8 GROUND CONTAMINATION ASSESSMENT

The current guidelines used for this contamination assessment are presented within Appendix 3.

The contaminant concentrations encountered as part of this investigation have been compared against either published Category 4 Screening Levels (C4SLs) for a Commercial end use or where these are not available, the Land Quality Management and Chartered Institute of Environmental Health's (LQM/CIEH) Suitable for Use Levels (S4ULs).

8.1 SOIL QUALITY

In terms of any proposed redevelopment of the site, the results of the analysis of the selected soil samples recovered during the site investigation indicated that the concentrations of *metals and metalloids* considered to be potentially toxic to humans were below the respective guideline values in all samples tested.

*Organic contamin*ation across the site was generally low and concentrations which may be considered to pose an unacceptable risk to human health should any viable pathway exist were not encountered.

Asbestos containing material was not found to be present within any of the near surface soil samples analysed.

A comprehensive description of the soil quality as measured as part of the current intrusive site investigation is given below.

8.1.1 Toxic Metals

Concentrations of toxic metals arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, and zinc were all significantly below their respective soil guidance values for either a commercial development under the CLEA/LQM GAC guidelines and the C4SL/S4USL guideline values for a commercial end use where appropriate in all samples tested.

8.1.2 Phytotoxic Metals

Concentrations of phytotoxic metals copper, zinc and nickel were compared against the maximum permissible concentration in the Sewage Sludge (Use in Agriculture) Regulations 1989.

All concentrations for all three metals were found to be below the maximum permissible concentration for the relevant pH level in all of the analysed soil samples.

8.1.3 Organic Compounds

Polycyclic Aromatic Hydrocarbons (PAH)

Concentrations of PAH were significantly below the inert waste acceptance criteria of 100 mg/kg as shown in Table 5.3: Criteria for granular waste acceptable at landfills (Council Decision annex 2003/33/EC – See Guidelines at Appendix 3) in all of the samples tested.

Benzo(a)pyrene (B(a)P)

All soil samples generally had B(a)P concentrations significantly below the C4SL guideline limit value of 77.0 mg/kg for a commercial end use.

Speciated PAH Compounds

Similarly, all other speciated PAH compound concentrations were found to be below their respective LQM CIEH generic assessment criteria values, based on their respective quantity of Organic Matter (SOM %).

Total Petroleum Hydrocarbons

Concentrations of TPH (C10-C40) were generally significantly below the inert waste acceptance criteria of 500 mg/kg as given in Table 5.3: Criteria for granular waste acceptable at landfills (Council Decision annex 2003/33/EC – See Guidelines at Appendix 3) in all of the samples tested, with the exception of the samples S12 and S13 which contained respective TPH (>C10-C40) concentrations of 683 mg/kg and 813 mg/kg. Both these samples were retrieved from below the existing car park area along the western elevation.

Generic Assessment Criteria (GAC) for total petroleum hydrocarbons according to both their molecular weight and chemical structure and also for a range of soil organic matter (SOM) content values have been derived using CLEA software. The LQM CIEH GACs are presented according to their soil organic matter content and proposed end use of the land.

All soil samples tested were analysed for TPH based on the fraction approach outlined by the TPH Criteria Working Group (TPHCWG) in order to characterise the nature of hydrocarbon contaminants on the site. Elevated organic contaminant levels, which exceeded the GAC levels, were not noted in any of the exploratory locations across the site, with all concentrations significantly below limit values for a commercial end use, including the two slightly elevated TPH concentrations mentioned above.

BTEX & MTBE Compounds

BTEX and MTBE concentrations within all soil samples analysed for such compounds were found to be below their respective analytical detection limit.

Total Phenols

Where analysed, Total Phenol concentrations were found to be below the analytical detection limit of 1 mg/kg.

8.1.4 Inorganic Compounds

Concentrations of water-soluble sulphate ranged from 22.3 mg/l to 733 mg/l (as SO_4). The pH values were alkaline with values of 8.3 to 10.1 units.

8.1.5 Asbestos

Asbestos containing material was not detected within any of the in-situ near surface soil samples analysed from across the site following the demolition works and breaking out of the existing concrete slabs.

Notwithstanding the above, as recorded within Ensure Environmental Consulting Ltd's Site Visit Note 1 (Appendix 1), an area of the site had been fenced off due to the presence of a small quantity of what appeared to be asbestos cement corrugated sheeting. It is understood that the potential presence of asbestos containing material (ACM) had already been brought to the attention of the Local Authority and would be suitably disposed of in accordance with the Management Plan and in accordance with relevant waste disposal guidelines.

9 CONTAMINATION RISK ASSESSMENT

This risk assessment has been undertaken with due regard to the advice relating to groundwater as provided in the Environment Agency's "Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources", the advice provided in the Contaminated Land (England) Regulations 2000, and the associated statutory guidance. The guidance defines contaminated land as any land that is in such a condition that by reason of substances in, on or under the land:

- significant harm is being caused or there is a significant possibility of such harm being caused; or

- pollution of controlled water is being, or is likely to be caused.

This definition is based on the principles of risk assessment defined as a combination of the probability (or frequency) of occurrence of a defined hazard and the magnitude (including the seriousness) of the consequences. Central to the risk assessment process is the concept of pollutant linkage, that is a linkage between a contaminant and a receptor by means of a pathway.

Statutory definitions relating to pollution linkage.	
Contaminant	"a substance which is in, on or under the land and which has the potential to cause harm or to cause pollution of controlled waters."
Receptor	"a living organism, a group of living organisms, and ecological system or a piece of property" which meets given criteria. "controlled waters which are, or could be, polluted by a contaminant".
Pathway	"one or more routes or means by, or through, which a receptor: • is being exposed to, or affected by, a contaminant, or • could be so exposed or affected".

The relationship between these components is discussed below in order to identify the existence of any source-pathway-receptor linkage on the site, and hence the potential risks associated with any contamination.

This risk assessment is based on the proposed redevelopment of the site for industrial and warehousing purposes (within Classes E(g) (ii), (iii), B2 and B8, with ancillary office accommodation) along with related access, service yard, car and cycle parking, landscaping, boundary treatment and other related works including demolition.

The significance of the risks to the receptors/targets identified is based on an evaluation of the potential pathways between the contaminant source and receptors based on a commercial end use.

Potential receptors/targets at the site and in the area in which the site is located include:

- future occupants and the general public;
- construction/maintenance workers;
- groundwater and surface water resources;
- underground services in and around the site;
- plants in any proposed soft landscaped areas.

9.1 CONTAMINANT SOURCES

The potential contaminant sources would have been discussed in detail within the historical Geotechnical and Geoenvironmental Interpretative report produced by CGL but are summarised below.

- On site sources: Made Ground associated with the redevelopment of the site and historical use as a *Furniture Manufactory* and *Engineering Works.* These could be a source of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), semi-volatile and volatile organic compounds (SVOCs and VOCs), heavy

metals and potentially asbestos containing material. The existing and historical electrical substations could be a source of polychlorinated biphenyls (PCBs).

- Off-site sources: historical off-site activities close to the site include a gravel pit and ground workings west of the site and several *Works, Clothing Works* and *Engineering Works* north-east of the site. Current off-site industrial land uses including metal fabrications and numerous vehicle repair garages (eight within ~200m of the site). These could be a source of similar contaminants to the above.
- Ground gas / vapours: Made Ground and natural superficial deposits can be a source of ground gas where appreciable organic content is present. Hydrocarbon / organic chemicals can also produce organic vapours and ground gases. The infilled ground and gravel pit west of the site may be a source of ground gas if it was used as a pond or backfilled with organic material (e.g. tree leaves).
- Groundwater: Perched water in the Made Ground and shallow groundwater in the Thames Terrace Deposits may be a source of contamination due to the current and previous on and offsite sources. Potential contaminants in perched water would be similar to those present in the soils (TPH, PAH, SVOCs and VOCs and heavy metals) as discussed above.

