house using CLEA version 1.6, all applicable to a "commercial" end use scenario. The GACs for "liquid" concentrations comprise either drinking water standards or environmental quality standards protective of a Principal Aquifer.

10.1.3 The relevant statistical tests have been undertaken on the laboratory data where appropriate. The findings of the GQRA are presented below and the test output datasheets are provided in Appendix G.

10.1.4 This discussion of soil data relates to the laboratory test results obtained during the 2016 investigations. Where relevant, reference is also made to earlier data from the 2014 reports (as summarised in Chapter 5 above).

10.2 Laboratory Analysis – Soils

10.2.1 Fourteen soil samples were laboratory screened for the presence of asbestos containing materials as part of the 2016 investigation. A positive identification was recorded in nine of these and they were subject to asbestos quantification analysis. The table below summarises the data:

Location	Depth (mbgl)	Asbestos ID	Total % Asbestos in Sample
TP202	0.8	Chrysotile – loose fibres	0.005
TP203	0.5	Chrysotile and amosite – insulation lagging and loose fibres	0.003
TP204	0.4	Chrysotile – insulation lagging	0.009
TP205	0.45	Chrysotile and crocidolite – insulation lagging	0.006
BH202	1.2	Chrysotile – loose fibres	<0.001
BH204	1.0	Chrysotile – loose fibres	<0.001
BH207	0.5	Chrysotile – loose fibres	0.001
BH207	1.5	Chrysotile and crocidolite – insulation lagging and loose fibres	0.022
BH208	0.5	Chrysotile – loose fibres	<0.001
BH109 (2014)	0.65	Chrysotile – loose fibres	Not quantified

Location	Depth (mbgl)	Asbestos ID	Total % Asbestos in Sample
BH109 (2014)	1.4	Chrysotile – loose fibres	Not quantified

10.2.2 The samples were also analysed for a suite of typical metal and metalloid contaminants. The table below summarises the results:

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Arsenic	640 [a]	8.5 - 19	0
Boron	110000 [c]	0.2 - 6	0
Cadmium	410 [a]	0.2 - 0.7	0
Chromium VI	49 [a]	24 - 44	0
Copper	39000 [c]	12 - 430	0
Lead	2230 [a]	6.3 - 770	0
Mercury	58 [b]	0.3 - 2.5	0
Nickel	980 [b]	19 - 45	0
Selenium	12000 [b]	1 - 1	0
Vanadium	5600 [c]	25 - 67	0
Zinc	660000 [c]	23 - 440	0

[a] denotes DEFRA C4SL
[b] denotes LQM S4UL
[c] denotes Capita GAC

10.2.3 The results indicate no exceedances of the GACs in these samples.

10.2.4 Analysis was also carried out for the Total Petroleum Hydrocarbons Criteria Working Group (TPH-CWG) suite of Equivalent Carbon (EC) bands. Results are summarised as follows:

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Aliphatic >C5-C6	2600	<0.1	0
Aliphatic >C6-C8	5000	<0.1	0
Aliphatic >C8-C10	1200	<0.1	0
Aliphatic >C10-C12	6300	<1.0 - 1.9	0
Aliphatic >C12-C16	25000	<2.0 - 6.6	0
Aliphatic >C16-C21	-	<8 - 17	-
Aliphatic >C21-C35	-	<8 - 100	-
Aromatic C8-10	2200	<0.1	0
Aromatic C10-12	9700	<1	0
Aromatic C12-16	25000	<2.0 - 38	0
Aromatic C16-21	27000	<10 - 420	0

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Aromatic C21-35	28000	<10 - 640	0

10.2.5 Results of analysis for Polycyclic Aromatic Hydrocarbons (PAH) were as follows:

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Benzo[a]anthracene	140	<0.1 - 27	0
Benzo[a]pyrene	14	<0.1 - 25	0
Benzo[b]fluoranthene	140	<0.1 - 32	0
Benzo[ghi]perylene	140	<0.05 - 12	0
Benzo[k]fluoranthene	150	<0.1 - 8.9	0
Chrysene	1400	<0.05 - 18	0
Dibenz[ah]anthracene	14	<0.1 - 3.8	0
Fluoranthene	54000	0.1 - 67	0
Indeno[123-cd]pyrene	140	0.1 - 13	0
Naphthalene	75	0.05 - 0.52	0
Pyrene	76000	0.1 - 59	0

10.2.6 Concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX compounds) and MTBE (methyl tertiary butyl ether) were all below laboratory limits of detection (<1.0µg/kg)

10.3 Groundwater

10.3.1 Groundwater samples were obtained for laboratory analysis on 22nd March 2016 (from BH2, BH109 and BH201 to BH205) and on 30th March 2016 (from BH206 to BH209).

10.3.2 Metals / Metalloids

10.3.3 Results of analysis for metal and metalloid contaminants are summarised as follows:

Determinand	GAC (µg/l)	Range of Results (µg/l)	No. exceeding GAC
Arsenic	10	0.4 - 5.36	0
Boron	1000	91 - 310	0
Cadmium	3	0.02 - 1.7	0
Chromium VI	50	0.2 - 0.8	0
Copper	2000	0.7 - 18	0
Lead	10	0.2 - 2	0
Mercury	1	0.05 - 3.9	1
Nickel	20	2.9 - 36	3
Selenium	10	0.6 - 53	5
Zinc	5000	1.9 - 37	0

10.3.4 Marginal exceedances were recorded at the following locations:

Mercury (GAC: 1.0 µg/l)

BH203: 3.9 µg/l

Nickel (GAC: 20 µg/l)

BH203: 36 µg/l
BH207: 28 µg/l
BH208: 22 µg/l

Selenium (GAC: 10 µg/l)

BH205: 39 µg/l
BH206: 53 µg/l
BH207: 15 µg/l
BH208: 12 µg/l
BH209: 15 µg/l

10.3.5 Organics

10.3.6 Concentrations of TPH-CWG, VOCs, BTEX and PAHs were below laboratory method detection limits in all eleven of the water samples obtained in 2016.

10.4 Discussion

10.4.1 The results of the 2016 supplementary ground investigation broadly concur with those of the earlier investigations undertaken in 2014. It is considered that the laboratory analysis data and the field observations do not indicate severe or unacceptable chemical impacts to either soils or groundwater in the area and context of the proposed commercial redevelopment.

10.4.2 However as previously reported, the relatively persistent presence of asbestos in shallow soils does merit further consideration and risk mitigation. In many instances the asbestos has been recorded to comprise loose fibres at very low concentrations (<0.001), and in all but one sample the concentration was below 0.01% by mass. It is nevertheless anticipated that accumulations of asbestos containing materials may be encountered sporadically within the shallow soils. This may be as degraded insulation lagging, for examples below the Main Building ground floor slab, or in other forms such as asbestos cement locally entrained within the Made Ground.

10.4.3 It is recommended that a watching brief be maintained during the demolition contract with inspections of the ground formations during removal of existing slabs. Where feasible, the asbestos should be hand picked by suitably qualified and experienced personnel, and removed from site to a licenced facility. There may also be a requirement for a degree of 'bulk soil removal' if hand picking is not practical.

10.4.4 Previous phases of investigation detected isolated impacts to soil from TPH, PAH compounds and lead. These were not replicated in 2016 and, as previously reported, most likely related to small amounts of ash or clinker entrained within the Made Ground (see paragraph 5.4 above).

10.4.5 It is noted that almost the entire site will be surfaced with concrete or macadam in the site's developed condition. As such, risks to future site users from these impacts, or from any residual asbestos in the ground, will be low. Risks to both demolition and construction workers can be mitigated through the use of appropriate PPE and damping down of soils should this become necessary. A degree of protection is recommended to be installed in areas of new soft landscaping, comprising a cover layer (circa 600mm thick) of imported topsoil to the landscape architect's specification. This should mitigate any slight risks associated with potential direct human contact / ingestion.

10.4.6 It is considered that the sporadic, technical exceedances of the groundwater GACs for metals do not present any significant risk to controlled water resources. The data is consistent with that previously obtained from the site and does not merit further assessment. Furthermore it is noted that the extensive thickness of London Clay will prevent any hypothetical vertical migration down into the deeper Chalk aquifer.

11. Other Development Considerations

11.1 Waste Soils Characterisation

11.1.1 Any excavation works may potentially produce waste soils, for which appropriate waste management will be required. Off-site disposal of soil requires careful management and due consideration of appropriate legislation, guidance and Duty of Care responsibilities.

11.1.2 The chemical analysis data indicates that, where asbestos is not present, the majority of Made Ground soils would likely be classified as 'Non-Hazardous Waste', and the natural soils as 'Inert', should off-site disposal be required. However any soils with significant asbestos (or other chemical) impacts will likely fall within the more onerous 'Hazardous' category.

11.1.3 It must be noted that if off-site disposal is required it is for the receiving landfill to make the final determination of waste classification. In the event that disposal of Hazardous Waste is required, the material must undergo Waste Acceptance Criteria (WAC) testing. WAC testing has a typical turnaround time of a minimum 2 weeks and allowance for this should be made in any development programme.

11.1.4 It would be prudent to implement a Materials Management Plan for the site in accordance with the CL:AIRE Development Industry Code of Practise (CoP) entitled 'The Definition of Waste' (September 2008). This CoP allows the risk-based re-use of materials within the site boundary without the need for exemptions and adoption of waste classifications.

11.2 Existing/Imported Fill

11.2.1 Any existing/imported fill will be subject to specific quality requirements. Allowance should be made for the testing of imported fill materials prior to emplacement to ensure suitability.

11.3 Health, Safety and Environment

11.3.1 Consideration should be given to the level of PPE made available to site operatives, taking cognisance of the content and findings of this and previous reports. All relevant information should be forwarded to contractors/personnel working in the subsurface.

11.3.2 All work on site should be conducted in accordance with appropriate Health and Safety guidance, with particular reference to HSG66 "Protection of Workers and the General Public during the Development of Contaminated Land".

11.3.3 Care should be taken to minimise the risk of potentially contaminative incidents occurring during redevelopment. Good working practices should be adopted during construction works in order to minimise the risk of contamination occurring as a result of spillage or leakage of fuels, oils or chemicals stored or used at the site during re-development.

