





Earth Environmental
& Geotechnical

Remediation Method Statement

Melland Road

Manchester

July 2017

On behalf of:

SEDDON CONSTRUCTION

Seddon

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MELLAND ROAD, MANCHESTER

REMEDIATION METHOD STATEMENT

FOR

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1.0 INTRODUCTION

Appointment

Earth Environmental & Geotechnical Ltd was commissioned by Seddon Construction Ltd to provide a Remediation Method Statement (RMS) for a site at Melland Road, Manchester.

Proposed Development

It is understood that Seddon Construction Ltd propose to redevelop the vacant greenfield site, which was partially used as an athletic track, into a bespoke high quality residential development.

Planning permission (115299/FO/2017) for the erection of 131 two storey dwelling houses was gained on the 11th July 2017 from Manchester City council.

Figure 1 (below) provides details of the development layout.

Figure 1 Proposed Development Layout Plan



The total site area is approx 3.28ha.

The proposals allow for 131 residential dwellings which represents a density of approximately 40 dwellings per hectare.

Objective

The Remediation Method Statement (RMS) is intended to provide detail on the remediation objectives necessary to protect potential receptors and render the site suitable for the proposed development. A Construction Method Statement will be developed nearer to the time of site operations, which will be provided by the appointed contractor.

This report has been prepared for the purpose of satisfying the anticipated requirements of the Local Planning Authority. Earth Environmental & Geotechnical Ltd reserves the right to amend this remediation strategy in the light of further information which may become available or future changes in contaminated land guidance, prior to site activities.

The Construction Method Statement will be accompanied by a Designers Risk Assessment in accordance with the CDM Regulations, 2015. The Method Statement and Risk Assessment should be submitted to and approved by the Engineer.

Sources of Information

The RMS comprises of a review of the following information sources provided by the client:

- Dunelm, GeoEnvironmental Appraisal, May 2017.
- GRM Developments, Letter Report, 24th June 2016.
- Curtins Consulting, GeoEnvironmental Site Appraisal, August 2013.

2.0 SITE LOCATION AND DESCRIPTION

The site is located approximately 2km south-east of Manchester city centre, with the centre of the site at OS Grid Ref 388320, 395190.

The site is relatively flat with a mound of material towards the centre of the site and towards the western boundary. The site falls by approximately 1 metre from east down to the west.

The site was previously used as an athletic running track (Figure 2), but ceased use some time ago and is now overgrown.

Figure 2 Aerial Image Showing Former Athletic Track



The site boundaries currently comprise timber fences and heras fencing towards the north, low level fencing towards the east and an open playing field towards the south. The western boundary is bound by residential properties.

A location plan is shown overleaf as Figure 3.

Figure 3 Site Location Plan



3.0 PREVIOUS SITE INVESTIGATIONS

Previous site investigations have been conducted by Curtins Consulting, Dunelm and GRM Developments for a previous landowner and Seddon Construction Ltd.

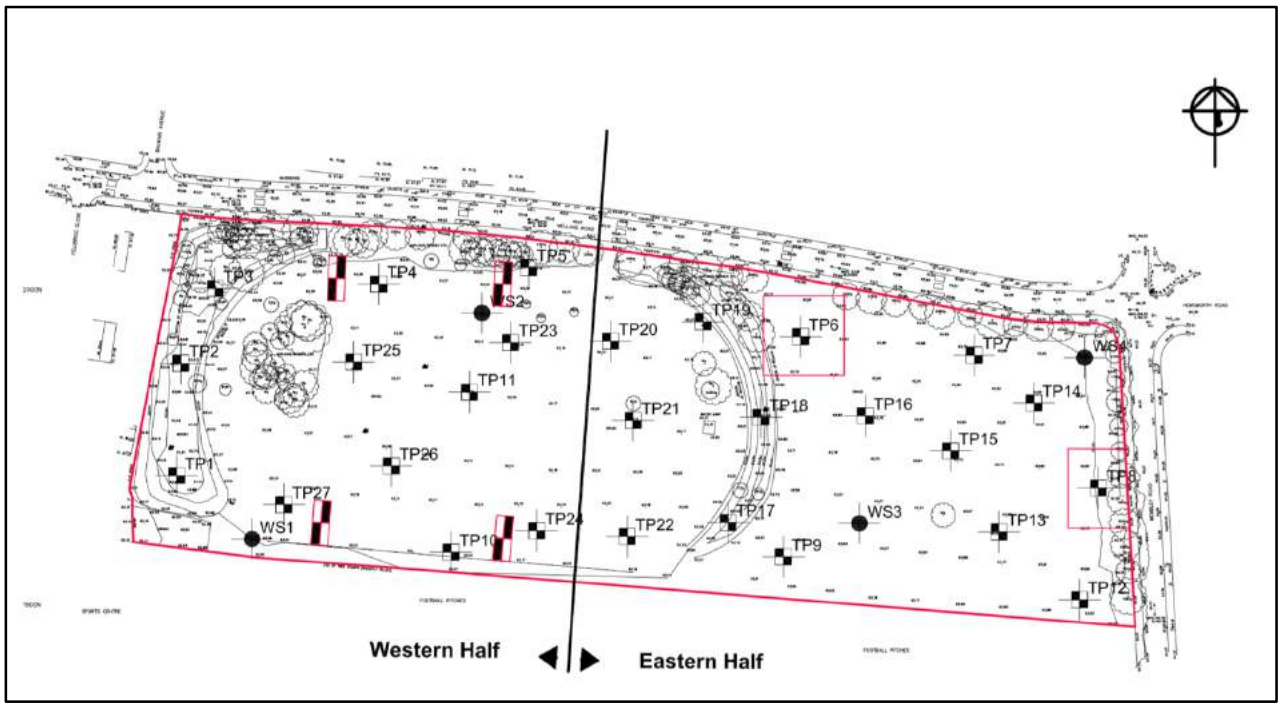
Appendix 1 provides a copy of the recent Dunelm site investigation report.

