



Remediation Method Statement Former Volcrepe Works, Milltown, Glossop

Prepared for Watson Construction Ltd

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1.0 Introduction

1.1 Background

Clancy Consulting Ltd has been instructed by Watson Construction Ltd to carry out a Remediation Method Statement for the former Volcrepe Works in Glossop.

The primary objective of this report is to document a suitable, detailed strategy for the safe, legislatively compliant and controlled regeneration of the land for residential use in a manner that will ensure that no unacceptable level of risk exists with regard to future site occupants, residents within the wider area or to the environment and controlled waters.

This Remediation Strategy report should be read in conjunction with Clancy Consulting's previous investigation reports for the site, referenced in Section 2 of this document.

1.2 Site Location & Description

The site covers an approximate area of 1.6 hectares and is located to the east of Glossop town centre at OS grid reference 403790, 394020.

The site can be split into two separate parcels of land, divided by a large retaining wall which runs through the centre. To the northeast of the wall and elevated approximately 2.00m to 3.00m above the southern part of the site is an area of densely vegetated wetland which was historically a mill pond. In the northwest is Easton House with associated coach house and access. This area is again separated from the rest of the site by a retaining wall, elevated roughly 3.00m above the northeast of the site, 5.00m to 6.00m above the southern section of the site.

The southern section of the site is occupied by a former mill which has largely been demolished down to slab level. Some ancillary buildings are present adjacent to the retaining wall in the central west and along the eastern boundary of the site.

Possible stands of Japanese Knotweed were identified along the banks of Shelf Brook and Glossop Brook. It is recommended that an ecological survey is carried out by a suitably qualified ecologist to confirm this (if not already available).

Access to the former mill pond area in the northeast of the site was restricted by fencing, steeply sloping ground and dense vegetation.

1.3 Redevelopment Plan

The site is proposed to be redeveloped for mixed residential purposes comprising a total of 88 apartments and townhouses with some private gardens, shared communal landscaping, reinstatement of a mill pond, car parking and access roads.

As part of the proposed development works, site levels will be raised by approximately 3.00m in the southern section of the site. Organic soils and putrescible materials in the southern part of the former mill pond area (which forms the northeastern section of the site) will be removed from the footprints of proposed dwellings and site levels raised by up to approximately 1.30m above existing. Ground levels will be reduced in the northern section of the former mill pond area by approximately 1.00m to 4.00m in order to create a balancing pond which will discharge into the adjacent watercourse forming the eastern boundary of the site.

It is understood that following the most recent site investigation works, a number of stockpiles of asbestos contaminated soils have been generated as part of the demolition of the former mill buildings. The intention is to safely encapsulate this beneath the proposed pond area or hard surfaced areas of the development and clean inert fill used to raise site levels.

1.4 Environmental Setting

The site is underlain by Secondary A Aquifers, relating to the Alluvium and the Hebden Formation (present at depth). The Devensian Till, present beneath the Alluvium, is classified as an Undifferentiated Secondary Aquifer. The site is not located within a groundwater Source Protection Zone (SPZ) and no active groundwater or surface abstractions are indicated to be present within 100m of the site. Four historic surface water abstractions were present on site, associated with industrial usage at the former Volcrepe Rubber Works.

The nearest surface waters features comprise the Shelf Brook and Glossop Brook, which form the eastern and southern boundaries of the site.

2.0 Previous Site Investigation

2.1 General

The following assessments have previously been undertaken for the site:

- Curtins Consulting Ltd Report, "Geo-environmental Site Appraisal Phase 1 Detailed Desk Top Study" Ref 50169/DJS/7898, dated November 2006.
- LK Group Ltd Report, "Phase 1 Preliminary Risk Assessment" Ref LKC 21 1336, dated August 2021.
- Clancy Consulting Ltd have previously undertaken site investigation works at the site as part of a wider scheme. The findings of the investigation are presented in the report below:
- Clancy Consulting Ltd Report "Geo-Environmental Appraisal Report" Ref 10/2294/001, updated May 2023.
- Clancy Consulting Ltd Report "Phase 2 Site Investigation Report" Ref 10/2294/002, dated December 2023.
- The above reports should be read in conjunction with this assessment. Relevant information from the above assessments is summarised in the section below.