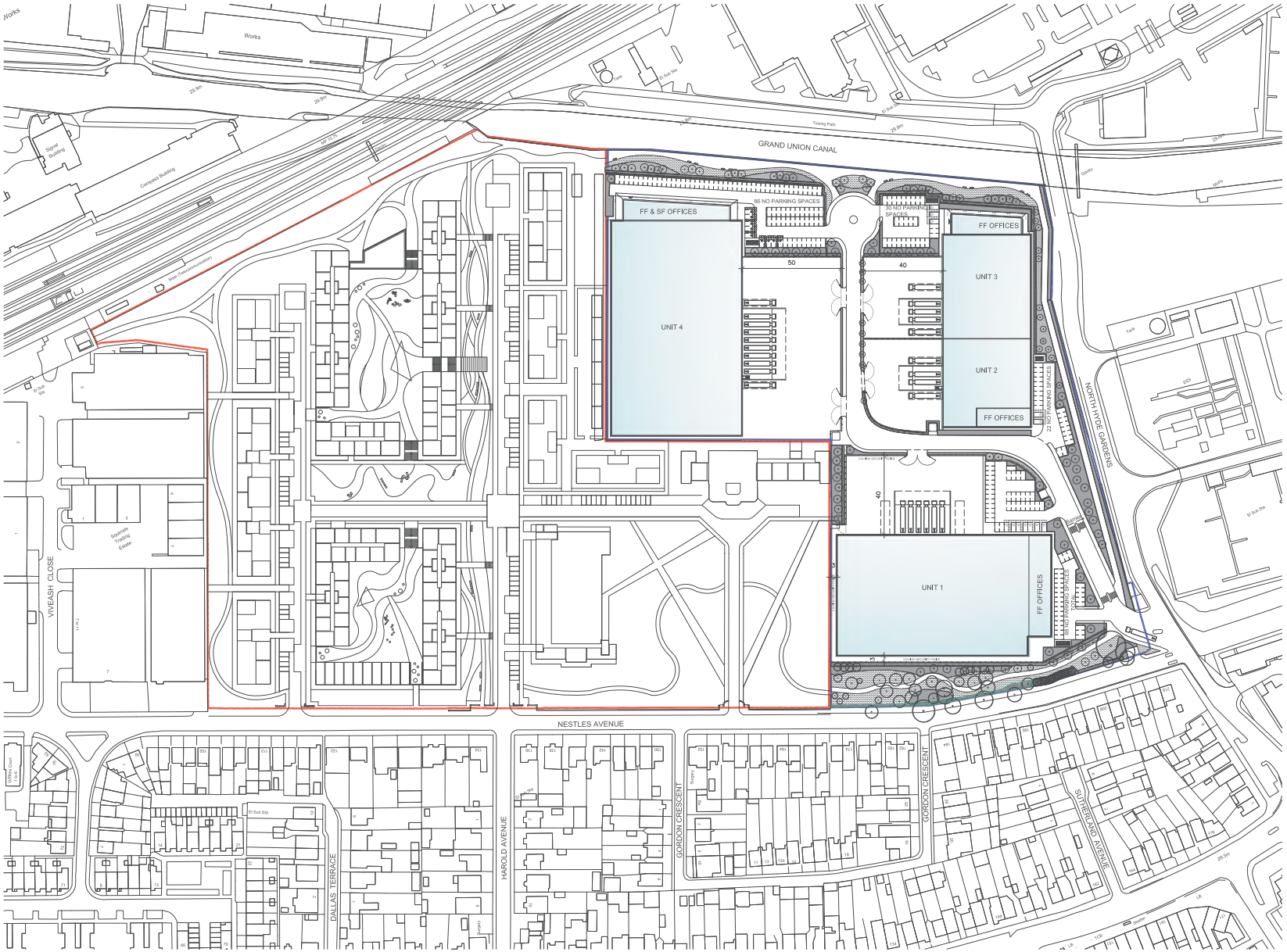
11.3.4 Any such materials should be sited on an impervious base within a bund and should be adequately secured. In particular, care should be taken to prevent fuel, oils or other mobile contamination sources from entering any surface water drains at the site.

11.3.5 Throughout any redevelopment works, due regard should be given to potential detrimental effects on the surroundings including noise, vibration, odour and dust.

11.3.6 Any such materials should be sited on an impervious base within a bund and should be adequately secured. In particular, care should be taken to prevent fuel, oils or other mobile contamination sources from entering any surface water drains at the site.

11.3.7 Throughout any redevelopment works, due regard should be given to potential detrimental effects on the surroundings including noise, vibration, odour and dust.

Appendix A – Architect's Proposed Development Layout



01
44

SITE LAYOUT PLAN
1:1000

NOTES:

SUBJECT TO STATUTORY CONSENTS

SUBJECT TO SURVEY

BASED ON OS MAP REPRODUCED BY PERMISSION OF CONTROLLER OF HM STATIONARY OFFICE (c) CROWN COPYRIGHT

DO NOT SCALE THIS DRAWING

DO NOT USE ELECTRONIC VERSIONS OF THIS DRAWING TO DETERMINE DIMENSIONS UNLESS SPECIFICALLY AUTHORISED BY MICHAEL SPARKS ASSOCIATES

IF USING AN ELECTRONIC VERSION OF THIS DRAWING FIGURED DIMENSIONS TAKE PRECEDENCE AND NOTIFY MICHAEL SPARKS ASSOCIATES OF ANY DISCREPANCIES

0 25 50 100 m

AREA SCHEDULE

GEA

1	sqm	sqft
Unit	6,647	71,545
FF Offices	612	6,590
Sub total	**7,259**	**78,135**

	Ha	acres
PLOT 1 AREA	1.232	3.04

2	sqm	sqft
Unit	2,034	21,895
FF Offices	272	2,930
Sub total	**2,306**	**24,825**

3	sqm	sqft
Unit	2,742	29,515
FF Offices	361	3,885
Sub total	**3,103**	**33,400**

4	sqm	sqft
Unit	7,826	84,240
FF&SF Offices	1,039	11,185
Sub total	**8,865**	**95,425**

TOTAL	**21,533**	**231,785**

	Ha	acres
PLOT AREA (Approx.)	5.157	12.74

DENSITY 41.8 %

REV	DATE	NOTE	DRAW	CHCK
I	01/04/2016	Landscape updated	AT	AC
H	23/03/2016	Unit 1 updated layout	AT	AC
G	21/03/2016	Unit 1 updated layout	AT	AC
F	09/03/2016	Unit 4 updated parking	AT	AC
E	23/02/2016	Area schedule & plot 1 boundary omitted	GZ	AC
D	19/02/2016	Updated area schedule	AT	AC
C	15/02/2016	Area schedule for unit 2, 3 & 4 added	GZ	AC
B	08/02/2016	Unit 1 updated	GZ	AC
A	13/12/2015	Unit 1 and residential layouti updated	GZ	AC
–	10/12/2015	First issue	GZ	AC

MICHAEL SPARKS ASSOCIATES
CHARTERED ARCHITECTS
11 PLATO PLACE
ST.DIONIS ROAD
LONDON SW6 4TU
TELEPHONE 020 7736 6162
FAX 020 7736 3896
www.msa-architects.co.uk

TITLE
NESTLES AVENUE, HAYES

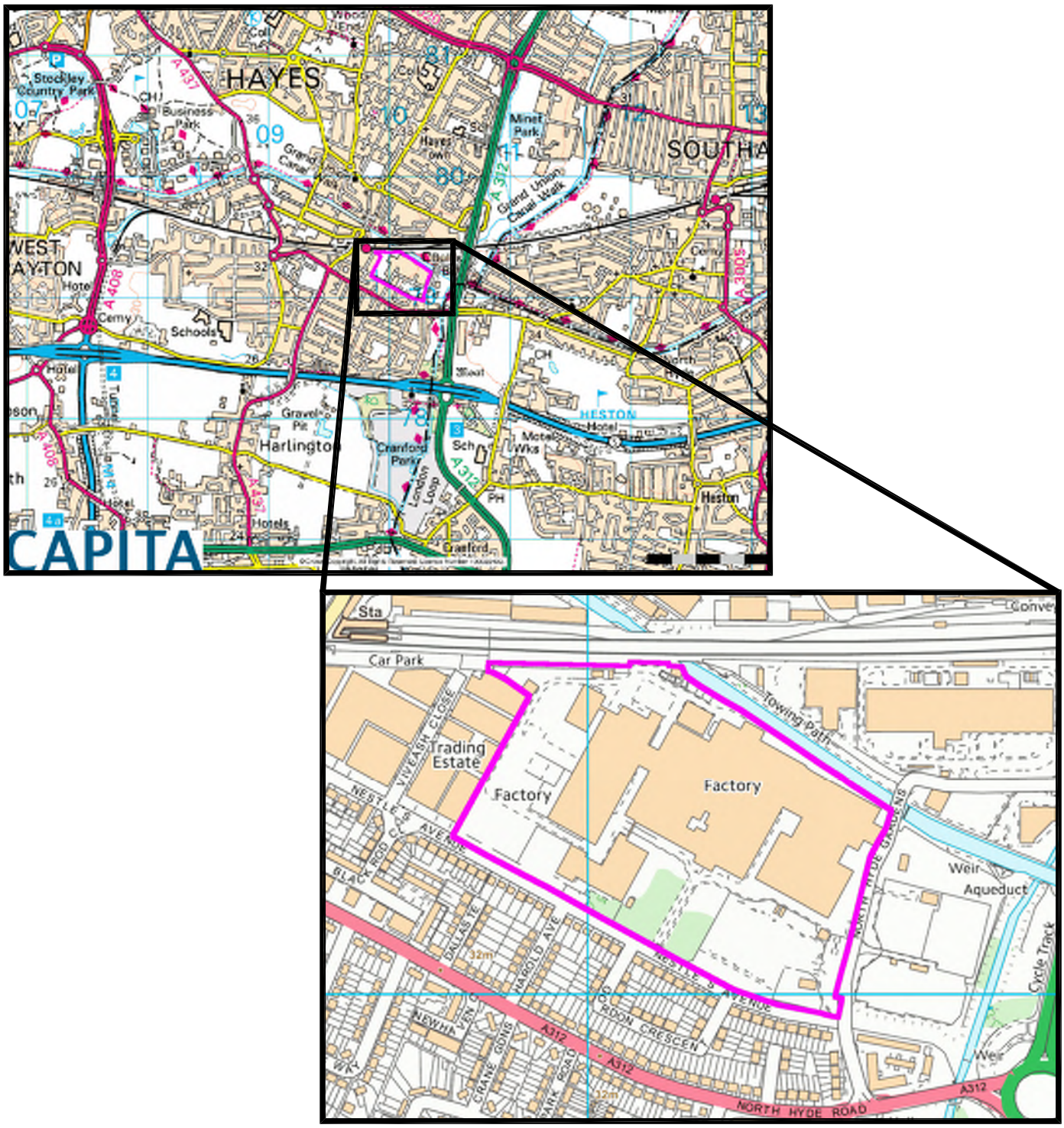
DRAWING
SITE MASTER PLAN

CLIENT
SEGRO

DATE	SCALE	DRAWN
DECEMBER 2015	1:1000 @ A1	GZ
	STATUS: FEASIBILITY	CHECKED: AC

DRAWING NUMBER
30680-FE-44I

Appendix B – Site Location Plan



Drawing status

PRELIMINARY

Client

SEGRO
WHERE BUSINESS WORKS

Project

FORMER NESTLE SITE, HAYES

Drawing

SITE LOCATION PLAN

Scale @ A4	Drawn	Checked
N.T.S.	WFJ	PWE
Project No.	**Date**	**Office**
CS/075666	21/11/14	WATFORD

