

59 Gloucester Road, Reading, RG30 2TH

Remediation Validation Report



Daniella Reynard

October 2026

P26-231rv

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REPORT ISSUE AND TRACKING

ISSUE	DATE	Written by	Comment
1	12/10/2026	Matt Paddock MSc FGS	-
		Reviewed and approved by	
		Matt Paddock MSc FGS	

1.0 INTRODUCTION

Paddock Geo Engineering Limited (PGE) was instructed by Client; Daniella Reynard, to prepare a Remediation Validation Report (RV) as Stage 3 Steps 2 and 3 (formerly Phase 4) of a Site Contamination Assessment in relation to the residential redevelopment of the subject site, referred to as 59 Gloucester Road, Reading, RG30 2TH.

The site comprises an irregularly shaped parcel of land that generally slopes down towards the north. It is currently occupied by a single structure located within the southeastern corner of the site. The remainder of the site is predominantly covered by soft landscaping, with a timber shed located in the northwestern corner and an area of asphalt hardstanding present within the northern part of the site.

Site Location Plans and an Aerial Photograph are presented in Appendix A.

1.1. Terms of Reference

- British Standards BS 10175:2011 Investigation of Potentially Contaminated Sites – Code of Practice.
- British Standard (BS) 8485:2015+A1:2019 Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings.
- British Standard (BS) 8576:2013 Guidance on Investigations for Ground Gas - Permanent Gases and Volatile Organic Compounds (VOC)
- SC030114/R1 Verification of Remediation of Land Contamination Guidance Document, 2010, Environment Agency.
- BRE414: 2001 Protective measures for housing on gas-contaminated land. Building Research Establishment: 2001
- BS8576: 2013. Guidance on Investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs). British Standard Institute. 2013.
- PPG23 (PPS23) Planning and pollution control (contaminated land aspects), 2002 (withdrawn)
- GPLC1 Guiding Principles for Land Contamination, 2010, Environment Agency
- Environmental Protection Act: 1990 – Contaminated Land Statutory Guidance, April 2012, DEFRA
- NHBC Standards Chapter 4.2 2006, Building Near Trees
- TRL Laboratory Report 1132:1984 – The Structure of Bituminous Road, Appendix C Table C1
- BS 5930:1999+A2:2010 Site Investigation Code of Practice
- BS 8485:2015 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- CIRIA C665 Assessing risks posed by hazardous ground gases to buildings. CIRIA 2007
- NHBC report No 10627-R01(04) Guidance on development proposals on sites where methane and carbon dioxide are present (March 2007)
- CL:AIRE Research Bulletin RB17 A pragmatic approach to ground gas risk assessment (November 2012)
- CIRIA C735 Good practice and verification of protection systems for buildings against hazardous ground gases.

- Land Contamination Risk Management (LCRM) 2023, Environment Agency

2.0 DEVELOPMENT

The proposed development is understood to comprise the change of use/conversion of the existing building is a Class E (g) office to Class F1 (a) – a state funded school for learning and non-residential institutions for the provision of education.

A development plan is presented within Appendix A.

3.0 PREVIOUS REPORTS

The findings of the previous reports completed for the site are summarised in the following sub-sections. Reference should be made to the full reports for detailed information.

3.1. Stage 1, Tier 1 - Preliminary Risk Assessment

Ground Condition Consultants, Phase 1 Desk Study Report, reference J22-042-R01, August 2022

A Preliminary Contamination Risk Assessment (PRA) was carried out for the site by Ground Condition Consultants in August 2022. A summary of the main findings of the PRA report are summarised below.

The preliminary contamination risk assessment has not identified any likely sources of contamination on site. The risks to human health from potential soil contamination are therefore considered to be very low as no potentially significant pollutant linkage have been identified.

Although the Preliminary Risk Assessment concluded that an intrusive investigation was not required, the Local Authority's Environmental Protection Team raised concerns regarding potential contamination associated with the adjacent former brickworks and the proposed sensitive educational use.

3.2. Stage 1, Tier 2 Ground Investigation and Generic Quantitative Risk Assessment

PGE, 59 Gloucester Road, Reading, RG30 2TH, Site Contamination Assessment, reference P26-231sca, July 2026

Following the recommendations and conclusions from the PRA report, Paddock Geo Engineering Ltd undertook an intrusive investigation to establish the ground conditions beneath the site to assess the contamination status of the near surface soils. The main finding of the report, relevant to the soil remediation is summarised below.

