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THE COAL AUTHORITY

NENT HAGGS
NENTHEAD
CUMBRIA

ARCHAEOLOGICAL SURVEY REPORT

MAY 2018

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The Coal Authority

Nent Haggs, Nenthead, Cumbria

Topographical Survey

PREPARED BY:	EDITED BY:	APPROVED BY:
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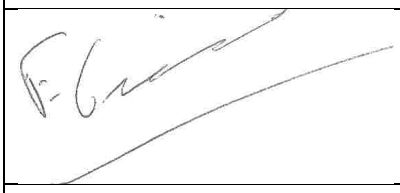		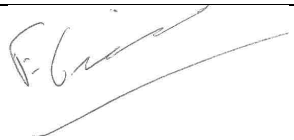
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ARCHAEOLOGICAL EVALUATION
ARCHAEOLOGICAL EXCAVATION
GEOPHYSICAL SURVEY
TOPOGRAPHIC AND LANDSCAPE SURVEY
HISTORIC BUILDING RECORDING
ENVIRONMENTAL SERVICES

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CONTENTS

SUMMARY 3
ACKNOWLEDGEMENTS 4
1 INTRODUCTION 5
1.1 Project Circumstances and Planning Background 5
1.2 Project Documentation 6
2 METHODOLOGY 7
2.1 Standards and guidance 7
3 BACKGROUND 9
3.1 Location and Geological Context 9
3.2 Historical and Archaeological Background 9
4 ARCHAEOLOGICAL SURVEY RESULTS 13
4.1 Introduction 13
4.2 Results 13
5 CONCLUSIONS 14
5.1 Interpretation 14
5.2 Significance and Recommendations 14
6 BIBLIOGRAPHY 16
6.1 Secondary Sources 16
APPENDIX 1: PLATES 17
APPENDIX 2: FIGURES 18

PLATES (APPENDIX 2)

Plate 1; View of Asset 122, facing north west. 17
Plate 2; View of Asset 122, facing north east. 17

FIGURES (APPENDIX 3)

Figure 1: Site Location
Figure 2: Survey Plan
Figure 3: Detail of Asset 221 and cross section

SUMMARY

Wardell Armstrong LLP (WA) was commissioned by the Coal Authority, to undertake an archaeological topographic survey of the remains of a probable former lead mine at Hudgill, Cumbria, centred on NY751464. The results of the survey will form part of pre-determination works for the proposed establishment of a mine water treatment plant on the Site between Blagill and Nentsberry (see Figure 1).

The archaeological work was undertaken over a single day on the 11th of May 2018 and comprised a topographical survey and site visit.

ACKNOWLEDGEMENTS

Wardell Armstrong LLP (WA) thanks Andrew Brookes for commissioning the project, and for his assistance throughout the work, and Jeremy Parsons, Historic Environment Officer at Cumbria County Council Historic Environment Service (CCCHES) and Orlando Prestige of AECOM for their assistance.

The survey was undertaken by Michael Donaldson and the report written by Frank Giecco. The figures were produced by Michael Donaldson. The project was managed by David Jackson who also edited the report.

1 INTRODUCTION

1.1 Project Circumstances and Planning Background

1.1.1 On the 11th of May 2018, Wardell Armstrong LLP (WA) undertook an archaeological topographical survey at Hudgill, Nenthead, Cumbria (NGR: NY751464) It was commissioned by the Client who intends to construct a mine water treatment plant on the Site between Blagill and Nentsberry.

1.1.2 The archaeological topographic survey has been requested following consultation with Jeremy Parsons, Historic Environment Officer at Cumbria County Council Historic Environment Service (CCCHES). Following consultation on the baseline information and assessment provided by AECOM (see AECOM 2018a), the following recommendation was made in a memorandum dated 7 March 2018: "In terms of the proposed development's impact on non-designated archaeological assets, the ES indicates that earthwork remains of a probable former lead mine survive within Site 4, the location of the proposed mine water treatment plant. Little information is provided in the ES on this asset, other than it is not shown on historic maps and so is likely to predate the 19th century. The nature and extent of the asset, together with crucially, its relationship with the nearby Scheduled Monument of Hudgill Lead Mine Bingsteads, is not understood, and so its significance is currently not known… I therefore recommend that further information is supplied by the applicant on the archaeological asset numbered 122 in the ES to determine its significance prior to the determination of the application. The information should be sought by commissioning an archaeological topographic survey of the earthwork remains of the asset and a consideration of the results by an expert in industrial archaeology. An informed judgement can be made as to whether, in the event planning consent is granted, it is necessary to include provisions for the preservation of any very significant archaeological assets or the recording of assets of lesser interest affected by the proposal".

