

REMEDIATION STRATEGY REPORT

Site Address:	The Kennels, Hexton Manor, Hexton, Herts SG5 3JH
Report Date:	May 2025
Project No.:	18673
Prepared for:	Architech Ltd
Planning Application	North Herts Council



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REFERENCES

- BRE Report BR211: Radon: Protective measures for new dwellings, 2015. BRE, Watford.
- BRE Digest 365 (2016): Soakaway design. BRE, Watford.
- BRE Special Digest 1: Concrete in Aggressive Ground, 2005.
- BRE, Watford. British Standards Institution (2004) Eurocode 7 – Geotechnical design - Part 1: General rules. BS EN 1997 1. Incorporating Corrigendum No.1. BSI, London
- British Standards Institution (2007) Eurocode 7 – Geotechnical design - Part 2: Geotechnical investigation and testing. BS EN 1997-2. BSI, London.
- British Standards Institution (2015) BS 3882 Specification for topsoil and requirements for use. BSI, London.
- British Standards Institution (2011) BS 10175 Code of practice for the investigation of potentially contaminated sites. BSI, London.
- British Standards Institution (2013) BS 8576 Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOC's), BSI, London.
- British Standards Institution BS 5930:2015+A1:2020 Code of practice for ground investigations. BSI, London.
- British Standards Institution (2015) BS 8485:2015 Incorporating corrigendum No.1 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BSI, London.
- CIEH & CL:AIRE (2008) Guidance on comparing soil contamination data with a critical concentration. London: Chartered Institute of Environmental Health (CIEH) and CL:AIRE.
- CIRIA C665 (2007) Assessing risks posed by hazardous ground gases to buildings.
- CIRIA, London CIRIA Report R143 (1995): The Standard Penetration Test (SPT): Methods and use. CIRIA, London.
- CL:AIRE (2020) Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration. CL:AIRE, Buckinghamshire.
- Environment Agency (2020) Land contamination risk management (LCRM).
- Environment Agency, NHBC & CIEH (2008) Guidance for the safe development of housing on land affected by contamination. R & D Publication 66. London: Environment Agency.
- Environment Agency (2006) Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination Environment Agency.
- LQM/CIEH S4ULs. LQM, 2014.
- Ministry of Housing, Communities & Local Government: National Planning Policy Framework. February 2019.
- NHBC Standards 2022. NHBC, Milton Keynes.
- Tomlinson M.J (2001): Foundation Design and Construction: 7th Edition. Pearson Prentice Hall, Harlow. UFST.

GENERAL NOTES

This report has been prepared based on the findings of investigations into the site conditions using current available data which has been recovered from Envirocheck to provide environmental data in relation to the site and surrounding area. Where possible, local sources have been researched to gain a better understanding of the site conditions. As part of this review, research has been undertaken with the Local Authority and the Environment Agency as to the site condition.

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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The accuracy of map extracts cannot be guaranteed, and it should be recognized that different conditions on site may have existed between subsequent to the various map surveys.

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 product or sheet materials either on the surface of the site soils or evident above ground, however, does not constitute a full Asbestos Survey by any means. This should be sought under separate cover.

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	23 rd May 2025		

REVIEW OF HISTORIC REPORTS

Client	Architech Ltd		
Site Location	The Kennels, Hexton Manor, Hexton, Herts SG5 3JH		
Existing Development	Vacant kennels / Outbuilding		
Proposed Development	Residential dwelling		
Site Settings and Previous Uses	The site area forms a very small area of the Hexton Manor Estate, which formed a section of open until 1924, when a building constructed to the centre of the site which remains in place to date. Surrounding the site to the open land is recorded in place with a cottage in place to the east of the site, forming part of the Hexton Manor Estate, which is in place around the site in all directions.		
Geological and Hydrological Profile	Geology	Depth	Aquifer Designation
Made Ground	Loose orange brown silty sandy topsoil SAND and GRAVEL FILL with concrete, flint gravel and some brick fragments	0.20-0.50	Not Classified
Superficial Deposit	Firm brown silty CLAY	0.80-1.00	Unproductive Stratum
West Melbury Marly Chalk Formation	Stiff becoming very stiff light grey chalk MARL	3.00+	Principal Aquifer
Groundwater	No groundwater was recorded within the site area. This is based on short term observations while drilling works were completed.		
Nearest Surface Water Feature	The nearest surface water feature is recorded as 80 meters to the east of the site, which is recorded as a ditch		
Groundwater Abstractions	The nearest abstraction well is located 374 meters to the north west of the site which is recorded as for Spray and Irrigation.		
Source Protection Zone	The site does not lie within a Source Protection Zone.		
Potential Sources of Contamination	Features On Site		Features Off Site
	- Parking area and Driveway - Building (Kennels)		None
Investigation Scheme	Initial Investigation – February 2025	4 No Competitor Rig Windowless Sampler borehole sunk to a maximum depth of 1.00 - 3.00 meters - Date of Works – February 2025. - Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (report dated 28/2/25)	
	Secondary Investigation – May 2025	6 No Hand Dug Pits to 0.60 meters. - Chemical Sampling and Testing of soils sent to analytical chemist for PAHs testing.	
Contamination Identified	SOILS (human health and workforce)	Isolated risk from PAHs in made ground within the location of WSB, HA1 and HA5.	
	LAND GASES	No risk has been identified from ground gases.	
	VAPOURS	Chemical testing of the soils show that low risks are in place. Vapour risk is not in place.	
	GROUNDWATER	No risk has been identified to groundwater.	
	CONSTRUCTION MATERIALS	Water main pipework has been considered and no risk has been identified directly to any water main pipework developed at the site. Water main pipework can be laid in 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	

REMEDIATION STRATEGY REPORT - PHASE 3

1 Context and Objectives of this report

1.1 Introduction

At the request of Architech Ltd, Herts & Essex Site Investigations have been asked to further assess and consider the site for the preparation of this Site Remediation Strategy Report to define, where appropriate, a strategy for the remediation and validation of the site to enable a fit for use classification upon completion of the development and hand over for sale.

The principal aim of this report is to provide a source document for regulatory authorities and other interested parties to review, in particular the Environment Agency, Planning and Country and the client. Agreement from regulatory authorities will be required in order to satisfy planning conditions and to ensure that the site does not present a significant risk to potentially vulnerable receptors including future site users, controlled waters and the environment.

The main objectives of this Remediation Method Statement are as follows:

- To comply with the requirements of the Regulatory Authority requirements.
- To provide a summary of the remedial works, and specific methodology for removal of isolated contamination in the location of WS4, HA1 and HA5
- To provide details of good working practices during site remediation works, in accordance with current legislation and guidance.

This document is based on the findings of, and should be read in conjunction with, the Phase 1 Desktop Study by Herts & Essex Site Investigations dated May 2024 and Environmental Report by Herts & Essex Site Investigations dated May 2024.

1.2 Current Planning Status

From a review of the North Herts District Council web site the following applications is recorded for the site area.

