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REMEDIATION STATEMENT

for land at

BURY MARKET

Prepared for

VINCI BUILDING LTD

On Behalf of

BURY COUNCIL

Report No. 5237-G-R002

Date: April 2025

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APPENDICES

Appendix A – Drawings

Drawing No.	Title
5237-G-D001	Site Location Plan
5237-G-D002	Existing Site Features & Site Photographs
5237-G-D005 – Rev A	Exploratory Hole Location Plan
<i>Just H Architects Drawing</i>	
AP10.02 Rev A	Proposed Site Layout

Appendix B – Commercial Clean Cover Soils Protocol

Revision History

From	Date	Comments
5237-G-R002	April 2025	Original Report

REMEDIATION STATEMENT for land at BURY MARKET

1 INTRODUCTION

1.1 The Commission and Brief

- 1.1.1 ID Geoenvironmental Limited (IDG) were commissioned by Vinci Building (Vinci) on behalf of Bury Council (The Client) to prepare a Remediation Statement for a site at Bury Market, hereafter referred to as “the site”.
- 1.1.2 Investigations have taken place at the site with reports issued as documented in Section 2.1. The investigations did not identify any significant contaminant linkages at the site. This document has been prepared at the request of Bury Council to outline the measures required to ensure potential contaminant linkages are managed to minimise harm to human health, property and the environment.
- 1.1.3 The assessment methodology applied in this Statement follows the framework presented in EA document Land Contamination Risk Management (LCRM) and is summarised below:
- Remediation options appraisal
 - Implementation plan
 - Verification plan

1.2 Site Description

- 1.2.1 Site details are summarised in the Table 1.1. A location plan is shown on Drawing No 5237-G-D001 presented in Appendix A.

Table 1.1: Summary of Site Location Details

Location	Bury town centre
NGR	380600, 410570
Approximate Area	1.89ha

1.3 The Proposed Development

- 1.1.1 It is understood that the project comprises the demolition of a number of buildings at the site followed by construction of a new Flexihall building in the west of the site and a new canopy to Bury Market in the central and eastern sections of the site.
- 1.1.2 A site layout has been provided by Bury Council (Just H Architects Drawing Ref. AP10.02 Rev A) which is presented in Appendix A.

1.4 Foundations

- 1.4.1 It is understood that both canopy and new building will be constructed using a piled foundation solution. A piling mat will be required to facilitate these works. The piling mat design and specification is to be agreed with the appointed piling contractor.

1.5 Development Ground Levels, Volumetrics and Materials Management Plan

- 1.5.1 The proposed preparatory and construction works at the site do not require significant re-

profiling of the site, and the piled foundation solution will not result in significant excavation or re-use of materials in the ground.

- 1.5.2 It is understood that site-won 6F2 type material derived from crushing of the demolition arisings will be used to provide a temporary piling mat for the works. Processing and use of demolition materials to produce a suitable recycled aggregate is carried out by the contractor under the WRAP protocol.
- 1.5.3 Arisings generated by piling are indicated by the client to be less than 1000 tonnes; should they require re-use on site this could be done under a U1 exemption, however it is considered that in the absence of any significant fill requirements for the works, the majority of these arisings will be disposed of off-site.
- 1.5.4 Excavated materials may be considered to be waste by the Environment Agency (EA). Placement of such materials back in the ground may be considered to be a permitted activity. However, based upon the above and information provided to IDG by the client, a Materials Management Plan (MMP) is not required for the development.
- 1.5.5 Should any significant amendment to the proposed works occur which could result in an increase in volumes of materials being excavated and re-used, an MMP could be required to ensure that materials are not considered to be waste by the EA.

2 BACKGROUND

2.1 Previous Investigations

- 2.1.1 IDG have previously undertaken a combined Phase 1 (Desk Study) and Phase 2 intrusive phase of investigation, and have previously issued the following associated reports:
- IDG Geoenvironmental Appraisal; Report No. 5237-G-R001 Rev A, dated August 2022
 - Supplementary Rotary Borehole and Trial Pit Investigation; Letter Report No. 5237-G-LR001 Rev A, dated February 2025
- 2.1.2 Reference should be made to the above reports for full details of the site's history, environmental setting, and findings of the intrusive phases of ground investigation.
- 2.1.3 A copy of IDG's Exploratory Hole Location Plan Drawing Ref. 5237-G-D005 Rev A is presented in Appendix A.

2.2 Conceptual Site Model

- 2.2.1 IDG's previous phases of investigation and associated chemical testing of samples have not identified any exceedances of the relevant commercial end-use chemical assessment criteria which could indicate a risk to end users.
- 2.2.2 No significant pollutant linkages have been identified and therefore no direct remediation requirements are required to render the site suitable for the proposed end-use.
- 2.2.3 Notwithstanding the above statements, IDG's supplementary investigation encountered localised visual and olfactory evidence of hydrocarbon impacted soils in TP01 between 2.5m - 3.0m in natural granular deposits. It is considered that this hydrocarbon impact may be the result of migration of hydrocarbons from a former garage indicated to be present immediately to the south of this location. Chemical analysis of the hydrocarbon impacted soils from samples from TP01 at 1.9m and 2.9m confirmed the presence of low concentrations of diesel-range hydrocarbons,

however the concentrations were significantly lower than the S4UL Commercial assessment criteria.

- 2.2.4 Given the location of TP01 falls within the footprint of the proposed new Flexihall building, and the historic presence of the former garage to the south, IDG consider it prudent that a watching brief be maintained for works in this area to enable identification and additional testing should any more significantly impacted soils be encountered. The watching brief requirements are presented in Section 6.3 below.

3 RISK ASSESSMENT & TARGET CONCENTRATIONS

3.1 Remediation Objectives

- 3.1.1 The remediation objectives for the redevelopment of the site are:

- Suitably qualified Geoenvironmental Engineer to maintain a watching brief during works in the locality of TP01.
- Respond appropriately to the discovery of previously unidentified contamination - Contingency for Unknowns – Contamination ‘Hotspot’ Protocol
- (Hotspot Protocol)
- Removal of obstructions to piling
- Allow additional protection measures to be implemented during remediation or construction works (if required).
- Offsite disposal of surplus or contaminated fill material.

- 3.1.2 A watching brief should be maintained by the supervising engineer during the preparatory works to enable inspection of excavations and general fill materials for previously unidentified contamination.

3.2 Remediation Criteria

- 3.2.1 Generic assessment criteria (GACs) for the protection of Human Health for contaminants of concern for materials to remain on site are summarised in Table 3.1.

- 3.2.2 The adoption of the GACs presented in Table 3.1 (which are based on S4UL assessment criteria for a commercial end use) is considered an appropriate method of assessing risks posed by ground contamination at the site.

- 3.2.3 It is not possible to devise an assessment concentration for asbestos in soil. However, should any suspected ACM's be encountered asbestos screening tests will be used to identify whether site materials contain asbestos. Where asbestos is identified in screening tests, samples will be subjected to quantification tests as required.

