BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

FG VIVERE MANCHESTER LTD

Cornbrook Residential, Manchester

Remedial Strategy

AH/C5540/13847

February 2025

EXECUTIVE SUMMARY OF REMEDIAL PROPOSALS	
Remedial Requirements	**Verification Requirements**
Removal of all hardstanding, floor slabs basement structures, relic foundations etc across the site alongside removal of existing drainage runs.	Crush materials destined for re-use to meet chemical criteria as per Appendix B.
It is recommended within the UXO report that there should be an Unexploded Ordnance (UXO) Specialist Presence on Site to support shallow intrusive works. Prior to any intrusive piling or drilling commencing, UXO safety testing and appropriate clearance certification into the ground to sufficient depth to provide clearance from UXO.	Confirmation that no UXO encountered during construction works, or if encountered measures taken to mitigate risk.
Excavation, screening and engineering / re-use of soils to an appropriate specification. Over excavation of service runs, if required, and installation of "protectaline" (or similar) barrier pipelines.	Materials destined for re-use to meet chemical criteria as per Appendix B. Photographic evidence of service run installation, if over excavation undertaken/required.
Removal of ashy made ground local to SA04 with associated elevated PAHs, namely naphthalene, a VOC.	Chemical testing to prove clean sides and base, Waste Transfer Notes to confirm removal from site.
Installation of clean cover system in soft landscaping areas which should comprise (top down): • 450mm "clean" validated topsoil/subsoil; over • A geotextile or 100mm hard dig layer (ideally "clean" quarried MOT Type 1 or similar) . Elsewhere hardstanding will break the pathway to site end users/ human health. For areas of proposed trees, a tree pit will need to be excavated and additional subsoil provided above the hard dig layer / membrane. The above is subject to agreement with the local authority, and requirements should be confirmed at the earliest opportunity.	Imported topsoil and subsoil, and any materials re-used requiring chemical testing as per Appendix B. Thickness of clean cover system requires validation.
On completion of the above follow final verification reporting requirements.	Final verification and reporting to include (but not limited to): • The size and extent of the remedial excavations (lateral extent and depth plotted on suitable plans (if required). • Any treatment undertaken (if required). • All sampling locations and test results. • All the material imported to the site (including volume, source and chemical composition). • All the material exported from the site (including volume, destination and chemical composition). • Clean cover thickness validation records.

This executive summary should be read in conjunction with the full report, reference AH/C5540/13847, and not as a standalone document.

PROJECT QUALITY CONTROL DATA SHEET

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DRAWINGS		
Drawing Number	**Rev**	**Title**
8353-LRW-ZZ-00-DR-A-00-178	P15	Proposed Development Layout Plan
C5540/01	-	Site Location Plan
C5540/02	-	Site Features Plan
C5540/03	-	Exploratory Hole Location Plan

APPENDICIES	
Appendix	**Title**
Appendix A	Chemical Specification for Soils
Appendix B	BSL Guidance -Re-use of Waste and Disposal

1.0 INTRODUCTION

1.1 Context

This Remedial Strategy has been produced by Brownfield Solutions Limited (BSL) for FG Vivere Manchester Ltd on a site off Dinton Street, Manchester and has been completed in general accordance with the following guidance:

- Environment Agency guidance - Land Contamination: Risk Management (LCRM).
- BS 10175:2011+A2:2017.
- Investigation of Potentially Contaminated Sites.

1.2 Background and Scope

This Remedial Strategy is to set out how the remediation of the site will be undertaken and how the works will be validated. The document explains how the works will be permitted under current regulatory regimes.

The scope of work for this document comprises a summary of the ground model, summaries of the of risk assessments carried out, a remedial options appraisal (LCRM Stage 2), Remedial Strategy (LCRM stage 3) implementation details and any validation requirements.

Note that geotechnical aspects are not specifically addressed within this document as it seeks to meet the requirements set out within LCRM. Geotechnical aspects should be considered within a Geotechnical Design Report in accordance with Eurocode 7 or a suitable site specific Earthworks Strategy.

1.3 Proposed Development

The proposed development is for a residential end use comprising a 24-storey apartment building with associated car park areas, highways, public open space (POS) areas and infrastructure as shown on the proposed development plan, drawing No. 8353-LRW-ZZ-00-DR-A-00-178 P15 provided to BSL by the client.

1.4 Available Information

The following reports have been produced for the site and should be read in conjunction with this assessment (in date order):

- BSL Desk Study Assessment Report, ref: AH/C5540/12504, issued October 2023.
- BSL Phase II Geo-Environmental Assessment Report, ref: AH/C5540/13714 Rev A, issued February 2025.

It is assumed that the Local Planning Authority will have provided the above reports to the appropriate statutory consultees and the recommendations therein have been accepted.

1.5 Limitations

This report has been prepared for the sole use and reliance of the Client, FG Vivere Manchester Ltd. This report shall not be relied upon or transferred to any other parties without the express written

authorisation of BSL. If an unauthorised third party comes into possession of this report they rely on it at their risk and the authors owe them no duty of care or skill.

Current UK guidance and legislation has been used in the environmental assessment of the site, BSL is not liable for any subsequent changes in the guidance and legislation.

BSL have used reasonable skill, care and diligence in the production of this report. The findings and opinions conveyed via this report are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

The recommendations within this report are based upon the proposed site end use provided to BSL at the time of writing. If the end use or development layout changes from the proposal, then the recommendations may change or become invalid.

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

2.0 GROUND MODEL SUMMARY

2.1 Description of Site

The site is located off Dinton Street, Manchester, M15 4WB. It is situated approximately, centred on National Grid Reference 382409, 397044 as shown on the Site Location Plan, Drawing No. C5540/01.

The main site features and potential issues identified during the time of the intrusive investigation are detailed below and are shown on the Site Features Plan, Drawing No C5540/02.

Feature	Description
Site Area	The site covers 0.23 hectares.
Site Access	Access to the site is gained off Dinton Street to the north-west.
Current Land Use and Site Features	The site comprises a linear cobbled road trending north-west to south-east, edged with asphalt pavement. Remnants of a red brick wall to the south and wooden and concrete fencing to the north of the cobble road. The north-east part of the site comprises a combination of gravel and concrete slab surfacing and the north part of the site comprises intermittent asphalt surfacing with dense vegetation.
Potential Sources of Gross Contamination	Localised areas of fly tipping were noted across the site, which could contain unknown contaminants, although no visible asbestos or hydrocarbons were noted during the walkover.
Vegetation	Vegetation is present across the majority of the site, including shrubs, grasses and small trees, with denser coverage to the south and east which restricted access to an extent.
Topography	The site is generally flat, although the cobbled road lies approximately 150-200mm below adjacent areas.
Site Boundaries	Wooden hoarding and temporary heras fencing encloses the site
Surrounding Area	The site is set within a mixed residential and commercial area with residential plots to the east and south-east. The site is bordered by a high-rise apartment building to the north-east. A metro line and canal are within 150m to the north to north-west of the site, beyond which is the Manchester Ship Canal circa 200m away from the site.

2.2 Environmental Setting

Site History

The site has included various industrial uses from pre- 1891 up until the present day, initially covered with terraced housing and public houses. Runcorn Street was constructed prior to 1891 and remains on site as the cobbled street observed during the walkover. An unspecified works, now demolished, was present in the centre of the site between approximately 1976 and 2020.

Published Geology and Hydrogeology

From the Phase I Geo-Environmental Assessment and published geology, it was anticipated that ground conditions would comprise the following sequence of strata (top down):

- Made Ground; over
- Glaciofluvial Sheet Deposits; over
- Chester Formation.

Hydrogeology
Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

Stratum	Coverage	Aquifer Designation
Glaciofluvial Sheet Deposits	Full Site	Secondary (A) Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Chester Formation	Full Site	Principal Aquifer. This is geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.

The site does not lie within 500m of a Source Protection Zone.

The nearest active abstraction is located 1253km south-west and is for dewatering.

Hydrology
The nearest named watercourse and surface water features is Corn Brook, an inland river located 55m south-west of the site at it closest approach.

Potential Environmental Constraints
There are no landfill sites within 500m of the site. There is a recorded waste site onsite described as a vehicle depollution facility; however this wasn't present during the site works.

Radon
Information from the environmental database report indicates the property is not in a radon affected area and therefore no radon protective measures are necessary in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2015 Edition.

UXO Risk
The desk study (ref. AH/C5540/12504) identified 1949-1954 Historical OS mapping shows areas of "ruins" in the areas surrounding the site, suggesting bomb damage. This is most likely as a result of WWII bombing. Whilst no ruins are shown on site, pre-WWII terraced housing adjacent to Runcorn Street was no longer present on mapping dated 1948, potentially indicative of bomb damage.

As a specialist UXO study, identified a medium risk of UXO and in order to minimise the risk to operatives during the ground investigation works, all exploratory locations were scanned with a hand-held magnetometer and works supervised by a specialist UXO surveyor.

2.3 Ground Conditions

Observed Geology and Groundwater
From the investigations carried out, the ground conditions can be summarised as below (top down):

- Made ground generally comprising gravelly sand from ground level to between 0.40m and 2.30m bgl.
- Natural superficial deposits comprising firm to stiff clay, silty sand and sand and gravel proven to depths between 6.80m and 7.30m bgl.
- Solid geology comprising weak sandstone proven to depths ranging between 24.50m and 26.00m bgl.
- Groundwater levels ranging at 12.00m bgl during site works.
- Post site works monitoring shows groundwater levels ranging between 1.37m and 7.00m bgl.

Observations
With the exception of ash observed as a minor constituent in the made ground soil within SA04, no other evidence of contamination was visually observed at the site.

Stability of Excavations/Boreholes
The sides of the trial pits were generally unstable due to the presence of deep granular made ground across the site.

Obstructions
There are numerous obstructions throughout the made ground on site. The obstructions identified are summarised in the table below:

Location	Depth (m bgl)	Comments
SA02	0.70	Concrete
TP02	2.00	Concrete
TP03	2.30	Concrete
TP04	1.80	Concrete

3.0 SUMMARY OF RISK ASSESSMENTS

3.1 General

The previous site investigation has confirmed the following:

- Heavy metal contamination within the made ground at numerous locations.
- Localised PAH contamination within the made ground at one location (SA04).
- Moderate risk of UXO.

