

Chapter 11: Archaeology

Archaeology (Buried Heritage)	
AUTHOR	Thames Valley Archaeology Services
SUPPORTING APPENDIX	ES Volume 3, Appendix Archaeology: Annex 1: Archaeological Desk Based Assessment
KEY CONSIDERATIONS	<p>This assessment examines the potential effects of the Proposed Development upon the Buried Heritage (Archaeology) of the Site. This Chapter deals with the buried archaeological resource only and does not consider any potential impact on the above-ground Built Heritage, which is considered in ES Volume 2, Townscape, Visual Impact and Heritage Assessment.</p> <p>This ES chapter has considered the potential effects arising from demolition and construction on archaeology. Key considerations include:</p> <ul style="list-style-type: none"> • Possible archaeological deposits. • There are no known heritage assets within the Site. • The Site lies within the Lea Valley Archaeological Priority Area with potential for palaeoenvironmental evidence for past wetland and riverine environments and potential for new discoveries of well-preserved prehistoric sites. It was also an extensive area of historic industry in the medieval and post medieval periods. • The Site-specific potential for archaeological remains to be present, however, remains largely undetermined. However, the carrying out of further fieldwork to determine any potential impacts and appropriate mitigation measures (if any) can be secured in the usual way through a planning condition.
CONSULTATION	<p>An EIA Scoping Report was prepared and submitted to the London Borough of Tower Hamlets (LBTH) in August 2021 requesting a formal Scoping Opinion. LBTH's Scoping Opinion was issued on 8 September 2021. This assessment addresses the points raised in the Opinion which are of relevance to Archaeology (Built Heritage).</p> <p>As part of the EIA Scoping Process, Historic England, as adviser to LBTH, was consulted and (by email dated 25/08/2012) has indicated that the ES should be informed by submissions as follows:</p> <ul style="list-style-type: none"> • An up to date archaeological desk-based assessment ("DBA"); • A geoarchaeological model of the Site and surroundings using existing data and prepared by a recognised geoarchaeological specialist; • An assessment of the proposed development's impact using the DBA and the geoarchaeological model; • Results of any further pre-submission fieldwork, as agreed with GLAAS, following the completion of the model and impact assessment; and • A mitigation programme that includes appropriate public benefits.

ASSESSMENT METHODOLOGY

Defining the Baseline

11.1 The assessment of the archaeological baseline for the Site presented in **ES Volume 3, Appendix Archaeology – Annex 1** was carried out by the examination of pre-existing information from a number of sources recommended by the Chartered Institute for Archaeologists Standards covering desk-based studies¹. These sources include historic and modern maps, the Greater London Historic Environment Record, geological maps and any relevant publications or reports: a full list of these appears in **ES Volume 3, Appendix Archaeology – Annex 1**. This is in accordance with NPPF (2021) paragraph 194 which states:

'In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.'

11.2 The archaeological information relating to the adjacent areas (south of the Site) - Phases 1-3a and 3b of the Outline Planning Permission (2012 OPP) have also been considered to determine the Site's baseline. A

¹ ClfA, 2020, *Standard and guidance for historic environment desk-based assessment*, Chartered Institute for Archaeologists, Reading
² Radius was selected as it was deemed more appropriate due to the Site's location within London as urban areas often have a very high density of HER records in the vicinity, this radius does not omitted any relevant HER information to the Site.
³ HE, 2015a, *Managing Significance in Decision-Taking in the Historic Environment* Historic Environment Good Practice Advice in Planning: 2 Historic England, London

detailed study was made of a radius of 750m² around the Site (as set out in the EIA Scoping Report), and the archaeology of the wider general area was also taken into account as general background.

- 11.3** The Desk-Based Assessment for the Site was produced in December 2020 and revised in September 2021 in light of the evolution of the Proposed Development and changes in relevant policy.
- 11.4** A site visit was conducted on 27 November 2020 and confirmed the absence of visible archaeological monuments within the Site or its surroundings.
- 11.5** Guidance on the assessment of significance for archaeological and heritage assets is contained in two Historic England papers³, and can also be assessed against by the criteria used by the Secretary of State in relation to the Scheduled Monuments and Archaeological Areas Act 1979. These include but are not limited to: Period; Rarity; Documentation; Group Value; Survival/Condition; Fragility/Vulnerability; Diversity; Potential.

Evolution of the Baseline

- 11.6** The evolved baseline represents a scenario which assumes all of the cumulative schemes are built in the surrounding environment and that the surrounding environment, including the Site, has naturally evolved in the absence of the Proposed Development being implemented.
- 11.7** The baseline archaeological resource of the Site does not evolve (in the sense of growth) but can be eroded by development. It is not anticipated that there would be any significant erosion without the Proposed Development. Nearby development might (but should not) cause dewatering of waterlogged deposits (if present) with the Site. If significant archaeological remains are discovered and reported on nearby development sites this may add substantially to the context in which any remains within the Site can be understood, but cannot alter the nature of those remains in themselves. No other significant effects are anticipated.

Impact Assessment Methodology

- 11.8** The following guidance has been used in the preparation of this chapter and the accompanying Archaeological Desk Based Assessment (DBA):
 - English Heritage (2008), Conservation principles, policies and guidance;
 - Chartered Institute for Archaeologists (2014), Standard and guidance for commissioning work or providing consultancy advice on archaeology and historic environment;
 - Historic England (2017), Land Contamination and Archaeology;
 - Historic England (2019), Piling and Archaeology Guidelines and Good Practice document; and
 - Historic England (2020), Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits.

Demolition and Construction

- 11.9** The assessment of the demolition and construction works considers the following potential impacts and associated likely effects:
 - Site set-up works, including contractors compound set-up and associated temporary services levelling work and other preparatory groundworks including remediation for Unexploded Ordnance (UXO) and chemical contaminants;
 - Construction, including foundation excavation or pile installation, service installation, road construction;
 - Landscaping, including ground reduction or levelling and creation of attenuation tanks and ponds; and
 - Compression of buried remains from vehicle movement, construction of spoil tips, bunds or raised landscape areas.
- 11.10** As set out in **ES Volume 1, Chapter 12: Water Resources, Flood Risk and Drainage**, dewatering has not been considered, as, based on groundwater levels, it's not envisaged that this will be required as part of the Site's redevelopment.

