University College London

Astor College, 99 Charlotte Street

Ground Contamination Assessment and Remediation Strategy

Principal Contractor's Verification / Closure Report

Prepared by Galliford Try Construction Limited (Principal Contractor and Main Contractor]

1.0 Background

1.1 The Astor College project (being the *'refurbishment of existing student accommodation comprising 2 storey upper ground floor front extension, 8 storey rear extension and front central bay extended forward to provide 60 additional bedrooms, provision of ground floor cafe and pedestrianisation of Bedford Passage'*), was granted full planning permission by London Borough of Camden on 27 August 2015 (Ref 2015/1139/P refers) (**Appendix 1**) with the following Condition 11.

> *At least 28 days before development commences;*
>
> *(a) A written programme of ground investigation for the presence of soil and groundwater contamination and landfill gas shall be submitted to and approval by the local planning authority in writing; and*
> *(b) Following the approval detailed in paragraph (a), an investigation shall be carried out in accordance with the approved programme and the results and a written scheme of remediation measures [if necessary] shall be submitted and approved by the local planning authority in writing.*
>
> *The remediation measures shall be implemented strictly in accordance with the approved scheme and a written report detailing the remediation shall be submitted to and approved by the local planning authority in writing prior to occupation.*
>
> *Reason: To protect future occupiers of the development from the possible presence of ground contamination arising in connection with the previous industrial / storage use of the site in accordance with policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26 of the London Borough of Camden Local Development Framework Development Policies*

1.2 Ove Arup and Partners Limited (Arup) was commissioned by University College London (UCL) to prepare an interpretative ground contamination assessment and remediation strategy report for the proposed redevelopment of Astor College, Charlotte Street, London (the site) in support of the partial discharge of Condition 11. The report was intended to address parts (a) and (b) of Condition 11 representing the 'pre-commencement part of the condition'.

1.3 The Arup report, Ground Contamination Assessment and Remediation Strategy, REP-252519-CONT-001 dated 28 November 2016 (**Appendix 2**) was prepared and submitted to London Borough of Camden via Application Ref 2016/6777/P.

1.4 London Borough of Camden approved the submission in relation to part (a) of Condition 11 on 1 February 2017 (**Appendix 3**) which contained the following Informative;

1 Reason for granting permission

The applicant has submitted a 'Ground Contamination Assessment and Remediation Strategy'. The site investigation identified occasional elevated lead and PAH concentrations and one detection of asbestos in the shallow made ground. The majority of the site will be capped with buildings, with a small external space consisting of mostly hard landscaping. There are some small areas of soft landscaping in raised bed or tree pits to the rear of the building. The contaminated land officer has confirmed that the report addresses the pre-commencement part of the condition (part a).

An informative would be included confirming that part b of condition 11 is outstanding and remains to be discharged.

The planning and appeal history of the site has been taken into account when coming to this decision.
Special attention has been paid to the desirability of preserving or enhancing the character or appearance of the conservation area, under s.72 of the Listed Buildings and Conservation Areas Act 1990 as amended by the Enterprise and Regulatory Reform Act (ERR) 2013.

As such, the proposed development is in general accordance with policy CS5 of the London Borough of Camden Local Development Framework Core Strategy, and policy DP26 of the London Borough of Camden Local Development Framework Development Policies.

1.6 The approved Arup report considered the site to have a low potential for ground contamination (confirmed by three phases of intrusive ground investigation, which indicated generally low levels). Occasional elevated lead and PAH concentrations and one detection of asbestos were identified the shallow Made Ground, which it is not unusual to encounter similar conditions in London Made Ground and is consistent with the historical phases of the site.