2.2 Revised CSM / Risk Assessment

The assessments referenced above identified a number of pollutant linkages associated with the site that would potentially be active following the proposed redevelopment. These included:

- Concentrations of PAH, TPH and asbestos recorded in soils beneath the site are considered to represent a potential risk to future site users via the pathways of direct contact, ingestion and inhalation of contaminated dust.
- It is proposed to encapsulate asbestos contaminated soils beneath the site. This may represent a potential risk to future site users via the pathways discussed above if this is not undertaken in an appropriate manner.
- Asbestos contaminated soils may represent a potential risk to construction workers during the groundworks phase.
- Recorded concentrations of PAH and TPH within Made Ground may represent a risk to potable water supply pipes if they are to be laid within this material.
- There is considered to be potential for contaminated standing water within the concrete lined pits to represent the source of contaminants recorded within groundwater in monitoring wells BH02 to BH04.
- There is considered to be potential for hydrocarbon free-product within soils, identified in trial pits across the southern section of the site, to represent a source of groundwater contamination.
- There is considered to be potential for unidentified contaminated beneath buildings present at the time of investigation to represent a source of groundwater contamination.
- There is considered to be potential for previously unidentified contamination within soils proposed for encapsulation beneath the site to represent a source of groundwater contamination.
- There is considered to be potential for contamination recorded in groundwater to be entering the brooks forming the southern and eastern boundaries of the site.

A number of measures were recommended to break the pollutant linkages summarised above. These are discussed in detail in the section below.

3.0 Site Remediation

3.1 Summary of Mitigation Measures Required

Based on the information obtained during the Site Investigations, summarised above, the necessary ground preparatory and remediation works are set out below:

- Site set up by appointed contractor.
- Limited additional soil sampling should be undertaken within the footprints of proposed dwellings to be located within the former mill pond area in the north of the site to confirm their contamination status.
- The concrete pits and associated standing water and contaminated soils should be / pumped excavated and removed from site under the supervision of a geo-environmental consultant. The pits will then require breaking out and soil samples collected from the walls and base of the resulting excavation for chemical laboratory analysis to confirm that the surrounding soils are below acceptable contaminant concentrations.
- Hydrocarbon free-product within soils, identified in trial pits across the southern section of the site, should also be excavated and disposed of appropriately off-site under the supervision of a geo-environmental consultant.
- It is considered likely that previously unidentified contamination will be encountered during enabling works on site. It is recommended that grubbing out works are undertaken under the supervision of a geo-environmental consultant.
- Validation testing will be required for material proposed to raise site levels to ensure its suitability for use, particularly where it is proposed to use site won material from the northeastern section of the site.
- A number of stockpiles of asbestos contaminated soils have been generated as part of the demolition of the former mill buildings. The intention is to safely encapsulate this beneath the proposed pond area or hard surfaced areas and fill used to raise site levels. This asbestos contaminated soil will need to be placed beneath at least 1.00m thickness of clean, inert material to form a suitable barrier between the contaminants and future site users.
- Additional laboratory analysis would be required to confirm the asbestos contaminated material does not contain unacceptable concentrations of other contaminants that may pose a significant risk to controlled water receptors.
- The asbestos containing material would need to be placed under a Materials Management Plan to comply with regulations governing the transport and deposition of waste.
- Further water quality monitoring of surface watercourses adjacent to the site is recommended during construction works.
- Provision of verification report documenting the remediation works undertaken to assist with discharge of planning conditions relating to contaminated land.
- Prior to development all groundwater / gas monitoring wells installed as part of the ground investigation and remediation works should be appropriately backfilled and decommissioned to remove any potential preferential contamination pathway.

