HISTORIC FIELD BOUNDARY EVALUATION, AMAZON PARK, NEWTON AYCLIFFE, COUNTY DURHAM



ARCHAEOLOGICAL EVALUATION REPORT CP. No: 10448/13 27/03/2014



archaeology

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Quality Assurance

This report covers works as outlined in the brief for the above-named project as issued by the relevant authority, and as outlined in the agreed programme of works. Any deviation to the programme of works has been agreed by all parties. The works have been carried out according to the guidelines set out in the Institute for Archaeologists (IfA) Standards, Policy Statements and Codes of Conduct. The report has been prepared in keeping with the guidance set out by Wardell Armstrong Archaeology on the preparation of reports.

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SUMMARY

Wardell Armstrong Archaeology was commissioned by Merchant Place Developments, on behalf of their clients Hitachi, to undertake a targeted archaeological investigation through a number of key historic field boundaries on land at Amazon Park, Newton Aycliffe, County Durham (NGR NZ 2680 2220). This work was carried out prior to the construction of the new Hitachi Intercity Express manufacturing plant and follows a planning application to both Durham County Council (Ref: 7/2010/0248/DM) and Darlington Borough Council (Ref: 10/00526/FUL). The purpose of the evaluation was to attempt to provide further information which may contribute to an understanding of the process of enclosure in the area during the medieval and post-medieval periods and how this changes through time.

The archaeological evaluation was undertaken over five days between the 29th April and the 3rd May 2013, and involved the excavation of nine trenches positioned across seven of the historic field boundaries which lie within the proposed development site. Seven of the nine trenches showed the construction of the field boundaries to be the same as that recorded within the Historic Hedgerow Survey undertaken by Northern Archaeological Associates in 2012. Two of the trenches, Trenches 5 and 11 have provided additional information with regards to construction methods and possible land use.

Trench 5 was excavated through boundary H30 which was believed to exist as a standing wall but excavation revealed it to be an earthen bank construction with two linear ditches, one on either side of the bank. A sherd of medieval pottery was recovered from within the eastern ditch along with a possibly late medieval or post-medieval shard of glass, potentially dating the ditch to the medieval period.

Within Trench 11 excavation revealed a wide V shaped ditch below the position of the current hedgerow. This V shaped ditch potentially corresponds to the use of this field within the medieval period as it ties in with the upstanding ridge and furrow cultivation within the field to the south. The addition of a hedgerow at a later date may indicate a shift in the utilization of the landscape towards a pastoral regime.

The results obtained during the present evaluation have added a small amount of additional information regarding two of the hedgerows, H30 and H10, but otherwise have served to back up the conclusions drawn in the Historic Hedgerow Survey (NAA 2012).

ACKNOWLEDGEMENTS

Wardell Armstrong Archaeology thank Merchant Place Developments, for commissioning the project on behalf of their client Hitachi, and for all assistance throughout the work. Wardell Armstrong Archaeology also thank Claire Henderson, Senior Archaeologist at Durham County Council for her assistance throughout the project.

Wardell Armstrong Archaeology extend their thanks to The Colton Group, who undertook the ground works, and all their staff for their help during this project.

The excavation was undertaken by Miranda Haigh, Sue Thompson and Sean Johnson. The report was written by Angus Clark and the drawings were produced by Adrian Bailey. The project was managed by Martin Railton, Project Manager for WAA. The report was edited by Frank Giecco, Regional Manager for WAA.

1 INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 In April 2013, Wardell Armstrong Archaeology was invited by Merchant Place Developments, on behalf of their clients, Hitachi, to undertake a targeted archaeological investigation of a number of historic hedgerows on land at Amazon Park, Newton Aycliffe, County Durham (NGR NZ 2680 2220; Figure 1), prior to the construction of the new Hitachi Intercity Express manufacturing plant.
- 1.1.2 The site lies predominantly within the medieval township of Great Aycliffe, and the boundary of this township with Heighington lies within the northwest portion of the site, marked by hedgerow boundaries. The purpose of this targeted evaluation was to add further information to a hedgerow survey carried out by Northern Archaeological Associates in 2012, in an attempt to reconstruct the history and use of the site.
- 1.1.3 The work was undertaken in a response to an archaeological condition placed upon the permissions for the development by Durham County Council and Darlington Borough Council (Condition 23). This is in line with government advice as set out in Section 12 of the National Planning Policy Framework (NPPF 2012).
- 1.1.4 The archaeological evaluation was undertaken following approved standards and guidance (IfA 2008) and generally accepted best practice.
- 1.1.5 This report outlines the evaluation works undertaken on-site, the subsequent programme of post-fieldwork analysis, and the results of this scheme of archaeological works.

2 METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A written scheme of investigation (WSI) was submitted by Wardell Armstrong Archaeology in response to a *Specification for Archaeological Works: Amazon Park Archaeological Services*, provided by Merchant Place Developments, for an archaeological evaluation of the study area. Following acceptance of the project design by Durham County Council, Wardell Armstrong Archaeology was commissioned by the client to undertake the work. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute for Archaeologists (IfA), and generally accepted best practice.

2.2 THE FIELD EVALUATION

- 2.2.1 The evaluation consisted of the excavation of nine trenches in order to produce sample sections across key historic boundaries at the site and retrieve dating or structural evidence, and to determine the extent to which their form and alignment has changed through time, as recommended in the 2012 Historic Hedgerow Survey (NAA 2012). All work was conducted according to the recommendations of the Institute for Archaeologists (2008a).
- 2.2.2 In summary, the main objectives of the field evaluation were:
 - to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record these where they were observed;
 - to establish the character of those features in terms of cuts, soil matrices and interfaces;
 - to recover artefactual material, especially that useful for dating purposes;
 - to recover palaeoenvironmental material where it survives in order to understand site and landscape formation processes.
- 2.3.3 Turf and topsoil was removed by mechanical excavator under close archaeological supervision. The trial trenches were subsequently cleaned by hand and all features were investigated and recording according to the Wardell Armstrong Archaeology standard procedure as set out in the Excavation Manual (Giecco 2012).
- 2.3.4 All finds encountered were retained, including those from excavated topsoil, and were cleaned and packaged according to standard guidelines, and recorded under the supervision of Megan Stoakley, WAA Finds Officer.

- 2.3.5 All deposits encountered were deemed unsuitable for environmental sampling, and therefore no samples were retained.
- 2.3.6 The nine evaluation trenches were scheduled to be backfilled at the discretion of the client, following excavation and recording.
- 2.3.7 The fieldwork programme was followed by an assessment of the data as set out in annex 2 of the IfA's Standard and Guidance for Archaeological Excavation (2008) and Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (2008).

