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ADVANCE

ULPHA WATER TREATMENT WORKS, CUMBRIA

HERITAGE IMPACT ASSESSMENT

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HERITAGE IMPACT ASSESSMENT

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SUMMARY

Wardell Armstrong Archaeology was commissioned by MWH Global, on behalf of the client, Advance, to prepare a heritage impact assessment for a proposed new tank with discharge/return to existing inlet works at Ulpha Water Treatment Works, Cumbria (NGR SD 20922 94700). This is an assessment based on a desk-based consultation of sources relating to the setting of the site and its history with the results of a site visit.

The purpose of this heritage impact assessment is, primarily, to assess the potential for archaeological deposits to survive within the proposed development site and to assess the impacts on the upstanding designated heritage assets within a 1km radius centred on the site.

A total of 99 heritage assets have been identified from the study area, all of District or County (Lesser) significance, due to their presence within a National Park. The research has found that the proposed development site itself lies in agricultural land, historically within Lancashire North of the Sands, in an area whose archaeological features predominantly relate to post medieval agricultural activity.

As the development relates to the installation of a new water tank, adjacent to an existing water treatment works, it is unlikely that further archaeological work will be required to mitigate against the effects of the development on known heritage assets outside the site boundary.

As there remains the potential for as-yet unknown archaeological features to survive within the proposed development site, and that these would be of a significance of at least District or County (Lesser) level, due to their presence within a National Park, it may be that further work will be required, dependent on advice from the Lake District National Park Authority Archaeology Service.

ACKNOWLEDGEMENTS

Wardell Armstrong Archaeology thanks Helen Travers of MWH Global who commissioned the project on behalf of the client, Advance. Wardell Armstrong Archaeology thank the staff at Cumbria Archive Centre, Barrow for all assistance during the desk-based research, as well as Mark Brennand at Cumbria County Council, for data from the Historic Environment Records for Cumbria.

The site visit and the documentary research was completed by Cat Peters.

The report was written by Cat Peters and the figures were produced by Helen Phillips and Adrian Bailey. Frank Giocco managed the project and Richard Newman edited the report.

1 INTRODUCTION

1.1 Circumstances of Project

1.1.1 Wardell Armstrong Archaeology was commissioned by MWH Global on behalf of the client, Advance, to undertake a heritage impact assessment for land adjacent to Ulpha Water Treatment Works, in relation to a proposed new development. The site is situated within the valley of the River Duddon within the Lake District National Park.

1.1.2 In order to comply with ever-increasing water quality standards and meet customer expectations, United Utilities continually invests in its water infrastructure from source to tap. A large programme of investment is planned at United Utilities 79 Water Treatment Works facilities across the region. This will improve the capability of the works to shut down within a given time-frame in the event of any treatment problems or deviations from the required standards and will allow the fully compliant re-start of the water treatment process by preventing the forward flow of partially treated water. This work is required to comply with the Water Supply (Water Quality) Regulations 2010 and has been agreed with the Drinking Water Inspectorate with a targeted completion date of March 2017.

1.1.3 The term '*site*' is used throughout the report to refer to the proposed development site. The term '*study area*' refers to a 1km radius, centred on the proposed development site, used to give context to the proposed development site.

1.2 The Purpose of the Heritage Impact Assessment

1.2.1 This heritage impact assessment is designed to assess the potential for sub-surface archaeological features to survive within the proposed development site. It is also designed to clearly show the impact on the heritage significance of the heritage assets within a specific search area (the study area) affected by the proposed development.

1.2.2 The heritage impact assessment seeks to address in detail the issues of impacts on heritage significance and to do this it seeks to understand the significance of the assets, then evaluate the impact of the development proposals upon the assets.

1.3 National Planning Policy and Legislative Framework

1.3.1 National planning policies on the conservation of the historic environment are set out in the *National Planning Policy Framework* (NPPF), which was published by the Department of Communities and Local Government (DCLG) in March 2012. Sites of

archaeological or cultural heritage significance that are valued components of the historic environment and merit consideration in planning decisions are grouped as *'heritage assets'*; *'heritage assets are an irreplaceable resource'*, the conservation of which can bring *'wider social, cultural, economic and environmental benefits...'* (DCLG 2012, Section 12.126). The policy framework states that the *"significance of any heritage assets affected, including any contribution made by their setting' should be understood in order to assess the potential impact"* (DCLG 2012, Section 12.128). *"In addition to standing remains, heritage assets of archaeological interest can comprise sub-surface remains and, therefore, assessments should be undertaken for a site that includes or has the potential to include heritage assets with archaeological interest"* (DCLG 2012, Section 12.128).

- 1.3.2 NPPF draws a distinction between designated heritage assets and other remains considered to be of lesser significance; *"great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be; 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, including scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings and grade I and II* registered parks and gardens and World Heritage Sites, should be wholly exceptional"* (DCLG 2012, Section 12.132). Therefore, preservation in-situ is the preferred course in relation to such sites unless exception circumstances exist.
- 1.3.3 It is normally accepted that non-designated sites will be preserved by record, in accordance with their significance and the magnitude of the harm to or loss of the site as a result of the proposals, to *"avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposals"* (DCLG 2012, Section 12.129). *"Non-designated heritage assets of archaeological interest will also be subject to the policies reserved for designated heritage assets if they are of equivalent significance to scheduled monuments"* (DCLG 2012; Section 12.132).
- 1.3.4 Section 139 of the National Planning Policy Framework, indicates that where a heritage asset is pending assessment for designation it should be regarded as being of the same significance as designated heritage asset. The Lake District National Park, under the banner of the English Lake District, has been put forward as a World Heritage Site by the UK government and is to be considered for designating as such by UNESCO in 2017 (LDWHPP 2013, 2). All heritage assets considered to be extant or

likely to be extant are at least of county or district (lesser) significance by virtue of their location within a protected landscape. The significance of any heritage asset with regard to World Heritage Site status is dependent on that asset's contribution to the Outstanding Universal Values (OUV) that define the particular World Heritage Site within which they are situated. The OUV for the Lake District is defined within the Technical Evaluation of the Future World Heritage Nomination for the English Lake District (LDWHPP 2013).

1.4 Local Planning Policy

1.4.1 The Landscape Character Supplementary Planning Document (SPD) was adopted on 19th October 2011. This SPD provides guidance on the Lake District National Park Local Development Framework Core Strategic Policy CS25: Protecting the spectacular landscape, and states that *“we will protect the Lake District National Park’s spectacular and inspirational landscape by promoting a character-based approach to conserve and enhance its uniqueness and diversity. The management of development and land use change will be guided by the Lake District Landscape Character Assessment recognising the distinctive characteristics identified in the Landscape Character Types and Areas of Distinctive Character. The type, design and scale of development, and the level of activity, should maintain and, where possible, enhance local distinctiveness, sense of place and tranquillity. In assessing development proposals the highest level of protection will be given to the landscape”* (<http://www.lakedistrict.gov.uk/planning/planningpolicies/spd>).