The mitigation measures summarised above are discussed in further detail below.

3.2 Site Set Up and Contractor Responsibilities

The Principal Contractor should provide all site personnel with a site-specific health and safety induction prior to commencement of work on site. During the remediation works, all personnel on site will comply with guidance provided in the Health and Safety Executive (HSE) document "Protection of Workers and the General Public during the Redevelopment of Contaminated Land".

The appointed groundworks contractor should be made aware that Asbestos Containing Materials (ACMs) may be present in the Made Ground soils and to ensure that a watching brief is undertaken to identify potential ACMs. Appropriate PPE and mitigation measures should be adopted if ACMs are encountered. Should significant quantities of suspected ACMs be identified, works in the vicinity should be halted expert advice sought. A qualified person may need to collect samples for laboratory analysis before removing ACMs for appropriate disposal off-site.

During redevelopment it is possible that construction workers, and future maintenance workers may become exposed to elevated ground-gas concentrations, and depleted oxygen levels in confined and sub-surface excavations. All works within confined spaces or below ground should therefore be suitably risk assessed and appropriate health & safety measures/site procedures put in place to ensure the safety of workers. This may include but should not be limited to; the checking and monitoring of the atmosphere in any such excavations or spaces prior to entry of personnel, site induction for all staff and visitors on ground-gas risks, training / safety awareness courses and the issue of personal protective equipment/RPE.

It will be the responsibility of the appointed Principal Contractor to assess the risk to site personnel from contamination and vapours identified at the site to determine the level of precautions required.

As a precursor to site construction works investigation, boreholes and monitoring wells located beneath the proposed building structures will be formally decommissioned in accordance with EA publication (2005) 'Decommissioning of Redundant Boreholes and Wells'. Each borehole should be filled and reinstated using a low permeability grout in order to prevent the establishment of a preferential pathway for ground gases and migrating contaminants.

The contractor shall also ensure:

- Refuelling of mobile plant is undertaken in a designated area.
- Above ground oil storage tanks complies with current statutory/best practice guidance.

A spill kit should be kept on site, adjacent to the designated refuelling area.

3.3 Former Mill Pond – Additional Testing

Additional soil sampling is required within the footprints of proposed dwellings to be located within the former mill pond area in the north of the site where access has been limited for site investigation to this point.

3.4 Excavation and Removal of Concrete Lined Pits

The location of the concrete lined pits is shown on Drawing No. 10/2294/003 in Appendix I.

- Standing water within the concrete lined pit should be pumped to a tanker or IBC for appropriate disposal off-site.
- Contaminated soils within the pits should then be excavated for similar off-site disposal to an appropriately licenced landfill or treatment facility.
- The concrete pits may then be broken out and any surrounding contaminated soils excavated and disposed of appropriately.
- Soil samples should be collected from the base and sidewalls the resulting excavation using a mechanical excavator. The samples should be submitted for chemical laboratory analysis to confirm that the surrounding soils are not contaminated.
- Samples should be analysed for TOC, speciated PAH, speciated TPH and VOCs.
- It is plausible the soils surrounding the concrete lined pit may have been locally impacted by hydrocarbon contaminants and we recommend allowance is also made for the disposal of some contaminated soils from this area of the site.
- The excavation of contaminated soil in this location should be supervised by a qualified geo-environmental consultant. The consultant will identify visual evidence of contamination in soils and direct excavation works. A Photo Ionisation Detector (PID) will be used to identify volatile contaminants of concern in soil arisings.