2.4 THE ARCHIVE

- 2.4.1 A full professional archive has been compiled in accordance with the specification, and according to the Archaeological Archives Forum recommendations (Brown 2011). The archive will be deposited within the Bowes Museum, with copies of the report sent to Durham County Council Historic Environment Record (HER). The archive can be accessed under the unique project identifier WAA13, AZP-FB, CP 10448/13.
- 2.4.2 Wardell Armstrong Archaeology and Durham County Council support the Online AccesS to the Index of Archaeological InvestigationS (OASIS) project. This project aims to provide an on-line index and access to the extensive and expanding body of grey literature, created as a result of developer-funded archaeological work. As a result, details of the results of this project will be made available by Wardell Armstrong Archaeology Ltd, as a part of this national project.

3 BACKGROUND

3.1 LOCATION AND GEOLOGICAL CONTEXT

- 3.1.1 The proposed development area comprises approximately 42.1ha of agricultural land, bound to the north by Heighington Lane (B6444), to the east by a railway line between Darlington and Bishop Auckland, and to the west by a green lane, known as Conns Lane (Figure 1). The land is currently grazed pasture, subdivided by hedgerows into a number of small fields. The northern part of the site is bisected by Demon's beck, which runs approximately west to east across the site, with a further minor beck to the south Whitworth Farm originally lay within the central part of the site, but was demolished in the 1980/90s and there are no surviving surface remains.
- 3.1.2 The proposed development is located at the southern tip of the Durham Magnesian Limestone Plateau. The plateau consists of a gently undulating, low upland plateau of open farmland, dipping southward and eastward (Countryside Commission 1998, 71). This area is bounded to the west by the rolling upland landscape of the Durham Coalfield Pennine Fringe, and to the south and east by the Tees Lowlands.
- 3.1.3 The solid geology of the area comprises Permian Magnesian Limestone, overlain by glacial boulder clay and morainic drift (BGS 2001). The soils are poorly drained fine loams and clays, of the Dunkeswick Association (SSEW 1980). The proposed development area is predominantly level, but falls gradually from north to south and west to east, with the highest point towards the southwest corner at *c*.104m OD. The lowest point is at the northeast corner at *c*.92m.

3.2 HISTORICAL CONTEXT

- 3.2.1 *Introduction:* this historical background is compiled mostly from secondary sources, and is intended only as a brief summary of historical developments specific to the study area. References to the County Historic Environment Recod (HER) are included where known.
- 3.2.2 *Prehistoric/ Roman:* Evidence for the early Iron Age activity in Co. Durham is sparse, as it is across the majority of Northern England. An exception is a probable Iron Age hill fort at Shackleton Beacon, a curvilinear earthwork enclosure on a hill-top location approximately 2km to the north of Heighington. More common are cropmark enclosures, which are usually attributed on morphological grounds to the later Iron Age or Roman period, many of which are located on the East Durham Magnesian Limestone Plateau (Hewitt 2012, 55). Rectilinear forms are most commonly identified,

- occasionally with a central ring ditch, which probably represents the eavesdrip trench of a round house, although relatively few have been archaeologically investigated. External enclosures or more extensive field systems are considered to be rare prior to the Romano-British period (*ibid*. 60).
- 3.2.3 Archaeological investigation within the site boundary identified considerable evidence of late Iron Age/ Romano British occupation to the south of Demon's Beck. A D-shaped enclosure attached to a linear field boundary which ran for several hundred meters was noted and it's believed it potentially linked up with a similar boundary on the north side of an area of unenclosed Iron Age/ Roman settlement. This boundary feature might be of particular significance as it lies just to the south of the later township boundary between Aycliffe and Heighton. Although natural features such as Demon's Beck were utilised as boundaries marking land ownership it is of note that the Great Aycliffe/Heighton boundary runs just to the south of the current course of the this stream in close proximity to the western end of the earlier prehistoric/Roman boundary (NAA 2012).
- 3.2.4 *Medieval:* Newton Aycliffe is set within a late medieval landscape of nucleated villages, including Heighington to the west and Middridge to the north, along with the deserted medieval village of Coatham Mundeville, which lies approximately a kilometer to the south east of the site at Amazon Park. Ridge and furrow earthworks and upstanding field boundaries dating to the medieval period are visible on a number of fields within the site. Ridge and furrow, of both medieval and post-medieval date, are a common archaeological feature within the surrounding area. While the layout of the field systems within the site may be medieval in foundation, the hedges themselves almost certainly date to the post medieval period and are likely a product of 17th century enclosure. The original divisions would have consisted of ploughing headlands, essentially broad ridges where plough teams would change direction or from one field to another (NAA 2012).
- 3.2.5 *Post-medieval and Modern:* On the 1754 map the majority of the site is covered by a single property 'Aycliff Whitworth' and at the centre of the plot is Whitworth Farm which potentially dates to the 17th century enclosure, although it could be earlier. Heighton was enclosed by an early private enclosure act in 1636 (NRO 404/248).
- 3.2.6 With the enclosure act came a change in the way farming was undertaken. Farmers consolidated their holdings into larger, more efficient farms which brought with it an increased investment in new buildings and equipment which in turn led to the construction of new, ergonomic farms laid out to maximize production while minimizing the labour force. Whitworth seems

- to have been typical of this new type of farm which centred around the rearing of cattle to produce manure to enable crop yields to be increased. The farm buildings will have been predominantly utilized for keeping livestock (NAA 2012).
- 3.2.7 Visible on the first edition Ordnance survey map of 1860 is the addition of the Stockton to Darlington railway line which runs just to the east of the site.

3.3 Previous Work

- 3.3.1 A previous programme of archaeological assessment and evaluation has revealed the presence of extensive Iron Age/Romano-British settlement and enclosure at the site, medieval open field systems, possible medieval occupation, and the remains of a 17th century farmstead and associated field system. The site lies predominantly within the medieval township of Great Aycliffe, and the boundary of this township with Heighington lies within the northwest portion of the site, marked by hedgerow boundaries.
- 3.3.2 A Historic Hedgerow Survey was undertaken to provide a permanent record of existing hedgerows at the site prior to their removal (marked H1-H32 on Figure 2). It was identified that a section of the township/civil boundary runs along the northwest corner of the site (NAA 2012).
- 3.3.3 An archaeological strip map and sample by Wardell Armstrong Archaeology in 2013 revealed two Prehistoric settlements. The northern settlement was Iron Age in origin, and was composed of a close group of ring ditch structures. A Late Iron Age / Early Romano-British settlement to the south of the earlier was discovered with a clear associated enclosure system, presumably for livestock management. A "D" shaped enclosure to the west of site was possibly associated with the later settlement. The remains of Whitworth farm were observed to have been largely removed, including the building foundations. Early walls possibly forming the southern boundary of the farm were uncovered, along with a cobbled surface. Modern concrete and brick remains for structures associated with the farm were also recorded (WAA forthcoming).

