

VALIDATION REPORT

Site Address:	Junction of Pump Lane & Crown Close, Hayes, Middlesex. UB3 3DN
Report Date:	August 2025
Project No.:	17713
Prepared for:	Higgins Partnership PLC
Planning Application	Hillingdon Council – APPLICATION NUMBER - 76550/APP/2021/4499



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REFERENCES

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- Ministry of Housing, Communities & Local Government: National Planning Policy Framework. February 2019.
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GENERAL NOTES

This report should be read in light of the legislation, statutory requirements and/or industry good practice applicable at the time of the works being undertaken. Any subsequent changes in this legislation, guidance or design may necessitate the findings to be reassessed.

We can confirm that this report has been prepared based on the information gained and that this information is not exhaustive, and that subsequent research may reveal additional facts that may influence the reporting. Where possible, this information has been researched.

All geological information has been researched using the British Geological Society website, (the geology viewer). The disclaimer associated with this portal confirms 'The British Geological Society accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation.

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We can confirm that within the assessment of the site, various websites have been visited and as such, we cannot confirm the validity of these sites and as such, this information is accepted de facto and without prejudice. Anyone relying on these sources does so at their own risk, however, Herts & Essex Site Investigations does undertake all reasonable care to ensure this data is relevant and correct.

It should be confirmed that the extent of review of this report has undertaken a broad review of on-site features which would promote a contamination ground risk, however, this does not include ecological features and in particular Japanese Knotweed which should be reviewed under separate cover.

A review of the site will be made to confirm the extent of obvious Asbestos products or sheet materials either on the surface of the site soil or evident above ground, however, does not constitute a full Asbestos Survey by any means. This should be sought under separate cover.

This report draws upon information provided in the previous reports where these have been made available by the client. Where information pertaining to the works subsequently undertaken on the site, including but not limited to the sampling and chemical analytical testing of soil and groundwater, excavation and placement of imported materials, the disposal of arisings and the installation of cover systems, has been provided by the client HESI has reported and presented this information but takes no liability for its validity.

It is also noted that the assessment relies upon the testing of a relatively small proportion of the sub-surface conditions at the site. Inferences drawn from these assessments are subject to the limitations of any such study.

DOCUMENT INFORMATION AND CONTROL SHEET

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Document Status and Approval Schedule

<i>Issue No</i>	<i>Status</i>	<i>Date</i>	<i>Prepared by: Rebecca Chamberlain Signature / Date</i>	<i>Technical review by: Chris Gray Signature / Date</i>
1	Final	19 th September 2025		

VALIDATION REPORT- PHASE 4

1 Context and Objectives of this report

1.1 Introduction

At the request of Higgins Partnership PLC, Herts & Essex Site Investigations have been employed to undertake validation works within the site in order to provide evidence and documentation to support the removal of any risk from the site development as a result of site investigation works undertaken and risk assessments completed as a result of these investigations. This has been completed based on the proposed land use of the site is residential land with areas of soft landscaping and private gardens.

2 Report Objectives

The main objectives of the remediation works and validation works undertaken are as follows:

- To anticipate regulatory action and provide necessary data to remove risk.
- To assess the site for Part IIA.
- To ensure development is 'suitable for use' status, (status being residential land use).
- To assess the site in other regulatory contexts.
- To inform acquisition, transfer or sale plans.
- To support funding decisions.
- For valuation purposes.
- For insurance purposes

2.1 Limitations

The opinions expressed within this document and the comments and recommendations given, are based on the information gained, to date within a desktop study previously undertaken on the site. The interpretation of the data has been made by Herts & Essex Site Investigations.

Within any site investigation, materials sampled represent only a small proportion of the materials present on site. It is therefore possible that other conditions prevailing at the site which have not been revealed within the scope of this report, have not been considered. Where suspect materials are encountered during any further or future works within the site, additional specialist advice should be sought to assess whether any new information will materially affect the recommendations given within any physical ground investigation.

2.2 Planning Condition

A review of the online planning application with Hillingdon Council has been completed

Application 76550/APP/2025/547 & 76550/APP/2023/2931 76550/APP/2021/4499

Hybrid planning application seeking OUTLINE permission (with all matters reserved) for residential floorspace (Class C3) including demolition of all existing buildings and structures; erection of new buildings; provision of a community centre (up to 140sq.m of Use Class F2(b) floorspace); new pedestrian and vehicular access; associated amenity space, open space, landscaping; car and cycle parking spaces; plant, refuse storage, servicing area and other works incidental to the proposed development; and FULL planning permission for Blocks A and B comprising 80 residential units (Class C3); new pedestrian and vehicular access; associated amenity

space and landscaping; car and cycle parking; refuse storage, servicing area, and other associated infrastructure to include temporary highways and landscaping works.

3 Site Location and National Grid Reference

The site is located within a Hayes, Middlesex, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 2, Sheet 1.

Table 1 Site Detail

Site Address:	Junction of Pump Lane & Crown Close, Hayes, Middlesex. UB3 3DN.
Site assessed under	Site Owners Request – Aid as part of planning and warranties
Current use of land:	Residential land with flats and housing.
Previous use of site, (if known)	As above
Grid Reference	NGR : 509963, 179819
Site Area	0.33 Hectares
Local Authority	Hillingdon Council – APPLICATION NUMBER - 76551/APP/2021/4502
Gradient of the site	The site forms a level area of land. No variations in ground level have been recorded.
Proximity of Controlled Waters, (if known)	The nearest surface water feature to the site is listed as the Grand Union Canal approximately 10m south of the southern boundary of the site. The canal is believed to be within a lined basin and therefore not considered to be in hydraulic continuity with the groundwater beneath the site. The River Crane is located approximately 800m south-east of the site, given the anticipated shallow groundwater flow direction (south-east), the River Crane may be considered a potential controlled waters receptor with respect to potential on-site sources of contamination.

4 Review of Previous Reports or Documents Relating to the Site

4.1 Reports

The extent of former report which has been undertaken relating to the site is confirmed as follows :-

Table 2 Report Details

Report	Developed by with Reference	Date	Submitted to Local Authority	Approved by Local Authority
Geotechnical and Geo-environmental Desk Study Report	A-Square Studio 1990-A2S-XX-XX-RP-Y-0001-00	Nov 2021	Yes	Yes
Environmental Report	HESI – CSG - 17713	November 2022	Yes	Unknown
Remediation Report	HESI - CSG - 17713	January 2023	Yes	Unknown

In order to gain a full understanding of the site and site history, a review of these documents should be made.

4.2 Review of DTS

4.2.1 Site Description

Hayes Town Centre development is located on a plot of land 0.4 miles north of Hayes and Harlington Station. The site consists of a group of 2-3 storey residential units supported off an assumed RC podium slab at first-floor level (above a ground-floor car park) to the west and 4-storey residential units (no carpark) to the east. The site is bound by the Hayes Muslim Centre to the West and Pump Lane and Austin Road to North and East. To the south of the site is the remainder of the Hayes Town Centre development which has similar existing structure on it, as described above. The site is located approximately 31m AOD and is predominantly level.

4.2.2 Brief Site History

The historical use of the site is identified as terraced housing from 1864 to 1962, although, includes a clay pit in the western portion of the site from 1864-1895. The site is broadly defined by terraced and residential housing through the majority of the site history with some alterations to the road system.

Surrounding the site, the Grand Union Canal is present 10 metres to the south of the site from 1864 to present day with a dock identified 60 metres to the south of the site from 1864 to 1885. Wells are located 5m south and 20m south from 1864 – 1895. A tramway and Chair Factory is located 20 metres east of the site from 1914 to 1960-1961. A coal yard is located 50 metres to the south of the site from 1961 – 1975. A coal yard and garage is located 10 metres to the west of the site from 1961 to 1975. A metal works is located 40 metres to the south from 1965-1975 with telephone exchange located 120 metres northwest of the site from 1965 to 2006 and motor repair garage located 130 metres to the west / northwest of the site from 1965 – 1975.

4.2.3 Desktop Study Findings

- The Lynch Hill Gravel Member underlying the site are classed as a Principal Aquifer. This designation is assigned to strata which comprise layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage, and may support water supply and/or river base flow on a strategic scale.

- The nearest surface water feature to the site is listed as the Grand Union Canal approximately 10m south of the southern boundary of the site. The canal is believed to be within a lined basin and therefore not considered to be in hydraulic continuity with the groundwater beneath the site. The River Crane is located approximately 800m south-east of the site, given the anticipated shallow groundwater flow direction (south-east), the River Crane may be considered a potential controlled waters receptor with respect to potential on-site sources of contamination.
- An unknown filled gravel pit was located 42 metres to the south of the site.
- Numerous contemporary trade directories confirm risk surrounding the site.
- Flood Maps for Planning indicates that the site is located in a Flood Zone 1 i.e. there is a low probability of flooding. and that the is not within an area that site does not benefit from flood defences and there are no flood water storage areas recorded within 1km.
- The site is not located within a Groundwater Source Protection Zone and there are no Groundwater Source Protection Zones recorded within 500m..

4.2.4 **Desktop Study Conclusions**

On Site

- Made Ground (from construction associated with the existing on-site development) – Heavy metals and metalloids, acids / alkalis, PAHs, asbestos, elevated sulphate and ground gases.
- Worked ground on-site – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- Office equipment manufacturers and distributors – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos and VOCs.
- Former brick field – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- Three electrical sub stations – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and PCBs.
- Former Orchard & Coldharbour Farm fields – Heavy metals and metalloids, acids / alkalis and pesticides.