1.1.3 Following on from this, AECOM were commissioned by the Coal Authority (the Client) to prepare a Written Scheme of Investigation (WSI) for an archaeological topographic survey of the remains of a probable former lead mine at Nent Haggs, Cumbria. This current work is based on this WSI and additional consultation undertaken by Wardell Armstrong with Jeremy Parsons at CCCHES.

1.2 Project Documentation

1.2.1 The project conforms to a brief prepared by AECOM (AECOM 2018b) and additional consultation with CCCHES. A WSI (AECOM 2018b) was then produced to provide a specific methodology based on the brief for a programme of archaeological mitigation implemented via a watching brief. This was approved by the archaeological planning advisor prior to the fieldwork taking place. This is in line with government advice as set out in Section 12 of the National Planning Policy Framework (NPPF 2012).

1.2.2 This report outlines the work undertaken on site, the subsequent programme of post-fieldwork analysis.

2 METHODOLOGY

2.1 Standards and guidance

2.1.1 All survey work will be carried out in accordance with a WSI produced by AECOM (AECOM 2018b) and comments from CCCHES and current good practice; (Historic England 2017), and the CIfA Code of Conduct (CIfA 2014), as well as any other current and relevant best practice and standards and guidance.

2.1.2 A topographical survey was undertaken of the study area by a survey quality GPS system (Trimble R10). The survey data was processed utilising Trimble Office and imported into a CAD environment. Outputs include a contour survey of the study area and profile across the shallow earthwork. Digital unprocessed survey data will be made available at request as will processed data in dxf format.

2.1.3 The survey was supplemented by a site visit by an experienced industrial archaeologist. The general aims of these investigations were:

- to gather sufficient information to establish the full nature, extent and significance of the probable former lead mine, and, where possible, to characterise the archaeology thus located. The general objectives are:
- to investigate the archaeological potential of the site;
- to assess the presence /absence of potential archaeological earthwork remains that might be present;
- to determine the level of risk that the archaeological resource would present to the proposed development; and
- to inform the layout of further reconnaissance or evaluation fieldwork or to aid the determination of a suitable mitigation works specification and programme.

2.1.4 A full professional archive has been compiled in accordance with the project specification, and the Archaeological Archives Forum recommendations (Brown 2011). The archive will be deposited with the Cumbria HER, with copies of the report sent to the CCCHES, available upon request. The archive can be accessed under the unique project identifier (CL12149).

2.1.5 Wardell Armstrong LLP supports the **O**nline **A**cces**S** to the Index of Archaeological **I**nvestigation**S** (OASIS) project. This project aims to provide an on-line index and access to the extensive and expanding body of grey literature, created as a result of developer-funded archaeological work. As a result, details of the results of this

project will be made available by WA as a part of this national project. The OASIS reference for the project is: wardella2-317299.

3 BACKGROUND

3.1 Location and Geological Context

3.1.1 The site is located at (NY 75133 46437). The site's environs comprise pasture land with evidence of recent ploughing (see figure 1). The survey area measured approximately 25m and was centred over a slight depression (Asset 122). The area of investigation lies at a height of 350m aOD (above Ordnance Datum).

3.1.2 The geology of the site comprises superficial river terrace deposits of silt, sand and gravel as well as alluvium deposits of clay, silt, sand and gravel, both of which are common to river channels (http://mapapps.bgs.ac.uk/geologyofbritain/home.html). In addition there are areas of till that are glacial in origin and created by the action of ice and meltwater. To the north and south of the site there are areas of peat consisting of organic accumulations that are lacustrine and palustrine in origin.