HE, 2015b, *Statements of Heritage Significance: Analysing Significance in Heritage Assets* Historic England Advice Note 12, Historic England, London

11.11 Predicted effects of the demolition and construction works on the archaeological resource within the Site are likely to be destructive, associated with all ground disturbance below previously disturbed levels.

11.12 It should be noted that although no new fieldwork has been undertaken specifically in respect of the current proposal, archaeological investigations were conducted for Phases 1, 2 and 3 of the 2012 OPP, on land immediately south of the Site.

11.13 The assessment of impacts on archaeology have been based on the Proposed Development itself, and at the current stage of planning and design, details of foundation design or depth are not available for the Outline Proposals.

11.14 Any significant adverse effects can be offset by a programme of archaeological investigation, recording and reporting secured as mitigation.

Phasing

11.15 Potential impacts on archaeological remains are the same through each of the demolition and construction phases. Once construction is complete there are no further adverse impacts to consider, but potential positive impacts endure (discussed further below).

Completed Development

11.16 Once Completed the Proposed Development entails no further predicted adverse impacts on the archaeological resource of the Site.

11.17 Once Operational, any public benefits that might be achieved in terms of information gain and (if adopted) display would continue.

11.18 Preservation in situ (if achieved) would mean that the archaeological resource of that part of the Site remains as a heritage asset and as a constraint on future development within the Site.

Assumptions and Limitations

11.19 The sources consulted for this assessment record only previous discoveries: much of the country's archaeological resource remains undiscovered. While the GLHER is comprehensive with regard to what is already known, it cannot be regarded as 'complete' and cannot preclude or predict the discovery of further heritage assets whose existence is not currently known.

11.20 It is axiomatic of all archaeological research that absence of evidence is not equivalent to evidence of absence. That is, the lack of previously recorded archaeological information on a site is usually the result of there having been no previous detailed investigation. Particularly in the case of subsurface remains in an urban environment, the absence of indicators on the surface, or, for example, on aerial photographs, is no guide to the absence of archaeological features. Equally, apparently positive indicators can be misleading or prone to misinterpretation. Generally, the best way to determine the presence or absence of archaeological remains, and certainly to characterise it reliably, is by means of a range of techniques combined to maximise the information gain, such as (where appropriate) geophysical survey, fieldwalking and some form of intrusive intervention. In an urban setting, only the latter is feasible. Usually this will initially take the form of an evaluation of a sample of the entire Site (whether targeted as a result of information from the other sources, or randomised, or a combination), to be followed, if required, by full excavation over the part(s) of the Site where remains are shown to be present and to be under threat. In the case of the Site, given its existing occupied residential status, it is not possible to undertake these investigations prior to the decanting of the existing residents.

11.21 In summary, the absence of evidence for archaeological remains within the Site may be the result of a lack of intrusive investigation rather than a reliable indication of the absence of such remains.

Methodology for Defining Effects

Receptors and Receptor Sensitivity

11.22 Archaeological deposits and features, and the information they contain, are fragile and highly sensitive receptors and once disturbed can never be replaced. The sensitivity value (or 'heritage significance' in NPPF terms) of the archaeological resource is categorised according to the heritage significance of the asset using the criteria outlined in **paragraph 11.5** and of the Design Manual for Roads and Bridges⁴ (DMRB 2007) (as revised in LA 104 *Environmental Assessment and Monitoring*, and LA 106 *Cultural Heritage Assessment*, 2020) (**Table 11.1**).

Table 11.1 Sensitivity of Receptors

Value (sensitivity)	Typical descriptor		
	Historic Landscape	Archaeological assets	Historic buildings
Very High	World Heritage Site Historic landscapes of international value Exceptionally well-preserved historic landscapes	World Heritage Site Other Assets of recognised international importance Heritage assets that contribute to international research objectives	World Heritage Site Other buildings of recognised international importance
High	Landscapes with outstanding interest (designed or not)	Scheduled Monuments Undesignated heritage assets demonstrably of equivalent significance to a Scheduled Monument Heritage assets that contribute to national research objectives	Grade I and Grade II* Listed Buildings Conservation Areas containing very important buildings
Medium	Designated special historic landscapes	Heritage assets that contribute to regional research objectives	Grade II Listed Buildings Conservation Areas Unlisted buildings of exceptional interest
Low	Historic landscapes of local importance	Heritage assets of local interest Heritage assets whose value is compromised by poor preservation	Locally listed buildings Unlisted buildings or townscapes of limited historic interest or associations
Negligible	Landscapes with little or no historical interest	Assets with little or no archaeological interest	Buildings of little or no architectural or historic interest

Magnitude of Impact

11.23 **Magnitude of impact** is defined in relation to the significance of the heritage asset affected. Designations of **Very high, high, medium** and **low** could apply respectively to: World Heritage Sites (Very High); Designated Heritage Assets (High); Undesignated Heritage Assets of regional significance (Medium); Undesignated Heritage Assets of local significance (Low). An additional value category of 'Unknown' might be adopted when the significance of the asset has not yet been established (such as an undiscovered archaeological site). The definitions of magnitudes used in DMRB (HA208/07) are summarised in **Table 11.2**.

11.24 It is important to note that NPPF (para 199) makes it clear that, 'When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance'.

⁴ Highways Agency, 2007, *Design Manual for Roads and Bridges vol. 11 section 3 part 2 Cultural Heritage HA208/07 (revised as LA 104 Environmental Assessment and Monitoring, and LA 106 Cultural Heritage Assessment, 2020)*

