



REMEDIATION STRATEGY DISCOVERY STRATEGY & VERIFICATION PLAN

Client	Kearns Developments Limited
Works	Remediation Strategy, Discovery Strategy and Verification Plan
Site	Garage Court, r/o 66-74 Farmlands, Joel Street, Pinner, HA5 2LN

Project	Version	Date
25-262.02	1	29 July 2026

SECTION 1

INTRODUCTION

1.1 Appointment

Aviron Associates Limited (Aviron) was instructed by Kearns Developments Limited (The Client) to prepare a Remediation Strategy (RS), Discovery Strategy (DS) and Verification Plan (VP) to be used to discharge the relevant pre-commencement land contamination planning conditions, and also to be used as a 'Site' document to be followed by site operatives.

This RS, DS and VP is based on the contaminative risk assessment presented in the following report:

Preliminary Risk Assessment and Site Investigation (PRA + SI)

Project ref: 25-262.01

Version 2

Dated: June 2026

Prepared by: Aviron

1.2 Summary of Site Investigation

Table 1 summarises the environmental risks identified in the PRA + SI report and provides advice on further works and assessment.

Table 1: Environment Risk Summary			
Medium	Item	Risk Description	Comments/Recommendations
Soils	1	Potential for undiscovered soil contamination beneath hardstanding following removal of floor slabs and during groundworks excavations.	Prepare Discovery Strategy to enable management of any events of contamination discovery.
	2	Any imported Topsoil should it be required, should be chemically suitable for use in private gardens.	Import suitable Topsoil (BS3882) to sustain planting.
	3	Ensure material encountered is suitable for desired water main.	Consult local water authority prior to water main installation.

Table 1: Environment Risk Summary			
Medium	Item	Risk Description	Comments/Recommendations
	n/a	No abnormal ground conditions encountered and all concentrations of analytical determinands acceptable. In-situ soils are not considered to be contaminated.	
Radon	4	Information from the Envirocheck report (using data supplied by the BGS) indicates that 'The property is included in a 'lower probability radon area' (less than 1% of homes are estimated to be at or above the Action Level)'. No protective measures are considered necessary in the construction of new dwellings or extensions, according to the British Geological Survey. The information can be verified through checking on the interactive radon map for Great Britain provided by the UK Health Security Agency (UKHSA) and the British Geological Survey (BGS). The HSA website (ukradon.org) can be used to purchase radon reports, where an address-specific radon report may be obtained. It should however be noted that for redevelopment sites, a GeoReport provided by the British Geological Survey may be more appropriate.	
Bio-Ground Gas	n/a	Preliminary risk assessment and gas monitoring has determined very low risk from ground gas. Four rounds of monitoring including a single 'worst-case' visit have been completed which has determined acceptable gaseous concentrations. Bio-ground gas protection is not considered necessary.	
Groundwater	n/a	Ground conditions are not considered to present a risk to groundwater or controlled waters.	

Enclosed within **Appendix I** is **Figure 1**, a Proposed Development and Exploratory Hole Plan.

SECTION 2

NEW WATER MAIN

During the early stages of design (and well in advance of installation) an application should be made to the local water authority in regard of new water supplies to new homes. The local water authority should be presented with the report referenced in section 1 to enable them to consider ground conditions and soil chemical quality in lieu of their specification for water main supply (pipe) materials.

It is the responsibility of the local water authority to ensure wholesome water is supplied to new homes as such they should specify the correct supply material prior to installation and connection to the main supply.

Empirical verification of the correct water main supply material is provided by a water source within buildings; written evidence can be provided with the enquiry and purchase order documentation.

SECTION 3

DISCOVERY STRATEGY POST GROUNDWORKS SITE STRIP TO REDUCE GROUND TO FORMATION LEVEL

This section shall present a method for:

1. General contamination discovery and management.
2. Removal and inspection of the concrete slab and verification of the exposed formation following slab removal.

Should additional contaminative discoveries be made during the below works, the strategy shall require updating.

3.1 General Site Discovery Strategy

Whilst the investigations undertaken on the site to date have been as thorough as conditions allowed, it remains possible that previously unexpected soil conditions may be encountered during the construction process. Examples may include, potential for asbestos, remnant demolition materials containing deleterious substances, black ash materials, soils exhibiting strong odours, brightly coloured materials, and oily pockets within the soil.

