



**DESK-BASED ASSESSMENT
AND
GEOPHYSICAL SURVEY**

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**LAND AT
GRANGE ROAD
FENHAM
NEWCASTLE UPON TYNE**

prepared for

Bellway Homes (North East)

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LAND AT GRANGE ROAD, FENHAM, NEWCASTLE UPON TYNE

DESK-BASED ASSESSMENT AND GEOPHYSICAL SURVEY

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LAND AT GRANGE ROAD, FENHAM, NEWCASTLE UPON TYNE

DESK BASED ASSESSMENT AND GEOPHYSICAL SURVEY

Summary

Northern Archaeological Associates was commissioned by Bellway Homes Ltd to undertake an archaeological desk-based assessment and geophysical survey to support a planning application for a proposed development of 40 dwellings on land at Grange Road, Fenham, Newcastle upon Tyne.

The development area was formerly occupied by Rutherford Lower School, built in the 1950s and demolished sometime between 2010 and 2012. The site is now grassed-over and becoming overgrown.

This assessment has collated data from a number of sources including the Tyne and Wear Historic Environment Record, published and unpublished documentary sources, historic mapping, geotechnical investigations, a site visit and geophysical survey. These have been used to create a baseline data set against which to assess the potential impact of the development proposals on heritage assets, including archaeological remains, within a radius of 500m of the site.

The assessment has found that there are no previously recorded archaeological or heritage assets within the site boundary apart from a small post-medieval quarry. However, the site lies immediately to the north of Benwell Roman Fort, which forms part of the UNESCO Hadrian's Wall World Heritage Site. It is possible that remains relating to the fort defences or the Hadrian's Wall ditch may extend into the southern edge of the site. In addition, a Roman road leading from the north gate of the fort has recently been discovered immediately to the south of the site, and is likely to have continued into the proposed development area. There is little evidence for prehistoric or post-Roman remains in the area.

There is some evidence for unrecorded coal-mining in the immediate area, of unknown date but almost certainly pre-19th century. A mine shaft was recorded in the 19th century within the Roman fort a short distance to the south of the site, and recent test-pitting has identified colliery waste which may be associated with it. Geotechnical investigation within the site has identified unrecorded shallow mine workings.

Apart from the World Heritage Site, there are a number of designated heritage assets within the study area. Two Scheduled Monuments, split between seven discrete areas within and adjacent to Benwell Roman Fort and Hadrian's Wall, lie within the World Heritage Site and represent selected elements of the Roman archaeology of the area. One component of one of the Scheduled Monuments (the Temple of Antenociticus) is also a Grade 1 Listed Building. There are four other Listed Buildings within the study area; however, all lie at some distance from the development area and none are intervisible with it. There are no Registered Parks and Gardens, Registered Battlefields or Conservation Areas within the study area.

The baseline data has been reviewed to ascertain the potential for previously unrecorded archaeological assets to be present within the site. The review has found that there is a low potential for prehistoric or early medieval remains. There is a high potential for Roman remains to be present in the area, including the Roman road running northwards from Benwell Roman Fort and any associated features. There is a moderate potential for medieval and post-medieval agricultural activity within the site and a moderate potential for non-agricultural activity (mining and quarrying) dating to these periods. Both types of evidence are considered to be of local significance only.

Geotechnical investigations on the site have shown that there is a significant depth of made ground in the areas of an old quarry and the former school buildings in the central part of the site. This suggests that both may have had a significant detrimental effect on any archaeological remains which once have been present in this part of the site. Elsewhere within the area, to the north and south, lesser depths of made ground suggest that less modern disturbance has occurred and hence any below-ground archaeological remains may survive relatively intact.

Given the potential for Roman remains to be present within the development area, a geophysical (gradiometer) survey was carried out on the 5th of June 2017, covering an area of approximately 1.6 hectares. This survey detected large areas of magnetic disturbance, caused by magnetically susceptible material within the topsoil of the site, and above ground disturbances peripheral to the survey area. Areas with very high levels of magnetic disturbance in the centre of the site correspond with the location of former school buildings that were demolished between 2010 and 2012, and in the vicinity of former quarrying activity. It is possible that responses from any buried archaeological remains have been masked by the stronger magnetic responses caused by this modern activity. Any mining debris present will have had a similar masking effect.

The assessment has looked at the potential effects that the development may have on the historic environment. The proposed development area lies only 25m from the Hadrian's Wall World Heritage Site, although this part (within the compound of Fenham Reservoir) is not publically accessible and does not contain any visible Roman remains. Other parts of the World Heritage Site lie further from the proposed development and are screened from it by existing buildings including the reservoir, housing and Westgate Community College. None of the Scheduled Monuments and Listed Buildings lying within 500m of the site are intervisible with it and would be unaffected by the development.

The effects of the construction phases of the proposed development are likely to have significant impact upon any archaeological remains as may be present within the site, including the possible Roman road, possibly Hadrian's Wall ditch, and remains of medieval or post-medieval agricultural or extractive industries (mining or quarrying). Given the potentially international significance of any Roman remains which might be present, further evaluation in the form of archaeological trial trenching is recommended in order to assess presence/absence of any such remains across the site and, in present, to quantify their character and state of preservation, in order to support any planning application.

Should remains of Roman date be present within the development area, the assessment has identified considerable potential for interpretation and public engagement relating to the historic environment.

The extent and timing of any work should be agreed with the Tyne and Wear Archaeological Officer.

1.0 INTRODUCTION

1.1 This report presents the results of an archaeological desk-based assessment (DBA) and geophysical survey prepared in support of a planning application for a proposed residential development at Grange Road, Fenham, Newcastle upon Tyne (NZ 2163 6501, Fig. 1). The assessment was undertaken by Northern Archaeological Associates Ltd on behalf of Bellway Homes Ltd (North East).

1.2 The report describes the location of the Proposed Development Area (hereafter PDA) and its environs, and sets out the methodology and the information sources used for the study. It assesses the potential for the proposed development to cause any harm or loss to heritage assets or the setting of heritage assets and whether the proposals would comply with national and local planning policy as this relates to heritage.

2.0 LOCATION, TOPOGRAPHY AND GEOLOGY

Location

2.1 The PDA is located at to the north of the A186 West Road c.3km to the west of Newcastle city centre. It is bounded to the north-west by housing along Grange Road, to the north-east by housing along Acanthus Avenue, to the south-east by the grounds of Westgate Community College, and to the south by Fenham Reservoir and a television mast. The site is irregular in plan, measuring approximately 170m from east to west and 145m from north to south. It covers an area of approximately 2.11 hectares (Fig. 2).

2.2 The site was formerly occupied by Rutherford Lower School (originally Rutherford High School), which Ordnance Survey mapping shows was demolished after 2010 but prior to Google Earth imagery taken in 2012, and the site grassed over. It is now becoming overgrown and contains several small trees (Plates 1-4).

2.3 The central portion of the site was occupied by the school buildings, with tennis courts to the north, a car park to the south-east and a large grassed area to the south-west.

Topography

2.4 The site slopes gently down from a height of c.119m above Ordnance Datum (AOD) at its southern edge to c.117m AOD at its northern end. It also falls slightly to the

south-east where it connects through to the grounds of Westgate Community College (Plate 4).

Geology

- 2.5 The solid geology beneath the site consists of mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Formation (BGS GeolIndex 2017). Within this sequence is a series of coal seams. The superficial geology of site is mapped as Devensian Glaciolacustrine clay and silt (*ibid.*). Due to its urban character, the soils of the area have not been mapped (Soil Survey of England and Wales 1983).

3.0 PLANNING CONTEXT

Legislation and Policy

- 3.1 The legislation, policy and guidance against which development would be considered are:

- Ancient Monuments and Archaeological Areas Act 1979;
- Planning (Listed Building and Conservation Areas) Act 1990;
- National Planning Policy Framework (NPPF) (2012);
- Core Strategy and Urban Core Plan for Gateshead and Newcastle Upon Tyne (adopted 26th March 2015);
- Saved Policies of the Unitary Development Plan (UDP) (saved 2007)

Ancient Monuments and Archaeological Areas Act 1979

- 3.2 Statutory protection for archaeological sites, and historic structures, of national importance is provided by the Ancient Monuments and Archaeological Areas Act 1979.

- 3.3 The Act states that any works affecting a scheduled monument require permission, in the form of scheduled monument consent, from the Secretary of State.

Planning (Listed Building and Conservation Areas) Act 1990

- 3.4 Statutory protection for built heritage is principally provided by the Planning (Listed Building and Conservation Areas) Act.

- 3.5 In considering whether to grant planning permission for development which affects a Listed Building or its setting, Sections 16 and 66 of the Act require authorities to have special regard to the desirability of preserving the Listed Building or its setting or any features of special architectural or historic interest which it possesses.

National Planning Policy Framework (NPPF) (2012)

- 3.6 The NPPF sets out the Government's planning policies for England and how these are expected to be applied. At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development (para. 14). There are three dimensions to sustainable development: economic, social and environmental. The purpose of the planning system is to encourage sustainable development that makes a positive contribution to the quality of the built, natural and historic environment and contributes to the overall quality of people's lives (para. 14 and 9). To this end, economic, social and environmental gains should be sought jointly and simultaneously through the planning system (para. 8).
- 3.7 **Policy 7** addresses the importance of good design of new structures and features, in relation to the pre-existing environment. Paragraphs 60 to 63 require the local authority to '*respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation*' when making planning decisions.
- 3.8 **Policy 12: Conserving and enhancing the historic environment** sets out the framework for local planning authorities to make informed decisions on developments which affect heritage assets. Paragraphs 128 – 141 set out the information requirements and policy principles in relation to heritage assets.
- 3.9 Paragraph 132 states that '*when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation [...] significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting*'. The National Planning Policy Framework (NPPF) defines setting as '*the surroundings in which a heritage asset is experienced*'. Any harm to an asset's significance and setting requires clear and convincing justification and must be weighed against the public benefits resulting from the proposal.

- 3.10 Paragraphs 137-138 address the principles to be followed relating to development affecting a World Heritage Site. Paragraph 137 states that '*local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance*'. It is clarified that '*not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 133 or less than substantial harm under paragraph 134, as appropriate*' (Paragraph 128).
- 3.11 Details of other NPPF paragraphs relevant to this site are set out in Appendix 1.

Table 1: Core Strategy and Urban Core Plan for Gateshead and Newcastle Upon Tyne (adopted 26th March 2015) policies (Saved 2007) relevant to the site

Newcastle Core Strategy (adopted 2015)	
CS15: Place-making	<p>Development will contribute to good place-making through the delivery of high quality and sustainable design, and the conservation and enhancement of the historic environment.</p> <p>This will be achieved by:</p> <ol style="list-style-type: none"> 1. Development being required to: <ol style="list-style-type: none"> i. Respond positively to local distinctiveness and character, ii. Create safe and inclusive environments, iii. Ensure connectivity, accessibility and legibility, iv. Respect and enhance significant views and the setting of heritage assets, v. Respond to the unique character and importance of the River Tyne, its tributaries and its setting, vi. Respond positively to opportunities to introduce public art, and vii. Respond to local design and conservation guidance. 2. Taking a proactive approach to sustaining the historic environment in a manner appropriate to the significance of the relevant heritage asset and requiring development to support and safeguard the historic environment by: <ol style="list-style-type: none"> i. Promoting the use, enjoyment and understanding of the historic environment, ii. Positively responding to those heritage assets which are at risk, and not leaving heritage assets at risk, or vulnerable to risk, and iii. Where appropriate positively adapting heritage assets to ensure the continued contribution to quality of place.

Core Strategy and Urban Core Plan for Gateshead and Newcastle Upon Tyne (adopted 26th March 2015)

- 3.12 Policy CS15 of the Core Strategy addresses how development will contribute to place-making. This policy is set out in Table 1 (above).

Table 2: Saved Policies of the Unitary Development Plan (saved 2007) relevant to the site

H4	A high quality of design and landscaping will be required in all housing development. Particular attention will be paid to: E. The character and quality of the local environment.
EN1.1	All development will be required to meet high standards of design in accordance with the following principles: a. Retaining the best buildings; b. Taking full advantage of landform, landscape and other site features; c. Integrating development into its setting with regard to the scale and pattern of surrounding buildings and spaces, and links in the pedestrian route network; d. Relating to the materials and design characteristics of surrounding built development; e. Facilitating safe pedestrian movement; f. Designing for equal accessibility for all users regardless of age or disabilities, and minimising opportunities for crime; g. Ensuring new buildings are adaptable to use for other purposes; h. A comprehensive and co-ordinated approach to new developments of more than one building; i. Incorporating hard and soft landscaping as an integral part of design, maximising tree planting where appropriate, and providing for its long term maintenance; j. Minimising adverse impacts on nearby land uses; k. Minimising impacts on activities on neighbouring open land and countryside; and l. Maximising the use of buildings, structures and land forms to screen noise sensitive development and spaces.
C2	Alteration or extension of a Listed Building or other development which would harm its architectural or historic interest or setting will not be allowed.
C4	Development which would harm sites or areas of archaeological interest and their settings will not be allowed. [NB: The policy is not compliant with the NPPF and therefore will be given limited weight when determining planning applications) Including: Hadrian's Wall, Vallum and associated works; unscheduled areas of the known and presumed line of Hadrian's Wall, Vallum and Ditch Fortifications.
C4.2	Where a proposal may affect a site or area of archaeological interest, the developer will be required to submit an appropriate assessment of its potential impact upon the archaeological remains and where necessary undertake an archaeological field evaluation.
C4.3	Where assessment and evaluation have established that proposed development will adversely affect a site or area of archaeological interest, developers will be required to preserve archaeological remains in situ unless this is clearly inappropriate or the destruction of the remains is demonstrably unavoidable, in which case a programme of archaeological works shall be submitted to and agreed with the council before the start of development.
C4.4	Where proposed development would involve large scale ground disturbance in currently undeveloped areas developers will be required to submit a preliminary archaeological assessment to identify any sites or potential areas of archaeological interest.
C4.5	Where archaeological remains or artefacts are discovered accidentally during the course of development on previously unidentified sites, such finds should not be unnecessarily damaged or removed.

Saved Unitary Development Plan Policies (Saved 2007)

3.13 With regards to the historic environment, planning applications within Newcastle City and Gateshead are judged against the saved policies of the Unitary Development Plan (saved 2007). Most of the policies relating to heritage have been superseded by the Core Strategy and are included above; only those in Table 2 above remain relevant to the site.

Benwell Scotswood Area Action Plan Saved Policies

The Benwell Scotswood Area Action Plan (BSAAP) is a development plan document adopted by Newcastle City Council in 2009. At this date, the proposed development site formed part of one of the Key Sites (Former Westgate Community College site) subject to a series of specific Policies. Following adoption of the Core Strategy, some of the policies in the BSAAP were superseded and deleted following a review. Two policies (Policies EC5 and KS2) in the BSAAP relating to heritage and applicable to this Key Site were retained. However, both relate to that part of the Key Site lying within the Hadrian's Wall World Heritage Site to the south-east of the proposed development area, and are not considered to apply here.

4.0 DESIGNATED HERITAGE ASSETS

World Heritage Site

4.1 The PDA lies immediately to the north of Benwell Roman Fort, part of the linear frontier known as Hadrian's Wall. In 1987 the Wall was inscribed as a UNESCO World Heritage Site, and since 2005 has formed part of the wider Frontiers of the Roman Empire World Heritage Site together with the Roman frontier in Germany. The Hadrian's Wall World Heritage Site incorporates not just the wall itself and its integrated structures (such as the forts on the line of the wall), but also the chain of military installations that extended the system down the Cumbrian coast, other Roman sites which pre-dated construction of the wall, and some of the outpost forts to the north of the wall. Apart from the known archaeological sites themselves, the World Heritage Site incorporates a Buffer Zone of varying extent.

4.2 Along the section of Hadrian's Wall passing to the south of the PDA, the Buffer Zone of the World Heritage Site is mostly 100-150m wide where it follows the line of the Wall and associated linear features (the Wall ditch, military road and *Vallum*), but widens to include the full known or presumed extent of Benwell Roman Fort and the core of its associated civilian settlement (*vicus*). On its northern side this brings it to within c.25m of the south-western corner of the PDA (Fig. 2).

Scheduled Monuments

4.3 Within the UNESCO World Heritage Site corridor crossing the study area, seven Core Areas are also designated as two separate Scheduled Monuments. Five of these lie to the south of West Road (Fig. 2, Sites 1-5), and collectively form 'Hadrian's Wall in wall

mile 6, *Condercum* Roman fort, Benwell' Scheduled Monument (List Number 1003499). The Scheduled areas include the excavated remains of the Temple of Antenociticus (which is also a Grade 1 Listed Building) and the Vallum crossing, both of which are on display. On the northern side of West Road, two areas within the grounds of Westgate Community College (Fig. 2, Sites 6 and 7) contain remains of the Wall ditch and are also Scheduled (List Number 1003497). The nearest of the Scheduled areas lies within the Roman fort c.130m to the south of the PDA, while the nearer of the areas within the college grounds lies 150m to the south-east.