Notwithstanding the above, the site has since been cleared of structures and concrete cover and no obvious sources of contamination have been identified on site during the most recent site visit.

Similarly, no visual or olfactory evidence of significant organic contamination was noted during the intrusive investigation. The analytical testing of soils retrieved as part of the intrusive investigation, in general, did not reveal any significantly elevated organic contaminant concentrations present above their respective guideline values and no asbestos containing material was identified within any near surface made ground soil. The risks associated with the contaminants encountered are discussed below.

9.2 RISK TO HUMAN HEALTH

Toxic Metals

Concentrations of toxic metals arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, and zinc were all below their respective soil guidance values for a commercial end use in all samples tested in this site investigation, therefore the risks to human health from these contaminants is considered to be low.

Organic Compounds

Concentrations of PAH and TPH were below their respective soil guidance values in all samples tested. Therefore, the risks posed to human health from these contaminants are considered to be low.

Asbestos

Asbestos containing material has not been detected in any of the soil samples analysed on site and, following the successful completion of demolition works, no potential ongoing sources of asbestos-containing material were identified.

On the balance of the toxicological risks posed by the ground contamination encountered as part of the intrusive investigation undertaken by GES, it is considered that the potential risks to site workers and future occupants could be adequately controlled as follows:

Site Workers

- Provision of appropriate personal protective equipment and hygiene facilities.
- Provision of appropriate dust suppression, to minimise the generation of potentially contaminated suspended particulates during site works.

Future Site Users

Elevated levels of contaminants which could potentially pose a health risk to future users of the site were not identified during the investigation, therefore no further remedial works, in terms of contaminated soils, is required upon the site as part of the proposed development.

Furthermore, given the development proposals, the majority of site will be capped with proposed buildings or associated areas of hardstanding, further severing any potential contaminant pathway between any impacted soils and future human receptors.

Therefore, the site would not be considered to pose a potential risk of significant harm to human health in the context of Part 2A.

9.3 RISKS TO WATER RESOURCES

The site is underlain by Unproductive Strata within the superficial deposits and within the bedrock London Clay. The site is also not located within a groundwater source protection zone and there are no sensitive potable water abstractions within the immediate vicinity.

Significant levels of potentially soluble and therefore mobile organic contaminant sources were not measured on site within the soil samples tested.

Furthermore, the majority of the site will be covered by either buildings or hardstanding, coupled with appropriate drainage, which would prevent percolation of rainwater through the underlying soils.

It is therefore considered that the risks to groundwater resources are considered to be classed as low.

9.4 RISKS TO PLANTS

Whilst the concentrations of potentially phytotoxic metals copper, zinc and nickel were all below their respective maximum permissible concentrations used in the Sewage Sludge (Use in Agriculture) Regulations 1989 for their relevant soil pH.

However, there is currently no suitable growth media on site. Limited areas of soft landscaping may be included as part of development proposals. The importation of clean suitable topsoil would therefore be necessary within any such areas. Any material imported to site for use in any proposed soft landscaped areas would require chemical testing to confirm its suitability for use.

As per the recommendations contained within the CGL report, It is recommended that a clean cover system comprising of 450mm of chemically validated soil including a minimum of 150mm topsoil over a geotextile marker layer is installed in areas of proposed soft landscaping.

This action would ensure any residual contamination is isolated below the rooting zone of plants, and therefore unavailable for uptake, thus ensuring any source receptor pathways are severed. The risk to plant health posed by the contaminants identified would be considered to be low following implementation of the remedial strategy, if necessary.

9.5 RISKS TO BUILDINGS & SERVICES

The risks to buried services from organic contamination such as TPH, which can degrade/permeate plastics and other polymer materials used to supply potable water is generally considered to be low, given the absence of significantly elevated concentrations of TPH and BTEX compounds, when compared against the Water UK Guidance values.

However, whilst elevated levels of organic contaminants were generally not detected, soils at depths of likely service runs have not been routinely analysed. The risk to services from contamination degrading pipes is therefore considered low to moderate. Therefore, it is considered that it may be prudent to protect services, notably potable water, on this site given the potential for organic contamination.

It is recommended that confirmation from utility suppliers should be sought.

9.6 GAS RISK ASSESSMENT

The risks from potential landfill gasses has been discussed in detail within the historical CGL report and following monitoring, the site has been classified as a Characteristic Situation 1 (CS1) which is considered a very low risk in terms of risks from gasses and

therefore no gas protection measures are considered to be required as part of the proposed development works.

9.7 WASTE DISPOSAL

Should an excess volume of soil be required to be disposed of off-site then a waste classification may be required.

For a waste classification to be undertaken, materials may need to be subjected to chemical testing which would give an indication to the contaminants present and, therefore those most toxic to the environment in the waste. Following the assessment of the waste as hazardous or non-hazardous waste acceptance criteria leachate testing allows the appropriate disposal pathway to a suitably licensed disposal facility to be further determined.

As a preliminary waste assessment and based on the results of materials tested to date as part of this current investigation, it is considered that the majority of any surplus soils requiring off-site disposal would be classified as EWC 17 05 04 non-hazardous and would likely be acceptable at a waste facility licenced to accept inert material, with the exception of the soils in the vicinity of S12 and S13 due to the elevated petroleum hydrocarbon concentrations recorded within these soil samples. Additional testing may be required and the final decision will rest with the waste facility permit holder.

10 REVISED CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a system diagram identifying contaminant sources, routes of exposure (pathways), and which receptors are affected by contaminants moving along those pathways.

The model is produced to identify the zones of the site with different potential contaminations characteristics (e.g. whether contaminants in the soil are likely to be on the surface or at depth, distributed over an entire area or in localised ‘hot spots’).

The conceptual site model presented in the table below is based on the findings of the site investigation undertaken.

Source	Pollutant		Pathway	Hazard		Receptor	Observations/ Recommendations	Assessed Risk
Contaminated ground	Metals, organic (hydrocarbons) could be present	➔	Direct contact, ingestion, inhalation.	Health risks including skin irritation.	➔	Humans: site workers	Normal health and safety precautions. No significantly elevated contaminant concentrations were encountered following demolition works and removal of existing concrete slabs. In addition, majority of the site is likely to be capped as part of enabling works.	Low based on proposed Commercial End Use and proposed development plans
			Surface run off.	Lateral movement to surface watercourses.	➔	Aquatic resources, ecology and subsequent users including humans.	Significant mobile contamination not present in soils. In addition, site will be predominantly covered by buildings and hardstanding.	Low
			Leaching/ Dispersion.	Downward migration to groundwater.	➔	Aquatic resources – Groundwater, abstraction wells) / surface waters.	Significant mobile contamination not present in soils. In addition, site will be predominantly covered by buildings and hardstanding.	Low
			Uptake by plants	Phytotoxic effects	➔	Soft landscaped areas / plants	Significantly elevated phytotoxic contaminant concentrations not present in soils however existing soils not suitable to be used as growth media in any soft landscaping. Placement of clean topsoil required in any proposed soft landscaped areas.	Low based on proposed development and following recommended remedial works
			Direct contact	Aggressive chemical attack	➔	Building structures and services	It is considered that protection of services notably potable water may be required on this site. To be advised by Statutory Providers.	Low following recommended remedial works