4 ARCHAEOLOGICAL EVALUATION RESULTS

4.1 Introduction

4.1.1 The evaluation was undertaken over five days between the 29th of April and the 3rd of May 2013. Nine trenches were excavated through seven separate field boundaries (Trenches 3-11). Four of the trenches were omitted from the investigation due to ownership issues, this included Trenches 1,2,12 and 13 which were located in the north west corner of the site (Figure 2).

4.2 RESULTS

- 4.2.1 *Trench 3:* Trench 3 was excavated through H16 which consisted of a standing mixed hedge row of hawthorn, holly, blackthorn, hazel and dog rose and followed a north to south alignment. Trench 3 was excavated along an east to west alignment and measured 10m in length and 2m in width (Figure 2).
- 4.2.2 The trench was excavated to a maximum depth of 1.3m and a minimum depth of 0.62m. The natural mixed grey clay (301) was noted below 0.26m of moderately compacted mid orangey brown sandy clay subsoil (302). This in turn was capped by 0.40m of loosely compacted dark grey/brown silty clay topsoil (300). Heavy root action was visible in both the topsoil and the subsoil. Within the centre of the trench a slight depression was noted in the topsoil indicating where the boundary hedge had previously been established (Plate 1, Figure 3). No dating evidence was recovered from this trench.



Plate 1: South facing section of Trench 3, looking northeast.

- 4.2.3 *Trench 4:* Trench 2 was excavated through H14 which consisted of a standing hedge row predominantly of hawthorn which follows a north to south alignment. Trench 4 was excavated along an east to west alignment and measured 10m in length and 2.2m in width (Figure 2).
- 4.2.4 The trench was excavated to a maximum depth of 1.5m and a minimum depth of 1.2m. At the western extent of the trench 0.62m of loosely compacted orange silty sand and limestone bedrock natural (403) was noted. This was capped by 0.96m of firmly compacted mid orange/brown clay and sand natural (402) which. Above this sat 0.32m of mid orange/brown silty sand subsoil (401) which was capped by 0.36m of dark brown silty sandy clay topsoil (400). The hedge row was only visible as an area containing a high concentration of roots close to the centre of the trench (Plate 2, Figure 3). No finds were recovered from this trench.



Plate 2: North facing section of Trench 4, looking southwest.

4.2.5 *Trench 5:* Trench 5 was excavated through H30 which consisted of a visible earthwork, believed to be a stone wall which followed a north to south alignment. Trench 5 was excavated along an east to west alignment and measured 10m in length and 2m in width (Figure 2, Plate 3).



Plate 3: South facing section of Trench 5, looking northwest.

- 4.2.6 The trench was excavated to a maximum depth of 1.5m and a minimum depth of 1.2m. The natural geology was composed of mid orangey/brown stony clay (501) overlain by up to 0.50m of orangey/brown stony sandy clay (502). The geology was capped by 0.40m of dark grey/brown silty clay topsoil (500).
- Two parallel linear ditches were noted cutting through both the subsoil (502) and the natural (501). Linear ditch [503] was noted towards the western end of the trench and had steeply sloping sides, but the base of the ditch was not reached. The exposed section of the ditch measured 1.32m in width and 0.64m in depth and was filled by orangey/grey sandy clay with frequent small stone inclusions (504). Located c.2.5m to the east of ditch [503] was steep sided linear ditch [505]. The, ditch measured up to 2.45m in width and 0.60m in depth and was filled by mid orange/grey sandy clay (506). The articulated skeletal remains of a horse were located within this deposit. Only the caudal end of the horse was located within the trench, and was observed to continue into the south facing baulk. As a result, the remains were left in situ to be recovered in the following further excavation at the site. A single medieval pot sherd and a shard of glass, post medieval in date were also recovered from within this context (506), although it was likely that the glass was an intrusive fragment from the post medieval hedgerow remains [508] planted in the top of deposit (506).
- 4.2.8 The full excavation revealed the horse to have lain on its left side with its skull to the north (Plate 3, Figure 4) (see Section 6). Truncating the sandy clay fill (506) of the ditch [505] was the remains of a hedgerow [508], which measured up to 1.30m wide, 0.23m deep and was filled by dark grey silty soil (509). The hedgerow [508] was planted on the same orientation as the

ditch [505], and as it was planted within the confines of the ditch cut [505], it could represent a deliberate replacement of the ditch in favour of a hedge in terms of land management and division.



Plate 4: The Horse burial within fill (506) of Ditch [505] following excavation, looking west

- 4.2.9 *Trench 6:* Trench 6 was excavated through H13 which consisted of a tree lined bank and ditch, with the shallow bank being located to the southern side of the ditch. The boundary runs northeast to southwest. Trench 5 was excavated along a north to south alignment and measured 10m in length and 2m in width (Figure 2).
- 4.2.10 The trench was excavated to a maximum depth of 0.80m and to a minimum depth of 0.50m. The natural firmly compacted mid orange/brown clay (601) was noted below 0.30m of orange/brown sandy clay subsoil (602) which in turn was capped by 0.27m of dark grey/brown silty clay topsoil (600). Cutting through these deposits was a wide, shallow U shaped linear ditch [604] which measured 1.50m in width and 0.64m in depth. The bank material on the south-eastern side of the ditch consisted of 0.38m of mid orange/brown silty clay (603) which sat above the subsoil (602) and was most likely a result of the excavation of the ditch itself along with the material removed from the ditch during dredging (Plate 5, Figure 4). No finds were recovered from this trench.



Plate 5: West facing section of Trench 6, looking southeast

- 4.2.11 *Trench 7:* Trench 7 was excavated through H2 which consisted of a short section of tree lined bank and ditch which curves from a north easterly alignment to head east. This boundary is a continuation of the eastern end of boundary H13. Trench 7 was excavated along a northwest to southeast alignment and measured 11m in length and 2m in width (Figure 2).
- 4.2.12 The trench was excavated to a maximum depth of 0.90m and to a minimum depth of 0.80m. The natural orange/brown stony clay (701) was noted below 0.46m of grey/brown silty clay subsoil (702) which in turn was capped by 0.32m of grey/brown silty clay topsoil (700). Cutting through these deposits was a sharp sided U shaped ditch [704] which measured 1.60m in width and 0.68m in depth. On the southern side of the ditch above the subsoil (702) was a shallow bank deposit which consisted of material removed during the construction of the ditch which constituted light brown silty clay (703) (Plate 6, Figure 4). No finds were recovered from this trench.



