DISCOVERY STRATEGY
REMEDIATION ACTION PLAN
&
VERIFICATION PLAN

Client	Bugler Development Limited
Works	Discovery Strategy, Remediation Action Plan and Verification Plan
Site	Land at Sullivan Crescent, Harefield, UB9 6NL

Project	Version	Date
23-248.03	1	24 October 2023

SECTION 1

INTRODUCTION

1.1 Appointment

Aviron Associates Limited (Aviron) was instructed by Bugler Developments Limited (The Client) to prepare a Discovery Strategy (DS), Remediation Action Plan (RAP) 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 DS, RAP and VP is based on the contaminative risk assessment presented in the following report:

Preliminary Risk Assessment (PRA) and Site Investigation (SI)
Reference 23-248.01
Dated October 2023

Table 1.1 summarises the environmental risks identified in the PRA and SI.

Table 1.1: Environment Risk Summary

Medium	Item	Risk Description	Comments/Recommendations
Soils	1	Local PAH soil contamination at WS1 which may present a risk to human health.	Complete hotspot removal and prepare Discovery Strategy, Remediation Action Plan and Verification Plan.
	2	Potential for undiscovered soil contamination around interceptor in the event of removal	Prepare a Discovery Strategy and enact watching brief during site clearance.
	3	Ensure material encountered is suitable for desired water main.	Consult local water authority prior to water main installation.
	4	Any imported Topsoil should be chemically suitable for use in private gardens.	Import suitable Topsoil (BS3882) to sustain planting.
	5	Asbestos in undiscovered locations.	Prepare a Discovery Strategy and enact watching brief during site clearance.
Ground Gas	6	Elevated carbon dioxide and depleted oxygen.	Gas protection should be designed and installed in accordance with BS8485 to CS2.

Table 1.1: Environment Risk Summary			
Medium	**Item**	**Risk Description**	**Comments/Recommendations**
			Suitable verification of the installation shall be necessary.
Groundwater	7	Ground conditions are not considered to present a notable risk to groundwater or controlled waters.	Prepare a Discovery Strategy and enact watching brief during groundworks

This document shall provide method and guidance on all of the above.

A selection of drawings are provided within **Appendix I**, which include:

1. **Figure 1** – Soil Contamination Location Plan
2. **Figure 2** – Part 1 - Remediation and Verification Plan
3. **Figure 3** – Part 2 – Discovery and Verification Plan

As a result of the investigation and, given the sensitive new use of the site, remediation measures are recommended for this site.

1.2 Remediation Options Appraisal

Figure 1 also presents a Proposed Development Plan to which the location of detected soil contaminants (PAH) have been overlain.

The pollutant linkage pathway to cause harm is considered to exist to construction works and site end users upon completion of the development.

The source of the soil contamination has been identified as local PAH contaminated soils remaining in-situ. The routes of exposure are considered to be ingestion and inhalation (of dust) and dermal contact. The routes of exposure remain open present a risk to human health if not addressed.

Given the size of the site and the intended landscaping plan there are only two viable methods to break the pollutant linkage and achieve remediation. These are:

1. Encapsulation by means of permanent hardstanding.
2. Source removal and construction of an overlying Clean Cover System.

Given the proposals include a variety of gardens/soft landscaping and areas of permanent hardstanding it is possible to use both methods by amending the proposals to ensure that the soils are chemically suitable for use. For example, encapsulation shall be utilised beneath the remediation area where the new home and paving is to be constructed and a cover system to the gardens, as shown in **Figure 2**, the Part 1 – Remediation and Verification Plan.

This RAP remains a live document throughout the construction process. It is intended for use by site personnel and subject to updates during constructions, as data becomes available. Should further soil contamination be discovered during site clearance a variation to the proposed remedial methods may be necessary. **Figure 3**, the Part 2 – Discovery and Verification Plan shall assist in the scientific discovery of undiscovered soil contamination by way of collecting soil verification samples from proposed garden areas to confirm the absence (as indicated in the PRA and SI report) of soil contamination prior to completion of landscaping.

SECTION 2

RISK 5 - 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

RISK 6 - GROUND GAS PROTECTION

3.1 Design requirements

Protect designers should design gas protection to meet the requirements of CS-2 using a gas membrane which is suited to BS8485 and carbon dioxide resistant.

Designers should consult BS8485 to ensure their design is appropriate and contact membrane manufacturers to ensure the correct membrane specification.

Working drawings for ground floor slab design should prepared to demonstrate ground gas protection has been installed to CS-2 in accordance with BS8485:2015+A1:2019.

The requirements of CIRIA C735 and BS8485 should be considered in terms of verifying the membrane installation.

3.2 Verification of Gas Protection Installation

It is recommended the Client appoints a specialist installer who are able to self-certify and warrant their installation. Regardless of whom installs the membrane the following should be recorded, which shall then be presented within a Verification Report.