1.4.2 The study area lies within Area 53 (Lower Dunnerdale) of the Areas of Distinctive Character within the Lake District National Park. This area has *“a strong sense of relative isolation, wildness and tranquillity is apparent throughout this character area as a result of the generally sparse settlement pattern and absence of major roads. An intricate patchwork of habitats with extensive woodlands (the broadleaved, ancient semi-natural woods locally carpeted with wild daffodils in spring) particularly on the western valley sides, herb-rich meadows, wetlands and pastoral farmland (delineated by traditional stone walls of differing patterns) contributes to a complex distinctive landscape pattern, with good connectivity between habitats. The fell sides are dominated by patches of scattered scrub and developing birch woodland, particularly on ex-industrial areas contributes distinctive winter purple stem colour and autumn yellow tones to the complex colour patterns. There is a scattered settlement pattern, including the small historic settlement of Seathwaite and numerous isolated*

farmsteads, many at high altitude, some being abandoned historic settlement patterns in the area are suggested by the pattern of prehistoric cairn fields, ring boundaries, hut circles and field systems on Thwaites Fell. Recognisable sense of place is provided by the imposing High Fells forming the valley sides, which also provide a strong sense of enclosure. Field pattern is often visible at higher altitudes on the fell sides than in adjacent Broad Upland Dales. The southern half of the valley encompasses a landscape of contrasts, as pastoral (sheep) farming gives way to an intimate network of tidal habitats lining the Duddon Estuary” (Chris Blandford Associates 2008, 197). Guidelines for managing the area include the need to “conserve and enhance distinctive field patterns resulting from a network of stone walls and hedgerows; conserve and enhance locally distinctive vernacular building features including distinctive villages, scattered farms; and protect archaeological sites” (ibid, 199).

2 METHODOLOGY

2.1 Introduction

2.1.1 All work undertaken was consistent with the relevant standards and procedures of the Chartered Institute for Archaeologists, as set out in *Standard and Guidance for Historic Environment Desk-Based Assessment* (CIfA 2014).

2.1.2 The data underlying the heritage impact assessment was gathered through desk-based study of documentary sources and via a site visit. The impact of the development on the heritage assets was assessed using standardised heritage impact tables (*confer* Appendix 1).

2.2 Documentary Sources

2.2.1 The primary and secondary sources used were derived from Cumbria Archive Centre Barrow (CACB), as well as from online sources, including the Archaeology Data Service (<http://archaeologydataservice.ac.uk/ifp/wiki.pdf>), the National Heritage List (<https://historicengland.org.uk/listing/the-list/>) and PastScape (<http://www.pastscape.org.uk/>). The historic maps and primary sources were consulted in June 2016.

2.3 Site Visit

2.3.1 The site and its environs were visited on the 10th June 2016.

2.3.2 The study area was inspected to:

- examine the impact on the setting of heritage assets of future development;
- assess the nature of the landscape of the current site with regard to previous landscaping and levelling activities and their impact on any potential buried archaeological remains.

2.4 Impact Assessment Tables

2.4.1 The assessment of the impact of development proposals is undertaken using a series of heritage impact tables (Appendix 2). These tables use standard assessment methods as used by Government agencies, as for example those used in the Highway Agency's *Design Manual for Roads and Bridges* (2007). These tables first establish the significance of the heritage asset against set criteria, secondly the magnitude of impact and taking the results of these two together allow a calculation of impact on heritage significance.

2.5 Reporting

2.5.1 Once approved by the client, a copy of the report will be deposited with the Cumbria Historic Environment Record where viewing will be made available on request.

2.5.2 Wardell Armstrong Archaeology supports the Online AccesS to the Index of archaeological investigationS (OASIS) project. This project aims to provide an online 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 study will be made available by WAA, as a part of this national scheme. This project has the unique identifier of wardella2-254660.

2.6 Glossary

2.6.1 The following standard terms for compiling the heritage impact assessment are used throughout the report:

- Designation – the process that acknowledges the significance of a heritage asset and thus advances its level of consideration/protection within the planning process. Designated assets can either be statutory, like listed buildings, or non-statutory such as registered parks and gardens or conservation areas.
- Heritage Asset – a building, monument, site, place, area or defined landscape positively identified as having a degree of heritage significance that merits consideration in planning decisions.
- Historic Environment Record (HER) – an information service, usually utilizing a database, which provides public access to up-to-date and dynamic resources relating to the historic environment of a defined geographic area.
- Mitigation – action taken to reduce potential adverse impacts on the heritage significance of a place.
- Setting – the surroundings in which a heritage asset is experienced. The extent is not fixed and will vary according to the historic character of the asset and the evolution of its surroundings.
- Significance – the value of a heritage asset to present and future generations attributable of its heritage interest. That interest may be archaeological, architectural, artistic or historic (including historical associations).

3 BACKGROUND

3.1 Location, Topography and Geology

3.1.1 The proposed development site is centred on SD 20927 94700, and is located to the north-east of Ulpha and to the south-west of Seathwaite off Malleson Road in the Duddon Valley, north of Millom, Cumbria (Figure 1). It comprises an area of land to the immediate north-east of Ulpha Water Treatment Works, on the south bank of the River Duddon in an area of agricultural land, used as pasture (Figure 2).

3.1.2 The proposed development site lies within the solid geology type of Andesite, of the Ulpha Andesite Formation, an igneous bedrock, formed in the Ordovician period approximately 451 to 461 million years ago (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>).

3.1.3 The drift geology consists of River Terrace deposits, comprising gravel, sand and silt formed up to 3 million years ago, in the Quaternary Period (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>).

3.2 Archaeological and Historical Background

3.2.1 This historical and archaeological background is compiled from secondary sources and primary records consulted during the desk based research. It is intended only as a summary of historical developments around the proposed development site. The location of known heritage assets within the approximate 1km study area are illustrated in Figure 3, and summarised in Appendix 2.

3.2.2 **Prehistoric (up to c. AD 72):** to the south-east of the proposed development site is the site of prehistoric stone circles, marked on M. Davies-Shiel's annotated map of 1990 (Asset 8), and a barbed and tanged flint Bronze Age arrowhead has also been found within the study area (Asset 10). The Ring Cairns to Reservoirs Duddon Valley Community project in 2009 encountered a possible hut circle at The Low which may be of prehistoric origin (Asset 90).

3.2.3 **Roman Period (AD 72 to c. 410):** there is no known evidence for Roman activity from the study area.

3.2.4 **Medieval (1066-1540):** the only possible evidence for medieval activity in the study area comes from the site of a potash kiln, marked on M. Davies-Shiel's annotated map of 1990 (Asset 6), though this is most likely to be of post medieval origin.