The Site Contamination Assessment identified;

1. Elevated concentrations of lead within the shallow Topsoil in boreholes WS01(0.10m bgl) and WS04(0.20m bgl);



The assessment concluded that the detected contamination was likely to be located within areas of proposed soft landscaping. As such some risk reduction or remedial works were recommended to make the site suitable for its end-use.

3.3. Stage 2, Tier 1 to 3 Remediation Options Appraisal and Method Statement

PGE, 59 Gloucester Road, Reading, RG30 2TH, Remediation Method Statement, reference P26-231rms, August 2026

A Remediation Method Statement and Option Appraisal (RMS) was produced for the site by PGE based on the data within the Site Contamination Assessment. The requirements of the RMS are summarised below.

3.3.1 Remediation Methodology

The most viable remediation method for the site, based on potential risks from the identified lead impacted shallow Made Ground materials was considered as delineation and source reduction through the excavation and disposal of the impacted material with the construction of a cover system consisting of clean soils.

3.3.2 Remedial Actions

The implementation of a clean cover system comprising a maximum 600mm separation of clean soil at surface around WS01 and WS04 to separate the site end users from the identified potentially impacted Made Ground in the soft landscaped areas.

The impacted Made Ground at WS01 and WS04 is noted in the borehole logs to extend to a depth between 0.30m and 0.40m bgl. As such, it is expected that the removal of the Made Ground will fully remove the impacted Made Ground.

The full or partial removal of impacted Made Ground at WS01 and WS02 should be confirmed by visual inspection. Where Made Ground extends below the depth of the excavation, a suitable geotextile membrane should be placed at the base of the cover system to mitigate the risk from any residual contamination and to act as a no dig warning membrane.

A Remediation Plan of the approximate remediation area is presented in Appendix B.

All impacted Made Ground excavated as part of the remedial works should be either

- directly removed from site following excavation; or
- placed into covered skip or on bunded geo-membrane and covered to prevent the generation of wind-blown dust prior to removal from site at a later date.

3.3.3 Cover System

A Topsoil cover system may be required within proposed soft landscaping areas and should comprise clean soils with a minimum 150mm of clean Topsoil material, with the remainder being clean subsoil, to provide a suitable growing medium.



The Topsoil cover system soils should comprise the placement of clean BS3882:2015 certified Topsoil and BS8601:2013 Subsoils in potentially productively planted areas of the site such as private gardens, open soft landscaped, public open space and decoratively planted areas.

3.3.4 Previously Unidentified Contamination

The Remediation Engineer should be consulted if unexpected and/or previously unidentified contamination is discovered during the site development works, so any further assessment required can be carried out.

4.0 REGULATORY LIAISON

The Local Planning Authority (LPA) have been consulted by the Client for comment, and the previous reports have been forwarded to them for comment and approval. Comments received from the LPA and Client have been included in revisions of the previous reportage.

5.0 PARTIES AND RESPONSIBILITIES

The parties involved in the design, construction and operation of the remediation are categorised according to their roles as follows:

Current Owner	Daniella Reynard
Developer	Daniella Reynard
Architects / Designers	Walsingham Planning
RQA Supervision	Paddock Geo Engineering Limited (PGE)
Remediation Design	Paddock Geo Engineering Limited (PGE)
Regulators	Reading Borough Council Environment Agency
Analytical Testing Laboratory	I2 Analytical Limited, Watford (UKAS Accredited Testing Laboratory No. 4041)
Topsoil Supplier	TBC
Certification of Topsoil carried out by	N/A
Waste Haulier	Steve Carter Haulage
Remediation Contractor	PGE

6.0 REMEDIAL WORKS CARRIED OUT

6.1. Remedial Action – Removal of Impacted Soils from Soft Landscaped Areas

The remediation works were commenced on 29th September 2026 and completed on the 30th September 2026. The remediation works started in the area of WS04, where the impacted Made Ground was noted to contain ash and coal and was therefore, delineated visually by the Remediation Engineer and excavated to the depth of the clean natural soils at a depth of c. 400mm to remove all of the surface Made Ground strata.