The steps outlined in Table 3.2, address the recommendations made within section 8.4 of BS8485:2015+A1:2019. This steps will ensure an appropriate method and safeguards are followed to install effective gas protection and also suitable documentation can be presented to the Local Planning Authority (LPA) within a Verification Report.

Table 3.2: Verification Lines of Evidence Checklist

Installation Phase		
Item	**Description**	**Pass Criteria**
1	Record the name of the company completing the works and check their experience and competence. Keep this documentation for enclosure within Verification Report.	*Pass constitutes either a specialist installer or a company who can demonstrate competence and experience installing gas membranes.* *If not, seek alternative installer.*
2	Consult building inspector to ensure construction of floor slab meets the detail of the working drawings. Request building inspector inspection notes for enclosure within Verification Report.	*Pass constitutes approval from building inspector in accordance with Building Regulations; each plot/floor slab is expected to be inspected.* *If not, seek advice from design team of how to remedy insufficient floor slab construction and report failing to LPA.*
3	Check ground gas membrane and installation materials delivered to site are correct materials prior to installation. Detail of materials within working drawings. Record in site diary confirmation of correct delivery in the event evidence is required.	*Pass constitutes approval delivery of correct materials.* *If not, return materials are request delivery/supply of correct materials.*
4	Confirm substrate is suitable for gas membrane installation by ensuring the surface (floor) is swept/hovered to remove any sharps which may pierce the membrane and also dust which may limit the performance of the jointing (adhesive) tape preventing good seals between joints. Take photographs of this process for each plot/floor to be installed.	*Pass constitutes a cleanly swept/hoovered floor.* *If not, continue to sweep/hoover and remove sharps/dust.*

5	Installer to lay membrane in accordance with working drawings and manufactures details ensuring sufficient overlapping and double taping of membrane joints and 'top hat' details around service entries. Inspect each plot/floor to confirm competent installation. Take regular photographs of the installation process to demonstrate the competence of membrane joints from sheet to sheet, to internal walls and to 'top hats' around service entry points. Take photographs of final installation on a plot by plot/floor by floor basis.	*Pass constitutes neatly installed membrane, correctly jointed an unpierced.* *If not, relay/repair joints and piercings by seeking manufacturer advice and report such to LPA.*
6	Prior to installing floor screen/finishes upon the membrane flooring contractor to photograph membrane to evidence no sharps/debris lie on the membrane which may piece the membrane during screed/finish installation. If debris lies on membranes use a leaf blower to remove or carefully hand pick. Avoid sweeping as this may snag and pierce the membrane. Take photographs of each clean membrane on a plot by plot/floor by floor basis prior installation of floor finishes/screed.	*Pass constitutes clean surface on membrane.* *If not, clean/clear carefully and as necessary repair piercings by seeking manufacturer advice and report such to LPA.*
Information required for Verification Report		
Item	**Description**	**Tick when complete**
7	Name of company installing membrane and competence	
8	Building inspector inspection notes – ground floor slab construction	
9	Correct gas membrane/installation materials delivered.	
10	Inspection and photographs of cleanly swept floors prior to membrane installation	
11	Photographs of correctly installed membranes to each plot/floor and also completed installation.	
12	Photographs of clean membranes to each plot/floor prior to installation of screed/floor finishing	

SECTION 4

RISKS 2, 5 + 7 - GENERAL SITE DISCOVERY STRATEGY

4.1 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 ashy 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 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 RAP shall be prepared and consulted; hence this RAP and VP remains a live document.

Specifically, this strategy applies to:

- Risk 2. Identifying potential hydrocarbon soil contamination during the removal of the interceptor.
- Risk 5. Identifying potential asbestos in soil contamination during general groundworks.
- Risk 7. Identifying potential groundwater contamination during deep excavations.

SECTION 5

RISK 1 – WS1 HOTSPOT REMOVAL
RISK 2 – INTERCEPTOR DISCOVERY STRATEGY

5.1 WS1 - Remediation and Verification of Known Hotspot

Figure 2 can be used as a means of setting out the hotspot location of WS1.

The appointed contractor should determine their own specific strategy for the removal of soil contamination hotspots though in general the following strategy should form a basis to work:

1. Appoint competent contractor to undertake the works who is expected to be the main groundworkers contractor.
2. The contractor should prepare any necessary Risk Assessments and Method Statements (RAMS).
3. The contractor should then excavate the prescribed remediation excavation as detailed within **Figure 2** at dimensions 5m long x 5m wide x 0.6m deep or on to the sub-crop of the natural clean CLAY strata.
4. Waste soils should be quarantined and safety stockpiled/covered if they cannot not be directly loaded to haulage vehicles and disposed of at a suitable waste management facility.
5. Once excavations are complete verification samples should be collected from the sides and base of exposed soils on the internal face/side of each excavation and also the base to determine if excavation works were successful in removing the known/suspected contamination (**Figure 2**)
6. The verification samples should be submitted for chemical speciated PAH analysis, being the contaminant of concern, at an appropriately accredited laboratory.
7. The remediation targets for PAH are enclosed within **Appendix III**.
8. Should chemical or asbestos contamination be detected within verification results; the subject areas shall be further assessed and this 'live' document updated to ensure groundworkers have the correct information to operate safely.

