



Station Hill, Reading

Written Scheme of Investigation for an archaeological watching brief, NCP Car Park

June 2020

Waterman Infrastructure & Environment Limited

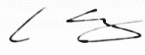
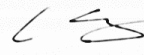
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Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

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Comments

Comments

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We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

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Contents

1. Introduction	1
1.1 Project Background	1
1.2 Site Description	1
1.3 Scope of Document	2
1.4 Geology and Topography	2
2. Archaeological and Historical Background	3
2.1 Palaeolithic to Iron Age (500,000 BC – AD 43).....	3
2.2 Romano-British (AD 43 – AD 410)	3
2.3 Early medieval (AD 410 – AD 1066)	4
2.4 Medieval (AD 1066 – AD 1540)	4
2.5 Post-medieval (AD 1540 – AD 1901)	6
2.6 Modern (AD 1901 to Present)	6
2.7 Archaeological Discoveries Within the Site	7
3. Research Aims and Methodology.....	9
3.1 General Aims of the Project.....	9
3.2 Methodology	9
3.2.1 General	9
4. Recording Systems	11
4.1 Finds and Samples.....	11
4.2 Human Remains.....	11
4.3 Treasure	11
4.4 Monitoring and Access	12
5. Health and Safety	13
6. Reporting.....	14
6.1.1 Publication and Dissemination	14
6.1.2 Copyright and Confidentiality	14
7. Archiving	16
8. Archaeological Contractor – Specific Requirements	18
8.1 General	18
8.2 Insurance	18
8.3 Standards and Procedures	18
9. References and Sources	19

Figures

Figure 1: Site Location Plan	1
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Figure 2: Watching Brief Area.....	9
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Appendices

- A. Station Hill Development Site Plan
- B. Demolition Management Plan

1. Introduction

1.1 Project Background

This Written Scheme of Investigation (WSI) has been prepared by Waterman Infrastructure & Environment ('Waterman') for SH Reading Master LLP ('the Client') and is for an archaeological watching brief to investigate and record any significant archaeological remains and deposits that might be encountered during the ground works following the demolition of the NCP Car Park within Plot G of the development area at Station Hill, Reading, Berkshire, RG1. The overall planning application area is hereafter referred to as 'the Station Hill Development Site', while the NCP Car Park shall be referred to as 'the Site'.

1.2 Site Description

The Station Hill Development Site (see **Appendix A**) encompasses land between Station Hill, Greyfriars Road, Friar Street and Station Road, centred on National Grid Reference (NGR) 471351 173699. The Site is brownfield and currently comprises vacant buildings, a temporary events space and associated café and an operational multi-storey car park (the Site) across a total area of 3.08 hectares (ha). The Development has been divided into seven construction Plots (A, B, C, D, E, F & G) as shown in **Appendix A**.

The Site (see **Figure 1** below) comprises c. 0.27ha and is centred at NGR SU 71395 73727.



Figure 1: Site Location Plan

(Source: OS Data © Crown Copyright and Database Right 2020 [Accessed via ArcGIS Online on 17th June 2020]¹)

¹ ArcGIS Online, accessible via <https://www.arcgis.com/index.html> (accessed on 17th June 2020)

1.3 Scope of Document

This WSI for an archaeological watching brief has been prepared in response to the results of a Desk-Based Assessment prepared by Foundations Archaeology (on behalf of Waterman) in 2015 and Waterman's later 2019 Historic Environment Desk-Based Assessment (HEDBA) which state that the northern parcel of land at the Station Hill development site holds potential for the following archaeological remains:

- A north-south aligned ditch (Plot B).
- A north-north-west to south-south-east aligned undated linear containing alluvial deposits potentially associated with a managed watercourse surrounding 'Friary Mead' (Plot A).

This WSI has been prepared in accordance with the Chartered Institute for Archaeologists (CIfA) Standards and Guidance². It presents an outline methodology for the required work. This will form the basis for a subsequent detailed method statement(s) completed by fieldwork contractors, for each phase and/or sub-phase (if required) of the watching brief, as appropriate.

The results of any intrusive and/or non-intrusive investigation and mitigation will need to be subject to suitable post-excavation assessment. The reports resulting from the fieldwork will present a digest of information on the character and significance of any archaeological assets identified.

Further mitigation may be required, depending on the results of the initial watching brief. Should further mitigation be required, it will be detailed in a subsequent brief.

1.4 Geology and Topography

According to the British Geological Survey (BGS), the underlying bedrock geology consists of the Seaford Chalk Formation and Newhaven Chalk Formation (chalk) with superficial deposits of alluvium (clay, silt, sand and gravel)³.

The Site is located 1km west of the confluence of the River Thames and the River Kennet and lies at approximately 45m AOD (Above Ordnance Datum).

² Chartered Institute for Archaeologists, 2020. *Standard and Guidance for an Archaeological Watching Brief*

³ British Geological Survey, Geology of Britain, available via <http://mapapps.bgs.ac.uk/geologyofbritain3d/>

2. Archaeological and Historical Background

The HEDBA produced by Waterman in October 2019⁴ relates to the entire Station Hill Development Site. A summary of the archaeological and historic background presented in that assessment has been reproduced below for further context.

2.1 Palaeolithic to Iron Age (500,000 BC – AD 43)

Palaeolithic and palaeoenvironmental evidence have been recovered along the river terrace gravels of the River Kennet to the south-east of the Station Hill Development Site which is known to be the focus of prehistoric settlement and activity from the Palaeolithic period through to the Iron Age.

The earliest archaeological evidence within the area is of the Lower Palaeolithic period in the form of two hand axes approximately 90m to the west and 90m to the east of Station Hill Development Site respectively and a Levalloisian flake approximately 160m west. These artefacts were findspots and indicate residual artefacts and are not from *in situ* deposits.

Mesolithic activity has been recorded near the River Thames 400m to the north-east of the Station Hill Development Site in the form of a land surface and a Tranchet Axe dredged from the River itself.

Neolithic activity has been observed between the River Thames and Kennet in the form of two axes dredged from the River Thames 400m to the north-east, a ground axe found at the Forbury Gardens 400m to the east and a flint knife recovered near High Bridge approximately 460m to the south-east.

Bronze Age activity has been observed through residual artefacts during investigations at Numbers 31-37 Castle Street 430m to the south of Site, pottery at the rear of Number 1 Friar Street approximately 290m to the south-east of Station Hill Development Site and a findspot including a dagger blade, socketed knife, two bronze palstaves, a socketed sickle, a socketed axehead, two spearheads and a Bronze Age pot dredged from the River Thames 400m to the north-east.

Iron Age activity is limited to 5 residual findspots and includes a brooch from Friar Street approximately 180m south-east of the Station Hill Development Site, a sherd of pottery approximately 480m to the south-east and 2 gold coins approximately 360m south-east including one of a king of the Atrebatas tribe in the mid-1st century BC known as 'Commilus'. The central settlement to this tribe was 'Calleva' (Silchester), approximately 13.5km southwest of the Station Hill Development Site. Evidence of Iron Age water management has also been observed along the edge of the River Kennet approximately 500m to the south-east of the Station Hill Development Site.

Undated prehistoric finds have been recovered 200m to the south-west in the form of a stone/flint net sinker or loomweight and bone needle, flint waste flakes near St Mary's Church approximately 240m south of the Site and flint waste flakes at Forbury Garden to the east.

2.2 Romano-British (AD 43 – AD 410)

Calleva continued to act as the administrative centre for the area during the Romano-British period as *Calleva Atrebatum*. The Rural Settlement of Roman Britain Project indicates that Reading remained largely rural with a number of villa sites noted within the wider area⁵. Documentary evidence recorded by the HER suggests Reading may have served as a trading-port on the Thames for Calleva. Material evidence predominantly comes from findspots of Roman Ceramic Building Material (CBM), pottery and

⁴ Waterman, October 2019. *Station Hill, Reading, Historic Environment Desk-Based Assessment*. Report Ref. WIE14788-103-R-15-2-2-HEDBA

⁵ Allen M. et al., 2018. *The Rural Settlement of Roman Britain Project* [Accessed 15th May 2019], available from <https://archaeologydataservice.ac.uk/archives/view/romangl/map.html>

coins. Further evidence of human remains from this period have also been recovered at Reading Waterfront approximately 490m to the south-east of the Station Hill Development Site ⁶.

2.3 Early medieval (AD 410 – AD 1066)

Reading is first documented in the Anglo-Saxon Chronicle⁷ for AD 870-871 as the site of a 'Danish winter camp'. Asser in his Life of Alfred records that the Danes built a rampart between the Rivers of the Thames and Kennet in AD 893 associated with the winter camp prior to the Battle of Ashdown in AD 871. The location of the rampart is unknown but it has been suggested that it may have been located within the Station Hill Development Site, based on field name evidence. The north of the Station Hill Development Site is recorded as Vastern Meadows originating from the Old English word 'Faestern', meaning Stronghold⁸. The possible line of the Danish defences has been suggested by the Historic Environment Record (HER) to roughly follow the route of Blagrove Street approximately 165m east of the Station Hill Development Site at its nearest point.

Two Anglo-Saxon sunken-featured buildings (SFBs) subsequently cut by ditches have been uncovered during an excavation at Numbers 55-56 St. Mary's Butts to the south of Friar Street and suggest settlement activity approximately 220m south of the Station Hill Development Site. The report suggests the Danish defences may incorporate the settlement activity and that the Danish defences could extend northwards into the Site area through Telecom House⁹.

Reading may have been the site of a late Saxon Borough in the 10th century, focused on the Old Market, at the crossing point of the roads between Oxford, Winchester, London and Bath near to St Mary's Church, approximately 275m south of the Site, with the town recaptured by the Danes in AD 1006. The northern extent of the Saxon town has been suggested to lie along the south side of Friar Street and the Station Hill Development Site would therefore lie outside the settlement²⁶.

A major bridge over the River Kennet is thought to have been located close to the current Grade II Listed post-medieval Scheduled Monument at High Bridge [1005388 and 1321938] approximately 470m to the south-east of the Station Hill Development Site as a major crossing point to the core of the early-medieval town.

Reading was both politically and economically important during the early-medieval period. Reading is documented to have contained a market, a mint and a nunnery in the 11th Century.

Early medieval human remains have been recovered on several nearby excavations including the engine sheds at Reading Station which recovered remains of a man, horse and sword approximately 130m to the north of the Site, St. Mary's Churchyard, including a hoard of silver pennies approximately 230m south of the Site and at The Plummary Wall approximately 320m east of the Site.

Further archaeological evidence includes buried soil horizons, timber revetments, a pit filled with burnt daub and residual artefacts.

2.4 Medieval (AD 1066 – AD 1540)

The Domesday Record¹⁰ indicates that Reading was a borough by AD 1066 named 'Radinges'. The town is described as:

'King's land and Henry de Ferrers from the king; Battle Abbey holds the church. 6 mills, 5½ fisheries'.