When the removal of the impacted Made Ground soils from the WS04 area was completed the impacted soils from the WS01 area were delineated and removed to underlying clean natural soils.

The excavated soils were loaded onto a HDPE geotextile plastic sheeting and subsequently loaded into a grad lorry haulage vehicle and removed from the site by Steve Carter Haulage while the Remediation Engineer was on site.

The soil waste deposited site will be updated when this data is available from the waste haulier, and the waste transfer notes will be included in Appendix C.

A plan of the remediated areas is presented in Appendix E and photographs of the reduced site are presented in Appendix D.

6.2. Remedial Action – Construction of the Cover System

Given the completion of source removal across the soft landscaped areas, no residual contaminated soils remain in-situ. As such, no membrane or cover system is required.

At the request of the Client the WS04 area was tidied and left without Topsoil as was proposed to be hardstanding in the future. The area of WS01 was backfilled with site won soils and compost that had been stockpiled by the site occupier to use in raised planters.

The placement of cover system soils was supervised by PGE and photographs of the completed cover system are presented in Appendix D.

7.0 REMEDIATION VALIDATION

7.1. Validation Action – Delineation of Impacted Soils and Construction of the Cover System

The delineation, excavation and off site removal of the lead impacted Made Ground soils was supervised by PGE.

Following removal of the impacted soils, samples were recovered from the four sides of the excavation and a further composite sample from the base of the excavation.

A plan of the locations of the validation sampling is presented in Appendix E. A series of photographs of the remediation works are presented in Appendix D.



The WS04 remediation area was tidied but not backfilled at the request of the site occupier. The WS01 remediation area was backfilled with soil and compost supplied by Reading Borough Council to the site occupier and stockpiled on the site for use within raised planters.

7.2. Validation Action – Watching Brief for Unforeseen Contamination

During the remediation works the Contractor indicated that no visual or olfactory evidence of contamination, in excess of those already identified were noted during the ground investigation works.

8.0 REMEDIATION QUALITY ASSURANCE SUPERVISION

During the actual remediation process, the works were controlled by PGE.

PGE recovered samples from the base and sides of the remediation excavations and sent the samples to i2 Limited to determine the lead concentrations to validate removal of the impacted soils.

The samples indicated level of lead below the employed GACs, namely the PGE in house GACs for a residential with plant uptake land use. A copy of the analysis certificate and PGE in House GACs is presented in Appendix F.

Photographic evidence of the remediation works and cover system validation was recovered by PGE and presented in Appendix D.

9.0 PHOTOGRAPHIC RECORD

A photographic record of the validation site visits and sampling undertaken by PGE is presented in Appendix D. These comprise photographs of the site, site level reduction, impacted soil being taken off site and completed works.

10.0 Health, Safety and Environmental

We understand that the remediation contractor's operatives working on the site took precautions to commensurate with the task risk in line with the Construction Phase Health and Safety Plan for the site.

Regular dampening down was employed when excavating the impacted soils to minimise the generation of wind-blown dusts. The dust generation potential on the site was deemed minimal as the works were not carried out during times of dry and warm weather.

We understand that no groundwater was encountered during excavation and remedial works undertaken on site. No groundwater was present within the excavation during the Validation testing or inspection.

11.0 REMEDIATION QUALITY ASSURANCE CONFORMANCE

Paddock Geo-Engineering Limited (PGE) hereby certifies that, to the best of our knowledge, the remediation of the impacted soils in the WS01 and WS04 areas of the site of the site has been carried out in accordance with the requirements of the previous reporting and assessment (detailed in Section 3) unless outlined and discussed above.



The deleterious Made Ground soils, has to the best of our knowledge, been identified, excavated and removed within the soft landscaped area of the site to a designated licensed disposal facility.

The remediation works have sought to remove the deleterious Made Ground soils in their entirety and provide a clean cover system where required by the site user.

Therefore, given the above validation checks the open soft landscaped areas of the site are deemed suitable for their proposed 'Residential with plant uptake' land use.

REFERENCES

Investigation of Potentially Contaminated Sites – Code of Practice, British Standards Institution BS 10175:2001.

Code of Practice for Site Investigations, British Standards Institution BS5930: 1999+A2:2010

Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, R&D Technical Report P5-066/TR, 2000, Environment Agency.