5.2 Interceptor - Discovery Strategy, Remediation and Verification Strategy

Figure 3, appended, is presented as the Discovery and Verification Plan which identifies the location of the Interceptor which may be removed during new road construction.

The following discovery (and remediation strategy) along with verification plan shall be adopted during site clearance:

1. Appoint competent contractor to undertake the works who is expected to be the main groundworkers contractor.
2. The contractor should prepare any necessary RAMS.
3. Notify the remediation engineer prior to interceptor removal. The remediation engineer should be in attendance during works for the purpose of advising, recording and to take suitable photographs.
4. The interceptor (**Figure 3**) should be pumped dry, cleaned and readied for removal. As necessary appoint a suitable contractor to complete this task and retain waste transfer notes for the disposal of any product resultant from pumping and cleaning the chambers.
5. Under controlled conditions remove the interceptor from site. Dispose of by means of a registered waste carrier to a suitably licensed and appropriate waste management facility.
6. Carefully complete excavation(s) within the area of the interceptor (**Figure 3**) to identify the vertical and lateral extent of potentially impacted/contaminated material. It is expected contamination material shall be easily identified by a dark grey/black colouration and hydrocarbon/oil odour.
7. The excavation should be inspected, and any gross soil contamination removed to a point where hydrocarbon soil contamination has been 'chased out' and 'clean' natural soils are present within the resultant void(s).
8. Waste soils should be quarantined and safely stockpiled/covered if they cannot not be directly loaded to haulage vehicles and disposed of at a suitable waste management facility.
9. A photographic and written log of the exercise should be made.
10. Soil verification samples should then be collected from the resultant excavation to demonstrate the absence of hydrocarbons at positions shown in **Figure 3**.
11. Verification sample locations are targeted to the positions of the interceptor excavation. Samples should be collected from the sides and base from exposed soils on the internal face/side of each excavation and also the base to determine if excavation works were successful in removing the suspected contamination.

12. Verification samples should be submitted for TPH analysis and assessed against verification targets of the LQM/CIEH S4ULs (**Appendix III**)
13. The excavation/void should be immediately infilled with clean engineered fill for health and safety reasons.
14. Should excessive hydrocarbon contamination remain; the subject areas shall be further assessed and this 'live' document updated, as necessary, to provide further remediation methods.

SECTION 6

RISKS 2 + 5 - POST-OVERSITE STRIP SOIL VERIFICATION

6.1 Site Verification

Following successful verification of the aforementioned hotspots and completion of the over-site strip to arrangement construction levels a secondary soil verification exercise can be completed to determine the presence or absence of the contaminants of concern within the remaining in-situ soils.

The purpose of this exercise is to determine, as far as reasonably practicable, the presence or absence of soil contamination such that (in the event of absence) a high level of confidence can be asserted that the site is free-from soil contamination.

Figure 3 is enclosed as a Verification Sample Location Plan, which targets proposed garden areas where the pathway of soil contamination to site end users will remain open if any contamination remains in-situ.

The following method of sampling is proposed:

1. Following over-site stripping the Consultant should set out sample locations across the cleared site as shown in **Figure 3.**
2. The consultant should collect a near surface sample (GL-0.2m deep) from the overlying soils to confirm if over-site stripping cross contamination or uncontrolled distribution of contamination occurred. Near surface sampling is proposed, being the depth where cross-contamination (from plant machinery tracking) is most likely and exposure risk is greatest.
3. The verification samples should be submitted for chemical PAH and asbestos analysis at an appropriately accredited laboratory; these being the known/potential (asbestos) contaminants of concern.
4. The remediation target for asbestos testing shall be 'no asbestos detected' to enable groundworks to continue in a safe manner. The remediation targets for PAH are enclosed within **Appendix III**.
5. Should chemical or asbestos contamination be detected within verification results; the subject areas shall be further assessed and this 'live' document updated to ensure groundworkers have the correct information to operate safely.

SECTION 7

RISK 4 - VERIFICATION OF SOFT LANDSCAPING + IMPORT OF TOPSOIL

7.1 Cover System Appraisal

Following successful removal and verification of the aforementioned hotspots and successful secondary verification following over-site strip; the remaining chemistry/composition of soils across the site can be considered to be 'uncontaminated'.

It shall therefore not be necessary to install a remedial cover system and soft landscaping needs only be completed to accord with a standard landscaping detail to enable healthy growth of new planting.

