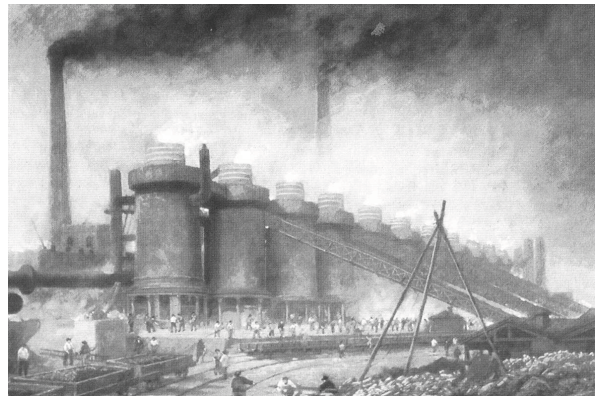


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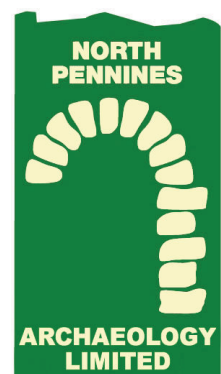
PHASE I WATCHING BRIEF REPORT

CP. No: 928/09

23/03/2010

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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 North Pennines Archaeology Ltd on the preparation of reports.

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SUMMARY

North Pennines Archaeology Ltd were commissioned by WA Fairhurst & Partners, to undertake an archaeological watching brief on groundworks associated with a proposed development on land at Furness College, Barrow in Furness, Cumbria (centred on SD 1881 6968). A desk-based assessment was undertaken in 2008, in order to establish the scope of the archaeological work required to fulfil the archaeological conditions of the planning decision. This report highlighted the significant potential of below ground remains associated with late 19th and 20th century industrial activity within the proposed development area, most notably the Barrow Iron and Steel Works. As a result, the Cumbria County Council Historic Environment Service (CCCHES) granted planning consent for the development (Application No. BO6/2008/1552/JH/TP.11), on the condition that an archaeological watching brief be undertaken during the excavation of drainage trenches associated with the proposed development, and the subsequent redevelopment of several college buildings. The watching brief was required as the site lies within an area of intensive 19th and 20th century industrial activity, which identified the site to be of archaeological interest.

The archaeological watching brief was separated into two key phases. The first phase (Phase I) monitored the excavation of several drainage trenches within the college car park, at the northern end of the study area (Area A), whilst the second phase of the work concerns groundworks associated with the development of new college buildings further south (Area B). This report comprises the results of the first phase of work. The second phase of work is scheduled to begin in June 2010.

The first phase of the archaeological watching brief was conducted over 13 days between the 14th December 2009 and the 4th March 2010. The first phase monitored groundworks associated with the excavation of several drainage trenches within the college car park, at the northern end of the study area. The excavated deposits exposed during Phase I were largely comprised of rubble backfill and modern made-up ground to a depth of c.2.5m. However, below this depth, three redbrick walls were noted across the site. Unfortunately, it was not possible to accurately date these structures. Cartographic evidence indicates that there have been several buildings related to the ironworks from 1891 to 1982, which could be associated with the identified remains.

As the first phase of the watching brief was conducted as part of a condition to monitor the excavation of several drainage trenches within the northern section of the proposed development area, no further archaeological work is deemed necessary. However, it is recommended that any future excavation below a depth of 2.5m within this area be subject to a similar programme of archaeological investigation. The results of the first phase of work do not affect the second phase of work within Area B further to the south.

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North Pennines Archaeology Ltd would like to thank WA Fairhurst & Partners, for commissioning the project, and for all assistance throughout the work. NPA Ltd would also like to thank Eric Wright Construction, for all their assistance throughout the project.

North Pennines Archaeology Ltd would also like to extend their thanks to L and W Wilson, and all staff at the site, for their help during this project.

The archaeological watching brief was undertaken by David Jackson and Kevin Mounsey. The report was written by David Jackson. The drawings were produced by Fiona Wooler and David Jackson. The project was managed by Martin Railton, Project Manager for NPA Ltd, who also edited the report.

1 INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 In December 2009, North Pennines Archaeology were invited by WA Fairhurst & Partners, to maintain an archaeological watching brief on land at Furness College, Barrow in Furness, Cumbria (centred on SD 1881 6968; Figure 1), during the excavation of drainage trenches within the development area, and the redevelopment of several college buildings. The proposed works lie within an area of intensive 19th and 20th century industrial activity. A previous desk-based assessment (Wooler 2008) identified a number of historic structures and features within the development area that were likely to be impacted upon by the proposed development. As a result, the Cumbria County Council Historic Environment Service (CCCHES) granted planning consent for the development (Application No. BO6/2008/1552/JH/TP.11), on the condition that the proposed works be subject to a programme of archaeological observation and investigation. This is in line with government advice as set out in the DoE Planning Policy Guidance on Archaeology and Planning (PPG 16).
- 1.1.2 The groundworks associated with the first phase of the work had to be excavated under archaeological supervision and all stages of the archaeological work were undertaken following approved statutory guidelines (IfA 2002), and were consistent with the specification submitted by WA Fairhurst & Partners (Railton 2009) and generally accepted best practice.
- 1.1.3 This report outlines the monitoring works undertaken during the first stage of the development, the subsequent programme of post-fieldwork analysis, and the results of this scheme of archaeological works.
- 1.1.4 The groundworks associated with the development of the new college buildings (Phase II) are scheduled to begin in June 2010. The planning condition for Phase II of the work is not affected by the results of Phase I.

2 METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A project design was submitted by WA Fairhurst & Partners for an archaeological watching brief of the study area. Following acceptance of the project design by the Cumbria County Council Historic Environment Service (CCCHES), North Pennines Archaeology Ltd was commissioned 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 WATCHING BRIEF

2.2.1 The works involved a structured watching brief to observe, record and excavate any archaeological deposits from the development site. A watching brief is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons, on a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed (IfA 2008).

2.2.2 The aims and principal methodology of the watching brief can be summarised as follows:

- to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record them;
- to carry out further excavation and recording work in adequate time, if intact archaeological remains are uncovered during the project;
- to accurately tie the area watched by the archaeologist into the National Grid at an appropriate scale, with any archaeological deposits and features adequately levelled;
- to sample environmental deposits encountered as required, in line with English Heritage (2002) guidelines;
- to produce a photographic record of all contexts using colour digital and monochrome formats as applicable, each photograph including a graduated metric scale;
- to recover artefactual material, especially that useful of dating purposes;

- to produce a site archive in accordance with MAP2 (English Heritage 1991) and MoRPHE standards (English Heritage 2006).
- 2.2.3 Archaeological monitoring and supervision of works associated with the first phase of development of Furness College was undertaken intermittently over 13 days between the 14th December 2009 and the 4th March 2010.
- 2.2.4 All monitored groundworks were conducted by mechanical excavator under close archaeological supervision. The groundworks were subsequently investigated and recorded according to the North Pennines Archaeology Ltd standard procedure as set out in the Excavation Manual (Giecco 2003).
- 2.2.5 A summary of the findings of the first stage of the watching brief is included within this report.