The western-most boundary of the Scheduled Ancient Monument of Reading Abbey [1007932] is

⁶ Hawkes J.W and Fasham P.J., 1997. *Excavations on Reading Waterfront Sites 1979 -1988*. pp. 44-45

⁷ Pick. C. (ed.), 1995. *The Anglo-Saxon Chronicle Translated and Collated by Anne Savage*. Tiger Books International: London

⁸ Astill, G.G., 1978. *Historic towns in Berkshire: An archaeological appraisal*, p. 83

⁹ Foundations Archaeology, 2010. *55-56 St Mary's Butts, Reading, Berkshire - Archaeological Evaluation*.

¹⁰ Martin, G., 2003. *Domesday Book: A Complete Translation*. London: Penguin

approximately 250m to the east of the Station Hill Development Site at its closest point and represents a key feature of Reading in this period. The Abbey was established in AD 1121 by Henry I as a Cluniac order, although the Abbey becomes Benedictine in the 13th Century and expands to become one of the ten richest abbeys in the country by the 14th Century. The Abbey was purged during the Dissolution of the Monasteries in AD 1539 where most of the Abbey buildings were subsequently demolished, the ruins of which still survive including the Grade I Listed Abbey Gate and inner gate, Grade II Listed Abbey Mill Ruins, elements of the Abbey Stables, the Abbot's House and guest apartments, the bakehouse, Dovecote and the Refectory Wall.

The Hospitium of St. John the Baptist, approximately 250m east of the Station Hill Development Site, was founded by the Abbey to the north of St. Lawrence's Church in the late 12th Century and forms part of the Scheduled Abbey. The building itself is Grade II Listed and was constructed in the late 15th Century although it may also incorporate some of the earlier building. A school was later founded in AD1468 in buildings that formerly comprised part of the hospital.

The Grade I Listed St. Lawrence Church and Churchyard to the south of the Hospitium was built at the Abbey gate in the mid-15th Century with later additions occurring in the post-medieval period.

The Hospital of St. Mary Magdalen was a leper hospital founded between AD 1130 and 1175 and was administered by the Abbey. Although the exact location is unknown, a reference from AD 1479 records the hospital '*in the est syde of the towne*'¹¹. It has been suggested it was located near the inner gateway to the abbey. The building was demolished in 1479, with the foundations dug out when the Assize Courts were built in AD 1901¹².

A Franciscan Friary was built west of the Station Hill Development Site at the west end of Friar Street in AD 1233. Part of the land grant, known as Vastern Meadows, is located within the Station Hill Development Site; although they appear to have not been developed by AD 1311¹³. In the late 13th to 14th centuries, the Friary was moved to its current location (approximately 90m south-west) due to flooding¹⁴. This suggests that the area may have been under the direct influence of the friars during this time. The relocation is documented within the will of Alan de Baunbury in AD 1311¹⁵ with the building restored around AD 1863 to become the current Grade I Listed Greyfriars Church.

The medieval activity is in general centred around the core of the town, specifically the Market Place, Abbey, Greyfriars Church, St. Laurence Church and along roadways heading towards the Market Place (such as Castle Street and London Street). This phase of settlement predominantly follows the suggested early-medieval settlement boundary. Areas of trade and places of worship are located along the south of Friar Street to the west, south-west, south, south-east and east of the Site, approximately 30m to the south at their closest point.

In AD 1150 King Stephen constructed a castle within the abbey precinct at Forbury Hill to the east of the Station Hill Development Site, although this was destroyed in AD 1152. The current roughly circular mound may be the remains of this motte although this has been modified by post-medieval Civil War activity and later 19th century landscaping.

Archaeological investigations within the Station Hill Development Site have revealed evidence of medieval activity in the form of a potential managed watercourse associated with Friary land to the north of the Station Hill Development Site. A potential ditch and pit have also been observed.

¹¹ Anon., 1907. *Victoria County History of Berkshire II*. pp.98-9

¹² Hurry, J B., 1901. *Reading Abbey*

¹³ Anon., 1923. *Victoria County History Berkshire. Volume III*. pp.324-364; 367-8

¹⁴ Astill, G.G., 1978. *Historic towns in Berkshire: An Archaeological Appraisal*. pp.78-79

¹⁵ Anon., 1923. *Victoria County History Berkshire. Volume III*. pp.324-364; 367-8

2.5 Post-medieval (AD 1540 – AD 1901)

In 1560 Elizabeth I confirmed the royal charter granted by Henry VII conferring greater powers of self-government. This indicates the importance of Reading in this period¹⁶.

By 1611, Reading is noted to contain a population of over 5,000 and its trade in cloth made it an important economic town¹⁷. This, in combination with its strategic position, meant that Reading played an important role during the English Civil War between AD 1642 to 1651. The HER indicates that east-west aligned northern Civil War defences of Reading may run through the middle of the Station Hill Development Site along the path of Garrard Street, although the exact location has not been confirmed. An undated but possible Civil War defensive ditch has been identified at Numbers 25-26 Friar Street approximately 36m to the east of the Station Hill Development Site. St. Edmund's Chapel was also converted into a fort during the Civil War and may follow the line of the defences approximately 180m west of the Station Hill Development Site¹⁸.

The Market Place and roadways remain the central focus of the town during the Victorian period as Reading continues to grow as an industrial and economic hub. A majority of the Listed Buildings within the study area belong to this period in the form of municipal buildings, dwellings and urban infrastructure. The Station Hill Development Site itself becomes bounded by the current street layout in the post-medieval period with much of the south and west of the Station Hill Development Site containing a mix of residential and industrial buildings.

The Great Western Railway from London to Reading Station was constructed by 1840 to the north of the Station Hill Development Site. The subsequent construction of Reading to Mortimer Station, the South Eastern and Chatham Railway and the Caversham Road underbridge also reflect the town's importance in the Victorian period.

Post-medieval activity has been uncovered at 68 investigations within the wider area and in general, indicate the wealth and rapid growth of Reading from the Industrial Revolution onwards. Occupation activity in the form of walls, culverts, extant buildings, demolition layers, surfaces, rubbish pits and residual artefacts have all been identified in the surrounding area. Robber cuts indicating the re-use of building materials has also been observed.

Post medieval human remains have also been recovered on nearby excavations including the United Reform Chapel on Broad Street approximately 160m south of the Station Hill Development Site and St. Mary's Churchyard approximately 230m south of the Station Hill Development Site.

The above evidence suggests the Reading was of high strategic importance during the Civil War and began to develop rapidly from the Industrial Revolution onwards with the arrival of the railway.

2.6 Modern (AD 1901 to Present)

Modern activity within the wider area reflects further commercial and retail growth within Reading, with the buildings currently occupying the Station Hill Development Site constructed after World War II. These were constructed following demolition of post-medieval buildings shown by historic mapping.

The construction and later demolition of the buildings previously and currently occupying the Station Hill Development Site indicated by the recent geotechnical pitting suggest the modern buildings currently occupying the Station Hill Development Site have deep and wide foundation cuts to the south of Garrard Street.

¹⁶ Reading Borough Council, 2007. *Market Place/London Street Conservation Area Appraisal*

¹⁷ Foundations Archaeology, August 2009. *Station Hill and Friars Walk, Friar Street, Reading, Berkshire, Archaeological Evaluation: Phase One*. Report Ref. 659

¹⁸ Berkshire Archaeological Society. 1906. *Berkshire Archaeological Journal*. Volume 12. pp.28-29

2.7 Archaeological Discoveries Within the Site

A summary of the archaeological potential for the Station Hill Development Site has been undertaken, the results of which can be found in the overarching WSI produced by Waterman in 2019¹⁹. A total of 14 archaeological investigations and studies have been undertaken across the Station Hill Development Site to date. The plot locations can be found in **Appendix A**. These investigations and studies are described as follows:

- A Desk Based Assessment (DBA) in 2003 covering Plots A, B, C, D and G, with the exception of the extended Station Hill Development Site boundary along Station Hill in Plot G²⁰.
- An Environmental Statement (ES) in 2007 covering Plots A, B, C, D and G, with the exception of the extended Station Hill Development Site boundary along Station Hill in Plot G²¹.
- A DBA in 2009 covering all Plots except Telecom House and the extended Station Hill Development Site boundary along Station Hill in Plot G²².
- An ES in 2009 covering all Plots, except Telecom House and the extended Station Hill Development Site boundary along Station Hill in Plot G²³.
- An evaluation covering elements of Plots A, B, C and D in 2009 which revealed a possible medieval pit to the south of Garrard Street (the north of Plot E) and a north-south aligned ditch (Plot B)²⁴.
- Two DBAs in 2012, one covering the north of Plot G²⁵ and one covering all Plots, except Telecom House and the extended Site boundary along Station Hill in Plot G²⁶.
- An ES in 2013 covering all Plots with the exception of the extended Station Hill Development Site boundary along Station Hill in Plot G²⁷.
- A DBA in 2015 covering all Plots with the exception of the extended Station Hill Development Site boundary along Station Hill in Plot G²⁸.
- An ES in 2015 covering Plot E and Telecom House²⁹.
- An evaluation and watching brief in 2016 covering elements of Plots A, B, C and D which revealed a north-north-west to south-south-east aligned undated linear feature containing alluvial deposits potentially associated with a managed watercourse surrounding 'Friary Mead' which was potentially backfilled in the Victorian era (Plot A)³⁰.
- A watching brief between November 2018 and March 2019 to monitor geotechnical site investigations and party wall inspection works prior to the demolition of buildings and redevelopment on Plots E and

¹⁹ Waterman, August 2019. *Station Hill, Reading, Overarching Archaeological Written Scheme of Investigation*. Report Ref. WIE114788-103-R-18-1-3_OWSI

²⁰ Thames Valley Archaeological Services. 2003. *Land at Station Hill, Reading - Archaeological Assessment*

²¹ Waterman Environmental, February 2007. *Environmental Statement*, Report Ref. EN4903/R/1.1.1/CR

²² Foundations Archaeology, May 2009. *Land at Station Hill and Friars Walk, Borough of Reading, Archaeological Assessment*. Report Ref. 639

²³ Waterman Environmental, June 2009. *Environmental Statement*, Report Ref. 30601E

²⁴ Foundations Archaeology, August 2009. *Station Hill and Friars Walk, Friar Street, Reading, Berkshire, Archaeological Evaluation: Phase One*. Report Ref. 659

²⁵ Foundations Archaeology, December 2012. *events Flexible Event Space, Station Hill, Borough of Reading Archaeological Assessment*. Report Ref. 856

²⁶ Foundations Archaeology, May 2012. *Land at Station Hill and Friars Walk, Borough of Reading Archaeological Assessment*. Report Ref. 796

²⁷ Waterman Group, March 2013. *Station Hill, Reading, Environmental Statement Volume 1: Chapter 8: Archaeology*. Report Ref. EED12350-111.R.1.2.3

²⁸ Foundations Archaeology (On Behalf of Waterman), August 2015. *SH3 Scheme (Incorporating Telecom House/Plot E Scheme), Station Hill, Reading, Berkshire, Desk-Based Assessment*. Report Ref. 989

²⁹ Foundations Archaeology (On Behalf of Waterman), August 2015. *Plot E and Telecom House Outline Application Environmental Statement, Chapter 8: Archaeology*.