The Curtins site investigation comprised of 31no. trial pits and 4no. window sampling boreholes to assess ground conditions across the site.

The Dunelm site investigation comprised of 4no. trial pits to assess ground conditions within the former running track.

Figure 4 (below) provides a sampling location plan which shows both Curtins Consulting and Dunelm sampling locations.

Figure 4 Sampling Location Plan



Both site investigations proved a sequence of ashy material in the former running track. The made ground was proved to be up to 2m thick, although the average thickness is 0.56m.

Outside of the running track area a sequence of topsoil was found underlain by glacial clays.

The soil chemical quality has been assessed with reference to DEFRA/Environment Agency Contaminated Land Exposure Assessment (CLEA) Soil Guideline Values (SGV) for generic site land uses, soils and exposure. Where Environment Agency generic guidance is absent, reference has been made to the Chartered Institute of Environmental Health (CIEH) S4ULs for human health risk assessment. In the case of lead a DEFRA Category 4 Screening Level has been adopted.

Contaminant	Location of Exceedances	Material Description	Measured Concentration (mg/kg)	Assessment Criteria (mg/kg)
Arsenic	TP10-0.40m (Curtins) TP1-0.25m (Dunelm) TP2-0.30m (Dunelm) TP3-0.20m (Dunelm) TP4-0.15m (Dunelm) TP2-0.15 (Dunelm)	Made Ground Ash (Track)	41 91 240 49 46 69	37
Copper	TP2-0.30m (Dunelm) TP3-0.20m (Dunelm)	Made Ground Ash (Track)	31000 2200	2400
Dibenzo(ah)Anthracene	TP03-1.0m (Curtins) TP05-0.20m (Curtins TP10-0.40m (Curtins)	Made Ground Ash (Track)	1.6 0.4 0.4	0.24
Benzo(a)pyrene	TP03-1.0m (Curtins) TP1-0.25m (Curtins) TP1-0.40m (Curtins)	Made Ground Ash (Track)	12 19 12	5.0

Lead	TP03-1.0m (Curtins)	Made Ground Ash (Track)	450	200
	TP1-0.25m (Curtins)		600	
	TP2-0.30m (Curtins)		230	
	TP2-0.15m (Curtins)		210	

Asbestos fibres and fragments were not found at any location. All speciated hydrocarbon ranges were found to be respective equivalent aromatic and aliphatic equivalent carbon ranges.

Comparison of chemical testing results with assessment criteria for the protection of long term human health, for a residential end use, suggested that shallow soils pose a risk to the proposed end users, within ashy material in the former running track material.

Ground Gases

Ground gas monitoring is currently being undertaken by other consultants. Pending the delivery of the monitoring data it may be necessary to implement ground gas mitigation measures.

4.0 LICENCES & APPROVALS

Various licences, permits and approvals are required at various stages before certain works can commence. Some activities can start before all such approvals are in place.

(i) Approval of this Remediation Method Statement;

(ii) All documentation in accordance with the CDM 2015 Regulations;

(iii) Site Waste Management Plan;

(iv) Signed declaration by qualified person of the Materials Management Plan (MMP) in accordance with CL:AIRE Waste Code of Practice, Version 2. This would allow for reuse of excavated Made Ground after demonstration of suitability of use;

(v) General condition survey of boundary features.

5.0 PROPOSED WORKS

Aims

The remediation aims are to resolve contamination issues in order to protect human and environmental receptors and render the site suitable for the proposed development, provide a stable construction development platform and satisfy the requirements of the Local Planning Authority and Building Control.

Contamination

The remediation strategy for the site has been developed after a review and assessment of site investigation work conducted by Dunelm and Curtins Consulting.