Off Site

- Electrical substations 120 m west and 240 m north-west – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and PCBs.
- Landfill and other filled ground 66m and 202 m east and 226m west of the site – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, elevated sulphate and ground gases.
- A pollution incident to controlled water consisting of unknown oil (126m north-west) – Heavy metals and metalloids, acids / alkalis, PAHs and TPHs

Potential Contaminant Source	Potential Pathway	Potential Receptor	Potential Contaminant Linkage	Risk Level Classification
	Ground gas / soil vapour generation, off-site migration and inhalation	On-site below ground structures (proposed)	Yes (Made Ground and infilled ground represent potential sources of ground gas) (Potential sources of soil vapour have also been identified)	Low to moderate
	Direct contact		Yes (Structures may be constructed in impacted soils)	Low to moderate
	Migration followed by ignition of ground gas / soil vapour		Yes (Made Ground and infilled ground represent potential sources of ground gas) (Potential sources of soil vapour have also been identified)	Low to moderate
	Off-site migration followed by direct contact	Off-site below ground structures	Yes (It is unlikely that gross contamination with the potential to damage structures is migrating off-site)	Low
	Off-site migration followed by migration followed by ignition of ground gas / soil vapour		Yes (Made Ground and infilled ground represent potential ground gas sources) (Potential sources of soil vapour have also been identified)	Low to moderate
	Controlled Water Pathways (see Section 7.2.5)	Controlled waters (groundwater) - underlying Principal Aquifer (Lynch Hill Gravels)	Yes (Shallow groundwater may be present associated with natural superficial deposits beneath the site)	Low to moderate
		Controlled waters (surface water) - The River Crane		Low to moderate
Off-site See Section 7.1.2	On-site migration followed by direct contact or ingestion of soil	Human health of proposed site end users (See Section 7.3)	Yes (The site has proposed areas of soft landscaping)	Low to moderate

Potential Contaminant Source	Potential Pathway	Potential Receptor	Potential Contaminant Linkage	Risk Level Classification
On-site See Section 7.1.1	Direct contact with soil	Human health of proposed site end users (See Section 7.3)	Yes	Low to moderate
	Inhalation of windblown soil		(Proposed site has areas of soft landscaping)	Low to moderate
	Ingestion of soil			Low to moderate
	Impact to water supply pipes followed by ingestion of contaminated water supply		Yes (New pipes may be laid in impacted soils)	Low to moderate
	Ground gas / soil vapour generation and inhalation		Yes (Made Ground and infilled ground represent potential sources of ground gas) (Potential sources of soil vapour have also been identified)	Low to moderate
	Inhalation of windblown soil from the site	Off-site human health (See Section 7.3)	Yes (Site has area of soft landscaping where windblown dust / soil could be liberated)	Low to moderate
	Off-site migration and direct contact with impacted soil		Yes (Domestic gardens with open ground are occasionally present immediately adjacent to the site)	Low to moderate
	Off-site migration and ingestion of impacted soil			Low to moderate
	Impact to water supply pipes followed by ingestion of contaminated water supply		Yes (Pipes may be laid in nearby soils impacted by potential contamination)	Low to moderate

Potential Contaminant Source	Potential Pathway	Potential Receptor	Potential Contaminant Linkage	Risk Level Classification
	Inhalation of windblown soil from off-site		Yes (Only limited areas of soft landscaping have been identified in close proximity to the site, reducing potential for windblown dust to be liberated)	Low
	On-site migration followed by impact to water supply pipes and ingestion of the water supply		Yes (Pipes may be laid in soils impacted by potential off-site sources)	Low to moderate
	Ground gas / soil vapour generation, on-site migration and inhalation		Yes (Potential sources of ground gas and soil vapour have been identified in the vicinity of the site)	Low to moderate
	On-site migration followed by direct contact	On-site below ground structures (proposed)	Yes (It is unlikely that gross contamination with the potential to damage structures is migrating onto site)	Low
	On-site migration followed by ignition of ground gas / soil vapour		Yes (Potential sources of ground gas and soil vapour have been identified in the vicinity of the site)	Low to moderate

4.3 Review of Environmental Report

4.3.1 Site Investigation Works Completed

Within the scope of this report, the objectives will form the following: -

- To provide targeted and spatial assessments of the risk associated with contaminated land as defined within the desk top study and associated review completed within this report. This will include the following assessment criteria :-
 - Targeted sampling to include **on site features**:-
 - Made Ground (from construction and demolition associated with on-site development) – Heavy metals and metalloids, acids / alkalis, PAHs, asbestos, elevated sulphate and ground gases.
 - Infilled ground on-site (including well infill) - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
 - Former infilled pit - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
 - Former rubber and plastic product (manufacturers) - Heavy metals and metalloids, acids / alkalis, TPHs, PAHs, VOCs, asbestos and elevated sulphate.

- Former clay pit on site (now assumed to be infilled) - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- Former brick field - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- Two electrical sub stations - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and PCBs.
- Targeted sampling to include **off site features**:-
 - Former tramway 20m east – Heavy metals and metalloids, acids / alkalis, PAHs and TPHs.
 - Former chair factory 20m east – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and elevated sulphates.
 - Numerous former engineering works and warehouses 20m east - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, VOCs, elevated sulphates and PCBs.
 - Former coal yard 50m south – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and elevated sulphates.
 - Former engineering works 10m west - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, elevated sulphates, VOCs and PCBs
 - Former garage 10m west – Acids / alkalis, heavy metals and metalloids, PAHs, TPHs, VOCs and MTBE.
 - Former metal works 40m south – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, VOCs, PCBs and elevated sulphates.
 - Former telephone exchange 120m north-west – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and elevated sulphate.
 - Former motor repair works 130m west/north-west – Acids / alkalis, heavy metals and metalloids, PAHs, TPHs, VOCs and MTBE
 - Four different pollution incidents to controlled water consisting of unknown sewage (27m south-west & 36m south), unknown chemicals (31m south-west) and unknown oil (34m south west) – Ammoniacal nitrogen, elevated nitrates, elevated sulphates, heavy metals and metalloids, acids / alkalis, PAHs and TPHs.
 - Unknown filled ground 42m south and infilled wells 5m and 20 m south of the site - heavy metals and metalloids, acids / alkalis, PAHs, TPHs, elevated sulphate and ground gases.
 - Car dealers 22m north-east – Acids / alkalis, heavy metals and metalloids, PAHs, TPHs and MTBE. • Window frame manufacturers 26m north – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and elevated sulphates.
 - Joinery Manufacturers 31m south – Acids / alkalis, heavy metals and metalloids, PAHs and TPHs.
 - Garage Services located 26m north, 37m south, 38m south and 34m west – Acids / alkalis, heavy metals and metalloids, PAHs, TPHs, VOCs and MTBE.
 - Damp and dry rot control 41m north-west – Acids / alkalis, heavy metals and metalloids, PAHs, TPHs, VOCs, elevated nitrates and elevated sulphates.
 - Photographic Processors 44m north-west - Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, cyanide, elevated sulphate and VOCs.

- Dry Cleaners 44m north-west - heavy metals and metalloids, acids / alkalis, PAHs, TPHs, PCBs and VOCs.
- Spatial Sampling to include :-
 - Made Ground – Heavy metals and metalloids, acids / alkalis, PAHs, asbestos, elevated sulphate and ground gases.
 - Worked ground on site – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- To anticipate regulatory action and provide sufficient data to overcome and answer any outstanding queries they may raise.
- Provide the relevant authorities sufficient information to satisfy any regulatory requirements set for the site.
- To ensure that the development, on completion, will be fit for the proposed use with all risk assessed and removed.
- It is proposed within this investigation to assess the suitability of the site for a new development which will incorporate residential structure and associated landscaping.
- In order to assess this suitability for development, it is proposed to use a source-pathway-receptor analogy, which, if broken, presents a reduced risk to the development.

It is proposed to assess, where possible, sources of contamination within the site as a result of historical or ongoing use and whether these uses have pathways to receptors within the proposed development

Initial Investigation – September & October 2022

- 6 No Competitor Rig Windowless Sampler borehole sunk to a maximum depth of between 1.00-2.00 meters – Date of Works – October through to November 2022.
- 6 No Competitor Rig Windowless Sampler borehole ABANDONED DUE TO SITE RESTRICTIONS – (Headroom, Access, Services) – Date of Works – October through to November 2022.
- 2 No Shell & Auger borehole sunk to a maximum depth of 30 metres to assess soils profile for piling parameters.
- Installation of 3 No standpipes to a depth of between 1.80 and 6.00 meters for the purpose of ground water and Land Gas assessments.
- Excavation of 4 No hand dug trial pits to expose the existing foundations.
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (report date 24th October 2022 to 8th December 2022).

4.3.2 Historic Investigation

Prior to our involvement in the development of the site, no historic investigations are known to us.