Plate 6: Southwest facing section of Trench 7, looking north.

- 4.2.13 *Trench 8:* Trench 8 was excavated through the southern aspect of H1 which consisted of a bank and ditch with occasional trees and follows a northeast to southwest alignment. At the southern extent of this boundary the bank is missing and only the associated ditch remains. The trench was located towards the southern extent where the bank was no longer present. The ground use along with its level differs on either side of the ditch, to the east the ground was fairly flat and to the west a lower area of ridge and furrow cultivation was present. Trench 8 was excavated along a northwest to southeast alignment and measured 10.50m in length and 2m in width (Figure 2).
- 4.2.14 The trench was excavated to a maximum depth of 0.70m and to a minimum depth of 0.40m. Towards the eastern extent of the trench the natural orange/yellow clay substrate (801) was noted below 0.54m of dark grey/brown silty clay topsoil (800). On the western side of the ditch the natural substrate (801) was present below 0.46m of excavated bank material consisting of mid orange/grey sandy clay (802) which was capped by 0.20m of dark grey/brown silty clay topsoil (800). The ditch itself was a wide U shape with steep sides leading down to a rounded base [803] and measured 3.12m in width and 1.26m in depth and was partially silted up with a moist deposit of dark grey silty clay (804) measuring 0.30m in depth (Plate 7, Figure 4). No finds were recovered from this trench.



Plate 7: Southwest facing section of Trench 8, looking north.

- 4.2.15 *Trench 9:* Trench 9 was excavated through the northern aspect of H1 which consisted of a bank and ditch with occasional trees and follows a northeast to southwest alignment. The banks on either side of this section of the boundary were more prominent than at its southern extent. Trench 9 was excavated along a northwest to southeast alignment and measured 10m in length and 2m in width (Figure 2).
- 4.2.16 The trench was excavated to a maximum depth of 0.96m and to a minimum depth of 0.50m and revealed the natural yellow/brown silty clay (902) below 0.36m of orange/grey clayey sand subsoil (901) which was capped by 0.46m of dark brown silty clay topsoil (900). The base of the ditch was unable to be reached due to the presence of standing water but was able to be recorded to a width of 4m and to a depth of 0.86m, at this depth a deposit of rain washed topsoil and a collection of branches and roots (904) was noted (Plate 8, Figure 5). No finds were recovered from this trench.



Plate 8: Southwest facing section of Trench 9, looking east.

- 4.2.17 *Trench 10:* Trench 10 was excavated through H3 which consisted of a hedge without a ditch or a pronounced bank and follows a roughly north to south alignment. The northern section of this boundary consists of quickset hawthorn and the southern end has been removed and at a later date replaced by a row of ash trees. Trench 10 was excavated along an east to west alignment and measured 10m in length and 2m in width (Figure 2).
- 4.2.18 The trench was excavated to a maximum depth of 1.20m and to a minimum depth of 0.80m and revealed the natural mottled orange/grey sandy silty clay substrate (1002) below 0.34m of mid orange/grey silty sandy clay (1004). Towards the eastern extent of the trench deposit (1004) was capped by 0.20m of mid grey silty sand (1003) which was in turn sat below 0.30m of mid brown silty sandy clay (1001). Within the western end of the trench a dark grey mixed gritty sand deposit (1011) was noted which was cut through by a fairly steep sided ditch, of which only the western edge was identifiable [1010]. This ditch was filled by orange/grey silty sandy clay (1012) and was recorded to a depth of 0.58m. Capping deposit (1004) across the whole trench was dark grey/brown silty sand topsoil (1000) (Plate 9, Figure 5).
- 4.2.19 The cut feature **[1012]** noted within this trench is believed to correspond to the location of the hedgerow which had previously been present along the entirety of the field boundary. No finds were recovered from this trench.



Plate 9: North facing section of Trench 10, looking southeast.

4.2.19 *Trench 11:* Trench 11 was excavated through H10 which consisted of quickset hedge with a shallow ditch running along its southern side. The boundary followed an east to west alignment and forms the southern extent of a small enclosure. Trench 11 was excavated along a north to south alignment and measured 10m in length and 2m in width (Plate 10, Figure 5).



Plate 10: West facing section of Trench 11, looking northeast.

4.2.20 The trench was excavated to a maximum depth of 0.68m and to a minimum depth of 0.60m which revealed orange silty sandy clay natural (1102) below 0.44m of grey sandy clay (1101) which was capped by 0.34m of grey/brown silty sand topsoil (1100). A wide V shaped ditch [1103] was noted within the centre of the trench which was cut through both the subsoil (1101) and the

natural clay (1102), this ditch measured 2.4m in width and was recorded to a depth of 0.45m although issues with water logging prevented the full excavation of this feature. The ditch was filled by soft black silty clay (1104) (Plate 10, Figure 5). A piece of slag and a single sherd of medieval pottery were recovered from the topsoil (1100).

5 FINDS

5.1 FINDS ASSESSMENT

- 5.1.1 A total of 36 artefacts, weighing 623g, were recovered from three contexts during the archaeological evaluation.
- 5.1.2 All finds were dealt with according to the recommendations made by Watkinson & Neal (1998) and to the Institute for Archaeologists (IfA) Standard & Guidance for the collection, documentation, conservation and research of archaeological materials (2008b). All artifacts have been boxed according to material type and conforming to the deposition guidelines recommended by Bowes Museum.
- 5.1.3 The material archive has been assessed for its local, regional and national potential and further work has been recommended on the potential for the material archive to contribute to the relevant research frameworks.
- 5.1.4 Quantification of finds by context is visible in Table 1.

Context	Material Type	Quantity	Weight (g)	Spot-date
U/S	Slag	1	97	-
506	Glass	1	3	Post-medieval
500	CBM	10	405	Post-medieval
U/S	Leather	11	83	Post-medieval
506	Pottery	1	18	Medieval
U/S	Pottery	1	5	Post-medieval
U/S	Pottery	1	12	Medieval

Table 1: Quantification of Finds by Context

5.2 Medieval Pottery

- 5.2.1 Two sherds of medieval pottery, weighing 31g, were recovered from an unstratified context (U/S) and a sealed fill (506).
- 5.2.2 The unstratified fragment (12g) comprised a body sherd with the exterior surface comprising a hard, dense compact light to mid-orange clay fabric. Three finger or thumb impressions are evident on the exterior surface and the vessel is likely to have been handmade. Upon visual examination of the sherd cross-section under x20 magnification, a compact reduced grey core is evident. The interior surface comprises a smooth, pale buff ridged clay matrix flecked with poorly sorted mica, quartz and sand inclusions (*c*.0.2mm 0.6mm Ø). There is no lead glaze evident on either surface.