Application No: 23/02727/FP

Proposal: Change of use and conversion of existing outbuilding to one 3-bed dwelling to include single storey front and rear extensions following demolition of existing front extension with parking and landscaping.

Status: Conditional Permission.

1.3 Remediation Requirements

The preparation of this remediation strategy and any future verification plan is to ensure the site is suitable for future use when completed and habitable. The proposals laid out in this report have been proposed based on the plans provided to us by the client and submitted to the council and are in place to mitigate against future risk being in place.

The remediation strategy and verification plan have been developed for the site in accordance with guidance documents :-

- National Planning Policy Framework.
- BS 10175:2011+A2:2017, (Investigation of potentially contaminated sites. Code of practice - Code of practice).

- Land contamination risk management (LCRM).
- DEFRA: Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, (April 2012).
- Environment Agency, (2010) GPLC1 Guidance Principles for Land Contamination.

2 Site Details

The site is located within Hexton, a small village to the west of Hitchin, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 1, Sheet 1.

Table 1 *Site Detail*

Site Address:	The Kennels, Hexton Manor, Hexton, Herts SG5 3JH
Site assessed under	Site Owners Request - Aid as part of planning and warranties
Current use of land:	Outbuilding within a residential estate
Previous use of site, (if known)	As above
Grid Reference	NGR 511360, 230290
Site Area	0.1 Hectares
Local Authority	North Herts Council
Gradient of the site	The site and the surrounding area slopes down to the north.
Proximity of Controlled Waters, (if known)	The nearest surface water feature is recorded as 80 meters to the east of the site which is likely formed by a ditch.

3 Additional Investigations

Secondary investigation – May 2025

- 6 No Hand dug pits sunk to a maximum depth of 0.60 meters - Date of Works – May 2025.
- Samples of the topsoil fill recovered for chemical analysis.
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (report date 15/05/25).

Based on the results of the testing as noted in the table below no elevated levels are recorded in place as such the risk is isolated to the location of WS1.

Table 2 Additional Testing

Location	Remediation Cell No	Validation Sampling	Sample depth	Testing Criteria	Human health risk Pass/Fail	Comments
Southeast of the garden area	REM CELL 1	HA1	0.10	PAHs	X	HA1 and HA5 fail and as such the area of risk has been isolated to an area around WSB
		HA2	0.15		✓	
		HA3	0.05		✓	
		HA4	0.20		✓	HA2, HA4 and HA6 will provide pre-validation of the extent of the remediation cell.
		HA5	0.15		X	
		HA6	0.00		✓	

3.2 Soil Contamination

Based on the result of the above testing and the Environmental report chemical testing undertaken on the soils at the site to aid in the data set and also help define the risks within the site.

Table 3 Revised Soil Contamination Risks

Risk Factor	Risks in place	Remediation
Targeted Risks	PAHs– WSB, HA1 and HA6 ONLY	Remediation action required.
Spatial Risks	NONE	

3 Remedial Strategy

3.1 Source Pathway Receptor Risk

The conceptual site model developed for the site confirms that Source-Pathway-Receptor links are in place within the site which may require mitigation or remediation works in order to develop a suitable development. The methods of control or reducing the unacceptable risks are defined as follows :-

- Remove or treat the contamination at source to remove the risk.
- Remove the pathway in which contamination can impact on a receptor.
- Remove the receptor from the environment.



If the pollution chain is broken, the risk associated with pollution can be removed. If the source is removed or treated, the pollution has been removed and as such, risk is removed. If the pathway is broken, the contamination cannot impact on the receptor as no pathway is in place. If the receptor is removed, (however unlikely this is), features / receptors cannot be impacted on.

As such, if the pollution chain is broken, risk is removed.

Considering the development of the site a combination of remediation options are proposed for the site which will be detailed as follows:-

3.1.1 Source Removal

The removal of source risk can be completed to include both removal of near surface soils to provide a capping system across the site where contaminated soils are placed directly over the underlying low-level contamination and provides a barrier between the human being and the underlying contamination. The depth of capping which is generally considered viable to remove risk is 0.60 metres.

A further source removal technique will form the removal of all contamination where contamination is identified as shallow. If the depth of capping is a minimum of 0.60 metres and the contaminated layer only extends to a depth of say 0.45 metres, if the full depth of contamination is removed and this exposes clean ground underlying this depth, clean soil will then overlie clean soil.

Confirmation will be required to confirm the level and extent of contamination which is in place within the base of any remediation cell.

3.1.2 Pathway Removal

A combination of factors will be employed in the development of the site. This will incorporate placement of permanent hard surfaces over the contamination a mechanism to remove interaction with the contamination. Dermal contact, inhalation and ingestion pathways will be removed through the placement of hard cover across the site. These will include roads, pavements and driveways, although, will not include patio areas where future excavation may occur.

Protective pipework may be required to remove risk to the water mains.

3.1.3 Receptor Removal

Receptors relate to the presence of human health interaction in the site upon completion of the development. This cannot change through the development.

Based on the above, the soils remediation process will comprise the following.

3.2 Possible Remediation Options - Human Health Risk

Various remediation options are available to remove the risk to human health these are noted in section 6 of this report, but based on the risk in place within site, the proposed land use and the specific site conditions the following remediation action is proposed.

3.3 Specific Remediation Works

General Contamination Risks Brought Forward

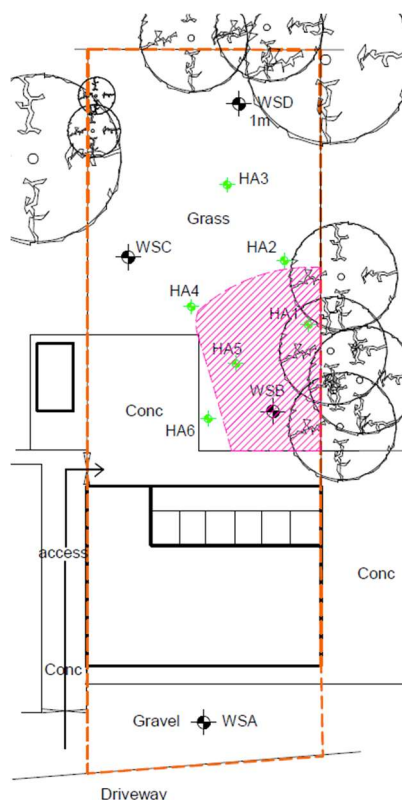
Targeted Risks

- Risk from PAHs have been identified in WSB, HA1 and HA5 ONLY.

Spatial Risks

- None.

Figure 1 Remediation Plan



The broad proposal for the site is as follows :-

3.3.1 Remediation Cell 1 – Soft Landscaping

- Considering the nature of the contamination identified, (*i.e. PAH's*) and the depth of the fill with in the cell (and across the site) is only recorded to a depth of 0.50m we would suggest that the depth of capping should form a full removal of the contaminated layer, as noted in scenario 1.