4.3.3 Description of Site Works and on/off Site Observations

Based on the investigation completed by HESI the site has been reviewed and we can confirm that the geology within the site is as follows :-

Table 3 **Geological Profile**

<i>Stratum</i>	<i>Description</i>	<i>Depth, Range (m)</i>	<i>Thickness, Range (m)</i>
MADE GROUND	Various made ground	0.60-1.90m	0.60-1.90m
SUPERFICIAL DEPOSITS	Firm to stiff orange brown sandy slightly gravelly CLAY	0.80-1.80m	0.20-0.40m
LYNCH HILL GRAVEL	Dense orange SAND & GRAVEL	5.50-5.80m	3.60-4.60m
LONDON CLAY	Firm to stiff becoming stiffer with depth grey slightly silty CLAY	30.00m	24.00-24.20m
Ground Water	A moderate inflow of groundwater was identified at 8.20 metres within both deep boreholes with no identified strikes during drilling within the shallow excavations. Long term monitoring is ongoing.		

4.3.4 Human Health Source Conclusions

Risk based on assessments of the site confirm that risk is in place as follows: -

Table 4 **Soil Contamination Risks**

<i>Risk Factor</i>	<i>Risks in place</i>	<i>Remediation</i>
Targeted Risks	None	None
Spatial Risks	PAH's and Lead within the Fill	Remediation action required. Assume as Widespread

4.3.5 Ground and Surface Water Source

The Lynch Hill Gravel Member underlying the site is classed as a Principal Aquifer. This designation is assigned to strata which comprise layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage, and may support water supply and/or river base flow on a strategic scale.

The London Clay Formation underlying the superficial deposits is classified as an Unproductive Strata. Unproductive Strata are low permeability strata which are not considered to retain significant quantities of groundwater. If groundwater is present within Unproductive Strata, for example within more permeable lenses or small fissures, it is typically discontinuous, of low value and very low sensitivity.

The nearest surface water feature to the site is listed as a small stream/drain (33m northeast) which runs through Hitherbroom Park to the north of the site. This stream runs east towards the River Crane and Yielding Brook approximately 80m and 110m east of the site, respectively, given the anticipated shallow groundwater flow direction (southeast) these surface waters may be considered a potential controlled waters receptor with respect to potential on site sources of contamination. However it should be noted that the section of the River Crane within

proximity to the site may be lined, as indicated by a review of historic mapping and other online sources. If the River Crane is lined it is unlikely that it will be a potential controlled waters receptor.

Groundwater has been abstracted from a borehole at Apexes Works 850m south of the site on a single occasion dated 1996. Groundwater has also been abstracted from a different borehole at Apexes Works 900m southeast of the site on two occasions for industrial/commercial/public services purposes. No further groundwater or surface water abstractions are listed within 1km of the site.

Based on the absence of any significant levels of contamination in place, minimal made ground on site, risk to groundwater is considered low.

4.3.6 Land Gas Assessments

In accordance with CLR11, BS 10175:2011, BS 8485:2007, CIRIA C665 and CIRIA R149, risks from land gas have been identified in place and as such, some assessment of risk will be required.

Considering the potential for Land Gas risks due to the potential made ground, worked ground on site and former brick fields within the site area, Land Gas risk assessments must be completed. These will include the potential for contamination migration from on and off-site sources which may be present in concentrations where risk is recorded.

Land gas monitoring should be specifically targeting the following land uses.

Table 5 Land Gas Risk Assessment - Response Zone

Feature	Targeted Response Zone	Location to Target	Vapour or Gas risk
Made Ground			
Worked Ground	Made Ground, Lynch Hill	Site Wide	Land Gases – CO ₂ , CH ₄ .
Former Brick Fields	Gravel		
Landfill Sites			

Considering the results of the gas testing no elevated levels were recorded in place within the site and no flow rates were recorded within the site and as such, the site and surrounding area is not degrading at a fast rate.

With this in mind, we can confirm the following calculations can be made :-

$$Q_{hg} = \frac{q(C_{hg})}{100}$$

q = is the measured flow rate, (in litres per hour) of combined gases from the monitoring standpipe

C_{hg} = is the measured hazardous gas concentration, (in percentage volume / volume)

Therefore :-

$$Q_{hg} = 0.0 \left(\frac{0.6}{100} \right) = 0.0$$

As such, the Hazardous Gas Flow Rate has been calculated as 0.00 and we would therefore suggest gas generation within the site area is minimal and would return a Characteristic Situation in line with CIRIA C665, CLR11 and BS8485:2015 of CS = 1 and no mitigation measures required.

The Envirocheck Report indicates that the site is within a Lower Probability Radon Area (with less than 1% of homes estimated to be at or above the Action Level). BRE 211: Radon – Guidance on Protective Measures for New Buildings (2015) indicates that without a site-specific Radon Risk Report the maximum requirement for radon protection is “None On this basis, no further radon assessment is required, and no radon protection needs to be incorporated into the proposed building fabric.

4.3.7 Vapour Risks

Considering the potential for vapour risk to be in place from various source as noted below, the following risk are in place.

Table 6 Vapour Risk Assessment - Response Zone

Feature	Targeted Response Zone	Location to Target	Vapour or Gas risk
Infilled ground on-site	Made Ground / S & G	Site wide	TPH's
Former infilled pit	Made Ground / S & G	Site wide	TPH's
Former rubber and plastic product (manufacturers)	Made Ground / S & G	Site wide	TPH's, PCB's, VOC's
Former clay pit on site	Made Ground / S & G	Site wide	TPH's
Former brick field	Made Ground / S & G	Site wide	TPH's
Two electrical sub stations	Made Ground / S & G	Site wide	TPH's, PCB's
Migration onto the site from off site sources	Made Ground / S & G	Site wide	TPH's, PCB's, VOC's

Chemical testing has been completed and no elevated level of these vaporous contamination have been recorded in place also when logging and sub-sampling a visual and olfactoral assessment of the soils have been completed, and no contamination that promotes a vapour risk has been encountered within the assessment completed to date.

4.3.8 Water Main Pipework

An assessment of risk in relation to water main pipework has been considered within the scope of the works and considering the pollution measured at the site. Based on a comparison of the WRAS Data and UKWIR, (Guidance for the selection of water supply pipework on brownfield sites), it can be seen that no elevated levels of contamination that would impact on the water main pipework, has been identified. This would suggest that any new water main pipework should be installed using conventional pipework.

Considering the risk to the workforce used in the construction and possible future maintenance of water main pipework, risk is in place based on the standard human health risk, as detailed in Section 10.5. As such, we would suggest that if the site has not undergone full remediation, all water main pipework should be laid in clean corridors to prevent future harm to the workforce used in maintenance of the system. To confirm: -

New water main pipework can be laid in a conventional pipework system.

- Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

4.3.9 ***Building Risks***

Based on the information shown, we can confirm that the risk from explosive land gases is low based on the information identified. The justification for low ground gas risk has been identified and reviewed in Section 10.6.

Considering the risk from Sulphates to concrete we can confirm that the chemical testing has been completed.

Based on the information gained, we can confirm that a classification of DS1-AC1s should be adopted for the site. This would suggest that a conventional cement mix can be used for the development, testing of the deeper soils has been completed with the Geotechnical report by HESI (Rev B) which also shows a classification of DS1-AC1s.

5 Risk Assessment Based on Source Risk

Considering the presence of contamination which has been identified above, we confirm the following outlines the assessment of the site completed and way forward for the site.

Table 7 Risk Assessment A

Source	Receptors	Pathway	Mitigation / Discussion
Lead & PAH's	Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.	Direct contact	Widespread risks
		Ingestion dust and soil	
		Ingestion of soils attached to vegetation	
		Inhalation of vapours, (gas and organic)	No vapour risk from Lead nor PAH contamination identified
		Ingestion of contaminated water through water main pipework	No risk in place from Lead nor PAH contamination identified
		Inhalation of vapours through contaminated ground waters	No vapour risk from Lead nor PAH.
	Surface Water. Ground Water. Abstraction Well. Plants. Vegetation. Buildings. Construction Materials.	Direct contact with contaminated ground waters	Groundwater risk has been identified as low based on the information gained.
		Lateral migration of shallow groundwater to a target receptor.	
		Migration through fissures / cracks which may migrate to a groundwater receptor.	Plant Risks are considered Low based on assessments with BS3882:2015.
		Plant uptake. Direct contact.	
		Direct contact with contaminated soils;	Lead nor PAH's pose a low risk to the built environment.
		Direct contact with contaminated groundwater	Groundwater risk has been identified as low based on the information gained.