³⁰ Archaeology South-East, 2016. *Archaeological Evaluation and Watching Brief Report, Station Hill and Friars Walk (Plots B & D) Friar Street, Reading, Berkshire*. Report Ref. 2016009

F. This revealed high levels of deep truncation caused by the foundation and basement cuts of the current buildings within both plots. The report suggests that as yet unknown archaeological remains are more likely to survive to the north of Garrard Street than the south of the Site³¹.

- A watching brief between May and June 2019 to monitor geotechnical site investigations prior to redevelopment on elements of Plots A, B, C, D and G. This revealed the Plots lie on artificially raised ground on the southern edge of the Thames Valley floodplain with chalk bedrock/ drift geology sealed by alluvial/ fluvial deposits. A low level of prehistoric activity was evidenced by the small number of redeposited worked flints. Potential palaeochannels were suggested to the west of the area and the alluvial sequences across the Site suggest an open wetland landscape with minimal occupation prior to Victorian development with some limited activity extending north of the medieval limits of Reading³².
- A Heritage Desk Based Assessment (HEDBA) in October 2019³³.
- An archaeological evaluation between January and March 2020 at Plots E and F. The evaluation provided an insight into the original natural topography of the Plots and found medieval pottery, a probable medieval drainage ditch and evidence for a 17th century building behind the Friar Street frontage.

³¹ Oxford Archaeology, June 2019. *Station Hill (South Site), Plots E and F, Reading, Archaeological Watching Brief Report*. Report Ref. RESHSS18

³² Oxford Archaeology, July 2019. *Station Hill North, Plots A, B, C, D and G, Reading, Archaeological Watching Brief Report*. Report Ref. RESHSS18

³³ Waterman I&E, October 2019. *Station Hill, Reading, Historic Environment Desk-Based Assessment*. Report Ref. WIE14788-103-R-15-2-2-HEDBA

3. Research Aims and Methodology

3.1 General Aims of the Project

In general, the aims of the watching brief are to:

- determine the presence and / or absence of archaeological remains, and if remains are present, to make a full record to current standards;
- determine the approximate extent, condition and state of preservation of any remains;
- confirm the approximate date or range of dates of the remains; and
- prepare a Watching Brief report outlining the results.

3.2 Methodology

3.2.1 General

The watching brief will be undertaken by an appropriately experienced and qualified archaeological contractor and will commence once the ground slabs of the NCP car park have been removed. The watching brief area is presented on **Figure 2** below (watching brief area in blue).

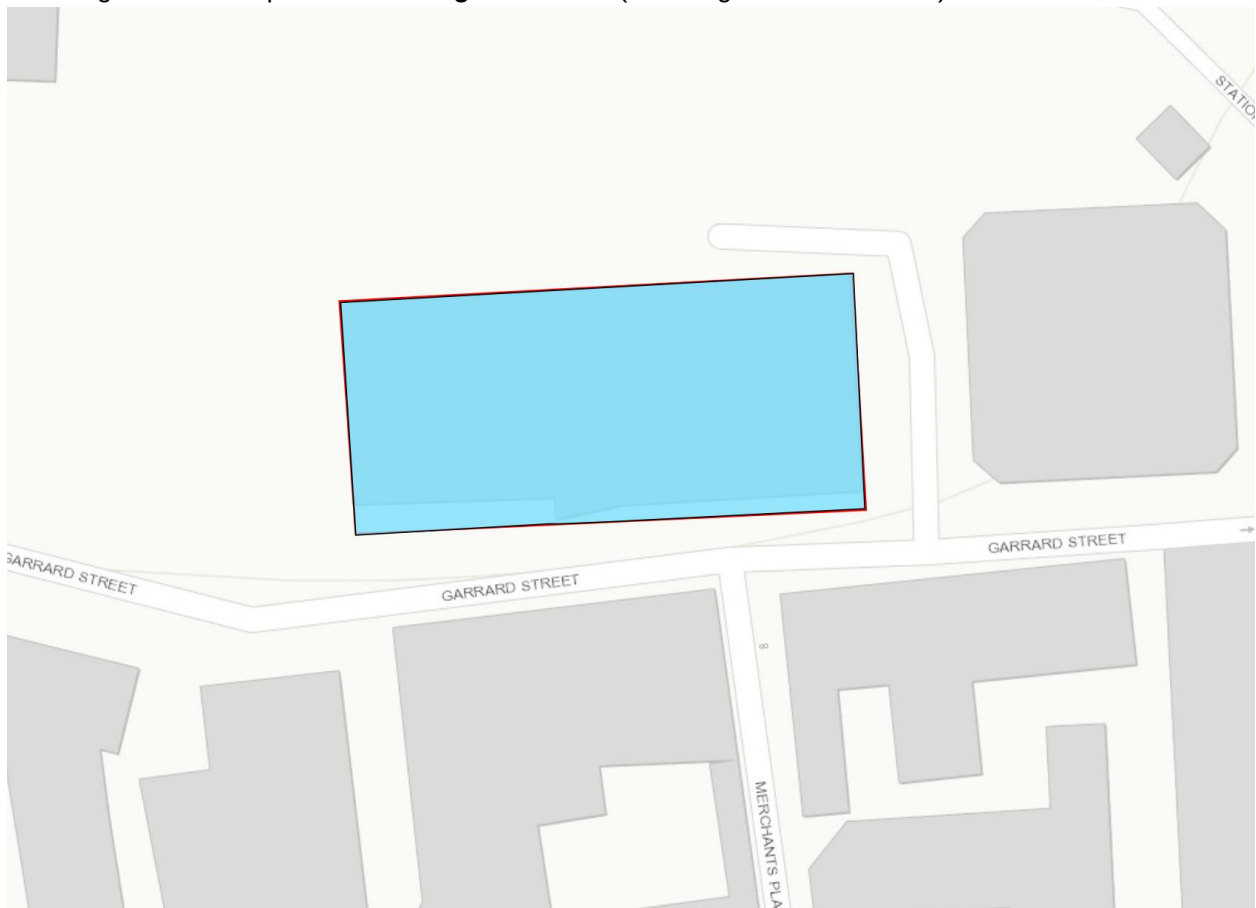


Figure 2: Watching Brief Area

(Source: OS Data © Crown Copyright and Database Right 2020 [Accessed via ArcGIS Online on 17th June 2020]³⁴)

³⁴ ArcGIS Online, accessible via <https://www.arcgis.com/index.html> (accessed on 17th June 2020)

A 2020 Demolition Management Plan including information on foundation removal (e.g. the ground bearing slab) covering the Site is included in **Appendix B**, however, a summary of relevant information pertaining to the watching brief (i.e. the foundation removal information) is presented below.

The slab is understood to cover the entire footprint of the Site and is of reinforced concrete construction. All foundations are to be removed. The anticipated work sequence is as follows:

- A trained operative shall scan the area with a CAT device (to insure to the best of their knowledge there are no live hidden services);
- The slab shall then be broken using a hydraulic breaker (where possible, the slab is to be pulled up using the excavator bucket;
- The footings throughout the footprint of the building shall then be removed;

Page 15 of the Demolition Management Plan (**Appendix B**) provides information on the above and should be read in conjunction with this WSI. It is considered proportionate that the watching brief should commence on the exposure of deposits immediately beneath the concrete slab.

Where appropriate, the archaeologist will have the authority to halt work for sufficient time to enable an archaeological record to be made in accordance with the guidelines contained within the ClfA current Standard and Guidance for an Archaeological Watching Brief³⁵. Should significant archaeological deposits be revealed during the archaeological watching brief, the deposits will be archaeologically sampled and recorded in accordance with the methodology for recording as described below.

³⁵ Chartered Institute for Archaeologists, June 2020. *Standard and guidance for an archaeological watching brief*

4. Recording Systems

The recording system shall be compatible with Historic England's and ClfA's standards and guidance. The recording system will also be compliant with other systems used in the region. The recording system will be based on single context planning, such as informed by the Museum of London 'red book'. Pro-forma context sheets shall include all relevant stratigraphic relationships and for complex stratigraphy a separate matrix diagram shall be employed. The following plans and sections are required:

- an overall site plan shall be prepared detailing archaeological deposits as well as the extent of the area relative to the National Grid on a 1:2,500 plan;
- a detailed site plan may be required at 1:100 scale, depending on the findings;
- sections containing significant deposits, including half sections, shall be drawn as appropriate. Section drawings should include heights Ordnance Datum (OD);
- all archaeological plans and sections shall be on drawing film and at a scale of 1:10 or 1:20 and shall include context numbers and OD spot heights for all principal strata and features; and
- an adequate photographic record of any significant archaeological remains shall be made, in both plan and section.

4.1 Finds and Samples

A high priority shall be given to dating any remains, so all artefacts and finds shall be retained. Consideration shall also be given to the recovery of specialist samples for scientific analysis, particularly samples for absolute dating, structural materials and cultural / environmental evidence. Environmental samples shall be taken from suitable deposits and examined for carbonised remains, macroscopic plant remains, pollen, seeds, insect, molluscs, etc. Given the potential for deep made ground, provision will be made for a representative sample of finds to be retained from bulk deposits.

All finds and samples shall be treated in a proper manner to prevent deterioration. This will involve cleaning and conservation where necessary and labelling, cataloguing and secure storage in appropriate containers.

The archaeological contractor will need to demonstrate that arrangements are in hand to cover all necessary processing, conservation and specialist analysis of finds and samples, including if necessary, the conservation of organic and composite materials and dendro-chronological and environmental analysis of samples.

Every effort shall be made to ensure that finds analysis is consistent with existing local systems.

4.2 Human Remains

In the event of human remains being discovered on Site they will be left in situ, covered and protected. The Principal Contractor, Waterman and the Coroner will be informed. Waterman will in turn inform Berkshire Archaeology. The removal and further excavation / processing of human remains would be subject to further approvals and guidance set out under appropriate guidelines.

4.3 Treasure

In the event of any treasure being encountered on Site that falls under the Treasure Act (1996), such artefacts will be excavated and removed appropriately following notification of Waterman who will in turn inform Berkshire Archaeology and the Client.

4.4 Monitoring and Access

Berkshire Archaeology and Waterman shall be allowed access to inspect the archaeological works to ensure that they are being conducted to the proper professional standards and in accordance with the agreed method statement.

To facilitate this, a projected timetable for Site work shall be agreed between Waterman, Berkshire Archaeology, the Principal Contractor, the Client, and the contracting archaeological organisation.

Safe access to the Site shall be granted to Waterman, the archaeological contractor, and Berkshire Archaeology.

The Applicant shall notify Berkshire Archaeology of the start of the works.

5. Health and Safety

The archaeological contractor shall comply with the requirements of the Health & Safety at Work Act. The archaeological contractor shall prepare a Risk Assessment for the Site in accordance with the organisation's health and safety policy. Health and safety shall take priority over archaeological matters.

All archaeologists undertaking fieldwork shall comply with all relevant Health and Safety legislation. Machinery shall be kept away from unsupported trench / excavation edges and public access should be restricted. Barriers, hoardings and warning notices shall be installed as appropriate. Safety helmets and other applicable Personal Protective Equipment (PPE) shall be used by all personnel as necessary.

