Sharston Road, Sharston Industrial Estate

Remediation Strategy and Verification Plan (including management of asbestos in soils)

Stantec

333800048

Kier Property Limited

16 January 2026

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Document control sheet

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Client	Kier Property Limited	
Project name	Sharston Road, Sharston Industrial Estate	
Title	Remediation Strategy and Verification Plan (including management of asbestos in soils)	
Doc ref	333800048-STN-XX-XX-RP-GE-0002	
Project number	333800048	
Status	S2	
Date	16 January 2026	

Document production record

Issue number	P01	Name
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Document revision record

Issue number	Status	Date	Revision details
P01	S2	16/01/2026	First Issue

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1 Introduction

1.1 Terms of reference

Stantec UK Limited (Stantec) has been commissioned by Kier Property Limited (the Client) to prepare a Remediation Strategy and Verification Plan (RSVP) for Sharston Industrial Estate, Sharston Rd, Wythenshawe, Manchester M22 4RA (the "site"). The site location is shown in Figure 2.1.

The works have been undertaken in accordance with Stantec's proposal (Ref. 333800048-STN-XX-XX-FP-GE-0002 RMS P01) and the Client's instructions to proceed (email on 11th of December 2025).

1.2 Background

A ground investigation was completed by Hydrock in December 2024 including the completion of five cable percussive boreholes to 10.0m below ground level (bgl) and fifteen dynamic window sample boreholes to 5.0m bgl. The ground investigation included both chemical and geotechnical analysis of soils and groundwater. Four post fieldwork gas and groundwater monitoring visits were completed.

During the ground investigation works asbestos containing materials were identified within the Made Ground which will require remediation to remove the risk to construction works prior to the completion of the cut and fill earthworks.

The site is currently in use and as part of the development they will be vacated all above ground buildings and structures are to be demolished following removal of any asbestos containing material within the structures.

The proposed development is to comprise commercial properties (office or warehouse space) formed of ten units, named Unit 1, Units 2A to 2D adjoined and Units 3A to 3E adjoined. It will also include loading/unloading areas and associated car parking, with landscaping on the boundaries presented on the Site Plan as Proposed (Ref: 25006-HFR-AV-XX-DR-A-0501) presented in Appendix A.

1.3 Objectives

The objective of this Remediation Strategy and Verification Plan is to fulfil Stage 3: Remediation and Verification of the Environment Agency's (EA) Land Contamination Risk Management (LCRM), specifically the development of a remediation strategy to ensure that, on completion, the site can be shown to be suitable for its intended use, such that it will not pose an unacceptable contamination risk to the identified receptors.

This document ultimately seeks to agree the remediation concept for the proposed development with the relevant regulatory authorities. Significant departures and/or variations to this strategy will require approval from the regulators.

1.4 Scope

This Remediation Strategy and Verification Plan has been undertaken in general accordance with Environment Agency guidance Land Contamination Risk Management (LCRM), (EA, 2025) and the scope comprises:

- Provision of background information.
- Summarising the findings of the completed risk assessments.
- Presentation of the remedial measures recommended to mitigate the identified risks from contaminants at the site.
- Detailing the appropriate watching brief procedure in order to demonstrate the successful completion of remediation.

This report provides an overview of the site development proposals and discusses the remediation measures required to ensure the site is suitable for use with respect to the identified receptors. This document does not cover the geotechnical requirements for the proposed development.

1.5 Available information

The following notable documents have been used in the preparation of this report:

- Nova Ambiente, June 2024, Vendor's Phase I Environmental Report (SA023);
- Ramboll, Feb 2025, Environmental Phase II Factual Report Electrium, Wythenshawe; and
- Hydrock, Feb 2025, Ground Investigation Report, Sharston Industrial Estate.

It is assumed that the reader has full knowledge of the ground conditions as detailed in the above documents.

1.6 Limitations

The report has been prepared by Stantec on the basis of available information obtained during the study period. Although every reasonable effort has been made to gather all relevant information, all of the potential environmental constraints or liabilities associated with the site may not have been revealed.

The report has been prepared for the exclusive benefit of the Client for the purpose of providing information on the remediation required for development of the site. The report contents should only be used in that context. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

Stantec has used reasonable skill, care and diligence in the design of the remediation of the site. The inherent variation in ground conditions allows only definition of the actual conditions at the locations and depths of exploratory locations at the time of the investigations. At intermediate locations, conditions can only be inferred.

Information provided by third parties has been used in good faith and is taken at face value. However, Stantec cannot guarantee the accuracy or completeness of any information provided by others.

The Remediation Strategy and Verification Plan has been carried out in general accordance with Environment Agency guidance Land Contamination Risk Management (LCRM), (EA, 2025). Other relevant guidance that has been cross-referenced is indicated in the report text.

This report is subject to review and approval by the regulators as per Planning Condition 6 of the Manchester City Council Decision Note (143771/FO/2025, dated August 2025) which states:

"The measures for investigating the site identified in the Site Investigation Proposal shall be carried out before development commences and a report prepared outlining what measures, if any, are required to remediate the land (the Site Investigation Report and/or Remediation Strategy) which shall be submitted to and approved in writing by the City Council as local planning authority. The development shall then be carried out in accordance with the approved Site Investigation Report and/or Remediation Strategy".

2 Site description and Conceptual Site Model

2.1 Site location

The site is located at 1934 Sharston Road, Wythenshawe, Manchester, the nearest postcode is M22 4RA. The site is approximately 850m east of the Princess Parkway, 450m south west of the M60 motorway and 400m north of the M56 motorway. The National Grid Reference of the approximate centre of the site are E383253 N389328. The location of the site is shown below in Figure 2.1.

Figure 2.1: Site Location Map

2.2 Site description

The site currently consists of two storey brick buildings with a one storey brick building in the south west and car parking associated with the Siemens power distribution equipment factory which is in the process of becoming vacant.

2.3 Summary of ground conditions

2.3.1 Geology

The geology at the site consists of Glaciofluvial Sheet Deposits overlying the Tarporley Siltstone Formation. The geological mapping suggests that Glacial Till may be present below the Glaciofluvial Sheet Deposits given that its mapped nearby in the area.

2.3.2 Hydrology and hydrogeology

The closest surface water feature is the River Mersey approximately 500m to the north east of the site. Although two smaller inland rivers exist on the nearby Didsbury Golf course offsite to the east.

The Glaciofluvial Sheet Deposits are classified as a Secondary A. The Tarporley Siltstone Formation is classified as a Secondary B Aquifer with the Wilmslow Sandstone Formation 23m to the east of site (and potentially below the Tarporley Siltstone below the site) is classified as a Principal Aquifer.

The site is not within a groundwater source protection zone (SPZ) and there are no active groundwater abstractions within 1km of the site boundary.

2.3.3 UXO

The preliminary UXO risk assessment (1st Line Defence, Reference: PA21131-00, see Appendix B), indicates the risk from UXO is not considered to be higher than the 'background' level in the general area and that no further action is required.

2.3.4 Ground model

The ground conditions as proven by the Hydrock Ground Investigation Report referenced 35838-HYD-XX-XX-RP-GE-0001 undertaken to date are summarised in Table 2.1 below.

Table 2.1: Summary of ground conditions encountered in previous ground investigation

Stratum	Depth to top (m bgl)	Depth to base (m bgl)	Thickness (range) (m bgl)
Surface Cover – Concrete hardstanding	Ground Level	0.1 - 0.2	0.1 - 0.2
Surface Cover – bituminous hardstanding	Ground Level	0.1	0.1
Made Ground	0.1 – 0.8	0.3 – 0.8	0.1 – 0.8
Glaciofluvial Sheet Deposits	0.3 – 0.8	3.0 – 3.9	2.2 – 3.2
Glacial Till – cohesive	3.0 – 3.9	4.0 – 9.3	2.0 – 5.7
Glacial Till - granular	8.7 – 9.3	>10.0	Unproven

Depth to groundwater ranges across the site from approximately 1.6m to 5.1 bgl.

A review of local levels appears that the bank of the River Mersey is at 30m AOD, therefore the base of the channel will likely be circa 25-26m AOD.

Given the presence of low permeability clayey sand and clay, and the geological records which that indicate that the Glaciofluvial Deposits pinch out to the east, it is considered that the shallow groundwater is unlikely to be in direct continuity with the River Mersey.

The Tarporley Siltstone Formation is a Secondary B aquifer with poor water storage potential, the cohesive/fine grained nature of the formation will limit any vertical migration of contaminants.

2.3.5 Outcome of risk assessments

The risk assessment presented in the Hydrock Ground Investigation Report referenced 35838-HYD-XX-XX-RP-GE-0001 concludes the following with regards to human health:

- Locally elevated PAHs in shallow Made Ground found in exploratory hole WS101 - *this is associated with cross contamination of the sample with broken out asphalt and considered to be not representative of the chemical characteristics of the Made Ground*;
- The Made Ground contains phytotoxic exceedances for copper and zinc and therefore is considered unsuitable for use in landscaping- *there will be a requirement to import suitable Topsoil and Subsoil for landscaping and cover systems.*
- The Made Ground contains trace concentrations of asbestos loose fibres (chrysotile and amosite) at <0.001% w/w. – *areas of asbestos loose fibres are under proposed hardstanding severing inhalation pathways, it is considered will not pose a risk to human health during the developed scenario.*
- Asbestos containing materials in the existing building- *will require mitigation via removal by a suitably trained asbestos removal specialist as stated in the structural demolition specification Hydrock report ref: 35838-HYD-XX-XX-RP-S-00001.*
- Occasional laboratory confirmed cement type asbestos is present in WS110 in the Made Ground at 0.4m bgl – *the cement type asbestos at this location could pose a risk to construction workers either during the earthworks, service or foundation installation and therefore mitigation is required.*
- There were no elevated ground gas concentrations- *CS1 conditions apply*.

Conclusion regarding human health and building:

- The site is not in a Radon Affected Area (less than 1% of existing homes affected).- *no action required.*
- No elevated organic contamination was encountered as water pipeline level- *PE pipe considered suitable.*

The risk assessment concluded the following with regards to controlled waters:

- Low level of chlorinated solvents in the shallow groundwater and levels below UK water quality targets (WQT) in the deeper groundwater; consequently, remediation of the groundwater is considered unnecessary.

The contaminant linkages identified are summarised in Table 2.2.

2.4 Updated Conceptual Site Model

The contaminant linkages that have been identified as requiring mitigation, and be addressed in this remediation strategy, are presented in Table 2.2

Table 2.2: Updated Conceptual Site Model

Contaminant linkage	Source	Pathway	Receptor	Comments
PL1	Occasional cement type asbestos within the shallow Made Ground. Trace loose fibres within the Made Ground	Inhalation of fugitive dust	Human Health	Any Asbestos Containing Materials (ACM) encountered following stripping will need to be handpicked and removed from site. Works in accordance with CAR 2012.
PL2	Asbestos-containing materials in the buildings and Made Ground.	Inhalation of fugitive dust.	Human health.	Removal required by a licensed asbestos removal contractor.
PL3	Phytotoxic exceedances within Made Ground	Plant Root Uptake	Plant Life	Import of suitable Topsoil and subsoil where Glaciofluvial Deposits are not present at formation level. Thickness to be designed by landscaped architect.

The overarching strategy is to break contaminant linkages associated with construction workers and exposure to asbestos containing materials, notably the known occasional occurrence of cement type asbestos at 0.4m bgl within WS110 and import Topsoil/Subsoil for cover systems. The location of the known cement type asbestos in WS110 and trace asbestos loose fibres is shown below Figure 2.2

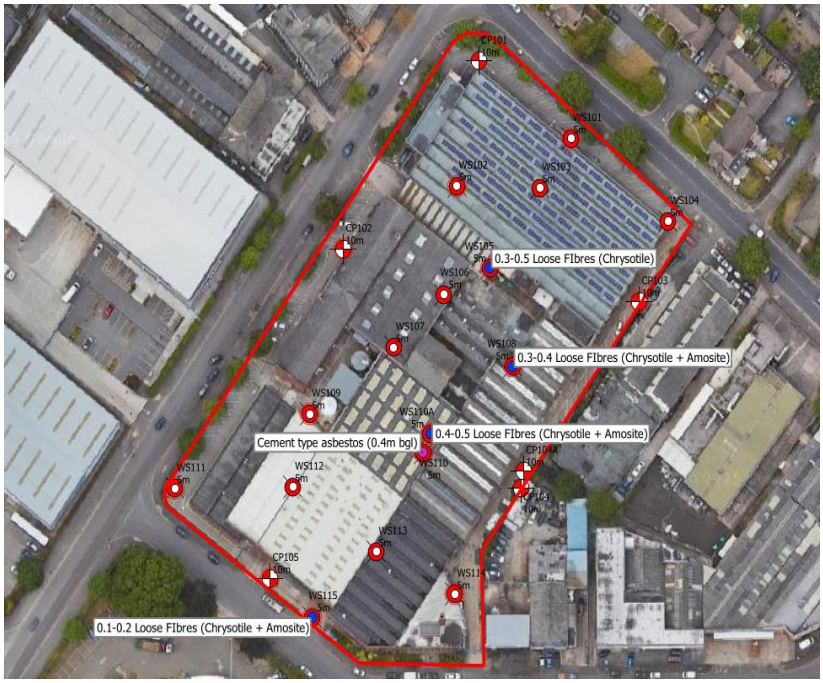

Figure 2.2: Location of laboratory confirmed cement type asbestos

Consequently, a remediation option appraisal is not considered necessary.