Drawing Identifier — BS1192:2007 / Avanti Compliant

project	origin	zone	level	file type	role	number	revision
075666	- CA-	0 -	G00-	DSP-	SE-	502 -	P00

CAPITA

Property and infrastructure

Consulting Civil, Structural and Geo-environmental Engineers

London
Tele No: (+44) 0 20 7870 9300

Watford
Tele No: (+44) 0 1923 817537

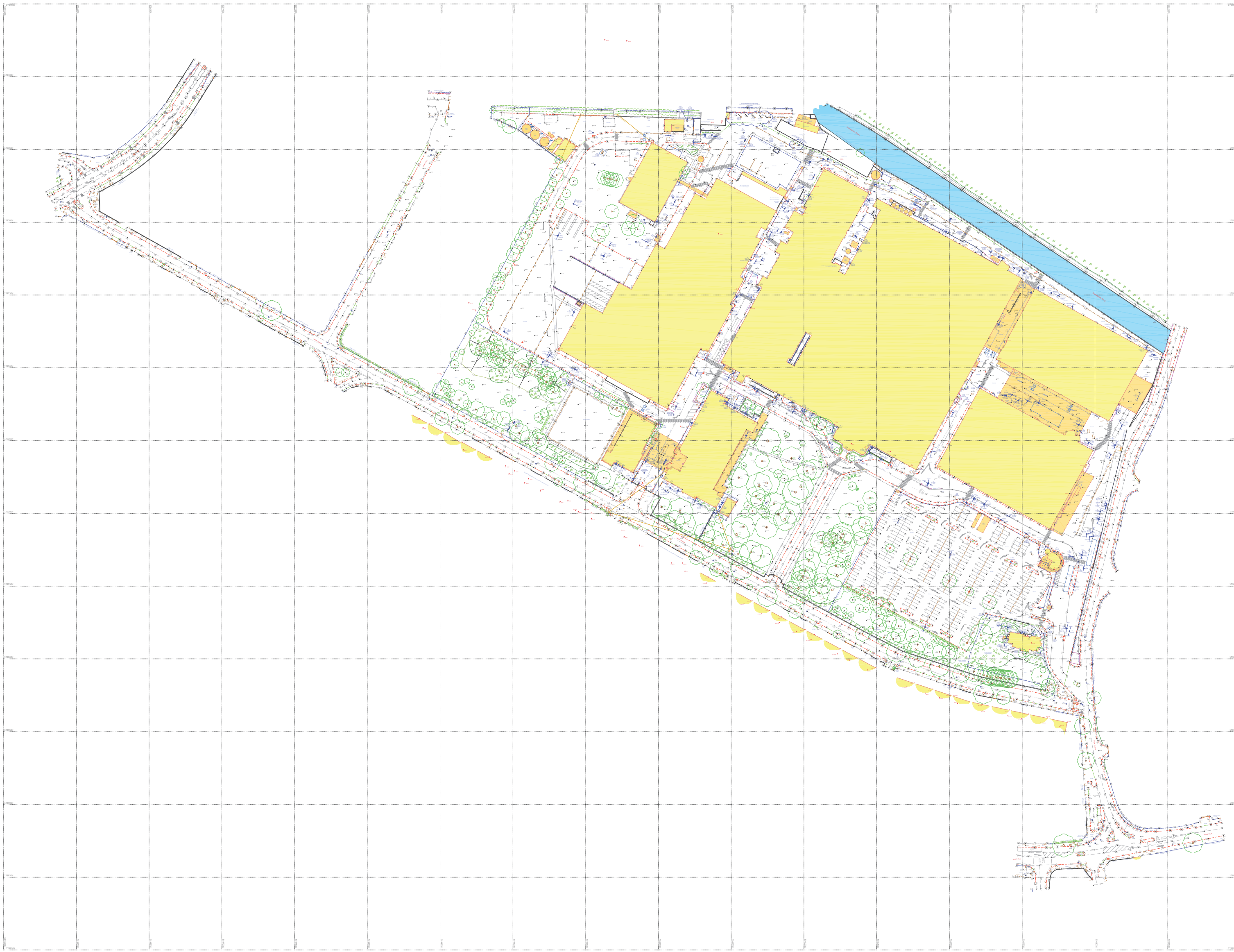
Manchester
Tele No: (+44) 0 161 486 1521

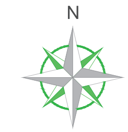
Bristol
Tele No: (+44) 0 1275 840831

Capita Property and Infrastructure Ltd.
Reg. office 71 Victoria Street, Westminster, London SW1H 0XA • No: 2018542

www.capita.co.uk/property

Appendix C – Topographical Survey





Station Information:

Station	Easting (m)	Northing (m)	Level (m)	Station	Easting (m)	Northing (m)	Level (m)
AR1	510278.675	179015.339	29.482	GH7	509964.674	179103.631	30.809
AR2	510276.409	179071.700	29.390	GH8	509844.900	179177.807	31.131
AR3	510177.729	179127.172	30.203	GH9	509764.299	179211.031	31.359
AR4	510243.140	179066.873	29.842	GH10	509689.063	179263.582	31.988
AR5	510260.039	179265.775	30.459	GH11	509598.928	179313.851	33.251
AR6	510176.378	179317.486	30.396	GH3A	510303.293	179070.105	30.766
AR7	510112.138	179338.691	30.990	GH3B	510348.528	179208.587	34.318
AR8	510059.151	179351.871	31.266	L1	510127.369	179126.641	30.687
AR9	510087.025	179313.998	31.149	L2	510224.830	179197.069	30.262
AR10	509991.564	179355.041	31.475	L3	510075.751	179171.718	31.127
AR11	510028.938	179338.165	31.130	L4	510030.904	179196.120	31.308
GH1	510308.708	178862.348	28.347	L5	509989.112	179120.707	31.057
GH2	510304.808	178930.663	28.294	L6	510015.208	179159.402	31.320
GH3	510287.633	178968.773	28.231	L8	510052.479	179242.992	31.176
GH4	510199.877	178982.184	29.350	L9	509906.538	179217.395	31.187
GH5	510109.796	179024.264	30.233	L10	509901.372	179270.543	31.144
GH6	510046.407	179058.696	30.496	L11	509943.070	179336.623	31.269

OS Note:

Some services may have been omitted due to parked vehicles. The Ordnance Survey tile is to be used as a guide only.

OS Buildings — *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid (OSGB36) via Global Navigational Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN02 & OSGM02 transformation models.
The survey has been correlated to this point and a further one or more OSGB36 points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid and datum.

Legend:

Buildings, Wall, Kerb line, Line marking, Drop kerb, Centre line
Overhead Cable, Concrete edge, Tarmac edge, Grass verge, Canopy/Overhang, Verge

1 / 100.000 — Station and Name / Station Level

Tree / Bush / Sapling
Area of Undergrowth
Woodland

R: Ridge Level
E: Eaves Level
P: Parapet Level
Gate

Fence types:
I\W Interwoven
I\R Iron Railings
W\M Wire Mesh
P\R Post & Rail
P\W Post & Wire
C\L Chain Link
W\P Wooden Panels
C\P Concrete Panels
S\P Steel Palisade

IC	Inspection chamber	Boll	Bollard
PInv	Pipe invert	IB	Illuminated bollard
Gy	Gully	Bin	Rubbish bin
Bg	Back gully	Vp	Vent pipe
Dp	Down pipe	Grl	Ground light
Pipe	Pipe above ground	Lbox	Letter box
MH	Manhole	Ldr	Ladder
WL	Water level	Sty	Stile
Fl	Flood light	IFL	Internal floor level
Lp	Lamp post	THL	Threshold level
Tp	Telegraph post	Sp	Sign post
Ep	Electricity post	TH	Trialhole
Tl	Traffic light	BH	Borehole
Bus	Bus stop	ELC	Electric
Sv	Stop valve	BT	British Telecom
St	Stop tap	C'box	Control box
Er	Earth rod	TT	Tactile
Wm	Water meter	BP	Brick paved
Gas	Gas valve	CPS	Concrete paving slabs
Av	Air valve	CVR	Cover
ICU	Undentified inspection	IC	Inspection chamber
Wo	Wash out	R/wall	Retaining wall
Re	Rodding eye	UTL	Unable to lift
BB	Belisha beacon	TCL	Tree canopy level
CTV	Cable tv	G:	Girth
Mkr	Marker post	MG	Multi girth
Gmkr	Gas marker post	Stmp	Tree Stump
So	Soffit	CL:	Cover level
		IL:	Invert level

Rev	Date	Description	Drawn	Q. Ref

greenhatch group

Topographical Surveys
Site Engineering
Utility / CCTV Surveys
Measured Building Surveys
3D Laser Scanning
Revit & BIM Models

Rowan House
Duffield Road
Little Eaton
Derby
DE21 5DR
Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk
www.greenhatch-group.co.uk

St Albans
Unit B, The Courtyard
Alban Park
St Albans
Hertfordshire
AL4 0LA
t. (01727) 854481

Newcastle
24 Riverside Studios
Amethyst Road
Newcastle Bus. Park
Newcastle-U-Tyne
NE4 7YL
t. (01912) 736391

Poland
ul. Panewnicka 91
40-761 Katowice
Poland
t. 0048 32 202 2292
www.greenhatch.pl

CLIENT
Segro

PROJECT
Project Lightning Hayes

TITLE
Topographical Survey

SCALE	DATE
A0@ 1: 1000	Oct 2014
DRAWN	QUALITY REF
AR/LP	C1263

Level datum	See OS Note
Grid orientation	See OS Note
Job number	20897

Drawing No. *20897_OGL* Rev. *0*

Comments
This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.
All dimensions should be checked on site prior to design and construction.
Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

Appendix D – Groundwater Abstraction Revocation Notice

creating a better place

Environment Agency

Mr P Hagmann
Nestle UK Ltd
1 City Place
Gatwick
RH6 0PA

Our reference: NPS/WR/018583

Date: 27 February 2015

Dear Mr Hagmann

You asked to revoke (give up) a water abstraction licence

Licence number: TH/039/0036/011

Thank you for your application to revoke (give up) the above licence. I can confirm that we carried this out and this applies from 16 February 2015.