Available reports and drawings pertaining to ground conditions and services shall be provided to the archaeological contractor, however, any further information deemed necessary shall be obtained by the archaeological contractor prior to intrusive works commencing. In addition to written records, excavation areas shall be checked and cleared for services using a CAT scanner. The Principal Contractor shall be responsible for any damage and repairs to site services and any associated business interruption.

Spoil shall be kept at a safe distance from any excavation edges. The location of the spoil heap/s may be within the Site or spoil may be removed off-site immediately.

No existing rights of way or accesses shall be blocked during the course of Site work. Adjacent public roads shall be kept free of mud and spoil.

There is a potential for intrusive works to expose unforeseen contamination at the Site, such as asbestos containing materials (ACMs). The Principal Contractor shall detail adequate control measures within their method statements should unforeseen contamination be encountered.

The Principal Contractor shall control all aspects of the Safe System of Work. A Risk Assessment, which covers all risks associated with the archaeological contractor's activities on site, shall be provided by the appointed archaeological contractor for this phase of work. The archaeological contractor's Risk Assessment shall also consider hazards posed by the activities of other contractors on site, where those hazards might pose a risk to employees of the archaeological contractor.

All work shall be carried out in compliance with the Health and Safety requirements of the Principal Contractor.

6. Reporting

The draft watching brief report will be submitted by the archaeological contractor to Waterman within four weeks of completion of the watching brief for review and approval. The report will be the property of the Client and will represent a confidential document. Waterman will be responsible for submitting the draft report to Berkshire Archaeology for comment prior to final approval.

Once the watching brief report is finalised, a hard copy of the Final Report will be submitted by the archaeological contractor to a suitable archive. An e-copy, in pdf format, will be submitted to Berkshire Archaeology for inclusion in the Historic Environment Records (HER). GIS (shape) files of the final phased excavated site plan should be provided to Berkshire Archaeology. In addition, the photographic record of the works will be made available to the National Monuments Record (NMR) prior to archiving to enable selection of suitable materials for copying for inclusion into the HER. Once submitted, the Final Report will become a public document.

The report should include the following content, as appropriate:

- a non-technical summary;
- an introductory statement;
- a review of the aims and objectives;
- methodology;
- a summary of results including a description of the nature, extent, date, condition and significance of any archaeological and environmental materials uncovered with specialist opinions and parallels from other sites in the area;
- conclusion;
- illustrations including plans and section drawings at suitable scales and general and detailed photographs;
- a table of all artefacts recovered from the archaeological works; and
- an interpretation of the results with attention given to the significance of the remains in local, regional and national terms, if appropriate.

The Archaeological Contractor will also input details of the project to the online database maintained by the Online Access to the Index of Archaeological Investigations (OASIS) Project at the following internet site: <http://www.ads.ahds.ac.uk/project/oasis>.

6.1.1 Publication and Dissemination

Provision should be made for an appropriate level of publication of the results of the watching brief. A summary report shall be prepared by the archaeological contractor and submitted for publication in the relevant local journal in the event of significant remains being found.

Additional publication requirements shall be agreed with Berkshire Archaeology in the first instance.

6.1.2 Copyright and Confidentiality

Waterman and the archaeological contractor will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to the Client in all matters directly relating to the project as described in this WSI.

Waterman and the archaeological contractor will assign copyright to the Client upon written request but

retain the right to be identified as an author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV. S.79).

Waterman will advise the Client of any such materials supplied in the course of projects that are not Waterman's or the archaeological contractor's copyright.

Waterman undertakes to respect all requirements for confidentiality about the Client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. Waterman further undertakes to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect Waterman's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

7. Archiving

The Site archive, which comprises records of the watching brief and any excavation areas or any materials recovered, including written elements, plans and drawings, photographic prints and transparencies (where appropriate) and other primary data recovered during the watching brief, will be quantified, ordered, indexed and made internally consistent. It will also contain, as a minimum requirement, a Site matrix, Site summary (a short report giving a preliminary account of the discoveries) and brief written observations on the artefactual and environmental data.

The Site archive will also include a summary of all archaeological investigations and mitigation for the Site, incorporating the results of all final assessment and analysis reports, and thereby providing an integrated record.

Work on the Site archive will be completed by the archaeological contractor within twelve calendar months of completion of the archaeological field investigation. The archive will be deposited within an appropriate museum.

All artefacts (e.g. pottery, metalwork, objects in worked flint and stone, wood, bone, horn and leather, slag) and ecofacts (organic finds such as bones, preserved ancient plant remains, seeds, pollen and charcoal, soil samples) recovered during the watching brief will be made available to the archaeological contractor pending completion of the report, to be stored during the course of the watching brief at the archaeological contractor's secure offices or usual place of secure storage of archaeological finds.

All artefacts recovered during the watching brief will be suitably washed (where the condition of the artefacts allows) and marked by the archaeological contractor and all artefacts and ecofacts bagged and boxed by the archaeological contractor, in accordance with current United Kingdom Institute for Conservation (UKIC) / RESCUE publication *First Aid for Finds* (1998)³⁶. All 'small finds' will be boxed together, separate from bulk finds.

Subject to the legislation of the Treasure Act 1996, all artefacts and ecofacts unearthed from the watching brief and all other elements of the Site archive (as defined in *Management of Research Projects in the Historic Environment*³⁷) should be deposited by the archaeological contractor in an appropriate public museum registered or provisionally registered by the Museums and Galleries Commission and acceptable to Berkshire Archaeology. No artefacts or ecofacts from the Site will be deposited in the relevant depository without the prior written consent of the land owner. Should the land owner be unwilling to deposit the archive with the chosen archive, a full photographic and drawn survey will be made of all artefacts and elements being withheld.

In the absence of an appropriate archive, provision should be made by the archaeological contractor for retaining the project archive, until a suitable depository is available and arrangements have been made for the transfer of the archive.

The archaeological contractor will ensure that the Collections Manager is notified and liaised with at an early stage. It is the responsibility of the archaeological contractor to meet the local museum's reasonable requirements with regard to the preparation of archives for deposition.

Provision will be made for the payment of a 'deposit grant' at the time of archive transfer towards the costs of archive curation in perpetuity. The rates and requirements currently employed by archive stores elsewhere in the country and by the chosen museum for its archive store shall be used for guidance.

Prior to the deposition of finds in the recipient museum, the archaeological contractor will agree with that museum the sample or quantity of bulk finds (pottery, animal and human bone, other ecofactual material,

³⁶ United Kingdom Institute for Conservation of Historic & Artistic Works, 1998. *First Aid for Finds: Practical Guide for Archaeologists*

³⁷ Historic England, 2015. *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide*

building material, burnt flint, worked flint and stone) to be deposited.

All excavated artefacts and ecofacts and all other elements of the Site archive should be delivered by the archaeological contractor to the recipient museum as one deposit. Where this arrangement is not practicable, lists will be submitted by the archaeological contractor to the recipient museum of objects not deposited, together with information as to the quantity involved and their current location, reasons why items have not been deposited and a timetable for their ultimate deposition.

Subject to the resources available and to discussion with the recipient museum, all articles needing conservation will be properly stabilised by the archaeological contractor prior to their deposition at the recipient museum and records of their treatment lodged with the museum. Those items for which available resources do not permit stabilisation will be separately packed and listed by the archaeological contractor.

Prior to commencement of the archaeological watching brief the archaeological contractor will obtain from the recipient museum an accession number(s) for excavated artefacts and ecofacts from the project and any guidelines regarding deposition of such artefacts and ecofacts specific to the recipient museum.

All finds, save those specifically excluded by the recipient museum or excluded on grounds of size/material, will be marked by the archaeological contractor with the recipient museum's accession number.

Artefacts and ecofacts deposited by the archaeological contractor in the recipient museum will be accompanied by the remainder of the original Site archive or by a complete duplicate record thereof. A microfiched security copy of the Site archive should also be supplied by the archaeological contractor to the recipient museum.

Subject to the agreement of the landowner, all artefacts and ecofacts recovered from the archaeological excavations will be deposited by the archaeological contractor within the recipient museum within five years from the date of completion of the investigation.

Copyright of the written, drawn and photographic elements of the Site archive will be vested jointly with the archaeological contractor and the recipient museum.

The following documents should be adhered to:

- *Standards in the Museum Care of Archaeological Collections*³⁸;
- *Management of Research Projects in the Historic Environment*³⁹; and
- *MoRPHE (applicable Technical Guides and Project Planning Notes)*⁴⁰.

³⁸ Museum and Galleries Commission, 1992. *Standards in the Museum Care of Archaeological Collections*

³⁹ Historic England, April 2015. *Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide*

⁴⁰ MoRPHE Technical Guides and Project Planning Notes, accessible from <https://www.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/>

8. Archaeological Contractor – Specific Requirements

8.1 General

The appointed archaeological contractor will provide Waterman with a detailed method statement for undertaking the archaeological investigations, which shall require approval from the Berkshire Archaeology, as required. This shall include all fieldwork and post-excavation work including archiving.

The archaeological contractor shall provide a brief career profile of the site supervisor which demonstrates their suitability for undertaking the work.

A full cost estimate for the fieldwork, post-excavation and archiving shall be provided to Waterman.

The requirements of this WSI shall be met in full where reasonably practicable.

Any variations to this WSI shall be agreed with Berkshire Archaeology in advance.

The scope of work detailed in the main part of the specification is aimed at meeting the aims of the project in a cost-effective manner. Waterman attempts to foresee possible site-specific problems and resource these. However, there may be unusual circumstances which have not been included in the costing and programme, such as:

- unavoidable delays due to extreme bad weather;
- vandalism; and
- complex structures or objects, including those in waterlogged conditions, requiring specialist removal.

8.2 Insurance

The archaeological contractor will hold Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details will be supplied on request.

Waterman and the archaeological contractor will not be liable to indemnify the Client against any compensation or damages for or with respect to:

- the use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project. Interference whether temporary or permanent with any right of way, light, air or water or other easement or quasi easement which are unavoidable result of the Project in accordance with the Agreement;
- any other damage which is the unavoidable result of the Project in accordance with the Agreement; and
- injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the Client or his agents, servants or their contractors (not being employed by Waterman) or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto.

8.3 Standards and Procedures

Waterman and the archaeological contractor shall conform to the standards of professional conduct outlined in the ClfA *Code of Conduct*, the ClfA *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology*, the ClfA *Standards and Guidance for an archaeological watching brief* and the British Archaeologists and Developers Liaison Group *Code of Practice*.

Project Supervisors shall be recognised in an appropriate Area of Competence by the ClfA.