3 Remediation Strategy (including management of asbestos in soils)

3.1 Introduction

The Remediation Strategy and Verification Plan detailed in the following sections is based on Stage 3: Remediation and Verification of LCRM, specifically the development of a remediation strategy (Step 1).

Following on from the recommendations in Section 3, notably the setting of the remediation objectives (Section 1.3), the remediation strategy is generally structured as follows:

- Summarising the key remediation criteria, including the derivation of Remedial Target Values (where applicable).
- Summarising the remediation stages and their implementation.
- Summarising the regulatory controls that need to be in place.
- Detailing the monitoring requirements.
- Detailing how the remediation will be verified.
- Contingency planning and unexpected contamination.

3.2 Overarching strategy

The remediation strategy will be focused on a watching brief during the earthworks, service or foundation installation, including production of a daily briefing and supplemented by photographs, to provide the Local Planning Authority (LPA) with sufficient evidence that any cement type asbestos encountered has been handpicked and removed and any other contamination encountered is delt with in line with the discovery strategy.

Break linkages between risk to plant life and phytotoxic contaminants via the import and Topsoil and Subsoil within landscaping areas, the thickness of landscaping is to be designed by the landscaped architect unless asbestos containing materials are encountered.

3.3 Regulatory Context and Guidance

The protection of workers and the general public from exposure to asbestos from work-related activities is regulated by the "Control of Asbestos Regulations", 2012 (“CAR 2012”). Further clarification and guidance are provided in the associated Approved Code of Practice, "Managing and working with asbestos", 2013 ("L143").

The CAR 2012 and L143 documents are predominantly focussed on construction and demolition industries. Existing guidance from the HSE for asbestos is readily applied to the presence of asbestos in buildings and asbestos that is lying on the surface of the ground. However, guidance is not easily transferred to asbestos encountered in soil and was not written with ground contamination or groundworks in mind. This key point leads to uncertainty when working on sites with asbestos in soils contamination and the requirements applicable to site personnel to effectively manage risk during groundwork activities.

Due to this uncertainty, several industry-led publications have been produced to clarify and standardise works with asbestos in soils. Most notably, the Joint Industry Working Group CAR-SOIL™ provides interpretation of the asbestos regulations and assists decision makers manage works with Asbestos in Soil and Construction & Demolition materials.

The risk of asbestos-related work activities is reflected in Part 2,11(1) of CAR 2012 which states that an employer must "prevent the exposure to asbestos of any employee employed by that employer so far as is reasonably practicable; and where it is not reasonably practicable to prevent such exposure, to take the measures necessary to reduce exposure to asbestos of any such employee to the lowest level reasonably practicable".

Furthermore, Regulations 4 of CAR 2012 places the duty to manage those risks on all non-domestic premises with the duty holder. The duty holder is required to manage the risk from asbestos and prevent harm by:

- ensuring that a suitable and sufficient assessment is carried out as to whether asbestos is or is liable to be present;
- where the assessment shows that asbestos is or is liable to be present in any part of the premises the duty holder must ensure that:

1. a determination of the risk from that asbestos is made;
2. a written plan identifying those parts of the premises concerned is prepared; and
3. the measures which are to be taken for managing the risk are specified in the written plan.
4. periodically review the information and ensure that the conclusions of the assessment and every review are recorded.

All other persons working on, or within, the premise must co-operate with the duty holder so far as is necessary to enable the duty holder to comply with the duties as set out under Regulation 4.

In situations where the assessment concludes that there is a potential to encounter asbestos such that it poses a risk to site personnel, the management of asbestos should be in accordance with the RSVP. The RSVP should take account of the above requirements and set out how the risks identified from asbestos will be managed, including, but not limited to:

- identifying the person(s) responsible for managing the asbestos risk;
- detailing the known and unknown asbestos risks (including locations) and the likelihood of encountering those risks;
- providing details on the procedure to be followed should unexpected asbestos containing material be encountered during the works;
- providing recommendations on the required mitigation measures and training; and
- identifying appropriate methods to be used to ensure the mitigation measures are effective.

3.4 Remediation criteria

Remediation criteria are required to demonstrate and verify the performance of the remediation. In accordance with LCRM these can be both numerical (for example model-derived concentration values) and/or qualitative/descriptive (for example "the removal of all visually contaminated material"). The site-specific remediation criteria and RTVs, as well as the considerations that have been used during their derivation, are detailed in the following sub-sections.

As part of the site remediation all soils must comply with the following wider suitability criteria:

- No visible or olfactory evidence of organic contamination, including free phase liquids.
- No visible evidence of invasive plant specifies (e.g., Japanese Knotweed or Giant Hogweed).
- No visible organic or putrescible material that could constitute a source of ground gas (e.g., wood).
- No sharps, metals, plastics or other deleterious materials.

3.4.1 Summary of remedial target values

Numerical remedial target values must be met for the re-use of site won soils are shown in Table 7.1 and imported Topsoil/Subsoil Table 6.1.

3.4.2 Asbestos

The cement type asbestos present at the location of exploratory hole WS110 at 0.4m bgl and if present elsewhere underlying the slab/ following strip should be recorded/ handpicked and removed as far as reasonably practicable. To ensure a briefing note can be provided to the LPA it's recommended that a suitably qualified geo-environmental engineer (with suitable asbestos in soil training) is present during the hand picking to take photographic evidence of the works and compile a site visit letter.

The following works are considered necessary during the enabling works phase and are discussed in more detail in Section 4 are to be defined in more detail as part of a detailed remediation design once a remediation contractor is appointed:

- Removal of relic underground structures (e.g., suspected USTs).
- Treatment or off-site disposal of asbestos impacted Made Ground.
- Off-site disposal of unsuitable waste materials.

3.4.3 Construction phase

The following works are considered necessary during the construction phase and are discussed in more detail in Section 6.2:

- Installation of the clean cover system including imported Topsoil/Subsoil depth to be designed by a landscaped architect.

3.5 Other considerations

3.5.1 Recovery of demolition materials

During the removal of relic underground structures, the recovery of suitable material for crushing/reuse should be undertaken in accordance with the EA/WRAP Quality Protocol for recycled aggregates and/or the site-specific Earthworks Specification to ensure potentially reusable materials are not unnecessarily classified as waste and its potential for reuse constrained. The need for recycled aggregate recovery and reuse will be dependent on the cut and fill earthworks balance for the proposed development.

3.5.2 Earthworks and reinstatement of excavations

The earthworks will be completed in accordance with the Earthworks Volumes, drawing ref: 25006-STN-XX-XX-DR-C-00201-P03 presented in Appendix A.

The reinstatement of excavations (with either treated site-won materials or imported soils/aggregates) is to be undertaken in accordance with the Earthworks Specification (ref: 333701647-STN-XX-XX-SP-GE-1002_T01.3) that details the methodology for placement of fill and should also detail associated geotechnical testing and earthworks specific verification requirements.

The specification should be based on the Specification for Highway Works Series 600 (Earthworks) tables to ensure that the construction works Contractor inherits a subgrade suitable for the proposed development.

3.5.3 Management of asbestos containing materials

Visible ACM has frequently been identified across the site in Made Ground soils. The potential exists for discovery of and exposure to ACM and asbestos fibres during any stage of works. Such discoveries will require agreed management and action protocols to be adopted where suspected ACM is identified to ensure proper management and control of impacted volumes.

Where asbestos impacted materials are identified then sampling shall confirm the asbestos type and quantification and materials separately stockpiled and sheeted ahead of either disposal off-site or handpicking for deposition below clean capping layers.

All identified ACMs shall be handled and disposed of by an appropriately licensed Contractor.

All staff for all phases of work, should be made aware of the possible presence for asbestos within the Made Ground soils anywhere on the site at any stage of the development (e.g., demolition, enabling works and construction).

The Contractors for each phase must manage the risks in accordance with their legal requirements and will need to prepare appropriate health and safety documentation and obtain appropriate approvals, licences, consents and permits prior to commencement. In addition, appropriate working methods, monitoring and reassurance testing will need to be undertaken during the works.

All works on-site during any phase of work will require the use of suitable personal protective equipment (PPE) and respiratory protective equipment (RPE) as required by current guidance and legislation.

3.5.4 Groundwater dewatering

Dewatering may be required during excavation activities to permit the removal of relic underground structures and associated residual impacted soils that are located within the saturated zone. The depth to groundwater ranges across the site from approximately 1.6-5.1m bgl.

Appropriate on-site containment and treatment plant is to be used to treat resultant impacted groundwater volumes prior to licensed discharge to a foul sewer or the off-site removal to a waste water treatment plant.

The specific methods and systems to be employed for the dewatering and control of groundwater, is to be detailed within the Contractor's Detailed Remediation Method Statement.

3.5.5 Site boundaries

To the west (Sharston Road), north (Longley Lane) and south (Harper Road) and to the east are further units associated with Sharston Industrial Estate

The specific methods and systems to be implemented at the site boundaries will need to be detailed as part of the Contractor's remediation design.

3.6 General

Other considerations are discussed under the relevant headings of Section 4 and 5 including, but not limited to:

- Supervision;
- Permitting/Licensing;
- Recovery of demolition materials; and
- Control of dust and noise at the site boundaries.

4 Implementation

The anticipated stages of work required to implement the remediation strategy are detailed below. The Contractor will be required to prepare a Detailed Remediation Method Statement to address, in detail, the design and working methods by which the requirements of this strategy will be implemented. The details below are therefore interim and indicative only and are subject to confirmation by the appointed Contractor. The stages of work have been split into preparatory works and enabling works phase to indicate at what stage in the wider site programme the stages in the remediation scope are expected to be implemented.

4.1 Overview - Asbestos Contamination

Based on the available site information (as summarised in Section 2), due to the trace concentrations of asbestos in the Made Ground and occasional occurrence of bonded cement type asbestos, the following is noted:

1. A location (possible hotspot) of occasional cement type asbestos, bonded and fibres firmly linked within the matrix and trace concentrations at <0.0015 w/w.

Consequently, CAR 2012 does not apply based on the current information for this phase of works due to the occasional occurrence of the cement type asbestos, and the works would be considered as low intensity due to minimal deterioration expected and the time taken to hand pick the material taken <2 hours in a 7 day period therefore being considered short duration works. This should be re-assessed if more asbestos is identified during the enablement phase of works.

4.2 Preparatory Works

Prior to commencement of any excavation works, background asbestos monitoring should be completed in accordance with Section 5.

There will be a requirement to reuse site won soils onsite as part of the earthworks and therefore a Materials Management should be compiled and declared prior to the commencement of the earthworks.

As the overarching strategy is to break contaminant linkages associated with construction workers and exposure to asbestos containing materials the contractors undertaking the works should note the following:

- All site staff should be made aware that there is a likelihood of encountering further asbestos containing materials within the Made Ground anywhere on the site, and at any stage of the development.
- It is advised that the Contractor should supply suitable and sufficient ‘Asbestos Awareness’ training (specific to asbestos in soils) to all site staff who could foreseeably encounter asbestos containing materials during the course of their work.
- The Contractor for each stage of works must undertake a suitable and sufficient Risk Assessment in accordance the Regulation 6 of the Control of Asbestos Regulations 2012 (CAR2012).

- It is the responsibility of the Contractor to ensure that mitigation measures are suitable and sufficient to prevent exposure to airborne asbestos so far as is reasonably practicable in accordance with Regulation 11 of CAR2012.
- It is recommended that any asbestos cement sheeting encountered is handpicked under controlled conditions in accordance with HSG210 'Asbestos Essentials' Hand picking needs to be undertaken by suitably qualified Contractors in accordance with HSE guidance and an Environmental Permit.
- All ACM must be suitably packaged, placed in a dedicated, covered and lockable skip pending off-site disposal to a suitably licensed waste facility.
- A category B trained operative (holding the appropriate training) should wear the appropriate face fit RPE, PPE.
- They should undertake a visual inspection of the formation level following removal of the concrete hardstanding and reduced level strip to 0.2m bgl; and
- Locally at the location of WS110 soils should be excavated to 0.4m bgl to hand pick the known cement type asbestos, it is recommended that soils are dampened down as a precaution to minimise fibre release (a jet wash bowser could be deployed);

Table 4.1: Additional in-situ/ potential asbestos containing materials.