During site clearance and groundworks all site operatives should be briefed on the discovery strategy, which provides an action plan should potentially contaminated materials be identified during works.

The Discovery Strategy flow chart should be:

1. Affixed to the site office notice board;
2. Form part of the site induction for all operatives;
3. Form part of the site health and safety file.

The Discovery Strategy flow chart is presented as **Appendix II**. This should be printed and laminated.

Each site operative should be aware of their duties in the event of a potential 'contamination' discovery.

Any discovery of previously undiscovered contamination should be reported to the Local Planning Authority (LPA) and appropriate management of this must be approved by the LPA.

The action of discovery applies in the event local soil contamination is discovered. Thus, variations to this plan may be necessary following the results of 'Discovery Works' and should this be so further revisions of this VP shall be prepared and consulted; hence this VP remains a live document.

SECTION 4

VERIFICATION OF SOFT LANDSCAPING CONSTRUCTION OF CLEAN COVER SYSTEM AND VERIFICATION

4.1 Cover System Appraisal

Presently and on the basis no soil contamination or visually/olfactory evidence of soil contamination was recorded by Aviron and formal site cover system to new gardens and soft landscaped areas is not proposed.

However, subject to the findings of the Discovery Strategy, this may change and hence this document remains 'live'.

Thus, at the present time soft landscaping needs only be completed to accord with a standard landscaping detail to enable healthy growth of new planting.

4.2 Import of Soils to Soft Landscaping Areas

The suitability criteria for imported soils are enclosed as **Appendix III** and should be considered when procuring soils to import on to site.

Soft landscaped areas should be infilled with chemically clean certified (Subsoils and) Topsoil as per the landscape architect details and both the selection and chemical criteria of **Appendix III**.

In regard of the chemical selection criteria for **Appendix III**; although there is a mix of private and communal gardens/soft landscaped areas which have slightly different assessment guidelines, it was considered that one set of guidelines (ie the more conservative 'residential with homegrown produce' guidelines) should be used to assess all analytical results.

The remediation engineer shall independently sample and test (Subsoils and) Topsoil once on-site and at a frequency of one test per 50cu.m for manufactured Subsoil/Topsoil or 250cu.m for Subsoil/Topsoil from a Greenfield source. As a minimum at least three samples should be taken of the imported soils and submitted to a UKAS accredited laboratory for chemical testing as set out in **Appendix III**.

Stockpiles should be clearly demarked and labelled and only contain a singular source of soil. Stockpiles should not comprise various sources of material types and should this be observed seek further advice. Any soil movements should be noted from stockpiles if they are to be moved prior to the return of laboratory results.

Should imported soils fail the criteria set out in **Appendix III** the material should be rejected, removed from site and returned to the supplier of suitability disposed. The Client should manage the contractual necessities of this action and use the soil movement log of stockpiles to determine the location of any the impacted soils which would require off-site removal.

4.3 Completion of Gardens and Soft Landscaping Areas

Prior to the laying of (subsoil and) Topsoil to each soft landscaped area and garden the formation should be inspected and photographed to ensure and evidence the absence of suspected soil contamination and harmful objects such as sharps.

While inspecting should any passive and abnormal odours be detected; note the position of the odour, attempt to determine the source of the odour. Do not directly smell the soil. The typical presence of odour within source may be chemical and as such may present a health risk should you inhale unknown chemical odours. In such an event of passive odour observation, seek further advice.

This is to ensure end users using their gardens are not at risk from suspected soil contamination or harmful objects which they may encounter when using their gardens.

SECTION 5

WASTE MANAGEMENT

The report listed in section 1.1, and specifically laboratory test results, should be presented to haulage contractors to formally classify waste soils.

All materials leaving site should be conveyed by a registered waste carrier and waste transfer notes should be signed and held on file for submission upon completion of the project. This process shall be managed by the principal contractor as part of waste management diligence.

To enhance the waste management process, the following could be adopted:

-  Locate a suitable area on site where two stockpiles can be created.
-  Sheet the areas out to create bunds.
-  During the site stripping and excavation process visually screen the soils in accordance with the discovery strategy.
-  Where soils are of a visually 'clean' appearance place these upon stockpile 1; which shall be termed the (potentially) inert stockpile.
-  Where soils are visually 'abnormal' and contain (though not limited to) anthropogenic (harmful) objects and soil discolouration (black/dark grey staining) place these upon stockpile 2: which shall be termed the (potentially) non-hazardous stockpile.
-  Once the stockpiles are formed, collect representative soil samples from the stockpiles. Samples should be submitted for chemical testing to establish soil chemistry, waste streams and potential re-use of the material.

