

Written Scheme of Investigation: Watching Brief

20-30 Greyfriars Road, Reading, RG1 1NS

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1 Introduction

- 1.1 Tetra Tech Consulting Services Ltd has been commissioned by Elder Developments (Greyfriars) Ltd to appoint a sub-contractor to undertake the archaeological watching brief at 20-30 Greyfriars Road, Reading, RG1 1NS (hereafter 'the site'). The site is centred on National Grid Reference (NGR) SU 71276 73676, and its location is shown on Figure 1
- 1.2 This parcel of land comprises an area approximately 1185m² in extent on the northern side of the town of Reading. The site is bound to the north by Garrard Street, to the west by Greyfriars Road, and to the east and south by office buildings.
- 1.3 Planning permission was granted by the Borough of Reading in 2025 for the demolition of the existing building and the erection of a part-7, part-13 storey co-living building (Sui Generis) and associated communal amenity facilities, refuse storage, cycle parking and plant equipment (Ref.: PL/24/1501). Permission was granted subject a planning condition, Condition 31 states:

A) No development shall commence until a programme of archaeological work including a Written Scheme of Investigation (WSI) has been submitted to, and approved by, the local planning authority in writing. The WSI shall include an assessment of significance and research questions; and:

- 1. The programme and methodology of site investigation and recording.*
- 2. The programme for post investigation assessment.*
- 3. Provision to be made for analysis of the site investigation and recording.*
- 4. Provision to be made for publication and dissemination of the analysis and records of the site investigation.*
- 5. Provision to be made for archive deposition of the analysis and records of the site investigation.*
- 6. Nomination of a competent person or persons/organisation to undertake the works set out within the WSI.*

B) The Development shall take place in accordance with the WSI approved under condition (A). The development shall not be occupied until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the WSI approved under condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured.

REASON: The site lies in an area of archaeological potential, particularly for, but not limited to, Medieval remains. The potential impacts of the development can be mitigated through a programme of archaeological work. Archaeological monitoring or evaluation will ensure preservation, either by record or in situ, of any heritage assets present on the site in a manner appropriate to their significance, in accordance with paragraph 211 of the NPPF 2023 and Policies EN1 and EN2 of the Reading Borough Local Plan 2019.

- 1.4 Accordingly, this Written Scheme of Investigation (WSI) for an archaeological watching brief has been produced to address the requirement for archaeological investigation in Condition 31. All work will be undertaken in accordance with this document and in accordance with relevant Standards and Guidance of the Chartered Institute for Archaeologists (CIfA 2023 a & b) and the Berkshire Archaeology standards (BA 2021). All work will be reported upon in line with guidelines set out in Management of Research Projects in the Historic Environment (MoRPHE; Historic England 2015). It has been submitted to Reading Borough Council and Berkshire Archaeology for approval.
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Archaeological WSI

- 1.5 The results of the archaeological watching brief will inform decisions regarding the need for, and extent of, any further archaeological works that may be required to mitigate the impact of the development upon the archaeological resource. The requirement for and scope of any further stages of works will be determined by the LPA and their archaeological advisors, Berkshire Archaeology. Any further stages of work, such as those for the wider investigation of mitigation/excavation areas will be subject to a separate WSI.

2 Geological and Archaeological Background

- 2.1 The following information is drawn from the DBA (RPS 2024) and other readily available sources. For further information please refer to those documents

Geology and Topology

- 2.2 The British Geological Survey (BGS 2025) shows the underlying geology at the study site as Seaford Chalk Formation and Newhaven Chalk Formation (Chalk), which was formed between 89.8 and 72.1 million years ago during the Cretaceous period.
- 2.3 The bedrock chalk is recorded to be overlain by superficial deposits across the majority of site of Taplow Gravel Member (Sand and Gravel), which comprises river terrace deposits formed between 362 and 126 thousand years ago during the Quaternary period. These deposits are categorised as part of the Wolstonian Stage, a Mid Pleistocene stage which spanned several cycles of glaciation (e.g. Gibbard et al. 2022).
- 2.4 Superficial deposits across the northern edge of the site are recorded as Alluvium, deposits that are a mix of clay, silt, sand and gravel. This sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period.
- 2.5 Prior to the construction of the building that occupied site, geotechnical site investigations were undertaken in 1981 (Soil Mechanics Ltd 1981). In Borehole 1 (BH1) towards the north of the site, deposits identified as Taplow Gravel were recorded to a depth of 5.00m below ground level (bgl) at 34.23m above Ordnance Datum (AOD) where the chalk bedrock was encountered (see also Peter Brett Associates 2017). Much of this gravel deposit will have been removed from the northern part of the site around the location of BH1 as a result of the construction of the car park basement here, which went to a depth of c.36.11m AOD. In Borehole 4 (BH4), the Taplow Gravel was recorded to a depth of 2.35m bgl at 37.42m AOD, where it overlay the bedrock chalk. The ground level here was subsequently reduced for the access slope into the below-ground car park. The surface level from the area where BH4 was taken was c.38.00m AOD.
- 2.6 Further site investigation works were undertaken in 2025 (Manhire Associates 2025, appendix 2), two percussive boreholes and eight windowless sampler holes were carried out. Made Ground was encountered in all exploratory positions and was proved to a maximum of 1.6m in BH1; with a general thickness of 1m or less. It generally comprised a brick and concrete hardcore, although a significant second concrete slab was encountered in BH1. Taplow gravels were recorded in WS8 only, directly underlying the made ground at a depth of 0.50m. This deposit was 1.30m thick, sealing the underlying chalk. Seaford Chalk was encountered in all exploratory holes, continuing to the limit of investigation (up to 5.45m depth). The implication is that across all of the site, other than the area around WS8, the gravels have been extensively truncated by the current development.
- 2.7 Archaeological excavations from 2021 in Area A of the Station Hill redevelopment project, just to the east of the site, recorded a series of mid-brownish orange clays and gravels overlying the chalk bedrock in the northern part of excavation area, which were interpreted as superficial deposits of Alluvium (PCA 2021a). These deposits were recorded to be deeper in the northern part of Area A than in the southern part of this area (where they were non-existent), which was interpreted to suggest that they had accumulated in a deep east-west channel (PCA 2021a).
- 2.8 One of the trenches from an earlier archaeological evaluation in this area from 2020 recorded an untruncated bedrock chalk on a slope from c.39.3m AOD to c.37.1m AOD over a c.20m distance, which represented a 1:10 gradient towards the base of the valley sides into the Thames floodplain (Oxford Archaeology 2020b; ERM2429, SU 7135 7363). The trench to the immediate north of this identified the natural chalk at a depth of c.36.88m AOD.
- 2.9 The ground height of the site slopes downwards from the south to the north. The northern edge at pavement level is situated at c.39.10m AOD, whilst the southern edge is situated at c.41.70m AOD.
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- 2.10 The site lies c.550m to the south-west of the River Thames, and c.550m to the north-west of the River Kennet. Both of these rivers flow broadly eastwards and have their confluence c.1.75km to the east.
- 2.11 During 2025 SI works were undertaken across the site. These broadly indicated the removal of superficial geological deposits across a large proportion of the site, other than in a small area around WS8 (Figure 2; Appendix 1).

Archaeological Background

Previous Archaeological Fieldwork

- 2.12 No archaeological fieldwork projects have been undertaken within the site boundary; however, a number of studies have happened in the immediate vicinity of site. For a detailed breakdown of those events please see the DBA (RPS 2024) sections 4.4-4.10. In summary, predominantly the archaeological remains encountered comprised post-medieval activity including 18th and 19th century dwellings as well as a cluster of medieval pits and other medieval features including ditches and linear features. The story of the activity in proximity to site was one of substantial 20th century disturbance of earlier remains.

Prehistoric

- 2.13 The archaeological works as part of the Station Hill redevelopment project have produced several findspots of prehistoric material, including broadly prehistoric flakes from made ground, worked flint artefacts, an undiagnostic flake from the natural gravel, and a redeposited Late Mesolithic-Early Neolithic distal trimming blade. Several possible palaeochannels at the edge of the Thames floodplain were also identified during these investigations. An Iron Age brooch was found c.215m to the south-east of the study site at Friar Street.

Roman

- 2.14 The Roman town of Silchester is the closest known major settlement to site, situated some c.13km to the south-west. The Victoria County History conjectures that there was a Roman settlement in Reading, however there is little archaeological evidence for any settlement in Reading central. Within the 300m search of the Berkshire HER, evidence for Roman activity is limited to findspots of coarse pot sherds from the site of the former Littlewoods store, c.110m south-east of the study site (MRD11257, SU 71350 73550), coins of Valens (AD 364-378) and Constantine II (AD337 to 340) found on Broad Street, possibly from the Vaudeville Theatre, c.200m south-east of the study site (MRD11258, SU 7142 7350). A third brass of Magnentius (AD 350-353) is also recorded to have been found along Greyfriars Road to the west of the study site; this Roman coin findspot is also labelled on the 1957 Ordnance Survey Map (MRD11262, SU 7126 7369).

Saxon/Early Medieval

- 2.15 The earliest recorded documentary reference to settlement at Reading is made by the Anglo-Saxon Chronicle in AD 870-871, which records a winter camp set up there by the Danes. In his biography of King Alfred, Asser records a rampart between the rivers Thames and Kennet “on the right-hand side of the royal vill” (Astill 1978). The Reading Minster Church of St Mary the Virgin, c.330m south-east of the site was constructed in the 11th century and was likely the site of a 10th century nunnery and church. The site was likely situated outside of the extent of the Saxon town and finds dating to the Saxon period with the search radius of the site are limited to two coins and residual sherd of Saxon pottery found within a post-medieval pit c.150m to the east of the study site.

Medieval

- 2.16 The Domesday Survey of AD 1086 records two manors at Reading, one belonging to Battle Abbey and the other to King William I. The Survey records Reading to have had 102 households, with meadow, woodland, ploughland, mills and fisheries. The estate attached to Battle Abbey was recovered by Henry I in the early 12th century, and in AD 1121 the King founded Reading Abbey as a Cluniac order. With the official opening of Reading Abbey in AD 1164 by Archbishop of Canterbury Thomas Becket, there was a shift in economic activity away from the St Mary's to the Abbey gates, situated c.400m south-east of the study site by St Laurence's Church (MRD3917, SU 71500 73500). The site and surviving ruins of Reading Abbey are located c.700m to the east of the study site and designated as a scheduled monument and Grade I listed building (List Entry Numbers: 1113477 and 1007932).
- 2.17 The suggested Medieval extent of the town of Reading is provided by Astill (1978), which shows the study site to have been situated at the northern edge of the settlement (Figure 3). The route of Friars Street, which is on an east-west alignment c.100m south of the study site, is first documented in AD 1118 as Newe Street (MRD3931, SU 71500 73590). The modern-day routes of Broad Street/King Street to the south of this road are believed to have formed part of the Medieval grid layout of the town, which was focussed on the marketplace at the Abbey gates (MRD3928 and MRD3972, SU 71480 73470).
- 2.18 The digging of foundations for a new vicarage to the east of Greyfriars Church revealed two extended skeletons, c.70m to the south-west of the site (MRD4467, SU 71230 73580). Archaeological evaluations at the site of the friary in the immediate vicinity to Greyfriars Church, c.70m south of the site, have recorded disarticulated human bone and a probable in-situ skeleton, along with Medieval pottery, and pits (MRM16548, SU 71244 73583; MRM16549, SU 71250 73582; MRM17581, SU 71175 73588; MRM18496, SU 71117 7358; ERM1267, SU 71247 73584; ERM1648, SU 71117 7358; ERM2566, SU 71118 7359). Though none of the human remains identified have been closely dated, they are most likely associated with the later Medieval to post-medieval friary. The likely extent of the graveyard at the friary is shown as a hatched area on Astill's 1978 plan of the Medieval town (RPS 2024: Figure 3), separate from the site. Since no direct dating evidence for the skeletons was obtained, the Berkshire HER details how they could potentially be associated with the prison that operated here from 1613 (MRM16548, SU 71244 73583).
- 2.19 At 7 Greyfriars Road, c.20m to the south-west of the study site, demolition and building work revealed fragmentary remains of the flint and mortar footings of a substantial building, which was dated to the Medieval period. The building was suggested to have been connected with the Friary to the south (MRD3933, SU 71242 73644). The proximity to the study site of this building could indicate that related features or buildings may extend into the study site. Astill (1978) states that the earlier buildings of the friary which were abandoned stood where the land slopes down to the Thames. Although, the adjacent archaeological evaluation works at 5 Greyfriars Road, to the immediate south-west of the study site on the western side of Greyfriars Road in 1994 only recorded a later brick well likely dating to the 19th century, and no evidence for Medieval features (TVAS 1994; MRD7368, SU 71240 73650; ERM449, SU 71236 73649).
- 2.20 The archaeological works as part of the Station Hill redevelopment to the east and north-east of the study site recorded various Medieval features, including ditches, pits, a linear feature (MRM16558, SU 71329 73701; MRM18235, SU 7131 7376; MRM18492, SU 7130 7363; MRM18492, SU 7130 7363; ERM1320, SU 71337 73716). Much of this appears to represent Medieval backland activity associated with the urban development and settlement along Friars Street, rather than any ecclesiastical estate associated with Greyfriars Friary, c. 75m south-west of the study site. Further evidence for this type of activity was recorded during archaeological works at 25-26 Friar Street and Shoemiths Court, c.150m to the east of the study site (MRM16013, SU 71457 73636; MRM16014, SU 71448 73638; ERM483, SU 71460 73636; ERM541, SU 71438 73644). Numerous pits, a possible posthole and a ditch were identified from the archaeological works here, with pot sherds, ceramic building material, fragments of charcoal including cereal grains, and a few mammal bones recovered from their fills.
- 2.21 There is a wealth of evidence for Medieval activity around the site, the majority of which is focussed to the south and south-east in the core of the town. The site was likely situated on marginal land
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outside of the main settlement area during the Medieval period, to the rear of buildings fronting Friar Street to the south. The Franciscan Friary called Greyfriars was situated c.75m to the south-west of the study site, and evidence for possibly related built features have been recorded c.20m to the south-west of the study site at 7 Greyfriars Road. The proximity of this to the site could indicate that related features or buildings may have extended into the site, however the adjacent archaeological works at 5 Greyfriars Road did not record any Medieval remains.