3.2 Human Health Risks

Made ground underlies the whole site, with heavy metals contamination as well as one location with PAH contamination within the made ground, as shown in the tables below:

Exploratory Hole	Depth (m)	Stratum	Metal	Concentration (mg/kg)	Adopted Screening Value (mg/kg)
TP01	0.00-0.05	Made Ground	Lead	380	310
TP02	0.00-0.20	Made Ground	Lead	450	310
			Hexavalent Chromium (VI)	18	6
TP04	0.06-0.50	Made Ground	Lead	850	310
SA03	0.00-0.80	Made Ground	Lead	560	310
			Mercury	1.7	1.2
SA04	0.06-0.50	Made Ground	Naphthalene	18	2.3
			Benzo(a)anthracene	180	11
			Chrysene	190	30
			Benzo(b)fluoranthene	310	3.9
			Benzo(k)fluoranthene	310	110
			Benzo(a)pyrene	190	77
			Indeno(1,2,3-cd)pyrene	1300	45
			Dibenz(a,h)anthracene	630	0.31
			Benzo(ghi)perylene	1400	360

Therefore, mitigation measures will be required.

It was considered unlikely that the site is being affected by offsite contamination sources as the site is underlain by clay strata and therefore contamination is unlikely migrate onto the site.

3.3 Permanent Ground Gases and Vapours

A summary of the ground gas monitoring carried out by BSL is presented below:

- BSL conducted 7 monitoring visits over 3 months, in line with CIRIA C665 guidance.
- Methane concentrations ranged between 0.0% v/v and 0.3% v/v.
- Carbon dioxide concentrations ranged between 0.0% v/v and 3.7% v/v.
- Oxygen concentrations ranged between 0.5% v/v and 23.5% v/v.
- The maximum steady state gas flow rate was 1.3 l/hr.

The main sources of ground gas identified were the made ground.

On the basis of the above and the assessment carried out, the site is classified to fall within Characteristic Situation 1 in accordance with CIRIA 665 and therefore no mitigation measures are required.

3.4 Risk to Controlled Waters

No significant contaminants were identified in soils as an indicator of potential impaction on groundwater.

3.5 Summary

A summary of the findings of the previous investigations and assessments where a risk is present (i.e. an unacceptable source-pathway-receptor linkage) which requires mitigation is presented in the table below:

Source	Receptor
<- Poses an unacceptable risk to ->	
Elevated concentrations of heavy metals (lead), PAH present within the made ground	Human health / construction workers (Residential without homegrown produce screening criteria adopted)
UXO	Human Health and Property

Based on the above, it was recommended that a Remedial Strategy was prepared that identifies the specific remediation requirements for the site.

4.0 REMEDIAL OPTIONS APPRAISAL

4.1 Remediation Options

This section has been produced in general accordance with the requirements of LCRM: Stage 2 Options Appraisal.

The Investigations and risk assessment have concluded that the site will require remediation is the action required to prevent, minimise, remedy or mitigate the effects of the identified unacceptable risks listed in the section above.

The remediation of the site will need to ensure that upon completion of the development, the ground conditions at the site can be shown to be appropriate for the intended use and that they will not pose unacceptable contamination risks to the identified receptors.

For the options appraisal, there are 3 steps to follow:

1) Identify feasible remediation options.
2) Do a detailed evaluation of options.
3) Select the final remediation option.

The objectives of the remediation will be to sever one or more of the linkages within the source-pathway-receptor (S-P-R) model. There are three broad approaches which can be adopted:

- Remove or treat the source of pollutants.
- Remove or modify the migration pathway.
- Remove or modify the behaviour of the receptor.

The options appraisal process considers the available remedial techniques to achieve the above based on following key criteria:

- Effectiveness.
- Practicality.
- Durability.
- Relative Cost.
- Relative Operational Time (in terms of installation or the activity).
- Sustainability.

The feasibility of each of the listed remedial option is assessed in terms of effectiveness at treating the contamination, which is broken down into; effective (Yes), partially effective (Partially) or not effective (No).

The listed techniques are also assessed in terms of relative cost ranging from negligible cost (£) through moderately expensive (££) to prohibitively expensive (£££).

Timescales over which the remediation technique is operational has been relatively assessed as weeks, months, years and decades. If a given technique is only effective over a period in the order of years to decades then its overall feasibility is diminished.

A sustainable approach can help to ensure that the benefit of doing the remediation is greater than its impact.

The table below summarises the possible remedial options and assesses each against the six key criteria listed above:

Remedial Activity	Effective	Relative Cost	Operational Time	Comments (Practicality / Sustainability / Durability)	Feasible
Civil Engineering Methods					
Cover System	Yes	£	Weeks	Will prevent contact between site end users and shallow contaminated soils, breaking the S-P-R linkage.	Yes - considered a suitable remediation option to mitigate the risk to human health.
Excavation and Disposal (may also require pre-treatment by screening & sorting).	Yes	£££	Weeks	This will effectively remove the source of the contamination, but is much less sustainable compared to other feasible options (excessive cost, take up of landfill space, transport issues, need to replace with clean material)	Yes – in conjunction with other options.
Materials Management (Excavation and Re-Use of Suitable Materials)	Yes	££	Weeks	Excavation and re-use of any suitable materials and potential re-use of treated materials at a suitable depth. Would need to be undertaken in association with a Materials Management Plan (MMP) prepared in accordance with the CLAIRE Definition of Waste Code of Practice and signed off by a Qualified Person.	Yes – in conjunction with other options.
New water supply pipelines	Yes	£	Weeks	A pipeline risk assessment will be required to determine the most suitable pipe materials for potable water supply.	Yes – in conjunction with other options.
Biological Methods					
Not considered to be relevant to the subject site.					
Chemical Methods					
Not considered to be relevant to the subject site.					
Physical Methods					
Not considered to be relevant to the subject site.					
Passive Methods					
Not considered to be relevant to the subject site.					

4.2 Selected Remedial Options

Based on the above remedial options appraisal, the most appropriate approaches to the residual risks are listed below:

- Re-use of suitable soils on site under CL:AIRE CoP if site levels permit.
- Undertake a water supplier pipeline Risk Assessment/Utilise barrier pipe for water feed.
- Utilise a cover system and hard dig layer/break layer.
- Importation of chemically suitable soils, excavation and re-use of suitable soils and/or removal of unsuitable materials under a declared Materials Management Plan.

The options selected have been chosen because they are considered to be effective, can be carried out practically within the available time periods and are commercially viable. The contamination is considered to be site wide within the made ground. Consequently, it is deemed unsustainable to remove the impacted soil from the site. Therefore, any made ground below the cover system should remain in-situ and any arisings should be used appropriately in public open space areas and/or under hardstanding. Soil reused onsite will need to comply with chemical specification and testing rates provided within Appendix A and be in line with the sites declared Materials Management Plan.

4.3 Site Remediation Requirements

The key requirements are summarised in the table below:

Source	Contaminants of Concern	Remediation Method	Further Details / Remedial Requirements
1 – Made Ground (Ashy Soils Local to SA04)	Vapours (VOCs)	Source Removal – Excavation of ashy made ground point source	Localised removal of ashy made ground associated with former roadway through the centre of the site. Removal of made ground excavated until "clean" faces and base are encountered, with chemical testing undertaken to confirm this.
2 – Made Ground	Lead, Hexavalent Chromium (VI), PAHs	Installation of Clean Cover System	In private gardens and soft landscaping areas, a cover system comprising "clean" validated topsoil/subsoil should be installed. A warning geo-membrane should also be installed at the base of the clean cover system.

In addition to the specific remedial requirements listed in the tables above which are intended to mitigate the risks from known sources, it was recommended that a watching brief be maintained during the groundworks and construction for any evidence of contamination and BSL consulted for advice.

Detailed requirements are discussed in section 5.0 below. Note where the word "clean" is used from here on, the definition of this shall mean chemically suitable for the intended use.

5.0 DETAILED REMEDIAL REQUIREMENTS AND OTHER CONSTRAINTS

5.1 General

This section is intended to fulfil the requirements of LCRM Stage 3: Remediation and Verification.

All remedial works are to be overseen by suitably experienced and qualified site staff and a site watching brief will be in place alongside regular visits by a suitably qualified person to undertake the necessary verification works described.

The table below provides a summary of requirements in terms of the approximate order of works. It should be noted that the precise sequencing has not yet been confirmed by an appointed Contractor. This Remedial Strategy may also be subject to revision, dependant on the requirements of the regulators.

Task	Description
1.	**Pre-Commencement** • Approval of this Remedial Strategy with the Local Authority, Warranty Provider (e.g. NHBC) and Environment Agency (EA) prior to site works commencing. • Appointment of contractor for the works, who is to obtain appropriate permits, licences and approvals. Other appointments as per CDM requirements. • Production and declaration of a Materials Management Plan (MMP) under the DoWCoP prior to any works commencing or confirmation of waste exceptions (U1) to be in place.
2.	**Site Clearance and Demolition Works** Subject to all necessary ecological and arboricultural surveys being undertaken and appropriate mitigation measures in place, the site should be cleared and any vegetation below areas of proposed development should be stripped in accordance with Series 200 of the Specification for Highway Works. Removal of hardstanding, floor slabs, drainage runs and demolition of brick and concrete walls etc. A watching brief should be maintained during demolition and clearance/soils strip for any previously unidentified contamination.
3.	**Excavation and Re-use of Site Won Material and Importation of Soils (Earthworks)** Excavation, screening, treatment (if required) and engineering / re-use of soils where suitable, to an appropriate Earthworks Specification in accordance with SHW Series 600. Removal of ashy made ground associated with SA04. On-site treatment by windrow turning or off-site disposal to treatment/recycling facility to minimise disposal costs.
4.	**Installation of a clean cover system** Installation of "clean" validated cover system in soft landscaping areas where required to provide growing medium. Imported soils to be used as part of the cover layer should meet the chemical criteria outlined in Appendix A.
5.	**Verification and Reporting of Remedial Work** The gardens and landscaped areas will require depth validation. Collation of information relating to site clearance, chemical testing, any remedial works, remedial verification, material movements and waste transfer documentation where appropriate. A closure Verification Report will be required to close out the declared Materials Management Plan and submitted to CL:AIRE, if implemented. Complete remedial validation report(s) in line with regulatory guidance and warranty provider requirements. The report(s) should be submitted to the Local Authority and warranty provider for approval following completion.