- 5.2.3 The sherd comprises a body sherd which would have adjoined to the base of a vessel, possibly a tall, one-handled jug or jar (Laing 2003, 94). The sherd is likely to date to the late 13th to 14th century AD.
- 5.2.4 The other sherd (18g), retrieved from fill (506), comprises a handle sherd. No glaze is evident on either surface. The fabric comprises a compact, dense, pale buff to light orange clay fabric with very well-sorted sand and mica inclusions (0.4mm Ø). The exterior surface is mid grey in hue, which may indicate that the vessel was slipped and a flattened surface at one end of the handle would indicate that the sherd originated from the top end of a vessel.
- 5.2.5 The sherd is likely to date from the early 14th century onwards; finer sandy fabrics predominate during and after this period (*Ibid*, 95). The sherd likely originated from a tall jug (Orton 2001, 81).

5.3 POST-MEDIEVAL POTTERY

- 5.3.1 A single undiagnostic body sherd of post-medieval pottery, weighing 5g, was recovered from an unstratified context.
- 5.3.2 The sherd likely comprises domestic coarse red earthenware of 18th to 19th century date; a yellow and mid-brown glaze is evident on one surface.

5.4 SLAG

- 5.4.1 A single piece of tap-slag, or iron-working slag, weighing 97g, was retrieved from an unstratified context.
- 5.4.2 It is an undiagnostic fragment; no further analysis or research is necessary on this artifact.

5.5 GLASS

- 5.5.1 A single sherd of mid to dark green glass, weighing 3g, was recovered from deposit (506).
- 5.5.2 The glass likely comprises a body shard of a bottle and is most likely of post-medieval date.

5.6 CERAMIC BUILDING MATERIAL (CBM)

- 5.6.1 Ten fragments of ceramic building material (CBM), weighing 405g, were recovered from deposit (500).
- 5.6.2 The fabric comprises a hard-fired, compact mid to dark orange-red clay with sand and mica inclusions (<0.5mm \varnothing).

- 5.6.3 Diagnostic fragments include one fragment of roof tile and three fragments of possible land-drain.
- 5.6.4 The fragments of ceramic building material are likely to be later post-medieval in date (19th 20th century).

5.7 LEATHER

- 5.7.1 Eleven fragments of leather, weighing 83g, were recovered from an unstratified context.
- 5.7.2 The fragments comprise the remnants of a boot or shoe of most likely late 19th to early 20th century date (Pers Comm. Tim Padley).

5.8 STATEMENT OF POTENTIAL

5.8.1 This small assemblage provides evidence of medieval and post-medieval domestic and agricultural activity within the vicinity of the site. The assemblage is of low to moderate archaeological significance and no further work or analysis is recommended on the artefacts.

6 ANIMAL BONE

6.1 Introduction

- 6.1.1 During the evaluation phase of this work a complete horse burial was uncovered and excavated. This assemblage forms part of an Associated Bone Group as defined by Grant (1984). In this case this consists of the first type of group; i.e. animal remains which were deposited in an articulated state (Morris 2011, 12). As such, the examination of these remains does not consist of a typical zooarchaeological report (which would consist of numerous disarticulated remains) and is more akin to the examination of a single human inhumation where the bones are examined as part of a greater whole.
- 6.1.2 The purpose of this assessment report is to quantify the recovered bones, take suitable osteometric measurements in the manner suggested by von den Dreisch (1976), to identify evidence for the age at death of the animal (as per Levine 1982 and Silver 1969), and to identify possible pathological evidence on the bones (Baker and Brothwell 1980).
- 6.1.3 The skeleton was excavated by one individual over a number of days. The animal had evidently been buried as a complete animal, though the acidic, clay soils of the region had created a level of incomplete preservation, particularly with poor preservation of the cranium, scapular blade and the pelvis. In other cases bone which appeared relatively stable in the ground became quite brittle with the removal of the surrounding matrix of soil. This was particularly noticeable with the ribs and the neural spine and transverse processes of the vertebrae. However, in general the limb bones were quite well preserved, which allowed numerous osteometric measurements to be taken.
- 6.1.4 The bone was lifted, removed to the Wardell Armstrong laboratory, washed and dried before being examined. Identification was undertaken using reference material, standard texts (Hillson 1996; Schmid 1972), and measurements follow the conventions set out by von Driesch (1976).

6.2 ASSESSMENT OF THE SKELETON

6.2.1 The left mandible was much better preserved than the right with all the teeth present and most of the bone intact from the incisors to the ramus. Based on the criteria set out by Levine the front incisors were all worn with an oval infundibulum (Levine 1982, 230). Based on the height of a loose upper P4 an age of 8/9 years was suggested, while a 9/10 years was suggested from an upper M3. The absence of canines might suggest a female horse. There was little evidence of biting of a horse harness from the P2, with very slight wear on the enamel,

- and little evidence of beveling. Some secondary bone growth on the diastema might suggest the wearing of a harness however.
- 6.2.2 In general the cranium was quite poorly preserved. This was observed as the skull was being excavated and without the support of the surrounding matrix the bone began to fracture as it was lifted. Some measurements were taken from the occipital bone, however, and there were recorded. Little else can be said of the cranium element at this time.
- 6.2.3 The axis was partly preserved and it was noted that a possible cutmark was present on the ventral view of the medial line running medially-laterally. When examined under a microscope it is unclear whether this was caused by a knife, or during the excavation process. It may be evidence of the manner in which the animal was killed, suggesting its death was deliberately undertaken. In this case the deposition of the animal in a ditch might suggest a sick animal was brought to the ditch, killed, and conveniently buried in the ditch.
- 6.2.4 Few of the vertebrae were recovered completely intact, with many of the neural spines and transverse processes being broken during excavation and lifting. It was observed onsite that little could have been done to prevent this, as in the case of the cranium, due to the nature of the soil and the condition of the bone before it was excavated. However, several of the lumbar vertebrae were noted as being fused with extensive exotoses fusing two bones, while others seem to be in the process of laying down new bone growth around the articular surfaces. This has been interpreted as evidence of heavy work, as suggested by Baker and Brothwell (1980, 115). The evidence for this on the lumber vertebrae, and not on those of the cervical or thoracic, suggest repetitive heavy work, possibly pulling a heavy work harness, though other medieval analogies might be needed to confirm this.
- 6.2.5 The scapula were in moderately good condition, but the scapular blades were all damaged during excavation, though the left was in better condition than the right and more measurements were taken from this side.
- 6.2.6 The limb-bones were all generally well preserved and multiple measurements were taken from the long-bones of the upper and lower limbs. Many of the carpals and tarsals were not recovered however. All were examined for exostoses, pathological evidence, spavin in the case of the surviving tarsals, navicular disease in the case of the one navicular, and ring-bone in the case of the phalanges. However, none of these pathologies were identified as far as could be observed at this time. In the context of the fusion of the lumber vertebra this might suggest that the animal was in generally good condition when it died, but had spent time undertaking a repetitive heavy activity.