Post-medieval

- 2.22 The earliest detailed map of Reading is John Speed's 1610 Map of Reading (RPS 2024: Figure 4). This map shows the study site on the northern fringes of the early Post Medieval settlement extent, likely within an area of open land. Numerous buildings are shown to line the modern-day Friar Street, labelled as 'B' on the map and referred to here as 'Gutter Lane', to the south of the study site. The site of the priory, labelled 'A' on the map, is shown within an enclosed space to the west of the study site.
- 2.23 The Medieval Chapel of St Edmund, located c.150m to the south-west of the site, was out of use by 1479, though during the English Civil War it was converted into a fort, also known as 'Harrison's Barn', which cut off the approach from Caversham (MRD3979, SU 71130 73590). This fort formed part of a wider Civil War defence system which was constructed in 1642 following the capture of Reading by Royalist forces November of that year. The defences were constructed to encircle Reading and would likely have been comprised of bastions linked by earth banks; the natural obstacle of the River Kennet likely also formed part of the defences (MRD15703, SU 71058 73227).
- 2.24 The Royalist-held town of Reading was attacked in April 1643 by Parliamentarians and Lord Grey for ten days. Although successful with their siege, they withdrew after five months, and the Royalists returned to reoccupy the town. The defences were subsequently re-fortified, though following a visit by Charles I in May 1644, were ordered to be slighted (Cram 1988; Slade 2001). The Civil War defences are shown on the 1643 Reading siege map (RPS 2024: Figure 2a & Figure 5). The map indicates that the line of the defences run through the study site on a broadly east-west alignment. A square-shaped orchard is also shown a short distance to the north of the site. There is limited archaeological evidence within the study area for surviving features associated with the Civil War defences. A ditch identified during archaeological works 25-26 Friar Street, c.150m to the east of the site, is suggested to represent a remnant of the defences; no datable evidence was recovered from the feature, which is a notable archaeological occurrence in Civil War ditches probably because they were constructed so quickly for one particular purpose (MRM16042, SU 71455 73664).
- 2.25 The 1761 Rocque Map of Berkshire (RPS 2024: Figure 6) shows the study site to have been situated outside of the extent of built development of Reading, in an area of open land to the north of the buildings fronting Friar Street. No significant changes are shown on the 1802 Coates Map of Reading (RPS 2024: Figure 7), which show the study site to have remained undeveloped, in an area of open land to the north of the built settlement. The square-shaped orchard to the north of the study site is also shown, though referred to on this map as 'Friery Mead'. Field boundaries are shown in the south of the study site. The 1848 Tithe Map of the Parish of St Lawrence, Reading (RPS 2024: Figure 8) shows the study site to have been situated across two land parcels and to the immediate north-west of another. A trackway or footpath is shown running through the southern part of the study site.
- 2.26 By 1879 (RPS 2024: Figure 9), the boundaries of the study site are defined, with the western part of the study site developed as a row of terraced housing fronting onto Greyfriars Road, and the eastern part of the study site comprising their rear garden plots. There are no significant changes to the study site throughout the rest of the 19th century through to the later 20th century (RPS 2024: Figures 9, 10 and 11). The 1957 Ordnance Survey Map labels a findspot of a Roman Coin adjacent to the study site, which is recorded on the Berkshire HER as a third brass of Magnentius (AD 350-353) (MRD11262, SU 7126 7369; RPS 2024: Figure 11). The site was cleared of housing in the 1980s (RPS 2024: Figure 12) and was subsequently developed with eh building that most recently occupied this space.
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3 Research Aim and Objectives

3.1 The general aims of the archaeological investigation are as follows:

- To determine the presence or absence of archaeological deposits or remains and if so, to assess the date, survival and condition of said remains.
- To record the character, date, location and preservation of any archaeological remains on the site.
- To record the nature and extent of any previous impacts on the archaeological sequence across the site.
- To enable Berkshire Archaeology to make an informed decision as to the requirement for and scope of any further work required in order to satisfy the archaeology condition.

3.2 The site-specific aims of the archaeological investigation are as follows:

- Is there any evidence for the existence of burials associated with the medieval friary to the south?
- Is there any evidence of other medieval activity within the site.
- Do any of the civil war defensive features survive within the site boundary?

3.3 With reference to the Solent-Thames Research Framework (Hey & Hill 2014) the archaeological investigation may be able to address the following regional research objectives:

The Later Medieval Period

- 16.6.22: Where were the town fields and commons? How did they relate to liberty and parish boundaries? (*16.6 Settlement*)
- 16.10.4: Monastic life, diet, health and death. (*16.10 Ceremony, ritual and religion*)

The Post-Medieval and Modern Period (AD 1540 onwards)

- 18.8.1: The many sites connected with the Civil War, including garrisons, skirmishes sieges and defences, should be identified and their archaeological potential assessed. (*18.8 Warfare, defences and military installations*)
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4 Methodology

- 4.1 The archaeological watching brief will comprise the monitoring of groundworks in the area around WS8 (Figure 2). The site investigation works across the rest of the site show no surviving Taplow Sands & Gravels in the other boreholes and windowless samples (Appendix 2), as such the WB will be localised around the area of surviving Taplow Sands & Gravels.
 - 4.2 A Risk Assessment and Method Statement (RAMS) will be prepared prior to commencement of the work. A unique site code will be obtained for the works.
 - 4.3 Written notice will be given to Berkshire Archaeology prior to the commencement of fieldwork.
 - 4.4 The archaeological monitoring will be undertaken during the relevant groundworks by a suitably experienced archaeologist. All excavation will be undertaken by site contractors and will be constantly monitored by the monitoring archaeologist.
 - 4.5 Owing to the truncation evident within the window samples, the archaeological watching brief shall target the area of archaeological potential around WS8 (figure 3).
 - 4.6 Where excavation reveals archaeological features, machine or hand excavation by contractor's staff will cease. The features will then be hand excavated and recorded to archaeological standards by the archaeologist(s) in attendance. Exposures will be hand cleaned by archaeologists as necessary to clarify the presence/absence and nature of any features.
 - 4.7 Adequate time will be made available for appropriate archaeological excavation by hand to identify and record the remains as far as possible within the limits of the works in order to extract archaeological and environmental information, should this prove necessary
 - 4.8 The spoil from the excavations will also be inspected by archaeologists to recover any artefacts or ecofacts of archaeological interest.
 - 4.9 The opportunity to have a meeting on site with Berkshire Archaeology shall be provided once relevant groundworks have been undertaken to assess the results, or by remote monitoring via email summaries/photos/WB plans at the discretion of Berkshire Archaeology.
 - 4.10 Backfilling and compaction will be undertaken by the machine on completion of the work once agreed with Berkshire Archaeology, but there will be no reinstatement to existing condition.
 - 4.11 An OASIS form will be completed for the project.
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5 Standards

- 5.1 The sub-contractor appointed by Tetra Tech Consulting Services Ltd will be a Registered Organisation with ClfA. All fieldwork will adhere to the ClfA Standard for archaeological field evaluation (2023), and Code of Conduct (ClfA 2014b, revised 2022 & 2014c, revised 2020).
 - 5.2 All exposed archaeological features and deposits will be recorded and excavated, except obviously modern features and disturbances.
 - 5.3 Standard field recording methodologies will be employed. All stratigraphy will be recorded using the single context recording system if required.
 - 5.4 An overall plan tied into the Ordnance Survey National Grid will be drawn in addition to individual plans showing areas of archaeological interest. All features revealed will be planned.
 - 5.5 Site plans will be at 1:20 unless circumstances dictate otherwise. Plans at other scales will be drawn if appropriate (e.g., cremation burials at 1:10). Sections will be drawn at 1:10.
 - 5.6 Archaeological features and deposits will be excavated using hand tools unless they cannot be accessed safely or unless a machine-excavated trench is the only practical method of excavation. Any machine-excavation of archaeologically significant features will be agreed with Berkshire Archaeology in advance.
 - 5.7 With the exception of modern disturbances, normally a minimum 50% of all contained features will be excavated. Modern disturbances will only be excavated as necessary in order to properly define and evaluate any features that they may cut. Normally 10% (or at least a 1m-long segment) of non-structural linear features will be excavated. At least 50% of linear features with a possible structural function (e.g., beam slots) will normally be excavated. Details of the precise excavation strategy and any alterations to it will be discussed with the monitoring officer if particularly significant archaeology is revealed as a result of topsoil stripping. Further discussion and agreement on the approach to the excavation of complex areas may be requested during the project.
 - 5.8 Should human remains be encountered the coroner will be informed, together with the client and monitoring officer. All articulated human remains; graves and cremation vessels/deposits will receive minimal excavation to define their extent and establish whether they are burials or not. Generally, all graves and cremation burials will be recorded and their positions noted without full excavation, only surface cleaning. A decision would then be made on future treatment of the human remains in consultation with the client/their agent and Berkshire Archaeology. Graves and cremation burials would only be excavated in exceptional circumstances and only with the necessary licence from the Ministry of Justice.
 - 5.9 A full photographic record comprising colour digital images will be made. The photographic record will aim to provide an overview of the excavation and the surrounding area. A representative sample of individual feature shots and sections will be taken, in addition to working shots and elements of interest (individual features, group and general shots). The photographic register will include shot number, location of shot, direction of shot and a brief description of the subject photographed.
 - 5.10 All archaeological remains will be recorded and levelled relative to Ordnance Datum by an archaeological surveyor, using DGPS (Differential Global Positioning System) technology. Sufficient levels will be taken to ensure that the relative height of the archaeological/subsoil horizon can be extrapolated across the whole of the development area
 - 5.11 All archaeological features and deposits will be recorded using standard context record sheets. Soil colours are recorded using visual inspection and not by reference to the Munsell Colour chart.
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6 Finds/Environmental

- 6.1 In general, all finds from all features will be collected. Where large quantities of post-medieval and later finds are present, and the feature is not of intrinsic or group interest, a sample of the finds assemblage will normally be collected sufficient to date and characterise the feature.
- 6.2 Finds will be identified, by context number, to a specific deposit or, in the case of topsoil finds, to a specific area of the site.
- 6.3 All finds will be properly processed according to the ClfA Standard and guidance for the collection, documentation, conservation and research of archaeological materials (2020c). All pottery and other finds, where appropriate, will be marked with the site code and context number.
- 6.4 If appropriate, environmental samples will be taken from well-stratified, datable deposits that are deemed to have potential for the preservation/survival of ecofactual material. Bulk soil samples (minimum 40 litres or 100% of context) will be taken for wet sieving and flotation, and for finds recovery. If necessary, the Historic England regional scientific advisor will be consulted. In all instances deposits with clear intrusive material shall be avoided.
- 6.5 Any finds believed to fall potentially within the statutory definition of Treasure, as defined by the Treasure Act 1996, amended 2003, shall be reported to the Finds Liaison Officer, the client and Berkshire Archaeology. Should the find's status as potential treasure be confirmed the coroner will also be informed. A record shall be provided to all parties of the date and circumstances of discovery, the identity of the finder, and the exact location of the find(s) (OS map reference to within 1 metre and find spot(s) marked onto the site plan).
- 6.6 A site-specific Selection Strategy (ClfA: The Selection Toolkit for Archaeological Archives) will be set out by the appointed contractor in their Method Statement. That strategy makes provision for expanding sampling of features following discussion with the Berkshire Archaeology.

7 Post-Excavation, Analysis, Reporting and Archive

- 7.1 Within eight weeks of the completion of fieldwork a report will be produced containing: Summary, Introduction, Background, Aims & Objectives, Method, Fieldwork Results, Specialist Reports, Discussion & Conclusions, Appendices, Figures.
- 7.2 The report will be supplied to Berkshire Archaeology and the Regional Advisor for Archaeological Science at Historic England's South East office along with the watching brief area and any feature shapefiles.
- 7.3 A form will be completed for the Online Access to Index of Archaeological Investigations (OASIS) at <http://ads.ahds.ac.uk/project/oasis/UTH> in accordance with the guidelines provided by Historic England and the Archaeological Data Service.

Publication

- 7.4 Publication will be by an evaluation report produced within eight weeks of the completion of fieldwork. A summary report will also be submitted for publication in the annual fieldwork round-up in a suitable journal. In the event that no further works are planned, and exceptional archaeological remains are found which warrant publication in their own right a separate note on these will be produced to a timetable agreed with the client and Berkshire Archaeology.