National House-Building Council, NHBC Standards Chapter 4.2 'Building near Trees', 2003

CLR8 Potential Contaminants for the assessment of Land, 2002, DEFRA/Environment Agency.

BRE Special Digest 1 'Concrete in Aggressive Ground', 2001.

Contaminated Land Exposure (CLEA) Model version 1.03 developed by the Environment Agency, Department for Environment, Food and Rural Affairs and the Scottish Environment Protection Agency. 2008

CLR7 Assessment of Risks to Human Health from Land Contamination, 2002, DEFRA/Environment Agency.

CLR8 Potential Contaminants for the assessment of Land, 2002, DEFRA/Environment Agency.

Land Contamination Risk Management (LCRM), 2020, Environment Agency.

Environment Agency guidance document Verification of Remediation of Land Contamination (report SC030114/R1 dated 2010).

Method for Deriving Site-Specific Human Health Criteria for Contaminants in Soil, SNIFFER, 2003.

Technical evaluation of the Intervention Values for Soil/Sediment and Groundwater, RIVM Report 711701 023, National Institute of Public Health and the Environment, 2001.

The Water Supply (Water Quality) Regulations. HMSO. 2000

Code of Practice for Investigation and Mitigation of Possible Petroleum –Based Land Contamination, 1993, Institute of Petroleum, London.

Contaminated Land Management – Ready Reference, J Nathanail, P Bardos and P Nathanail, Land Quality Press, 2002.

BRE Digest 412 'Desiccation in Clay Soils', 1996

Hydrogeological Risk Assessment for Land Contamination Remedial Targets Worksheet, release 3.1 – October 2006

Mobilising Natures Army: Monitored Natural Attenuation – dealing with pollution using natural processes, Environment Agency. 2004

Remediation Targets Methodology: Hydrogeological Risk Assessment for Land Contamination, Environment Agency. 2006

NOTES AND LIMITATIONS

This report is produced for the sole use of the Client, and no responsibility of any kind, whether for negligence or otherwise, can be accepted for any Third Party who may rely upon it.

The conclusions and recommendations given in this report are based on our understanding of the proposed plans for the site in the future. If, however, the site is developed for a varying use, then a different interpretation might be appropriate.

The report has been prepared following the guidelines and principles established in the British Standards. It necessarily relies on the co-operation of other organisations and the free availability of information and total access. Where data supplied by the Client, including that from previous site investigations, have been used, it has been assumed that the information is correct. No responsibility can be accepted by Paddock Geo Engineering for inaccuracies within the data supplied.

No responsibility can, therefore, be accepted for conditions arising from information that was not available to the investigating team because of information being withheld or access being denied.

The scope of the remediation was discussed and agreed with the Client. No responsibility is accepted for conditions not encountered which were not communicated to PGE or remedial works that were not fully supervised by PGE, or which are outside of the agreed scope of work or if construction is commenced before regulatory approval of designs.

This report may suggest an opinion on a possible configuration of strata or conditions between exploratory points and below the maximum depth of investigation. However, this is for guidance only and no liability can be accepted for its accuracy. Comments on the groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. It should be noted, however, that groundwater levels might vary due to seasonal or other effects.

It should be noted that this report is based solely on the samples collected in the exploratory locations investigated. During the works and following general site clearance, should the sub-soil conditions in other areas of the site appear to be inconsistent with those found in the areas sampled then this geotechnical appraisal and site contamination assessment may need to be reviewed.

This report is prepared and written in the context of the proposals stated in the introduction to this report and it should not be used in a differing context. Furthermore, new information, improved practices and changes in legislation may require an alteration to the report in whole or in part after its submission. Therefore, with any changes in circumstances, or after one year from the date of the report, the report should be referred to Paddock Geo Engineering Limited for re-assessment (and, if necessary, for an estimate for the cost of such).

The copyright of this report and any associated plans and documents prepared by Paddock Geo Engineering Limited is owned by them and should not be reproduced, published or adapted, in whole or part, without their written consent.

The report is provided for the sole use by the Client and is confidential to him/her and his/her professional advisors. No responsibility whatsoever for the contents of this report will be accepted to any other person other than the Client.