5.2 Demolition Works

Issues surrounding demolition of above ground structure is outside the scope of this report, it is assumed that all existing above ground structures will be removed to ground level prior to remedial works commencing.

The excavation of all hardstanding areas, slabs, basement structures, relict foundations and similar below ground obstructions, will be undertaken with materials stockpiled and tested to determine their fate (on-site re-use or off-site disposal) in accordance with a Materials Tracking System.

All excavations should be suitably benched or otherwise supported for the duration of the works in accordance with relevant industry guidance.

Redundant drainage associated with the previous development will require chasing out. Existing connections to be located and capped to prevent contaminated groundwater entering the off-site drainage. The contractor should locate and record connection points and maintain off site connection pipework to allow for future connection if required.

5.3 Earthworks

General Considerations
Work procedures should be designed to minimise the risk of dust becoming airborne by suitable means, such as keeping the exposed soils damp or covered at all times. It is important that the control measures in place are sufficiently robust to prevent release of contaminated dust into the surrounding environment.

Geotechnical Considerations
Whilst geotechnical aspects are not specifically considered within this Remedial Strategy, all earthworks should be undertaken in accordance with an appropriate Earthworks' Specification.

If present, unsuitable materials (e.g. timber, metals and plastics) removed during screening should be segregated and stored in a suitable location prior to off-site disposal to a suitable licence facility. Where practicable materials should be re-used or recycled.

The contractor should be responsible for controlling groundwater entry into excavations.

Materials Management
Any works involving the movement of soils within the site boundary shall be done in accordance with a Materials Management Plan (MMP) under the CL:AIRE Definition of Waste Code of Practice (CoP) and shall be done in accordance with an appropriate exception (U1). Further guidance is presented in Appendix B.

To implement the DoWCoP, there is a requirement to notify the Environment Agency and Local Authority of the intention to use the code of practice in principal, after which there is a 21-day notice period for their response.

In order to re-use soils under the DoWCoP, there are four key criteria that need to be met:

- The aims and objectives of the project meet the requirements of the Waste Framework Directive.
- The soils can be demonstrated to be suitable for use (backed up by chemical/geotechnical testing and assessment).
- There is certainty of use (i.e. materials tacking which should be in place as part of good site practice in any case).

- Quantity (the quantity of materials used should be known).

Information on existing site levels, proposed levels, volumes generated (e.g. foundation / drainage excavation arisings) would need to be known in order to complete the MMP.

If the DoWCoP is the chosen route, it is an absolute that the MMP should be in place and declared by a Qualified Persons (QP) before works commence, otherwise excavated soils could constitute an illegal deposit of waste and enforcement action could be taken by the EA and HMRC.

In regard to "clean" naturally occurring soils only that are to be re-used on their site of origin, these are covered by a Waste Framework Directive (WFD) exclusion. So long as the project can prove the four criteria (listed above) then permits or the DoWCoP are not required. However, many projects still use the DoWCoP to ensure compliance.

Re-use of soils containing asbestos should comply with the CL:AIRE publication 'Interpretation for Managing and working with Asbestos in Soil and Construction and Demolition Materials' (CAR-SOILTM) and CAR 2012.

In terms of the re-use of brick/concrete crush materials, the DoWCoP does cover aggregates, but only on the site of origin and the EA WRAP aggregate Quality Protocol might best apply to ensure quality standards.

Imported Materials and Materials for Re-use
Any soils or materials imported or to be re-used as part of the works should be tested for chemical compliance and suitability in line with the guidance stipulated in Appendix A and the proposed end use.

Any imported material should be approved by BSL and the Local Authority prior to being imported onto site.

Where feasible, imported topsoil should conform to the requirements of BS 3882:2015 (Specification for Topsoil and requirements for use), or as agreed with the client. Imported subsoil should also conform to the requirements of BS 38601:2013 (Specification for subsoil and requirements for use), or as agreed with the client.

In addition, all materials must be free from aggressive / invasive weeds (such as Japanese Knotweed and Giant Hogweed) and bulk vegetative growth.

VOC Impacted Soils – SA04
All excavations of contaminated soil should be carried out under the guidance and/or direction of a qualified and experienced geo-environmental engineer. Delineation of excavations should be assisted by measuring VOCs headspaces using a Photo-ionisation Detector to ensure that soils only warranting remediation are excavated.

The impacted area will be excavated and removed until clean faces and base are encountered. The sides and bases of excavations should be tested as per the requirements in Appendix A, with a minimum of 5 no. samples per excavation.

To assist with delineation, materials with visual/olfactory evidence of contamination and PID values of >250ppm should be excavated and removed.

Impacted soils surplus to requirements will be disposed off site to a suitably licensed facility.

UXO

The UXO desk study indicates the majority of the site is Moderate Risk with the wider site area being high risk.

It is recommended that a site-specific plan for the management of UXO risk is written for this site. This plan should be kept on site and be referred to in the event that a suspect item of UXO is encountered at any stage of the project. It should detail the steps to be taken in the event of such a discovery, considering elements such as communication, raising the alarm, nominated responsible persons etc.

As a minimum precaution, all personnel working on the site should be briefed on the basic identification of UXO and what to do in the event of encountering a suspect item. This should in the first instance be undertaken by a UXO Specialist. Posters and information on the risk of UXO can be held in the site office for reference.

It is recommended within the UXO report that there should be an Unexploded Ordnance (UXO) Specialist Presence on Site to support shallow intrusive works.

5.4 Cover Layer

A cover system comprising "clean" validated topsoil/subsoil should be placed in proposed soft landscaped areas where made ground remains present after site levels have been reduced.

Imported soils to be used as part of the cover layer should meet the chemical criteria outlined in Appendix A.

It should be noted that the screening criteria and scenarios adopted within Appendix A are conservative, thus an exceedance of a contaminant will not necessarily deem the material to be unsuitable. Any exceedances detected and overall material suitability will be assessed on a case-by-case basis, with the results included and discussed in the Validation Report.

The installation of a clean cover system will break the pathway to human health from the identified contamination and act as a growing medium.

The cover layer in public open space (POS) soft landscaping areas should comprise (top down):

- Min 450mm "clean" validated topsoil/subsoil; over
- 100mm hard dig layer (ideally "clean" quarried MOT Type 1 or similar).

For areas of proposed trees, a tree pit will need to be excavated and additional subsoil provided above the hard dig layer / membrane, further guidance over suitable thickness' should be obtained from a landscape architect.

Site drainage should be taken into consideration with the implementation of the clean cover layer. It is also essential to provide a structured, uncompacted and well-aerated soil profile for the successful establishment and subsequent growth of plants and grass. However, where heavy machinery and large volumes of soil are excavated and stored, soil structure can easily be destroyed by over-compaction, leading to poor drainage and failed garden planting. This can often be mitigated by careful site planning or rotavating the soils as required.

The above is subject to agreement with the Local Authority and the warranty provider, and requirements should be confirmed at the earliest opportunity.

5.5 Records

Accurate records and as-built drawings will need to be kept, updated and provided for all aspects of the remedial works as they progress.

The construction works should be devised in a way to allow the maximum re-use of site won materials adhering to current waste regulations. To allow this and demonstrate compliance with Waste Management Licensing Regulations the Contractor should maintain an accurate Materials Management Plan (MMP). These shall show the source, description, classification and placement location of all fill used on the site. The plans shall be revised regularly with archive versions maintained for future reporting purposes. The MMP should show the extent of any excavations undertaken on site.

5.6 Stockpile Management

Segregation of materials and stockpiles should be maintained, and accurate records kept to avoid the potential for cross contamination. Good site practice for stockpile management includes, but is not limited to:

- Damping down of the site surface, excavations and stockpiles to prevent the generation of contaminated dust.
- Stockpiles sizes should be kept to a minimum to reduce 'wind whip' causing potentially hazardous material to be blown from the pile.
- Once at the intended size, stockpiles should be "sealed" to ensure no excess materials are placed and mixed into the stockpiled to prevent cross contamination.
- Clean, validated material proposed for re-use as part of the cover system should ideally be placed on a suitable polythene membrane or clean concrete hardstanding to prevent any cross contamination.
- Appropriate loading of plant to prevent spillages.
- Appropriate signage should be displayed so that site workers/visitors are aware of the intended use and are alerted to the potential hazards associated with the material to be stored on site.

Examples of good site practice for stockpile management are presented below:

Stockpile sealed and cordoned off with warning sign	Sheeting of contaminated materials
	

5.7 Testing

Prior to commencing any works the Contractor will submit to the Clients Representative (Suitably qualified Geo-environmental Engineers) details for the testing laboratories to be used together with their UKAS and MCERTS accreditations (as appropriate). The Clients Representative will approve the laboratories subject

to them holding the relevant certifications. Alternatively, providing the Client's Representative is a suitably qualified Engineer, then they may attend site to obtain samples for appropriate testing.

Tests carried out by a laboratory without the approval of the Client's Representative will be rejected. All samples will be taken in accordance with relevant guidance (e.g. BS 10175:2011+A2:2017).

The contractor is responsible for the testing of the physical properties of any imported or processed material to be used in the engineering works. This applies to both site won and any imported materials.

Site won material shall be tested to confirm its chemical suitability. Contaminated material for disposal should be tested to define the most economical disposal route. In addition, any material to be imported to the site shall be tested and its suitability demonstrated prior to it being brought to the site.

The geotechnical suitability of site-won materials will be confirmed before reuse, by appropriate earthworks testing, in accordance with an Earthworks Specification (preparation of which is outside the scope of this remedial strategy).

5.8 Permits

The appointed contractor will need to hold or obtain relevant waste permits or exemptions (where applicable) in accordance with the Environmental Permitting Regulations 2016 to carry out waste recovery, treatment and re-use activities on site. Alternatively, waste recovery and re-use operations shall be in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP), 2011 and an approved Materials Management Plan (MMP) declared under the DoWCoP by a Qualified Person (QP).

A crusher/screener will also require a waste permit or exemption. Aggregates should be processed in accordance with relevant WRAP Quality Protocol to produce a non-waste product.

It is the contractor's duty of care to ensure that any waste to be treated or disposed off-site is transported by a licenced waste carrier and that the waste facility is licenced, permitted or holds an appropriate exemption.

Evidence of the above should be maintained and provided on request along with any waste transfer or consignment notes for materials removed off-site.

