



Phase 3 Archaeological Watching Brief at Stockley Airport Junction / Northern Viaduct Report

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Plate 7: Point operating mechanics on land adjacent to Leemark

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SUMMARY

In February 2013, Oxford Archaeology (OA) carried out an archaeological watching brief at the Stockley Airport Junction section of the Crossrail scheme, situated on land to the north of the railway line encompassing HG Timbers and All Point Packaging. The work, which comprised a general watching brief during excavations for the pile caps of the Northern Viaduct, follows two previous phases of monitoring of the Stockley Airport Junction works.

No archaeological remains, with the exception of an old railway line, were observed during the work. The natural geology, underlying modern concrete and made ground, consisted of Langley Silts (brickearth) and underlying River Terrace Gravel was observed in the trenches excavated in the pile cap locations and elsewhere.

1. INTRODUCTION

1.1 Location and Scope of work

- 1.1.1 In February 2013, Oxford Archaeology (OA) conducted a general watching brief at the Stockley Airport Junction section of Crossrail scheme, centred on National Grid Reference TQ 0770 7950 (Fig. 1). The area of the watching brief was situated to the north of the railway and to the south of Rigby Lane, West Drayton, London encompassing HG Timber and All Point Packaging (Fig. 2). The work comprised breaking and removal of concrete and the excavation of two crossed trenches in six of the pile caps locations for the Northern Viaduct. Two trial trenches for locating services were also excavated.
- 1.1.2 The watching brief comprised the inspection of railway tracks exposed during the concrete breaking and the archaeological inspection of all excavated trenches.
- 1.1.3 A historic railway track outside the current working area on track side land adjacent to the Leemark Engineering building was also inspected (Fig.2).
- 1.1.4 The watching brief was carried out in accordance with a Site Specific Written Scheme of Investigation (SSWSI) designed by Crossrail for the GRIP 5 Main works of the Stockley Airport Junction section (Crossrail, 2012).

1.2 Project Background

- 1.2.1 The background to the Crossrail project has been described in detail in the SSWSI and is briefly summarised below.
- 1.2.2 Crossrail is a major new cross-London rail link designed to serve London and the Southeast and includes the construction of a twin bore tunnel on an east-west alignment under central London and upgrading of some existing rail facilities. The route is divided into four sections: central, western, north-eastern and south-eastern, all containing additional sub-sites. Stockley Airport Junction is within the western section.

- 1.2.3 The construction of the Stockley Airport Junction will provide a grade separated junction to facilitate Crossrail and Heathrow Express services without causing disruption to the existing Main Line services. The work includes a new embankment, flyover, viaduct and ramps. The foundations for the new viaduct, ramp and flyover structures may impact upon cultural heritage assets and the mitigation for this work is archaeological watching brief, as specified in SSWSI.

1.3 Topography and geology

- 1.3.1 The site lies to the north of the railway within an old industrial estate and is accessed via Rigby Lane.
- 1.3.2 The site encompasses c4000 m², consisting of a large area of land of former industrial character. All former buildings have been demolished with the exception of an open hall at the eastern end of the site. The surface of the entire site is covered by concrete (Fig. 2).
- 1.3.3 The ground level across the site is almost completely uniform, with the greatest part concrete surface falling between 32.2 and 32.4m above Ordnance Datum (OD). In some smaller areas, mostly within the footprints of demolished buildings, the ground level is slightly raised up to around 32.7m.
- 1.3.4 The superficial geology of the area is Lynch Hill Thames Gravels overlain by the Langley Silt Complex (brickearth). Both were extensively quarried in the wider area (Crossrail, 2012). The underlying solid geology is London Clay.

1.4 Archaeological background

- 1.4.1 The archaeological background of the site has been described in detail in the SSWSI and is briefly summarised below (Crossrail, 2012).
- 1.4.2 There is evidence for Palaeolithic activity in the surrounding area, mainly discovered during quarrying of the Lynch Hill gravels. No Bronze Age, Iron Age or Roman activity has been identified in the immediate area. However large agricultural field systems have been identified on the Taplow terraces to the south of the Crossrail route and settlement activity has been identified c1km to the north at Stockley Park.
- 1.4.3 Saxon settlements have been investigated to the south of the site around Sipson and Harmondsworth. The layout of lanes, villages and Hamlets seems to have been in place by the late Saxon period. However, no archaeological evidence from this period has been identified in the immediate vicinity of Stockley Airport Junction.
- 1.4.4 The locations of the deserted medieval hamlet of Dawley and of Dawley Manor House although now lost, are assumed to lie to the east of the site.
- 1.4.5 During the post-medieval period the landscape around Stockley Airport Junction remained predominantly rural. In the late 18th century the Grand Union Canal was constructed, with its associated bridges, followed by the Great Western Railway in the mid 19th century.