Archive

- 7.5 It is intended to deposit the archive with Reading Museum. The Guidelines for preparation and deposition will be followed, as well as those contained in the ClfA Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (2020a) and the requirements of the recipient museum will be followed for the preparation of the archive for museum deposition.
 - 7.6 Finds from the archaeological fieldwork will be kept with the archival material.
 - 7.7 Subject to agreement with the legal landowner, the archaeological sub-contractor will arrange the recipient museum for the deposition of the archive and artefact collection. Any items requiring treatment will be conserved. The landowner will be asked to donate the finds to the recipient museum.
 - 7.8 A site-specific Data Management Plan will be set out in the appointed contractors Archaeological Method Statement.
-

8 Health and Safety

- 8.1 The archaeological sub-contractor will produce a Risk Assessment and Method Statement (RAMS) for the project. This will cover most aspects of excavation work and ensure that for most sites any risks are adequately controlled. Prior to and during fieldwork all sites are subject to an ongoing assessment of risk. Site-specific risk assessments are kept under review and amended whenever circumstances change which materially affect the level of risk. Where significant risks have been identified in work to be carried out by the archaeological sub-contractor a written generic assessment will be made available to those affected by the work. A copy of the Risk Assessment will be kept on site.

9 Resources

- 9.1 The archaeological work will be undertaken by a professional team of archaeologists, appointed from a ClfA Registered Organisation. This would normally constitute a single Supervisor undertaking the watching brief, with more archaeologists brought in to assist if complicated archaeological deposits or features are encountered. If complicated archaeology is encountered, it may also be necessary to deploy surveyors and other specialists.
- 9.2 The appointed archaeological sub-contractor will provide the site programme, name of the appointed archaeological supervisor, as well as the list of specialists who may be consulted as required during the project.

10 Monitoring

- 10.1 Berkshire Archaeology will be responsible for monitoring progress and standards on behalf of the LPA throughout the project.
- 10.2 Any variations to the specification will be agreed with the client and Berkshire Archaeology prior to any work being undertaken.
- 10.3 Berkshire Archaeology will be kept informed of progress by the client throughout the project and will be contacted in the event that significant archaeological features are discovered. Arrangements will be made for the monitoring officer to inspect the evaluation trenches before they are backfilled – trenches will not be backfilled without the agreement of the monitoring officer.

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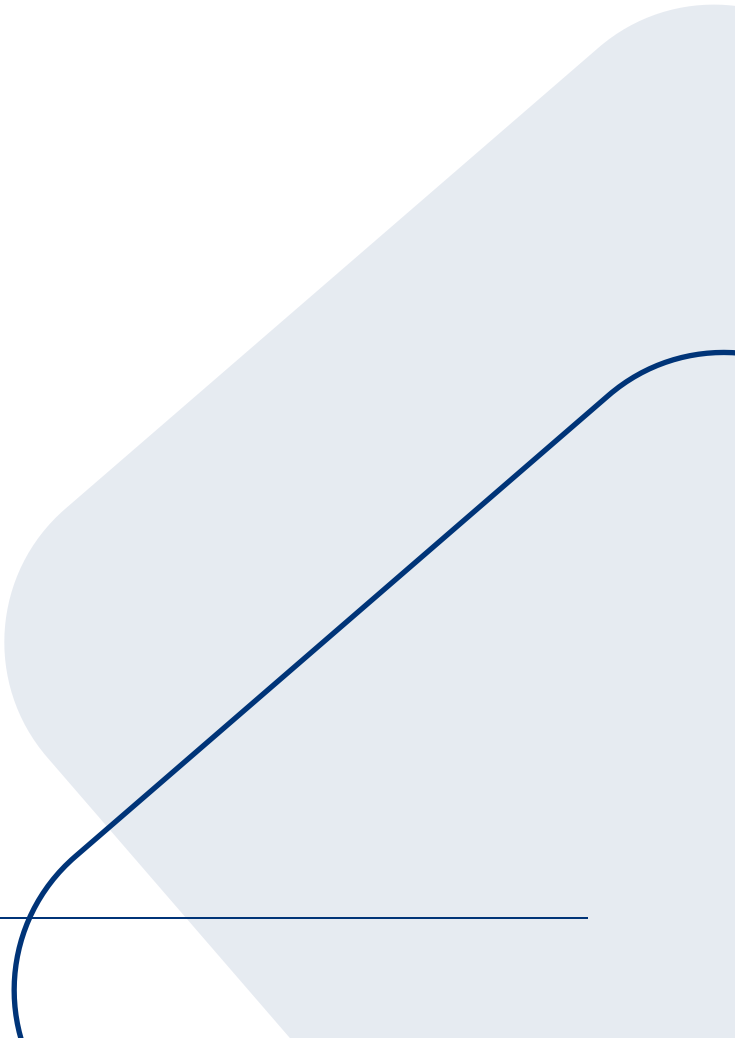
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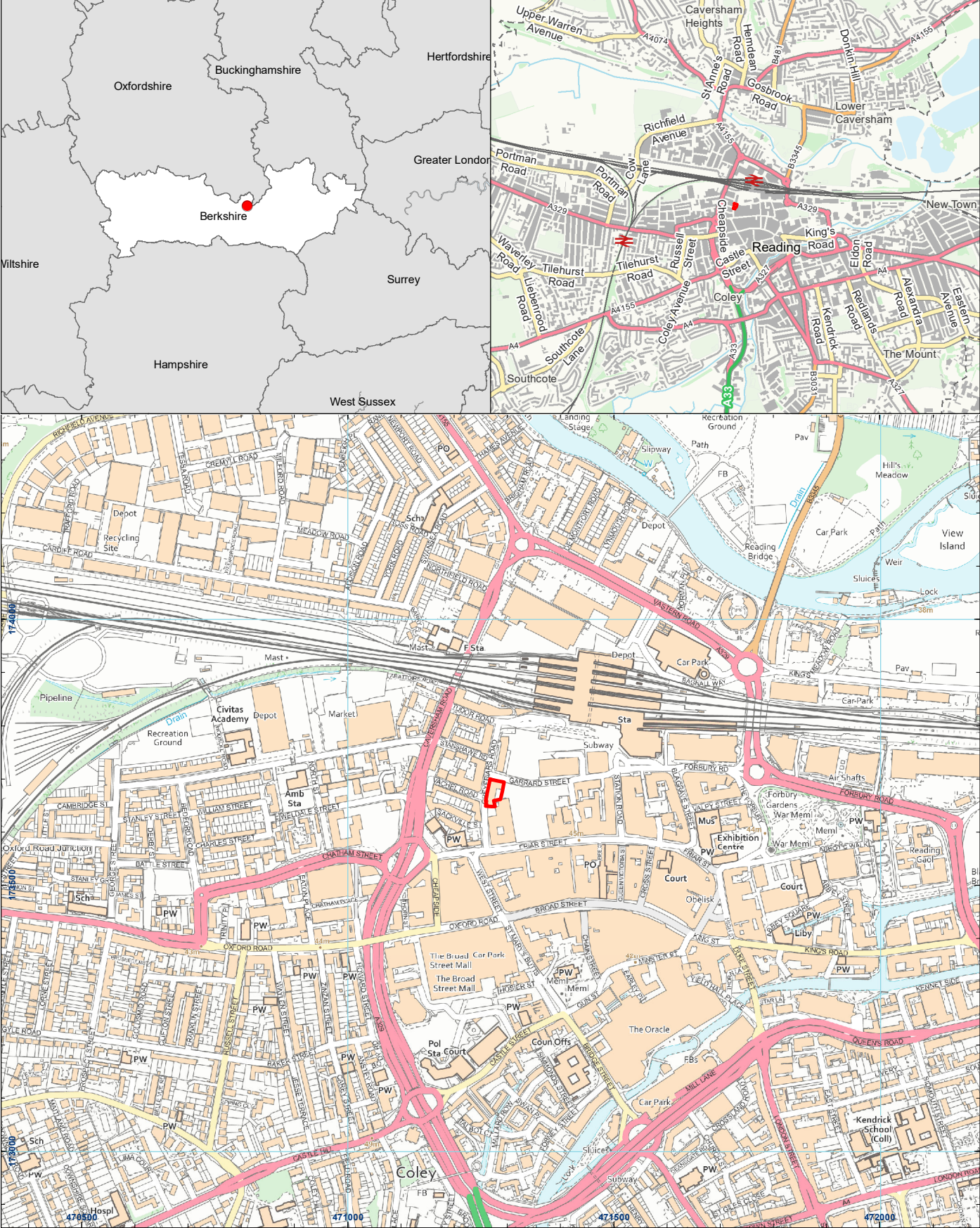
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Figures





Site Boundary

N

0100200m

Scale at A4: 1:10,000

TETRA TECH

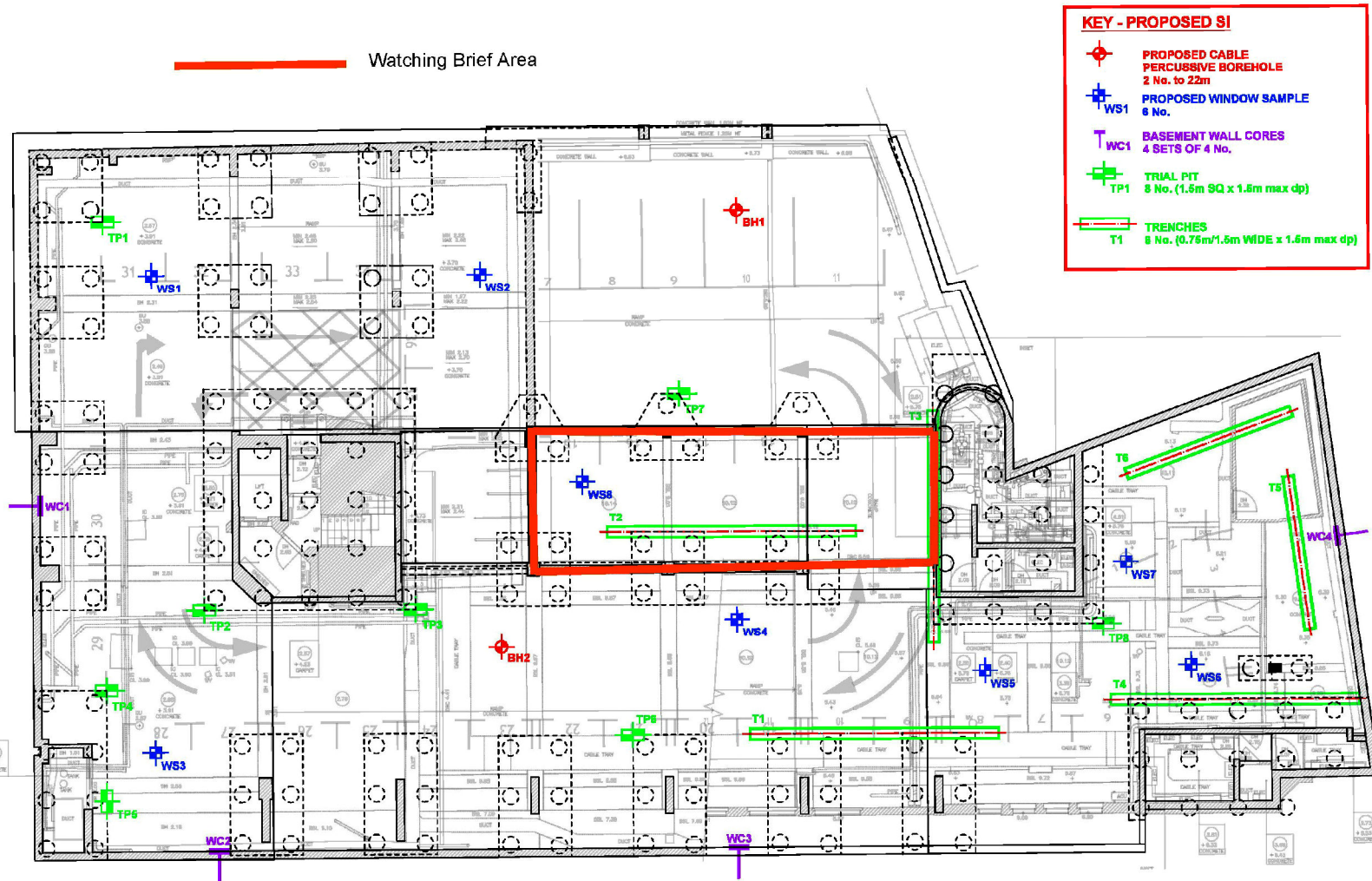
RPS

A TETRA TECH COMPANY

Figure 1

Site Location

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Not to scale
illustrative only

