

29th September 2017

Our ref: GE16662/FG02/170929



Lance Else
Linden Homes South
1A Guildford Business Park
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Dear Lance,

RE: Woodcroft Farm, Lovedean, PO8 9QA

Further to our recent investigation works at the above site, we write to provide the soil contamination and ground gas risk assessment for the above site.

Geo-Environmental Services Limited was instructed by Linden Homes South, to undertake an investigation of the geo-environmental factors pertaining to Woodcroft Farm, Lovedean, PO8 9QA herein referred to as 'the site'. The site's location is presented in Figure 1 and Figure 2.

The proposed development is understood to comprise a residential redevelopment with private gardens, areas of soft landscaping, public open space and associated development infrastructure.

Site Description

At the time of the intrusive investigation, August 2017, the site predominantly comprised open fields utilised for the grazing of horses. The farm complex area, shown in Figure 3, comprised a farm house located in the south east of the complex area, with private gardens to the front and rear of the property. To the north and west of the farm house were a number of stable blocks that at the time of the site investigation works were occupied by a number of horses. The stable blocks were constructed on hard standing, generally concrete, and comprised a mixture of wooden stables and stables constructed within breeze block barns. These barns were noted to have corrugated roofs that have the potential to contain asbestos.

In the central area and west of the farm complex area was an area utilised for parking, and the storage of scrap type items. This included engines, vehicles (in varying states of repair), a skip of metal, and other assorted metal items. There was also evidence of recent burning activities being undertaken within this area, piles of ash and blackened patches were noted. A manure heap was also located with the central northern part of this area.

Photographs were taken during the site investigation works and are presented in Appendix A.

Geology

British Geological Survey geological mapping indicated the geology of the site to comprise clay, silt, sand, and gravel Head Deposits overlying the Lambeth Group. Given that the farm complex portion of the site comprises areas of hardstanding cover there is the potential that Made Ground may be present beneath some areas of the site.



BS5930:2015 defines **Made Ground** as anthropogenic ground in which the material has been placed without engineering control and/or manufactured by man in some way, such as through crushing or washing, or arising from an industrial process. Great variations in material type, thickness and degree of compaction invariably occur and there can be deleterious or harmful matter, as well as potentially methanogenic organic material. In addition, on sites which have undergone several phases of historic development it is not uncommon for asbestos to be present within Made Ground soils.

Head Deposits are drifts produced by solifluction, the downslope movement of debris outwash during the periglacial period, and characteristically comprise poorly sorted sand, gravel and chalk of local derivation often with an appreciable clay and silt content.

The **Lambeth Group** comprises a mixture of stiff to hard red, blue/grey and brown mottled clays with basal beds of sand and gravel which vary greatly both laterally and vertically. Locally, these sediments are cemented with calcium carbonate, iron oxides and silica to form materials with relatively high strength.

Hydrogeology

With reference to Envirocheck data the superficial deposits (Head Deposits) were classified as a Secondary 'A' Aquifer. The bedrock geology was shown to be located on the boundary of two classifications, Principal Aquifer and Secondary 'A' Aquifer.

Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary 'A' Aquifers comprise permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

According to information provided from the Environment Agency the site was indicated to be located within a Source Protection Zone, Inner Zone (Zone 1), with regard to the protection of groundwater for potable supply.

Asbestos

During the intrusive investigation works it was noted that there was the potential for the stable buildings and barns to contain asbestos therefore, in line with current best practice, asbestos and ACM should be assumed to be present until proven otherwise, this includes the consideration of the potential for asbestos to be present within the shallow soils on the site, e.g. within and beneath concrete slabs and also with Made Ground soils.

Potential Contamination

The site's previous and current uses include use as a farm, scrapyard and part of the site as a landfill (inert).

These types of uses are covered by the National House Building Council (NHBC), Environment Agency (EA) and Chartered Institute of Environmental Health (CIEH) publication 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008), which provides a summary of industrial profiles (1995 - 1996) published by the former Department of the Environment (DoE) (now part of the Department for Environment, Food and Rural Affairs [DEFRA]).



Potential contaminants associated with the site's use include heavy metals such as lead, chromium, zinc and copper, organic pollutants such as poly-aromatic hydrocarbons (PAH), Organic solvents, herbicides, insecticides and inorganic compounds, acids/alkalis, and PCBs.

It is possible that a thickness of Made Ground may be present beneath the farm yard complex area. Made Ground or shallow soils may contain contaminants of concern, including metals, non-metal, in organic pollutants, organic pollutants (including PAH/TPH) and asbestos. Previous investigation and testing by others has identified exceedances of PAH compounds, metals and asbestos within the Made Ground soils in the farm yard complex area of the site.

Ground Gas Assessment and Vapour Summary

Environment Agency records shows the south western portion of the site as being a historic licensed inert landfill. This along with the possible presence of Made Ground represent possible sources of ground gases/vapours.

Ground gas monitoring and a ground gas risk assessment was undertaken previously by a third party (PBA). Further comment of the results of this assessment are provided within the environmental considerations section of this letter report.

Preliminary Risk Assessment

A Preliminary Risk Assessment ('PRA') and Conceptual Site Model ('CSM') have been prepared in accordance with CLR11 based on information obtained as part of the desk study. Possible risks associated with potential sources of contamination and sensitive receptors identified have been qualitatively assessed following a source-pathway-receptor ('Pollutant Linkage') approach in accordance with current UK protocols.

A risk of harm may only exist where a plausible pollutant linkage is present, and where the quantity or concentration of a contaminant is sufficient so as to pose harm. Under the statutory definition, "Contamination" may only strictly exist where contaminants pose a risk of harm to a receptor. The risk classification has been assessed in accordance with CIRIA C552 (Rudland et al., 2001). A summary of how the risks are derived and their definitions are presented in Tables 1 and 2.

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

Table 1 Risk Ratings Matrix

Risk Rating	Definitions
Very high risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High risk	Harm is likely to arise to a designated receptor from an identified hazard Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not already undertaken) is required and remediation works may be necessary in the short term and are likely over the longer term.
Moderate risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Moderate to low risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is unlikely that any such harm would be severe, or if any harm were to occur it is probable that the harm would be relatively mild.
Low risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very low risk	There is low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Table 2 Risk Rating Definitions

Summary of Plausible Sources

Possible sources of contamination identified are summarised in Table 3.

Source	Description	Contaminants
Made Ground and shallow natural soils	The general quality of Made Ground and shallow soils could be impacted by the presence of contamination in view of the site's previous development and former uses. However, this would appear to relate to specific areas or zones of the site with the remainder of the site appearing to have been of greenfield use.	Possible elevated concentrations of metals, metalloids, organic compounds to include TPH and PAH, inorganic compounds such as sulphate and asbestos.
On-site land uses	The site in the part has been used as a farm, a scrap yard and an historic inert landfill. There is also the potential that former activities may have included the storage of fuel/oils on the site which may have resulted in a potential impact to soils	Possible elevated concentrations of metals, metalloids, possible elevated organic pollutants such as TPH and PAH compounds, sulphate and asbestos.

Source	Description	Contaminants
	and groundwater (likely to be a significant depth) beneath the site.	
Asbestos Containing Materials within the fabric of buildings and possibly in shallow soils	There is a likelihood the former and current buildings on site could have been constructed using asbestos containing materials. Consequently, the potential presence of asbestos in the near surface soils cannot be discounted.	Asbestos
Ground gases/vapours	In view of part of the site having possibly been an historic inert landfill coupled with the possible presence of Made Ground, the potential for shallow soils to be impacted locally with hydrocarbons, there is the potential for ground gases and vapours to be present.	Possible presence of ground gases such as methane and carbon dioxide together with depleted oxygen, trace gases and elevated Volatile Organic Compounds.

Table 3 Possible Sources of Contamination

Summary of Plausible Pathways

The plausible pathways are summarised in Table 4. These pathways are based on the proposed end use, including communal gardens and soft landscaping.

Pathway	Description
Direct Contact	Ingestion of soil particles, inhalation of soil derived dust (including tracked back dust), dermal contact. Bioaccumulation within home grown vegetation.
Inhalation	Inhalation of soil dust both inside and outside of buildings. Inhalation of ground gas/vapours within buildings.
Vertical & Lateral Migration	Contaminant movement both vertically through leaching/gravity and horizontally along preferential pathways, e.g. services trenches, more permeable bedded strata or with groundwater.
Shallow Groundwater	Shallow groundwater or perched water may be present within the Made Ground or underlying sands and gravels which could result in the vertical and lateral migration of contaminants.
Chemical Attack	Attack of buried plastics and concrete by aggressive ground conditions.

Table 4 Possible Contamination Pathways

Summary of Plausible Receptors

Potential receptors associated with the site and its development are summarised in Table 5.

Receptor	Description	Comments
End Users	Residents/occupants of the proposed development.	The proposed development comprises residential housing with private garden areas, soft landscaping, access roads, car parking and associated development infrastructure.
Soft Landscaping	Possible areas of planting including possible lawns, shrubs, trees, etc.	Private gardens and areas of soft landscaping are proposed.

Receptor	Description	Comments
Built Environment	Buried concrete for foundations and plastics for potable water supply pipes may be laid in contact with contaminated soils.	Aggressive ground conditions may be present beneath the site.
Adjacent Land Users	Sensitive land uses identified within the immediate vicinity.	Adjacent land uses to the south were primarily residential with gardens, with a school also located to the south of the site.
Groundwater	Controlled waters contained within the aquifer(s) beneath the site.	The site overlies a Principal Aquifer and is located within a Source Protection Zone.
Surface Water	Controlled Waters within lakes, rivers, and ponds, etc., or coastal waters.	No surface water was identified on site.

Table 5 Possible Receptors of Contamination

Site workers involved in the preparation and construction of the development have not been considered further in this assessment as the Principal Contractor is duty bound under the current CDM Regulations to undertake their own risk assessments with respect to their employees.

Whilst the above sources and receptors have been identified, Table 6 summarises the identified plausible pollution linkages and a qualitative assessment of the risks.

Potential Source/Media	Potential Receptors	Potential Pathways	Probability	Consequence	Risk and Justification
Contaminants within Made Ground (If present) & Shallow Natural Ground	End users	Direct contact and inhalation of soil derived dust	Likely	Medium	Moderate End users could come into contact with soils via direct contact as the development will include private gardens and areas of soft landscaping. Made Ground/ Infilled ground is likely to be present in distinct and localised areas of the site. The risk in other areas of the site, i.e. open fields, is likely to be lower due to an absence of Made Ground and plausible contamination sources.
	Soft Landscaping	Root Uptake	Likely	Mild	Moderate to Low The proposed development is likely to include private gardens and areas of soft landscaping.
	Adjacent land users	Direct contact	Likely	Minor	Low Adjacent site users are unlikely to come into contact with soils within areas of proposed soft landscaping.
	Water supply pipes	Direct contact	Likely	Mild	Moderate to Low Water supply pipes could come into contact with impacted soils depending upon depth of installation and extent of soil impact. The consequence is likely to be mild.
	Buildings and infrastructure	Direct contact	Likely	Minor	Low Foundations and utilities will be placed within potentially aggressive soils (e.g. sulphate). However the consequence is anticipated to be minor.
	Groundwater	Vertical migration	Likely	Mild	Moderate to Low Shallow groundwater (<5m bgl) is unlikely to be present and records reviewed as part of the assessment indicate that groundwater could be in excess of 25m bgl. The strata beneath the site are classified as a Secondary A Aquifer over a Principal Aquifer. Fluctuations in groundwater levels are likely and but given the anticipated depth, it is unlikely to result in migration of mobile contaminants. Given that site wide Made Ground or soil based impact is unlikely, the risk of harm to groundwater from Made Ground could be limited.

Potential Source/Media	Potential Receptors	Potential Pathways	Probability	Consequence	Risk and Justification
On-site land uses	End users	Direct contact and inhalation of soil derived dust	Likely	Medium	Moderate End users could come into contact with soils via direct contact as the development will include private gardens and areas of soft landscaping. Potential contaminative uses however are generally only present in distinct and localised areas of the site, thus remote from these areas, the risk is likely to be lower.
	Soft landscaping	Root Uptake	Likely	Mild	Moderate to Low The proposed development is likely to include private gardens and areas of soft landscaping.
	Adjacent land users	Direct contact	Low	Minor	Very Low Adjacent site users are unlikely to come into contact with soils within areas of proposed soft landscaping.
	Water supply pipes	Direct contact	Likely	Mild	Moderate to Low Water supply pipes could come into contact with impacted soils depending upon depth of installation and extent of soil impact. The consequence is likely to be mild.
	Buildings and infrastructure	Direct contact	Low	Minor	Very Low Foundations and utilities will be placed within potentially aggressive soils (e.g. sulphate). However the consequence is anticipated to be minor.
	Groundwater	Vertical migration	Likely	Mild	Moderate to Low Shallow groundwater (<5m bgl) is unlikely to be present and records reviewed as part of the assessment indicate that groundwater could be in excess of 25m bgl. The strata beneath the site are classified as a Secondary A Aquifer over a Principal Aquifer. Fluctuations in groundwater levels are likely and but given the anticipated depth, it is unlikely to result in migration of mobile contaminants. Given that site wide Made Ground or soil based impact is unlikely, the risk of harm to groundwater from Made Ground could be limited.
Ground Gases and Vapours	End users	Inhalation	Low	Medium	Moderate to Low Ingress of hazardous ground gas into buildings could occur locally and could result in significant harm where ground gases are identified on site. The third party ground gas assessment indicated that ground gas risks were associated with specific areas of the site only. Incorporation of gas and/or vapour

Potential Source/Media	Potential Receptors	Potential Pathways	Probability	Consequence	Risk and Justification
					protection measures could mitigate the risk of harm and thus the consequence would be low.
	Adjacent land users	Inhalation	Unlikely	Medium	Low It is considered to be unlikely and a low probability that adjacent land users will come into contact with ground gases and vapours originating on site. Should ground gases and vapours be identified on-site service routes should be constructed in line with best practice to prevent the creation of preferential pathways off site. In addition, if gross contamination is identified that could represent a source of gas/vapour which could impact adjacent land users then remedial action would be required to reduce, remove or otherwise mitigate the source or break the exposure pathway(s).
	Buildings and infrastructure	Gas accumulation and potential explosion of flammable gases	Unlikely	Minor	Very Low Foundations and utilities will be constructed in/through Made Ground soils (if present). However the consequence is anticipated to be minor.

Table 6 Plausible Pollutant Linkages & Qualitative Risk Assessment

Preliminary Risk Assessment Summary

The potential pollutant linkages established within this preliminary risk assessment are not considered to prevent development on the subject site, but could require investigation and assessment to support further characterisation, calibration of the CSM and where/if necessary determine a remedial strategy to reduce, remove or otherwise control any risk within the site to key receptors.

Investigation Strategy

The positioning of exploratory holes was determined on site to provide general coverage and to target specific areas. Table 7 sets out the investigation strategy adopted.

Area of Concern	Investigation	Positions
General ground conditions	Exploratory holes located across the site, coupled with sampling and laboratory analysis.	All
Potential contamination of near surface soils	Exploratory holes located to provide coverage of the site, coupled with sampling and laboratory analysis.	All
Farmyard complex area, including scrapyard area	Exploratory holes located to provide targeted coverage of areas identified as being potentially contaminated, coupled with sampling and laboratory analysis.	TP213-TP216, TP220, TP223-TP226 and TP239

Table 7 Summary of Investigation Strategy

Soil samples were collected and placed into amber jars and cool boxes on site for transit to the office, where they were stored under chilled conditions (<4°C) prior to final transportation in cool boxes to the laboratory by their in-house courier. Both the geotechnical and contamination testing were undertaken by UKAS accredited laboratories. Contamination testing of soil samples was also undertaken in accordance with accredited MCERTs protocols. Samples were stored in temperature controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with laboratory's protocols.

Encountered Conditions

A factual record of the conditions encountered during the physical investigation of the site is presented in the following sections.

For further details of the ground conditions, reference should be made to the exploratory hole logs and in situ testing presented in Appendix B, and geochemical testing results in Appendix C.