APPENDIX A

Site Plan

Proposed Development Plan – Not Used

WALSINGHAM PLANNING
SPECIALIST PLANNING & HERITAGE CONSULTANTS



Promap
LANDMARK INFORMATION

© Crown Copyright and database rights 2026. OS AC0000813445
Plotted Scale - 1:1250. Paper Size – A4

APPENDIX B
Remediation Plan

Remediation Plan

P26-231

**59 Gloucester Road,
Reading,
RG30 2TH**

Kiss House

August 2026



Legend:



Percussion Liner Sampling
Borehole Locations



Remediation Area

Notes:

- 1) Not to scale
- 2) Dimensions as shown
- 3) All positions are approximate
- 4) Drawing to be viewed in colour
- 5) Drawing to be viewed digitally
- 6) Not for construction detail
- 7) Based on plans provided the Client

APPENDIX C

Conveyance Tickets for Waste Soils Removed from Site – To Follow

APPENDIX D
Siteworks Photographs



Photo of the investigated area facing northeast



Photo of the investigated area facing northwest



Photo of the investigated area facing southwest



Photo of the investigated area facing east



Photo of WS01



Photo of WS02



Photo of WS03



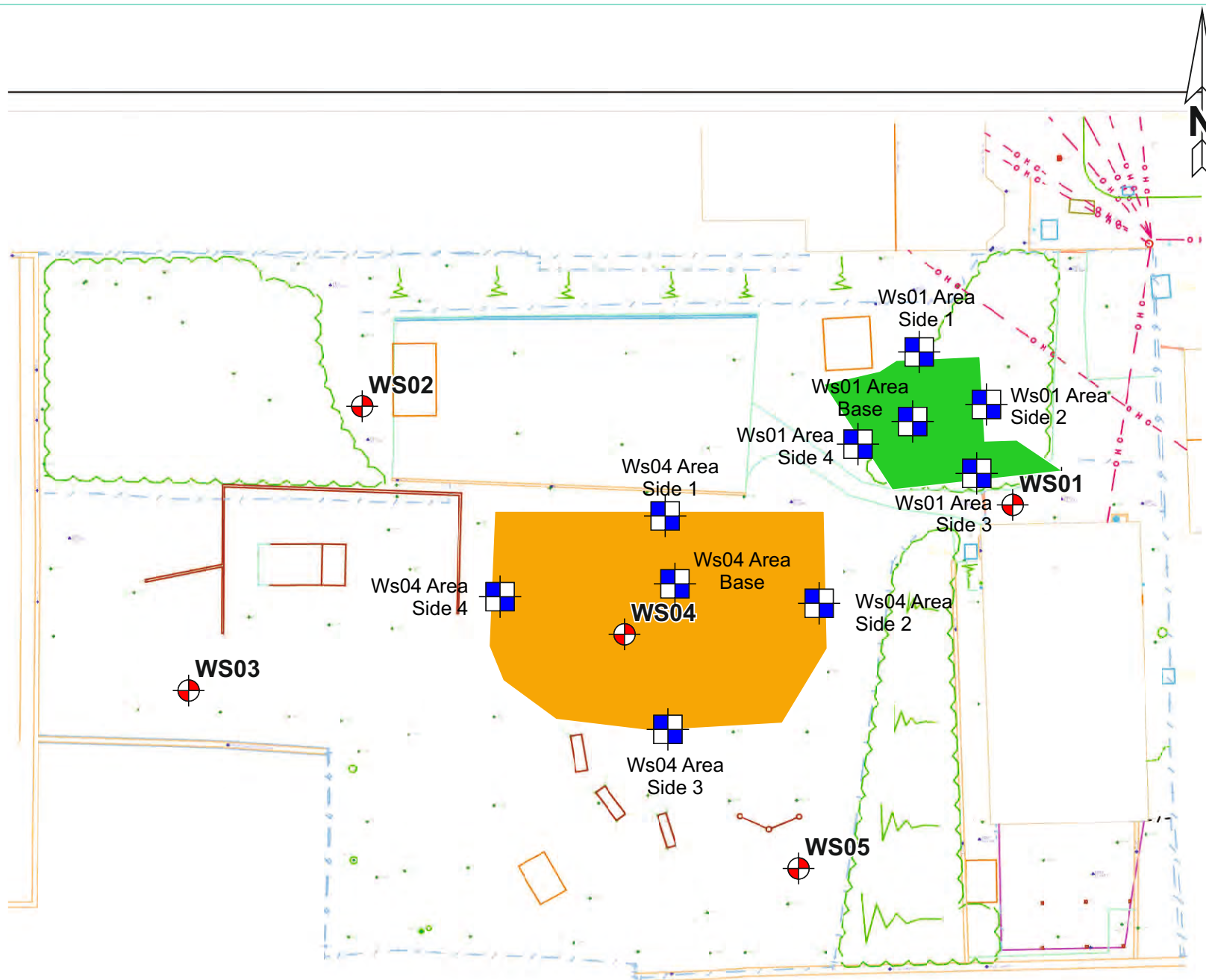
Photo of WS04



Photo of WS05



APPENDIX E
Validation Plan



Legend:

-  Percussion Liner Sampling Borehole Locations
-  Validation Sample Location
-  Approximate Ws01 Remediated Area
-  Approximate Ws04 Remediated Area

Notes:

- 1) Not to scale
- 2) Dimensions as shown
- 3) All positions are approximate
- 4) Drawing to be viewed in colour
- 5) Drawing to be viewed digitally
- 6) Not for construction detail
- 7) Based on plans provided the Client

APPENDIX F

Validation Sample Analysis Results

PGE In House GACs

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Analytical Report Number : 26-054759

Project / Site name:	59 Gloucester Road, Reading, RG30 2TH	Samples received on:	02/10/2026
Your job number:	P26-231	Samples instructed on/ Analysis started on:	02/10/2026
Your order number:		Analysis completed by:	09/10/2026
Report Issue Number:	1	Report issued on:	09/10/2026
Samples Analysed:	10 soil samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 26-054759

Project / Site name: 59 Gloucester Road, Reading, RG30 2TH

Lab Sample Number				1069940	1069941	1069942	1069943	1069944
Sample Reference				Rem WS01	Rem WS01	Rem WS01	Rem WS01	Rem WS01