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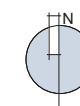
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APPENDICES

A. Station Hill Development Site Plan



Project Details

WIE14788-103: Station Hill, Reading

Figure Title

Figure 2: Development Plot Locations

Figure Ref

WIE14788-103_GR_EWSI_2C

Date

October 2019

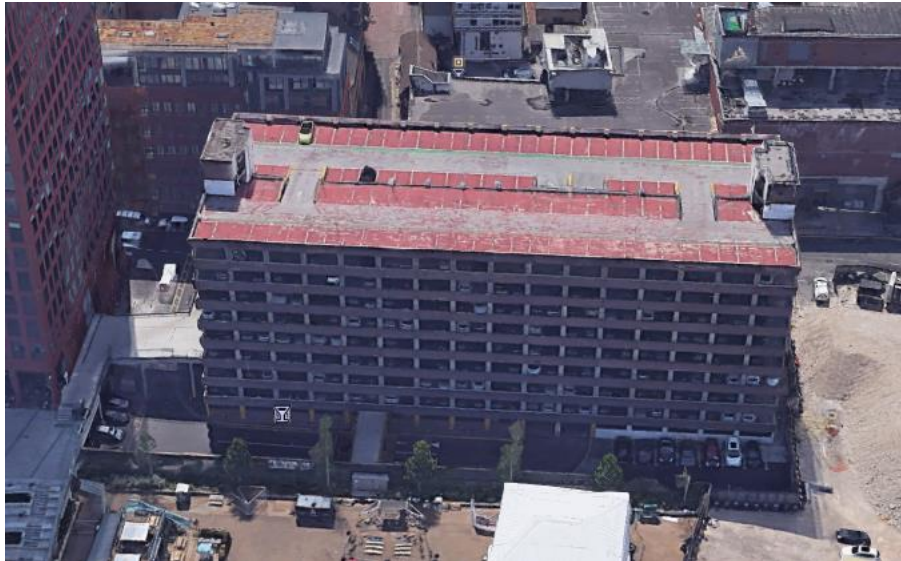
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B. Demolition Management Plan

Demolition Management Plan



Project: NCP Garrard Street Demolition

Document Reference

NCP Garrard Street -DMP

Version- Tender

Revision - A

Prepared By

Andy Moore

Date 04.05.20

Contents

1. INTRODUCTION	4
2. OUTLINE DEMOLITION METHOD STATEMENT	4
3. SITE SECURITY & ACCESS CONTROL	16
4. PEDESTRIAN ACCESS	17
5. VEHICULAR ACCESS	18
6. MATERIAL DISTRIBUTION	21
7. WASTE MANAGEMENT	21
8. GOOD NEIGHBOUR / MANAGING ENVIRONMENTAL IMPACTS	24

REVISION RECORD

Version	Date	Page / Section Affected	Prepared by	Approved by
Initial	18.02.20	All	AM	

DISTRIBUTION LIST

Version	Date	Recipient		

1. INTRODUCTION

This Demolition Management Plan has been developed to demonstrate the logistical feasibility of the project. Its purpose is to provide foundation principles, for the method of demolition and the protection of neighbouring facilities. In this case the principal neighbour affected by these works will be Thames Tower. A demolition programme indicating anticipated works periods has been generated to run alongside this plan

Its main purpose is to ensure the project is undertaken in an environmentally responsible manner and to current industry best practice and standards. It also seeks to ensure works are carried out with minimal disturbance to neighbouring properties, highways and members of the public by setting out a methodology within which the demolition works will be carried out.

Where appropriate options have been identified and assessed in accordance with relevant selection criteria. The key elements reviewed include:

- Site Security and Access Control
- Programme
- Pedestrian and Vehicular Traffic Management
- Materials Delivery Co-ordination
- Material Distribution
- Waste Management
- Good Neighbour Policies / Environmental Impacts

2. OUTLINE DEMOLITION METHOD STATEMENT.

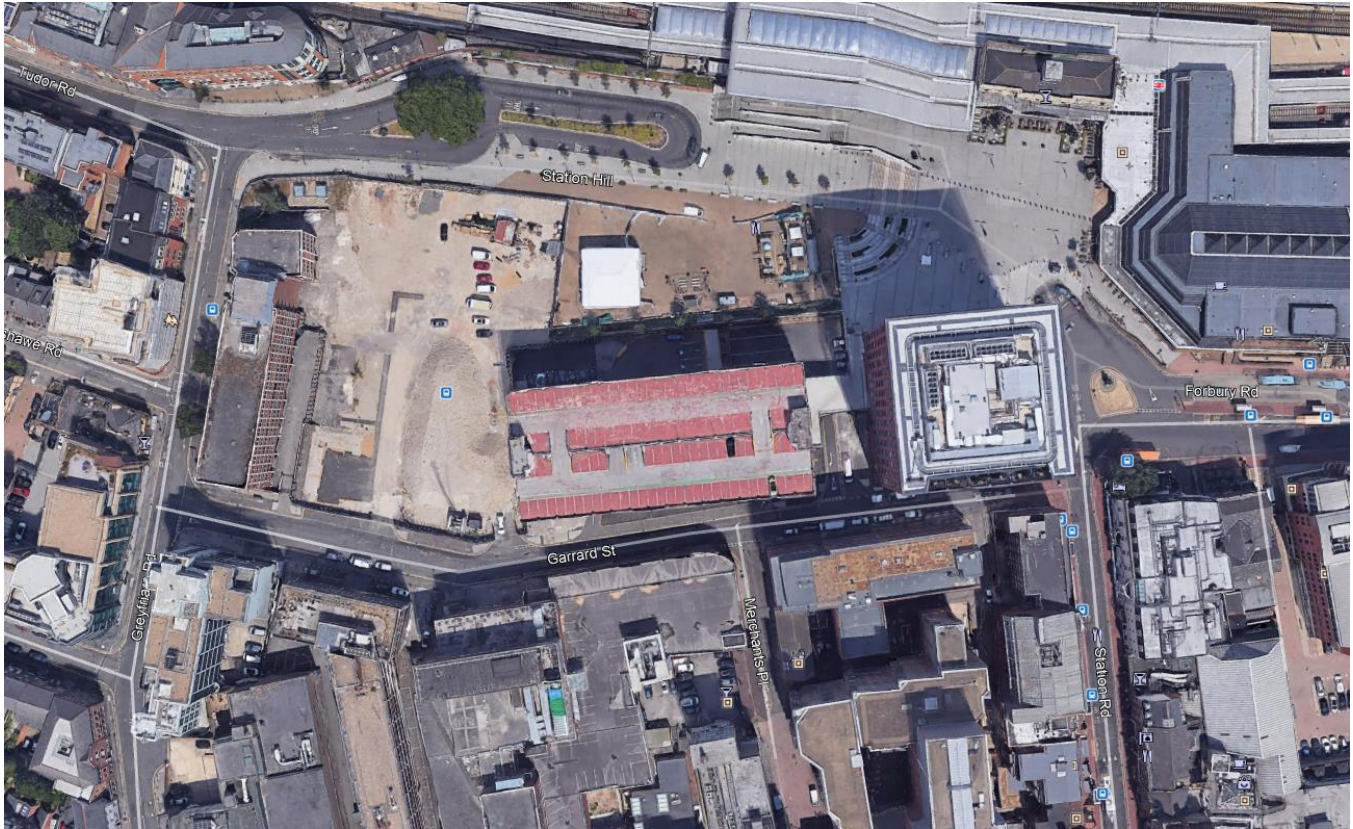
The Site

Existing Structures

The NCP building consists of a concrete frame structure with a ground floor and 19 levels. The levels are split with a ramp running between each split level. There are lift cores at either end of the structure, protruding another storey height above Level 19 this consists of mainly plant room areas. The exterior of the building is clad in spandrel panels secured at either end by a double bolt.

Surrounding Land Uses/Adjoining Properties and Premises

The immediate area is dominated by the retained Thames Tower Building. Which is connected to the NCP by a link bridge which is to be removed. The South and west of the site are the other phases of the station Hill development. The area itself is a mix if commercial and residential properties with city centre Hotels also in close proximity.



Overall Sequencing of the works at the NCP Garrard Street

- Noise and Vibration Monitoring installation and Benchmarking
- Site investigations and pre-start surveys
- Design temporary works
- Site Set up and Protection Works
- Hoardings and scaffold protection
- Temporary Works Installation
- Demolition Enabling works
- Progressive dismantling and demolition of the building to Ground Floor level
- Slab and Foundation Removal and Reprocessing
- Site Demobilisation

Pre – Start

Visual surveys will inform the method and confirm the nature of the structure and the Temporary Works required. Alongside the surveys record and archive drawings will assist and develop the method and confirm the assumptions made. Such results will be made available to the project team.

During this period applications for licenses and agreements are made while designs are informed for Temporary Works and the protection of the retained services.

Pre – Start

Opening up works with the consent of the developer will inform the method and confirm the nature of the structure and the Temporary Works required. Alongside the surveys record and archive drawings will assist and develop the method and confirm the assumptions made. Such results will be made available to the project team.

During this period applications for licenses and agreements are made while designs are informed for Temporary Works and the protection of the retained services.

Site Establishment and Facilities

Site Accommodation

On receipt of the Instruction to Proceed, the primary objective will be the establishment of office and welfare facilities. Our proposal in this respect is during the early stages of the works, to set up an Oasis Unit within the site boundary. This will allow us the time to get the full office set up. The facilities will comprise drying room, canteen, office and toilets. We will establish these in the Midgard section of the Xaffinity House set up.



The facilities will comply in all respects with current HSE guidelines including the provision of mains water and electrical services and have a dedicated PPE free safe access to them at all times.

The facilities will have dedicated cleaning staff to ensure they are maintained to the highest standard.

A gateman will also be placed externally at the proposed vehicle access point Bridge Road to manage vehicle movements and control pedestrian access.

Fire Safety

JRL Group will produce a fire plan which will be displayed on site notice boards and included in the site induction. Any Fire Safety duties performed by personnel will be undertaken in accordance with the Fire Plan.

Fire marshalling duties will be undertaken by appropriately trained and certified operatives.

Additionally, JRL Group will carry out regular reviews / updates of the Fire Plan to ensure it remains current.

JRL Group will provide fire points, which will be strategically located throughout the work areas. Fire points will include, as a minimum, fire point stand, fire extinguishers (1No Co₂ and 1No water), sand bucket, rotary hand bell and back panel for fixing appropriate signage (evacuation route, emergency procedures, etc.).

Appropriate signage will be positioned around the demolition area to effectively communicate the plan to the operatives. Emergency escape routes and exits will also be prominently signed.

In addition, the existing fire escape routes will be kept clear and maintained at all times. These will be indicated on the fire plan and briefed to all operatives during the induction.



Demolition Enabling Works**Isolation of Services**

The importance of the isolation of incoming and shared high risk utilities will be an absolute priority during the first phase of the works. In conjunction with the isolation any necessary temporary supplies will be installed to ensure an adequate supply of water for damping down at all loading and demolition faces and adequate provision for the welfare and site accommodation.

Electrical Supplies

ARK Ltd our in house specialist M&E contractor will be employed to isolate the remaining services back to the incoming heads.

BT

BT cables will be isolated back to the incomers and cut. BT will be contacted to remove the cables from this point.

Water

Water will be cut back to the boundary and a temporary supply installed to provide dust suppression throughout the works.