Table 3.1: Remediation GACs for General Fill

Determinant	GACs for General Fill to remain on site below hardstand or 600mm clean cover (mg/kg)		
	1% SOM	2.5% SOM	6% SOM
Naphthalene	190	460	1,100
Benzo(a)pyrene	35	35	36
Benzene	27	47	90
Toluene	56000	110000	180000
Ethylbenzene	5700	13000	27000
Xylenes (p-Xylene)	5900	14000	30000

Determinant	GACs for General Fill to remain on site below hardstand or 600mm clean cover (mg/kg)		
	1% SOM	2.5% SOM	6% SOM
Aliphatic C ₅ -C ₆	3200	5900	12000
Aliphatic C ₆ -C ₈	7800	17000	40000
Aliphatic C ₈ -C ₁₀	2000	4800	11000
Aliphatic C ₁₀ -C ₁₂	9700	23000	47000
Aliphatic C ₁₂ -C ₁₆	59000	82000	90000
Aliphatic C ₁₆ -C ₂₁	1600000	1700000	1800000
Aliphatic C ₂₁ -C ₃₅	1600000	1700000	1800000
Aromatic C ₅ -C ₇	26000	46000	86000
Aromatic C ₇ -C ₈	56000	110000	180000
Aromatic C ₈ -C ₁₀	3500	8100	17000
Aromatic C ₁₀ -C ₁₂	16000	28000	34000
Aromatic C ₁₂ -C ₁₆	36000	37000	38000
Aromatic C ₁₆ -C ₂₁	28000	28000	28000
Aromatic C ₂₁ -C ₃₅	28000	28000	28000
Asbestos Quantification Test (if asbestos detected in screen test)	<0.1%		

3.2.4 Some contaminants reach residual saturation before a vapour risk is predicted to occur by the QRA model. However, IDG recognise that it is unacceptable to leave free product in the ground where redevelopment of a site is proposed. Consequently, this Remediation Statement advocates the removal/treatment of soils that contain significant free product in the unlikely event that it is encountered during remediation works.

3.2.5 In this context, significant free product is readily identifiable by the naked eye, and pervasive throughout the soil mass, probably with noticeable seepages. Traces of free product in fissures or localised, cobble-sized pockets would not normally be considered significant.

4 REMEDIATION OPTIONS APPRAISAL

4.1 Introduction

4.1.1 No contaminant linkages have been identified at the site. Therefore, a Remediation Options Appraisal is not required.

5 REMEDIATION STATEMENT

5.1 Overview

5.1.1 The following preparatory works are required (*not* subject to verification):

- Demolition of buildings
- Crushing of all suitable artificial hard material (i.e. concrete/brick etc) for piling mats
- Backfill of excavations with nominal compaction.
- Re-grade of site to levels specified by the Client.
- Placement of a piling mat.

5.1.2 The following remediation works are required (subject to verification):

- Suitably qualified Geoenvironmental Engineer to maintain a watching brief during works in

the locality of TP01.

- Respond appropriately to the discovery of previously unidentified contamination - Contingency for Unknowns – Contamination ‘Hotspot’ Protocol
- Removal of obstructions to piling.
- Offsite disposal of surplus or contaminated fill material.

5.1.3 The following post construction works are required (subject to verification):

- Import and placement of ‘clean’ soils as 0.6m thick, clean cover layer in landscaped areas.

5.1.4 Any major deviation from the works required in this Remediation Statement must be agreed with the Local Planning Authority (LPA). In addition, any unexpected contamination encountered during the remediation works should be brought to the attention of the LPA.

5.1.5 Site works shall be supervised throughout by a suitably qualified Engineer, who will report to a Project Manager. Supervision may be part-time for certain activities but must be full-time during the removal of any grossly contaminated soil.

5.2 Site Set-up, Organisation and Safety

5.2.1 The Client shall ensure that the Contractor is provided with copies of all reports produced by IDG, in order that they can carry out their own risk assessments for the works. IDG will provide information on request relating to specific hazards associated with contamination issues respectively.

5.2.2 A Method Statement will be prepared by the Contractor undertaking the remediation and preparatory works. This should demonstrate how the Contractor intends to carry out the works in order to achieve the remediation objectives. In particular, details of the way in which different material types are to be kept separate should be clearly stated. The Contractor’s Method Statement should be forwarded to IDG to enable comments to be made prior to works commencing and a pre-start meeting is advised.

5.2.3 The Contractor’s Method Statement should include details of how the site will be organised in order to minimise the risks to workers and the public, associated with handling contaminated materials. The following measures may need to be considered:

- Protective clothing, footwear and gloves
- Boot-washing facilities
- Refuelling of mobile plant in a designated area to prevent contamination of soils on site.

5.3 Contractor’s Responsibilities

5.3.1 Prior to the commencement of any works the Contractor, in agreement with the Client, will:

- Fulfil any requirements of the Client’s contract documentation.
- Establish the boundaries of the site and the working areas.
- Undertake a dilapidation survey of site boundaries, adjacent properties and highways, via dated photographs or video footage.
- Liaise with the Local Authority regarding working hours, noise\dust\odour control, and protected trees.
- Liaise with the Local Water Company regarding any proposed discharge to sewer.
- Complete a full services search and liaise with all relevant utility companies regarding work in close proximity to their apparatus.
- Prepare a detailed Method Statement outlining how the objectives of this Remediation Statement will be achieved.
- Inform the Engineer of any risk, identified and assessed, which could impact upon the Engineer’s activities.

- Prepare the necessary COSHH statements and Health & Safety Plan in accordance with CDM regulations.

5.3.2 The Contractor shall satisfy the Health & Safety Executive with regard to all matters concerning the health, safety and welfare of persons on the site.

5.3.3 The Contractor shall ensure that:

- Personnel, plant, materials and other equipment related to the contract are confined within the boundaries of the site.
- Any live services lying within the site boundary are marked and protected, or appropriate arrangements made to truncate them.
- Good practices relating to personal hygiene are adopted.
- Suitable precautions are implemented at all times to prevent off-site migration of contaminants via airborne dust.
- Suitable precautions are taken to prevent the spread of mud and debris on public highways.
- Refuelling of mobile plant is undertaken in a designated area. Above ground oil storage tanks shall comply with the requirements of Pollution Prevention Guideline PPG2. A spill kit shall be kept on site, adjacent to the designated refuelling area.

6 IMPLEMENTATION PLAN - PREPARATORY & REMEDIATION WORKS

6.1 Demolition of Buildings

6.1.1 Demolition works are currently on-going, at the time of reporting.

6.1.2 Building arisings will be processed on site to generate useable 6F2 type material (Section 6.2) which will be in part be utilised to prepare a piling mat platform (Section 1.5). The works should be closely monitored to ensure the safe removal of the building, and in a manner that controls noise, dust and vibration.

6.2 Crushing of Oversize Hard Materials for Piling Mat Platform

6.2.1 Production of a selected granular aggregate should be possible if suitable materials (generated by demolition) are crushed.

6.2.2 The crushed product should be screened to remove any unsuitable elements and stockpiled for re-use during the subsequent construction works. Generation of a Class 6 material as defined in the Highways Agency Specification (Series 600) should be possible.

6.2.3 Dust suppression will be required when crushing operations are taking place. Prior to commencement of crushing operations the Contractor will provide a method statement documenting the dust mitigation measures to be employed.