Sample Number				Base Composite	Side 1	Side 2	Side 3	Side 4
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				30/09/2026	30/09/2026	30/09/2026	30/09/2026	30/09/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Mass of stone >10mm	%	0.1	NONE	39.5	46.4	33.8	45.5	48.7
Moisture Content	%	0.01	NONE	8	6.9	7.9	7.6	6.5
Total mass of sample received	kg	0.1	NONE	0.7	0.8	0.9	0.9	0.9

Heavy Metals / Metalloids

Lead (aqua regia extractable)	mg/kg	1	MCERTS	22	28	30	24	32
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 26-054759

Project / Site name: 59 Gloucester Road, Reading, RG30 2TH

Lab Sample Number				1069945	1069946	1069947	1069948	1069949
Sample Reference				Rem WS04	Rem WS04	Rem WS04	Rem WS04	Rem WS04
Sample Number				Base Composite	Side 1	Side 2	Side 3	Side 4
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				30/09/2026	30/09/2026	30/09/2026	30/09/2026	30/09/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Mass of stone >10mm	%	0.1	NONE	30.1	39.3	29.8	32.9	20.3
Moisture Content	%	0.01	NONE	7.6	7.3	8.7	7.3	8.2
Total mass of sample received	kg	0.1	NONE	0.9	0.9	0.9	0.9	0.8

Heavy Metals / Metalloids

Lead (aqua regia extractable)	mg/kg	1	MCERTS	26	27	24	30	39
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 26-054759

Project / Site name: 59 Gloucester Road, Reading, RG30 2TH

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1069940	Rem WS01	Base Composite	None Supplied	Brown loam and clay with gravel and stones
1069941	Rem WS01	Side 1	None Supplied	Brown loam and clay with gravel and stones
1069942	Rem WS01	Side 2	None Supplied	Brown loam and clay with gravel and stones
1069943	Rem WS01	Side 3	None Supplied	Brown loam and clay with gravel and stones
1069944	Rem WS01	Side 4	None Supplied	Brown loam and clay with gravel and stones
1069945	Rem WS04	Base Composite	None Supplied	Brown loam and clay with gravel and stones
1069946	Rem WS04	Side 1	None Supplied	Brown loam and clay with gravel and stones
1069947	Rem WS04	Side 2	None Supplied	Brown loam and clay with gravel and stones
1069948	Rem WS04	Side 3	None Supplied	Brown loam and clay with gravel and stones
1069949	Rem WS04	Side 4	None Supplied	Brown loam and clay with gravel and stones

