

Highthorn proposed surface coal mine
Widdrington
Northumberland

Summary of archaeological resource and its significance
Report 3916

on behalf of
Banks Mining

1. Works conducted

- 1.1 A programme of archaeological works has been conducted in order to ascertain the nature and extent of any archaeological resource that may be present within the proposed development area, its significance, and the extent of the potential impact of the development.
- 1.2 An archaeological desk-based assessment of the site was initially conducted, which included a site walk-over survey, study of the Historic Environment Record, historic mapping and other sources. This collated existing evidence for the site and drew on a wider study area within 2.5km of the site (Archaeological Services 2015a). The results of the desk-based assessment are summarised below.
- 1.3 There are Grade II listed buildings at Hemscott Hill and Druridge farms, on the edge of the proposed development area. There are numerous listed buildings within the wider study area. There are no Scheduled Ancient Monuments on the site, but three in the wider area. The impact on the setting of these designated assets will need to be considered.
- 1.4 There is no direct evidence for prehistoric or Roman activity within the study area, but the presence of activity in the surrounding vicinity, indicates that an as yet unidentified resource has the potential to exist.
- 1.5 The area is likely to have been used as agricultural land during the medieval and post-medieval periods, rather than for settlement. Evidence for this, in the form of ridge and furrow earthworks, is present in parts of the site. Further associated below-ground remains have the potential to exist in other areas across the site, although these will be of limited archaeological significance.
- 1.6 Farm buildings are recorded within the proposed development area on an 18th-century map, but not on subsequent maps. A resource relating to this may survive.
- 1.7 During the Second World War the site was part of a decoy airfield. A decoy control building is extant in the site, and anti-glider ditches were visible on 1947 aerial photographs. Druridge Bay was heavily defended during the war, and evidence for unknown defensive structures may exist further inland within the proposed development area.

Geophysical Survey

- 1.8 Following completion of the desk-based assessment, an extensive geomagnetic survey was conducted across the proposed development area (Archaeological Services 2015b).
- 1.9 The survey detected known anthropogenic soil-filled features ie. former field boundaries, ridge and furrow. This demonstrated the validity of the survey data, and indicates that other previously unidentified soil-filled features would be identified by the survey.
- 1.10 There was no pattern of strong anomalies from former ploughing regimes (ie ridge and furrow) which might obscure underlying features, and it is most probable that anomalies caused by soil-filled features are clearly visible.
- 1.11 Occasional possible soil-filled features have been identified in Areas 5, 7, 8 and 42. Whilst these could possibly reflect anthropogenic features their age and provenance remains uncertain. The number of such anomalies relative to the size of the area is very small, and they are very weak and ephemeral. It is highly improbable that substantive remains of prehistoric or historic settlement exist on the site.
- 1.12 The possible former farm buildings recorded on an 18th-century map have not been detected in the data, and these would normally be clear. Given this, and the inaccuracy of the map, it is most probable that these buildings, if they existed, were located to the east of the proposed development area.
- 1.13 Extensive field drains have been identified over the site. This may indicate that the low-lying ground was poorly drained prior to modern agricultural improvements.
- 1.14 No evidence for the anti-glider trenches or other WWII defences were noted. Anti-glider trenches would not however necessarily be expected to have a magnetic signature.
- 1.15 Evidence of former coal extraction has been identified in many of the survey areas, including possible bell-pits or exploratory workings.

2. The potential archaeological resource

- 2.1 By combining the results of the desk-based assessment and the geophysical survey, the known and potential extent of the archaeological resource may be summarised as follows (Figure 1):
- 2.2 There are Grade II listed buildings at Hemscott Hill and Druridge farms, and many listed buildings further afield outside the proposed development area.
- 2.3 There is a WW11 decoy building on the site.
- 2.4 There are extant earthwork remains of ridge and furrow, the product of medieval and later ploughing, in parts of the site.
- 2.5 There are below-ground traces of ridge and furrow across a wider area of the site.
- 2.6 There may be evidence for as yet unidentified flints within the topsoil which could reflect exploitation of the area in the earlier prehistoric periods.

2.7 Although it is unlikely that a substantive prehistoric / Romano-British settlement is present within the study area, there are a small number of weak geophysical anomalies which could reflect soil-filled features of prehistoric or later date.