Listed Buildings

4.4 There are five Listed Buildings within the study area (Fig. 2, Sites 4 and 8-11), presented in Table 3:

Table 3: Listed Buildings within the 500m radius study area

Site	Listed Building	Grade	List Number	Distance from Development Site	Significance	Impact
4	Temple of Antenociticus	I	1116382	Approx 270m to the south-east	Predominantly of historic and aesthetic significance, and connections with wider Hadrian's Wall site. No intervisibility with site	NO IMPACT
8	St Mary's Training College Lecture Room Block	II*	1024897	Approx. 480m to the north-east	Of historical significance as an institutional building. Architectural value. No intervisibility with site	NO IMPACT
9	Pendower Teachers' Centre	II	1024762	Approx 180m to the south	Large house built in 1870, for JW Pease (banker). Historical significance for links with this figure and development of this area. Architectural significance. Set in wooded grounds. No intervisibility with site.	NO IMPACT
10	Stable range and linking wall to north of Pendower Teachers' Centre	II	1024763	Approx. 170m to the south	Predominantly architectural value. Within wooded grounds. Group value – part of historic house complex. Evidential value – construction and materials of its period.	NO IMPACT
11	Branch Library	II	1115497	Approx. 455m to the north	Of historical significance relating to the development of the residential suburb. Some architectural value.	NO IMPACT

4.5 All of the Listed Buildings lie outside the immediate environs of the PDA and will not be affected by the proposed development.

5.0 ASSESSMENT METHODOLOGY

5.1 The Study Area comprised a 500m buffer zone extending from the proposed development boundary (Figs. 2-4). The assessment included a comprehensive desk-based review of published and readily accessible documentary, cartographic, aerial photographic evidence, LiDAR evidence and on-line resources, together with a site walk-over inspection.

5.2 This assessment has been prepared in accordance with the following guidance:

- NPPF Planning Practice Guidance (2014): *Conserving and Enhancing the Historic Environment* (<http://planningguidance.planningportal.gov.uk>);
- Historic England (2015a) *Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment*;
- Historic England (2015b) *Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets*;
- English Heritage (2008a) *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment*;
- English Heritage (2011) *Seeing the History in the View: A Method for Assessing Heritage Significance with Views*.
- Chartered Institute for Archaeologists (2017) *Standard and Guidance for Historic Environment Desk-Based Assessment*.
- Design Manual for Roads and Bridges Volume II, Section 3, Part 2 Annex 5 (2007) *Cultural Heritage Sub-Topic Guidance: Archaeological Remains*.
- Shared Visions: The North-East Regional Research Framework for the Historic Environment (NERRF) (Petts & Gerrard 2006).

Aims and Objectives

5.3 The principal aim of the assessment is to provide the local planning authority (LPA) with sufficient information to enable an informed decision on the effects of the development proposals on the historic environment.

5.4 The objectives of the assessment are to:

- Identify all recorded heritage assets which could be affected by the proposals;
- Assess the potential for previously unrecorded archaeological assets to be located within the site boundary;
- Understand the significance of any affected assets and the contribution of setting to significance;
- Assess the potential impact of the proposed works on significance and setting of affected assets;
- Identify any heritage assets that would constitute a significant constraint to the proposed works;
- Identify any areas which would require field evaluation in order for the Local Planning Authority to make an informed planning decision;
- Identify opportunities to better reveal or enhance significance;
- Recommend primary mitigation measures which could be incorporated into development design to avoid or reduce adverse impacts or enable beneficial impacts;
- Recommend secondary mitigation measures to address any remaining adverse impacts in order to reduce these to an acceptable level in terms of planning policy.
- If harmful heritage impacts are identified assess whether these constitute substantial or less than substantial harm and whether they are justified in terms of the need for change, the wider public benefit of the proposals and the contribution to the achievement of the sustainable development objective as required by the NPPF;
- Assess whether taking into account mitigation, and planning balance, there is any conflict with national and local planning policy as this relates to heritage.

Information Sources

5.5 The following repositories and data sources were consulted:

- **Tyne and Wear Archaeology Service:** Tyne and Wear Historic Environment Record (HER); previous archaeological assessments, evaluations and excavations
- **Tyne and Wear Archives:** cartographic and documentary sources;
- **Newcastle City Library local studies section:** Listed Building records, national monument archaeology records (NMR);
- West End Library;
- Great North Museum Library
- **Online sources:** historic and modern maps, landscape assessment, Google Earth, Environment Agency LiDAR coverage, historical and archaeological studies, the Newcastle City planning policy site, and Newcastle City conservation, heritage, archaeology and urban design site.

5.6 This report focuses on the site and only discusses heritage assets in the wider vicinity in so far as they are directly relevant in a holistic approach to assessing the PDA. A catalogue of heritage assets within the wider area that are discussed within the report is found within Appendix C of this report and are denoted in brackets. Numerous other archaeological interventions and findspots recorded by the HER within the study area but not directly relevant to the proposed development and not mentioned within the text are listed in Appendix D.

Additional Sources

Archaeological

5.7 No intrusive archaeological works have been undertaken within the site boundary. Numerous archaeological interventions have been completed within the 500m study area surrounding the PDA. However, the vast majority relate to small-scale developments to the south of Hadrian's Wall and the West Road in the vicinity of Benwell Roman Fort and its *vicus*, and have no direct bearing on the current study area and, as noted above, are listed in Appendix D. Two archaeological projects comprising monitoring of renewal of water pipelines in the area to the north of West

Road and along the northern side of Fenham Reservoir have been undertaken recently (NAA 2014; in prep.), and some of the results are described in more detail below.

LiDAR

5.8 Available Environment Agency LiDAR coverage was examined at both 1m and 2m resolution. This did not identify any surface evidence for archaeological features, although it did provide some evidence for the pattern of recent disturbance relating to demolition of Rutherford Lower School. In the area of the former school buildings there appears to have been considerable disturbance and reinstatement by machine, leaving a 'textured' surface topography which continues into the northern part of the site. To the south of the buildings, the surfaces of the entrance driveway and carpark appear to have been lifted leaving a shallow depression preserving their shape, and indicating little below-ground disturbance associated with the work. The grass playing field occupying the south-western part of the PDA appears to have remained untouched during the operation, and has returned a 'smooth' LiDAR response identical to the responses from the extant playing fields to the east behind Westgate Community College..

Geotechnical

5.9 Geotechnical investigations were undertaken on the site in March 2017 (PPL 2017b). These showed that made ground is present to depths of approximately 1.5m in areas outwith the footprint of the former school and a quarry recorded by historic mapping. In these latter areas, made ground was detected to depths of 2.9m and >4.1m respectively. Below this material, glacial clay was recorded between 1.4m and 7.0m thick, overlying sandstone or mudstone bedrock. The High Main coal seam was identified c.25m below the modern ground surface and shown by voids to have been worked in two locations.

Site Inspection

- 5.10 A site inspection was carried out on the 22 May 2017. The objectives were:
- To understand the current context, character, land use and ground conditions of the proposed development site;
 - To understand its relationship to nearby previously recorded heritage assets;

- To better understand the significance of any heritage asset which may be affected by the proposals;
- To understand the setting of designated assets and historic landscape character; and
- To identify additional unrecorded heritage assets or the potential for these.

Geophysical Survey

5.11 A magnetometer survey was carried out across the site on 5th June 2017. The objectives of the geophysical survey were:

- To attempt to characterise the nature of any sub-surface remains within the survey boundary and to identify possible concentrations of past activity in order to inform the requirement for any archaeological mitigation work at the site; and
- To produce a report including raw and processed greyscale images of the survey areas and interpretations of these results.

5.12 All survey work was completed to appropriate standards as outlined by existing guidelines (English Heritage 2008b; ClfA 2014). The gradiometer survey used a Bartington Grad601-2 dual magnetic gradiometer system with data logger. Readings were recorded at a resolution of 0.1nT and data was collected with a traverse interval of 1m and a sample interval of 0.25m. The survey data was collected with reference to a site survey grid comprised of individual 30m x 30m squares. The grid was established using Real Time Kinematic (RTK) differential GPS equipment and marked out using non-metallic survey markers. All grid nodes were set out with a positional accuracy of at least 0.1m and could be re-located on the ground by a third party. The base lines used to create the survey grids are shown on Figure 11 and further details are available in Appendix E.

5.13 Data processing was undertaken using Geoplot 3.0 software and consisted of standard processing procedures; details of processing steps applied to collected data are given in Appendix F.

5.14 In this report, the word anomaly is used to refer to any outstanding high or low readings forming a particular shape or covering a specific area.

- 5.15 On the greyscale plots (Figs. 12 and 13 left), positive readings are shown as increasingly darker areas and negative readings are shown as increasingly lighter areas. The interpretation plot uses colour coding to highlight specific readings in the survey area (Fig. 13) and details of these characterisations used are presented in Appendix G.

Surface conditions and other mitigating factors

- 5.16 The survey area boundaries comprised metal fencing, hedgerow and trees. At the time of survey, the site contained high vegetation, numerous trees and the ground was very uneven with several deep ruts. Dummy values were used where the passage of survey was not possible. It was also necessary to avoid all metal objects and metallised trackways to ensure that magnetic responses did not impinge on the survey results and mask potential buried features.

Storage and Curation

- 5.17 The records of the geophysical survey are currently held by NAA. All material will be appropriately packaged for long-term storage in accordance with national guidelines (English Heritage 2008b; ClfA 2014).

Assumptions and Limitations

- 5.18 This assessment comprises a desk-based review of information derived from the Tyne and Wear HER, Historic England and other published and unpublished sources. Whilst assumed to be accurate, this information is not a complete record of the historic environment and does not preclude the potential for the presence of unrecorded heritage assets, including below ground remains of archaeological interest, within the application boundary.
- 5.19 There are no other apparent limitations, beyond the inherent uncertainty of the accuracy of archaeological records from antiquarian periods.

6.0 BASELINE HISTORIC ENVIRONMENT

- 6.1 Specific heritage assets recorded within the study area and described within this report are listed in Appendix C and their location shown on Figures 2-4. Other sites, findspots and archaeological interventions within the study area not considered directly relevant to this report are listed in Appendix D but not otherwise discussed or illustrated. Heritage assets described within this report are identified by a unique

reference number denoted in brackets particular to this text. These are cross-referenced in Appendix C with the Tyne and Wear Environment Record (HER) numbers as appropriate.

- 6.2 There are no previously recorded heritage assets, including those of archaeological origin, located within the PDA, other than a former quarry of unknown date.

Archaeological Remains

Table 4: Period definitions

Prehistory	Palaeolithic	450,000 to 12,000 BC
	Mesolithic	12,000 to 4,000 BC
	Neolithic to Early Bronze Age	4,000 to 1,500 BC
	Middle Bronze Age to Iron Age	1,500 BC to AD 78
Roman		AD 78 to 410
Early Medieval		AD 410 to 1066
Later Medieval		AD 1066 to 1536
Post-Medieval		AD 1536 to 1900
Modern		AD 1900 to current

- 6.3 The following section sets out details of the archaeological sites which are recorded within the study. It then discusses the potential for additional unrecorded archaeological remains to be present within the PDA, based on the evidence available from the wider study area.

- 6.4 The dates of the various periods referred to in the following text are defined in Table 4 above.

- 6.5 There is a relative absence of recorded prehistoric remains from the Tyneside conurbation in general, both as a result of urban sprawl during the 19th and early 20th centuries which has served to obscure any evidence (Petts and Gerrard 2006, 21), and an almost exclusive concentration of antiquarian interest on the Roman remains in the area. More recently, there have been few opportunities for archaeological investigation of 'green field' sites within the area. In order to obtain a flavour of possible early archaeological remains which could be encountered within

the vicinity it is therefore necessary to review the evidence from a wider area of the Tyne Valley and its hinterland. Only a single prehistoric object has been found within the current study area, and is noted below.

Palaeolithic and Mesolithic

- 6.6 The earlier prehistoric periods are not represented by any finds within the study area, or indeed from the wider Newcastle area. However, there is evidence to indicate early post-glacial human penetration of areas further inland (presumably via the river valleys), in the form of probably Upper Palaeolithic stone tools from Eltringham in the Tyne Valley and Towler Hill near Lartington in Teesdale (Young 2002, 21).
- 6.7 Similarly, for the succeeding Mesolithic period, there is a general absence of identified material in the Newcastle area. The few known Early Mesolithic sites in lowland northern England are mainly concentrated towards the North Sea coast or close to former lakes and other wetland areas; some, such as Little Holtby near Leeming, North Yorkshire, lie a considerable distance from the coast (Speed *et al.* forthcoming). The nearest published Early Mesolithic site to the PDA has been found at Monkwearmouth; however, it is entirely likely that the Tyne Valley was exploited during this period. For the Later Mesolithic, considerably more sites (mainly surface lithic scatters) are known across the region, although again with an emphasis on locations close to water.

Neolithic and Early Bronze Age

- 6.8 Although regional reviews have largely ignored the lower Tyne Valley (c.f. Petts and Gerrard 2006, fig. 13), there is sufficient evidence to suggest considerable activity in the area during the Neolithic. To the east of Newcastle, a possible henge monument has been identified at Tynemouth (Stevenson 1998). To the west, sites including a hoard of polished stone axes found at Heddon-on-the-Wall (Sockett, 1971) and a substantial mound with concentric cropmark ditch at Dewley Hill (Vyner 2000, 103) suggest that later Neolithic 'ritual' activity is present in the area immediately upstream of the tidal limit of the River Tyne adjacent to the former fording point at Stanner Ford where the 1st Edition Ordnance survey map (1864-5) shows standing stones on the north bank of the Tyne, signifying the antiquity of the crossing point (Tolan-Smith 1996, 9).

- 6.9 The evidence for the Early Bronze Age in Tyneside is similarly sparse; however, a Neolithic or Early Bronze Age perforated stone axe-hammer has been found in the area of Benwell Roman Fort, 200m to the south of the PDA (Fig. 3, Site 12).

Later Bronze Age and Iron Age

- 6.10 As for the earlier periods, evidence for this period is essentially absent from the Tyneside conurbation, although numerous Iron Age farmstead sites have been, and continue to be, excavated around the northern fringes of Tyneside (Petts and Gerrard 2006, 37-8), indicating a dense pattern of agricultural settlement. Probably ritual deposition of metalwork into the Tyne has also been recorded (Miket 1984).

Roman

- 6.11 In contrast to the early periods, there is a wealth of evidence for the Roman period within the study area, and the Historic Environment Record contains a considerable number of records of monuments, findspots and archaeological interventions of various sorts. However, the vast majority of these have taken place to the south of West Road or at some distance from the PDA. For clarity, only the main archaeological elements and interventions directly relevant to this study are described here, with the remainder listed in Appendix D.
- 6.12 The PDA lies immediately to the north of Benwell (*Condercum*) Roman Fort (Fig. 3, Site 13). The fort was one of a series of such installations constructed at intervals along Hadrian's Wall. The wall itself in this area runs from east to west, approximately following the line of West Road to the south of the PDA. The Roman remains in the vicinity comprise several main elements. The Wall had a large defensive ditch running in front (i.e. north) of it. Behind (i.e. south) of the Wall ran a military road, beyond which ran the Vallum, a substantial line of bank and ditch, which in this area deviated to pass to the south of Benwell Fort.
- 6.13 Surveys by Horsley in 1732, Bruce in 1851 and MacLauchlan in 1852 described the visible earthworks of Benwell Fort, and adjacent sections of Hadrian's Wall and the Vallum, to either side of the turnpike road. Akenhead's rather schematic plan of 1807 depicted Hadrian's Wall running along the north side of West Road, with Benwell Fort marked as 'Roman Camp' and bisected by the road.
- 6.14 The 118km-long Wall was built on the orders of the Emperor Hadrian c. AD122 at the then northernmost limits of the Roman province of *Britannia*. Once considered to

have a purely defensive function, it is now understood to fulfil a much more complex role, including controlling (and taxing) commerce and the passage of people via the forts. In the vicinity of Benwell Fort, the defences comprised a substantial stone wall (recently observed beneath West Road - NAA 2014), to the north of which was a flat area or berm normally about 20 Roman feet (6m) wide. In places, a series of pits have been found on the berm, some of which perhaps originally held sharpened stakes or branches of thorns, to deter access. Beyond the berm to the north lay a ditch, probably intended to be 30 Roman feet (9m) wide. The ditch was recently investigated in the grounds of Benwell College City Learning Centre, where it was seen to deviate to the north as if to skirt around the north side of *Condercum* fort (Fig. 3, Site 14; NAA 2014, 2 and fig. 5).