Analytical Report Number : 26-054759

Project / Site name: 59 Gloucester Road, Reading, RG30 2TH

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Where coal tar is reported as "indicative/not indicative", PAH source attribution has been assessed using the ratio of parent PAHs to alkylated PAHs to indicate a likely pyrogenic (coal tar-related) or petrogenic (bitumen-related) origin. This assessment is independent of total residue and/or benzo(a)pyrene concentrations and is provided for indicative purposes only; it represents a single line of evidence and does not, in isolation, constitute confirmation or classification as hazardous under WM3 guidance.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

GENERIC HUMAN HEALTH SCREENING TOTAL SOIL CONCENTRATION ASSESSMENT CRITERIA (GAC)

DETERMINAND		RESIDENTIAL (mg/kg)		COMMERCIAL (mg/kg)
Chemical	GAC Sources and units	With Home Grown produce	Without Home Grown produce	
Asbestos Screen & ID*	-	Detected	Detected	Detected
Cyanide - Total	SNIFFER	53.25	53.25	53.25
Cyanide - Free	SNIFFER	53.25	53.25	53.25
Loss on Ignition @ 450°C	-	-	-	-
Sulphate (as SO ₄) - Total	BRE****	2400	2400	2400
Sulphide	ICRCL	2500	2500	2500
Sulphur - Total	ICRCL	2500	2500	2500
Phenol (Total Monohydric)	CLEA	420	420	3200
pH	ICRCL	<5,>12	<5,>12	-
Metals and Metalloids (CLEA Metals)				
Arsenic	LQM S4UL	37	40	640
Beryllium	LQM S4UL	1.7	1.7	12
Cadmium	LQM S4UL	22	150	410
Chromium III	LQM S4UL	910	910	8600
Lead	DEFRA C4SL	200	310	2300
Mercury (Total)	LQM S4UL (Inorganic)	40	56	1100
Selenium	LQM S4UL	250	430	12000
Copper (phytotoxicity)	LQM S4UL	2400 (111)	7100	68000
Nickel	LQM S4UL	180	180	980
Zinc (phytotoxicity)	LQM S4UL	3700 (330)	40000	730000
Vanadium	LQM S4UL	410	1200	9000
Boron - Water Soluble	LQM S4UL	290	11000	240000
Total Petroleum Hydrocarbons**				
TPH (EC6-EC10) - PRO	LQM S4UL (2.5% SOM)	65	100	4800
TPH (EC10-EC21) - DRO	LQM S4UL (2.5% SOM)	300	600	23000
TPH (EC21-EC40) - Min.	LQM S4UL (2.5% SOM)	1500	1900	28000
Total TPH (EC10-EC40)	LQM S4UL (2.5% SOM)	600	900	23000
Polycyclic Aromatic Hydrocarbons***				
Benzo(a)anthracene	LQM S4UL (2.5% SOM)	11	14	170
Benzo(b)fluoranthene	LQM S4UL (2.5% SOM)	3.3	4	44
Naphthalene	LQM S4UL (2.5% SOM)	5.6	5.6	460
Flourene	LQM S4UL (2.5% SOM)	400	3800	68000
Benzo[a]pyrene	LQM S4UL (2.5% SOM)	5.0	5.3	77
Dibenzo[a,h]anthracene	LQM S4UL (2.5% SOM)	0.28	0.32	3.6

Notes

The Generic Assessment Criteria (GAC) are based on CLEA Soil Guidance Values published values and CIEH/LQM S4CLs where available or ICRCL, DoE, BRE and HSE levels where necessary. Where gaps remain GACs were calculated using the latest CLEA spreadsheet using DEFRA C4SL toxicology and physiochemical parameters from DEFRA SP1010.

* Guidance level set at any fibre identification.

** TPH 3 band is employed as a screening tool to instigate detailed speciated analysis to the TPHCWG methodology. Based on mean of fractions included

*** Testing based on USEPA Priority 16 compounds. GACs for four compounds and total PAH with published GACs only, used as a screening tool.

**** BRE SD1 - DS-1 Concrete Sulphate Design Class limit. Sulphate is not considered to pose a significant risk to human health under normal circumstances.



CLIENT:

PROJECT No:

PROJECT TITLE:

Daniella Reynard

P26-231

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