5.1 Collection of Additional Data

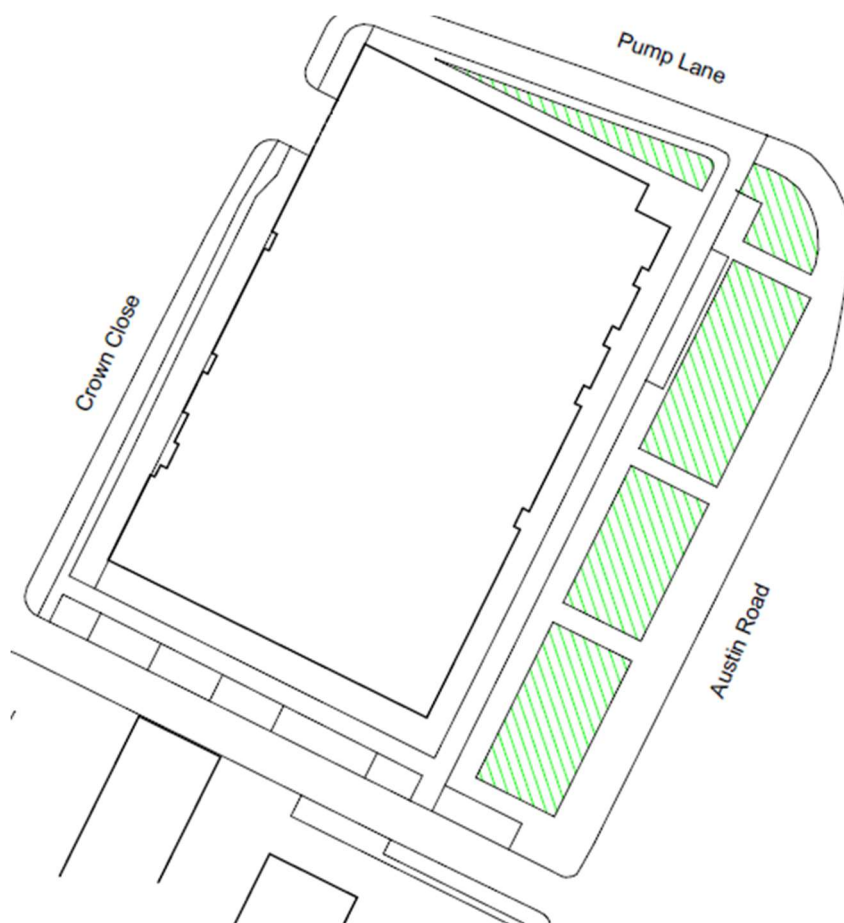
No additional works are required, the site investigation works within the site are sufficient to classify the soil and groundwater risk in place within the site and enable a remediation plan to be written.

6 Review of Remediation Strategy

6.1 Remediation Proposals

This section provides summary of the remediation proposals set out in the Remediation Strategy Report. Remediation will be required where contamination has been identified in place, as detailed in Figure 1.

Figure 1 Remediation Plan



The strategy adopted for the remediation of the site are defined as follows :-

6.2 Remediation Cell 1- Lead & PAH Contamination – WIDESPREAD

- Considering the nature of the contamination identified, (*i.e. Lead & PAH's*), we would suggest that the depth of capping should form a conventional capping system with a geotextile layer laid over the top as defined within **Scenario 2** above.
- A review of the reduced dig area of the remediation cells should be made upon completion of the removal of at least 0.60 meters of the soils and sampling completed across these remediation cells to confirm that the levels of contamination from Lead & PAH's are not above a commercial level, (as this would be deemed

potentially too high and require additional mitigation measures). As such, the test criteria for the reduced dig excavation of the remediation cell will form Lead & PAH's in this Remediation Cell.

- Validation testing should be undertaken to the sides and base of the remediation cell which should include sampling at 25m² centres to be tested for Lead & PAH's with further works undertaken if risk identified and the remediation works repeated until clean soils are recorded. The site records widespread risk and as such, the boundary definition of risk will be demarked with hard landscape boundaries or buildings.
- If the validation testing confirms low risk and the levels of Lead & PAH's are broadly in line with that defined within this report, (i.e. below commercial levels), a no dig barrier in the form of geotextile should be laid across the remediation cell to ward against future excavation.
- If the levels of Lead & PAH's are identified above a commercial level in the base of the remediation cell made ground / contamination remains in place at this depth excavate a further 0.20 meters of soil to achieve a total remediation cell depth of 0.80 meters in depth. At this point, place approximately 0.20 meters of crushed concrete or porous stone into the base of the remediation cell to provide the necessary start of a capillary break layer. A layer of porous membrane, (preferably hi-visibility), should be placed across the capillary break layer as both a layer to prevent clogging of the capillary break layer and also as a warning to possible future excavation that risk may be below. This will be in line with **Scenario 3** above.
- A record of the soils to remain in place at the base of the remediation cell should be kept, through site notes and photos, for validation.
- A Materials Management Plan, (MMP), will be required in order to provide adequate confidence that cross contamination from both the demolition process of existing site features and structures and also the potential for soils to become cross contaminated to other areas of the site which may increase costs for site remediation does not occur. The groundworks contractor / remediation contractor will be required to provide adequate reporting that cross contamination has been fully prevented and validation that the proposals have worked.

6.3 Remediation Cell 2 – WATER MAIN PIPEWORK

- An assessment of risk in relation to water main pipework has been considered within the scope of the works and considering the pollution measured at the site. Based on a comparison of the WRAS Data and UKWIR, (Guidance for the selection of water supply pipework on brownfield sites), it can be seen that no elevated levels of contamination that would impact on the water main pipework, has been identified. This would suggest that any new water main pipework should be installed using conventional pipework.
- Considering the risk to the workforce used in the construction and possible future maintenance of water main pipework, risk is in place based on the standard human health risk, as detailed in Section 10.5. As such, we would suggest that if the site has not undergone full remediation, all water main pipework should be laid in clean corridors to prevent future harm to the workforce used in maintenance of the system. To confirm: - New water main pipework can be laid in a conventional pipework system. Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

6.4 *Semi Permanent Landscaping, (Patio Areas)*

Treat as Soft Landscaping if in defined remediation cells.

6.5 *Below Buildings*

Vapour Risk

No risks are in place.

Land Gas

No risks are in place.

6.7 *Workforce*

- All Site Staff and visitors to the site should be made aware of the contamination risk within the site area from Lead and PAHs within the upper made ground.
- Appropriate PPE should be worn at all times.
- Washing facilities should be made available for washing hands prior to consumption of any food or water within the site area.

6.8 *Groundwater Risk*

Risks to the groundwater and surface water features surrounding the site are recorded as Low.

7 Validation

7.1 Validation Works Completed

Via the remediation report Herts & Essex Site investigations have informed the client of the validation requirements for the validation works, based on this the client has invited HESI to visit the site at strategic point of the development and have provided the validation data for completion of the report these details and information are as follows.

7.2 Amendments to the Proposed Remediation Plan

No changes to the proposed remediation plan have been made.

7.3 Soft Landscaping Areas

Soils within the areas of soft landscaping as shown in the validation plan have been removed to 0.60 meter below the finished ground level.

At the base of the reduced dig a sand and gravel fill is in place with rare brick and concrete fragments was seen in place, which will be capped off by the imported clean topsoil.

Photos of the reduce dig have been provided below.

7.3.1 Site Reconnaissance – Photos

Print 1



Print 2



Print 3



Print 4



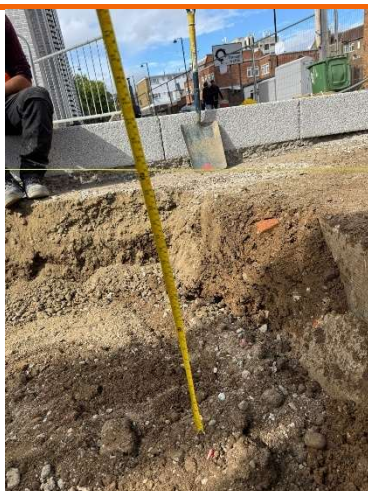
Print 5



Print 6



Print 7



Print 8



Print 9



Print 10



7.4 Validation Testing

Validation testing from the base of the remediation cell have been completed, the location of the samples are shown on the validation plan in the appendix of this report and in the table below.

Table 8 **Validation Testing**

Location	Remediation Cell No	Validation Sampling	Testing Criteria	Human health risk Pass/Fail	Comments
Soft landscaping	REM CELL 1	RD1	Lead PAHs	Fail	Elevated lead will be in place below the clean capping layer in this location
		RD2	Lead PAHs	✓	
		RD3	Lead PAHs	✓	
		RD4	Lead PAHs	✓	
		RD5	Lead PAHs	✓	

In the location of the RD1 sample fill and a slightly elevated level of lead is in place. This will be capped off by the 0.60 meters of clean soil which have been imported to the site.

7.5 Excavated Soils

Any excavated soils were disposed off-site to a suitable landfill via an external haulier. A log of the muck away certificates have been included within this report.

7.6 Topsoil Importing

Topsoil has been brought onto the site to be placed in areas of soft landscaping. HESI were invited to visit site and collect samples of the topsoil prior to it being placed within the remediation cell.

One sample was collection and testing for general environmental suite as recorded in the remediation report, one sample was also tested for BS3882.

The result of this testing is recorded within the appendix of this report.

By examination of the results obtained from the analytical chemist with the criteria set out in the remediation report, it can be confirmed that the topsoil samples fell below the allowable level for residential or sensitive land uses and as such, the material is suitable for use in the site.

7.7 Water Main Pipework

Limited risk to the water main has been recorded within the site, any new water mains have been installed within conventional pipework.

The trenches for the services were back filled with clean soil to protect any workforce that may need to excavate the area in the future.

7.8 Below Buildings

7.8.1 Vapour Risk

No risk in place.

7.8.2 Land Gas

No risk in place.

7.9 **Permanent Hard Landscaping, (Main Driveway)**

These will from permanent features that cannot be removed by the site occupants. Although the majority of these areas were excavated and back filled with hardcore as a subbase some levels of lead and PAHs may remain in place. The hardcover will remove the pathway for these to impact on any receptors.

7.10 **Workforce**

Throughout the development a site induction was completed for anyone coming onto the site and where required the visitors and workers were informed of the potential risks from the soil in place within the site area.