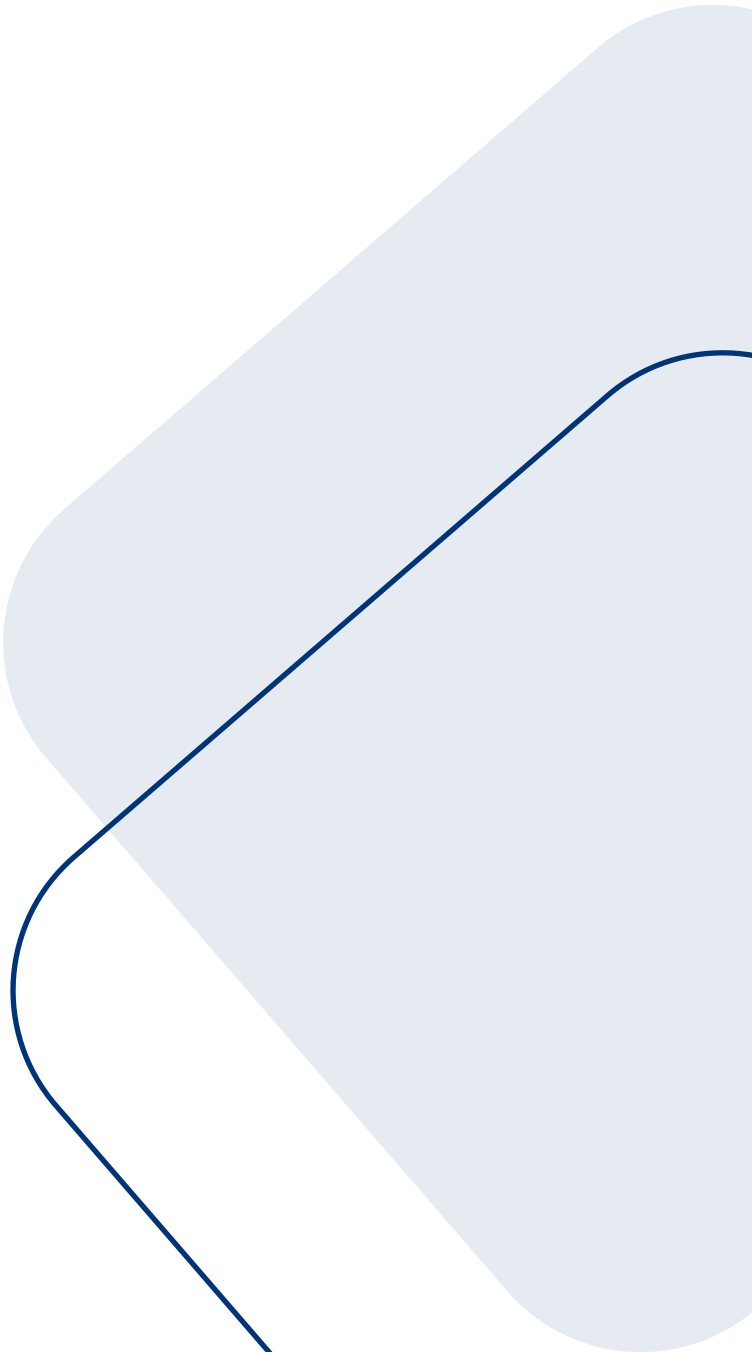
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Figure 2

Area of Watching Brief

Appendices



Appendix 1
SI Window Sample Logs

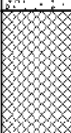
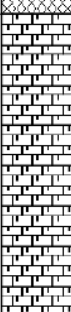
MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH1		
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.90		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 1/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
2.00-2.45 2.00-2.50	U1 No recovery B1		DRY	50 blows No rise(1) at 2.10m.	5.50 5.48	(0.40) 0.40 0.42	CONCRETE GRAVEL CONCRETE		
3.00-3.45	SPT N=2	3.00	2.50	1,0/1,0,1,0		(1.18)			
4.00-4.45	SPT N=3	3.00	2.50	1,0/1,0,1,1	4.30	1.60	White CHALK with flints		
5.00-5.45	SPT N=14	4.50	3.00	1,2/3,4,3,4	0.90	5.00	White CHALK with flints becoming more structured with depth		
6.50-6.95	SPT N=30	6.00	3.00	3,6/7,7,7,9					
8.00-8.45	SPT N=37	7.50	4.00	2,6/6,10,10,11					
9.50-9.95	SPT N=38	9.00	4.50	3,6/9,8,9,12					
Remarks PRELIMINARY - Driller's description only Borehole backfilled with arisings and replaced concrete core								Scale (approx)	Logged By
								1:50	ljs
								Figure No. 6047.BH1	

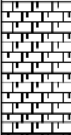
Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH1	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.90		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
11.00-11.45	SPT 50/295	10.00	6.00	6,6/6,10,15,19			White CHALK with flints becoming more structured with depth		
12.50-12.85	SPT 50/200	10.50	7.00	9,10/12,13,25					
14.00-14.17	SPT 25*/95 50/70	10.50	7.00	10,15/50		(18.00)			
15.50-15.90	SPT 50/245	15.00	8.00	6,10/14,13,14,9					
17.00-17.45	SPT N=49	16.00	8.50	10,6/10,10,14,15					
18.50-18.83	SPT 48/180	16.50	9.00	8,11/19,18,11					
Remarks Chiselling from 14.10m to 14.30m for 0.25 hours.								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH1	

Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH1		
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.90		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025- 28/10/2025		Engineer		Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
21.50-21.64	SPT 25*/85 50/50	18.00	8.50	15,10/50	-17.10	23.00	White CHALK with flints becoming more structured with depth		
23.00-23.28	SPT 25*/100 50/175	18.00	9.00	19,6/18,21,11			Complete at 23.00m		
Remarks Chiselling from 21.60m to 21.80m for 0.25 hours.								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH1	

Manhire Associates Geotechnical Engineers MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH2	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.40		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025- 28/10/2025		Engineer		Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50-1.00	B1				4.85 4.60	(0.55)	CONCRETE		
						0.55 (0.25)	MADE GROUND: Flint, gravel and chalk		
						0.80	White CHALK with flints		
2.00-2.45	SPT N=4	1.00	DRY	1,1/1,1,1,1		(3.70)			V ₁
2.00-2.50	B2			No rise(1) at 2.10m.					
3.00-3.45	SPT N=6	3.00	2.50	1,2/1,1,2,2					
4.00-4.45	SPT N=10	3.00	2.50	1,2/2,2,3,3					
5.00-5.45	SPT N=15	4.50	3.00	2,3/3,4,4,4	0.90	4.50	White CHALK with flints becoming more structured with depth		
6.50-6.95	SPT N=32	6.00	3.00	3,8/7,8,7,10					
8.00-8.45	SPT N=35	7.50	3.00	7,7/7,9,9,10					
9.50-9.95	SPT N=41	9.00	4.50	5,8/9,9,11,12					
Remarks PRELIMINARY - Driller's description only Borehole backfilled with arisings and replaced concrete core								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH2	

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED							Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH2
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.40		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
11.00-11.45	SPT 43/295	10.00	5.50	6,7/9,8,12,14	-10.60 16.00	(11.50)	White CHALK becoming more structured with depth		
12.50-12.95	SPT N=43	10.50	6.00	9,10/10,11,10,12					
14.00-14.17	SPT 20*/95 59/70	10.50	7.00	10,10/12,15,15,17					
15.50-15.90	SPT 56/245	15.00	7.00	9,10/13,13,15,15					
							Complete at 16.00m		
Remarks Chiselling from 14.10m to 14.30m for 0.25 hours.								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH2	

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS4
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1	DRY	40% recovery		(0.55)	CONCRETE		Σ1
					0.55	MADE GROUND: Flint, gravel and chalk		
					(0.45)			
1.00-2.00 1.00-1.45	L2 SPT(C) N=6	DRY	50% recovery 5/2,2,1,1		1.00	White CHALK with flints		
2.00-3.00 2.00-2.45	L3 SPT(C) N=9	DRY	Water strike(1) at 2.00m. 80% recovery 3/3,2,2,2					Σ1
3.00-4.00 3.00-3.45	L4 SPT(C) N=10	1.70	60% recovery 4/3,2,2,3		(4.45)			
4.00-5.00 4.00-4.45	L5 SPT(C) N=14	1.72	90% recovery 6/4,3,4,3					Σ1
			15/10/2025:1.61m					
Remarks PRELIMINARY - Driller's description only Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS4	

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED Site 20 Greyfriars Road, Reading, RG1 1NS Number WS4									
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=14	1.67	6/4,3,3,4		5.45	White CHALK with flints			
						Complete at 5.45m			
Remarks								Scale (approx)	Logged By
								1:25	ljs
								Figure No. 6047.WS4	

Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS5	
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00-1.00	L1		70% recovery		(0.28)	CONCRETE			
			0.28		MADE GROUND: Hardcore	(0.22)			
			0.50		Firm to stiff CHALK with flints				
1.00-2.00 1.00-1.45	L2 SPT(C) N=12	DRY	70% recovery 4/2,3,3,4						
2.00-3.00 2.00-2.45	L3 SPT(C) N=8	DRY	70% recovery 3/2,1,2,3 Water strike(1) at 2.25m.						
3.00-4.00 3.00-3.45	L4 SPT(C) N=12	DAMP	50% recovery 3/2,3,3,4		(4.50)				
4.00-5.00 4.00-4.45	L5 SPT(C) N=10	2.52	70% recovery 3/2,3,2,3						
			15/10/2025:2.01m						
Remarks PRELIMINARY - Driller's description only Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs	
							Figure No. 6047.WS5		

Manhire Associates  MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS			Number WS6	
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=15	2.71	6/4,3,4,4		5.45	Firm to stiff CHALK with flints			
						Complete at 5.45m			
Remarks								Scale (approx) 1:25	Logged By ljs
								Figure No. 6047.WS6	

Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS8			
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001		
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water		
0.00-1.00	L1	DRY	70% recovery		(0.28)	CONCRETE SLAB				
			0.28 (0.22)		MADE GROUND: Hardcore					
			0.50		Medium dense sandy GRAVEL					
1.00-2.00 1.00-1.45	L2 SPT(C) N=12	DRY	70% recovery 4/2,3,3,4		(1.30)					
			1.80		White and blue grey mottled CHALK with flints, hydrocarbon odour					
			(2.20)							
2.00-3.00 2.00-2.45	L3 SPT(C) N=4	DRY	20% recovery 3/1,1,1,1							
			Water strike(1) at 2.50m.							
			(2.20)							
3.00-4.00 3.00-3.45	L4 SPT(C) N=5	3.00	80% recovery 2/1,1,1,2							
										
										
4.00-5.00 4.00-4.45	L5 SPT(C) N=6	2.74	70% recovery 3/1,2,1,2		4.00	White CHALK with flints, no odour noted				
						(1.45)				
										
			15/10/2025:2.34m							
Remarks PRELIMINARY - Driller's description only Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs		
							Figure No. 6047.WS8			

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS7
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		80% recovery		(0.16)	CONCRETE		
					0.16	MADE GROUND: Hardcore and gravel		
					(0.34)			
					0.50	White CHALK with flints		
1.00-2.00	L2		80% recovery					
1.00-1.45	SPT(C) N=14	DRY	5/4,3,4,3					
2.00-3.00	L3		70% recovery					
2.00-2.45	SPT(C) N=11	DRY	4/2,3,3,3					
			Water strike(1) at 2.60m.					Σ1
3.00-4.00	L4		70% recovery		(4.95)			
3.00-3.45	SPT(C) N=5	2.71	2/1,1,2,1					
4.00-5.00	L5		80% recovery					
4.00-4.45	SPT(C) N=15	2.72	6/4,3,4,4					
			15/10/2025:2.64m					
Remarks PRELIMINARY - Driller's description only Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS7	

Manhire Associates Geotechnical Engineers MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS7		
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD)		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=32	2.71	12/8,7,8,9		5.45	White CHALK with flints			
						Complete at 5.45m			
Remarks								Scale (approx) 1:25	Logged By ljs
								Figure No. 6047.WS7	

Appendix 2

20-30 Greyfriars Road, Reading, RG1 1NS: Geo-Environmental Report

20-30 Greyfriars Road, Reading, RG1 1NS

Geo-Environmental Report

Elder Development (Greyfriars) Limited

DATE OF ISSUE:
28th November 2025

Status: Information
Revision: 0

Project No.: 25001
Date: 28th November 2025

Contents

- 1.0 Introduction
- 2.0 Site description
- 3.0 Development Proposals
- 4.0 Geology
- 5.0 Field work
- 6.0 Laboratory testing
- 7.0 Ground conditions
- 8.0 Discussion
- 9.0 Remedial Action Plan
- 10.0 Discovery Strategy & Watching Brief
- 11.0 Verification Report

Appendices

- APPENDIX A - Borehole Records
- APPENDIX B - Standpipe Records
- APPENDIX C - Laboratory Test Results
- APPENDIX D - Original Testing Certificates
- APPENDIX E - Figures

1.0 Introduction

This report has been prepared by Manhire Associates Geo-Environmental Ltd with respect to site investigations carried out for Elder Development (Greyfriars) Limited in relation to 20-30 Greyfriars Road, Reading.

The purpose of the investigation was to determine the ground conditions and to provide recommendations in respect of foundation design and other geotechnical and environmental matters for the proposed residential redevelopment. This included:

- a) Establish existing pile locations where necessary.
- b) Establish pile cap geometry and material concrete properties.
- c) Establish basement wall thicknesses, reinforcement and material concrete properties.
- d) Provision of sufficient geotechnical data to provide design parameters for the economic design of the foundations, earthworks, and temporary works.
- e) Assessment of problems and constraints associated with the construction of the works arising from the soil or ground water conditions, including temporary works, excavation, extraction, and drainage.
- f) Consideration of changes in the stability, drainage or other geotechnical aspects of the site and the surrounding ground and buildings which may arise from the works.
- g) Sampling and testing for an environmental risk assessment in accordance with CLEA guidelines, and the Environmental Protection Act 1990.

Two percussive boreholes and eight windowless sampler holes were carried out, supported by a programme of insitu and laboratory testing.

We understand that the redevelopment is to be carried on a raft foundation.

Contamination testing found all results to be below trigger concentrations for residential uses, although a hydrocarbon odour was noted in one hole.

This Report is prepared for the use of Elder Development (Greyfriars Limited) in connection with the development. The report is not intended for, and should not be relied upon by any third party, and no responsibility is undertaken to any third party, without the express written agreement of Manhire Associates Geo-Environmental Ltd.