6.2.4 In addition, the Contractor, if instructed to do so by the Engineer, will arrange for air-fibre monitoring to be undertaken during crushing operations if asbestos containing materials are suspected to be present.

6.2.5 Where relevant, the Contractor will provide the Engineer with copies of the crusher permits, dust monitoring and if undertaken, air fibre monitoring records, for inclusion in the Verification Report.

6.3 Watching Brief for Hydrocarbon Impacted Soils in Locality of TP01

6.3.1 Works in the locality of TP01 will be subject to a "watching brief" by the Geoenvironmental Engineer. The Engineer will attend site during any key intrusive works in this area including:

- Excavations for services and foundations
- Excavation and removal of obstructions
- Inspection of arisings from piling

6.3.2 During such works, the excavated materials and any excavations should be inspected by the Engineer to ensure there are no areas of previously undetected contamination. The engineer will inspect soils for significant visual and olfactory evidence, and with the assistance of a hand-held PID. This will be supported by additional sampling and chemical analysis if required. Where contamination is encountered the Contractor shall follow the 'Hotspot' Protocol procedure outlined in Section 6.44. The engineer will document the findings and any associated remedial action via the verification report.

6.3.3 In the absence of any additional significant contamination, the engineer will confirm to the Contractor that works in the section of the site inspected can proceed.

6.4 Contingency for Unknowns – Contamination 'Hotspot' Protocol

6.4.1 Should unanticipated ground conditions be encountered during the remediation works, the Contractor should immediately seek further advice from the Engineer.

6.4.2 Any unanticipated grossly hydrocarbon contaminated soil\fill should be excavated under full time supervision of the Engineer who will be equipped with a portable PID instrument to assist with delineation. All excavated material will be placed in temporary stockpiles on hardstand or visqueen, suitably covered and banded. The Engineer will verify the excavation and excavated materials as set out in Section 7.3.1.

6.4.3 Excavations should not be left open for longer than is necessary and should be securely cordoned-off using 2m high Herras-type fencing, with appropriate warning signs whenever excavation works are suspended.

6.4.4 On completion of soil removal, the Contractor shall record the extent of the excavation by survey and await the Engineer's instruction to backfill the excavation.

6.5 Removal of Obstructions to Piling

6.5.1 IDG have identified subsurface relict structures in several trial pit locations, including old foundations, walls and possible infilled basements. The client has been advised that such features may represent an obstruction to piling, however to minimise ground disturbance, it is understood that the client's preference is for localised breakout of obstructions only where there is a conflict with piling or proposed infrastructure.

6.5.2 The Contractor will record the extents and base of all excavations undertaken to remove obstructions by topographic survey. This survey will also record the locations of any below ground obstructions that have been left in-situ.

6.5.3 The Contractor will provide the Engineer with a survey detailing the depth and extent of all excavations undertaken during the remediation and preparatory for inclusion in the Verification Report.

6.5.4 The Contractor shall also provide the Engineer with photographic records of the removal of obstructions as appropriate.

6.5.5 Should removal of obstructions encounter any potentially suspect material, the geoenvironmental engineer should be notified and works halted until the materials can be inspected further, with the hotspot protocol utilised if necessary.

6.6 Offsite Disposal of Material (Export to Landfill)

- 6.6.1 Contaminated excavation arisings that are unsuitable for retention and re-use on site shall be placed in temporary stockpiles on polythene sheeting and be suitably covered to minimise the potential for dust\odour nuisance and prevent surface water run-off. The Engineer will sample the stockpiles in accordance with Section 7.4.4. Following receipt of chemical test results stockpiles of material should be exported from site as soon as practically possible.
- 6.6.2 Uncontaminated excavated arisings that are surplus to requirements shall be placed in temporary stockpiles. The Engineer will inspect and sample the stockpiles in accordance with 7.5.2 to enable the Contractor to determine the most appropriate disposal route.
- 6.6.3 Any material exported from site to landfill or other licensed waste facility should be hauled by a registered waste carrier in accordance with the requirements of the Duty of Care Regulations, 2018 and the Landfill (England & Wales) Regulations 2002.
- 6.6.4 A waste consignment note should be completed, signed and retained by the parties involved. The transfer note should include the volume of waste, the nature of the material and a statement of its chemical composition, details of the source and destination sites, and details of the haulier.
- 6.6.5 In order to protect the general public from dust and vapour emissions, wagons that are to be used for the offsite disposal of materials must be sheeted. In addition, the Contractor must ensure that no fluids seep from the wagons.
- 6.6.6 The Contractor must provide the Engineer with copies of the waste consignment notes for any waste materials that are disposed off-site.

7 VERIFICATION PLAN

7.1 Engineer Responsibilities

- 7.1.1 Provided that the Contractor advises their intended programme of works in a timely fashion, the Geoenvironmental Engineer will ensure that the requirements of this Remediation Statement are complied with.
- 7.1.2 Site works shall be supervised throughout by a suitably qualified Engineer. Supervision may be part-time for certain activities but must be full-time during the removal of any grossly contaminated soil.
- 7.1.3 The responsibilities of the Geoenvironmental Engineer shall include the following:
- Appropriate supervision of the remediation works outlined above.
 - Advice on the correct handling of materials encountered.
 - Retrieval of soil samples and the subsequent scheduling of appropriate laboratory analysis to enable verification of various aspects of the works, as required.
 - Liaison with statutory authorities as required.

7.2 Watching Brief for Hydrocarbon Impacted Soils in Locality of TP01

- 7.2.1 The engineer will prepare inspection records for each site visit attended under the watching brief. These should include a brief written description of the works and ground conditions, with documentation of any PID readings, visual or olfactory evidence of significant hydrocarbon impact and any photographic records.
- 7.2.2 Should significant hydrocarbon impacted be identified, confirmatory sampling and laboratory

analysis will be undertaken in accordance with the hotspot protocol.

7.2.3 Samples will be tested for a chemical testing suite to comprise total organic carbon, speciated PAH, BTEX and TPHCWG. The engineer may specify additional chemical testing (for example VOC and SVOC testing) on the basis of visual or olfactory evidence. Chemical test results will be assessed against the criteria outlined in Section 3.

7.2.4 Information obtained during the watching brief including any logs, location plans, laboratory chemical test results and assessment summary tables will be presented in the Verification Report.

7.3 Removal of Obstructions to Piling

7.3.1 The Contractor will provide the Engineer with a survey detailing the depth and extent of all excavations undertaken during the remediation and preparatory for inclusion in the Verification Report.

7.3.2 The Contractor shall also provide the Engineer with photographic records of the removal of obstructions as appropriate.

7.3.3 Should removal of obstructions encounter any potentially suspect material, the geoenvironmental engineer should be notified and works halted until the materials can be inspected further, with the hotspot protocol utilised if necessary.

7.4 Contingency for Unknowns – Contamination ‘Hotspot’ Protocol

7.4.1 Any unanticipated contaminated soil\fill should be excavated under full time supervision of the Engineer who will be equipped with a portable PID instrument to assist with delineation for hydrocarbon contaminated material. The Engineer will ensure that all excavated material will be placed in temporary stockpiles on hardstand or visqueen, suitably covered and banded.