The physical ground investigation works were undertaken from on the 21st- 23rd August 2017 and on 5th September 2017.

Unless stated otherwise, all depths are reported as metres below ground level (m bgl).

The ground conditions encountered comprised a mantle of Topsoil and/or Made Ground overlying, clay, gravelly clay and sandy clay, with bands of flint cobbles and bands of sandy clay in certain locations. Chalk was encountered within boreholes BH301 and BH303 at depths of 12.9m bgl and 1.9m bgl respectively.

Made Ground was encountered within all the trial pits located within the farmyard complex area and was also encountered in TP211, TP213 and TP214. The Made Ground was found to comprise bricks, brick fragments, chalk of cobble and gravel size, ashy deposits, plastic, wood, possible asbestos (tiles and sheets), concrete, tarmac, and



charcoal. Made Ground was encountered to a maximum depth of 2.3m bgl, although TP225 was terminated within the Made Ground at 0.6m bgl so the full depth of Made Ground in this location was not established. Due to the use of the farm buildings as stables, and horses being present at the time of the investigation, it was not possible to investigate beneath these existing farm/stable buildings. It is thought likely that Made Ground will be present beneath these buildings given it has been encountered in all areas of the farm complex investigated to date.

The Topsoil and/or Made Ground was underlain by firm to stiff clay and sandy clay of the Lambeth Group in the majority of locations. In some isolated locations mainly in the north of the site the Topsoil and/or Made Ground was underlain by gravelly clay, very sandy clay and clayey sand of the Lambeth Group. The clay and sand of the Lambeth Group were encountered to depths of up to 25m bgl. BH301 and BH303 found Chalk to underlie the Lambeth Group, the chalk was encountered at 12.9m bgl and 1.9m bgl respectively.

For more detailed descriptions at specific locations, reference should be made to the exploratory hole logs presented in Appendix B.

Groundwater

Groundwater was not encountered within any of the investigation locations and is anticipated to be present at depths in excess of 25m bgl. However BH303 (proposed pumping station location) was installed with a standpipe for further monitoring. A monitoring visit was undertaken on 5th September 2017 and the well was found to be dry.

It should also be noted that changes in groundwater levels do occur for a number of reasons including seasonal effects and variations in drainage. Such fluctuations may only be recorded by the measurement of the groundwater level within a series of standpipes or piezometers installed within appropriate response zones.

Chemical Analysis

In order to assess the general chemical quality of the strata encountered, samples of soils recovered from the exploratory holes were submitted for analysis for a range of potential contaminants selected on the basis of the findings of the desk study and supported by CLR publication CLR8 and Environment Agency R&D66 publication.

The testing rationale included sampling and analysis to provide a general coverage of the subject site. Testing was undertaken for a broad range of commonly occurring contaminants including metals, metalloids, inorganic compounds, phenols, speciated TPH, PAH and asbestos as identified.

Environmental Considerations

A Generic Quantitative Risk Assessment (GQRA) incorporating the results of the desk study and ground investigation was undertaken. A number of plausible pollutant linkages were initially identified and the investigation did not encounter conditions that warranted a revision of the preliminary Conceptual Site Model.

Soil Contamination vs End User

The presence of a possible contaminant does not necessarily imply that a site or area is contaminated or that there is any unacceptable risk to human health. A Preliminary Quantitative Risk Assessment has been undertaken in order to evaluate any unacceptable risks posed to human health with respect to the proposed redevelopment. It should be noted that this assessment is protective of the chronic long-term effects of contaminants, which is also likely to be protective of any possible immediate acute effects.

A quantitative risk assessment has been undertaken by comparing the results of the laboratory chemical testing of shallow soils against Site Specific Assessment Criteria (SSAC) generated using the Contaminated Land Exposure Assessment (CLEA) model v1.071 published by the Environment Agency, or against the Category 4 Screening Levels (C4SLs) published by DEFRA. Although the C4SLs were released for Part 2A use, the associated policy companion document for the C4SLs indicated that they may also be used for planning. Although the C4SLs represent a marginally higher risk level than the SSACs (low risk rather than minimal risk) it is considered that the risk levels remain very low. Therefore, the final C4SLs are considered to be suitable to assess soils under the planning regime.

The exploratory holes were located to provide general coverage of the site as well as to target specific areas of concern, as identified by the preliminary risk assessment, in line with the proposed development. Samples were selected to target the areas of Made Ground identified and underlying natural ground and to provide coverage of the site. Analysis was undertaken on soil samples collected from these exploratory holes.

In the first instance the results of the sample analysis were compared to the Tier 1 screening criteria where available. Table 8 shows the exceedances identified on site above the respective generic guideline values for a proposed residential land use with plant uptake.

Determinant	Tier 1 Criteria mg/kg	Depth m bgl	Concentration mg/kg	Geology
Arsenic	S4UL- 37 SSAC – 38.03	TP229 at 0.6	38.2	Topsoil
Beryllium	S4UL – 1.7 SSAC – 1.72	TP229 at 0.6	1.8	Topsoil
Benzo(a)pyrene	S4UL -2.2 (1% SOM) SSAC – 3.93	TP215 at 0.3	3.1	Made Ground
Dibenzo(a,h)anthracene	S4UL -0.24 (1% SOM) SSAC – 0.39	TP213 at 1.0	0.5	Made Ground
		TP215 at 0.3	0.6	Made Ground
		TP222 at 0.4	0.3	Lambeth Group
		TP225 at 0.25	0.3	Made Ground
		TP226 at 0.1	0.3	Topsoil
		TP239 at 0.2	0.3	Made Ground

Table 8 Summary of contaminant exceedance above respective threshold for residential end use

The results were assessed further in order to clarify the initial screening assessment, through the development of Site Specific Assessment Criteria (SSAC).

The assumptions made as part of the CLEA V1.071 calculations for a residential end use with plant uptake (SSAC) are presented in Table 9. Copies of the CLEA calculations are enclosed in Appendix C. The calculated SSAC for contaminants where Tier 1 screening criteria are exceeded have also been included in Table 8.

	Assumptions			Comments
Land Use	Residential with plant uptake			Commensurate with proposed development.
Receptor	Female (res C4SL)			A conservative assumption using the most sensitive possible receptor.
Receptor Age	Age Groups 1-6			Critical receptor age from birth to age 6.
Building	Small terraced house			A conservative assumption for the proposed development.
Soil Type	Sandy silty loam	pH 7.4	SOM 0.86%	Based on site specific conditions.
Exposure Pathways	Oral	Direct soil and dust ingestion		Default setting for land use.
	Dermal	indoor and outdoor		Default setting for land use.
	Inhalation	outdoor dust & vapour		Default setting for land use.
Occupancy	days/year	hours/day (indoors)	hour/day (outdoors)	Default settings for the critical receptor.
	365	23	1	

Table 9 Assumptions for SSAC Calculation (CLEA v1.071 Software)

The tier 1 exceedances were screened against the Site Specific Assessment Criteria (SSAC) calculated for the site. A number of those initially identified as exceedances were found to be below the calculated SSAC. The following initial exceedances were found to be below the SSAC:

- Benzo(a)pyrene, TP215 at 0.3m, identified 3.1mg/kg compared to a SSAC of 3.93mg/kg
- Dibenzo(a,h)anthracene, TP222 at 0.4m, TP225 at 0.25m, TP226 at 0.1m and TP239 at 0.2m, all identified 0.3mg/kg compared to a SSAC of 0.39mg/kg

The calculated SSAC were based on a residential exposure scenario without plant uptake so as to provide a conservative assessment and cover a worst case scenario. It is therefore considered that the initial exceedances found to be below the calculated SSAC do not require further assessment nor is further remedial action warranted with respect to these substances and/or locations.

Previous investigations by third parties identified elevated concentrations of PAH, Lead and Zinc at locations within the farmyard complex area.

In addition, all samples were submitted for asbestos screening and where asbestos was identified quantification testing was carried out. The locations where asbestos was identified are summarised in Table 10.

Location and Depth (m bgl)	Type	Free Fibres (%)	Total (%)
TP213 at 1.0	Chrysotile and Crocidolite	<0.001	2.66
TP225 at 0.25	Chrysotile	<0.001	3.54
TP239 at 0.5	Chrysotile	<0.001	25.0

Table 10 Summary of locations of asbestos identified

The asbestos identified within TP239 was in the form of asbestos tiling. The tiles discovered were relatively intact within the ground. Given the age of the buildings present on site there is the potential for asbestos to be present within the building fabric, and as such an appropriate asbestos survey would be recommended prior to any demolition works.

In addition previous investigations undertaken by third parties also identified the presence of asbestos within soils in the farmyard complex area. Figure 7 shows a wider overview of the entire site due for development, it shows the locations of all the identified contaminant exceedances along with the development layout proposals.

Figure 8 shows the areas intended for development by Linden Homes along with the recommended remedial requirements for these areas.

Based on the above assessment it is considered that remedial action would be warranted to protect end users of a residential development, within isolated areas due to be developed by Linden Homes on this site in relation to the asbestos, PAH, Lead and Zinc identified within the shallow soils (Made Ground). The following recommendations made refer solely to the areas due for development by Linden Homes, as shown in Figure 8. It is presumed that the other areas of the site, outside of Linden's site boundary, where contamination has been identified will be remediated by others.

It is understood that ground levels could not readily be raised due to implications on development restrictions and thus localised excavation and removal of Made Ground soils would be recommended. At this stage, an average depth of 0.5m is considered likely. The reduced dig could be backfilled with site won subsoil and Topsoil (the latter to a minimum thickness of 150mm excluding any turf).

It is recommended that a reduced dig is undertaken within the farmyard complex area, as shown in Figure 8, to remove asbestos found to be present within the Made Ground. Due to the restriction in access to some areas of the farmyard complex during the initial investigation works, it is also recommend that following demolition of the buildings on site, further intrusive investigations are carried out to identify and delineate the location of asbestos within the Made Ground within this area. This would enable areas impacted by asbestos to be more accurately identified, for removal and disposal purposes.

Where areas of identified Made Ground are proposed to be located beneath building footprints or hard standing, it is considered that the plausible pollutant linkage is removed and thus risk of harm to end users from exposure to the contaminants is removed, as roads, buildings and permanent hard cover would sever the pollutant linkage and thus it may be possible for the impacted shallow soils to remain in these areas.

It is recommended that any remediation works are undertaken in accordance with a remedial strategy and specific methodology which includes on-site observation, audit sampling/analysis and validation reporting by the Geo-Environmental Consultant.

With regards to areas amenity/communal soft landscaping, it is recommended that Topsoil is placed to provide a suitable growing medium for proposed planting at a minimum thickness of 150mm. Where it is required to import topsoil on to the development then, prior to importation, the chemical, physical and nutritional suitability should be verified. Importation of topsoil or subsoil from unverified or unsuitable sources would require their removal from site and replacement with suitable materials. As a matter of good practice, it is recommended that the location, approximate extent and thickness of any imported topsoil are recorded and presented in the Validation/Verification Report to be prepared by the Environmental Consultant. Any such importation of Topsoil may require a Material management Plan and Declaration in accordance with the Definition of Waste Code of Practice (DoWCoP).

Soil Contamination vs Adjacent Land Users

Surrounding land uses were identified to comprise residential properties. On the basis of the testing undertaken to date, it is considered that no significant risks to adjacent land users exist.

Notwithstanding the above, it is recommended that exposed soils are kept damp to avoid the release of soil particles to the air during development.

Soil Contamination vs Soft Landscaping

British Standard BS3882:2015 *Specification for topsoil and requirements for use* provides assessment criteria for a number of potentially phytotoxic contaminants in terms of new planting.

The results of the chemical analysis for determinants known to pose a potential phytotoxic risk to plant growth are summarised in Table 11, together with the respective adopted Generic Assessment Criteria (GAC) for plant growth. The compliance criteria set out in BS3882:2015 are pH dependent and thus the GAC used relate to the pH range measured on samples recovered from the site.

Determinant	Phytotoxicity GAC (mg/kg)			GAC Exceedances
	pH <6.0	pH 6.0-7.0	pH >7.0	
Zinc	200	200	300	No
Copper	100	135	200	No
Nickel	60	75	110	No

Table 11 Summary of Plant Phytotoxicity Assessment

The phytotoxicity assessment did not identify any exceedances and thus no specific remedial measures are considered to be warranted in relation to plants.

Soil Contamination vs Built Environment

Recommendations with respect to pH and sulphate in relation to buried concrete are made in Section 5.5.

The current guidance on the selection of materials for water supply pipes to be laid in contaminated land is contained in UK Water Industry Research's (UKWIR) report reference 10/WM/03/21 (re-issued 2010). However, the guidance is not mandatory and there has been concerns raised by various industry technical associations regarding the document and the methodologies proposed.

As such, the utility company should be consulted in order to confirm their specific requirements in this respect, at this time subject to further confirmation it is considered that specific protection measures are unlikely to be required for potable water supply. As a matter of good practice and to maximise the protection to maintenance workers, it is recommended that clean, granular backfill is used in service runs and that marker tapes are used for all buried services.

Soil Contamination vs Groundwater

The investigation did not identify any mobile contamination and thus in the absence of a pollutant linkage, no further action is warranted.

Groundwater Contamination vs Human Health

End users would not come in to contact with groundwater and thus in the absence of a plausible pollutant linkage between groundwater and end-users, no specific protection measures are considered likely to be required in this respect

Groundwater Contamination vs Soft Landscaping

Groundwater is considered to present at depth within the Thanet Sand Formation beneath the site and as such was considered to be outside of the root zone of influence for the soft landscaping on the site. Notwithstanding

this, the vegetation on and around the site showed no evidence of stress. As such, it is considered that no specific action is warranted with respect to soft landscaping.

Ground Gas Assessment

Ground gas monitoring was undertaken by a third party in 2016, as part of a wider investigation of the site. A copy of this report has been provided to GESL, however it is understood that permission has not been granted by the authors to allow any reliance to be placed upon it. Gas monitoring was also undertaken as part of an investigation carried out by a third party, Peter Brett Associates (PBA), in 2010. A summary of which has been provided to GESL.

The PBA report identifies the former historic landfill as a potential source of ground gas, and comments that following discussions with the landowner and the Local Authority Contaminated Land Officer, the waste is believed to be inert waste. However the report also points out that the definition of inert has changed over time, and records are relatively inaccurate and historically, inspection regimes were less formal and onerous than required for present day filling schemes. As such, it is likely that detailed investigation could be required in to development on the landfill area of the site.

Although no gas monitoring data was provided in the PBA summary, the 2016 report makes reference to this monitoring data, where gas monitoring reported concentrations of methane up to 42.5% v/v and concentrations of carbon dioxide of up to 17.0%v/v along with flow rates of 0.3l/hr.

Using this data Gas Screening Values (GSVs) were calculated resulting in a GSV for methane of 0.1275l/hr and a GSV for carbon dioxide of 0.051l/hr. Based on the GSV for methane this would classify the area of the landfill as 'Red' under the NHBC Traffic Light scheme. Figure 9 shows the extent of the former landfill area in relation to the proposed site layout. The landfill is situated outside of the area due to be developed for residential dwellings by Linden Homes.

The 2016 report encountered lower flow rates and significantly lower volumes of methane and carbon dioxide and argued that, based on flow rates encountered during the gas monitoring undertaken in 2016 a classification of Amber 2 for the former landfill area was more appropriate.

Further ground gas monitoring and assessment were beyond the scope of the investigation works carried out Geo-Environmental, therefore the following is based upon the conclusions drawn by the PBA report, and the fact that the area of residential development due to be carried out by Linden Homes is situated outside of the former landfill area.