- 6.15 Running to the south of Hadrian's Wall was a multiple earthwork known as the *vallum*, consisting of two banks with a ditch between. It has been suggested that Hadrian's Wall and the *vallum* delimited a military zone, from which civilians were excluded.
- 6.16 Benwell Roman fort (*Condercum*) covered 2.28ha and lay astride Hadrian's Wall aligned from north to south. It was garrisoned during the reign of Hadrian by a cavalry regiment of 500 troops. From the mid-late 2nd century it was occupied by a 1000-strong cavalry unit from the upper Rhineland. It lay astride Hadrian's Wall with three of its four principal gates to the south of the wall. A section of Roman road has recently been recorded within the reservoir compound running northwards from the presumed position of the northern fort gate (Fig. 3, Site 15; NAA in prep.). The stone surface was approximately 5m wide and flanked on its western side by a stone kerb and a small ditch. At the point where it was investigated the road make-up survived at depths of 0.25-0.6m below the modern ground level, and the base of the ditch was at a depth of 0.75m; however, how this ground level relates to that within the adjacent part of the PDA to the north is unknown.
- 6.17 Much of Benwell Fort has been lost through the construction of Fenham (originally Benwell High) Reservoir in the mid 19th century and a housing estate in the 1930s, but traces survive below ground to the south, and parts of these are Scheduled (Fig. 2). At Benwell, the *vallum* changed alignment southwards to skirt round *Condercum* fort, indicating that it was contemporary with or post-dated the construction of the fort. There was a crossing of the *vallum* directly opposite the southern gateway into the fort, which is now on display (Fig. 2, Site 3).

- 6.18 Excavation of the southern part of the fort (Simpson and Richmond 1941, 1–43) suggested that about two thirds lay to the south of West Road, and one third to the north. This latter part was approximately the size of the original Benwell High Reservoir, constructed prior to the First Edition Ordnance Survey map of 1864 (surveyed in 1858). It is possible that the fort's ramparts had survived to some extent, and were used to define the limits of the reservoir, which at that time was an open body of water. Bidwell *et al.* (1991, 8) suggest that, given the falling ground in that direction, evidence for the north wall and gate of the fort may survive below the reservoir embankment, and that much of the fort ditches are likely to survive in the area beyond the reservoir.
- 6.19 The excavations within the southern part of the fort identified the remains of the headquarters building, the commandant's house, barracks and granaries, with evidence for the latter extending beneath the modern road (NAA 2014, 3; fig. 2), suggesting that to the north were additional barracks. Simpson and Richmond (1941, 1–43) quoted references to work within the reservoir site exposing the remains of buildings, and it is possible that some structural remains, together with elements of the ramparts, may survive beneath the modern reservoir embankments. The fort rampart was enclosed by a pair of ditches, most recently recorded during water main renewal to the east of the reservoir compound (NAA 2014, fig. 5).
- 6.20 Between the fort and Vallum lay an area of settlement, the *vicus*, which will have housed dependents of the garrison, traders, service industries and temples (Fig. 3, Site 16). Cemetery areas will also have been present, usually lying at the limits of the *vicus* settlement. The extent of the *vicus* at Benwell is uncertain, and various previous archaeological investigations suggest that it extended over a large area, extending to the east of the fort and spilling beyond the Vallum to the south. It has been suggested that a parade ground lay to the west of the fort and south of the Wall. Within the *vicus*, the Temple of Antenociticus was initially excavated in 1862; its consolidated remains are now displayed in Broomridge Avenue, and are both a Scheduled Monument and Listed Grade 1 (Fig. 2, Site 4).
- 6.21 Thus far, no similar settlement has been recorded to the north of the fort or Wall at Benwell, although it is possible that there was some settlement here, potentially during the thirty years when the Antonine Wall was the northern frontier of the Province. At most forts along the Wall, *vici* and other associated installations occurred almost exclusively in the area to the south of the Wall; however, there are exceptions,

as for instance at Birdoswald where geophysical survey has identified probable *vicus* remains including buildings to the north of the fort (Biggins and Taylor 2004), and excavated stone and timber structures found beyond the Wall at Wallsend (TWM Archaeology 2010, 8-11). Cemeteries are also found beyond *vici*. There is hence the possibility that some settlement and perhaps associated burials may lie along the road leading northwards from the north gate of Benwell Fort.

- 6.22 Recent work during replacement and upgrading of water mains along the West Road/Westgate Road to the east of the fort identified the foundations of Hadrian's Wall at two locations, together with the line of the wall ditch and the probable outer fort ditch in the grounds of Benwell College City Learning Centre (NAA 2014). The most significant finding was that the wall ditch turned sharply northwards before it reached the fort ditch (Fig. 3, Site 14), raising the possibility that it continued around, and by-passed to the north, the fort defences.

Early Medieval/Anglo-Saxon

- 6.23 Evidence for some continuing activity on the site of the fort *vicus* in the early Anglo-Saxon period is represented by finds of two brooches (Fig. 3, Sites 17 and 18), suggesting the presence of disturbed burials in the area.
- 6.24 The earliest documentary reference to Benwell (*Bynnewalle* – 'by the wall') comes in a grant of land to Wulheard by King Edward the Confessor in the mid-11th century (Dods 1930).

Medieval

- 6.25 During the medieval period Benwell formed part of the Barony of Bolbec. To the north-west of the site lay Fenham Grange or Manor (Site 19), although its precise location has been lost.
- 6.26 By the 14th century there were a number of leases for coal mining in the Benwell area (Dods 1930). The High Main coal seam is recorded outcropping near the edges of the study area to the north, west and south, and is thought to lie 20-25m below ground level beneath the site. It is recorded as being between 1.5-2m thick in the general area. An undated mine shaft has been identified in the north-west corner of the Roman fort (i.e. within the area now covered by Fenham Reservoir) (Bruce 1867, 85) and material interpreted as colliery waste has recently been found nearby just to the

north of the reservoir (NAA in prep.); either of these finds could have been of medieval or early post-medieval date.

6.27 'Ancient' unrecorded mine-workings are suggested by seam plans of the area (PPL 2017a, 8), and geotechnical investigation of the site has also identified unrecorded below-ground coal workings in the south-eastern and north-central parts of the site (PPL 2017b, 6-7). It is perhaps of relevance that, with one exception, all recent geotechnical logs within the site (both boreholes and test-pits) which recorded coal within made-ground deposits lay within the northern third of the site, the remaining borehole lying at the south-western corner of the area adjacent to the colliery waste identified during test-pitting within the reservoir compound to the south (NAA in prep.). This could suggest that more than one focus of former mining activity may be present in the area, one to the south of the site and another either within or close to the northern part of the site. Any of this evidence could relate to colliery workings of medieval or early post-medieval date.

6.28 Remains of ridge and furrow cultivation of medieval or early post-medieval date have been identified from old aerial photographs at several locations within the study area (Site 20).

Post-Medieval

6.29 During the siege of Newcastle in 1644, the Scottish army camped at Benwell, although the precise location is uncertain (Fig. 4, Site 21 for a broad location). Given the requirement for large quantities of water for men and horses, a location closer to the Tyne seems perhaps more likely, although the high ground around Benwell Roman Fort may have been attractive for tactical reasons.

6.30 A map of the Manor of Benwell in 1637 (reproduced in Graham 1984) shows that the part of the Roman fort to the north of Hadrian's Wall, and also the PDA, was covered by strip fields which appear to have been under the plough at the time (Fig. 5). Disused remnants of the strip-field boundaries are probably depicted on the 1899 Ordnance Survey map (surveyed 1894-5) in the area immediately to the south of the PDA (Fig. 8). Graham's plan of the Benwell Estate (1984), a compilation of information from estate plans of Robert Shafto's property in 1780 and that of Andrew Bowes in 1808, marks the field now occupied by the reservoir and the southern part of the PDA as 'Turnip Field', while the northern part of the PDA lay within 'Joblings Field' (Fig. 6). Akenhead's rather schematic plan of 1807 showed the PDA as lying in open

countryside containing a scattering of large houses and collieries (not illustrated). The northern part of Benwell Fort was shown surrounded by an area of woodland.

- 6.31 It is clear from the early maps and plans described above that the West Road follows an ancient route west, probably established during the medieval period if not earlier (and also approximately following the Roman Military Way). In 1751 the Newcastle to Carlisle Road was improved as a toll road (Fig. 4, Site 22), and in the 19th century Throckley Turnpike Toll House (Site 23) was recorded on the 1858 OS survey (Fig. 7).
- 6.32 The existing Fenham Hall was built in the 18th Century at the north-east edge of the study area, and as noted above is Listed Grade 2* (Fig. 2, Site 9). The associated park developed during the 18th and 19th centuries. The hall now forms part of St. Mary's Training College.
- 6.33 From the mid-19th century, detailed Ordnance Survey mapping records the progressive development of the area. Most of the surrounding land at the time of the 1858 survey was still agricultural, and included farms such as Benwell Bank Top Farm (Fig. 4, Site 24).
- 6.34 To the south of the site Benwell High Reservoir was already present in 1858 (Site 25). This was originally open and it may, as noted above, have taken advantage of upstanding earthworks of the northern defences of Benwell Roman Fort. It was subsequently covered and extended, and continues in use.
- 6.35 Some extractive industry was present in the area. Bank Top Quarry Site (Site 26) and Adam's Main Pit colliery were shown to the west of the site (Site 27), adjacent to The Fox and Hounds public house (Site 28). A waggonway (Site 29) linked Adam's Main Pit to Edward Pit (to the south of the study area); Greenwood's plan of 1828 marked this as 'Inclined Plane'. A small former quarry was also depicted within the PDA (Site 30). Just beyond the study area lay Charlotte Pit, another colliery, connected to West Road by Charlotte Pit Lane.
- 6.36 The area by this time lay at the western limit of a spread of relatively grand out-of-town residences extending along Westgate Road. To the south of the reservoir lay Benwell Park House (Site 31), occupying much of the site of the Roman fort. This was built in 1853 and demolished in the 1930s to make way for Denhill Park housing estate. A little to the east lay Benwell Hills, Condercum Villa and Condercum Cottages

- (Sites 32, 33 and 34). These were joined in the 1860s by Condercum House, which was demolished in 1937 (Site 35).
- 6.37 The 1858 survey shows that at that time the PDA lay almost entirely within two blocks of land. The southern half was shown as an open field, while the northern half was woodland apparently associated with the grounds of Fenham Hall (Site 36), whose walled garden and greenhouses lay immediately to the north-east.
- 6.38 The 1899 map edition shows continuing development of the area along Westgate Road. Pendower Hall was constructed c.1870 on land to the west of Benwell Park. The house, now used as Pendower Teachers' Centre, is Listed Grade 2 (Fig. 2 Site 10), as is its stable and a wall (Fig. 2, Site 11). The house lay in extensive gardens, and parts of a ha-ha have been found during archaeological investigations (Fig. 4, Site 37). Spring Bank and North View had been built on Westgate Road (Sites 38 and 39), while to the south there was some residential development along Charlotte Pit Lane, including Lower Condercum and Oakfield (Sites 40 and 41).
- 6.39 To the north of the PDA, Fenham Laundry had been constructed (Site 42), while to the east Fenham Nursery had been laid out to the south of the old walled garden. Towards the eastern edge of the study area lay a curling pond (Site 43), to the south of which was a cricket pitch.
- 6.40 The 1914 OS survey (published 1921) depicts the rapid expansion of the Newcastle conurbation westwards during the early 20th century (Fig. 9). The terraces of New Benwell had filled the area to the east of Charlotte Pit Lane (now renamed Condercum Road), although the grander houses to the west remained largely untouched. Benwell Grove Methodist Church in Condercum Road was built 1906, but has now been demolished (Site 44). Immediately to the west of PDA, three pairs of semi-detached houses had been constructed immediately to the south of what is now the western site entrance.
- 6.41 Between the two World Wars, there were rapid changes, with most of the old grand houses demolished and their estates used for expansion of terraced accommodation (Fig. 10). The Pendower Estate to the south of Pendower House (which escaped demolition) was constructed from 1919 (Site 45). Within the grounds of Pendower Hall was the Pendower Open Air School built in 1925, incorporating pavilions with opening sides and intended to combat high rates of illness among schoolchildren (Site

- 46). By the beginning of the Second World War the residential areas surrounding the PDA had reached the form that still survives. Fenham Branch Library, which is Listed Grade 2, and the adjacent Public Baths, were both constructed in 1938 on Fenham Hall Drive (Fig. 2, Site 11; Fig. 4, Site 47). The Church of the Holy Cross in Ovington Grove was built in 1935-6 (Site 48). The Shilling House, 342 West Road, was the prize to encourage people to donate to the Montague Pit Disaster Fund set up in 1925, and built using the Porous Concrete method (Site 49)
- 6.42 As part of this general development, the woodland covering the northern part of the PDA was removed leaving an open area, while the southern half had by 1937 been given over to allotments.
- 6.43 Several specific sites recorded by the HER within the study area relate to the World Wars. These are the war memorial at the United Reform Church on Two Ball Lonnen (Site 50) and former air raid shelters at Westgate Community College (Site 51). Less specifically, anti-aircraft battery TT141 was based in the area during the Second World War (Site 52).
- 6.44 More recent buildings of note in the area include the Children's Clinic, built in 1960 (Site 53) and the UWAIS Foundation mosque (Site 54).
- 6.45 The site was developed as Rutherford High School in the 1950s, with Rutherford Grammar School to the east in the area now occupied by Westgate Community College

Site Walkover

- 6.46 A site walkover was undertaken on 22nd May 2017. The aim of the walkover was to establish the existing condition of the land, topographical features and the potential for heritage constraints within and surrounding the site.
- 6.47 The site walkover did not identify any previously unrecorded heritage features within or close to the site.
- 6.48 The site is entirely screened from surrounding heritage assets by Fenham Reservoir (Plate 2) to the south, housing along Grange Road to the west (Plate 1) and further housing along Hindley Gardens and Acanthus Avenue to the north and north-east. To the south-east the site opens into the grounds of Westgate Community College; however, in this direction the large college buildings block the view towards the

Hadrian's Wall World Heritage Site (Plate 4). The only exception to this screening effect would be to the south, where Fenham Reservoir is included in the World Heritage Site which widens at this point to accommodate it and any (unproven) surviving below-ground remains of the northern defences of Benwell Fort. The northern edge of the World Heritage Site approaches to as little as 25m from the southern boundary of the PDA.

- 6.49 Much of the site is relatively level, although it drops away in the south-eastern corner into the college grounds (Plate 4). The area is currently covered in low (up to knee-height) vegetation, mainly grasses although with some areas of thistles and other weeds. There is a group of small trees towards the eastern side of the area (Plate 3), probably remnants of the landscaping of the former school. In combination with the levelling effect of previous landscaping of the area (during use of the school) and subsequent demolition works, the existing vegetation serves to mask any low earthwork remains such as ridge and furrow which may remain in the area.
- 6.50 At the time of the site walkover the area had recently been the subject of geotechnical test-pitting (Plate 3). Examination of the spoil from this exercise noted relatively little modern rubble restricted to only a small number of the pits, indicating that most of the remains of the school had been removed during demolition. All of the spoil heaps from the geotechnical test pits exhibited quantities of broken sandstone bedrock, confirming that this lies relatively close to the surface across the site. This material appeared to be of good building quality and would have been a valuable resource in the past. No pre-modern artefacts were observed in any of the spoil.

7.0 GEOPHYSICAL SURVEY RESULTS

- 7.1 The geophysical survey results have detected a vast area of increased magnetic response that covers the entire PDA. Although a quarry is recorded to the east of the survey area and it is possible that the site was subject to mining activity, the magnetic disturbance is generally considered to relate to activity associated with the recently demolished Rutherford Lower School complex.
- 7.2 Processed data is displayed at a large palette scale of -30 to 30nT (Fig. 12, right) and a narrow scale of -5 to 5nT (Fig. 13, left). Figure 12 (right) displays the contrasting levels of magnetic disturbance across the site. The centre of the site, where the school buildings were located is more magnetically disturbed than the north or south of the

survey area. This indicates that there is a higher concentration of buried rubble and other material relating to the former school buildings in the centre of the site. A former quarry was located to the centre-east of the area surveyed, and so it is also possible that the disturbances are also in-part caused by material associated with the former quarrying activity.

- 7.3 Generally, buried in-filled archaeological features are likely to have a magnetic response of between $\pm 5\text{nT}$ (Kvamme 2006:209). Therefore data has been plotted with a palette scale of -5 to 5nT to demonstrate that the modern disturbance dominates the survey results, and any potential responses of underlying archaeological features have been masked (Fig. 13, left).
- 7.4 Several broad areas of increased magnetic response have been identified along the edge of the site that are likely to relate to above ground modern features (external interference), peripheral to the area surveyed.