I would like to remind you that you are no longer legally allowed to abstract water from the place and for the purposes stated in the licence. If you want to abstract water again you may need to apply to us for a new licence. Any new application will normally have to be advertised and there is no guarantee that the application will be successful. Contact the Water Resources Permitting Support team on 0114 289 8340 to find out how likely you are to be granted a successful application in the future.

You will need to tell us how much water you abstracted until the licence was revoked (given up). We will send you a form to fill in and return to us at the end of March.

We might want to use your well or borehole as part of our groundwater observation network (depending on rights of access and an agreement over lease arrangements). If you are interested and are happy with this, please contact Michael Kehinde on 01707 632460 who will let you know what they need you to do. Michael may have already contacted you regarding this by the time you receive this letter.

For health and safety reasons, and to avoid groundwater becoming contaminated, if you do not agree to the above and do not plan to use the well or borehole, we advise you put it out of use by following the steps in the enclosed leaflet. Plain English Campaign's Crystal Mark does not apply to the enclosed leaflet.

Your licence was revoked (given up) from the date we received your request, but you are still liable for the charges until that date. We will send you a revised account shortly.

Yours sincerely

Gemma House
Team Leader
Permitting Support Centre

Direct dial: 0114 289 8340
Direct fax: 0114 262 6697
Direct e-mail: PSC-WaterResources@environment-agency.gov.uk

Appendix E – Exploratory Hole Location Plan

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

Refer to the relevant Construction (Design and Management) documentation where applicable.

It is assumed that all works on this drawing will be carried out by a competent contractor, working where appropriate to an approved method statement.

Legend

BH1xx	Capita - 2014 borehole location & reference number.
BH2xx	Capita - 2016 borehole location & reference number.
TP2XX	Capita - 2016 trial pit location & reference number.
	Site boundary.
BH X	Geosyntec - Existing ground water monitoring well.
WS XX	Geosyntec - Existing shallow gas and ground water monitoring well.
WS XX	Geosyntec - Existing shallow soil sampling location.

Area denotes approximate location of existing undercroft.

Rev	Date	By	Description	Rev' check

Drawing status

PRELIMINARY

Client

SEGRO
WHERE BUSINESS WORKS

Project

NESTLES AVENUE, HAYES

Drawing

EXPLORATORY HOLE LOCATION PLAN

Scale @ A1	Drawn	Checked
1:1000	NDH	PWE
Project No.	**Date**	**Office**
CS/075666	Apr 2016	WATFORD

Drawing Identifier — BS1192:2007 / Avanti Compliant

project	origin	zone	level	file type	role	number	revision
075666	-CA-	0	- GF -	DR	- S -	503	- P00

CAPITA

Property and infrastructure

Consulting Civil, Structural and Geo-environmental Engineers

London Tele No: (+44) 0 20 7870 9300
Watford Tele No: (+44) 0 1923 817537
Manchester Tele No: (+44) 0 161 486 1521
Bristol Tele No: (+44) 0 1275 840831

Capita Property and Infrastructure Ltd. www.capita.co.uk/property
Reg. office 71 Victoria Street, Westminster, London SW1H 0XA • No: 2018542

Appendix F – 2016 Exploratory Hole Logs

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH201**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Dando
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 30.07 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 08/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.20	29.87		Asphalt
		0.40	D					Compacted rock and concrete sub-base. (MADE GROUND)
					0.60	29.47		Medium dense brown sandy gravel of brick and flint. (MADE GROUND)
		0.90	D		0.90	29.17		Firm orange-brown slightly gravelly silty sandy CLAY. (BRICKEARTH)
		1.20	D		1.20	28.87		Medium dense orange-brown silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
		1.20	SPT	N=49 (6,6/9,9,14,17)				
		2.00	D					
	▼	2.00	SPT	N=59 (12,13/16,17,13,13)				
		3.00	SPT	N=22 (6,6/8,8,3,3)				
					3.30	26.77		Firm becoming stiff grey-brown silty CLAY. (LONDON CLAY FORMATION)
		3.50	D					
		3.90	D					
		4.00	U	Blows = 42				
		4.50	D					
		4.80	D					
		5.00	D					
		5.00	SPT	N=11 (2,2/3,2,3,3)				
		5.40	D					
					5.50	24.57		End of Borehole at 5.500m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
08/03/2016 00:00:00	2.70	2.50	2.40	

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH202**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Dando
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 30.44 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 23/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.30	30.14		CONCRETE with reinforcing bar.
		0.40	D					Medium dense brown clayey gravel of brick, concrete and rock fragments. (MADE GROUND)
		1.20	D		1.20	29.24		
		1.20	SPT	N=7 (1,1/2,1,2,2)				Firm brown and dark grey gravelly clay with occasional brick fragments. (MADE GROUND)
		1.80	D		1.80	28.64		
		2.00	D					Firm brown silty sandy clay with occasional rootlets. (BRICKEARTH?)
		2.00	SPT	N=9 (2,2/2,2,2,3)				
		2.50	D					
		2.70	D		2.70	27.74		
		3.00	U	Blows = 41				Firm brown silty CLAY. (LONDON CLAY FORMATION)
		3.50	D					
		3.70	D					
		4.50	D					
		4.50	SPT	N=11 (3,2/3,2,3,3)				
		5.00	D		5.00	25.44		End of Borehole at 5.000m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
				Groundwater not encountered.

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH203**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Dando
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 30.36 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 10/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	D		0.10	30.26		CONCRETE. Dense brown sandy gravel of brick, concrete and rock fragments. (MADE GROUND)
		0.90	D		0.90	29.46		Firm orange-brown gravelly silty CLAY. (BRICKEARTH)
		1.10	D		1.10	29.26		Medium dense orange-brown silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
		1.20	SPT	N=60 (13,13/14,14,15,17)				
		2.00	D					
	▼	2.00	SPT	N=51 (9,10/10,12,13,16)				
		3.00	D					
		3.00	SPT	N=39 (7,7/11,12,9,7)				
		3.70	D		3.70	26.66		Stiff grey-brown silty CLAY. (LONDON CLAY FORMATION)
		4.00	U	Blows = 40				
		4.50	D					
		5.00	D		5.00	25.36		End of Borehole at 5.000m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
10/03/2016 00:00:00	2.60	2.50	2.30	

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH204**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Dando
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 29.36 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 09/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	D		0.25	29.11		CONCRETE with reinforcing bar
					0.50	28.86		Compacted dark grey silty sandy gravel of brick, concrete and tile fragments. (MADE GROUND)
		1.00	D					Firm brown slightly gravelly silty CLAY. (BRICKEARTH)
		1.20	D		1.20	28.16		
		1.20	SPT	N=46 (10,12/10,11,12,13)				Medium dense orange-brown silty sandy GRAVEL of fine ot coarse flint. (LYNCH HILL GRAVEL)
		2.00	SPT	N=45 (12,12/14,16,8,7)				
		2.60	D		2.60	26.76		Firm brown and grey silty CLAY. (LONDON CLAY FORMATION)
		3.30	D					
		3.80	U	Blows = 40				
		4.00	D					
		4.30	D					
		4.50	SPT	N=12 (2,2/3,3,3,3)				
					5.00	24.36		End of Borehole at 5.000m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
09/03/2016 00:00:00	2.90	2.50	2.30	

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH205**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Dando
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 30.13 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 10/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	29.98		Asphalt
		0.30	D					Medium dense grey-brown sandy gravel of brick and concrete. (MADE GROUND)
		0.60	D		0.60	29.53		Firm dark grey silty gravelly clay. (MADE GROUND?)
		1.20	D		1.20	28.93		
		1.20	SPT	N=11 (2,2/2,2,3,4)				Firm orange-brown and grey silty CLAY. (BRICKEARTH)
		1.70	D		1.70	28.43		
	▼	2.00	SPT	N=60 (14,15/12,13,16,19)				Medium dense orange-brown silty sandy GRAVEL. (LYNCH HILL GRAVEL)
		2.70	D					
		3.00	D					
		3.00	SPT	N=27 (8,9/9,9,7,2)				
					3.60	26.53		Stiff grey and brown silty CLAY. (LONDON CLAY FORMATION)
		3.80	D					
		4.00	U					
		4.50	D					
		5.00	D		5.00	25.13		End of Borehole at 5.000m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
10/03/2016 00:00:00	2.10	2.00	1.90	

CAPITA	Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	Cable Percussion Borehole Log	Borehole No. **BH206** Sheet 1 of 2

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used Cut down rig
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 31.1 mAOD	Scale 1:50
Client:	SEGRO plc		Dates: 23/03/2016	Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.22	30.88		CONCRETE with reinforcing bar
		0.50	D					Loose to medium dense brown clayey gravelly sand. (MADE GROUND?)
		1.00	SPT	N=5 (1,0/1,1,1,2)				
		1.50	D					
		2.00	SPT	N=14 (1,2/2,3,4,5)				
		2.50	D		2.50	28.60		Medium dense orange-brown SAND and GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
		3.00	SPT	N=50 (5,9/12,14,17,7)				
		3.50	D					
		4.00	SPT	N=39 (2,5/4,9,11,15)				
		4.50	D					
		5.00	SPT	N=18 (2,4/4,5,5,4)				
		5.20	D		5.20	25.90		Stiff brown and grey silty CLAY. (LONDON CLAY FORMATION)
		5.80	D					
		6.50	SPT	N=18 (2,2/3,4,5,6)				
		8.00	D					
		8.50	U	Blows = 16				
		9.00	D					
		10.00	SPT	N=24 (2,4/5,6,6,7)				Continued on Next Sheet

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
23/03/2016 00:00:00	4.00	4.00	3.20	

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No.
BH206
Sheet 2 of 2

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Cut down rig
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 31.1 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 23/03/2016	Logged By

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					10.50	20.60		End of Borehole at 10.500m

11 12 13 14 15 16 17 18 19 20

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks
23/03/2016 00:00:00	4.00	4.00	3.20	