Ash based made ground from the former athletic track is lightly contaminated by metals and hydrocarbons.

The ash material is intended to be either:

a) Excavated from garden areas

OR

b) Inverted in garden areas and placed beneath 600mm thick clean cover material (clay)

OR

c) Covered by material as part of cut/fill operation and raising of ground levels in former athletic track area by up to 1m of fill material.

All topsoil material should be excavated, screened (<75mm) and stockpiled. Subject to further chemical testing (1 test per 200m^3) the material should be used in garden areas.

6.0 SITE WORKS

Outlined below are some of the main task and activities associated with the remediation works.

Site Organisation

Site works will be supervised throughout by a suitably qualified Engineer, who will report to a Project Manager. Supervision may be part-time for certain activities, but will be full-time during the removal of any contaminated soil/fill and any placement of fill to an engineering specification.

Welfare Facilities/Security

Initial mobilisation works will include the establishment of appropriate office and welfare facilities. Such facilities may include but are not restricted to; office accommodation, canteen facilities, washroom/drying room, toilets, wheel wash, car parking, stores and security unit.

The site should be secured by fencing to prevent unauthorised access onto the site during the enabling works.

Health & Safety

All site personnel will undergo a site-specific health and safety induction prior to commencement of work on site.

The Engineer will be informed prior to any proposed entry of a confined space or deep excavation. Entry will be restricted to suitably qualified and equipped personnel.

Works will be carried out with regard to current statutory requirements and guidance by the Health & Safety Executive "Protection of workers and the general public during the redevelopment of contaminated land". Protective clothing, footwear and gloves will be required with hand washing and boot-washing facilities made available. Smoking will be limited to designated areas.

Site Clearance

Any trees currently under a preservation order should be identified and agreed with relevant authorities prior to the commencement of the works. All trees subject to a Tree Preservation Order should be clearly identified and protected by chestnut paling with fluorescent tape.

The site should then be cleared of all residual debris, fly tipped materials, any vegetation, shrubs, bushes and unprotected trees as instructed by the client.

Excavation of Subsurface Obstructions

During the site investigation, obstructions were not identified within the made ground, which could pose obstacles during excavations and construction.

Any material identified as potentially contaminated should be stockpiled on a non-permeable membrane, and tested for suitability for either re-use on site, or offsite disposal.

Should the material be removed from site, waste acceptance criteria testing should be undertaken and the material disposed of in a suitably licensed facility.

Hydrocarbon Impacted Material

Any excavated material identified as potentially contaminated should be stockpiled on a non-permeable membrane, and tested for suitability for either re-use on site, or disposed offsite.

If prolonged stockpiling is unavoidable, these soils should be covered with a non-permeable membrane at the end of each working day, to prevent the possibility of leachate migrating from the soils due to infiltration.

Should the material be removed from site, waste acceptance criteria testing should be undertaken and the material disposed of in a suitably licensed facility.

Unexpected Contamination

If during site clearance works or other excavations, material with visual or olfactory evidence of previously unrecorded contamination is encountered, the principal contractor should contact the environmental consultant.

These soils should be then sampled and chemical analysis carried out. The environmental consultant shall decide upon the chemical suitability of the material, to either remain on site or if it is likely to present a risk to receptors.

If the soils present a risk, the materials should be removed from site or remediated.

Any excavated material identified as potentially contaminated should be stockpiled on a non-permeable membrane, and tested for suitability for either re-use on site, or disposed offsite.

If prolonged stockpiling is unavoidable, these soils should be covered with a non-permeable membrane at the end of each working day, to prevent the possibility of leachate migrating from the soils due to infiltration.

Should the material be removed from site, waste acceptance criteria testing should be undertaken and the material disposed of in a suitably licensed facility.

Backfill of Excavations

All excavations shall, prior to backfilling, be surveyed to ascertain their spatial extent and depth. Excavations (to remove relict structures, contamination etc) should be backfilled with suitable materials as agreed with the Engineer, and subjected to nominal compaction.

However, where an excavation conflicts with the footprint of a proposed highway, compaction in general accordance with the Specification for Highway Works Table 6/1 will be required.

Placement of Topsoil

All garden areas should be capped with suitable material in order to promote healthy plant growth.

This work may be undertaken as part of the contract for the preparatory & remediation works, in which case imported soils should be stockpiled in a location agreed with the Engineer.

A 300mm thick cover of clean and inert soil should be placed in gardens areas.

Any soil intended for use as part of the clean cover, placed as a growth medium for vegetation, must be suitable for use and should ideally meet BS 3882:2015.

The installation of the soils should be validated by an Environmental Consultant.

In order to demonstrate that the required depths of 'clean' cover material has been placed across the required areas (i.e. within landscaped areas) a pre-fill survey should be undertaken indicating levels before any fill is placed. This should be provided to the Engineer for his/her records. Alternatively, inspection pits may be dug and verified by the engineer following placement of these materials.