7.4.2 Following the removal of the impacted material; the Engineer will inspect and sample the resultant excavation. A minimum of 5 validation samples will be taken from the excavation sidewalls and base. In larger excavations, additional validation samples will be taken from the exposed excavation surfaces on a 10m grid.

7.4.3 Validation samples shall be tested for pH, heavy metals, asbestos, total organic carbon, BTEX, TPHCWG, SVOC and VOC to enable assessment to the contaminants of concern presented Table 3.1. Analysis for other determinants may be appropriate and will be requested by the Engineer as necessary. The Engineer will instruct continued removal of impacted material and re-validate the resultant excavation should the initial validation samples yield concentrations in excess of the assessment criteria outlined in Table 3.1.

7.4.4 The Engineer will sample the hotspot arisings at a frequency of 1:250m³, dispatch the sample(s) to a UKAS accredited laboratory where it will be scheduled for an appropriate range of determinands to characterise the contaminated material. On identification of the nature of contaminated material the Engineer will liaise with the LPA's EHO to discuss/obtain approval for an appropriate course of action. Where disposal to landfill is envisaged, Waste Acceptance Criteria (WAC) testing may also be required.

7.4.5 Excavated material demonstrated to be unsuitable for retention onsite (i.e. exceeds the GACs presented in Table 3.1) will be disposed offsite to an appropriately licensed facility as set out in Section 6.6 above.

7.4.6 Full details of the location and nature of the contamination hotspot accompanied with chemical test results and the fate of hotspot arisings, together with regulatory correspondence will be

provided in the Verification Report.

7.5 Offsite Disposal of Material (Export to Landfill)

- 7.5.1 Contaminated excavation arisings that are unsuitable for retention and re-use on site shall be placed in temporary stockpiles on polythene sheeting and be suitably covered to minimise the potential for dust\odour nuisance and prevent surface water run-off. The Engineer will sample the stockpile(s) in accordance with Section 7.4.4.
- 7.5.2 Uncontaminated excavation arisings that are surplus to requirements shall be placed in temporary stockpiles. The Engineer will sample the stockpile(s) at a frequency of 1:1000m³ for a range of determinants to include pH, metals, speciated PAH, BTEX and TPHCWG. Where disposal to landfill is envisaged, Waste Acceptance Criteria (WAC) testing may also be required.
- 7.5.3 The chemical test results will be required to satisfy the “duty of care” obligations of the licenced waste carrier and receiving landfill.
- 7.5.4 The Contractor must provide the Engineer with copies of the waste consignment notes for any materials that are disposed off-site for inclusion in the Verification Report.

8 VERIFICATION REPORT

- 8.1.1 On satisfactory completion of all the Contractor’s preparatory and remediation works the Geoenvironmental Engineer will prepare a Verification Report. Copies of the Verification Report will be issued to the Client and the Local Authority. The Verification Report will stand as certification that the preparatory and remediation works have been carried out in accordance with this Remediation Statement.
- 8.1.2 The Verification Report will include:
- A summary of the remediation works undertaken, including any works associated with unforeseen ground conditions.
 - Verification test results associated with “hot-spot” treatment, including plans showing sample locations & levels, and the extent of any “hot-spot” excavations.
 - Details of the fate of any arisings excavated from contamination “hot-spots”.
 - Details of any materials (general fill and contaminated materials) disposed offsite to include chemical analysis, volumes and waste consignment notes.
 - A copy of the Contractor’s survey detailing the depth and extent of all excavations.
 - Copies of crusher permits and dust monitoring records and evidence of dust suppression associated with crushing of oversize hard materials as appropriate.
 - Verification test results associated with proposed source materials for clean cover.
 - Copies of any correspondence with regulators relating to specific aspects of the remediation works.
 - A summary of any constraints that may have led to the remedial tasks not being completed in specific areas of the site.
 - A summary of the remediation works still to be undertaken upon completion of the main remediation and preparatory works by the Contractor (e.g. placement of 0.6m thick cover system in landscaped areas).