2.0 Site description

The site is located on the corner between Greyfriars Road to the west and Gerrard Street to the North and is 0.12 hectares in area. The site comprises a six-storey disused office block over an existing semi-basement level. An open surfaced car park is also present along the eastern boundary. The site is sloping with levels falling by 4m from south to north across the site and three neighbouring buildings on the south and east elevations

No visual or olfactory evidence of contamination was noted on the site.

Figure 1 at Appendix E illustrates the general layout of the site and its immediate environs as they presently stand.

3.0 Development Proposals

The development proposals comprise the demolition of the existing building and the construction of a part-7, part-13 storey co-living residential building covering the whole site.

4.0 Geology

Published records of the British Geological Survey indicate the site to lie on Alluvium, overlying Taplow Gravel and Seaford Chalk Formation at depth.

5.0 Field work

The extent of the field work was specified by the Client and comprised two boreholes advanced by light percussive techniques to a maximum of 23m depth. In addition, a series of windowless sampler holes were undertaken to a maximum of 5m depth. In addition, four sets of 4 diamond core holes were advanced through the Lower Ground and basement walls at the base.

The location of all exploratory points is shown on Figure 1 at Appendix E.

Representative soil samples were recovered from the boreholes for subsequent laboratory examination and testing; whilst Standard Penetration Tests (SPT) were carried out as appropriate. Details of the strata encountered are provided on the Borehole Records at Appendix A; together with particulars of the samples recovered, groundwater observations and SPT results. The profile of SPT verses level is provided at Figure 2 of Appendix E.

Ground levels provided in this report have been interpolated from spot levels provided on the survey drawing.

A standpipe was installed in WS4 for subsequent monitoring of groundwater and ground gas, the results of which are presented at Appendix B.

6.0 Laboratory testing

The following laboratory tests were conducted on soil samples recovered during the field work:

- Soluble sulphate concentration and pH value: for the specification of buried concrete.

Metals and semi - metals:

arsenic, cadmium, chromium, lead, mercury, selenium, copper, nickel and zinc.

Organic compounds

Total monohydric phenols, Total petroleum hydrocarbons - TPH
Speciated polyaromatic hydrocarbons - PAH

Others

Asbestos

Results of these tests are presented at Appendix C, whilst the original testing house reports are at Appendix D.

7.0 Ground conditions

7.1 Stratigraphy

The stratigraphy of the site as revealed by the percussive boreholes is described in detail at Appendix A and in general terms hereafter.

7.1.1 Made Ground

Made Ground was encountered in all exploratory positions and was proved to a maximum of 1.6m in BH1; with a general thickness of 1m or less. It generally comprised a brick and concrete hardcore, although a significant second concrete slab was encountered in BH1.

7.1.2 Taplow Gravel

Underlying the Made Ground and proved to between 1.8m depth in WS8 only was a brown and light brown sandy gravel.

SPT's in the material found it to be in a medium dense condition.

7.1.3 Seaford Chalk

Seaford Chalk was encountered in all exploratory holes and it continued to the limit of investigation. The samples produced by this form of drilling only permit basic descriptions since the fabric of the rock is destroyed by the action of drilling. Nevertheless, the SPT results give a fairly good indication of its condition. Flints were occasionally recovered during the drilling process and these account for some of the scatter results.

7.2 Groundwater

Groundwater was encountered during boring within the chalk at some 1 to 2.7m depth. However, the speed of drilling associated with the need to use casing may have masked some inflows.

Details of all groundwater observations during drilling are provided on the appropriate Borehole Records and Appendix A. Subsequent monitoring of the standpipes at Appendix B, which found groundwater at some 1.3m depth corresponding with a level of some 4 mOD.

8.0 Discussion

8.1 General

The site has evidently already carried development and the investigation has revealed a some Made Ground to be present. It is possible that other pockets of Made Ground may also be present; perhaps deeper, of different character or associated with the remains of underground construction; even though not detected by this investigation.

All remnants of previous construction should be removed prior to redevelopment to enable the proposals to be constructed without hindrance and to perform satisfactorily.

We understand that the existing basement is to be filled with engineered fill to just below existing street level where a raft will be constructed to carry the proposed structural loads.

8.2 Spread Foundations - Raft

The ground conditions revealed by the investigation generally comprised Made Ground overlying Taplow Gravel and Seaford Chalk. Made Ground is not generally considered suitable for the construction of spread foundations due to its inherently variable nature in both composition and compaction and this material should be removed. However, the Taplow Gravel and Seaford Chalk are considered to represents an acceptable bearing strata for a raft foundation.

Based upon the data provided by the in situ testing a net allowable bearing capacity of Taplow Gravel and Seaford Chalk is in excess of the raft loading required by a considerable margin with a value of some 150kPa being appropriate.

Settlement of the raft will be analysed as part of a Ground Movement Assessment.

8.3 Excavations

8.3.1 Stability

All material should be regarded as unstable. Some apparent stability may be present immediately on excavation, especially where there is a high clay content, but this must not be relied upon. All excavations should therefore be supported at all times unless battered to a safe angle of repose.

Provision of adequate support is especially important for the safety of personnel when required to work in or close to excavations. Particular care should be exercised where excavations are close to existing structures to ensure they do not experience any loss of support. Temporary and permanent works should be designed to resist the additional lateral earth pressures arising from any superimposed loads in addition to those generated by the soil itself, without significant deformation.

8.3.2 Groundwater

One set of standpipe readings has been taken and found groundwater at some 4mOD which is just above the lowest part of the existing basement by some 0.3m (slab level circa 3.7mOD) and thus groundwater control will be required during removal of the existing slab and any Made Ground beneath.

The basement should be surrounded by a sheet piled wall where below groundwater excavation is proposed, ideally extending down into the Seaford Chalk where excavation is to be below groundwater levels. Once complete, the basement area can be pumped out prior to soil removal. Some inflow into the excavation can be expected; but the increased flow path of the groundwater due to the sheet piled wall will reduce the speed of inflows. It is expected that these can then be controlled by conventional pumping from shallow sumps. The amount of pumping will be dependent upon the effective water tightness of the piles and its depth of its installation.

In general no attempt should be made to lower the general groundwater level as the cone of depression may extend beyond the site boundaries and may well induce excessive settlement in surrounding property or other structures

8.4 Contaminant Analysis

8.4.1 Solid Phase

Contaminant testing was undertaken on seven selected soil samples and the results compared with the limited number of CLEA[1] Soil Guideline Values (SGVs) for residential land use that have been published to date. Where not available from that source, reference has also been made to the LQM CIEH Generic Assessment Criteria[2]. Appropriate trigger levels are given with the results at Appendix D. As shown on the data sheets, all results are below appropriate limits.

There is no trigger presently available for lead, but the results are below the previous trigger of 450mg/kg in all samples. In addition all results were below Category 4 Screening Level[3] of 300mg/kg produced by DEFRA for residential use without plant uptake.

The TPH analysis found all results to be below the individual trigger for each determinand or carbon band, even where a hydrocarbon odour and staining was observed in WS8.

The PAH analysis has found all values to be below the individual determinands on all samples.

Asbestos was not detected in any samples.

There was no visual or olfactory evidence of contamination, apart from at WS8. Laboratory testing of the odorous material has found it to be below residential trigger and thus remediation is not considered to be warranted. The presence of a high groundwater table has also been considered but with the long chain hydrocarbons found in the soil results does not warrant its removal.

All results are below trigger concentrations and thus remediation is not warranted.

8.4.2 Gas Phase

A standpipes were installed in WS4 and one monitoring visits have been carried out to take readings of flow rate, methane, carbon dioxide, oxygen, atmospheric pressure and groundwater levels. The results are presented at Appendix B and show no flow rate or methane and 0.3% carbon dioxide.

No SGVs have been published for soil gas concentrations. However, a report published by CIRIA 665[4] describes a risk based approach to assessing potential hazards from ground gases, taking into account gas concentrations and flow rate. A Gas Screening Value (GSV) is calculated which in turn allows a Characteristic Situation to be determined which informs the level of protection required.

A GSV of 0.00024 l/hr have been calculated for Carbon Dioxide (allowing for the accuracy of the flow pod being plus or minus 0.3 l/hr and the gas analyzer plus or minus 0.5%). This value falls within Characteristic Situation 1 and therefore no gas protection measures are required based on the result, but this should be confirmed by the remaining visits.

8.4.3 Conclusion

The site has been suitably investigated in accordance with the principles laid out in British Standard BS 10175: Investigation of potentially contaminated sites & Code of Practice and the Environment Agency's Model Procedures for the Management of Land Contamination (CLR 11) by a suitably experienced environmental engineer with over 25 years of experience and no remediation is expected to be required.

8.5 Buried Concrete

Laboratory tests on soil samples from this phase of investigation yielded a maximum soluble sulphate concentration of 0.29 g/l which results in a Design Sulphate Class[5] of DS-1.

Ground conditions are such that groundwater must be considered to be mobile and all pH determinations were in excess of 5.5. Therefore, the Aggressive Chemical Environment for Concrete, ACEC, is classed as AC-1.

9.0 Remedial Action Plan

9.1 General

Contaminant testing was undertaken on selected soil samples and the results compared with the limited number of CLEA[1] Soil Guideline Values (SGVs) for commercial land use that have been published to date. Where not available from that source, reference has also been made to the LQM CIEH Generic Assessment Criteria[2]. Appropriate trigger levels are given with the results at Appendix C and individual values exceeding the triggers have been highlighted.

The proposed development does not include private gardens for domestic cultivation, indeed, given the extent of the ground floor construction, all soils tested will be removed as part of the excavations.

Further WAC tests will be undertaken by the Ground Works Contractor as necessary during the works to categorize the soil arisings prior to disposal off site.

A Discovery Strategy and Watching Brief is also being adopted on site so that any unexpected contamination identified on site is reported.

9.2 Prevention of Pollution

Care should be taken in order to minimize the production of dust generated on the site, especially in dry climatic conditions.

All vehicles leaving the site should be clear of any potential contaminated debris other than that to be specifically removed. Vehicles transporting wastes for disposal should be appropriate for the required means in order to prevent release during transit. Specific materials removed from site for subsequent disposal should be transported to a suitably approved and licensed facility. The contractor shall maintain a full documentary record in accordance with Duty of Care including copies of all Waste Transfer Notes for verification.

The programme of works and any subsequent modification should be maintained in such a manner as to avoid potential cross-contamination. A watching brief should be maintained and Manhire Geo-Environmental Ltd contacted in the event that evidence of any additional 'contamination' is encountered. The contractor should allow for any delays resulting from the presence of possible contamination and the necessary measures thereof.

It is the responsibility of all personnel on site to report any evidence of possible contamination to the suitably qualified and experienced Site Agent who will contact Manhire Geo-Environmental Ltd where there is any doubt about this contamination.

9.3 Remediation

Based on the previous investigations, it is considered that no remediation of the site is warranted.

9.4 Validation of Imported/ Site Sourced Materials - Demolition Materials & Waste

Imported / site sourced materials can generally be split into two categories imported or site sourced demolition materials and imported soils validation of both types of materials will be required.

It should be noted that should material come from more than one source then the minimum following specified samples per source will be required.

9.4.1 Site Sourced / Imported Demolition Materials

All material should be visually assessed to check for any contamination, including asbestos presence. Any suspected materials should be removed from site. For all material the following amount of validation testing is required as a minimum amount of samples per source should be 4 and samples should be analysed at a rate of 1 sample per 100m³ of material, but allowing for the above minimum. Assuming no other contamination is suspected all samples should be analysed for asbestos, CLEA metals, phenols, speciated PAH and TPH.

9.4.2 Imported Soils

All imported soils should be certified clean by the supplying facility, with tests certificates supplied.

In addition, on site sampling of the soils will be required, this should ideally be done when it has been placed, but as a minimum be undertaken on site. The following amount of validation testing is required. A minimum number of samples per source should be 4 and samples should be analysed at a rate of 1 samples per 50m³ of material but allowing for the above minimum.

All samples should be analysed for asbestos, CLEA metals, phenols, speciated PAH and TPH

9.5 Discovery Strategy and Watching Brief

During the course of the development, it will be the responsibility of the on-site manager to ensure watching briefs are undertaken and documented.

The watching brief will consist of a record of:

- a. Observations of contamination made during the course of the development by any member of site staff, contractor, or visitor; and
- b. The key stages of the development and occurrences including contamination found during the course of the development, the formation levels of excavations, any reduced level dig/mass excavation, formation of landscaped or garden areas, etc. with supporting photographs.

9.6 Watching Brief Written Statement

Upon completion of the development, a written and signed statement will be prepared by the following parties:

- a. Ground Works Contractor(s) - upon completion of foundations and ground works;
- b. On-site manager - upon completion of groundworks and landscaping work; and

The written statement will clearly state whether or not evidence of contamination was identified during the course of the development along with any remedial action that was taken.

9.7 Staff Training

All site staff, contractors, and visitors will be briefed on the potential presence of land, groundwater or airborne contamination before commencing work on the site.

This will include the following information:

- a. Relevant health & safety considerations;
- b. The type of land, water, or airborne contamination present and potentially present at the site;
- c. Any particular areas of the site which are likely to be affected; and
- d. Staff responsibilities under the discovery strategy.

The on-site manager will provide written confirmation that site staff were briefed about contaminated land in line with these recommendations.

9.8 Construction Workers Risk Assessments

A detailed health and safety risk assessment will be carried out, in accordance with current guidance, before works commence on-site and appropriate personal protective equipment will be worn by all construction workers.