It is recommended that gas protection measures are installed within properties constructed in the area of the former landfill and adjacent land, as shown on Figure 9, in line within Amber 2, as set out by the NHBC. Protection measures for an Amber 2 classification would comprise the following:

- Suspended ground floor slabs;
- Passively ventilated sub-floor void via air bricks (minimum 150mm clear void height across the footprint) with sufficient ventilation to allow at least one complete volume change in any given 24hr period. Air bricks will need to be positioned above external ground level in the outer skin such that they have a clear and uninterrupted flow of air across them. This has a direct bearing of construction and external levels where level thresholds are required;
- Cross ventilation through sleeper walls to prevent the formation of low flow zones within the sub-floor void;
- Minimum penetration of the slab by services and sealing of all penetrations and joints using 'top hats' or bespoke/site formed top hat seals;

- Installation of a gas resistant membrane laid across the floor with all joints and service penetrations sealed to form a single integral membrane. For Amber 2 conditions, joints are required to be welded. All joints should comprise a minimum 150mm overlap. It is recommended that membrane installation is undertaken by a suitability competent (e.g. NVQ qualified) installer;
- Use of an appropriate gas resistant DPC across the cavity with lap on the inner skin wall to facilitate joining to the floor membrane.
- Inspection and verification of installed measures.

Waste Disposal

Waste Acceptance Criteria (WAC) testing was undertaken on samples of the shallow soils on the site from TP223 at 0.5m bgl, TP225 at 0.3m bgl and TP233 at 0.4m bgl, from across the site and details are provided below:

- TP223 at 0.5m bgl (Lambeth) soils classified as 'Inert Waste' with the exception of dissolved organic carbon which was noted to be above the level for inert but below the Hazardous waste in a non-hazardous landfill threshold;
- TP225 at 0.3m bgl (Made Ground) soils classified as 'Inert Waste';
- TP233 at 0.4m bgl (Lambeth) soils classified as 'Inert Waste'

Based on the WAC testing undertaken from representative samples of the shallow soils across the site it is considered the Made Ground and natural soils beneath the site would be considered as inert waste for the purpose of disposal.

However the presence of asbestos was identified within the Made Ground in the farmyard complex area. Quantification of this asbestos was undertaken and based on these results Made Ground within the farmyard complex would have an initial classification of Hazardous for waste disposal purposes. It is therefore recommended that further investigation is carried out within the farm complex area in order to appropriately classify materials for disposal.

We trust we have interpreted your request correctly and provided sufficient information for your current requirements. If you have any questions or queries in relation the information provided at this stage please let us know.

Yours sincerely
For and on Behalf of Geo-Environmental



FIONA GOODE BSc (Hons), MSc, FGS, MEnvSc
Senior Consultant Engineer
fiona.goode@gesl.net

Enc Figures 1-9
 Appendix A – Site Photographs
 Appendix B – Preliminary Exploratory Hole Logs and in-situ testing
 Appendix C - Geochemical Testing Results and Statistical Assessment Criteria





FIGURES





Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Site Location Plan	
Client:	Liden Homes South			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	 Geo-Environmental	
Ref No:	GE16662	Revision:	0			
Drawn:	GR	Date:	31/07/2017			
Figure:	1	Scale:	Not To Scale			

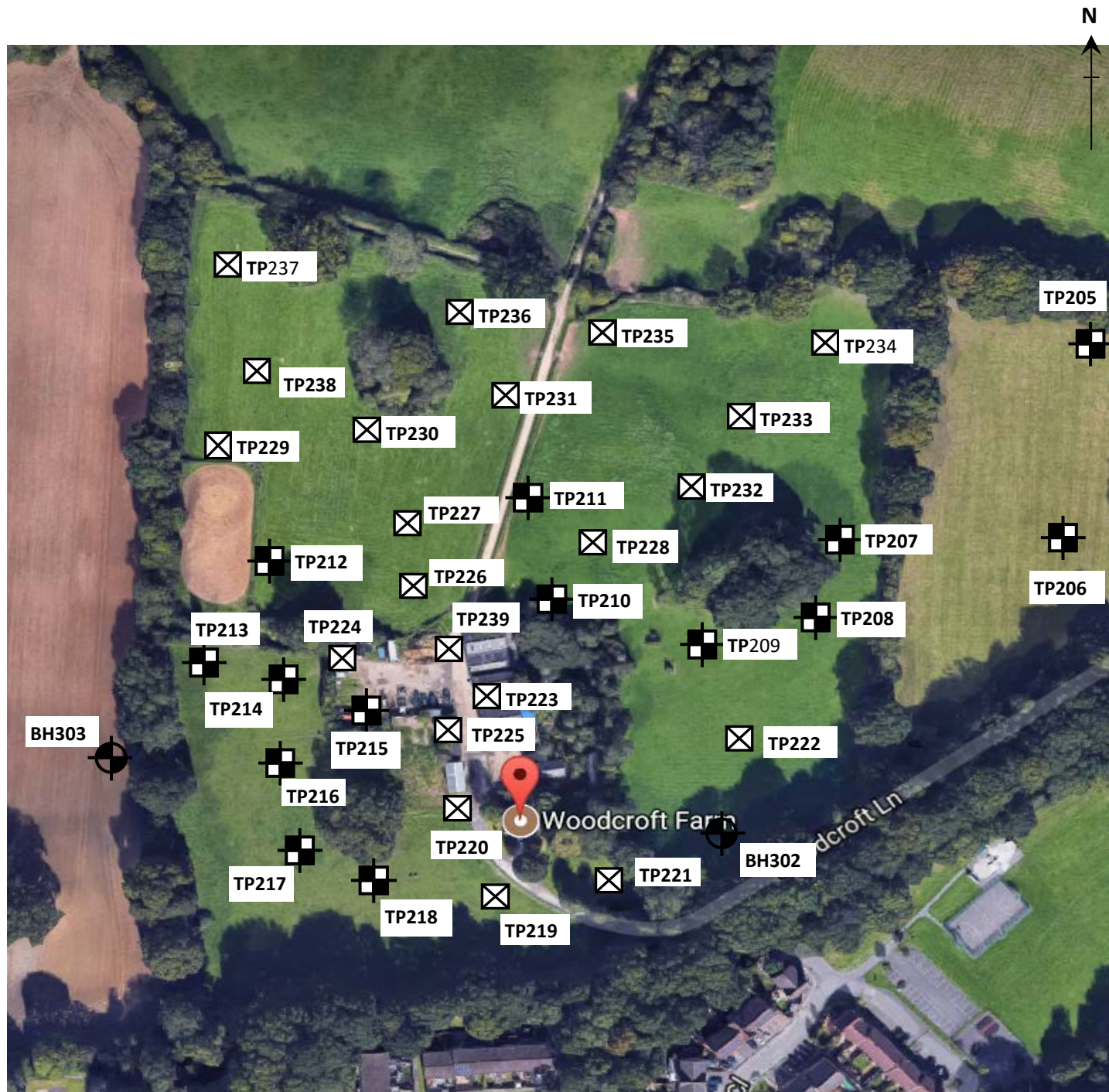




Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Site Boundary Plan (Linden Homes)		
Client:	Liden Homes South			 Geo-Environmental Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net			
Ref No:	GE16662	Revision:	0				
Drawn:	FG	Date:	29/09/2017				
Figure:	2	Scale:	Not To Scale				



Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Location of Farmyard Complex	
Client:	Liden Homes South			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net  Geo-Environmental		
Ref No:	GE16662	Revision:	0			
Drawn:	FG	Date:	29/09/2017			
Figure:	3	Scale:	Not To Scale			



Project:		Woodcroft Farm, Lovedean, PO8 9		Title	Trial Pit and Borehole Location Plan (main site)	
Client:		Liden Homes South		Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net  Geo-Environment		
Ref No:	GE16662	Rev:	0			
Drawn:	GR/FG	Date:	17/08/2017			
Figure:	4	Scale:	Not To Scale			

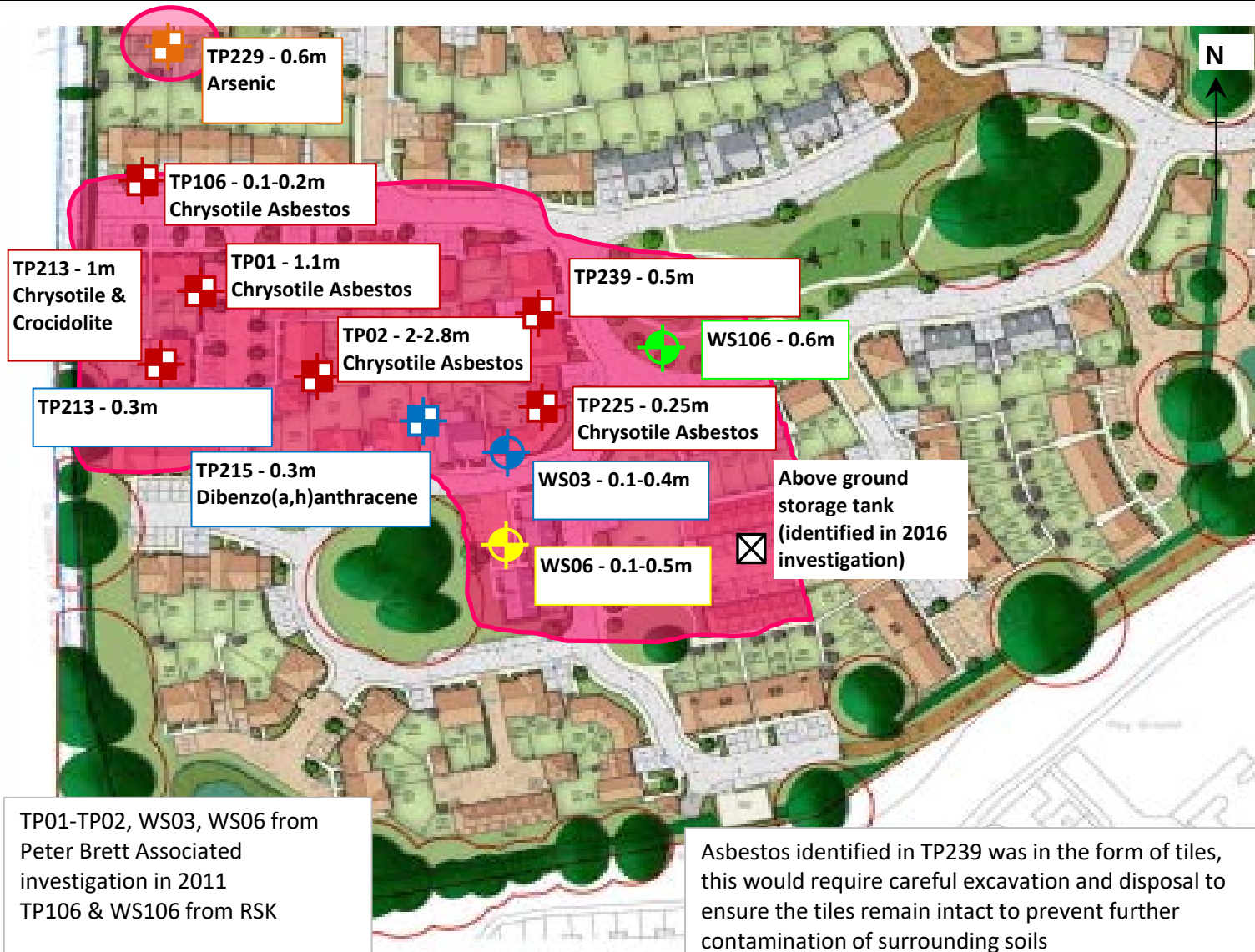


Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Trial Pit and Borehole Location Plan (off main site)		
Client:	Liden Homes South			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		 Geo-Environmental	
Ref No:	GE16662	Revision:	0				
Drawn:	FG	Date:	17/08/2017				
Figure:	5	Scale:	Not To Scale				



Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Window Sampling Locations	
Client:	Liden Homes South			 Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		
Ref No:	GE16662	Revision:	0			
Drawn:	FG	Date:	05/09/2017			
Figure:	6	Scale:	Not To Scale			





Majority of contamination identified in the farmyard complex and scrapyard area
Several isolated hotspots also identified by recent GESL

Possible remedial requirement to remove all Made Ground within the farmyard complex (up to c.2.8m depth) Likely remedial requirement to remove all asbestos impacted soils within prosed gardens/ areas of soft landscaping

Asbestos identified in GESL investigation quantified, indicating a classification of Hazardous Waste

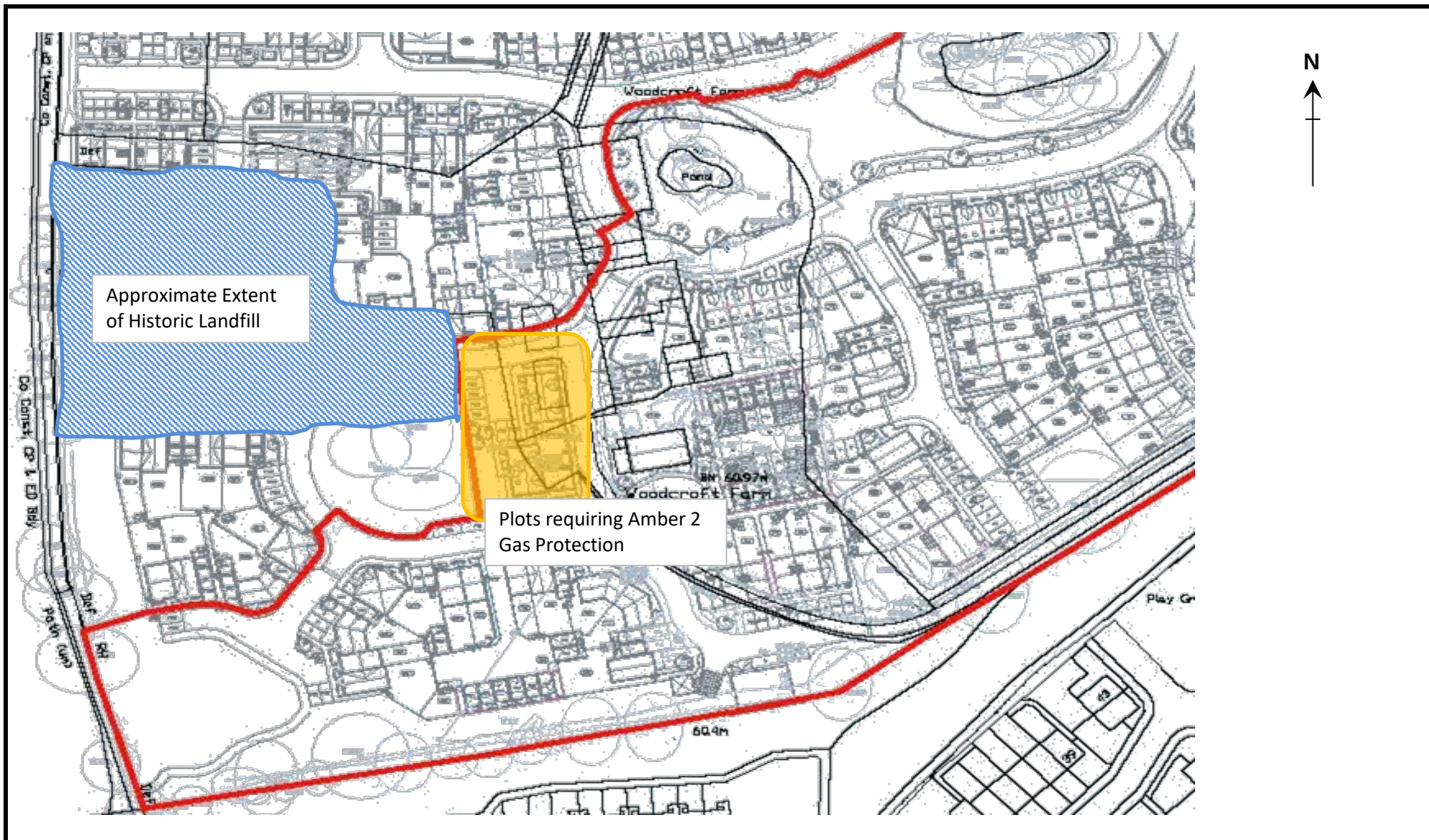
Buildings on site have the potential to contain asbestos,

Further investigation works would be recommended following vacation of the site, to delineate asbestos contaminated areas and appropriately classify asbestos containing soils for disposal.

Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Identified Soil Contaminant Exceedances (Wider Site)		
Client:	Liden Homes South			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		 Geo-Environmental	
Ref No:	GE16662	Revision:	2				
Drawn:	FG	Date:	29/09/2017				
Figure:	7	Scale:	Not To Scale				



Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Soil Contamination and Remediation Area Summary Plan		
Client:	Liden Homes South			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		 Geo-Environmental	
Ref No:	GE16662	Revision:	0				
Drawn:	FG	Date:	29/09/2017				
Figure:	8	Scale:	Not To Scale				



Project:	Woodcroft Farm, Lovedean, PO8 9QA			Title	Historic Landfill Location and Plots requiring Gas Protection Measures	
Client:	Liden Homes South			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net  Geo-Environmental		
Ref No:	GE16662	Revision:	0			
Drawn:	FG	Date:	29/09/2017			
Figure:	9	Scale:	Not To Scale			



APPENDIX A

Site Photographs





Site Photos – 18/08/2017



Plate 1 View north west from the access road across the western field



Plate 2 View north of the farmyard complex area currently being used as a scrapyard



Plate 3 View south of the farmyard complex being used for vehicle storage



Plate 4 View south west of the farmyard complex area being used as vehicle storage



Plate 5 Farmyard complex area showing evidence of recent burning activity



Plate 6 View west of the farmyard complex area



Plate 7 View of the skips stored in the farmyard complex containing engines and assorted metals



Plate 8 View east across the farm complex area



Plate 9 View west across the area of former landfill



Plate 10 Manure heap within the farm complex



Plate 11 View north of the field to the north of the farmhouse



Plate 12 View north west of the north western field



Plate 13 View of the current access track that runs from north to south through the site

Site Photos – 05/09/2017



Plate 14 View of the skip that contained engines and assorted metals, evidence of recent burning



Plate 15 View north of farmyard complex



Plate 16 View of farmyard complex showing evidence of recent burning activities



Plate 17 View north west of farmyard complex



Plate 18 View south west of farmyard complex



Plate 19 View west of farmyard complex



Plate 20 View south of farmyard complex



Plate 21 View south of farmyard complex



Plate 22 View south of farmyard complex



Plate 23 View west of farmyard complex



Plate 24 View north of farmyard complex



APPENDIX B

Exploratory Hole Logs

and In-situ Testing





Geo-Environmental

Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
www.gesl.net

Borehole Log

Borehole No.

BH301

Sheet 1 of 3

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468385E - 112188N

Hole Type
CP

Location: Woodcroft Farm, Lovedean,

Level:

Scale
1:50

Client: Linden Homes South

Dates: 22/08/2017

Logged By
FG

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15			Grass over Topsoil TOPSOIL	
		0.50 - 1.00	B					Firm grey/brown silty CLAY LAMBETH GROUP	
		1.00	S	N=6 (2,/1,1,2,2)					1
		1.45	D						
		1.50 - 2.00	B		1.80			Stiff red clay	
		2.00	S	N=8 (3,/2,2,2,2)					2
		2.45	D						
		2.50 - 3.00	B						
		3.00	S	N=13 (4,/3,3,4,3)					3
		3.45	D						
		4.00	S	N=14 (4,/3,3,4,4)					4
		4.45	D		4.40			Stiff to hard red clay	
		5.00	S	N=18 (5,/4,5,4,5)					5
		5.45	D						
		6.00	D						6
		6.50	S	N=22 (6,/5,6,5,6)					
		6.95	D						7
		7.50	D		7.60			Stiff to hard grey/brown silty CLAY LAMBETH GROUP	
		8.00	S	N=26 (7,/6,7,6,7)					8
		8.45	D						
		9.00	D						9
		9.50	S	N=30 (8,/7,7,8,8)					
		9.95	D						10
Continued on Next Sheet									
Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks			
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to				
						Groundwater not encountered			



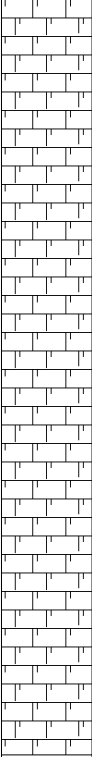
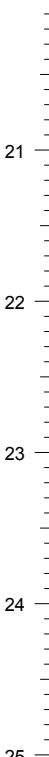
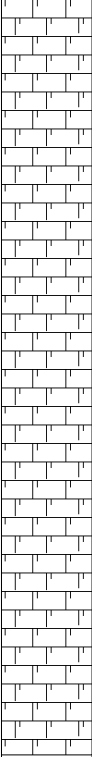
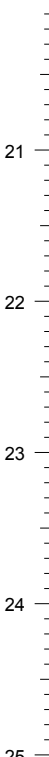
 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. BH301 Sheet 2 of 3	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468385E - 112188N		Hole Type CP	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:50	
Client: Linden Homes South				Dates: 22/08/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					10.20				
		10.50	D				Stiff to hard yellowy brown silty CLAY LAMBETH GROUP		11
		11.00	S	N=31 (9,/7,8,8,8)					
		11.45	D						
		12.00	D		11.90		Stiff to hard brown gravelly CLAY LAMBETH GROUP		12
		12.50 - 12.95	B						
		12.50	C	N=38 (10,/8,9,11,10)	12.90		Hard off white rock, CHALK CHALK		13
		13.50	D						
		14.00	S	120 (40,/120 for 225mm)					14
		14.45	D						
		15.00	D						15
		15.50	S	0 (50,/0 for 0mm)					
		15.95	D						16
		16.50	D						
		17.00	S	0 (50,/0 for 0mm)					17
		17.45	D						
		18.00	D						18
		18.50	S	0 (50,/0 for 0mm)					
		18.95	D						19
		19.50	D						
		20.00	S	0 (50,/0 for 0mm)					20
Continued on Next Sheet									

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						Groundwater not encountered



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. BH301 Sheet 3 of 3	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468385E - 112188N		Hole Type CP	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:50	
Client: Linden Homes South				Dates: 22/08/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		20.45	D	0 (50,/0 for 0mm)	25.00							
		21.00	D									
		21.50	S									
		21.95	D									
		22.50	D									
		23.00	S	0 (50,/0 for 0mm)					25.00			
		23.45	D									
		24.00	D									
		24.50	S									
		24.95	D									
End of Borehole at 25.00m												

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. BH302 Sheet 1 of 3	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468212E - 111942N		Hole Type CP	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:50	
Client: Linden Homes South				Dates: 21/08/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15		Grass over Topsoil TOPSOIL		
		0.50 - 1.00	B				Firm brown silty CLAY LAMBETH GROUP	1	
		1.00	S	N=8 (2,/2,2,2,2)					
		1.45	D						
		1.50 - 2.00	B						
		2.00	S	N=9 (3,/2,2,2,3)				2	
		2.45	D						
		2.50 - 3.00	B		2.50		Stiff grey/brown silty CLAY LAMBETH GROUP		
		3.00	S	N=10 (3,/2,3,2,3)				3	
		3.45	D		3.30		Stiff brown silty CLAY with traces of gravel LAMBETH GROUP		
		4.00	S	N=11 (4,/3,3,2,3)				4	
		4.45	D						
		5.00	S	N=13 (4,/3,3,3,4)				5	
		5.45	D						
		6.00	D					6	
		6.50	S	N=15 (4,/3,4,4,4)					
		6.95	D					7	
		7.50	D						
		8.00	S	N=16 (4,/3,4,5,4)				8	
		8.45	D		8.50		Firm to stiff brown silty, sandy CLAY LAMBETH GROUP		
		9.00	D					9	
		9.50	S	N=16 (5,/4,4,4,4)					
		9.95	D		9.70		Brown silty SAND with bands of clay LAMBETH GROUP	10	
Continued on Next Sheet									

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	AGS
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
						Groundwater not encountered	



Geo-Environmental

Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
www.gesl.net

Borehole Log

Borehole No.

BH302

Sheet 2 of 3

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468212E - 111942N

Hole Type
CP

Location: Woodcroft Farm, Lovedean,

Level:

Scale
1:50

Client: Linden Homes South

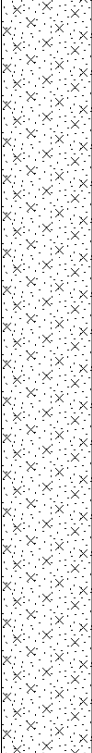
Dates: 21/08/2017

Logged By
FG

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	D						
		11.00	S	N=18 (6,/4,4,5,5)					11
		11.45	D						
		12.00	D						12
		12.50	S	N=19 (6,/5,5,4,5)					
		12.95	D						13
		13.50	D						
		14.00	S	N=15 (5,/4,3,4,4)					14
		14.45	D						
		15.00	D						15
		15.50	S	N=8 (3,/2,1,3,2)					
		15.95	D						16
		16.50	D						
		17.00	S	N=13 (4,/3,3,4,3)					17
		17.45	D						
		18.00	D						18
		18.50	S	N=16 (5,/4,4,4,4)					
		18.95	D						19
		19.50	D						
		20.00	S	N=19 (6,/4,5,5,5)					20
Continued on Next Sheet									
Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks			
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to				
						Groundwater not encountered			



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. BH302 Sheet 3 of 3	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468212E - 111942N		Hole Type CP	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:50	
Client: Linden Homes South				Dates: 21/08/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		20.45	D						
		21.00	D						21
		21.50	S	N=22 (7,5,6,5,6)					
		21.95	D						22
		22.50	D						
		23.00	S	N=27 (8,6,7,7,7)					23
		23.45	D						
		24.00	D						24
		24.50	S	N=30 (9,7,8,7,8)					
		24.95	D		25.00				25
								End of Borehole at 25.00m	
								26	
								27	
								28	
								29	
								30	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
						Groundwater not encountered	

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log		Borehole No. BH303 Sheet 1 of 1	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 467988E - 111975N	
Location: Woodcroft Farm, Lovedean,		Level:		Hole Type CP	
Client: Linden Homes South		Dates: 23/08/2017		Scale 1:50	
Logged By FG					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20		 Topsoil TOPSOIL	1	
	0.50 - 1.00	B				 Stiff brown silty CLAY LAMBETH GROUP			
	1.00	S	N=11 (3,/2,3,3,3)						
	1.45	D			1.50		 Stiff brown sandy CLAY with flints LAMBETH GROUP		
	1.50 - 2.00	B			1.90		 Firm to stiff white CHALK with flints CHALK	2	
	2.00	S	N=22 (8,/5,6,5,6)						
	2.45	D						3	
	2.50 - 3.00	B							
	3.00	S	N=16 (9,/4,3,4,5)					4	
	3.45	D							
	4.00	S	N=11 (4,/2,3,3,3)					5	
	4.45	D							
	5.00	S	N=15 (5,/4,3,4,4)					6	
	5.45	D							
	6.00	D						7	
	6.50	S	N=21 (9,/7,5,4,5)						
	6.95	D						8	
	7.50	D							
	8.00	S	N=22 (12,/8,5,4,5)					9	
8.45	D								
9.00	D						10		
9.50	S	N=26 (15,/9,7,5,5)							
9.95	D				10.00		End of Borehole at 10.00m		

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	AGS
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
						Groundwater not encountered	

Trial Pit Log

TrialPit No

TP201

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468508.00 - 111984.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m):

Scale
1:25

Client: Linden Homes South

Depth
2.70

0.60

1.20

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	1
	0.50	D		0.40			Soft orange and grey mottled slightly sandy CLAY with occasional flint cobbles and abundant rootlets. Sand is medium LAMBETH GROUP	
	0.50	ES		0.60			Firm orange and grey mottled slightly sandy CLAY with frequent flint cobbles and abundant rootlets. Sand is medium LAMBETH GROUP	
	1.00	D					Firm orange and grey mottled CLAY with frequent rootlets and red banding of sandy clay, sand is medium LAMBETH GROUP	
	2.00	D		2.20			Firm orange and grey mottled slightly sandy CLAY with frequent rootlets and red banding of sandy clay, sand is medium LAMBETH GROUP	
	2.70	D		2.70			End of Pit at 2.70m	
								2
								3
								4
								5

Water Strikes

Depth Strike

Rise to (mbsg)

Remarks

Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No
TP202
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468473.00 - 112031.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.00

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50 0.50	D ES		0.40			Firm grey and orange mottled CLAY with frequent flint cobbles, flint gravel and rootlets LAMBETH GROUP	
	1.00	D		1.30			Firm grey and orange mottled CLAY with frequent rootlets LAMBETH GROUP	1
	1.90 2.00	D D		2.00			Stiff grey and orange mottled CLAY with frequent rootlets with bands of red sandy clay, sand is medium LAMBETH GROUP	2
							End of Pit at 2.00m	3
								4
								5

Water Strike	Remarks
Depth Strike	Rose to (img)
	Stability





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Hurstpierpoint
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Trial Pit Log

Trial Pit No

TP203

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468456.00 - 112068.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.90

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES					Grass over, Light brown sandy, gravelly CLAY, with frequent roots (1-3mm) and rootlets TOPSOIL	
	0.50	D		0.40			Firm grey and orange mottled slightly sandy CLAY with frequent flint cobbles and roots (2-4mm). Sand is fine LAMBETH GROUP	
	0.50	ES		0.60			Firm grey and orange mottled slightly sandy CLAY with frequent roots (2-4mm), with red banding of sandy clay. Sand is medium LAMBETH GROUP	1
				1.40			Stiff grey and orange mottled slightly sandy CLAY with frequent roots (2-5mm), with red banding of sandy clay. Sand is medium LAMBETH GROUP	
	1.90	D		1.80			Stiff grey and orange mottled slightly sandy CLAY with frequent rootlets, with red banding of sandy clay. Sand is medium LAMBETH GROUP	2
				1.90			End of Pit at 1.90m	
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (img)	
		Stability





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Trial Pit Log

Trial Pit No
TP204
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468401.00 - 112148.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.80

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.20			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50 0.50	D ES		0.80			Soft grey and orange mottled gravelly CLAY with flint cobbles LAMBETH GROUP	
	1.00	D		1.00			Firm grey and orange mottled sandy CLAY LAMBETH GROUP	1
				1.70 1.80			Firm grey and orange mottled CLAY LAMBETH GROUP	2
				2.50			Firm grey and orange mottled CLAY with red bands of sandy CLAY LAMBETH GROUP	3
				2.80			End of Pit at 2.80m	4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		
		Stability





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Hurstpierpoint
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Trial Pit Log

Trial Pit No
TP205
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468335.00 - 112129.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Scale
1:25

Client: Linden Homes South

Depth
1.70

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.25			Grass over, Light brown sandy, gravelly CLAY, with frequent roots (2-4mm) and rootlets TOPSOIL	
	0.50 0.50 0.50	B D ES					Firm orange and grey mottled slightly sandy CLAY with frequent roots (2-4mm) and rootlets. Sand is medium (large roots (7-10mm) at 0.4m) LAMBETH GROUP	1
	1.00	D		1.20			Firm orange and grey mottled slightly sandy CLAY with frequent rootlets. Sand is medium LAMBETH GROUP	
	1.70	D		1.70			Firm orange and grey mottled slightly sandy CLAY with red bandings of sandy clay and frequent rootlets. Sand is medium LAMBETH GROUP	2
							End of Pit at 1.70m	3
								4
								5
Water Strikes		Remarks						
Depth Strike	Rose to (m)							
		Stability						





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Trial Pit Log

Trial Pit No
TP206
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468329.00 - 112033.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20
0.60
Depth 1.80

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.25 0.30			Grass over, Light brown sandy, gravelly CLAY, with frequent flint gravels and rootlets TOPSOIL	
	0.50 0.50 0.50	B D ES		0.60			Stiff orange and grey mottled sandy, gravelly CLAY with abundant roots (4-7mm). Sand is medium (Large roots (50mm) at 0.3m) LAMBETH GROUP	
							Firm orange and grey mottled very sandy CLAY with frequent roots (2-6mm). Sand is medium LAMBETH GROUP	
							Stiff orange and grey mottled slightly sandy CLAY with roots (2-4mm). Sand is medium LAMBETH GROUP	
	1.00	D		1.20			Stiff orange and grey mottled slightly sandy CLAY with red bandings of sandy clay and roots (2-4mm). Sand is medium LAMBETH GROUP	1
	1.80	D		1.80			End of Pit at 1.80m	2
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (img)	
		Stability





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Trial Pit Log

Trial Pit No
TP207
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468244.00 - 112050.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 2.00