Table 11.2 Defining Magnitude of Impact

Magnitude of impact	Typical change descriptor		
	Historic Landscape	Archaeological assets	Historic buildings
Major	Change to most or all key historic elements; extreme visual or noise effects; fundamental change in use or access; total change of historic character (Adverse). Major improvement in resource quality; extensive restoration or enhancement (Beneficial).	Change to most or all key archaeological materials, or major change to setting, causing loss of heritage significance (Adverse) Major improvement to resource quality, restoration, or enhancement, including improvement to setting, resulting in added heritage significance (Beneficial).	Extensive change to key historic elements leading to loss of heritage significance. Major change to setting (Adverse). Major improvement to key elements, restoration, enhancement or improvement to setting adding heritage significance (Beneficial).
Moderate	Change to many key historic elements; visual change to many elements; noticeable change to noise levels or sound quality; considerable change to use or access; moderate change to historic character (Adverse). Benefit to or enhancement of key features or attributes (Beneficial).	Change to many key archaeological materials, or change to setting, causing change of heritage significance (Adverse) Moderate improvement to resource quality, restoration, or enhancement, including improvement to setting, resulting in added heritage significance (Beneficial).	Change to many key historic elements leading to some loss of heritage significance. Change to setting (Adverse). Improvement to key elements, restoration, enhancement or improvement to setting adding heritage significance (Beneficial).
Minor	Change to few key historic elements; slight visual change to few elements; slight change to noise levels or sound quality; slight change to use or access; slight change to historic character (Adverse). Minor benefit to or enhancement of some key features or attributes (Beneficial).	Change to few archaeological materials, or slight change to setting, causing little loss of heritage significance (Adverse) Slight improvement to resource quality, including slight improvement to setting, resulting in minor added heritage significance (Beneficial).	Some change to key historic elements leading to very minor loss of heritage significance. Minor change to setting (Adverse). Minor improvement to key elements, restoration, enhancement or improvement to setting adding some heritage significance (Beneficial).
Negligible	Very minor changes to historic elements; very slight visual change; very slight change to noise levels or sound quality; very slight change to use or access; very slight change to historic character (Adverse). Very minor benefit to or enhancement of features or attributes (Beneficial).	Little or no change to archaeological resource, no or very minor loss of heritage significance (Adverse). Very minor benefit to one or more characteristics (Beneficial).	Changes that have no measurable heritage impact (Adverse or Beneficial).
No change	No changes to any historic elements; no visual change; no change to noise levels or sound quality, use or access.	No change to archaeological resource.	No change to historic fabric or setting

Defining the Effect

11.25 The National Planning Policy Framework (NPPF)⁵ (followed by the Tower Hamlets Local Plan) distinguishes between Designated Heritage Assets and non-designated assets, whilst allowing scope for a further category of 'non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments', which is generally taken to mean those that are not yet known about.

11.26 A 'heritage asset' is defined (NPPF 2021, 67) as:

'A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).'

⁵ NPPF, 2021, National Planning Policy Framework (revised), Ministry of Housing, Communities and Local Government, London

11.27 'Designated heritage asset' includes (NPPF 2021, 66) any:

'World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.'

11.28 Adverse effects are those which **cause a loss of heritage significance**. In determining the potential heritage impact of development proposals, 'significance' of an asset is defined (NPPF 2021, 71–2) as:

'The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting. For World Heritage Sites, the cultural value described within each site's Statement of Outstanding Universal Value forms part of its significance.'

11.29 Whilst 'setting' is defined (NPPF 2021, 71) as:

'The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.'

11.30 Beneficial effects are those which add to the asset's heritage significance. This might be achieved by, for example, revealing more of it than was previously known, bringing it to wider public attention, restoring it to use from a derelict state, or by improving the setting with which it is experienced. It is not normally possible to enhance the intrinsic significance of any archaeological site or deposit, but its interest (information value) can be enhanced.

11.31 Neutral effects arise when there is no change to the heritage significance of any asset or its setting; usually this will only be the case when no such assets are present; or when adverse effects are precisely balanced by beneficial effects.

11.32 The **scale** of any such effect can be classed as **Negligible, Minor, Moderate** or **Major**, primarily in terms of the significance of the asset to be affected (as set out in **Table 11.2**) but also taking into account the extent of the change.

11.33 Potential effects of the Proposed Development can only be assessed in very broad terms without knowledge of the actual survival of any archaeological resource of the Site (if any) but will in general be adverse. The examination of historic, archaeological and cartographic sources indicates that there is potential for subsurface archaeological and historical resource to be present in the area, and that such deposits may include those with high palaeoenvironmental potential. The impact on such deposits, if present, has two components:

11.34 The impact is wholly or partially destructive for the areas of foundations and services, depending upon design;

11.35 Deposits in undeveloped areas may be subject to inadvertent or indirect damage from topsoil stripping, passing traffic, restoration, or the loss of legibility (the latter meaning the ability to interpret what is found).

11.36 Ground disturbing activities which are usually considered as directly affecting deeply buried archaeological deposits include (in decreasing order of destructiveness): excavations for basements and removal of existing basements (the latter is not applicable to the Site); terracing of sloping land; excavation of spoil for remediation works; pile probing; excavations for lift pits and crane bases; piling; driven piles which may introduce air to previously anaerobic deposits with organic preservation; ground consolidation; excavations for pile cap positions; trenches for strip foundations; ground beams and services; topsoil stripping for road formation and car parking; tree planting and landscaping.

11.37 The Impacts from any of these activities are long-term and adverse, unless balanced by mitigation.

Effect Scale

11.38 The scale of the potential effect is determined by comparing the significance value (sensitivity) of the baseline heritage asset with the magnitude of impact arising from the Proposed Development, without mitigation. The potential effects can be adverse or beneficial. The matrix for assessing this scale of effect is presented in **Table 11.3**:

Table 11.3 Effect Matrix

Value (sensitivity) of receptor	Magnitude of change				
	Major	Moderate	Minor	Negligible	No change
Very High	Major	Major	Moderate or Major	Minor	Negligible
High	Major	Moderate or Major	Minor or Moderate	Minor	Negligible
Medium	Moderate or Major	Moderate	Minor	Negligible or Minor	Negligible
Low	Minor or Moderate	Minor	Negligible or Minor	Negligible	Negligible
Negligible	Negligible or Minor	Negligible or Minor	Negligible	Negligible	Negligible

- 11.39 'Local' effects are those affecting the Site and immediately neighbouring receptors only, while effects upon receptors within LBTH boundary beyond the vicinity of the Site and its neighbours are at a 'district' level. Effects affecting London are at a 'regional' level, whilst those which affect different parts of the country, or England, are considered being at a 'national' level. International effects would only usually be assessed in relation to a World Heritage Site.
- 11.40 'Duration' of effects that last for the duration of the demolition and construction works are classed as 'temporary', which can be short-term in the case of short durations of the works or medium term when the works are expected to last several years (as here); but in the case of archaeological remains there can be no temporary effects. Effects that result from the completed and operational phases of the Proposed Development are classed as 'permanent' or 'long-term' effects. All effects on archaeological remains are expected to be long-term.
- 11.41 All anticipated effects of the Proposed Development on archaeological remains would be direct (i.e. resulting without any intervening factors).