Source	Pollutant		Pathway	Hazard		Receptor	Observations/ Recommendations	Assessed Risk
Liquid contaminant sources	Diesel, Petrol and Oils.	➔	Direct contact; ingestion, inhalation.	Health risks including skin irritation. Lateral and vertical migration of contaminants.	➔	Humans: site workers. Groundwater and surface water.	Whilst historic sources in the form of storage tanks, which have since been removed from site, were identified, significant mobile contamination not encountered on site.	Low
Asbestos	Asbestos fibres within made ground and waste on site	➔	Inhalation.	Health risks including asbestosis, mesothelioma, and lung cancer.	➔	Humans: site workers and future occupants.	Whilst asbestos has been identified during demolition works and been appropriately managed and disposed of, no asbestos containing material identified within near surface soils below concrete slabs. Furthermore, the majority of near surface soils are to be capped as part of the development. Appropriate PPE should be worn during site works.	Low based on development proposals
Landfill, madeground,	Ground Gases (CO_2, CH_4)		Inhalation and ingress into buildings	Asphyxiation and explosions		Buildings/humans/ future site users	Gas protection measures are not recommended as part of new development following a suitable monitoring programme and risk assessment undertaken and detailed as part of the historical CGL report.	Low
Redundant Waste, Demolition Waste			Dermal Contact/ingestion. Potential for migration via surface water run-off	Health Risks		Humans: Site workers	Any unwanted waste on site is to be removed from site during site preparatory works and disposed of in accordance with current legislation. Normal health and safety precautions.	Low

11 CONCLUSIONS AND RECOMMENDATIONS

Based on the site investigation, intrusive works and subsequent data assessment, the following conclusions and recommendations have been drawn in respect of the development site known as the former 'Bookers' site, Unit 39, Queen Street, Tottenham, London, N17 8HZ.

- The geology at the site is the London Clay within the bedrock geology and Enfield Silt Member over River Terrace Deposits in the superficial geology. The site is set upon Unproductive Strata within both the superficial deposits and the bedrock geology.
- The site is not located within an Environment Agency defined Groundwater Source Protection Zone.
- The site is located within an urban setting and surrounded by residential/commercial properties in addition to areas of public open space.
- The site has been subjected to a site investigation in 2024 and it was recommended, amongst other items already reported upon separately, that a watching brief and implementation of a discovery strategy during enabling works and general earthworks. Should areas of unexpected contamination, including asbestos, hydrocarbons, and free product, be encountered or suspected, in particular in areas where ground investigation was not possible (i.e. beneath the existing buildings), a suitably qualified and experienced geoenvironmental engineer should be informed, and the risk associated with the contamination assessed.
- Given that the demolition works and breaking out of the concrete slabs are nearing completion it was considered prudent to undertake a supplementary investigation to ascertain current conditions across the site, in terms of potential contamination, particularly for validation purposes.
- Concentrations of toxic metals were below their respective soil guideline values.
- No significant levels of mobile organic contamination were noted on site.
- Concentrations of organic hydrocarbon were not significantly elevated, based on the proposed commercial end use.
- In the absence of a suitable growth media on site, it is recommended that a clean cover system comprising of 450mm of chemically validated soil including a minimum of 150mm topsoil over a geotextile marker layer is installed in areas of proposed soft landscaping.
- Following the above recommendations, the risks posed by any residual contamination is considered to be low provided the above remedial works are implemented.
- Whilst asbestos has been identified during demolition works and been appropriately managed and disposed of as a separate matter, no asbestos

containing material identified within near surface soils below concrete slabs as part of this supplementary assessment and verification statement.

- Furthermore, the majority of near surface soils are to be capped as part of the development and no remaining sources of asbestos have been identified, therefore the risks to human health from asbestos are considered to be low. Good working practice should be adhered to, along with appropriate PPE, in line with current legislation when undertaking any works on site.
- The risks posed to workers involved in any future redevelopment of the site are not considered significant providing standard health and hygiene practices are adopted.
- The risk to any proposed flora on site is considered to be low following the importation of the proposed clean growth media.
- The risks to groundwater in the underlying Unproductive Strata are considered to be low due to the lack of any significant mobile heavy metal or organic contamination across the site.
- The majority of any surplus soil material to be removed off site is likely to be classified as non-hazardous and may or may not be acceptable at a facility licensed to accept inert waste.
- It is considered that the required watching brief during demolition and site clearance works have been undertaken in compliance with the recommendations of the historical CGL report, and validation sampling and testing of the in-situ soils from below the former structures and concrete slabs have been proven to not contain any significantly elevated contaminant concentrations and would not pose any significant risk of significant harm to any potential sensitive receptors either on site or in the vicinity.

Based on the principles and definitions outlined under section 57 of the Environment Act 1995, the site would not be considered to be “Contaminated Land” based on its proposed commercial redevelopment end use following implementation of the above remedial measures.



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KEY:

- WS - WINDOW SAMPLE
- BH - BOREHOLE
- (I) - INSTALLATION
- TP - TRIAL PIT
- HDTP - HAND DUG TRIAL PIT
- SP - SOAKAGE PIT
- DCP - DYNAMIC CONE PENETRATION
- DP - DYNAMIC PROBE
- HA - HAND AUGER
- PT - PERCOLATION TEST
- GM - GAS MONITORING STANDPIPE
- S - SAMPLE LOCATION

CLIENT:
Ensure Environmental Consulting Ltd

SITE ADDRESS:
Bookers Site
Queen Street
Tottenham
London
N17 8HZ

DRAWING NO.:
Figure 1

DRAWING TITLE:
Exploratory Hole Location Plan

PROJECT NO.: 13843

DATE: 09/2026

DRAWN: PJ

REVISION: 00

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Revisions: Drawn/Chkd: Date:

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Client: VERITY TRUSTEES LTD
Project: BOOKER TOTTENAHM
Drawing Title: EXISTING SITE LAYOUT

Scale @ A3: 1:500 | Checked by: ME | Date: MAR 24
Job No: 11472 | Stage: PL | Drawing No: 030 | Rev: *
Construction ☐ Preliminary ☐ Information ☐
Approval ☐ Tender ☐
PRC Architecture & Planning

APPENDIX 1

ENSURE ENVIRONMENTAL CONSULTING LTD SITE VISIT NOTES

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Environmental Consulting Ltd

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Tottenham

Site Visit Note 1

EN185/TT/2025/SN1

Site: **Unit 39, Queen Street, Tottenham** (former Booker site)

Date of site attendance: 6th August 2026

Attendees:

- Henry Lang – Ensure Environmental Consulting Ltd
- Paolo Di Pasquale – GES

We attended site as agreed to collect validation soil samples to address the outstanding, elements of Planning Consent (HGY/2024/1203 Unit 39, Queen Street, Tottenham) that relate to potential contamination at the site.

We arrived and noted good site security and were required to undertake an appropriate site induction. The site layout and set up was of high quality (see photo below)



Upon arrival we were informed that there was only one excavator operator on site and that person was operating the large 360 breaker, so no one was available to use the excavator.

It was also noted that:

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1. Only a small proportion of the site (circa 20%) had so far had the surface slab broken and excavated, close to the southern boundary (see photo's below).
2. These works, close to the southern boundary, had so far identified and excavated a series of 3 small underground tanks (concrete and one metal) – see below.

Excavated Metal tank



Excavated concrete tank



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3. Identified a set of heavy concrete foundations under the existing slab that appear to relate to previous developments on site



4. Shallow groundwater in the base of 3 areas of excavation (no rain in recent weeks so presumed to be perched shallow groundwater)



(Note: No evidence of hydrocarbon sheen on water)

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5. An area had been fenced off due to the presence of a small quantity of what appeared to be asbestos cement corrugated sheeting. We were advised that the potential presence of asbestos containing material (ACM) had already been brought to the attention of the Local Authority.

While on site we collected soil samples of the materials exposed in the excavations, but it is noted that the materials exposed appeared to be gravels and other imported fill placed to make up levels between the older foundation slabs and the current Booker surface slabs.