2.8 Other geophysical anomalies are considered likely to reflect evidence for historic mining activity, for example bell pits or exploratory workings.

3. Significance of the archaeological resource and impact

3.1 The methodology for assessing the significance of assets and the effect of the development is based on that within the Department for Transport’s Design Manual for Roads and Bridges, Volume 11, Section 3, Part 2, HA 208/07, Annexes 5, 6 & 7 (DfT 2013); it was devised for the preparation of environmental impact assessments in conjunction with a wide array of stakeholders (tables 1-3, below). The methods can be used in conjunction with modern planning policies and guidance.

3.2 The significance of the assets is assessed on the basis of the following table:

Significance	Criteria
Very High	<ul style="list-style-type: none"> World Heritage Sites, including nominated sites Assets of acknowledged international importance Historic landscapes of international value, designated or not Extremely well preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s) Assets that can contribute significantly to acknowledged international research objectives
High	<ul style="list-style-type: none"> Scheduled Monuments Undesignated assets of schedulable quality and importance Grade I and Grade II* (Scotland: Category A) Listed Buildings Other listed buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade Conservation Areas containing very important buildings Undesignated structures of clear national importance Assets that can contribute significantly to acknowledged national research objectives Designated historic landscapes of outstanding interest Undesignated landscapes of outstanding interest Undesignated landscapes of high quality and importance, and of demonstrable national value Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s)
Medium	<ul style="list-style-type: none"> Grade II (Scotland: Category B) Listed Buildings Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations Conservation Areas containing buildings that contribute significantly to its historic character Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures) Designated or undesignated assets that contribute to regional research objectives Designated special historic landscapes Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s)
Low	<ul style="list-style-type: none"> Designated and undesignated assets of local importance Assets compromised by poor preservation and/or poor survival of

	<p>contextual associations</p> <ul style="list-style-type: none"> • Assets of limited value, but with potential to contribute to local research objectives • 'Locally Listed' buildings (Scotland Category C(S) Listed Buildings) • Historic (unlisted) buildings of modest quality in their fabric or historical association Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures) • Robust undesigned historic landscapes • Historic landscapes with importance to local interest groups • Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations
Negligible	<ul style="list-style-type: none"> • Assets with very little or no surviving archaeological interest • Buildings of no architectural or historical note; buildings of an intrusive character • Landscapes with little or no significant historical interest
Unknown	<ul style="list-style-type: none"> • The importance of the resource has not been ascertained • Buildings with some hidden (i.e. inaccessible) potential for historic significance

Table 1: Significance of heritage assets

3.3 The magnitude of the impact of the development is based on the following table:

Magnitude	Criteria
Major	<ul style="list-style-type: none"> • Change to key historic building elements, such that the resource is totally altered • Change to most or all key archaeological materials, such that the archaeological resource is totally altered • Comprehensive changes to setting • Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit
Moderate	<ul style="list-style-type: none"> • Change to many key historic building elements, such that the resource is significantly modified • Changes to many key archaeological materials, such that the resource is clearly modified • Changes to the setting of an historic building, such that it is significantly modified • Considerable changes to setting of archaeological asset that affect the character of the asset • Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character
Minor	<ul style="list-style-type: none"> • Change to key historic building elements, such that the asset is slightly different • Changes to key archaeological materials, such that the asset is slightly altered • Slight changes to setting of archaeological asset • Change to setting of an historic building, such that it is noticeably changed • Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in limited changes to historic landscape character
Negligible	<ul style="list-style-type: none"> • Slight changes to historic buildings elements or setting that hardly affect • Very minor changes to archaeological materials, or setting • Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character
No Change	<ul style="list-style-type: none"> • No change to fabric, materials or setting of asset • No change to historic landscape elements, parcels or components; No visual or

	audible changes; No changes arising from in amenity or community factors
--	--

Table 2: Magnitude of impact on historic assets

3.4 The effect of the development is the product of the magnitude of impact and the significance of the asset, and is set out in the following table:

		Magnitude of Impact				
		No Change	Negligible	Minor	Moderate	Major
Significance of Asset	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Table 1: Effect of development as a factor of magnitude of impact and asset significance