7.2 Import of Soils to Soft Landscaping Areas

The suitability criteria of 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 comprises 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.

7.3 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 encountered when using their gardens.

SECTION 8
WASTE MANAGEMENT

The reports 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 9
LONG TERM MONITORING

Long-term monitoring is not considered necessary for the hotspot removal of installation of gas protection, which is verified by visual inspection and soil sampling/testing.

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.

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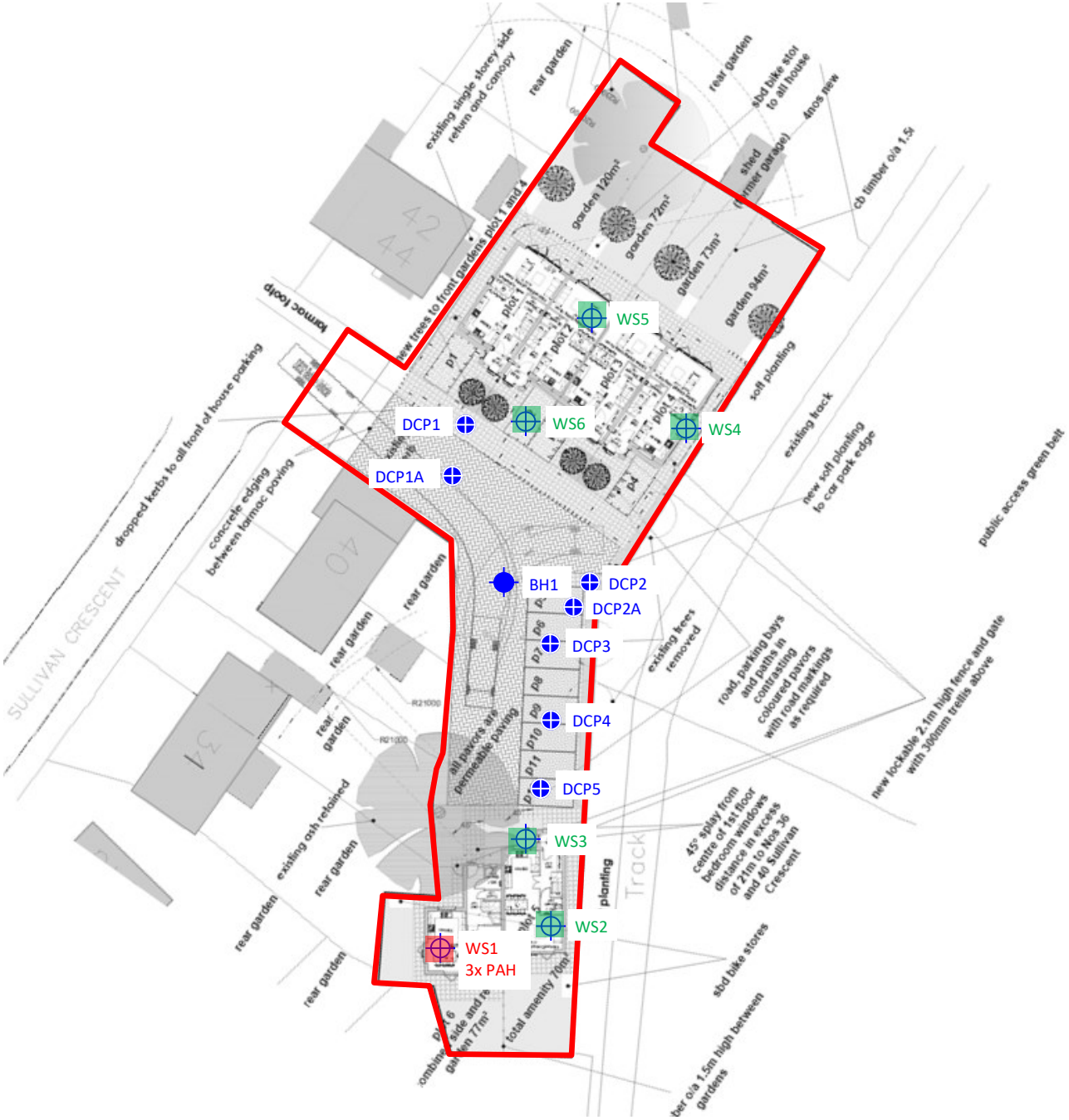
Appendix I
Figure 1 – Soil Contamination Identification Plan
Figure 2 – Part 1 - Remediation and Verification Plan
Figure 3 – Part 2 – Discovery and Verification Plan



Legend

- ‘Contaminated’ Location
- ‘Uncontaminated’ Location

Notes

Where exploratory holes are not high-lighted red or green; no testing has been completed.