6.3 CONCLUSIONS

- 6.3.1 More recently animal burials, or ABG's (Associated bone groups), have received more attention than previously given, particularly in medieval contexts (Morris 2011, 119). In this case the complete skeleton of a medieval horse from a dated context should be considered for further study. More complete comparisons with other late medieval horse burials in the region should be considered in order to more fully contextualise the results here.
- 6.3.2 Based on the absence of canines it is suggested the animal is female. Considering the fused nature of all the longbones an age of +3 years is suggested (Silver 1963). The length of the loose P4 suggests an age of 8/9 years.
- 6.3.3 Measurements from the complete bones are presented in the table below. This consists of the measurements of complete bones where two or more measurements could be undertaken.

Element	L/R	Present	Notes
Mandible	L	9	1:220; 6:166; 7:83.1; 8:90.1; 15:77.2; 22a:95.9; 22b:66.4; 22c:50.8;
Axis	-	5	BFcr:79.2.
Occipital	-	3	34:79.3; 36:37.3; 37:36.2
Atlas	-	9	GL:91.4; BFd:84.6
Scapula	L	6	GLP:92.5; LG:57.4; BG:49.7; SLC:65.4;
Humerus	L	10	GLC:250; GL:270; BT:71; Bd:78.7; SD:36.9
Humerus	R	10	GLC:250; GL:270; BT:71; Bd:78.7; SD:39.2
Rad-Ulna	R	10	GL:386; GL (radius):323; SD:40.1; LO81.7; SDO:45.7; DPA:62.5; Bp:78.9; Bd:74.3
Rad-Ulna	L	10	GL:383; GL (radius):325; SD:38.6; LO:83; SDO: 46.1; DPA:63.5; Bp: 78.1; Bd:76.2
M-carpal	L	10	Bp:52.8; SD:34.1; Bd:49.6; Dp:33.4; GL217;
Prox-phal	L	10	Bp:53.9; SD:34.1; Bd:46.4; GL:80.3
Inter-phal	L	10	Bp:51.4; SD:43.8; Bd:48.4; GL:46.7.
Dist-phal	L	8	GB:68.4; Ld:44.5
M-carpal	R	10	Bp:54.1; SD:34.2; Bd:49.4; Dp:33.4; GL:218
Prox-phal	R	10	Bp:54; SD:34.9; Bd:46.6; GL:82.3
Inter-phal	R	10	Bp:52.7; SD:44.6; Bd:49.4; GL:46.8.
Dist-phal	R	9	This bone was too abraded to take accurate measurements in key areas

7 CONCLUSIONS

6.1 CONCLUSIONS

- 6.1.1 Nine evaluation trenches were excavated across seven separate historical field boundaries within the proposed development site at Amazon Park as part of a planning condition placed on the development by Durham County Council and Darlington Borough Council (condition 23). The purpose of the evaluation was to attempt to provide further information which may contribute to an understanding of the process of enclosure in the area during the medieval and post-medieval periods and how this changes through time.
- 6.1.2 Seven of the nine trenches showed the construction of the field boundaries to be the same as that recorded within the Historic Hedgerow Survey undertaken by Northern Archaeological Associates in 2012. Two of the trenches, Trenches 5 and 11 have provided additional information with regards to construction methods and possible land use.
- 6.1.3 Trench 5 was excavated through H30 which was believed to exist as a standing wall but excavation revealed it to be an earthen bank construction with two linear ditches, one on either side of the bank. A sherd of medieval pottery was recovered from within the eastern ditch along with a post-medieval shard of glass. The skeleton of a horse was also present within the ditch, although its provenance is unknown. No dating evidence was recovered from the ditch to the west of the bank so it is unclear whether this is contemporary with the eastern ditch or a later addition.
- 6.1.4 Trench 11 was excavated through H10 which stood as a quickset hedgerow with a shallow ditch on the southern side. Excavation revealed a wide V shaped ditch below the position of the current hedgerow. The base of this trench became waterlogged quickly but the ditch was able to be recorded at 2.4m in width and 0.45m in depth. The size of the ditch possibly indicates that this was a former field boundary that at a later date, once it had silted up, was replaced with the dense hawthorn hedge. A ditched boundary is more indicative of arable farming as a hedgerow is more effective at separating livestock. This V shaped ditch potentially corresponds to the use of this field within the medieval period as it ties in with the upstanding ridge and furrow cultivation within the field to the south. The ditch may thus be a furlong or ploughland boundary within a former medieval common arable field. The addition of a hedgerow at a later date may indicate a shift in the utilization of the landscape towards a pastoral regime.

- 6.1.5 The finds recovered were predominantly post medieval in date, the majority being recovered from unstratified deposits that provided little additional information..
- 6.1.6 The results obtained during the present evaluation have added a small amount of additional information regarding two of the hedgerows, H30 and H10, but otherwise have served to support the conclusions drawn in the Historic Hedgerow Survey (NAA 2012).

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APPENDIX 1: CONTEXT TABLE

Context Number	Context Type	Description	
300	Deposit	Topsoil in Trench 3	
301	Deposit	Natural in Trench 3	
302	Deposit	Subsoil in Trench 3	
400	Deposit	Topsoil in Trench 4	
401	Deposit	Subsoil in Trench 4	
402	Deposit	Natural in Trench 4	
500	Deposit	Topsoil in Trench 5	
501	Deposit	Natural in Trench 5	
502	Deposit	Subsoil in Trench 5	
503	Čut	Ditch on western side of field boundary	
504	Fill	Fill of ditch [503]	
505	Cut	Ditch on eastern side of field boundary	
506	Fill	Fill of ditch [506]	
507	Deposit	Animal burial	
508	Ċut	Hedgerow	
509	Fill	Fill of Hedgerow [509]	
600	Deposit	Topsoil in trench 6	
601	Deposit	Natural in Trench 6	
602	Deposit	Subsoil in Trench 6	
603	Deposit	Bank material on south side of boundary ditch [604]	
604	Ċut	Cut of field boundary ditch	
700	Deposit	Topsoil in Trench 7	
701	Deposit	Natural in Trench 7	
702	Deposit	Subsoil in Trench 7	
703	Deposit	Bank material on south side of boundary ditch [704]	
704	Ċut	Cut of field boundary ditch	
800	Deposit	Topsoil in Trench 8	
801	Deposit	Natural in Trench 8	
802	Deposit	Subsoil in Trench 8	
803	Čut	Cut of field boundary ditch	
804	Deposit	Silted up material within ditch [803]	
900	Deposit	Topsoil in Trench 9	
901	Deposit	Subsoil in Trench 9	
902	Deposit	Natural in Trench 9	
1000	Deposit	Topsoil in Trench 10	
1001	Deposit	Subsoil at eastern end of Trench 10	
1002	Deposit	Natural in Trench 10	
1003	Deposit	Silty sand deposit, possibly due to root action, Trench 10	
1004	Deposit	Subsoil in Trench 10	
1010	Cut	Cut for hedgerow in Trench 10	
1011	Deposit	Grey mixed gritty sand, west end of Trench 10	
1012	Fill	Fill of cut [1010]	
1100	Deposit	Topsoil in Trench 11	
1101	Deposit	Subsoil in Trench 11	
1102	Deposit	Natural in Trench 11	
1103	Cut	East to west aligned linear ditch, possibly medieval	
1104	Deposit	Fill of ditch [1103]	