Location and Material Type	Observations and Recommendations
In-situ asbestos cement pipes	While not identified to date, any suspected or unanticipated asbestos cement pipes identified during the earthworks should be tested for the presence of asbestos and removed in accordance with CAR2012 and relevant industry guidance. Earthworks should be conducted in accordance with the 'Discovery Strategy' provided in Appendix C and Stantec should be informed of any new or unexpected contamination finds.
In-situ pipes and ducts	Service chambers, duct covers and in-situ pipes have not been noted within the recent ground investigation works. However, given the sites history, there is a potential of encountering in-situ ducts. There remains the potential that some of these pipes could be insulated with asbestos containing material or ducts could be lined/shuttered with asbestos cement/insulation boards. Any suspected or unanticipated ducts or pipes identified during the earthworks should be tested for the presence of asbestos and removed in accordance with CAR2012 and relevant industry guidance. Earthworks should be conducted in accordance with the 'Discovery Strategy' provided in Appendix C and Stantec should be informed of any new or unexpected contamination finds.

4.3 Enabling Works

The anticipated stages of the remediation during the enabling works phase are detailed below.

4.3.1 Removal of relic underground structures

The Contractor is to remove all relic underground structures as specified in the enabling works contract, including but not limited to, hardstanding, foundations, slabs, historical services, inspections pits, obstructions, etc.

The recovery of suitable material for crushing/reuse should be undertaken in accordance with the EA/WRAP Quality Protocol for recycled aggregates and/or the site-specific Earthworks Specification. All broken up materials shall be segregated and stockpiled within an approved working area of the site, and the crushing and screening should be undertaken to achieve a suitable capping class for reuse.

Where unforeseen contamination is encountered upon breaking out of the near surface layers, including, but not limited to, visual ACM above occasional/random fragments or significant contamination not previously encountered during ground investigation, works should stop within this part of the site and the guidance provided in Appendix C on unexpected/unforeseen contamination is to be followed.

The Contractor is to ensure that the contents of any pipes or relic structures are assessed prior to disturbance to avoid the uncontrolled release of contaminants (which could include but not limited to, asbestos fibres, LNAPL, chlorinated solvents, petroleum hydrocarbons, etc.). If significantly impacted materials are recorded during excavation, over and above what is anticipated, then these materials should be segregated and stockpiled separately for testing prior to their reuse, if determined to be suitable.

In addition, where structures are located near, adjacent to or across site boundaries, the Contractor will need to develop site-specific methods and systems that are to be implemented. These will need to be discussed with the relevant adjacent landowners prior to commencing works.

4.3.2 Excavation of shallow contaminated soils

The materials suitable for reuse, subject to passing the reuse acceptability criteria, are intended to be used in the bulk earthworks and reinstatement of excavations. All materials for reuse should also comply with any geotechnical requirements, which are to be detailed within a site-specific Earthworks Specification (ref: 333701647-STN-XX-XX-SP-GE-1002_T01.3).

During reinstatement, reused materials should only be placed up to the formation level of the development platform, and notably placed below the required construction build ups (e.g., slabs, roads, pavements, etc.).

If materials do not meet the reuse criteria, the material is to be sentenced for off-site treatment and/or disposal.

Soils sentenced for off-site treatment should be tested prior to disposal in accordance with Environment Agency WM3 guidance and gov.uk guidance on 'Dispose of waste to landfill'.

4.3.3 Treatment of asbestos contaminated Made Ground soils

The handpicking of visible ACM from excavated Made Ground materials should be undertaken as far as reasonably practicable.

All operatives involved in the handpicking of non-licensed asbestos are to be trained to a minimum of Category B ‘working with non-licensed asbestos containing material’ and have the appropriate equipment, including PPE and RPE.

Any processing of material to remove visible asbestos fragments should be completed in accordance with the Control of Asbestos Regulations (2012) and CL:AIRE (2016) asbestos in soil guidance (CAR-SOIL). This is to include, but not be limited to:

1. A Plan of Work including method statements and risk assessments for the process and for the classification of the works (currently anticipated to be non-licenced work but this is to be determined by the Contractor):
    a. Control of the works including dust suppression and general management.
    b. Protection of workers.
    c. Protection of the public.
    d. Protection of future site users.
    e. Stockpiling, storing and disposal of material.
    f. Monitoring the works to prove no risk has been generated.
2. Processes for verification of the works such as:
    a. Processing method (handpick on belt, from excavator, etc.), volumetric output and a suitable number of pickers to ensure the process will work based on the number of passes expected.
    b. Frequency of verification sampling and laboratory analysis at UKAS accredited laboratory to show the process is compliant.
    c. Record keeping of the works, including waste transfer documentation and other paperwork to allow verification of the works.
3. Verification of the works:
    a. Providing a report outlining the works completed and evidence to corroborate its effectiveness.

Any handpicking needs to be undertaken by suitably qualified Contractor. It should be noted that any processing of material (such as handpicking of asbestos) is on a ‘as far as is reasonably practicable’ basis. As such, any material that has been handpicked (with asbestos removed) should be reused with caution in suitable areas below hardstanding and not at the surface or within service trenches where human contact in the future is of a higher likelihood.

4.3.3.1 UKAS accredited asbestos air monitoring

Background levels to provide a base level prior to undertaking the enabling works.

- base level asbestos air monitoring should be undertaken prior to the commencement of any enabling works;
- air monitoring and personal reassurance monitoring should be carried out during the removal/ reduced dig of 100-150mm to expose and remove the cement type asbestos at the location of WS110 to ensure control measures are effective, with a suitability qualified Geo-Environmental consultant present during the works.

Should any further unexpected asbestos contamination be encountered then the requirement for additional air monitoring and personal reassurance monitoring should be assessed during each stage of the earthworks.

4.3.3.2 Low level trace concentrations (Made Ground)

Basic material handling and control measures

For excavation works in material where 'CAR 2012 DOES NOT APPLY', basic control measures and a logical excavation sequence should be sufficient to ensure nuisance dust is minimised, limit the spread of contaminated soils and the reduce the potential for cross contamination.

In general, this will include any material where only very low incidence of loose fibre concentrations (<0.001% w/w) have been previously encountered within the Made Ground.

It should be ensured that Made Ground of different types or naturally occurring soils are not mixed during excavation works leading to cross contamination.

The following should be adopted on a site wide basis for the duration of the earthworks package:

4.3.3.3 General site hygiene

Provisions for a changing facility on the perimeter of the construction zone to be utilised by all site staff when leaving the construction zone and returning to the site welfare.

- Eliminating site clothing from the site offices and welfare will greatly reduce the potential for contaminated soils being moved from the construction zone to potentially desiccating environment (e.g., to the site welfare, personal vehicles or taken home).
- Upon exiting the construction zone all employees will be required to remove their work boots, over trousers and site-specific PPE for storage in the changing facility in-between shifts and at the end of the working day;
- Bathroom amenities should be provided within the changing facility, and workers should utilise the provided amenities to wash hands and face – prior to eating, drinking or smoking and at the end of each shift;
- Provisions for a boot wash should be installed at the entrance to the changing facility and utilised before entering the changing facility;

Smoking, eating or drinking shall not be permitted in construction zone and should only be undertaken in designated areas (i.e., In the vicinity of lunch room/site sheds or off-site);

Due to the known (and potential) presence of asbestos fibre within the Made Ground across the site, clean segregated walkways should be installed in areas of heavy footfall once the Made Ground is exposed.

- » Clean imported stone should be used (e.g., pipe bedding, quarried stone or virgin aggregate).

Workers must utilise personal protective equipment in accordance with site procedures including but not limited to:

- High visibility over trousers;
- High visibility jacket;
- Hard Hat;
- Safety boots;
- Gloves; and

- Eye protection.

Additionally, it is recommended that site workers have a change of clothes and leave work clothes at the site to prevent the spread of contaminated soil outside the work place. Site clothing should be left in the changing facilities provided overnight.

4.3.3.4 General dust mitigation measures

The following applies to Made Ground and other materials of anthropogenic origin; there are no restrictions on excavation of the clean, naturally occurring materials.

Dust generation is a potential pathway for contaminated soils and asbestos fibres and should be suppressed where practicable.

During the excavation of Made Ground general nuisance dust should be reduced as far as reasonably practicable. The Contractor will need to assess the requirement on a case-by-case basis, but the use of water suppression should be considered to ensure the material is kept damp during the excavation work.

The aim of water suppression is to ensure soils are kept damp to mitigate the release of dust without causing complete saturation. Constant use of water suppression is not considered necessary. The Contractor will need to assess ground and weather conditions and decide when and where water suppression will be applicable.

4.3.3.5 Controlled Digging Techniques & Basic Material Management

Potential environmental impacts may be associated the following works involving soils at the site:

- excavation and stockpiling;
- on-site movement of soil;
- on-site retention of soil; and
- disposal operations of contaminated soils.

Some best practice recommendations have been provided below to assist the ground operatives avoid disturbance of unexpected asbestos in soils, reduce the potential for cross contamination, and recognise ACM at the earliest opportunity.

Given the homogeneity of the various material classes identified, ‘layered excavation’ practices are not considered necessary in most instances. However, a change to the ground model (e.g., significant hotspots of ACM material) may require reassessment of this statement. Layering the excavation works will provide plant and ground operatives the best opportunity to identify suspected ACM, while minimising the potential for disturbance and therefore the spreading and cross contamination of other ‘clean’ materials.

All material arising from the clean naturally occurring materials should be placed in a separate stockpile to all other material classifications. Broadly this material should be free of asbestos contamination and cross contamination must be prevented;

- No requirement for ‘layered excavation’;

All material arising from uncontaminated Made Ground (Low level Trace), should be excavated placed in a separate stockpile to all other material classifications;

- No requirement for 'layered excavation';
- double handling should be avoided where feasible;
- consideration should be given to stockpiling the material on a geotextile membrane if stockpiling on an otherwise clean surface; and
- If material is being retained for long term storage prior to reuse, the stockpile should be covered to prevent fibre release due to weathering. Consideration should be placed on ensuring the top of the stockpile is concave to trap rain water and keep the material moist.

Stockpiles of imported material should be well away from potentially contaminative sources such as Made Ground excavation works and contaminated stockpiles to minimise the potential for cross contamination.

All material stockpiles should be labelled accordingly and tested (if required) for either site retention or offsite disposal. Excavated soils should be segregated and stockpiled with soils of similar soil types to avoid the potential for cross contamination. Should the potential for the excavation of two or more soil domains (i.e., fill and natural soils) be present, it is recommended that a segregation process is undertaken.

4.3.3.6 Watching brief requirements

Any excavation in Made Ground with low level trace asbestos should be attended by a competent asbestos watching brief. An environmental/asbestos consultancy will be able to provide a suitable watching brief provided they have the relevant skill set for working with asbestos in soils.

If no ACM are identified the requirement for a competent asbestos watching brief can be scaled back.

It may be prudent to consider an additional watching brief from an asbestos removal contractor in some instances as they have the ability to hand pick and remove minor visible asbestos as it arises which may assist in preventing stoppages and delays. Further details on the training can be found in Section 4.3.4.

4.3.3.7 Waste Disposal and Consignment

Double bagged waste

All double bagged waste must be disposed of in a lockable asbestos waste skip in accordance with the LARC (licensed asbestos removal contractor) standard operating procedure and the requirements of CAR2012.

Asbestos contaminated soil disposal

For waste classification purposes any stockpile of material containing asbestos becomes 'Hazardous' waste when gravimetric analysis indicates it contains >0.1%w/w, and/or is impacted with 'clearly identifiable' fragments of ACM visible to the naked eye by a competent person.

The Carriage of Dangerous Goods Regulations (CDG) do not provide a minimum threshold, and for all classifications of substances there is a fixed naming convention under the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR).

CDG and ADR can easily be implemented for ACM removed prior to the demolition of a structure or handpicked from the stockpile as all ACM can easily be double bagged in separate UN approved waste receptacles (or sealed in 1000g polythene with the compliant labels affixed). However, this task is more difficult when the waste being transported is scaled to several hundred m³ of contaminated soils arisings.