10.0 Discovery Strategy & Watching Brief

If unexpected contamination is found at any time, then this will be reported to Environmental Health, Ashford Borough Council within seven days and 2 weeks notice given prior to undertaking any remediation if considered necessary.

The discovery strategy sets out the actions that will be taken if contamination is encountered during the course of a development. Examples of the types of observations that will be considered are detailed in Table 1 below, following which examples of the general actions that will be taken are set out in Table 2, and examples of any emergency actions are detailed in Table 3.

Evidence	Description
Visual	- Fuel or oil-like substances mixed in with or smeared on the soil or floating on perched, groundwater or surface waters. - Waste materials (refuse, barrels, industrial wastes, ash, tar, etc.) Buried at specific location across the site. - Marked variation in colour, e.g., red, orange, yellow, green, light, or dark blue, etc. may indicate contamination from a variety of contaminants. - Soils including large amounts of ash and clinker where such contamination of soils wasn't expected. - Evidence of suspected asbestos.
Odours	- Fuel, oil and chemical-type odours. - Unusual odours such as sweet or fishy odours.
Well-being	- Lightheadedness and/or nausea when in excavations, at the working face of an excavation, when visual or olfactory evidence of contamination exists, etc. - Burning of nasal passages, throat, lungs, or skin. - Blistering or reddening of skin due to contact with soil.

Table 1 - Potentially significant observations (not exhaustive)

Person observing contamination	To be reported to	Action to be taken
Site visitor	Must report observations to the site manager.	Stop work and where possible, make area safe and secure area before reporting to site manager.
Contractor	Must report observations to the site manager.	Stop work and where possible, make area safe and secure area before reporting to site manager.
On site manager	Must report observations to their direct manager, the appointed Environmental Consultant, the Planning Authority and Contaminated Land Officer at LBS.	Stop work and, where possible, make area safe and secure area before reporting to others.
Environmental Consultant	Must report observations to the site manager, the planning Authority and Contaminated Land Officer LBS.	Advise that work stops and where possible, make sure the area is made safe before reporting to others.

Table 2 - General actions to be performed.

Occurrence	Description	Contact
Risk to the public	If at any point residents, the public or other may be at risk as a result of contamination found during the course of investigation, remediation, or development works.	• Contact the emergency services if there is a risk to life. • Contaminated Land Officer at LBS. • Health & Safety Executive.
Nuisance to residents/the public	If a nuisance has been or is likely to be caused to nearby residents, the public and others - for example, odours, dust, noise, vibration, etc.	• Environmental Health at LBS.
Pollution of controlled waters	If any surface, culverted or groundwater has been polluted, e.g., slurry, contaminated soil/water or a chemical spillage entering a river or canal.	• Environmental Agency. • Planning Authority and Contaminated Land Officer at LBS.
Pollution of adjoining land	If land outside the boundary of the development site is polluted from site activities, e.g., slurry, contaminated soil/water, or a chemical spillage.	• The owner of the land. • Planning Authority and contaminated Land Officer at LBS.

Table 3 - Emergency actions to be performed.

In addition to the above, the following should also be noted:

- Should gross contamination be encountered during groundworks, then the advice of an environmental consultant will be sought;
- Any soil arising from areas where visual or olfactory evidence of contamination has been observed will be handled as potentially hazardous waste and temporarily stockpiled appropriately;
- Stockpiled soils may undergo validation testing to determine whether they can be used elsewhere on the site at or close to the ground; and

The Contaminated Land Officer at Enfield Council will be contacted to agree any further remedial works that become necessary during the course of the development.

11.0 Verification Report

Following the completion of any remedial action and the development of the site, a post-remediation verification report will be produced and submitted to the planning authority.

The report will detail fully any actions undertaken, including any report from the discovery strategy, and watching brief.

All work undertaken will be supported by photographic evidence, along with any other documented items such as waste transfer noted, asbestos removal reports, soil invoices etc.

All imported soil will undergo confirmatory analysis in order to satisfy their suitability for use. Laboratory certificated results will be included within the report.

Finally the report will include the aforementioned declaration from the site manager, groundworks contractor and appointed environmental consultant stating that wither no suspected additional contamination was detected, or, that all additional detected contamination has been addressed appropriately.

APPENDIX A

BOREHOLE RECORDS

PROCEDURAL NOTES for GROUND INVESTIGATIONS

General

This report has been prepared generally in accordance with CLR 11: Model Procedures for the Management of Land Contamination (Defra & Environment Agency 2004).

This report is based upon data obtained from field descriptions of the strata and examination of the samples by an engineer, together with the results of in situ and laboratory tests as appropriate. Responsibility cannot be accepted for variations in ground conditions between and around any of the exploratory points that is not revealed by the data. Whilst the report may offer an opinion on the ground conditions between exploratory points and below the depth of investigation, this is for guidance only and no liability is accepted for its accuracy. Unless specifically included in the report, it should be assumed that no testing has been carried out in respect of asbestos or Japanese Knotweed and no liability will be inferred or accepted.

Drilling procedure

Boring by light cable percussion drilling allows the ground conditions to be reasonably well established. However, a certain amount of disturbance is inevitable and some mixing of soils can occur.

Sampling procedure

"Undisturbed" samples of predominantly cohesive soils are taken with a 100mm diameter open tube sampler, generally in accordance with BS 5930: 1999.

Where appropriate, or where an undisturbed sample is unsuccessful, disturbed samples are recovered and sealed into polythene bags.

Groundwater samples are taken when water is encountered in sufficient quantity.

Standard penetration tests

The test is conducted generally in accordance with BS 1377: Part 9: 1990. The sampler tube is subject to a seating drive of 150mm into the soil at the base of the borehole. Results are given on the Borehole Records as the number of blows required to drive the sampler tube a further 300mm and this is known as the "N" value. Where the driving resistance is such that full penetration is not achieved, the test is generally terminated after 50 blows and the actual distance penetrated is recorded.

Groundwater

Groundwater observations necessarily reflect the conditions encountered at the time of the exploratory work. Long term monitoring of standpipes is usually required to establish an equilibrium water level since the normal rate of boring is too fast to permit steady state conditions to be achieved.

Groundwater levels are subject to variations caused by changes in drainage conditions and seasonal climatic changes.

Water may necessarily be added to advance the bore whilst casing may be required to maintain an open hole. These can both mask subsequent groundwater observations and are therefore noted on the individual Borehole Record.

SYMBOLS and ABBREVIATIONS

Samples

Undisturbed

U	Standard open drive "undisturbed" 102mm dia. in boreholes 38mm dia. in trial pits, window sampler and hand auger
T	Thin wall open drive
P	Piston
CBR	CBR mould
L	Windowless sampler liner

Disturbed

D	Small
B	Bulk
W	Water
C	Contaminants: plastic tub
J	Contaminants: brown glass jar

In situ tests

SPT	Standard Penetration Test, open shoe solid cone
CPT	N value is number of blows for 300mm penetration. Blow count also given as seating drive followed by four increments of 75mm.

V () Vane test (c_u kPa)

P () Hand penetrometer (c_u kg/cm²)

M () Mexe probe (CBR %)

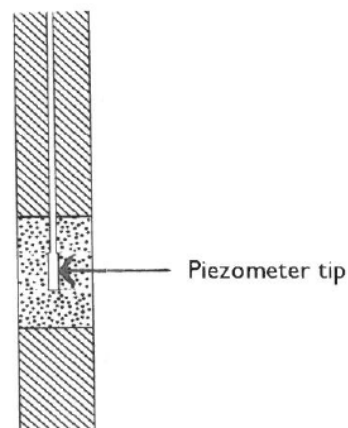
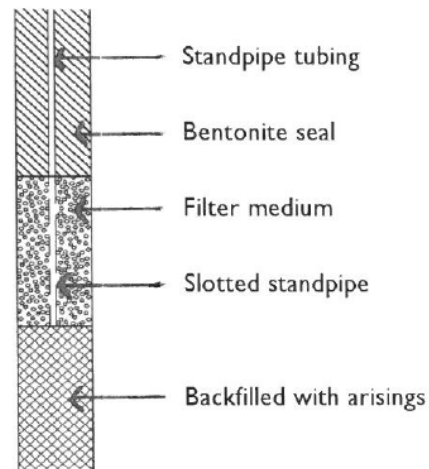
Water records

▼₂ Standing level

▽₂ Depth encountered

suffix identifies separate strikes

Standpipes



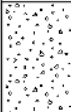
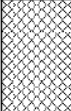
MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH1		
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.90		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 1/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
2.00-2.45 2.00-2.50	U1 No recovery B1		DRY	50 blows No rise(1) at 2.10m, not sealed.	5.50 5.48	(0.40)	CONCRETE		
						0.40 0.42	GRAVEL		
						(1.18)	CONCRETE		
					4.30	1.60	White CHALK with flints		
2.00-2.45 2.00-2.50	U1 No recovery B1		DRY	50 blows No rise(1) at 2.10m, not sealed.					Σ1
3.00-3.45	SPT N=5	3.00	2.50	1,0/1,1,1,2		(3.40)			
4.00-4.45	SPT N=7	3.00	2.50	1,0/1,2,2,2					
5.00-5.45	SPT N=14	4.50	3.00	1,2/3,4,3,4	0.90	5.00	White CHALK with flints becoming more structured with depth		
6.50-6.95	SPT N=30	6.00	3.00	3,6/7,7,7,9					
8.00-8.45	SPT N=37	7.50	4.00	2,6/6,10,10,11					
9.50-9.95	SPT N=38	9.00	4.50	3,6/9,8,9,12					
Remarks Borehole backfilled with arisings and replaced concrete core								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH1	

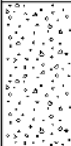
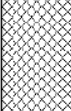
Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH1	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.90		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
11.00-11.45	SPT 50/295	10.00	6.00	6,6/6,10,15,19			White CHALK with flints becoming more structured with depth		
12.50-12.85	SPT 50/200	10.50	7.00	9,10/12,13,25					
14.00-14.17	SPT 25*/95 50/70	10.50	7.00	10,15/50		(18.00)			
15.50-15.90	SPT 50/245	15.00	8.00	6,10/14,13,14,9					
17.00-17.45	SPT N=49	16.00	8.50	10,6/10,10,14,15					
18.50-18.83	SPT 48/180	16.50	9.00	8,11/19,18,11					
Remarks Chiselling from 14.10m to 14.30m for 0.25 hours.								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH1	

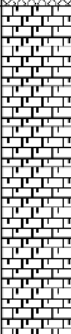
Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH1	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.90		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
21.50-21.64	SPT 25*/85 50/50	18.00	8.50	15,10/50	-17.10	23.00	White CHALK with flints becoming more structured with depth		
23.00-23.28	SPT 25*/100 50/175	18.00	9.00	19,6/18,21,11			Complete at 23.00m		
Remarks Chiselling from 21.60m to 21.80m for 0.25 hours.								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH1	

MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED							Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH2	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.40		Client Elder Developments (Greyfriars) Limited		Job Number 25001		
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 1/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.50-1.00	B1				4.85 4.60	(0.55)	CONCRETE		Σ1	
						0.55 (0.25)	MADE GROUND: Flint, gravel and chalk			
						0.80	White CHALK with flints becoming more structured with depth			
2.00-2.45 2.00-2.50	SPT N=4 B2	1.00	DRY	1,1/1,1,1,1 No rise(1) at 2.10m, not sealed.						
3.00-3.45	SPT N=6	3.00	2.50	1,2/1,1,2,2						
4.00-4.45	SPT N=10	3.00	2.50	1,2/2,2,3,3						
5.00-5.45	SPT N=15	4.50	3.00	2,3/3,4,4,4						
6.50-6.95	SPT N=32	6.00	3.00	3,8/7,8,7,10						
8.00-8.45	SPT N=35	7.50	3.00	7,7/7,9,9,10		(15.20)				
9.50-9.95	SPT N=41	9.00	4.50	5,8/9,9,11,12						
Remarks Borehole backfilled with arisings and replaced concrete core								Scale (approx)	Logged By	
								1:50	ljs	
								Figure No. 6047.BH2		

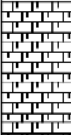
Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Borehole Number BH2	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 18.00m		Ground Level (mOD) 5.40		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 20/10/2025-28/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
11.00-11.45	SPT 43/295	10.00	5.50	6,7/9,8,12,14	-10.60 16.00		White CHALK becoming more structured with depth		
12.50-12.95	SPT N=43	10.50	6.00	9,10/10,11,10,12					
14.00-14.17	SPT 20*/95 59/70	10.50	7.00	10,10/12,15,15,17					
15.50-15.90	SPT 56/245	15.00	7.00	9,10/13,13,15,15					
							Complete at 16.00m		
Remarks Chiselling from 14.10m to 14.30m for 0.25 hours.								Scale (approx) 1:50	Logged By ljs
								Figure No. 6047.BH2	

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS1	
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD) 3.91		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		50% recovery			CONCRETE		
				3.51	0.40	MADE GROUND: Flint, gravel, chalk and hardcore		
				3.11	0.80	White CHALK with flints		
1.00-2.00	L2		60% recovery					
			Water strike(1) at 1.50m, not sealed.					
				1.91	2.00	Complete at 2.00m		
Remarks Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS1	