9 POST CONSTRUCTION WORKS REQUIRING VALIDATION

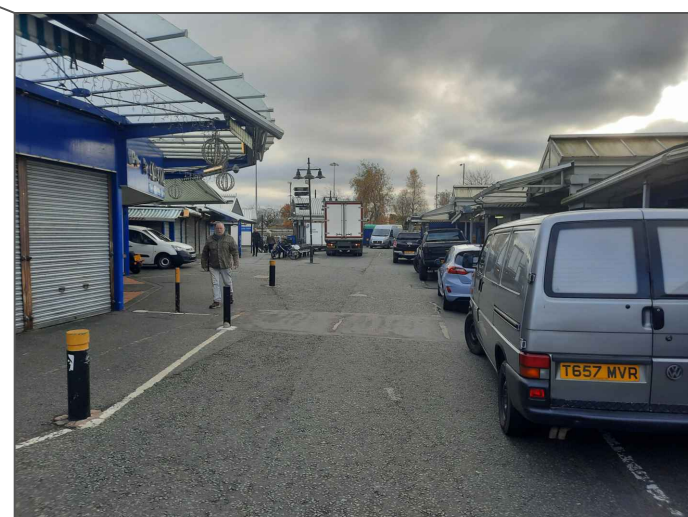
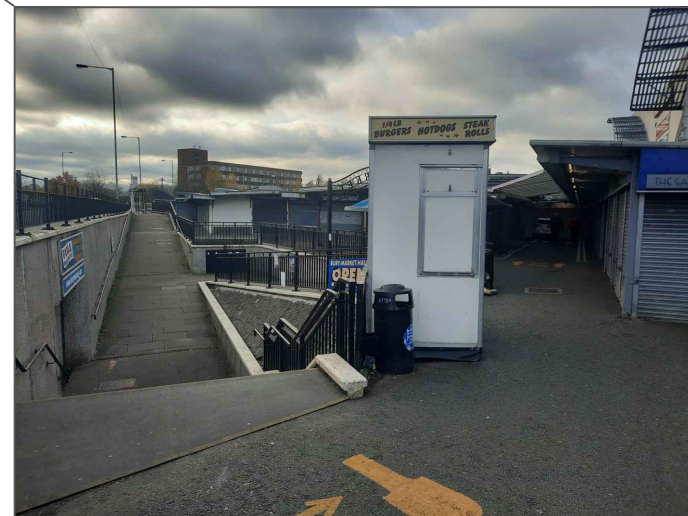
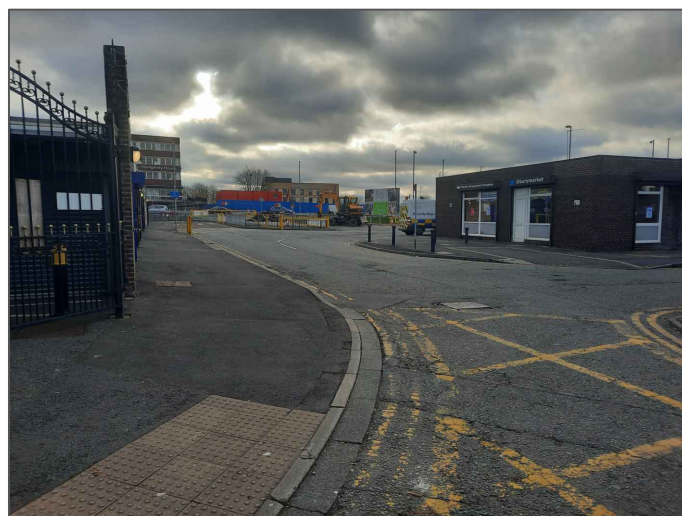
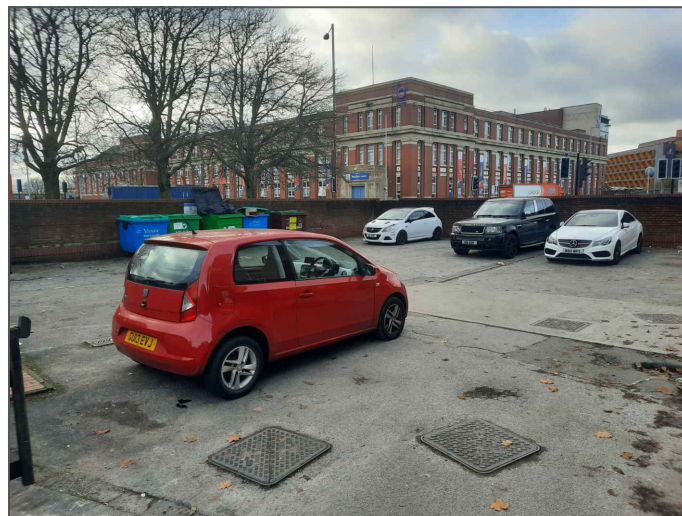
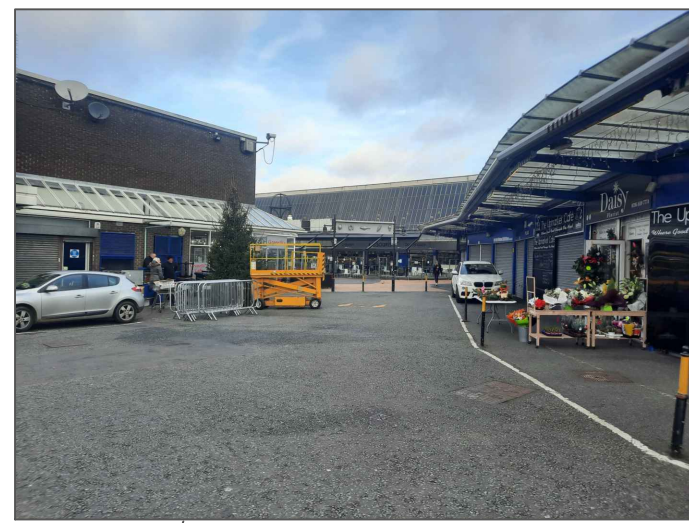
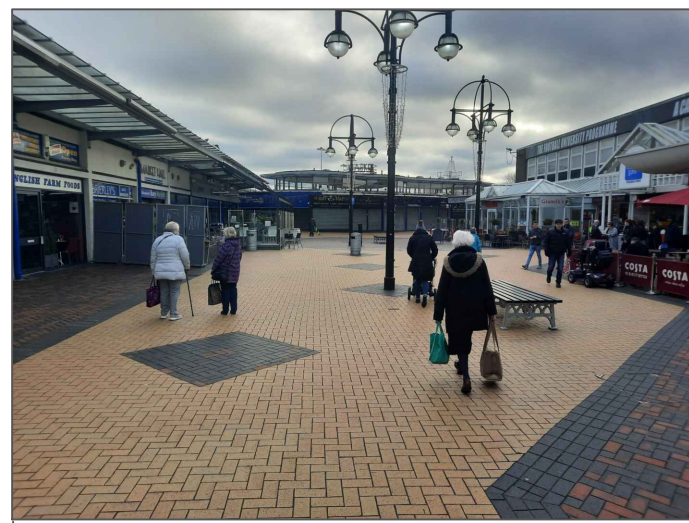
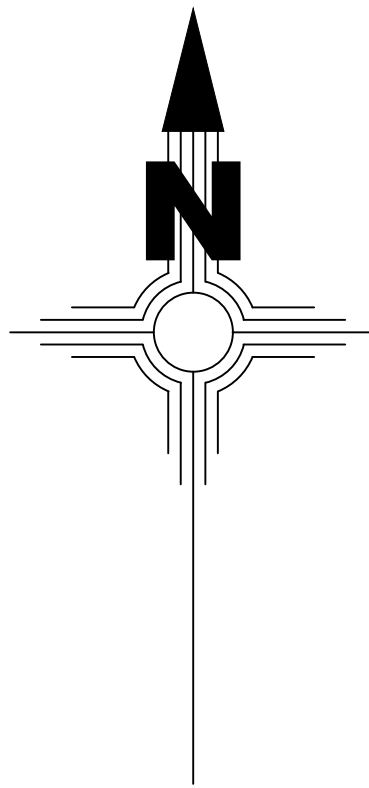
9.1 Placement of Soil Cover

- 9.1.1 Whilst Made Ground at the site does not contain elevated concentrations of contaminants which present a risk to end users of the development, clean cover will be placed in landscaped areas of the site.
- 9.1.2 Therefore, on completion of the Construction Phase, clean inert soils (0.6m thick) are required to be placed over the Made Ground in landscaped areas to ensure a contaminant linkage is not present between the Made Ground and future site users. This cover layer is to comprise a minimum of 0.15m topsoil and the balance to be made up of “clean” subsoil.
- 9.1.3 Any site won or imported material for use as cover soil should be validated in accordance with the protocol presented in Appendix D. The protocol includes assessment criteria which should not be exceeded.
- 9.1.4 A validation report will be prepared on successful validation of the clean cover.

Appendix A



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	JOB TITLE BURY MARKET			
	DRAWING TITLE SITE LOCATION PLAN			
DRAWN BY MJ	SIGNATURE	DATE 25/11/21	STATUS	
APPROVED BRB	SIGNATURE	DATE 25/11/21	SCALE 1:25,000@A4	DRG No. 5237-G-D001



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Revision	Description	Date
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ID GeoEnvironmental Limited