3.1.3 The underlying bedrock consists predominately of Alston Formation limestone, sandstone, siltstone and mudstone. There are narrower bands of Four Fathom Limestone Member and Great Limestone Member, both of which are sedimentary bedrocks. These limestones sit between areas of Stainmore Formation consisting of mudstone, sandstone and limestone, with narrower veins of Firestone Sandstone.

3.1.4 The soils of the area consist of narrow bands of Brickfield 3 and Wilcocks 1 (Soil Map of England and Wales 1983). The former comprises drift from the Palaeozoic sandstone and shale which is described as slowly permeable seasonally waterlogged fine loamy soil over clay and clayey soils. These narrow bands are surrounded by an area of Winter Hill blanket peat that is described as thick and very acid peat soils.

3.2 Historical and Archaeological Background

3.2.1 A desk-based assessment was produced to assess the known historical and archaeological background of the site and the surrounding landscape to 1km (AECOM 2018a). It is not intended to repeat that information here and what follows is a brief overview, for further details please refer to the original document (AECOM 2018a).

3.2.2 The proposed development site lies within '*Historic Character Area 2: Alston Moor*', of the Cumbria Historic Landscape Characterisation Plan (Cumbria County Council 2009, 38). The character of this area is dominated by the valleys of the rivers South Tyne and Nent which flow to either side of Flinty Fell. Alston and Garrigill were the only nucleations in existence before 1770. Some previously existing discrete

settlements, including Nenthead, grew and coalesced into nucleations during the 19th and 20th centuries (*ibid*). The legacy is a '*largely modern settlement and enclosure pattern, moderate legibility of landscape elements of medieval origin, strong survival of industrial features*' (*ibid*).

3.2.3 **Prehistoric Period**: in 2012 the Alston Moor area was the subject of an aerial survey mapping project by English Heritage (2013, 17). This identified several features relating to prehistoric and Roman land use of the moor. Six round cairns were discovered, dating to the Bronze Age, as well as a possible hengiform monument to the west of Nenthead, near the river Little Dry Burn (ibid, 19). Furthermore, 30 possible settlements were identified, dating from either the prehistoric or Roman period. These represent a mixed pattern of isolated enclosures and settlements with associated field systems. Most of these sites are concentrated along the river valleys of the Nent and South Tyne (ibid, 28).

3.2.4 **Roman Period**: many of these sites were utilised throughout the prehistoric and Roman periods, with precise dating evidence being difficult to ascertain. It is easier to more accurately date the military sites, such as Whitley Castle Roman Fort (NHL 13725), as clearly representing Roman activity. This led to the establishment of associated civilian settlements and roads linking the Roman fort with others (English Heritage 2013, 32). In addition, a Roman quarry has been identified near the fort. There is no direct evidence for Roman exploitative activity of the northern Pennine orefield, though sites have been identified in other areas, such as the Yorkshire Pennines. Metallurgical evidence recovered from Whitley Castle, along with fieldname evidence for 'Chesters' near Tynehead where ancient ore dressing fragments are abundant, does suggest a potential for Roman exploitative activity in the vicinity (Krupa and Short 1999, 8).

3.2.5 **Medieval Period**: evidence for medieval activity in the search area is mostly indicative of pastoral and agricultural use, though there is some documentary evidence for exploitative activities in the Alston Moor area, such as lead and coal mining and stone quarrying. Surviving documents reference mining rents being paid to the owners of the Manor of Alston in the 12th century (Nall 1902, Walton 1945). It is, however, difficult to distinguish medieval exploitations from post-medieval activity within the landscape (English Heritage 2013, 34), and although there is little documentary evidence for lead mining from the late 15th to early 17th centuries, it is likely it was occurring, in a limited way through surface workings and shallow pits

(Krupa and Short 1999, 8). It is possible that the isolated feature (Asset 122) subject to this current study dates to this period.

3.2.6 ***Post Medieval Period***: by the early 17th century, much of the manor of Alston Moor remained the property of the Hylton family, and, in 1629 when it was sold to Sir Edward Radcliffe, it was reported that the seams were nearly exhausted (Krupa and Short 1999, 8). In the late 17th century, the Radcliffe family increased production, before the lands passed to the Crown in 1731, subsequently being granted to the Royal Hospital for Seaman at Greenwich in 1735. A total of 31 mines comprising the Alston Moor mines were leased by the Greenwich Hospital in 1736, the majority to Colonel George Liddle who formed a company and established the first smeltmill at Nenthead in 1737.