SECTION 6

VERIFICATION REPORT

Table 2 provides a check list of items (lines of evidence) which shall need to be documented or enclosed within the expected Verification Report, which have been chronologically itemised in terms operational progress and sequencing.

Table 2: Verification Report Lines of Evidence Checklist		
Item	Description	Tick
1	Evidence of correspondence with the local water authority to ensure it can be demonstrated they are aware of the chemical conditions of soil at the site and have accordingly specified, installed and connected the correct waste supply pipe.	
2	Photographic evidence of in regard of unsuspected contamination discovery.	
3	Full details of imported soils source; name of supplier, their address and any necessary permitting (materials re-use).	
4	Imported soil supplier certification (refer to Appendix III) to ensure suitability for acceptance.	
5	Inspection of imported soils to confirm the absence of deleterious objects.	
6	Photographs of stockpiles of imported soils in appropriate quarantine to prevent cross contamination while stored on-site.	
7	Laboratory certificates of analysis following independent on-site/in-situ testing of imported soils to confirm soils delivered are chemically acceptable and concur with supplier certification to complete the provenance of the supply chain.	
8	Photographs of detailed site walkover to inspect the formation of soft landscaping areas/gardens prior to dressing with imported soil to ensure the absence of suspected contamination and harmful objects such as sharps. Photographs to be taken with photo-board in shot to reference; site name, hole location and date.	
9	Photographs to prove the soft and hard landscaping is complete and taken with the context of background features to marry with a site plan indicating photograph (arrow) direction.	

SECTION 7

LONG TERM MONITORING

Long-term monitoring is not considered necessary for the site.

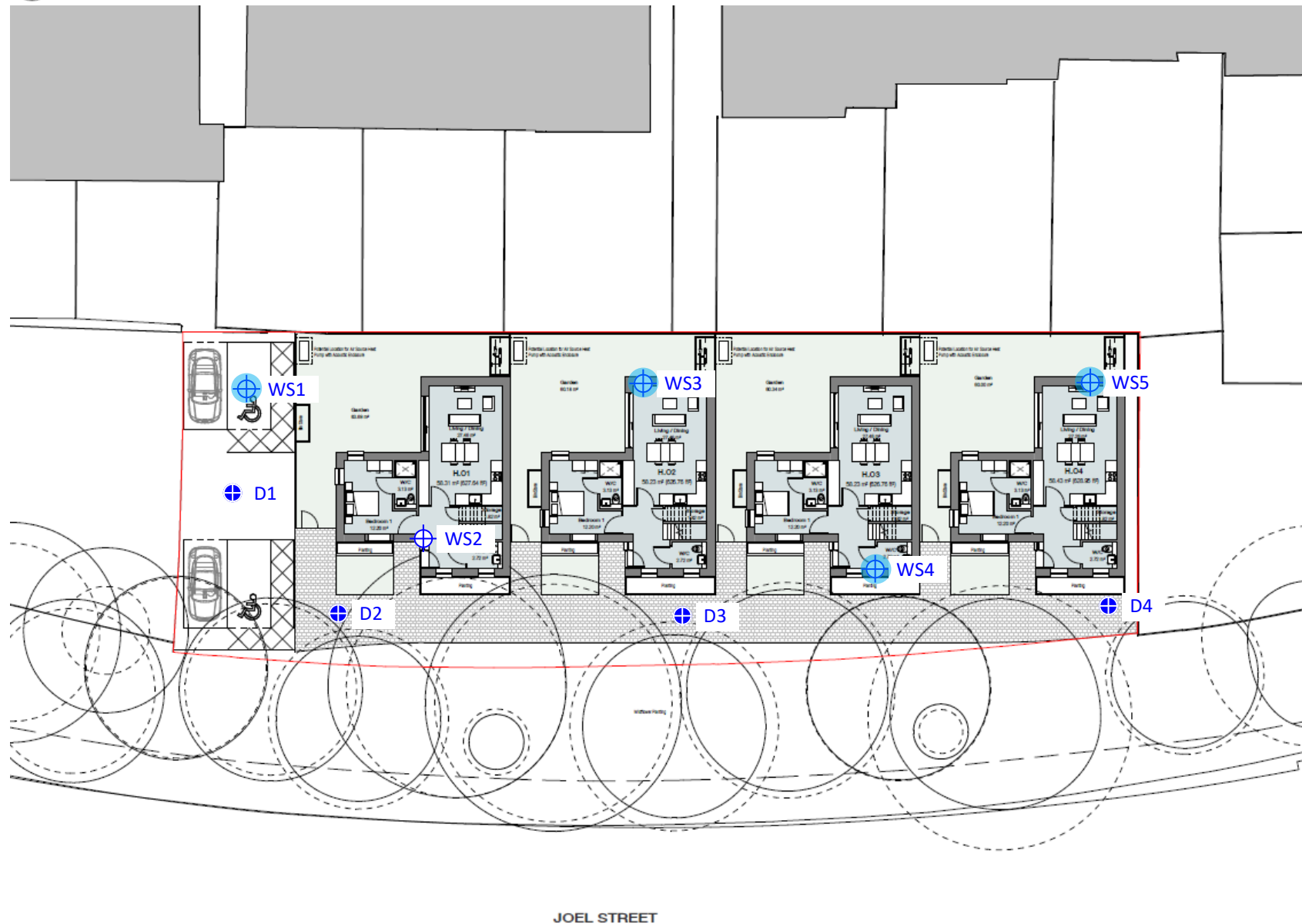
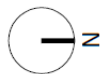
Long-term monitoring typically applies to a groundwater treatment scheme, where variations in post-remedial groundwater quality may occur in the short and long-term. As previously indicated, groundwater (and surface water) is (are) not considered to pose or be at risk.