- Full removal of the contaminated land will therefore remove any further requirement to assess the site provided this is completed, in full.
- A watching brief should be maintained through the remedial action to ensure that any variation in the full depth of contamination being removed is completed which may locally, extend deeper. Whilst there is no requirement to extend the remediation cell any deeper, it may be prudent to complete full removal and treat the entire site as a 'clean site' for the small areas / volumes which may require removal.
- Validation data should be collected at stages through the remediation process to provide lines of evidence that the works have been completed in accordance with the remediation strategy outlined here. These are as follows :-
 - Validation sample for the base of the remediation cell should be completed. (if a depth of 0.60 meters clean soil is to be installed validation testing would not be required)
 - 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.
 - Should the watching brief record any elements of risk which require investigation, the area should be left and barriers placed around the area for inspection by an external environmental engineer.
 - Any reporting undertaken due to the watching brief should be submitted to the local authority for approval prior to works commencing within that specific area.
 - Validation sampling should be completed by an external environmental engineer for any sampling and testing which will include all validation sampling of subsoil and topsoil delivered to the site. This will confirm whether the site has been fully remediated and all contamination removed or indeed, some level of contamination remains in place below an appropriate depth of capping.
- 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.

3.3.2 WATER MAIN PIPEWORK

- Construction materials have been considered and risk has been identified directly to any water main pipework developed at the site.
- 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 elevated levels of contamination have been identified and risk IS IN PLACE to water main pipework. This would suggest that any new water main pipework SHOULD BE INSTALLED USING BARRIER PIPEWORK.
- Considering the risk to the workforce used in the construction and possible future maintenance of water main pipework, no risk is in place. To confirm :-
 - Water main pipework should be laid in a BARRIER 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.

General

Detailed notes will be required through the development to confirm the extent of options above and where contamination extends to depth and where full contamination has been removed and different scenarios as recorded. This should be documented on detailed plans by the onsite contractor for use in a verification plan.

Validation of these remediation cells is required see section 4.1.

The remediation of the area could either be undertaken :-

- At the start of the development so that all contamination is removed from the site prior to any other ground works being undertaken. This is sometimes completed at the time of the demolition and clearance of the feature currently within the site area.

Or

- At the end of the development when all the areas of the proposed gardens and communal landscaping within this remediation cell will need to be remediated as above. This scenario is likely to incur cross contamination and as such, is not recommended.

We recommend that the contamination is removed at an early stage of the development so that risk of the contamination spreading to elsewhere on the site is reduced.

A method statement for the movement of soils around the site for off site disposal must be developed and submitted to ourselves for approval for the movement and off site disposal of the remediation cells at the site.

It should be noted that a significant cause of cross contamination forms the mixing of site based contamination from remediation cells with clean areas of soils, particularly in the case of Asbestos which can spread to clean areas. As such, a defined Materials Movement Plan should be developed and followed to avoid cross contamination risks. This should be designed in accordance with Definition of Waste – Code of Practice.

3.3.4 Semi Permanent Landscaping, (Patio Areas)

Treat as Soft Landscaping if in defined remediation cells.

3.3.5 Permanent Hard Landscaping, (Main Driveway)

Permanent hard landscaping could form the main driveway and parking area which is laid to tarmac and cannot be removed by the residents.

The hard standing will cap off any contamination and removed the pathway, no additional works are required.

3.3.6 Construction Features

Considering the risk from Sulphates to concrete we can confirm that the chemical testing is completed to confirm the sulphate levels in the ground which can identify risk to concrete and therefore whether special sulphate resisting cement should be used.

Based on the information gained, concrete has been identified as a risk and as such, any cement used within the development of the site should be a DS1-AC1s classification sulphate resisting cement.

3.3.7 Below Habitable Buildings - Vapour Risk

No risk are in place.

3.4 Workforce

- All Site Staff and visitors to the site should be made aware of the contamination risk within the site area (PAH's).
- Appropriate PPE should always be worn.
- Washing facilities should be made available for washing hands prior to consumption of any food or water within the site area.

3.5 Groundwater Risk

Groundwater is identified as a low risk.

3.6 Process of Remediation

The development of the site is anticipated to incorporate the following phases :-

- Materials Movement Plan to be developed and approved.
- Evidence of implementation of MMP an validation of works completed.
- Demolition of any and all features within the site.
- Site Strip in preparation for the development of the site.
- Full soil remediation works implemented.
- Full remediation and validation of PAH Contamination.
- Foundation Construction.
- Main development.
- Installation of Barrier Water Main Pipework or Protect-Aline Pipework.
- Placement of hard standing.
- Install clean and certified topsoil within soft landscaping (if not completed within an earlier phase).
- Verification Reporting.

4 Validation requirements

No permanent monitoring proposals are in place in relation to the site.

Soils which fail the human health criteria will not be permitted to be re-used within the site development. Any soils which fail the criteria should be removed from the site with appropriate waste tickets retained.

4.1 Validation Requirements for Remediation Cells

The extent of validation works which should be implemented will incorporate the following details which should be completed, retained and reported as evidence of appropriate validation within any validation reporting:

- Validation that the excavation and removal of contaminated soils has been completed provide evidence and plans where full removal has taken place and no capping is present, (i.e. clean natural soils overlain by clean imported soils).

- Retain all 'Muck Away Certificates' which have been received as a result of the excavation of remediation cells only. Muck away certificates relating to muck away for say pile arisings will not be required under validation criteria.
- Replace the remediation cell void with fully certified and tested topsoil or subsoil, (as required), to make up the required minimum depth of 0.60 meters of 'Clean Capping'.
- Evidence of specific segregation of waste product must be completed along with all lines of evidence to confirm that cross contamination has not taken place, (as should be designed within a materials management plan).

Table 4 Remediation & Validation Requirements

<i>Location</i>	<i>Remediation Cell No</i>	<i>Validation Sampling</i>	<i>Testing Criteria</i>
Southeast of the garden area	Remediation Cell 1	Photographic evidence. 1-2 Samples from the base of the remediation cell	PAH's
Sitewide	Water Main	• Photographic evidence of pipework. • Photographic evidence of clean corridors.	N/A

4.3 Photographs

Photographs will be required at key stages of the development which should be included within a validation report. Specifically, these will need to include :-

- Photos should also be taken of the key stages of the development and any contamination encountered, including unexpected contamination.
- Photographs of any reduced digs carried out within the site area, especially if natural soils are encountered.
- Photographs of the exposed remediation cell to soft landscaping which exposes the underlying soils and includes measuring staff.
- Photographs of the finished final site condition.
- Photos of the protective pipework installed within the site area.

4.4 Removal of Contaminated Soils

- Contaminated soils should be removed from site via a licensed haulier.
- All waste consignment notices should be retained as evidence that the soils have been removed from site.
- No WAC Testing has been completed at the site. For full classification of the materials for muck away purposes. In line with best practice, we can confirm that the classification and correct disposal of waste should be adhered to in line with Waste Framework Directive. This will include the classification of the

waste, appropriate paperwork to be recorded for disposal routes, confirmation of waste classification upon excavation of the waste and validation of its removal.