8.0 ASSESSMENT OF SIGNIFICANCE AND IMPACT

- 8.1 This section discusses the significance of those heritage assets which could be affected by the development proposals either during construction or operational phases and the potential impact of the proposals on this significance.
- 8.2 The importance of the remains is assessed against the criteria set out in Appendix B: Table B1. The criteria for understanding the significance of heritage values according to the four key themes (evidential, historical, aesthetic and communal) is provided in Table 5 below. The criteria for assessing the magnitude of impact is set out in Appendix B: Table B2 and the criteria to assess the significance of effects of impact is provided in Appendix B: Table B3.

Table 5: Inter-related heritage values

VALUE	DEFINITION
Evidential Value	The potential capacity of an asset to yield primary evidence about past human activity (including potential archaeological remains)
Historical Value	The potential capacity of an asset to form a connection between the present and the past through association with people, events and aspects of life
Aesthetic Value	The potential for people to derive sensory and intellectual stimulation from a place, through design, art, character and setting

Community Value	The potential for people to relate to a site in terms of a collective experience of memory (often closely related to historical and aesthetical values)
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Development description

- 8.3 The proposals for the Grange Road site consists of the construction of 40 detached residential dwellings, some with detached garages. The site would be accessed by linking the existing site entrance roadways from Grange Road and Hindley Gardens, with additional internal roadways.
- 8.4 As noted above, the site was cleared following demolition of Rutherford Lower School; however, there may be a need for grubbing out of any remaining foundations or removal of the tree stumps and roots (some small trees are present on the site).
- 8.5 Building heights will not exceed 10m from finished floor levels. Given the built-up nature of the immediately surrounding area, this would limit any long-distance views of the development area.

Construction Activities

- 8.6 It is possible that any subsurface archaeological remains, if present, could be harmed through these activities. The degree to which this may occur would depend on a number of factors including presence of archaeological remains, depth of works and extent of any previous truncation.
- 8.7 Site stripping in preparation for works compound and the construction phase will have the potential to reveal any archaeological remains which are close to the surface.
- 8.8 The location of the contractors' compound will be agreed when discharging planning conditions.
- 8.9 Ground preparation and excavation of roadways and foundation trenches would occur. Services and utility trenches would also be required. All of these are likely to have the potential to impact on archaeological remains if present.

Potential Impacts

- 8.10 The proposed development would lie very close to, and within direct view of, part of the Hadrian's Wall UNESCO World Heritage Site; however, the affected part lies

within the compound containing Fenham Reservoir (and hence not accessible to the public) and contains no visible archaeological remains. The reservoir itself together with the buildings of Westgate Community College and adjacent housing effectively screen the PDA from the remainder of the World Heritage Site. It is therefore considered that the impact of the proposed development to the setting of the World Heritage Site would be minor.

- 8.11 Although there are several areas of Scheduled Ancient Monument and a small number of Listed Buildings located within 500m of the boundary of the proposed development, none lie immediately adjacent to the site and none are inter-visible with it. It is hence considered that the development would have no impact upon these heritage assets.
- 8.12 There are no previously recorded heritage or archaeological assets within the PDA other than the infilled quarry (Site 30). However, it is likely that the Roman road previously recorded within the reservoir compound to the south (Site 15) continues into the PDA, and there is a possibility that other features such as remains of roadside settlement may be associated with this. Given their integral nature to the complex of features associated with Benwell Roman Fort, which forms part of the Hadrian's Wall World Heritage Site, any such remains as may be present within the PDA would be regarded as being of very high/international importance. Disturbance associated with the proposed development could have a major impact upon any such remains as may be present.
- 8.13 In addition, recent work showing that the Hadrian's Wall ditch (Site 14) turns northwards within the grounds of Westgate Community College raises the possibility that it may have skirted to the north of Benwell Fort and hence could enter the PDA. This feature, if present, would also be considered to be of very high/international importance, and any construction impact considered major.

Unrecorded archaeological remains

- 8.14 There is the potential for agricultural and industrial (mining/quarrying) remains of medieval or post-medieval date to be present within the PDA. These would be of only local importance, and the impact of the development upon them would be moderate.
- 8.15 The assessment considers that the potential for other unrecorded archaeological remains to be present within the PDA cannot be totally discounted, although on the

basis of the existing information, this potential is low. The potential for survival of unrecorded remains will also be dependent upon the extent to which the area has suffered ground disturbance as a result of former mineral extraction and the construction and subsequent demolition of the former Rutherford Lower School.

Operational impacts

- 8.16 As well as the adjacent Hadrian's Wall World Heritage Site, there are two Scheduled Monuments (in a total of seven component areas), one of which is also a Listed Building, and four other Listed Buildings located within 500m of the PDA. There are no Registered Parks and Gardens, Registered Battlefields or Conservation Areas located within the study area.
- 8.17 The operational phase of the development would see 40 new residential dwellings on the site. However, given the suburban and primarily residential nature of the surrounding area, the increase in building numbers is not considered to materially affect the landscape to a significant degree.
- 8.18 As noted above, the PDA lies very close to, and within direct view of, part of the Hadrian's Wall UNESCO World Heritage Site within the Fenham Reservoir compound. This area, however is not accessible to the public and contains no visible archaeological remains. The reservoir itself together with the buildings of Westgate Community College and adjacent housing effectively screen the PDA from the remainder of the World Heritage Site. The built topography between the PDA and the other designated sites within the wider area is such that there will be no intervisibility.
- 8.19 Consequently, there is no anticipated impact from the proposed development on designated sites, the historic landscape or heritage assets during the operational phase.

Hadrian's Wall Research Framework

- 8.20 Should archaeological remains survive within the PDA, the proposed redevelopment of the Grange Road, Fenham site has potential to contribute towards a number of objectives set out within the Hadrian's Wall Research Framework (Symonds and Mason 2009). The following research themes have been identified:
- Infrastructure (roads)
 - Extramural settlements

Regional Research Framework

8.21 In addition, the proposed development has potential to contribute towards a number of objectives set out within the North-East Regional Research Framework for the Historic Environment (Petts and Gerrard 2006). The following research themes have been identified:

- Roman roads and communication
- The Roman military presence
- Native and Roman civilian life
- Roman burial
- Medieval agricultural remains (ridge and furrow; former field divisions);
- Other medieval industries (extractive)
- Early coal industry and coal use

9.0 MITIGATION

9.1 Although there are no known archaeological remains within the proposed development area, the site lies immediately to the north of Benwell Roman Fort and potentially astride a Roman road running north from it. There is hence the potential for significant archaeological remains to be present within the site boundary.

9.2 Mitigation measures can be incorporated at various stages during the design, construction and operation of the development and should be adopted in the following hierarchy:

- Firstly, avoid adverse impacts as far as possible by use of preventative measures including scheme design;
- Secondly, minimise or reduce adverse impacts to ‘as low as practicable’ levels; and
- Thirdly, remedy or compensate for adverse impacts which are unavoidable and cannot be reduced further.

- 9.3 Mitigation should take into account the assessment of significance, assessment of impact and tolerance of the asset to change. Other than a small disused quarry, there are presently no known heritage assets within the site; however, there is the potential for significant Roman remains and less significant evidence for medieval or post-medieval agricultural or extractive industry remains to be present. The following mitigation recommendations are based on the possibility of such remains being present, and following consultation with the Tyne and Wear Archaeology Service.

Consultation

- 9.4 As part of the pre-application phase, the Tyne and Wear Archaeology Service has provided advice on the required documentation that should be submitted with the planning application. This was for a suitable desk-based assessment to review the possible impact on the historic environment arising from any redevelopment.
- 9.5 The Archaeology Service added that, based on the results of the desk-based assessment, it was possible that further works including geophysical survey and/or trial trenching would be required to determine the potential for subsurface archaeological remains.

Mitigation

- 9.6 The assessment has not identified any potential impact on previously recorded heritage or archaeological assets other than a former quarry. However, it has found that there is a moderate potential for previously unrecorded remains of Roman date to be present within the PDA. In addition, the potential for medieval and post-medieval remains of agricultural or industrial (mining/quarrying) nature is considered to be moderate with other types of activity of low potential.
- 9.7 Given the potential association of any Roman remains as may be present within the PDA to the adjacent Hadrian's Wall World Heritage Site, they would be considered to be of international significance.
- 9.8 Given the inconclusive results from the recent geophysical survey undertaken within the PDA, it is recommended that a programme of archaeological trial trenching be commissioned in order to further inform the proposed planning application. Any trenches in general should be located to avoid disturbance from the former Rutherford Lower School and quarry (but see below). Figure 14 illustrates a proposed scheme of

trenching. Trench 1 would measure 25m x 2m, the remaining trenches 20m x 2m, with a total area of 410m², representing a 2% sample of the site.

- 9.9 Some of the proposed trenches have been positioned so as to explore the suggested line of the Roman road, with the remainder placed to provide as wide an investigation of the area as possible. One trench (Trench 7) has been positioned in an area to the north of the former school buildings in order to determine whether the high magnetic response in this area represents extensive disturbance or merely the presence of a spread of demolition rubble.

Interpretation and Engagement

- 9.10 Paragraph 141 of NPPF states that there is a requirement for “developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible”. As part of this, public engagement and interpretation should be considered to advance the public understanding and appreciation of the historic environment.
- 9.11 Any Roman remains which might be present within the PDA would be directly associated with one of the forts of Hadrian’s Wall. Given high public interest in anything to do with the Roman frontier, there would therefore be considerable potential for public engagement and interpretation. This could include permanent display boards within the final development and lectures associated with any excavation works.

10.0 CONCLUSIONS

- 10.1 This report has sought to identify those heritage assets whose significance could potentially be affected by the development proposals for Grange Road, Fenham, and has assessed the potential for previously unrecorded heritage assets to be affected by the proposal (NPPF 128, 129, 131, 132; Saved Policy of the Unitary Development Plan for Gateshead and Newcastle upon Tyne (saved 2007) C4.2).
- 10.2 The PDA lies only 25m from the Hadrian’s Wall World Heritage Sites. Two Scheduled Monuments (spread across seven separate sites), one of which is also a Listed Building, and a further four Listed Buildings, lie within a 500m radius of the site. There are no Registered Parks and Gardens, Registered Battlefields or Conservation Areas within the study area. With the exception of the World Heritage Site, none of the designated

heritage assets are intervisible with the PDA and will be unaffected by the proposed development. The only part of the World Heritage Site intervisible with the PDA lies within Fenham Reservoir compound and is not publically accessible.

- 10.3 The site itself contains one known heritage assets, a small disused (and infilled) quarry of uncertain date. However, a Roman road known to run northwards from Benwell Roman Fort is likely to continue into the PDA, and there is the possibility that it may be associated with roadside features such as settlement or funerary remains. In addition, to the south-east of the PDA, the Hadrian's Wall ditch approaching from the east has been seen to turn northwards before reaching the fort; if its course continued around the northern side of the fort defences there is a slight possibility that it will have crossed the southern edge of the PDA.
- 10.4 Remains associated with medieval and post-medieval agriculture and extractive industries (mining and quarrying) may be present within the PDA. There is also the possibility of other unrecorded remains of other periods or character to be present.
- 10.5 Geophysical survey results from the site were dominated by magnetic disturbances that were likely to have been caused by magnetic debris in the topsoil or near the surface of the site. It is likely that these were caused by rubble and activity associated with the now demolished Rutherford Lower School. It is possible that the magnetic disturbance may also in-part have been caused by a former quarry that is recorded as being located in the eastern part of the area surveyed, as well as possible coal mines suggested to lie within or adjacent to the site. Consequently, if there are any buried archaeological features within the site, their responses have been masked by the stronger responses caused by modern activity.
- 10.6 The proposed development consists of the construction of 40 new detached residential properties, together with some detached garages and infrastructure such as new roads.
- 10.7 The effects of the construction phases are likely to have significant impact upon any archaeological remains as may be present within the PDA; however, the assessment has determined that the central portion of the area, running in a band from east to west, is likely to have been truncated both by the presence of a former small quarry and by the construction and demolition of the former Rutherford Lower School. The southern part of the site (which is closest to Benwell Roman Fort and most likely to

contain Roman remains) appears to have largely escaped such truncation, while the northern part of the PDA was formerly laid out as tennis courts which have caused an unknown level of disturbance.

- 10.8 Given the potentially international significance of any Roman remains which might be present within the PDA, further evaluation in the form of archaeological trial trenching is recommended in order to assess presence/absence of any such remains across the site and, in present, to quantify their character and state of preservation, in order to support any planning application
- 10.9 Should remains of Roman date be present within the PDA, the assessment has identified considerable potential for interpretation and public engagement relating to the historic environment.
- 10.10 The extent and timing of any work should be agreed with the Tyne and Wear Archaeological Officer (NPPF 141, 203).
- 10.11 Subject to appropriate mitigation, the proposals would accord with national and local planning policy as this relates to the historic environment.

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APPENDIX A: RELEVANT NPPF POLICIES

National Planning Policy Framework (NPPF) (2012)	
Paragraph 128	<i>“In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the relevant historic environment record should have been consulted and heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation”.</i>
Paragraph 129	<i>“Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset’s conservation and any aspect of the proposal.”</i>
Paragraph 131	<i>In determining planning applications local authorities should take account of:</i> <ul style="list-style-type: none"> • <i>the desirability of sustaining and enhancing heritage assets and putting them to a viable uses consistent with their conservation</i> • <i>the positive contribution that preservation of heritage assets can make to sustainable communities including their economic vitality</i> • <i>the desirability of new development to making a positive contribution to local character and distinctiveness</i>
Paragraph 132	<i>When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II Listed Building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I or II* registered parks and gardens and World Heritage Sites, should be wholly exceptional.</i>
Paragraph 133	<i>Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:</i> <ul style="list-style-type: none"> • <i>the nature of the heritage asset prevents all reasonable uses of the site; and</i> • <i>no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and</i> • <i>conservation by grant funding or some form of charitable or public ownership is demonstrably not possible; and</i> • <i>the harm or loss is outweighed by the benefit of bringing the site back into use</i>
Paragraph 134	<i>Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits, including securing its optimum viable use.</i>

Paragraph 135	<i>The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset</i>
Paragraph 137	<i>Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.</i>
Paragraph 138	<i>Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 133 or less than substantial harm under paragraph 134, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.</i>
Paragraph 139	<i>Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.</i>
Paragraph 141	<i>Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.* However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted *Copies of evidence should be deposited with the relevant Historic Environment Record, and any archives with a local museum or other public depository.</i>

NPPF Glossary:

This glossary sets out the definitions for heritage and archaeological issues which should be treated as a material consideration in the planning process. Those definitions of relevance to the current application are:

Historic environment:

- All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity (whether visible, buried or submerged), as well as landscaped areas and planted or managed flora.

Heritage assets:

- A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage

interest. Heritage asset includes designated heritage assets and assets identified by the LPA (including local listing).

Archaeological interest:

- There will be archaeological interest in a heritage asset if it holds, or potentially may hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

Setting of a heritage asset:

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

Significance (for heritage policy):

- The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

Historic environment record:

- Information services that seek to provide access to comprehensive and dynamic resources relating to the historic environment of a defined geographic area for public benefit and use.

APPENDIX B: ASSESSMENT CRITERIA

Table B1: Criteria for Establishing Sensitivity and Importance of Archaeological Remains (Modified from DMRB Table 5.1)

Very High/International	<ul style="list-style-type: none"> • World Heritage Sites (including nominated sites). • Assets of acknowledged international importance. • Assets that can contribute significantly to acknowledged international research objectives.
High/National	<ul style="list-style-type: none"> • Scheduled Ancient Monuments (including proposed sites). • Undesignated assets of schedulable quality and importance. • Upper tier Archaeological Priority Areas, where used by LPA • Assets that can contribute significantly to acknowledged national research objectives
Medium/Regional	<ul style="list-style-type: none"> • Designated or undesignated assets that contribute to regional research objectives. • Remaining tier Archaeological Priority Areas, where used by LPA
Low/Local	<ul style="list-style-type: none"> • Designated and undesignated assets of local importance. • Assets compromised by poor preservation and/or poor survival of contextual associations. • Assets of limited value, but with potential to contribute to local research objectives.
Negligible	<ul style="list-style-type: none"> • Assets with very little or no surviving archaeological interest.
Unknown	<ul style="list-style-type: none"> • The importance of the resource has not been ascertained

Magnitude of impact

'Impact' refers to a predicted change to the baseline environment arising from either the construction or operation of the scheme. Impacts can be both negative or positive, and reversible or irreversible. Table B2 below sets out the criteria adopted for this assessment and is based on the criteria set out in the DMRB cultural heritage guidance Tables 5.3.