The excavations with exposed groundwater were deemed unsuitable for collecting groundwater samples.

As no excavator was available, we were unable to sample from underlying natural ground in the small portion of the site that had the slab removed.

From discussion by phone with the usual Site Manager (Hooman Ghaffari) it is understood that a crusher and additional machine operator will be present on site from Monday 10th August. We were advised that the crushed material will be placed back into the areas of excavation, and that there will be no point at which the entire site is clear for sampling.

It was agreed that we would return to site a week later (Thursday 13th August) for additional sampling of newly exposed areas.

Planning Condition Requirements

The planning consent includes the following conditions with regards to the management of potential site contamination and related works. The purpose of the soil sampling is to satisfy Condition 4, but the additional elements of the condition are highlighted as they relate to the current situation. In particular, there is a planning requirement for the works to comply with the recommendations of the Geotechnical Report by CGL, as follows.

Condition 2 sets out:

'*The development hereby authorised shall be carried out in accordance with the following approved plans and specifications'.* The list includes the Geotechnical Report by CGL.

Condition 4 (Pre-commencement Condition) requires:

Before development commences other than for investigative work where remediation of contamination on the site is required, completion of the remediation detailed in the method statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied.

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Condition 5 specifically addresses contamination found during the development works as follows:

'If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved.'

GCL Report Recommendations

As identified above, the site has been the subject of an earlier site investigation, carried out by Card Geotechnics Limited (CGL). The CGL Report, *Unit 39, Queen Street, Tottenham. Geotechnical and Geoenvironmental Interpretative Report* of April 2024 formed part of the planning application supporting documents and is referenced in Condition 2.

The following presents the recommendations from the *Geotechnical and Geoenvironmental Interpretative Report,* as these form the basis of the work carried out and which are the subject of the current verification work.

10.1 General Recommendations

This section provided geoenvironmental recommendations based on information obtained during the ground investigation and the contamination assessments in Section 9. The risk assessment and conceptual site model indicate that contamination within the shallow soils pose a potential risk to human health receptors.

Based on the findings of the contamination assessment, the geoenvironmental recommendations are as follows (we have highlighted the critical elements):

- *Further groundwater monitoring rounds during the summer months to constrain the potential of the shallow groundwater table to drop. Based on the shallow groundwater table and lack of organic material encountered in the ground investigation, the site is likely to conform to Characteristic Situation 1. However, if the groundwater level drops in summer there is potential for an altered ground gas regime and the characterisation of the site may change.*
- *Borehole decommissioning (after additional groundwater monitoring rounds are complete) –* ***Note: This has been completed and reported.***
- *Watching brief and implementation of a discovery strategy during enabling works and general earthworks, and to facilitate appropriate waste characterisation of soils for disposal.*

(Ensure Note: this is within Contractor's capabilities.)

- *Implementation of appropriate protection of construction workers and mitigation of risks to off-site receptors during construction.*
- *Provision of a suitable clean cover system in areas of soft landscaping; and*

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- *Selection of appropriate materials for buried water supply pipes. The specification for water supply pipes should be determined by the water supply company.*

10.3 Watching Brief and Discovery Strategy

It is recommended that a watching brief is carried out during the enabling works, earthworks and construction works by the Contractor. Should areas of unexpected contamination, including asbestos hydrocarbons, and free product, be encountered or suspected, in particular in areas where ground investigation has not been possible (i.e. beneath the existing buildings), a suitably qualified and experienced geoenvironmental engineer should be informed, and the risk associated with the contamination assessed. Where necessary, an appropriate remediation strategy should be devised and implemented, and the regulators should be informed of additional areas of contamination so identified. The regulators should be provided with the risk assessment and proposed remediation methodology for agreement before undertaking such works.

Appropriate verification works to be completed if remedial measures are required should also be identified within the remediation strategy and agreed in advance with the regulators.

During the redevelopment, precautions should be taken to minimise exposure of workers and the general public to potentially harmful substances. Attention should also be paid to restricting possible off-site nuisance such as dust and odour emissions.

Comments and Further Work

On the basis of our site visit we will return to site on Thursday 13th August and collect additional sub-surface soil samples. These will then be sent for analysis.

If groundwater is still present in any excavations, it is recommended that this is sampled and analysed.

It is noted that the two excavated tanks identified above showed no evidence of having been used for storing hydrocarbons. There was also no evidence of a hydrocarbon sheen on the exposed groundwater.

It is further noted that the potential long-term risk to future site occupants of any sub-surface contamination will be low, as the new developments will be for commercial use and the site will be predominantly covered by a new concrete slab, breaking any contamination pathway to surface.

The primary potential risks associated with the historic tanks (of unknown use) currently identified are:

- environmental risks to the shallow groundwater
- Risks to site workers

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- Risks to any buried services, especially buried water supply pipes.

A close watching brief of the excavations should be carried out by the Contractors staff.

The above notes should also be brought to the attention of the Planning Consultant with regards to whether there is a requirement to notify the Planning Authority for the tanks, though no contamination has yet been identified.

It is understood that the LA has already been notified about the small quantity of potentially asbestos containing material.

It is considered likely that additional samples will be required to those initially proposed, both in terms of the need to sample exposed groundwater and with regards to the overall number of samples likely to be collected. The previously identified rate per sample will apply.



Henry E Lang,

Director

10/08/2026

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Tottenham

Site Visit Note 2

EN185/TT/2025/SN1

Site: **Unit 39, Queen Street, Tottenham** (former Booker site)

This note should be read in conjunction with Site Visit Note 1 which identified the Planning Condition requirements for contamination management.

Date of 2nd site attendance: Friday 14th August 2026

Attendees:

- Paolo Di Pasquale – GES

Paolo attended site as agreed to collect further validation soil samples to address the outstanding, elements of Planning Consent (HGY/2024/1203 Unit 39, Queen Street, Tottenham) that relate to potential contamination at the site.

A further (3rd) site visit may be required as excavation is not complete. Date to be agreed.

It was noted that:

1. The first section of site and the excavations with exposed groundwater had now been backfilled with crushed material (see photo below).



(Note: Southern site boundary showing previously excavated area now backfilled)

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2. The central area of the site had now had part the concrete slab lifted.



(Note: View west across centre of site – note crusher and stockpiles)



(Note: Edge of excavated area adjoining car park)

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3. The nature of the old backfill under the concrete slab was similar gravelly material to the first area.

4. No further tanks had been identified.

5. There is still about 50% of the site to be broken and lifted.



(Note: looking west along north side of site)

6. The heavy concrete foundations identified in Note 1 appear to have been lifted and await breaking.



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While on site Paolo collected an additional 5 soil samples of the materials exposed in the excavations, but it is noted that the materials exposed still appeared to be gravels and other imported fill placed to make up levels between the older foundation slabs and the current Booker surface slabs.

The 5 soil samples collected on the 14th plus the 4 collected during Site Visit 1 (6th August) have now been sent to the laboratory for testing.

Comments and Further Work

On the basis of our 2nd site visit we will need to return to site and collect additional sub-surface soil samples when most or all the remaining slab is lifted. These additional samples will then be sent for analysis as follow up samples.

It is noted that no additional underground tanks have been identified but a close watching brief of the excavations should still be carried out by the Contractors staff. If further tanks are identified, we should be notified.

It is still noted that the potential long-term risk to future site occupants of any sub-surface contamination will be **low**, as the new developments will be for commercial use and the site will be predominantly covered by a new concrete slab, breaking any contamination pathway to surface.

It is considered likely that additional samples will be required to those initially proposed with regards to the overall number of samples likely to be collected. The previously identified rate per sample will apply.