Scale
1:25

Client: Linden Homes South

Depth
2.00

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets and occasional flint gravel TOPSOIL	1
	0.30	ES					Firm orange and grey mottled CLAY with occasional sandy red banding and rootlets (charcoal fragments at 1m and decaying roots) LAMBETH GROUP	
	0.50	B						
	0.80	D						
				1.20			Firm red and grey mottled slightly sandy CLAY (charcoal fragments at 1.4m) LAMBETH GROUP	2
				1.60			Firm red and grey mottled sandy CLAY LAMBETH GROUP	
	2.00	D		2.00				
							End of Pit at 2.00m	3
								4
								5
Water Strikes		Remarks						
Depth Strikes		Rose to (m)						
		Stability						







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Trial Pit Log

Trial Pit No
TP208
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468227.00 - 112031.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 2.00

Scale
1:25

Client: Linden Homes South

Depth
2.00

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.15			Grass over, Dark brown clayey sand with abundant tree roots (2-5mm) and rootlets (large tree root (50mm) at 0.15m) TOPSOIL	
	0.50	D					Firm orange brown sandy CLAY. Sand is fine to medium (large tree root (20mm) at 0.9m) LAMBETH GROUP	
	1.00	D		1.10			Stiff orange slightly sandy CLAY with abundant roots (between 2mm and 8mm). Sand is medium LAMBETH GROUP	1
	1.50	D		1.50			Stiff grey and orange mottled slightly sandy CLAY with occasional roots between 2mm and 6mm (no roots from 1.7m) LAMBETH GROUP	
	2.00	D		2.00			End of Pit at 2.00m	2
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (img)	
		Stability





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Trial Pit Log

Trial Pit No

TP209

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468200.00 - 112025.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 2.00

Depth
2.00

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES					Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets and occasional flint gravel TOPSOIL	
				0.30			Firm orange brown slightly gravelly CLAY with occasional cobbles of flint. Gravel is medium sub-angular of flint (roots (10mm) at 0.5m) LAMBETH GROUP	
	0.50	D					Firm orange brown slightly sandy CLAY with frequent cobbles of flint. Sand is medium LAMBETH GROUP	1
				0.80			Firm orange and grey mottled slightly sandy CLAY. Sand is fine to medium LAMBETH GROUP	
				1.50			Firm orange and grey mottled slightly sandy CLAY. Sand is fine to medium LAMBETH GROUP	
	2.00	D		2.00			Firm orange and grey mottled slightly sandy CLAY. Sand is fine to medium LAMBETH GROUP	2
							End of Pit at 2.00m	
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		
		Stability





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Trial Pit Log

Trial Pit No
TP210
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468151.00 - 112030.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.40

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50	B					Firm grey and orange mottled slightly sandy CLAY with rootlets. Sand is medium LAMBETH GROUP	
	1.00	D		0.90			Firm grey and orange mottled slightly sandy CLAY. Sand is medium (charcoal fragments at 1.35m) LAMBETH GROUP	1
				1.40			End of Pit at 1.40m	
								2
								3
								4
								5
Water Strikes		Remarks						
Depth Strike	Rose to (img)							
		Stability						





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Trial Pit Log

Trial Pit No
TP211
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468148.00 - 112098.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Scale
1:25

Client: Linden Homes South

Depth
1.30

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.10			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
				0.30			Brown sandy clay with flint cobbles, chalk fragments and occasional brick fragments MADE GROUND	
	0.50	D					Firm brown slightly sandy CLAY with occasional rootlets. Sand is medium LAMBETH GROUP	
				0.80			Firm red brown sandy CLAY. Sand is medium LAMBETH GROUP	1
	1.00	D						
				1.30			End of Pit at 1.30m	
								2
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (img)	
		Stability





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Trial Pit Log

Trial Pit No
TP212
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468050.00 - 112055.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.40

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES		0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
				0.35			Soft orange brown very sandy CLAY with occasional sub-angular flint gravel. Sand is medium LAMBETH GROUP	
	0.50	B					Firm orange brown CLAY with frequent flint cobbles and chalk fragments LAMBETH GROUP	
	0.50	D						
	0.80	D						
	1.10	D		1.10			Structureless CHALK composed of: medium to coarse sub-angular white GRAVEL. Fragments are weak CHALK	1
				1.40			End of Pit at 1.40m	
								2
								3
								4
								5

Water Strike	Rose to (img)	Remarks
Depth Strike		
		Stability





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Trial Pit Log

Trial Pit No
TP213
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468023.00 - 112009.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.20

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10 0.20						Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50 0.50	B D					Brown sandy clay with brick fragments and chalk gravel MADE GROUND Stiff light brown gravelly CLAY MADE GROUND	
	1.00	ES		0.80			Brown sandy clay with brick, concrete fragments, possible asbestos tiles, and decaying roots MADE GROUND	1
	2.00	D		1.70			Soft light grey CLAY (decaying root (3mm) at 2m) LAMBETH GROUP	2
				2.20			End of Pit at 2.20m	3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (m/bgl)	
		Stability





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Trial Pit Log

Trial Pit No
TP214
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468056.00 - 112002.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.00

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10			0.10			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets	
	0.20			0.20			TOPSOIL	
							Brown clay with bricks and chalk cobbles	
							MADE GROUND	
	0.50	B					Firm light brown and grey mottled CLAY, with frequent flint gravel (decaying root (4mm) at 0.5m)	
	0.50	D					MADE GROUND	
	0.90	ES		0.90			Dark brown clay with ashy deposits, plastic, brick fragments, chalk gravel, and wood	1
							MADE GROUND	
	2.00	D		1.90			Firm light brown and grey mottled CLAY	
				2.00			LAMBETH GROUP	2
							End of Pit at 2.00m	
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (m)	
		Stability





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Trial Pit Log

Trial Pit No
TP215
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468082.00 - 111995.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.90

0.60



Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES					Ashy deposits overlying brown gravelly clay with bricks, concrete, flint cobbles, tarmac and chalk fragments MADE GROUND	
				1.00			Soft orange brown sandy re-worked CLAY MADE GROUND	1
				1.70			Structureless CHALK composed of: medium to coarse sub-angular white sandy GRAVEL, sand is medium and fragments are weak CHALK	2
				2.30			Structureless CHALK composed of: medium to coarse sub-angular white sandy GRAVEL, fragments are weak CHALK	
	2.90 2.90	D D		2.90			End of Pit at 2.90m	3
								4
								5

Water Strike		Remarks
Depth Strike	Rose to (img)	
		Stability





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Trial Pit Log

Trial Pit No
TP216
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468060.00 - 111982.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Scale
1:25

Client: Linden Homes South

Depth
1.00

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10			0.10			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets	
	0.20			0.20			TOPSOIL	
							Brown sandy clay with charcoal and brick fragments	
							MADE GROUND	
							Firm light brown and grey mottled gravelly CLAY. Gravel is medium, sub angular of flint	
							LAMBETH GROUP	
	0.50	B						
	0.50	D						
	0.60	ES						
	1.00	D		1.00			End of Pit at 1.00m	1
								2
								3
								4
								5
Water Struck								
Depth Struck	Rose to (m)	Remarks						
		Stability						





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Trial Pit Log

Trial Pit No
TP217
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468063.00 - 111949.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20
Depth 1.00

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.05			0.05			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.20	ES					Firm light brown and grey mottled CLAY, with frequent rootlets LAMBETH GROUP	
	0.50	D						
	1.00	D		1.00			End of Pit at 1.00m	1
								2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		
		Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No
TP218
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468068.00 - 111932.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
0.90

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15	ES		0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50 0.50	B D					Firm light brown and grey mottled CLAY LAMBETH GROUP	
	1.00	D		0.90			End of Pit at 0.90m	1
								2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		
		Stability





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Trial Pit Log

Trial Pit No
TP219
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468127.00 - 111929.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.00

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20			0.20			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets and chalk fragments TOPSOIL	
	0.50	D					Firm light brown and grey mottled CLAY LAMBETH GROUP	
	1.00 1.00	D ES		1.00			End of Pit at 1.00m	1
								2
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (m) (g)	
		Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No
TP220
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468116.00 - 111958.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

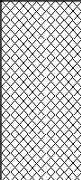
Depth
2.00

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES					Grass over, dark brown gravelly clay with chalk and brick fragments MADE GROUND	
				0.60			Soft brown and grey mottled CLAY LAMBETH GROUP	
	1.00 1.00	D ES		0.80			Firm brown and grey mottled CLAY, with red sandy banding at 1.5m LAMBETH GROUP	1
				2.00			End of Pit at 2.00m	2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP221

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468161.00 - 111926.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Scale
1:25

Client: Linden Homes South

Depth
1.20

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES					Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
				0.30			Soft orange brown slightly sandy CLAY with occasional chalk fragments and roots (1-3mm) LAMBETH GROUP	
	0.50 0.50	D ES			0.70		Firm orange and grey mottled slightly sandy CLAY with roots (1-3mm) and rootlets LAMBETH GROUP	1
	1.00	D			1.20			
							End of Pit at 1.20m	
								2
								3
								4
								5
Water Strike								
Depth Strike	Rose to (m)	Remarks						
		Stability						





Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

Trial Pit No
TP222
Sheet 1 of 1

Project Name: Woodcroft	Project No. GE16662	Co-ords: 468221.00 - 111986.00 Level:	Date 21/08/2017
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Location: Woodcroft Farm, Lovedean,	Dimensions (m): 1.20	Scale 1:25
Client: Linden Homes South	Depth 1.50	Logged FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES		0.25			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
				0.50			Firm orange brown slightly sandy CLAY with occasional flint gravels and roots (1-2mm). Sandy is medium LAMBETH GROUP	
	1.00	D		1.00			Firm orange brown slightly sandy CLAY with occasional flint gravels. Sandy is medium LAMBETH GROUP	1
				1.50			Stiff orange brown slightly sandy, slightly gravelly CLAY. Sand is medium, gravel is medium, sub-angular of flint LAMBETH GROUP	
							End of Pit at 1.50m	
								2
								3
								4
								5

Water Strike	Remarks
Depth Strike	Stability





Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

Trial Pit No
TP223
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468126.00 - 111996.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.10

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.05			Concrete	
							MADE GROUND	
				0.25			Brown gravelly clay with concrete and brick fragments	
							MADE GROUND	
							Soft grey and orange mottled slightly sandy CLAY	
							LAMBETH GROUP	
	0.40	ES						
	0.50	D						
	0.50	ES						
	1.00	D						
				1.10				
							End of Pit at 1.10m	

Water Strikes		Remarks
Depth Strike	Rose to (img)	
		Stability





Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

Trial Pit No

TP224

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468077.00 - 112011.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.20

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES					Ashy deposits overlying brown gravelly clay with bricks, flint cobbles, chalk fragments and tarmac MADE GROUND	
				0.70			Soft blue grey re-worked CLAY with bricks MADE GROUND	1
				1.60			Firm grey brown CLAY (Large flint cobble at 1.8m) LAMBETH GROUP	2
	2.20 2.20	D D		2.20			End of Pit at 2.20m	3
								4
								5

Water Strikes	Remarks
Depth Strike	Rose to (img)
	Stability



Trial Pit Log

TrialPit No
TP225
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468112.00 - 111991.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions
(m):

Scale
1:25

Client: Linden Homes South

Depth
0.60

0.60

1.20

Logged
FG

[illegible]



Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

Geo-Environmental www.gesl.net

Trial Pit Log

Trial Pit No
TP226
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468103.00 - 112028.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20
0.60
Depth 1.10

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.20			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.40	D					Firm orange brown slightly sandy CLAY. Sand is medium LAMBETH GROUP	
				0.80			Firm orange brown slightly sandy CLAY with frequent cobbles of flint and occasional charcoal fragments. Sand is medium LAMBETH GROUP	1
				1.10			End of Pit at 1.10m	
								2
								3
								4
								5
Water Strikes		Remarks						
Depth Strike	Rose to (img)							
		Stability						





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No
TP227
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468105.00 - 112061.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20
Depth 1.00

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.25			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.40	D		0.70			Firm orange brown slightly sandy, slightly gravelly CLAY. Sand is medium and gravel is fine to medium, sub-angular of flint LAMBETH GROUP	
				0.90			Firm orange brown CLAY LAMBETH GROUP	
				1.00			Structureless CHALK composed of: medium to coarse sub-angular white GRAVEL. Fragments are weak CHALK	1
							End of Pit at 1.00m	
								2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		Stability





Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

Trial Pit No
TP228
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468169.00 - 112048.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.70

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15	ES		0.25			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50	D					Soft brown orange sandy CLAY with occasional flint gravel and rootlets. Sand is medium LAMBETH GROUP	1
	1.20	D		1.10			Yellow fine medium SAND LAMBETH GROUP	
				1.70			End of Pit at 1.70m	2
								3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (m) (g)	
		Stability





Unit 7, Danworth Farm
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Trial Pit Log

Trial Pit No
TP229
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468030.00 - 112090.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.80

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.60	D		0.60			Grass over, Orange brown sandy CLAY with frequent rootlets TOPSOIL	
	0.60	ES		0.80			Firm orange brown very sandy CLAY with occasional flint cobbles. Sand is medium LAMBETH GROUP	
	1.00	D		1.40			Firm orange brown CLAY with occasional flint cobbles LAMBETH GROUP	1
	1.50	D		1.80			Firm grey slightly sandy CLAY with frequent cobbles of flint. Sand is medium LAMBETH GROUP	
							End of Pit at 1.80m	2
								3
								4
								5

Water Strikes	Remarks
Depth Strike	Rose to (m) (g)
	Stability





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Trial Pit Log

Trial Pit No
TP230
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468086.00 - 112103.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m):

1.20

Scale
1:25

Client: Linden Homes South

Depth
1.20

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15			0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.30	ES					Soft orange brown very sandy CLAY. Sand is medium LAMBETH GROUP	
	0.50	D						
				0.70			Firm grey and orange mottled CLAY with frequent flint cobbles LAMBETH GROUP	1
	1.10	D						
				1.20			End of Pit at 1.20m	
								2
								3
								4
								5
Water Strikes								
Depth Strike	Rose to (img)	Remarks						
		Stability						





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Trial Pit Log

Trial Pit No
TP231
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468130.00 - 112119.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Scale
1:25

Client: Linden Homes South

Depth
1.20

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES		0.20			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.80	D		0.60			Soft orange brown very gravelly sandy CLAY. Gravel is medium, sub-angular of flint and sand is medium LAMBETH GROUP	1
				1.20			Firm orange brown slightly sandy CLAY with occasional rootlets. Sand is medium LAMBETH GROUP	2
							End of Pit at 1.20m	3
								4
								5
Water Strike		Remarks						
Depth Strike	Rose to (img)	Stability						





Unit 7, Danworth Farm
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Trial Pit Log

Trial Pit No
TP232
Sheet 1 of 1

Project Name: Woodcroft	Project No. GE16662	Co-ords: 468210.00 - 112065.00 Level:	Date 21/08/2017
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Location: Woodcroft Farm, Lovedean,	Dimensions (m): 1.20	Scale 1:25
Client: Linden Homes South	Depth 1.30	Logged FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.30			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
				0.70			Firm orange and grey mottled slightly sandy CLAY. Sand is fine to medium LAMBETH GROUP	
	0.80	D		1.30			Firm orange and grey mottled sandy CLAY. Sand is fine to medium LAMBETH GROUP	1
							End of Pit at 1.30m	2
								3
								4
								5

Water Strike	Remarks
Depth Strike	Stability



Trial Pit Log

TrialPit No

TP233

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468228.00 - 112111.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m):

Scale
1:25

Client: Linden Homes South

Depth
1.10

0.60

1.20

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40 0.40	ES ES		0.30			Grass over, Brown sandy, gravelly CLAY with frequent roots and rootlets TOPSOIL	1
							Firm orange brown gravelly CLAY. Gravel is medium to coarse sub-angular of flint LAMBETH GROUP	
	0.80	D		0.65			Stiff grey and orange mottled CLAY with occasional red bands of sandy CLAY LAMBETH GROUP	
							End of Pit at 1.10m	
			1.10					3
								4
								5

Water Strikes

Depth Strike

Rise to (mbsg)