Table.B2: Factors in the Assessment of the Magnitude of Impact on Archaeological Remains (Modified from DMRB Table 5.3)

Major Change	Change to most or all key/fundamental archaeological materials, such that the resource is totally altered. Where adverse, this would equate to destroyed or left completely illegible. Comprehensive changes to setting.
Moderate	Changes to many key archaeological materials, such that the resource is clearly modified, if adverse, it would be substantial harm or loss of legibility. Considerable changes to setting that affect the character of the asset.
Minor	Changes to key archaeological materials, such that the asset is slightly altered. In terms of adverse impact. This would be minor or less than substantial harm or loss to the asset or slight loss of legibility. Slight changes to setting.
Negligible	Very minor changes to archaeological materials, or setting.
No Change	No change to fabric or setting of historic building

Significance of effect of impact

The significance of the impact of the proposals on heritage assets is determined by the interaction of receptor value/sensitivity and impact magnitude. Impacts can be positive (i.e. enhance the heritage asset) or negative (i.e. detrimental to the resource). Table B3 below sets out the criteria adopted for this assessment and is based on the criteria set out in the DMRB cultural heritage guidance Tables 5.4.

Table B3: Archaeological Remains: Significance of Effects Matrix (based on DMRB Table 5.4)

VALUE/ SENSITIVITY	Very high	Neutral	Minor	Moderate/ Substantial	Substantial	Substantial
	High	Neutral	Minor	Moderate/Minor	Moderate/ Substantial	Substantial
	Medium	Neutral	Negligible	Minor	Moderate	Moderate/ Substantial
	Low	Neutral	Negligible	Negligible	Minor	Minor/ Moderate
	Negligible	Neutral	Neutral	Negligible	Negligible	Minor
		No change	Negligible	Minor	Moderate	Major
MAGNITUDE OF IMPACT						

APPENDIX C: GAZETTEER OF SITES MENTIONED IN THE TEXT

HA no	HER no. or list entry	Description	Period	Grid Reference
1	1003499	Hadrian's Wall in wall mile 6, <i>Condercum</i> Roman fort, Benwell. Scheduled Ancient Monument	Roman	NZ 21390 64786
2	1003499	Hadrian's Wall in wall mile 6, <i>Condercum</i> Roman fort, Benwell. Scheduled Ancient Monument	Roman	NZ 21528 64735
3	1003499	Hadrian's Wall in wall mile 6, <i>Condercum</i> Roman fort, Benwell. Vallum crossing and gateway. Scheduled Ancient Monument	Roman	NZ 21563 64635
4	1003499 LB 1116382	Hadrian's Wall in wall mile 6, <i>Condercum</i> Roman fort, Benwell. Temple of Antenociticus. Scheduled Ancient Monument and Listed Grade 1	Roman	NZ 21710 64673
5	1003499	Hadrian's Wall in wall mile 6, <i>Condercum</i> Roman fort, Benwell	Roman	NZ 21637 64744
6	1003497	Hadrian's Wall in wall mile 5, sections of wall in playing field of Rutherford School (now Westgate Community College). Scheduled Ancient Monument	Roman	NZ 21781 64760
7	1003497	Hadrian's Wall in wall mile 5, sections of wall in playing field of Rutherford School (now Westgate Community College). Scheduled Ancient Monument	Roman	NZ 21934 64719
8	1024897	St Mary's Training College Lecture Room Block (formerly Fenham Hall). Listed Grade II*	18th century	NZ 2211 6541
9	1024762	Pendower Teachers' Centre (formerly Pendower Hall). Listed Grade II	1870	NZ 2146 6474
10	1024763	Stable range and linking wall to north of Pendower Teachers' Centre. Listed Grade II	c.1870	NZ 2148 6476
11	8992	Branch Library, Fenham Hall Drive, Fenham. Listed Grade II	Opened 1938	NZ 2180 6558
12	1376	Perforated axe-hammer – findspot	Neolithic/Bronze Age	NZ 216 647
13	208	Benwell Fort (<i>Condercum</i>)	Roman	NZ 2160 6478
14		Hadrian's Wall and Benwell Fort. Evaluation trenching and watching brief 2014. Hadrian's Wall, wall ditch and fort ditch found at various locations (NAA 2014)	Roman	NZ 2176 6475
15		Road identified running north from Benwell Fort (NAA in prep.)	Roman	NZ 2165 6491
16	5262	Benwell Fort <i>vicus</i> .	Roman	NZ 2160 6460
17	1498	Anglo-Saxon brooch east of Benwell Fort – findspot	Early Medieval	NZ 216 646
18	1497	Anglo-Saxon brooch east of Benwell Fort – findspot	Early medieval	NZ 2170 6467
19	1350	Fenham grange or manor	Medieval	NZ 220 655
20	11675	Ridge and furrow – recorded from old aerial photographs	?medieval	NZ 217 648
21	1369	Civil War camp, Benwell	17th century	NZ 21 63
22	3945	Newcastle to Carlisle Road	Medieval, post-medieval	NZ 2158 6500
23	4078	Throckley Turnpike Toll House, Benwell	19th century	NZ 2192 6471

Land at Grange Road, Fenham: Desk-Based Assessment and Geophysical Survey

HA no	HER no. or list entry	Description	Period	Grid Reference
24	6364	Benwell Bank Top - farm shown on 1858 OS survey	19th century	NZ 2117 6503
25	4077	Benwell High Reservoir	Pre-1858	NZ 2163 6484
26	4067	Bank Top Quarry, Benwell. Recorded by OS in 1858, disused by 1895	19th century	NZ 2103 6508
27	4068	Adam's Main Pit, coal mine, marked on 1858 OS survey but not on 2nd Ed. OS	19th century	NZ 2122 6508
28	6366	Fox and Hounds public house, Benwell – shown on 1858 OS survey	19th century	NZ 2116 6501
29	15436	Waggonway to Edward Pit	19th century	NZ 2125 6504
30		Disused quarry	?19th century	NZ 2166 6502
31	1878	Benwell Park. House built 1853 and demolished in the 1930s for Denhill Park housing estate	19th century	NZ 2157 6473
32	6317	Benwell Hills, Benwell, house shown on 1858 OS survey	19th century	NZ 2173 6479
33	6350	Condercum Villa, Westgate Road, Benwell, shown on 1858 OS survey	19th century	NZ 2185 6470
34	6349	Condercum Cottages, Westgate Road, Benwell. Shown on 1858 OS survey	19th century	NZ 2190 6469
35	6351	Condercum House, Westgate Road, Benwell. Built in 1860s, demolished in 1937	19th century	NZ 2173 6469
36	5243	Fenham Hall park	18th-19th centuries	NZ 220 654
37	Event 3709 Event 3833	Pendower Way. Evaluation trenching in 2012 and excavation and watching brief in 2013 identified a post-medieval ha ha	Post-medieval	NZ 2124 6460
38	6348	Spring Bank, Westgate Road, Benwell. House shown on 2 nd Ed. OS map	19th century	NZ 2191 6466
39	6347	North View, Westgate Road, Benwell. House shown on 2 nd Ed. OS map	19th century	NZ 2191 6466
40	6352	Lower Condercum, Benwell. House shown on 2 nd Ed. OS map	19th century	NZ 2186 6458
41	6353	Oakfield, Benwell, house shown on 2 nd ED OS map	19th century	NZ 2173 6449
42	4309	Fenham Laundry. Post-1858	19th century	NZ 2152 6532
43	6370	Curling pond, Fenham, shown on 2 nd Ed. OS map	19th century	NZ 2195 6496
44	14535	Benwell Grove Methodist Church, Condercum Road, Benwell. Built 1906, now demolished	1906	NZ 2197 6467
45	9823	Pendower Estate, Benwell – housing estate built from 1919	20th century	NZ 2125 6470
46	9259	Pendower Open-Air School, West Road, Benwell	1925	NZ 2133 6489
47	17074	Fenham Public Baths, Fenham Hall Drive, Fenham	Opened 1938	NZ 2175 6556
48	9826	Church of Holy Cross, Ovington Grove, Fenham	1935-6	NZ 2136 6544
49	5041	Shilling House, 342 West Road, Fenham	20th century	NZ 2150 6485
50	11253	War memorial, United Reformed Church, Two Ball Lonnen, Fenham	20th century	NZ 2140 6535
51	11676	Air raid shelters, Westgate Community College, Benwell. Now leveled	20th century	NZ 2196 6473
52	5529	Searchlight battery TT141, Benwell	20th century	NZ 219 648
53	15127	Children's Clinic, Fenham Hall Drive, Fenham	1960	NZ 2173 6558
54	15379	UWAIS Foundation, 113-5 Fenham Hall Drive, Fenham, mosque	20th century	NZ 2194 6550

HA no	HER no. or list entry	Description	Period	Grid Reference

APPENDIX D: GAZETTEER OF OTHER INTERVENTIONS AND FINDSPOTS NOT REFERENCED IN THE TEXT

HER no. and list entry	Description	Period	Grid Reference
Assessments			
Event 1968	St Cuthbert's House, 391 West Road. Desk-based assessment 2001	-	NZ 2098 6493
Event 3636	St Cuthbert's House, 391 West Road. Desk-based assessment 2011	-	NZ 2098 6493
Event 3705	Pendower Way, Benwell. Desk-based assessment 2012	-	NZ 2124 6460
Event 4428	Dorcas Avenue. Desk-based assessment 2015	-	NZ 21466 65584
Event 2233	Pendower Hall. Desk-based assessment 2003	-	NZ 2095 6505
Event 1455	Benwell Roman Fort. Desk-based assessment 1991	Roman	NZ 2162 6472
Event 1407	Westgate Community College. Desk-based assessment 2001	-	NZ 2179 6477
Event 3095	Trinity School (Oakfield College Site). Desk-based assessment 2008	-	NZ 2185 6450
Event 4431	Bedewell Industrial Estate. Desk-based assessment in 2015 did not identify any likely archaeological impact	-	NZ 3212 6449
Evaluations			
	Neville Hall Mining Institute. 1952 evaluation trench identified Hadrian's Wall	Roman	NZ 2480 6393
Event 2370	Pendover Hall. Evaluation trenching in 2003 identified the military way and ditches	Roman	NZ 213 684
Event 4594	Land at Pendover Hall. Evaluation test-pitting in 2016 identified a metallised surface and a possible quarry pit associated with Roman pottery	Roman	NZ 2143 6482
Event 1456	Pendover School. Excavation trenching in 1978 failed to find the vallum in its expected location	-	NZ 21382 64760
Event 1571	Hadrian School. Evaluation trenching in 2001 produced negative result	-	NZ 2143 6469
Event 4434	Dorcas Avenue. Evaluation trenching in 2013 identified severely truncated archaeological features	Roman	NZ 2152 6449
Event 3836	Sunnybank Avenue. Evaluation trenching in 2013 identified Roman ditches and pits	Roman	NZ 2155 6441
Event 3196	Trinity School (Oakfield College Site). Evaluation trenching in 2009 identified a hollow way and other Roman features	Roman	NZ 2185 6450
Event 3863	167 West Road. Evaluation trenching in 2013 identified Hadrian's Wall	Roman	NZ 2168 6474
Event 1486	Rutherford School. Evaluation trenching in 1992 found no evidence for the Hadrian's Wall ditch	-	NZ 219 648
Event 1485	Condercum Road. Evaluation trenching 1989. Negative result	-	NZ 21966 64673
Excavations			
Event 4087	Sunnybank Avenue. Excavation in 2014 recorded Roman ditches and pits	Roman	NZ 2155 6441

HER no. and list entry	Description	Period	Grid Reference
Event 3269	Trinity School (Oakfield College Site). Excavation in 2009 recorded a hollow way and other Roman features	Roman	NZ 2180 6449
Watching briefs			
Event 3742	Fox and Hounds. Watching brief in 2012. Negative result	-	NZ 214 649
Event 3727	West Road. Watching brief in 2012 identified remains of Hadrian's Wall	Roman	NZ 2121 6497
Event 2671	Bertram Crescent, Benwell. Watching brief in 2006. Negative result	-	NZ 2131 6481
Event 4597	Hadrian School. Watching brief in 2016. Negative result	-	NZ 2138 6476
Event 3071	Hadrian School. Watching brief in 2008. Negative result	-	NZ 2145 6470
Event 3897	59 Denhill Park. Watching brief in 2007. 19th-20th century walls and Roman pottery found	Roman 19th-20th century	NZ 21524 64642
Event 2295	Pendower Hall School. Watching brief in 2003. Negative result	-	NZ 214 646
Event 2569	Denhill Park. Watching brief in 2005 identified a Roman granary	Roman	NZ 2158 6471
Event 2923	52 Denhill Park. Watching brief in 2008 identified a Roman building	Roman	NZ 215 647
Event 1488	Westgate Road. Watching brief in 1990 identified a Roman granary	Roman	NZ 21598 64794
Event 1487	Condercum House. Watching brief in 1986. Negative result	-	NZ 2165 6477
Event 1379	BBC Fenham Transmitting Station. Watching brief in 1996 identified a possible Roman road running north from Benwell fort	Roman	NZ 2165 6487
Event 1383	BBC Fenham Transmitting Station. Watching brief in 1996. Negative result	-	NZ 2165 6487
Event 1889	Fenham Water Booster Station. Watching brief in 2002. Negative result	-	NZ 2162 6483
Event 3286	Westgate Hill. Watching brief in 2009. Negative result	-	NZ 2171 6476
Event 1921	Westgate Community College. Watching brief in 2002. Negative result	-	NZ 218 648
Event 3662	West Road. Watching brief in 2011. Negative result	-	NZ 219 647
Event 1499	Westgate Community College. Watching brief in 2001. Negative result	-	NZ 218 648
Event 2952	Condercum Road. Watching brief in 2008. Negative result	-	NZ 2177 6174
Event 2389	Springhill Gardens and Broomridge Avenue. Watching brief in 2004 recorded remains of the Vallum	Roman	NZ 218 646
Event 2473	Weidner Road. Watching brief in 2005 identified a cut feature and Roman pottery	Roman	NZ 2172 6455
Event 1303	Westgate Community College. Watching brief in 2000. Negative result	-	NZ 218 647
Event 3624	Westgate Road. Watching brief in 2009. Negative result	-	NZ 219 646
Event 2952	Condercum Road. Watching brief in 2008. Negative result	-	NZ 2194 6164
Event 4317	West Road. Watching brief in 2015. Negative result	-	NZ 2037 6532
Event 3366	Westgate Road. Watching brief in 2009-10. Negative result	-	NZ 22147 64644

HER no. and list entry	Description	Period	Grid Reference
Geophysical survey			
Event 4199	Newcastle City Learning Centre. Ground-penetrating radar survey 2014. Negative result	-	NZ 217 647
Building recording			
3744	Ashton Court care Home, West Road. Building recording 2012	20th century	NZ 213 649
Monuments and findspots			
16214	Sunnybank Avenue, Benwell, Roman pits and ditches	Roman	NZ 2155 6442
5265	Benwell Fort <i>mansio</i>	Roman	NZ 21569 64592
5273	Roman road running southwards from Benwell fort to the vallum crossing	Roman	NZ 2156 6466
5270	Benwell Fort, ditches running south from SE corner of fort	Roman	NZ 2162 6461
5328	Benwell Fort, possible parade ground	Roman	NZ 216 647
16459	Pendower Way, Benwell, Roman ditch	Roman	NZ 2128 6458
5272	Pendower Hall, Benwell, Roman pottery findspot	Roman	NZ 2142 6456
5268	Bertram Crescent, Benwell, Roman pottery vessel and coins findspot	Roman	NZ 2146 6450
5269	27 Lismore Place, Benwell, Roman building remains	Roman	NZ 2153 6456
5322	Benwell Fort, tombstone	Roman	NZ 216 647
5271	Benwell Fort, grave containing lead coffin	Roman	NZ 2166 6464
5274	Benwell Fort, statue of Antenociticus – findspot	Roman	NZ 2171 6467
5276	Benwell Fort, altar to Antenociticus – findspot	Roman	NZ 2171 6467
5277	Benwell Fort, altar to Antenociticus – findspot	Roman	NZ 2171 6467
5323	Benwell Fort, tombstone – findspot	Roman	NZ 216 647
1505	Supposed Roman cemetery, Benwell	Roman	NZ 220 646
5320	Benwell Fort, dedication slab – findspot	Roman	NZ 216 647
5444	Benwell Fort, silver spoon – findspot	Roman	NZ 216 647
5324	Benwell Fort, column shaft – findspot	Roman	NZ 216 647
5309	Benwell Fort, dedication slab – findspot	Roman	NZ 216 647
5326	Benwell Fort, relief of male head – findspot	Roman	NZ 216 647
5325	Benwell Fort, statue of lion – findspot	Roman	NZ 216 647
5313	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5314	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5315	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5321	Benwell Fort, tombstone – findspot	Roman	NZ 216 647
5317	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647

HER no. and list entry	Description	Period	Grid Reference
5316	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5318	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5319	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5306	Benwell Fort, altar – findspot	Roman	NZ 216 647
5311	Benwell Fort, altar – findspot	Roman	NZ 216 647
5327	Benwell Fort, bearded head - findspot	Roman	NZ 216 647
5310	Benwell Fort, altar – findspot	Roman	NZ 216 647
16746	Benwell Fort granaries, inscription - findspot	Roman	NZ 21 64
5307	Benwell Fort, altar – findspot	Roman	NZ 216 647
5312	Benwell Fort, building stone with inscription - findspot	Roman	NZ 216 647
5308	Benwell Fort, dedication slab - findspot	Roman	NZ 216 647
5299	Benwell Fort, stone base with inscription - findspot	Roman	NZ 216 647
5298	Benwell Fort, altar – findspot	Roman	NZ 216 647
5296	Benwell Fort, altar – findspot	Roman	NZ 216 647
5297	Benwell Fort, altar – findspot	Roman	NZ 216 647
6365	West Acres, Benwell (demolished)	19th century	NZ 2105 6493

APPENDIX E: GEOPHYSICS TECHNICAL INFORMATION

Gradiometer Survey Instrumentation

The data was collected using Hand Held Bartington Grad 601-2 fluxgate gradiometers. The Bartington 601-2 is a single axis, vertical component fluxgate gradiometer comprising a data logger battery cassette and two sensors. The sensors are Grad-01-1000L cylindrical gradiometer sensors mounted on a rigid carrying frame, each sensor contains two fluxgate magnetometers with 1m vertical separation.

