



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

TE1270-TE-00-XX-GE-RP-003-V02

VERSION 1.1

05 APRIL 2023

FINAL

Prepared for:

Gulf Ventures Ltd

Prepared by: Stuart Milne

Tier Environmental Ltd

Warrington	London	Manchester	Bromsgrove	Bristol	Sheffield
HQ Telephone 01244 684900			Telephone 01925 818388		
Website: www.tieruk.com			Email: environmental@tieruk.com		
Tier Environmental is a trading name of Tier Environmental Ltd. Registered in England and Wales no 05441804					

DOCUMENT CONTROL

Report No. :	TE1270-TE-00-XX-GE-RP-003-V02
Report Status:	FINAL
Version No.:	1.1
Project Engineer:	Stuart Milne
Date of Issue:	05/04/2023

This report has been prepared by Tier with all reasonable skill, care and diligence, within the best practice and guidance current at the time of issue within the scope of works which have been agreed with the client. This report is confidential to the client and Tier accepts no responsibility whatsoever to third parties to whom this report, or any part thereof is made presented, unless this is formally agreed in writing by a Director of Tier Environmental Ltd before any reliance is made. Any such party relies upon the report at their own risk. Tier disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
1.0	FINAL	05/01/2023	Stuart Milne	Adrian Read	Adrian Read
1.1	Updated Phasing	05/04/2023	Stuart Milne	Adrian Read	Adrian Read



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : i of ii

Engineer: Stuart Milne

Date: 05/04/2023

CONTENTS

1.	INTRODUCTION.....	1
1.1.	Proposed Development	1
1.2.	Previous Report	1
1.3.	Objectives	2
2.	SITE DETAILS AND DESCRIPTION	3
3.	PROPOSED REMEDIAL WORKS	4
3.1.	Remedial Options Appraisal.....	4
3.2.	Verification of Asbestos Impacted Soils.....	5
3.3.	PAH Impacted Soils	5
4.	VERIFICATION	7
4.1.	Unexpected Asbestos Removal Verification	7
4.2.	Previously Identified Asbestos Removal Verification	8
4.3.	PAH Impacted Soils Verification.....	8
5.	SITE CERTIFICATION	9
6.	REGULATORY APPROVALS	10
7.	REFERENCES	11
8.	GLOSSARY OF TERMS	14

TABLES

Table 2.1 Current Site Overview.	3
Table 3.1 Remediation Strategy Summary.....	4

FIGURES

Figure 4-1 Location of ACMs under Building 1 footprint	7
--	---



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : ii of ii

Engineer: Stuart Milne

Date: 05/04/2023

APPENDICES

Appendix A - Drawings

Appendix B - Tier Environmental Reports – Asbestos Remediation

Appendix C – Photographs of Earthworks

Appendix D - Chemical Test Sampling



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 1 of 15
Engineer: Stuart Milne
Date: 05/04/2023

1. INTRODUCTION

Tier Environmental was commissioned by Gulf Ventures 2 Ltd to provide a Remediation Verification Report for area of land referred to as Project Desford located at Neovia Logistics, located at Peckleton Lane, Desford, LE9 9BZ. The site forms a mix of occupied and disused land as part of the wider Neovia Logistics compound in addition to a parcel of land north of a public bridle way.

1.1. Proposed Development

It is understood that the Site is to be redeveloped into 4 No. rectangular warehouse structures as described below, with associated parking, access roads, infrastructure and landscaping.

As part of the development it is anticipated the bunded material currently forming a rough boundary to the land surrounding Building 1 and part of Unit C, will be removed and material re-used as part of the development under a Materials Management Plan in accordance with the Definition of Waste Code of Practice.

The proposed layout of the Site is presented within Appendix A to this report.

For clarity, this report covers Phase 1 of a proposed 2 No. phase development. Phase 1 and Phase 2 (greyed area) are defined within drawing T_20_2283-55-01 included in Appendix A.

1.2. Previous Report

The following previous reports were made available to Tier Environmental as part of the Ground Investigation:

- 'Preliminary Phase I and Phase II Ground Investigation Report for a Proposed Commercial Development at Neovia Logistics, Peckleton Lane, Desford', prepared by Ground Investigation and Piling Limited (Ref: SJ/23092, dated 18th March 2015); and
- 'Phase 1 Environmental Site Assessment', prepared by Delta-Simmons (Ref: 19-1643.01, dated 16th December 2019)

In addition, Tier Environmental have previously prepared the following reports:

- A 'Ground Investigation Letter Report for Land at Peckleton Lane, Desford' (Ref: TL1270GIR01, dated 13th March 2020); and
- A 'Ground Investigation Report for Project Desford' (Ref: TE1270GIR1.2, dated 10th September 2020)
- A Remediation Strategy for Project Desford (Ref: TE1270RS1.1, dated 30th April 2021)

The following letter reports have also been produced in relation to asbestos remediation on site:

- Notification of Unexpected Contamination (Ref: TE1270-TE-00-XX-CO-GE-002-V01, dated March 2022)
- Unexpected Asbestos Verification Letter Report (Ref: TE1270-TE-00-XX-CO-GE-003-V01, dated May 2022)
- Recently Encountered Asbestos Verification Letter Report (Ref: TE1270-TE-00-XX-CO-GE-004-V01, dated October 2022)



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 2 of 15
Engineer: Stuart Milne
Date: 05/04/2023

1.3. Objectives

The above documents reviewed and produced by Tier Environmental include a Remediation Strategy for the site which provided an overview of the remedial measures required to mitigate the potentially active contaminant linkages identified during previous investigation works. Remediation works have been undertaken at the Site in accordance with this strategy. The objectives of this report are:

- To summarise pertinent previous investigations;
- To highlight the salient points with regards to the technical note remediation proposals;
- To highlight any deviations from the asbestos remediation strategy;
- To provide details of the site works undertaken as part of the verification process;
- To provide lines of evidence which inform asbestos impacted soils have been removed in accordance with the asbestos remediation strategy;
- To provide documented assessment of the data and permanent records of verification works;
- To determine if there is any residual risk to receptors, post remediation.

This report, which was designed to meet the requirements of all relevant current guidance, presents the records and data produced during the remediation of the site, an interpretation of the data obtained and recommendations relevant to the defined objectives.

Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of intermediate ground conditions should be undertaken if deemed necessary.

This report has been prepared for the sole use of Gulf Ventures 2 Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of Tier Environmental. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 3 of 15

Engineer: Stuart Milne

Date: 05/04/2023

2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Project Desford
Site address	Neovia Logistics, Peckleton Lane, Desford, LE9 9BZ. A site location plan is included as Drawing No. TE1270GIR1 within Appendix A.
National Grid Reference	447814, 302505
Approximate Site area	22.41 ha
Site shape	The site is irregularly shaped.
Location description	The site is bound to the north by a farmland and woodland, to the east by the main road, and to the south by Building C (part of Neovia) and associated parking. The former Peckleton Lane access road cut through the south of the site and is no longer present. A 2-3m bund, which formed an arc across the west to east of the site has been reworked into various stockpiles.
General topography and ground levels	The site is generally level at 129-130m AOD with the surrounding bund at 131m-132m AOD.
Current land use	The site is currently undergoing development with Phase 1 in east of the site (Units 1 and 2) and Phase 2 in the west of the site. The area of fields north of the bridal path has been subject to some earthworks to form attenuation ponds.
Existing structures	A warehouse (named Building 1) with associated hardstanding was present close to the centre of the site with several ancillary buildings or storage containers immediately east. An electricity substation was located further west, on the edge of the Peckleton Lane access road, and a small redundant pump station and existing electrical substation was located in the central east of the site. All buildings have been demolished during development.
Site ground surfaces	The site has been stripped of any hardstanding and topsoil and is laid to bare earth following earthworks.



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 4 of 15

Engineer: Stuart Milne

Date: 05/04/2023

3. PROPOSED REMEDIAL WORKS

3.1. Remedial Options Appraisal

The Tier Environmental Remediation Strategy completed an options appraisal to identify the strategy that could be best utilised to effectively manage/mitigate the identified pollutant linkages associated with the soils at the site. In determining the most effective remediation option(s) for the site, consideration was given to a number of techniques, stating (where appropriate) the suitability and limitations of each chosen method. On the basis of the identified pollutant linkages and remediation objectives, the options reproduced in **Table 3.1** were considered.

Table 3.1 Remediation Strategy Summary

Contaminant Source	Localised asbestos containing materials (ACMs) and asbestos (unbound) fibre within the Made Ground soils in the west of the site	Localised PAHs within the east/central part of the site
Pollutant Linkage	Inhalation by end users, adjacent site users, site investigation, demolition and construction staff and future underground service maintenance workers.	Direct ingestion / inhalation and dermal contact by end users, adjacent site users, site investigation, demolition and construction staff and future underground service maintenance workers.
Excavation with Disposal	Excavation of all impacted ACM and low level asbestos fibre impacted Made Ground would result in an unsustainable quantity of soil waste which would require either off-site disposal or treatment which would result in an uneconomic solution.	Excavation of impacted Made considered un-economic due to potential for soils to be re-used on site as part of earthworks beneath areas of hardstanding
Excavation with Re-Use	Soils can be re-used following hand picking of ACMs from excavations in areas identified in previous investigations. Residual low level asbestos within the soils will be addressed by excavation and verification testing of excavations.	Impacted soils could be re-used beneath the site in conjunction with a Materials Management Plan.
Capping by hardstanding/building footprint	Is considered economic, sustainable and would effectively break the direct contact and dust inhalation pathways associated with the low level residual asbestos fibre impacts. Excavation and removal of ACMs is preferable.	Is considered economic, sustainable and would effectively break the direct contact and dust inhalation pathways associated with the impacts.
Clean Cover System (only applicable in areas of soft landscaping)	Is considered economic, sustainable and would effectively break the direct contact and dust inhalation pathways associated with the low level residual free fibre impacts assuming this is used in conjunction with other techniques to effectively remove the ACMs.	Is considered economic, sustainable and would effectively break the direct contact and dust inhalation pathways associated with the impacts.
Justification	Hand picking of ACMs from excavations followed by verification of removal of low level asbestos impacted soils. A localised 600mm clean cover system within soft landscaped areas would be required to break residual dust inhalation pathways associated with the remaining low level asbestos fibres in this area of the Site.	Where the soils within the vicinity of the old pump house are excavated they should be segregated and re-used as part of other site earthworks or retained in situ beneath proposed hardstanding / buildings. A 300mm clean cover system within localised soft landscaped areas would be required if proposed layout plans change and the localised hotspot of PAHs remain beneath soft landscaping area.

Following completion of the options assessment, it is considered that the most effective 'remedial' technique to address contamination risks posed to human health by localised PAH impacts and asbestos within near surface soils is:



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 5 of 15
Engineer: Stuart Milne
Date: 05/04/2023

- The excavations and treating (of ACM impacted soils) by means of handpicking, disposal off-site of hand-picked ACMs, and re-use or in situ retention of residual low level asbestos fibre impacted soils beneath areas of hardstanding / buildings the site with suitable verification tests as required.
- Implementation of a localised 600mm clean cover system in the event that any residual localised low level asbestos remains beneath proposed areas of soft landscaping;
- Re-use or retention of localised PAH impacted materials beneath a proposed building or hardstanding or incorporation of a localised 300mm clean cover system in the event that proposed development layout plans change and the localised hotspot is to be retained beneath a proposed soft landscaping area;
- Validation works with respect to the chemical status of soils used in clean cover systems will need to be undertaken along with confirmatory hand excavated pits to demonstrate that the clean cover system has been implemented as detailed below within this Remediation Strategy.

3.2. Verification of Asbestos Impacted Soils

In order to ensure verification of the removal of contaminated soils, excavations will be carried out as follows:

- A visual inspection of the soil will be undertaken by an asbestos removal specialist during excavations within this area and soils treated by means of hand picking ACMs, until no visual evidence of ACMs remain or until excavation is no longer practicable / safe. Excavated soils will be segregated.
- To address the anticipated residual low-level asbestos impacted soils, samples will be taken from the base and sides of the excavation, prior to infilling, on a 5m grid. Sample collection will be made by the use of the excavator bucket to 'scrape' the sample locations. The Site Engineer will not enter the excavation at any time. Base samples will be obtained in a 'W' shape pattern to provide confidence in the lateral and vertical verification of the resultant excavations;
- Samples will be submitted for laboratory analysis for asbestos screening to determine extent of low-level asbestos;
- The Control of Asbestos Regulations 2012 should be adhered to throughout.
- Low-level asbestos containing soils can remain in situ below the building footprint/hardstanding.
- If proposed plans change and low-level asbestos impacted soils are within an area of soft landscaping this will trigger a clean cover system as section 6.3. If tests are returned as negative for the presence of asbestos then no clean cover will be required.

3.3. PAH Impacted Soils

PAH impacted soils are anticipated to be disturbed during site turnover and possibly foundation excavation. These soils would be suitable for re-use below hardstanding/existing footprints.

- Impacted soils in this area should be retained in-situ beneath the building footprint;



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 6 of 15

Engineer: Stuart Milne

Date: 05/04/2023

- *If soils are excavated and moved as part of site turnover, these soils will be segregated and tracked to ensure proper re-use below building footprints.*
- *If proposed plans change and PAH impacted soils are within an area of soft landscaping this will trigger a clean cover system as below;*



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 7 of 15

Engineer: Stuart Milne

Date: 05/04/2023

4. VERIFICATION

It was understood in TE1270-TE-00-XX-RP-002-V01 that a report would follow implementation of any verification works. This would comprise all relevant site records and act as certification that the remedial preparation works have been carried out in accordance.

The Verification Report is to include the following:

- A description of the works undertaken;
- Records of the works;
- Progress photographs;
- Chemical verification test results;
- A statement that the works have been undertaken in accordance with the agreed strategy

4.1. Unexpected Asbestos Removal Verification

During demolition of Building 1, within the centre of the site, contractors encountered possible asbestos containing materials (ACMs) under the footprint, as shown on the drawing below. Following confirmatory testing by Tier Environmental, a letter was produced dated March 2022 (Ref: TE1270-TE-00-XX-CO-GE-002-V01) in order to notify the Council of the discovery and proposed mitigation for the impacted area (in accordance with Condition 13a of Planning Permission 20/00619/FUL, a resubmission of 20/01009/FUL).

Figure 4-1 Location of ACMs under Building 1 footprint



A second letter was submitted to the Local Authority which demonstrated the successful verification of removed asbestos cement from the area (Ref: TE1270-TE-00-XX-CO-GE-003-V01, dated May 2022). This has been summarised below:



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 8 of 15
Engineer: Stuart Milne
Date: 05/04/2023

- M Brown Demolition Limited carried out hand picking works between 24th March to 5th April 2022. Sampling took place over a period of 1 No. visit on the 6th April 2022 by a Geoenvironmental Engineer from Tier Environmental. Final sample locations are illustrated in drawing no. TE1270-TE-00-XX-GE-DR-002-V01.
- The Tier Environmental engineer did not report any evidence of residual visible AMCs during sampling. Samples were submitted to Element Materials Technology, a UKAS accredited laboratory, for asbestos screens.
- Tier Environmental consider that the above results demonstrate the successful treating of the ACM impacted soils by means of handpicking and disposal off-site of visible hand-picked ACMs. Where asbestos cement has been recorded in the results above, these are representative of non-visible fragments which could not be viable for hand-picking.

4.2. Previously Identified Asbestos Removal Verification

An area of previously identified asbestos impacted soils which falls within the Phase 1 area was subject to a hand-picking exercise and verification testing.

A summary of the works, including verification testing and successful remediation was issued to the Local Authority in letter TE1270-TE-00-XX-CO-GE-004-V01, dated October 2022, and is appended to this report.

4.3. PAH Impacted Soils Verification

PAH impacted soils were identified in a localised area of the centre and east of the site during the initial ground investigation at TP116 at 0.55m bgl. The remediation strategy took into consideration the possible disturbance of these soils during earthworks and ultimately recommended impacted soils in this area should be retained in-situ beneath the building footprint or hardstanding.

The site area, inclusive of the region of PAH impacted soils, was subject to a topsoil strip of circa 150-300mm. Location TP116 is sited below the proposed carpark for Unit 2 as indicated in drawing TE1270-TE-00-XX-DR-GE-005-V01. From an earthworks perspective this area of the site had a 'fill' requirement to increase levels from circa 129.39m AOD to formation level at 129.93 as per drawing 1260-60-01-C2 included in Appendix A. Taking into account the initial topsoil strip, this area required additional fill of 0.84m (840mm). Fill materials were taken for an adjacent area of 'cut' and emplaced on top of the PAH Impacted soils; these have therefore been retained *in-situ* below an area of hardstanding thereby removing any potential remaining pathways.

Earthworks for Unit 2 were observed during a site visit to monitor the Materials Management Plan. Photographs of the earthworks progress are included in Appendix C.