Control of Perched Groundwater

The regional groundwater table is unlikely to be encountered during remediation earthworks; however, discontinuous perched groundwater present within the Made Ground is likely to be present. When encountered during the excavation works this perched water will be recovered by pumping from open excavations. Dependant on volumes recovered, some form of temporary storage may also be required.

Provision should be made for pumping from sumps and appropriate excavation support for all excavations.

7.0 ENVIRONMENTAL MONITORING & CONTROLS

General

All works should be carried out in a manner that minimises impact on the environment and generates adequate and accurate records to demonstrate remediation works have been carried out to the required standard and in accordance with all applicable legislation. All such records should be collated on contract completion (or sooner as required) and included within the contract completion report. Appropriate progress reports should be provided in a format and at a frequency as agreed with the client and project manager including on-going monitoring/validation information.

Comprehensive records should be maintained throughout the project. These should be collated on contract completion into a completion and validation report, which should be submitted to the appropriate regulators for approval. It will be presented in an appropriate manner so as to allow interested third parties to fully understand the whole remediation process.

The records should include correspondence with the regulators & other third parties, environmental monitoring data, validation testing, comprehensive as-built drawings, photographs, collation of all site investigation reports, operational method statements & risk assessments, construction phase health & safety plan and confirmation of post remediation considerations especially in respect of interaction with initial construction (groundwork's).

Noise Control

Earthworks will only take place during normal working hours 7.00am – 6.00pm Monday to Friday and 7.00am to 13:00pm on Saturdays. The site manager shall assess noise and its impact upon neighbours through the working day and to ensure the following mitigation measures are being utilised:

All plant and machinery will be fitted with adequate silencers and will not be operated unless in good condition.

Noise levels will be as per normal for a project of this nature. Pneumatic breakers will be used but location and hours of use controlled whenever possible.

Should local residents make any complaints regarding noise associated with the works, the site manager shall investigate. Such investigation may include the use of portable monitoring equipment to record noise levels at the location of the complainant. The nature of the complaint and findings of the investigation shall be discussed with the local EHO. If the complaint is upheld appropriate remedial action shall be taken. Such action may include the adjustment of working hours or the alteration of site practices and working methods.

Dust Control

Earthworks may produce dust during prolonged periods of dry weather. The site manager shall assess dust and its impact upon neighbours through the working day and ensure the following mitigation measures are being utilised to control dust:

The use and maintenance of good quality site roads;

Enforcing speed limits of site plant and;

Dust suppression via water applied by towed bowser.

Odour Control

Works may produce odours but good site practice and associated mitigation measures should ensure fugitive odours are kept to an absolute minimum. Such controls may include:

Additional covers will be applied to stockpiles, if they are contributing to fugitive odours.

Areas of excavation i.e. area of exposed contaminated soils, will be kept to a minimum and covered/re-instated as soon as is practicably possible.

Odour suppressing equipment shall be utilised at appropriate locations at appropriate times.

In the event that a complaint is made regarding odours from nearby residents, the site manager shall respond by attending the complainant's property to assess the nature and level of odour nuisance including monitoring where appropriate. Appropriate mitigation measures as described herein shall than be enforced including if necessary, suspension of excavation works until the prevailing weather conditions become more favourable.

8.0 POST REMEDIATION WORKS

It will be necessary to establish a standard by which to judge the effectiveness of the remediation works and to satisfy the appropriate regulators in order to achieve the stated objectives.

Excavated impacted materials should be stockpiled on a non-permeable membrane;

Waste Acceptance Criteria testing should be undertaken to ensure the materials are disposed of in a suitably licensed facility.

Specific validation testing on site will comprise the following activities;

Testing of site won recycled aggregate / soils;

Validation of the quality and thickness of topsoil in garden areas;

Validation of the installed gas membrane (if necessary, subject to ongoing monitoring).

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APPENDIX 1

DUNELM GEOENVIRONMENTAL INVESTIGATION REPORT

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APPENDIX 2

TOPSOIL MATERIAL CHEMICAL CRITERIA

Land Use	Site Assessment Criteria (mg/kg)
Within Garden Areas	Arsenic- <37 Water Soluble Boron- <290 Lead- <200 Nickel- <130 Cadmium- <26 Chromium VI- <21 Phenol- <280 Selenium- <250 Inorganic Mercury- <40 Zinc- <3700 Copper- <2400 Benzo(a)pyrene- <5.0 Naphthalene -<2.3 Asbestos Fibres and Fragments- <0.001%

The site specific risk based criteria are based upon DEFRA/EA CLEA 1.06 modelling assuming a sandy loam with 1% Soil Organic Matter and pH of 7.

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APPENDIX 3

REPORT LIMITATIONS

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LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2017 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.