- 3.2.5 **Post Medieval (1540-1900):** the proposed development site seems to have remained unsettled and subjected to agricultural land use throughout the post medieval period. From the wider study area, industrial developments had a slight impact, in the form of quarries and mine levels and associated features (Assets 1, 4, 5, 7, 23, 31, 34, 35, 36, 37, 51 and 56), features relating to charcoal burning (Assets 11, 20, 21, 22, 39 and 49) and a fulling mill (Asset 2). A chapel, bridges and trackways were provided for the growing needs of the population in the area during the post medieval period (Assets 3, 38, 42, 63, 68, 69, 71, 73, 79, 86, 87, 89 and 92). This population was predominantly involved in agriculture, however, and the majority of the bridges and trackways would have been for access to the fields and barns. The vast majority of the features encountered by the 'Ring Cairns to Reservoirs' Duddon Valley Community project in 2009 were of agricultural origin (Assets 12-19, 24-30, 32-33, 40-41, 43-48, 50, 52-54, 58-62, 64-67, 70, 72, 74-78, 80-85, 88, 91 and 93-99), all likely to be of post medieval origin.
- 3.2.6 Historically, the proposed development site lay within the Lancashire North of the Sands portion of the County of Lancashire, and not within the Parish of Ulpha (CACC DRC/8/190), but Seathwaite. The Seathwaite Tithe Award Plan of 1845 at Cumbria Archive Centre, Barrow, was a tracing and of such poor quality that detail could not be ascertained (CAC(B) DX 294/18). By the publication of the First Edition Ordnance Survey map in 1851 (Figure 4), the proposed development site lies between Long Dub to the west and Black Sike, south of Oak Wood, and with a field boundary running to the south. This field boundary was changed by 1890 to a straighter and more uniform route, on a north-west to south-east orientation (Figure 5). A track is also shown within the wider field by this date, heading from the north-east corner of the field and exiting at the south-west corner, in the vicinity of the proposed development site.
- 3.2.7 **Modern (1900-present):** by 1913 (Figure 6), 'Intake Settling Ponds' had been established by 'Barrow in Furness Corporation Water Works', who had acquired an area of the former field to the south-west of the proposed development site. The field boundary forming the south-western edge of the field in which the proposed development site lies has been adapted again, presumably as a result of the water works with associated 'Sluice', 'Weir' and 'Foot Bridge'. The formerly illustrated track is no longer depicted, although a new one has been established in the field, parallel with the south-eastern boundary, presumably to provide easy access to the new water works.

- 3.2.8 By 1977 (Figure 7), the former ‘settling pond’ had become a narrow rectangular ‘Settling Tank’ with rectangular building to the east. The banks of the former settling tanks appear to have survived, and the south-western boundary wall of the field containing the proposed development site had been re-angled at its northern extent.
- 3.2.9 By the end of 2004, work was being undertaken at the water treatment works, as there were cabins and a car parking area covering most of the field containing the present proposed development site (Plate 1). These developments will have had some impact on the possible survival of any heritage related remains.



Plate 1: Google Earth Imagery, 31/12/2004

- 3.2.10 These developments had clearly been completed by 2014, when Google Earth imagery shows the field containing the proposed development site as a field again (Plate 2), as it appears on modern mapping (Figure 2).



Plate 2: Google Earth Imagery, 31/12/2014

3.3 Previous Archaeological Works

3.3.1 The only previous works known to have been undertaken in the study area, are M. Davies Shiel's studies, the results of which have been included within the LDNPA HER dataset (e.g. Assets 2, 6 and 9), and the 'Ring Cairns to Reservoirs' Duddon Valley Community project in 2009, the results of which are included in the historic background above (confer 3.2.2- 3.2.6), which encountered 89 extra known heritage assets, not listed within the main LDNPA HER dataset. These assets are summarised in Appendix 2.

3.4 Designated Heritage Assets

3.4.1 There are no designated heritage assets within the proposed development site.

3.4.2 There are no designated heritage assets within the 1km study area.

3.5 Undesignated Heritage Assets

3.5.1 There are 99 known undesignated heritage assets within the 1km study area, all compiled from data issued by the Lake District National Park Authority, from their HER dataset, and from the results of the 'Ring Cairns to Reservoirs' Duddon Valley Community project undertaken in 2009 (Appendix 2). As all 99 lie within a National park, all are of County or District (Lesser) significance (Appendix 1, Table 1).

3.5.2 There are no known heritage assets within the site boundary.

4 SITE VISIT

4.1 Site Conditions

4.1.1 The site was visited on 10th June 2016. At the time of the site visit the visibility was good and the proposed development site lay within a larger field, which was in-use as agricultural land, and had a cow and a young calf grazing.

4.1.2 The land was relatively flat with rushes and divots suggesting an area of wetland (Plate 3). A curved stone wall separated the field from the water treatment works to the south-west, and from the River Duddon to the north-west (Plates 4 and 5). A track led through the field from the road to the east to the water treatment works (Plate 6).



Plate 3: General view of proposed development site in field, facing north-west



Plate 4: General view of proposed development site showing stone wall and water treatment works, facing south-east



Plate 5: General view of field, facing north



Plate 6: Track along south-eastern edge of field, facing south-west

4.2 Potential for Archaeological Features within the Site

4.2.1 No archaeological features were observed during the site visit.

4.2.2 The potential for sub-surface archaeological remains within the site boundary could not be ruled out, though the land has been subject to agricultural improvement, and has been affected by construction works relating to the adjacent water treatment works in c. 2004, which may have impacted on potential survival.

5 DISCUSSION

5.1 Summary of Heritage Asset Significance

5.1.1 Heritage asset significance is assessed in relation to the criteria set out in Appendix 1, Table 1.

5.1.2 There are no designated heritage assets within the 1km study area

5.1.3 As all 99 heritage assets lie within a National Park, all are deemed to be of District or County (Lesser) significance.

5.1.4 There are no known heritage assets within the proposed development site, though the risk of encountering buried and previously unknown archaeological remains cannot be ruled out. It is possible that previously unknown remains found within the Lake District National Park may have some relevance for the OUV of the proposed English Lake District World Heritage Site. It is highly unlikely, however, that the impact of the development proposals would have more than a limited effect on the heritage asset significance for OUV. The land has been subject to agricultural improvement, however, and has been affected by construction works relating to the adjacent water treatment works in c. 2004, which may have impacted on potential survival. Any remains encountered would be deemed at least of County or District (Lesser) significance, however, due to their location within a National Park. The likelihood of any unknown buried heritage assets appears to be low.

5.2 Magnitude of Impact on Heritage Assets

5.2.1 The magnitude of impact is assessed in relation to the criteria set out in Appendix 1, Table 2.

5.2.2 There are no known heritage assets within the development site, nor any designated heritage assets within the wider study area. There are no definable impacts on heritage assets directly, nor any impacts on setting.

5.2.3 There is no impact on the OUV of the proposed World Heritage Site.

5.3 Heritage Statement

5.3.1 As there are no designated heritage assets within the study area, no identifiable heritage assets of any type within the development site and no definable impact on the OUV of the proposed World Heritage Site, there is no definable impact on heritage significance.

5.3.2 There is a low possibility of hitherto unidentified heritage assets within the development site, but the level of preservation is likely to be poor because of previous development activities in c. 2004. An archaeological evaluation would be necessary to clarify the existence and nature of hitherto unknown archaeological remains, but a geophysical survey would be unlikely to be effective because of the previous disturbance of the site.