Categorising Likely Significant Effects

- 11.42 Effects that are identified as being moderate or major (whether adverse or beneficial) are classified as significant effects. The NPPF distinguishes between three levels of adverse effect on a heritage asset's heritage significance: 'total loss'; 'substantial harm'; or 'less than substantial harm'. In the case of designated heritage assets, all three are considered significant; in the case of undesignated (or as yet unknown) heritage assets, 'a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset' (NPPF 2021 para 203). Beneficial effects are only generally classified in line with the significance of the asset.

BASELINE CONDITIONS

- 11.43 A detailed description of the baseline conditions is presented in the Desk Based Assessment (DBA) (ES Volume 3, Appendix Archaeology – Annex 1 and summarised here.
- 11.44 Greater London Historic Environment Record (GLHER) entries within close proximity of the Site are summarised in Table 11.4 and their locations are shown in Figure 11.1. None of the entries lie within the Site although locations 1, 41, 48 and 54 are within the wider previously consented development. Of those, only location 1 refers to archaeological remains, the others denote investigations which revealed no archaeological finds or sites. None of these entries can be classed as a potential receptor in relation to the Proposed Development, but they might suggest the broad range of the sort of receptors that could potentially be present.
- 11.45 The Site lies within the Lea Valley Tier 3 Archaeological Priority Area, which has potential for prehistoric sites, while in later periods the area saw the establishment of numerous industries which required water for power or used the river as a method of transport. The wetland environment may also have high potential for palaeoenvironmental reconstruction and organic survival, though deeply buried.
- 11.46 Archaeological investigations within what was then called the Aberfeldy Estate, to the south and south-east of the Site (Phases 1-3 of the 2012 OPP) revealed nothing of archaeological interest in the Phase 1 and 2 areas but did reveal some evidence for prehistoric occupation (Table 11.4: 1; Figure 11.1: 1) and data that can contribute to reconstructing the prehistoric environment within the Phase 3 area (between East India Dock Road and Blair Street) (Table 11.4 and Figure 11.1: 41, 48, 54). This took the form of a single pit with some very degraded prehistoric pottery, sealed below what appeared to be a peat horizon, in turn below alluvial deposits. Parts of the Site may have lain within a former river channel. More significant prehistoric evidence in the form of an early Neolithic burial, came from 600m to the south at Yabsley Street.

- 11.47 There is no record of any Iron Age or Saxon activity nearby and Roman evidence is very scant. Medieval occupation is well attested from documentary sources, but there has been little from this period recorded archaeologically.
- 11.48 Archaeological investigations in the general area routinely reveal evidence from the post-medieval period, in this instance often relating to the control of water channels and drainage, but also for locally important industrial enterprises, including ship-building.
- 11.49 Cartographic evidence shows details of the multiple phases of development and redevelopment within the Site from the late 19th century onwards. The cartographic review suggests that the area in general will have been substantially built up to raise it above the floodplain of the river. Geoarchaeological assessment and previous archaeological investigation have shown that this involved up to 2m of made ground, above deep alluvium, and indeed the Site may have emerged out of the river channel itself after deposition of a series of alluvial and peat layers.
- 11.50 Thus although no archaeological features are known within the Site itself, there is prehistoric evidence from earlier phases of the 2012 OPP and so the Site is considered to hold potential specifically for the prehistoric period (both for human settlement and for palaeo-environmental reconstruction) and perhaps for post-medieval industry. The size of the area also increases the probability of archaeological remains being present simply by chance.