2.3 THE ARCHIVE

- 2.3.1 A full professional archive has been compiled in accordance with the specification, and in line with current UKIC (1990) and English Heritage Guidelines (1991) and according to the Archaeological Archives Forum recommendations (Brown 2007). The archive will be deposited within the Dock Museum, Barrow-in-Furness, with copies of the report sent to the County Historic Environment Record at Kendal, Cumbria, available upon request. The archive can be accessed under the unique project identifier **NPA09, FCB-A, CP 928/09**.
- 2.3.2 North Pennines Archaeology, and Cumbria 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 North Pennines Archaeology, as a part of this national project.

3 BACKGROUND

3.1 LOCATION AND GEOLOGICAL CONTEXT

- 3.1.1 Barrow in Furness is located in the south of Cumbria, on the west side of Morecambe Bay and to the east of Duddon Sands, on the Furness Peninsula. Geographically, the Furness Peninsula forms part of the Cumbrian land mass, although historically it was part of Lancashire.
- 3.1.2 The town of Barrow-in-Furness is situated on the west side of the Furness Peninsula, and lies protected from the Irish Sea by the distinctive linear shape of Walney Island (Figure 1). The town lies on relatively flat land at heights varying between c.10 to 90 metres above mean sea level.
- 3.1.3 The geology of the area around Barrow-in-Furness consists of new red sandstones, part of the Triassic system, which form the bedrock of the Barrow Peninsula and Walney Island. These were quarried near Hawcoat and Furness Abbey. The surface of Walney Island consists entirely of glacial and post-glacial deposits. To the north of Barrow-in-Furness, the solid geology consists of carboniferous limestone. This contained pockets of haematite iron ores, which for many years were the mainstay of the local iron industry (Barnes 1968).
- 3.1.4 The relatively warm winters, cool summers and humid climate has favoured pastoral rather than arable farming in the area. The principal form of farming in the hilly districts to the north of the town is sheep rearing, whilst on the lowland areas, dairying is the major agricultural economy. Oats have historically been the main crop instead of wheat due to the climate (*op cit*).

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 within the study area.
- 3.2.2 **Prehistoric:** the earliest evidence for human occupation on the Furness peninsula would appear to date to the Mesolithic period (c.10,000 years ago), in the form of rubbish middens found along the coast of Walney. Such coastal locations offered plentiful seafood, ease of movement (at a time when most of the area was still densely wooded), and access to flint on the beaches (Trescarethic 1992).
- 3.2.3 There is evidence for Neolithic (c.4000BC) activity in the areas surrounding Barrow-in-Furness, with pottery of that period having been found at North

- End and Trough Head on Walney (Barnes 1968), as well as early Neolithic sherds recently excavated at Holbeck Park, to the east of the town (Brennand *et al* 2007). The discovery of Neolithic stone axes, adzes and other stone implements in the environs of Barrow-in-Furness, also suggests human activity in that period.
- 3.2.4 Evidence for Bronze Age (c.2000BC) activity in the area around Barrow-in-Furness is perhaps more prolific. Burials in the form of round barrows, cists and urn-fields are known. One such site is Roosecote (to the southeast of the town), where a tumulus was found in 1810 containing cremated remains with two small urns of the food-vessel and incense-cup type. At Birkkrigg, located to the south of Ulverston, excavations in 1911 and 1921 revealed burials dated by the type of urn found to the Late Bronze Age (Barnes 1968).
- 3.2.5 The site of Stone Walls at Urswick, to the northeast of Barrow-in-Furness, may provide the best evidence for Iron Age (c.700BC to AD43) activity on the Furness Peninsula. The site consists of two enclosures built on a natural terrace of limestone, with evidence for small circular huts within the interior. Stone Walls has been partly excavated, and it has been suggested that part of the site was constructed in c.200BC (*op cit*).
- 3.2.6 There is no evidence of prehistoric activity within the immediate vicinity of the proposed development area.
- 3.2.7 **Roman (c.AD43 – AD410):** There is no known evidence for Roman activity at Barrow-in-Furness or its environs (Cumbria County Council/English Heritage 2002), however this does not mean that the area was not inhabited during this period. Writing in 1794-1797, Hutchinson refers to a possible Roman fort at Dalton, although he notes that at that date no coins or inscriptions had been found to support this theory. He also refers to a section of 'Roman' road being uncovered in 1771, '*opposite to Mountbarrow House..*' (Hutchinson 1794-1797). Given the locations mentioned, it would appear that these sections of supposed Roman road were situated south of Ulverston. The Roman army was certainly present in this part of Cumbria, as shown by the forts at Ravenglass and Ambleside, and Hutchinson suggested that Furness was the ideal location for a beacon, which could be easily seen from the Roman fort at Lancaster (*ibid*). Despite the lack of artefactual evidence for Roman or Romano-British occupation in Furness during this period, it is possible that the area continued to be farmed as it had been for centuries before, and that the Roman army bypassed the area, although the potential for the coastal sites to have been utilised needs to be considered.
- 3.2.8 The potential for a Roman fort at Barrow-in-Furness has recently been highlighted in the Research Agenda and Strategy volume of *An*

Archaeological Research Framework for North West England (Brennand *et al* 2007), although it does not state on what this potential is based.

- 3.2.9 **Medieval (c.AD410 –AD1485):** Place names in and around Barrow-in-Furness provide some evidence for settlement in the area during the earlier medieval period. However, there are very few known Anglo-Scandinavian sites or findspots in the Barrow area. At Urswick Church, two fragments of Anglo-Scandinavian crosses were discovered within the fabric of the building in the early part of the 20th century, one fragment dating to c.AD900, whilst the other dates to between AD950-1000. At Rampside, a burial was uncovered in the churchyard containing a Viking sword of c.9th century date (Barnes 1968).
- 3.2.10 Following the Norman Conquest in 1066, William the Conqueror granted Furness to Roger de Poitou, which then passed to Stephen, Count of Bolougne and Mortain, later King of England. In 1086, the Domesday Survey included modern-day Furness as part of 'Agemundreness' (Amounderness), in the West Riding of Yorkshire, the bulk of Furness being in the Manor of Hougun. The entry in the Domesday Book covering Hougun refers to when the manor was held by Tostig in 1060, and mentions place names such as *Hietun* (Hawcoat), *Daltune* (Dalton), *Rosse* (Roose), *Hougenai* (Walney) and *Neutun* (Newton) (*op cit*).
- 3.2.11 In 1124 Stephen gave lands in Amounderness to the Abbey of Savigny in Normandy, and a monastery was founded at Tulketh. In 1127, these lands were exchanged for territory in Furness and the Abbey of St Mary was founded (Barnes 1968). The monks established granges (farms) which eventually grew into villages in the area round modern Barrow. In 1247 there were granges at Walney Island, North scale, North and South End, and Salthouse. By 1292 there were granges at Biggar, North Scale, *Barray* and at *Roos* amongst others. In 1336 there are records of a grange at Cocken (Cumbria County Council/English Heritage 2002). The original hamlet of *Barrai* created by Furness Abbey was probably in the vicinity of modern Schneider Square and the southern end of Dalton Road (Trescaheric 2000).
- 3.2.12 Up until at least 1350 the land between Barrow and Cocken (located to the north of the present town and Hindpool) was uncultivated waste, but at some time between 1336 and 1509 this land was reclaimed under the supervision of the Abbot of Furness and was divided into eight farms of four whole burgages of Barrowhead. Three of these burgages were attached to Barrowhead and the fourth eventually became the Hindpool Estate (Melville 1956).
- 3.2.13 During the 14th century, the Furness area suffered from Scottish raids, once in 1316, and again in 1322. The Chronicle of Lanercost tells of the first raid, and how the Scots invaded England, burning and laying waste until they reached