3.5 Part of the significance of assets is determined, on the basis of the table above, through their ability to contribute to established research objectives. The known and potential archaeological resource at the site has the potential to contribute to the agenda items within the *North-East Regional Research Framework* (Petts and Gerrard 2006), specifically:

Palaeolithic and Mesolithic

- M1 Archaeology of the early post-glacial coastline: hunter-gatherers and the North Sea Littoral
- Mi Understanding coastal environmental change
- Mv Mesolithic lithics in the North-East

Late Bronze Age and Iron Age

- li Chronology
- lii Settlement
- lii Landscapes

Medieval

- MDii Landscape

Post-medieval

- PM1 Early coal industry and use

20th Century

- MOvi Military and defence

Grade II listed buildings at Hemscott Hill and Druridge farms

3.6 Because these buildings are listed at Grade II, on the basis of Table 1, they are of *medium* significance. There will be no direct impact on them by the proposed development. However, as

the setting of a listed building is material to their significance, the effect of the development on their setting will need to be considered.

WW11 decoy building

- 3.7 This structure exists in reasonable condition. It is part of a wider system of WWII defences, of which there are many surviving elements along Druridge Bay. As such, and as it is an undesignated asset with the potential to contribute to regional research objective MOvi (above, 3.3), it is of *medium* significance (Table 1). As the proposed development will remove the asset, the magnitude of impact is *major* (Table 2). The effect of the development (Table 3) is therefore *moderate or large*. This impact can be mitigated by a programme of archaeological recording.

Ridge and furrow earthworks

- 3.8 There are extant earthwork remains of ridge and furrow which are in reasonable condition and form part of a wider exploitation of the landscape in the medieval and post-medieval periods. As such, they are an undesignated asset with the potential to contribute to regional research objective MDii (above, 3.3), and are of *medium* significance (Table 1). As the proposed development will remove the assets, the magnitude of impact is *major* (Table 2). The effect of the development (Table 3) is therefore *moderate or large*. This impact can be mitigated by a programme of archaeological recording.

Ridge and furrow – below-ground evidence

- 3.9 As these remains are compromised by poor preservation, have little research potential, and their position has already been recorded, on the basis of Table 1, they are of *negligible* significance. As the proposed development will remove them, the magnitude of impact is *major* (Table 2). The effect of the development (Table 3) is therefore *slight*. Mitigation will not be required.

Flint assemblage

- 3.10 No assemblage has been identified, but an as yet unidentified resource has some potential to be present. The significance of this is likely to be *negligible to medium*, if it exists, but the significance is currently *unknown*. The effect of the development cannot therefore be assessed.

Prehistoric deposits

- 3.11 The small number of weak geophysical anomalies which could reflect soil-filled features of prehistoric or later date are likely to be of *negligible to medium* significance, if they exist, but their significance is currently *unknown*. The effect of the development cannot therefore be assessed.

Mining deposits

- 3.12 Geophysical anomalies are present which may reflect bell pits or exploratory workings relating to early mining activity. As these may survive in a condition suitable for addressing research objective PM1 (above, 3.3), they have the potential to be of *negligible to medium* significance (Table 1). As the proposed development will remove the assets, the magnitude of impact is *major* (Table 2). The effect of the development (Table 3) is therefore *slight to large*. This impact can be mitigated by a programme of archaeological recording.

4. Further works

- 4.1 Further works have been proposed where this is necessary to establish the significance of the potential assets. These have been set out within a Written Scheme of Investigation.