4.5 Validation of Imported Soils

- Upon importing of subsoil, (if any), and topsoil, samples will be required for chemical analysis. It should be noted that soils which are placed in the site are recommended for pre-validation such that confirmation that these soils will form clean and acceptable materials based on the validation criteria shown within Table 5 as well as BS3882:2015 Specification for topsoil and BS8601:2013 Specification for Subsoil and Requirements for Use. It is often the case that soils are manufactured in landfill sites or waste management facilities which still promote an unacceptable risk based on an end use of residential land uses. This should be noted within the importing status of any soils to the site.
- A visual and olfactoral inspection of any soils to be used within the placement of gardens should be completed by an external environmental consultant to confirm the material is suitable for use.
- In accordance with guidance produced by Essex Local Authorities, 'Land Affected by Contamination 2nd Edition – Technical Guidance for Applicants and Developers', we would recommend that a single sample should be recovered per 15m³ of imported soils and tested for full Standard Environmental Suite including Speciated Poly Aromatic Hydrocarbons and Speciated Total Petroleum Hydrocarbons.
- As a minimum over and above the previous bullet point, we would confirm that per source of delivered topsoil, a minimum of three samples must be recovered and tested for a standard suite of environmental pollutants to ensure source compliance of risk.
- Validation of imported soil should also consist of testing the imported topsoil for BS3882:2015 (Specification for topsoil) and the subsoil in accordance BS8601:2013 (Specification for Subsoil and Requirements for Use).
- The above along with a current certificate from the supplier, if available, will confirm the topsoil or subsoil to confirm that the contamination status for confirm the material is suitable for use in a residential land use scenario, (Sensitive Land Use).
- Verification sampling of imported uncontaminated soils should be carried out independently of the supplier, as will their despatch for laboratory analysis for the listed contaminants.
- It is strongly recommended that Imported topsoil should not be laid to the soft-landscaping/ gardens until construction is complete, to avoid cross-contamination of this material.

4.6 Validation Protocol

HESI have derived soil remediation targets for the principal contaminants of concern in for materials which are proposed to be brought onto the site. These conform to current UK residential land use standards for contaminated soils and as such are stringent levels. As a result of these levels, we would suggest that initial pre-validation of soils is undertaken prior to placement or even bringing the soils on site such that confirmation is gained that the soils are suitable.

We would suggest that for validation of both subsoil and topsoil, the parameters below are met:-

Table 5 Imported soils criteria - Residential Land Use Standards

Pollutant	Allowable (mg/kg ⁻¹)	Level	Source	Pollutant	Allowable Level (mg/kg-1)			Source
					1% SOM	2.5% SOM	6% SOM	
Asbestos	Absent /Present							
Inorganic Arsenic	37		S4UL	Naphthalene	2.3	5.6	13	
Beryllium	1.7		S4UL	Acenaphthylene	170	420	920	
Cadmium	11		S4UL	Acenaphthene	210	510	1100	
Chromium, (III)	910		S4UL	Flourene	170	400	860	
Chromium, (VI)	6		S4UL	Phenanthrene	95	220	440	
Copper	2400		S4UL	Anthracene	2400	5400	11000	
Lead	200		At Risk Soils	Flouranthene	280	560	890	
Mercury, (Elemental)	1.2		S4UL	Pyrene	620	1200	2000	
Mercury, (Inorganic)	40		S4UL	Benzo(a)anthracene	7.2	11	13	S4UL
Mercury, (Methyl)	11		S4UL	Chrysene	15	22	27	
Nickel	180		S4UL	Benzo(b)flouranthene	2.6	3.3	3.7	
Selenium	250		S4UL	Benzo(k)flouranthene	77	93	100	
Vanadium	410		S4UL	Benzo(a)pyrene	2.2	2.7	3	
Zinc	3700		S4UL	Indeno(1,2,3-cd)pyrene	27	36	41	
Boron	290		S4UL	Dibenzo(ah)anthracene	0.24	0.28	0.3	
TPH, (Total)	>20 required Speciated assessment			Benzo(g,h,i)perylene	320	340	350	
				Phenols	280	550	1100	

Table 6 Imported soils criteria – Residential Land Use with home grown produce Standards – TPHs

Pollutant	1% Soil Organic Matter	2.5% Soil Organic Matter	6% Soil Organic Matter	Source
Total Petroleum Hydrocarbons				
Aliphatic Fractions				
EC > 5-6	42	78	160	S4UL
EC > 6-8	100	230	530	
EC > 8-10	27	65	150	
EC > 10-12	130	330	760	
EC > 12-16	1100	2400	4300	
EC > 16-35	65000	92000	110000	
EC > 35-44	65000	92000	110000	
Aromatic Fractions				
EC > 5-7	70	140	300	S4UL
EC > 7-8	130	290	660	
EC > 8-10	34	83	190	
EC > 10-12	74	180	380	
EC > 12-16	140	330	660	
EC > 16-21	260	540	930	
EC > 21-35	1100	1500	1700	
EC > 33–44	1100	1500	1700	
Aliphatic & Aromatic				
EC > 44-70	1600	1800	1900	S4UL

5 Implementation Process

5.1 Remediation Team

This report confirms the required level of remediation needed to remediate the site to a suitable and fit for purposes standard. We can confirm that at this time, the following parties are involved in the remediation proposals at this site :-

The Client: *the client will ultimately be responsible for the remediation of the site and appointing appropriate personnel to provide lines of evidence that remediation works have been undertaken and that validation works have been completed sufficiently to provide the relevant Local Authority, with documentary evidence that works have been completed to a suitable standard.*

Consultant : *the consultant will undertake validation that the remediation works have been undertaken to a suitable standard although, will require instruction from 'the client' as and when appropriate levels of remediation have been achieved.*

Principle Contractor: *The principle contractor will likely undertake initial site works which will remove contamination from the site as part of the initial site development. It is possible that these works may remove the depths of made ground, (contamination), to remove any and all risk within the site.*

5.2 Watching Brief

During the course of the development it will be the responsibility of the on-site manger to ensure watching briefs are kept. A watching brief consists of a record of:

- Any observations of contamination made during the course of development by any member of site staff, contractor or visitor
- A photographic record of the key stages of development and key occurrences including any contamination found during the course of the development, the formation levels of excavations, any reduced level dig/mass excavation, formation of landscaped or garden areas, etc.
- Contact the Environmental Engineer and strategic points within the development of the site where contamination validation elements will be required.

In areas of the site where there is a greater chance of finding contaminated soil and/or water an area specific watching brief will need to be kept. Such a brief will need to be completed by an appropriately qualified site manager and/or an environmental consultant. The following table specifies works in specific parts of the site that require an area specific watching brief, identifying who must complete the watching brief.