Richmond Castle, where having received a large sum of money they then marched 60 miles west 'laying waste everything as far as Furness and burnt whither they had not come before, taking away with them all the goods of the district, with men and women as prisoners....' (Barnes 1968). During this period, Piel Castle (c.1327), Dalton Tower (c.1314), Gleaston Castle (c.1325) (Salter 1998), as well as many other examples were constructed, presumably as a direct result of the threat of Scottish raids.

- 3.2.14 **Post-medieval and Modern (c.AD1485-Present):** It has already been noted that the origins of the Hindpool Estate, on which the proposed development site is located, lay in burgages attached to Barrowhead. According to Melville, two new farmhouses were constructed at Hindpool in the early 16th century, although original houses at Barrow remained. The exact position of these two farmhouses is unknown but they may have been in the location of houses shown on the early editions of the Ordnance Survey maps (WA Fairhurst & Partners 2008).
- 3.2.15 During the 16th and 17th centuries, iron ore continued to be smelted, although this appears to have been confined to a domestic scale (Barnes 1968). The sale of iron subsidised the living that farmers made from sheep, and the clearance of the land for charcoal-burning enabled more sheep to be kept to feed the flourishing cloth industry centred on Kendal. Although farmers could make their own charcoal and smelt the ore, the equipment needed to forge the raw iron was expensive; consequently an important development in the local iron industry was the establishment of forges for working the raw iron from the bloomeries. Forges were constructed at Force Forge (Rusland) in the middle of the 17th century, and Cunsey Forge (Windermere) was in existence in 1623 (*ibid*), both are located some distance north of Barrow.
- 3.2.16 By the beginning of the 18th century, the industrialisation of the Furness area really began to take off. Barnes describes the various workings, which operated in the higher areas of Furness during this period; at Duddon, Nibthwaite, Backbarrow, Cunsey, Arnside and Rusland to name, but a few (*op cit*). By the latter half of the 18th century Hutchinson noted that approximately 8000 tons of iron ore a year was being exported from Barrow, as well as exports and imports being undertaken at Ulverston and Kirkby (Hutchinson 1794-197). The shelter of Walney Island offered a safe harbour at Barrow, and Furness iron ore had been exported from there to smelting works in Wales and the Midlands since the 1740s (Trescaheric 2000). During the Industrial Revolution, Furness haematite was increasingly in demand, with 11,000 tons being raised in 1800 rising to 75,000 tons in 1840, but the carriage of the ore still proved difficult due to the small amount hauled at any one time on the primitive roads (*ibid*).

- 3.2.17 In the middle of the 18th century Barrow consisted of only eight houses, five were in use as farmhouses. When the ore shipments started in quantity around 1790, three houses for labourers connected with the ore traffic were erected, whilst small agricultural buildings such as pig sties and hen roosts were converted to dwellings (*op cit*). Even at the beginning of the 19th century, Barrow was still a hamlet in the parish of Dalton consisting of 11 dwelling houses (Parson and White 1829).
- 3.2.18 It was the coming of the railways which was the stimulant for the development of Barrow into an industrial town and municipal borough. Prior to the opening of the Furness Railway in 1846 and the choice of Barrow as its headquarters, the town was primarily a port for the export of iron ore, slate and agricultural produce (Barnes 1968).
- 3.2.19 In 1854, the Hindpool Estate, previously owned and occupied by John Cranke, was advertised for sale (following his death) by auction at the Sun Hotel, Ulverston. The estate comprised approximately 160 acres of land with house and farm buildings, along with a joiners shop, dwelling house and several cottages, and a pew in Dalton Parish Church (Cumbria County Council, Undated). The sales particulars and plan provide an interesting insight into how the Hindpool Estate was perceived as being useful as the site of a new planned town.
- 3.2.20 The Furness Railway bought the Hindpool Estate for £7000, and in November 1854, James Ramsden (general manager then director of the company, and who is credited with the building of the town of Barrow), submitted a plan to the Furness Railway directors (Marshall 1958). This plan shows that the land on which Furness College now stands, was originally reserved for shipbuilding or timber yards, all connected to the Furness Railway (*ibid*). According to Melville, shipbuilding yards must have been previously located closer to the site of Barrow village, as he notes that in 1863, the Furness Railway Company proposed a scheme of docks which provided better facilities for vessels visiting the port for iron ore, allowing ships to remain afloat during all stages of the tide. To do this it was necessary to move the existing shipyards to the site originally proposed in 1854, north of Hindpool House (Melville 1956), and consequently on part of the land now occupied by Furness College.
- 3.2.21 One of the main factors in the development of Hindpool, especially as a populated district, was the construction of the Iron and Steel Works. Messrs Schneider and Hannay & Co, proprietors of some of the richest iron ore mines in the area, decided to exploit the mineral to the best advantage. As there was an abundant supply of limestone locally, the company decided to erect some blast furnaces at Hindpool, with the first furnace put in blast towards the end of 1859. In 1864, James Ramsden formed the Barrow Steel

Company, which was erected immediately opposite the blast furnaces, where pig iron from the furnaces was converted into Bessemer Steel, used for the manufacture of railway tracks, axles, tyres etc. In 1866, the undertakings of mining the ore, producing pig iron and converting it into steel were amalgamated, and the Barrow Haematite Steel Co Ltd was created, with James Ramsden as managing director (*op cit*). By 1876, there were 16 furnaces on the site, with an average weekly capacity of 500 tons.