Figure 11.1 GLHER Entries Within Close Proximity of The Site

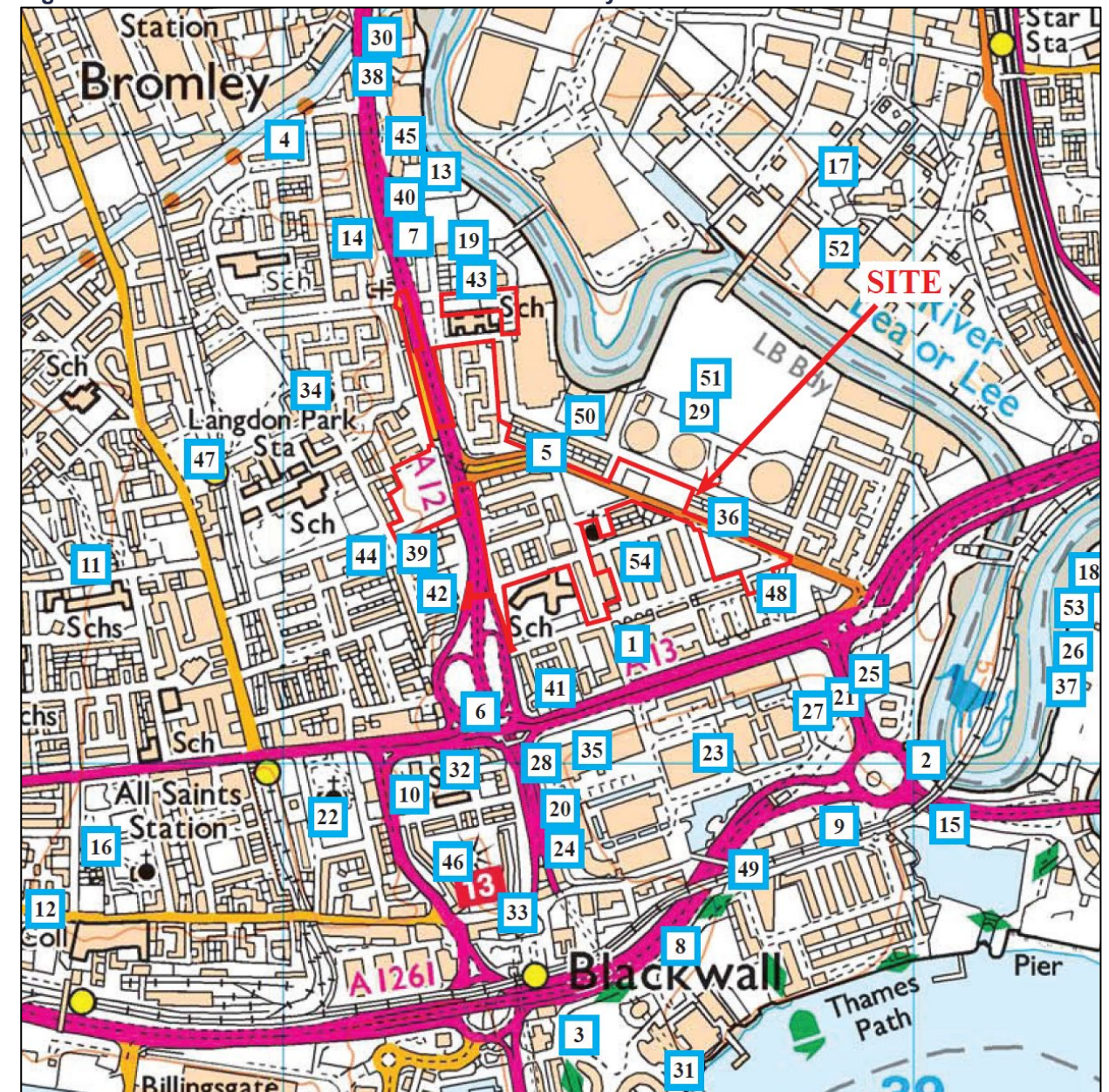


Table 11.4 Summary of GLHER Entries Around the Site.

No	HER Ref	Grid Ref (TQ)	Period	Comment
1	ELO18795	3855 8119	Prehistoric	In 2017 four trenches were excavated in the Aberfeldy Estate, revealing one pit containing flint and pottery.
2	MLO2541 MLO25630 FLO6267	39 81	Bronze Age	A Late Bronze Age sword of Wilburton type was found at Bow Creek. Unstratified artefact near Leamouth Road consisting of a Bronze Age socketed axehead made of copper alloy.
3	DLO37840	3849 8057	Neolithic Bronze Age Medieval Post-medieval Modern	Yabsley Street, Early Neolithic burial (radiocarbon dated to 4220-3979BC). Peat deposits showing evidence for arable farming during the Neolithic suggesting a settlement may have existed nearby. Sea levels rising caused intertidal activity in the form of timber trackways (Neolithic/Bronze Age). Archaeological Priority Area: Blackwall is named in the 14 th century along with tidal mills until the 16 th century. Important for ship building and the area preserves remains of Blackwall's significant industrial and commercial power from the middle ages until the 19th century.
4	DLO37857	3792 8280	Prehistoric Medieval Post-medieval Modern	Archaeological Priority Area: Lea Valley. The area has been extensively excavated showing deeply buried islands, gravel terraces, channels and wetlands exploited since early prehistory.
5	ELO2630 MLO744	3841 8148	Prehistoric Post-medieval	An evaluation in 2000 discovered a sequence of alluvial deposits associated with the River Lea floodplain and a palaeochannel. Peat deposits containing burnt flint and sealing a few cut features were possibly mid-late Bronze Age. Two post-medieval channels or ditches presumably for drainage. A gully and a shallow feature were cut into a possible buried land surface with burnt flint.
6	ELO3739 MLO6392 FLO15513 FLO15514	3833 8107 3830 8120	Prehistoric Post-medieval	Excavations in 1993 around Abbey Mills. At Culloden Street unstratified finds of fire cracked flint and a single pot sherd. At 13 St Leonards Road, three shafts were dug and a 19th century cellar was identified. At No. 12 Culloden Street, prehistoric potsherds and flint were found.
7	ELO10470 MLO101087 FLO15603	38190 81852	Roman	Excavation on Gillender Street found a 1 st century Roman ditch cutting alluvium, this included 18 sherds of Grey Ware pottery.
8	MLO3851 FLO1102	386 807	Roman	A Roman miniature oenochoe (wine vessel) was found.
9	MLO3893	389 809	Roman	Roman watchtower, one of a series.
10	ELO8767 MLO100465 MLO100466 FLO13235 MLO3931	38189 80961 381 809 382 810	Medieval Post-medieval Victorian	In 2008 geotechnical pits were dug at St Matthias Centre, showing the foundation walls and basement of a potential house also walls where it is believed a Chapel was located along with a medieval pit below the foundations. Finds included Post-medieval pottery. The village of Poplar was so named by at least 1327 and expanded with the shipping industry.
11	MLO9170	377 813	Medieval Post-medieval	Road from Poplar High Street to Bromley.
12	MLO1125	3719 8082	Medieval Post-medieval	Limehouse Causeway, Narrow Street to Poplar High Street road.
13	DLO28414 ELO20319 ELO20318 ELO20232 ELO7890 MLO93430 ELO7890 MLO93430 MLO3738	3817 8190 38173 81908 3816 8192	Medieval Post-medieval Victorian Modern	Timbers associated with Bromley Hall have been dated from 1482-95 to the late 17th or early 18th century. Bromley Hall is Grade II* listed including the walls, house and tower house. A building survey concluded the existence of a medieval gatehouse (c. 1482-95), evidence and details about the previous towered house (3 stories) and its remodelling after 1700. Use after this period is documented up until damage in WW2 and reconstruction in 1951. A post-medieval gate lodge on Brunswick Road
14	MLO9164	3815 8185	Medieval	St Leonard Street from Bromley to Blackwall along the west side of Lea.