Prepared by
Vanessa Bell BSc (Hons) MSc
Contaminated Land Consultant

Prepared and approved by
James Burkitt BEng (Hons) CEnv MRICS
Managing Director

Appendix I

Figure 1 – Proposed Development and Exploratory Hole Location Plan



Legend

-  Window Sample Borehole
-  Monitoring Well
-  DCP/CBR

Notes

Figure 1

Drawing Title

Proposed Development and Exploratory
Hole Location Plan

Project Number 25-262.02

Project Title

Garage Court, r/o 66-74 Farmlands, Joel
Street, Pinner, HA5 2LN

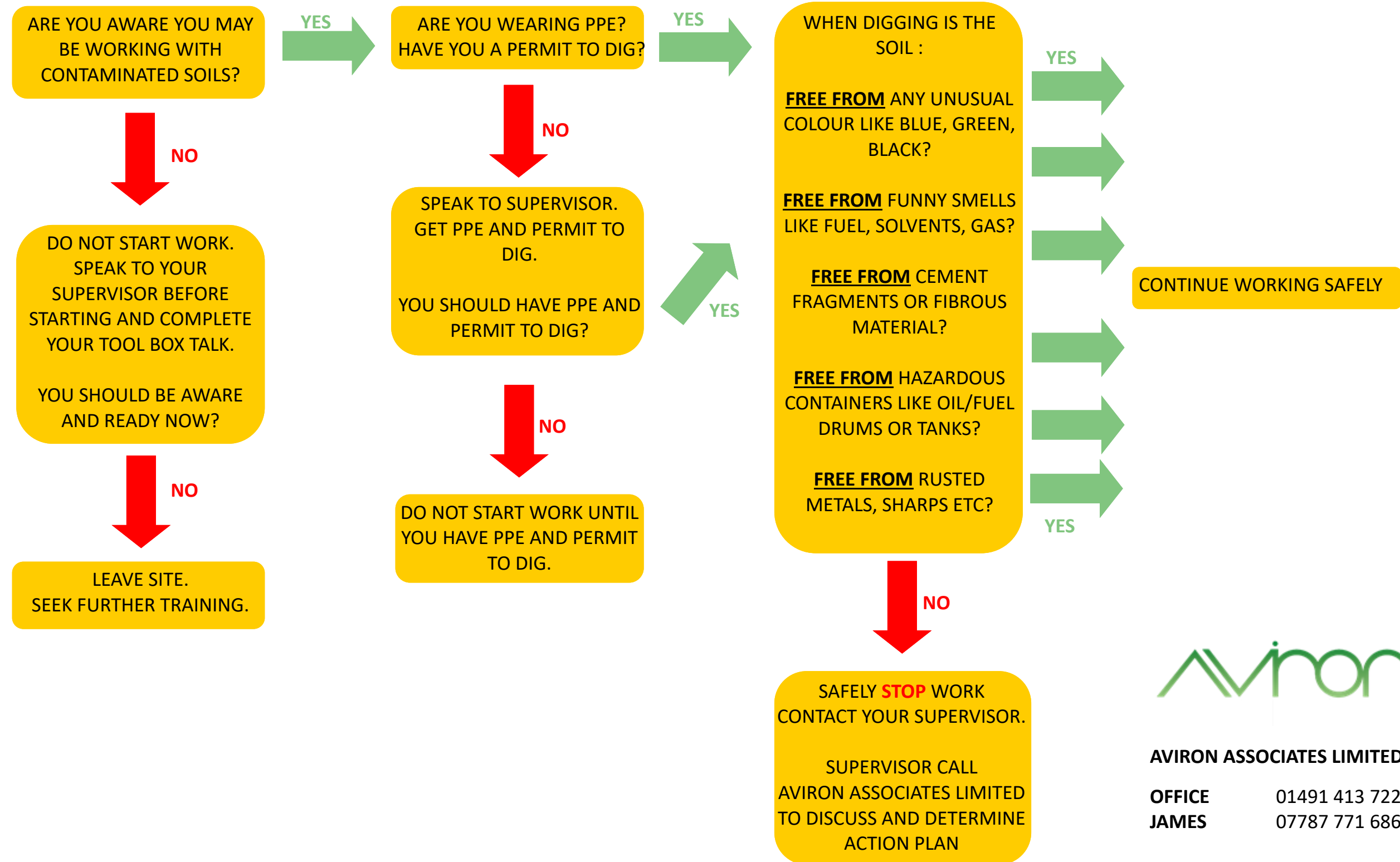
Drawn by DN

Checked by JB

Scale NTS



HOW TO IDENTIFY CONTAMINATED SOILS AND WHAT TO DO?



AVIRON ASSOCIATES LIMITED

OFFICE 01491 413 722
JAMES 07787 771 686



LAND CONTAMINATION INTERPRETATIVE GUIDANCE

GENERIC ASSESSMENT CRITERIA (GACs) + VERIFICATION TARGETS

Residential with Homegrown Produce - Private Gardens				