3.2.7 In 1745, Liddle's company and leases, making up about half of the mining leases of the moor, was bought by the London Lead Company, which continued to expand throughout the 18th century. Part of this expansion included the development of the mines at Nenthead and the adjacent mines at Hudgill Burn, which for a brief period in the 1820s and early 1830s were the most profitable mines in Alston Moor. there were over 32km of levels in Alston Moor with major levels including Nentsberry Haggs, Brownley Hill, Capelcleugh, Carr's Hangingshaw, Giddamgill, Longcleugh, Middlecleugh, Rampgill, Scaleburn, Smallcleugh and Dowgang mines (Krupa and Short 1999, 9).

3.2.8 Linking these workings was a system of underground haulageways which enabled the ore to be brought to the surface in waggons. By the early 19th century, the most major routes were the Rampgill, Capelcleugh and Smallcleugh horse levels, and this centralisation of haulage routes led to the establishment of centralised dressing floors. This was in direct contrast with the earlier practice of dressing the ore as close as possible to the whimsey shaft or opencut from which it was extracted (ibid). Other developments, such as the introduction of stamps for ore processing, the use of the Pattinson's process to separate silver from lead and trials of crystallising pans in the old smelt mill, brought the mines of Alston Moor to the fore of technical developments in mining. All mining at Hudgill Burn, the mine closest to the current study area had ceased by 1870.

3.2.9 The desk based assessment produced by AECOM (AECOM 2018a) identified that there was a single heritage asset in the current study area initially described as a lead mining shaft mound that was visible as earthworks on LiDAR (ASSET 122). This

feature did not appear on any historic mapping and no reference was discovered during the desk based study for any mining activity within the current study area.

4 ARCHAEOLOGICAL SURVEY RESULTS

4.1 Introduction

4.1.1 The survey was undertaken over a single day on the 11th of May. Weather conditions were favourable and there were no issues with livestock or vegetation to prevent the full survey of the study area.

4.1.2 No other features were observed in the study area other than Asset 122 (see plate 1 and 2). The field showed evidence of ploughing which is likely to have impacted considerably on the survival of Asset 122 as a significant earthwork.

4.2 Results

4.2.1 The feature measured approximately 5.5m in diameter and survived as a pronounced depression with traces of a shallow spoil collar on its western side, the eastern side was far less pronounced and appeared to be largely ploughed out (see figure 2 and 3). It is possible that a former field boundary still visible as a NE/SW aligned earthwork may have also disturbed the feature along its eastern side. The depression survived to a maximum depth of 0.30m. There were no other associated features or surface finds in the general vicinity of the feature.

5 CONCLUSIONS

5.1 Interpretation

5.1.1 The archaeological survey confirmed and surveyed the location of a shallow earthwork. The desk-based study revealed no cartographic or documentary evidence for any mining activity within the survey area. The area around Hudgill was heavily mined from the first decade of the 19th century on a large scale, which produces features of a totally different nature to the feature recorded in the present study. From this current lack of any documented information on the feature and nature of the earthwork it is likely to represent pre-nineteenth century mining activity. Surface workings of pre-nineteenth century date are not uncommon and are characterised by two main types of earthworks; hush working and bell pits. Hush workings used water management to scour overburden from the step valley sides to expose the natural geology as is clearly unrelated to the present feature.

5.1.2 Bell pits would target veins of lead close to surface and form a line of closely spaced pits with a characteristic circular spoil collar; often with an associated trackway. These features can date from the medieval period all the way through to the 18th century. Again Asset 122 does not easily fit into this form of mining, although superficially very similar to a bell pit, the fact that it exists in isolation indicates that no ore was extracted. If any ore was every discovered this close to the survey the study area and adjacent field would be expected to be pock marked with similar features. This leads to the conclusion that the recorded feature is likely to represent an abandoned prospection pit that failed to locate any ore deposits. These prospection pits are common throughout the North Pennines with some thought to date as late as the early 19th century and represent the work of small low level mining prospection. The lack of any cartographic evidence suggests that this feature could be from the 18th century (or earlier) rather than the 19th with the London Lead Company undertaking the first mining on an industrial scale from 1770 (Fairbairn 1993).