CLIENT

BURY COUNCIL

JOB TITLE

BURY MARKET

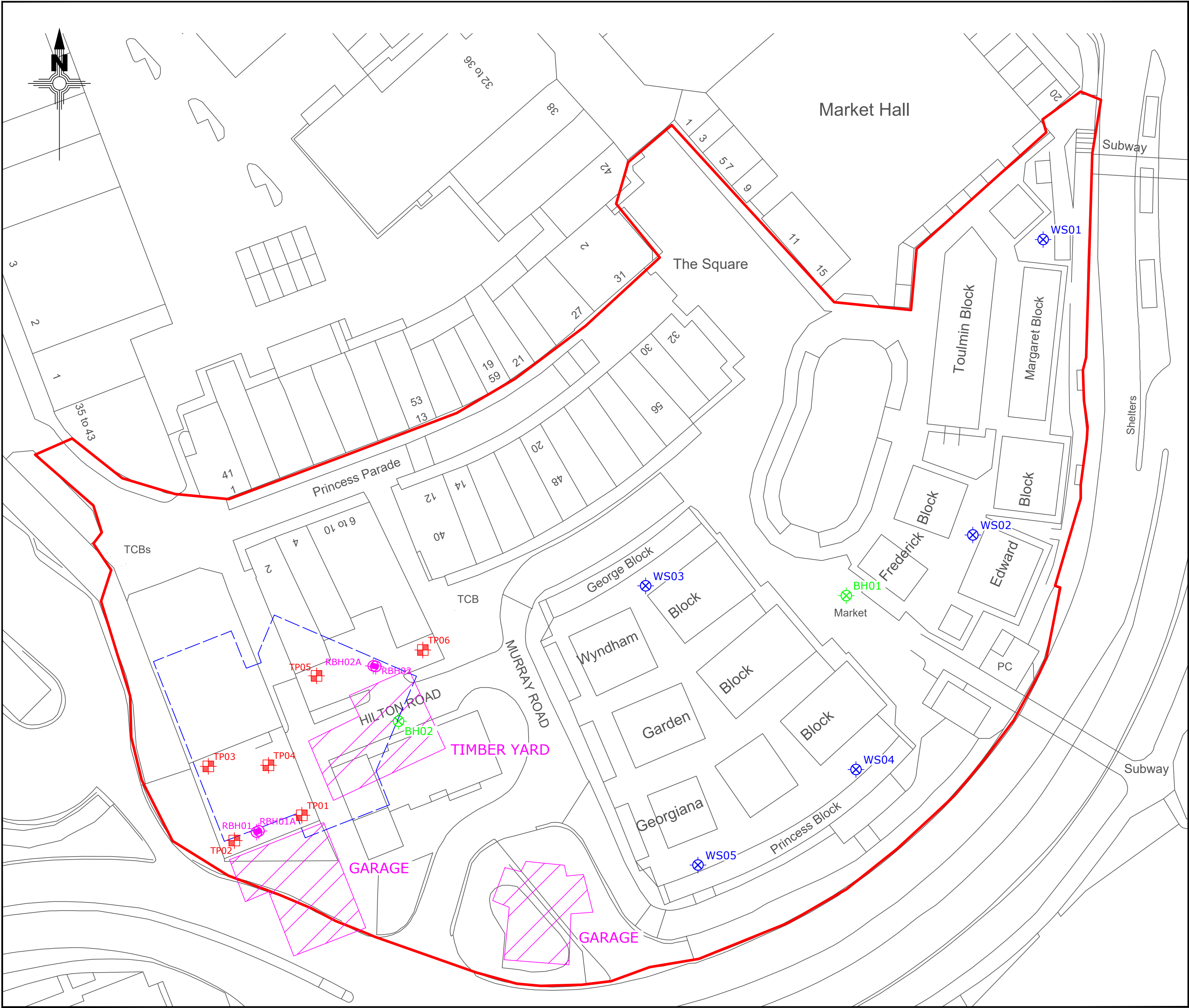
DRAWING TITLE

SITE FEATURES PLAN

STATUS
FINAL

DRAWN BY MJ	SIGNATURE	DATE 25/11/21
APPROVED BRB	SIGNATURE	DATE 25/11/21

SCALE N.T.S.	DRG No. 5237-G-D002
-----------------	------------------------



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KEY

- Site Boundary
- IDG CP Borehole Location
- IDG Window Sample Borehole Location
- Potential Contamination Source
- Approximate footprint of new building
- IDG Rotary Borehole Location - December 2024
- IDG Trial Pit Location - December 2024

Revision	Description	Date
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CLIENT

BURY COUNCIL

JOB TITLE

BURY MARKET

DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN (WITHOUT SERVICES)

STATUS

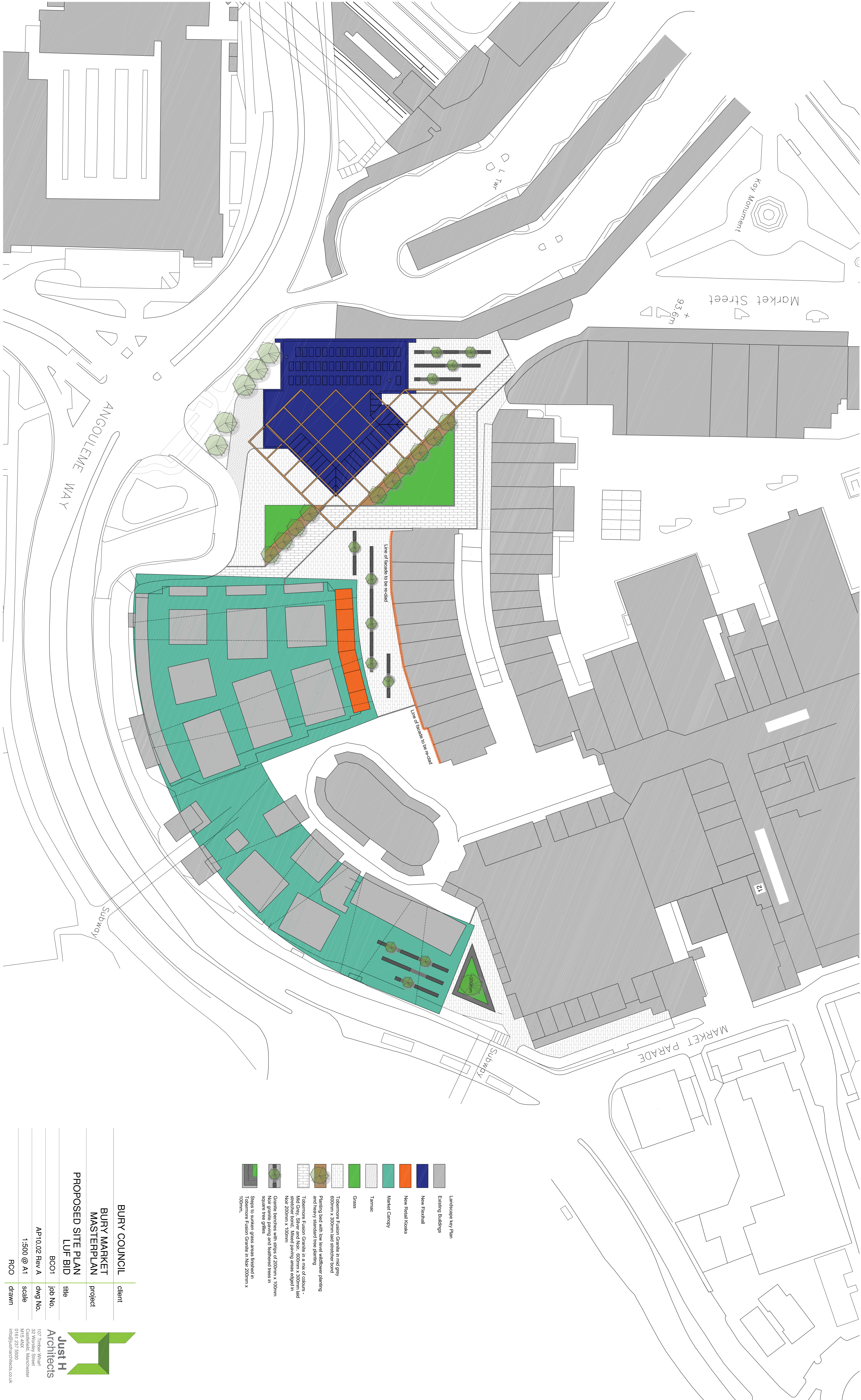
FINAL

DRAWN BY	SIGNATURE	DATE
ES		19/12/2024
APPROVED	SIGNATURE	DATE
LM		19/12/2024

SCALE	DRG No.
1:500@A2	5237-G-D005-REVA

Do not scale off this drawing. All dimensions to be checked on site prior to manufacture and construction. This drawing is the property of Just+H Architects and should not be reproduced without permission. All discrepancies to be brought to the attention of the architect immediately. This drawing to be read in conjunction with the specification / bill of quantities and related drawings.