The gradiometer records two lines of data on each traverse, the grids are walked in a zig-zag pattern amounting to 15 traverses. The gradiometers are calibrated at the start of every day and recalibrated whenever necessary.

The difference in the magnetic field between the two fluxgates in each sensor is measured in nanoTesla (nT) and for this investigation the readings are measured at 0.1nT. The units' sensors can measure down to 1m from the ground level depending on the ground conditions.

Readings reach between +/-100nT and lower readings are created by upstanding or harder remains such as walls or areas of stone, higher readings are created by softer or cut features, such as ditches and pits (see below).

Limitations

Poor results can be due to several factors including short lived archaeological occupation/use or sites with minimal cut or built features. Results can also be limited in areas with soils naturally deficient in iron compounds or in areas with soils overlying naturally magnetic geology, which will produce strong responses masking archaeological features.

Overlying layers such as demolition rubble or layers of made ground can hide any earlier archaeological features. The presence of above ground structures and underground services containing ferrous material can distort or mask nearby features.

Particularly uneven or steep ground can distort results beyond the capabilities of processing to even out. Over processing of data can also obscure features.

Table E1: Survey summary

	Survey
Grid size	30m x 30m
Traverse interval	1m
Reading interval	0.25m
Direction of 1st traverse	North
Number of Grids	23

Table E: Grid co-ordinates (The base line is shown on Figure 11)

Grid point (gp) A	Grid point (gp) B
NGR: 421565.0 564921.4	NGR: 421576.8 564923.3

APPENDIX F: GEOPHYSICS DATA PROCESSING INFORMATION

The processing is undertaken using Geoplot 3.0 software, and the following processing techniques:

- Zero Mean Traverse - to remove directional effects inherent in the survey,
- Destagger - to shift the traverses back or forward to correct for user error,
- Clip - to enhance the weaker features, by reducing the readings above a set value,
- Despiking - removing data points that are above an appropriate mean to reduce the appearance of dominant readings, created by modern ferrous objects distorting the results,
- Low pass filter - Decreases the correlation between neighbouring cells effectively smoothing the data
- Interpolation – reduces the blocky effect of the survey smoothing the appearance of the data.

Table F1: Processing steps

Minimal Processing	Increased Processing
<ul style="list-style-type: none"> • Zero Mean Traverse +5/-5 • Destagger - all grids: 2 • Despiking X-1 Y-1 Thr-3 Repl-mean 	<ul style="list-style-type: none"> • Low Pass Filter • Interpolate Y, Expand - Linear ,x2

APPENDIX G: GEOPHYSICS DATA VISUALISATION INFORMATION

Figures

The data is used to produce a series of images to demonstrate the results of surveys these are detailed below:

- Greyscale/Colourscale Plot – This demonstrates the results as a shaded drawing with highest readings showing as black, running through different shades to lowest showing as white. This can also be created using a colour pallet to demonstrate the different values.
- XY-trace Plot – This creates a line drawing showing the peaks and troughs of the readings as vertical offset from a centreline.
- Interpreted data – This is created to show features and particular high or low readings to re enforce and clarify the written interpretation of the data. This is based on the Greyscale plot but with different colours representing the various readings.

Magnetic anomalies and terminology

The different magnetic anomalies can represent different features created by soil and geology, human activity, modern or agricultural activity. Anomalies interpreted with a 'greater' categorisation are considered more likely to be of an archaeological nature; a more tentative interpretation is applied to those with a 'lesser' categorisation as a consequence of weaker increases in magnetic response or the anomalies incomplete patterning or irregular form.

In areas where mining activity has been recorded, it is possible that dipolar anomalies (often appearing as a broad sub-circular positive response with a negative halo) and amorphous areas containing bipolar responses are caused by mine shafts, pits and historic mineral extraction.

Positive linear anomalies have an increased magnetic response and are often caused by archaeological features, such as ditches and field boundaries but can also be natural.

Isolated anomalies or anomalies with a more amorphous form possibly represent infilled or thermomagnetic features that can be of an archaeological or natural origin. Areas of heating/burning or heated objects produce thermoremanent responses as this creates a magnetic field. These can appear as bipolar responses or as magnetic debris depending on whether it is in situ, or moved into place.

Negative linear anomalies represent earthworks, walls and other upstanding or compacted remains with a lower magnetic response compared to background readings. Isolated negative anomalies can represent archaeological or natural features.

Weak and diffuse anomalies with an uncertain origin are denoted by trends. It is possible that these belong to archaeological features, but given their weak signatures it is equally plausible that they relate to natural soil formations.

Regularly spaced linear anomalies are often caused by agricultural practices. Depending on their form and magnetic responses they either denote ridge and furrow, modern ploughing or land drains.

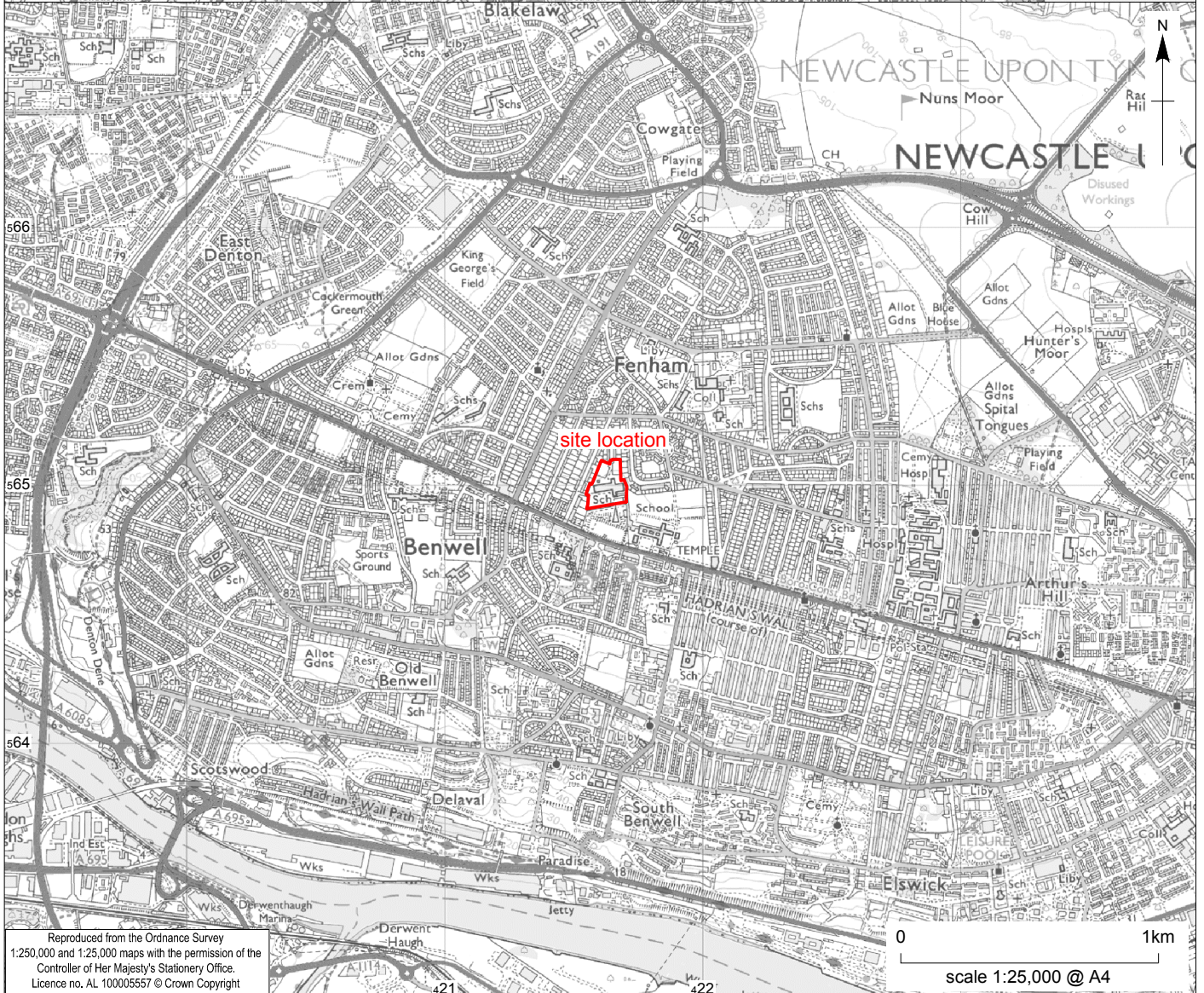
Dipolar readings are single positive responses with a surrounding negative response. Strong responses tend to be caused by ferrous objects. These responses have only been shown when located near to archaeological features. Given the former land uses of the survey area it is possible that identified dipolar anomalies relate to mining activity and are indicative of further pits and mine shafts.

Positive anomalies with associated negative responses (bipolar) denote features with a strong magnetic response, likely to be of a modern origin. Linear bipolar anomalies are often modern services such as cables; however weaker responses can be archaeological features such as earthworks.

Increased magnetic response is caused by magnetic debris and is noticeable as areas of positive and negative responses, which can relate to general ground disturbance, spreads of ferrous debris or areas of rubble.

Areas of magnetic disturbance, often along the edges of survey areas are caused by standing metal structures such as fencing and buildings. This can cause interference extending out from the structure, across the area.

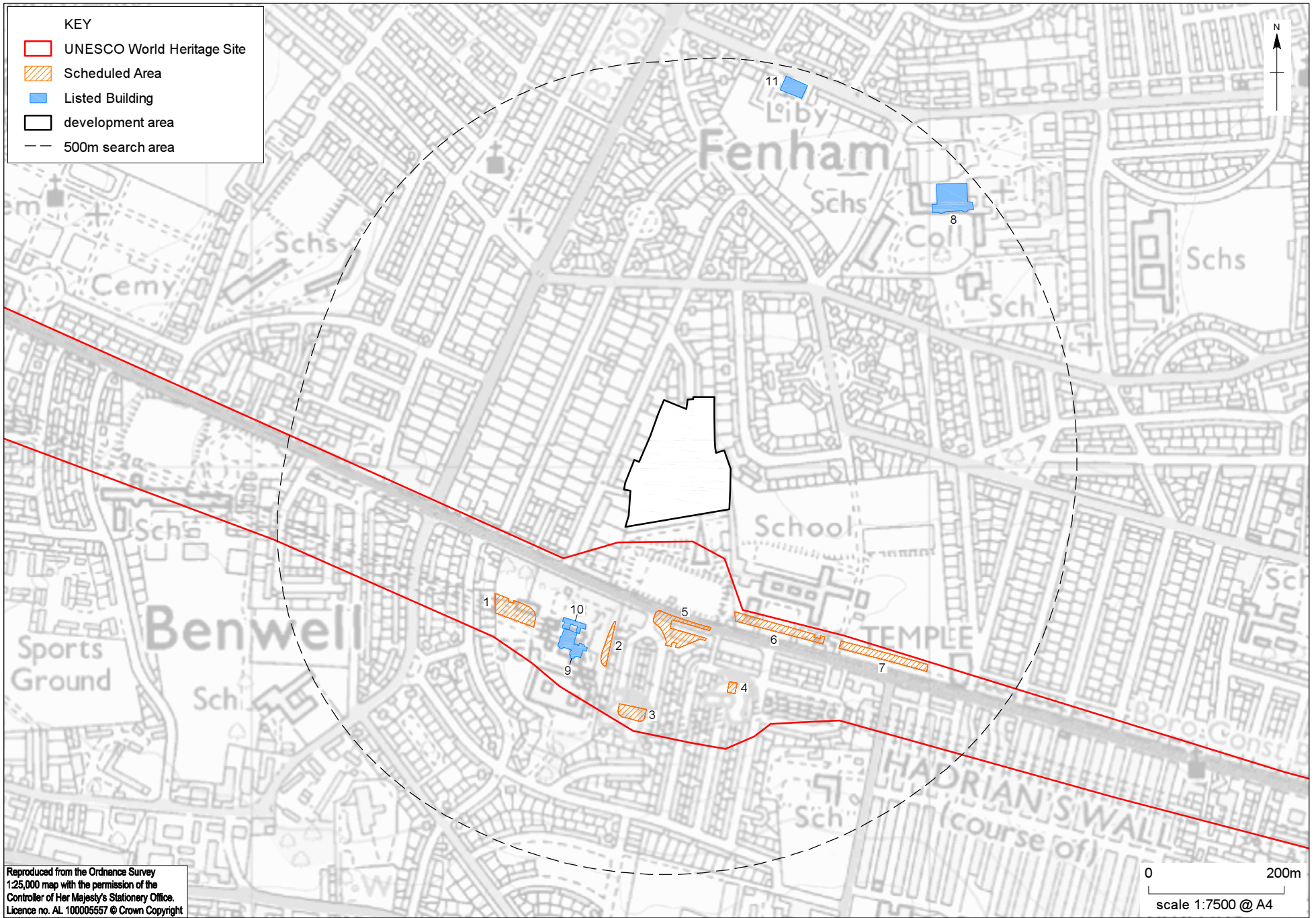
Variable weak magnetic responses can demonstrate natural features or changes in geology or soil type.



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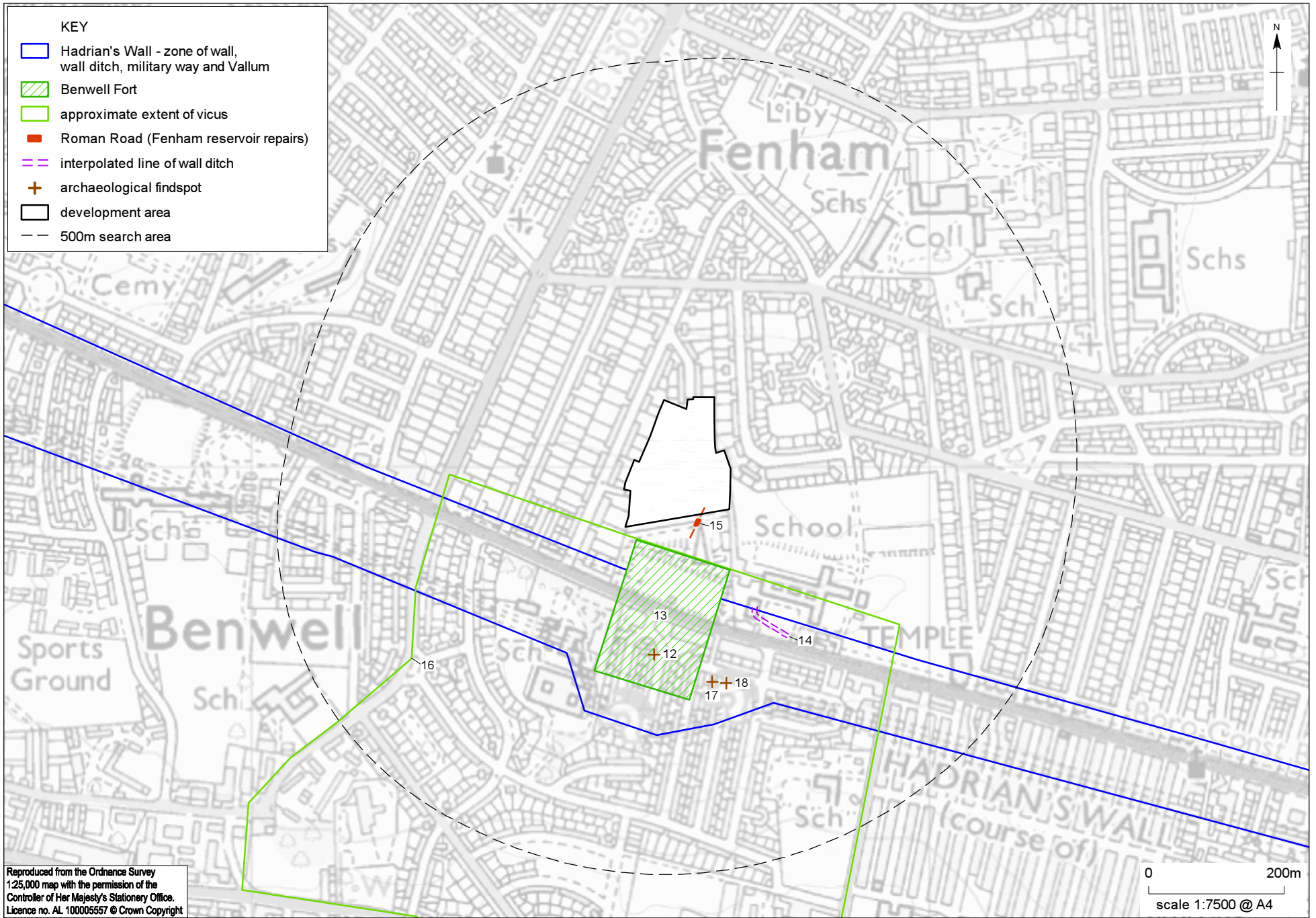
Grange Road, Fenham: site location