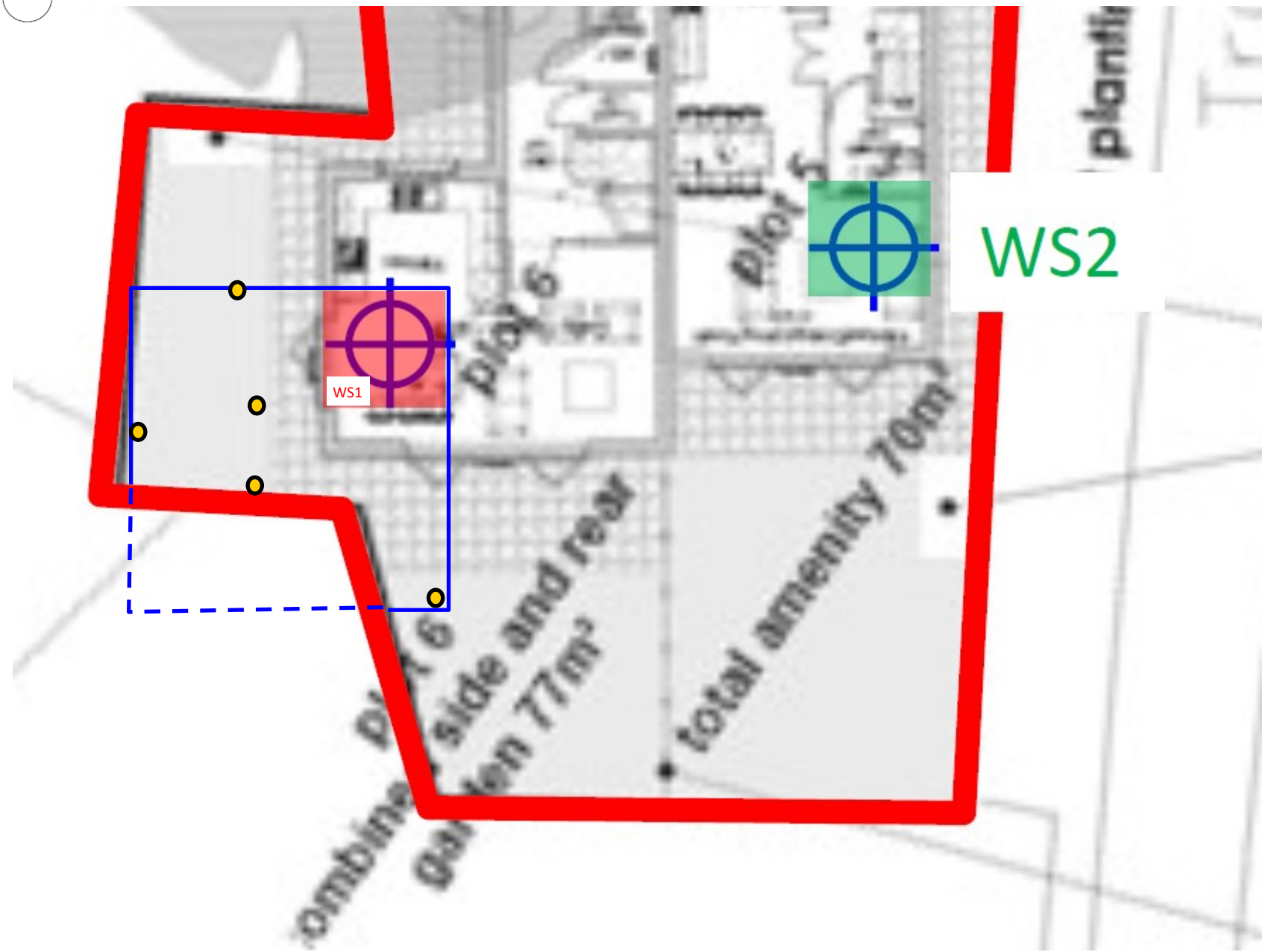
Figure 1

Drawing Title

Soil Contamination Identification Plan

Project Number	23-248.03
Project Title	Land at Sullivan Crescent, Harefield, UB9 6NL
Drawn by	DN
Checked by	JB
Scale	NTS

Aviron Associates Limited - Badgemore House - Gravel Hill - Henley on Thames - RG9 4NR - T: 01491 413 722 - M: 07787 771 686 - E: james@aviron.co.uk



Legend

- ‘Contaminated’ Location
- ‘Uncontaminated’ Location
- Hotspot Excavation Area (5x5)
- Verification Sample Location

Notes

Where exploratory holes are not high-lighted red or green; no testing has been completed.