Determinand	1% SOM (mg/kg)	2.5% SOM (mg/kg)	6% SOM (mg/kg)	Source/Criteria
Arsenic	37	27	27	C4SL/LQM S4UL
Boron	290	290	290	LQM S4UL
Cadmium	11	11	11	LQM S4UL
Chromium (III)	910	910	910	LQM S4UL
Copper	2,400	2,400	2,400	LQM S4UL
Mercury (organic)	1.2	1.2	1.2	LQM S4UL
Nickel	180	180	180	LQM S4UL
Lead	200	200	200	LQM S4UL
Selenium	250	250	250	LQM S4UL
Zinc	3,700	3,700	3,700	LQM S4UL
Free Cyanide	34	34	34	ATRISK
Acenaphthene	210	510	1,100	LQM S4UL
Acenaphthylene	170	420	920	LQM S4UL
Anthracene	2,400	5,400	11,000	LQM S4UL
Benzo(a)anthracene	7.2	11	13	LQM S4UL
Benzo(a)pyrene	2.2	2.7	3	LQM S4UL
Benzo(b)fluoranthene	2.6	3.3	3.7	LQM S4UL
Benzo(ghi)perylene	320	340	350	LQM S4UL
Benzo(k)fluoranthene	77	93	100	LQM S4UL
Chrysene	15	22	27	LQM S4UL
Dibenz(ah)anthracene	0.24	0.28	0.3	LQM S4UL
Fluoranthene	280	560	890	LQM S4UL