Appropriate PPE was worn by all personnel on site with hand washing facilities were made available.

8 **Conclusions**

This report forms a validation report for the completion of the site area and includes validation that the soft landscaped communal space have undergone specific remediation to remove the risk from the identified Lead and PAH contamination by way of a 0.60 meter clean capping layer, although in the majority of the area the soils at the base of the remediation cell did not record any contamination.

The excavated soils were removal from the site to a landfill through a licensed haulier. Photos of the remediation cell as well as reduce dig testing have then been recovered and are recorded within this report to provide lines of evidence that all risks from contamination has been removed from the soft landscaped areas of the site. Clean topsoil has been imported to the site area and therefore no further risk to human health is in place.

It is not proposed to undertake any long term monitoring or maintenance programmes within the site.

CERTIFICATE OF COMPLETION

Development: Junction of Pump Lane & Crown Close, Hayes, Middlesex. UB3 3DN.

Planning Application Ref:: 76550/APP/2021/4499

Undertaken Between the Dates of: November 2021 and August 2025

PHASE 1 - Desktop Study

Confirmation that an acceptable Phase I Assessment has been undertaken for the above development, detailed in the Phase I report(s):

Title: Desktop Study	Ref: 1990-A2S-XX-XX- RP-Y-0001-00	Author: A-squared Studio Engineers Ltd Craig Aston	Date: November 2021
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PHASE 2 - Intrusive Investigation

Confirmation that an acceptable Phase II Assessment has been undertaken for the above development, detailed in the Phase II report(s):

Title: Environmental Report	Ref: CSG / 17713	Author: HESI - C.S.Gray, M.Sc	Date: November 2022
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PHASE 3 - Remediation Proposals

Confirmation that acceptable remediation measures to afford protection from identified risks have been proposed for the above development, detailed in the report(s):

Title: Remediation Report	Ref: CSG / 17713	Author: HESI - C.S.Gray, M.Sc	Date: November 2022
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PHASE 4 - Implementation of Remediation

Confirmation that proposed remedial measures were satisfactorily implemented, as per the agreed report(s), & detailed in the Validation Documentation:

Title: Validation Report	Ref: CSG / 17713	Author: HESI – R Chamberlain	Date: August 2025
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IMPORTED TOPSOIL CLARIFICATION

Confirmation that Topsoil has been imported into the site.

TESTING COMPLETED Validation Report	Ref: CSG / 17713	Author: HESI – R Chamberlain	Date: August 2025
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DECLARATION

SIGNED

CHRIS GRAY, M.Sc.



Date:
September 2025

**IS THE SITE FIT FOR
PURPOSE ?**

YES.



Hayes Town Centre, Pump Lane / Austin Road, Hayes, London. UB3 3DN

Site Conceptual Model - Proposed Site Plan

Potential Pathways

Human Health

- 1 Direct contact with contaminants in soil/dust or water
- 2 Inhalation of contaminants through soil/dust/particles
- 3 Dermal Contact
- 4 Ingestion of home grown produce
- 5 Ingestion of contaminated water through water main pipework
- 6 Inhalation of Land Gases / Vapours From Soils
- 7 Inhalation of Vapours from Groundwater
- 8 Migration to off site Adjoining Land Owners

Flora

- 9 Plant uptake & direct contact with soil

Controlled Surface Water, Ground Water & Abstraction Well

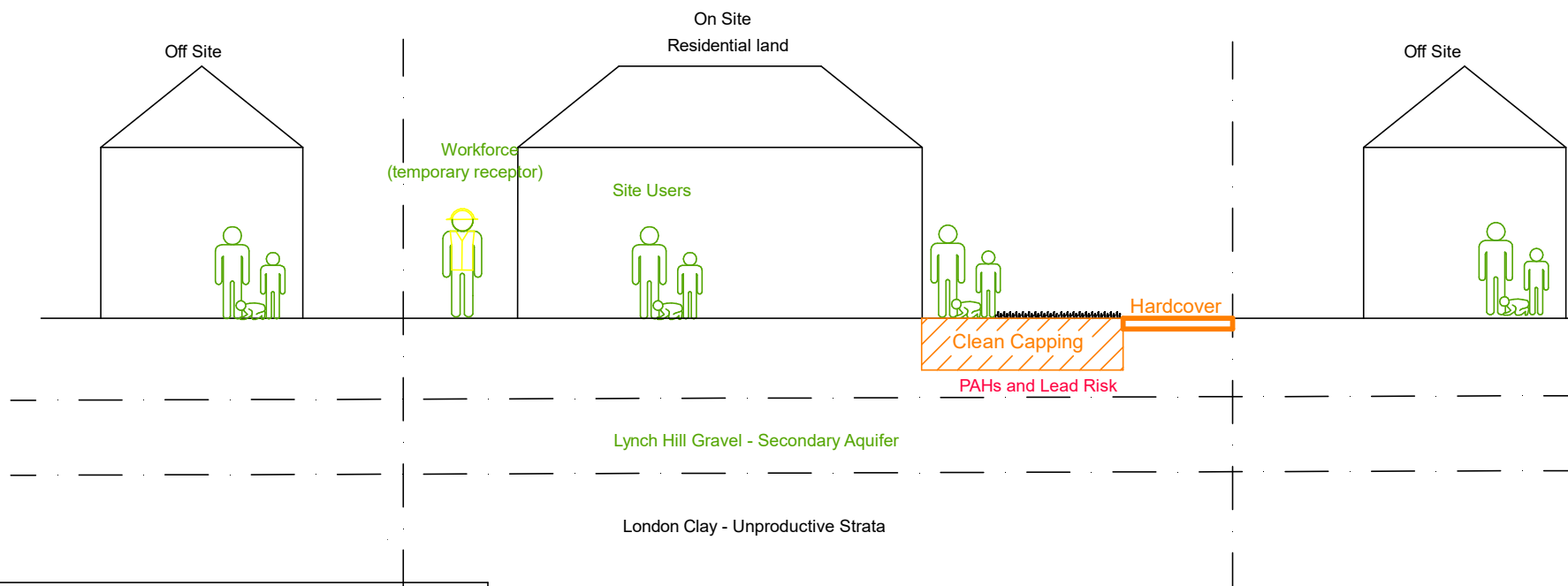
- 10 Leaching, lateral migration of shallow groundwater to a target receptor

Off Site Sources

- A Migration of contamination to the site area
- B Migration of land gases/ vapours to the site area
- C Migration of contaminated groundwater to the site area

Key

- Purple = Potential pathways applicable to site
Green = Potential receptors applicable to site
Red = Potential sources applicable to site
Grey = Not in place within this site
Orange = Remedial measure put in place to remove either pathway/source/receptor