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 9 of 15

Engineer: Stuart Milne

Date: 05/04/2023

5. SITE CERTIFICATION

It has been demonstrated in this report that remediation works conducted have been undertaken in accordance with the agreed strategy and previously unidentified asbestos impacts have been adequately remediated such that no residual risk from asbestos remains on Site.



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 10 of 15
Engineer: Stuart Milne
Date: 05/04/2023

6. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the investigation. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and/or other organisations for their comment and approval prior to undertaking any works on site.



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 11 of 15
Engineer: Stuart Milne
Date: 05/04/2023

7. REFERENCES

- BRE BR211 (2015). Radon: Guidance on Protective Measures for New Dwellings. IHS BRE Press, Bracknell.
- BRE SD1 (2005). Concrete in Aggressive Ground. Special Digest 1 (revised edition). IHS BRE Press, Bracknell.
- BRE 414 (2001) Protective measures for housing on gas-contaminated land. BRE.
- BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites - Code of Practice. British Standards Institution, London.
- BS EN 1997-1:2004 Eurocode 7. Geotechnical Design. General Rules. British Standards Institution, London.
- BS EN 1997-2:2007 Eurocode 7. Geotechnical Design. Ground Investigation and Testing. British Standards Institution, London.
- BS5930:2015+A12020 Code of practice for ground investigations BSI
- BS EN ISO 17892-1-12:2018 Geotechnical investigation and testing BSI
- BS EN ISO 14688-1:2018 Geotechnical Investigation and Testing. Identification and Classification of Soil. Identification and Description. British Standards Institution, London.
- BS EN ISO 14688-2:2018 Geotechnical Investigation and Testing. Identification and Classification of Soil. Principles for a Classification. British Standards Institution, London.
- BS EN ISO 14689-1:2018 Geotechnical Investigation and Testing. Identification and Classification of Rock. Identification and Description. British Standards Institution, London.
- BS8485 2015 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases in new buildings. British Standards
- BS85762013 Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs). BSI,
- CIRIA Rep R 97 (2001) Trenching Practice. Report 097, 2nd edition, CIRIA, London.
- CIRIA Rep R 149 (1995a) Protecting Development from Methane. Report 149, CIRIA, London.
- CIRIA Rep R 150 (1995b) Methane Investigation Strategies. Report 150, CIRIA, London.
- CIRIA Rep R 151 (1995c) Interpreting Measurement of Gas in the Ground Report 151, CIRIA, London.
- CIRIA Rep R 152 (1995d) Risk Assessment for Methane and Other Gases from the Ground. Report 152, CIRIA, London.
- CIRIA Rep R 132 (1996) A Guide for Safe Working on Contaminated Sites. Report 132, CIRIA, London.
- CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice (report no. C552).
- CIRIA C665 (2007) Assessing the risks posed by hazardous gases to buildings CIRIA, London



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 12 of 15
Engineer: Stuart Milne
Date: 05/04/2023

- CIRIA C748 (2014) Guidance on the use of plastic membranes as VOC barriers, CIRIA, London
- CIRIA C735 (2014) Good practice on the testing and verification of protection systems for buildings against hazardous ground gases. CIRIA.
- CIRIA C681 (2009) Unexploded ordnance (UXO) A guide for the construction industry (C681)
- CIRIA C785 (2019) Unexploded ordnance (UXO) risk management guide for land-based projects (C785)
- CIRIA C758D (2019) Abandoned mine workings manual (C758D)
- Contaminated Land: Applications in Real Environments (CL:AIRE) (2011) Definition of Waste Code of Practice (version 2).
- Department of Environment Food and Rural Affairs (DEFRA) (2012) Environmental Protection Act 1990:Part 2A Contaminated Land Statutory Guidance (report no. PB13735).
- Environment Agency (2000) Technical Aspects of Site Investigation. Report P5-065/TR, Environment Agency, Bristol.
- Environment Agency (2002) Guidance on Monitoring Landfill Leachate, Groundwater and Surface Water. Report LFTGN02, Environment Agency, Bristol.
- Environment Agency (2007) Evaluation of Models for Predicting Plant Uptake of Chemicals from Soil. Report SC050021/SR, Environment Agency, Bristol.
- Environment Agency (2006) Remedial Targets Methodology - Hydrogeological Risk Assessment for Land Contamination (report no.ea/br/e/std/vr10thanni).
- Environment Agency (2008) Science Report SC050021/SR7 Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values.
- Environment agency, 2007. Inter-laboratory comparison of in vitro bioaccessibility measurements for arsenic lead and nickel in soil, Science Report SC040060/SR2.
- Environment Agency, 2009 Human health toxicological assessment of contaminants in soil (Science Report Final SC050021/SR2)
- Environment Agency (2015) Guidance on the Classification and Assessment of Waste Technical Guidance WM3 (1st edition).European Union (1998) Drinking Water Directive (Council Directive 98/83/EC).
- Gibbons, R. (1994) Statistical Methods for Groundwater Monitoring. Wiley, New York.
- Groundsure Report 2021 GSIP-2021-10752-4061
- Highways Agency (2006) Design of Pavement Foundations. Document HD 25/IAN 73/06.
- HSE (1991) Protection of Workers and the General Public During the Development of Contaminated Land. HMSO, London.
- HSE (2005) Occupational Exposure Limits. HSE report EH40/2005, HMSO, London.



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02
Page No : 13 of 15
Engineer: Stuart Milne
Date: 05/04/2023

ICRCL (1986) Notes on the Fire Hazards of Contaminated Land. Guidance Note 61/84, 2nd Edition, Interdepartmental Committee on the Redevelopment of Contaminated Land, London.

Jeffries, J.(2009). A review of body weight and height data used within the Contaminated Land Exposure Assessment model (CLEA). Project SC050021/ Technical Review 1. Bristol: Environment Agency

Land Contamination Risk Management (LCRM) Environment Agency October 2020 <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> .

LQM/CIEH Ltd (2015) S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

NHBC (2007) Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present (report no .04).

NRA (1994) Protocol for a Leaching Test to Assess the Leaching Potential for Soils from Contaminated Sites. R&D Note 181.

SoBRA (2017) Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater – Version 1.0.

The Water Framework Directive, (Standards and Classification) Directions (England and Wales).

UK Water Industry Research (2010) Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (report no. 10/WM/03/21)

WHO (2000) Air Quality Guidelines for Europe. 2nd edition, WHO Regional Office for Europe, Copenhagen.

World Health Organisation (2017) Guidelines for Drinking Water Quality (4th edition).

<http://www.warstateandsociety.com/Bombing-Britain>

<https://www.epa.gov/pfas/basic-information-pfas>

UK Maps of Radon, <http://www.ukradon.org/information/ukmaps>

Health and Safety Executive (2015) Construction (Design and Management) Regulations.

BGS Geology of Britain Viewer <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 14 of 15

Engineer: Stuart Milne

Date: 05/04/2023

8. GLOSSARY OF TERMS

ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national or international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K _{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in the CIEH Guidance) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in the CIEH Guidance) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter



A REMEDIATION VERIFICATION REPORT FOR PHASE 1 PROJECT DESFORD

Report No : TE1270-TE-00-XX-GE-RP-003-V02

Page No : 15 of 15

Engineer: Stuart Milne

Date: 05/04/2023

SPT	Standard Penetration Test
SPZ	Source Protection Zone
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound
TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95 th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

APPENDIX A - DRAWINGS



Contract Number:	TE1270
Contract:	Phase 3 Desford
Client:	Gulf Ventures 2 Ltd

Site Location Plan



SITE

Reproduced from the Ordnance Survey map with the permission of The Controller of Her Majesty's Stationary Office, © Crown Copyright. All rights reserved.

Scale	NTS	
Drawn by	SE	Approved AR
Drawing Number	TE1270-TE-XX-DR-GE-001-V01	

NOTES

Boundaries surveyed are physical features and may not necessarily represent the legally conveyed ownership.

Tree Spreads, Girths and Heights are approximate, any tree species identified should not be relied upon and checked by a specialist if critical

Underground drainage depths, pipe sizes and runs have been recorded from the surface and may have been estimated or assumed

Features surveyed off site such as buildings and trees may have been recorded remotely and may not be shown in full detail due to access / sighting restrictions

SURVEY CONTROL

THIS SURVEY IS ORIENTATED TO ORDNANCE SURVEY GRID NORTH WITH A TRUE ORDNANCE CO-ORDINATE NEAR THE CENTRE OF THE SURVEY. THE SURVEY IS PLOTTED TO A FLAT PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL BE TRUE DISTANCES. REFER TO SURVEY CONTROL STATION LISTING FOR RE-ESTABLISHING CONTROL ON SITE.

EXTREME CAUTION MUST BE EXERCISED WHEN MERGING THIS SURVEY WITH DATA FROM OTHER SOURCES AS DIFFERENCES IN CO-ORDINATE SYSTEMS, ORIENTATION & LEVEL DATUM ARE LIKELY.

LEVELS RELATE TO ODN

Name	SURVEY STATION			Height
	Survey	Number	Height	
STND1	447016.875	30000.000	120.841	
STND2	447016.875	30000.000	120.841	
STND3	447016.875	30000.000	120.841	
STND4	447016.875	30000.000	120.841	
STND5	447016.875	30000.000	120.841	
STND6	447016.875	30000.000	120.841	
STND7	447016.875	30000.000	120.841	
STND8	447016.875	30000.000	120.841	
STND9	447016.875	30000.000	120.841	
STND10	447016.875	30000.000	120.841	
STND11	447016.875	30000.000	120.841	
STND12	447016.875	30000.000	120.841	
STND13	447016.875	30000.000	120.841	
STND14	447016.875	30000.000	120.841	
STND15	447016.875	30000.000	120.841	
STND16	447016.875	30000.000	120.841	
STND17	447016.875	30000.000	120.841	
STND18	447016.875	30000.000	120.841	
STND19	447016.875	30000.000	120.841	
STND20	447016.875	30000.000	120.841	
STND21	447016.875	30000.000	120.841	
STND22	447016.875	30000.000	120.841	
STND23	447016.875	30000.000	120.841	
STND24	447016.875	30000.000	120.841	
STND25	447016.875	30000.000	120.841	
STND26	447016.875	30000.000	120.841	
STND27	447016.875	30000.000	120.841	
STND28	447016.875	30000.000	120.841	
STND29	447016.875	30000.000	120.841	
STND30	447016.875	30000.000	120.841	
STND31	447016.875	30000.000	120.841	
STND32	447016.875	30000.000	120.841	
STND33	447016.875	30000.000	120.841	
STND34	447016.875	30000.000	120.841	
STND35	447016.875	30000.000	120.841	
STND36	447016.875	30000.000	120.841	
STND37	447016.875	30000.000	120.841	
STND38	447016.875	30000.000	120.841	
STND39	447016.875	30000.000	120.841	
STND40	447016.875	30000.000	120.841	
STND41	447016.875	30000.000	120.841	
STND42	447016.875	30000.000	120.841	
STND43	447016.875	30000.000	120.841	
STND44	447016.875	30000.000	120.841	
STND45	447016.875	30000.000	120.841	
STND46	447016.875	30000.000	120.841	
STND47	447016.875	30000.000	120.841	
STND48	447016.875	30000.000	120.841	
STND49	447016.875	30000.000	120.841	
STND50	447016.875	30000.000	120.841	
STND51	447016.875	30000.000	120.841	
STND52	447016.875	30000.000	120.841	
STND53	447016.875	30000.000	120.841	
STND54	447016.875	30000.000	120.841	
STND55	447016.875	30000.000	120.841	
STND56	447016.875	30000.000	120.841	
STND57	447016.875	30000.000	120.841	
STND58	447016.875	30000.000	120.841	
STND59	447016.875	30000.000	120.841	
STND60	447016.875	30000.000	120.841	
STND61	447016.875	30000.000	120.841	
STND62	447016.875	30000.000	120.841	
STND63	447016.875	30000.000	120.841	
STND64	447016.875	30000.000	120.841	
STND65	447016.875	30000.000	120.841	
STND66	447016.875	30000.000	120.841	
STND67	447016.875	30000.000	120.841	
STND68	447016.875	30000.000	120.841	
STND69	447016.875	30000.000	120.841	
STND70	447016.875	30000.000	120.841	
STND71	447016.875	30000.000	120.841	
STND72	447016.875	30000.000	120.841	
STND73	447016.875	30000.000	120.841	
STND74	447016.875	30000.000	120.841	
STND75	447016.875	30000.000	120.841	
STND76	447016.875	30000.000	120.841	
STND77	447016.875	30000.000	120.841	
STND78	447016.875	30000.000	120.841	
STND79	447016.875	30000.000	120.841	
STND80	447016.875	30000.000	120.841	
STND81	447016.875	30000.000	120.841	
STND82	447016.875	30000.000	120.841	
STND83	447016.875	30000.000	120.841	
STND84	447016.875	30000.000	120.841	
STND85	447016.875	30000.000	120.841	
STND86	447016.875	30000.000	120.841	
STND87	447016.875	30000.000	120.841	
STND88	447016.875	30000.000	120.841	
STND89	447016.875	30000.000	120.841	
STND90	447016.875	30000.000	120.841	
STND91	447016.875	30000.000	120.841	
STND92	447016.875	30000.000	120.841	
STND93	447016.875	30000.000	120.841	
STND94	447016.875	30000.000	120.841	
STND95	447016.875	30000.000	120.841	
STND96	447016.875	30000.000	120.841	
STND97	447016.875	30000.000	120.841	
STND98	447016.875	30000.000	120.841	
STND99	447016.875	30000.000	120.841	
STND100	447016.875	30000.000	120.841	

CLIENT



COMPLETE DESIGN
PARTNERSHIP LTD

SITE

Peckleton Lane,
Desford

PROJECT

Topographical Survey

SCALE

1:500 @ A0

DATE

21/01/2014

DRAWING No.

7770a



Legend:

PAH Impacted soils



Tier Environmental Ltd,
Suite 513, Chadwick House,
Warrington Road,
Birchwood, WA3 6AE

CLIENT: Gulf Ventures Ltd

PROJECT TITLE:
Project Desford – Phase 1

DRAWING TITLE:
Phase 1 PAH Remediation Area

DRAWING REF: TE1270-TE-00-XX-DR-GE-005-V01

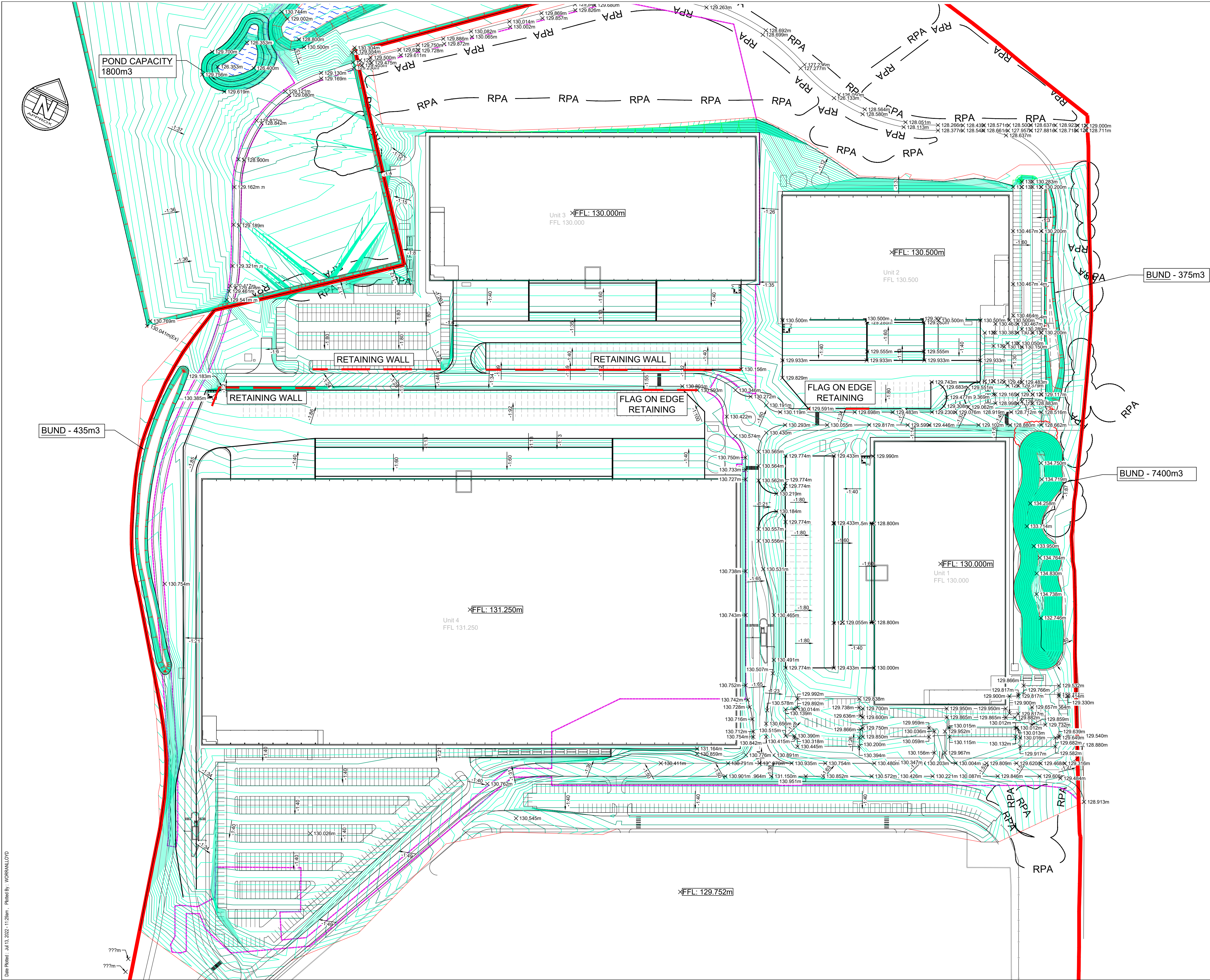
AUTHOR: SM

REVIEWER: AR

SCALE: NTS

DRAWING DATE:
Dec 22

DRAWING STATUS:
FINAL



DO NOT SCALE

GENERAL NOTES:

1. This drawing is to be read in conjunction with all other Architect's, Engineer's and Specialist's drawings, together with the appropriate specifications.
2. It is the Contractor's responsibility to check all dimensions on site. Dimensions MUST NOT be scaled from this drawing. Any discrepancies to be brought to the immediate attention of the Architect in writing.
3. All dimensions are in millimetres unless noted otherwise.
4. All levels are in metres, unless noted otherwise.