5.2 Significance and Recommendations

5.2.1 The feature recorded during this current survey is likely to represent a single post medieval prospection pit, a feature common throughout the North Pennines ore field and as such they can each be ascribed low significance (heritage value). Archaeological mitigation may still be required for asset 122, due to the nature of the feature and following consultation with Jeremy Parsons of CCCHES, this is likely

to comprise an archaeological watching brief during groundworks in the vicinity of the earthwork. The full extent of this watching brief cannot be finalised until the final design of the scheme has been fixed.

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APPENDIX 1: PLATES

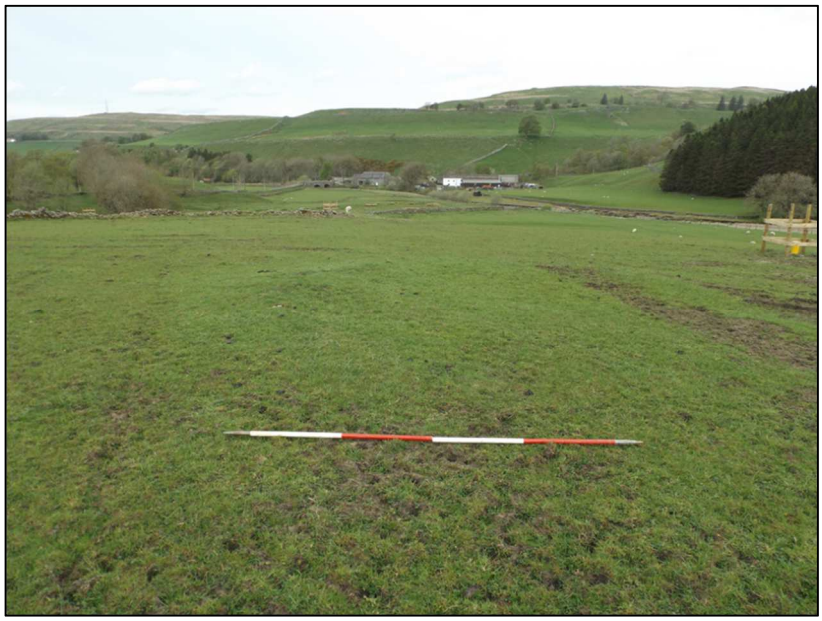
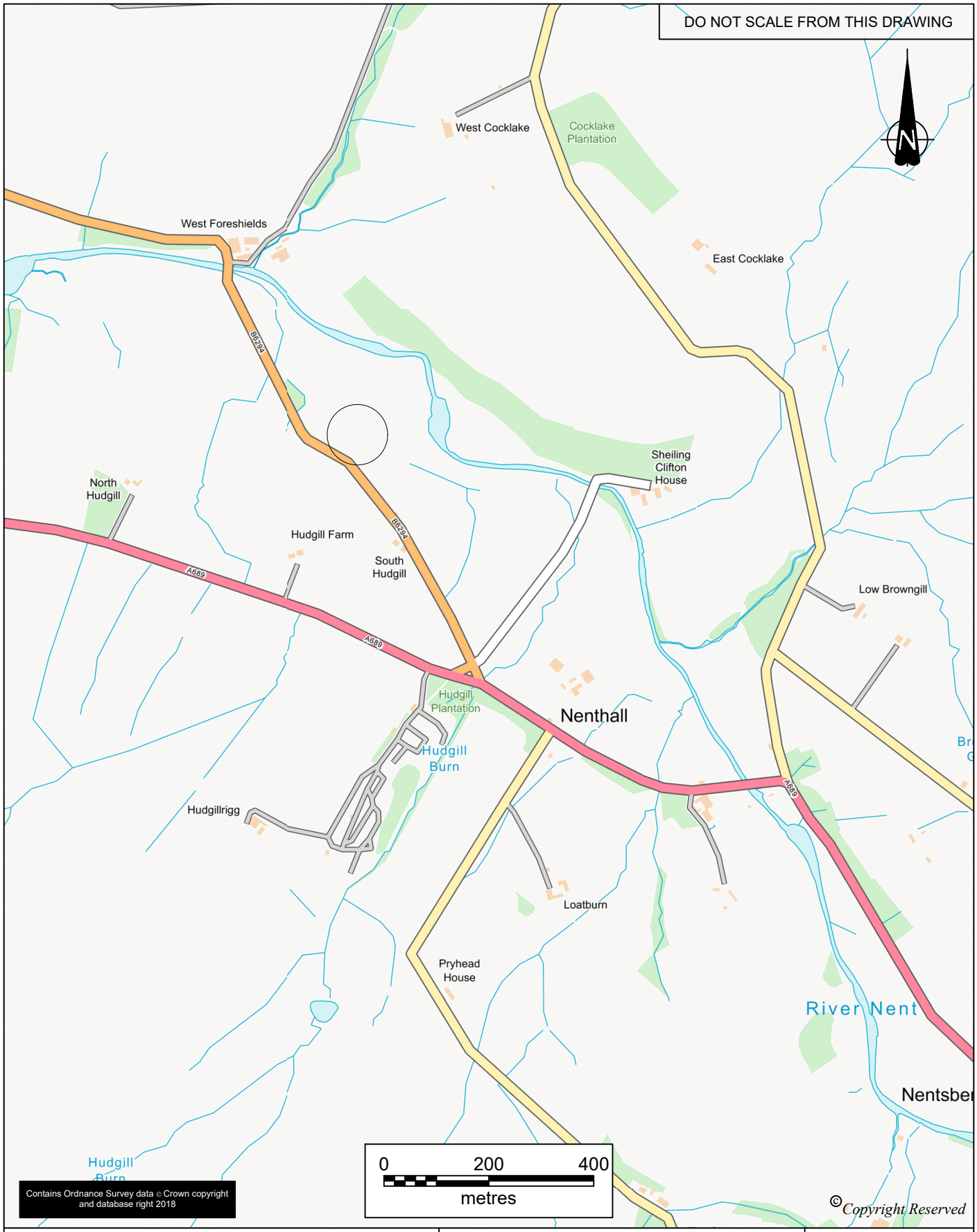