Table 7 Watching Brief – Targeted areas for observation

Area of site	Works to be observed	Person to observe works
Sitewide	Watching brief through excavations made to install water main pipework	Site Agent / Groundworker / Environmental Engineer.
	.General watching brief through foundation excavations.	

Upon completion of associated works, a written and signed statement will be obtained by the following parties:

- Ground works contractor(s) upon completion of foundations and ground works.
- On site manager upon completion of groundworks and landscaping work.
- Environmental Consultant upon completion of groundworks and landscaping works.

The written statement must clearly state whether or not evidence of contamination was identified during the course of the development and the action that was taken. An example statement is provided below.

"I am [insert name] from [insert company]. We undertook [insert works undertaken] between the [start date] and [finish date]. During the course of work at [insert site name and address] we observed [delete were not applicable: no potential contamination / evidence of contamination / significant evidence of contamination].

Where contamination is identified

The contamination identified:

[include a description of the observations of the contamination]

[identify the location of the observations of contamination and mark the locations on a plan]

[Who was notified of the observations]

[What action was taken to mitigate/clear up contamination]"

The on site manager statement must include confirmation of whether all site staff and contractors received an appropriate brief regarding the potential presence of contamination.

5.3 Site Staff Training / Briefing

All site staff, site contractors and, where significant contamination is expected site visitors, will be briefed on the potential presence of land, water or air bourn contamination before commencing work on the site. Apart from any standard Health & Safety practices this will include the following information:

- Health & Safety considerations.
- Asbestos Awareness course.
- The type of land, water or air bourn contamination expected at the development site based on previous use and available site investigation information.
- Any particular areas of the site which are likely to be affected.
- Staff responsibilities under the discovery strategy.

The on-site manager will need to provide written confirmation that site staff were briefed about contaminated land in line with these recommendations.

5.4 Discovery Strategy

The discovery strategy sets out the actions that must be taken if contamination is encountered during the course of a development.

A significant observation includes any observation of contamination. Examples of the types of observations that would be considered significant are set out in the following table.

Table 8 *Discovery Strategy – Examples of Observations*

<i>Evidence</i>	<i>Description</i>
Visual	- Fuel or oil like substances mixed in with or smeared on the soil or floating on perched, groundwater or surface waters. - Waste materials (refuse, barrels, industrial wastes, ash, tar, etc.) buried at specific location or across the site. - Marked variation in colour. For example red, orange, yellow, green, light or dark blue, etc. may indicate contamination from a variety of contaminants. - Soils including large amounts of ash and clinker where such contamination of soils wasn't expected.
Odours	- Fuel, oil and chemical type odours - Unusual odours such as sweet odours or fishy odours
Wellbeing	- Light headedness and/or nausea when in excavations, at the working face of an excavation, when visual or olfactory evidence of contamination exists, etc. - Burning of nasal passages, throat, lungs or skin. - Blistering or reddening of skin due to contact with soil

Note: The examples provided in this table are not exhaustive.

The following table sets out the actions that must be taken if significant or suspected land, water or air contamination is observed by site staff, contractors or visitors.

Table 20 *Discovery Strategy – Action to be taken if risks are encountered*

<i>Person observing contamination</i>	<i>To be reported to:</i>	<i>Action to be taken</i>
Site visitor	Must report observations to the site manager.	Stop work and where possible make area safe and secure area before reporting to site manager..
Contractor	Must report observations to the site manager.	Stop work and where possible make area safe and secure area before reporting to site manager.
On site manager	Must report observations to their direct manager, the appointed Environmental Consultant, the Planning Authority and Contaminated Land Officer at the Local Authority.	Stop work and where possible make area safe and secure area before reporting to others.
Environmental Consultant	Must report observations to the site manager, the Planning Authority and Contaminated Land Officer at the Local Authority.	Advise that work stops and where possible that the area is made safe before reporting to others.

The following table identifies other organisations that may need to be contacted in an emergency or where pollution of controlled waters or nuisance is occurring.

Table 9 **Discovery Strategy – Organisations to be contacted if risks are encountered**

Occurrence	Description	Contact
Risk to the public	If at any point residents, the public or others may be at risk as a result of contamination found during the course of investigation, remediation or development works.	· Contact the emergency services if there is a risk to life. · Contaminated Land Officer/Planning Authority. · Health & Safety Executive.
Nuisance to residents/the public	If a nuisance has been or is likely to be caused to nearby residents, the public and others – for example odours, dust, noise, vibration, etc.	· Pollution Control Team at the Local Authority (and other council's where necessary).
Pollution of controlled waters	If any surface, culverted or groundwater has been polluted – for example slurry, contaminated soil/water or a chemical spillage entering a river or canal.	· Environment Agency. · Planning Authority and Contaminated Land Officer at the Local Authority.
Pollution of adjoining land	If land outside the boundary of the development site is polluted from site activities – for example slurry, contaminated soil/water or a chemical spillage.	· The owner of the land. · Planning Authority and Contaminated Land Officer at the Local Authority.

5.5 Validation Report

The following forms the verification requirements that will be needed in order to prepare and complete a Verification Report for the site and as such, where 'the client' does not provide suitable evidence, further testing may be required.

- Appropriate method of waste management of soils on site to avoid cross contamination.
- Provide Method Statement for management of waste and segregation of contaminated soils.
- Validation testing of the base of the Remediation cells, where required.
- Plans showing verification sample locations, if completed.
- Plan to show where full depth of fill was removed. where a capping layer was installed (inc depths) where demarcation barriers were installed within the site area.
- Volumes of soils disposed off site.
- Waste Consignment Notices (muck away tickets) and Disposal Register for Duty of Care.
- Topsoil Suppliers certificate to show the soil falls below the Human Health criteria.
- Results of analysis on subsoil/topsoil within the capping layer.
- Volumes of soils imported to site.
- Confirmation that the appropriate water main pipework has been installed within the site.
- Plans showing the route of the protective water main pipework.
- Documentation of variations and unforeseen conditions.
- Written signed statements to confirm the watching brief was completed.
- Consents, permits and approvals gained.
- 'As built' drawings.
- Photos completed throughout the development as noted within section 4.3.
- Other records, (e.g. correspondence, photographs etc).

It should be noted that this list may vary dependent upon conditions met on site and therefore is not complete. Upon completion of any and all remediation works which comply with this strategy and a risk assessment and site conceptual model can be completed to confirm no risk is in place to the future user or environment, a site verification report should be completed for submission to the Local Authority and any other interested parties to confirm the site status.

Should the quality of remediation data not be completed in accordance with this report, reasonable attempts to confirm that the works have been undertaken retrospectively should be made. This may involve further more detailed site assessments and testing, monitoring and evidence which will likely incur additional costs.

A validation report will be compiled by HESI or others to document the remediation works undertaken.