C2	13.07.22	WNL	Bund added to Unit 1	PJB	PJB
C1	06.04.22	WNL	Levels updated to latest site plan	PJB	PJB
P2	24.03.22	WNL	Ponds updated	PJB	PJB
P1	08.07.22	JNF	Planning Issue	PJB	PJB
REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS	CONSTRUCTION
----------------	--------------



Tier Consult Ltd.
7-9 New Wakefield Street
Manchester
M1 5NP

Telephone:
0161 8762900
Fax:
01244 684901
Email:
info@tieruk.com

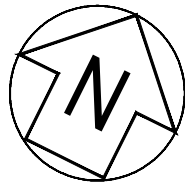
CLIENT: GULF VENTURES 2 LTD.

ARCHITECT: -

PROJECT: PROJECT DESFORD

TITLE: PROPOSED FINISHED LEVELS

SCALE @ SIZE: 1:1000	CHECKED: PJB	APPROVED: PJB
CAD FILE: CADFILE.CN	DESIGN/DRAWN: J.K.Fell	DATE: 08.07.22
PROJECT No: 1260	DRAWING No: 60-01	REV: C2



PLEASE NOTE:
DETAILED BACKGROUND MAP INFORMATION IS A TOPOGRAPHICAL SURVEY PROVIDED BY STAFSURV LAND SURVEYORS.
OVERALL BACKGROUND MAP INFORMATION PROVIDED BY ORDNANCE SURVEY DIGITAL DATA.
© CROWN COPYRIGHT 2018. ALL RIGHTS RESERVED. LICENCE NUMBER 100022432.

Tier Consult Earthworks Volumes						
Component	Area (m2)	Depth (m)	Volume of Excavation (m3)	Volume of Infil (m3)	Total Volume (m3)	Description
Site Strip (Topsoil)	99,464.000	0.150m Allowance Sitewide	14,919.60		14,919.600	Excess Material to be Stockpiled
Bulk Earthworks Volumes	73,395.000	0.450m	27,054.000	30,261.000	-3,207.000	Shortfall of Fill Material
Arisings from Drainage / attenuation / Foundations	73,395.000	0.100m3 per 1m2	7,339.500		7,339.500	Excess Cut Material
Site Total Bulk Earthwork Volumes	73,395.000		34,393.500	30,261.000	4132.500	Excess Material to be Stockpiled

Notes

- THIS DRAWING IS THE COPYRIGHT OF TIER CONSULT LTD AND CANNOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN CONSENT FROM THE COMPANY.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT'S, ENGINEER'S AND SPECIALIST'S DRAWINGS TOGETHER WITH THE APPROPRIATE SPECIFICATION.
- ALL DIMENSIONS ARE IN MILLIMETRES UNO, FOR THE PURPOSES OF CONSTRUCTION THIS DRAWING MUST NOT BE SCALED AND ONLY WRITTEN DIMENSIONS USED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER IN WRITING.
- ALL LEVELS ARE IN METRES UNO & TO OS DATUM.
- THE WORKS SHALL BE IN ACCORDANCE WITH THE NATIONAL BUILDING SPECIFICATION.

Legend

- RED LINE BOUNDARY.
- PHASE 1 SITE BOUNDARY

SURFACE LEVEL DATA

NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-5.00	-3.00	
2	-3.00	-2.00	
3	-2.00	-1.00	
4	-1.00	0.00	
5	0.00	1.00	
6	1.00	2.00	
7	2.00	3.00	
8	3.00	3.44	

P5	25.02.2021	JCB	Updated to Indicate Ph1 works	PJB	PJB
P4	02.09.20	JKF	Updated Site Plan	PJB	PJB
P3	23.07.20	JKF	Updated Site Plan	PJB	PJB
P2	05.06.20	JKF	Initial Issue	PJB	PJB
P1		JKF	Initial Issue	PJB	PJB
Rev	Date	By	Description	Chk	App

PRELIMINARY



TIER CONSULT.
Richmond House,
Sandpiper Court,
Chester Business Park,
Chester | CH4 9QZ
T: 01244 684 900

Client

GULF Ventures 2 Ltd

Project
PROJECT DESFORD,
PECKLETON LANE,
DESFORD.

Title
PROPOSED EARTHWORKS CUT/FILL

Scale: 1:2000@A1
Date: 22.07.2020
Drawn: J. FELL
Checked: P.BARLOW
Revision: P5

Drawing No:
T_20_2283-55-01

APPENDIX B - TIER ENVIRONMENTAL REPORTS – ASBESTOS REMEDIAITON



Tier Environmental Ltd

2nd floor, Baird House,
15-17 St Cross Street, London, EC1N 8UW
0207 430 1981

TE1270-TE-00-XX-CO-GE-002-V01

FAO Simon Smith

Environmental Health Officer

Hinckley & Bosworth Borough Council

Hinckley Hub

Rugby Road

Hinckley, Leicester

LE10 0FR

22 March 2022

**PROJECT DESFORD, LEICESTERSHIRE – RECENTLY ENCOUNTERED ASBESTOS CEMENT
UNDER SLAB DURING DEMOLITION- PLANNING REFERENCE: 20/00619/FUL**

Dear Simon,

Tier Environmental have produced this letter in order to notify the Council (in accordance with Condition 13a of Planning Permission 20/00619/FUL, a resubmission of 20/01009/FUL) of a potential unexpected contamination source (asbestos cement) that has been identified on the above Site.

It is the intention of this letter to provide sufficient information to satisfy Condition 13a in accordance with Section 6.4 of the Tier Environmental Remediation Strategy (Ref: TE1270RS1.1, dated April 2021) in relation to possible asbestos containing materials (ACMs) identified by contractors on Site under the footprint of a now demolished building as shown on the drawing overleaf.

Tier Environmental inspected and sampled the suspected ACMs in addition to soils within the impacted areas on 7th March 2022 to determine if these materials were in fact asbestos containing.

Results are tabulated below:

Table 1 – Asbestos sampling results

Sample	Asbestos Type	Quantification
B1-S1	None detected	NA
B1-S2	Asbestos Cement – Chrysotile	50.208%
B1-S4	Asbestos Cement – Chrysotile	17.746%

Results confirmed the presence of ACMs in the form of chrysotile asbestos cement. A representative sample of the soils from the impacted area was returned negative for asbestos, indicating an absence of low level asbestos in the form of loose fibres/fibre bundles. Initial observations have not suggested the presence of either any bonding to the slab or presence within the soil matrix.

Figure 1 – Approximate Locations of ACMs under building footprint



Proposed Additional Works Remediation Strategy

It is considered that the identification of ACMs represents a potential source of contamination at the Site.

Anticipated remediation works

Tier Environmental considers that a combined remedial approach will be required to address the following potential contaminants of concern. The principals below are considered consistent with those already contained within the Remediation Strategy for an impacted area SW of the zone covered in this letter.

- The treating (of ACM impacted soils) by means of handpicking, disposal off-site of hand-picked ACMs, and re-use or in situ retention of residual low-level asbestos fibre impacted

soils beneath areas of hardstanding / buildings the site with suitable verification tests as required.

- Re-use or retention of low-level asbestos impacted soils beneath a proposed building or hardstanding or incorporation of a localised 600mm clean cover system in the event that proposed development layout plans change is to be retained beneath a proposed soft landscaping area;

The following remediation strategy has been devised in order to make the Site safe and suitable for redevelopment in the vicinity of the ACMs:

- A visual inspection of the soil will be undertaken by an asbestos removal specialist within this area and soils treated by means of hand picking ACMs, until no visual evidence of ACMs remain.
- To address the anticipated residual low-level asbestos impacted soils, samples will be taken from the surface following hand picking on a 5m grid. Sample collection will be made by the use of an excavator bucket to 'scrape' the sample locations. Samples will be obtained in a 'W' shape pattern to provide confidence in the verification of the area;
- Samples will be submitted for laboratory analysis for asbestos screening to determine extent of low-level asbestos;
- The Control of Asbestos Regulations 2012 should be adhered to throughout.
- Low-level asbestos containing soils can remain in situ below the building footprint/hardstanding.
- If proposed plans change and low-level asbestos impacted soils are within an area of soft landscaping this will trigger a clean cover system. If tests are returned as negative for the presence of asbestos then no clean cover will be required.

The above integrated strategy is designed to;

- Mitigate risks to human health via dust inhalation pathways;
- Provide flexibility in the event that further localised unexpected contamination is identified around or beneath slab;

Independent Verification and Supervision of the Works

In order to ensure verification of the removal of contaminated soils, if encountered, works will be carried out as follows:

- A visual inspection of the soil will be undertaken by an asbestos removal specialist within this area and soils treated by means of hand picking ACMs, until no visual evidence of ACMs remain.
- To address the anticipated residual low-level asbestos impacted soils, samples will be taken from the surface following hand picking on a 5m grid. Sample collection will be made by the

use of an excavator bucket to ‘scrape’ the sample locations. Samples will be obtained in a ‘W’ shape pattern to provide confidence in the verification of the area;

- If, in the experience of the competent Site Engineer, it is thought that the sample is likely to be below remedial targets, the sample will be submitted for laboratory analysis;
- Should the results of laboratory analysis be greater than the remedial targets, then further assessment and/or potential remediation of the contamination will be necessary.

Verification Report

The SE should ensure that the requirements of the above ACM removal strategy are complied with. On satisfactory completion of all remedial works, a verification report should be produced. This report will comprise all relevant site records and act as certification that the remedial preparation works have been carried out in accordance with this remediation strategy.

The Verification Report shall include the following:

- A description of the works undertaken in accordance with the Remediation Strategy described above;
- Records of the works;
- Progress photographs;
- Waste Transfer Notes;
- Chemical verification test results.

It is sincerely hoped that the above is considered sufficient in line with the requirements stipulated in Condition 13a; however, it would be appreciated if this would be confirmed by return.

For and on behalf of

TIER ENVIRONMENTAL LTD



Stuart Milne MSc BSc

Senior Geoenvironmental Engineer

Tier Environmental Ltd

Enc:

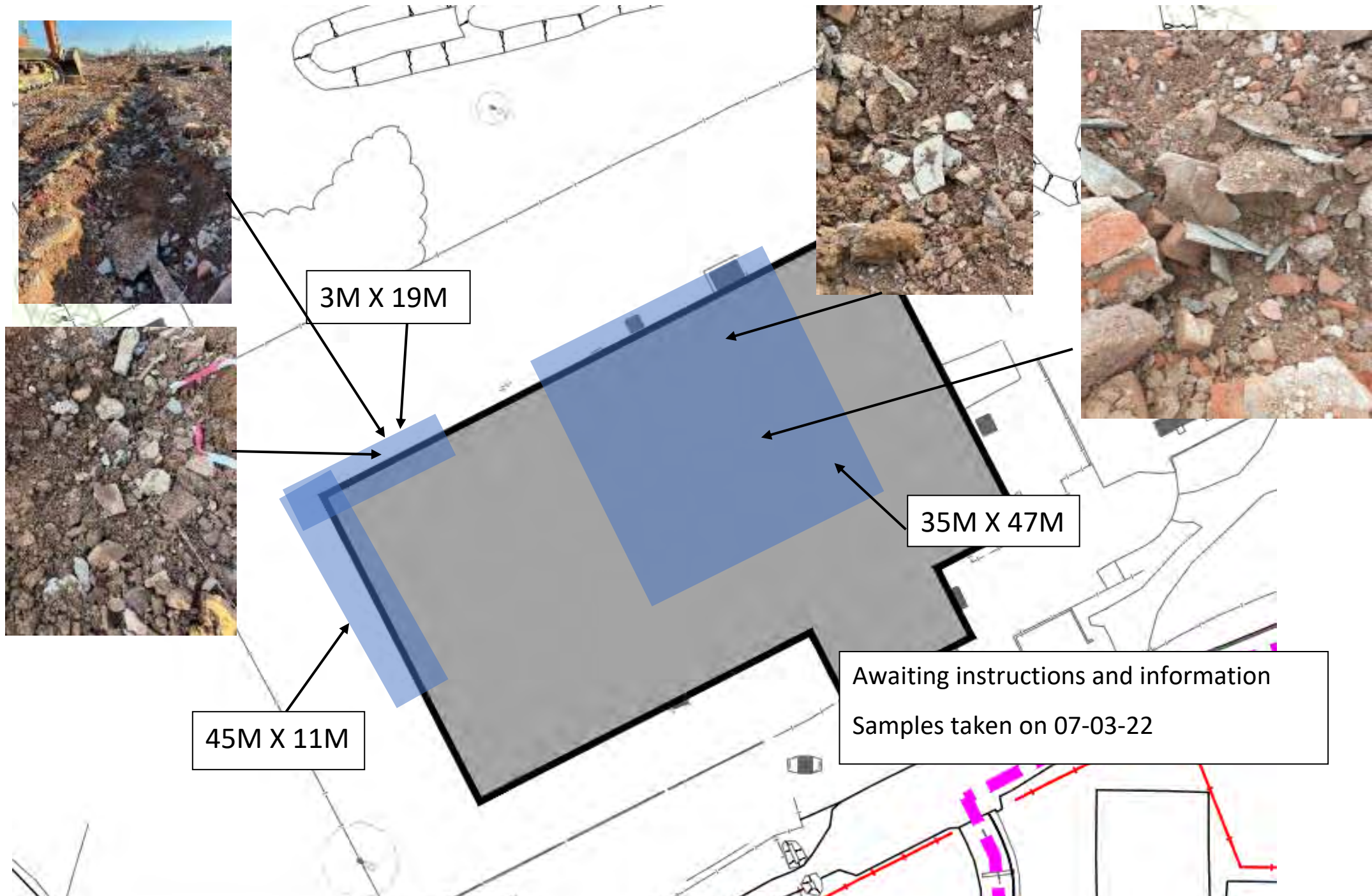
Drawings

Photos



Appendix A – Drawings

Asbestos Under slab – Project Desford 14-03-22





Appendix B - Photographs



Photo 1 – Impacted Area looking north



Photo 2 – ACMs





Tier Environmental Ltd

2nd floor, Baird House,
15-17 St Cross Street, London, EC1N 8UW
0207 430 1981

TE1270-TE-00-XX-CO-GE-003-V01

FAO Simon Smith

Environmental Health Officer

Hinckley & Bosworth Borough Council

Hinckley Hub

Rugby Road

Hinckley, Leicester

LE10 0FR

13 May 2022

**PROJECT DESFORD, LEICESTERSHIRE - VERIFICATION OF REMOVAL OF RECENTLY
ENCOUNTERED ASBESTOS CEMENT UNDER SLAB DURING DEMOLITION- PLANNING
REFERENCE: 20/00619/FUL**

Dear Simon,

Tier Environmental have produced this letter in order to notify the Council of the successful verification of recently removed asbestos cement from an area of unexpected contamination. The Council were previously notified of the discovery and proposed mitigation for the impacted area (in accordance with Condition 13a of Planning Permission 20/00619/FUL, a resubmission of 20/01009/FUL) in a letter dated March 2022 (Ref: TE1270-TE-00-XX-CO-GE-002-V01).

Background

Further to preliminary sampling to determine the extent of asbestos cement, Tier Environmental concluded the presence of ACMs in the form of chrysotile asbestos cement. A representative sample of the soils from the impacted area was returned negative for asbestos, indicating an absence of low-level asbestos in the form of loose fibres/fibre bundles. Initial observations did not suggest the presence of any bonding to the slab or presence within the soil matrix.