1.7 In addition to providing a remediation strategy which included site safety and control, including a watching brief and requirements with regard to imported materials which Galliford Try adhered to (refer para 2.0 below), it contained the following requirement;

5.2.3 Verification report
Condition 11 of the planning permission states that a 'written report detailing the remediation shall be submitted to and approved by the local planning authority in writing prior to occupation'. Therefore, upon completion of the works, a brief verification / closure report should be prepared by the Principal Contractor (or their appointed consultant) which should be in line with CLR11 [11] and include the following information where appropriate:

- *Details of parties involved, and summary of works carried out, including method of works, health and safety and environmental control measures implemented, as-built records and photographs of key stages of the ground works.*

- *Records of the watching brief undertaken, for example, during excavations and piling, including any ground contamination encountered and how it was dealt with.*
- *Evidence of communication with the regulators (if/where undertaken), such as the Local Authority Environmental Health Officer (EHO) and Building Control Officer.*
- *Descriptions of asbestos control measures and relevant CAR 2012 assessment.*
- *Verification of imported soils, including placed thicknesses, volumes and material sources and chemical testing, where appropriate, with assessment against the relevant import criteria.*
- *Waste management details and records, such as volumes / tonnage, destinations, waste disposal licence/permit details (e.g. haulage contactors and disposal sites), laboratory results for waste classification and summary of waste disposal records, including conveyance tickets and evidence of compliance with the relevant waste regulations.*
- *Description of final site conditions and as built drawings for small landscaped areas.*

The verification report should form part of the Health and Safety File in accordance with the Construction Design and Management (CDM) Regulations 2015 and the development operations & maintenance (O&M) manual or maintenance plan. This is to allow occupiers and owners to address any residual ground contamination risks associated with future operations and maintenance, including residual asbestos where relevant.

1.8 This report is intended to contribute towards the discharge of the outstanding part (b) of Condition 11, as noted within London Borough of Camden's letter of 1 February 2017, and serve as the Verification / Closure Report required by the Arup report, which will be incorporated to the Health and Safety File and the development operations & maintenance (O&M) manual.

2.0 Relevant Information

2.1 Details of parties involved, and summary of works carried out, including method of works, health and safety and environmental control measures implemented, as-built records and photographs of key stages of the ground works.

2.1.1 <u>The parties involved;</u>

Employer	UCL	University College London
Employer's Representative	Arc	Arcadis
Principal Designer	DLA	DLA acting for Galliford Try Construction Limited
Principal Contractor	GTCL	Galliford Try Construction Limited
Main Contractor	GTCL	Galliford Try Construction Limited
Groundworks Subcontractor	MBL	Modebest Builders Limited
Asbestos Consultant	LEL	Lucian Environmental Limited
Asbestos Removal Specialist	AAW	AA Woods Asbestos Removal

Analytical Laboratory	CEL	Clearwater Environmental Limited
Analytical Laboratory	EALL	Envirochem Analytical Laboratories Limited
Hydrocarbon Consultant	SL	Soiltechnics

2.1.2 Works planned to be undertaken included;

- Substructure excavations
- Piling works
- Drainage works
- Minor hard and soft landscaping

2.1.3 Environmental control measures implemented;

GTCL and MBL implemented necessary risk assessments, method statements and plans, as required by the Arup report, to manage and control environmental and health and safety risks during the construction project. GTCL assessed the risk to be low and as a precautionary approach implemented the following measures:

- Operatives to wear protective clothing particularly gloves to minimise ingestion from soil to contaminated hands.
- Avoiding dust by dampening soils during works.
- Providing shower room/hygiene facilities, which is designated for operatives that are working in and with ground.
- Staff were adequately trained (and experienced) with respect to potential health and safety and environmental risks and requirements. This included asbestos awareness.
- During excavations, GTCL's site management team to ensure a watching brief is carried out.
- All operatives briefed on what to do if anything unexpected or additional found.
- All works to be suspended in the area and a competent consultant to advise on a strategy for assessment and removal.
- Duty of Care requirements for all materials disposed off-site. Waste classification testing to be undertaken where required.
- Imported crushed concrete fill material and topsoil to be tested.
- The works undertaken in a pro-active manner to prevent the creation of dusts (and potential release of asbestos fibres) with the use of PPE and good control of arisings undertaken as necessary.