Remarks

Stability





Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

Trial Pit No

TP234

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468242.00 - 112136.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m):

1.20

Scale
1:25

Client: Linden Homes South

Depth
1.00

0.60

Logged
FG

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES		0.20			Grass over, Brown sandy, gravelly CLAY with frequent roots and rootlets TOPSOIL	
				0.45			Firm brown very gravelly CLAY. Gravel is medium to coarse sub-angular of flint LAMBETH GROUP	
	1.00	D		1.00			Stiff orange and grey mottled CLAY (Large tree root (70mm) at 0.7m and tree root (4mm) at 1m) LAMBETH GROUP	
							End of Pit at 1.00m	1
								2
								3
								4
								5
Water Struck		Remarks						
Depth Struck	Rose to (m)							
		Stability						





Unit 7, Danworth Farm
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Trial Pit Log

Trial Pit No
TP235
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468165.00 - 112133.00
Level:

Date
22/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
2.20

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.25						Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.50 0.50	D ES					Orange brown clayey medium SAND with occasional flint gravel LAMBETH GROUP	1
	1.00	D						
				1.80			Grey and orange fine to medium SAND LAMBETH GROUP	2
				2.20			End of Pit at 2.20m	3
								4
								5

Water Strikes		Remarks
Depth Strike	Rose to (img)	
		Stability





Unit 7, Danworth Farm
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Trial Pit Log

Trial Pit No
TP236
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468115.00 - 112146.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

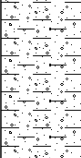
Depth
1.70

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES		0.40			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
							Soft orange brown slightly gravelly sandy CLAY. Sand is medium and gravel is medium, sub-angular of flint LAMBETH GROUP	
	1.00	D		1.00			Orange slightly clayey medium SAND LAMBETH GROUP	1
				1.70			End of Pit at 1.70m	2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		
		Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No
TP237
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468036.00 - 112164.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20

Depth
1.00

0.60

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15			0.15			Grass over, Light brown sandy, gravelly CLAY, with frequent rootlets TOPSOIL	
	0.40	ES					Soft orange brown very sandy CLAY. Sand is medium LAMBETH GROUP	
	0.50	D					Firm orange brown CLAY LAMBETH GROUP	
	1.00	D		0.85 1.00			End of Pit at 1.00m	1
								2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		Stability





Unit 7, Danworth Farm
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Trial Pit Log

Trial Pit No
TP238
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468045.00 - 112137.00
Level:

Date
21/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20
Depth 1.00

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.25			Grass over, Orange brown sandy CLAY with frequent rootlets TOPSOIL	
	0.50	D					Stiff orange brown CLAY with occasional cobbles of sub angular flint LAMBETH GROUP	
	0.80	ES						
	1.00	D		1.00				
							End of Pit at 1.00m	1
								2
								3
								4
								5

Water Strike	Rose to (m)	Remarks
Depth Strike		Stability





Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

Trial Pit No
TP239
Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468112.00 - 112015.00
Level:

Date
23/08/2017

Location: Woodcroft Farm, Lovedean,

Dimensions (m): 1.20
Depth 1.40

Scale
1:25

Logged
FG

Client: Linden Homes South

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20	ES					Grass over brown sandy gravelly clay with brick, chalk fragments, concrete, and flint gravel MADE GROUND
	0.50	ES		0.50 0.60			Brown sandy clay with tiles of possible asbestos, chalk fragments, concrete and brick MADE GROUND Soft brown very sandy CLAY. Sand is medium LAMBETH GROUP
	1.50	ES		1.40			Soft brown very sandy CLAY. Sand is medium LAMBETH GROUP End of Pit at 1.40m
	1.80	D		1.80			

Water Strikes	Rose to (m) (g)	Remarks
Depth Strike		Stability





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Unit 7, Danworth Farm
Hurstpierpoint
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Borehole Log

Borehole No.

WS201

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468236E - 111994N

Hole Type
WLS

Location: Woodcroft Farm, Lovedean,

Level:

Scale
1:25

Client: Linden Homes South

Dates: 05/09/2017

Logged By
FG

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			Grass over, brown sandy clay with flint gravel and frequent rootlets TOPSOIL	
		0.25 0.25	D PP	1.3kg/cm2				Firm orange and grey mottled slightly sandy CLAY. Sand is medium LAMBETH GROUP	
		0.50 0.50	D PP	0.7kg/cm2					
		0.75 0.75	D PP	0.7kg/cm2	0.80				
		1.00 1.00	D PP	0.9kg/cm2	1.10			Firm orange and grey mottled slightly sandy CLAY with occasional bands of red sandy clay. Sand is medium LAMBETH GROUP	1
		1.25 1.25	D PP	1.3kg/cm2				Stiff orange and grey mottled sandy CLAY. Sand is medium LAMBETH GROUP	
		1.50 1.50	D PP	1.3kg/cm2					
		1.75 1.75	D PP	1.7kg/cm2					
		2.00 2.00	D PP	1.2kg/cm2	2.00			Firm orange very sandy CLAY. Sand is fine LAMBETH GROUP	2
		2.25 2.25	D PP	0.5kg/cm2	2.30			Yellow greyish clayey fine SAND LAMBETH GROUP	
		2.50	D						
		2.75	D						
		3.00	D		3.00			End of Borehole at 3.00m	3
									4
									5
Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks			
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to				
						Groundwater not encountered			





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Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

Borehole Log

Borehole No.

WS202

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468174E - 111973N

Hole Type
WLS

Location: Woodcroft Farm, Lovedean,

Level:

Scale
1:25

Client: Linden Homes South

Dates: 05/09/2017

Logged By
FG

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Grass over brown sandy clay with frequent rootlets and occasional flint gravel TOPSOIL	
		0.50 0.50	D PP	1.6kg/cm2				Stiff orange, red and grey mottled slightly sandy CLAY with occasional rootlets. Sand is medium LAMBETH GROUP	
		0.75 0.75	D PP	1.7kg/cm2					
		1.00 1.00	D PP	1.8kg/cm2	1.10			Occasional roots (1-3mm)	1
		1.25 1.25	D PP	2.0kg/cm2				Stiff orange and grey mottled sandy CLAY with occasional roots (2mm) and occasional red banding of sandy clay. LAMBETH GROUP	
		1.50 1.50	D PP	1.8kg/cm2				Occasional roots (2mm)	
		1.75 1.75	D PP	1.7kg/cm2				Large root (5mm)	
		2.00 2.00	D PP	1.6kg/cm2					2
		2.25 2.25	D PP	1.5kg/cm2	2.40				
		2.50 2.50	D PP	0.7kg/cm2				Firm orange and grey mottled very sandy CLAY with occasional roots (2-4mm) and rootlets. Sand is medium LAMBETH GROUP	
		2.75 2.75	D PP	0.5kg/cm2	2.80			Occasional roots (2-4mm)	
		3.00	D		3.00			Yellow/ Orange fine SAND LAMBETH GROUP	
								End of Borehole at 3.00m	3
									4
									5

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
						Groundwater not encountered	



Geo-Environmental

Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
www.gesl.net

Borehole Log

Borehole No.

WS203

Sheet 1 of 1

Project Name: Woodcroft

Project No.
GE16662

Co-ords: 468173E - 111996N

Hole Type
WLS

Location: Woodcroft Farm, Lovedean,

Level:

Scale
1:25

Client: Linden Homes South

Dates: 05/09/2017

Logged By
FG

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15			Grass over brown sandy clay with frequent rootlets and occasional flint gravel TOPSOIL	
		0.25 0.25	D PP	1.6kg/cm2				Firm orange brown gravelly CLAY with occasional flint cobbles. Gravel is medium sub angular to sub rounded of flint LAMBETH GROUP	
		0.50 0.50	D PP	0.9kg/cm2					
		0.75 0.75	D PP	1.1kg/cm2	0.70			Firm orange, red and grey mottled slightly sandy CLAY. Sand is fine LAMBETH GROUP	
		1.00 1.00	D PP	0.5kg/cm2	1.10				1
		1.25 1.25	D PP	1.0kg/cm2				Firm orange and grey mottled sandy CLAY. Sand is fine LAMBETH GROUP	
		1.50 1.50	D PP	0.8kg/cm2					
		1.75 1.75	D PP	1.3kg/cm2					
		2.00 2.00	D PP	1.5kg/cm2	1.90			Firm orange and grey mottled very sandy CLAY. Sand is fine LAMBETH GROUP	2
		2.25 2.25	D PP	0.9kg/cm2	2.30				
		2.50	D					Yellow/ Orange fine SAND LAMBETH GROUP	
		2.75	D						
		3.00	D		3.00			End of Borehole at 3.00m	3
									4
									5
Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks			
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to				
						Groundwater not encountered			



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS204 Sheet 1 of 1	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468179E - 112013N		Hole Type WLS	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:25	
Client: Linden Homes South				Dates: 05/09/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30		Grass over brown sandy clay with frequent rootlets and occasional flint gravel TOPSOIL		
		0.50 0.50	D PP	0.9kg/cm2			Stiff orange/ brown slightly sandy CLAY with frequent rootlets. Sand is fine LAMBETH GROUP		
		0.75 0.75	D PP	1.0kg/cm2					
		1.00 1.00	D PP	1.2kg/cm2	1.10		Stiff orange/ brown slightly sandy CLAY with rare rootlets. Sand is fine LAMBETH GROUP	1	
		1.25 1.25	D PP	1.4kg/cm2					
		1.50 1.50	D PP	1.5kg/cm2					
		1.75 1.75	D PP	1.3kg/cm2					
		2.00 2.00	D PP	1.0kg/cm2				2	
		2.25 2.25	D PP	1.1kg/cm2	2.30				
		2.50 2.50	D PP	0.9kg/cm2			Firm orange and grey mottled sandy CLAY. Sand is fine LAMBETH GROUP		
		2.75 2.75	D PP	0.7kg/cm2					
		3.00 3.00	D PP	0.8kg/cm2	3.00		End of Borehole at 3.00m	3	
								4	
								5	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
						Groundwater not encountered	

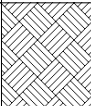
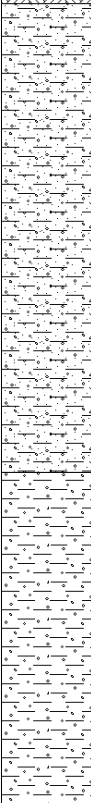
 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS205 Sheet 1 of 1	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468150E - 112033N		Hole Type WLS	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:25	
Client: Linden Homes South				Dates: 05/09/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25		Grass over brown sandy clay with frequent rootlets and occasional flint gravel TOPSOIL		
		0.50	D				Brown clayey fine SAND LAMBETH GROUP		
		0.75	D						
		1.00	D		0.90		Orange fine SAND LAMBETH GROUP	1	
		1.25	D						
		1.50	D						
		1.75	D		1.70		Orange clayey fine SAND LAMBETH GROUP		
		2.00	D						
		2.00	PP	1.1kg/cm2	2.00		Stiff grey slightly sandy CLAY. Sand is fine LAMBETH GROUP	2	
		2.25	D						
		2.25	PP	1.2kg/cm2					
		2.50	D						
		2.50	PP	1.0kg/cm2	2.60				
		2.75	D						
		2.75	PP	0.4kg/cm2	2.80				
		3.00	D		3.00		Structureless CHALK composed of: medium to coarse sub-angular white sandy GRAVEL, sand is medium and fragments are weak CHALK	3	
							End of Borehole at 3.00m		
								4	
								5	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						Groundwater not encountered



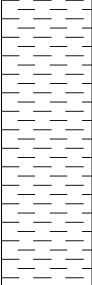
 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS206 Sheet 1 of 1	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468081E - 111960N		Hole Type WLS	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:25	
Client: Linden Homes South				Dates: 05/09/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.35		 Grass over brown sandy clay with frequent rootlets and occasional flint gravel TOPSOIL		
		0.50 0.50	D PP	1.2kg/cm2			 Firm brown orange slightly sandy gravelly CLAY with frequent rootlets. Sand is fine, gravel is medium sub angular to sub rounded of flint. LAMBETH GROUP		
		0.75 0.75	D PP	1.6kg/cm2					
		1.00 1.00	D PP	1.5kg/cm2					
		1.25 1.25	D PP	1.1kg/cm2					
		1.50 1.50	D PP	0.8kg/cm2					
		1.75 1.75	D PP	1.3kg/cm2					
		2.00 2.00	D PP	1.8kg/cm2	1.90				
		2.25 2.25	D PP	1.7kg/cm2					
		2.50 2.50	D PP	1.5kg/cm2					
		2.75 2.75	D PP	1.6kg/cm2					
		3.00 3.00	D PP	1.5kg/cm2	3.00		Firm brown very gravelly CLAY. Gravel is medium sub angular to sub rounded of flint. LAMBETH GROUP		
End of Borehole at 3.00m									

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						Groundwater not encountered



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS207 Sheet 1 of 1	
Project Name: Woodcroft		Project No. GE16662		Co-ords: 468075E - 111938N		Hole Type WLS	
Location: Woodcroft Farm, Lovedean,				Level:		Scale 1:25	
Client: Linden Homes South				Dates: 05/09/2017		Logged By FG	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15		 Grass over brown sandy clay with frequent rootlets and occasional flint gravel TOPSOIL		
		0.25 0.25	D PP	1.0kg/cm2			 Firm orange and grey mottled CLAY with frequent rootlets and occasional flint gravel LAMBETH GROUP		
		0.50 0.50	D PP	1.0kg/cm2					
		0.75 0.75	D PP	0.7kg/cm2					
		1.00 1.00	D PP	0.6kg/cm2					
		1.25 1.25	D PP	0.9kg/cm2	1.20			 <i>Decaying root (6mm)</i>	
		1.50 1.50	D PP	1.5kg/cm2	1.40			 <i>Occasional roots (2mm)</i>	
		1.75 1.75	D PP	1.5kg/cm2				Stiff orange and grey mottled slightly sandy CLAY with occasional rootlets and red banding of sandy clay. Sand is fine LAMBETH GROUP	
		2.00 2.00	D PP	1.5kg/cm2				 <i>Occasional roots (2mm)</i>	
		2.25 2.25	D PP	1.7kg/cm2	2.20			Stiff orange and grey mottled slightly sandy CLAY with frequent rootlets. Sand is fine LAMBETH GROUP	
		2.50 2.50	D PP	1.5kg/cm2					
		2.75 2.75	D PP	1.7kg/cm2	2.80		Stiff grey CLAY with chalk fragments LAMBETH GROUP		
		3.00 3.00	D PP	1.8kg/cm2	3.00		End of Borehole at 3.00m		

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						Groundwater not encountered





APPENDIX C

Geochemical Laboratory Results and Statistical Assessment Criteria





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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-13705

Issue: 1

Date of Issue: 31/08/2017

Contact: Fiona Goode

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q14-00021

Order No: 2253

Customer Reference: GE16662

Date Received: 24/08/2017

Date Approved: 31/08/2017

Details: Woodcroft

Approved by: 