5.6 Collection of all necessary Validation Data

The above forms a method of remediation and validation works which will be required as part of the process of discharging of planning conditions. Failure to collect this information in part or in full will result in a failure to discharge conditions relating to contaminated land and lead to potentially significant retrospective site investigation works to enable the collection of this data.

It is the responsibility of the developer to action all necessary remediation works on site and inform the remediation contractor of the need to obtain any and all relevant validation data.

It is possible that the sourcing of this validation data could be recovered by the developer, the main contractor, groundworks contractor, a specific remediation contractor or an external environmental engineer. The selection of the right person to collect the validation data should be carefully selected to ensure that no validation bias in relation to the works is in place upon completion of the development and we would always recommend that the validation data is collected by either a separate remediation contractor or external environmental engineer.

PLEASE BE AWARE THAT THE SOURCING OF VALIDATION DATA AFTER COMPLETION OF THE DEVELOPMENT IS NOT SOMETHING THAT CAN BE EASILY OBTAINED AND AS SUCH, MAY LEAD TO A FAILURE IN DISCHARGING OF ANY PLANNING CONDITIONS ASSOCIATED WITH THE SITE AND THEREFORE THE ABILITY TO SELL THE DEVELOPMENT ON.

6 GENERAL REMEDIATION SCENARIOS

6.1 SOFT LANDSCAPING AREAS (private gardens and communal area)

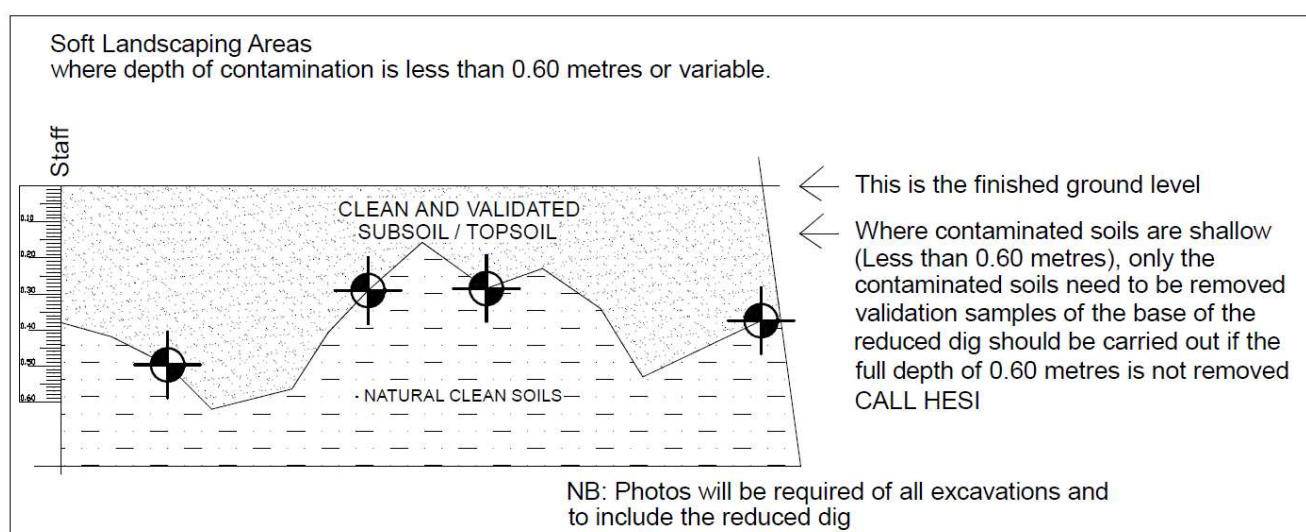
Scenario One Shallow Contamination, (>0.60m) with Validation Samples

When the depth of made ground in locations across the remediation cell in full or part does not extend to the depth of proposed capping system. Therefore, removal of shallower depths of made ground, (say 0.30m), may remove all the contamination and expose clean ground, (either natural or made ground).

If this scenario occurs in full or part, validation sampling will be required at the base of the remediation cell to confirm that whilst the minimum capping depth has not been achieved, in fact no capping system is in place as the cell will ultimately form clean soil over natural or clean soils from the original site. In this scenario, the following assessments must be completed :-

- A review of the site must be completed to ensure that hotspots, (large or small), do not remain in place amongst clean underlying soils which are proposed to remain in place. Full removal of contaminated soils should be completed and provided as part of a visual and olfactual assessments completed by an external environmental engineer. This should also include photographic evidence of these remediation cells confirm the above does not take place.
- A visual appraisal of the base and sides of the remediation cell to consider any visual or olfactual evidence that risks outside that defined in the environmental reporting completed to date are in place.
- Validation sampling from the sides of the excavation to confirm that the defined contamination originally identified in the remediation cell has been removed.
- Backfill the excavation with at least 0.60 metres, (or whatever depth has been removed to identify clean soil) of clean and inert soil, (tested to confirm its suitability for use within residential land uses with plant uptake).

Figure 2 Shallow Contamination – Validation Sampling – Scenario 1



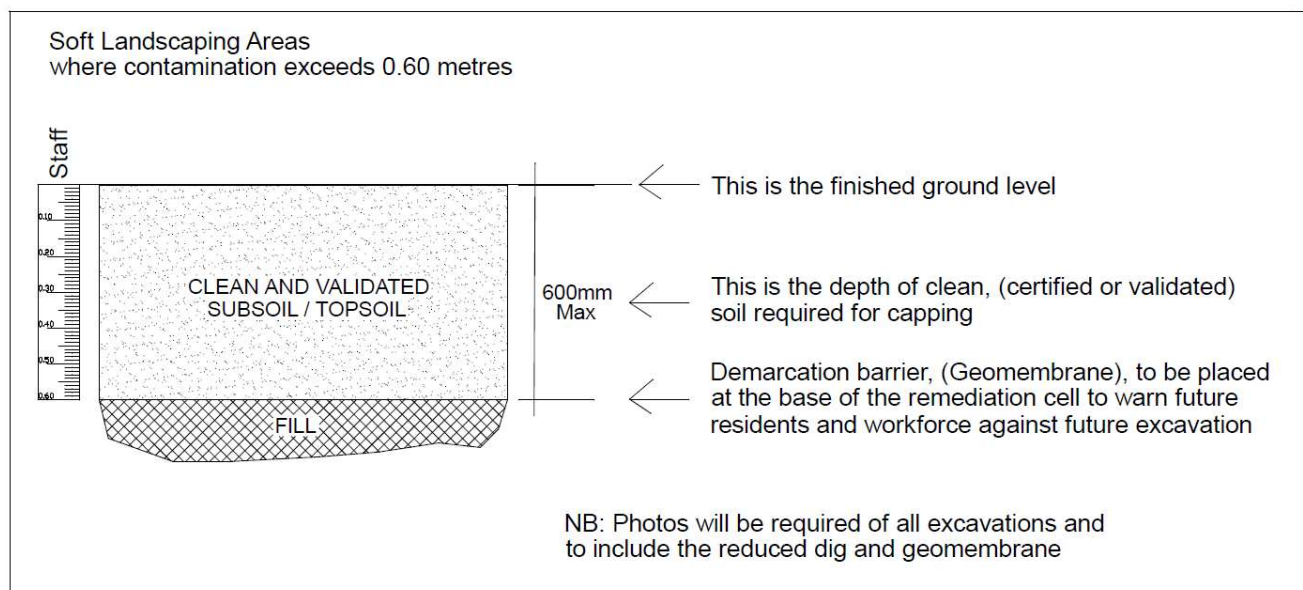
Scenario Two

Full 0.60m Capping Layer with Geotextile

When the full depth of capping is required to be removed as the depth of made ground is in excess of 0.60 metres which will need to implement a Geotextile at the base of the remediation cell as shown in Figure 2. In this scenario, the following assessments must be completed :-