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS2	
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD) 3.70		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		40% recovery			CONCRETE		
				3.20	0.50	MADE GROUND: Flint, gravel, chalk and hardcore		
1.00-2.00	L2		70% recovery	2.80	0.90	White CHALK with flints		
			Water strike(1) at 1.50m.	1.70	2.00	Complete at 2.00m		
Remarks Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS2	

Manhire Associates  MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS3	
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD) 3.91		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00-1.00	L1		30% recovery			REINFORCED CONCRETE			
				3.31	0.60 (0.30)	MADE GROUND:Reddy brown hardcore with some chalk fragments			
1.00-2.00	L2		60% recovery Water strike(1) at 1.20m.	3.01	0.90 (1.10)	White CHALK with flints		Σ1	
				1.91	2.00	Complete at 2.00m			
Remarks PRELIMINARY - Driller's description only Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs	
							Figure No. 6047.WS3		

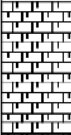
 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS4
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD) 5.29		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1	DRY	40% recovery	4.74	(0.55)	CONCRETE		
					0.55	MADE GROUND: Flint, gravel and chalk		
					(0.45)			
1.00-2.00 1.00-1.45	L2 SPT(C) N=6	DRY	50% recovery 5/2,2,1,1	4.29	1.00	White CHALK with flints		
2.00-3.00 2.00-2.45	L3 SPT(C) N=9	DRY	Water strike(1) at 2.00m. 80% recovery 3/3,2,2,2					
3.00-4.00 3.00-3.45	L4 SPT(C) N=10	1.70	60% recovery 4/3,2,2,3		(4.45)			
4.00-5.00 4.00-4.45	L5 SPT(C) N=14	1.72	90% recovery 6/4,3,4,3					
			15/10/2025:1.61m					
Remarks Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS4	

Manhire Associates  MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS4		
Excavation Method Drive-in Windowless Sampler		Dimensions 1158mm to 1.00m		Ground Level (mOD) 5.29		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=14	1.67	6/4,3,3,4	-0.16	5.45	White CHALK with flints			
						Complete at 5.45m			
Remarks						Scale (approx) 1:25		Logged By ljs	
						Figure No. 6047.WS4			

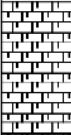
 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS5
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 5.75		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		70% recovery			CONCRETE		
				5.47	(0.28)			
					0.28	MADE GROUND: Hardcore		
				5.25	(0.22)			
					0.50	White CHALK with some flints		
1.00-2.00	L2		70% recovery					
1.00-1.45	SPT(C) N=12	DRY	4/2,3,3,4					
2.00-3.00	L3		70% recovery					
2.00-2.45	SPT(C) N=8	DRY	3/2,1,2,3					
			Water strike(1) at 2.25m.					
					(4.50)			
3.00-4.00	L4		50% recovery					
3.00-3.45	SPT(C) N=12	DAMP	3/2,3,3,4					
4.00-5.00	L5		70% recovery					
4.00-4.45	SPT(C) N=10	2.52	3/2,3,2,3					
			15/10/2025:2.01m					
Remarks Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS5	

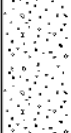
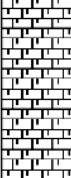
Manhire Associates Geotechnical Engineers MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS5		
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 5.75		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=15	2.31	4/2,3,4,6	0.75	5.00	Firm to stiff CHALK with flints Complete at 5.45m			
Remarks						Scale (approx) 1:25		Logged By ljs	
						Figure No. 6047.WS5			

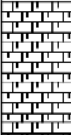
 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS6
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 6.16		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		60% recovery			CONCRETE		
				5.88	(0.28) 0.28	MADE GROUND: Reddy brown hardcore with some chalk fragments		
					(0.72)			
1.00-2.00 1.00-1.45	L2 SPT(C) N=6	DRY	80% recovery 4/1,2,2,1	5.16	1.00	White CHALK with flints		
2.00-3.00 2.00-2.45	L3 SPT(C) N=9	DRY	50% recovery 3/2,2,3,2					
			Water strike(1) at 2.70m.					
3.00-4.00 3.00-3.45	L4 SPT(C) N=13	DAMP	70% recovery 6/3,3,4,3		(4.45)			
4.00-5.00 4.00-4.45	L5 SPT(C) N=14	2.72	90% recovery 6/3,4,3,4					
			15/10/2025: 2.70m					
Remarks Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS6	

Manhire Associates  MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS6		
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 6.16		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=15	2.71	6/4,3,4,4	0.71	5.45	Firm to stiff CHALK with flints			
						Complete at 5.45m			
Remarks						Scale (approx) 1:25		Logged By ljs	
						Figure No. 6047.WS6			

Manhire Associates CONSULTING ENGINEERS MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS			Number WS7				
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 5.99		Client Elder Developments (Greyfriars) Limited		Job Number 25001					
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2					
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water				
0.00-1.00	L1		80% recovery	5.83	(0.16)	CONCRETE							
					0.16	MADE GROUND: Hardcore and gravel							
					(0.34)								
				5.49	0.50	White CHALK with flints							
1.00-2.00	L2 SPT(C) N=14	DRY	80% recovery 5/4,3,4,3										
1.00-1.45													
2.00-3.00	L3 SPT(C) N=11	DRY	70% recovery 4/2,3,3,3										
2.00-2.45													
3.00-4.00	L4 SPT(C) N=5	2.71	70% recovery 2/1,1,2,1										
3.00-3.45													
4.00-5.00	L5 SPT(C) N=15	2.72	80% recovery 6/4,3,4,4										
4.00-4.45													
													
													

Manhire Associates  MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS7		
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 5.99		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=32	2.71	12/8,7,8,9	0.54	5.45	White CHALK with flints			
						Complete at 5.45m			
Remarks						Scale (approx) 1:25		Logged By ljs	
						Figure No. 6047.WS7			

 MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED						Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS8
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 5.70		Client Elder Developments (Greyfriars) Limited		Job Number 25001
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 1/2
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		70% recovery		(0.28)	CONCRETE SLAB		
				5.42	0.28 (0.22)	MADE GROUND: Hardcore		
				5.20	0.50	Medium dense brown sandy GRAVEL		
1.00-2.00 1.00-1.45	L2 SPT(C) N=12	DRY	70% recovery 4/2,3,3,4		(1.30)			
2.00-3.00 2.00-2.45	L3 SPT(C) N=4	DRY	20% recovery 3/1,1,1,1			White and blue grey mottled CHALK with flints, hydrocarbon odour		
			Water strike(1) at 2.50m.					
3.00-4.00 3.00-3.45	L4 SPT(C) N=5	3.00	80% recovery 2/1,1,1,2		(2.20)			
4.00-5.00 4.00-4.45	L5 SPT(C) N=6	2.74	70% recovery 3/1,2,1,2	1.70	4.00	White CHALK with flints, no odour noted		
					(1.45)			
			15/10/2025:2.34m					
Remarks Strata depths approximate where recovery <100%							Scale (approx) 1:25	Logged By ljs
							Figure No. 6047.WS8	

Manhire Associates  MANHIRE ASSOCIATES GEO-ENVIRONMENTAL LIMITED					Site 20 Greyfriars Road, Reading, RG1 1NS		Number WS8		
Excavation Method Drive-in Windowless Sampler		Dimensions 115mm to 1.00m		Ground Level (mOD) 5.70		Client Elder Developments (Greyfriars) Limited		Job Number 25001	
		Location See site plan		Dates 15/10/2025		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
5.00-5.45	SPT(C) N=9	2.67	3/2,2,3,2	0.25	5.45	White CHALK with flints, no odour noted			
						Complete at 5.45m			
Remarks						Scale (approx) 1:25		Logged By ljs	
						Figure No. 6047.WS8			

APPENDIX B

STANDPIPE RECORDS

STANDPIPE RECORDS

GAS EMISSIONS AND WATER LEVELS

Project: 20 - 30 GREYFRIARS ROAD, READING, RG1 1NS
Client: Elder Developments (Greyfriars) Limited

Project No: 25001
Sheet No: 1/1

Date		Measurement	Units	Location							
18/11/2025				WS4							
Weather conditions				Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady
Temp. °C	17	Flow rate	l/hr	0.0	0.0						
Atmos. mb	1004	Methane	%	0.0	0.0						
		Carbon dioxide	%	0.3	0.3						
Cloud	20%	Carbon monoxide	ppm	0	0						
Sun	80%	Hydrogen sulphide	ppm	0	0						
Rainfall	nil	Oxygen	%	20.2	20.2						
		Water level	m bgl	1.32							

Date		Measurement	Units	Location							
Weather conditions				Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady
Temp. °C		Flow rate	l/hr								
Atmos. mb		Methane	%								
		Carbon dioxide	%								
Cloud		Carbon monoxide	ppm								
Sun		Hydrogen sulphide	ppm								
Rainfall		Oxygen	%								
		Water level	m bgl								

Date		Measurement	Units	Location							
Weather conditions				Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady
Temp. °C		Flow rate	l/hr								
Atmos. mb		Methane	%								
		Carbon dioxide	%								
Cloud		Carbon monoxide	ppm								
Sun		Hydrogen sulphide	ppm								
Rainfall		Oxygen	%								
		Water level	m bgl								

Date		Measurement	Units	Location							
Weather conditions				Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady
Temp. °C		Flow rate	l/hr								
Atmos. mb		Methane	%								
		Carbon dioxide	%								
Cloud		Carbon monoxide	ppm								
Sun		Hydrogen sulphide	ppm								
Rainfall		Oxygen	%								
		Water level	m bgl								

Readings taken with GFM435 manufactured by Gas Data Ltd.

APPENDIX C

LABORATORY TEST RESULTS

SUMMARY OF GEOTECHNICAL TESTS

Project: 20 - 30 GREYFRIARS ROAD, READING, RG1 1NS
 Client: Elder Developments (Greyfriars) Limited

Project No: 25001
 Sheet No: 1/1

Location	Sample No	Depth m	Description	CLASSIFICATION						TRIAXIAL COMPRESSION - TOTAL STRESS						CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion		pH
																cu, kPa assuming Øu = 0	cu, kPa Øu, deg	
WS1		0.50	MADE GROUND: Flint, gravel, chalk and hardcore														0.28	7.2
WS3		1.00	White CHALK with flints														0.09	7.1
WS5		0.60	White CHALK with some flints														0.07	7.2
		2.50	White CHALK with some flints														0.12	7.3
WS8		0.70	Medium dense brown sandy GRAVEL														0.29	7.1
		3.50	White and blue grey mottled CHALK with flints, hydrocarbon odour														0.05	7.1
BHI		6.20	White CHALK with flints becoming more structured with depth														0.19	7.2
		12.70	White CHALK with flints becoming more structured with depth														0.16	7.10

Note: Soil Classification based upon unmodified Plasticity Index

CONTAMINANTS IN SOIL

Project: 20 - 30 GREYFRIARS ROAD, READING, RG1 1NS
Client: Elder Developments (Greyfriars) Limited

Project No: 25001
Sheet No: 1/1

Location	Sample	Depth m	Arsenic	Barium	Beryllium	Boron water sol.	Cadmium	Chromium trivalent	Copper	Lead	Mercury inorganic	Nickel	Selenium	Vanadium	Zinc	TPH4 by GCMS					Phenols tot. monohydric
																C10 - C20	C20 - C30	C30 - C40	Total		
WS4		0.70	25	17	0.7	0.4	<0.2	18	8.6	12	<0.3	32	<1.0	42	63						<1.0
WS5		0.40	4.5	580	0.1	0.3	0.9	6	6.1	56	<0.3	3.4	<1.0	6.6	88						<1.0
WS6		0.50	4.7	510	0.1	0.3	1.1	6.4	7.7	49	<0.3	3.6	<1.0	7.2	99						<1.0
WS7		0.60	<1.0	10	<0.06	0.2	<0.2	<1.0	2.2	<1.0	<0.3	1.2	<1.0	1.7	8.3						<1.0
WS8		1.00	21	27	0.7	0.8	<0.2	19	8	7.9	<0.3	22	<1.0	41	36						
		2.00	1.1	8	<0.06	0.6	<0.2	1.3	5.7	1	<0.3	1.3	<1.0	1.7	6						
		4.50	1.0	10	<0.06	0.3	<0.2	1.6	2.4	<1.0	<0.3	2	<1.0	2.2	9						
S4UL ¹	residential ³		37		1.7	290	11	910	2400		40	180	250	410	3700						380
	residential ^{3a}		40		1.7	11000	85	910	7100		56	180	430	1200	40000						1200
	commercial		640		12	240000	190	8600	68000		1100	980	12000	9000	730000						1300
	POS resi*		79		2.2	21000	120	1500	12000		120	230	1100	2000	81000						
CLEA ²	residential		32						130				350								
	commercial		640						1800				13000								

Notes

- S4UL given at 6% soil organic matter
 - CLEA SGVs given at 6% soil organic matter
 - Residential with plant uptake
 - Residential without plant uptake
- *. Public open space near residential housing

All units are mg/kg dry weight of soil unless otherwise stated, except for pH which is dimensionless

Exceptions denoted thus: Residential **XX**
Commercial **XX**

CONTAMINANTS IN SOIL

Project: 20 - 30 GREYFRIARS ROAD, READING, RG1 1NS
 Client: Elder Developments (Greysfriars) Limited