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH207**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Cut down rig
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 31.1 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 23/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.20	30.90		CONCRETE
		0.50	D					Firm dark brown gravelly clayey sand with brick fragments. (MADE GROUND)
		1.00	SPT	N=4 (1,0/1,1,1,1)				
		1.50	D					
		2.00	SPT	N=6 (1,1/1,2,2,1)	2.00	29.10		Medium dense brown clayey sand. (MADE GROUND?)
		2.50	D		2.50	28.60		Firm brown gravelly sandy CLAY. (BRICKEARTH)
		3.00	SPT	50 (6,6/50 for 235mm)	3.00	28.10		Medium dense orange-brown silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
		3.50	D					
		4.00	SPT	50 (3,9/50 for 265mm)				
		4.50	D					
		5.00	SPT	N=12 (1,1/2,2,4,4)	4.70	26.40		Firm grey-brown silty CLAY. (LONDON CLAY FORMATION)
		5.70	D		5.70	25.40		End of Borehole at 5.700m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH208**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Cut down rig
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 31.1 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 24/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	30.95		30mm surface screed over reinforced CONCRETE
		0.50	D					Loose silty sandy ashy gravel of concrete and rock fragments. (MADE GROUND)
		1.00	SPT	N=5 (1,0/1,1,1,2)	1.00	30.10		Firm light brown silty sandy CLAY. (BRICKEARTH)
		1.50	D					
		2.00	SPT	50 (1,1/50 for 265mm)	2.00	29.10		Medium dense orange-brown silty sandy GRAVEL. (LYNCH HILL GRAVEL)
		2.50	D					
		3.00	SPT	50 (5,9/50 for 255mm)				
		3.50	D					
		4.00	SPT	50 (7,10/50 for 215mm)				
		4.50	D					
		5.00	SPT	N=18 (8,6/6,4,4,4)				
		5.30	D		5.30	25.80		Firm grey and brown silty CLAY. (LONDON CLAY FORMATION)
		5.80	D					
					6.30	24.80		End of Borehole at 6.300m

1 2 3 4 5 6 7 8 9 10

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung, gas valve and flush steel cover.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks

CAPITA

Capita Property and Infrastructure
Oak House, Reeds Crescent, Watford,
Hertfordshire WD24 4PH

Cable Percussion Borehole Log

Borehole No. **BH209**

Sheet 1 of 1

Project Name:	Former Nestle Factory, Hayes	Project Number: CS075666	Co-ords:	Plant Used: Cut down rig
Location:	North Hyde Gardens, Hayes, London Borough of Hillingdon		Level: 31.1 mAOD	Scale: 1:50
Client:	SEGRO plc		Dates: 29/03/2016	Logged By: PWE

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.18	30.92		CONCRETE with reinforcing bar.
								Void
		1.50	D		1.50	29.60		Firm light brown silty sandy CLAY. (BRICKEARTH)
		2.00	SPT	N=24 (1,0/1,3,8,12)				
		2.40	D		2.40	28.70		Medium dense orange-brown sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
		3.00	SPT	50 (2,5/50 for 225mm)				
		3.50	D					
		4.00	SPT	50 (1,7/50 for 170mm)				
		4.50	D					
		5.00	SPT	N=47 (3,4/6,9,13,19)				
		6.00	D					
		6.50	SPT	50 (4,5/50 for 285mm)				
		7.00	D					
		7.80	D					
		8.00	SPT	N=27 (1,2/6,6,7,8)				
					8.50	22.60		End of Borehole at 8.500m

Remarks

50mm diameter HDPE standpipe installed as indicated. Finished with bung and gas valve. Cover not installed.

Water Strike Details (metres below ground level)

Date Encountered	Depth Encountered	Depth of Casing	Water Depth after 20 minutes	Inflow Remarks

CAPITA	Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	**Trial Pit Log**	Trial Pit No. TP201 Sheet 1 of 1

Project Name: Former Nestle Factory, Hayes	Project No. CS075666	Co-ords: - Level: 29.28	Date: 11/03/2016
Location: North Hyde Gardens, Hayes, London Borough of Hillingdon		Dimensions (m): 2.00 × 0.60 Depth 2.50	Scale: 1:50
Client: SEGRO plc			Logged by: PWE

Trial Pit Photographs

TP201 iv

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	28.98		Concrete with reinforcing bar.
	0.50	D		0.70	28.58		Compacted sandy gravel of brick, concrete and ceramic fragments in a reddish-brown silty clay matrix. (MADE GROUND)
	0.90	D		1.00	28.28		Soft dark grey gravelly silty clay with fragments of brick and concrete. (MADE GROUND)
▼							Soft to firm dark grey SILT/CLAY.
				2.50	26.78		End of Pit at 2.50m

1 2 3 4 5

Remarks: Backfilled with arisings on completion.

Stability: Stable throughout. Water:

AGS

CAPITA	Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	Trial Pit Log	Trial Pit No. TP202 Sheet 1 of 1
Project Name: Former Nestle Factory, Hayes	Project No. CS075666	Co-ords: - Level: 29.70	Date: 11/03/2016
Location: North Hyde Gardens, Hayes, London Borough of Hillingdon		Dimensions (m): 1.80 x 0.60 Depth 1.80	Scale: 1:50
Client: SEGRO plc			Logged by: PWE

Trial Pit Photographs

TP202

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	29.45		Asphalt
				0.50	29.20		Compacted orange-brown sandy gravel subbase. (MADE GROUND)
	0.80	D					Firm dark brown slightly gravelly sandy CLAY. (BRICKEARTH)
				1.20	28.50		Medium dense orange-brown silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
	1.60	D					
				1.80	27.90		End of Pit at 1.80m

1 2 3 4 5

Remarks: Backfilled with arisings on completion.

Stability: Stable

Water:

AGS

CAPITA	Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	Trial Pit Log	Trial Pit No. TP203 Sheet 1 of 1
Project Name: Former Nestle Factory, Hayes	Project No. CS075666	Co-ords: - Level: 30.06	Date: 11/03/2016
Location: North Hyde Gardens, Hayes, London Borough of Hillingdon		Dimensions (m): 2.10 x 0.60 Depth 0.70	Scale: 1:50
Client: SEGRO plc			Logged by: PWE

Trial Pit Photographs

TP203 i

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	29.86		Asphalt
	0.50	D		0.35	29.71		Compacted dark grey sandy gravel of brick, macadam, concrete and tile fragments. (MADE GROUND)
				0.70	29.36		Medium dense dark orange-brown and grey gravelly sand with half bricks, concrete cobbles, flint and rock fragments. (MADE GROUND) End of Pit at 0.70m

Remarks: 2No armoured cables, one with warning tiles over, encountered at 0.65mbgl. Cables are oriented NW-SE and E-W. E-W cable is surrounded by coarse sand. Trial pit abandoned and backfilled with arisings.

Stability: Stable

Water:

CAPITA Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	Trial Pit Log	Trial Pit No. TP204 Sheet 1 of 1

Project Name: Former Nestle Factory, Hayes	Project No. CS075666	Co-ords: - Level: 29.81	Date: 11/03/2016
Location: North Hyde Gardens, Hayes, London Borough of Hillingdon		Dimensions (m): 1.90 x 0.60 Depth 1.65	Scale: 1:50
Client: SEGRO plc			Logged by: PWE

Trial Pit Photographs

TP204 ii

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	29.51		CONCRETE with reinforcing bar
	0.40	D		0.50	29.31		Lean mix concrete / compacted granular sub-base. (MADE GROUND)
							Firm orange-brown slightly sandy silty CLAY. (BRICKEARTH)
	1.00	D		1.05	28.76		Medium dense orange-brown silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
▼				1.65	28.16		End of Pit at 1.65m

Remarks: Backfilled with arisings on completion.

Stability: Stable

Water: Slow seepage at base of pit.

CAPITA	Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	**Trial Pit Log**	Trial Pit No. TP205 Sheet 1 of 1

Project Name: Former Nestle Factory, Hayes	Project No. CS075666	Co-ords: - Level: 30.47	Date: 11/03/2016
Location: North Hyde Gardens, Hayes, London Borough of Hillingdon		Dimensions (m): 2.00 × 0.60 Depth 1.95	Scale: 1:50
Client: SEGRO plc			Logged by: PWE

Trial Pit Photographs

TP205

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	30.17		CONCRETE with reinforcing bar.
	0.45	D		0.50	29.97		Compacted sandy gravel of concrete and brick fragments. (MADE GROUND) Firm orange-brown silty sandy CLAY. (BRICKEARTH)
	1.50	D		1.35	29.12		Medium dense orange-brown silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
▼				1.95	28.52		End of Pit at 1.95m

1 2 3 4 5

Remarks: Backfilled with arisings on completion.

Stability: Stable

Water:

AGS

CAPITA	Capita Property and Infrastructure Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4PH	Trial Pit Log	Trial Pit No. TP206 Sheet 1 of 1
Project Name: Former Nestle Factory, Hayes	Project No. CS075666	Co-ords: - Level: 29.77	Date: 11/03/2016
Location: North Hyde Gardens, Hayes, London Borough of Hillingdon		Dimensions (m): 1.70 x 0.60 Depth 1.75	Scale: 1:50
Client: SEGRO plc			Logged by: PWE

Trial Pit Photographs

TP206 ii

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	29.57		Asphalt
							Compacted sandy gravel of brick, concrete and rock fragments. (MADE GROUND)
	0.75	D		0.60	29.17		Firm orange-brown and grey silty sandy CLAY. (BRICKEARTH)
				1.10	28.67		Medium dense orange-brown clayey silty sandy GRAVEL of fine to coarse flint. (LYNCH HILL GRAVEL)
▼	1.50	D		1.75	28.02		End of Pit at 1.75m

Remarks: Backfilled with arisings on completion.

Stability: Stable

Water:

AGS

Appendix G – Laboratory Chemical Analysis Reports

George Andrew
Capita Property and Infrastructure Ltd
Oak House
Reeds Crescent
Watford

e: george.andrew@capita.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-13362

Replaces Analytical Report Number : 16-13362, issue no. 2

Project / Site name:	Project Lightning	**Samples received on:**	14/03/2016
Your job number:	CS075666	**Samples instructed on:**	16/03/2016
Your order number:		**Analysis completed by:**	05/04/2016
Report Issue Number:	3	**Report issued on:**	05/04/2016
Samples Analysed:	8 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 16-13362