Henry E Lang,

Director

17/08/2026

APPENDIX 2

ANALYTICAL TEST RESULTS

ANALYTICAL TEST REPORT

Report Number	26-10180, issue number 1
Contract name:	Bookers Site Queen Street Tottenham
Client reference:	Not Supplied
Clients name:	Ground and Environmental Services Ltd
Clients address:	Ground and Environmental Services Ltd Unit 2 Montpelier Business Park Ashford Kent TN23 4FG
Samples received:	19/08/2026
Analysis started:	20/08/2026
Analysis completed:	01/09/2026
Report issued:	01/09/2026

Key

U UKAS accredited test
M MCERTS & UKAS accredited test
(B) Analysis performed at Southampton Site
I/S Insufficient sample to carry out test
U/S Sample not suitable for testing
NAD No Asbestos Detected
Full key available on Information page

Approved by:

Georgia Hunter
Senior Reporting Administrator

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
% Moisture reported as MCERTS drying at 30ºC

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
126779	S1	-	Beige Sand with Gravel.	-	-	5.8
126780	S2	-	Beige Sand with Gravel.	-	-	3.5
126781	S3	-	Beige Sand with Gravel.	-	-	4.8
126782	S4	-	Beige Sand with Gravel.	-	-	2.8
126783	S5	-	Beige Sand with Gravel.	-	-	3.8
126784	S6	-	Beige Sand with Gravel.	-	-	7.0
126785	S7	-	Beige Sand with Gravel.	-	-	5.3
126786	S8	-	Beige Sand with Gravel.	-	-	5.0
126787	S9	-	Beige Sandy Clay with Gravel.	-	-	17.7

SOILS

Lab Number					126779	126780	126781	126782	126783
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					S1	S2	S3	S4	S5
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**					
Asbestos									
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD	NAD	NAD
Soil sample preparation parameters									
Stones Content	CE001	N	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Metals									
Water Soluble Sulphate	CE061	M	10	mg/l	22.3	91.0	30.2	47.5	72.2
Water Soluble Boron	CE063	N	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic	CE264	M	2.3	mg/kg	6.0	8.7	6.8	7.0	9.6
Barium	CE264	M	7.6	mg/kg	32.2	32.7	30.3	33.5	43.8
Beryllium	CE264	M	0.1	mg/kg	0.3	0.4	0.3	0.3	0.4
Cadmium	CE264	M	1.1	mg/kg	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Chromium	CE264	U	1.3	mg/kg	9.6	13.3	10.8	11.7	13.2
Copper	CE264	M	1.2	mg/kg	6.1	7.6	6.4	4.9	8.6
Lead	CE264	U	2.4	mg/kg	3.5	3.4	2.9	11.4	31.4
Mercury	CE264	M	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Nickel	CE264	M	1.6	mg/kg	10.2	12.3	9.7	8.1	11.8
Selenium	CE264	M	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Vanadium	CE264	M	1.6	mg/kg	17.4	23.0	17.3	15.2	20.8
Zinc	CE264	M	2.4	mg/kg	24.2	23.8	18.3	11.9	30.0
Colourimetric									
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	< 0.040	0.170	< 0.040	< 0.040	< 0.040
Combustion									
Moisture Content	CE001	N	0.1	%	5.8	3.5	4.8	2.8	3.8
Soil Organic Matter	CE192	N	0.1	%	0.34	0.26	0.28	0.34	0.55
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	0.060	< 0.016	< 0.016	< 0.016	< 0.016
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	< 0.014	< 0.014	0.015	< 0.014	0.030
Anthracene	CE087	U	0.017	mg/kg	< 0.017	< 0.017	0.020	< 0.017	0.022

SOILS

Lab Number					126779	126780	126781	126782	126783
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					S1	S2	S3	S4	S5
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**					
Fluoranthene	CE087	M	0.017	mg/kg	< 0.017	< 0.017	< 0.017	< 0.017	0.050
Pyrene	CE087	M	0.016	mg/kg	< 0.016	< 0.016	< 0.016	< 0.016	0.045
Benzo(a)anthracene	CE087	U	0.012	mg/kg	< 0.012	< 0.012	0.020	< 0.012	0.042
Chrysene	CE087	M	0.028	mg/kg	< 0.028	< 0.028	< 0.028	< 0.028	0.032
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	< 0.020	< 0.020	< 0.020	< 0.020	0.067
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	< 0.025	< 0.025	< 0.025	< 0.025	0.026
Benzo(a)pyrene	CE087	U	0.019	mg/kg	< 0.019	< 0.019	< 0.019	< 0.019	0.056
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	< 0.019	< 0.019	< 0.019	< 0.019	0.075
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	< 0.019	< 0.019	< 0.019	< 0.019	0.052
Total PAH(16)	CE087	N	0.28	mg/kg	< 0.280	< 0.280	< 0.280	< 0.280	0.499
BTEX									
Benzene	CE267	U	0.001	mg/kg	g < 0.001	g < 0.001	g < 0.001	g < 0.001	g < 0.001
Toluene	CE267	U	0.001	mg/kg	g < 0.001	g < 0.001	g < 0.001	g < 0.001	g < 0.001
Ethylbenzene	CE267	U	0.001	mg/kg	g < 0.001	g < 0.001	g < 0.001	g < 0.001	g < 0.001
Xylenes	CE267	N	0.004	mg/kg	g < 0.004	g < 0.004	g < 0.004	g < 0.004	g < 0.004
MTBE	CE267	N	0.002	mg/kg	g < 0.002	g < 0.002	g < 0.002	g < 0.002	g < 0.002
Total BTEX	CE267	N	0.007	mg/kg	g < 0.007	g < 0.007	g < 0.007	g < 0.007	g < 0.007
m,p-Xylene	CE267	U	0.002	mg/kg	g < 0.002	g < 0.002	g < 0.002	g < 0.002	g < 0.002
oXylenes	CE267	U	0.002	mg/kg	g < 0.002	g < 0.002	g < 0.002	g < 0.002	g < 0.002
Total Petroleum Hydrocarbons									
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C5-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C10-C12 Soil (EH_1D_Total)	CE033	M	3	mg/kg	< 3.0	< 3.0	6.7	< 3.0	< 3.0
>C12-C16 Soil (EH_1D_Total)	CE033	M	4	mg/kg	< 4.0	< 4.0	14.9	< 4.0	< 4.0
>C16-C21 Soil (EH_1D_Total)	CE033	M	4	mg/kg	< 4.0	5.3	143	5.8	5.9
>C21-C35 Soil (EH_1D_Total)	CE033	M	9	mg/kg	18.1	29.6	380	21.7	27.2

SOILS

Lab Number					126779	126780	126781	126782	126783
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					S1	S2	S3	S4	S5
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**					
>C35-C40 Soil (EH_1D_Total)	CE033	U	10	mg/kg	< 10.0	< 10.0	32.2	< 10.0	< 10.0
>C10-C40 Soil (EH_1D_Total)	CE033	M	13	mg/kg	32.2	46.7	577	34.3	41.4
>C10-C12 Aliphatic (EH_CU_1D_AL)	CE286	N	2.5	mg/kg	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
>C12-C16 Aliphatic (EH_CU_1D_AL)	CE286	N	4.3	mg/kg	< 4.3	< 4.3	< 4.3	< 4.3	< 4.3
>C16-C21 Aliphatic (EH_CU_1D_AL)	CE286	N	2.5	mg/kg	< 2.5	< 2.5	47.4	5.3	< 2.5
>C21-C35 Aliphatic (EH_CU_1D_AL)	CE286	N	5.2	mg/kg	17.8	12.5	88.6	29.7	6.3
>C35-C44 Aliphatic (EH_CU_1D_AL)	CE286	N	2.6	mg/kg	6.3	3.9	6.1	5.4	2.9
>C10-C12 Aromatic (EH_CU_1D_AR)	CE286	N	5	mg/kg	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic (EH_CU_1D_AR)	CE286	N	5.5	mg/kg	< 5.5	< 5.5	6.5	< 5.5	< 5.5
>C16-C21 Aromatic (EH_CU_1D_AR)	CE286	N	4.5	mg/kg	< 4.5	< 4.5	28.0	< 4.5	< 4.5
>C21-C35 Aromatic (EH_CU_1D_AR)	CE286	N	11	mg/kg	11.0	< 11.0	71.5	< 11.0	< 11.0
>C35-C44 Aromatic (EH_CU_1D_AR)	CE286	N	5.2	mg/kg	6.9	< 5.2	9.5	< 5.2	< 5.2
>C5-C44 Total (EH_CU+HS_1D_Total)	CE286	N	21.4	mg/kg	47.4	28.3	264	60.9	< 21.4
Mineral Oil (>C10-C40 Total) (EH_CU_1D_Total)	CE162	N	19	mg/kg	26	41	560	45	23
Wet Chem									
pH	CE004	M	0.1	pH units	8.7	8.3	9.7	8.7	8.5