- Laboratory results will be compared against relevant solubility limits for the compounds, as well as appropriate S4UL assessment criteria protective of residential site users.
- If recorded concentrations are below these limits, remaining residual contamination in surrounding soils will be considered to be below safe limits and the excavation may be backfilled with clean, inert material.
- If results are recorded in excess of these limits, additional soils will be removed, and the excavation extended. Sampling and testing of soil samples from the sidewalls and base of the excavation will be repeated.
- It is anticipated that excavations will, as a minimum, extend beyond the base of the Made Ground and into the shallow natural soils at depths of approximately 2.00m bgl. However, this will be confirmed by the supervising consultant on site. It may be necessary to deepen excavations locally to chase out visual and olfactory evidence of contamination.
- Contaminated soils may be stockpiled in designated areas prior to disposal. Stockpiled soils will be placed on impermeable hard surfacing or plastic sheeting to prevent leaching of contamination into shallow soils. Stockpiles should also be bunded to prevent surface water run-off onto "clean" areas of the site.
- Materials exported to landfill should be hauled by a registered waste carrier in accordance with the requirements of the Duty of Care Regulations, 1991 and the Landfill Regulations (England and Wales) 2002. A transfer note should be completed, signed and retained by the parties involved. The transfer note should include the volume and nature of the waste material, details of the source, disposal site and the haulier.

3.5 Excavation of Contamination Hotspots

The approximate location and extent of the contamination hotspots to be removed from site are shown on Drawing No. 10/2294/003 in Appendix I. Please note these areas are based on information obtained to date and it is likely that additional, previously unidentified contamination will be encountered during the enabling works to grub out of relic foundations beneath demolished buildings.

- Where encountered, hydrocarbon impacted soils should be excavated for appropriate testing and if necessary, disposal off-site.
- Soil samples should be collected from the walls and base of the resulting excavations using a mechanical excavator.
- The samples should be submitted for chemical laboratory analysis to confirm that any remaining residual contamination is below acceptable levels. Samples should be analysed for TOC, speciated PAH, speciated TPH and VOCs.
- The excavation of contaminated soil in these locations should be supervised by a qualified geo-environmental consultant. The consultant will identify visual evidence of contamination in soils and direct excavation works. A Photo Ionisation Detector (PID) will be used to identify volatile contaminants of concern in soil arisings.
- Laboratory results will be compared against target threshold values referenced in Section 3.4 above to determine whether all the contamination has been successfully removed and excavations are able to be backfilled with clean inert materials.
- Stockpiling and transportation of contaminated soils should be carried out as outlined in Section 3.4 above.

3.6 Grubbing-Up Works

- Some parts of the site have been inaccessible for site investigation due to the presence of existing buildings. It is therefore considered plausible that previously unidentified contamination will be encountered during the enabling works on site.
- It is recommended that all grubbing out works carried out at the site are done so under the supervision of a geo-environmental consultant who can inspect the near surface soils for evidence of potential contamination.
- Should suspected contamination be encountered, soil samples should be recovered to establish whether the materials are suitable for retention on-site or if they require disposal off-site to landfill.

3.7 Encapsulation of Asbestos Contaminated Soils

- Following the most recent site investigation works, a number of stockpiles of asbestos contaminated soils have been generated as part of the demolition of the former mill buildings.
- The intention is to safely encapsulate this beneath the proposed pond, POS or other soft landscaped areas. Such areas are depicted on Drawing No. 10/2294/004 in Appendix I.
- The intention is to ensure the asbestos impacted soils are not placed in areas which might conflict with below ground road or drainage infrastructure where it could be disturbed during construction or future maintenance operations.
- The asbestos contaminated soil will need to be placed beneath at least 1.00m thickness of clean, inert fill to form a suitable barrier between the contaminants and future site users. A geotextile barrier or minimum 100mm clean aggregate layer would also be needed to form a capillary break layer between the asbestos impacted soils and overlying clean fill material.
- The material used to
- Additional laboratory analysis would be required to confirm the asbestos contaminated material does not contain unacceptable concentrations of other contaminants that may pose a significant risk to controlled water receptors.
- Samples should be analysed for PAH, TPH and VOCs at a frequency of one sample per 50m³. Should contaminants of concern be recorded at concentrations exceeding their solubility limit state, this material would be considered unsuitable for placement and would require appropriate disposal off-site.
- The asbestos containing material would need to be placed under a Materials Management Plan in order to comply with regulations governing the transport and deposition of waste.
- The placement of the asbestos impacted soils would need to be supervised / inspected by a suitably qualified environmental consultant with the exact location and depth on-site surveyed and recorded on a topo survey.