REVISION		11.05.21	ROO
FIRST ISSUE			
A	Hybrid scheme	28.05.21	ROO



- Landscape Key Plan
- Existing Buildings
 - New Freshhall
 - New Retail Halls
 - Market Canopy
 - Turnpike
 - Grass
 - Tobermore Fusion Granite in mid grey 600mm x 300mm laid stretcher bond
 - Planting bed with low level wildflower planting and heavy standard tree planting
 - Tobermore Fusion Granite in a mix of colours - Mid Grey, Silver and Noir. 600mm x 300mm laid stretcher bond. Mixed paving areas edged in Noir 200mm x 100mm
 - Noir granite paving and feathered trees in square tree grilles
 - Noir granite paving and feathered trees in square tree grilles
 - Steps to sunken grass areas finished in Tobermore Fusion Granite in Noir 200mm x 100mm.

BURY COUNCIL	client
BURY MARKET MASTERPLAN	project
PROPOSED SITE PLAN LUF BID	title
BCO1	job No.
AP10.02 Rev A	dwg No.
1:500 @ A1	scale
ROO	drawn

Appendix B

Introduction

Isolation of Made Ground in landscaped areas beneath a cover of “clean” subsoil, and topsoil is often recommended on commercial developments where Made Ground is left in-situ; most notably when it contains some inorganic and organic contaminants at concentrations above guidance threshold values.

A cover is only required in proposed landscaped areas underlain by Made Ground (i.e. not beneath access roads, car parking or commercial units). The soil cover breaks direct contact pollutant linkages between the contaminated fill and future site users. Typically for commercial developments a 300mm thick cover layer is generally acceptable, however this should be confirmed by reference to the site-specific Remediation Strategy as agreed with the Local Authority.

Soil cover validation therefore requires independent assessment of

- The chemical/physical suitability of the soil.
- The thickness of the placed subsoil and topsoil.

Site Won Materials

It is often possible to “win” suitable subsoil and/or topsoil materials from a development site. However, in order to ensure that materials are suitable for use, and remain suitable for use during the development process, careful assessment, segregation and handling of the soil will be required. Natural clay or sand excavated during site remediation works or during development (such as during the excavation of service trenches or foundations) can often be suitable for use as a subsoil. Topsoil can sometimes be won from landscaped areas of the site at an initial stage of development.

Site won materials should be subject to the same validation requirements as for imported materials.

Inspection and Sampling of cover soil at source by IDG

For imported materials soil suitability is best determined by sampling at the **source** at least 7 working days before importation to the development site. If this is achieved, further, on-site (post-placement) chemical suitability testing should not usually be necessary, providing that confirmation can be given that the material arriving at site is the same soil as that tested.

Appropriate methodologies for sampling cover soils at a source site are;

- From a designated stockpile of known volume. The designated stockpile should have no further material placed onto it once sampled by IDG.
- On a grid pattern across a designated area. Sampling should be at an adequate frequency to satisfy the agreed sampling frequency. This sampling methodology is only considered suitable for greenfield sites.

Inspection and Sampling of cover soil following import to site by IDG

In most cases, soil is often delivered to site prior to sampling and chemical testing. Such soils should be stockpiled in a secure location on site and IDG should be contacted to arrange for visual inspection, sampling and chemical testing. It is strongly recommended that soils should not be placed in landscaped areas prior to confirmation of the suitability of the soil by IDG. This normally takes two weeks from initial notification.

Physical Suitability

Suitable soil material should:

- Be clean and free of foreign debris, building waste materials or contaminants.
- Not have a stone content of greater than 20% by visual estimation.
- Have a maximum stone size of 150mm in any one direction.

- Not have been sourced from an area within 7m laterally, or 3m vertically, of Japanese Knotweed plants, and not contain any Japanese Knotweed fragments (rhizomes, leaves, stems etc).

Chemical Suitability

Chemical acceptance criteria for imported soils are presented in Tables 1 & 2. Acceptance criteria based on Human Health Tier 1 assessment criteria for a Commercial Development would result in unacceptably high values for cover soils. IDG have therefore based the acceptance criteria on an arbitrary value set at three times the Tier 1 acceptance criteria for a residential end-use with plant uptake or MAFF criteria for phytotoxic determinants. These values are considered to be conservative in terms of protecting human health and also in providing a set of criteria which will confirm the suitability of subsoil and topsoil as a clean growing medium.

The number of samples taken will be dependent on the nature of the source and the quantity of material to be imported and the testing ratio should be agreed with the Local Authority (EHO) before testing is undertaken. A summary of the sampling requirements and testing criteria are presented in the Table 3.

A less frequent sampling rate may be appropriate for soils from a greenfield source or where large volumes (say >5,000m³) of soil are imported from a single, relatively homogenous source.

Cover layers can often include a “difficult to dig” or capillary break layer of coarse natural or recycled aggregate. Where this aggregate is sourced from recycled materials (such as crushed demolition arisings) asbestos screening tests should also be undertaken.

The Client\Contractor will be notified of the soil’s suitability (or otherwise) immediately following receipt of the results (typically taking 7 working days).

On receipt of written confirmation from IDG, the Client should instruct his Contractor to commence importation. It will probably be necessary to stockpile the cover prior to placement in landscaped areas. IDG should inspect the stockpiled material prior to placement, to confirm that it is the same material as previously tested, **and** the Contractor should provide the Client with appropriate haulage notes.