5.9 Surface Water Runoff

The contractor should provide and maintain means to intercept surface run off in accordance with good site practice. Run-off from the site shall not be allowed to enter adjacent waterways or drainage gullies without the permission of the Drainage and Highway Authorities.

Surface waters from the site shall be discharged to the mains sewer under consent from the local Water Authority.

It should be noted that groundwater impacted by hydrocarbons may require some form of treatment prior to discharge, alternatively if only small amounts of water are encountered, this could be stored and removed to a suitable waste disposal facility.

5.10 Unexpected Contamination

If any unexpected contaminated materials are encountered by the contractor, then works should cease in that area and the contractor should consulted BSL for advice prior to any irrevocable action at the site.

6.0 STAKEHOLDERS AND RESPONSIBILTIES

6.1 Key Stakeholders

A summary of the key project stakeholders is presented below (not exhaustive):

Client / Developer	Consultant / Engineer	Contractor	CDM Stakeholders	Regulators
FG Vivere Manchester Ltd	Brownfield Solutions Ltd (BSL)	Demolition, Remediation and Groundworks Contractors (TBC)	Principal Contractor (TBC) Principal Designer (TBC) Health and Safety Executive (HSE)	Trafford Council (regulator - Human Health risk and planning consent) Environment Agency (EA) (regulator - controlled waters and waste) Warranty provider (e.g. NHBC/LABC)

6.2 Client

The remediation works will come under the umbrella of CDM 2015 Regulations. The Client is responsible for formally appointing a Principal Designer and Principal Contractor, otherwise the Client assumes the role of Principal Designer. All pre-construction information will need to be made available to the appointed duty holders and sufficient time and resources allowed.

6.3 Consultant/Engineer (Client's Representative)

A suitably qualified Geo-Environmental Engineer/consultant should be appointed as the client's representative to oversee the works, who will have a visiting role throughout and provide advice when required.

They should be responsible for:

- Providing appropriate supervision of the remedial works (either part time or full time).
- Monitoring the works to ensure compliance with this strategy and specification.
- Audit testing of materials. (However, it is the responsibility of the contractors to demonstrate the suitability/acceptability and the compliance of the material with the specification).
- Approval of test results.
- Validation of the works.

They will maintain records of the works to include the following:

- Record sheets to include a summary of the activities.
- Aspects relating to Environmental Control or non-compliance with this strategy.
- Test Results.

Liaison will be carried out with relevant regulators prior to commencing on site. The design of the Remedial Strategy can be adapted to avoid unnecessary delays at a later date.

Validation information will be supplied to the Local Authority for approval in a Verification Report. The report will include relevant site records and stand as certification that the remedial works have been carried out in accordance with this strategy.

6.4 Contractor

The contractor appointed to oversee the development construction works should comply with the following regulations, guidance and legislation relating to the works:

- Environmental Protection Act 1990.
- Health and Safety Executive "Protection of Workers and the General Public during the Redevelopment of Contaminated Land", HS(G)66, HMSO 1991.
- Duty of Care Regulations 1991.
- Water Resources Act 1991.
- Water Industry Act 1991.
- Environment Act 1995.
- The Control of Substances Hazardous to Health Regulations 2002.
- Hazardous Waste Regulations.
- Control of Asbestos Regulations (CAR) 2012.
- Control of Asbestos Regulations 2012: Interpretation for Managing and Working with Asbestos in Soil and Construction & Demolition materials: Industry Guidance (shortened name CAR-SOIL™)".
- The Construction, Design and Management Regulations 2015.

The contractor should provide adequate supervision for all the site works. This shall include a suitably experienced Remediation Engineer or Site Manager who will validate the work and maintain records allowing preparation of a validation report for the works.

The appointed contractors will be responsible for maintaining all records in connection with the works.

Records shall include details of:

- All the material imported to the site (including volume, source and chemical composition).
- All the material exported from the site (including volume, destination and chemical composition).
- The size and extent of the remedial excavations (lateral extent and depth plotted on suitable plans).
- Any treatment undertaken.
- Details of the contractor's waste exemptions, if applicable.
- Discharge of any groundwater.

6.5 CDM Stakeholders - Health & Safety

The appointed Principal Contractor (PC) will need to produce a Construction Phase Plan for the work, prepare risk assessments and method statements. The PC will be responsible for the coordination of welfare and H&S matters on-site including sub-contractors.

The Principal Designer/Client will review the Construction Phase Plan and notify the local office of the Health and Safety Executive (HSE) of the works prior to commencing (via form F10). Unless otherwise agreed with the client, the table below provides a broad outline of the overall project team.

All works should be carried out in a manner that will safeguard all site employees. This should include but not be limited to; site induction for all staff and visitors, training/safety awareness training, issue of Personal Protective Equipment (PPE) and the provision of suitable welfare facilities. Further advice is

provided within HSE publication 'HSG 66 Protection of Workers and the General Public during Redevelopment of Contaminated Land'.

The works should be carried out in a manner to protect against damage to property or nuisance to property or persons on the site or within its immediate vicinity. Noise and dust issues should be considered. Members of the public should be excluded from the works areas and the contractor should maintain suitable security to ensure unauthorised persons cannot access the works.

Appropriate temporary protection and warning signs should be erected to warn of hazards that may result as a consequence of the works.

6.6 Regulators

Implement the regulations and environmental standards set by government. The contents of this report will need to be agreed in advance of works with the regulators.

7.0 VERIFICATION PLAN

7.1 Remedial Excavations

As a minimum all ashy made ground associated with SA04 should be removed. Potentially impacted soils will be removed and stored in a sealed bunded area for testing and disposal.

The impacted area will be excavated and removed until clean faces and base are encountered. The sides and bases of excavations should be tested as per the requirements in Appendix A with a minimum of 5 no. samples per excavation.

To assist with delineation, materials with visual/olfactory evidence of contamination and PID values of >250ppm should be excavated and removed.

Impacted soils surplus to requirements will be disposed off site to a suitably licensed facility.

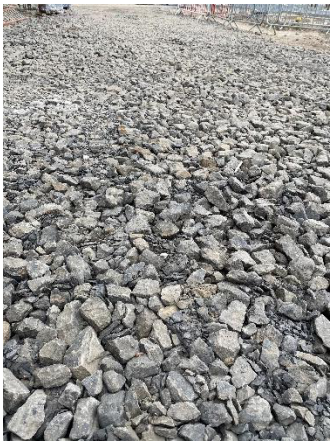
7.2 Clean Cover System

Soils used within the top 450mm in soft landscaping will comply with the chemical specification and testing frequencies provided within Appendix A.

Prior to importing any soils, test results for the proposed import will be provided to the clients representative, alongside the confirmation of the source (greenfield/brownfield/recycled etc).

Once installed by the groundworks contractor, there is a requirement to provide evidence of the chemical suitability and depths of the clean cover system, with inspections to be carried out by a suitably qualified Geo-environmental Engineer in a randomly selected area of the plot. confirmatory photographs will be taken for inclusion in the validation report. An example of good practice for depth validation is provided below:

Containing staff, datum bar and photo board, clearly showing spoil and pit depth	Plot Overview
	
Evidence of Hard Dig Layer	Evidence of Warning Membrane





In areas of soft landscaping/public open space (POS), validation pits should be excavated at a frequency of circa one pit per 25m x 25m area of POS.

Minor variances in the thickness of individual soils layers cover may be tolerated, provided the overall clean cover system is a minimum depth of 450mm to minimise soils mixing and includes an engineered element such as a warning membrane or hard dig layer. If the thickness is varied, the topsoil layer should be a minimum thickness of 100mm in accordance with warranty provider standards.

If a warning geotextile is utilised, this should be sufficiently durable and robust for the lifetime of the development. If a hard dig layer is opted for, first generation clean quarried stone is generally preferred.

If the cover system is deemed to be insufficient, the groundworks contractor will be informed and advised on how much more material is needed for the cover system to be meet requirements, with additional verification pits re-excavated after rectification to confirm that a sufficient thickness of soil is present.

7.3 Contingency Planning

Should significantly contaminated material be encountered during the development (e.g. gross hydrocarbon impaction) then a suitably qualified geo-environmental engineer should be consulted for advice. Measures may include the excavation of the material which should stockpiled on 2000-gauge polythene sheeting, sampled and tested for an appropriate range of contaminants.

Once the laboratory analysis of the material is available, an assessment will be undertaken to determine whether it will need to be disposed off-site to a suitable facility or if the materials could be retained on site re-used with or without some form of treatment within regulatory requirements.

Depending on the nature of any such impact it may be necessary to undertake validation testing of the excavation faces in order to demonstrate that no such materials are left in-situ.

Should gross asbestos contamination be identified, then all works should cease until an Asbestos Management Plan is put into place (if not done so already) and remedial requirements are confirmed by a suitably qualified geo-environmental engineer. Note remedial works under such instances may be classified as either licenced or non-licenced and may be notifiable to the Health and Safety Executive (HSE). Works would need to comply with CAR 2012 and CARSOILS™.

7.4 Reporting

On receipt of all information, the appointed Geo-Environmental Engineer will compile a Verification Report(s). The report will be a concise document that provides records and collected evidence of the remediation carried out at the site. The final report should contain:

- Introduction, including description of the project and background to the works.
- Summary references to site investigation data, risk assessments and the Remedial Strategy.
- A description of the works undertaken and any treatment records.
- Details of chemical validation testing.
- Reference to the MMP (if utilised), records of where material was moved from/imported from/to and final destinations, including volumes, suitable for use criteria, QP declaration references etc.
- Details of how any out of specification materials were dealt with and final destination, including waste transfer notes.
- Appropriate site plans and photographic record.
- Conclusions, detailing any additional works that may be required.
- Details of any long term monitoring requirements, if any.

This should then be submitted to the regulators and warranty providers for approval, which should close out the requirements of this Remedial Strategy.

8.0 REFERENCES

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DRAWINGS



NOTE: ALL LAYOUTS ARE SUBJECT TO DETAIL DESIGN AND STAGE 3 CO-ORDINATION WITH CONSULTANT DESIGN TEAM. ALL AREAS AND DIMENSIONS ARE SUBJECT TO A TOLERANCE OF +/- 5%

GENERAL NOTES:

ALL DIMENSIONS ARE TO BE CHECKED ON SITE WITH ANY DISCREPANCIES REPORTED TO THE ARCHITECT PRIOR TO THE WORKS BEING CARRIED OUT.