No	HER Ref	Grid Ref (TQ)	Period	Comment
			Post-medieval	
15	DLO37841	3906 8091	Medieval Post-medieval Modern	Archaeological Priority Area. The Limmo occupies the west bank of the mouth of the River Lea and its confluence with the Thames which has great potential for the area's historic industry.
16	DLO37839	3771 8085	Medieval Post-medieval Modern	Archaeological Priority Area. The historic settlement of Poplar with Medieval origins, includes buildings, burial grounds, settlements and flood defences associated with the seafaring industry. Survival of ironworks is fair.
17	ELO19643	3891 8196	Post-medieval Modern	Fieldwork in 2006 on the Olympic and Paralympic Park Undergrounding Shafts East-1 and West-1. In the west alluvial clays and a peat band was observed underlying dark modern debris layers. East showed alluvial gravels underlying modern demolition and levelling.
18	ELO18549	3930 8131	Post-medieval	Thames Plate Glass Company excavation in 2007. found the full extent of the casting hall and adjacent kilns including details of construction and surviving foundations and walls.
19	MLO3029	3830 8180	Post-medieval	A post-medieval fishpond underlying later gas tanks.
20	DLO28095 MLO93111 DLO28425 MLO93441	38421 80914 38616 80811 3880 26/877	Post-medieval Victorian	Early 19th century dock and boundary wall to the East India Docks including a gateway
21	DLO28468 MLO93484	38899 81122	Post-medieval Victorian	East India Dock Pumping Station mid 19th century
22	MLO104373 MLO93108 MLO104374 MLO93502 DLO28423 MLO93439	3807 8093 38076 80937	Post-medieval Victorian	All Saints' Church on East India Dock Road with 19th century railings, gate piers and churchyard, cemetery, Garden of Rest and Park along with the Newby Place All Saints' Rectory.
23	MLO7284	3870 8100	Post-medieval Victorian	Landfill site from the Eastern Dock.
24	DLO27730 MLO92759	38431 80854 3880 26/888	Post-medieval Victorian	Embankment wall, railings and steps on Naval Row associated with the East India Docks.
25	DLO28347 MLO93363	38908 81144	Post-medieval Victorian	Gate pier and wall called Blackwall Goods Yard II, was an original entrance to the East India Company's Cos Pepper group of Warehouses.
26	ELO18131	3926 8115	Post-medieval Victorian	The Thames Plate Glass Company 12 evaluation trenches dug in 2007, with further stripping of 5 trenches where remains were found.
27	ELO19609	3885 8110	Post-medieval Victorian	East India Dock: evaluation in 2006 discovered the dock wall and areas of built up ground. Modern concrete yard and with modern dumps.
28	DLO28093 MLO93109	38399 81000 3881 19/685	Post-medieval Victorian Modern	A plaque on the modern dock wall
29	ELO20230	3870 8157	Post-medieval Modern	Gasholder Station on Leven Road surveyed in 2015 in advance of demolition.
30	ELO19817	3818 8213	Post-medieval Victorian Modern	Fieldwork in 2019 on Barratt Industrial Estate with five trenches and four test pits finding masonry and brick structures
31	DLO33367 MLO7485	3871 8010	Victorian Modern	The Blackwall Tunnel built between 1892 and 1897. This included a north and south gatehouse, one of which survives today (south). A second tunnel was built in 1937.
32	ELO2693 MLO7151 084132/00/0 0	3828 8100	Victorian	In 1997 trenches on the north side of Ashton Street found two 19th century walls.

No	HER Ref	Grid Ref (TQ)	Period	Comment
33	DLO27667 MLO92696	38394 80782	Victorian	Blackwall Tunnel northern portal and parapet.
34	DLO27644 MLO92673 DLO28499 MLO93515	38066 81583 3881 19/701 38079 81534 3881 19/700	Victorian Modern	St Michael's Church, includes south tower and a short spire. A war memorial also listed.
35	DLO38147 MLO107687	3850 8102	Victorian Modern	East India Dock House former Financial Times Print Works Grade II* Listed.
36	ELO3868 MLO749	3872 8138	Victorian Modern	In 2000 a channel was recorded cutting natural gravel and sandy layers were succeeded by peaty deposits. Above these were 19th century dumped deposits.
37	ELO4234 MLO67565 ELO7575 MLO98915	3925 8105 39312 81089	Victorian Modern	Watching Brief at Orchard Place where alluvial deposits were overlain by backyards and walls dating to the Victorian period and later. Building recording on Orchard Place, before demolition of warehouses.
38	DLO27646 MLO92675	38165 82087	Victorian Modern	Early/Mid 19th century brick warehouse at Dowgate Wharf, P.B. Burgoyne and Company Limited Warehouse
39	DLO28234 MLO93250	38228 81343	Modern	Concrete framed building called Carradale House.
40	DLO28070 MLO93086 ELO1031 ELO1034 MLO75402	38192 81869 3881 19/683 38212 81872	Modern	Poplar Public Library and two Second World War civil defence structures at the rear of Poplar Library. Two excavations in 2001 to expose features and access the interiors.
41	ELO10939 MLO741 FLO19744	3847 8112	Modern	Only remains found were 19 th /20 th century made ground/dumps and a sequence of alluvial layers including peat.
42	MLO93337	38266 81277	Modern	Balfron Tower on St Leonard's Road is a concrete framed Grade II* listed building (flats).
43	MLO102830	38309 81697	Modern	Former Bromley Hall School for the Physically Handicapped.
44	DLO37943 MLO107594	3813 8133	Modern	Concrete framed building on Burcham Street, Glenkerry House on Brownfield Estate, Grade II*.
45	DLO35262 MLO93430	38186 81966	Modern	Former Fire Station on Gillender Street.
46	MLO107824	3827 8083	Modern	Tower block on Woolmore Street/Robin Hood Lane/Poplar High Street/Cotton Street, c. 1970s.
47	ELO7559	37888 81475	Undated	Undertaken at Langdon Park DLR Station for new platform construction, no archaeology found.
48	ELO13384	38816 81271	Undated	Aberfeldy Estate 3 trenches excavated in 2012, with no archaeological remains but deep alluvial deposits.
49	ELO10385	3876 8084	Undated	In 2009 a geoarchaeological investigated was undertaken at the DLR East India Station totalling 2 boreholes. Only truncation noted.
50	ELO17461	38503 81554	Undated	In 2015 a geoarchaeological survey was carried out made up of 18 boreholes showing inorganic alluvial deposits with 2 boreholes capturing peat.
51	ELO19826	3870 8157	Undated	Around Leven Road 40 boreholes were put down in 2019. These were used to produce an up-to-date detailed geoarchaeological deposit model. Pleistocene deposits were discovered with overlying Holocene deposits, the later consisted of alluvial deposits with infrequent peats, the alluvial deposits were truncated in certain areas by made ground.

No	HER Ref	Grid Ref (TQ)	Period	Comment
52	ELO2760	3890 8181	Undated	A total of 26 test pits with no archaeology found. The area was contaminated and highly truncated.
53	ELO10128	394 813	Undated	Canning Town Station evaluation in 1991. Included well preserved organic deposits and well stratified alluvium deposits.
54	ELO2642 MLO6432	3857 8130	Undated	Watching brief at Ada Gardens in 1993 found alluvial deposits with peat layers.