Table 1: List of Contexts issued during evaluation

APPENDIX 2: FIGURES

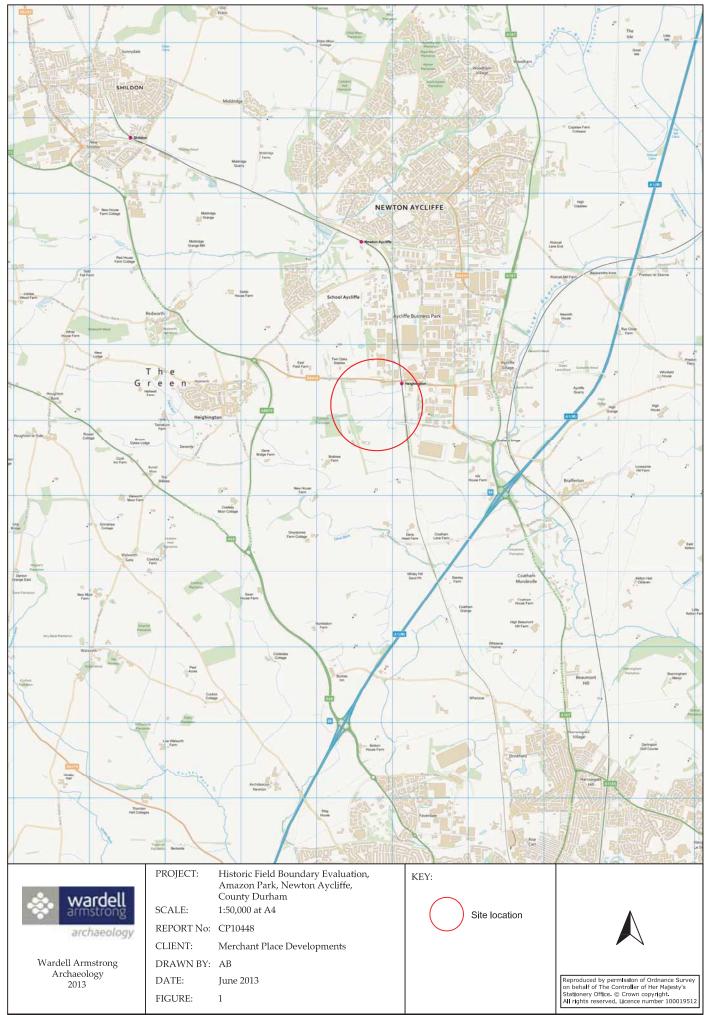


Figure 1: Site location.

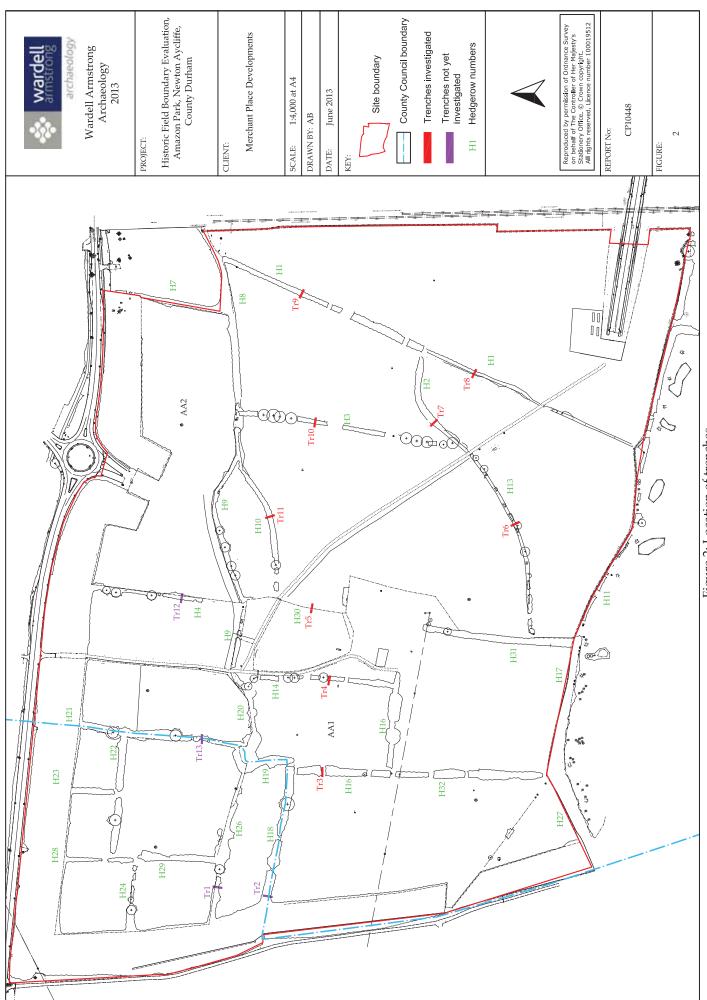


Figure 2: Location of trenches.