4.3.4 Site Management of asbestos in soils

Roles and Responsibilities

The main responsibilities for the onsite management and administration of this remedial and asbestos management plan falls to Kier Property Limited as land owner and Principal Contractor ("PC") in their role of controlling the on-site risks. Both parties combined must ensure that the appropriate preventative and control measures are implemented and maintained during works. This control can be achieved by application of this report as a preventative and control measure. The asbestos management control measures identified in this report provides guidance and acts as a resource to inform and protect personnel required to work at the sites where ACM and asbestos contamination is present and hence to protect their health, safety and well-being.

All sub-contractors and site operatives should be provided with the site reporting procedure. This procedure will usually include the reporting of any asbestos related issues (e.g., encountering unexpected visible contamination or laboratory analysis >0.001%) to the site management team in a timely manner.

Site Inductions

The induction should include details of:

- the nature of the work carried out by the worker and if excavation work in Made Ground is required;
- the nature of the risks associated with work within Made Ground;
- the control measures required to carry out the work safely;
- the procedure to be followed upon encountering unexpected ACM; and
- who any issues should be reported to.

Site Personnel

Employees must also be committed to working in accordance with this remediation and asbestos management plan and participate in maintaining the health and safety of themselves and their co-workers. This might be achieved as a result of their personal experience, training (e.g. Asbestos in Soil specific Awareness), or by complying with the site rules, emergency and reporting procedures.

Site operatives have a responsibility in relation to asbestos to:

- take reasonable care that their actions do not endanger the health and safety of themselves and others;
- comply with instructions given by the Client/PC for their own health and safety and that of others;
- comply with all work procedures and instructions related to asbestos;
- co-operate with supervisors and managers in their fulfilment of legislative obligations;
- report immediately to their supervisor any perceived asbestos risk;
- wear and maintain in good order any protective clothing and apparatus provided to them; and
- ensure all supplied equipment is in good working order.

Staff Training & Experience

Training and sharing of information are the most important elements of this AMP. All site personnel employed at the site who have the potential to encounter ACM must be provided with Category A 'Asbestos Awareness' training as a minimum.

The training must include a site-specific module relating to the asbestos in soils found to date, the training should not be confined to a generic asbestos awareness focussed around asbestos in buildings. The course should provide site operatives with sufficient knowledge to be able to spot fragments of ACM, within soils, construction and demolition arisings (and pipes/ducts), and provide them with an adequate awareness of the health risks associated with asbestos.

All site personnel involved in the direct excavation, processing, handling and testing of made ground should be provided with 'asbestos awareness' (as specified above) as a minimum.

Appropriate asbestos awareness training is intended to provide site operatives the knowledge required to identify the warning signs of visible asbestos in soils and to act accordingly. These actions are mainly to: cease works; make the area safe; and report the incident to the site management team.

It may prove prudent to train some staff to a higher level of training so work to 'make safe' or 'encapsulate' suspected ACM's can be undertaken while waiting for a competent asbestos contractor/consultant to attend site. This training should be Category B 'Working with non-licensed Asbestos' and the syllabus and practical training should, but not limited to:

- The appropriate use of RPE/PPE;
- Safe wetting down of ACMs to minimise fibre release;
- Safe covering suspected ACMs with 1000 gauge polythene;
- Safe quarantine/fencing of area;
- Decontamination procedure; and
- Bagging, storage and disposal procedure for used PPE/RPE.

It is not necessary to train operatives to undertake hand picking work as this activity will be carried out by a competent asbestos contractor where required.

4.3.5 Asbestos Licensing

The information provided thus far has been assessed by a competent person (the principal author of this report) and the information has been inputted into the CL:AIRE / JIWG 'Decision Support Tool for work categorisation' for work in Made Ground and is presented in Appendix D.

Following removal of cement type asbestos at WS110 and any further bonded asbestos at the formation level under low intensity works and controlled conditions excavation of the remaining Made Ground would be classified as low-level trace works, These works would then fall outside the remit of the Control of Asbestos Regulations in terms of licensing assessment (i.e. CAR DOES NOT APPLY). However this should be assessed by the contractor and updated should further asbestos be identified.

However, it should be noted that should significant visible asbestos or levels of loose fibre over and above those identified to date be identified, such areas/material may require operatives trained specifically to ‘work with asbestos containing materials’. Any change to the existing side data should be reassessed in light of the new information and further mitigation measures, training, insurance or HSE notification may be required for work which falls within the remit of CAR2012.

4.3.6 Site Records

A detailed site-specific Risk Assessment and Method Statement (RAMS) specifying how the material is to be excavated in a safe and controlled manner will need to be produced by the Contractor. All RAMS should take account of the information within this document and include a section for asbestos risks.

The RAMS should assess the risks of asbestos and provide a workable methodology but should also consider other site risks such as buried services, plant movement and excavations among others.

4.3.7 Other considerations

4.3.7.1 Supervision

The Contractor is to provide appropriate supervision at all times during excavation works to ensure that materials are appropriately segregated and classified.

4.3.7.2 Earthworks and reinstatement of excavations

The reinstatement of excavations as part of the earthworks is to be undertaken in accordance with an Earthworks Specification that details the methodology for placement of fill and should also detail associated geotechnical testing and verification requirements.

4.3.7.3 Off-site disposal of unsuitable materials.

The works should seek to reduce and control impacts upon the natural environment, therefore, the Contractor shall seek to reuse materials within the works, where appropriate.

However, where identified, any surplus (i.e., soils which cannot be reused on-site due to volumes), or unsuitable soils (i.e., soils which cannot be treated and/or reused in an appropriate location), or are geotechnically unsuitable for use in the earthworks, shall be disposed of off-site by the Contractor.

If a material does not comply with the relevant criteria for its intended use (e.g., reinstatement of excavations in line with reuse criteria, clean cover system, etc.), then, by definition, the material is not suitable for use.

All waste materials generated during the works shall be dealt with in full compliance with the statutory Duty of Care as defined by the Environmental Protection Act (1990) and all subsequent amendments. The Contractor shall be the waste producer and is responsible for the production of all documentation required under relevant legislation, ensuring this is kept up to date and is available on-site for inspection.

Further details on the disposal of unsuitable materials, and a preliminary waste classification of the soils recorded on-site, is presented in Section 7.

4.3.7.4 Permitting

To undertake treatment of soils and contaminated material, a Contractor must hold a Standard Rules Permit SR2008 No27 (or a bespoke mobile plant permit). The permit allows the use of certain technologies and associated plant for the purpose of remedial action.

Before the Contractor can use their mobile plant permit, they must also complete a site-specific deployment form and send it to the EA, along with the necessary additional information. Guidance is available on the gov.uk website for completing the deployment form and it states that the Contractor must allow at least 25 working days from the time they send in the completed form for the EA to assess their application. In addition, once the deployment form is approved the Contractor must then inform the EA at least 7 days in advance of the works starting, including the mobilisation of plant to site.

The Contractor is to ensure that sufficient time is allowed for to ensure the correct permits are in place and any comments are fully addressed in advance of the works.

There is an exemption for Standard Rules Permit SR2008 No27 if certain conditions apply, notably:

- The exemption can only be used once in a 3-year period for an individual site;
- The treatment is not for disposal; and
- The specified volumes of contaminated soils and groundwater treated at any site must not exceed 1,000 m^3.

4.4 Construction phase

4.4.1 Installation of the cover system

A clean cover system is required for landscaping areas. The cover system should be designed and validated in accordance with NCLOG, 2024. The general principles for the cover system design are:

- Building footprints as per the structural design (by others): the floor slab will break the linkage between the soils and potential receptors
- Areas of hardstanding (roads, pavements, etc.) as per the design (by others): the hardstanding will break the linkage between the soils and potential receptors.
- Soft landscaped areas, the thickness is to be designed by the landscape architect.

Where hardstanding is present, this is considered to have suitably severed the pathway from underlying contamination to future users. The design thickness of the hardstanding (e.g., concrete or asphaltic material, and not loose gravel or shingle at surface) and the underlying subbase should be of the required thicknesses for the construction build ups.

A clean cover system shall be installed in all soft landscaping areas in accordance with NCLOG guidance.

The clean cover system is to comprise (from base up):

- A suitable basal geo-fabric separation layer; and
- A minimum 150mm topsoil and subsoil thickness to be confirmed by landscape architect.

The clean cover system installation should be undertaken in the following steps:

1. Check the elevation of the formation level to ensure that it is at the correct level and allows for the placement of the full required thickness of the clean cover system.
2. Install the basal geo-fabric separation layer.
3. Place the required thickness of topsoil and subsoil as detailed above (of which a minimum 150 mm is to be topsoil).

Chemical testing of the soils against the import criteria presented in Table 6.1 is to be undertaken to ensure that the clean cover is suitable for use. The soils should also comply with any additional criteria stipulated by the landscape architect. It is recommended that the Contractor also samples and analyses the materials prior to placement to avoid the requirement for abortive works and removal of such materials.

For areas of proposed trees, the depth of growing medium will be deeper and tree pits will need to be excavated as per the requirements of an arboriculturists and/or landscape architect.

Where existing trees are to be retained (e.g., trees under a Tree Protection Order, or retained in landscaping schedule) provisions for the clean cover system should be agreed with an arboriculturists and/or landscape architect. Proposals could include the placement of a geogrid on the existing soils in the root protection area and capped with 100 mm of clean topsoil. Where soft landscaped areas are adjacent, it is proposed that the geogrid should overlap with the geotextile at the base of the cover system by a minimum of 2 m.

The clean cover systems shall also give consideration to their permeability and the consequential impact upon both the surface runoff. This principally relates to their composition (e.g., granular, cohesive or composite).

Soils used as part of the clean cover system should be free of asbestos and significant quantities of anthropogenic materials (e.g., brick, concrete, etc.) or other potentially hazardous foreign material which could cause injury. In addition, all materials must be free from aggressive / invasive weeds (especially Japanese Knotweed and Giant Hogweed) and bulk vegetative growth, in order to ensure negligible risk of subsequent weed problems.

Verification of the installed thicknesses and the chemical quality of the soils should be completed for landscaped areas. The full construction phase verification requirements are detailed in Section 6.2.1.

All soils moved and placed as part of the clean cover system need to be transported and stored with care to prevent cross contamination. This is to include, but not be limited to, the following:

- The stockpiling of soils on a geotextile separator layer.
- Using dedicated plant to move the cover system soils or washing plant thoroughly before use to move cover system soils.
- Minimising tracking over contaminated soils.
- Separating clean and dirty areas of the site.
- Placing the soils into the final position and not pushing soils across the surface.

Due to the lack of a clean growing medium on-site, it is anticipated that the topsoil used within clean cover systems will require import, where subsoil is not present at formation level import may be required.

If clean naturally occurring site-won soils are used within the cover system, they similarly need to comply with the criteria presented in Table 6.1. For clarity, treated materials should not be used as part of clean cover systems.

5 Monitoring Requirements

Air monitoring should be undertaken at the site to establish site background asbestos fibre levels. These results will be used as a comparison once the main works commences to ensure there is no measurable difference in airborne fibre levels during the works.

If elevated airborne fibre levels are present on, or at, the boundary of the site at this stage, then the relevant concentration can be discounted during subsequent air monitoring visits due to background contamination. This of course does not mean that the Contractor can dispense with their responsibilities referred to within this AMP and may require further investigation / assessment to understand the source and fibre types being recorded.

Airborne asbestos fibre control limits applicable to any work with asbestos will include:

0.01 f/mL - acceptable limit

Equal to background and detectable limits. Level to achieve for air clearances:

>0.01 f/mL - **alert/action required**

Review control measures, investigate the cause and implement controls to eliminate or minimise exposure. The preliminary air monitoring should include 1 day of monitoring by a UKAS accredited laboratory. This should consist of 12 static background fixed monitoring points situated down wind of the main excavation area and run for a minimum of 4 hours. Period monitoring should then be conducted on an ad hoc basis during any periods of dry weather when the creation of nuisance dust is potentially at its highest.

During excavation at WS110 to expose the known cement type asbestos (CAR DOES NOT APPLY) however precautionary air monitoring should be undertaken at the excavation, site boundary and also personal monitors should be deployed to ensure control measures are adequate (i.e. dampening down).

Further monitoring should be conducted by a UKAS accredited laboratory during the excavation and processing of the low-level concentrations of asbestos loose fibres Made Ground to ensure that the mitigation measures in place are suitable and sufficient. twice a week for the first three week of works and compared to the baseline monitoring. **If no evidence of additional ground contamination or elevated asbestos fibre levels are recorded, then air monitoring can be scaled back.**

The analyst will be able to provide advice on the air monitoring strategy and suitable locations for monitoring points, but an example scope for each full day visit is detailed below:

- 4nr. static reassurance monitoring points situated down wind of the main excavation area and run for a minimum of 4 hours.
- 4nr. static activity/reassurance monitoring points situated down wind of the main excavation in close proximity to the works area (within 10 metres).