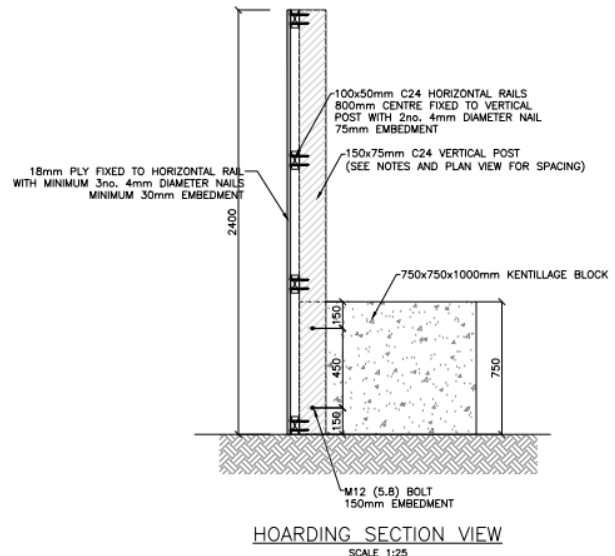
Demolition Protection Works

Temporary Heras Fencing Layout

As part of the site set up works a heras fence will be installed to secure the site and prevent access to the site. This fencing will allow the erection of the hoarding on the footpath

Hoarding erection

A 2.4m high timber hoarding will be erected on precast concrete blocks along the agreed boundary line. The hoarding will be erected painted and completed prior to moving removing the heras fencing.

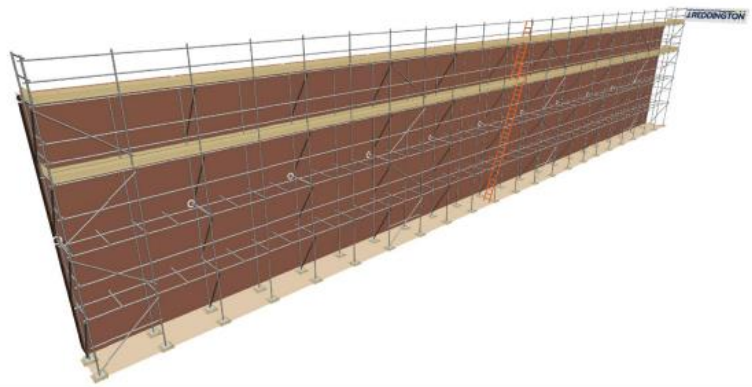


External Protection Scaffold

Prior to the full demolition of the main building the south elevation will be wrapped with scaffold, and monarflexed to provide screening and dust protection.

A full height scaffold will be designed to the latest NASC guidance and BS EN12811-1, TG20:13 and constructed to all external and internal elevations including where required scaffold fans and tunnelling to maintain pedestrian access.

The scaffold will be erected in strict accordance with the current codes of practice and will operate the Scafftag system.



The scaffold will generally be constructed in 2.0m lifts and tied to the structures by a system of wrap around box ties to the external columns. The box ties will include check fittings for additional safety.

The scaffold will be fully sheeted with flame retardant reinforced plastic sheeting (monarflexed or similar) to all elevations.

Demolition Sequence

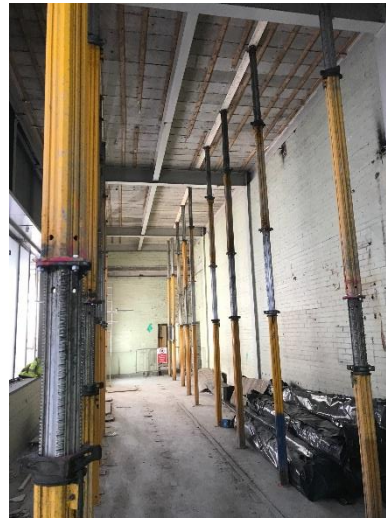
The Car Park is a reinforced concrete frame with spandrel panel infills, the main beams are precast and rely in part for stability of the weight of the structure above to hold them steady. . The lack of shear walls and the nature of the column and beam connections mean that there is a tendency with this type of building for the structure to become “live” if demolished incorrectly.

To overcome the lack of shear restraint and also to support the weight of the machinery used to demolish the structure. Temporary propping will be designed and erected to the floors in advance of the demolition.

Temporary Works Required

The floor constructions require a temporary works solution selection of plant and the propping regime. Prior to the temporary works design the floor of each block will be structural engineer to ascertain their capacities both intact temporary condition. Floors will then be propped to ensure workface remains stable throughout the demolition works.

As part of the site establishment temporary works register This will include major items such as the hoarding and the perimeter of the building. The stability of the structure demolition will be considered by our temporary works the start of the contract. Given previous experience of similar anticipate that the levels of the Car park will require Peri type props and header timbers. And some form of lateral restraint will be required in the form of diagonal Props



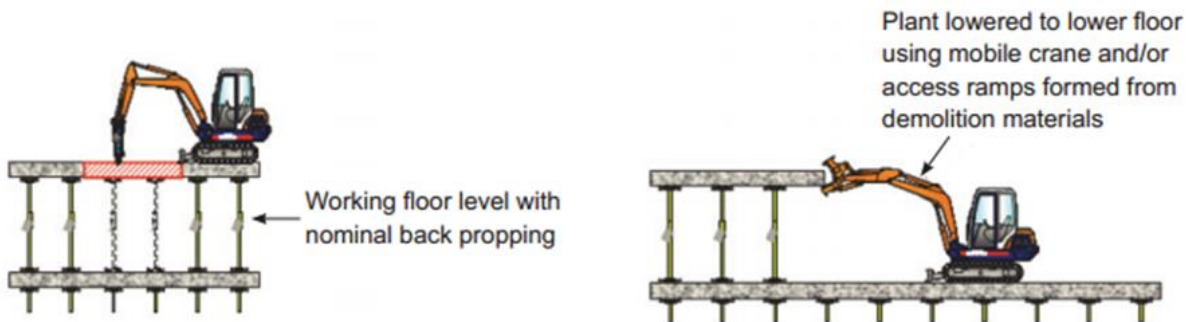
and careful commencing analysed by a and in the that the

will be set up. scaffolds to during engineers at structures, we propping with

The design and location of our props will allow machinery to sit on the working floor and demolish the floor above. This gives the advantage for the working floor remains consistent throughout the process and does not require consideration of plant being sat on the floor in its temporary condition.

Top Down Demolition

Starting at the level 19, 13t demolition excavators will be lifted onto the roof to demolish the lift motor rooms. We will then make a hole through level 19 to allow access for the machinery to be placed on the level below. The level 19 will then be removed by mechanical means onto level 17. The materials arising will be segregate and vertically removed using the attendant crawler Crane.



Stage 1

Break openings in floor slab using mini 360o excavator fitted with impact breaker big enough to lower plant on to level below.

Stage 2

Excavator now fitted with concrete muncher and/or hydraulic impact hammers will pulverise the upper floor and the arisings will be allowed to drop on the working slab level.



Spandrel Panels

The spandrel panels that clad the sides are held on the structure by a double bolt at either end. These panels will need to be removed as the first activity on a demolition floor. The excavator will grab the panel in the jaws of a hydraulic muncher and crack the centre of the panel. Pulling the panel into the structure will shear the retaining bolts. The panels will be reprocessed and loaded away using the tower crane to the rear of the site.

Lift Cores

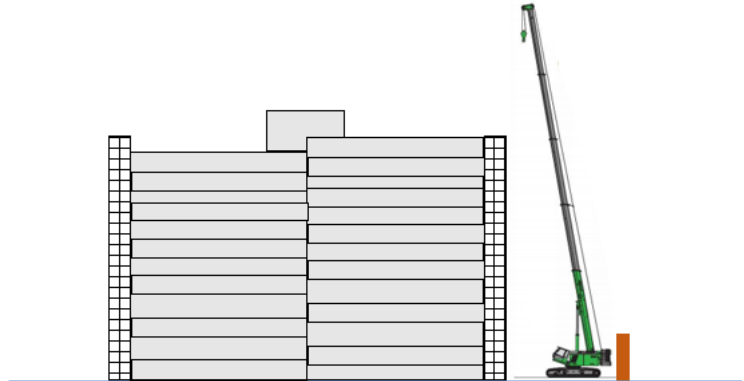
The cores consist of the lift shaft and a stair to each level. The cores will be broken out using hydraulic breakers on the excavators, each core will be demolished a level behind the floor demolition to add some stability to the structure albeit localized to the area around the core due to the beam and column connections to the main span beams. The roof of the cores will contain lift plant which will be removed prior to breaking. Our Brokk 180 with breaker and muncher attachment will be used to break the roof in the areas where the excavators breaking the floors cannot reach. All debris from the cores will be pulled onto the floors to be removed by the crawler crane.

Crawler Crane

To remove the materials from the higher floors to the waiting tipper trucks for removal will be carried out using a 100t crawler crane. The crane will be able to track along the length of the building to collect the waiting skips. The crane will also service the workface by lifting temporary propping and similar.

Crawler Crane Location

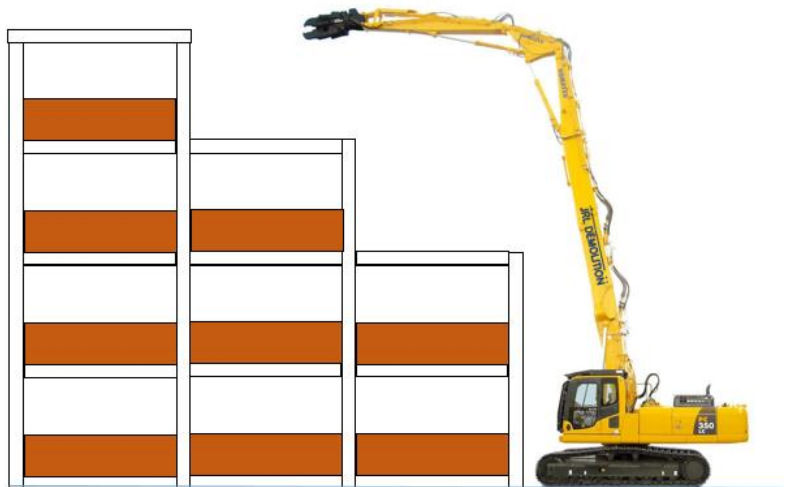
To remove the materials from the higher floors to the waiting tipper trucks for removal will be carried out using a 100t crawler crane. The crane will be able to track along the length of the building to collect the waiting skips. The crane will also service the workforce by lifting temporary propping and similar.



High Reach Demolition

Once the building is reduced to level 7/8 the remainder will be removed using larger demolition Excavators. These excavators will form a break in the middle of the structure and demolish towards the lift cores at either end. The machines will where possible work along the face of the building rather than parallel to it.

To ensure stability of the structure the building will be worked down at a 45 degree angle. The roof slab will be removed first with the front wall taken out to allow access. Once the top two bays of the roof have been removed the next floor down will have a bay removed to maintain the stability of the structure and allow the arm of the demolition machine to access further into the building.



Arisings will be pulled out of the building and placed on the ground to avoid overloading the floors.

A support machine will then process the arisings into the various waste streams for removal or reprocessing.

The demolition will be in the direction of the core to maintain the integrity of the building. The core will be demolished as the last item using the same procedure.