- If the density of Asbestos sampling has not been completed to a suitable density based on BS10175:2011+A2:2017, (Investigation of potentially contaminated sites. Code of practice. Code of practice), sampling should be completed across the base of the remediation cell to confirm the absence of Asbestos.
- A visual appraisal of the base and sides of the remediation cell to consider any visual or olfactoral evidence that risks outside that defined in the environmental reporting completed to date are in place.
- Validation sampling from the sides of the excavation to confirm that the defined contamination originally identified in the remediation cell has been removed.
- Backfill the excavation with at least 0.60 metres of clean and inert soil, (tested to confirm its suitability for use within residential land uses with plant uptake and BS8601 : 2013, (Subsoil), and BS3882:2015, (Topsoil).

Figure 3 Capping System – 0.60m Cap & Geotextile Barrier – Scenario 2



The Kennels, Hexton Manor, Hexton, Herts SG5 3JH

Location Plan

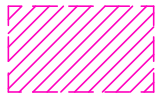


Site Plan



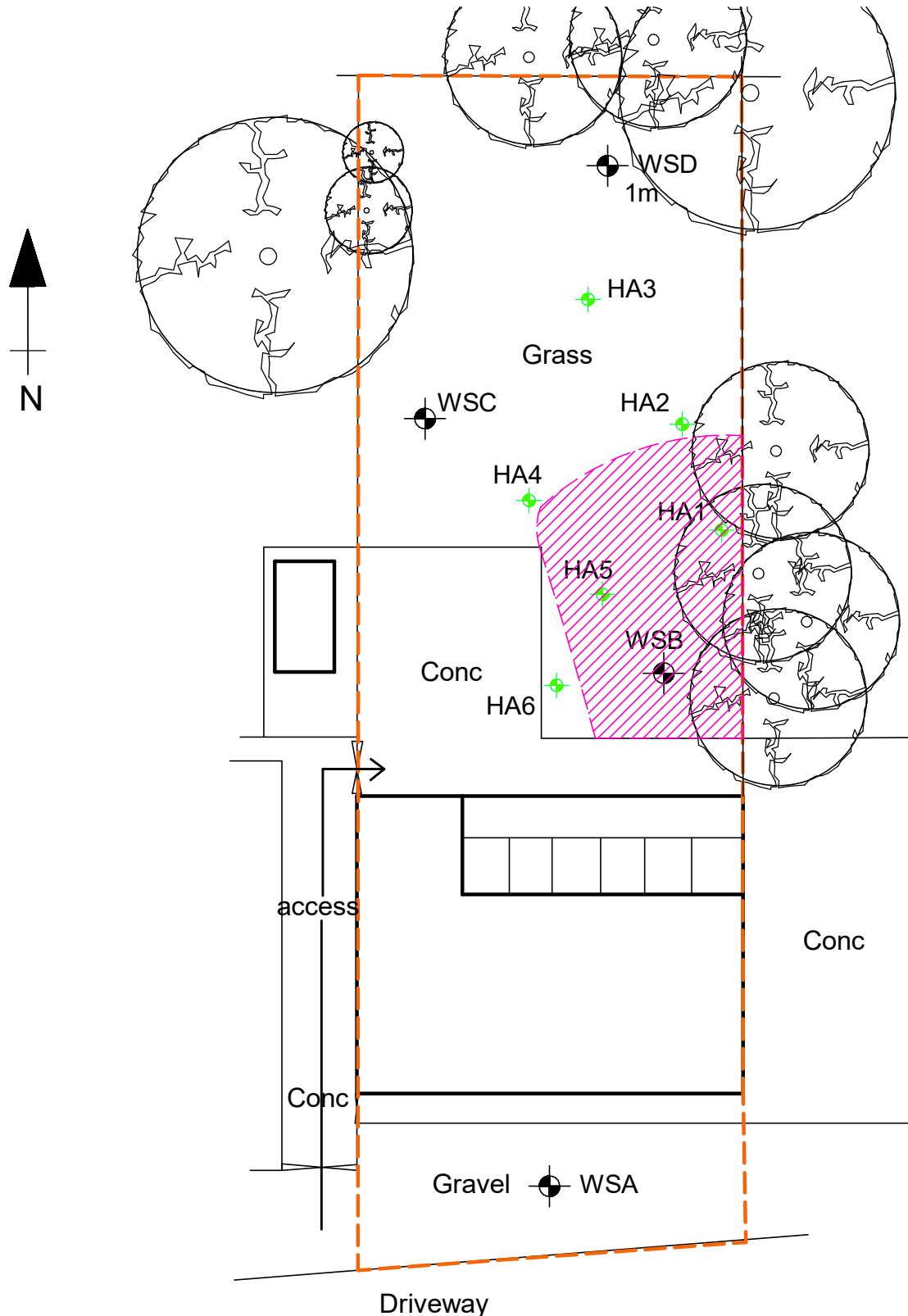
The Kennels, Hexton Manor, Hexton, Herts SG5 3JH