Project / Site name: Project Lightning

Lab Sample Number				549369	549370	549371	549372	549373
Sample Reference				TP202	TP203	TP204	TP205	BH202
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.40	0.45	1.20
Date Sampled				11/03/2016	11/03/2016	11/03/2016	11/03/2016	09/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	9.7	16	13	22
Total mass of sample received	kg	0.001	NONE	0.45	0.44	0.52	0.44	0.55
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile & Amosite	Chrysotile	Chrysotile & Crocidolite	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.005	0.003	0.009	0.006	< 0.001
Asbestos Quantification	%	0.001	ISO 17025	0.005	0.003	0.009	0.006	< 0.001
General Inorganics								
pH	pH Units	N/A	MCERTS	8.3	8.8	9.8	10.2	8.3
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.15	2.1	0.14	0.045	0.32
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.7	1.7	0.8	0.2	1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.13	0.52	< 0.05	< 0.05	0.17
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	0.94	0.14	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	2.8	0.28	0.10	0.18
Fluorene	mg/kg	0.1	MCERTS	< 0.10	2.5	0.54	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.77	20	4.1	0.39	1.4
Anthracene	mg/kg	0.1	MCERTS	0.15	8.1	1.2	0.17	0.16
Fluoranthene	mg/kg	0.1	MCERTS	2.4	67	9.2	0.44	2.8
Pyrene	mg/kg	0.1	MCERTS	2.0	59	8.1	0.38	2.4
Benzo(a)anthracene	mg/kg	0.1	MCERTS	1.1	27	4.9	0.24	1.7
Chrysene	mg/kg	0.05	MCERTS	1.2	18	3.4	0.11	1.4
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	1.2	32	6.6	0.22	2.1
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.79	8.9	1.9	< 0.10	1.1
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.92	25	5.2	0.16	1.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.52	13	2.7	< 0.10	0.74
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	3.8	0.88	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.61	12	2.8	< 0.05	0.89
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	11.8	299	52.0	2.21	16.3
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	13	15	12	13
Boron (water soluble)	mg/kg	0.2	MCERTS	2.9	6.0	1.9	< 0.2	3.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	0.7	0.4	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	44	31	27	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	49	55	55	56	55
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	770	630	230	220
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	< 0.3	< 0.3	< 0.3	2.0
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	25	27	20	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	42	48	49	43	51
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	290	310	240	180	160

Analytical Report Number: 16-13362

Project / Site name: Project Lightning

Lab Sample Number				549369	549370	549371	549372	549373
Sample Reference				TP202	TP203	TP204	TP205	BH202
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.40	0.45	1.20
Date Sampled				11/03/2016	11/03/2016	11/03/2016	11/03/2016	09/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.7	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	17	11	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	50	87	38	21
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	73	99	40	25
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	38	8.1	2.8	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	420	57	45	19
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	640	91	180	40
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	17	1100	160	220	61

Analytical Report Number: 16-13362

Project / Site name: Project Lightning

Lab Sample Number				549374	549375	549376		
Sample Reference				BH203	BH204	BH205		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				1.70	1.00	1.70		
Date Sampled				10/03/2016	09/03/2016	10/03/2016		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	10	11	15		
Total mass of sample received	kg	0.001	NONE	0.56	0.54	0.51		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-		
Asbestos Quantification	%	0.001	ISO 17025	-	< 0.001	-		
General Inorganics								
pH	pH Units	N/A	MCERTS	9.8	9.6	7.9		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.088	0.44	0.084		
Total Organic Carbon (TOC)	%	0.1	MCERTS	< 0.1	0.4	0.1		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.40	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	0.34	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	1.9	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	5.0	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	0.40	31	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	< 0.10	8.5	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	0.30	36	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	0.21	27	< 0.10		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	14	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	12	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	18	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	6.0	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	9.5	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	4.9	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	0.67	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	4.4	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	180	< 1.60		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.5	8.9	15		
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4	3.3	1.6		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	24	39		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	25	21		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.3	38	18		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	19	45		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	34	67		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	23	35	53		

Analytical Report Number: 16-13362

Project / Site name: Project Lightning

Lab Sample Number				549374	549375	549376		
Sample Reference				BH203	BH204	BH205		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				1.70	1.00	1.70		
Date Sampled				10/03/2016	09/03/2016	10/03/2016		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	11	< 10		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	28	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	210	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	200	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	450	< 10		

Analytical Report Number: 16-13362
Project / Site name: Project Lightning
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

"The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
549369	TP202	0.80	102	Loose Fibres	**Chrysotile**	0.005	**0.005**
549370	TP203	0.50	120	Insulation Lagging & Loose Fibres	**Chrysotile & Amosite**	0.003	**0.003**
549371	TP204	0.40	125	Insulation Lagging	**Chrysotile**	0.009	**0.009**
549372	TP205	0.45	110	Insulation Lagging	**Chrysotile & Crocidolite**	0.006	**0.006**
549373	BH202	1.20	114	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
549375	BH204	1.00	135	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditatior

Analytical Report Number : 16-13362

Project / Site name: Project Lightning

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
549369	TP202	None Supplied	0.80	Brown loam and clay.
549370	TP203	None Supplied	0.50	Brown sandy loam with gravel and rubble.
549371	TP204	None Supplied	0.40	Brown loam and sand.
549372	TP205	None Supplied	0.45	Brown loam and clay.
549373	BH202	None Supplied	1.20	Brown clay and sand.
549374	BH203	None Supplied	1.70	Light brown sand with gravel.
549375	BH204	None Supplied	1.00	Light brown sandy clay.
549376	BH205	None Supplied	1.70	Brown clay and sand.

Analytical Report Number : 16-13362

Project / Site name: Project Lightning

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification	The analysis was carried out using documented in-house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

George Andrew
Capita Property and Infrastructure Ltd
Oak House
Reeds Crescent
Watford

e: george.andrew@capita.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-13949

Project / Site name:	Nestle, Hayes	**Samples received on:**	23/03/2016
Your job number:	CS075666	**Samples instructed on:**	23/03/2016
Your order number:	ZLON	**Analysis completed by:**	05/04/2016
Report Issue Number:	1	**Report issued on:**	05/04/2016
Samples Analysed:	7 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 16-13949

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				553091	553092	553093	553094	553095
Sample Reference				BH2	BH109	BH201	BH202	BH203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/03/2016	22/03/2016	22/03/2016	22/03/2016	22/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	8.0	7.2	7.4	7.9	8.2
Sulphate as SO_4	µg/l	45	ISO 17025	29500	46700	66000	192000	39800
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	8.56	5.17	3.20	7.05	23.8
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	5.36	1.00	0.57	1.36	1.26
Boron (dissolved)	µg/l	10	ISO 17025	91	93	100	180	170
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	< 0.02	0.05	0.04	0.05
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.3	0.3	0.8	0.4
Copper (dissolved)	µg/l	0.5	ISO 17025	4.4	2.4	4.1	5.8	18
Lead (dissolved)	µg/l	0.2	ISO 17025	2.0	0.4	0.3	1.4	0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.16	< 0.05	< 0.05	< 0.05	3.90
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.9	6.5	6.5	6.1	36
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.6	0.8	< 0.6	2.6	6.3
Vanadium (dissolved)	µg/l	0.2	ISO 17025	1.6	0.6	0.7	2.8	1.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.3	3.4	2.8	37	3.5

Analytical Report Number: 16-13949

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				553091	553092	553093	553094	553095
Sample Reference				BH2	BH109	BH201	BH202	BH203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/03/2016	22/03/2016	22/03/2016	22/03/2016	22/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

Analytical Report Number: 16-13949

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				553091	553092	553093	553094	553095
Sample Reference				BH2	BH109	BH201	BH202	BH203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/03/2016	22/03/2016	22/03/2016	22/03/2016	22/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Chloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Bromomethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Vinyl Chloride	µg/l	1	NONE	-	-	< 1.0	-	-
Trichlorofluoromethane	µg/l	1	NONE	-	-	< 1.0	-	-
1,1-Dichloroethene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1-Dichloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
2,2-Dichloropropane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Trichloromethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1,1-Trichloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2-Dichloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1-Dichloropropene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Benzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Tetrachloromethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2-Dichloropropane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Trichloroethene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Dibromomethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Bromodichloromethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Toluene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1,2-Trichloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,3-Dichloropropane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Dibromochloromethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Tetrachloroethene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2-Dibromoethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Chlorobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Ethylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
p & m-Xylene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Styrene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Tribromomethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
o-Xylene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Isopropylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Bromobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
n-Propylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
2-Chlorotoluene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
4-Chlorotoluene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
tert-Butylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
sec-Butylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,3-Dichlorobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
p-Isopropyltoluene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2-Dichlorobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,4-Dichlorobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Butylbenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
Hexachlorobutadiene	µg/l	1	ISO 17025	-	-	< 1.0	-	-
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	-	-	< 1.0	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 16-13949

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				553096	553097			
Sample Reference				BH204	BH205			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				22/03/2016	22/03/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.8	7.6			
Sulphate as SO_4	µg/l	45	ISO 17025	153000	244000			
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	2.62	4.41			
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16			
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.68	0.46			
Boron (dissolved)	µg/l	10	ISO 17025	91	120			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.05			
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.7	< 0.2			
Copper (dissolved)	µg/l	0.5	ISO 17025	0.7	2.8			
Lead (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3			
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.10	0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.1	8.2			
Selenium (dissolved)	µg/l	0.6	ISO 17025	3.8	39			
Vanadium (dissolved)	µg/l	0.2	ISO 17025	1.9	0.4			
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.9	6.2			

Analytical Report Number: 16-13949

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				553096	553097			
Sample Reference				BH204	BH205			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				22/03/2016	22/03/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

Analytical Report Number: 16-13949

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				553096	553097			
Sample Reference				BH204	BH205			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				22/03/2016	22/03/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 16-13949

Project / Site name: Nestle, Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total organic carbon in water	Determination of dissolved organic carbon inlwater by TOC/DOC NDIR analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

George Andrew
Capita Property and Infrastructure Ltd
Oak House
Reeds Crescent
Watford

e: george.andrew@capita.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-14414

Project / Site name:	Nestle, Hayes	**Samples received on:**	31/03/2016
Your job number:	CS075666	**Samples instructed on:**	01/04/2016
Your order number:	ZLON	**Analysis completed by:**	11/04/2016
Report Issue Number:	1	**Report issued on:**	11/04/2016
Samples Analysed:	6 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 16-14414

Project / Site name: Nestle, Hayes

Your Order No: ZLON

Lab Sample Number				555699	555700	555701	555702	555703
Sample Reference				BH206	BH206	BH207	BH207	BH208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.50	0.50	1.50	0.50
Date Sampled				23/03/2016	23/03/2016	23/03/2016	23/03/2016	23/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	17	17	11	11
Total mass of sample received	kg	0.001	NONE	0.52	0.54	0.53	0.60	0.46
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	Chrysotile & Crocidolite	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	0.001	0.022	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	0.001	0.022	< 0.001
General Inorganics								
pH	pH Units	N/A	MCERTS	7.5	8.3	8.2	8.2	9.2
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.17	0.048	0.17	0.13	0.43
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.9	0.2	0.5	0.6	1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.23	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.17	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.30	< 0.10	0.34	2.9	0.21
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.44	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	0.49	< 0.10	0.83	5.7	0.35
Pyrene	mg/kg	0.1	MCERTS	0.41	< 0.10	0.71	4.6	0.27
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.29	< 0.10	0.41	2.5	0.28
Chrysene	mg/kg	0.05	MCERTS	0.39	< 0.05	0.70	2.9	0.33
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.38	< 0.10	0.61	3.1	0.28
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.17	< 0.10	0.29	1.1	0.22
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.23	< 0.10	0.51	2.3	0.25
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	1.1	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.4	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	2.66	< 1.60	4.40	28.5	2.19