Based on the available data for the site all static tests results should not exceed the original background fibre level or 0.01 f/ml, whichever is greater.

The frequency of air monitoring visits can be downgraded once they have proven that all control measures are suitable and sufficient. Should areas of sporadic or gross visible ACM contamination be identified the requirement for air or personal monitoring discussed below should be made on a case-by-case basis.

5.1 Personal Monitoring

Personal air monitoring should be conducted by a UKAS accredited laboratory during the excavation at WS110 to ensure the P3 filtered half mask in use are sufficient.

6 Verification and reporting

The remediation works presented in this document need verification such that the regulating bodies can be satisfied that the strategy has been fully complied with, and ultimately, such that any associated planning conditions relating to land quality can be discharged. The verification process is also required to provide a permanent record of the remedial works undertaken at the site. The sections below summarise the various activities requiring verification and also comment upon the verification reporting process.

The following remediation works require verification:

Enabling works:

- Confirmation of the watching brief during the works
- Treatment or off-site disposal of asbestos impacted Made Ground.
- Off-site disposal of unsuitable waste materials.

Construction phase:

- Installation of the cover system

Verification visits shall be made by a suitably experienced and qualified independent Geo-environmental Engineer or Consultant who shall undertake the necessary works outlined below.

6.1 Enabling works verification

A suitably qualified Geo-Environmental Consultant with relevant asbestos in soils training should be present during excavation works in the locality of the exploratory hole locationWS110, additional walkover and inspection, and during the formation level excavations. The consultant will:

- Take photographic evidence of the excavation and works being undertaken; and
- Take any dimensions of excavations or asbestos containing materials encountered or note any observations during excavation works.
- Compile a site visit briefing letter report, highlighted works completed, any observations or recommendations.

The contractor will be required to:

- Survey the excavation extents of asbestos impacted soils around exploratory hole location WS110 and supply as built drawings to Stantec;
- It would also be useful to survey the location of any further ACMs which are handpicked;
- The contractor will need to provide Stantec with a validation report including waste consignment notes and the results of the air monitoring and personal reassurance monitoring certification.

The above will then be compiled in a briefing note which can be submitted to the LPA for approval that works have been completed in accordance with this report.

6.2 Construction phase verification

6.2.1 Clean cover system

Cover system verification should be in accordance with NCLOG, 2024 and YALPAG, 2021 unless local regulatory guidance prevails.

The installation of the clean cover system should be verified by verification visits made by a suitably experienced and qualified independent Geo-environmental Engineer or Consultant who should undertake a visual inspection of the installation and take samples for laboratory testing. This should be carried out at a minimum rate of 1 verification trial pit for every 500 m^2 to verify the presence of the basal geofabric and the thickness of clean cover (with photographs) and collect samples of both topsoil and subsoil for chemical analysis.

Verification trial pits will be excavated at random locations as designated by the nominated verifier. This will take the form of a photograph with scale marker and accompanying photographic board detailing the measured clean cover system thickness.

The topsoil and subsoil samples should be analysed for compliance with the import criteria presented Appendix E. Imported soils should be tested at the following rate:

- 1 sample per 250 m^3 of soil with a minimum of 3 samples per source (topsoil and subsoil to be sampled separately).

It is recommended that the Contractor also samples and analyses the materials prior to placement to avoid the requirement for abortive works and removal of such materials. The soils should also comply with any criteria stipulated by the landscape architect.

If the clean cover system is deemed to be insufficient, the Contractor will be informed. In instances where the soil thicknesses are measured to be inadequate, following the addition of further soil, the verification pits will be re-excavated to confirm that a sufficient thickness of soil is now present. Verification of the clean cover system will only be carried out on areas where the cover system has been completed to finished surface level across the footprint of the private garden or area of public open space.

The cover system verification documentation should include:

- The source of imported materials (topsoil and subsoil).
- The presence of a suitable basal geofabric separation layer.
- The clean cover system thicknesses, including photographs of the verification pits with a scaled marker;
- The chemical test results for the samples of topsoil and subsoil*.
- Comparison of the topsoil and subsoil samples against the import criteria presented in Table 6.1.

Soil samples may be taken from stockpiles prior to placement in the clean cover system (this will require confirmation during verification that the placed materials are visually/physically consistent with those tested) or the samples are to be taken in situ once the clean cover system has been placed.

Table 6.1: Import Criteria

Contaminant	Proposed import criteria (mg/kg)	Justification
Arsenic	19	Soil Observatory (UK SO). Available: https://www.ukso.org/ [1]
Beryllium	4	Site Maximum Concentration
Cadmium	0.8	Soil Observatory (UK SO). Available: https://www.ukso.org/ [1]
Chromium (total)	67	Site Maximum Concentration
Chromium VI	67	Site Maximum Concentration
Copper	68	Soil Observatory (UK SO). Available: https://www.ukso.org/ [1]
Lead	151	Site Maximum Concentration
Inorganic mercury	4	Site Maximum Concentration
Nickel	24	Soil Observatory (UK SO). Available: https://www.ukso.org/ [1]
Selenium	0.5	Soil Observatory (UK SO). Available: https://www.ukso.org/ [1]
Vanadium	68	Site Maximum Concentration
Zinc	146	Soil Observatory (UK SO). Available: https://www.ukso.org/ [1]
Free cyanide	1	Existing plus 10% contingency.
Total phenols (monohydric)	1	Existing plus 10% contingency.
Dibenz(ah)anthracene	3.5	Limited to commercial GACs.
Sum of 15 PAHs	5.8	The UKSHS 95th percentile concentration for the sum of 14 PAHs is a reasonable value to use to define uncontaminated natural soils[2]
Sum of total petroleum hydrocarbons	1,000	To prevent visual evidence and olfactory odours.
Asbestos	NIL	-

[1]Source: United Kingdom Soil Observatory (UK SO). Available: https://www.ukso.org/.

[2] Source: Environment Agency. 2007. United Kingdom Soil and Herbage Pollutant Survey (UK SHPS). Available: https://www.gov.uk/government/publications/uk-soil-and-herbage-pollutant-survey.

[3] A limit of 1000 mg/kg has been applied to prevent visually oily or odorous material being imported to site. This is in essence an empirical criterion. The soil saturation limit has been rejected as an appropriate criterion in this case as the soil saturation limits for all total petroleum hydrocarbon fractions tend to be unnecessarily low. This applies to the summation of all total petroleum hydrocarbon fractions, not to the fractions individually.

7 Materials management

The materials management strategy currently comprises maximising on-site reuse of excavated materials and minimising off-site disposal and import as far as reasonably practicable.

The reuse and imported of site-won soils on-site, should be managed in accordance with a Materials Management Plan (MMP) that is prepared in accordance with 'The Definition of Waste: Development Industry Code of Practice', Version 2 (CL:AIRE, 2011) (the 'DoWCoP'). The Materials Management Plan will need to be signed off and Declared with CL:AIRE by a Qualified Person prior to commencing the earthworks. It should be noted that Version 3 of the DoWCoP is undergoing preliminary consultation, and recommendations within this report with regard to waste and re-use of soils will require review when the DoWCoP Version 3 is adopted. It is unknown at this stage whether MMPs for which a declaration has been accepted under version 2 will be impacted by changes in version 3.

7.1 Reuse criteria

The general reuse criteria for site-won materials or imported aggregates are presented below in Table 7.1. Reused soils are to be tested at a rate of 1 per 250m^3. Imported aggregates are to be tested at a rate of 1 per 500m^3.

Table 7.1: Reuse criteria

Contaminant	Proposed site won and import criteria (mg/kg)	Justification
Arsenic	38	Existing plus 10% contingency.
Beryllium	5	Existing plus 10% contingency.
Boron	3	Existing plus 10% contingency.
Cadmium	3	Existing plus 10% contingency.
Chromium III	73	Existing plus 10% contingency.
Chromium VI	49	Limited to commercial GAC in the absence and site specific concentrations
Copper	1060	Existing plus 10% contingency.
Lead	166	Existing plus 10% contingency.
Inorganic mercury	5	Existing plus 10% contingency.
Nickel	54	Existing plus 10% contingency.
Selenium	2	Existing plus 10% contingency.
Vanadium	75	Existing plus 10% contingency.
Zinc	870	Existing plus 10% contingency.
Free cyanide	1	Existing plus 10% contingency.
Total phenols (monohydric)	1	Existing plus 10% contingency.
Dibenz(ah)anthracene	3.5	Limited to commercial GACs.
Sum of 15 PAHs	5.8	The UKSHS 95th percentile concentration for the sum of 14 PAHs is a reasonable value to use to define uncontaminated natural soils**
Sum of total petroleum hydrocarbons	1,000	A limit of 1000 mg/kg has been applied to prevent visually oily or odorous material being imported or reused on the site
Asbestos	No visible ACM. Quantitative concentrations <0.001%wt/wt	To protect constructions workers.

The reuse and import criteria set out in Table 7.1, provides RTVs below the commercial GACs and therefore should exceedances occur, they should be assessed on a case-by-case basis to ensure they are chemically suitable to still reuse/import and not pose a risk to human health or controlled waters.

** Source: Environment Agency. 2007. United Kingdom Soil and Herbage Pollutant Survey (UK SHPS). Available: https://www.gov.uk/government/publications/uk-soil-and-herbage-pollutant-survey.

7.2 Sourcing of imported materials

The requirements set out in the Definition of Waste: Development Industry Code of Practice (DoWCoP) for importing materials under the 'Direct Transfer' scenario are clear. For clarity, the DoWCoP requirements for direct transfer of materials from one development site to another are:

- Material must be clean naturally occurring soils and mineral materials.
- 'Clean' is defined as devoid of anthropogenic contamination to a degree or level that is considered harmful to living organisms (i.e. harmful is not a site-specific definition).
- Naturally occurring materials are defined as:
- Soil, both topsoil and subsoil;
- Parent material;
- Clays, silts, sands and gravels;
- Underlying geology; and
- Made Ground consisting of the above materials only.

7.3 Sourcing of imported recycled aggregate (6F5)

Recycled aggregate 6F5 is likely to be may be imported for capping layers. The EA/WRAP Quality Protocol for recycled aggregates from inert waste sets out the following requirements for the produced aggregate:

- Feed material must be inert and must not contain or be contaminated with dangerous substances (as defined in the List of Waste Regulations). List of acceptable input wastes is provided in Appendix C of the Quality Protocol.
- Inert physical contaminants such as soils, peat, clays, silts, wood, plastics, rubber, metal must be removed during the waste processing and not be present in the final aggregate.
- The producer must develop waste acceptance criteria specific to each site/location that set out the types and source of input wastes to be used.
- The requirements of a BS EN aggregates standard (e.g., BSEN 13242) must be met. Example standards and specifications are provided in Appendix B of the Quality Protocol and include the Highways Agency (now National Highways) Specifications for Highway Works.
- To be inert it cannot contain any asbestos. Asbestos is prohibited in the Part B permits for the mobile crushers used to produce the aggregate.

In addition, all recycled 6F5 must also comply with the following wider suitability criteria:

- No visible or olfactory evidence of organic contamination, including free phase liquids.
- No visible evidence of invasive plant specifies (e.g., Japanese Knotweed or Giant Hogweed).

- No visible organic or putrescible material that could constitute a source of ground gas (e.g., wood).

7.4 Stockpiling

Any materials that are proposed for reuse shall be stockpiled separately by material type. Similarly, any materials being imported to site, for example clean topsoil or construction aggregates, or material awaiting disposal off-site, shall be stockpiled separately. Stockpile management shall be undertaken in accordance with the following protocol:

- Separate stockpiles shall be created for each material type, whether site-won or imported materials, and shall be appropriately labelled / identified on-site.
- The Contractor shall identify all stockpiles with clear signage.
- Stockpiles shall not be cross-contaminated, double handling shall be avoided, and stockpiles shall remain quarantined until ready for use.
- Topsoil shall not be placed during or after heavy or prolonged periods of rainfall.
- For imported materials, copies of the carrier's Consignment Notes shall be retained on-site and made available for inspection and as part of verification reporting.
- A record of all imported materials shall be maintained by the Contractor recording details of material type, source of the imported material and Consignment Note reference numbers. In addition, the Contractor shall record the status of each stockpile, in terms of material type, source site, volume and intended use on-site.
- Stockpiles of significantly contaminated materials (either generated during remediation of previously identified impacts or due to encountering unexpected finds) are to be placed in lined above-ground treatment areas comprised of impermeable membranes to prevent leaching and run off of the potential contaminant(s).