SOILS

Lab Number					126784	126785	126786	126787
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					S6	S7	S8	S9
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**				
Asbestos								
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD	NAD
Soil sample preparation parameters								
Stones Content	CE001	N	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1
Metals								
Water Soluble Sulphate	CE061	M	10	mg/l	115	134	416	42.0
Water Soluble Boron	CE063	N	0.5	mg/kg	0.54	< 0.50	0.57	0.89
Arsenic	CE264	M	2.3	mg/kg	10.0	7.2	8.3	18.8
Barium	CE264	M	7.6	mg/kg	45.8	51.6	48.8	66.7
Beryllium	CE264	M	0.1	mg/kg	0.4	0.4	0.3	0.8
Cadmium	CE264	M	1.1	mg/kg	< 1.1	< 1.1	< 1.1	1.3
Chromium	CE264	U	1.3	mg/kg	14.9	14.1	14.7	27.0
Copper	CE264	M	1.2	mg/kg	14.6	10.0	10.8	7.8
Lead	CE264	U	2.4	mg/kg	116	34.7	16.7	10.2
Mercury	CE264	M	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Nickel	CE264	M	1.6	mg/kg	12.6	10.8	16.0	16.4
Selenium	CE264	M	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0
Vanadium	CE264	M	1.6	mg/kg	23.9	23.0	21.1	55.3
Zinc	CE264	M	2.4	mg/kg	63.6	31.9	58.7	32.9
Colourimetric								
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	< 0.040	0.140	0.280	< 0.040
Combustion								
Moisture Content	CE001	N	0.1	%	7.0	5.3	5.0	17.7
Soil Organic Matter	CE192	N	0.1	%	0.67	0.59	0.81	0.62
Polyaromatic hydrocarbons								
Naphthalene	CE087	M	0.016	mg/kg	< 0.016	< 0.016	< 0.016	< 0.016
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	< 0.013	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	< 0.013	< 0.013	< 0.013	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	0.048	0.018	0.025	< 0.014
Anthracene	CE087	U	0.017	mg/kg	0.019	< 0.017	< 0.017	< 0.017

SOILS

Lab Number					126784	126785	126786	126787
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					S6	S7	S8	S9
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**				
Fluoranthene	CE087	M	0.017	mg/kg	0.088	0.041	0.062	< 0.017
Pyrene	CE087	M	0.016	mg/kg	0.097	0.038	0.063	< 0.016
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.065	0.035	0.046	0.016
Chrysene	CE087	M	0.028	mg/kg	0.044	< 0.028	< 0.028	< 0.028
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.078	0.049	0.052	< 0.020
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.031	< 0.025	< 0.025	< 0.025
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.070	0.037	0.042	< 0.019
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.064	0.035	0.039	< 0.019
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	< 0.017	< 0.017	< 0.017	< 0.017
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.042	0.023	0.025	< 0.019
Total PAH(16)	CE087	N	0.28	mg/kg	0.646	< 0.280	0.355	< 0.280
BTEX								
Benzene	CE267	U	0.001	mg/kg	g < 0.001	g < 0.001	g < 0.001	g < 0.001
Toluene	CE267	U	0.001	mg/kg	g < 0.001	g < 0.001	g < 0.001	g < 0.001
Ethylbenzene	CE267	U	0.001	mg/kg	g < 0.001	g < 0.001	g < 0.001	g < 0.001
Xylenes	CE267	N	0.004	mg/kg	g < 0.004	g < 0.004	g < 0.004	g < 0.004
MTBE	CE267	N	0.002	mg/kg	g < 0.002	g < 0.002	g < 0.002	g < 0.002
Total BTEX	CE267	N	0.007	mg/kg	g < 0.007	g < 0.007	g < 0.007	g < 0.007
m,p-Xylene	CE267	U	0.002	mg/kg	g < 0.002	g < 0.002	g < 0.002	g < 0.002
oXylenes	CE267	U	0.002	mg/kg	g < 0.002	g < 0.002	g < 0.002	g < 0.002
Total Petroleum Hydrocarbons								
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10
>C5-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010
>C10-C12 Soil (EH_1D_Total)	CE033	M	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0
>C12-C16 Soil (EH_1D_Total)	CE033	M	4	mg/kg	< 4.0	< 4.0	< 4.0	< 4.0
>C16-C21 Soil (EH_1D_Total)	CE033	M	4	mg/kg	5.0	8.7	12.3	< 4.0
>C21-C35 Soil (EH_1D_Total)	CE033	M	9	mg/kg	31.2	59.2	111	9.2

SOILS

Lab Number					126784	126785	126786	126787
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					S6	S7	S8	S9
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**				
>C35-C40 Soil (EH_1D_Total)	CE033	U	10	mg/kg	< 10.0	16.4	33.1	< 10.0
>C10-C40 Soil (EH_1D_Total)	CE033	M	13	mg/kg	44.2	86.9	159	13.7
>C10-C12 Aliphatic (EH_CU_1D_AL)	CE286	N	2.5	mg/kg	< 2.5	< 2.5	< 2.5	< 2.5
>C12-C16 Aliphatic (EH_CU_1D_AL)	CE286	N	4.3	mg/kg	< 4.3	< 4.3	< 4.3	< 4.3
>C16-C21 Aliphatic (EH_CU_1D_AL)	CE286	N	2.5	mg/kg	6.4	< 2.5	5.9	< 2.5
>C21-C35 Aliphatic (EH_CU_1D_AL)	CE286	N	5.2	mg/kg	30.8	16.3	46.9	6.5
>C35-C44 Aliphatic (EH_CU_1D_AL)	CE286	N	2.6	mg/kg	7.8	5.1	8.3	< 2.6
>C10-C12 Aromatic (EH_CU_1D_AR)	CE286	N	5	mg/kg	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic (EH_CU_1D_AR)	CE286	N	5.5	mg/kg	< 5.5	< 5.5	< 5.5	< 5.5
>C16-C21 Aromatic (EH_CU_1D_AR)	CE286	N	4.5	mg/kg	5.5	< 4.5	< 4.5	< 4.5
>C21-C35 Aromatic (EH_CU_1D_AR)	CE286	N	11	mg/kg	21.1	< 11.0	21.6	< 11.0
>C35-C44 Aromatic (EH_CU_1D_AR)	CE286	N	5.2	mg/kg	6.0	< 5.2	8.3	< 5.2
>C5-C44 Total (EH_CU+HS_1D_Total)	CE286	N	21.4	mg/kg	83.7	34.3	95.2	< 21.4
Mineral Oil (>C10-C40 Total) (EH_CU_1D_Total)	CE162	N	19	mg/kg	26	68	124	< 19
Wet Chem								
pH	CE004	M	0.1	pH units	8.9	8.6	10.1	8.5