Proposed remediation works

Tier Environmental considered that a combined remedial approach would be required to address the following potential contaminants of concern. The principals below are considered consistent with those already contained within the Remediation Strategy (Ref: TE1270RS1.1, dated April 2021) for an impacted area SW of the zone covered in this letter.

- The treating (of ACM impacted soils) by means of handpicking, disposal off-site of hand-picked ACMs, and re-use or in situ retention of residual low-level asbestos fibre impacted soils beneath areas of hardstanding / buildings the site with suitable verification tests as required.
- Re-use or retention of low-level asbestos impacted soils beneath a proposed building or hardstanding or incorporation of a localised 600mm clean cover system in the event that proposed development layout plans change is to be retained beneath a proposed soft landscaping area;

The following remediation strategy was devised in order to make the Site safe and suitable for redevelopment in the vicinity of the ACMs:

- A visual inspection of the soil will be undertaken by an asbestos removal specialist within this area and soils treated by means of hand picking ACMs, until no visual evidence of ACMs remain.
- To address the anticipated residual low-level asbestos impacted soils, samples will be taken from the surface following hand picking on a 5m grid. Sample collection will be made by the use of an excavator bucket to ‘scrape’ the sample locations. Samples will be obtained in a ‘W’ shape pattern to provide confidence in the verification of the area;
- Samples will be submitted for laboratory analysis for asbestos screening to determine extent of low-level asbestos;
- The Control of Asbestos Regulations 2012 should be adhered to throughout.
- Low-level asbestos containing soils can remain in situ below the building footprint/hardstanding.
- If proposed plans change and low-level asbestos impacted soils are within an area of soft landscaping this will trigger a clean cover system. If tests are returned as negative for the presence of asbestos then no clean cover will be required.

The above integrated strategy is designed to was agreed by yourself via email on the 23rd March 2022.

Verification Works

M Brown Demolition Limited carried out hand picking works between 24th March to 5th April 2022. Sampling took place over a period of 1 No. visit on the 6th April 2022 by a Geoenvironmental Engineer from Tier Environmental. Table 1 overleaf summarises the samples taken from each area on each site visit. Final sample locations are illustrated in drawing no. TE1270-TE-00-XX-GE-DR-002-V01:

Table 1 – Asbestos sample summary

Sample Ref	Composite	Samples
VRS 1-A, 1-B, 1-C, 1-D	1	4
VRS 2-A, 2-C, 2-D	2	4
VRS 3-A, 3-B, 3-C, 3-D	3	4
VRS 4-A, 4-B, 4-C, 4-D	4	4
VRS 5-A, 5-B, 5-C, 5-D	5	4
VRS 6-A, 6-B, 7-A, 7-B	6+7	4
VRS 8-A, 8-B, 8-D	8	3
VRS 9-A, 9-B, 9-C, 9-D	9	4
VRS 10-A, 10-B, 10-C, 10-D	10	4
VRS 11-A, 11-B, 11-C, 11-D	11	4
VRS 12-A, 12-B, 12-C, 12-D	12	4
VRS 13-A, 13-B, 13-C, 13-D	13	4
VRS 14-A, 14-B, 14-C, 14-D	14	4
VRS 15-A, 15-B, 15-C, 15-D	15	4
VRS 16-A, 16-B, 16-C, 16-D, 17-A, 17-B	16 + 17	6
VRS 18-A, 18-B, 18-C, 18-D	18	4
VRS 19-A, 19-B, 19-C, 19-D	19	4
VRS 20-A, 20-B, 20-C, 20-D	20	4
VRS 21-A, 21-B, VRS 22-A, 22-B, 22-C, 22-D	21+22	6
VRS 23-A, 23-B, 23-C, 23-D	23	4
VRS 24-A, 24-B, 24-C, 24-D, 29-A, 29-B	24+29	6
VRS 25-A, 25-B, 25-C, 25-D	25	4
VRS 26-A, 26-B, 26-C, 26-D	26	4
VRS 27-A, 27-B, 28-A, 28-B	27+28	4
VRS 30-A, 30-B, 30-C, 30-D	30	4
VRS 31-A, 31-B, 31-C, 31-D	31	4
VRS 32-A, 32-B, 32-C, 32-D, 33-A	32+33	5

The Tier Environmental engineer did not report any evidence of residual *visible* AMCs during sampling. Samples were submitted to Element Materials Technology, a UKAS accredited laboratory, for asbestos screens.

Results are tabulated below:

Table 2 – Asbestos sampling results

Composite	Asbestos Type	Quantification
11	Fibre bundles & Asbestos Cement - Chrysotile	0.011%
12	Fibre bundles & Asbestos Cement - Chrysotile	0.010%
13	Fibre bundles & Asbestos Cement - Chrysotile	0.041%
16 +17	Fibre bundles & Asbestos Cement - Chrysotile	5.930%
23	Fibre bundles & ACM Debris - Chrysotile	<0.001%
26	Fibre bundles & Asbestos Cement Debris - Chrysotile	<0.001%
27+28	Fibre bundles - Chrysotile	<0.001%

Conclusion

Tier Environmental consider that the above results demonstrate the successful treating of the ACM impacted soils by means of handpicking and disposal off-site of visible hand-picked ACMs.

Where asbestos cement has been recorded in the results above, these are representative of non-visible fragments which could not be viable for hand-picking.

In accordance with the Remediation Strategy it is considered that the residual low-level asbestos fibre impacted soils would be suitable for *in-situ* retention of beneath areas of hardstanding / buildings. Current proposals demonstrate this part of the site is below hardstanding and partial building footprint. Should proposed development layout plans change, a localised 600mm clean cover system should be implemented in proposed soft landscaping area.

It is sincerely hoped that the above is considered sufficient in line with the agreed proposed verification works.

For and on behalf of

TIER ENVIRONMENTAL LTD



Stuart Milne MSc BSc

Senior Geoenvironmental Engineer

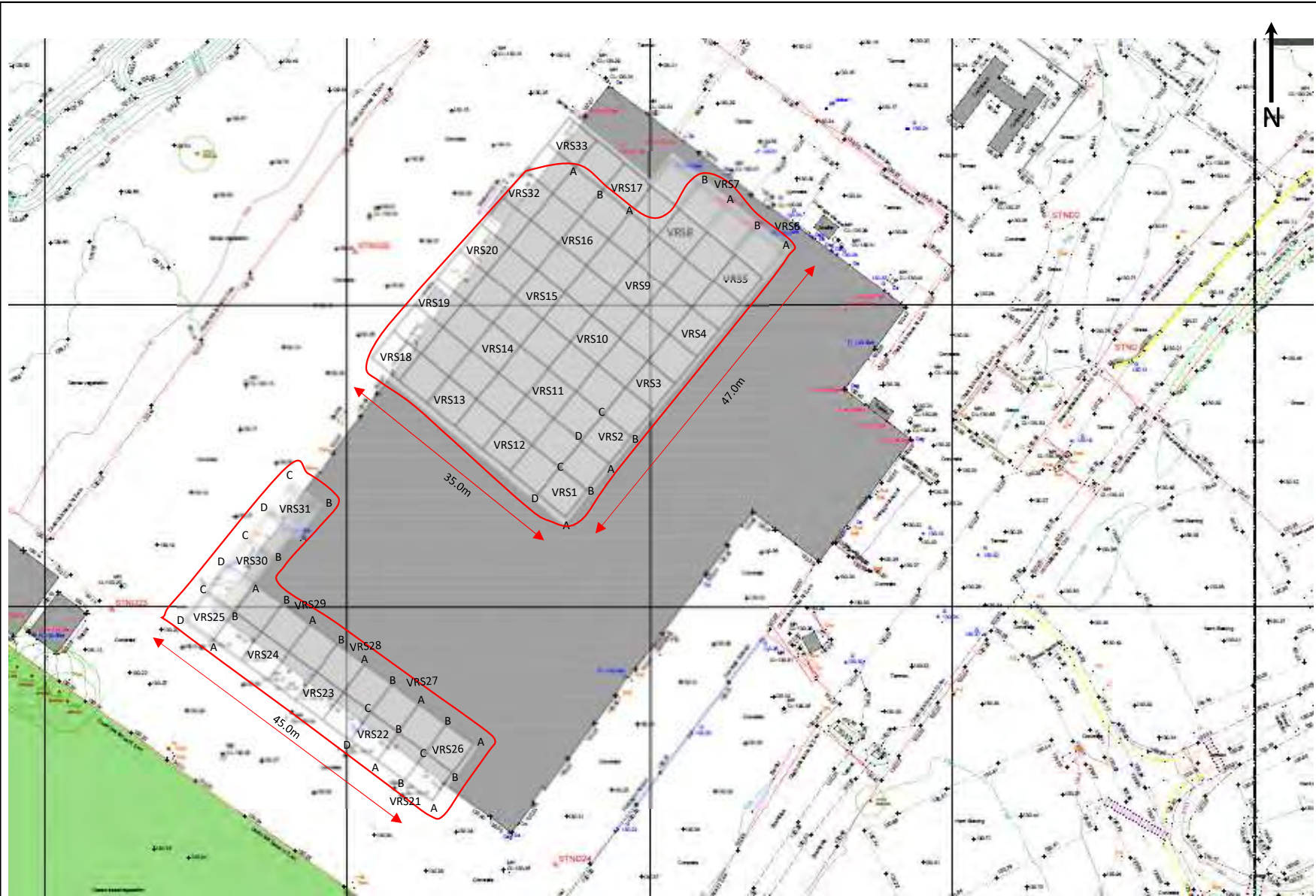
Tier Environmental Ltd

Enc:

Appendix A: Drawings, Appendix B: Photos, Appendix C: Laboratory Results, Appendix D: Third Party Information



Appendix A – Drawings



Legend:

5m Grid with sample locations

Tier Environmental Ltd,
Suite 513, Chadwick House,
Warrington Road,
Birchwood, WA3 6AE

CLIENT: Griffen Developments

PROJECT TITLE:
TE1270 – Desford Area 1

DRAWING TITLE:
Asbestos Impacted Area Verification Samples

DRAWING REF: TE1270-TE-00-XX-GE-DR-002-V01

AUTHOR: SM	REVIEWER:	SCALE: NTS
-------------------	------------------	-------------------

DRAWING DATE: April/22	DRAWING STATUS:
----------------------------------	------------------------



Appendix B - Photographs

Project Name	Noevia, Desford	Photographic Record	Borehole ID
Project No.	TE1270		
Engineer	Spyridon Theodoridis		
Client	Gulf Ventures 2		
			View looking Northeast Samples VRS1 to VRS6
			View looking Northeast Samples VRS12 - VRS17
Photographed By		Date	06/04/2022

Project Name	Noevia, Desford	Photographic Record	Borehole ID
Project No.	TE1270		
Engineer	Spyridon Theodoridis		
Client	Gulf Ventures 2		
			View looking Northeast
			Samples VRS10 - VRS16
			View looking Northeast
			Samples VRS6 - VRS11
Photographed By		Date	06/04/2022

Project Name	Noevia, Desford	Photographic Record	Borehole ID
Project No.	TE1270		
Engineer	Spyridon Theodoridis		
Client	Gulf Ventures 2		
			View looking North Samples VRS18 - VRS20
			View looking Soyuthwest Samples VRS21 - VRS28
Photographed By		Date	06/04/2022



Appendix C – Laboratory Results

Tier Environmental
Suite 513, Chadwick House
Warrington Rd
Birchwood
Warrington
WA3 6AE



Attention : Alex Preston
Date : 12th May, 2022
Your reference : TE1270
Our reference : Test Report 22/5752 Batch 1
Location : Project Desford
Date samples received : 7th April, 2022
Status : Final Report
Issue : 1

One hundred and forty samples were received for analysis on 7th April, 2022 of which twenty seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Phil Sommerton BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: Tier Environmental
Reference: TE1270
Location: Project Desford
Contact: Alex Preston

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
22/5752	1	COMPOSITE 1		116	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	NAD
					Anthony Carman	22/04/2022	Asbestos ACM	NAD
					Anthony Carman	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 2		117	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	NAD
					Anthony Carman	22/04/2022	Asbestos ACM	NAD
					Anthony Carman	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 3		118	Catherine Coles	22/04/2022	General Description (Bulk Analysis)	soil/brick/stone
					Catherine Coles	22/04/2022	Asbestos Fibres	NAD
					Catherine Coles	22/04/2022	Asbestos ACM	NAD
					Catherine Coles	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 4		119	Catherine Coles	22/04/2022	General Description (Bulk Analysis)	soil/stone/brick
					Catherine Coles	22/04/2022	Asbestos Fibres	NAD
					Catherine Coles	22/04/2022	Asbestos ACM	NAD
					Catherine Coles	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 5		120	Catherine Coles	22/04/2022	General Description (Bulk Analysis)	soil/stone/brick
					Catherine Coles	22/04/2022	Asbestos Fibres	NAD
					Catherine Coles	22/04/2022	Asbestos ACM	NAD
					Catherine Coles	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 6+7		121	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 8		122	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	NAD
					Anthony Carman	22/04/2022	Asbestos ACM	NAD
					Anthony Carman	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 9		123	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	NAD
					Anthony Carman	22/04/2022	Asbestos ACM	NAD
					Anthony Carman	22/04/2022	Asbestos Type	NAD

Client Name: Tier Environmental
Reference: TE1270
Location: Project Desford
Contact: Alex Preston

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
22/5752	1	COMPOSITE 10		124	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 11		125	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil, stones and cement
					Andrew Alker	22/04/2022	Asbestos Fibres	Fibre Bundles
					Andrew Alker	22/04/2022	Asbestos ACM	Asbestos Cement
					Andrew Alker	22/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	0.011 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	0.011 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
22/5752	1	COMPOSITE 12		126	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	Fibre Bundles
					Anthony Carman	22/04/2022	Asbestos ACM	Asbestos Cement
					Anthony Carman	22/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	0.010 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	0.010 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
22/5752	1	COMPOSITE 13		127	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	Fibre Bundles
					Anthony Carman	22/04/2022	Asbestos ACM	Asbestos Cement
					Anthony Carman	22/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	0.041 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	0.041 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
22/5752	1	COMPOSITE 14		128	Charlotte Taylor	21/04/2022	General Description (Bulk Analysis)	soil/stones
					Charlotte Taylor	21/04/2022	Asbestos Fibres	NAD
					Charlotte Taylor	21/04/2022	Asbestos ACM	NAD
					Charlotte Taylor	21/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 15		129	Andrew Alker	21/04/2022	General Description (Bulk Analysis)	brown loose soil and stone
					Andrew Alker	21/04/2022	Asbestos Fibres	NAD
					Andrew Alker	21/04/2022	Asbestos ACM	NAD
					Andrew Alker	21/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 16+17		130	Andrew Alker	21/04/2022	General Description (Bulk Analysis)	brown loose soil, stone and cement
					Andrew Alker	21/04/2022	Asbestos Fibres	Fibre Bundles
					Andrew Alker	21/04/2022	Asbestos ACM	Asbestos Cement
					Andrew Alker	21/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	0.563 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	5.367 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	5.930 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)

Client Name: Tier Environmental
Reference: TE1270
Location: Project Desford
Contact: Alex Preston

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
22/5752	1	COMPOSITE 16+17		130	Charlotte Taylor	11/05/2022	Asbestos Gravimetric & PCOM Total	5.930 (mass %)
22/5752	1	COMPOSITE 18		131	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 19		132	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 20		133	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 21+22		134	Catherine Coles	22/04/2022	General Description (Bulk Analysis)	soil
					Catherine Coles	22/04/2022	Asbestos Fibres	NAD
					Catherine Coles	22/04/2022	Asbestos ACM	NAD
					Catherine Coles	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 23		135	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stone
					Andrew Alker	22/04/2022	Asbestos Fibres	Fibre Bundles
					Andrew Alker	22/04/2022	Asbestos ACM	ACM Debris
					Andrew Alker	22/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)
22/5752	1	COMPOSITE 24+29		136	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 25		137	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	NAD
					Anthony Carman	22/04/2022	Asbestos ACM	NAD
					Anthony Carman	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 26		138	Anthony Carman	22/04/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	22/04/2022	Asbestos Fibres	Fibre Bundles
					Anthony Carman	22/04/2022	Asbestos ACM	Asbestos Cement Debris
					Anthony Carman	22/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)

Client Name: Tier Environmental
Reference: TE1270
Location: Project Desford
Contact: Alex Preston

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
22/5752	1	COMPOSITE 27+28		139	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	Fibre Bundles
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	Chrysotile
					Charlotte Taylor	11/05/2022	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					Charlotte Taylor	11/05/2022	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)
22/5752	1	COMPOSITE 30		140	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stone
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 31		141	Andrew Alker	22/04/2022	General Description (Bulk Analysis)	brown loose soil and stones
					Andrew Alker	22/04/2022	Asbestos Fibres	NAD
					Andrew Alker	22/04/2022	Asbestos ACM	NAD
					Andrew Alker	22/04/2022	Asbestos Type	NAD
22/5752	1	COMPOSITE 32+33		142	Andrew Alker	21/04/2022	General Description (Bulk Analysis)	brown loose soil and stone
					Andrew Alker	21/04/2022	Asbestos Fibres	NAD
					Andrew Alker	21/04/2022	Asbestos ACM	NAD
					Andrew Alker	21/04/2022	Asbestos Type	NAD

Client Name: Tier Environmental

Reference: TE1270

Location: Project Desford

Contact: Alex Preston

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/5752

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/5752

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes



Appendix D – Third Party Information



Supervisors' visual inspection and sign off form (non-licenced asbestos)

Site address – Building 1, Peckleton lane, Desford, LE9 9BZ

Supervisor/manager – Jack Brown

Operatives – Miah cubia

Location of works – Areas 1-6 under building 1 slab

Description of works

Asbestos cement found under slab of building 1 in 6 areas, Hand pick asbestos cement, place into bags, then load in to a 40 yard skip.