RECEPTORS AND RECEPTOR SENSITIVITY

Existing

- 11.51** The Site is not within a World Heritage Site nor the Buffer Zone for one. There are no Scheduled Ancient Monuments, Historic Parks or Gardens, Historic Battlefields or Historic Hedgerows or Listed Buildings on the Site or in the immediate vicinity. The Site is not within a Conservation Area, with the nearest being the Balfron Tower Conservation Area, located approximately 15m west of the Site (on the opposite side of the A12). Consideration of the potential for effects of the Proposed Development on Designated Built Heritage Assets is provided within ES Volume 3. There are no known archaeological receptors of Very High or High Sensitivity to consider, however the Site lies within the Lea Valley Archaeological Priority Area (Tier 3 APA 3.2), in accordance with Historic England's guidance on Greater London Archaeological Priority Areas⁶ this suggests a development of this size is at High risk of affecting archaeological remains.
- 11.52** There are no known heritage assets within the Site but the archaeological investigations undertaken in the Phase 3 area of the 2012 OPP larger Site (including previously consented areas designated Phases 1, 2 and 3) did contain possible prehistoric features (ill-defined) and deposits with potential for palaeo-environmental investigation. These would be considered receptors of Low Sensitivity but any similar deposits might potentially rise to Medium Sensitivity if found to be more extensive.
- 11.53** The potential for the Site to hold hitherto unrecognised heritage assets (buried archaeological remains), is currently unknown. The Site's location within an Archaeological Priority Area and the close proximity of prehistoric features suggest that in general terms this potential should be regarded as high and the large area of the Site would also lead to an assessment of a high potential overall. Any such remains that did exist could be expected to range from Low to High sensitivity. It would be very unexpected if there were any receptors of Very High sensitivity, though this possibility cannot be entirely excluded.
- 11.54** Archaeological remains (primarily of only local significance) are recorded in the immediate environs and within the surrounding area (see **ES Volume 2, Townscape, Visual Impact and Heritage Assessment: Part 2 – Buried Heritage Assessment**) but these are not liable to be affected by the Proposed Development. Broadly speaking, known archaeological remains in the immediate vicinity of the Site are of Low significance but it cannot be assumed that this must necessarily apply within the Site as well, especially given its large extent, and at least one nearby site (early Neolithic burial at Yabsley Street) was of regional importance (Medium sensitivity).
- 11.55** Although no archaeological remains have been found in the previous evaluation trenching to the south of the Site it cannot be confirmed there is low potential for below ground archaeology across the Site. The required piling is likely to cause the most impact on any archaeology below ground and as previously mentioned, this is a large site which is within a Tier 3 Archaeological Priority Area which means the Proposed Development presents High risk of affecting archaeological remains. This is due to the size of the Site, its location on River Terrace gravels between the River Thames and River Lea and the Very High to High Sensitivity level of potential archaeological receptors.
- Introduced**
- 11.56** No new receptors (archaeological deposits or remains) can be introduced to the Site as part of the Proposed Development, although pre-construction fieldwork might reveal the presence of hitherto undetected remains.

⁶ historicengland.org.uk/services-skills/our-planning-services/greater-london-archaeology-advisory-service/greater-london-archaeological-priority-areas/

POTENTIAL EFFECTS

Demolition and Construction

- 11.57 The potential ground disturbing activities of the demolition and construction works which are usually considered as possibly directly affecting deeply buried archaeological deposits include (in decreasing order of destructiveness): excavations for basements; terracing of sloping land; excavation of spoil for remediation works; pile probing; excavations for lift pits and crane bases; piling; driven piles which may introduce air to previously anaerobic deposits with organic preservation; ground consolidation; excavations for pile cap positions; trenches for strip foundations; ground beams and services; topsoil stripping for road formation and car parking; tree planting and landscaping.
- 11.58 There are no potential effects on any known archaeological heritage assets, as there are none recorded within the Site. All potential effects apply only to previously unrecorded archaeological remains, which may or may not be present. All of the above would carry adverse effects on any archaeological deposits encountered. When consulting Table 11.2 and Table 11.3 the above works have the potential to result in a minor to major impact to the potential archaeological assets.
- 11.59 The Proposed Development comprises one basement below Building Plot B3 within the Outline Proposals. Albeit limited, this basement construction would inevitably mean total destruction to the basement level.
- 11.60 As set out in ES Volume 1, Chapter 5: Demolition and Construction, new piled foundations will be required to support the construction of the new buildings. At this stage, the design of the piles is subject to further site investigations, but for Phase A (the Detailed Proposals) it is currently expected that piles will be Continuous Flight Auger (CFA), 600mm diameter and up to 20m deep. Piling for Phases B to D (the Outline Proposals) remain subject to future design development. Specific guidance on the archaeological effects of piling is provided by Historic England⁷.
- 11.61 The level at which any archaeological remains would be preserved is above the Kempton Park natural gravels (see details below), the suggested piling depths go far below this level therefore all piling has the potential to affect any below ground archaeology. On that basis along with no dewatering activities occurring along with only one addition of a basement, the potential impact on any archaeological remains below ground is minor to major, if archaeological deposits are present. The site does lie in the Lea Valley Archaeological Priority Area (Tier 3 APA 3.2) which does have evidence of prehistoric human activity nearby, this suggests these Terrace gravels have a High potential of producing prehistoric remains. Any prehistoric remains in these deeper deposits that may exist could also be impacted at a minor to moderate level.
- 11.62 A detailed geoarchaeological assessment and deposit model is being prepared and an updated Desk-Based Assessment can be provided. There has been a small number of boreholes and trial pits excavated within the redline area of the Site and a high concentration of boreholes, trial pits, window samples and three archaeological investigations completed just south of the redline area. In summary the results show that the Kempton Park gravel is reached consistently at an average of 2.5-3.5m depth. This can vary, in some areas the gravels are not reached until 5.5m. Above the gravel there is either a thick layer of alluvium which in areas includes some peat deposits and then most often made ground which ranged from 0.5m to 2m in depth, sometimes fully removing the alluvial unit before the gravels. To the south of the Site basements were demolished which have fully truncated the gravels and completely removed the alluvial unit between. It is not advisable to extrapolate too widely beyond this necessarily localised information, and it would be prudent to establish the depth of made ground over a larger portion the Site as a whole.
- 11.63 Taking a worse-case approach and assuming that the archaeologically relevant level did survive higher than the formation depth of the Proposed Development, and archaeological remains were in fact present, the effects would be major adverse effect in the case of 'non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments' (i.e. national or international importance) and decreasing in magnitude as the significance of the archaeological remains diminishes, so the impact on that remains of purely local interest would be Minor Adverse. If no remains are found, then the impact is Negligible.