Plate 1; View of Asset 122, facing north west.

Plate 2; View of Asset 122, facing north east.

APPENDIX 2: FIGURES



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DRAWING TITLE: Figure 1 Site Location	wardell armstrong your earth our world		

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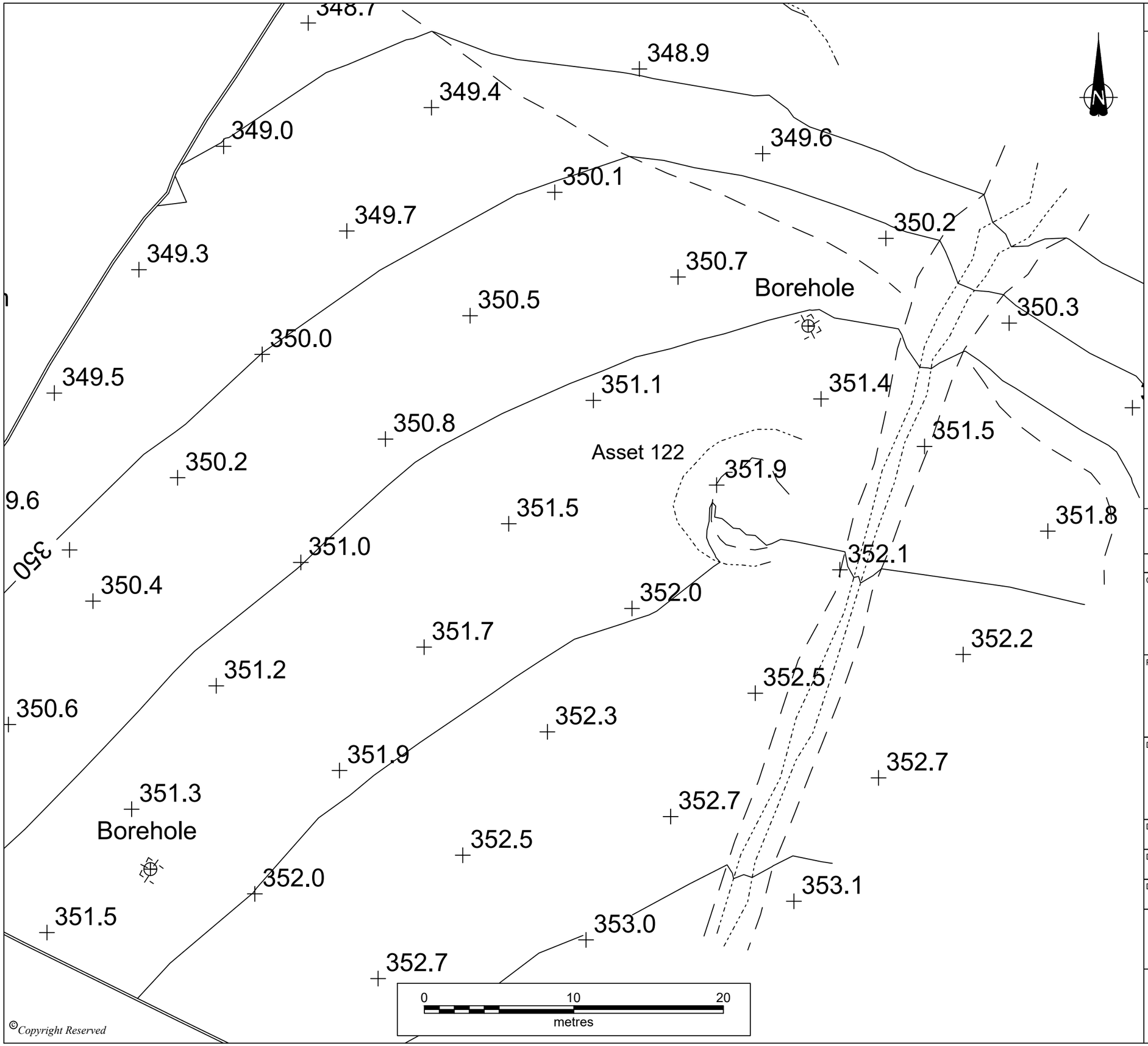

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KEY

- Contours
- Top of bank
- Bottom of bank

Notes

1 All levels in metres and relate to Ordnance Datum.

2 Contour interval 1 metre.

3 Grid is related to Ordnance Survey National Grid.

4 Coordinate system and levels have been established using a Network RTK GNSS system.

5 Please note that the same accuracies implied by the plotting scale scale are equally applicable to digital data supplied for CAD.

6 Every effort is made to identify all visible above ground features, however it should be noted that there may be items obscured at the time of survey.

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D

CLIENT

The Coal Authority

PROJECT

Nent Haggs
Nenthead
Cumbria

DRAWING TITLE

Figure 2
Topographical Survey
Dated 11th May 2018

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N:\CP\CL12149 - NENT HAGGS TOPOGRAPHIC SURVEY\03 - DESIGN\AUTOCAD\CL12149 FIGURE 2 TOPO SURVEY 2108-05-15.DWG

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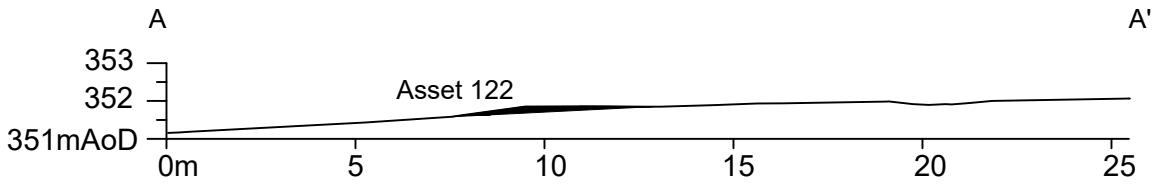