Footbridge Removal

The footbridge that connects Thames Tower to the Garrard Street NCP will be structurally analysed to establish the connection detail at either end or whether or not the beams supporting it are post tensioned. Assuming that there is an expansion joint at Thames tower and that the bridge is not Post tensioned we would look to demolish the central span of the bridge first whilst retaining the connection detail at Thames tower and the section against the car park.

The bridge will be propped to facilitate the installation of a saw cut at each end. The saw cuts will separate the bridge from both structures.

Protective matting will be installed to the roadway to allow the bridge to be demolished onto it. 2no 45t excavators will then demolish the bridge using hydraulic munchers. The remaining structure against Thames tower will be scaffolded and broken out using smaller tools to ensure that no damage is caused to the retained façade. Façade repair works and retained bridge repair works can then commence.



Slab and Foundation Removal

A trained operative shall first scan the area with a cat scan and genny device insuring to the best of his knowledge there are no live hidden services.

The slab shall then be broken using a hydraulic breaker. Where possible the slab is to be pulled up using the excavator bucket. This will help to reduce the noise created from the pneumatic breaker.

The footings throughout the footprint of the building are to be removed. All concrete shall be heaped into an allocated position ready to be loaded into lorries for removal. The work area shall then be graded off and tracked in leaving it in a tidy state.

The area will be examined for signs of oil contamination and if necessary sampling of the contamination arranged



Loading Away Arisings

We will have a water supply at hand for dust suppression to ensure that dust impact on the environment is reduced to a minimum.

Material will be loaded away as work proceeds in order to maintain a clean and unobstructed work environment

A road sweeper will be on call at all times to ensure the public highway is kept clean. In addition vehicles will have their wheels washed as they exit the site should this be necessary

All soft strip and hazardous materials will be removed off site in a timely fashion to minimise the risk of fire and contamination.



Water Management

Gullies that are within the demolition zone will be sealed to prevent the ingress of debris to the sewer system. This will be by use of a gully guard or similar system. Where gullies are outwith the demolition debris zone they will be cleaned about and filled with sandbags to prevent debris from being able to access the drainage system. The gullies will continue to drain water through the sandbags to maintain surface water drainage and prevent a build-up of surface water that can run off. At the end of the demolition the sand bags will be removed from the gullies and the gullies re-cleaned out as required.



Health & Safety

Health & safety is an integral part of the planning process for each project. Implementation of comprehensive Health & Safety System and Procedures ensures every facet of the construction process is planned, managed and monitored. This also ensures compliance with statutory obligations.

Designers and contractors engaged on the project will be competent and adequately resourced. This will be achieved by:

- Completion of prequalification health & safety questionnaire
- Interviews to ascertain compliance with their legal duties
- Review of existing health & safety policies and procedures
- Review of their health & safety performance and site visits

As Principal Contractor we will produce the Construction Phase Plan based on the current information and the pre-tender plan. The plan will set out the arrangements for managing and monitoring the project. Contractors engaged to carry out works on the project will be issued with this Health & Safety Plan so that they can integrate this management philosophy into their health & safety plans. The project team will implement the plan assisted by specialist health & safety advisors.

All persons will be encouraged to express their views and concerns about health & safety. This is achieved by the formulation of various routes. These include:

- Project Health & Safety committees
- Safety representatives from each contractor
- Toolbox talks including a feedback process
- Discussion and briefing on method statements and risk assessments

An 'open door' policy will be employed whereby any individuals can discuss health & safety issues with any member of the project team. Site notice boards, toolbox talks and posters are used to convey relevant information to persons on the project.

3. SITE SECURITY & ACCESS CONTROL

3.1 Introduction

All security operations shall be developed and implemented in accordance with the latest British Standards applicable to the security industry ie BS 7858:2006 and BS 7499:2007 and full compliance with the Private Security Industry Act 2001.

3.2 Generally

The general security of the site falls into three main categories:

- a) Maintaining a secure perimeter
- b) Preventing unauthorised access
- c) Deterring acts of theft and vandalism

This protection is provided by a combination of physical and manned security.

3.3 Physical Security

Physical security of the site will be afforded by the erection of perimeter hoarding and fencing erected in accordance with the Code of Good Construction Practice

Hoardings will incorporate a number of lockable gates to effect access and egress for both pedestrians and vehicles. Proposed barriers are identified on the logistics plan. Further measures including alarms to scaffolding (when installed at the perimeter of the site) and floodlighting to security sensitive areas during the hours of darkness will also be considered.

4. PEDESTRIAN ACCESS

4.1 Maintaining Site Security

In order to maintain site security it is important to provide the minimum practicable number of pedestrian access/egress points. In this instance a single access point into the project is proposed. Access into the site will be managed to ensure only authorised personnel gain access. The primary control point will be located at the designated pedestrian access. This control point shall be permanently manned to process visitors and non-inducted personnel.



4.2 Security Access Control

All personnel and visitors arriving on site should immediately report to the project security reception within the project accommodation. All personnel entering the site will be required to log in and out of the site this point, this attendance information being essential should there be an emergency site evacuation.

4.3 Site Layout

Pedestrian access / egress points and primary circulation routes are depicted on the site logistics plan. Vehicles making deliveries to the site or demolition material will travel via the designated routes.

Operatives will attire themselves with appropriate PPE within the site welfare before proceeding onto site. When passing between the welfare compound and the working site all personnel will be required to pass through a security control point. Within site, pedestrian routes will be delineated, segregated from vehicular construction traffic. These shall be classified as site walkways and the wearing of PPE in these areas shall be mandatory.

4.4 Transport Links

There is limited parking available on site and local parking facilities are limited. It is, therefore, recommended that site personnel travel to site on public transport. Reading Railway station serves the site within a 5 minute walk. Many scheduled bus services immediately pass the site.

5. VEHICULAR ACCESS

5.1 Introduction

When considering vehicular access the four primary issues to consider are:

- a) Maintaining site security
- b) Segregation of pedestrian and vehicular traffic
- c) Manoeuvring of vehicles
- d) Delivery co-ordination

5.2 Maintaining Site Security

In order to maintain site security it is important that vehicle areas provide access to vehicular traffic only. Pedestrian access should be prohibited at these points. Vehicle access gates should be kept closed, opened only to receive or disperse vehicles. Vehicle access will be manned during site operational hours.

5.3 Vehicular / Pedestrian Segregation

Vehicles and pedestrians should, wherever practicable, not share access / egress or circulation routes and vehicles shall enter/exit the site at a separate location to pedestrians. Protected pedestrian routes will be established within the site to ensure segregation from vehicles.

5.4 Delivery Co-ordination

Site access / egress for all materials and waste will require tight control, and daily Liaison. Early Doors deliveries will be utilised for large deliveries. All delivery vehicles will drive into site with the assistance of the traffic marshal to the designated loading/unloading area. Traffic Marshalls will halt pedestrians and cyclists if necessary while vehicles are entering and leaving the site. Once the vehicle is unloaded or loaded, the vehicle will leave site under the Traffic Marshall's guidance.

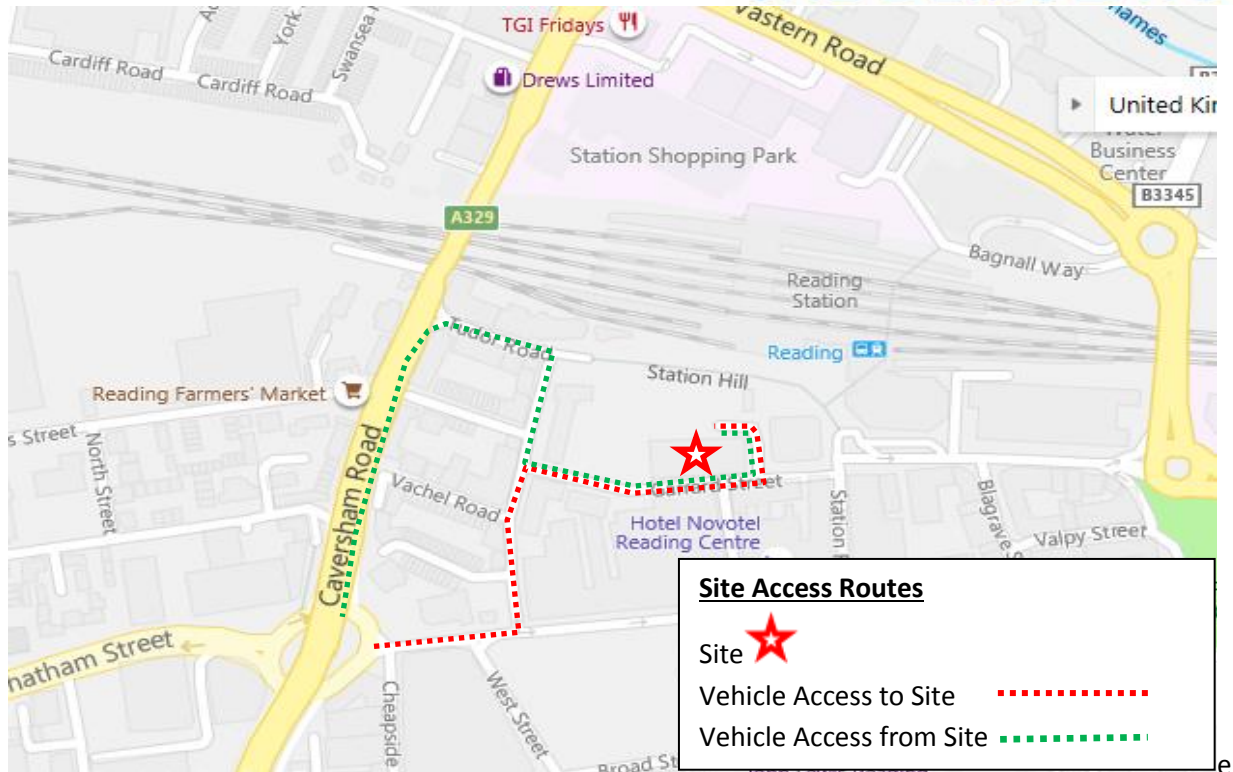
The development of a scheduling system will provide an efficient and effective means of controlling all deliveries. The implementation of pre-agreed delivery schedules and programmes will ensure that all deliveries arrive at the right time with materials being efficiently despatched to the correct offloading and storage zone. Daily delivery schedules should be provided at all gate posts/offloading points. Regular delivery meetings between all trade contractors should be implemented to ensure that the delivery schedules are pre-agreed with all. All suppliers will be required to service the site utilizing FORS members.

5.5 Manoeuvring of Vehicles

In order to promote safe manoeuvring in and around the site it is recommended that reversing of vehicles is excluded wherever possible. This is most commonly achieved by the implementation of one way systems and / or drive through delivery zones. Where reversing of vehicles is unavoidable, such manoeuvres should be kept to a minimum and due consideration given to, amongst others, the space required to complete such manoeuvres, the exclusion of personnel from this area and the supervision, direction and control afforded to the manoeuvre.

5.6 Vehicle Arrival and Dispersal

All vehicles shall approach the site, along the A329 turning into Friar Street, Greyfriars Rd and Garrard Street. Directed by prominent signage and controlled by attendant banksmen, vehicles shall enter and exit the site in accordance with the traffic management plan. Deliveries will be booked in 24hr in advance with Site Management.