Residential with Homegrown Produce - Private Gardens				
Determinand	1% SOM (mg/kg)	2.5% SOM (mg/kg)	6% SOM (mg/kg)	Source/Criteria
Fluorene	170	400	860	LQM S4UL
Indeno(123-cd)pyrene	27	36	41	LQM S4UL
Naphthalene	2.3	5.6	13	LQM S4UL
Phenanthrene	95	220	440	LQM S4UL
Pyrene	620	1,200	2,000	LQM S4UL
Phenols	280	550	1,100	LQM S4UL
Benzene	0.087	0.17	0.37	LQM S4UL
Toluene	130	290	660	LQM S4UL
Ethylbenzene	47	110	260	LQM S4UL
o-xylene	60	140	330	LQM S4UL
m-xylene	59	140	320	LQM S4UL
p-xylene	56	130	310	LQM S4UL
Aliphatic C >5-6	42	78	160	LQM S4UL
Aliphatic C >6-8	100	230	530	LQM S4UL
Aliphatic C >8-10	27	65	150	LQM S4UL
Aliphatic C >10-12	130	330	760	LQM S4UL
Aliphatic C >12-16	1,100	2,400	4,300	LQM S4UL
Aliphatic C >16-35	65,000	92,000	110,000	LQM S4UL
Aromatic C 5-7 (benzene)	70	140	300	LQM S4UL
Aromatic C >7-8 (toluene)	130	290	660	LQM S4UL
Aromatic C >8-10	34	83	190	LQM S4UL
Aromatic C >10-12	74	180	380	LQM S4UL
Aromatic C >12-16	140	330	660	LQM S4UL
Aromatic C >16-21	260	540	930	LQM S4UL
Aromatic C >21-35	1,100	1,500	1,700	LQM S4UL
Asbestos	ND	ND	ND	Aviron Adopted Value

Residential with Homegrown Produce - Private Gardens				
Determinand	1% SOM (mg/kg)	2.5% SOM (mg/kg)	6% SOM (mg/kg)	Source/Criteria
Notes: Barium EIC Generic Acceptance Criteria (EIC GAC) is 1300mg /kg (Residential). Chromium is assumed to be chromium III (not chromium IV). Cyanide GAC is 'residential with produce'. ND – Not Detected.				

GENERIC QUANTITATIVE RISK ASSESSMENT

The purpose of a tier 2 GQRA is to determine the suitability of the site for proposed development and end use.

The site investigation shall collect soil samples whereby determinant chemical measured in the soil through laboratory analysis have been compared with guidance values which are appropriate to the receptor under consideration. The guidance values or screening criteria applied shall be industry adopted generic values which following a screening of the laboratory analysis shall determine whether or not a site is contaminated, as defined under Part IIA of the EPA 1990 and specification in regard of the proposed development and identified receptors.

Where exceedances of guidance values or recorded a GQRA is can be used to appraise risk and make recommendations in regard of further investigation, remediation and/or tier 3 Detailed Quantitative Risk Assessment (DQRA).

GUIDANCE USED FOR ASSESSING SOIL CONTAMINATION

Aviron has followed the technical approach on Land Contamination Risk Management (LCRM), accessed on gov.uk website and other available guidance to assess contaminant concentrations.

Details of the methodology and Aviron's position on the adoption of guidance values is outlined below.

The available chemical data, from soil samples tested, is sorted into appropriate datasets depending on sampling regime and ground conditions. An initial GQRA is completed using the relevant and industry available screening criteria and where appropriate, statistical modelling. Risks to human health shall be initially assessed by comparing soil chemical data against various published screening criteria. These have been sourced from the following and in order of preference:

- 📌 Category 4 Screening Levels (C4SLs) prepared by the Department of Environmental Food and Rural Affairs (DEFRA) and published March 2014.
- 📌 Phase 2 C4SLs prepared by CL:AIRE and published May 2021.
- 📌 Suitable 4 Use Levels (S4ULs) prepared by Land Quality Management/Chartered Institute of Environmental Health (LQM/CEIH) and published December 2014. LQM acknowledgement for use of S4ULs. "Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3275. All rights reserved".
- 📌 Soil Guidance Values (SGVs) prepared by the Environment Agency (EA)/DEFRA and published 2009.
- 📌 Soil Generic Assessment Criteria (GAC) prepared by Environment Industries Commission (EIC)/Association of Geotechnical and Geoenvironmental Specialists (AGS)/Contaminated Land: Application In Real Environments (CL:AIRE) and published 2010.

Aviron have adopted the above hierarchy in response to LCRM recommendations.