6 BIBLIOGRAPHY

6.1 Primary Sources

Seathwaite Tithe Award Plan, 1845 (CACB DX 294/18)

Ulpha-in-Bye Tithe Award, 1847 (CACC DRC/8/190)

First Edition Ordnance Survey Map, 1851, Lancashire Sheet III, 6 inch to the mile (CACB)

Second Edition Ordnance Survey Map, 1890, Lancashire Sheet III.12, 25 inch to the mile (CACB)

Third Edition Ordnance Survey Map, 1913, Lancashire Sheet III.12, 25 inch to the mile

1977 Ordnance Survey Map, 1:2500 scale

6.2 Secondary Sources

Chris Blandford Associates 2008, *Lake District National Park Landscape Character Assessment and Guidelines*, Lake District National Park: Kendal

CIfA 2014, *Standard and Guidance for Historic Environment Desk-Based Assessment*, Institute for Archaeologists: Reading

DCLG 2014, *Technical Guidance to the National Planning Policy Framework*, Department of Communities and Local Government: London

DCLG 2012, *National Planning Policy Framework*, Department of Communities and Local Government: London

Highway Agency, 2007, *Design Manual for Roads and Bridges*, Highway Agency

Lake District World Heritage Project Partnership, 2013, *Technical Evaluation of the Future World Heritage Nomination for the English Lake District*, Kendal: LDWHPP

6.3 Websites

British Geological Survey, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>, accessed 13th June 2016

APPENDIX 1: HERITAGE IMPACT ASSESSMENT TABLES

Table 1 Measuring Significance

Significance	Designation	Asset types and justification	Preferred response to negative impact
International	Non-statutorily designated heritage assets	World Heritage Site (NPPF s132)	Avoid negative impact where asset contributes to the WHS's defined outstanding universal values (NPPF s138)
National	Statutorily designated heritage assets	Scheduled monuments, grade I and II* listed buildings (NPPF s132). Grade A Listed Buildings	Avoid negative impact
National	Non-statutorily designated heritage assets	Registered battlefields, grade I and II* Registered Parks and Gardens (NPPF s132)	Avoid negative impact
National	Non-designated heritage assets of demonstrable equivalence to a scheduled monument (NPPF s138)	Assets where assessment for designation is pending, assets that have been assessed as being capable of designation but have not been designated at the SoS discretion, assets worthy of designation but which are outside the scope of the 1979 Act (NPPF s139)	Avoid negative impact
District or County (Higher)	Statutorily designated heritage assets	Grade II listed buildings (NPPF s132). Grade B Listed Buildings	Limit negative impact (avoid substantial harm) and mitigate
District or County (Higher)	Non-statutorily designated heritage assets	Conservation area (NPPF s127), grade II registered park and garden (NPPF s132)	Limit negative impact (avoid substantial harm) and mitigate
District or County (Lesser)	Non-designated heritage assets within a national park or AONB	Any extant heritage assets (NPPF s115)	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Heritage assets placed on a local planning authority list (NPPG)	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Any area of potential listed in a local plan (NPPG)	Limit negative impact and mitigate
Local	Non-designated heritage assets	Any extant heritage assets outside of a national park or AONB. Grade C Listed Building	Mitigate
Negligible	Non-designated heritage assets	Heritage assets recorded in the HER that are no longer extant, individual findspots or structures of no heritage value	No action

Table 2: Establishing the Magnitude of Impact

Magnitude of Impact	Heritage Asset		
	Archaeological Remains (Archaeological Interest)	Historic Buildings (Architectural/Artistic Interest and/or Historic Interest)	Historic Landscapes (Historic Interest)
Loss	<ul style="list-style-type: none"> Change to most or all key archaeological materials, such that the resource is totally altered Comprehensive changes to setting 	<ul style="list-style-type: none"> Change to key historic building elements, such that the resource is totally altered Comprehensive changes to setting 	<p>Major change to historic landscape character resulting from:</p> <ul style="list-style-type: none"> Changes to most key historic landscape elements, parcels or components Extreme visual effects Major change to noise or change to sound quality Major changes to use or access
Substantial	<ul style="list-style-type: none"> Changes to many key archaeological materials, such that the resource is clearly modified Considerable changes to setting that affect the character of the asset 	<ul style="list-style-type: none"> Changes to many key historic building elements, such that the resource is significantly modified Changes to setting of an historic building such that it is significantly modified 	<p>Moderate change to historic landscape character resulting from:</p> <ul style="list-style-type: none"> 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
Less than substantial	<ul style="list-style-type: none"> Changes to key archaeological materials, such that the asset is slightly altered Slight changes to setting 	<ul style="list-style-type: none"> Change to key historic building elements, such that the asset is slightly different Changes to setting of an historic building such that it is noticeably changed 	<p>Limited change to historic landscape character resulting from:</p> <ul style="list-style-type: none"> Changes to few key historic landscape elements, parcels or components Slight visual changes to few key aspects of the historic landscape Limited changes to noise levels or sound quality Slight changes to use or access
Minor	<ul style="list-style-type: none"> Very minor changes to archaeological materials 	<ul style="list-style-type: none"> Slight changes to historic buildings elements or setting that hardly affect it 	<p>Very small change to historic landscape character resulting from:</p> <ul style="list-style-type: none"> Very minor changes to key historic landscape elements, parcels or components Virtually unchanged visual effects Very slight changes to noise levels or sound quality Very slight changes to use or access
No change	No change		

Table 3 Impact on Heritage Significance

Assessment Matrix to define the degree of impact on heritage asset significance		Magnitude of impact				
		No change	Minor alteration with no reduction in significance	Less than substantial	Substantial	Loss
Significance of Heritage Asset	National	Blue	Yellow	Dark Green	Red	Red
	District/County (Higher)	Blue	Yellow	Light Green	Dark Green	Red
	District/County (Lesser)	Blue	Yellow	Light Green	Light Green	Dark Green
	Local	Blue	Blue	Yellow	Light Green	Light Green
	Negligible	Blue	Blue	Blue	Blue	Blue

Blue (no appreciable impact) = no mitigation necessary
 Yellow (very limited impact) = low level mitigation eg photographic record/watching brief etc
 Light green (limited impact) = may need evaluation to establish appropriate mitigation which may include site survey/excavation etc
 Dark green (major impact) = may not be agreed and then only with significant justification, may require evaluation and will require significant mitigation such as excavation, detailed building survey, visual restoration, some in-situ preservation and on-site interpretation
 Red (very major impact) = unlikely to be agreed except in exceptional circumstances and only with a high level of mitigation

APPENDIX 2: HERITAGE ASSET GAZETTEER

Heritage Assets within the 1km search radius (study area; LDNPA HER references relate to HER data provided by the Lake District National Park Authority. R2R references relate to data obtained from the Ring Cairns to Reservoirs Duddon Valley Community project, also provided by the Lake District National Park Authority):