Assessment Criteria for the Chemical Suitability of Cover Material on a Commercial Development

Table 1 - Common Inorganic Determinants

Contaminant	Cover Material Acceptance Criteria Commercial Development	Comments/Notes
pH	>6 to <8	Initial assessment only
Arsenic	111	3 times residential value (S4UL LQM/CIEH 2015)
Cadmium	33	3 times residential value (S4UL LQM/CIEH 2015)
Chromium III	2730	3 times residential value (S4UL LQM/CIEH 2015)
Chromium VI	18	3 times residential value (S4UL LQM/CIEH 2015)
Lead	600	3 times residential value (C4UL 2014)
Selenium	750	3 times residential value (S4UL LQM/CIEH 2015)
Mercury	120	3 times residential value (S4UL LWQM/CIEH 2015)
Nickel	75	MAFF (1998) The Soil Code (phytotoxicity) for soil with a pH in the range 6-7.
Copper	135	
Zinc	200	
Asbestos	Not detected	Not detected in asbestos screen test. If detected, acceptance criteria is <0.001% by quantitative analysis

IDG Protocol for Soil Cover Validation (Commercial)



Table 2 - Common Organic Determinants

Contaminant	Assessment Concentration (mg/kg)			Source
	% Soil Organic Matter			
	1%	2.5%	6%	
Benzene	0.63	0.69	1.47	IDG Assessment criteria based on 3x S4UL parameters and C4SL exposures for residential with homegrown produce without indoor inhalation pathway
Toluene	840	1011	2310	
Ethyl Benzene	600	759	1740	
Xylenes (p-xylene)	1080	1362	3000	
**Benzo(a)pyrene (as surrogate marker)	4.8	5.85	6.42	
Acenaphthene	666	1584	3450	
Acenaphthylene	540	1293	2862	
Anthracene	7170	16320	32700	
Benz(a)anthracene	27.5	36.9	42.9	
Benzo(a)pyrene	6.75	8.22	9.0	
Benzo(b)fluoranthene	7.89	9.99	11.13	
Benzo(g,h,i)perylene	954	1020	1047	
Benzo(k)fluoranthene	234	279	303	
Chrysene	45.9	66.9	81.3	
Dibenzo(a,h)anthracene	0.75	0.87	0.93	
Fluoranthene	858	1683	2694	
Fluorene	519	1227	2640	
Indeno(1,2,3-cd)pyrene	83.1	109.2	124.2	
Naphthalene	81	193.2	441	
Phenanthrene	291	663	1326	
Pyrene	1866	3750	6120	
GRO C ₅ -C ₆	270*	540*	1140*	IDG Assessment criteria based on 3x S4UL parameters and C4SL exposures for residential with homegrown produce without indoor inhalation pathway
GRO C ₆ -C ₈	450*	1020*	2310*	
GRO C ₈ -C ₁₀	174	390	900	
DRO C ₁₀ -C ₁₂	249	570	1260	
DRO C ₁₂ -C ₁₆	450	990	2010	
DRO C ₁₆ -C ₂₁	810	1650	2820	
LRO C ₂₁ -C ₃₅	3300	4500	5100	
Phenol	456	834	1605	

* BTEX compounds must also be assessed with Aromatic C5-C7, Aromatic C7-C8, GRO C5-C6 and TPH C6-C8 bandings

**Benzo(a)pyrene assessed as surrogate marker for genotoxic PAH. Oral HCV based on minimal risk value (CLAIRE 2014, Appendix E Table 2.2) ID_{Oral} of 0.021 ug/kgBW/day compared to oral, dermal and inhalation exposures and ID_{Inhal} of 0.0003 ug/kgBW/day compared to inhalation exposure.

Summary of Sampling Frequency and Chemical Analysis Suite

A summary table showing recommended sampling frequencies and chemical analysis suites for varying sources of cover soils is presented overleaf.

IDG Protocol for Soil Cover Validation (Commercial)

Table 3: Sampling Frequency and Chemical Analysis Suite Summary Table

	Nature of Source Material	Sampled	Sampling Frequency	Testing Suite	Sampling Requirements	
Site Won Material	Greenfield	On site	1:250m ³ - Topsoil	pH, metals, speciated PAH, Total Organic Carbon & Asbestos Screen	Minimum of 3 samples to be tested from each designated stockpile. No further material to be added to the stockpile once it has been sampled.	
			1:500m ³ - Subsoil			
	Brownfield		1:100m ³ - Topsoil	pH, metals, speciated PAH, TPHCWG, BTEX, Total Organic Carbon & Asbestos Screen. Additional analysis may be required based on the history of the donor site	Minimum of 6 samples to be tested from each designated stockpile. No further material to be added to the stockpile once it has been sampled.	
			1:250m ³ - Subsoil			
Imported Cover Soils	Greenfield	At source	1:250m ³ - Topsoil	pH, metals, speciated PAH, Total Organic Carbon & Asbestos Screen	Two sampling methodologies can be used; - Sampling from stockpile. Minimum of 3 samples to be tested from each designated stockpile. No further material to be added to the stockpile once it has been sampled. - In-situ sampling of cover soils on a grid pattern across a designated area of the site. An adequate number of samples should be taken to satisfy the sampling frequency.	
			1:500m ³ - Subsoil			
		Following delivery to site	1:250m ³ - Topsoil	pH, metals, speciated PAH, Total Organic Carbon & Asbestos Screen		Minimum of 3 samples to be tested from each imported batch of stockpiled material. No further material to be added to the stockpile once it has been sampled.
			1:500m ³ - Subsoil			
	Brownfield	At source	1:100m ³ - Topsoil	pH, metals, speciated PAH, TPHCWG, BTEX, Total Organic Carbon & Asbestos Screen. Additional analysis may be required based on the history of the donor site	Minimum of 6 samples to be tested from each designated stockpile. No further material to be added to the stockpile once it has been sampled.	
			1:250m ³ - Subsoil			
		Following delivery to site	1:100m ³ - Topsoil	pH, metals, speciated PAH, TPHCWG, BTEX, Total Organic Carbon & Asbestos Screen. Additional analysis may be required based on the history of the donor site	Minimum of 6 samples to be tested from each imported batch of stockpiled material. No further material to be added to the stockpile once it has been sampled.	
			1:250m ³ - Subsoil			
	Recycling Centre	At recycling centre	1:50m ³ – Topsoil & Subsoil	pH, metals, speciated PAH, TPHCWG, BTEX, cyanide, phenols, Total Organic Carbon & Asbestos Screen	Minimum of 6 samples to be tested from each designated stockpile. No further material to be added to the stockpile once it has been sampled.	
		Following delivery to site	1:50m ³ – Topsoil & Subsoil	pH, metals, speciated PAH, TPHCWG, BTEX, cyanide, phenols, Total Organic Carbon & Asbestos Screen	Minimum of 6 samples to be tested from each imported batch of stockpiled material. No further material to be added to the stockpile once it has been sampled.	

Placed Thickness Validation

Placed thickness can only be checked after placement, but should be done before turfing, fencing etc. Thickness will be checked via the excavation of an appropriate number of inspection trial pits.

The thickness of cover is dependent on the nature and degree of contamination (and often the Local Authority whose area the site lies within), but typically a 300mm cover is required for commercial sites.

Soil cover is usually placed many weeks after completion of the preparatory\remedial works, and issue of the associated Verification Report. Consequently, site visits, to generate supplementary letter reports, are typically required after soil cover has been placed.

Issue of Soil Cover Validation Reports

Validation reports will be issued by IDG following the confirmation of the placed thickness of cover soil. Each report will contain the following information:

- Details of the provenance of the subsoil and topsoil.
- Chemical test data.
- An interpretation of the chemical data indicating whether the soils are suitable for use in a clean cover layer.
- A drawing indicating the location of cover thickness validation trial pits.
- Photographs of the excavated trial pits confirming the thickness of placed soils.
- A data table indicating the thickness of cover soils within each trial pit excavated.

Soil Cover Validation Reports will be issued to the Client and Local Authority by email