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

Sample Summary

Report No.: 17-13705

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
109920	TP201 0.10	23/08/2017	24/08/2017		
109921	TP201 0.50	23/08/2017	24/08/2017		
109922	TP202 0.10	23/08/2017	24/08/2017	Silty loam	
109923	TP202 0.50	23/08/2017	24/08/2017		
109924	TP203 0.10	23/08/2017	24/08/2017		
109925	TP203 0.50	23/08/2017	24/08/2017	Silty clayey loam	
109926	TP204 0.10	22/08/2017	24/08/2017		
109927	TP204 0.50	22/08/2017	24/08/2017	Silty clayey loam	
109928	TP205 0.10	23/08/2017	24/08/2017		
109929	TP205 0.50	23/08/2017	24/08/2017	Clayey loam	
109930	TP206 0.10	23/08/2017	24/08/2017	Silty loam	
109931	TP206 0.50	23/08/2017	24/08/2017		
109932	TP207 0.30	21/08/2017	24/08/2017	Silty clayey loam	
109933	TP208 0.10	21/08/2017	24/08/2017		
109934	TP209 0.10	21/08/2017	24/08/2017		
109935	TP210 0.10	21/08/2017	24/08/2017		
109936	TP211 0.10	22/08/2017	24/08/2017		
109937	TP212 0.20	21/08/2017	24/08/2017		
109938	TP213 1.00	21/08/2017	24/08/2017	Silty loam	
109939	TP214 0.90	21/08/2017	24/08/2017	Silty loam	
109940	TP215 0.30	22/08/2017	24/08/2017	Sandy silty loam	
109941	TP215 2.90	23/08/2017	24/08/2017	Chalk	
109942	TP216 0.60	21/08/2017	24/08/2017		
109943	TP217 0.20	21/08/2017	24/08/2017	Silty clayey loam	
109944	TP218 0.15	21/08/2017	24/08/2017		
109945	TP219 1.00	21/08/2017	24/08/2017		
109946	TP220 0.20	22/08/2017	24/08/2017	Sandy silty loam	
109947	TP220 1.00	22/08/2017	24/08/2017	Silty clayey loam	
109948	TP221 0.10	22/08/2017	24/08/2017	Silty loam	
109949	TP221 0.50	22/08/2017	24/08/2017		
109950	TP222 0.40	21/08/2017	24/08/2017	Silty clayey loam	
109951	TP223 0.40	22/08/2017	24/08/2017	Clayey loam	
109952	TP223 0.50	22/08/2017	24/08/2017	Clayey loam	
109953	TP224 0.20	22/08/2017	24/08/2017	Sandy silty loam + Chalk	
109954	TP224 2.20	22/08/2017	24/08/2017	Silty loam	
109955	TP225 0.25	23/08/2017	24/08/2017	Sandy silty loam	
109956	TP225 0.30	23/08/2017	24/08/2017	Sandy loam	
109957	TP226 0.10	21/08/2017	24/08/2017	Silty loam	c
109958	TP227 0.10	21/08/2017	24/08/2017		
109959	TP228 0.15	22/08/2017	24/08/2017	Silty loam	
109960	TP229 0.60	21/08/2017	24/08/2017	Loamy sand	
109961	TP230 0.30	21/08/2017	24/08/2017		
109962	TP231 0.40	21/08/2017	24/08/2017	Sandy silty loam	
109963	TP232 0.10	21/08/2017	24/08/2017	Silty loam	
109964	TP233 0.40	21/08/2017	24/08/2017	Silty clayey loam	
109965	TP234 0.30	21/08/2017	24/08/2017	Silty loam	
109966	TP235 0.50	22/08/2017	24/08/2017	Loamy sand	
109967	TP236 0.30	21/08/2017	24/08/2017	Loamy sand	
109968	TP237 0.40	21/08/2017	24/08/2017	Silty loam	
109969	TP238 0.80	21/08/2017	24/08/2017		
109970	TP239 0.20	23/08/2017	24/08/2017	Sandy loam	
109971	TP239 0.50	23/08/2017	24/08/2017		
109972	TP239 1.50	23/08/2017	24/08/2017	Loamy sand	
109973	TP224 0.30	22/08/2017	24/08/2017		

Results Summary

Report No.: 17-13705

ELAB Reference	109922	109925	109927	109929	109930	109932
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP202	TP203	TP204	TP205	TP206	TP207
Sample Depth (m)	0.10	0.50	0.50	0.50	0.10	0.30
Sampling Date	23/08/2017	23/08/2017	22/08/2017	23/08/2017	23/08/2017	21/08/2017

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	9.5	11.1	9.9	12.1	4.5	11.8
Barium	U	mg/kg	10	34.6	48.8	45.9	17.2	16.7	30.1
Beryllium	U	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	34.7	60.8	53.7	30.9	12.4	38.0
Copper	M	mg/kg	5	20.3	29.5	23.9	14.6	8.0	20.3
Lead	M	mg/kg	5	21.0	24.3	18.8	27.0	11.5	15.3
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	18.3	21.5	22.0	8.9	5.4	9.2
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	M	mg/kg	5	33.5	86.7	77.1	69.9	23.4	54.1
Zinc	M	mg/kg	5	41.1	52.1	58.4	28.8	17.6	27.1
Anions									
Water Soluble Chloride	M	mg/kg	40	48	54	45	53	< 40	70
Water Soluble Sulphate	M	g/l	0.02	0.06	0.05	0.04	0.04	0.03	0.05
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	< 2	< 2	< 2	< 2
Total Cyanide	M	mg/kg	1	1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.07	0.11	0.04	0.07	0.04	0.05
Water Soluble Boron	N	mg/kg	0.5	0.8	0.5	< 0.5	0.8	< 0.5	< 0.5
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	n/t	n/t	n/t	n/t
pH	M	pH units	0.1	7.7	7.4	7.5	5.7	5.7	7.6
Total Organic Carbon	N	%	0.01	0.50	0.54	0.23	0.19	0.36	0.19
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	1.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109922	109925	109927	109929	109930	109932
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP202	TP203	TP204	TP205	TP206	TP207
Sample Depth (m)	0.10	0.50	0.50	0.50	0.10	0.30
Sampling Date	23/08/2017	23/08/2017	22/08/2017	23/08/2017	23/08/2017	21/08/2017

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	35.9	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	40.3	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	312	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	3.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	0.04	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	9.0	< 1.0	3.2	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	14.4	< 1.0	5.3	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	3.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	35.5	< 1.0	8.5	< 1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t	n/t	n/t	n/t
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109938	109939	109940	109941	109943	109946
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP213	TP214	TP215	TP215	TP217	TP220
Sample Depth (m)	1.00	0.90	0.30	2.90	0.20	0.20
Sampling Date	21/08/2017	21/08/2017	22/08/2017	23/08/2017	21/08/2017	22/08/2017

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	9.0	13.8	10.4	^ 4.7	32.6	25.7
Barium	U	mg/kg	10	61.4	72.5	162	11.5	86.2	373
Beryllium	U	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	2.5	3.0
Cadmium	M	mg/kg	0.5	0.5	< 0.5	0.8	^ 0.6	< 0.5	1.1
Chromium	M	mg/kg	5	18.4	36.4	26.0	^ 8.6	63.2	36.9
Copper	M	mg/kg	5	14.7	20.4	22.0	^ 6.9	37.4	93.0
Lead	M	mg/kg	5	62.6	56.0	44.4	^ < 5.0	24.3	170
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	^ < 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	16.7	19.4	18.0	^ 11.8	19.1	56.2
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	^ < 1.0	< 1.0	< 1.0
Vanadium	M	mg/kg	5	27.7	59.1	32.2	^ 7.8	117	133
Zinc	M	mg/kg	5	72.7	101	121	^ 15.9	30.3	335
Anions									
Water Soluble Chloride	M	mg/kg	40	< 40	50	55	^ < 40	53	< 40
Water Soluble Sulphate	M	g/l	0.02	0.03	0.30	0.16	^ 0.04	0.05	0.03
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	1050	< 20	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	8	< 2	< 2	< 2	< 2
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	^ < 1.0	< 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.07	0.13	0.11	0.04	0.06	0.08
Water Soluble Boron	N	mg/kg	0.5	0.6	1.7	0.6	< 0.5	< 0.5	1.0
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	n/t	n/t	n/t	n/t
pH	M	pH units	0.1	8.4	8.0	10.0	^ 8.8	8.2	8.2
Total Organic Carbon	N	%	0.01	0.49	0.92	0.47	0.02	0.32	4.9
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	0.2
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	0.3	^ < 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	0.3	^ < 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	0.4	0.2	2.4	^ < 0.1	< 0.1	0.3
Anthracene	M	mg/kg	0.1	0.1	< 0.1	0.9	^ < 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	1.3	0.6	5.9	^ < 0.1	< 0.1	0.7
Pyrene	M	mg/kg	0.1	1.3	0.6	5.1	^ 0.1	< 0.1	0.8
Benzo(a)anthracene	M	mg/kg	0.1	0.8	0.3	2.9	^ < 0.1	< 0.1	0.4
Chrysene	M	mg/kg	0.1	0.8	0.4	3.0	^ < 0.1	< 0.1	0.5
Benzo (b) fluoranthene	M	mg/kg	0.1	1.1	< 0.1	3.0	^ < 0.1	< 0.1	0.6
Benzo(k)fluoranthene	M	mg/kg	0.1	1.0	< 0.1	2.9	^ < 0.1	< 0.1	0.6
Benzo (a) pyrene	M	mg/kg	0.1	1.0	0.4	3.1	^ 0.2	< 0.1	0.5
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	0.9	0.2	2.2	^ < 0.1	< 0.1	0.4
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.5	0.2	0.6	^ < 0.1	< 0.1	0.2
Benzo[g,h,i]perylene	M	mg/kg	0.1	0.9	0.3	2.1	^ < 0.1	< 0.1	0.5
Total PAH(16)	M	mg/kg	0.4	10.4	3.2	34.6	^ < 0.4	< 0.4	5.8
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109938	109939	109940	109941	109943	109946
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP213	TP214	TP215	TP215	TP217	TP220
Sample Depth (m)	1.00	0.90	0.30	2.90	0.20	0.20
Sampling Date	21/08/2017	21/08/2017	22/08/2017	23/08/2017	21/08/2017	22/08/2017

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	2.9	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	14.4	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	2.1	< 1.0	18.8	9.2	< 1.0	3.3
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	3.5	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	6.9	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	7.1	< 1.0	28.2	10.9	< 1.0	7.2
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	14.6	< 1.0	< 1.0	1.8
Total (>C5-C40) Ali/Aro	N	mg/kg	1	9.3	< 1.0	65.1	44.4	< 1.0	12.3
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t	n/t	n/t	n/t
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109947	109948	109950	109951	109952	109953
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP220	TP221	TP222	TP223	TP223	TP224
Sample Depth (m)	1.00	0.10	0.40	0.40	0.50	0.20
Sampling Date	22/08/2017	22/08/2017	21/08/2017	22/08/2017	22/08/2017	22/08/2017

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	11.0	8.6	12.1	9.5	n/t	^ 7.8
Barium	U	mg/kg	10	99.6	42.6	45.7	30.9	n/t	65.4
Beryllium	U	mg/kg	1	1.2	< 1.0	< 1.0	1.0	n/t	< 1.0
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	n/t	^ 0.5
Chromium	M	mg/kg	5	39.5	24.2	42.3	33.0	n/t	^ 19.5
Copper	M	mg/kg	5	21.6	26.3	20.6	19.7	n/t	^ 16.4
Lead	M	mg/kg	5	20.1	26.5	16.9	18.1	n/t	^ 37.9
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	n/t	^ < 0.5
Nickel	M	mg/kg	5	20.6	15.2	17.4	20.4	n/t	^ 16.4
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	^ < 1.0
Vanadium	M	mg/kg	5	74.6	37.3	62.6	41.2	n/t	^ 27.3
Zinc	M	mg/kg	5	39.7	53.8	43.6	41.0	n/t	^ 51.1
Anions									
Water Soluble Chloride	M	mg/kg	40	48	41	49	92	n/t	^ 167
Water Soluble Sulphate	M	g/l	0.02	0.08	0.04	0.04	0.06	n/t	^ 0.09
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20	< 20	n/t	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	n/t	< 0.8
Total Sulphide	N	mg/kg	2	4	< 2	< 2	< 2	n/t	< 2
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	^ < 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.07	0.06	0.05	0.06	n/t	0.07
Water Soluble Boron	N	mg/kg	0.5	< 0.5	0.5	< 0.5	0.5	n/t	< 0.5
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	< 0.1	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	n/t	n/t	2.82	n/t
pH	M	pH units	0.1	7.3	7.7	7.5	8.3	7.7	^ 8.3
Total Organic Carbon	N	%	0.01	0.29	0.69	0.19	0.15	0.18	0.10
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	n/t	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ < 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ < 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ < 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ < 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ 0.5
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	0.1	< 0.1	< 0.1	n/t	^ 1.0
Pyrene	M	mg/kg	0.1	< 0.1	0.1	< 0.1	< 0.1	n/t	^ 0.9
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ 0.6
Chrysene	M	mg/kg	0.1	< 0.1	0.1	< 0.1	< 0.1	n/t	^ 0.7
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ 0.6
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	0.1	< 0.1	< 0.1	n/t	^ 0.6
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	< 0.1	0.2	< 0.1	n/t	^ 0.6
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	< 0.1	0.2	< 0.1	n/t	^ 0.6
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	0.3	< 0.1	n/t	^ 0.2
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	^ 0.5
Total PAH(16)	M	mg/kg	0.4	< 0.4	< 0.4	0.9	< 0.4	n/t	^ 7.0
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	n/t	n/t	< 2	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109947	109948	109950	109951	109952	109953
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP220	TP221	TP222	TP223	TP223	TP224
Sample Depth (m)	1.00	0.10	0.40	0.40	0.50	0.20
Sampling Date	22/08/2017	22/08/2017	21/08/2017	22/08/2017	22/08/2017	22/08/2017

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	n/t	^ < 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	n/t	^ < 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	n/t	^ < 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	n/t	^ < 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t	n/t	< 0.01	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	11.3
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	5.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	1.5
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	41.2
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	28.5
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	n/t	87.5
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t	n/t	< 5	n/t
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	< 0.03	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109954	109955	109956	109957	109959	109960
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP224	TP225	TP225	TP226	TP228	TP229
Sample Depth (m)	2.20	0.25	0.30	0.10	0.15	0.60
Sampling Date	22/08/2017	23/08/2017	23/08/2017	21/08/2017	22/08/2017	21/08/2017

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	6.6	13.2	n/t	11.5	10.4	38.2
Barium	U	mg/kg	10	63.4	124	n/t	46.0	40.0	51.2
Beryllium	U	mg/kg	1	1.1	< 1.0	n/t	< 1.0	< 1.0	1.8
Cadmium	M	mg/kg	0.5	< 0.5	0.5	n/t	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	28.9	52.8	n/t	21.7	19.5	37.3
Copper	M	mg/kg	5	18.4	59.3	n/t	16.1	12.2	23.7
Lead	M	mg/kg	5	18.5	82.9	n/t	25.9	23.7	18.9
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	n/t	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	30.5	43.4	n/t	24.5	19.1	52.0
Selenium	M	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	1.1
Vanadium	M	mg/kg	5	41.5	32.9	n/t	33.8	33.8	61.2
Zinc	M	mg/kg	5	64.4	230	n/t	64.7	50.3	98.9
Anions									
Water Soluble Chloride	M	mg/kg	40	56	140	n/t	65	< 40	< 40
Water Soluble Sulphate	M	g/l	0.02	0.04	0.35	n/t	0.11	0.04	0.03
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	< 20	n/t	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	n/t	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	n/t	< 2	< 2	< 2
Total Cyanide	M	mg/kg	1	1.0	1.1	n/t	2.4	1.1	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.05	0.77	n/t	0.12	0.07	0.05
Water Soluble Boron	N	mg/kg	0.5	< 0.5	0.7	n/t	0.6	0.7	< 0.5
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	0.2	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	2.63	n/t	n/t	n/t
pH	M	pH units	0.1	7.7	11.1	11.4	9.2	7.4	7.2
Total Organic Carbon	N	%	0.01	0.33	0.41	0.40	1.1	0.69	0.10
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	n/t	c < 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	c < 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	c < 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	c < 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	c < 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	0.4	n/t	c < 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	0.1	n/t	c < 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	0.2	1.2	n/t	c 0.3	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	< 0.1	1.1	n/t	c 0.3	0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	0.8	n/t	c 0.2	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	0.9	n/t	c 0.2	< 0.1	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	0.9	n/t	c 0.3	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	1.0	n/t	c 0.5	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	1.0	n/t	c 0.3	< 0.1	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	0.8	n/t	c 0.3	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	0.3	n/t	c 0.3	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	0.8	n/t	c 0.2	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	9.4	n/t	c 3.0	< 0.4	< 0.4
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	25	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109954	109955	109956	109957	109959	109960
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP224	TP225	TP225	TP226	TP228	TP229
Sample Depth (m)	2.20	0.25	0.30	0.10	0.15	0.60
Sampling Date	22/08/2017	23/08/2017	23/08/2017	21/08/2017	22/08/2017	21/08/2017