Asset No.	Reference	Site Type	Description	Grid Reference	Period
1	LDNPA HER 12193; R2R MCLW07; R2R MCLW290-34	Site of quarries and mine levels	Site of Commonwood Quarries, including slate quarries and three nearby disused levels, also a 'tunnel' and draw well as shown on 6inch First Ed OS sheet 83. Also recorded as part of the Ring Cairns to Reservoirs Duddon Valley Community project	320350,494680	Post Medieval
2	LDNPA HER 30077	Site of a fulling mill	Site of a fulling mill included on M. Davies Shiel's annotated map of 1990	321180,494220	Post Medieval
3	LDNPA HER 12149	Site of a chapel	High Hurst Methodist Chapel (Wesleyan), shown on 6inch First Ed OS, 1850	320420,494180	Post Medieval
4	LDNPA HER 7814; R2R MCLW05	Remains of buildings	Site identified from vertical aerial photographs in 1983 and field observation in 1984, comprising stone buildings in various stages of decay, possibly associated with quarrying. Also recorded as part of the Ring Cairns to Reservoirs Duddon Valley Community project	320180,494700	Post Medieval
5	LDNPA HER 12191; R2R MCLW27	Site of a mine	Low Wood Levels: the sites of three levels and one shaft to the NW of and perhaps associated with, Commonwood Quarries (Asset 1). Also recorded as part of the Ring Cairns to Reservoirs Duddon Valley Community project	320600,494850	Post Medieval
6	LDNPA HER 30076	Site of a potash kiln	Site of a potash kiln included on M. Davies-Shiel's annotated map of 1990	321290,494350	Medieval/Post Medieval
7	LDNPA HER 16498	Slate quarry	Site of Brock Barrow slate quarry shown on the 6inch First Ed OS, 1850	321790,494250	Post Medieval

Asset No.	Reference	Site Type	Description	Grid Reference	Period
8	LDNPA HER 30078	Site of Stone Circles	Site of prehistoric stone circles shown on M. Davies-Shiel's annotated map of 1990	321600,494000	Prehistoric
9	LDNPA HER 61101	Ruined structure	A small single chambered roughly oval washfold, measuring 7m long by 3m wide constructed from irregular rocks with a unusually deep and narrow dub	320381,495502	Unknown
10	PastScape 38792	Findspot	Barbed and tanged flint arrow-head	321200,495400	Bronze Age
11	R2R MCMH01	Ruined Building	Remains of a peat store at Stoney Gap	320437,495211	Post Medieval
12	R2R MCMH02	Structure	Sheepfold at Stoney Gap	320453,495225	Post Medieval
13	R2R MCMH03	Earthwork	Cairn or pile of stones on steep slope above Stoney Gap	320399,495275	Uncertain
14	R2R MCMH04	Earthwork	Linear clearance cairns north of Stoney Gap	320417,495319	Uncertain
15	R2R MCMH05	Earthwork	Clearance cairn north of Stoney Gap	320402,495325	Uncertain
16	R2R MCMH07	Structure	Washfold, north of Stoney Gap	320388,495465	Post Medieval
17	R2R MCPH37	Ruined Building	Ruin of small substructure, south-west of Crowberry Hill	320803,495674	Post Medieval
18	R2R MCPH38	Structure	Relict wall, south-west of Crowberry Hill	320831,495666	Uncertain
19	R2R MCPH39	Structure	Water tank near The Nook	320979,495445	Modern
20	R2R MCPH47	Earthwork	Eam Parrock charcoal burning platform	321219,495604	Post Medieval
21	R2R MCPH48	Ruined Building	Eam Parrock remains of building platform	321271,495584	Uncertain
22	R2R MCPH49	Earthwork	Eam Parrock charcoal burning platform	321244,495593	Post Medieval
23	R2R MCLW01	Site of Mine	Cote Haw drift	319971,494415	Post Medieval
24	R2R MCLW02	Structure	Relict wall, east of Cote Haw	320033,494446	Uncertain
25	R2R MCLW03	Structure	Relict or cow wall at Cote Haw	319985,494453	Uncertain
26	R2R MCLW06	Structures	Animal pens, south of Leonard Haw	320119,494573	Post Medieval
27	R2R MCLW08	Structure	Rectangular stone pen structure north of Low Wood	320379,494554	Post Medieval
28	R2R MCLW09	Earthwork	Sub rectangular stone feature/cairn, south-east of Leonard Haw	320364,494531	Post Medieval

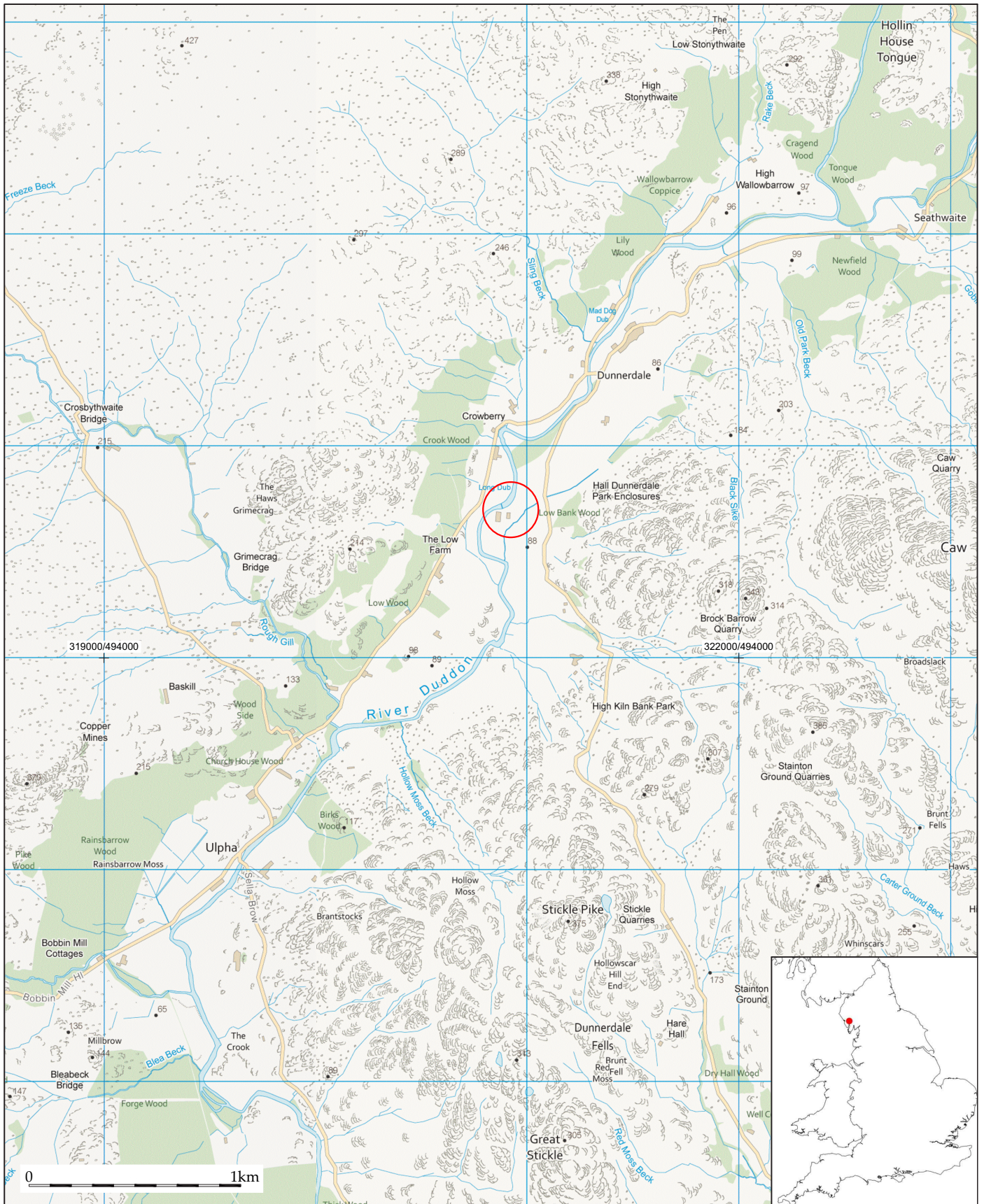
Asset No.	Reference	Site Type	Description	Grid Reference	Period
29	R2R MCLW10	Structure	Relict wall, south of Leonard Haw	320204,494531	Uncertain
30	R2R MCLW11	Ruined Building	Former bank barn, south of Lowhurst Brow	320099,494131	Post Medieval
31	R2R MCLW19	Ruined Building	Former quarry workers cottage above The Low	320511,494538	Post Medieval
32	R2R MCLW20	Ruined Buildings	Farmstead and bank barn	320150,494870	Uncertain
33	R2R MCLW21	Structure	Possible footings of sub-rectangular structure north-east of The Haws	319993,495070	Uncertain
34	R2R MCLW24	Former Quarry	Deliberately placed stones observed from quarried outcrop	320343,495097	Post Medieval
35	R2R MCLW25	Mine Feature	Small stone obelisk (mine surveying pillar) west of Crook Wood	320338,495072	Post Medieval
36	R2R MCLW26	Mine Feature	Stone obelisk (mine surveying pillar) west of Crook Wood	320450,494905	Post Medieval
37	R2R MCLW19a	Structure	Stone structure near Quarryman's Cottage, above The Low	320481,494586	Post Medieval
38	R2R MCLW28	Earthwork	Pitched stone trackway by Low Wood	320583,494624	Post Medieval
39	R2R MCLW37	Earthwork	Charcoal burning platform at Low Wood	320280,494072	Post Medieval
40	R2R MCMH10	Earthwork	Relict wall at Crook Wood	320705,495116	Uncertain
41	R2R MCMH11	Earthwork	Relict wall at Crook Wood	320601,495153	Uncertain
42	R2R MCMH11a	Earthwork	Stone-edged trackway at Crook Wood	320588,495183	Uncertain
43	R2R MCMH12	Structure	Remains of stone-walled structure, possible hut	320500,495145	Uncertain
44	R2R MCMH13	Earthwork	Cairnfield at Stoney Gap, above Crook Wood	320473,495073	Uncertain
45	R2R MCMH14	Earthwork	Footings of 'ancient wall', east of Stoney Gap and north-west of Moor House	320465,495268	Uncertain
46	R2R MCMH15	Earthwork	Relict wall in woodland north-west of Moor House	320563,495318	Uncertain
47	R2R MCMH16	Structure	Small two-storey field barn in woodland west-north-west of Moor House	320665,495315	Post Medieval
48	R2R MCMH17	Ruined Building	Agricultural building, The Frith, north-north-west of Moor House	320863,495383	Post Medieval
49	R2R MCMH09	Earthwork	Charcoal burning platform at Crook Wood	320550,494992	Post Medieval