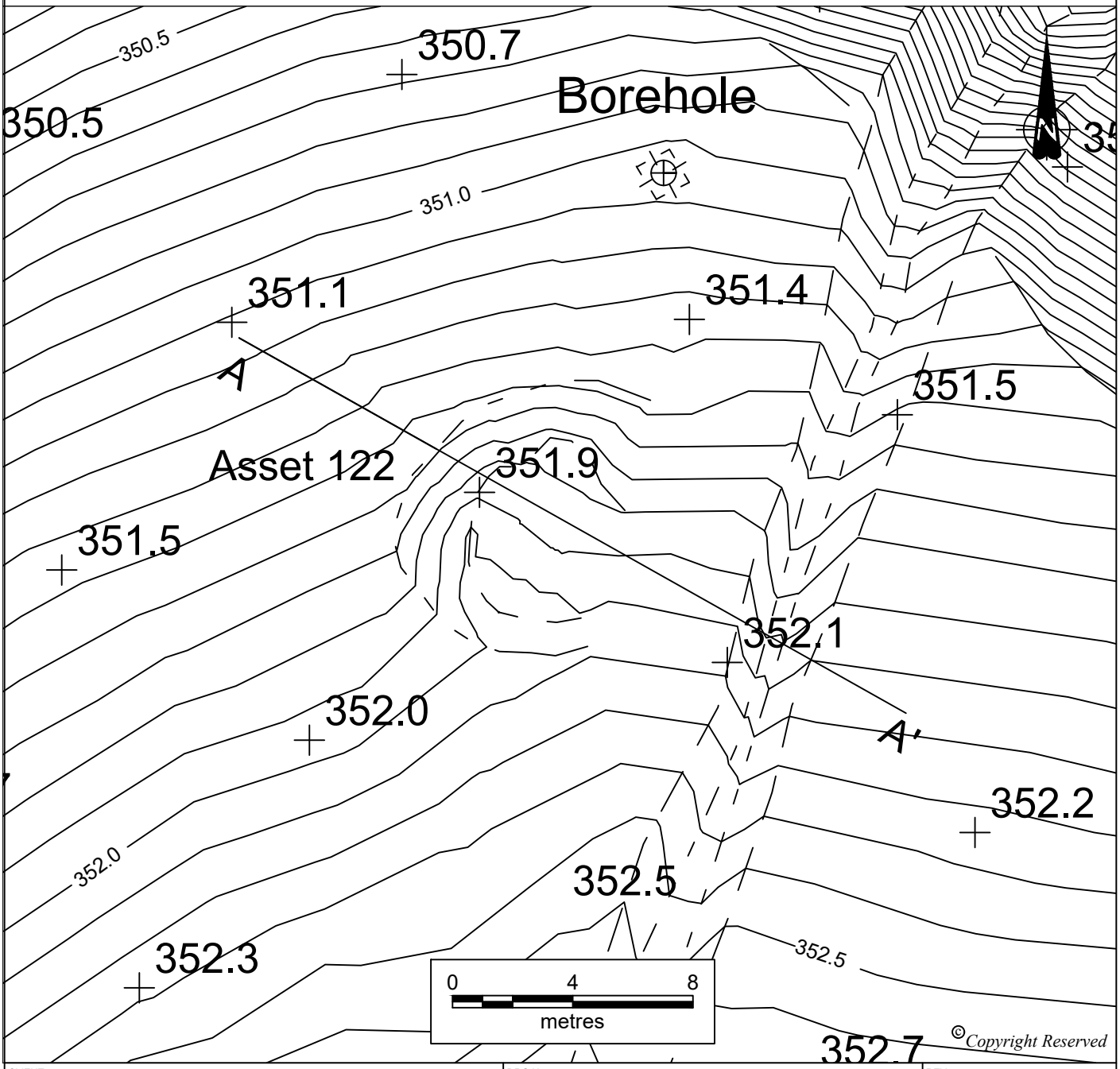

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DRAWING TITLE

Figure 3
Detailed plan with contours at 0.10m and section

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N:\CP\CL12149 - NENT HAGGS TOPOGRAPHIC SURVEY\03 - DESIGN\AUTOCAD\CL12149 FIGURE 3 2108-05-15.DWG

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