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	< 10.0	< 10.0	n/t	c < 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	n/t	c < 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	n/t	c < 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	n/t	c < 10.0	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	< 0.01	n/t	n/t	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	c < 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	c < 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	6.4	n/t	c < 1.0	< 1.0	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	c < 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	c < 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	c < 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	12.3	n/t	c 3.4	< 1.0	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	4.2	n/t	c 1.4	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	22.9	n/t	c 4.9	< 1.0	< 1.0
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	11	n/t	n/t	n/t
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	< 0.03	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109962	109963	109964	109965	109966	109967
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP231	TP232	TP233	TP234	TP235	TP236
Sample Depth (m)	0.40	0.10	0.40	0.30	0.50	0.30
Sampling Date	21/08/2017	21/08/2017	21/08/2017	21/08/2017	22/08/2017	21/08/2017

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	33.1	5.6	n/t	6.9	14.7	30.4
Barium	U	mg/kg	10	31.8	27.5	n/t	30.8	18.9	38.8
Beryllium	U	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	1.5
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	n/t	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	31.6	17.6	n/t	21.3	13.2	41.5
Copper	M	mg/kg	5	17.8	12.8	n/t	12.5	8.9	22.0
Lead	M	mg/kg	5	14.6	17.3	n/t	26.3	12.9	19.6
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	n/t	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	18.9	14.3	n/t	8.2	7.2	30.2
Selenium	M	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
Vanadium	M	mg/kg	5	63.1	26.9	n/t	33.7	27.5	84.2
Zinc	M	mg/kg	5	38.5	38.3	n/t	37.5	25.8	71.7
Anions									
Water Soluble Chloride	M	mg/kg	40	42	< 40	n/t	41	44	< 40
Water Soluble Sulphate	M	g/l	0.02	0.03	0.03	n/t	0.03	0.03	< 0.02
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	< 20	n/t	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	n/t	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	n/t	< 2	< 2	< 2
Total Cyanide	M	mg/kg	1	1.1	1.3	n/t	1.6	1.8	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.06	0.08	n/t	0.07	0.05	0.07
Water Soluble Boron	N	mg/kg	0.5	< 0.5	0.6	n/t	1.0	< 0.5	< 0.5
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	< 0.1	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	1.81	n/t	n/t	n/t
pH	M	pH units	0.1	6.2	6.6	6.7	6.2	5.9	5.3
Total Organic Carbon	N	%	0.01	0.30	1.4	0.15	1.4	0.14	0.10
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	n/t	< 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	< 0.1	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	0.3	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	0.2	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	< 0.4	n/t	0.7	< 0.4	< 0.4
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	< 2	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109962	109963	109964	109965	109966	109967
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP231	TP232	TP233	TP234	TP235	TP236
Sample Depth (m)	0.40	0.10	0.40	0.30	0.50	0.30
Sampling Date	21/08/2017	21/08/2017	21/08/2017	21/08/2017	22/08/2017	21/08/2017

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	< 10.0	< 10.0	n/t	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	n/t	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	n/t	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	n/t	< 10.0	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	< 0.01	n/t	n/t	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	< 5	n/t	n/t	n/t
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	< 0.03	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

ELAB Reference	109968	109970	109972
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	TP237	TP239	TP239
Sample Depth (m)	0.40	0.20	1.50
Sampling Date	21/08/2017	23/08/2017	23/08/2017

Determinand	Codes	Units	LOD			
Metals						
Arsenic	M	mg/kg	1	14.1	4.5	17.5
Barium	U	mg/kg	10	81.7	33.9	42.2
Beryllium	U	mg/kg	1	1.4	< 1.0	1.3
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	40.8	17.4	32.7
Copper	M	mg/kg	5	21.1	13.1	15.9
Lead	M	mg/kg	5	16.2	13.4	20.1
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	28.8	11.3	21.3
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0
Vanadium	M	mg/kg	5	58.3	18.4	90.2
Zinc	M	mg/kg	5	62.9	31.0	43.6
Anions						
Water Soluble Chloride	M	mg/kg	40	54	126	107
Water Soluble Sulphate	M	g/l	0.02	0.03	0.10	0.04
Inorganics						
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	< 2
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0
Acid Soluble Sulphate (SO ₄)	U	%	0.02	0.04	0.04	0.10
Water Soluble Boron	N	mg/kg	0.5	< 0.5	0.5	< 0.5
Miscellaneous						
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	n/t
pH	M	pH units	0.1	6.6	8.8	7.9
Total Organic Carbon	N	%	0.01	0.16	0.21	0.09
Phenols						
Total Phenols	N	mg/kg	6	< 6	< 6	< 6
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	0.5	< 0.1
Pyrene	M	mg/kg	0.1	< 0.1	0.6	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	0.5	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	0.5	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	0.5	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	0.7	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	0.5	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	0.6	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	0.3	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	0.4	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	5.2	< 0.4
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	n/t



Results Summary

Report No.: 17-13705

ELAB Reference	109968	109970	109972
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	TP237	TP239	TP239
Sample Depth (m)	0.40	0.20	1.50
Sampling Date	21/08/2017	23/08/2017	23/08/2017

Determinand	Codes	Units	LOD			
BTEX						
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t
TPH CWG						
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	4.6	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	4.6	< 1.0
Total Petroleum Hydrocarbons						
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t
PCB (ICES 7 congeners)						
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t

Results Summary

Report No.: 17-13705

2683

WAC Analysis

Elab Ref:	109964					Landfill Waste Acceptance Criteria Limits		
Sample Date:	21/08/2017					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	TP233							
Depth (m)	0.4							
Site:	Woodcroft							
Determinand		Code	Units					
Total Organic Carbon		N	%		0.15	3	5	6
Loss on Ignition		M	%		1.8	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			6.7	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate

Eluate Analysis

		10:1	10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg		
		mg/l	mg/kg			
Arsenic	N	< 0.005	< 0.05	0.5	2	25
Barium	N	< 0.005	< 0.05	20	100	300
Cadmium	N	< 0.001	< 0.01	0.04	1	5
Chromium	N	< 0.005	< 0.05	0.5	10	70
Copper	N	< 0.005	< 0.05	2	50	100
Mercury	N	< 0.005	< 0.01	0.01	0.2	2
Molybdenum	N	< 0.005	< 0.05	0.5	10	30
Nickel	N	< 0.001	< 0.05	0.4	10	40
Lead	N	< 0.001	< 0.05	0.5	10	50
Antimony	N	< 0.005	< 0.05	0.06	0.7	5
Selenium	N	< 0.005	< 0.05	0.1	0.5	7
Zinc	N	< 0.005	< 0.05	4	50	200
Chloride	N	< 5	< 50	800	15000	25000
Fluoride	N	< 5	< 10	10	150	500
Sulphate	N	5	45.70	1000	20000	50000
Total Dissolved Solids	N	< 10	< 100	4000	60000	100000
Phenol Index	N	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon	N	9.780	98.00	500	800	1000

Leach Test Information

pH	N	5.7				
Conductivity (uS/cm)	N	28				
Dry mass of test portion (g)		100.000				
Dry Matter (%)		83				
Moisture (%)		21				
Eluent Volume (ml)		952				

Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ELAB cannot be held responsible for any discrepancies with current legislation

Results Summary

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2683

WAC Analysis

Elab Ref:	109956					Landfill Waste Acceptance Criteria Limits		
Sample Date:	23/08/2017					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	TP225							
Depth (m)	0.3							
Site:	Woodcroft							
Determinand		Code	Units					
Total Organic Carbon		N	%		0.40	3	5	6
Loss on Ignition		M	%		2.6	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		11	500	--	--
Total (of 17) PAHs		N	mg/kg		25.0	100	--	--
pH		M			11.4	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		0.2	--	To evaluate	To evaluate

Eluate Analysis

			10:1	10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg		
			mg/l	mg/kg			
Arsenic		N	0.009	0.09	0.5	2	25
Barium		N	0.010	0.10	20	100	300
Cadmium		N	< 0.001	< 0.01	0.04	1	5
Chromium		N	< 0.005	< 0.05	0.5	10	70
Copper		N	0.016	0.16	2	50	100
Mercury		N	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005	< 0.05	0.5	10	30
Nickel		N	0.003	< 0.05	0.4	10	40
Lead		N	0.007	0.07	0.5	10	50
Antimony		N	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	0.016	0.16	4	50	200
Chloride		N	7	67.00	800	15000	25000
Fluoride		N	< 5	< 10	10	150	500
Sulphate		N	12	120.00	1000	20000	50000
Total Dissolved Solids		N	< 10	< 100	4000	60000	100000
Phenol Index		N	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	12.300	123.00	500	800	1000

Leach Test Information

pH		N	8.3				
Conductivity (uS/cm)		N	154				
Dry mass of test portion (g)			100.000				
Dry Matter (%)			81				
Moisture (%)			24				
Eluent Volume (ml)			953				

Results are expressed on a dry weight basis, after correction for moisture content where applicable

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Results Summary

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WAC Analysis

Elab Ref:	109952					Landfill Waste Acceptance Criteria Limits		
Sample Date:	22/08/2017					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	TP223							
Depth (m)	0.5							
Site:	Woodcroft							
Determinand		Code	Units					
Total Organic Carbon		N	%		0.18	3	5	6
Loss on Ignition		M	%		2.8	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			7.7	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			10:1		10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg		
			mg/l		mg/kg			
Arsenic		N	< 0.005		< 0.05	0.5	2	25
Barium		N	< 0.005		< 0.05	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	0.011		0.11	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005		< 0.05	0.5	10	30
Nickel		N	0.003		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	< 0.005		< 0.05	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	< 0.005		< 0.05	4	50	200
Chloride		N	6		65.00	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	6		58.00	1000	20000	50000
Total Dissolved Solids		N	< 10		< 100	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	54.400		544.00	500	800	1000

Leach Test Information

pH	N	7.7					
Conductivity (uS/cm)	N	117					
Dry mass of test portion (g)		100.000					
Dry Matter (%)		79					
Moisture (%)		27					
Eluent Volume (ml)		931					

Results are expressed on a dry weight basis, after correction for moisture content where applicable

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Results Summary

Report No.: 17-13705

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
109922	0.10	TP202	Brown sandy soil, stones, organics	No asbestos detected	n/t	n/t	n/t	n/t
109925	0.50	TP203	Brown sandy soil, stones, organics	No asbestos detected	n/t	n/t	n/t	n/t
109927	0.50	TP204	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
109929	0.50	TP205	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
109930	0.10	TP206	Brown sandy soil, stones, organics	No asbestos detected	n/t	n/t	n/t	n/t
109932	0.30	TP207	Clay, stones	No asbestos detected	n/t	n/t	n/t	n/t
109938	1.00	TP213	Brown sandy soil, stones, concrete, brick, clinker	Chrysotile Crocidolite (asbestos cement)	2.66	Asbestos cement (2.663%)	< 0.001	2.66
109939	0.90	TP214	Brown sandy soil, stones, brick, clinker, wood	No asbestos detected	n/t	n/t	n/t	n/t
109940	0.30	TP215	Brown sandy soil, stones, concrete, brick, clinker	No asbestos detected	n/t	n/t	n/t	n/t
109941	2.90	TP215	Chalk, stones	No asbestos detected	n/t	n/t	n/t	n/t
109943	0.20	TP217	Clay, stones	No asbestos detected	n/t	n/t	n/t	n/t
109946	0.20	TP220	Brown sandy soil, stones, chalk, brick, clinker	No asbestos detected	n/t	n/t	n/t	n/t
109947	1.00	TP220	Brown sandy soil, stones	No asbestos detected	n/t	n/t	n/t	n/t
109948	0.10	TP221	Brown sandy soil, stones, chalk, organics	No asbestos detected	n/t	n/t	n/t	n/t
109950	0.40	TP222	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109951	0.40	TP223	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109953	0.20	TP224	Brown soil,Stones,Brick	No asbestos detected	n/t	n/t	n/t	n/t
109954	2.20	TP224	Brown soil	No asbestos detected	n/t	n/t	n/t	n/t
109955	0.25	TP225	Brown sandy soil,Stones,Brick	Chrysotile (Cement Fragment)	3.54	Cement Fragment (3.543)	< 0.001	3.54
109957	0.10	TP226	Brown soil	No asbestos detected	n/t	n/t	n/t	n/t
109959	0.15	TP228	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109960	0.60	TP229	Brown sandy soil	No asbestos detected	n/t	n/t	n/t	n/t
109962	0.40	TP231	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109963	0.10	TP232	Brown soil,stones	No asbestos detected	n/t	n/t	n/t	n/t
109965	0.30	TP234	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109966	0.50	TP235	Brown soil	No asbestos detected	n/t	n/t	n/t	n/t
109967	0.30	TP236	Brown sandy soil,stones	No asbestos detected	n/t	n/t	n/t	n/t
109968	0.40	TP237	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109970	0.20	TP239	Brown soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t
109971	0.50	TP239	Cement fragment	Chrysotile	25.0	Cement Fragment (25)	< 0.001	25.0
109972	1.50	TP239	Sand	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 17-13705

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Sulphide	N	As submitted sample	25/08/2017	109	Colorimetry
Hexavalent chromium	N	As submitted sample	25/08/2017	110	Colorimetry
Acid Soluble Sulphate	U	Air dried sample	29/08/2017	115	Ion Chromatography
Aqua regia extractable metals	M	Air dried sample	25/08/2017	118	ICPMS
Phenols in solids	N	As submitted sample	25/08/2017	121	HPLC
Elemental Sulphur	N	Air dried sample	25/08/2017	122	HPLC
PAH (GC-FID)	M	As submitted sample	29/08/2017	133	GC-FID
Water soluble anions	M	Air dried sample	25/08/2017	172	Ion Chromatography
Water soluble boron	N	Air dried sample	25/08/2017	202	Colorimetry
Total cyanide	M	As submitted sample	25/08/2017	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	29/08/2017	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	29/08/2017	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	29/08/2017	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	25/08/2017	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	25/08/2017	214	GC-MS
Asbestos identification	U	As submitted sample	25/08/2017	260	Microscopy
Leachate					
Arsenic*	N		30/08/2017	101	ICPMS
Cadmium*	N		30/08/2017	101	ICPMS
Chromium*	N		30/08/2017	101	ICPMS
Lead*	N		30/08/2017	101	ICPMS
Nickel*	N		30/08/2017	101	ICPMS
Copper*	N		30/08/2017	101	ICPMS
Zinc*	N		30/08/2017	101	ICPMS
Mercury*	N		30/08/2017	101	ICPMS
Selenium*	N		30/08/2017	101	ICPMS
Antimony	N		30/08/2017	101	ICPMS
Barium*	N		30/08/2017	101	ICPMS
Molybdenum*	N		30/08/2017	101	ICPMS
pH Value*	N		30/08/2017	113	Electrometric
Electrical Conductivity*	N		30/08/2017	136	Probe
Dissolved Organic Carbon	N		30/08/2017	102	TOC analyser
Chloride*	N		30/08/2017	131	Ion Chromatography
Fluoride*	N		30/08/2017	131	Ion Chromatography
Sulphate*	N		30/08/2017	131	Ion Chromatography
Total Dissolved Solids	N		30/08/2017	144	Gravimetric
Phenol index	N		30/08/2017	121	HPLC
WAC Solids analysis	N				
pH Value**	M	Air dried sample	29/08/2017	113	Electrometric
Total Organic Carbon	N	Air dried sample	29/08/2017	210	IR
Loss on Ignition**	M	Air dried sample	30/08/2017	129	Gravimetric
Acid Neutralization Capacity to pH 7	N	Air dried sample	29/08/2017	NEN 737	Electrometric
Total BTEX**	M	As submitted sample	25/08/2017	181	GCMS
Mineral Oil**	U	As submitted sample	29/08/2017	117	GCFID
Total PCBs (7 congeners)	M	Air dried sample	25/08/2017	120	GCMS
Total PAH (17)**	N	As submitted sample	29/08/2017	133	GCFID

Tests marked N are not UKAS accredited

Report Information

Report No.: 17-13705

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

CLEA Software Version 1.071

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Report generated 28-Sep-17

Report title Woodcroft Farm, Lovedean

Created by FG at GESL



RESULTS

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