Visual Inspection Started @ - 8.00am

Completed @ 2.00PM

Duration – 6 Hours

Were there any Issues identified during the inspection – NO

Supervisor Information

Supervisors Name – Jack Brown

Signature – J Brown

Inspection completed at – 2.00PM

Date - 7/04/2022

Air test Information

Analyst Name –

Signature –

Air test duration –

Number of pumps –

Date –

Drawing of areas worked in are attached, with air test and waste transfer.

Asbestos Under slab – Project Desford

Key

AREA 1

AREA 2

AREA 3

AREA 4

AREA 5

AREA 6



[illegible]

[illegible]



AE Burgess & Sons Ltd
Ulverscroft Road, Leicester, LE4 6BY
Tel : 0116 2620065, Email : skips@aeburgess.com

Waste Pre-treatment Delivery & Transfer Note

Carrier Licence: CBDU89762

VAT Reg: 113 7209 03

Customer
M. BROWN DEMOLITION LIMITED

Site Address
GRIFFEN PARK, PECKLETON LANE, LE9 9BZ

Contact Info
JACK 07712525028

Ticket No. 77572

Date 11-May-2022

Account No. A-MB02

Order Number JACK

Movement Type **COLLECTION**

Area	Vehicle Reg	Driver
Leicester	D15AEB	John Mason
Skip Size 40 Yard RORO	Waste Type Asbestos Hazardous	EW Code 17 06 05
Special Instructions	Conf Waste Type Asbestos Hazardous	SIC Code 43110

Warning - Under the Duty of Care Environmental Protection Act 1990, the hirer is responsible for informing the driver of the contents of the skip.

Terms And Conditions Of Hire

SKIP HIRE IS OFFERED AT CUSTOMERS OWN RISK. WE CANNOT ACCEPT RESPONSIBILITY FOR DAMAGE CAUSED BY OUR VEHICLES UPON DELIVERING/COLLECTING TO/FROM YOUR SITE.
FOR FULL TERMS AND CONDITIONS PLEASE SEE
WWW.AEBURGESS.COM

NO ASBESTOS - FRIDGES - PAINT - TYRES - OIL - BATTERIES - CHEMICALS - LIQUIDS - LIQUID CEMENT
NO FIRES / EXPLOSIVE / INFLAMMABLE / NOXIOUS / PUTRESCIBLE OR OFFENSIVE MATTER
PLASTERBOARD AND/OR GYPSUM PRODUCTS ARE NO LONGER ACCEPTED IN GENERAL MIXED WASTE SKIPS
SKIPS WILL NOT BE REMOVED FROM SITE IF THEY HAVE BEEN MOVED OR LOADED ABOVE THE SIDES/NOT LEVEL LOADED.

DISPOSAL POINT Augean	HAULIER
Waste Disposal Licence No:	Waste Carrier Signature: 
Gross Weight: 32300	Print Name: John Mason
Tare Weight: 17300	Date: 11-May-2022
Net Weight: 15000	
Ticket No: 008440	

I understand and accept all the Terms and Conditions of the hire, as printed and I Confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the Waste Regulations (England and Wales) 2011.

Signature:

Print Name: No one on site

11-May-2022

An Electronic copy of this Waste Transfer Note is available on request.



Tier Environmental Ltd

2nd floor, Baird House,
15-17 St Cross Street, London, EC1N 8UW
0207 430 1981

TE1270-TE-00-XX-CO-GE-003-V01

FAO Simon Smith

Environmental Health Officer

Hinckley & Bosworth Borough Council

Hinckley Hub

Rugby Road

Hinckley, Leicester

LE10 0FR

09 September 2022

**PROJECT DESFORD, LEICESTERSHIRE – VERIFICATION OF REMOVAL OF RECENTLY
ENCOUNTERED ASBESTOS CEMENT IN SOUTHWEST DURING EARTHWORKS
PLANNING REFERENCE: 20/00619/FUL**

Dear Simon,

Tier Environmental have produced this letter in order to notify the Council of the successful verification of recently removed asbestos cement from an area of expected contamination. The Council were previously notified of the discovery and proposed mitigation for the impacted area in a remediation strategy report dated April 2021 (Ref: TE1270RS1.1) and therefore this asbestos is not considered 'unexpected contamination under Condition 13a of Planning Permission 20/00619/FUL, a resubmission of 20/01009/FUL.

Background

Site contractors discovered the asbestos cement impacted area during removal of a badger sett in the southwest of the site, as indicated on drawing TE1270-TE-00-XX-DR-GE-003-V01. Preliminary sampling confirmed the presence of chrysotile asbestos cement within the turnover soils.

Proposed remediation works

Tier Environmental considered that a combined remedial approach would be required to address the following potential contaminants of concern. The principals below are considered consistent with those already contained within the Remediation Strategy (Ref: TE1270RS1.1, dated April 2021);

- The treating (of ACM impacted soils) by means of handpicking, disposal off-site of hand-picked ACMs, and re-use or in situ retention of residual low-level asbestos fibre impacted

soils beneath areas of hardstanding / buildings the site with suitable verification tests as required.

- Re-use or retention of low-level asbestos impacted soils beneath a proposed building or hardstanding or incorporation of a localised 600mm clean cover system in the event that proposed development layout plans change is to be retained beneath a proposed soft landscaping area;

The following remediation strategy was devised in order to make the Site safe and suitable for redevelopment in the vicinity of the ACMs:

- A visual inspection of the soil will be undertaken by an asbestos removal specialist within this area and soils treated by means of hand picking ACMs, until no visual evidence of ACMs remain.
- To address the anticipated residual low-level asbestos impacted soils, samples will be taken from the surface following hand picking on a 5m grid. Sample collection will be made by the use of an excavator bucket to 'scrape' the sample locations. Samples will be obtained in a 'W' shape pattern to provide confidence in the verification of the area;
- Samples will be submitted for laboratory analysis for asbestos screening to determine extent of low-level asbestos;
- The Control of Asbestos Regulations 2012 should be adhered to throughout.
- Low-level asbestos containing soils can remain in situ below the building footprint/hardstanding.
- If proposed plans change and low-level asbestos impacted soils are within an area of soft landscaping this will trigger a clean cover system. If tests are returned as negative for the presence of asbestos then no clean cover will be required.

The above integrated strategy was agreed by the council upon submission of the Remediation Strategy.

Verification Works

Safeline Environmental completed a watching brief and hand picking works between 15th to 17th August 2022 on behalf of AH Construction Ltd. Sampling took place over a period of 1 No. visit on the 18th August 2022 by a Geoenvironmental Engineer from Tier Environmental. Final sample locations are illustrated in drawing no. TE1270-TE-00-XX-GE-DR-004-V01. The areas was subject to sampling on an approximate 5m grid for an area of circa 25m².

Full third party method statements and waste consignment notes are included in Appendix D.



The Tier Environmental engineer did not report any evidence of residual *visible* AMCs during sampling. Samples were submitted to Element Materials Technology, a UKAS accredited laboratory, for asbestos screens.

Of the 5 No. samples tested within the badger sett area, there were no detections of asbestos.

Conclusion

Tier Environmental consider that the above results demonstrate the successful treating of the ACM impacted soils by means of handpicking and disposal off-site of visible hand-picked ACMs.

Furthermore, no residual low level asbestos fibre impacted soils were recorded, however the findings of the Ground Investigation works recorded these to be present. These would be suitable for *in-situ* retention of beneath areas of hardstanding / buildings. Current proposals demonstrate this part of the site is below hardstanding and partial building footprint. Should proposed development layout plans change, a localised 600mm clean cover system should be implemented in proposed soft landscaping area.

It is sincerely hoped that the above is considered sufficient in line with the agreed proposed verification works.

It should be noted that further verification works associated with asbestos removal will be subject to individual letter reports as earthworks progress, but a full Verification Report shall be completed following completion of all remediation works, in line with the Remediation Strategy.

For and on behalf of

TIER ENVIRONMENTAL LTD

A handwritten signature in black ink, appearing to read 'Stuart Milne'.

Stuart Milne MSc BSc

Senior Geoenvironmental Engineer

Tier Environmental Ltd

Enc:

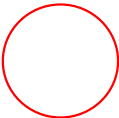
Appendix A: Drawings, Appendix B: Photos, Appendix C: Laboratory Results, Appendix D: Third Party Information



Appendix A – Drawings



Legend:



Vicinity of Badger Sett



Tier Environmental Ltd,
Suite 513, Chadwick House,
Warrington Road,
Birchwood, WA3 6AE

CLIENT: Griffen Developments

PROJECT TITLE:
Project Desford

DRAWING TITLE:
South West Badger Sett Vicinity

DRAWING REF: TE1270-TE-00-XX-DR-GE-003-V01

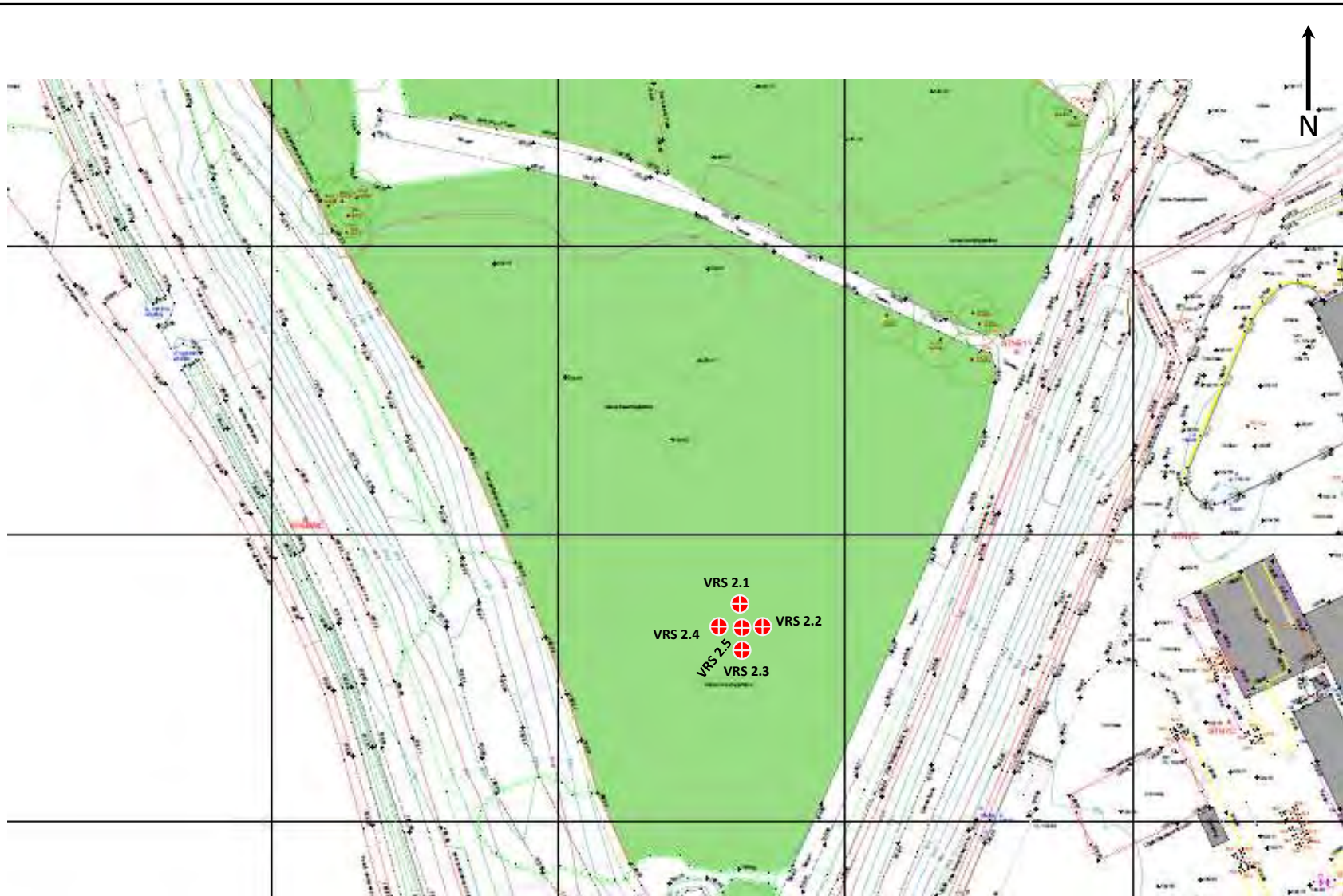
AUTHOR: SM

REVIEWER: AR

SCALE: NTS

DRAWING DATE:
Sept 22

DRAWING STATUS:
FINAL



Legend:  Sample Location		
 Tier Environmental Ltd, Suite 513, Chadwick House, Warrington Road, Birchwood, WA3 6AE		
CLIENT: Griffen Developments		
PROJECT TITLE: Project Desford		
DRAWING TITLE: Asbestos Verification Locations		
DRAWING REF: TE1270-TE-00-XX-DR-GE-004-V01		
AUTHOR: SM	REVIEWER: AR	SCALE: NTS
DRAWING DATE: Sept 22		DRAWING STATUS: FINAL



Appendix B - Photographs

Photo 1: Former Badger Sett area looking north east



Photo 2: Former Badger Sett area looking north



Photo 3: SW Attenuation tank area (south west of former badger sett)





Appendix C – Laboratory Results

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
WA3 6AE



Attention : Stuart Milne
Date : 26th August, 2022
Your reference : TE1270
Our reference : Test Report 22/13730 Batch 1
Location : Project Desford
Date samples received : 25th August, 2022
Status : Final Report
Issue : 1

Five samples were received for analysis on 25th August, 2022 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Note:

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

QF-PM 3.1.15 v10

Client Name: Tier Environmental

Reference: TE1270

Location: Project Desford

Contact: Stuart Milne

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/13730

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

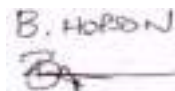
EMT Job No: 22/13730

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	



Appendix D – Third Party Information

CERTIFICATE OF IDENTIFICATION OF ASBESTOS FIBRES

CERTIFICATE NUMBER: ATH/22/08/0237 DATE SAMPLED: UNKNOWN DATE RECEIVED: 08/08/22 DATE ANALYSED: 08/08/22 DATE ISSUED: 08/08/22 SAMPLES OBTAINED BY: DELIVERED NUMBER OF SAMPLES: 1	SITE ADDRESS: PECKLETON LANE SITE, DESFORD, LE9 9JU SITE REFERENCE: 4060		
	CLIENT: THE ASBESTOS GROUP CLIENT ADDRESS: UNIT 8 STERLING PARK, PEDMORE ROAD, BRIERLEY HILL, WEST MIDLANDS, DY5 1TB PHONE NUMBER: 01299 250994		
ANALYST NAME & SIGNATURE:		AUTHORISER NAME & SIGNATURE:	
COMMENTS:			

RESULTS

SAMPLE NUMBER	CLIENT NUMBER	SAMPLE LOCATION	FIBRE TYPE DETECTED	COMMENTS
1	BD001	CEMENT DEBRIS	CHRYSTILE	CEMENT

KEY: CHRYSTILE (WHITE ASBESTOS) - CROCIDOLITE (BLUE ASBESTOS) – AMOSITE (BROWN ASBESTOS)
NADIS (NO ASBESTOS DETECTED IN SAMPLE) - TREMOLITE, ANTHOPHYLLITE & ACTINOLITE (LESS COMMON ASBESTOS FIBRE TYPES)

Note: When a trace of asbestos fibres are reported this represents only one or two fibres identified during PLM analysis.

Note: The material type reported is an opinion of the analyst only and does not form part of the ATHENA UKAS accreditation.

Note: Samples will be kept for a minimum of 6 months.

Note: This Certificate of Identification of Asbestos Fibres can only be reproduced in full unless written approval from Athena has been obtained.

Note: If the sample condition or size is deemed unacceptable or unsatisfactory by the analyst, the client will be contacted.

Note: The results relate only to the items tested.

Note: All samples are analysed at the Athena Laboratory, Suite 3 Sopwith House, Sopwith Crescent, Wickford, Essex, SS11 8YU

Note: The results apply to the sample as received.