2.1.4 As-built drawings

As built drawings are contained within the project O&M manuals held by the Employer.

2.2 Records of the watching brief undertaken, for example, during excavations and piling, including any ground contamination encountered and how it was dealt with.

2.2.1 GTCL site management team implemented a watching brief and during excavation works encountered contamination issues. The timeline together with annotated plan related to asbestos contaminated soil in the ground and spoil is set out in **Appendix 4.**

2.2.2 Contamination Issue No 1 - Asbestos

During initial excavation works, the GTCL site management team identified on 16 November 2016 the potential presence of asbestos in a localised area immediately adjacent the building.

Works were suspended and AAW were instructed to investigate, sample and test the identified area on 18 November 2016.

The test results provided on 22 November 2016 confirmed the presence of chrysolite and/or Amosite in 4 of the 5 samples (**Appendix 5**).

LEL were appointed to prepare a Specification for Asbestos Abatement Works to Astor College Courtyard which was issued on 30 November 2016 (**Appendix 6**).

The specification required the appointment of an asbestos removal contractor to attend sits and carry out;

- Hand dig the top 500mm of soil and litter pick any remaining visible fragments of asbestos within the soil.
- Provide a watching brief during excavation of remaining hole by excavator to a depth of 1.4m and remove any visible fragments of asbestos that is unearthed.
- Dispose of all identified ACM's as asbestos double bagged waste.
- Provide polythene to assist with wash down of excavator bucket works completion and dispose of spent polythene as asbestos.

The area was cordoned off pending execution of the specified abatement works.

AAW were instructed to carry out the works and provided a Risk Assessment / Method Statement ("RAMS") and indicative Programme (with assumed start date of 4 January 2017) (**Appendix 7**) on 19 December 2016.

For logistical reasons, the works were not commenced on 4 January 2017.

The works to the trench were subsequently undertaken between 01-07 February 2017. AAW provided on 06 March 2017 a Waste Transfer Consignment Note ref AA-Woods-Job No. HO1626/WOODSB/23900, dated 07 February 2017, confirming disposal of identified ACM's and confirmed that works were completed and had been carried out to LEL's specification. (**Appendix 8**).

2.2.3 Contamination Issue No 2 - Asbestos

Excavation works continued to the new build substructure under the watching brief implemented by GTCL.

On 16 and 22 December 2016, following GTCL instruction, test and sample of the spoil heaps were undertaken.

Results were received on 19 December 2016 (4 tests) and 3 January 2017 (16 tests) respectively which confirmed the presence of Chrysotile and Amosite asbestos fibres in 5 of the 20 samples (**Appendix 9**).

Having received confirmation of asbestos presence, LEL were instructed to carry out air testing review of soil sampling and provide an onsite watching brief during the remainder of excavation and spoil disposal works (**Appendix 10**).

LEL carried out 8 x reassurance air tests to the external courtyard on 22-23 December 2016 providing a report on 6 January 2017 which confirmed all results came back below the level of detection (**Appendix 11**).

Following receipt of the soil test results, LEL provided output of the CL:AIRE JIWG decision making tool based on all 20 asbestos sampling results together with their interpretation which confirmed CAR2012 did not apply (**Appendix 12**).

MBL amended their existing RAMS (MBL/UCL-AC/01) via Addendum SK/04 to recognise the detection of ACM's (**Appendix 13**). The material was removed by MBL as non-hazardous waste – refer 2.6 below for disposal details.

2.2.4 Contamination Issue No 3 - Hydrocarbons

During diamond drilling of an existing crane base, the presence of oil was identified coming from the ground. Spill kit absorbent materials were used for collecting the oil residue at the time.