Not to Scale

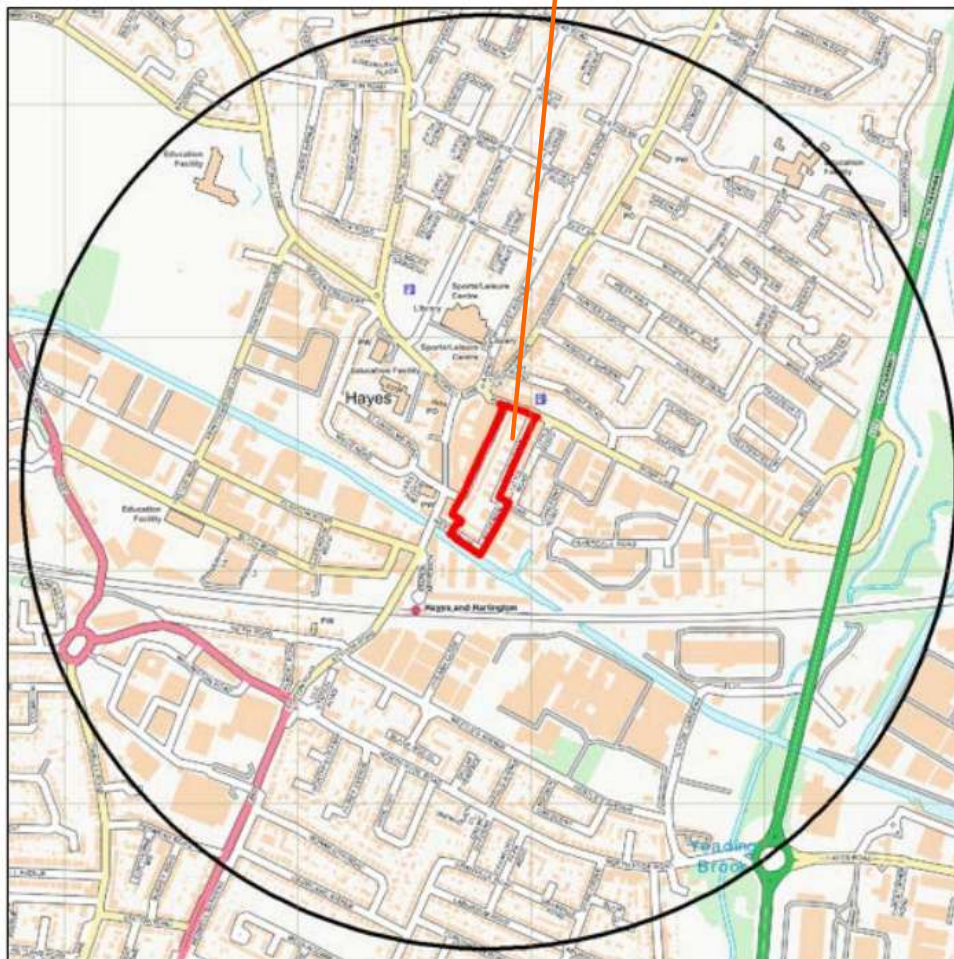
Sketch No. : DTS / 17713 / 01 / 01

Hayes Town Centre, Pump Lane / Austin Road, Hayes, London. UB3 3DN

Location Plan

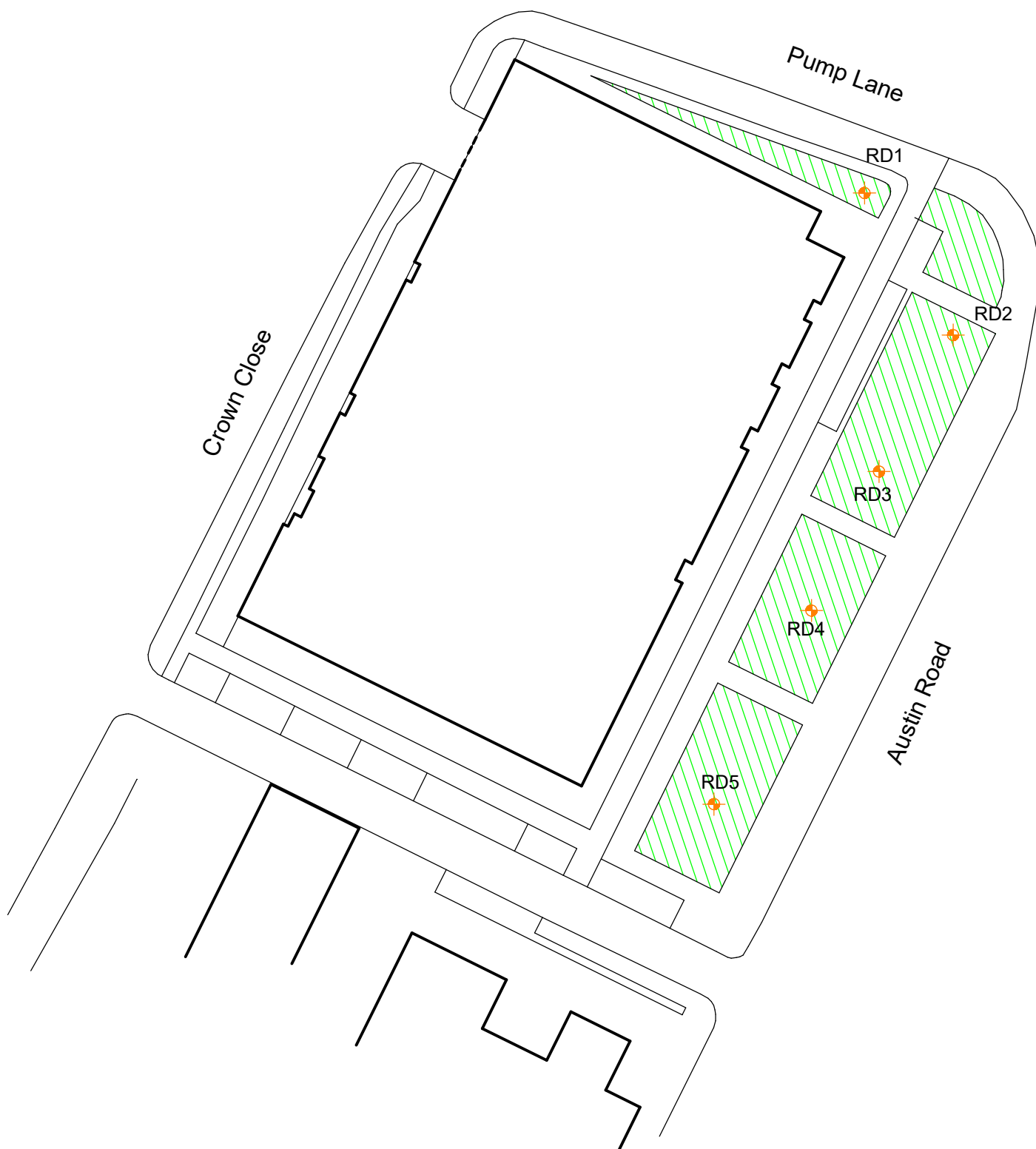


The Site



Hayes Town Centre, Pump Lane / Austin Road, Hayes, London. UB3 3DN

Validation Plan



Not to Scale
Sketch No. : VAL / 17713 / 01 / 02

JAN 10

.JAN 10

146	Inert Muck Away	27.02.2024	Heathrow Environment	72849	GN20 YOK	Summerleaze Maidenhead	15m3	
147	Inert Muck Away	28.02.2024	Heathrow Environment	72850	GN20 YOK	Summerleaze Maidenhead	15m3	
148	Inert Muck Away	28.02.2024	Heathrow Environment	69351	GN20 YOK	Summerleaze Maidenhead	15m3	
149	Inert Muck Away	28.02.2024	Heathrow Environment	69352	GN20 YOK	Summerleaze Maidenhead	15m3	
150	Inert Muck Away	28.02.2024	Heathrow Environment	69353	GN20 YOK	Summerleaze Maidenhead	15m3	
151	Inert Muck Away	29.02.2024	Heathrow Environment	73054	GN20YOL	Bretts, George Green	15m3	
152	Inert Muck Away	29.02.2024	Heathrow Environment	73055	GN20YOL	Bretts, George Green	15m3	
153	Inert Muck Away	29.02.2024	Heathrow Environment	73056	GN20YOL	Bretts, George Green	15m3	
154	Inert Muck Away	29.02.2024	Heathrow Environment	73057	GN20YOL	Bretts, George Green	15m3	
155	Inert Muck Away	29.02.2024	Heathrow Environment	73059	GN20YOL	Bretts, George Green	15m3	
			March - 51 loads					
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26	Inert Muck Away	07.03.2024	Heathrow Environment	72887	GN66 SVW	TML Harefield	15m3	
27	Inert Muck Away	07.03.2024	Heathrow Environment	72889	GN66 SVW	TML Harefield	15m3	
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29	Inert Muck Away	07.03.2024	Heathrow Environment	72891	GN66 SVW	TML Harefield	15m3	
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9	Concrete Away	09.05.2024	Heathrow Environment	69636	GN66 SVV	Holloway Lane	15m3	
10	Inert Muck Away	10.05.2024	Heathrow Environment	70715	GN20 YAW	TMLHarefield	15m3	
11	Inert Muck Away	13.05.2024	Heathrow Environment	68558	GN20 YOL	Bretts, George Green	15m3	
12	Inert Muck Away	13.05.2024	Heathrow Environment	68559	GN20 YOL	Bretts, George Green	15m3	
13	Inert Muck Away	13.05.2024	Heathrow Environment	68560	GN20 YOL	Bretts, George Green	15m3	
14	Inert Muck Away	13.05.2024	Heathrow Environment	68561	GN20 YOL	Bretts, George Green	15m3	
15	Inert Muck Away	13.05.2024	Heathrow Environment	68562	GN20 YOL	Bretts, George Green	15m3	
16	Inert Muck Away	14.05.2024	Heathrow Environment	68883	GM17FFL	Bretts, George Green	15m3	
17	Inert Muck Away	14.05.2024	Heathrow Environment	68884	GM17FFL	Bretts, George Green	15m3	
18	Inert Muck Away	14.05.2024	Heathrow Environment	68885	GM17FFL	Bretts, George Green	15m3	
19	Inert Muck Away	14.05.2024	Heathrow Environment	68841	GN66SVW	Bretts, George Green	15m3	
20	Inert Muck Away	15.05.2024	Heathrow Environment	68846	GN66SVW	Bretts, George Green	15m3	
21	Inert Muck Away	15.05.2024	Heathrow Environment	68848	GN66SVW	Bretts, George Green	15m3	
22	Inert Muck Away	15.05.2024	Heathrow Environment	68850	GN66SVW	Bretts, George Green	15m3	
23	Inert Muck Away	24.05.2024	Heathrow Environment	68897	GM17FFL	Summerleaze Maidenhead	15m3	
24	Inert Muck Away	28.05.2024	Heathrow Environment	69646	GN66 SVV	Bretts, George Green	15m3	
25	Inert Muck Away	28.05.2024	Heathrow Environment	69648	GN66 SVV	Bretts, George Green	15m3	
26	Inert Muck Away	28.05.2024	Heathrow Environment	69650	GN66 SVV	Bretts, George Green	15m3	
27	Inert Muck Away	30.05.2024	Heathrow Environment	68586	GN20 YOL	Bretts, George Green	15m3	
28	Concrete Away	31.05.2024	Heathrow Environment	70200	GM17FFK	Foley, Holloway Lane	15m3	
			June 30 Loads					
1	Concrete Away	03.06.2024	Heathrow Environment	68588	GN20 YOL	Foley, Holloway Lane	15m3	
2	Tarmac Away	03.06.2024	Heathrow Environment	69492	GN20 YOK	Bretts, George Green	15m3	
3	Inert Muck Away	03.06.2024	Heathrow Environment	69493	GN20 YOK	Bretts, George Green	15m3	
4	Inert Muck Away	03.06.2024	Heathrow Environment	68589	GN20 YOL	Bretts, George Green	15m3	
5	Inert Muck Away	03.06.2024	Heathrow Environment	68301	GM17FFK	Summerleaze Maidenhead	15m3	
6	Inert Muck Away	05.06.2024	Heathrow Environment	69495	GN20 YOK	TMLHarefield	15m3	
7	Inert Muck Away	05.06.2024	Heathrow Environment	68591	GN20 YOL	TMLHarefield	15m3	
8	Inert Muck Away	05.06.2024	Heathrow Environment	70740	GN20 YOW	TMLHarefield	15m3	
9	Inert Muck Away	05.06.2024	Heathrow Environment	68302	GM17FFK	TMLHarefield	15m3	
10	Concrete Away	05.06.2024	Heathrow Environment	70742	GN20 YOW	TMLHarefield	15m3	
11	6F2	05.06.2024	Heathrow Environment	68592	GN20 YOL	A Drive	15m3	
12	6F2	05.06.2024	Heathrow Environment	69496	GN20 YOK	A Drive	15m3	
13	Inert Muck Away	10.06.2024	Heathrow Environment	68311	GM17FFK	TMLHarefield	15m3	
14	Inert Muck Away	10.06.2024	Heathrow Environment	72909	GN20 YOK	Bretts, George Green	15m3	
15	Tarmac away	13.06.2024	Heathrow Environment	68356	GN66SVW	Foley, Holloway Lane	15m3	
16	Inert Muck Away	20.06.2024	Heathrow Environment	68359	GN66SVW	TMLHarefield	15m3	
17	Inert Muck Away	20.06.2024	Heathrow Environment	68360	GN66SVW	TMLHarefield	15m3	
18	Inert Muck Away	20.06.2024	Heathrow Environment	68362	GN66SVW	TMLHarefield	15m3	
19	Inert Muck Away	20.06.2024	Heathrow Environment	68363	GN66SVW	TMLHarefield	15m3	
20	Inert Muck Away	20.06.2024	Heathrow Environment	68364	GN66SVW	TMLHarefield	15m3	
21	Inert Muck Away	20.06.2024	Heathrow Environment	68366	GN66SVW	Foley, Holloway Lane	15m3	
22	Inert Muck Away	21.6.2024	Heathrow Environment	68417	GM17 FFL	TMLHarefield	15m3	
23	Inert Muck Away	21.6.2024	Heathrow Environment	68419	GM17 FFL	TMLHarefield	15m3	
24	Inert Muck Away	21.6.2024	Heathrow Environment	68420	GM17 FFL	TMLHarefield	15m3	
25	Inert Muck Away	21.6.2024	Heathrow Environment	68421	GM17 FFL	TMLHarefield	15m3	
26	Inert Muck Away	21.6.2024	Heathrow Environment	68422	GM17 FFL	TMLHarefield	15m3	
27	Inert Muck Away	26.06.2024	Heathrow Environment	68314	GM17FFK	TMLHarefield	15m3	
28	Inert Muck Away	26.06.2024	Heathrow Environment	68368	GN66SVW	TMLHarefield	15m3	
29	Inert Muck Away	26.06.2024	Heathrow Environment	72912	GN20 YOK	TMLHarefield	15m3	
30	Concrete Away	28.06.2024	Heathrow Environment	70229	GN20 YAW	Foley, Holloway Lane	15m3	
			JULY 7 loads					
1	Concrete Away	09.07.2024	Heathrow Environment	68446	GM17 FFL	Foley, Holloway Lane	15m3	
2	Inert Muck Away	10.07.2024	Heathrow Environment	68381	GN66SVW	Bretts, George Green	15m3	
3	Inert Muck Away	11.07.2024	Heathrow Environment	69929	GN20 YOL	Bretts, George Green	15m3	
4	Inert Muck Away	18.07.2024	Heathrow Environment	68387	GN66SVW		15m3	
5	Inert Muck Away	30.07.2024	Heathrow Environment	68505	GN20 YOL	TMLHarefield	15m3	
6	Inert Muck Away	30.07.2024	Heathrow Environment	68506	GN20 YOL	TMLHarefield	15m3	
7	Inert Muck Away	30.07.2024	Heathrow Environment	68507	GN20 YOL	TMLHarefield	15m3	