Phasing

- 11.64 The adverse impacts considered in this assessment all arise during demolition and construction phases. Appropriate mitigation measures adopted for these phases will remove any potential impacts in the completed

development phase. Any beneficial effects arising would endure long after the completion of the Proposed Development.

Table 11.5 Summary of Effects

Topic Area	Description of impact	Impact	Nature	Scale
Designated archaeological assets	Damage or destruction or change to setting	None	None	None
Undesignated archaeological assets	Damage or destruction of archaeological deposits	None	None	None
Potential archaeological remains not yet discovered	Damage or destruction of archaeological deposits	Not yet established	Lt	Negligible to major adverse
Potential archaeological remains not yet discovered	Damage or change to setting	Not yet established	Lt	Negligible to major adverse

Key:
 St - Short term
 Lt - Long term

MITIGATION, MONITORING AND RESIDUAL EFFECTS

Demolition and Construction Mitigation

- 11.65 All potential demolition and construction effects in terms of their scale and nature will remain as discussed above under 'Potential Effects', with the exception of the following effects which have been identified to require mitigation:
 - **Adverse** effect from demolition and construction on hitherto undiscovered archaeological remains: scale of effect dependent on extent and significance of remains; this can be predicted as likely to be **Minor to Moderate** but is not yet established and could (in a worst case scenario) be **Major** or (in the opposite case) **Negligible**.
- 11.66 The precise nature of mitigation measures cannot be proposed without an understanding of the actual (as opposed to potential) archaeological resource on the Site, if any. A methodology for evaluation to achieve this understanding would be agreed in advance with Historic England's Greater London Archaeological Advisory Service (GLAAS), advising the Borough. Any fieldwork required would be carried out according to a written Scheme of Investigation, approved by GLAAS and compliant with the relevant 'Standards and Guidance' issued by the Chartered Institute for Archaeologists. Such fieldwork should also be monitored by GLAAS.
- 11.67 Any such mitigation measures required after the provision of further information could be secured through an appropriately worded planning condition. Measures to be adopted would be agreed in advance with Historic England's Greater London Archaeological Advisory Service (GLAAS), advising the Borough. Any fieldwork required would be carried out according to a written Scheme of Investigation, approved by GLAAS and compliant with the relevant 'Standards and Guidance' issued by the Chartered Institute for Archaeologists. Such fieldwork should also be monitored by GLAAS. It would involve recording of the threatened archaeological resource to the highest professional standards and creation of a publicly accessible archive, and appropriate dissemination of significant results.
- 11.68 After any such mitigation, it is considered that the mitigation itself provides a public benefit (in terms of archaeological information gain, which will be available in publicly accessible archives, and where appropriate public engagement) proportionate to the adverse effects of the loss of significance and thus realises a net neutral long-term residual effect.

Residual Effects

- 11.69 All of the residual effects resulting from the Proposed Development, are presented in Table 11.6, identifying whether the effect is significant or not.

⁷ HE, 2019, Piling and Archaeology: Guidance and Good Practice, Historic England, London

Table 11.6 Residual Effects

Receptor	Description of the Residual Effect	Scale and Nature	Significant / Not Significant	Geo	D I	P T	St Mt Lt
Demolition and Construction							
As yet undetected archaeological assets	Damage or destruction of archaeological deposits	TBD	Not significant	TBD	D	P	Lt
<p>Notes:</p> <p>Residual Effect</p> <ul style="list-style-type: none"> - Scale = Negligible / Minor / Moderate / Major - Nature = Beneficial or Adverse <p>Geo (Geographic Extent) = Local (L), Borough (B), Regional (R), National (N)</p> <p>D = Direct / I = Indirect</p> <p>P = Permanent / T = Temporary</p> <p>St = Short Term / Mt = Medium Term / Lt = Long Term</p> <p>N/A = not applicable / not assessed</p> <p>TBD = To be determined</p>							

ASSESSMENT OF THE FUTURE ENVIRONMENT

Evolution of the Baseline Scenario

11.70 If the Proposed Development were not to be implemented, and assuming that all Cumulative Schemes that are built in the surrounding environment are in turn subject to archaeological mitigation measures appropriate to them, and that the surrounding environment, including the Site, has naturally evolved, no measurable change in the archaeological resource of the Site itself is likely.

Cumulative Effects Assessment

11.71 There are no anticipated direct or indirect adverse effects from the Proposed Development on the archaeological resource of any of the cumulative schemes identified in **ES Volume 1, Chapter 2: EIA Methodology**, nor should any of these schemes have any direct effect on the archaeological resource within the current Site, nor on the wider area, assuming appropriate mitigation is adopted for them. If significant archaeological remains are recorded during any of those schemes, this may have a moderate indirect beneficial effect on any archaeological resource that might be found within this Site, in the sense of allowing it to be interpreted and understood within a better overall context. However, it would have no effect on the archaeological resource itself. This applies during all phases and to all parts of the Proposed Development.

LIKELY SIGNIFICANT EFFECTS

11.72 Once any appropriate mitigation measures are adopted, there are no predicted significant effects from the Proposed Development within the Site.

MITIGATION AND MONITORING

Paragraph Reference	Mitigation and Monitoring Measure
11.58	Fieldwork to provide information on the presence/absence, extent, condition, character, quality and date of any archaeological deposits within the Site. To be carried out in accordance with the relevant Standards and Guidance issued by the Chartered Institute for Archaeologists and to a written scheme of investigation agreed in advance by the archaeological adviser to the local planning authority (Historic England's Greater London Archaeological Advisory Service); and to be monitored by GLAAS.
11.59	On the basis of the above, further fieldwork may be required to excavate and record any archaeological deposits within the Site, to create a publicly accessible archive, and to publish any significant results. To be carried out in accordance with the relevant Standards and Guidance issued by the Chartered Institute for Archaeologists and to a written scheme of investigation agreed in advance by GLAAS; and to be monitored by GLAAS.