SL were instructed to attend site on 10 January 2017 and subsequently provided a report dated 20 January 2017.

Laboratory testing was undertaken on samples which confirmed that tested parameters (pH, anions, alkalinity, ammonium cyanides, thiocyanate, sulphide, metals, total petroleum hydrocarbons (TPH), volatile and semi-organic compounds and phenols) were below LOD (Limit of Detection), (**Appendix 14**)

The report proposed a further visit once the crane base had been removed.

SL returned to site 3 February 2017 undertaking soil samples from trial pit excavation in the crane base location.

Laboratory testing was undertaken on samples which confirmed that tested parameters (total petroleum hydrocarbons (TPH) and MTBE compounds) were below LOD, (**Appendix 15**).

2.3 Evidence of communication with the regulators (if/where undertaken), such as the Local Authority Environmental Health Officer (EHO) and Building Control Officer.

2.3.1 Local Authority Environmental Health Officer

Galliford Try site management / specialist consultants /specialist contractors liaised with the London Borough of Camden Environmental Health Officer, as necessary.

2.3.2 Building Control Officer

Galliford Try site management liaised with the London Borough of Camden Building Control Officer as necessary which resulted in the Building Control Certificate being issued on 29 June 2020 (**Appendix 16**) which confirmed that the building works had been inspected and the requirements of the Building Regulations had been satisfied.

2.4 *Descriptions of asbestos control measures and relevant CAR 2012 assessment.*

Asbestos control measures included;

- GTCL environmental control measures as 2.1.3 above
- Testing and sampling by asbestos contractors/laboratories as 2.2.2. and 2.2.3 above
- AAW RAMS as 2.2.2 above
- Appointment of specialist asbestos consultant, LEL as 2.2.3 above
- Air testing by LEL as 2.2.3 above
- MBL RAMS addendum as 2.2.3 above
- Toolbox talks on asbestos awareness - Site Safety Review Meeting dated 16/12/2016 (**Appendix 17**)

CAR 2012 assessment was undertaken by specialist asbestos consultant LEL using the CL:AIRE JIWG decision making tool as 2.2.3 above.

The recommendations of the asbestos specialist consultants and contractors were implemented.

2.5 *Verification of imported soils, including placed thicknesses, volumes and material sources and chemical testing, where appropriate, with assessment against the relevant import criteria.*

2.5.1 Imported Product

- **Appendix 18** refers
- Type 6F2 crushed concrete was imported and used as the piling mat and subsequently permanent fill below the building
- Grading and chemical analysis of samples was obtained prior delivery

2.5.2 Imported Topsoil

- **Appendix 18** refers
- Topsoil spec as Tim O'Hare Associates analysis dated 12th October 2018
- Depth installed varied on site from 600mm – 1.00m
- Approx. 20no. tonne used.
- See attached invoices detailing quants

2.6 *Waste management details and records, such as volumes / tonnage, destinations, waste disposal licence/permit details (e.g. haulage contactors and disposal sites), laboratory results for waste classification and summary of waste disposal records, including conveyance tickets and evidence of compliance with the relevant waste regulations.*

- **Appendix 18** refers
- All muck away was removed to Airlinks Golf Club, Southall Lane, Heston, Hounslow, Middlesex TW5 9PE. E.A. Licence No: EPR/NB3539AY

- Muck away was classified as non - hazardous following issue of. Refer JIWG Asbestos in Soil and Construction & Demolition Materials dated 19/12/2016 test results by Lucion Environmental
- Approximately 860no. tonnes was removed. Refer Modebest Builders Limited 'Non Haz Muck Outstanding Tickets' dated November 2017
- Erith were the waste hauliers; Permit no: CB/UM3184NS