ALL WORKS ARE TO BE IN ACCORDANCE WITH THE PLANNING APPROVAL AND ANY SUBSEQUENT APPROVED LOCAL AUTHORITY PLANNING CORRESPONDENCE INCLUDING DRAWINGS, DOCUMENTS AND REPORTS.

ALL WORKS ARE TO COMPLY WITH THE BUILDING REGULATIONS, BRITISH STANDARDS, CODE OF PRACTICE, AND ANY LOCAL STATUTORY REQUIREMENTS.

ALL WORKS ARE TO COMPLY WITH CURRENT HEALTH AND SAFETY LEGISLATION, H.S.E. RECOMMENDATIONS/GUIDANCE AND THE CURRENT C.D.M. REGULATIONS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH LEACH RHODES WALKER ARCHITECTS GENERAL ARRANGEMENT (L CODE) DRAWINGS, TOGETHER WITH RELEVANT DETAILED (A CODE) DRAWINGS AND SPECIFICATIONS.

FOR ALL STRUCTURAL WORKS REFER TO THE STRUCTURAL ENGINEERS INFORMATION.

FOR ALL MECHANICAL AND ELECTRICAL WORKS REFER TO THE MECHANICAL AND ELECTRICAL ENGINEERS INFORMATION.

FOR ALL ABOVE GROUND DRAINAGE WORKS REFER TO THE PUBLIC HEALTH ENGINEERS INFORMATION.

ALL PRODUCTS SPECIFIED ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS, SPECIFICATION AND DETAILS.

rev	description	drwn	auth	date
P15	MINOR LAYOUT AMENDS.	JDC	CJG	02.10.24
P14	HOTEL STAIRS ADDED. GENERAL UPDATES.	JDC	CJG	25.09.24
P13	ROOM AREA NOTES UPDATED.	JDC	CJG	23.05.24
P12	UPDATED LANDSCAPING & MINOR LAYOUT CHANGES	JDC	CJG	17.05.24
P11	AMENDED WITH HIGHWAYS COMMENTS	JDC	CJG	11.03.24
P10	LANDSCAPING UPDATED	JDC	CJG	25.01.24
P09	GENERATOR & SUBSTATION POSITIONS AMENDED. PARKING ADJUSTED.	JDC	CJG	19.01.24
P08	BOUNDARY FENCE ADDED TO PARKING AREA.	JDC	CJG	17.01.24
P07	COMMERCIAL UNIT ADDED & ENTRANCE LOBBIES/ BoH RECONFIGURED.	JDC	CJG	09.01.24
P06	RED LINE UPDATED. ISSUED FOR PLANNING	JDC	CJG	19.12.23
P05	BREAKERS YARD SHOWN AS EXISTING	JDC	CJG	13.12.23
P04	CYCLES & BoH LAYOUT AMENDED. EXTERNAL & FFL LEVELS ADDED.	JDC	CJG	05.12.23
P03	UPDATED STRUCTURE & LAYOUT	EB	CJG	10.11.23
P02	CYCLE STORE AMENDMENT	EB	CJG	02.11.23
P01	FIRST ISSUED	EB	CJG	26.10.23

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CLIENT: FORSHAW GROUP
PROJECT: CORNBROOK RESIDENTIAL
DOCUMENT NAME: 8353-LRW-ZZ-00-DR-A-00-178
DESCRIPTION: PROPOSED GROUND FLOOR PLAN

REVISION	SCALE
P15	1:250@ A3

LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8353	26.10.23	EB	DL

File:I:\8353\Comms\Issued\Drawings\Dwg\Dwgs\Issued\8353-LRW-ZZ-00-DR-A-00-178_Proposed Ground Floor Plan.dwg



SITE LOCATION

NEAREST POSTCODE: M15 4WB

SITE ENTRANCE WHAT3WORDS: ///HERO.ANKLE.FITS



REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD
CEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

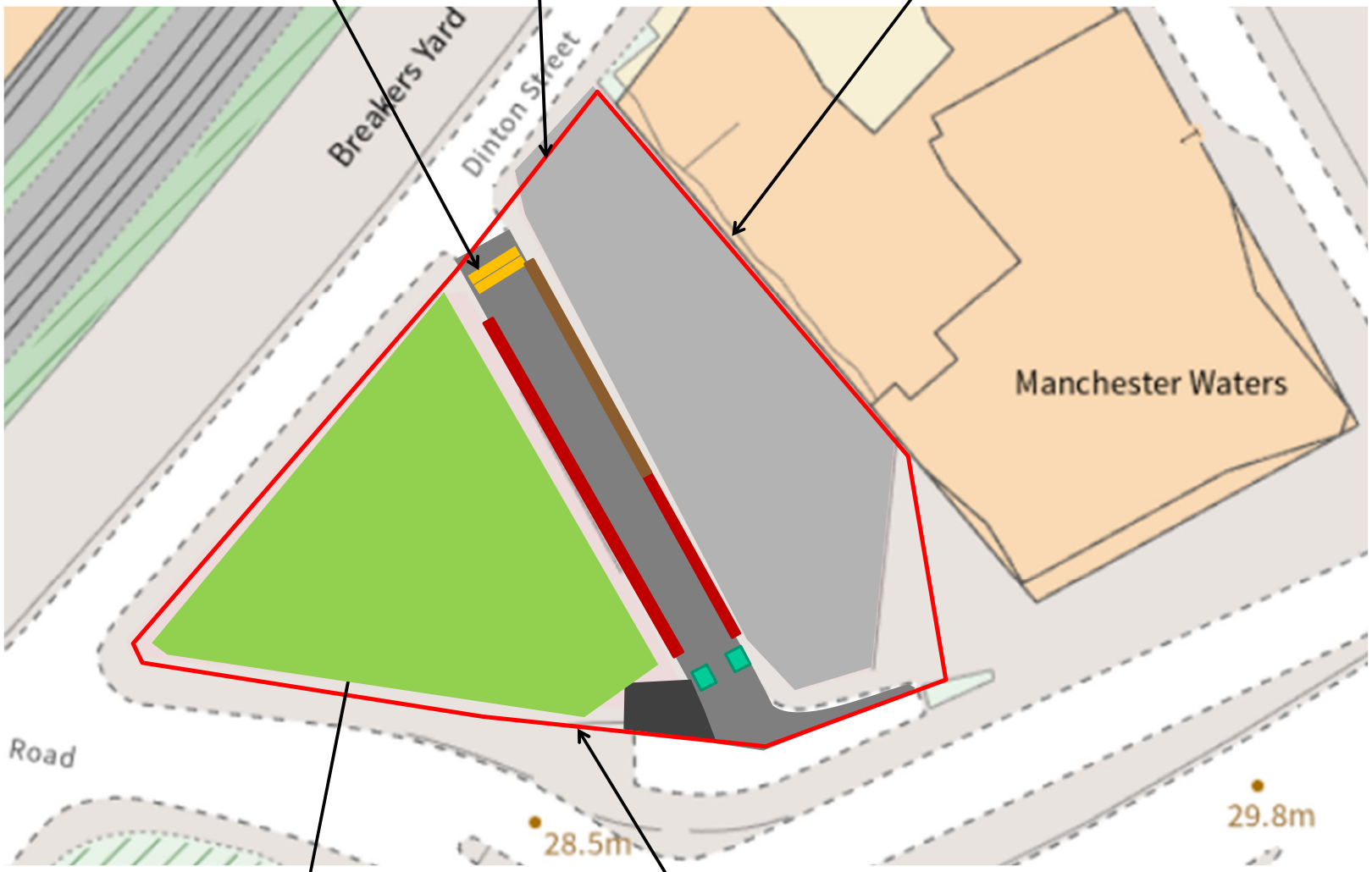
CLIENT
RENAISSANCE ASSOCIATES LTD

PROJECT TITLE
CORNBROOK RESIDENTIAL, MANCHESTER

DRAWING TITLE
SITE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5540/01	-	NTS	02/10/23

DRAWN BY	CHECKED BY
SD	TM



KEY

- APPROXIMATE SITE BOUNDARY
- GATE
- CONCRET SLAB / GRAVEL
- COBBLED ROAD
- ASPHALT SURFACING
- BRICK WALL
- CONCRETE POST WOOD PANNEL FENCING
- DRAINAGE COVERS
- DENSE VEGETATION