- 1.4.6 Brick manufacture developed in the area during the 19th century. A spur from the Grand Union Canal called Broad's Dock, used to transport clay, has survived within the site boundary. Both clay and gravel extraction continued into the 20th century; A number of the associated pits have been used as landfill sites and have been further redeveloped in the 20th/ 21st century as golf courses, fishing lakes and a business park.
- 1.4.7 The area around the site was subject to development from the early 20th century, comprising suburban expansion, industrial buildings and workers housing.

1.5 Previous investigations

- 1.5.1 Two previous phases of monitoring have been undertaken within the site (OA March and July 2012), neither of which produced significant archaeological results. Geotechnical investigations across the site recorded varied levels of made ground from 0.50 - 1.80m deep overlying a 0.20 - 0.60m thick layer of clay overlying gravel.

2. RESEARCH AIMS AND OBJECTIVES

- 2.1.1 The objectives of the investigation were to establish the character, nature, date, extent and state of preservation of any surviving archaeological remains that would be impacted upon by the development and contribute towards the research themes outlined in the SSWSI.

2.2 General Aims

- 2.2.1 The general aims of the watching brief, based on overarching aims stated in the *Research Framework for London Archaeology*, as quoted in the SSWSI, were as follows:
- Identify, investigate and record any significant archaeological remains revealed by the groundworks, where such remains cannot be avoided by the ground investigations, paying particular regard to the potential for early prehistoric levels not previously noted in the area.
 - Establish a chronology for the archaeological remains in the area.
 - Contribute to an understanding of the potential impact of the development.

2.3 Site-Specific Aims

- 2.3.1 The site-specific research aims were as follows:
- What is the development of the local landscape from prehistory to the medieval period? Are any Palaeolithic remains present? If so, at what level(s) and at what date did they form? Is there any evidence for redeposited land surfaces?
 - What evidence exists in the landscape for the development of the Roman and Saxon landscape?
 - What information exists about the development of the agricultural and industrial landscape in the post-medieval period?

2.4 Regional Research Aims

2.4.1 The regional research themes considered to have possible relevance to archaeological remains uncovered at the site are:

- Upper Palaeolithic and Mesolithic – aspects of continuity and change in the nature of subsistence strategies pursued by human groups: how did they change and develop through time, and why?
- Roman – Understanding how the relationship between hinterland and *territorium* of *Londinium* operated.
- Saxon – Identifying rural land use and the extent of agricultural exploitation.
- Medieval – Understanding the social and economic implications of patterns of consumption across the city and region, and using the archaeological record to trace individual lives.
- Post-medieval – Understanding how the proximity of the metropolis, the largest urban conurbation in Britain, affected the lives of people living and working in the immediate surrounding area.

3. INVESTIGATION METHODOLOGIES

3.1 Watching Brief Methodology

3.1.1 A watching brief is a programme of archaeological monitoring (observation, investigation and recording) which is carried out by a suitably qualified archaeologist during site investigations (e.g. geotechnical test pits, boreholes and utilities trial trenches) and construction works. The purpose of the watching brief is to identify the potential of any archaeological remains uncovered in the course of the works and record them appropriately (as far as reasonably practicable).

3.1.2 OA carried out the watching brief works as required by the Principal Contractor between 4th January and 6th February 2013. The works monitored by the attending Archaeologist were breaking and removal of concrete, removal of railway tracks and the excavation of trenches by two mechanical excavators. The scope of attendance included a track site visit to land between the railway fence and the rail track beside Leemarks.

3.1.3 The following observations were recorded on a daily basis by the attending Archaeologist:

- Personnel employed on site;
- A description of the construction works observed;
- Any relevant works sub-contractor and personnel undertaking and supervising the construction activity
- Depths and extents of excavation works observed;
- A measure of confidence that any archaeological remains would have been observed;
- The reasons why any particular area of the works was not observed, and

- noting those areas not subject to disturbance from construction;
- Location and description of any archaeological remains;
 - Location and description of any modern remains.