SOIL SVOCS

Lab Number					126779	126780	126781	126782	126783
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					S1	S2	S3	S4	S5
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**					
UKWIR									
Phenols (total)	CE174	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

SOIL SVOCS

Lab Number					126784	126785	126786	126787
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					S6	S7	S8	S9
Sampling Date					06/08/2026	06/08/2026	06/08/2026	06/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**				
UKWIR								
Phenols (total)	CE174	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
SUBCON	Asbestos Soil	HSG248	Air Dried Sample
CE033	EPH in Soil	Acetone:Hexane Extraction and GCFID	As submitted sample
CE061	W. Sol Metals	ICPOES	Air dried sample
CE063	Water soluble boron	ICPOES	Air dried sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE267	BTEX in Soils	Analysis by HSGCFID	As submitted sample
CE263	ChromiumVI by Discrete Analyser in Soil	Gallery	Air dried sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE174	SVOC in solids	DCM Extraction and GCMS	As submitted sample
CE192	TOC In Soil	PRIMACS Combustion Analyser	Air dried sample
CE286	TPHCWG in Soil	Acetone:Hexane Extraction, SPE and GCFID	As submitted sample
CE162	Mineral Oil in Soil	Acetone:Hexane extract, Floriil clean up and GCFID	As submitted sample

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

a	Sampling date not provided
b	Sampling time not provided (waters only)
c	Sample not received in appropriate containers
d	Storage Temperature
e	Headspace present in sample container
f	Sample exceeded sampling to receipt
g	Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
126779	S1	-	Y	BTEX in Soils(g)
126780	S2	-	Y	BTEX in Soils(g)
126781	S3	-	Y	BTEX in Soils(g)
126782	S4	-	Y	BTEX in Soils(g)
126783	S5	-	Y	BTEX in Soils(g)
126784	S6	-	Y	BTEX in Soils(g)
126785	S7	-	Y	BTEX in Soils(g)
126786	S8	-	Y	BTEX in Soils(g)
126787	S9	-	Y	BTEX in Soils(g)

REPORT INFORMATION

Report No.:26-10180, issue number 1

Key	
U	ISO17025 Accredited Result
M	ISO17025 and MCERTS Accredited Result
N	Do not currently hold accreditation
^	MCERTS accreditation not applicable for sample matrix
*	ISO17025 accreditation not applicable for sample matrix
S	Subcontracted
I/S	Insufficient Sample
U/S	Unsuitable sample
N/T	Not tested
<	Means "less than"
>	Means "greater than"

LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

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All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

The results relate only to the sample received.

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Moisture Content Calculated on a Wet Weight basis (at 30°C)

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

Where sampling was undertaken by Chemtech Environmental Limited it is outside the UKAS accreditation scope.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis (30°C). Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones and 'inert' material, where applicable.

'Client Reference', 'Sample ID', 'Sample Location', 'Sample Type', 'Depth', 'Sample Date' and 'Sample Time' information is provided by the customer

Sample Retention and Disposal

All soil samples will be retained for a period of 4 weeks from the point of receipt

All water samples will be retained for a period of 2 weeks from the point of Reporting

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unless specifically identified (noted as "(B)" in analyte name) all internal analysis performed at Durham site

ANALYTICAL TEST REPORT

Report Number	26-10645, issue number 3
Contract name:	39 Queen Street
Client reference:	13843
Clients name:	Ground and Environmental Services Ltd
Clients address:	Ground and Environmental Services Ltd Unit 2 Montpelier Business Park Ashford Kent TN23 4FG
Samples received:	28/08/2026
Analysis started:	29/08/2026
Analysis completed:	09/09/2026
Report issued:	21/09/2026 3. Replaces Analytical Report number 26-10645; issue no.2

Key

U UKAS accredited test
M MCERTS & UKAS accredited test
(B) Analysis performed at Southampton Site
I/S Insufficient sample to carry out test
U/S Sample not suitable for testing
NAD No Asbestos Detected
Full key available on Information page

Approved by:

Georgia Hunter
Senior Reporting Administrator

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB

Telephone: (01207) 528578, Email supportsquad@chemtech-env.co.uk

Re-Issue Summary

Client: Ground and Environmental Services Ltd
Address: Unit 2, Montpelier Business Park, Dencora Way, Ashford, Kent, TN23 4FG

Date: **21-Sep-26**

Report No.: **26-10645**

Issue: **3**

This report replaces 26-10645, issue: 2, issued: 09 September 2026

Reason for Change
amended sample ids

R - Work Repeated*

*If a result changed, please refer to the previous report for the old result. The new result will be shown in this report.

Re-issued by: Georgia Hunter
Senior Reporting Administrator



Approved by: Georgia Hunter
Senior Reporting Administrator



SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
% Moisture reported as MCERTS drying at 30ºC

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
129004	S10	0.6 - 0.30	Brown Sandy Loamy Clay with Stones and Vegetation.	-	-	12.0
129005	S11	0.6 - 0.30	Brown Loamy Sand with Stones and Vegetation.	-	-	6.5
129006	S12	0.6 - 0.30	Brown Sandy Loam with Stones and Vegetation.	-	-	6.7
129007	S13	0.6 - 0.30	Brown Sandy Loam with Stones and Vegetation.	-	-	10.8
129008	S14	0.6	Brown Sand with Stones and Vegetation.	-	-	3.0

SOILS

Lab Number					129004	129005	129006	129007	129008
Sample ID					S10	S11	S12	S13	S14
Depth (m)					0.6 - 0.30	0.6 - 0.30	0.6 - 0.30	0.6 - 0.30	0.6
Sampling Date					25/08/2026	25/08/2026	25/08/2026	25/08/2026	25/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**					
Asbestos									
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD	NAD	NAD
Soil sample preparation parameters									
Stones Content	CE001	N	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Metals									
Water Soluble Sulphate	CE061	M	10	mg/l	67.3	369	225	241	733
Water Soluble Boron	CE063	N	0.5	mg/kg	2.64	1.42	1.43	1.72	0.99
Arsenic	CE264	M	2.3	mg/kg	8.0	9.8	8.4	11.2	9.7
Barium	CE264	M	7.6	mg/kg	207	103	86.3	82.3	70.9
Beryllium	CE264	M	0.1	mg/kg	1.1	0.7	0.5	0.5	0.5
Cadmium	CE264	M	1.1	mg/kg	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Chromium	CE264	U	1.3	mg/kg	17.6	18.3	13.3	18.6	20.6
Copper	CE264	M	1.2	mg/kg	34.3	18.4	14.9	15.3	16.4
Lead	CE264	U	2.4	mg/kg	49.2	37.5	39.0	25.1	27.8
Mercury	CE264	M	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	0.6
Nickel	CE264	M	1.6	mg/kg	18.8	19.6	13.9	13.4	13.2
Selenium	CE264	M	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Vanadium	CE264	M	1.6	mg/kg	29.7	29.0	22.7	24.7	25.5
Zinc	CE264	M	2.4	mg/kg	135	107	61.8	71.9	224
Colourimetric									
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	< 0.040	0.270	0.100	< 0.040	0.260
Combustion									
Moisture Content	CE001	N	0.1	%	12.0	6.5	6.7	10.8	3.0
Soil Organic Matter	CE192	N	0.1	%	3.52	1.26	0.86	2.31	1.05
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	0.037	0.083	0.036	0.027	0.042
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015	< 0.015	0.031
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	0.463	0.033	0.029	0.078
Fluorene	CE087	U	0.013	mg/kg	< 0.013	0.119	0.043	0.026	0.066
Phenanthrene	CE087	M	0.014	mg/kg	0.088	1.93	0.300	0.182	0.381
Anthracene	CE087	U	0.017	mg/kg	0.019	0.486	0.077	0.056	0.081