Samples have been analysed to determine the presence of asbestos fibres using Athena Environmental Solutions "in house" method of polarised light microscopy and central stop dispersion staining based on HSG 248. The site address and sample locations are given by the client and Athena are not responsible for the accuracy or competence of these details or of the sampling

Project Completion Report

Watch and Brief / Litter Pick of Excavation Works



Client Name:	A&H Construction
Client Project N°:	NA
Site Address:	PECKLETON LANE SITE, DESFORD, LE9 9JU
Safeline Project:	PF10489

CONTENTS

- 1.0 Safeline Environmental Asbestos Removal License
- 2.0 Safeline Environmental Insurance Policy Details
- 3.0 Method Statement / Risk Assessment
- 4.0 Certificate of Reoccupation
- 5.0 Waste Consignment Note
- 6.0 Project Photographic Record

Section 1

Safeline Environmental HSE Asbestos Removal License

Licence to undertake work with asbestos

Licence Number 082205300

The Health and Safety Executive, in pursuance of the powers conferred on it by the Control of Asbestos Regulations 2012, licences

**Safeline Environmental Limited
Units 231-232, Ikon Industrial Estate
Droitwich Road
Hartlebury
KIDDERMINSTER
Worcestershire
DY10 4EU**

("the licensee")

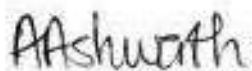
to undertake work with asbestos subject to the conditions below. The licence is granted from **14 July 2022** and shall remain valid until **13 July 2025** unless revoked in writing by an authorised Person.

CONDITIONS

1. This licence or a copy thereof, should be made available on request by the licensee for inspection by any person to whom the licensee submits a tender or quotation for work with asbestos and shall be available for inspection at all worksites.
2. The licensee shall give notice in writing of the work to the appropriate HSE or local authority office at least 14 days before the work is commenced, or such other period as the authority will allow. The notice shall specify the type of work to be carried out, the likely duration of the work, the address of the premises at which the work is to be carried out and the date of commencement of the work activity. The enforcing authority must be informed in writing as soon as possible if this information changes. This condition will only apply to licensable work with asbestos as defined in Regulation 2 of the Control of Asbestos Regulations 2012 or when the licensee hires out employees (at operative level) to other licensees.
3. (a) Prior to submitting the notice of work required by Condition 2 the following documents shall be prepared by the licence holder:
 - i) a suitable and sufficient written statement of the plan of work to be used.
 - ii) a suitable and sufficient written specification for the equipment for the protection and decontamination of those engaged in asbestos work and also for the protection of other persons, as appropriate to the work.
- (b) The licensee shall, on request by HSE and/or the local authority provide copies of the documents referred to in 3(a) and/or allow inspection of those documents as required.
- (c) Work carried out under the notice of work required by Condition 2 shall be carried out in accordance with the suitable and sufficient plan of work and the equipment, as specified in (a) (i) and (ii).

The plan of work and written specification must be provided on request and be available at the time of notification.

Signature



A person authorised by the Health and Safety Executive to act in that capacity

Name: **Alison Ashworth
H M Inspector of Health and Safety
Asbestos Licensing Unit**

Date: **17 June 2022**

Section 2

Safeline Environmental Insurance Policy Schedule

TO WHOM IT MAY CONCERN

30th May 2022

Dear Sirs

Re. Safeline Environmental Limited

We are the Insurance Brokers for the above clients and have pleasure in confirming details of their insurance arrangements as follows: -

Public/Products Liability

Insurer	:	Aspen Insurance UK Ltd
Policy No	:	B190355211029
Expiry Date	:	31 st May 2023
Limit of Indemnity, any one occurrence and in the aggregate for Products	:	£10,000,000

Employers Liability

Insurer	:	Aspen Insurance UK Ltd
Policy No	:	B190355211029
Expiry Date	:	31 st May 2023
Limit of Indemnity, any one occurrence	:	£20,000,000

Pollution Liability

Insurer	:	Aspen Insurance UK Ltd
Policy No	:	B190355211029
Expiry Date	:	31 st May 2023
Limit of Indemnity, any one occurrence and in the	:	£10,000,000

This statement of cover extract has been prepared purely as a confirmation of the insurance in force at the date of this letter, which is subject to the terms and conditions of the insurance policy. We accept no responsibility for any inadvertent or negligent act, error or omission on our part in preparing the statement or for any loss, damage or expense incurred by the recipient arising from the reliance on the information given. We remain solely the agent of our client and owe no legal duty or otherwise to any third party.

Should cover be cancelled assigned or changed in any way during the period of insurance neither we nor the insurers accept any obligation to notify any recipient.

Yours faithfully

Lucy Henderson Cert CII
Account Handler

Always the right decision

Section 3

Method Statement / Risk Assessment

Method Statement / Risk Assessment

Watch and Brief / Litter Pick of Excavation Works

Project Details			
Customer:	A & H Construction	Project N°:	PF10489
Site Address:	PECKLETON LANE SITE, DESFORD, LE9 9JU		
Distance:	84 miles	Travel Time:	1 Hour 37 mins
Site Contact:	Mr Ian Francis	Contact Tel:	07772 100318
Description of Works:	Watch and brief / litter pick of excavation works of soil - cement debris within.		
N° of Operatives:	2	Estimated Quantity	0 m2
Start Date:	16/08/2022	Finish Date	16/08/2022
Start Time:	08.30	Estimated N° of Shifts	1
Project Staff			
Project Director:	Steve Kennedy	Project Manager:	James Blount
PD Tel:	07540 634615	PM Tel:	07508 625833
Project Administrator:	Amy Jones	Site Supervisor:	Luke Sabin
PA Tel:	01299 251 083	SS Tel:	07969 386320
RAMS Prepared By:	James Blount		
Signature:		RAMS Completion Date:	22/03/2022

Contents

- 1.0 Introduction / Pre-Works Checks**
- 2.0 Waste Disposal**
- 3.0 Equipment Required**
 - 3.1 PPE**
 - 3.2 Equipment**
- 4.0 Site and Working Methodology**
 - 4.1 Preparing the Work Area**
 - 4.2 Removal Procedure**
 - 4.3 Cleaning and Disposal**
 - 4.4 Procedures for Departures from the Plan of Work**
- 5.0 Emergency Procedures**
- 6.0 Accident, Dangerous Occurrence and Near Misses**
- Appendix I Risk Assessment**
- Appendix II Dynamic Risk Assessment**
- Appendix III Site Register / Signing Sheet**
- Appendix IV Procedural Changes to Work Methods Table**

1.0 Introduction / Pre-Works Checks

Safeline Environmental have been appointed to remove external asbestos containing cement products in accordance with HSE guidance notes.

Pre-Works Checks		
	Responsibility	Notes
Suitable Parking:	Client	Confirmed
Suitable Welfare:	Client	--
Power Available:	Client	Confirmed
Water Available:	Client	Confirmed
Electrical Isolations:	N/A	
Mechanical Isolations:	N/A	
Contents Removed:	N/A	--
Cupboard Removal Required:	N/A	
Radiator Removal Required:	N/A	
Ceiling Substrate e.g. Concrete	N/A	N/A
Air Monitoring Required:	No	

2.0 Waste Disposal

The waste will be taken to Safeline Environmental LTD, Waste Transfer Station, Units 231-232 Ikon Trading Estate, Droitwich Road, Nr Hartlebury, Kidderminster, DY10 4EU.

Waste will be transported from the above address by Safeline Environmental to Biffa, Hartlebury Landfill, Whitlence Lane, Hartlebury, DY10 4HB waste site Landfill.

3.0 Equipment Requirements

3.1 PPE

- 3.1.1 P3 Full Face Fitted Respirator* (removal phase)
- 3.1.2 P3 Half Face fitted respirator (cleaning phase)
- 3.1.3 Disposable overalls fitted with hood – Type 5 Cat III
- 3.1.4 Steel Toe Capped Boots
- 3.1.5 Over-boots
- 3.1.6 Gloves
- 3.1.7 Eye protection
- 3.1.8 Hearing protection

3.2 Equipment

- 3.2.1 Emergency Equipment Box containing:

First Aid Kit	Spare Coveralls
Eye Wash	Spare Overboots
Air Horn	Disposable P3 Respirator
2KG Fire Extinguisher	Hand Sanitizer
- 3.2.2 Warning tape and signs
- 3.2.3 voltage pen / electrically insulated screwdriver
- 3.2.4 2 x Class H vacuum cleaners
- 3.2.5 Ladder / hop-up
- 3.2.6 750 Gauge polythene sheeting
- 3.2.7 5 x Correx Sheets or 6mm timber boards
- 3.2.8 Asbestos waste sacs
- 3.2.9 Hazi Bag
- 3.2.10 Sprayer containing a surfactant
- 3.2.11 Bucket of water and rags
- 3.2.12 Cloth tape and spray tac
- 3.2.13 Tub of ET150 and Brush
- 3.2.14 Sharp knife
- 3.2.15 Hammer
- 3.2.16 Hand Scraper
- 3.2.17 Hand Shovel
- 3.2.18 Wire Brush
- 3.2.19 Bolt Cutters
- 3.2.20 Breaker
- 3.2.21 Reciprocating saw

4.0 Removal Methodology

4.1 Preparing the Work Area

4.1.1 COVID

- No team member is to leave for work if they have a high temperature (hot to touch on chest or back), new persistent cough or loss of taste/smell.
Contact James Blount if you have any symptoms (07508 625833)
- Prior to leaving for site temperatures will be taken for each team member and recorded in the site register, if above 38oC you will not be allowed to work and will require a COVID PCR test.
- Surgical masks are to be worn in company vehicles at all times.
- All staff are to ensure that they have their company issued hand sanitiser, surgical mask, gloves and disposable coveralls (COVID PPE). COVID PPE is to be worn on site at all times.
- We suggest that a packed lunch is brought to site to prevent exposure potential.
- Staff are to work in a bubble of 2 team members as so far as is practicable.
- Ensure that social distancing is maintained with all other site staff (2m).
- Ensure that hands are washed/sanitised frequently for a minimum of 30 seconds.
- All vehicles are stocked with antiviral wipes to clean vulnerable surfaces e.g. door handles. It is the supervisors responsibility to ensure this is carried out.
- **SITE VISITORS** Any sub-contractors or other visitors to site will not be allowed to enter site without been inducted by the site supervisor and will be required to follow the above procedures at all times.

4.1.2 As soon as you arrive on site you are to put on your RPE and PPE before you introduce yourselves to the site contacts and evidence photo outside the front of the property.

4.1.3 **Operatives will be wearing their RPE and PPE at all times when inside your property to protect themselves and anyone they may come into contact with.**

4.1.4 Communicate to site contact and other team members the works and control measures.

Site contacts are to either vacate the property or remain in a separate room as much as possible.

4.1.5 Check that the **facilities** are suitable – good ventilation, adequate lighting, clean and running toilets, adequate fresh water available and good access and egress to and from the working zone. If you feel these are not suitable then please contact the office straight away.

- 4.1.6 Carry out pre-damage assessment with **multiple photos** and ensure this is signed by the site contact.
- 4.1.7 Ensure emergency air horn is located outside the work area with the emergency kit box.
- 4.1.8 Erect barrier tape to the perimeter of the working area and place appropriate warning signs.
- 4.1.9 Designate a **transit route** with ample signage.
- 4.1.10 Place site **emergency box** adjacent to the works area.
- 4.1.11 Put **all equipment** needed for the removal inside the work zone (including H-type vacuums, asbestos bags, spray surfactant, scrappers and other associated tools for the job). Test the H-type vacuums.
- 4.1.12 Place a bucket with fresh water, rags and an asbestos waste bag next to the works area for **decontamination**.

4.2 Removal Procedure

- 4.2.1 Operative is to work methodically across the site while carrying out a hand pick of any cement debris within the working area as far as reasonably practicable.
- 4.2.2 Any asbestos cement products identified is to be thoroughly sprayed with a surfactant and allowed to soak. Products are then to be placed directly into UN approved asbestos bags.
- 4.2.3 To removal larger cement products carefully, avoiding breakage and place onto 750-gauge polythene sheeting. Form a parcel and seal with cloth tape.

Place an asbestos sac onto the outside of the parcel and place in the waste storage receptacle.

- 4.2.4 Operative to ensure the transit route is free from slip and trip hazards and waste parcels are to be assessed by the team members to ensure that they are not too heavy to handle safely.
- 4.2.5 Bags are not to exceed 15kg and are to be sealed when full.
- 4.2.6 **Waste must not accumulate on the floor.**

4.3 Cleaning and Disposal

- 4.3.1 Operative is to fine clean the work zone using class H-type vacuum cleaners with cup brush attachments and wet rags.
- 4.3.2 Operative is to leave the work zone; vacuum clean coveralls wiping down RPE/PPE using the fresh water in the bucket and then remove RPE/PPE and put on waste transit RPE/PPE.
- 4.3.3 All waste is to be transited to the van/skip using the designated waste route wearing blue transit overalls and a half face respirator.
- 4.3.4 All waste is to be placed carefully into the designated waste storage box within the vehicle or if applicable and authorised into the onsite asbestos skip.
- 4.3.5 Ensure that all equipment has been removed from the area.
- 4.3.6 Operatives to inspect the work area dust/debris/damage. Take multiple **photos and add to the project file.**
- 4.3.7 The operative is then to complete the **Certificate of Reoccupation** with the site contact.
- 4.3.8 Once the job is complete the operative is to **sync the iPad** and then **call the office** prior to leaving to site. This is to ensure that the job completion reaches the office and that no amendments are required, and they know you are travelling back.
- 4.3.9 **PPE and RPE will remain being worn until all works are completed and signed off.**

- 4.3.10 All PPE and RPE will be taken home and not left in the vans or site, it will be kept clean at all times. Ensure that you wash your RPE in warm soapy water ideally twice a day.

4.4 Procedures for Departures from the Plan of Work

It is the policy of Safeline Environmental that proposed changes to the method statement/plan of works will only be authorised by the company directors. Once approval has been sought the supervisor can fill in the 'Procedural Changes to Work Methods' stating the changes to the scope, the reason why the changes have taken place and who has confirmed the changes.

The changes will also be communicated from the site supervisor to the operatives.

Under no circumstances will changes be undertaken on site without return approval from the project director.

5.0 Emergency Procedures

- 5.1.1 Split waste sac during waste transfer
 - a) Stop all work
 - b) Put on suitable RPE/PPE
 - c) Re-package waste in asbestos sac
 - d) Clean surrounding area with H-Type vacuums and wet rags
- 5.1.2 Minor injury inside the enclosure/working area
 - a) Stop all work
 - b) Carry out personal decontamination in the airlock/working area
 - c) Exit the enclosure and treat the injury
- 5.1.3 Major injury
 - a) Call 999 and request an ambulance
 - b) If possible, carry out preliminary decontamination of the injured party.
 - c) Give the emergency services protective coveralls and disposable P3 RPE to wear when treating the casualty.
- 5.1.4 Fire
 - a) If inside the enclosure/working area try to tackle with the fire extinguisher located in the site emergency box next to the airlock/entrance to the enclosure
 - b) If the fire cannot be tackled exit the enclosure/working area immediately and call 999
 - c) If outside the enclosure/working area vacate immediately. Do not attempt to decontaminate.
- 5.1.5 Following any dangerous occurrences or accident, the relevant office of the Health & Safety Executive or Local Authority will be informed.

6.0 Accident, Dangerous Occurrence and Near Misses

If there is a near miss, complete the 'Report Near Miss' form found on PowerApps. If there is an accident or dangerous occurrence, all details shall be inputted into the 'Accident, Incident and Dangerous Occurrence' form. This is to be completed by the site supervisor or team leader and then emailed to Jon Pickett jon.pickett@safeline-env.co.uk and Matt Pickett matt@safeline-env.co.uk

Appendix I

Risk Assessment

Risk Assessment



Task:	Watch and brief / litter pick of excavation works of soil - cement debris within		
Assessment Date:	15/08/2022	Review Date:	15/11/2022
Risk Assessor:	James Blount	Signed:	
Site Address:	PECKLETON LANE SITE, DESFORD, LE9 9JU		
Nearest A&E Department			Distance to A&E
Leicester Royal Infirmary, Infirmary Square, Leicester, LE1 5WW			6.6 miles
Emergency Tel N°s:	Major Trauma:	999	
	Head Office:	01299 251083	
	Steve Kennedy:	07540 634615	

A full site-specific Risk Assessment is required for each project.

The HSE Five Step Principal:

- Step 1 Identify the hazards associated with the work activities and how the activities are carried out.
- Step 2 Identify those that may be harmed and how
- Step 3 Evaluate the risks and decide on pre-cautions/controls measures
- Step 4 Record the significant findings
- Step 5 Review the assessment and update if necessary.