- 3.2.22 A consequence of the rapid industrialisation of Hindpool and Barrow was the influx of workers and their families into the area. In 1847, the population of Barrow numbered 300, by 1864 it had increased to over 11,000 and in 1871 it had become 18,000. By the time Barrow ceased to expand in 1881, the population had reached 47,259 (Cumbria County Council/English Heritage 2002). Housing laid out in a grid pattern was constructed to the east of the Iron and Steel Works. The Steel Company commissioned terraces for their ironworkers at the Cemetery Cottages, for miners at Roose Cottages and an 800 house estate at Hindpool. All of these company houses were rented, which gave employers further control over their workers (Trescaheric 2000). Housing appears to have all been located to the east of the works at Hindpool, and consequently there is no evidence of dwellings being present on the Furness College sites.
- 3.2.23 Some of the buildings relating to the original Hindpool Farm still survived in 1880, by which date the barns had been converted into a Brass Foundry by James Higginson, and which continued to operate as such up until the 1950s. The farmhouse, 'a usual type of 18th century date', became derelict in 1942 as a result of bombing, and in the 1950s it was described as a complete ruin (Melville 1956). Hindpool Farm appears to have been located to the southeast of the Furness College site, on the north side of North Road.
- 3.2.24 By the turn of the 20th century, the demise of the steel industry in the area had already begun, as a process was discovered which permitted the use of ores much inferior to the rich haematite ores of the Barrow area. Furness ores were rich in iron properties, almost pure iron, but lacked the large phosphorous content of the cheaper ores which could now be removed and those ores substituted. This caused a fall in trade in the area, with the result of unemployment and depression (Kellett 1990). However, the Barrow Iron and Steelworks managed to continue to survive.
- 3.2.25 At the start of the 20th century shipbuilding became the dominant industry of the town of Barrow. At the end of the 19th century, Britain's rapidly expanding trade routes prompted an increasing demand for ships (Harris 1989). Although some shipbuilding had taken place at Hindpool, the main focus of the industry became centred on Old Barrow Island, where the Barrow Iron Shipbuilding Company was founded in 1870 (Cumbria County

Council/English Heritage 2002). In 1886 the yard changed hands, and became the Naval Construction and Armaments Company; however by 1897 Vickers Sons and Maxim Ltd had taken over and so began a new period in Barrow's history at a time when the steelworks were starting to flounder (Trescaheric 2000).

- 3.2.26 During the First World War, Barrow's industries flourished; Vickers operations expanded not only at Barrow but at its other sites at Sheffield, Crayford and Erith (Stratton and Trinder 2000) and its production changed to naval construction, such as cruisers, a large number of submarines, and engines and boilers for ships under construction elsewhere. To help replace shipping losses, the Ferro-Concrete Ship Construction Company had been set up in the town and concrete vessels were constructed between 1918 and 1919 on slips just north of the Graving Dock (Barnes 1968), possibly just to the south of the proposed development sites at Furness College.
- 3.2.27 During the Second World War, Barrow's industries of shipbuilding and ironworks attracted the attention of the Luftwaffe, and the town suffered from bombings in 1941. During April and May in that year, over 100 houses were destroyed and 500 had to later be demolished; another 10,700 received some form of damage. A total of 83 people died in the Blitz and there were 330 injured. The town had attempted to protect itself from air attack; anti-aircraft guns were placed on Walney and at Hawcoat, and a ring of barrage balloons were hoisted from sites at Biggar Bank, Park Drive and the Paper Works. 'Ghost towns' of poled lights were erected in Walney Channel and Rampside. These were designed to mislead the Luftwaffe but the shape of the Furness peninsula and Walney Island was too distinctive to be confused by decoy sites (Trescaheric and Hughes 1979). Considering that Barrow was not well defended, the major industries did not suffer from the German attacks, although Vickers did receive a high proportion of unexploded bombs (*ibid*).
- 3.2.28 Following the Second World War, Barrow faced a serious housing problem. Temporary pre-fabricated bungalows were constructed at Hindpool and Tummerhill on Walney, and at Ormsgill, two-storey metal clad houses were erected. Council houses were built at Greengate in the late 1930s, and the Newbarns estate was developed throughout the 1950s (Trescaheric 200). As the Ironworks at Hindpool continued to operate during this period, none of these housing schemes were located close to the proposed development sites.
- 3.2.29 The steelworks at Barrow continued to operate through two World Wars, recession periods, changes of name and managements, and nationalisation, until recession and rationalisation of steel production resulted in final closure in 1983. The main entrance archway to Walney Road was dismantled carefully and re-erected by Messrs T Brady & Son Ltd, who had a transport

complex at Walney Road. By 1990, the buildings, railway sidings and blast furnaces had been reduced to scrap and rubble, and even the large slag banks which dominated the horizon to the north for many years was being reduced and exported to the south of England by sea (Kellett 1990). The 1990s saw the redevelopment of the town centre along with the old Hindpool Channelside, as part of the Project Furness scheme (Trescaheric 2000).

3.3 PREVIOUS WORK

- 3.3.1 One of the two archaeological investigations undertaken within 500m of the proposed development sites was a Cultural Heritage Assessment, compiled by Capita dbs in 2003. This was a technical study of Channelside, and focused on seven specific areas: Slag Bank North End, Cocken Access Area, Former Landfill Site, Phoenix Road, Cocken Villa, Cocken Lake and Bessemer Way. Study area 7 – Bessemer Way, was centred on NGR SD 1880 7000 (which is actually north of Bessemer Way) and includes part of the northern proposed development site at its southern most point. Geotechnical investigations undertaken in 1984 revealed made-ground underlain by glacial till, with the boreholes reaching a maximum depth of 12m. In 1988, further boreholes and test pits were dug in the area of the former steel works. These revealed a layer of made ground between 1m and 10m thick, overlying glacial soils at least 24m deep. During May 1995, 43 trial pits were excavated with maximum depths of 5.6m attained and the exposed deposits were predominantly cemented and fused slag, which was estimated to be 10m deep.
- 3.3.2 In 2003, at the south end of the site, roughly in the location of the northern development site (although no plans were included in this study to confirm this), 12 boreholes revealed depths of made ground of around 3m deep. This made ground included fused slag, concrete, bricks, organic clays, sands and gravels, sheet steel and beams, remains of foundations, and some ground contamination. Several brick-lined channels were seen between 0.7m-1.5m below the existing ground surface, some partly infilled. These channels may have been associated with the movement of air to the blast furnaces (Capita dbs 2003). This study of the area referred to as Bessemer Way, concluded that, unlike other sites now within the Furness Business Park, this area was not capped by a layer of white cooled slag material, and the study area contained a considerable amount of made ground, which will contain information relating to the previous structures on the site and the organisation of the complex.

- 3.3.3 Also in 2003, Ironbridge Archaeology undertook an archaeological evaluation at Barrow Ironworks (Centred on SD 1881 7007). This work consisted of three trial trenches and four test pits, which revealed the bases of the blast furnaces along with a complex network of well preserved brick-built culverts for conveying gases to and from the work areas. Other elements of the ironworks found to survive were features associated with the steam engine shed and the later gas engine shed (TCWAAS 2004).
- 3.3.4 In 2008, WA Fairhurst & Partners commissioned North Pennines Archaeology Ltd to undertake a desk-based assessment of the proposed development area. The assessment concluded that the potential survival of archaeological features and deposits relating to late 19th and 20th century industrial activity on the site was high, but any earlier archaeological features were unlikely to survive (Wooler 2008).