Asset No.	Reference	Site Type	Description	Grid Reference	Period
50	R2R LWSP33	Earthwork	Kiln Bank west clearance cairns and walls	321291,493810	Uncertain
51	R2R LWSP34	Structure	Kiln Bank west small quarry	321198,493842	Post Medieval
52	R2R LMKB01	Structures	Features including drainage Ditch, spring and clearance cairn at Far Kiln Bank	320786,493762	Post Medieval
53	R2R LMKB02	Structure	Wall and gate stoop associated with consumption wall at Far Kiln Bank	320687,493819	Post Medieval
54	R2R LMKB03	Structure	Double stile at Far Kiln Bank	320859,493950	Post Medieval
55	R2R LMKB04	Structure	Field bank at Far Kiln Bank	321059,493970	Post Medieval
56	R2R LMKB05	Earthwork	Quarry at Far Kiln Bank	320810,493992	Post Medieval
57	R2R LMKB06	Bridge	Stone Slab bridge	321056,494739	Post Medieval
58	R2R LMKB07	Earthwork and Structure	Area of old coppice wood with features including enclosure and wall	321040,494982	Post Medieval
59	R2R LMKB08	Earthwork	Embankment and field drain at Kiln Bank	320965,494375	Post Medieval
60	R2R LMLH02	Structure	Consumption wall at Low Hall	321116,494816	Post Medieval
61	R2R LMLH03	Structures	Clearance Cairn and consumption wall at Low Hall with ancient polarded oaks	321187,494849	Post Medieval
62	R2R LMLH04	Structures	Clearance Cairn and consumption walls at Low Hall	321222,494925	Post Medieval
63	R2R LMLH05	Thoroughfare	Trackway and hog hole at Low Hall Lonnin 1	321179,495029	Post Medieval
64	R2R LMLH11	Trough	Drinking trough at Hall Dunnerdale	321527,495403	Post Medieval
65	R2R LMLH12	Culvert	Channelled beck at Low Hall	321607,495077	Post Medieval
66	R2R LMLH16	Structures	Cist, clearance cairn and field drain at Low Hall	321658,495162	Post Medieval
67	R2R LMLH17	Structures	Wall and linear clearance cairns at Low Hall	321333,495158	Post Medieval
68	R2R LMLH18	Structures	Ford, footbridge and trackway at Low Hall	321341,494892	Post Medieval
69	R2R LMLH19	Structures	Remains of trackway and wall, remains of former lonnin, at Hall Dunnerdale	321451,495371	Post Medieval
70	R2R LMLH25	Structures	Wall and clearance cairn forming consumption wall at Low Hall	321304,495005	Post Medieval
71	R2R LMLH26	Structures	Clapper bridge, water channel and clearance cairn at Low Hall	321251,494861	Post Medieval
72	R2R LMNF31	Structure	Brockbarrow wall	321366,494247	Post Medieval

Asset No.	Reference	Site Type	Description	Grid Reference	Period
73	R2R LMNF32	Thoroughfare	Trackway at High Kiln Bank Teack	321318,494326	Post Medieval
74	R2R LMNF33	Structures	Embankment and cairn at Tommy Gill	321435,494188	Post Medieval
75	R2R LMNF34	Structures	Wall and boundary stone at Tommy Gill	321497,494153	Post Medieval
76	R2R LMNF35	Structure	Cairn at Tommy Gill	321562,494118	Post Medieval
77	R2R LMNF43	Structure	Ruined sheepfold at Low Hall	321355,494886	Post Medieval
78	R2R LMNF44	Structure	Bield (hut or shelter) at Low Hall	321430,494866	Post Medieval
79	R2R LMNF45	Thoroughfare	Track at Low Hall	321305,494717	Post Medieval
80	R2R LMNF46	Structure	Wall at Low Hall	321352,494752	Post Medieval
81	R2R LMNF47	Structure	Circular enclosure at Low Hall	321422,494783	Post Medieval
82	R2R LMNF49	Structure	Sheep pen at Low Kiln Bank	321459,494719	Post Medieval
83	R2R LMNF50	Structure	Sheepfold at Brockbarrow	321871,494451	Post Medieval
84	R2R LMNF51	Structure	Sheep shelter at Brockbarrow	321500,494547	Post Medieval
85	R2R LMNF52	Structure	Wall at Backbarrow	321360,494462	Uncertain
86	R2R LMNF53	Structures	Wall and trackway at Brockbarrow	321439,494639	Uncertain
87	R2R LMTL01	Thoroughfare	Stepping stones at The Low	320730,493960	Post Medieval
88	R2R LMTL02	Structure	Boundary wall and wall at The Low	320735,494158	Post Medieval
89	R2R LMTL03	Thoroughfare	Stepping stones at The Low	320925,494207	Post Medieval
90	R2R LMTL04	Structures	Cairn, wall and possible hut circle at The Low	320868,494273	Uncertain
91	R2R LMTL05	Structures	Wall and hog hole features at The Low	320735,494503	Post Medieval
92	R2R LMTL06	Structure	Slate clapper bridge at The Low	320773,494482	Post Medieval
93	R2R LMTL07	Structure	Flood defence embankment at The Low	320890,494436	Post Medieval
94	R2R LMTL08	Structure	Gate stoops at The Low	320708,494458	Post Medieval
95	R2R LMNF76	Ruined Building	Ruined building at Banking Hows	321721,494939	Post Medieval
96	R2R LMNF77	Structure	Wall at Black Sike	321689,494845	Post Medieval