- Hazard** Something, which has the potential to cause harm i.e. machinery, equipment, substances, methods or aspects of work.
- Risk** The likelihood of potential harm from the hazard being realised.
- Who** Who is at risk? i.e. staff, contractors, visitors, public
- Controls** Steps taken to reduce the likelihood and severity of the hazard

What are the hazards?	Who might be harmed?	Control Measures	Action by whom?	Action Date	Review Date
Asbestos: General	Employees Site Occupants	a) Adhere to procedures in SAFELINE Procedures Manual and follow plan of work. b) All works to be conducted in accordance with HSE guidance documents/ACOP's c) Trained competent personnel with valid/ in date Asbestos Removal training certificate only to conduct work. d) Face fit testing for RPE to be carried out annually. e) Full face positive pressure power assisted P3 respirators complying to BS EN 12942 to be used for removal works f) Operatives to be clean shaven. g) Disposable Type 5 CAT III coveralls to be used. h) Fitness for work medicals completed by a qualified GP every 2 years. i) Asbestos medicals completed by a qualified and HSE registered GP every 2 years. j) Personal air monitoring to be conducted on minimum 5% of asbestos removal projects and all new tasks to ensure suitability of RPE and dust control measures. k) Enclosures to be constructed out of 1000-gauge polythene sheeting with adequate supports. l) Enclosures to be placed under negative pressure with a minimum pressure differential of 8 pascals. m) Enclosure ventilation to be >1000 m³/hr for enclosures <120m³ and >8 air changes /hr for enclosures >120m³. n) Continuous training for all operatives. o) Onsite auditing p) Refer to Asbestos Risk Assessment for more information (available via all iPads).	Directors Project Managers Site Supervisor Operatives	19/01/22	19/01/23

Asbestos: Disturbance of Asbestos During Enclosure Construction	Employees Site Occupants	a) Operatives to wear type 5 CAT III coveralls and P3 half face respirator when erecting enclosures b) Halt enclosure construction works c) Disturbed asbestos to be wetted with a low-pressure sprayer containing fibre suppressant to reduce any airborne exposure. d) The damaged asbestos will then be repaired using polythene sheeting, tape and spray adhesive. e) H-type vacuum cleaners and tac-rags will then use to clean up any contamination. f) Air monitoring will be carried out to establish the extent of contamination. g) Work will only restart when satisfactory readings of <0.01f/ml have been achieved. The results of any such incidents will be recorded in the site log including air monitoring results. h) Continuous training for all operatives. i) Onsite auditing j) Refer to Asbestos Risk Assessment for more information (available via all iPads).	Project Managers Site Supervisor Operatives	19/01/22	19/01/23
Asbestos Split Bag During Transit	Employees Site Occupants	a) Operatives carrying waste to wear type 5 CAT III coveralls and P3 half face respirator. b) Halt works. c) Using the emergency spill kit spray the spilt waste with a solution containing a surfactant. d) Use a H-type vacuum to clean up all minor pieces of debris e) Insert the split asbestos sac into two clear asbestos sacs f) Carry out reassurance air monitoring to ensure fibre levels are <0.01 f/ml g) Continuous training for all operatives. h) Onsite auditing i) Refer to Asbestos Risk Assessment for more information (available via all iPads).	Site Supervisor Operatives	19/01/22	19/01/23

Asbestos: Elevated Fibre Levels Outside Enclosure	Employees Site Occupants Public	a) In the case of elevated airborne fibre levels being recorded outside an enclosed area, the following procedure will be adopted b) Halt all works within the enclosure. c) Inspect enclosure for, any leak or breach found will be immediately repaired d) All surfaces adjacent to the enclosure will be thoroughly cleaned using H-type vacuum cleaners and tac rags e) Air monitoring will be carried out to establish the extent of contamination. f) Work will only restart when satisfactory readings of <0.01f/ml have been achieved. The results of any such incidents will be recorded in the site log including air monitoring results. g) Ensure that the supervisor is carrying out visual integrity checks to the enclosure periodically h) If applicable get leak air monitoring carried out by a UKAS accredited laboratory i) Onsite auditing	Project Managers Site Supervisor Operatives	19/01/22	19/01/23
Asbestos: Disturbance of hidden asbestos during enclosure dismantling	Employees Site Occupants Public	a) Operatives to wear type 5 CAT III coveralls and P3 half face respirator when removing enclosures b) Halt enclosure dismantling c) Disturbed asbestos to be wetted with a low-pressure sprayer containing fibre suppressant to reduce any airborne exposure. d) H-type vacuum cleaners and tac-rags will then use to clean up any minor contamination. e) Air monitoring will be carried out to establish the extent of contamination. f) Work will only restart when satisfactory readings of <0.01f/ml have been achieved. The results of any such incidents will be recorded in the site log including air monitoring results. g) Take care when removing enclosures	Site Supervisor Operatives	19/01/22	19/01/23

Biological Contaminates	Employees	a) Safeline employees to wear gloves b) Safeline employees to keep cuts and grazes clean and dry c) Safeline employees to wash hands in welfare facility prior to consuming food/drink d) Conduct site specific risk assessments if there are known biological agents on site. e) If these are discovered whilst carrying out removal, then carry out a site-specific risk assessment as soon as possible and record this to the RAMS.	Site Supervisor Operatives	19/01/22	19/01/23
Burns	Employees	a) All hot services to be isolated prior to works. b) Generators to be allowed to cool prior to refuelling. c) Burn treatment to be available in site first aid kit d) Be vigilant when working around 'hot areas'	Site Supervisor	19/01/22	19/01/23

COVID	Employees Site Occupants	a) If you are you have a high fever (hot to touch on chest or back), a new continuous cough or a loss of taste/smell do not come to work. You must inform James Blount and self-isolate for 7 days. b) To prevent exposure to the virus we request that you bring a packed lunch to work and a bottled drink. c) Regularly wash hands for at least 20 seconds. d) Vehicles will only carry two employees at a time who are to wear disposable surgical masks. Ventilation in shared vehicles is to be achieved by having the windows down where possible whilst in use. e) The site supervisor will take the temperature of each of the team prior to leaving for site and log the readings on the site register. Any temperatures >37.8°C will be reported to company directors. f) Staff are to remain in their assigned teams as far as is practicable. g) All staff are to be issued with individual hand sanitiser bottles. h) All vehicles will be stocked with antiviral wipes to clean vulnerable surfaces such as door handles. i) All PPE and RPE will be taken home and not left in the vans or site, it will be kept clean at all times. Ensure that you wash your RPE in warm soapy water ideally twice a day. j) Prior to loading vehicles or collecting materials ensure that hands are washed and that members of staff remain 2m apart. k) P3 RPE or disposable surgical masks are to be worn on site at all times. e) Breaks on site will be one team member at a time outside and away from the public, this will be the only time you remove your mask.	Site Supervisor Operatives	19/01/22	19/01/23
Cuts from using sharp knives	Employees	a) Knives to be retracted when not in use b) Cut polythene on flat surfaces c) Ensure sharp blades are used to prevent slippage d) First aider to be available at all times with suitable first aid kit complying to BS8599 and to be left at the entry to the enclosure e) Knife blades to be changed regularly. f) First aid kits to be checked monthly to ensure they are fully stocked. g) If items within the first aid kit are used, then report this to the yard manager who will replenish the stock.	Site Supervisor Operatives	19/01/22	19/01/23

Driving	Employees Public	a) Vehicle drivers be trained on how to inspect vehicles and to inspect vehicle prior to journey to ensure the following are satisfactory: b) Total vehicle weight is not exceeding 3.5 tonnes Tyre pressure / condition Oil & Coolant levels All lights / indicators are operational Mirrors Wipers. c) Ensure regular service and maintenance conducted on vehicles. d) Follow Highway Code. e) Take regular breaks or share driving. f) Staff to inform management if there is a defect noted with a vehicle as soon as one is discovered g) Refer to Driving Risk Assessment for more information (available via all iPads).	Site Supervisor Operatives	19/01/22	19/01/23
Eye Damage	Employees	a) Eye protection will be provided and worn in designated areas or if deemed necessary by site or change in conditions. b) Eye wash kit to be available on site at all times. c) First aider to be available on site at all times. d) Site audits to ensure that operatives are using the appropriate PPE.	Site Supervisor Operatives Manager	19/01/22	19/01/23

Electrocution	Employees Site Occupants	a) Portable electrical equipment will be subject to current portable appliance test conducted by a competent person and supplied at 110V. b) Items to be PAT tested periodically. c) Isolations to be conducted and certificate issued prior to commencement of works by a qualified electrician. d) Cables to be tested with a voltage pen and marked in green tape prior to cutting by the site supervisor. e) Live cables uncovered during works are to be tagged with red tape and isolated if necessary, by a qualified electrician. f) DCU to be fitted with RCD and earthed. DCU electrical connection to be protected from water ingress. g) Generators to be earthed. h) Visually check equipment before use where necessary. i) Isolations to be conducted and certificate issued prior to clearance inspection being carried out by SAFELINE or any other work in or around electrical equipment. j) If an item is noted to be damaged or out of PAT testing certification, then this needs to be reported to the yard manager as soon as possible. k) Refer to full Electrical Equipment Risk Assessment	Contracts Manager Site Supervisor Operatives Yard Manager	19/01/22	19/01/23
---------------	-----------------------------	--	---	----------	----------

Fire	Employees Site Occupants	a) Contaminated operatives muster point is located next to the Safeline van b) Gas cylinder to be located externally for easier valve isolation. c) SAFELINE /client procedures to be adhered to. d) Dry powder Fire extinguishers to be placed in required locations. Ensure Fire extinguisher label is correct and service up to date. e) No smoking in any work areas. Utilise clients smoking area if available, if none no smoking allowed. f) A full fire risk assessment is available via all iPads	Site Supervisor Operatives	19/01/22	19/01/23
Falling objects	Employees Site Occupants	a) SAFELINE staff will remain vigilant to the risk of falling objects at all times. b) Work area to be barrier taped or fenced off with warning signs. c) Safety footwear required at all times. d) Hard hats required in designated areas. e) Abide to safety signage	Site Supervisor Operatives	19/01/22	19/01/23
Gas bottles (Explosion)	Employees Site Occupants	a) SAFELINE staff to ensure gas bottle secured and valves closed when transiting within vehicle to site or from site. b) Ensure bottle has no damage and valves are closed when not in use. c) Bottle must be protected from heat and/or direct sunlight and have correct warning label. d) Gas isolation valve to be easily accessible when gas cylinder is in use.	Site Supervisor	19/01/22	19/01/23

Reciprocating saws, grinding, breaking	Employees	a) SAFELINE staff to be trained in the use of reciprocating saws, grinders and breakers. Only trained staff are to use the equipment trained on. b) All iPads contain the user manual for each piece of equipment. These are to be read and understood before using. c) Operatives ensure that clothing worn is not contaminated with flammable liquids and wear the suitable overalls whilst in the area that are not loose. d) Equipment is labelled with appropriate information regarding hand arm vibration and noise emitted. Safe are to read this prior to use and be aware of the restrictions-ensuring that any appropriate PPE is used. e) Fill in HAVS monitoring sheet whenever the equipment is used. f) See vibration risk assessment for full information	Site Supervisor Operatives	19/01/22	19/01/23
Head Injury	Employees	g) Wear protective headwear in designated areas. h) Take notice of any signage informing you that there may be obstacles that could cause a head injury. i) Ensure that all head gear is within date.	Site Supervisor Operatives	19/01/22	19/01/23
Manual Handling	Employees	a) Manual Handling training is provided to SAFELINE employees. b) Employees to follow SAFELINE procedures. c) Use trolley and mobile wheels for moving heavy items, e.g. NPU's. d) Two man lift for all labelled items e) Steel toe boots complying with EN 20345 to be worn at all times. f) Transit route to be inspected for suitability by site supervisor and kept free of slip/trip hazards. g) See manual handling risk assessment for further details.	Contracts Project Manger Site Supervisor Operatives	19/01/22	19/01/23
Noise	Employees	a) Hearing protection will be provided and worn in designated signed areas or when in vicinity of generators or plant with warning signs indicating noise. b) Noise risk assessment for further information.	Site Supervisor Operatives	19/01/22	19/01/23

Petrol / Diesel Generators	Employees Site Occupants Public	a) Only trained staff to operate and maintain generator. b) Fuel to be stored safely away from generator and handled by trained staff only. c) Barriers to be used to prevent access. d) Ensure vehicle is labelled with appropriate warning triangle/label and Tremcard in van. e) Site audits to check that generators are set up correctly		Site Supervisor Operatives Management	19/01/22	19/01/23
Slips / Trips / Falls	Employees Site Occupants	a) Good housekeeping to be observed at all times. Follow company's H&S policy and procedural documents. b) Incidents and near misses to be reported to management team. c) Safety shoes with non-slip soles to be worn at all times. Audit for good housekeeping on site. d) Ensure that the first aid kit is kept fully stocked and freely available next to the enclosure.		Project Manger Site Supervisor Operatives	19/01/22	19/01/23
Welfare	Employees	a) Welfare facilities to include the following: b) Clean Toilet Hand washing facilities with hot and cold running water, antibacterial soap and nail brushes Hand drying facilities Rest area with food heating facilities Drinking water c) Welfare facilities to be kept clean and tidy d) Office staff are to make sure that all facilities are available when booking in jobs. e) Refer to Workplace and Welfare risk assessment for full details		Project Manger Site Supervisor Operatives	19/01/22	19/01/23
Working at Height	Employees Site Occupants	Roof Spaces	a) Loft boards are to be used when working in lofts which do not have a floor within. b) Safeline staff will be trained to use the loft boards. c) A copy of the user manual for the loft walk board is kept on all iPads. d) Report any problems with the loft walk boards to management	Project Manger Site Supervisor Operatives	19/01/22	19/01/23

Working at Height	Employees Site Occupants	Ladders	a) For short term noncontinuous. b) Ladders to be inspected and maintained by competent person. c) All users trained in working at height and ladder selection and use. d) Ladders to be used in accordance with manufacturer's instructions. e) Inspect for damage prior to use – Do not use if defective. f) Ladders to be positioned correctly on firm level ground using the 4 in 1 principle. g) Erect buffer zone with barrier tape. h) Refer to Working at Heights Risk Assessment for further details i) Report any damage with the ladders to the yard manager as soon as possible. j) See Ladder Use risk assessment for full details	Project Manger Site Supervisor Operatives	19/01/22	19/01/23
Working at Height	Employees Site Occupants	Scaffold Towers	a) Scaffold Towers to be used for any work unless ladder access is the only means of access. b) Tower to be erected and used as per operating manual and by competent persons only. c) Inspect for damage prior to use – Do not use if defective. d) To be erected only on firm level ground. e) Erect buffer zone with barrier tape. f) Ensure Scaff tag is present and in date. g) Refer to Working at Heights Risk Assessment for further details h) Report any damage with the scaffold to the management as soon as possible.	Project Manger Site Supervisor Operatives	19/01/22	19/01/23
Working at Height	Employees Site Occupants	Fixed Scaffolding	a) To be erected by competent persons only. b) To only be used when a valid Scaff tag is present and in date. c) To be inspected every seven days by a competent person. d) Erect buffer zone with barrier tape. e) Refer to Working at Heights Risk Assessment for further details f) Report any damage with the scaffold to the management as soon as possible.	Project Manger Site Supervisor Operatives	19/01/22	19/01/23

Vehicular movement on site	Employees Site Occupants Public	a) Safeline staff will keep to marked pedestrian routes wherever possible. b) Safeline staff to be aware of designated forklift truck routes. c) Safeline staff to abide by safety signs and symbols posted around the site. d) Safeline staff will wear high visibility vests/jackets at all times when in vicinity of traffic e) Staff will remain vigilant at all times and adhere to site rules and regulations.	Site Supervisor Operatives	19/01/22	19/01/23
----------------------------	---------------------------------------	--	-------------------------------	----------	----------

Risk Assessment Additional Hazard Identification and Control Measures

[illegible]

Appendix II

Dynamic Risk Assessment

Dynamic Risk Assessment

Assessor Name:			Approved By:		
Description of works:					
What are the hazards?	Who might be harmed?	Control Measures	Action by whom?	Action Date	Review Date

Appendix III

Site Register / Signing Sheet



Site Register / Signing Sheet

[illegible]

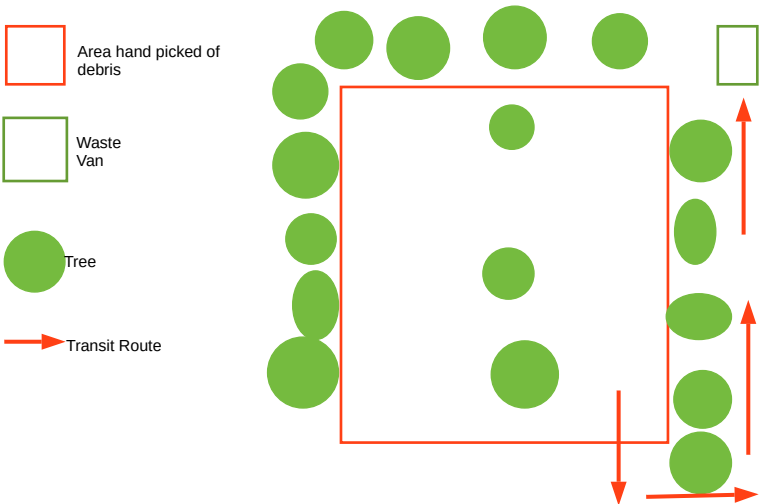
Appendix IV

Procedural Changes to Work Methods Table

[illegible]