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

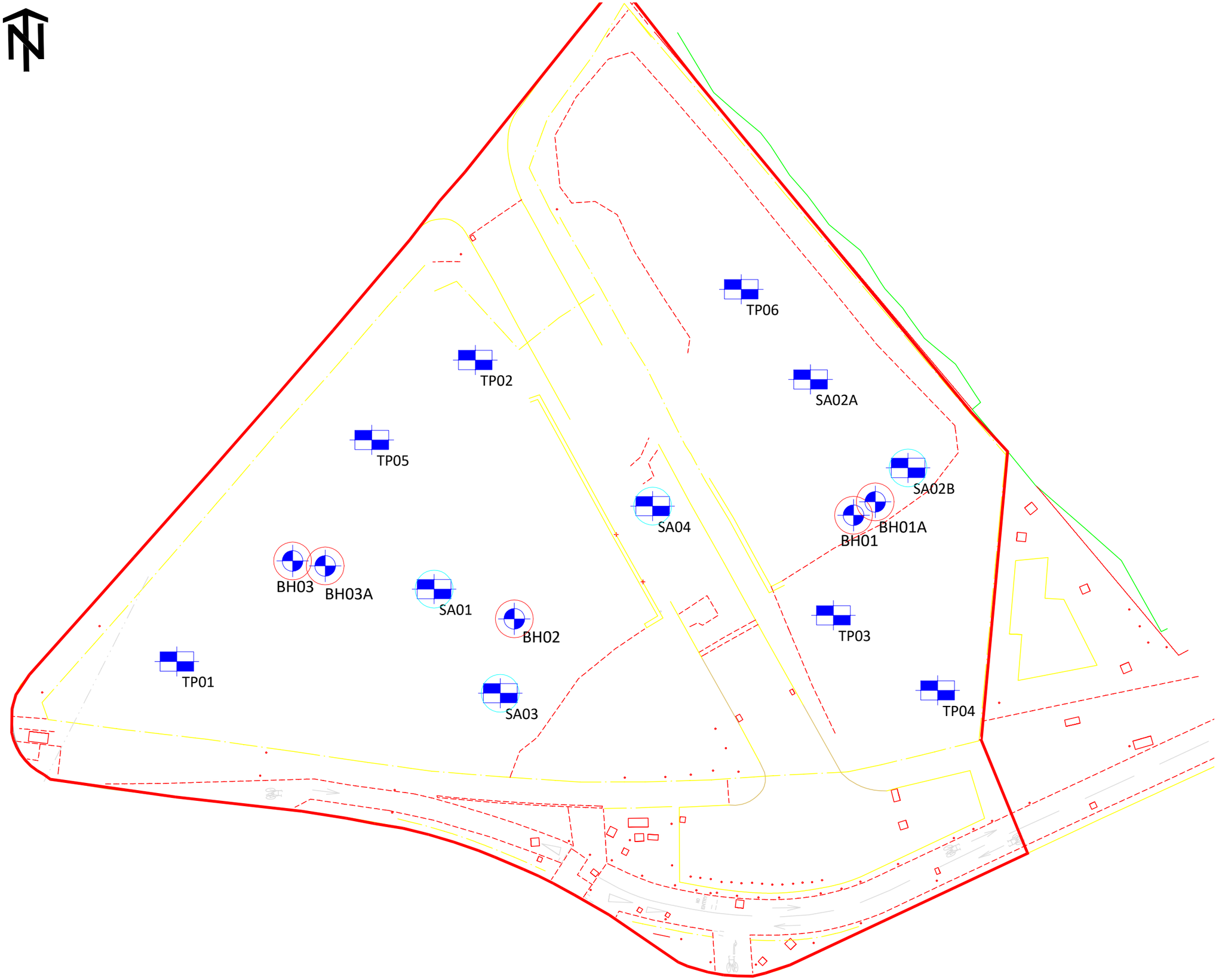
CLIENT
RENAISSANCE ASSOCIATES LTD

PROJECT TITLE
CORNBROOK RESIDENTIAL, MANCHESTER

DRAWING TITLE
SITE FEATURES PLAN

DRAWING No.	REVISION	SCALE	DATE
C5540/02	-	NTS	05/10/23

DRAWN BY	CHECKED BY
AH	TM



KEY	
	APPROXIMATE SITE BOUNDARY
TPXX	TRIAL PIT
BHXX	BOREHOLE
	SOAKAWAY INFILTRATION TEST
	BOREHOLE INSTALLATION

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS REPORTS. THIS DRAWING IS COPYRIGHT OF BSL.
3. DRAWING NOT FOR CONSTRUCTION PURPOSES.

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

FG VIVERE MANCHESTER LTD

PROJECT TITLE

CORNBROOK RESIDENTIAL, MANCHESTER

DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5540/04	-	NTS	16/10/24

DRAWN BY	CHECKED BY
AH	NS

APPENDIX A

Chemical Specification for Soils

Quality Control Methodology for Imported and Re-used Soils

Prior to Importation and Re-use

In order to prove soils/materials are chemically suitable for the intended use, reliable testing results should be provided, or samples should be obtained at the source and tested prior to either importation or re-use on site of origin as early as possible.

The frequency and scope of testing will vary depending on the source, the required testing of which is provided below.

These rates are based on a combination of guidance from the National Contained Land Officers Groupe (NCLOG) "A Regulator's Guide to Cover Systems and their Verification", YALPAG "Verification Requirements for Cover Systems" alongside other similar local authority guidance documents, the professional judgement of BSL and acceptance of similar criteria used on similar sites to the satisfaction of the local regulatory authority. Results should be compared to the acceptance criteria appended.

Material Use	Testing Frequency*	Suite of Analysis					
		1	2	3	4	5	6
Topsoil							
Greenfield Source including Site Won (Top 600mm)	*1 per 50m^3	■	■				
Brownfield/Recycled Source including Site Won (Top 600mm)	**1 per 50m^3	■	■	■			
Subsoil							
Greenfield Source (Top 600mm)	*1 per 150m^3	■	■				
Brownfield/Recycled Source (Top 600mm)	**1 per 150m^3	■	■	■			
Site Won (Top 600mm)	*1 per 150m^3	■	■	■			
First Generation (i.e. quarried sand)	No testing required. Certificate of material provenance is required.						
Physical Stone Break Layer							
First Generation (i.e. quarried stone)	No testing required. Certificate of material provenance is required.						
Site Generated / Imported 6F2	*1 per 500m^3	■	■	■			
General Fill* **							
Site Generated / Imported 6F2	*1 per 1000m^3	■	■				
Site Won Made Ground	*1 per 250m^3						■
	*1 per 1000m^3	■	■	■			
Site Won Natural Arisings on Brownfield Site	*1 per 1500m^3	■	■				■
Site Win Natural Arisings on Greenfield Site	*1 per 2000m^3	■	■				

Notes
1 – BSL Default Suite - *Arsenic, Cadmium, Chromium (total and hex), Copper, Nickel, Mercury, Lead, Zinc, Selenium, speciated polycyclic hydrocarbons (PAH 16), water soluble sulphate (2:1 Extract), soil organic matter, and pH.*
2 – Asbestos ID (and Quantification if detected).
3 – TPH Analysis - *Speciated Total Petroleum Hydrocarbons (TPH CWG) including BTEX and MTBE.*
4 – VOC Analysis - *Volatile Organic compounds (VOCs) by GC-MS (ex TIC).*
5 – SVOC Analysis - *Semi-Volatile Organic compounds (SVOCs) by GC-MS (ex TIC).*
6 – Visual Inspection & on-site screening for VOC using calibrated PID.
* - Minimum of 3 samples per source.
** Minimum of 6 samples per source.
***To be used at depths >600mm bgl or below building/hardstanding.

The testing should be undertaken at a UKAS accredited laboratory, be MCERTS accredited where available, and all results should be below the remedial target values appended.

Waste Legislation

Prior to the excavation, stockpiling, movement and placement of soils/materials, appropriate exemptions should be in place (e.g. an MMP or other suitable exemption/permit).

Topsoil/Subsoil

For topsoil and subsoil suitability as a growing medium, reference should be made to BS3882:2015 Specification for Topsoil and BS 8601:2013 Specification for Subsoil and Requirements for Use. These standards should be adopted where feasible, especially for recycled/manufactured soils, but it should be noted that this standard is often difficult to apply to existing greenfield topsoil/subsoil which has shown no prior issue as a growing medium (i.e. no vegetative stress prior to stripping/stockpiling).

In consideration of promoting soils sustainability, a view should be taken on the suitability of topsoil/subsoil if it does not fully comply with the standards and agreed with the LPA. For example, on a site whereby sensitive peat/acid soils are present, but site won topsoil does not comply with the standard, it would potentially be more sustainable and appropriate to retain and re-use such soils as opposed to removal and replacement.

In addition to the above sampling frequencies and testing, all imported topsoil/subsoil should also confirm to the following criteria:

- Have a maximum stone size of 75mm.
- Be clean and free of foreign debris including building waste materials or contaminants e.g. brick, glass, asbestos and plasterboard, etc.

For imported soils, approval should be obtained from the Local Authority prior to importing to site.

Site Won Crushed Hardcore/Concrete (for use below building/hardstanding only)

In addition to the above sampling frequencies and testing; for re-use of hardcore/concrete (Grade 6) on the site of origin, BSL proposes the following inspection criteria:

- No visual contamination (oil staining etc).
- Limited deleterious material (organics, wood, etc).
- Limited metal.
- No visible asbestos containing material (ACM).
- Quantifiable Asbestos at or <0.001 w/w%.

Production of Grade 6 materials should be done under WRAP quality protocols or similar. Inspections and sampling would need to be carried out by a qualified geo-environmental engineer. For geotechnical performance, reference should be made to Series 600 Earthworks Guidance.

If the above criteria for asbestos is exceeded, then further consideration and assessment will be required. Works would need to be undertaken in compliance with the Control of Asbestos Regulations (CAR) 2012 and an Asbestos Plan of Works may be required.

Post Importation

The imported soils should be inspected on site to confirm it is the same material inspected at source and it is suitable for use. Once imported to site, tests should also be undertaken to confirm the batch is suitable prior to use and has not been contaminated in transit.

A management plan should be in place on site for storage and transportation. The material should be stockpiled separately and well segregated on site to prevent cross contamination in accordance with good site practice.

Accurate records of movement of soils should be kept in order to be incorporated in the final verification report.

Approval should be obtained from the Local Authority prior to use on site.

Validation and Verification Report

Site
A final verification report should be issued to the Local Authority/Warranty Provider (e.g. NHBC) detailing records of the re-use and importation of soils, alongside their use on the site.

Cover Layer
Once the chemical suitability of soils used for a cover system in soft landscaping and garden areas has been confirmed, the material can be placed in these areas.

The depth of the cover layer should be recorded, and photographs taken as evidence to be issued to the Local Authority/warranty provider in the verification report.

Approval for the placement of the cover layer should be obtained from the Local Authority/Warranty Provider.