Figure 2

Drawing Title

Part 1 - Remediation and Verification Plan

Project Number	23-248.03
Project Title	Land at Sullivan Crescent, Harefield, UB9 6NL
Drawn by	DN
Checked by	JB
Scale	NTS

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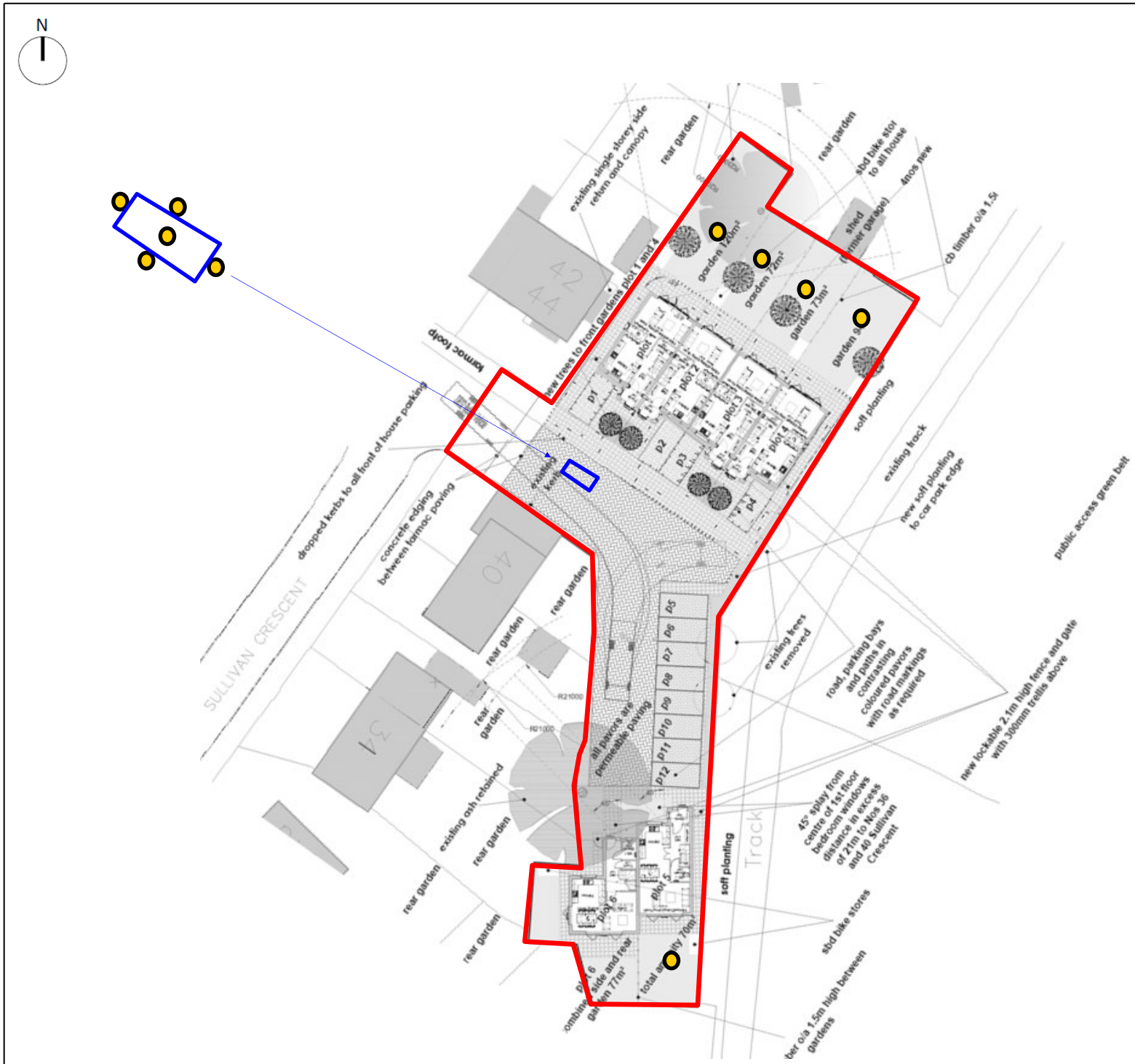

Legend

- Approximate Site Boundary
- Verification Sample Location
- Interceptor Location

Notes

Figure 3

Drawing Title

Part 2 - Discovery and Verification Plan

Project Number	23-248.03
Project Title	Land at Sullivan Crescent, Harefield, UB9 6NL
Drawn by	DN
Checked by	JB
Scale	NTS