Asset No.	Reference	Site Type	Description	Grid Reference	Period
97	R2R LMNF78	Structure	Sheepfold at Black Sike	321689,494845	Post Medieval
98	R2R LMHH02	Structure	Sheepfold at High Hurst	320254,493922	Post Medieval
99	R2R LMHH04	Structure	Field boundary at High Hurst	320452,494196	Uncertain

APPENDIX 3: FIGURES






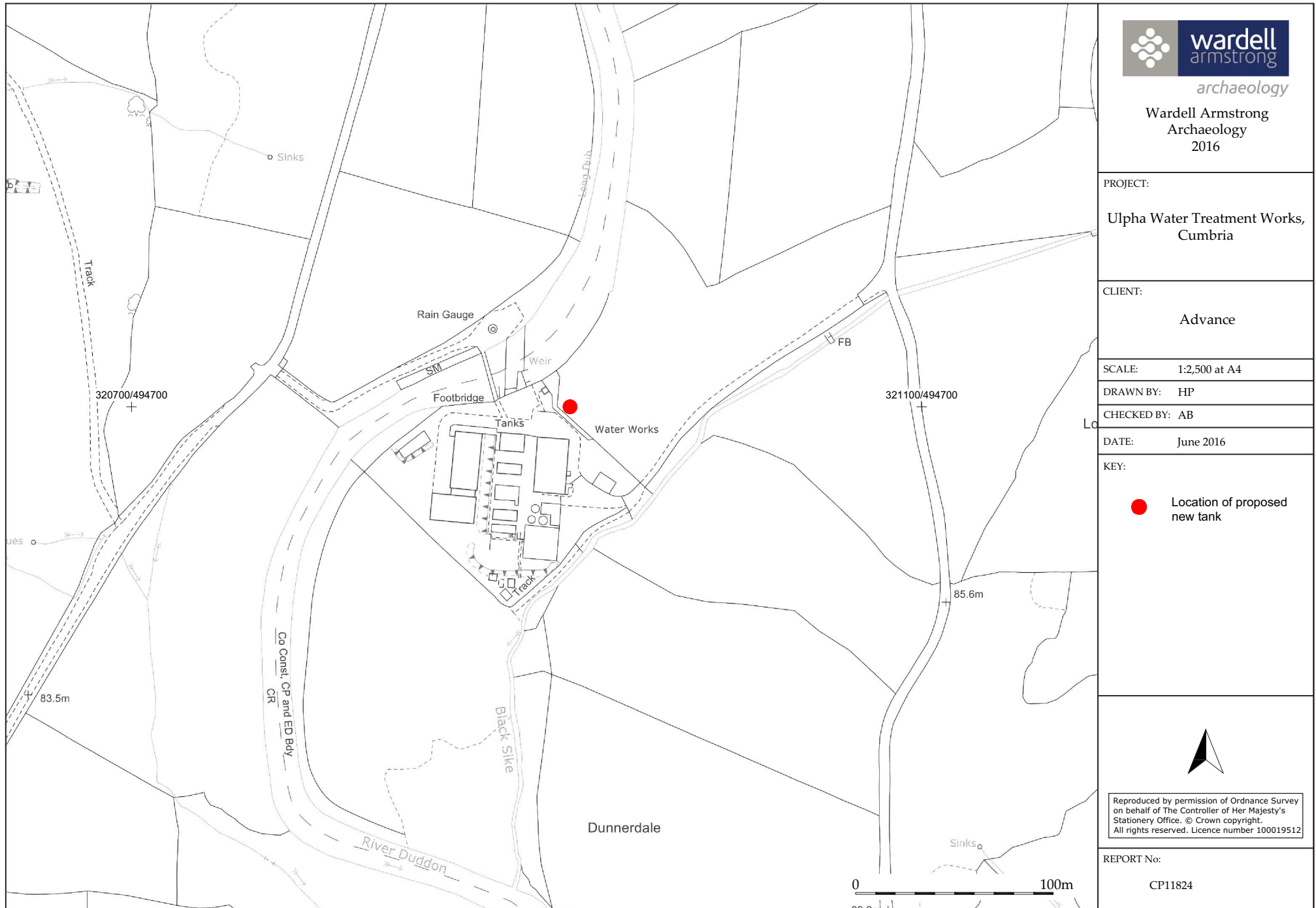
 <p>Wardell Armstrong Archaeology 2016</p>	<p>PROJECT: Ulpha Water Treatment Works, Cumbria</p> <p>SCALE: 1:25,000 at A4</p> <p>REPORT No: CP11824</p> <p>CLIENT: Advance</p> <p>DRAWN BY: HP</p> <p>CHECKED BY: AB</p> <p>DATE: June 2016</p>	<p>KEY:</p> <p> Site location</p>	 <p>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright. All rights reserved. Licence number 100019512</p>
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Figure 1: Site location.



PROJECT:
Ulpha Water Treatment Works,
Cumbria

CLIENT:
Advance

SCALE: 1:2,500 at A4

DRAWN BY: HP

CHECKED BY: AB

DATE: June 2016

KEY:
● Location of proposed
new tank



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REPORT No:
CP11824

Figure 2: Detailed site location.