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Human Health Remediation Targets - Soils			Import in Garden Areas <600mm; Based on human health without homegrown produce (1% SOM)
Source	Contaminant	Unit	
LQM S4UL	Arsenic	mg/kg	40
LQM S4UL	Cadmium	mg/kg	85
LQM S4UL	Chromium (III)	mg/kg	910
LQM S4UL	Chromium (VI)	mg/kg	6
LQM S4UL	Copper	mg/kg	7100
C4SL	Lead	mg/kg	330
LQM S4UL	Mercury, Elemental	mg/kg	1.2
LQM S4UL	Nickel	mg/kg	180
LQM S4UL	Selenium	mg/kg	430
LQM S4UL	Zinc	mg/kg	40000
Atkins ATRISK	Cyanide (free)	mg/kg	34
LQM S4UL	Phenol (total)	mg/kg	440
LQM S4UL	Acenaphthene	mg/kg	3000
LQM S4UL	Acenaphthylene	mg/kg	2900
LQM S4UL	Anthracene	mg/kg	31000
LQM S4UL	Benz(a)anthracene	mg/kg	11
LQM S4UL / C4SL	Benzo(a)pyrene	mg/kg	3.2
LQM S4UL	Benzo(b)fluoranthene	mg/kg	3.9
LQM S4UL	Benzo(ghi)perylene	mg/kg	360
LQM S4UL	Benzo(k)fluoranthene	mg/kg	110
LQM S4UL	Chrysene	mg/kg	30
LQM S4UL	Dibenz(a,h)anthracene	mg/kg	0.31
LQM S4UL	Fluoranthene	mg/kg	1500
LQM S4UL	Fluorene	mg/kg	2800
LQM S4UL	Indeno(1,2,3,cd)pyrene	mg/kg	45
LQM S4UL	Naphthalene	mg/kg	2.3
LQM S4UL	Phenanthrene	mg/kg	1300
LQM S4UL	Pyrene	mg/kg	3700
LQM S4UL	TPH Aliphatic EC 5 - 6*	mg/kg	42
LQM S4UL	TPH Aliphatic EC 6 - 8*	mg/kg	100
LQM S4UL	TPH Aliphatic EC 8 - 10*	mg/kg	27
LQM S4UL	TPH Aliphatic EC 10 - 12*	mg/kg	130
LQM S4UL	TPH Aliphatic EC 12 - 16*	mg/kg	1100
LQM S4UL	TPH Aliphatic EC 16 - 35*	mg/kg	65000
LQM S4UL	TPH Aliphatic EC 35 - 44*	mg/kg	65000
LQM S4UL	TPH Aromatic EC 5 - 7*	mg/kg	370
LQM S4UL	TPH Aromatic EC 7 - 8*	mg/kg	860
LQM S4UL	TPH Aromatic EC 8 - 10*	mg/kg	47
LQM S4UL	TPH Aromatic EC 10 - 12*	mg/kg	250
LQM S4UL	TPH Aromatic EC 12 -16*	mg/kg	1800
LQM S4UL	TPH Aromatic EC 16 - 21*	mg/kg	1900
LQM S4UL	TPH Aromatic EC 21 - 35*	mg/kg	1900
LQM S4UL	TPH Aromatic EC 35 - 44*	mg/kg	1900
LQM S4UL	Benzene	mg/kg	0.38
LQM S4UL	Toluene	mg/kg	880
LQM S4UL	Ethyl Benzene	mg/kg	83
LQM S4UL	Xylene - o	mg/kg	88
LQM S4UL	Xylene - m	mg/kg	82
LQM S4UL	Xylene - p	mg/kg	79
CL:AIRE 2010	MTBE (methyl tert-butyl ether)	mg/kg	49
Professional Judgement	Asbestos (No visual ACM)	% w/w	<0.001%
pH	BS3882	pH Units	NA

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Atkins ATRISK Soil SSVs March 2017.

See LQM/CIEH S4ULs for Human Health Risk Assessment and Atkins ATRISK Soil SSVs documents for notes regarding derivation.

Criteria for PAH and TPH assumes a conservative SOM of 1% - adjustmnets may be made for higher SOM where considred appropriate.

*Soil matrix should contain no free product.

All imported material to have chemical concentrations less than the above levels for the site, with the exception of pH which is a range.

Test results to be provided to the engineer prior to placing soils, where appropriate.

All tests result to be undertaken by a UKAS Laboratory holding accrediation for the relevant tests.

Should be read in conjuntion with any asbestos depth re-use CSM where applicable in corresponding Remedial Strategy.

APPENDIX B

BSL Guidance – Re-use and Disposal of Waste

Re-Use Of Waste - Guidance Note

Definition of Waste
The Environment Agency considers waste to be *"...any material that is discarded, or intended to be discarded..."* This includes any soil from trenches, footing, site strip etc. It is no longer required in its original location, therefore it is considered to be waste.

CL:AIRE: Code of Practice
Where materials are excavated for construction purposes, wherever possible these should be retained on site for engineering purposes if they are suitable for use. This can be implemented under the CL:AIRE "Development Industry Code of Practice for the Definition of Waste" (CL:AIRE DoWCoP), also commonly referred to as a "Materials Management Plan".

The developer/contractor is advised to complete all works under the DoWCoP.

Potential scenarios where soils may be able to be re-used:

- Material capable of being used in another place on the same site without treatment.
- Material capable of being used in another place on the same site following ex-situ treatment on site.
- Material capable of being used in another development site without treatment (Direct Transfer).
- Material capable of being used in another development site following ex-situ treatment on another site eg Hub site.

The Code of Practice requires 4 No. Factors to be addressed:

1. Protection of human health and protection of the environment.
2. Suitability of use, without further treatment.
3. Certainty of use.
4. Quantity of material.

In order to satisfy these requirements the following are required:

i) Consultation/approval with Local Authority & Environment Agency to confirm they have no objections to the proposed re-use of waste soils, or the risk assessments for the site.
ii) Risk Assessments to demonstrate that the site does not present an Environmental Hazard.
iii) Remediation Strategy for contaminated sites (or Design Statement for non-contaminated sites).
iv) Materials Management Plan (MMP) which details material generated stockpiles and the end use.
v) Volume calculations.
vi) Planning permission for the development.
vii) Contractual details to be clear, regarding who steps in is a contractor goes into administration/liquidation.

The use of the CoP is effectively industry regulated, there is a requirement to appoint an independent Qualified Person (QP) who checks all the requirements have been met and registers the documentation with the Environment Agency. This person must not have had any involvement with the preparing of the risk assessments or remedial strategy on the site.
Soils which require treatment on site (eg bioremediation, stabilisation) will require an Environmental Permit for treatment, together with justification and validation to prove, once treated, this material is suitable for use.
Site management procedures need to be in place to ensure that material is tracked through from excavation stockpiling, treatment and remediation processes. Should the process of material tracking be considered non-robust, or not adhered to, this may fail the test whether excavated materials may be considered non-waste.

Alternatives include the EA U1 exemption (soils and stones <1000 tonnes and aggregates <5000 tonnes) and the Waste Framework Directive, which applies to naturally occurring soils used on site of origin only. Aggregates can also fall under the EA WRAP Quality Protocols.

Waste Classification For Soils

Introduction
Waste producers have a duty of care to classify the waste they are producing:

- before it is collected, disposed of or recovered.
- to identify the controls that apply to the movement of the waste.
- to complete waste documents and records.
- to identify suitably authorised waste management options.
- to prevent harm to people and the environment.

The most sustainable and economic method of dealing with waste soil is usually the retention and re-use on site. Where this is not possible there are three main options for the disposal of soils:

1. Disposal to a permitted waste recycling facility.
2. Re-use on another site (subject to the suitability).
3. Disposal to a landfill site.

The disposal to a permitted facility will be subject to the **specific conditions of the permits for each individual facility** and will vary dependent on location and environmental sensitivity of the receiving site. Re-use on another site will also be subject to the acceptability criteria of that site.

The guidance below relates to disposal to **landfill sites only**.

Background for Landfill Disposal
In July 2005 the United Kingdom implemented the European Directive 1999/31/EC (The Landfill Directive), this introduced the current regime for waste and waste disposal to landfill. The Landfill Directive places controls on waste disposal. These controls include requirements to follow the waste acceptance procedures and criteria that have been agreed by the Council of the European Union and are laid out in Council Decision 2003/33/EC.

Before a waste can be accepted at a landfill site, the landfill **operator** must be satisfied that the waste meets his permit conditions, the waste acceptance procedures (WAP) and waste acceptance criteria (WAC).

If disposal to landfill is the best management option for the waste soils, these procedures **must** be followed or the operator may refuse to accept the waste.

Key Points

- Not all waste can be landfilled
- Landfills are classified according to whether they can accept **hazardous**, **non-hazardous** or **inert** wastes.
- Wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill.
- Most wastes must be treated before you can send them to landfill.
- There are formal processes for identifying and checking wastes that must be followed before wastes can be accepted at a landfill site.

Classification
Wastes are listed in the European Waste Catalogue (EWC 2002) and grouped according to generic industry, process or waste types. Wastes within the EWC are either hazardous or non-hazardous. Some of these wastes are hazardous without further assessment (absolute entries) or are 'mirror' entries that require further assessment of their hazardous properties in order to determine whether they are hazardous waste.

Waste soil has mirror entries on the EWC and as such the first phase of the waste classification process is that of determining if the waste is hazardous or not i.e the hazard assessment. The most common EWC waste codes related to soil are:

17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing dangerous substances
17 05 04	soil and stones other than those mentioned in 17 05 03

Soils may contain certain contaminants (eg asbestos, oil,) which have prescribed concentration thresholds, that if breached will render the material hazardous waste. These are based on specific "hazardous properties" which include hazards such as carcinogenicity, flammability and toxicity.

In the first instance the concentrations of plausible contaminants within the soil should be identified and wastes should be **classified based on their total concentrations**.

Waste Definitions

Inert	• Will not undergo any significant physical, chemical or biological transformations. • Will not dissolve. • Will not burn. • Will not physically or chemically react. • Will not biodegrade. • Will not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health. • Has insignificant total leachability and pollutant content. • Produces a leachate with an ecotoxicity that is insignificant (if it produces leachate).
Non-Hazardous	Is not inert (see above) Is not hazardous (see below)
Hazardous	Soil has hazardous properties as defined in WM3 (Guidance on the classification and assessment of waste (1st edition 2015)- Technical Guidance)
Stable Non-reactive hazardous waste#	Hazardous waste, the leaching behaviour of which will not change adversely in the long-term, under landfill design conditions or foreseeable accidents either: in the waste alone (for example, by biodegradation), under the impact of long-term ambient conditions (for example, water, air, temperature or mechanical constraints) or by the impact of other wastes (including waste products such as leachate and gas).

This option allows hazardous waste that is stable and thus has a low leaching potential to be deposited in cells with a standard of containment consistent with non-hazardous wastes.

WAC Testing

The purpose of WAC analysis is to confirm that the waste complies with the relevant WAC for the receiving landfill. If the waste has any disposal route other than a landfill site (e.g. recycling facility, incineration etc) the **WAC is not relevant.** Furthermore the WAC limits **cannot be used to make an assessment of whether a waste is hazardous**. WAC testing does however define if a non-hazardous waste is suitable for an inert landfill.

Classification based on Total Concentrations[1]	Non-Hazardous Waste		Hazardous Waste	
WAC testing	Below inert WAC limit values:	Above inert WAC limit values:	Below hazardous WAC limit values	Above hazardous WAC limit values
Landfill requirements	INERT landfill	NON-HAZARDOUS landfill[2]	HAZARDOUS landfill	PRE-TREATMENT[3]

1 Total concentrations are defined as tests results on solids as opposed to leachate (i.e. a liquid).
2 Individual sites may have certain limit values pre-determined in their licence.
3 After pre-treatment the material characteristics may have changed to an extent that allow the soil to be re-classified.