			AUGUST					
1	Concrete Away	15.08.2024	Heathrow Environment	45901	GN20 YOL	Foley, Holloway Lane	15m3	
2	Concrete Away	28.08.2024	Heathrow Environment	45915	GN20 YOX	Foley, Holloway Lane	15m3	
			SEPTEMBER					
1	Tarmac Away	13.09.2024	Heathrow Environment	70384	GN20 YAW	Foley, Holloway Lane	15m3	
			OCTOBER					
1	Inert Muck Away	09.10.24	Heathrow Environment	70109	GN20YOL	Foley, Holloway Lane	15m3	
External Works 2025								
1	Inert Muck Away	20-Aug	Heathrow Environment	70452	GN20 YAW	Foley, Holloway Lane	15m3	
2	Tarmac Away	20-Aug	Heathrow Environment	70457	GN20 YAW	Foley, Holloway Lane	15m3	
3	Tarmac Away	20-Aug	Heathrow Environment	70454	GN20 YAW	Foley, Holloway Lane	15m3	
4	Inert Muck Away	27-Aug	Heathrow Environment	66654	GN20 YOK	Foley, Holloway Lane	15m3	
5	Concrete Away	27-Aug	Heathrow Environment	66651	GN20 YOK	Foley, Holloway Lane	15m3	
6	Inert Muck Away	27-Aug	Heathrow Environment	66657	GN20 YOK	Foley, Holloway Lane	15m3	
7	Inert Muck Away	27-Aug	Heathrow Environment	66652	GN20 YOK	Foley, Holloway Lane	15m3	
8	Concrete Away	29-Aug	TML	20600200	KU25 ZVK	Skip Lane, Harefield		
9	Concrete Away	02-Sep	TML	20600606	KU25 ZVC	Skip Lane, Harefield		
10	Inert Muck Away	09-Sep	Heathrow Environment	70476	GN20 YAW	Foley, Holloway Lane	15m3	
11	Inert Muck Away	09-Sep	Heathrow Environment	70473	GN20 YAW	Foley, Holloway Lane	15m3	
12	Inert Muck Away	09-Sep	Heathrow Environment	70474	GN20 YAW	Foley, Holloway Lane	15m3	
12								

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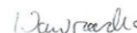
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Analytical Report Number : 25-033300

Project / Site name:	Junction Of Pump Lane Crown Close Hayes Middlesex UB3 3DN	Samples received on:	24/06/2025
Your job number:	17713	Samples instructed on/ Analysis started on:	24/06/2025
Your order number:	17713	Analysis completed by:	30/06/2025
Report Issue Number:	1	Report issued on:	30/06/2025
Samples Analysed:	5 soil samples		



Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting
air - once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-033300

Project / Site name: Junction Of Pump Lane Crown Close Hayes Middlesex UB3 3DN

Your Order No: 17713

Lab Sample Number	592416	592417	592418	592419	592420
Sample Reference	RD1	RD2	RD3	RD4	RD5
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
Time Taken	930	930	930	930	930
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	53.6	< 0.1	35.4	< 0.1
Moisture Content	%	0.01	NONE	12	4.9	2.4	4.1	8.3
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.5	0.5	0.5

General Inorganics

Organic Matter (automated)	%	0.1	MCERTS	2	0.8	0.6	0.6	1.6
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.57	0.06	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	2.4	0.37	0.08	< 0.05	0.18
Anthracene	mg/kg	0.05	MCERTS	0.69	0.09	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	7.3	1.2	0.15	< 0.05	0.56
Pyrene	mg/kg	0.05	MCERTS	6.3	1.1	0.13	< 0.05	0.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.4	0.6	< 0.05	< 0.05	0.26
Chrysene	mg/kg	0.05	MCERTS	3.7	0.61	0.05	< 0.05	0.29
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4.4	0.78	< 0.05	< 0.05	0.39
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.2	0.4	< 0.05	< 0.05	0.15
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.2	0.71	< 0.05	< 0.05	0.32
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.5	0.43	< 0.05	< 0.05	0.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.46	0.1	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.8	0.5	< 0.05	< 0.05	0.23

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	41.2	6.99	< 0.80	< 0.80	3.08
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Heavy Metals / Metalloids

Lead (aqua regia extractable)	mg/kg	1	MCERTS	240	51	43	8.8	93
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-033300

Project / Site name: Junction Of Pump Lane Crown Close Hayes Middlesex UB3 3DN

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
592416	RD1	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation
592417	RD2	None Supplied	None Supplied	Brown clay and sand with gravel and stones
592418	RD3	None Supplied	None Supplied	Brown clay and sand with gravel
592419	RD4	None Supplied	None Supplied	Brown sand with gravel and stones
592420	RD5	None Supplied	None Supplied	Brown clay and sand with gravel

Analytical Report Number : 25-033300

Project / Site name: Junction Of Pump Lane Crown Close Hayes Middlesex UB3 3DN

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Analytical Report Number : 25-033300