Analytical Report Number: 16-14414

Project / Site name: Nestle, Hayes
Your Order No: ZLON

Lab Sample Number				555699	555700	555701	555702	555703
Sample Reference				BH206	BH206	BH207	BH207	BH208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.50	0.50	1.50	0.50
Date Sampled				23/03/2016	23/03/2016	23/03/2016	23/03/2016	23/03/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	13	13	14	9.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	1.6	0.9	0.7	2.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.3	< 0.2	0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	34	37	28	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	58	24	430	53	260
Lead (aqua regia extractable)	mg/kg	1	MCERTS	220	21	590	100	34
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.5	< 0.3	0.4	1.1	1.0
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	28	33	27	34
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	52	49	43	46
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	57	230	120	440
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.9	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	3.5	6.6	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	8.9	12	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	56	100	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	69	120	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	19	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	49	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	70	< 10

Analytical Report Number: 16-14414

Project / Site name: Nestle, Hayes
Your Order No: ZLON

Lab Sample Number				555704				
Sample Reference				BH208				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				23/03/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	17				
Total mass of sample received	kg	0.001	NONE	0.57				
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-				
Asbestos Quantification Total	%	0.001	ISO 17025	-				
General Inorganics								
pH	pH Units	N/A	MCERTS	8.1				
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.12				
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.3				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10				
Anthracene	mg/kg	0.1	MCERTS	< 0.10				
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Pyrene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60				

Analytical Report Number: 16-14414

Project / Site name: Nestle, Hayes
Your Order No: ZLON

Lab Sample Number				555704				
Sample Reference				BH208				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				23/03/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.9				
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	45				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	56				
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

Analytical Report Number: 16-14414
Project / Site name: Nestle, Hayes
Your Order No: ZLON

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

"The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
555701	BH207	0.50	111	Loose Fibres	**Chrysotile**	0.001	**0.001**
555702	BH207	1.50	128	Insulation Lagging & Loose Fibres	**Chrysotile & Crocidolite**	0.022	**0.022**
555703	BH208	0.50	128	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditatior

Analytical Report Number : 16-14414

Project / Site name: Nestle, Hayes

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
555699	BH206	None Supplied	0.50	Brown loam and clay with gravel.
555700	BH206	None Supplied	1.50	Brown clay and sand with gravel.
555701	BH207	None Supplied	0.50	Brown loam and clay with gravel.
555702	BH207	None Supplied	1.50	Brown clay and sand with gravel.
555703	BH208	None Supplied	0.50	Brown loam and clay with gravel.
555704	BH208	None Supplied	1.50	Brown clay and sand with gravel.

Analytical Report Number : 16-14414

Project / Site name: Nestle, Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	The analysis was carried out using documented in-house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

George Andrew
Capita Property and Infrastructure Ltd
Oak House
Reeds Crescent
Watford

e: george.andrew@capita.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 16-14418

Project / Site name:	Nestle, Hayes	**Samples received on:**	31/03/2016
Your job number:	CS075666	**Samples instructed on:**	01/04/2016
Your order number:		**Analysis completed by:**	11/04/2016
Report Issue Number:	1	**Report issued on:**	11/04/2016
Samples Analysed:	4 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 16-14418

Project / Site name: Nestle, Hayes

Lab Sample Number				555723	555724	555725	555726	
Sample Reference				BH206	BH207	BH208	BH209	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				22/03/2016	22/03/2016	22/03/2016	22/03/2016	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.8	7.6	7.4	7.5	
Sulphate as SO_4	µg/l	45	ISO 17025	232000	107000	105000	151000	
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	9.36	23.5	24.2	8.46	
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.71	0.90	4.92	0.40	
Boron (dissolved)	µg/l	10	ISO 17025	310	190	150	160	
Cadmium (dissolved)	µg/l	0.02	ISO 17025	1.7	0.26	0.09	0.12	
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	0.4	0.7	
Copper (dissolved)	µg/l	0.5	ISO 17025	15	9.9	6.8	11	
Lead (dissolved)	µg/l	0.2	ISO 17025	0.6	0.5	1.0	0.7	
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	0.18	
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.4	28	22	8.4	
Selenium (dissolved)	µg/l	0.6	ISO 17025	53	15	12	15	
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.6	0.3	0.3	0.5	
Zinc (dissolved)	µg/l	0.5	ISO 17025	12	18	9.0	3.9	

Analytical Report Number: 16-14418

Project / Site name: Nestle, Hayes

Lab Sample Number				555723	555724	555725	555726	
Sample Reference				BH206	BH207	BH208	BH209	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				22/03/2016	22/03/2016	22/03/2016	22/03/2016	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	

Analytical Report Number: 16-14418

Project / Site name: Nestle, Hayes

Lab Sample Number				555723	555724	555725	555726	
Sample Reference				BH206	BH207	BH208	BH209	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				22/03/2016	22/03/2016	22/03/2016	22/03/2016	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Chloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Bromomethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Vinyl Chloride	µg/l	1	NONE	< 1.0	-	< 1.0	-	
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	-	< 1.0	-	
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Trichloromethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Benzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Trichloroethene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Dibromomethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Toluene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Styrene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Tribromomethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
o-Xylene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Bromobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Butylbenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	< 1.0	-	

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 16-14418

Project / Site name: Nestle, Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total organic carbon in water	Determination of dissolved organic carbon inlwater by TOC/DOC NDIR analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH206		W	16-14418	555723	c	BTEX and MTBE in water (Monoaromatics)	L073B-PL	c
BH206		W	16-14418	555723	c	Boron in water	L039-PL	c
BH206		W	16-14418	555723	c	Metals in water by ICP-MS (dissolved)	L012-PL	c
BH206		W	16-14418	555723	c	Sulphate in water	L039-PL	c
BH206		W	16-14418	555723	c	Volatile organic compounds in water	L073B-PL	c
BH206		W	16-14418	555723	c	pH in water	L005-PL	c
BH207		W	16-14418	555724	c	BTEX and MTBE in water (Monoaromatics)	L073B-PL	c
BH207		W	16-14418	555724	c	Boron in water	L039-PL	c
BH207		W	16-14418	555724	c	Metals in water by ICP-MS (dissolved)	L012-PL	c
BH207		W	16-14418	555724	c	Sulphate in water	L039-PL	c
BH207		W	16-14418	555724	c	pH in water	L005-PL	c
BH208		W	16-14418	555725	c	BTEX and MTBE in water (Monoaromatics)	L073B-PL	c
BH208		W	16-14418	555725	c	Boron in water	L039-PL	c
BH208		W	16-14418	555725	c	Metals in water by ICP-MS (dissolved)	L012-PL	c
BH208		W	16-14418	555725	c	Sulphate in water	L039-PL	c
BH208		W	16-14418	555725	c	Volatile organic compounds in water	L073B-PL	c
BH208		W	16-14418	555725	c	pH in water	L005-PL	c
BH209		W	16-14418	555726	c	BTEX and MTBE in water (Monoaromatics)	L073B-PL	c
BH209		W	16-14418	555726	c	Boron in water	L039-PL	c
BH209		W	16-14418	555726	c	Metals in water by ICP-MS (dissolved)	L012-PL	c
BH209		W	16-14418	555726	c	Sulphate in water	L039-PL	c
BH209		W	16-14418	555726	c	pH in water	L005-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Summary of Statistics

Geology: **1 / Brickearth / RTD / London Clay**
Site End Use: **Commercial**
Soil Type: **Sand - 1% SOM**

Project Number: CS075666
Client: SEGRO

Compound	GAC (mg/kg)	No. Samples	Range of values (mg/kg)	exceeding GAC	Normality	No. Outliers	Test	$UCL_{95\%}$ (of the true population mean)	Test Result
Metals									
Arsenic SGV	640	14	8.5 - 19	0	Normal	1	t	13.8	PASS
Boron	110000	14	0.2 - 6	0	Normal	1	t	2.9	PASS
Cadmium SGV	230	14	0.2 - 0.7	0	Not Normal	4	c	0.4	PASS
Chromium VI	49	14	24 - 44	0	Normal	None	t	33.6	PASS
Copper	39000	14	12 - 430	0	Normal	2	t	138.9	PASS
Lead	2230	14	6.3 - 770	0	Normal	None	t	338.5	PASS
Mercury SGV	25.8	14	0.3 - 2.5	0	Not Normal	2	c	1.6	PASS
Nickel SGV	1800	14	19 - 45	0	Normal	1	t	30.8	PASS
Selenium SGV	13000	14	1 - 1	0					
Vanadium	5600	14	25 - 67	0	Normal	1	t	49.6	PASS
Zinc	660000	14	23 - 440	0	Normal	1	t	223.9	PASS
Non-Metals									
Inorganic Cyanide	16000	0							
TPH									
Aliphatic C5-6	2600	14	0.1 - 0.1	0					
Aliphatic C6-8	5000	14	0.1 - 0.1	0					
Aliphatic C8-10	1200	14	0.1 - 0.1	0					
Aliphatic C10-12	6300	14	1 - 1.9	0	Not Normal	1	c	1.3	PASS
Aliphatic C12-16	25000	14	2 - 6.6	0	Not Normal	3	c	4.5	PASS
Aliphatic C16-21	N/A	14	8 - 17	N/A	Not Normal	4	N/A	12.2	N/A
Aliphatic C21-35	N/A	14	8 - 100	N/A	Not Normal	None	N/A	66.9	N/A
Aliphatic C16-35	1200000	14	10 - 120	0	Not Normal	None	c	80.7	PASS
Aromatic C8-10	2200	14	0.1 - 0.1	0					
Aromatic C10-12	9700	14	1 - 1	0					
Aromatic C12-16	25000	14	2 - 38	0	Not Normal	4	c	20.1	PASS
Aromatic C16-21	27000	14	10 - 420	0	Not Normal	4	c	196.2	PASS
Aromatic C21-35	28000	14	10 - 640	0	Not Normal	6	c	290.1	PASS
VOCs									
Benzene SGV	16	14	0.01 - 0.01	0					
Chloroethene	0.04	0							
1,2-Dichloroethane	0.36	0							
Ethylbenzene SGV	510	14	0.01 - 0.01	0					
Naphthalene	75	0							
Tetrachloroethanes	63	0							
Tetrachloroethene	91	0							
Tetrachloromethane	1.7	0							
Toluene SGV	835	14	0.01 - 0.01	0					
1,1,1-Trichloroethane	390	0							
Trichloroethene	6.6	0							
Xylenes SGV	470	14	0.01 - 0.01	0					
SVOCs									
Benz[a]anthracene	140	14	0.1 - 27	0	Normal	6	t	7.4	PASS
Benzo[a]pyrene	76	14	0.1 - 25	0	Normal	7	t	6.5	PASS
Benzo[b]fluoranthene	140	14	0.1 - 32	0	Normal	7	t	9.0	PASS
Benzo[ghi]perylene	140	14	0.05 - 12	0	Not Normal	6	c	5.4	PASS
Benzo[k]fluoranthene	150	14	0.1 - 8.9	0	Normal	3	t	2.7	PASS
Chrysene	1400	14	0.05 - 18	0	Normal	4	t	5.4	PASS
Dibenz[ah]anthracene	14	14	0.1 - 3.8	0	Not Normal	3	c	1.6	PASS
Fluoranthene	54000	14	0.1 - 67	0	Normal	7	t	18.1	PASS
Indeno[123-cd]pyrene	140	14	0.1 - 13	0	Not Normal	6	c	5.8	PASS
Naphthalene	75	14	0.05 - 0.52	0	Not Normal	4	c	0.3	PASS
Phenol SGV	685	0							
Pyrene	76000	14	0.1 - 59	0	Normal	7	t	15.3	PASS