3.8 Raising of Site Levels

- Site levels are to be raised by several meters in the southern half of the site, where elevated contaminants of concern have been recorded.
- Either site won or imported, uncontaminated soils could be used to raise site levels, following which site users are not considered to be at risk from the recorded elevated contaminants.
- Validation testing will be required for any material proposed to raise site levels to ensure its suitability for use, particularly where it is proposed to use site won material from the northeastern section of the site where access for site investigation was previously restricted due to boggy ground.
- For material used as general fill for raising site levels we would recommend testing is carried out at a rate of 1 sample per 500m³ to include pH, metals / metalloids, speciated PAH, speciated TPH and asbestos screening.

3.9 Clean Cover Material

- The southern portion of the site will benefit from site levels being raised with demonstrably clean soils. In the northern part of the site no elevated concentrations of contaminants of concern have been identified. A formal clean cover system to protect end users of the site in private garden and landscaped areas will therefore not be needed.
- A nominal depth of topsoil will however be required to provide a suitable growing medium for plants and should be tested to ensure they are suitable for use. Imported topsoil should be tested at a frequency of one sample per 100m³ if from a Brownfield / recycled source with a minimum of six samples needed, whichever is greater.
- Imported topsoil from a Greenfield source should be tested at a frequency of one sample per 200m³ with a minimum of three samples needed, whichever is greater.
- Samples would require chemical testing for pH, metals / metalloids, speciated PAHs and asbestos screening as a minimum. If the imported soils are from a Brownfield / recycled source, chemical testing should also include speciated TPH analyses.

- The test results will then be compared against the relevant S4UL assessment criteria for residential land use with private gardens, deemed appropriate to the proposed development. These assessment criteria are presented in Appendix II.
- Any material proposed for use as topsoil will be tested for compliance with BS 3882:2015.

3.10 Re-use of Material-Waste Management

Site won material are intended to be re-used on site, and a Materials Management Plan will be required in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP).

3.11 Surface Water Quality Monitoring

- Given the close proximity of the Shelf and Glossop Brooks to parts of the site where significant contamination has been identified it is possible that on-site contaminants could be mobilised during the grubbing up / enabling works.
- Further water quality monitoring of these surface watercourse is therefore recommended during the course of the enabling works.
- Samples should be collected upstream, midstream and downstream of the site and analysed for metals, speciated PAH, speciated TPH and VOCs.
- We would recommend samples be taken at bi-monthly intervals.
- Should contaminant concentrations within samples collected downstream of the site significantly exceed those within samples collected upstream and midstream, the contractor should implement additional mitigation measures to prevent runoff from the site into these watercourses.

3.12 Changes to Remediation Methodology

If previously unidentified contamination is identified that requires a change in remediation methodology not discussed within this document, the Local Planning Authority will be informed of the proposed new approach in writing. Where possible, approval of the new approach will be sought, prior to undertaking the works.

4.0 Site Certification

On completion of the remediation works discussed above, a verification report, produced by a qualified consultant, should be provided to the Local Planning Authority as evidence that the works have taken place in accordance with this remediation strategy document.

This document should include the following:

- Daily records of the site activities.
- Date and weather conditions.
- Variations to the agreed Remediation Strategy.
- Validation sampling and/or chemical test certificates for imported and/or site-derived materials, as well as their origin and location on site.
- Validation sampling and chemical test certificates associated with excavated contamination hotspots.
- Volumes of materials exported to landfill.
- Plans showing remediated and validated areas as appropriate.
- Record of consultations with regulators (if required).
- Photographic records.