Project No: 25001
 Sheet No: 1/1

Speciated Total Petroleum Hydrocarbons (Aromatic / Aliphatic Split with BTEX)											
Location Sample Depth, m	WS4	WS5	WS6	WS7	WS8	WS8	WS8	LQM/CIEH S4UL			
	0.70	0.40	0.50	0.60	1.00	2.00	4.50	residential	allotments	commercial	
Determinand	Concentration, mg/kg										
Aromatic Hydrocarbons											
C5 - C7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	300	57	86000	
>C7 - C8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	660	120	180000	
>C8 - C10	0.037	0.029	<0.020	<0.020	<0.020	<0.020	<0.020	190	51	17000	
>C10 - C12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	380	74	34000	
>C12 - C16	<2.0	<2.0	<2.0	<2.0	<2.0	120	<2.0	660	130	38000	
>C16 - C21	<10	<10	<10	<10	<10	390	<10	930	260	28000	
>C21 - C35	<10	<10	<10	<10	<10	150	<10	1700	1600	28000	
Total Aromatic Hydrocarbons	<10	<10	<10	<10	<10	660	<10				
Aliphatic Hydrocarbons											
C5 - C6	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	160	3900	12000	
>C6 - C8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	530	13000	40000	
>C8 - C10	<0.010	<0.010	<0.010	<0.010	<0.010	0.4	<0.010	150	1700	11000	
>C10 - C12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	760	7300	47000	
>C12 - C16	<2.0	<2.0	<2.0	<2.0	<2.0	130	<2.0	4300	13000	90000	
>C16 - C21	<8.0	<8.0	<8.0	<8.0	<8.0	480	<8.0				
>C21 - C35	<8.0	<8.0	<8.0	<8.0	<8.0	220	<8.0				
Total Aliphatic Hydrocarbons	<10	<10	<10	<10	<10	830	<10				
Total Petroleum Hydrocarbons	<5	<5	<5	<5	<5	1490	<5				
BTEX	Concentration, µg/kg										
Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	370	75	90000	
Toluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	660000	120000	18000000	
Ethyl Benzene	8	6	<5.0	<5.0	<5.0	<5.0	<5.0	260000	91000	27000000	
p & m-xylene	21	16	<8.0	<8.0	<8.0	<8.0	<8.0				
o-xylene	6.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	310000	160000	30000000	
MTBE (Methyl Tertiary Butyl Ether)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0				

Notes

Total = Sum of compounds above detection limit.

S4UL given at 6% soil organic matter

*Results given as total of (ortho), (meta) and (para) xylene. SGV given is the lowest permissible value for any xylene compound

Exceptions denoted thus:

Residential

XX

Commercial

XX



MANHIRE ASSOCIATES
 GEO-ENVIRONMENTAL LIMITED

CONTAMINANTS IN SOIL

Project: 20 - 30 GREYFRIARS ROAD, READING, RG1 1NS
Client: Elder Developments (Greyfriars) Limited

Project No: 25001
Sheet No: 1/1

Speciated Polyaromatic Hydrocarbons by GCMS																	
Location Sample Depth, m	WS4	WS5	WS6	WS7	WS8	WS8	WS8							LQM/CIEH			
	0.70	0.40	0.50	0.60	1.00	2.00	4.50							S4UL ³			
														residential4	residential5	allotments	commercial
Determinand	Concentration, mg/kg																
PAH																	
Naphthalene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						13	13	24	1100	
Acenaphthylene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						920	6000	160	100000	
Acenaphthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	<0.05						1100	6000	200	100000	
Fluorene	<0.05	<0.05	<0.05	<0.05	<0.05	1.0	<0.05						860	4500	160	71000	
Phenanthrene	0.09	<0.05	<0.05	<0.05	<0.05	1.4	<0.05						440	1500	90	23000	
Anthracene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						11000	37000	2200	540000	
Fluoranthene	0.14	0.07	<0.05	<0.05	<0.05	0.3	<0.05						890	1600	290	23000	
Pyrene	0.15	0.06	<0.05	<0.05	<0.05	0.68	<0.05						2000	3800	620	54000	
Benzo(a)anthracene	0.09	<0.05	<0.05	<0.05	<0.05	0.23	<0.05						13	15	13	180	
Chrysene	0.13	<0.05	0.05	<0.05	<0.05	<0.05	<0.05						27	32	19	350	
Benzo(b)fluoranthene	0.1	<0.05	<0.05	<0.05	<0.05	0.11	<0.05						3.7	4.0	3.9	45	
Benzo(k)fluoranthene	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						100	110	130	1200	
Benzo(a)pyrene	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						3	3.2	3.5	36	
Indeno(123-cd)pyrene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						41	46	39	510	
Dibenzo(ah)anthracene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						0.3	0.32	0.43	3.6	
Benzo(ghi)perylene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						350	360	640	4000	
Total PAH (16)	0.84	<0.80	<0.80	<0.80	<0.80	3.89	<0.80										

Notes

- Total PAH = Sum of EPA16 identified components
- The results are expressed as mg/kg dry weight soil after correction for moisture content
- S4UL given at 6% soil organic matter
- Residential with plant uptake
- Residential without plant uptake

Exceptions denoted thus: Residential **XX**
Commercial **XX**

CONTAMINANTS IN SOIL

Project: 20 - 30 GREYFRIARS ROAD, READING, RG1 1NS
Client: Elder Developments (Greyfriars) Limited

Project No: 25001
Sheet No: 1/1

Location	Sample	Depth m	Asbestos identification		
			Description of matrix	Overall percentage of asbestos identified (approx.)	Type of asbestos identified
WS4		0.70	Brown sand with stones		not detected
WS5		0.40	Brown sand with stones		not detected
WS6		0.50	Brown sand with stones		not detected
WS7		0.60	Beige chalk		not detected

APPENDIX D

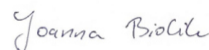
ORIGINAL TESTING CERTIFICATES

i2 Analytical Ltd.
7 Woodshots Meadow,
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Analytical Report Number : 25-060374

Project / Site name:	Greyfriars, Reading	Samples received on:	06/11/2025
Your job number:	6047	Samples instructed on/ Analysis started on:	06/11/2025
Your order number:		Analysis completed by:	17/11/2025
Report Issue Number:	1	Report issued on:	17/11/2025
Samples Analysed:	7 soil samples		



Signed:

Joanna Biolik
Senior Reporting Specialist
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: 25-060374
Project / Site name: Greyfriars, Reading

Lab Sample Number	742523	742524	742525	742526	742527
Sample Reference	WS4	WS5	WS6	WS7	WS8
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.70	0.40	0.50	0.60	1.00
Date Sampled	05/11/2025	05/11/2025	05/11/2025	05/11/2025	05/11/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	65	72.3	63.9	< 0.1	66
Moisture Content	%	0.01	NONE	3.7	1.2	1.6	17	7.2
Total mass of sample received	kg	0.1	NONE	0.7	0.9	0.8	0.6	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	WIK	WIK	WIK	WIK	-
Analysis completed	N/A	N/A	N/A	13/11/2025	13/11/2025	13/11/2025	13/11/2025	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.14	0.07	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.15	0.06	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.13	< 0.05	0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	0.84	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	25	4.5	4.7	< 1.0	21
Barium (aqua regia extractable)	mg/kg	1	MCERTS	17	580	510	10	27
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.67	0.11	0.13	< 0.06	0.74
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.3	0.3	0.2	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.9	1.1	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	6	6.4	< 1.0	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.6	6.1	7.7	2.2	8
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	56	49	< 1.0	7.9
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	3.4	3.6	1.2	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	42	6.6	7.2	1.7	41
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	63	88	99	8.3	36

Analytical Report Number: 25-060374
Project / Site name: Greyfriars, Reading

Lab Sample Number	742523	742524	742525	742526	742527
Sample Reference	WS4	WS5	WS6	WS7	WS8
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.70	0.40	0.50	0.60	1.00
Date Sampled	05/11/2025	05/11/2025	05/11/2025	05/11/2025	05/11/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	0.037	0.029	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	8	6	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	21	16	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	6.5	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-060374
Project / Site name: Greyfriars, Reading

Lab Sample Number	742528	742529
Sample Reference	WS8	WS8
Sample Number	None Supplied	None Supplied
Water Matrix	N/A	N/A
Depth (m)	2.00	4.50
Date Sampled	05/11/2025	05/11/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	22	18
Total mass of sample received	kg	0.1	NONE	0.7	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-
Analysis completed	N/A	N/A	N/A	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.18	< 0.05
Fluorene	mg/kg	0.05	MCERTS	1	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.4	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.3	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.68	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.23	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.11	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3.89	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	1.1	1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	7.8	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	< 0.06	< 0.06
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	1.3	1.6
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5.7	2.4
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1	< 1.0
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	1.3	2
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	1.7	2.2
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	6	9

Analytical Report Number: 25-060374
Project / Site name: Greyfriars, Reading

Lab Sample Number	742528	742529
Sample Reference	WS8	WS8
Sample Number	None Supplied	None Supplied
Water Matrix	N/A	N/A
Depth (m)	2.00	4.50
Date Sampled	05/11/2025	05/11/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	0.4	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	130	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	480	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	220	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	830	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	120	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	390	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	150	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	660	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-060374
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* 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 *
742523	WS4	None Supplied	0.7	Brown sand with stones
742524	WS5	None Supplied	0.4	Brown sand with stones
742525	WS6	None Supplied	0.5	Brown sand with stones
742526	WS7	None Supplied	0.6	Beige chalk ¹⁹
742527	WS8	None Supplied	1	Brown clay and sand with stones
742528	WS8	None Supplied	2	Beige clay with chalk
742529	WS8	None Supplied	4.5	Beige clay with chalk

Analytical Report Number : 25-060374
Project / Site name: Greyfriars, Reading

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	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
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	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.

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

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

APPENDIX E

FIGURES

20 - 30 Greyfriars Road,
Reading, RG1 1NS

Exploratory Hole Locations

Scale: unknown

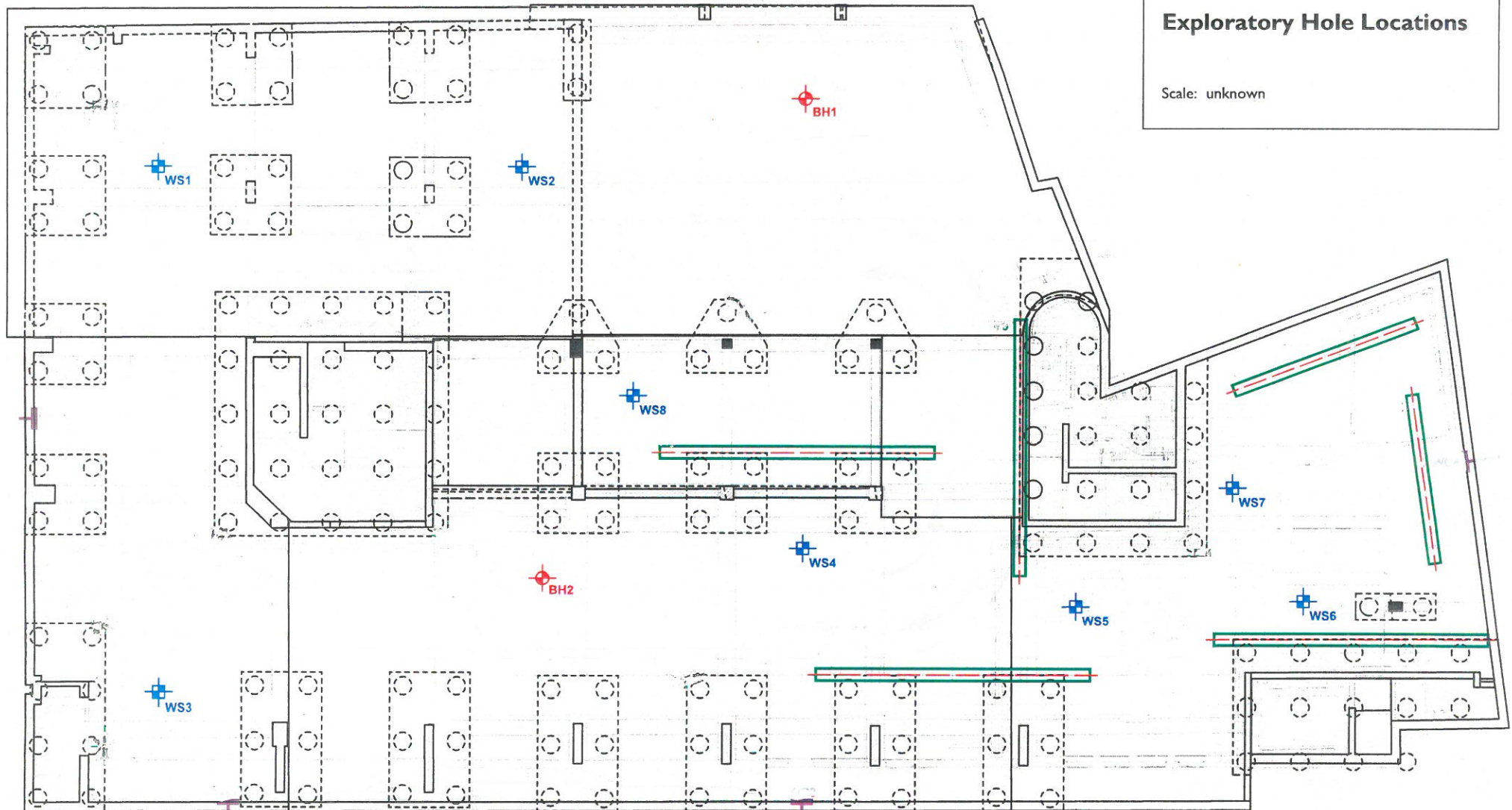


Figure 1