Section 4

Certificate of Reoccupation

Certificate of Reoccupation (Non-Licensable Works)											
Project N°:		Site Address:									
Description of Works:											
PF10489		PECKLETON LANE SITE, DESFORD, LE9 9JU									
Watch and brief / litter pick of excavation works of soil - cement debris within.											
Preliminary Check of Site Conditions and Job Completeness				Site Diagram				Post Enclosure Removal Assessment			
Plan of work followed		YES						H-Type vacuum cleaned and sealed		YES	
All asbestos removed		NO						All asbestos containing materials within the scope of work removed		NO	
Two stage airlock installed		NO						Remaining asbestos encapsulated and marked on plan		YES	
H-Type vacuum cleaners operational		YES						Interior surfaces of the work area free from all dust and debris		YES	
Operatives following working procedures		YES						Surrounding area free from waste and debris		YES	
Transit route free from waste and debris		YES						All remnants of enclosure removed		YES	
Waste storage and surrounding area free from waste and debris		YES						The area has been visually inspected and is deemed satisfactory		YES	
If NO selected provide explanation below: 				If NO selected provide explanation below: Badger tunnels hand picked as far as reasonably practicable. Asbestos may remain throughout whole badger excavation sites.							
Plan to include approximate dimensions, extent of work area, position of enclosure, airlocks NPU and any remaining asbestos containing materials.											
Site Equipment:										Waste	8
NPU Serial N°:		D.O.P. Expiry Date		Vac 1 Serial N°:		D.O.P. Expiry Date		Vac 2 Serial N°:		DOP Expiry Date	
Decorations/Damage - Although due care will be taken Safeline Environmental Limited or its partners cannot be held responsible for damage to decorations or furnishings as a result of forming our enclosures as they are required by law to prevent the spread of and exposure to asbestos. Uneven Flooring - When removing flooring from the designated area of the property policy holders should be aware of the increased trip hazard. Safeline Environmental Limited or its partners cannot be held responsible for any incidents that occur after the area/certificate of reoccupation has been signed off by the site contact.											
Supervisors Name: Luke Sabin Signature: 						Independent Witness Name: Signature:					
Date: 17/08/2022						Date: 17/08/2022					



Section 5

Waste Consignment Note

The Hazardous Waste Regulations 2005: Consignment Note



PART A Notification details

- 1 Consignment note code:

S	A	F	E	L	I	/	1	2	5	4	8
---	---	---	---	---	---	---	---	---	---	---	---
- 2 The waste described below is to be removed from (name, address, postcode, telephone, email, facsimile):
PECKLETON LANE SITE, DESFORD, LE9 9JU
- 3 The waste will be taken to (name, address and postcode):
Safeline Environmental, Unit 231-232, Ikon Trading Estate,
Droitwich Road, Kidderminster, DY10 4EU
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
Safeline Environmental, Unit 231-232, Ikon Trading Estate,
Droitwich Road, Kidderminster, DY10 4EU
Tel: 01299 251083 Email: info@safeline-env.co.uk

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: Asbestos Removal Work
- 2 SIC for the process giving rise to the waste:

3	9	.	0	0	/
---	---	---	---	---	---
- 3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC Identified)

Description of waste	List of wastes (EWC code)(6 digits)	Quantity (kg)	The chemical/biological components in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard codes(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Cement	1 7 0 6 0 5	80 kg	Chrysotile	15%	Solid	HP5/HP7	8 Bags

The information given below is to be completed for each WEC identified

EWC code	UN Identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
Not Applicable - EXEMPT CDG ROAD REGULATIONS - ADR SPECIAL PROVISION SP168 APPLIES					
1 7 0 6 0 5					

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements

Where this note comprises part of a multiple collection the round number and collection number are:

/

1 Carrier name: Luke Sabin

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
As A4

2 Carrier registration no./reason for exemption: CB/DU127993

3 Vehicle registration no. (or mode of transport, if not road): ND20 LFP

Signature

Date 17/08/2022	Time 17:20
-----------------	------------

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

1 Consignor name: Luke Sabin

On behalf of (name address, postcode, telephone, e-mail, facsimile):
As A4

Signature

Date 17/08/2022	Time 17:30
-----------------	------------

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/ rejected	Waste management operation (R or D code)
1 7 0 6 0 5	80 kg	A	D15

1 I received this waste at the address given in A4 on:

Date 18/08/2022	Time 06.00
-----------------	------------

2 Vehicle registration no. (or mode of transport if not road): ND20 LFP

Name: James Blount

3 Where waste is rejected please provide details:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

As A4

I certify that waste permit/exempt waste operation number:

ERP/EB3104TH

authorises the management of the waste described in B at the address given in A4.

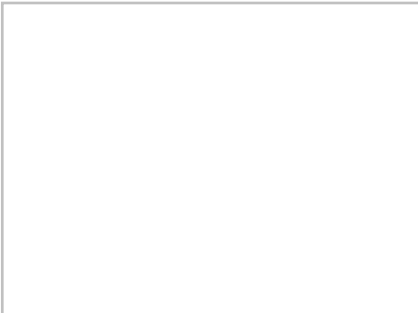
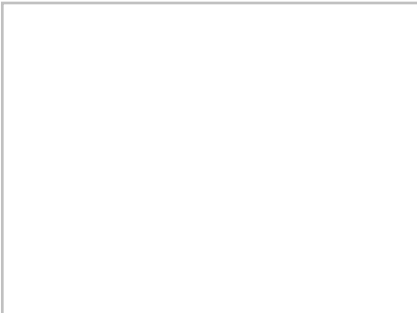
Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the collection are:

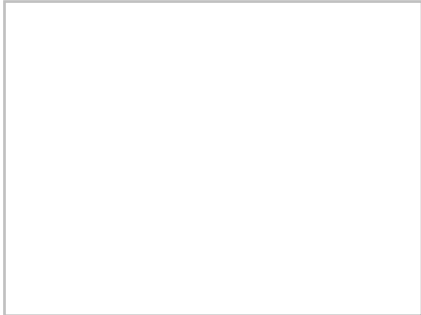
Signature

Date 18/08/2022	Time 06.00
-----------------	------------

Section 6

Project Photographic Record

Project Photographic Record – Pre Works			
Project Number	PF10489	Address	PECKLETON LANE SITE, DESFORD, LE9 9JU
General Layout Pre-Works 1		General Layout Pre-Works 2	
			
General Layout Pre-Works 3		General Layout Pre-Works 4	
			
Enclosure Construction 1		Enclosure Construction 2	
			
Enclosure Construction 3		Enclosure Construction 4	
			

Project Photographic Record – Post Works			
Project Number	PF10489	Address	PECKLETON LANE SITE, DESFORD, LE9 9JU
Picture of Airlocks Set Up		Picture of NPU Set Up	
			
Picture of Vac Set Up		General Layout Post-Works 1	
			
General Layout Post-Works 2		General Layout Post-Works 3	
			
General Layout Post-Works 4		General Layout Post-Works 5	
			

APPENDIX C – PHOTOGRAPHS OF EARTHWORKS

Photo 1: Initial strip of Phase 1 complete



Photo 2: Strip and localised redistribution of materials across Unit 2 of Phase 1



Photo 3: View looking south to Unit 1 showing levels built up for hardstanding of Unit 2



Photo 4: Unit 2 pad foundation excavations to the north of the PAH impacted soils



Photo 5: Further build up of Unit 2 levels achieved



APPENDIX D - CHEMICAL TEST SAMPLING

Samples were selected by a representative of Tier Environmental during the site investigation works in accordance with the sampling approach described elsewhere in this report.

Samples for geotechnical and related testing

Bulk samples were placed within robust heavy duty plastic bags and sealed, together with small disturbed samples, within airtight 1 litre plastic containers.

100 mm diameter 'undisturbed' samples ("U100 samples") were obtained where possible from cable percussive and large diameter window sample boreholes within cohesive materials.

Samples for chemical analysis

All samples for chemical analysis were placed into clean new containers as summarised in Table 1. Unless explicitly stated elsewhere in this report, no preservatives were used to eliminate the risk that preservatives cause contaminant dissolution or analytical interference. Containers for VOC analysis were fully filled to exclude headspace.

Soil samples were dispensed as soon as possible after collection using reusable stainless steel spatulas, trowels or similar implements.

Ground water samples were collected from boreholes using single-use Teflon bailers or dedicated Waterra tubing with foot valves, except as otherwise noted within this report. Caution was taken to avoid excessive agitation during collection

New disposable gloves were used by the engineer for the collection of each sample.

Reusable equipment was washed down with distilled or deionised water between samples, except where tarry or similarly sticky materials were present. In such cases specific cleaning procedures were adopted as specifically described elsewhere in this report.

All sub-samples taken for chemical analysis were placed into refrigerators or cool boxes containing frozen ice packs immediately after aliquoting. All samples were transferred in cool boxes containing frozen ice packs to the relevant UKAS/MCERTS accredited laboratory as soon as possible. Recommended maximum holding times before analysis are summarised in Table 1.

Table 1. Sample containers and holding times.

Analysis	Container/special requirements	Max. holding time at 4°C before analysis
Soil and sediment samples		
VOCs	30-60 g brown or green glass jar with VOC-resistant cap and inert cap liner. Must be fully filled.	14 days
TPHCWG	30-60 g brown or green glass jar with VOC-resistant cap and inert cap liner PLUS 250-500 g brown or green glass jar with unwaxed cap liner. ¹ The former must be fully filled.	14 days
All other organics	250-500 g brown or green glass jar with unwaxed cap liner.	7 days
Inorganics	Air-tight 0.5-2.0 kg plastic container (250-500 g brown or green glass jar may also be used).	14 days ²
Water samples		
VOCs	40-50 ml glass vial with VOC resistant screw cap and inert liner. Must be fully filled.	14 days
TPHCWG	40-50 ml glass vial with VOC resistant screw cap and inert liner PLUS 500-1000 ml brown or green glass bottle with screw cap and unwaxed liner. ¹ The former must be fully filled, the latter should be filled if possible.	14 days
All other organics	500-1000 ml brown or green glass bottle with screw cap. Fill if possible.	7 days
Inorganics	500-1000 ml translucent or opaque screw cap plastic or brown or green glass bottles. Fill if possible.	14 days ³

¹ The smaller vessel is used for analysis of the volatile components within the TPH mixture and the larger one is for the non-volatile components.

² 14 days is set as a reasonable limit for all routine analyses of soil for those inorganic components vulnerable to chemical and/or biological breakdown. Samples for sulphate analysis are vulnerable to biological sulphate-reduction but can be held for up to 28 days. For total metals, a holding period of up to 6 months is acceptable.

³ 14 days applies for all routine analyses of most inorganic components that may be vulnerable to chemical and/or biological reactions. In the specific cases of sulphide, nitrite, nitrate and phosphate analyses, storage time must not exceed 48 hours. For total metals, a holding time of up to 6 months is acceptable.

Tier Environmental standard analytical suites

The analyses included with Tier Environmental's standard analytical suites for soil, soil leachate and water samples are presented in Table 2. Other individual analyses were specified as described within this report.

Table 2. Tier Environmental Standard Analytical Suites.

Parameter	Sample type					
	Soil		Leachate ¹		Water	
		LoD ² (mg/kg or as stated)		LoD (µg/l or as stated)		LoD (µg/l or as stated)
Metals and metalloids						
Arsenic	✓	1	✓	10	✓	10
Cadmium	✓	1	✓	5	✓	5
Chromium	✓	1	✓	5	✓	5
Mercury	✓	1	✓	1	✓	1
Lead	✓	1	✓	4	✓	4
Selenium	✓	2	✓	10	✓	10
Copper	✓	1	✓	1	✓	1
Nickel	✓	1	✓	50	✓	50
Zinc	✓	1	✓	8	✓	8
Other inorganics						
Ammonia (as NH ₄ -N)					✓	15
Total sulphate	✓	100			✓	50 mg/l
Water-soluble sulphate	✓	0.1 g/l				
Hardness (as CaCO ₃)					✓	1 mg/l
Organics						
Monohydric phenol	✓	1	✓	0.5	✓	0.5
Speciated PAHs (USEPA 16)	✓	0.1	✓	0.01	✓	0.01
Total Organic Carbon	✓	0.1 wt%				
Others						
Electrical conductivity					✓	NA
pH	✓	NA	✓	NA	✓	NA

NA - Not applicable

¹ Leachate preparation according to NRA (1994), 10:1 liquid to solid ratio.

² The table presents the desired limit of detection for the analysis. Higher LoDs may be reported on analytical data sheets due to interference between analytes within specific samples or if the laboratory needed to dilute samples to achieve results within the calibrated range for that instrument.

Analytical QA procedures

Introduction

Quality Assurance (QA) is a system of review and audit that assesses the effectiveness of that product and assures the producer and user that defined standards of quality have been met. If we consider site investigation and chemical analysis, QA is the management system that ensures these measures are in place and working as intended.

QA within the laboratory form part of relevant certification programmes (such as UKAS and MCERTS) and, indeed, will be undertaken in some form by any reputable analyst, whether for a certified technique or not. Laboratory QA/QC is beyond the control of Tier Environmental and will not be considered further in this document, although the relevant laboratory documentation can be obtained upon request. QA must also form part of the design and execution of a site investigation.

Two parameters often used to assess measurement quality objectives are bias and precision. Bias is a systematic deviation in the data. For example, a positive bias (concentrations higher than in reality) would be introduced if sampling bottles were a source of the analyte and this fact was unknown. Precision is the variation in the measurements around a central 'expected' value. This could be due both to real variability in the environmental medium being measured and random errors in the analytical process. Both precision and bias can be assessed by the use of appropriate blanks and replicates within the site investigation programme.

The objectives of the QA activities undertaken in this present site investigation were to recognise and quantify systematic bias within the analytical dataset and to obtain an indication of precision. In environmental samples, much of the observed variability is likely to result from heterogeneity in the sampled medium, particularly for soil and sediment samples.

Such QA practice within the sampling programme is required by current guidance (e.g., Environment Agency report P5-065/TR (2000); Environment Agency LFTGN02 (2002); BS 10175:2001).

Alternative QA procedures to the generic approach presented in this appendix may be specified for a project, provided case-specific justification is given.

QA checking procedure (data validation)

The responsible Engineer and Project Reviewer are required to undertake data validation and provide comment on data quality within the main body of the report(s) issued, when noteworthy matters arise. This QA checking should involve:

Confirming that data reported by the laboratory have achieved the standards specified by the certification scheme (MCERTS or UKAS). This will be indicated on the analytical certificates issued by the laboratory.

Checking that the limit of detection (LoD) and limit of quantification (LoQ) achieved by the laboratory for an individual analyte is appropriate for the purposes of the report. LoD and LoQ will vary dependent upon analyte concentrations, sample matrix properties and interference from co-contaminants.

A check that the reported range of concentrations are reasonable for the analyte. For example, the dissolved concentration of an analyte in a water sample should not exceed saturation. If it does, then this merits further consideration (e.g., was colloidal organic matter or other solid-phase material present or could there have been unobserved free-phase organic liquid?) and explicit comment. At its simplest, there may be a unit error.

Where analysis involves reporting of Tentatively Identified Compounds (TICs; normally by mass spectrometry), the reviewers should check that these might reasonably be expected at the site under consideration. The uncertainties in identification by MS mean that it is not uncommon that TICs are incorrectly assigned. In cases of doubt, the analytical laboratory can re-check the raw data and confirm.

A review of the analytical precision by comparing data obtained for duplicate samples. There is no absolute threshold - variability is entirely dependent upon the sample matrix and manner in which the contaminant has entered the sample. Variability that cannot reasonably be assigned to such factors (for example a very high apparent variability in data for sediment-free water samples) should be reviewed with the laboratory. Variability that is attributable to the sample matrix can nevertheless provide important pointers to improve understanding of contaminant transport pathways and the risks posed by pollutant linkages (e.g., soil heterogeneity, the association of contamination with particular soil fractions, the presence of residual NAPL within soil pores or the role of suspended sediments in contaminant transport).

Confirmation that no errors have been introduced by data transcription, unit conversion or corrections between preliminary and certificates issued by the laboratory. The reviewer should audit a proportion (typically 5-10%) of all data from the original (final) certificates of analysis through to the equivalent values in the report for those specific samples.

It is important to consult the analytical laboratory if apparent QA issues arise. Many apparent concerns can be adequately resolved on the basis of revisiting the raw analytical data or by obtaining a better understanding of the inherent limitations of the analysis for a particular matrix or sample type.