5. Sources

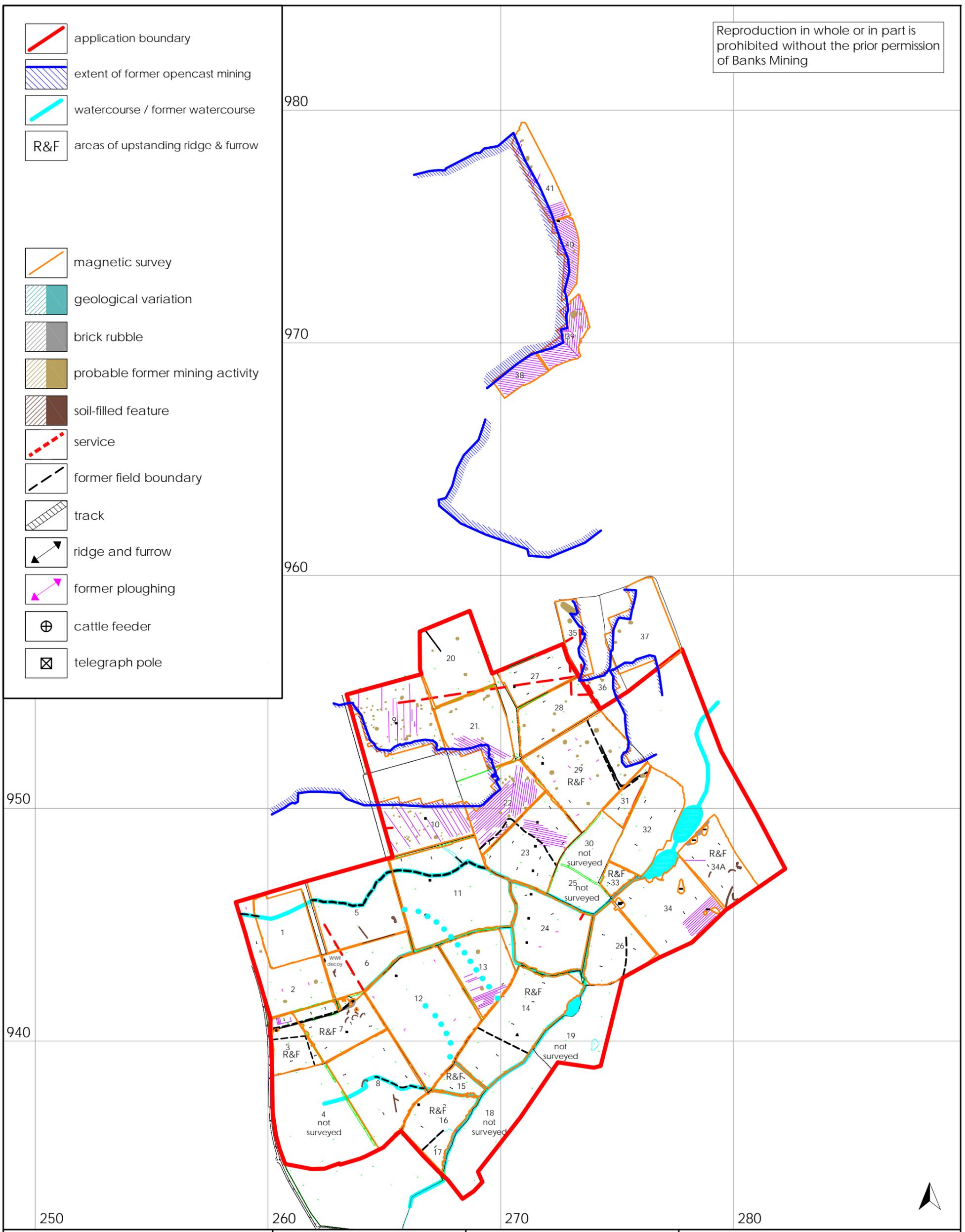
- Archaeological Services 2015a *Highthorn, Widdrington, Northumberland: archaeological desk-based assessment*. Unpublished report **3789**, Archaeological Services Durham University
- Archaeological Services 2015b *Highthorn, Widdrington, Northumberland: geophysical survey*. Unpublished report **3854**, Archaeological Services Durham University
- Petts, D, & Gerrard, C, 2006 *Shared Visions: The North-East Regional Research Framework for the Historic Environment*. Durham

Peter Carne BA MA
September 2015

Reproduction in whole or in part is prohibited without the prior permission of Banks Mining

-  application boundary
-  extent of former opencast mining
-  watercourse / former watercourse
-  areas of upstanding ridge & furrow

-  magnetic survey
-  geological variation
-  brick rubble
-  probable former mining activity
-  soil-filled feature
-  service
-  former field boundary
-  track
-  ridge and furrow
-  former ploughing
-  cattle feeder
-  telegraph pole



ARCHAEOLOGICAL SERVICES
DURHAM UNIVERSITY

on behalf of
Banks Mining



Highthorn proposed surface coal mine
Widdrington
Northumberland

archaeological resource and significance
report 3916

Figure 1: Archaeological resource