3.2 Recording

- 3.2.1 The recording included the production of a written record of individual context descriptions on appropriate *proforma*, a drawn record, finds retrieval and photography, where appropriate.
- 3.2.2 The drawn record incorporated plans and section drawings of appropriate features, structures and individual contexts (at an appropriate scale).
- 3.2.3 The photographic record consisted of 35mm monochrome and colour, as well as digital formats.
- 3.2.4 All structures and deposits were recorded according to current best practice and accepted professional standards (see OA Fieldwork Manual, 1992) and as outlined in the SSWSI.

4. RESULTS

4.1 Watching brief results

- 4.1.1 The excavations for the pile caps varied in extent, ranging from 10m x 14m to 9m x 7.2m. They were aligned from east to west at variable intervals, from 11m to 20m. Starting in the east they are referred to as Eastern Pier and Piers 1 to 5, numbered consecutively. Pier 5 is located under the roof of an open structure and the intervention there was a 1m x 7m trench. The works comprised breaking up to 0.5m thickness of concrete, followed by the excavation of two 2m deep trenches for ground investigation.
- 4.1.2 In the process of breaking the concrete previously covered railway tracks were exposed in Piers 3, 4 and 5. In Pier 3 the rails had already been removed from their position before the attending archaeologist was on site. Observations were made on the basis of rails that were still *in situ* at the edge of the intervention and to the removed rails deposited at the side. In Pier 4 the rails were mostly left in place, however the breaking of the surrounding concrete resulted in some disturbance. In Pier 5 the rails were held firmly *in situ*, encased by concrete.
- 4.1.3 A short stretch of rails ending in a terminal arrangement was exposed *in situ* in the unbroken concrete to the east of Pier 3. The observations suggest an east-west aligned rail track that can be followed for a distance of 50m. The track seems to continue further to the west, as described further below.
- 4.1.4 The rail tracks had been laid on a concrete surface at 1.60m interval without sleepers, the rails being held in place by iron spikes. The rails were of the flanged type also known as 'Vignoles' rails. The rail profile is L-shaped and 60mm width at the top. The rails had been fitted to iron base plates with clips, bolts and nuts. Two kinds of clips and base plates were noted. The older set comprised U-shaped braces bolted to the side of the rail and fixed to the base

plate with four bolts. The later type was a steel clip that was fixed to a steel base plate with a single bolt. The steel base plate was fixed to the concrete ground with four screw spikes. A layer of concrete was subsequently cast on the existing surface and between the rails.

- 4.1.5 The excavations of the pile cap trenches were up to 2m deep and were monitored at the East Pier and Piers 1, 2 and 3. Pier 4 was not monitored. Two trial trenches near the East Pier and a narrow trench at Pier 5, which had been excavated previously, were also inspected.
- 4.1.6 The stratigraphic sequence in the excavated trenches was relatively uniform. From top to base it comprised concrete, made ground, brickearth and Pleistocene gravel. The concrete was between 0.25 and 0.5m thick and consisted of separate slabs.
- 4.1.7 The made ground consisted of deposits of building rubble, dark grey silt with few charcoal and mortar fragments and reddish brown sand with abundant brick fragments.
- 4.1.8 The surface of the brickearth/ gravel rose from west to east from 1.60m below present ground level in the East Pier to 0.70m at Pier 3. In Pier 5 gravel was found at depth of 1.0m.
- 4.1.9 The brickearth was a brownish yellow fine sandy silt (0.3 to 0.4m thick). It is interpreted as part of the Langley Silt Complex. A 0.95m thick brickearth deposit at Pier 3 appears indicates variations in the underlying palaeo-topography. The sediment is a brown fine to medium silty sand with lenses of pale greenish grey laminated sandy clay. It is interpreted as a mixed fluvial / solifluidal Pleistocene deposit.
- 4.1.10 No traces of soil formation were observed, indicating that the brickearth has been truncated. The gravel is reddish brown fine to coarse sand with frequent sub-angular to rounded pebbles of flint.
- 4.1.11 At the clients request a separate site was inspected c50m to the east from the current works on the track side of the railway fence adjacent to the Leemark Engineering building. The fence line forms a trapezoidal area c43m long and 8.7m to 4.9m wide. The ground was covered with vegetation debris from previously cleared brushwood, discarded railway material and other rubbish.
- 4.1.12 In the western part of this area is a 15m long *in situ* railway track section with parts of an old railway point, with a hallmark bearing the inscription 'HWD'. The rails of this track are 72mm wide at the top, 140mm high and L-shaped in profile. The rails are fixed to old wooden sleepers with cast iron stoles and wooden keys to a track width of 1.65m. The stoles show the initials 'GWR'. Two closely spaced pairs of rails converge from the east for c8m to where the mechanics of the point are fitted. A 10m long segment of a stretcher bar is still *in situ*. In the eastern part of the same area decayed wooden sleepers with spikes and small 100mm x 100mm large steel plates have been dumped alongside the track. They may have been removed from the adjacent rail track when the track was renewed at some time in the past.