4 ARCHAEOLOGICAL WATCHING BRIEF

4.1 INTRODUCTION

4.1.1 The discussion presented below comprises the results of the first phase of the archaeological watching brief undertaken at Furness College. The first phase of the watching brief monitored the excavation of drainage trenches at the northern end of the study area, within the college car park which measured approximately 1 hectare in size (Area A, Figure 2). All trenches during Phase I of the watching brief were excavated with a JCB JS130/3, using a 1.2m wide toothed bucket.

4.2 RESULTS

4.2.1 *Trench 1:* Trench 1 was located along the eastern boundary of Area A, towards the southern end of the area (Figure 3). The trench was aligned northeast to southwest and measured c.5.5m x 4m, and was excavated to a maximum depth of 2.2m. Trench 1 exposed a c.1.2m deposit of reddish brown silty gravel with moderate amounts of brick, slag and stone inclusions (103). The deposit had been used as backfill for an existing service pipe. The silty gravel backfill (103) was sealed beneath a c.0.6m deposit of made ground, which was comprised of a mid-brown silty gravel with frequent stone inclusions (102). The made-up ground (102) was directly below a c.0.3m layer of stone/gravel packing (105), and a c.0.1m deposit of stone/gravel surface (100) (Plate 1).

4.2.2 *Trench 2:* the southern end of Trench 2 was located approximately 7.5m east of Trench 1 (Figure 3), and ran across the centre of the site on a north to south alignment in order to house the main drainage pipe and four inspection chambers. Trench 2 measured c.77m in length and was excavated at an average width of 1.8m. The trench was excavated to a maximum depth of 2.6m at its southern end, which gradually decreased in depth to 1.8m at its northern extent (this excludes the four inspection chambers which were excavated in excess of 2.5m).

4.2.3 Trench 2 was largely comprised of orange/brown demolition rubble (106) which measured over 1.5m in depth and included bricks, slag and iron objects. Within the northern most c.15m of Trench 2, the demolition rubble (106) was replaced by a mid-brown silty clay make-up deposit (109), which measured over 1.2m in depth and retained moderate amounts of brick, slag and stone inclusions. Both the demolition rubble (106), and the silty clay make-up deposit (109) were sealed by a deposit of reddish brown silty gravel

(102) which measured an average depth of 0.4m, and retained frequent small angular stone inclusions. The silty gravel deposit (102) was sealed by a c.0.3m layer of stone/gravel packing (105), and a c.0.1m deposit of stone/gravel surface (100) (Plate 2).



Plate 1: North facing section of Trench 1

4.2.4 Two separate structures were noted during the excavation of Trench 2. A c.0.4m thick concrete pad (104) was noted with the southern most c.3m of the trench, which was above the demolition rubble (106), and was directly below the stone/gravel packing layer (105). However, the concrete pad was probably a relatively recent addition on the site, as it sealed the demolition rubble (106) and retained fragments of terram (Plate 3). Approximately 45m north of the concrete pad (104), within an area excavated to facilitate an inspection chamber, a redbrick wall was noted at a depth of c.2.7m below the surface. The north to south aligned wall (107) measured over 1.6m in length, 0.86m in width, and over 0.32m in height, and was comprised of over four courses of redbrick with mortar bonding (Plate 4). The wall (107) was encased in a deposit of crushed slag (108), which measured over 0.38m in depth and was sealed by the demolition rubble (106). The exact function and origin of both the concrete pad (104) and the redbrick wall (107) are unknown, although it is highly unlikely that either is related. It is possible that the redbrick wall (107) is related to one of several structures which can be seen in the vicinity of the wall on Ordnance Survey maps from 1873 through to 1982 (Figure 4).



Plate 2: East facing section of Trench 2



Plate 3: West facing section of Trench 2 showing concrete pad (104) below demolition (106)



Plate 4: Aerial view of redbrick wall (107)

- 4.2.5 **Trench 3:** Trench 3 was located approximately 2.5m east of Trench 1, and c.1m west of the southern end of Trench 2 in order to install a fuel interceptor tank (Figure 3). Trench 3 measured approximately 4m² and was excavated to a maximum depth of 3.4m, exposing natural orange sandy clay (**101**). Directly above the natural substrate (**101**), Trench 3 exposed a redbrick wall (**110**) which appeared to be aligned north to south (Plate 5). The wall (**110**) measured over 4m in length, c.1m in width and approximately 0.8m in height. A west-northwest to east-southeast aligned steel pipe, which measured c.0.8m in diameter and was of unknown origin, was also noted within the base of Trench 3 (Plate 6). The redbrick wall (**110**) and the steel pipe were sealed by a c.1m deposit of demolition rubble (**106**). This was further sealed by c.1.2m of made-ground (**102**) and c.0.3m of the stone/gravel surface (**100**). Due to the presence of the large steel pipe, the decision was taken to backfill Trench 3 and install the fuel interceptor further south.
- 4.2.5 **Trench 4:** Trench 4 was located approximately 10.5m east of the western boundary of the site, immediately south of Trench 3, in order to install the fuel interceptor tank (Figure 3). Trench 4 measured c.4m x c.3.2m, and was excavated to a maximum depth of 5m, exposing the natural orange sandy clay (**101**). The natural substrate (**101**) was sealed by a c.0.6m deposit of grey gravelly waste material (**112**). This was further below a dark brown silty clay and gravel demolition deposit (**113**) which measured c.0.65m in depth and

retained frequent amounts of yellow/white heated bricks. The remains of a further redbrick wall was revealed directly above the demolition deposit (113), at a depth of c.2.5m. The wall (111) measured over 0.3m in width, c.1m in height and was observed sporadically throughout the trench, although investigation of the wall (111) was not possible due to the unstable nature of Trench 4. The redbrick wall (111) was sealed by a c.1.95m deposit of the demolition rubble (106). This was further sealed by a c.1.2m layer of made-ground (102) and c.0.3m of the stone/gravel surface (100). The eastern edge of Trench 4 was extended by c.3m² and excavated to a depth of 3m in order to install a new inspection chamber. No further structural remains were noted.