7.5 Disposal of materials

The Waste Framework Directive (WFD) (2009/98/EC) defines waste as *'any substance which the holder discards or intends to discard'*. In a geo-environmental context, the waste is most often 'soil' and the two main scenarios are offsite disposal of the material as a waste and/or reuse of the material on-site. For cost and sustainability reasons, reuse is preferred to off-site disposal.

The site is brownfield and based on the site history and previously reported HazWasteOnline™ assessment, if suitable segregation of different types of waste is put in place, it is considered that:

- The Glaciofluvial Sheet Deposits soils are likely to be classified as non-hazardous waste,
- The Made Ground is generally likely to be classified as non-hazardous waste with the exception of;

1. Made Ground in the vicinity of CP102 which is likely to be classified as hazardous waste due to the TPH concentrations >1000mg/kg;
2. Made Ground in the vicinity of WS101 which is likely to be classified as hazardous waste due to the elevated levels of copper, zinc and TPH concentrations >1000mg/kg.
3. Any material found to be containing visual asbestos containing materials would also be classed as hazardous until the ACMs are suitably removed.

WAC testing should be completed across the site to confirm if any non-hazardous waste can be sent to 'inert' landfill.

It should be noted that:

- The above preliminary assessment has been made on the basis of the soils tested as part of the ground investigations undertaken to date and is only intended to provide an indication of potential waste classification. Prior to disposal, the characteristics of the actual soils to be disposed of will need testing and classification in consultation with landfill sites and waste disposal Contractors. The receiving landfill will make the final decision on the classification and acceptability of the waste.
- Non-hazardous soils require pre-treatment (separation, sorting and screening) prior to disposal.
- The costs for disposal of non-hazardous and hazardous soils are significant compared to disposal of inert material. Waste segregation (and especially hazardous waste) should always be undertaken where practicable.

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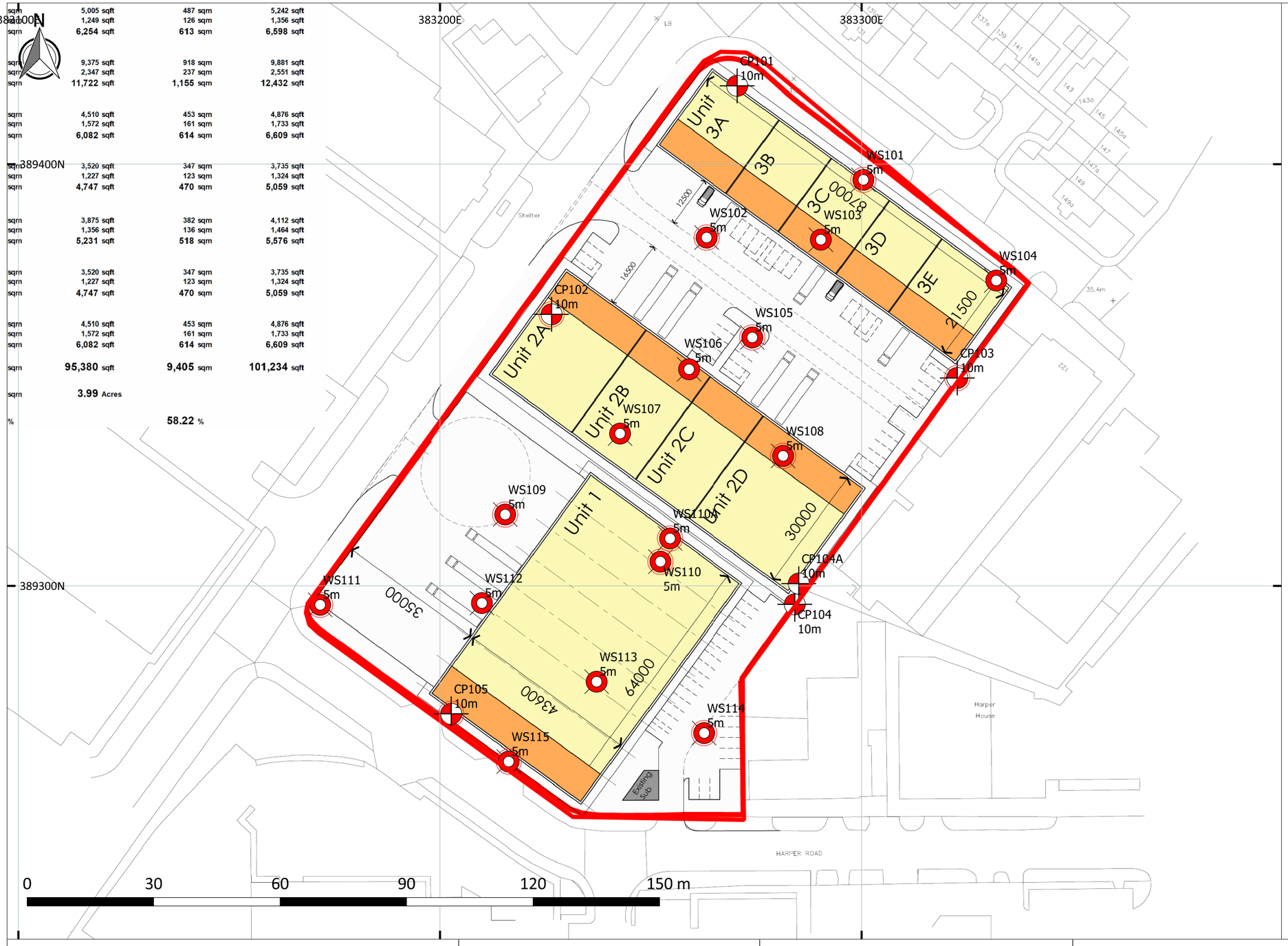
Appendices

Appendix A Drawings

sqm	5,005 sqft	487 sqm	5,242 sqft
sqm	1,249 sqft	126 sqm	1,356 sqft
sqm	6,254 sqft	613 sqm	6,598 sqft
sqm	9,375 sqft	918 sqm	9,881 sqft
sqm	2,347 sqft	237 sqm	2,551 sqft
sqm	11,722 sqft	1,155 sqm	12,432 sqft
sqm	4,510 sqft	453 sqm	4,876 sqft
sqm	1,572 sqft	161 sqm	1,733 sqft
sqm	6,082 sqft	614 sqm	6,609 sqft
sqm	3,520 sqft	347 sqm	3,735 sqft
sqm	1,227 sqft	123 sqm	1,324 sqft
sqm	4,747 sqft	470 sqm	5,059 sqft
sqm	3,875 sqft	382 sqm	4,112 sqft
sqm	1,356 sqft	136 sqm	1,464 sqft
sqm	5,231 sqft	518 sqm	5,576 sqft
sqm	3,520 sqft	347 sqm	3,735 sqft
sqm	1,227 sqft	123 sqm	1,324 sqft
sqm	4,747 sqft	470 sqm	5,059 sqft
sqm	4,510 sqft	453 sqm	4,876 sqft
sqm	1,572 sqft	161 sqm	1,733 sqft
sqm	6,082 sqft	614 sqm	6,609 sqft
sqm	95,380 sqft	9,405 sqm	101,234 sqft
sqm	3.99 Acres		
%		58.22 %	



ID	Type	X (Easting)	Y (Northing)	Proposed Depth (m)	Installation	Soakaway
CP105	CP	383202.64	389269.64	10	Y	NULL
CP104	CP	383284.14	389295.61	10	n	NULL
CP101	CP	383270.47	389418.57	10	n	NULL
CP102	CP	383226.45	389364.39	10	Y	NULL
WS111	WS	383171.56	389295.49	5	Y	NULL
WS104	WS	383331.94	389372.4	5	n	NULL
WS101	WS	383300.41	389396.28	5	Y	NULL
WS114	WS	383262.65	389265.08	5	Y	NULL
WS109	WS	383215.45	389316.91	5	Y	NULL
WS115	WS	383216.28	389258.32	5	Y	NULL
WS102	WS	383263.23	389382.59	5	Y	NULL
WS105	WS	383274.06	389358.9	5	Y	NULL
WS107	WS	383242.69	389336.1	5	n	NULL
WS108	WS	383281.37	389330.81	5	Y	NULL
WS106	WS	383259.07	389351.35	5	n	NULL
WS112	WS	383209.93	389295.91	5	n	NULL
WS110	WS	383252.27	389305.73	5	Y	NULL
WS113	WS	383237.14	389277.26	5	n	NULL
WS103	WS	383290.32	389382.09	5	n	NULL
CP103	CP	383322.69	389349.29	10	Y	NULL
CP104A	CP	383285.09	389300.53	10	n	NULL
WS110A	WS	383254.55	389311.23	5	Y	NULL

KEY PLAN

Site Boundary

Proposed Locations [22]

Window Sampling [16]

Cable Percussion [6]

Installation [13]

NOTES

1. Contains OS data © Crown copyright and database right (2022)

REVISIONS

REV.	DRAWN BY INITIALS	CHECKED BY	DATE	REVISION NOTES/COMMENTS
P01	JH	MG	02/12/24	First issue
P02	JH	MG	03/12/24	Added WS116
P03	EL	BH	29/01/25	Revised coordinates of boreholes, and added CP104A and WS110A.

Hydrock

TITLE
PROPOSED GROUND INVESTIGATION PLAN

HYDROCK PROJECT NO.
35838

SCALE @ A3
1:1,000

CLIENT
Kier Property Ltd

PURPOSE OF ISSUE
SUITABLE FOR INFORMATION

STATUS
S2

PROJECT
Sharston Industrial Estate

DRAWING NO.
35838-HYD-XX-XX-DR-GE-0002

REVISION
P03

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5. THIS DRAWINGS IS BASED ON HORIZON DRAWING NO 25006-HYR-AV-XX-DR-A-0501-P09.
6. THE EXISTING GROUND MODEL IS BASED ON SURVEY & ENGINEERING PROJECTS' DRAWING REF S25892-T, DATED JAN 2025. NO ALLOWANCE HAS BEEN MADE FOR ANY CHANGES IN GROUND PROFILE AFTER DATE OF SURVEY.
7. PROPOSED SURFACE LEVELS ARE SHOWN ON DRAWING NO 25006-STN-EX-XX-DR-C-00200.
8. IT IS ASSUMED THAT THE EXISTING CONCRETE SLABS WILL BE STRIPPED TO A DEPTH OF 175mm.
9. EXISTING CONCRETE SLABS IS TO BE CRUSHED AND RUSUSED AS SUB BASE. THIS QUANTITY IS NOT INCLUDED IN THE BELOW CUT AND FILL CALCS.
10. ARISINGS ESTIMATE IS BASED ON 0.025m³ PER ft² OF GIA.
11. THE FOLLOWING CONSTRUCTION BUILD-UPS ARE ASSUMED FOR THE PURPOSES OF EARTHWORKS VOLUME CALCULATION ONLY. THESE BUILD-UPS ARE NOT TO BE USED FOR PRICING PAVEMENT/SUB-BASE/CAPPING LAYERS. FOR ACTUAL DEPTHS OF PAVEMENT/SUB-BASE/CAPPING LAYERS REFER TO STANTEC PAVEMENT DRAWING/SPECIFICATION.

BUILDING FOOTPRINT	325mm
CAR-PARK	450mm
SERVICE YARD	450mm
FOOTWAY	295mm
ACCESS ROAD	560mm
LANDSCAPING	150mm

12. NO ALLOWANCE HAS BEEN MADE FOR BULKING OF MATERIALS.
13. NO ALLOWANCE HAS BEEN MADE FOR ANY PROPOSED BELOW GROUND INSULATION.
14. VOLUMES ARE CALCULATED AS THE DIFFERENCE BETWEEN:
    - EXISTING GROUND AFTER 175mm SURFACE STRIP
    - UNDERSIDE OF CONSTRUCTION BUILD-UP
12. ALL VOLUMES STATED ON THIS DRAWING ARE BASED ON PRELIMINARY CALCULATION BY STANTEC AND SHOULD BE VERIFIED/FINALISED BY THE EARTHWORK'S CONTRACTORS OWN CALCULATIONS/MODELLING.