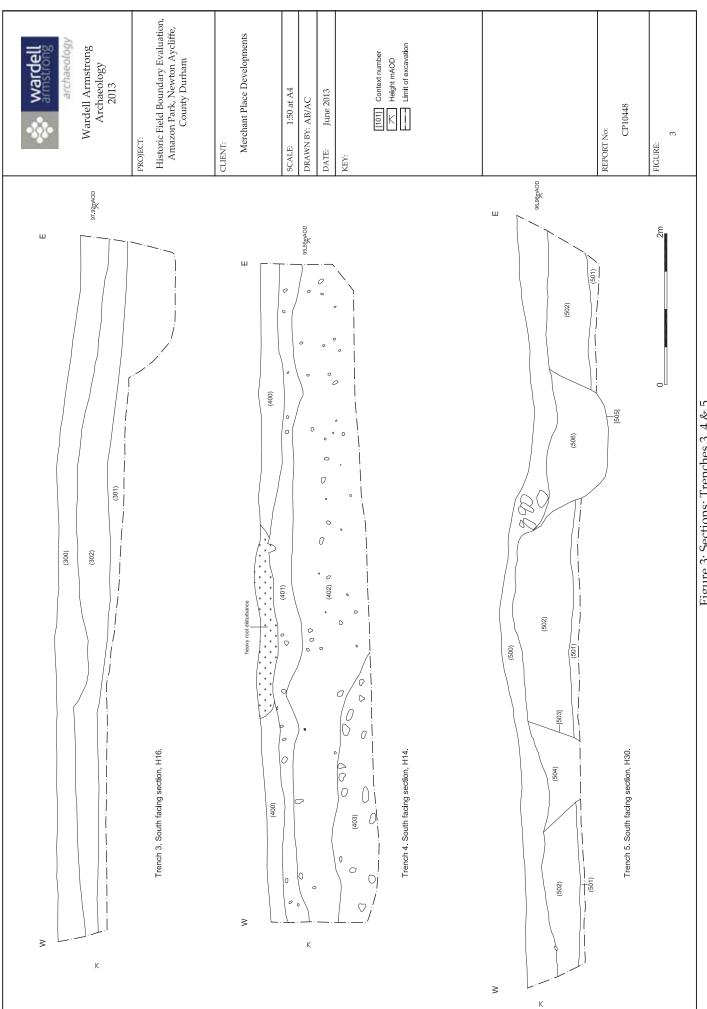
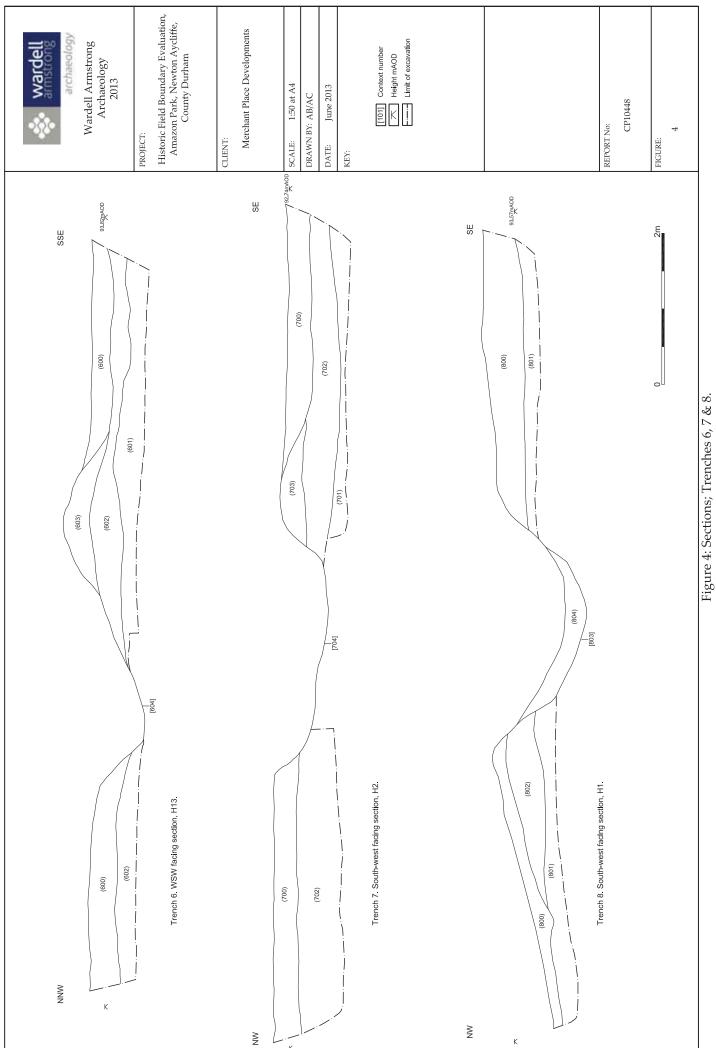


Figure 3: Sections; Trenches 3, 4 & 5.



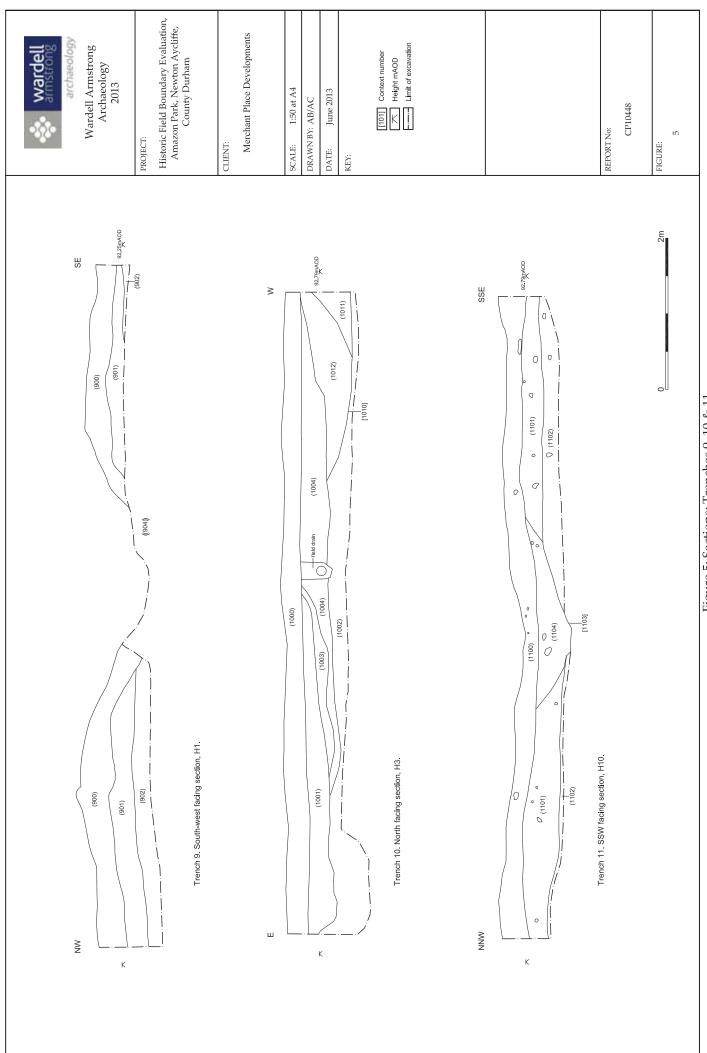


Figure 5: Sections; Trenches 9, 10 & 11.