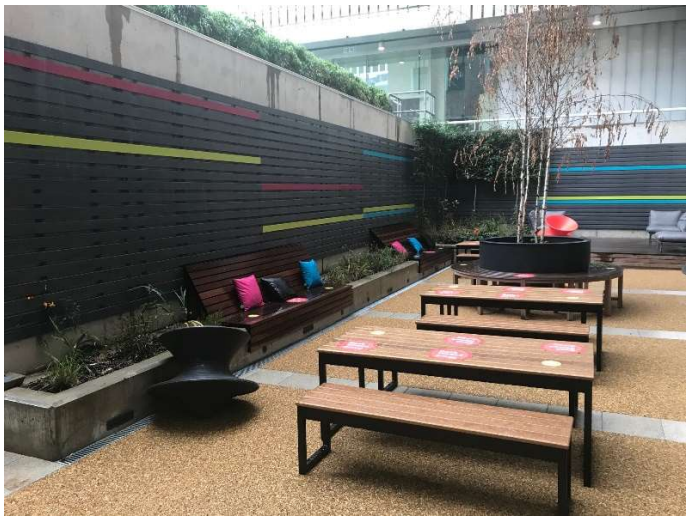
2.7 Description of final site conditions and as built drawings for small, landscaped areas.

2.7.1 The works were certified complete on 13 September 2019 and the Practical Completion Statement issued (**Appendix 19**).

2.7.2 The external areas were completed as follows (Refer **Appendix 20** for drawings and photographs);

Areas other than Bedford Passage were completed to project specification and design.