CUT & FILL CALCS	Cut (m^3)	Fill (m^3)
Surface Strip of Existing Material (to be removed from site)	0	0
Estimated Arisings	2,051	0
Cut and Fill to Formation	1,081	3,493

RESULTS	m^3
Total Shortfall (m^3)	-361

P03

Legend

SITE LOCATION BOUNDARY

NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-2.000	-1.000	
2	-1.000	-0.750	
3	-0.750	-0.500	
4	-0.500	-0.250	
5	-0.250	0.000	
6	0.000	0.250	
7	0.250	0.500	
8	0.500	0.750	
9	0.750	1.000	

P03

Issued/Revision	By	Appd	DD.MM.YYYY
P03 UPDATED TO PROPOSED LEVELS P03	NM	NB	28.11.2025
P02 TENDER ISSUE	NM	NB	22.10.2025
P01 PLANNING ISSUE	NM	NB	31.07.2025

	Dwn.	Dsgn.	Chkd.	DD.MM.YYYY
	NM	NM	NB	31.07.2025

Issue Status

S4
SUITABLE FOR STAGE APPROVAL

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Client/Project Logo

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SHARSTON INDUSTRIAL ESTATE

SHARSTON ROAD
WYTHENSHAWE, MANCHESTER

Title

EARTHWORK VOLUMES

Project No.	A0 Scale
35838	1:200

Revision	Drawing No.
P03	25006-STN-EX-XX-DR-C-00201

Plotted: 28.11.2025 17:28 Zak.Hill-Pay, Manager, Com
Origin: (-3.815 - 53.242) U:\2025\35838\CAD\Drawings\25 Hydrock\25006-stn-ex-xx-dr-c-00200-00209-proposed-levels & earthwork v18.dwg

0m 10m 20m 30m 40m

VISUAL SCALE 1:500 @ A1

N

05-XX_Site Finishes Key

- Proposed Planning boundary
- Reinforced concrete service yard inc. dock ramp. Refer to Civil Engineers details for construction / sub-base build ups
- Tarmacadam surface to vehicular access road. Refer to Civil Engineers details for construction / sub-base build ups
- Traffic Island. Refer to Civil Engineers details for construction / sub-base build ups
- Proposed areas of soft landscaping (Trees / planting) in accordance with Landscape Architect details
- Approximate area of existing vegetation (Trees, bushes, hedgerows) taken from topograhical survey
- Root protection area of existing trees in accordance with BS 5837:2012. Refer to Arboriculturist details for confirmation
- Extent of first floor accommodation space to each unit (office & core)

1 **05-ZZ_Site Plan as Proposed**
1 : 500

92-XX_Gross Internal Area (GIA)

Name	Area Metric	Area Imperial
Unit 1		
Warehouse	2,790 m²	30,032 ft²
First Floor	279 m²	3,003 ft²
	3,069 m²	33,035 ft²
Unit 2A		
Warehouse	698 m²	7,513 ft²
First Floor	125 m²	1,345 ft²
	823 m²	8,859 ft²
Unit 2B		
Warehouse	558 m²	6,006 ft²
First Floor	139.5 m²	1,502 ft²
	697.5 m²	7,508 ft²
Unit 2C		
Warehouse	465 m²	5,005 ft²
First Floor	116.3 m²	1,251 ft²
	581.3 m²	6,257 ft²
Unit 2D		
Warehouse	871 m²	9,375 ft²
First Floor	142 m²	1,528 ft²
	1,013 m²	10,904 ft²
Unit 3A		
Warehouse	419 m²	4,510 ft²
First Floor	146.2 m²	1,573 ft²
	565.2 m²	6,083 ft²
Unit 3B		
Warehouse	510 m²	5,490 ft²
First Floor	99.2 m²	1,068 ft²
	609.3 m²	6,558 ft²
Unit 3C		
Warehouse	343.5 m²	3,698 ft²
First Floor	119.8 m²	1,290 ft²
	463.3 m²	4,987 ft²
Unit 3D		
Warehouse	585.6 m²	6,303 ft²
First Floor	104.4 m²	1,124 ft²
	690 m²	7,427 ft²
Total:	8,511.5 m²	91,617 ft²

92-XX_Gross External Area (GEA)

Name	Area Metric	Area Imperial
Unit 1		
Ground Floor	2,899 m²	31,205 ft²
First Floor	314 m²	3,379 ft²
	3,213 m²	34,584 ft²
Unit 2A		
Ground Floor	741 m²	7,977 ft²
First Floor	145 m²	1,558 ft²
	886 m²	9,535 ft²
Unit 2B		
Ground Floor	585 m²	6,300 ft²
First Floor	157 m²	1,687 ft²
	742 m²	7,987 ft²
Unit 2C		
Ground Floor	489 m²	5,265 ft²
First Floor	131 m²	1,410 ft²
	620 m²	6,675 ft²
Unit 2D		
Ground Floor	920 m²	9,901 ft²
First Floor	164 m²	1,763 ft²
	1,084 m²	11,664 ft²
Unit 3A		
Ground Floor	453 m²	4,875 ft²
First Floor	167 m²	1,798 ft²
	620 m²	6,674 ft²
Unit 3B		
Ground Floor	540 m²	5,813 ft²
First Floor	113 m²	1,221 ft²
	653 m²	7,034 ft²
Unit 3C		
Ground Floor	366 m²	3,938 ft²
First Floor	135 m²	1,453 ft²
	501 m²	5,391 ft²
Unit 3D		
Ground Floor	627 m²	6,751 ft²
First Floor	119 m²	1,283 ft²
	746 m²	8,034 ft²
Total:	9,065 m²	97,577 ft²

Parking Schedule

Description	Count
Unit 1	
Standard car parking bay	25
Standard car sharing parking bay	2
Standard electric vehicle charging parking bay	4
Accessible car parking bay	2
Motorcycle bay	4
	37
Unit 2A	
Standard car parking bay	4
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible car parking bay	1
Accessible electric vehicle parking bay	1
	8
Unit 2B	
Standard car parking bay	2
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible electric vehicle parking bay	1
	5
Unit 2C	
Standard car parking bay	2
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible electric vehicle parking bay	1
	5
Unit 2D	
Standard car parking bay	5
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible car parking bay	1
Accessible electric vehicle parking bay	1
	9
Unit 3A	
Standard car parking bay	2
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible electric vehicle parking bay	1
	5
Unit 3B	
Standard car parking bay	4
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible car parking bay	1
Accessible electric vehicle parking bay	1
	8
Unit 3C	
Standard car parking bay	1
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible electric vehicle parking bay	1
	4
Unit 3D	
Standard car parking bay	6
Standard car sharing parking bay	1
Standard electric vehicle charging parking bay	1
Accessible electric vehicle parking bay	1
	9
Total: 90	90

Cycle Provision

Count
Unit 1
18
Unit 2 Option 2
20
Unit 3A
4
Unit 3B
6
Unit 3C
4
Unit 3D
6
58

Waste Provision

Area
Unit 1
16.00 m³
Unit 2A
4.00 m³
Unit 2B
4.00 m³
Unit 2C
4.00 m³
Unit 2D
6.00 m³
Unit 3A
4.00 m³
Unit 3B
4.00 m³
Unit 3C
4.00 m³
Unit 3D
4.00 m³
50.00 m³

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WORK IN PROGRESS

Rev	Revision Details	Drawn	Date	Chck'd
WIP5	Issued for information. General updates.	AD	15.07.25	AD
WIP4	Issued for information. General updates. Cycle and waste provisions added	PM	24.06.25	BB
WIP3	Unit 2 & 3 Office areas updated. Unit 3 parking configuration updated to suit accommodation provision.	PM	04.06.25	BB
WIP2	Pedestrian walk way relocated to increase the yard area & traffic islands added.	AD	20.05.25	BB
WIP1	Unit 3 Areas updated in line with agents comments. Associated parking provision and configuration updated to suit	PM	19.05.25	BB
P4	Parking provision and designation of spaces updated. Existing trees to be removed ommitted for this issue.	PM	13.05.25	ME
P3	Dock ramp retaining wall reduced. Unit 2 moved to increase Unit 3 yard depth and incorporate safe pedestrian route. Trees to be removed indicated	PM	06.05.25	ME
P2	Updated to incorporate comments received. Unit 2 location moved to increase Unit 3 yard depth. General updates to finishes	PM	25.04.25	ME
P1	Issued for information purposes	PM	16.04.25	ME

Project No. **25006**
Suitability **S2 SUITABLE FOR INFORMATION**
Status **PLANNING**

Client:
Kier Property

Project:
Sharston Industrial Estate
Sharston Road,
Wythenshawe,
Manchester

Sheet Name:
Site Plan as Proposed

Drawing No. **25006-HFR-AV-XX-DR-A-0501** Rev. **WIP5**
Drawn By **PM** Scale **As indicated @ A1**
Created **16.04.25**

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Appendix B Preliminary UXO Risk Assessment

Preliminary Unexploded Ordnance (UXO) Risk Assessment

Project Name	Sharston, Manchester
Client	Hydrock Consultants Ltd
Site Address	1934 Sharston Rd, Wythenshawe, Manchester M22 4RA
Report Reference	PA21131-00
Date	3rd December 2024
Author	LH
Quality Assurance	HW

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Assessment Objective

This preliminary unexploded ordnance (UXO) risk assessment is a qualitative screening exercise to assess the likely potential of encountering UXO at the Sharston, Manchester site. The assessment involves the consideration of the basic factors that affect the potential for UXO to be present at a site as outlined in Stage One of the UXO risk management process.

Background

This assessment uses the sources of information available in-house to 1st Line Defence Ltd to enable the placement of a development site in context with events that may have led to the presence of German air-delivered or Allied military UXO. The report will identify any immediate necessity for risk mitigation or additional research in the form of a Detailed UXO Risk Assessment. It makes use of 1st Line Defence's extensive historical archives, library and unique geo-databases, as well as internet resources, and is researched and compiled by UXO specialists and graduate researchers.

The assessment directly follows CIRIA C681 guidelines "Unexploded Ordnance, a Guide for the Construction Industry". The document will therefore assess the following factors:

- Basic Site Data
- Previous Military Use
- Indicators of potential aerial delivered UXO threat
- Consideration of any Mitigating Factors
- Extent of Proposed Intrusive Works
- Any requirement for Further Work

It should be noted that the vast majority of construction sites in the UK will have a low or negligible risk of encountering UXO and should be able to be screened out at this preliminary stage. The report is meant as a common sense 'first step' in the UXO risk management process. The content of the report and conclusions drawn are based on basic, preliminary research using the information available to 1st Line Defence at the time this report was produced. It should be noted that the only way to entirely negate risk from UXO to a project would be to support the works proposed with appropriate UXO risk mitigation measures. It is rarely possible to state that there is absolutely 'no' risk from UXO to a project.

Site Boundary

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Risk Assessment Considerations	
Site location and description/current use	The site is situated within the Sharston Industrial Estate in the Northenden area of Wythenshawe; a southern suburb of Manchester. The site comprises the industrial premises of Siemens comprising a cluster of adjoined warehouses and office buildings. The site is bound to the north by Longley Lane, to the east by industrial premises, to the south by Harper Road, and to the west by Sharston Road. The site is approximately centred on the OS grid reference: **SJ 83255 89331**.
Are there any indicators of current/historical military activity on/close to the site?	In-house records do not indicate that the site footprints had any former military use. No features such as WWII defensive positions, encampments or firing ranges are recorded to have been located at or in the immediate vicinity of the sites. In addition, no information of ordnance being stored, produced, or disposed of within the proposed site boundaries could be found. The closest Heavy Anti-Aircraft (HAA) battery was positioned approximately 2.5km west of the site in the vicinity of Baguley. The range of a fired projectile can be up to 15km. The conditions in which unexploded anti-aircraft ordnance may have fallen unrecorded are generally analogous to that of aerial delivered German bombs.
What was the pre- and post-WWII history of the site?	Pre-WWII historical OS mapping from 1938 shows the site to have been dominated by two industrial premises; the *Wylex Works*, and *Moor End Factory*. A building associated with each is recorded within the site surrounded by open land. The south of the site appears empty. The site is bound north by *Longley Lane*, east by further industrial premises, south by *Harper Road*, and west by *Sharston Road*. Post-war mapping updated in 1953 shows the site as remaining unchanged, with the two industrial premises surviving at their pre-war positions. Further industrial buildings appear within the open land south and west of the site over *Harper Road* and *Sharston Road*. More detailed post-war mapping from 1956 reveals the *Wylex Works* to have made *Electrical Products*, and the *Moor End Factory* to have made *Underwear*.
Was the area subject to bombing during WWII?	During WWII, the site was situated within the County Borough of Manchester, which sustained an overall low density of bombing according to Home Office bombing statistics. The borough comprised 27,255 acres and was subject to 712 high explosive (HE) bomb strikes, 18 parachute mines, seven oil bombs, and one V-1 pilotless aircraft bomb. This totalled 738 items of ordnance, with an average of 27.1 items of ordnance per 1,000 acres. A bomb map held in-house for this area of Manchester's suburbs does not record any bomb strikes as having occurred within the site. However, it does record numerous incendiary bomb strikes at Rose Hill Convalescence House as close as approximately 120m north-east of the site. Another single strike is recorded approximately 250m west of the site, and is recorded as occurring on the 10th October 1940. Its type is unclear but may have been a composite incendiary/high explosive bomb or an unexploded bomb.
Is there any evidence of bomb damage on/close to the site?	There are no obvious changes shown on site when comparing pre- and post-WWII OS mapping which would indicate bomb damage.