Plate 5: View of redbrick wall (110) looking southwest



Plate 6: Base of Trench 3 showing redbrick wall (110) and pipe looking northeast

4.3 DISCUSSION

- 4.3.1 It is possible that the wall (110) noted in Trench 3, and the wall (111) noted in Trench 4, are contemporary with the redbrick wall (107) noted approximately 50m further north within Trench 2. However, whilst the wall (107) within Trench 2 may be related to one of several structures which can be seen in the vicinity on Ordnance Survey maps from 1873 through to 1982 (Figures 4), the area around Trenches 3 and 4 further south appear to be largely devoid of any substantial structures throughout most of the sites history, although a substantial building associated with the engine works is clearly shown on the Ordnance Survey map of 1891, which is situated within the immediate vicinity of the two walls (110) and (111) (Figure 4). Unfortunately, due to health and safety issues, the archaeological features revealed during the watching brief could not be thoroughly investigated. Without further evidence, the relationship between the observed structures and their provenance must remain speculative.
- 4.3.2 The remaining deposits observed during the first phase of the watching brief attest to the almost complete destruction of the industrial structures which once occupied the northern development area. Furthermore, given the depth of the observed structural remains, and the depth of the rubble deposits, it is unlikely that any archaeological remains survive above a depth of 2.5m within Area A.

4.4 ARCHAEOLOGICAL FINDS AND ENVIRONMENTAL SAMPLING

4.4.1 No archaeological finds were recovered, and no environmental samples were retained during the first phase of the watching brief.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

- 5.1.1 The first phase of the archaeological watching brief was conducted over 13 days between the 14th December 2009 and the 4th March 2010. The first phase monitored groundworks associated with the excavation of several drainage trenches within the college car park, at the northern end of the study area.
- 5.1.2 The excavated deposits exposed during Phase I were largely comprised of rubble backfill and modern made-up ground to a depth of *c.*2.5m. However, below this depth, three redbrick walls were noted across the site. Although it was not possible to accurately date these structures, cartographic evidence indicates that there have been several buildings related to the ironworks from 1891 to 1982, which could be associated with the identified remains.
- 5.1.3 The deposits observed during the first stage of the watching brief attest to the almost complete destruction of the industrial structures which once occupied the northern development area. Furthermore, given the depth of the observed structural remains, and the depth of the rubble deposits, it is unlikely that any archaeological remains survive above a depth of 2.5m within Area A.

5.2 RECOMMENDATIONS

- 5.2.1 As the first phase of the watching brief was conducted as part of a condition to monitor the excavation of several drainage trenches within the northern section of the proposed development area, no further archaeological work is deemed necessary. However, it is recommended that any future excavation below a depth of 2.5m within this area be subject to a similar programme of archaeological investigation.
- 5.2.2 The results of the first phase of work do not affect the second phase of work within Area B further to the south.

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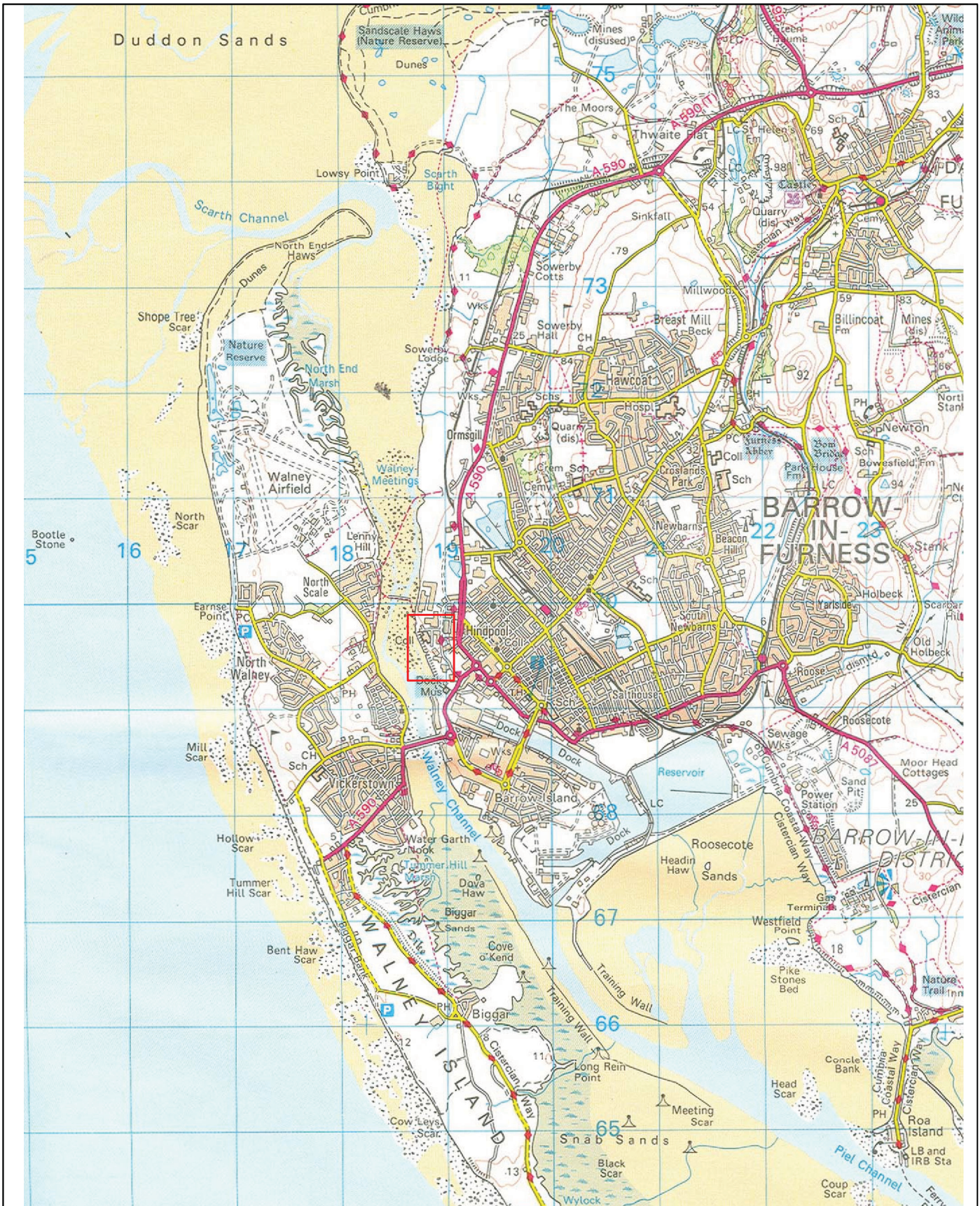
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APPENDIX 1: CONTEXT TABLE