Hydrocarbons in Soils

WM3 uses the term Oil or Waste Oil to cover hydrocarbons products such as fuel oil, petrol or diesel. These are defined by WM3 as hazardous under an absolute entry in the List of Wastes. However hydrocarbons in soils are a mixture rather than a pure product and are therefore not absolute entries.

Known Oils

The simplest scenario is where the identity of the contaminating oil is known or can be identified. If the oil is known the manufacturer's or supplier's REACH compliant safety data sheet for the specific oil can be obtained and the hazard statement codes on that Safety Data Sheet can be used for the hazardous waste assessment.

Where the identity of the oil can only be identified down to a petroleum group level (i.e. the contaminating oil is known to be diesel, but the specific type/brand is unknown), then the classification of that petroleum group should be used in the assessment. The marker compounds associated with that petroleum group may be used to confirm carcinogenicity.

Oils may contain a range of hydrocarbons, so the presence of for instance Diesel Range Organics (DRO) does not enable the assessor to conclude that diesel is present. These hydrocarbons may have arisen from other oils, the laboratory needs to provide an interpretation of the chromatograph to determine if it is consistent with diesel or weathered diesel as a whole.

The concentration of known oils should be determined using a method that as a minimum spans the range in which the carbon numbers for that known oil fall.

Unknown Oils
Where hydrocarbons are contaminating soils it is likely that the oil will be unknown or cannot be determined.

WM3 states that:

> For contaminated land specific consideration must be given to the following before proceeding;
>
> - The presence of other organic contaminants, for example solvents or coal tar that could be detected as hydrocarbons. Coal Tar is not an oil and is considered separately in WM3 example 2. Where the site history or investigation indicates the presence of hydrocarbons from oil and other sources (e.g. coal tar), and the origin of the hydrocarbons cannot reliably be assigned to either, then a worst case approach of considering the hydrocarbons both as waste oil (in accordance with this example) and from other sources, for example coal tar should be taken.
> - The presence of diesel, or weathered diesel, should be specifically considered by the laboratory and where this is confirmed by the hydrocarbon profile the oil should be assessed as a known or identified oil (diesel).

The use of **marker compounds** is optional; however it is recommended that where possible the marker compounds should be used. WM3 states:

> If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic/mutagenic due to the presence of oil if all three of the following criteria are met:
>
> - The waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.1 of the CLP for BaP)
> - This has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D of WM3, and
> - The analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel.

For example:

TPH Concentration (mg/kg)	Petrol or Diesel	BaP (mg/kg)	Classification
10,000	No	0.9	Non- Hazardous
1,000	No	Not available	Hazardous
1,000	Yes	Not relevant	Hazardous

References

1. Environmental Permitting (England and Wales) Regulations 2010 (as amended) (EP Regulations), the Landfill Directive (1999/31/EC) and the subsequent Council Decisions.
2. Environment Agency Environmental Permitting Regulations: "Inert Waste Guidance- Standards and Measures for the Deposit of Inert Waste on Land" 2009.
3. Environment Agency "Waste acceptance at landfills - Guidance on waste acceptance procedures and criteria" Nov 2010.
4. Environment Agency "Guidance on the classification and assessment of waste (Technical Guidance WM3)".
5. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).
6. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
7. 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament
8. Environmental Permitting Guidance The Landfill Directive For the Environmental Permitting (England and Wales) Regulations 2010 Updated March 2010 Version 3.1
9. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).

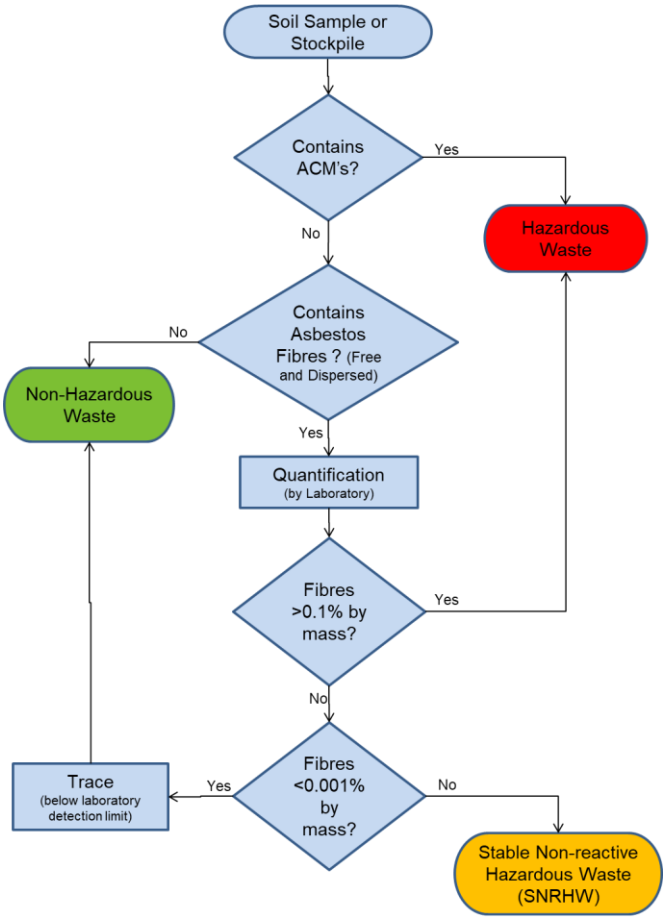
Additional Asbestos Guidance Notes

Disposal

The 1st Edition of WM3 "Guidance on the classification and assessment of waste", details the way in which Asbestos is assessed within soils.

The assessment of asbestos containing waste is dependent on whether the asbestos is present as:

- Fibres that are free and dispersed, or
- Identifiable pieces of asbestos containing materials (ACM's)



Identifiable pieces of asbestos are any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. The result is that commonly soils with visible ACM's are sorted and the ACM's removed by hand picking and separate disposal.

Asbestos concentrations below 0.001% by mass are below standard laboratory detection limits and are not currently regarded as containing asbestos for the purposes of disposal and may be disposed of to an inert landfill site[1]. These levels are often termed "trace" by laboratories.

Asbestos concentrations between 0.001% and 0.1% are stable non-reactive hazardous waste (SNRHW)[1]. Waste transfer stations where soil recycling takes place may be able to take SNRHW, but are unlikely to take soils containing asbestos above trace concentrations.

The following codes should be assigned to the asbestos waste as appropriate:

17 06	**Insulation materials and asbestos-containing construction materials**
17 06 01	Insulation materials containing asbestos
17 06 03	Other insulation materials consisting of or containing hazardous substances
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05	Construction material containing asbestos

WM3 indicates that 17 06 05 would normally be used in preference to 17 06 01 for the asbestos in asbestos contaminated soil and stones.

Construction materials containing asbestos and "*other suitable materials*" may be landfilled at landfills for non-hazardous waste in accordance with the Landfill Directive without testing.

This means that wastes that are only hazardous because of their asbestos content can be disposed of at landfills for non-hazardous waste in separate landfill cells that only accept asbestos wastes and other suitable materials. The Landfill Directive requires that stable non-reactive hazardous waste shall not be deposited with biodegradable waste (for example organic material, household waste, paper etc..) and must meet the waste acceptance criteria set out in accordance with Annex II.

Construction

Health and Safety Executive (HSE) guidance on asbestos is not directly related to soil and much of the guidance focuses on the removal of asbestos from buildings. The overarching legislation is the Control of Asbestos Regulation (CAR 2012). However where work involves (or is likely to involve) contact with asbestos then CAR 2012 requires a risk assessment including whether or not the work is licensed or notifiable non-licensed work and may require an Asbestos Management Plan. Work becomes notifiable if it is considered that the control limit could be exceeded.

Brownfield sites frequently have soils that contain asbestos and the presence of asbestos needs to be considered within the context of construction, particularly in relation to groundworks. The exposure of soils and the use of excavators and plant to move soil around increases the possibility of fibres becoming airborne. However it is good site practice to not generate dusts and to employ dust suppression on all sites regardless of the presence of asbestos.

The legal control limit for asbestos is 0.1f/ml over a continuous four hour period. The control limit is not a '*safe*' level and exposure from work activities involving asbestos must be reduced to as far below the control limit as possible.

Clearly the higher the concentrations in the soil the greater potential there is for fibres to be released, however IOM publication TM/88/14 "the release of dispersed asbestos fibres from soil" 1988 concludes that:

- Mixtures of asbestos in dry soils with asbestos content as low as 0.001% can produce airborne respirable asbestos concentrations greater than 0.1f/ml in dust clouds where the respirable dust concentrations are less than 5mg/m^3.
- An action limit is recommended of no higher than 0.001% asbestos in soils above which steps should be taken to minimise exposure to airborne fibres (eg by wetting).
- The addition of relatively small quantities (10%) of water can reduce the airborne fibre concentrations by an order of magnitude.

Where asbestos has been identified at concentrations above 0.001% as free and dispersed fibres in the soil precautions need to be adopted. Concentrations below this are considered to be normal background, although good site practice dictates that the generation of dusts should be avoided and therefore any fugitive fibre release from minor concentrations should be kept to a practical minimum.

End Use

The use of materials containing asbestos and material containing asbestos is prohibited under EU legislation. There is currently a Joint Industry Working Group (JIWG) tasked with producing a Code of Practice for Asbestos in Soil, Made Ground and Construction & Demolition Material that will clarify in due course the position of the various government agencies.

Asbestos containing materials can remain in situ under a suitable cover system which may be hardsurfacing or soft landscaping (with or without hard dig layers and markers).

There is a risk that future maintenance may compromise such systems and details of the presence of asbestos should be kept in the Health and Safety File.

Preliminary publications from JIWG (April 2015) provide guides for decision making in relation to construction. These are at a "Beta" test stage and further publications will be provided in due course.

The re-use of waste soils should be undertaken in accordance with the CL:AIRE Code of Practice and is subject to suitable risk assessments demonstrating low risk . There is nothing that specifically excludes the re-use of soils containing asbestos as fill to raise levels. However the movement of materials increases the risk of fibres becoming airborne and suitable precautions will be required.

The re-use of soils containing asbestos at concentrations above hazardous waste levels is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be feasible where there is a long program for implementation.

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