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To what degree would the site have been subject to access?	During WWII, the site was located within a suburban industrial area of Manchester; which likely experienced regular access given that the region was not likely bombed heavily and the industries within/around the site likely continued to function during wartime. This increases the likelihood that signs of UXO would have been noted and investigated.
To what degree has the site been developed post-WWII?	Post-WWII, the site has undergone the expansion of industrial buildings to cover the majority of the site area. However, the original Wylex Works building and a 1934 factory building at the site of the Moor End Factory still at least partially survive at the front of the site.
What is the nature and extent of the intrusive works proposed?	Ground investigation works are proposed for the site including boreholes and window samples to a maximum depth of 10m.

Summary and Conclusions

During WWII, the site comprised the premises of the Wylex Works (electrical products) and Moor End Factory (underwear) in Sharston Industrial Estate, Wythenshawe. It was situated within the County Borough of Manchester, which sustained an overall low density of bombing according to Home Office bombing statistics, with an average of 27.1 items of ordnance falling per 1,000 acres.

Available bomb mapping for this suburban area of Manchester does not record any bomb strikes to have occurred within or bordering the site boundary, with the closest being plotted approximately 120m away. Furthermore, a comparison of pre- and post-WWII OS mapping does not bear obvious signs of structural damage or alteration which might be indicative of bombing activity. The works likely remained operational during wartime, providing the site with a beneficial degree of access.

Recommendations

Given the findings of this preliminary report, the risk from UXO is not considered to be higher than the 'background' level of risk of UXO contamination in this part of the UK. Whilst it would be possible to conduct a Detailed UXO Risk Assessment for this site, it is not anticipated that any further findings would significantly alter the risk of encountering unexploded ordnance within the site. It is therefore recommended that **no further action** is taken.

If the client has any anecdotal or empirical evidence of UXO risk on site, please contact 1st Line Defence.

It should be noted that although the risk from unexploded ordnance on this site has been assessed as low/minimal, this does not mean there is 'no' risk of encountering UXO. This preliminary report has been undertaken with due diligence, and all reasonable care has been taken to access and analyse relevant historical information. By necessity, when dealing with historical evidence, and when making assessments of UXO risk, various assumptions have to be made which we have discussed and justified within this report. Our reports take a common-sense and practical approach to the assessment of UXO risk, and we strive to be reasonable and pragmatic in our conclusions. As referenced, it would be possible to undertake further research into this site, but based on the evidence to hand, this is not deemed strictly necessary, and no reasonably justifiable requirement for proactive on-site mitigation has been identified.

It should however be stressed that if any suspect items are encountered during the proposed works, 1st Line Defence should be contacted for advice/assistance, and to re-assess the risk as necessary. Furthermore, we would recommend that ground personnel are always made aware of the potential for encountering UXO, what to look out for and what to do in the unlikely event that a suspect item is encountered, and that a UXO Risk Management Plan is put together for the proposed works. We would be happy to provide a template and guidance for this – contact us on 01992 245020. Should the scope of works change or additional works be proposed, 1st Line Defence should be contacted to re-evaluate the risk.

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This report has been prepared by 1st Line Defence Limited with all reasonable care and skill. The report contains historical data and information from third party sources. 1st Line Defence Limited has sought to verify the accuracy and comprehensiveness of this information where possible but cannot be held accountable for any inherent errors. Furthermore, whilst every reasonable effort has been made to locate and access all relevant historical information, 1st Line Defence cannot be held responsible for any changes to risk level or mitigation recommendations resulting from documentation or other information which may come to light at a later date.

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Front cover image credit: London County Council Bomb Damage Mapping (London Metropolitan Archives)

Appendix C Unexpected and unforeseen contamination protocol

Due to the long development history of the site, the potential exists for encountering materials that were not recorded during the original ground investigations. Outside of the known areas of contamination, any significant quantities of suspected oily or odorous material, significant ashy soils and/or unusual brightly coloured or asbestos containing materials should be considered as possibly contaminated.

Any services and service trenches will require appropriate management and decommissioning to reduce the potential for additional contamination of soils and groundwater during the works. Furthermore, given the potential presence of unidentified sources of contamination existing within discrete areas across the site it is recommended that a watching brief be adopted by a suitably qualified Geo-environmental Engineer or Consultant for all excavation activities and during the removal of relic underground structures.

Should any previously unidentified material suspected of being contaminated be encountered during the development of the site (by visual or olfactory means), then the following protocol should be implemented.

- Site activities in the immediate vicinity shall cease and an independent Geo-environmental Engineer or Consultant should be contacted (if not on-site already) and provided with a summary of the observations made.
- The Local Authority should be contacted.
- Should there be a perceived risk to Controlled Waters, the EA should also be contacted.
- The Geo-environmental Engineer or Consultant should undertake appropriate investigations to establish the extent of the materials in question. Depending upon the extent and volume of material present, the materials may be removed and temporarily stockpiled (on heavy grade polythene sheeting to prevent leaching/runoff) to enable activities to continue.
- The Geo-environmental Engineer or Consultant should identify an appropriate suite of chemical testing and agree this with the relevant regulator(s).
- The resultant chemical analyses shall be compared with the appropriate criteria for the land use in question. The findings and recommendations shall be discussed and agreed with the relevant regulator(s).
- Updates will be made to this Remediation Strategy and Verification Plan, if required. In the majority of cases it would be proposed that unexpected contamination is dealt with via independent correspondence, but on occasion it may be necessary to revisit and update this document.
- Prior to implementing any amendments to the Remediation Strategy and Verification Plan, the relevant regulator(s) shall be consulted and the amendments agreed in writing.

Discovery Strategy (Asbestos-Containing Materials (ACMs))

In areas of the site where no works are taking place but it is suspected that asbestos containing materials may exist at depth, there will only be a potential risk if these materials are exposed on the ground surface. If there are buried ACM on the site, they cannot give rise to airborne fibres unless uncovered.

The procedure to be followed in the event of suspected ACM being uncovered can be found in **below**.

The primary response should be to avoid any further disturbance of the material and to prevent access by the placement of appropriate barricades.

If the material appears friable or there is a risk of further disturbance from the weather (such as high winds) the material should be dampened down and covered with heavy gauge polythene or geofabric, either of which should then be secured with clean fill material, rocks or other heavy items.

Warning signs should be put in place, and the discovery should be included in any daily toolbox talks until the risk is removed by a competent asbestos contractor.

All incidents concerning the uncovering of suspected ACM are to be dealt with and recorded via the site management team. In no circumstances should site operatives or sub-contractor's attempt to deal with the contamination.

Report the incident to the site management team immediately, including details of;

- date and time of uncovering;
- nature of the problem and location;
- supply any photographs if held; and
- details of the response/action taken.

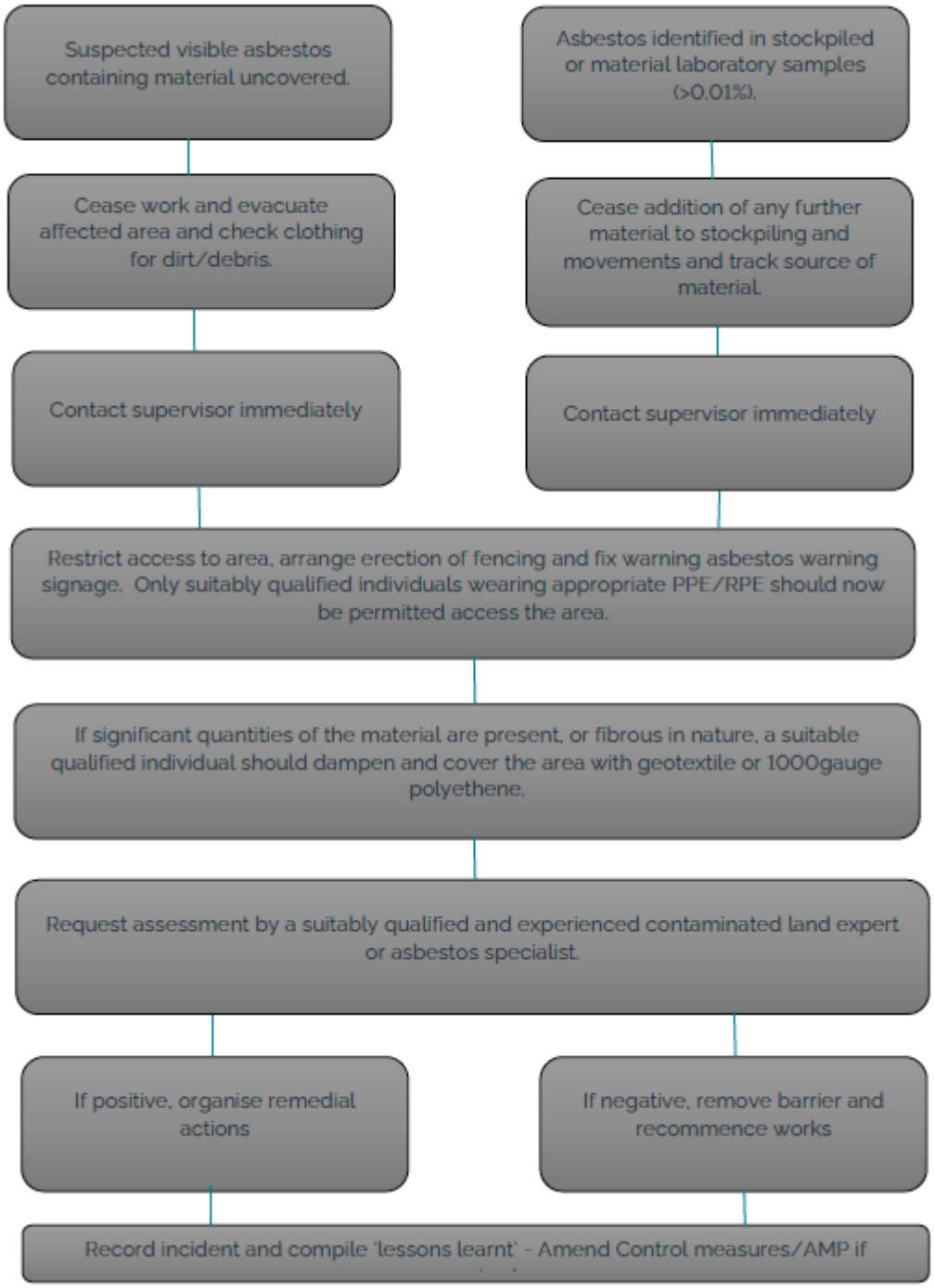
The management team will then organise a suitably qualified & experienced asbestos specialist to investigate the suspected ACM and obtain representative samples if required.

Once the material has been confirmed as containing asbestos the material may be removed in accordance with the CAR 2012 and the approved ACOP's. If the material is confirmed to be 'non asbestos' the fencing can be removed and works can recommence.

Details of the event should be passed to Stantec for inclusion in subsequent reissues of this remediation and asbestos in soils management plan.

Only hand-picking should be conducted by a suitability qualified CAT B trained asbestos operative.

Emergency Procedures (Asbestos)



Appendix D CL:AIRE/ JIWG Decision Support Tool

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	333800048
Site Name	Sharston Road, Sharston Industrial Estate
Client	Kier Property Limited
Run by	Russell Sumner
Date	12-Jan-26
Scenario details	Hand picking of cement type asbestos

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	1
Extent of degradation of ACMs at outset of work	Weathered (Slight degradation in ACM; material still retains its basic integrity)	2
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Trace quantities - <0.0001 to 0.001 %wt/wt	0
Sub-total		**0**

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking **Negligible**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Version 2, July 2016

Stage 2

Exposure Factors

		Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.001 fibres/ml	0
Anticipated duration of exposure to asbestos	< 2 hours in a 7 day period for all persons involved (e.g. Short Duration Work)	1
Activity type and effect on deterioration of ACMs during work	Low intensity, no or minimal deterioration expected	0
Best description of primary host material matrix (soil/made ground)	Coarse to Fine Sand	2
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Very low	1
Sub-total		**4**
Exposure ranking		Very low
Combined hazard and exposure ranking	**4**	Very Low

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Stage 3

Risk Assessment Outputs

Probable Licensing Status	CAR do not apply
RPE*	None
Dust Suppression**	None
Hygiene/Decontamination***	None

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

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