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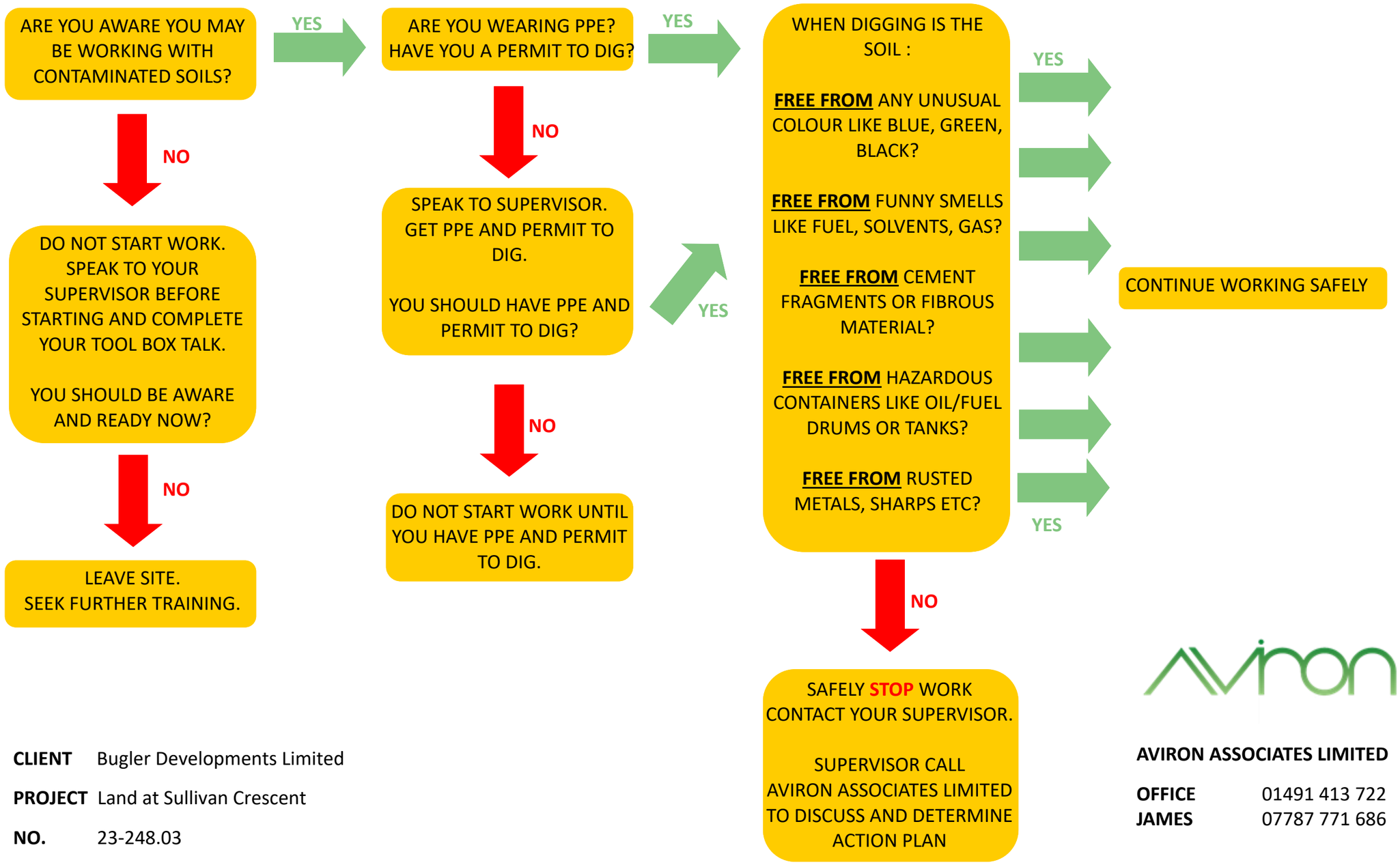
Appendix II
Discovery Strategy Flow Chart

HOW TO IDENTIFY CONTAMINATED SOILS
AND
WHAT TO DO?



CLIENT Bugler Developments Limited

PROJECT Land at Sullivan Crescent

NO. 23-248.03

ISSUE VERSION 1

AVIRON ASSOCIATES LIMITED

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Appendix III
Soil Import Criteria and Verification Targets

LAND CONTAMINATION CLEAN COVER SYSTEMS
SELECTION AND USE OF IMPORTED SOIL

GENERAL

Soils laid as clean cover soft landscaped areas of private or communal gardens or public open space gardens should not only meet the necessary chemical criteria as defined by Land Contamination Risk Management (LCRM) or site specifically derived chemical targets; but they must also provide a suitable growing medium for plants and not contain deleterious objects (sharps/hard materials) which may cause physical injury

POSSIBLE SOURCES OF MATERIAL

Imported soils may be obtained from various sources, however, the source of the soils must be demonstrated to be from land of a non-contaminative history or a reputable manufacturing plant. It shall remain the responsibility of the Client or their Contractor to obtain soils complying with the specification which are likely to be subject to additional on-site/in-situ tests specified by the Consultant to accord with Local Planning Authority (LPA) and/or build warranty requirements.

TOPSOIL – BS3882

Topsoil should meet the criteria set out by British Standard BS3882:2015 and prior to procurement of a Topsoil supplier certification should be sought to confirm that:

1. Specifically a laboratory test form a UKAS accredited laboratory should be completed where testing meeting the criteria of BS3882.
2. The date of certification is less than 3 months old to provide an arbitrary level of comfort that the Topsoil remains available for procurement and delivery.
3. The Topsoil meets the physical criteria set out by BS3882 such that the Topsoil can be considered a suitable growing medium to sustain plant growth.
4. The Topsoil meets the chemical criteria appended to this document such soil chemistry is not considered hazardous to human health of phytotoxic.