SOILS

Lab Number					129004	129005	129006	129007	129008
Sample ID					S10	S11	S12	S13	S14
Depth (m)					0.6 - 0.30	0.6 - 0.30	0.6 - 0.30	0.6 - 0.30	0.6
Sampling Date					25/08/2026	25/08/2026	25/08/2026	25/08/2026	25/08/2026
Test	**Method**	**Accred**	**LoD**	**Units**					
Fluoranthene	CE087	M	0.017	mg/kg	0.144	6.11	0.384	0.360	0.504
Pyrene	CE087	M	0.016	mg/kg	0.126	6.41	0.371	0.389	0.528
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.116	4.02	0.177	0.175	0.264
Chrysene	CE087	M	0.028	mg/kg	0.119	3.96	0.177	0.192	0.243
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.158	9.81	0.231	0.247	0.495
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.076	3.23	0.093	0.106	0.168
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.106	8.81	0.193	0.180	0.418
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.116	10.9	0.203	0.224	0.505
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.027	1.72	0.034	0.031	0.082
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.093	9.25	0.150	0.173	0.426
Total PAH(16)	CE087	N	0.28	mg/kg	1.22	67.3	2.50	2.40	4.31
Total Petroleum Hydrocarbons									
>C10-C12 Soil (EH_1D_Total)	CE033	M	3	mg/kg	< 3.0	< 3.0	< 3.0	3.2	< 3.0
>C12-C16 Soil (EH_1D_Total)	CE033	M	4	mg/kg	< 4.0	18.1	30.8	17.6	12.4
>C16-C21 Soil (EH_1D_Total)	CE033	M	4	mg/kg	7.4	71.6	129	108	39.8
>C21-C35 Soil (EH_1D_Total)	CE033	M	9	mg/kg	60.5	322	503	655	233
>C35-C40 Soil (EH_1D_Total)	CE033	U	10	mg/kg	17.9	75.0	92.8	99.2	58.0
>C10-C40 Soil (EH_1D_Total)	CE033	M	13	mg/kg	87.4	487	758	882	346
Mineral Oil (>C10-C40 Total) (EH_CU_1D_Total)	CE162	N	19	mg/kg	69	447	683	813	278
Wet Chem									
pH	CE004	M	0.1	pH units	8.3	9.2	9.1	9.1	9.0

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
SUBCON	Asbestos Soil	HSG248	Air Dried Sample
CE033	EPH in Soil	Acetone:Hexane Extraction and GCFID	As submitted sample
CE061	W. Sol Metals	ICPOES	Air dried sample
CE063	Water soluble boron	ICPOES	Air dried sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE263	ChromiumVI by Discrete Analyser in Soil	Gallery	Air dried sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE192	TOC In Soil	PRIMACS Combustion Analyser	Air dried sample
CE162	Mineral Oil in Soil	Acetone:Hexane extract, Floriil clean up and GCFID	As submitted sample

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Comments

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c	Sample not received in appropriate containers
d	Storage Temperature
e	Headspace present in sample container
f	Sample exceeded sampling to receipt
g	Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
129004	S10	0.6 - 0.30	N	
129005	S11	0.6 - 0.30	N	
129006	S12	0.6 - 0.30	N	
129007	S13	0.6 - 0.30	N	
129008	S14	0.6	N	

REPORT INFORMATION

Report No.:26-10645, issue number 3

Key	
U	ISO17025 Accredited Result
M	ISO17025 and MCERTS Accredited Result
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HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unless specifically identified (noted as "(B)" in analyte name) all internal analysis performed at Durham site

APPENDIX 3

GUIDELINES ON CONTAMINANT LEVELS

CLEA Soil Guideline values (SGV)

The UKs primary contaminated land guidance is contained within the Contaminated Land Exposure Assessment (CLEA) framework. Within this framework a number of Soil Guideline Values (SGVs) were published for key contaminants along with toxicological guideline values relating to intake thresholds. The soil guideline values provided by the CLEA model represented intervention values for end uses based upon potential human exposure and soil concentrations of a contaminant above these values might represent an unacceptable risk to the health of the site users.

The Environment Agency had an ongoing programme of SGV publication with associated toxicological information for key contaminants. All CLEA SGVs were withdrawn for use by the Environment Agency in 2008.

Part 2A of the Environmental Protection Act 1990 was intended to ensure that the risks from land contamination to human health, property and the environment are managed appropriately. Defra subsequently revised the statutory guidance for Part 2A to address concerns regarding its real-world application. The revised guidance presents a four category system for classifying land under Part 2A, ranging from Category 4, where the level of risk posed is acceptably low, to Category 1, where the level of risk is clearly unacceptable.

Contamination levels below the C4SL are acceptably low and levels above should be assessed in the context of background levels and site specific risk assessment.

The C4SLs are more pragmatic compared to the SGVs. The C4SLs consist of cautious estimates of contaminant concentrations in soil that are still considered to present an acceptable level of risk.

To date (2024), fifteen C4SLs have been derived and published. In the absence of a published C4SL for a specific contaminant, the Land Quality Management and Chartered Institute of Environmental Health (LQM/CIEH) have derived values using the same principles applied in the derivation of the C4SLs. These values are the Suitable for Use Levels (S4UL).

In the absence of any published C4SL or S4UL data, GES have used appropriate screening tools or Generic Assessment Criteria Levels as assessment criteria guidelines for those determinands not currently assigned screening levels using the CLEA model, v1.06.

DEFRA Category four screening level (C4SL) and LQM/CIEH Suitable 4 Use Levels

Screening values proposed in the DEFRA document SP1010-Development of Category 4 Screening Levels for Assessment of Land affected by Contamination Final Project Report (C4SL) are considered along with the suitable for use levels (S4USL) derived by the Chartered Institute of Environmental Health (CIEH) in partnership with the Land Quality Management Organization (LQM).

The screening levels are given for residential, commercial, allotment or public open space end uses below. C4SLs are used in preference to S4UL where they are available.

PARAMETER	Residential		Commercial	Allotment	Public open Space		Sources
	With Plant uptake	Without Plant uptake			near homes	park land	
Inorganics - mg/kg unless stated							
Arsenic	37	40	640	49	79	170	C4SL
Beryllium	1.7	1.7	12	35	2.2	63	LQM/S4UL
Boron	290	11,000	240,000	45	21,000	46,000	
Cadmium	22	150	410	3.9	220	880	C4SL
Chromium III	910	910	8,600	18,000	1,500	33,000	LQM/S4UL
Chromium VI	21	21	49	170	21	250	C4SL
Copper	2,400	7,100	68,000	520	12,000	44,000	LQM/S4UL
Lead	200	310	2,300	80	630	1,300	C4SL
Inorganic mercury	200	300	5100	86	610	1300	
Elemental mercury	1.2	1.2	58	21	16	30	LQM/S4UL
Methylmercury	11	15	320	6	40	68	
Nickel	180	180	980	230	230	3,400	
Selenium	250	430	12,000	88	1,100	1,800	
Vanadium	410	1,200	9,000	91	2,000	5,000	
Zinc	3,700	40,000	730,000	620	81,000	170,000	

CLEA does not currently provide guidance for total Polycyclic Aromatic Hydrocarbons (PAHs). A standalone Defra C4SL for benzo(a)pyrene has been assigned and is shown below.

In addition, the Chartered Institute of Environmental Health (CIEH) in partnership with the Land Quality Management Organization (LQM) used CLEA software to derive ***Suitable 4 Use Levels (S4ULs***) for the following PAH compounds:

The values in the table below which are C4SL derived are highlighted grey.