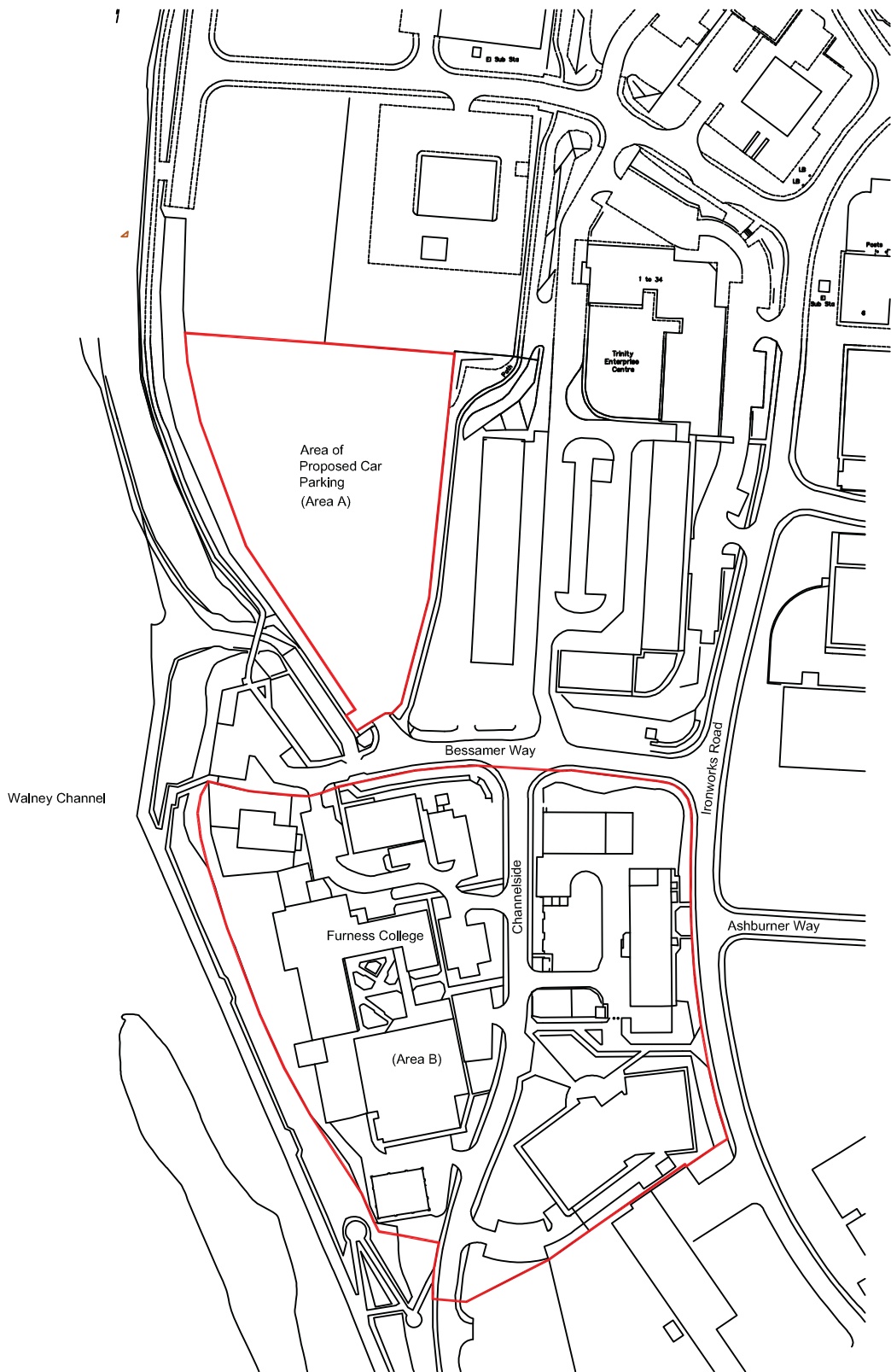
Context Number	Context Type	Description
100	Deposit	Stone/Gravel Surface
101	Geological	Natural Substrate
102	Deposit	Made-up Ground
103	Deposit	Silty Gravel/Brick Backfill
104	Deposit	Concrete Base
105	Deposit	Stone/Gravel Packing Layer
106	Deposit	Demolition Backfill
107	Structure	Brick Wall (Tr.2)
108	Deposit	Crushed Slag
109	Deposit	Silty Clay Made-up Ground
110	Structure	Brick Wall (Tr.3)
111	Structure	Brick wall (Tr.4)
112	Deposit	Grey Stone Deposit
113	Deposit	Demolition Deposit

Table 4: List of Contexts issued during Watching Brief

APPENDIX 2: FIGURES



 <p>North Pennines Archaeology Ltd 2010</p>	<p>PROJECT: Furness College, Channelside</p> <p>SCALE: 1:50 000</p> <p>REPORT No: CP 928/09</p> <p>CLIENT W A Fairhurst & Partners</p> <p>DRAWN BY: FW</p> <p>DATE: March 2010</p> <p>FIGURE: 1</p>	<p>KEY:</p> <div style="border: 1px solid red; width: 40px; height: 20px; display: inline-block; margin-right: 10px;"></div> <p>Site Location</p>	 <div style="border: 1px solid black; padding: 5px; font-size: 8px; margin-top: 10px;"> Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100014732 </div>
	<p>Figure 1: Site Location</p>		



North Pennines Archaeology Ltd
2010

PROJECT: Furness College, Channelside
 SCALE: 1:2500
 REPORT No: CP 928/09
 CLIENT: W A Fairhurst & Partners
 DRAWN BY: FW
 DATE: March 2010
 FIGURE: 2

KEY:

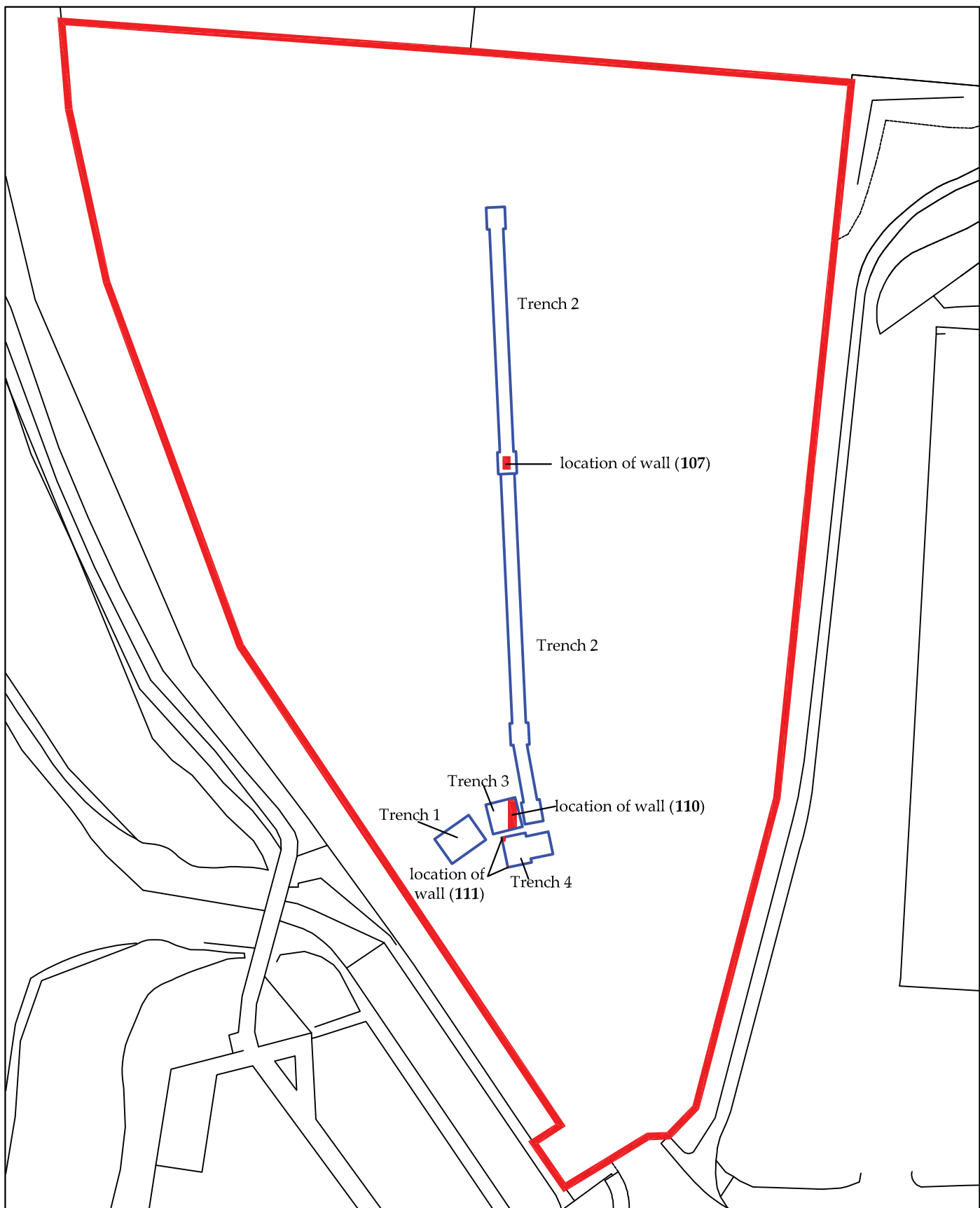


Site Boundary



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Figure 2: Site Plan







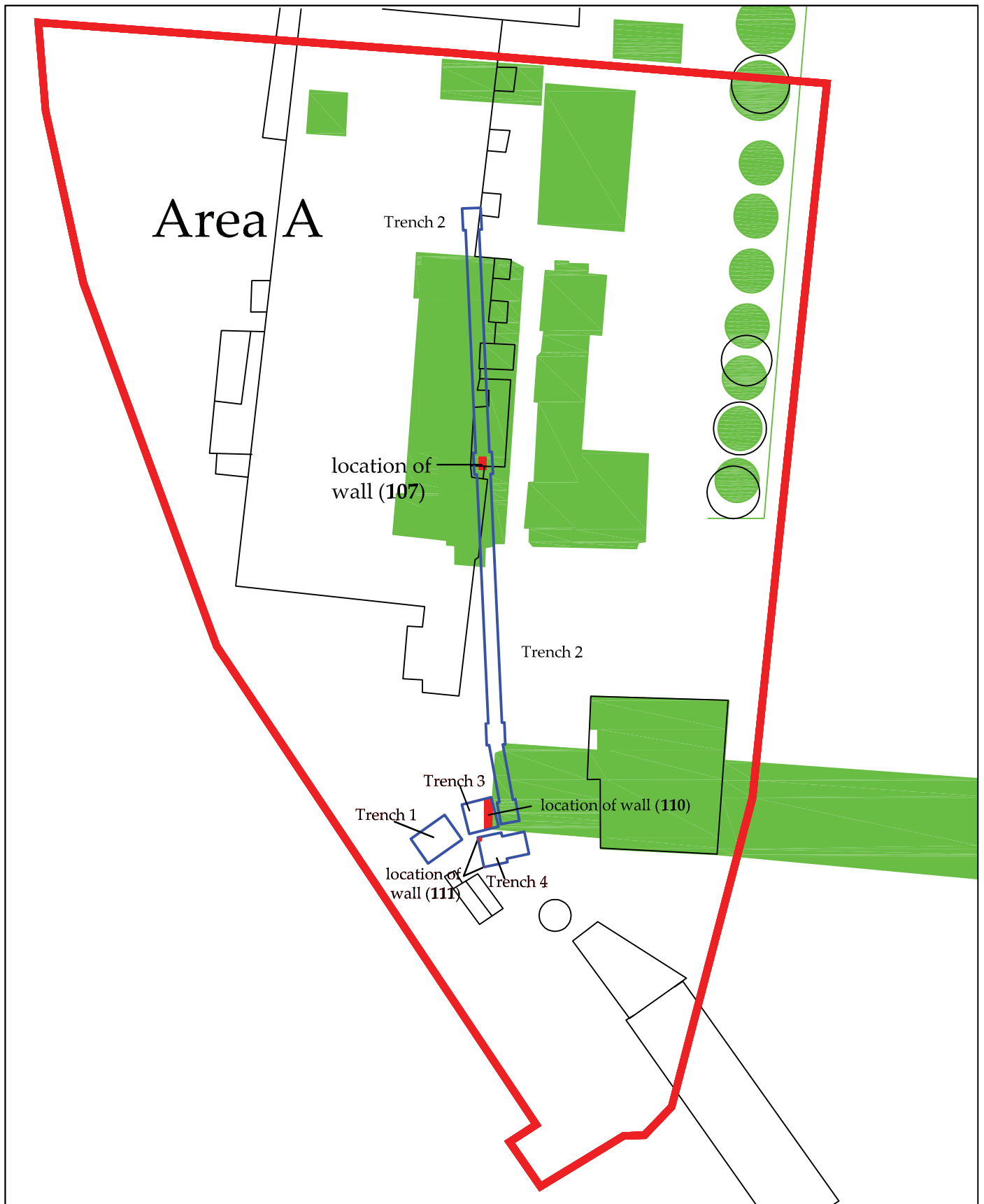
 <p>North Pennines Archaeology Ltd 2010</p>	<p>PROJECT: Furness College, Channelside SCALE: 1:700 at A4 REPORT No: CP/928/09 CLIENT W A Fairhurst & Partners DRAWN BY: DJ DATE: March 2010 FIGURE: 3</p>	<p>KEY:</p> <p> Site Boundary</p> <p> Trench Location</p>	 <p>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100014732</p>
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
Figure 3: Trench Location Plan (Area A)



North Pennines Archaeology Ltd
2010

PROJECT: Furness College, Channelside
 SCALE: 1:1000 at A4
 REPORT No: CP 928/09
 CLIENT: W A Fairhurst & Partners
 DRAWN BY: DJ
 DATE: March 2010
 FIGURE: 4

KEY:

-  Site Boundary
-  Trench Location
-  Buildings shown on 1873/1891 OS maps
-  Buildings shown on 1913-1982 OS maps



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Figure 4: Buildings shown within study area from 1873-1982