SUBSOIL – BS8601

Sub-soil should meet the criteria set out by British Standard BS8601:2013 and prior to procurement of a Sub-soil supplier certification should be sought to confirm the points made above, where the criteria for BS3882 should be substituted for BS8601 where Sub-soil is being appraised.

PHYSICAL CRITERIA

British Standards BS3882:2015 and BS8601:2013 should be consulted and as necessary the advice of a horticultural consultant to ensure suitable growing media for selected planting. Soils should be inspected to ensure no deleterious (harmful to humans) objects, such as sharps or hard materials.

CHEMICAL CRITERIA

Chemical concentrations considered to appropriate for a tier 2 Generic Quantitative Risk Assessment (GQRA) as recommended by LCRM are appended for the following residential land uses:

- Private gardens with homegrown produce.
- Communal gardens without homegrown produce.
- Public Open Space by residential development.

ACCEPTANCE/REJECTION OF MATERIAL

Where a material considered for procurement fails to meet the above criteria it should be rejected and an alternative source sought. Where material is tested in-situ/on-site and fails the necessary physical criteria (by testing or inspection) and chemical criteria (by testing) it should be removed from site and not used with soft landscaped areas or cover systems.

STORAGE OF IMPORTED MATERIAL

Any imported material on to site must be kept in quarantine to prevent cross contamination from any residual soil contamination not yet encapsulated by hardstanding or from uncontrolled deposition of building materials; such

as operatives throwing waste on a heap. Ideally quarantine should be upon a membrane and behind fencing/under a tarpaulin.

Checklist Documentation		
Item	**Description**	**Tick**
1	Full details of imported soils source; name of supplier, their address and any necessary permitting (materials re-use).	
2	Supplier certification; less than three months old and evidences soils are physically (BS3882/BS8601) and chemically acceptable.	
3	Physical inspection of imported materials completed, confirmation no sharps, hard objects etc	
4	Photographs of stockpiles of imported soils in appropriate quarantine to prevent cross contamination while stored on-site.	
5	Complete on-site/in-situ sampling and testing of material once delivery to ensure it is chemically acceptable.	
6	Imported materials passed?	

Residential with Homegrown Produce
Soil Screening Values
Private Gardens

Determinant	1% SOM (mg/kg)	2.5% SOM (mg/kg)	6% SOM (mg/kg)	Criteria
METALS, SEMI-METALS, INROGANICS + PAH (ES-1)				
Arsenic	37	37	37	C4SL/LQM S4UL
Boron	290	290	290	LQM S4UL
Cadmium	11	11	11	LQM S4UL
Chromium III	910	910	910	LQM S4UL
Chromium IV	6	6	6	LQM S4UL
Copper	2,400	2,400	2,400	LQM S4UL
Mercury	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	1100	LQM S4UL
Acenaphthylene	170	420	920	LQM S4UL
Anthracene	2,400	5400	11000	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
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

Determinant	1% SOM (mg/kg)	2.5% SOM (mg/kg)	6% SOM (mg/kg)	Criteria
Pyrene	620	1200	2000	LQM S4UL
Phenols	78	0.98	1.1	LQM S4UL
TOTAL PETROLEUM HYDOCARBONS (ES-1)				
Benzene	0.087	0.17	0.37	LQM S4UL
Toluene	130	290	660	LQM S4UL
Ethlybenzene	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 EC 5-6	42	78	160	LQM S4UL
Aliphatic EC >6-8	100	230	530	LQM S4UL
Aliphatic EC >8-10	27	65	150	LQM S4UL
Aliphatic EC >10-12	130	330	760	LQM S4UL
Aliphatic EC >12-16	1,100	2400	4300	LQM S4UL
Aliphatic EC >16-35	65,000	92000	110000	LQM S4UL
Aliphatic EC >35-44	65,000	92000	110000	LQM S4UL
Aromatic EC 5-7 (benzene)	70	140	300	LQM S4UL
Aromatic EC >7-8 (toluene)	130	290	660	LQM S4UL
Aromatic EC >8-10	34	83	190	LQM S4UL
Aromatic EC >10-12	74	180	380	LQM S4UL
Aromatic EC >12-16	140	330	660	LQM S4UL
Aromatic EC >16-21	260	540	930	LQM S4UL
Aromatic EC >21-35	1,100	1500	1700	LQM S4UL
Aromatic EC >35-44	1,100	1500	1700	LQM S4UL
Aromatic EC >44-70	1,600	1800	1900	LQM S4UL
ASBESTOS				
None Detectable			Aviron Adopted Value	