Figure 1



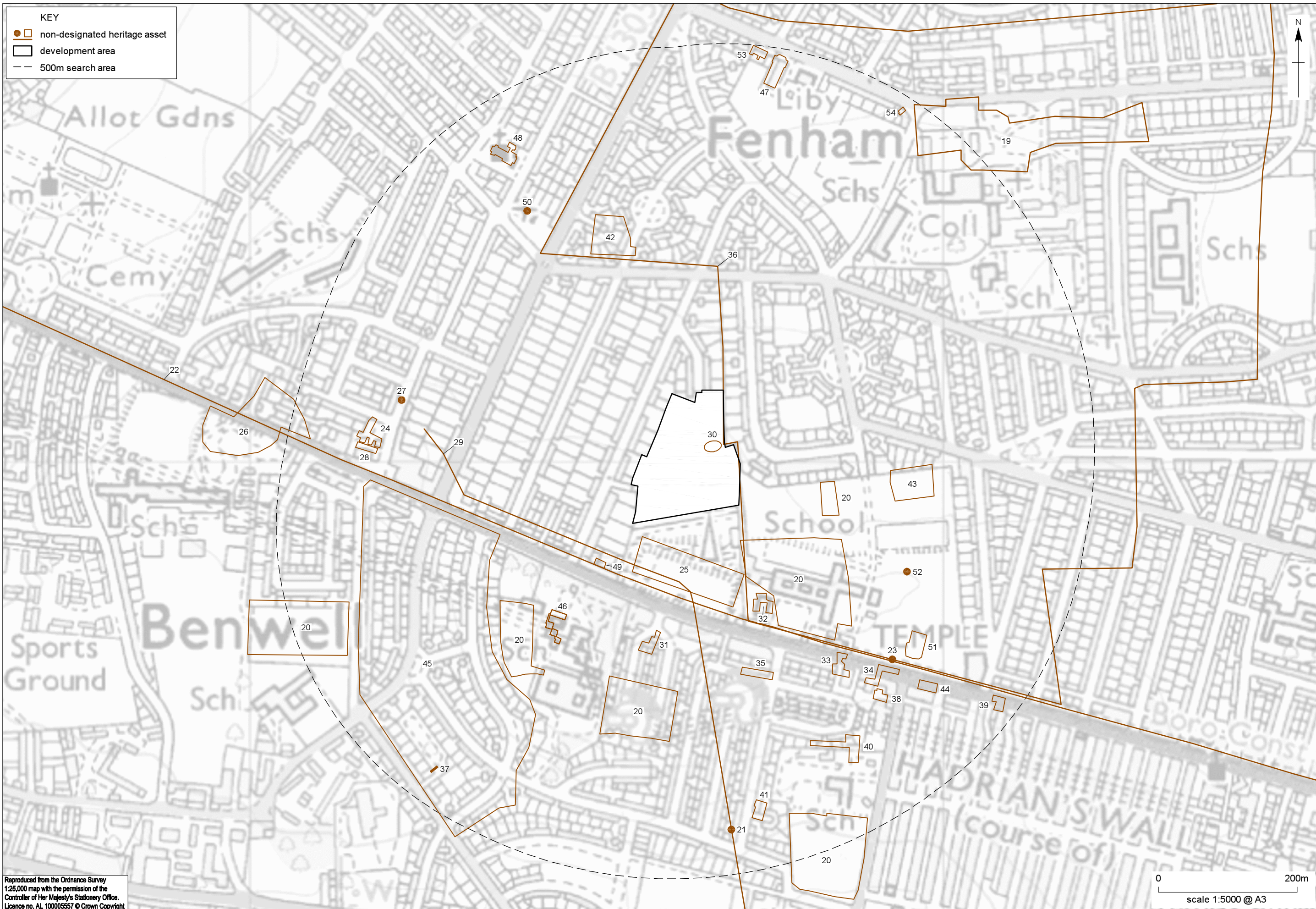
Grange Road, Fenham: designated heritage assets within 500m of the proposed development

Figure 2



Grange Road, Fenham: Prehistoric, Roman and Early Medieval sites and findspots

Figure 3



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Grange Road, Fenham: non-designated heritage assets within 500m of the proposed development

Figure 4



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Grange Road, Fenham, Newcastle: map of Benwell, 1637
 Reproduced from M. Dodds 1930

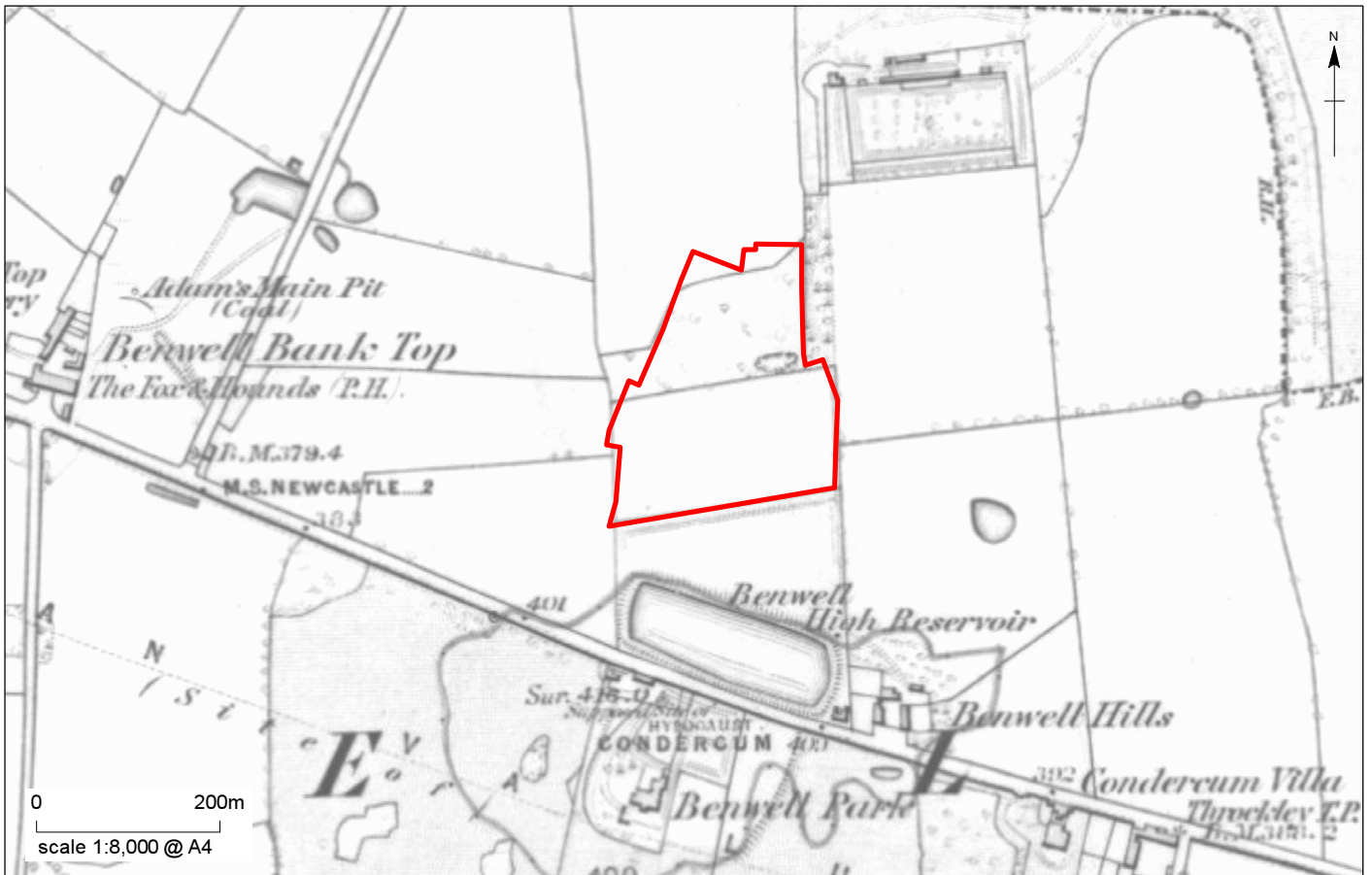
Figure 5



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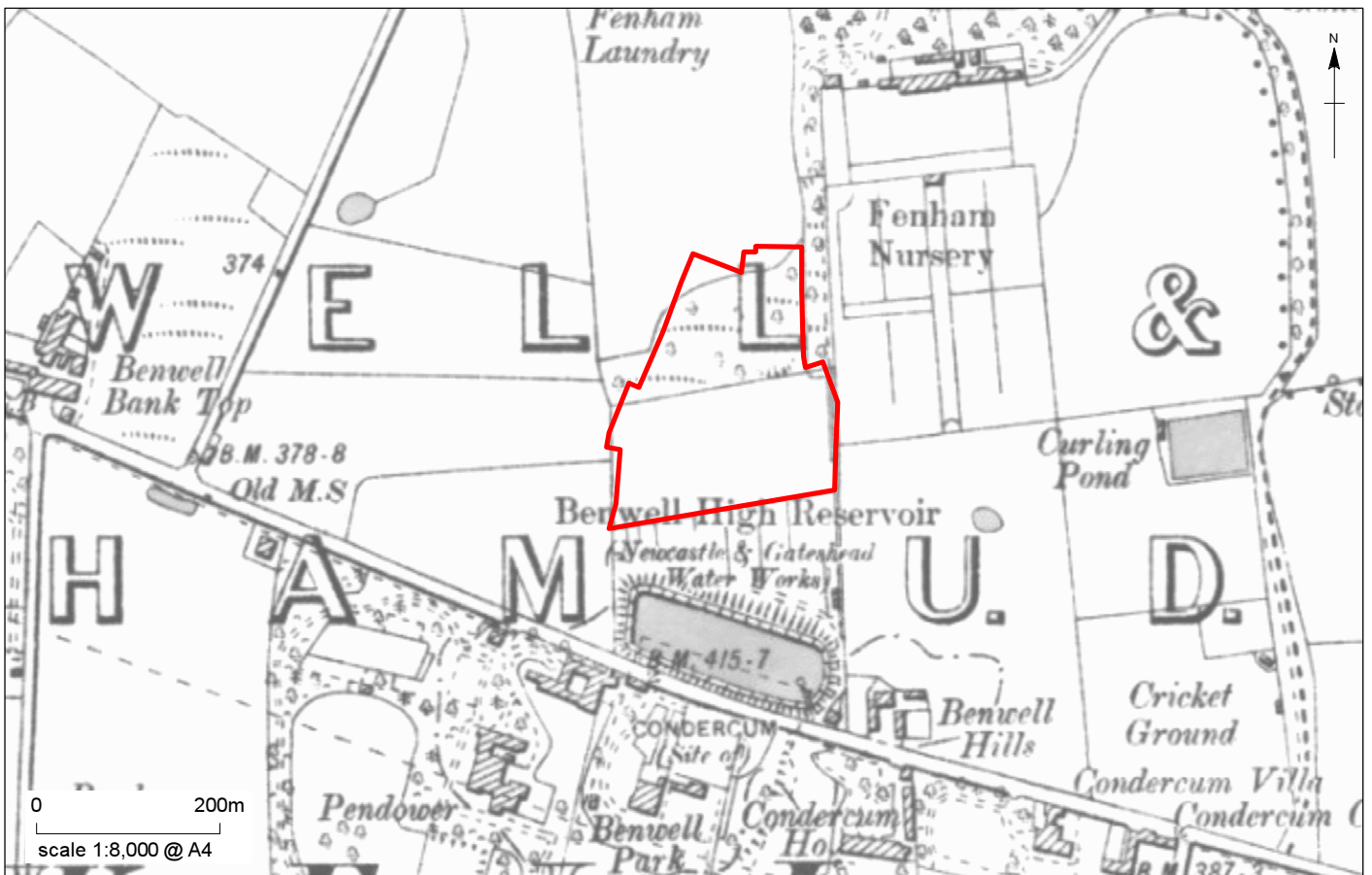
Grange Road, Fenham, Newcastle: map of Benwell, 1790-1808
 Reproduced from F. Graham 1984

Figure 6



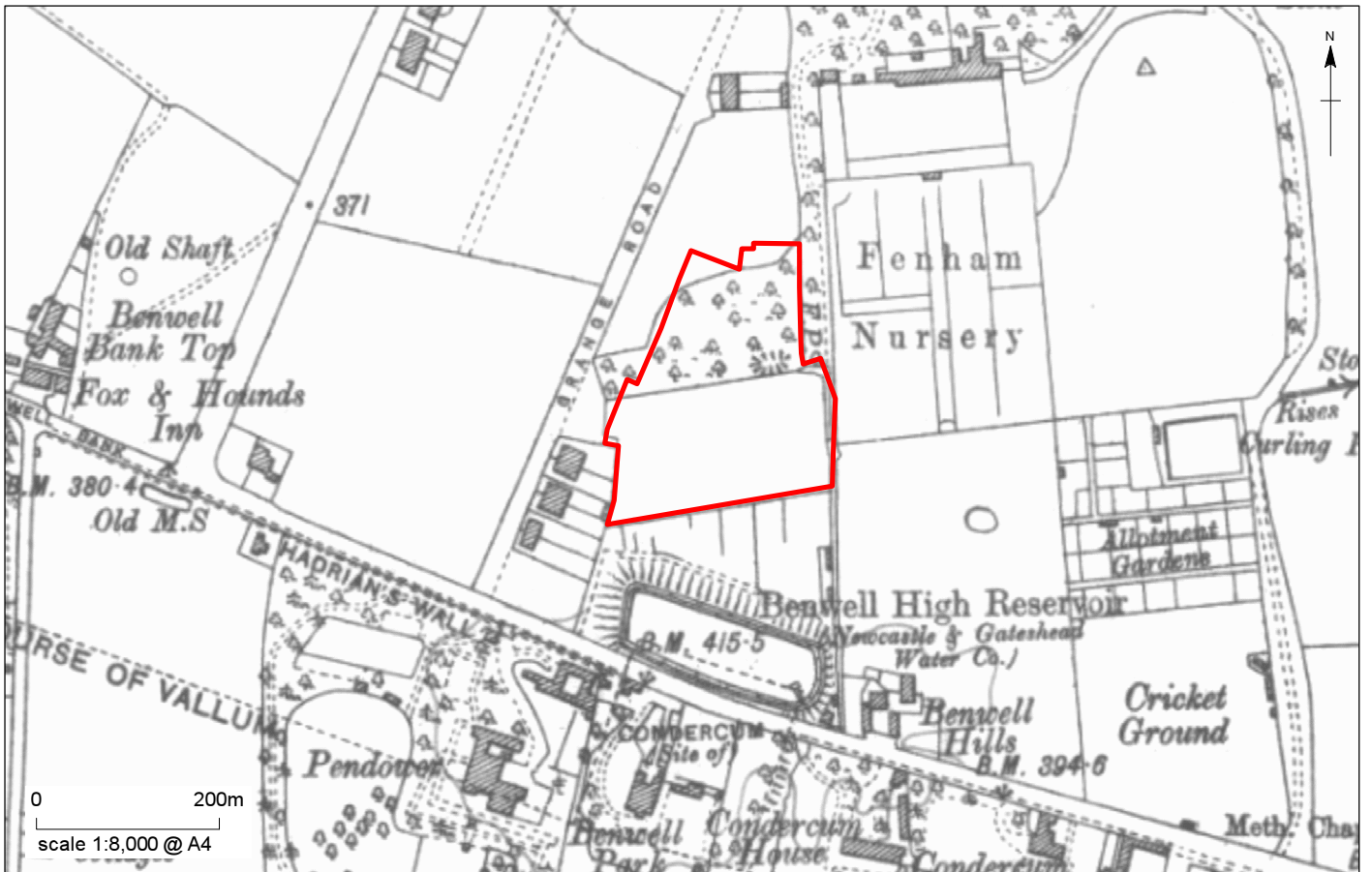
Grange Road, Fenham, Newcastle: Ordnance Survey 6" map series, 1864