Appendix H – Monitoring Data

CAPITA

Ground Gas and Groundwater Monitoring Data Sheet

Project name: Project Lightning, Hayes **Project number:** CS-075666 **Date:** 29/10/2014

Monitoring Location	Ground level	Methane	Carbon Dioxide	Oxygen	Flow	Atmospheric Pressure	PID	LNAPL	Water Level	Water Level	Standpipe Base Depth	Comments
	(mAOD)	(% by vol)	(% by vol)	(% by vol)	(l/hr)	(mbar)	(ppm)	(mbgl)	(mbgl)	(mAOD)	(mbgl)	
BH101	31.27	0.0	0.3	20.5	0.1	1015	0.0	n/d	2.89	28.38	6.28	
BH102	31.01	0.0	0.1	18.7	0.1	1015	0.0	n/d	2.62	28.39	4.62	
BH103	31.20	0.0	0.0	18.7	0.2	1015	1.2	n/d	0.68	30.52	1.06	
BH104	31.00	0.3	1.1	15.3	7.7	1016	0.0	n/d	0.73	30.27	4.87	
BH107	31.29	0.1	0.5	20.3	0.0	1013	0.0	n/d	1.50	29.79	5.07	
BH108	30.90	0.0	2.1	18.4	0.0	1013	0.0	n/d	1.58	29.32	2.16	No water sample, not enough water
BH109	29.82	0.0	0.1	18.6	0.0	1012	1.4	n/d	1.56	28.26	3.54	
BH111	30.98	0.7	0.0	3.1	0.0	1013	220.0	n/d	2.66	28.32	4.44	
BH112	31.37	0.0	0.8	19.2	1.0	1012	0.0	n/d	Dry	Dry	2.17	No water sample, dry
BH113	31.08	0.1	2.8	9.9	0.1	1015	104.0	n/d	1.96	29.12	3.90	
BH1	30.51	-	-	-	-	-	0.0	n/d	0.71	29.80	3.99	No gas valve
BH2	30.44	-	-	-	-	-	0.0	n/d	0.83	29.61	3.96	No gas valve
BH3	30.19	-	-	-	-	-	0.0	n/d	0.84	29.35	3.49	No gas valve
BH4	29.53	-	-	-	-	-	0.0	n/d	1.15	28.38	3.12	No gas valve
BH5	29.27	-	-	-	-	-	0.0	n/d	1.27	28.00	4.19	No gas valve
BH6	30.15	-	-	-	-	-	0.0	n/d	1.59	28.56	4.06	No gas valve
BH7	31.17	-	-	-	-	-	0.0	n/d	1.49	29.68	5.04	No gas valve
BH8	31.14	-	-	-	-	-	0.0	n/d	1.04	30.10	3.36	No gas valve
BH9	31.20	-	-	-	-	-	1.8	n/d	2.82	28.38	5.19	No gas valve
WS13	31.21	0.0	0.3	20.0	0.0	1015	0.0	n/d	1.27	29.94	1.77	Gas valve too big
WS17	31.24	-	-	-	-	-	0.0	n/d	0.77	30.47	1.99	Gas valve too big
WS22	30.39	-	-	-	-	-	0.0	n/d	0.74	29.65	1.90	Gas valve too big

Equipment: GA 5000 Infra-red gas analyser
MiniREA PID
Dip meter

Logged by: GEA

CAPITA

Ground Gas and Groundwater Monitoring Data Sheet

Project name: Project Lightning, Hayes **Project number:** CS-075666 **Date:** 05/11/2014

Monitoring Location	Ground level	Methane	Carbon Dioxide	Oxygen	Flow	Atmospheric Pressure	PID	LNAPL	Water Level	Water Level	Standpipe Base Depth
	(mAOD)	(% by vol)	(% by vol)	(% by vol)	(l/hr)	(mbar)	(ppm)	(mbgl)	(mbgl)	(mAOD)	(mbgl)
BH101	31.27	0.0	0.4	20.7	1.1	1002	0		2.79	28.48	6.28
BH102	31.01	0.1	1.1	11.9	0.0	1002	0		2.51	28.50	4.62
BH103	31.20	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading
BH104	31.00	0.0	0.5	20.3	6.9	1002	0.9		0.79	30.21	4.61
BH107	31.29	0.2	1.0	19.6	0.0	1001	0		1.39	29.90	5.06
BH108	30.90	0.0	2.4	17.2	0.0	999	0		1.41	29.49	2.15
BH109	29.82	0.0	0.1	20.4	0.0	1003	0.7		1.70	28.12	3.54
BH111	30.98	0.3	0.0	7.5	0.0	1002	144		2.56	28.42	4.44
BH112	31.37	0.0	0.9	19.1	1.0	1002	0		Dry	Dry	2.17
BH113	31.08	0.0	1.7	10.2	1.8	1001	59		1.42	29.66	3.78

Equipment: GA 5000 Infra-red gas analyser
Dip meter
MiniREA PID

Logged by: GEA

CAPITA

Ground Gas and Groundwater Monitoring Data Sheet

Project name: Project Lightning, Hayes **Project number:** CS-075666 **Date:** 18/11/2014

Monitoring Location	Ground level	Methane	Carbon Dioxide	Oxygen	Flow	Atmospheric Pressure	PID	LNAPL	Water Level	Water Level	Standpipe Base Depth
	(mAOD)	(% by vol)	(% by vol)	(% by vol)	(l/hr)	(mbar)	(ppm)	(mbgl)	(mbgl)	(mAOD)	(mbgl)
BH101	31.27	0.0	0.8	20.0	0.7	1008	0.0		2.70	28.57	6.31
BH102	31.01	0.5	1.1	6.1	0.0	1008	0.0		2.41	28.60	4.62
BH103	31.20	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading	No Reading
BH104	31.00	0.1	0.6	19.2	2.4	1008	1.4		0.77	30.23	4.63
BH107	31.29	0.2	1.0	18.1	0.0	1007	0.0		1.44	29.85	5.06
BH108	30.90	0.0	3.0	14.4	0.0	1006	0.0		1.44	29.46	2.15
BH109	29.82	0.0	0.1	17.8	0.0	1005	0.5		1.15	28.67	3.54
BH111	30.98	0.2	0.0	7.4	0.0	1008	127.0		2.46	28.52	4.44
BH112	31.37	0.0	1.3	18.6	0.0	1008	0.0		Dry	Dry	2.17
BH113	31.08	0.0	0.0	12.8	0.2	1006	51.0		1.50	29.58	3.75

Equipment: GA 5000 Infra-red gas analyser
Dip meter
MiniREA PID

Logged by: GEA

CAPITA

Ground Gas and Groundwater Monitoring Data Sheet

Project name: Former Nestle Factory, Hayes **Project number:** CS-075666 **Date:** 22/03/2016

Monitoring Location	Ground level	Methane	Carbon Dioxide	Oxygen	Flow	Atmospheric Pressure	Water Level	Water Level	Standpipe Base Depth
Borehole ID	(mAOD)	(% by vol)	(% by vol)	(% by vol)	(l/hr)	(mbar)	(mbgl)	(mAOD)	(mbgl)
BH1	30.51						0.89	29.62	3.96
BH2	30.44						1.01	29.43	3.96
BH3	30.19						1.00	29.19	3.47
BH5	29.27						1.40	27.87	4.21
WS22	30.39						0.80	29.59	1.89
BH109	29.82	0.0	6.1	3.4	0.0	1013	1.55	28.27	3.37
BH201	30.07	0.0	0.2	19.3	0.2	1013	1.56	28.52	4.18
BH202	30.44	0.5	0.4	18.2	0.3	1013	1.18	29.27	4.15
BH203	30.36	0.0	0.1	20.7	16.9	1013	0.76	29.60	4.18
BH204	29.36	0.0	0.1	21.2	0.0	1013	0.40	28.96	3.85
BH205	30.13	0.0	0.3	21.0	2.8	1013	1.16	28.97	4.17

				Atmos Press	Background O2		
Equipment:	GA 5000 Infra-red gas analyser					**Logged by:**	GEA/PWE
	PID	**Start:**	13:35	1013	21.1	**Weather:**	Sunny
	Dip meter	**Finish:**	16:30	1013	21.2		

CAPITA

Ground Gas and Groundwater Monitoring Data Sheet

Project name: **Former N**estle Factory, Hayes **Project number:** CS-075666 **Date:** 30/03/2016

Monitoring Location	Ground level	Methane	Carbon Dioxide	Oxygen	Flow	Atmospheric Pressure	Water Level	Water Level	Standpipe Base Depth
Borehole ID	**(mAOD)**	**(% by vol)**	**(% by vol)**	**(% by vol)**	**(l/hr)**	**(mbar)**	**(mbgl)**	**(mAOD)**	**(mbgl)**
BH206	31.10	0.0	0.1	18.9	0.1	1007	1.64	29.46	5.17
BH207	31.10	0.0	0.5	19.2	0.0	1005	1.72	29.38	5.77
BH208	31.10	0.0	0.1	21.1	0.0	1007	1.65	29.45	6.27
BH209	31.10	0.0	0.1	21.5	0.1	1008	1.71	29.39	6.81

				Atmos Press	**Background O2**		
Equipment:	GA 5000 Infra-red gas analyser					**Logged by:**	GEA
	PID	**Start:**	11:55	1005	20.7	**Weather:**	Cloudy
	Dip meter	**Finish:**	14:20	1008	21.2		

CAPITA

Capita Property and Infrastructure Limited
Oak House
Reeds Crescent
Watford
Hertfordshire
WD24 4QP

Tel +44 (0)1923 817537