4.2 Artefacts and soil samples

4.2.1 No artefacts or soil samples were recovered during the Stage 3 watching brief.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1.1 The watching brief did not identify any archaeological remains or deposits of significance other than the remains of the railway tracks. The railway track in the current working area is likely to be a branch line accessing the industrial area adjacent to the main railway line. It appears to date from a later period than the initial phase of the Great Western Railway in the mid-19th century as flanged rails and iron base plates only came into use around c1900. The railway track and point found *in situ* on track-side land beside the Leemark Engineering building also probably dates from the 20th century. The bullhead rail was introduced in the 1930s. However this rail type has been retained for use well into the 1950s and can still be found on some side tracks. It is therefore difficult to give a more precise indication of the age of the railway track. The points mechanism bears the inscription 'HWD' (presumably for Henry Williams Darlington, a points manufacturing company which moved to Darlington in 1911 and still makes railway signalling equipment today).

5.1.2 Further research could be undertaken to date the railway tracks and points mechanism more precisely, but as they do not appear to be particularly early or otherwise significant no further work is recommended.

5.1.3 Apart from the railway remains there was no evidence for significant archaeology of any period. The top of the natural sediment sequence appears to have been truncated throughout the watching brief area. The made ground deposits are assumed to be of 19th and 20th century date. The contact of the Langley Silt Complex with the Thames Gravels was observed in all trenches.

6. ARCHIVE DEPOSITION

6.1.1 The complete project archive includes paper context records and indices, permatrace drawings, plans and photographs. These will be prepared following the guidelines set out in Environmental standards for the permanent storage of excavated material from archaeological sites (UKIC 1984, Conservation Guidelines 3) and Guidelines for the preparation of excavation archive for long-term storage (Walker 1990). No finds or samples were recovered the Stage 3 watching brief.

APPENDIX 1 ARCHAEOLOGICAL CONTEXT INVENTORY

Context No.	Context type	Description	Width (m)	Thick. (m)	Finds	Date
1000	Structure	Rail track with flanged rails, track joins, iron and steel base plates, iron braces, steel clips and screw spikes. No sleepers present.	1.60			20 th cent.
1001	Layer	Concrete		0.35		modern

APPENDIX 2 BIBLIOGRAPHY AND REFERENCES

- Crossrail 2011 Stockley Airport Junction. Cultural Heritage Site Specific Written Scheme of Investigation. Document No: WSK1B-HEN-REP-JED-000004 Revision B03
- Crossrail 2012 Stockley Airport Junction. Cultural Heritage Site Specific Written Scheme of Investigation. Document No: WSK1B-HEN-REP-JED-200004 Revision B02
- Oxford Archaeology 2012a Archaeological Watching Brief at Stockley Airport Junction, London Borough of Hillingdon (Phase 1), March 2012
- Oxford Archaeology 2012b Archaeological Watching Brief at Stockley Airport Junction, London Borough of Hillingdon (Phase 2), July 2012
- UKIC 1984, Conservation Guidelines 3
- Walker, K 1980 Guidelines for the preparation of excavation archive for long-term storage (Walker 1990)
- Wilkinson, D 1992 OAU Fieldwork Manual, Oxford Archaeological Field Unit (ed)

APPENDIX 3 SUMMARY OF SITE DETAILS

Client name: Thomson Ecology

Site name: Stockley Airport Junction

Site code: SKJ12

Grid reference: TQ 0770 7950

Type of investigation: Watching brief

Date and duration of project: 4th - 6th February 2013

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES and will be deposited with the appropriate receiving museum in due course.



Plate 1: General View to west with Pier 3



Plate 2: Rail fastening system



Plate 3: Rail with steel base plate and clamp



Plate 4: General View to East with Pier 3 in foreground



Plate 5: Section across railway track at Pier



Plate 6: S-facing sample section in Pier 3



Plate Plate 7: Point operating mechanics on land adjacent to Leemark



Plate 8: Detail of point operating mechanism showing hallmark



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