Project / Site name: Junction Of Pump Lane Crown Close Hayes Middlesex UB3 3DN

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
RD1	N/A	S	592416	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
RD2	N/A	S	592417	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
RD3	N/A	S	592418	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
RD4	N/A	S	592419	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
RD5	N/A	S	592420	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b

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Analytical Report Number : 25-033301

Project / Site name:	Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN	Samples received on:	24/06/2025
Your job number:	17713	Samples instructed on/ Analysis started on:	24/06/2025
Your order number:	17713	Analysis completed by:	03/07/2025
Report Issue Number:	1	Report issued on:	03/07/2025
Samples Analysed:	1 soil sample		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting
	air	- once the analysis is complete

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Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-033301

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

Your Order No: 17713

Lab Sample Number				592421
Sample Reference				TS
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				23/06/2025
Time Taken				930
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	7.3
Total mass of sample received	kg	0.1	NONE	2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM
Analysis completed	N/A	N/A	N/A	01/07/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4
Organic Matter (automated)	%	0.1	MCERTS	5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.06
Pyrene	mg/kg	0.05	MCERTS	0.06
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
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Analytical Report Number: 25-033301

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

Your Order No: 17713

Lab Sample Number				592421
Sample Reference				TS
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				23/06/2025
Time Taken				930
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.4
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.51
Boron (total)	mg/kg	1	MCERTS	8.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	63

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	8.5
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-033301

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
592421	TS	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation

Analytical Report Number : 25-033301

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

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Analytical Report Number : 25-033302

Project / Site name:	Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN	Samples received on:	24/06/2025
Your job number:	17713	Samples instructed on/ Analysis started on:	24/06/2025
Your order number:	17713	Analysis completed by:	04/07/2025
Report Issue Number:	1	Report issued on:	04/07/2025
Samples Analysed:	1 soil sample		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting
	air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

i2 Analytical

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Telephone: 01923 225404
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email:reception@i2analytical.com

Certificate of Analysis									
BS 3882:2015 Specification For Topsoil									
	Pass BS 3882 for Multipurpose Topsoil; Calcareous;							client	
Report No:	25-033302						Herts & Essex Site Investigations		
Location	Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN								
Lab Reference (Sample Number)	592422								
Sampling Date	23/06/2025								
Sample ID	TS								
Depth (m)				Compliant with range (Y/N)					
		unit	Result	Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	LOAMY SAND	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	27.00	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	5.80						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	8.00	Y	N	Y	Y	N	Y
Carbonate:		%m/m	3.50	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.23	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	71.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	657.00	Y	Y	Y	-	-	-
	Extractable Magnesium	mg/l	150.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	14.46	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	2300.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	68.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	19.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	17.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliance:				Pass	Fail	Pass	Fail	Fail	Fail
Results are expressed on a dry weight basis, after correction for moisture content where applicable Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation									

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited

Analytical Report Number : 25-033302

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
592422	TS	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation

Analytical Report Number : 25-033302

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L019B	D	NONE
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Conductivity (BS 3882/BS 8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS 3882:2007 & BS 8601:2013	L031B	D	NONE
Carbonate (Topsoil - BS 3882)	Determination of Carbonate as per BS 3882:2015	Method based on BS 3882:2015	L034-PL	D	NONE
Extractable/Available Metals (BS 3882/BS 8601)	Determination of the extractable metals in soil, in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L038B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition	BS3882:2015	L047-PL/L087B	W	NONE
Mass loss on ignition (Topsoil - BS 3882)	Determination of Loss on Ignition as per BS 3882:2015	Method based on BS 3882:2015	L047-PL	D	NONE
Phosphorus as PO4 (BS 3882/BS 8601)	Determination of the extractable phosphorus in soil, in accordance with BS 3882:2007 methodology	Method based on BS 3882:2015 & BS 8601:2013	L048B	D	NONE
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and ion selective electrode	In-house method based on BS 7755-3.7:1995	L087B	D	NONE
pH (BS 3882/BS 8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS 3882:2007 & BS 8601:2013	L099-PL	D	NONE
Topsoil (BS 3882:2015)	Specification for topsoil	BS 3882:2015	PL		NONE
Textural Classification Diagram (BS 3882:2015)	BS 3882:2015	BS 3882:2015	PL		NONE
Geotechnical Testing	See attached geotechnical report	See attached geotechnical report	PL		NONE

Analytical Report Number : 25-033302

Project / Site name: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

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The result for sum should be interpreted with caution

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
In-house method based on: BS 3882: 2015

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



Client: Herts & Essex Site Investigations
Client Address: The Old Post Office, Wellpond Green,
Standon, Herts,
SG11 1NJ
Contact: Rebecca Chamberlain
Site Address: Junction of Pump Lane & Crown Close, Hayes, Middlesex, UB3 3DN
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

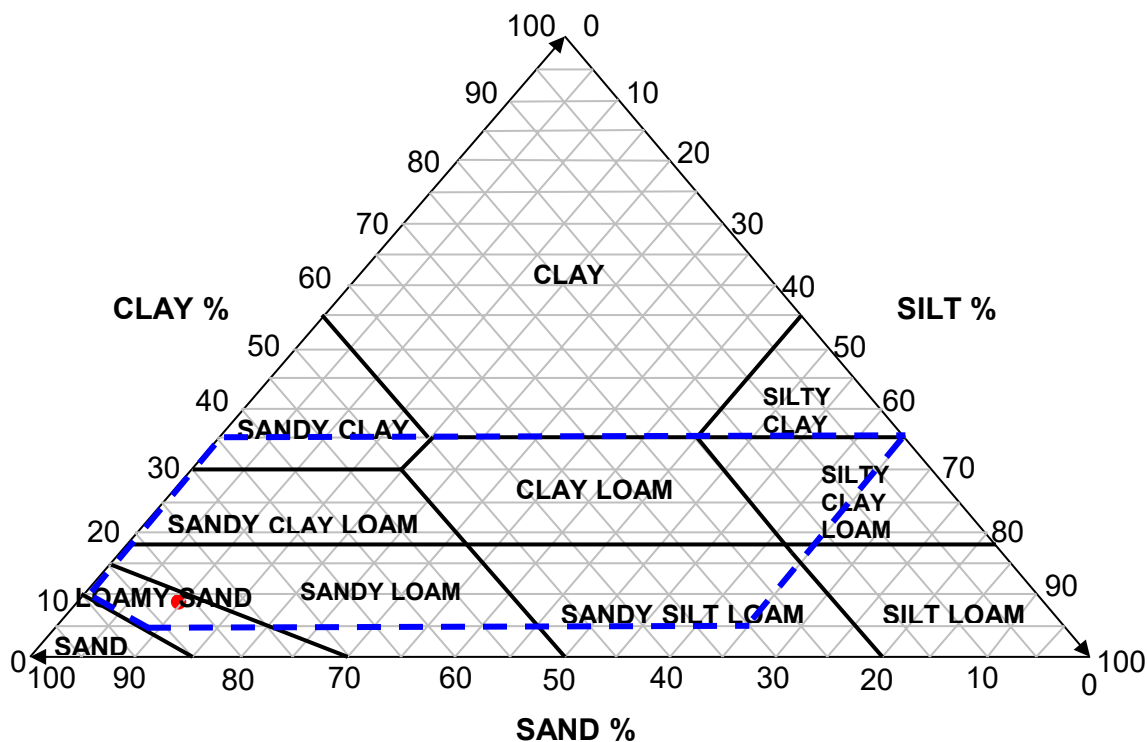
Client Reference: 17713
Job Number: 25-033302-1
Date Sampled: 23/06/2025
Date Received: 24/06/2025
Date Tested: 27/06/2025
Sampled By: Not Given

Test Results:

Laboratory Reference: 592422
Hole No.: TS
Sample Reference: Not Given
Sample Description: LOAMY SAND

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: D

Soil Texture Triangle



Sample Proportion	% dry mass
Sand	82.1
Silt	8.0
Clay	9.9

Texture within acceptable area (Y/N) ☒ Y

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Monika Siewior

Monika Siewior
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

From: Sean Walsh <Sean.Walsh@higginspartnerships.co.uk>
Sent: 11 September 2025 16:24
To: csgrey@hesi.co.uk
Cc: Mark Collier; Paul Urs; Nick Foyle MCIOB
Subject: FW: HTC - Remediation Works

Good afternoon Chris

Please note the statement received from our groundwork's Project Manager, a statement which I am quite happy to endorse myself.

Kind regards

Sean Walsh | Agency Senior Site Manager
Higgins Partnerships
One Langston Road, Loughton, Essex, IG10 3SD
T: 020 8508 5555 | M: 07739 630 527
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From: Haider Karim <Haider.Karim@modebest.co.uk>
Sent: 11 September 2025 16:18

To: Sean Walsh <Sean.Walsh@higginspartnerships.co.uk>
Cc: Mark Collier <mark.collier@higginspartnerships.co.uk>; Paul Urs <Paul.Urs@higginspartnerships.co.uk>; Barry Lineham <Barry.Lineham@modebest.co.uk>; Niall McHale <niall.mchale@modebest.co.uk>; Sivagnanasundaram Sutharsan <sutharsan@modebest.co.uk>
Subject: RE: HTC - Remediation Works

Hi Sean,

I can confirm that no contamination or any other issues have been found and only muck has been taken out of the areas so far.

Kind regards,
Haider Karim /// Project Manager