Vehicles exiting the site will exit back onto Greyfriars Street and the A329 for dispersal back onto the road network

5.7 Vehicle Access & Egress

Upon reaching the site vehicles shall be met by a vehicle gateman who will check the delivery against his records before assisting the vehicle with the manoeuvre required to enter site. It will, therefore, be necessary for vehicles to drive in and drive out in a one way direction as described above. To ensure this manoeuvre is achieved with maximum efficiency and in the safest possible manner the assistance of at least one vehicle banksman will be required.

5.8 Traffic Management Operatives

All vehicle entrances and exits shall be manned by security traffic marshals responsible for receiving and dispersing vehicles. Duties will include checking that vehicles arrive in accordance with the planned delivery schedules, advising drivers of site rules, issuing vehicle passes and directing to the appropriate off-loading zone.



When leaving, marshals will collect passes, confirm the legitimacy of any plant or materials being removed from site and check vehicles' cleanliness before finally dispersing back onto the public highway. Marshals will also be responsible for directing and banking vehicles to ensure that manoeuvres are executed safely, minimising the risk to the general public.

6. MATERIAL DISTRIBUTION

Material distribution has been reviewed and assessed in line with the following key considerations:

- Off-loading materials close to their final location where practicable (minimise distribution around the site).
- Distribution directly from off-load to workface ("just in time" deliveries to minimise storage and double handling).
- Use of materials handling equipment to transport materials around site and to each level within buildings (minimise manual handling).

7. WASTE MANAGEMENT

7.1 Introduction

Waste management can be considered under three broad headings:

- Collection and transportation from the workface
- Removal off site and disposal
- Environmental issues (segregation, recycling etc.)

7.2 Collection and Transportation

Bobcat skidsteer loaders will collect the debris and transport to the waiting boat skips for removal from the workface by the Crawler crane. Bottom opening skips will be utilised where possible to ensure that tippers are filled and dispatched as fast as and safely as possible to.



7.3 Removal and Disposal

On a regular basis, our roll on/off vehicles and tipper will attend site to remove all collected arisings. The waste is transported from site and deposited at a licensed transfer station where it will be segregated for onward transportation to various recycling Facilities. Waste segregated on site will be collected by other registered carriers and transported either to a licensed transfer station for bulking or directly for recycling / reuse.

7.4 Demolition wastes

All waste will be segregated on site into the various waste streams and using the relevant EWC codes
Wastes will be divided into the following categories

Recyclables

- ☉ Metals-Structural members and services
- ☉ Glass-Windows and Partitions
- ☉ Concrete/Brick -from the main structure
- ☉ Timber- Various

Non recyclables

- ☉ Asbestos wastes
- ☉ Bitumen roofing

7.5 Waste Operatives

Waste operatives from the logistics team will undertake bin distribution and removal as described above but, in addition, will also undertake the following tasks:

- ☉ Maintaining and keeping clear emergency escape routes and exits.
- ☉ Maintaining access routes.
- ☉ General cleaning of unallocated rubbish.
- ☉ General site cleanliness (litter picking)

7.6 Segregation & Recycling

As indicated above, on-site segregation, where practicable, will be promoted. However, any mixed loads will still be subject to off-site segregation to maximise reuse, recycling or recovery.

Onsite Segregation

Segregation of waste on site is subject to certain constraints i.e. available space. On site segregation will only be performed on wastes which are deemed to be in recyclable condition i.e. uncontaminated and where we believe there is sufficient volume of a single waste stream to warrant a dedicated container. Best practice dictates that waste segregation should be undertaken at source. This does not simply mean 'on site' but actually at the point of waste generation at the



workforce. Segregation at source is the only methodology that does not require a secondary process to sort collected mixed waste. Onsite segregation relies on the support of all site management to ensure unauthorised use of dedicated containers for general builder's rubbish is prohibited. Loads found to contain over 5% diversity are deemed as contaminated and subject to increased transport and handling costs of waste transfer stations.

Offsite Segregation

Mixed waste collected from site will be segregated off site at a local waste transfer station where all materials will be processed through a MRF (Material Recycling Facility). Materials will be handpicked and sorted into various categories ready for onward transportation to recycling depots. Materials that are deemed to be recyclable will then be sent through a trommel to be pulverised and used for fines, any materials remaining from the process will be sent to landfill. It is estimated that at least 96% of non-hazardous construction waste generated on the project is recyclable.

Reclamation Performance

The project team will agree a target benchmark for waste reclamation (i.e. waste diverted from landfill). This target will be published in the Site Waste Management Plan. Waste reclamation includes:

- Reuse on site
- Reuse on other sites
- Salvaged for reuse
- Return to supplier via a 'take back' scheme
- Collected from site by an approved licensed waste management contractor who shall segregate waste streams for recycling, recovery or reuse.

7.7 Site Waste Management Plan

A project waste champion will be appointed to ensure procedures are kept relevant and up to date and also to ensure waste materials leaving site are recorded for project benchmarking purposes. The client shall appoint a waste 'champion' to be responsible for the development of the Site Waste Management Plan and subsequent implementation and compliance. This may be the principal contractor but an alternative appointment may be made to ensure design and pre-construction activities are incorporated. The Site Waste Management Plan shall include the following:

- Identification of the waste champion (the nominated individual responsible for implementation of the plan).
- The target benchmark for resource efficiency (the minimisation of waste generated).
- The target benchmark, by weight or volume, for waste reclamation (i.e. diversion from landfill through reuse, recycling or recovery). This target has been set at 98% non-hazardous recycled, 96% demolition waste.
- Procedures and commitments for minimising hazardous and non-hazardous waste to achieve or exceed the target benchmark.
- Procedures for monitoring, measuring and reporting hazardous and non-hazardous waste to identify and record the type and quantity of waste produced.

- Procedures for sorting waste generated into defined waste streams for subsequent reuse, recycling or recovery (either on site or off site at a licensed facility).
- Procedures for monitoring, measuring and reporting hazardous and non-hazardous waste to identify and record where and how each waste stream is disposed and the quantity reclaimed.
- Procedures for communicating the plan to management and operatives including appropriate targeted training.
- A review process to monitor the success of the foregoing procedures and promote continuous improvement during the project and for future projects.

7.8 Duty of Care

As a waste producer, the client has a duty to ensure that any contractor who removes waste from the site is registered with the Environment Agency. We shall be required to provide documentary evidence that all waste carriers and waste brokers employed in connection with the project are appropriately licensed. Site records including transfer notes and conveyance notes shall be collected and retained.

7.9 Environment

The project team will be committed to maintaining the highest environmental standards and demand the same standards throughout the supply chain. In conjunction with the logistics provider, regular audits will be conducted or preferred waste carriers, transfer stations and landfill sites. These audits are intended to confirm compliance with legislation and to ensure every effort is being made to maximise the recycling of waste generated from site.

Monthly newsletters will be issued to the local community and neighbours as well as being discussed at the monthly liaison meetings and will include details of any proposed major traffic management changes.

8. GOOD NEIGHBOUR / MANAGING ENVIRONMENTAL IMPACTS

8.1 Minimising Impacts on the Surrounding area

Daily visual and audio checks are carried out to determine if the site could be considered a nuisance.

- Is the site and surrounding area tidy and free of visual intrusion?
- Are footpaths and roads kept clean and free of obstruction?
- If you were a local resident is there anything that would annoy you?
- Are measures being implemented to keep the air clean i.e. reduce dust?
- Are there areas close to the site at higher risk such as flora, fauna and water courses?

- Can noise be limited or eliminated?

8.2 Monitoring Site Impacts

As noted above construction activity has the potential to cause nuisance, or even harm, from environmental disturbance such as noise, vibration and dust. Such issues are often a cause for concern to the Local Authority, the project's neighbours and the public at large. Whilst mitigation measures can be adopted to minimise nuisance, it is also important to conduct environmental monitoring to measure site performance in relation to baseline data and to ensure noise. See notes under methodology section.

8.3 Noise

Noise will be monitored on a weekly basis and a limit of 80dB LAq 2hr. Noise will be monitored on a realtime basis. Compliance reporting will be carried out and included in the Progress Reports.

Compliance reporting will be carried out and included in the Progress Reports

All machinery will be modern and in good repair to minimise noise. Where a silenced option exists it will be used as a preference to non-silenced machinery

Acoustic mats and hoardings will be used between the site and the retained building to limit the transmission of noise.

Acoustic mats will also be used around machinery where practicable to further reduce sound levels

A system of quiet times will be utilised as is common practice during the day to allow respite from the noisier elements of works.

8.4 Vibration

Vibration monitoring will be carried out where required. Given the location of the surrounding buildings it is unlikely that large amounts of vibration will be transferred, However should monitoring be required the trigger level for this will be set at Yellow 75%-89% of the benchmark vibration level. The red trigger level will be set at 90% of this value. Should there be a red trigger event then the works will cease until measures have been put in place to prevent the benchmark level being exceeded. SMS text alerts will be set up to nominated individuals.

8.5 Dust

Dust will be measured on a continuous real time dust meter in locations agreed by the Specialist dust consultant. Should the dust levels exceed the stated limit then a red trigger will be generated. JRL will cease dusty operations on receipt of this trigger until measures are put in place to bring the dust below the Red Trigger Level.



The Thames Tower has a number of air inlets for the cooling systems. Dust Suppression equipment will be installed to prevent any migration of dust beyond the site boundary. A scaffold screen will also be erected to further reduce the dust to neighbouring properties

Minimising dust is the best way to avoid any issues arising and this can be done by simply employing a vigorous housekeeping regime that uses an absorbent sweeping compound such as Dusmo. The use of water, wet vacs, equipment fitted with direct dust suppression attachments (for e.g. cut off saw) mechanical sweepers and Hoovers may also be used as an effective way of keeping dust to a minimum.

8.6 Managing Site Impacts

Controls for day to day issues affecting the local environment will include:-

- Dust Suppression – stand pipes with shower head hoses should be available around critical areas of the project. Hose heads should be spring loaded to ensure that water cannot be left running whilst unattended.
- Maintaining road cleanliness – during early works the use of a pressure washer to be used by gatemen should be considered to clean vehicle wheels upon exit from site. A visiting road sweeping service should also be considered to help upkeep the surrounding roads.
- Cleanliness of the site perimeter – hoardings should be cleaned regularly to help maintain the site's tidy image. This should be achieved with neighbours in mind and executed within a cordoned area during off peak periods
- Provisions for inclement weather – grit bins should be available and positioned at the site gate and be filled with brown salt grit which can then be used for the purpose of snow clearance and frost preparation.
- Pest control – the provision of adequate means into which canteen and office waste can be deposited will greatly reduce the possibility of attracting vermin but will not entirely negate the need for a suitable pest control regime.
- Spill kits – spill kits for use on site in the event of a spillage should be readily available. These kits should be located at areas of the project which post the most significant risk. In this instance we recommend that they be placed at the vehicle gate plus the nominated fuel storage zone and the main vehicle unloading area.

UK and Ireland Office Locations