2.7.2.1 <u>Rear Courtyard</u>

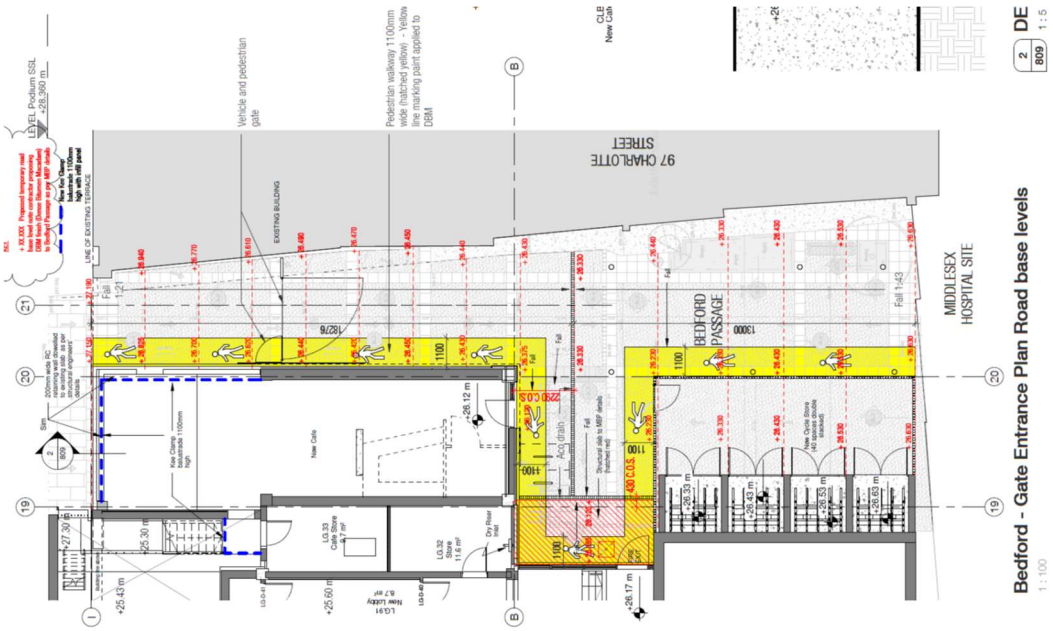


2.7.2.2 Perimeter of New Extension

2.7.2.3 Internal Courtyard

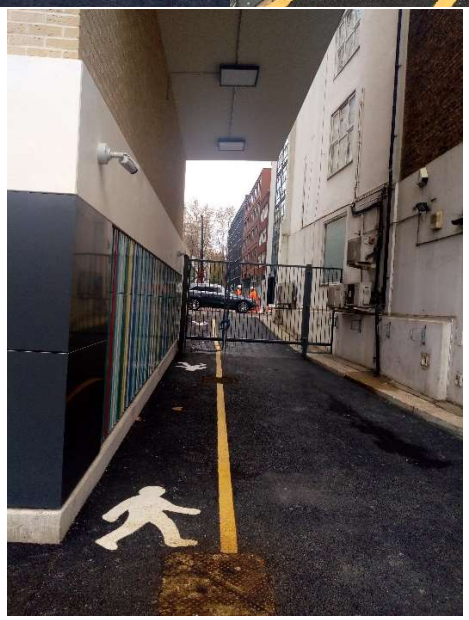
2.7.2.4 Bedford Passage - Temporary

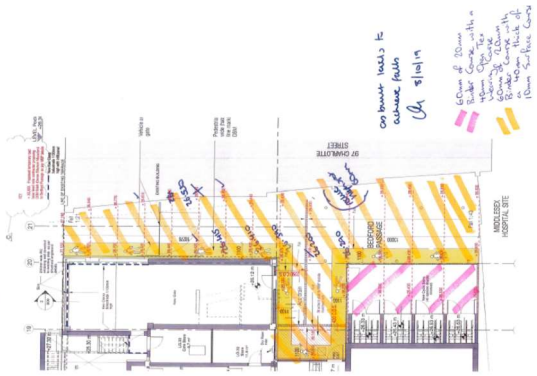
Bedford Passage was completed to a temporary position with tarmac finish due to the ongoing access requirements of a construction project immediately adjacent to the rear of the site.











2.7.2.5 Bedford Passage - Permanent

The Employer intends to complete Bedford Passage to the planning approved design on completion of the adjacent construction project.

3.0 Conclusion / Summary

This verification report provides the necessary information to allow occupiers and owners of this site to address any residual ground contamination risks associated with future operations and maintenance.

Asbestos encountered during the construction works was removed and no residual asbestos was evident, however the risk of presence of residual asbestos remains, and the measures implemented by Galliford Try during excavation works should be considered during any future excavation works.

This verification report will be provided to the Employer for incorporation to The Health & Safety File and the O&M Manuals.

APPENDICES

Appendix 1 London Borough of Camden - Planning Decision dated 27 August 2015 ref 2015/1139/P

Appendix 2 Arup - Ground Contamination Assessment and Remediation Strategy, REP-252519-CONT-001

Appendix 3 London Borough of Camden – Condition 11A approval

Appendix 4 Asbestos Contaminated Timeline and Drawing

Appendix 5 Clearwater - Soil Test Results (Asbestos in Trench)

Appendix 6 Lucion Environmental – Specification for Asbestos Abatement Works

Appendix 7 AA Woods – RAMS, Programme (Asbestos in Trench)

Appendix 8 AA Woods -Hazardous Waste Consignment Note – (Trench)

Appendix 9 Greenshield – Soil Test Results (Asbestos in General Excavation)

Appendix 10 GT – Order to Lucion Environmental for air clearance test and watching brief

Appendix 11 Lucion Environmental – Air Clearance Certificate

Appendix 12 Lucion Environmental – JIWG Decision Support Tool for CAR2012 Output

Appendix 13 Modebest – Amended RAMS (General spoil disposal)

Appendix 14 Soiltechnics – Groundwater investigation (Crane base location – pre demolition))

Appendix 15 Soiltechnics – Groundwater investigation (Crane base location – post demolition)

Appendix 16 London Borough of Camden – Building Control Certificate

Appendix 17 GT – Site Safety Review Minutes

Appendix 18 Modebest – Imported Materials Specification / Certification

Appendix 19 Arcadis – Practical Completion Statement

Appendix 20 GT – External Areas – Drawings and Photographs