Existing Site Plan



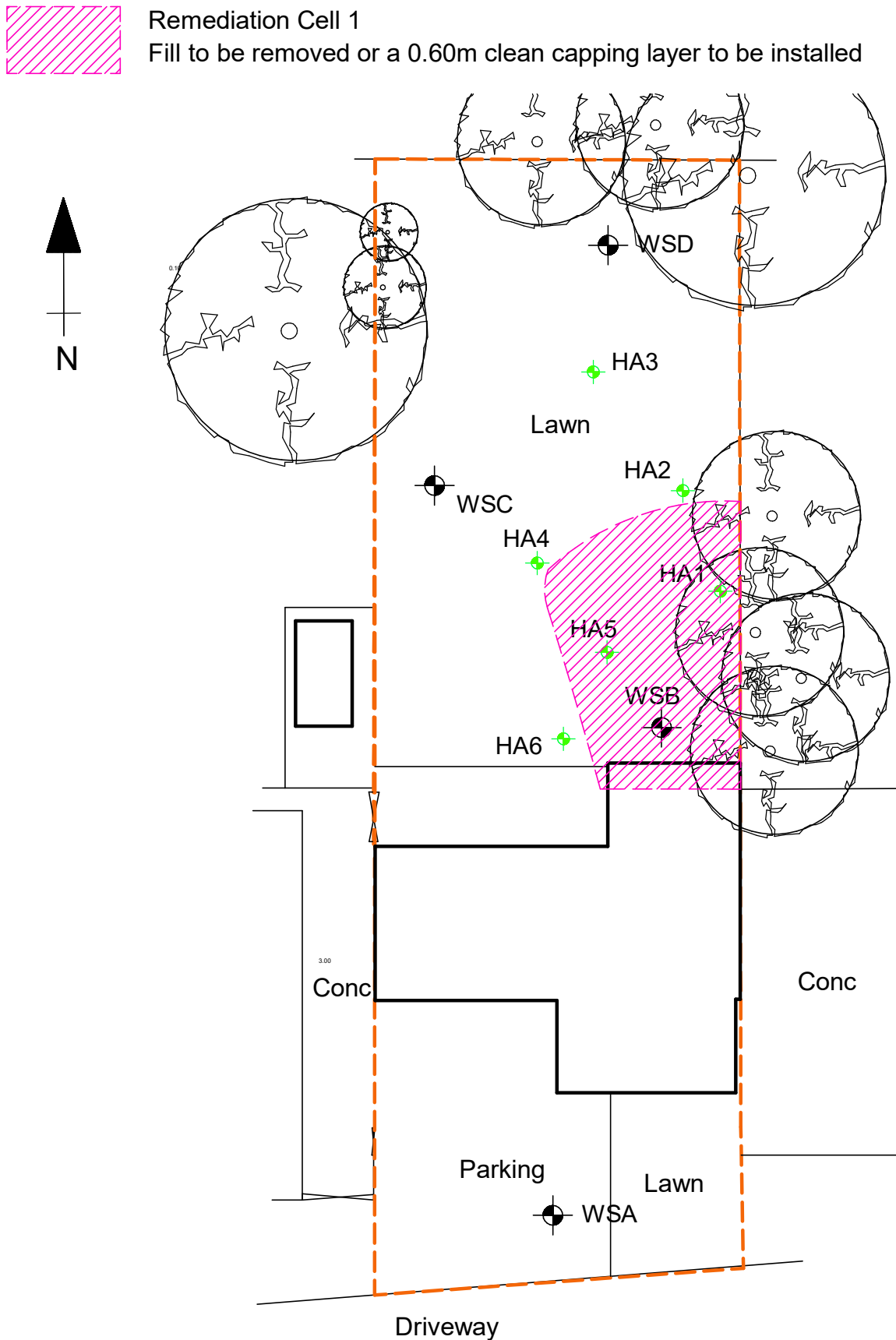
Remediation Cell 1

Fill to be removed or a 0.60m clean capping layer to be installed



The Kennels, Hexton Manor, Hexton, Herts SG5 3JH

Proposed Site Plan - REMEDIATION PLAN



Not to Scale
Sketch No. : REM / 18673 / 01 / 03

Herts & Essex Site Investigations
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Herts
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Analytical Report Number : 25-023666

Project / Site name:	The Kennels Hexton Manor, Nexton, Herts SG5 3JH	Samples received on:	08/05/2025
Your job number:	18673	Samples instructed on/ Analysis started on:	08/05/2025
Your order number:	18673	Analysis completed by:	15/05/2025
Report Issue Number:	1	Report issued on:	15/05/2025
Samples Analysed:	6 soil samples		



Signed:

Rafa Szczepaczyk
Technical Reviewer
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: 25-023666

Project / Site name: The Kennels Hexton Manor, Nexton, Herts SG5 3JH

Your Order No: 18673

Lab Sample Number				539641	539642	539643	539644	539645
Sample Reference				HA1	HA2	HA3	HA4	HA5
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)				0.1	0.15	0.05	0.2	0.15
Date Sampled				06/05/2025	06/05/2025	06/05/2025	06/05/2025	06/05/2025
Time Taken				930	930	930	930	930
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	40.9	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	17	19	16	19
Total mass of sample received	kg	0.1	NONE	0.1	0.1	0.1	0.1	0.1

General Inorganics

Organic Matter (automated)	%	0.1	MCERTS	8.6	5	7.6	5.6	5.9
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.24	< 0.05	< 0.05	< 0.05	0.11
Acenaphthylene	mg/kg	0.05	MCERTS	1.7	< 0.05	< 0.05	0.08	0.56
Acenaphthene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	< 0.05	0.13
Fluorene	mg/kg	0.05	MCERTS	0.74	< 0.05	< 0.05	< 0.05	0.36
Phenanthrene	mg/kg	0.05	MCERTS	11	0.19	0.36	0.91	5.5
Anthracene	mg/kg	0.05	MCERTS	2.6	< 0.05	< 0.05	0.14	0.84
Fluoranthene	mg/kg	0.05	MCERTS	25	0.39	0.69	1.9	9.5
Pyrene	mg/kg	0.05	MCERTS	24	0.37	0.6	1.8	8.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	13	0.16	0.25	0.72	3.6
Chrysene	mg/kg	0.05	MCERTS	12	0.2	0.35	0.9	4.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	16	0.2	0.35	0.94	4.9
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	6.2	0.07	0.19	0.42	2.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	15	0.19	0.35	0.85	4.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	6.7	0.09	0.15	0.41	2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.4	< 0.05	< 0.05	0.09	0.47
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	7.7	0.12	0.19	0.46	2.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	143	1.99	3.48	9.64	49.8
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-023666

Project / Site name: The Kennels Hexton Manor, Nexton, Herts SG5 3JH

Your Order No: 18673

Lab Sample Number				539646
Sample Reference				HA6
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				0.1
Date Sampled				06/05/2025
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	18
Total mass of sample received	kg	0.1	NONE	0.1

General Inorganics

Organic Matter (automated)	%	0.1	MCERTS	6.6
----------------------------	---	-----	--------	-----

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.13
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.75
Anthracene	mg/kg	0.05	MCERTS	0.2
Fluoranthene	mg/kg	0.05	MCERTS	1.9
Pyrene	mg/kg	0.05	MCERTS	1.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.91
Chrysene	mg/kg	0.05	MCERTS	0.89
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.97
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.11
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.57

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	10.3
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-023666

Project / Site name: The Kennels Hexton Manor, Nexton, Herts SG5 3JH

* 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 *
539641	HA1	None Supplied	0.1	Brown loam with stones
539642	HA2	None Supplied	0.15	Brown loam with gravel
539643	HA3	None Supplied	0.05	Brown loam with gravel
539644	HA4	None Supplied	0.2	Brown loam with gravel
539645	HA5	None Supplied	0.15	Brown loam with gravel
539646	HA6	None Supplied	0.1	Brown loam with gravel

Analytical Report Number : 25-023666

Project / Site name: The Kennels Hexton Manor, Nexton, Herts SG5 3JH

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
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