Figure 7



Grange Road, Fenham, Newcastle: Ordnance Survey 6" map series, 1899

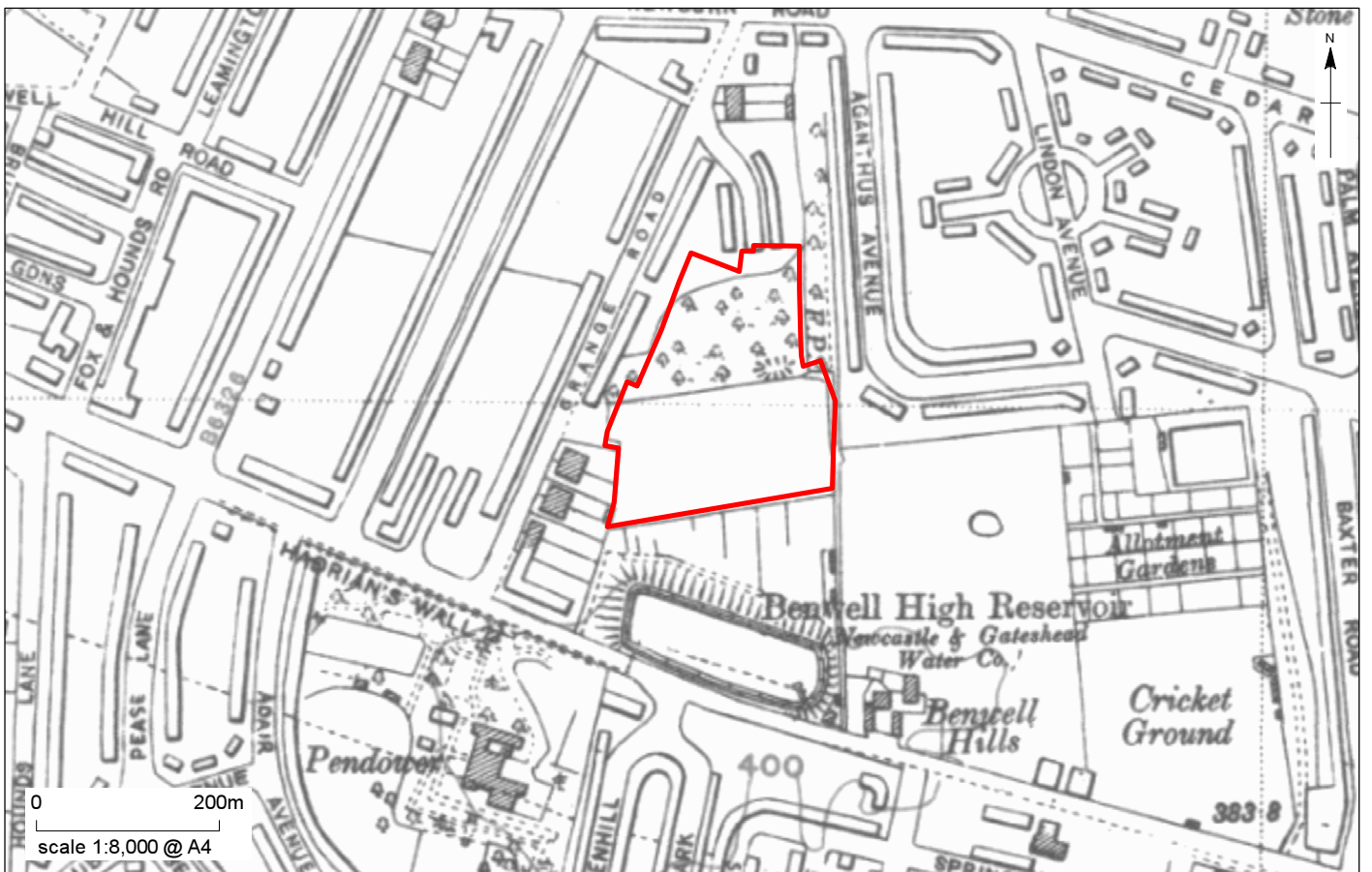
Figure 8



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Grange Road, Fenham, Newcastle: Ordnance Survey 6" map series, 1921

Figure 9







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Grange Road, Fenham, Newcastle: Ordnance Survey 6" map series, 1945

Figure 10

KEY

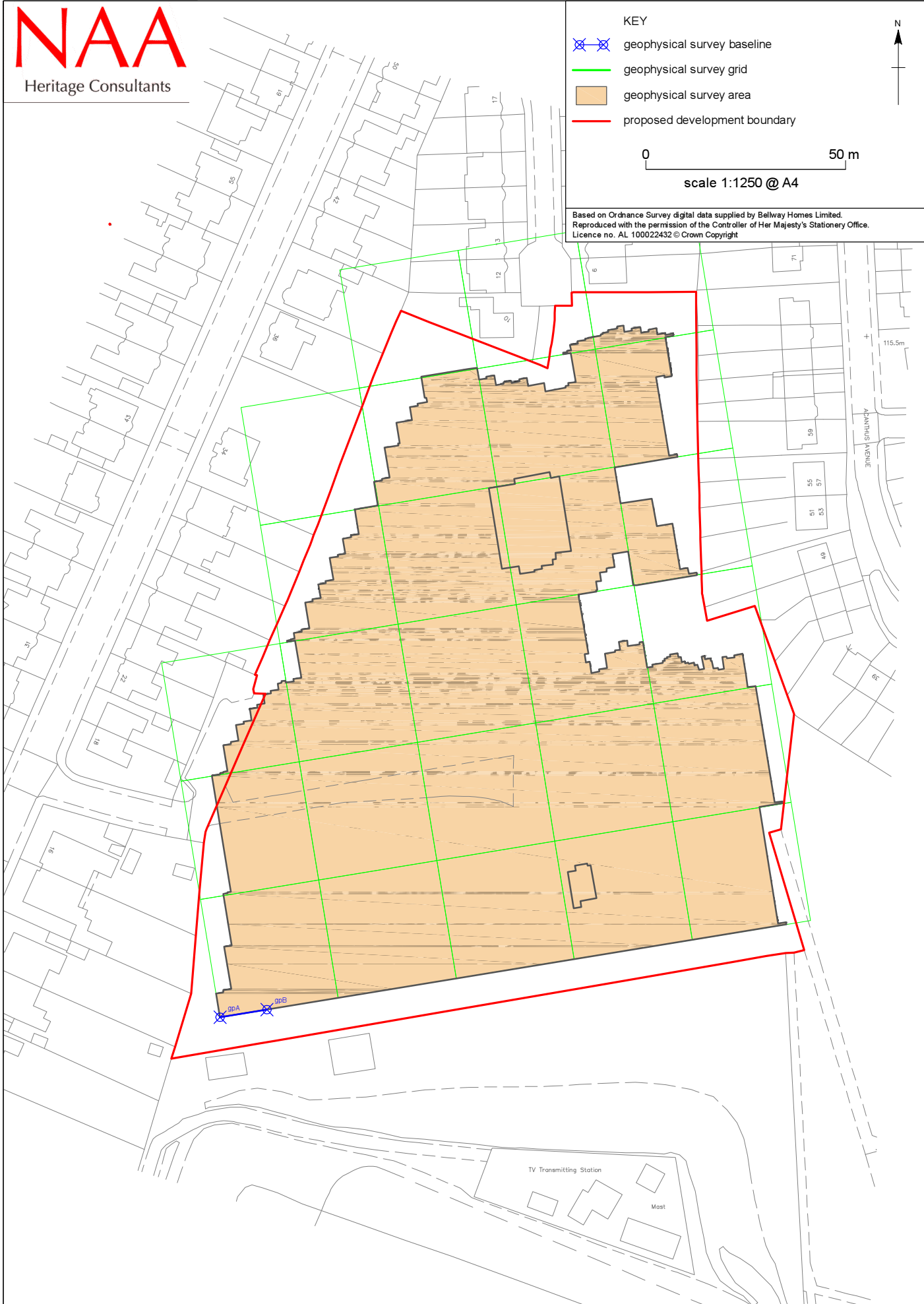
-  geophysical survey baseline
-  geophysical survey grid
-  geophysical survey area
-  proposed development boundary

0 50 m

scale 1:1250 @ A4

N
↑

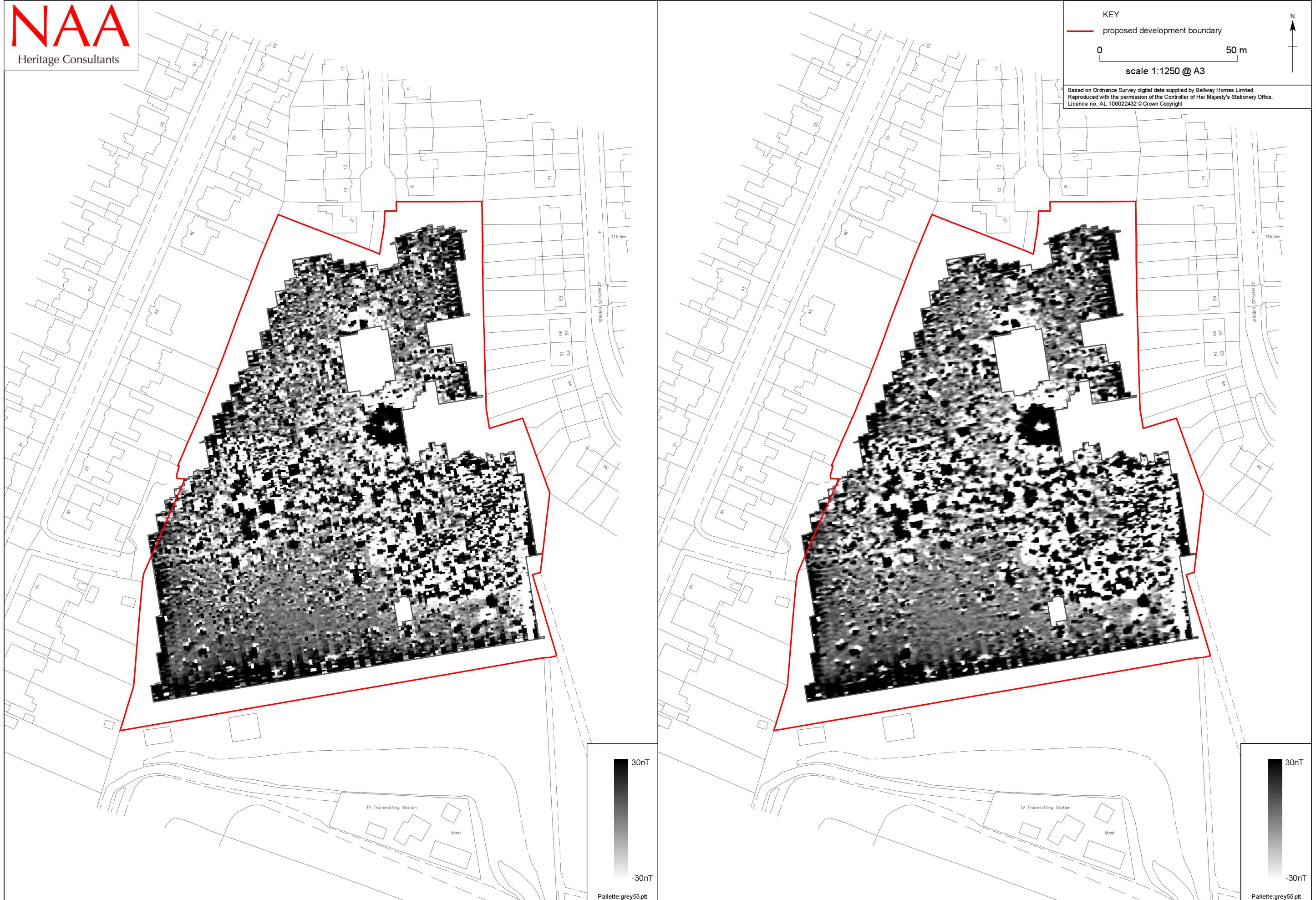
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KEY
— proposed development boundary

0 50 m
scale 1:1250 @ A3

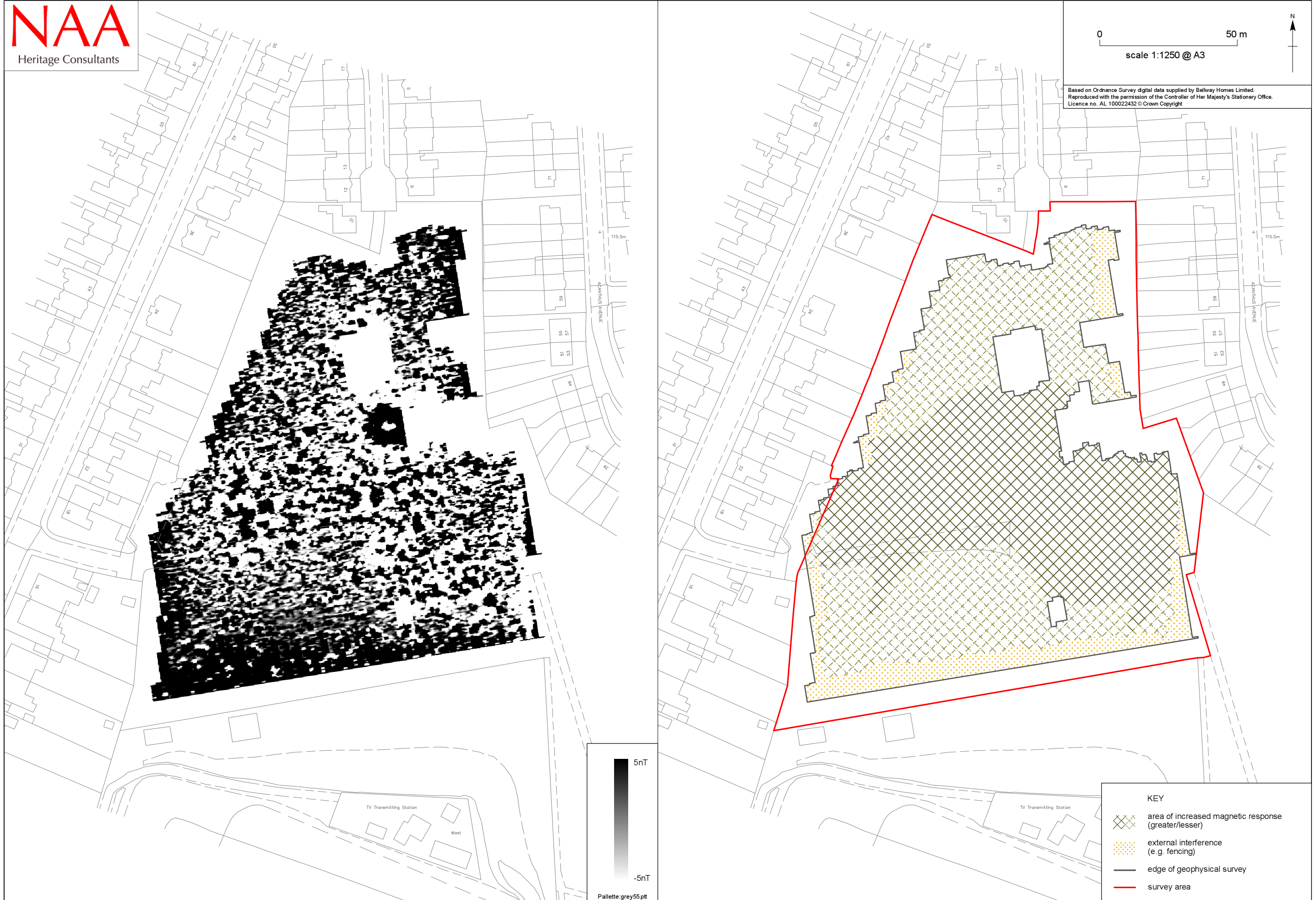
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Grange Road, Fenham, Newcastle: unprocessed and processed greyscale plots of gradiometer survey results

Figure 12

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Grange Road, Fenham, Newcastle: processed greyscale plot and interpretation of gradiometer survey results

Figure 13



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Grange Road, Fenham, Newcastle: proposed trial trench locations overlain on Google Earth Imagery (2009)

Figure 14



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*Grange Road, Fenham, Newcastle: view across site towards
Grange Road, facing west*

Plate 1



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*Grange Road, Fenham, Newcastle: view across site towards
Fenham Reservoir and the TV mast, facing south-west*

Plate 2



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*Grange Road, Fenham, Newcastle: view along eastern side of site, Plate 3
showing small trees and geotechnical test pit, facing south*



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*Grange Road, Fenham, Newcastle: view from site into the grounds Plate 4
of Westgate Community College, facing south-east*