PROJECT:
Ulpha Water Treatment Works

CLIENT:
Advance

SCALE: 1:10,000 at A3

DRAWN BY: HP

CHECKED BY: HP

DATE: June 2016

KEY:

- Site location
- 1km radius
- Heritage assets



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REPORT No:
CP11824

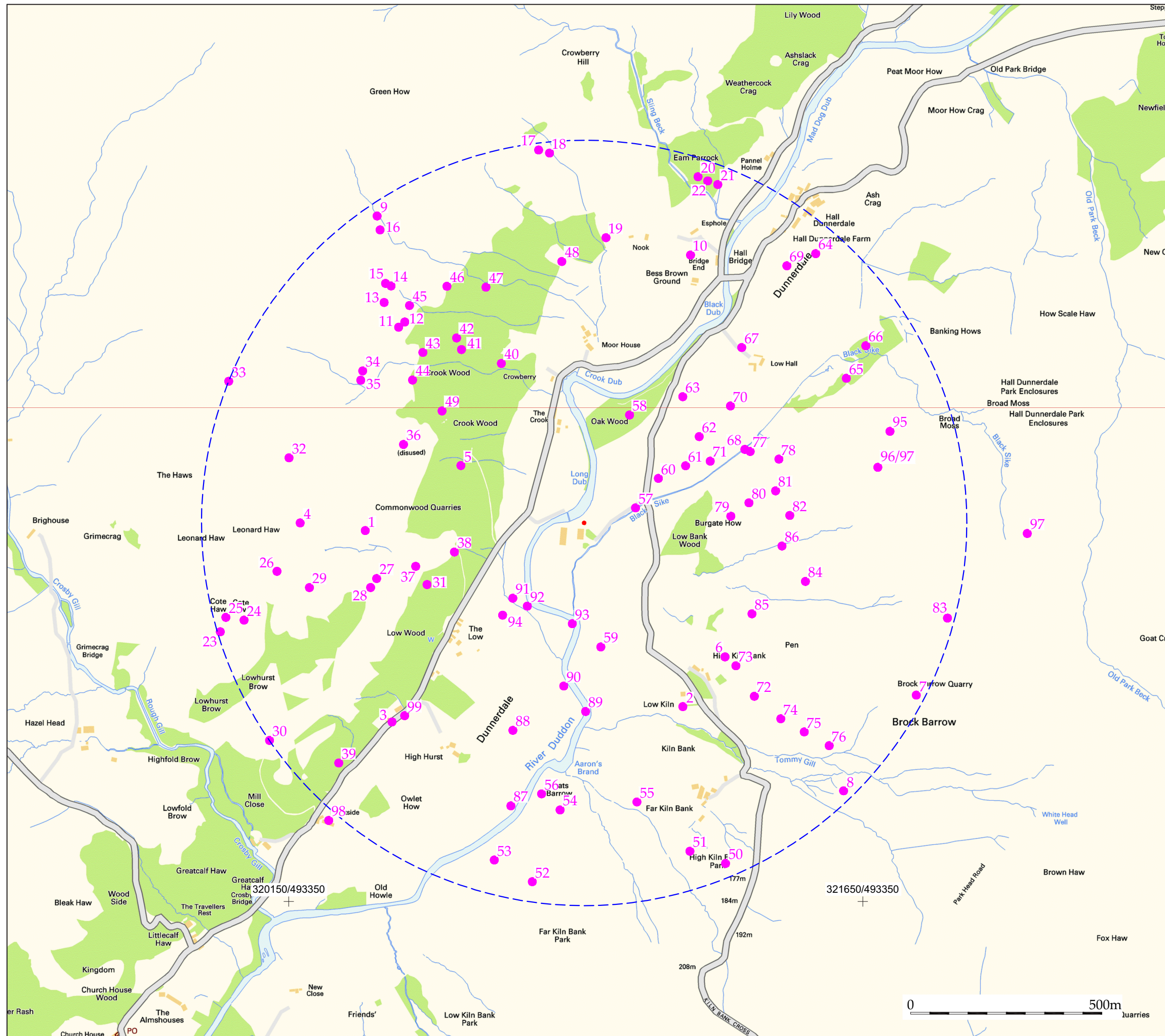
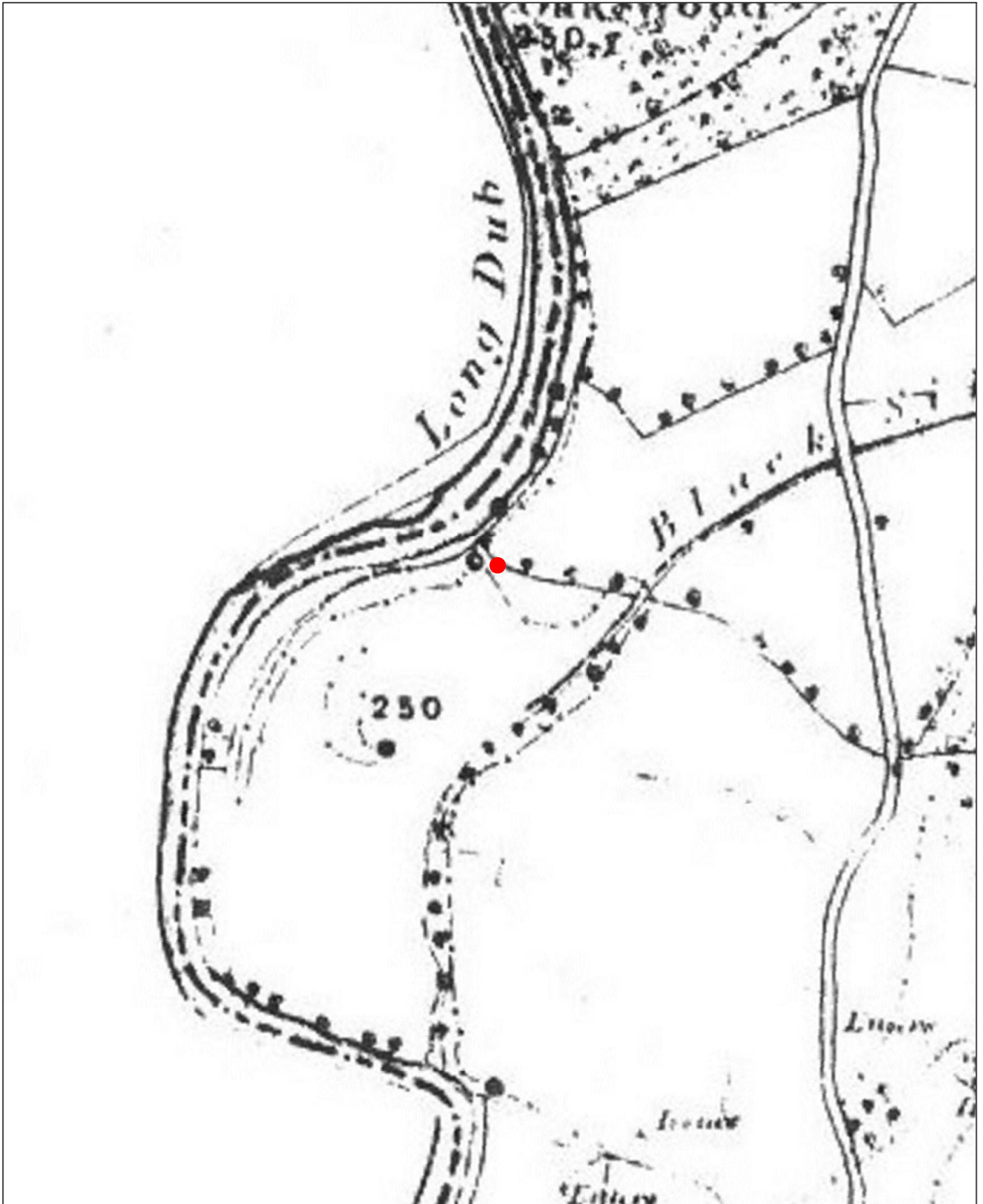


Figure 3: Location of Heritage Assets within 1km study area.






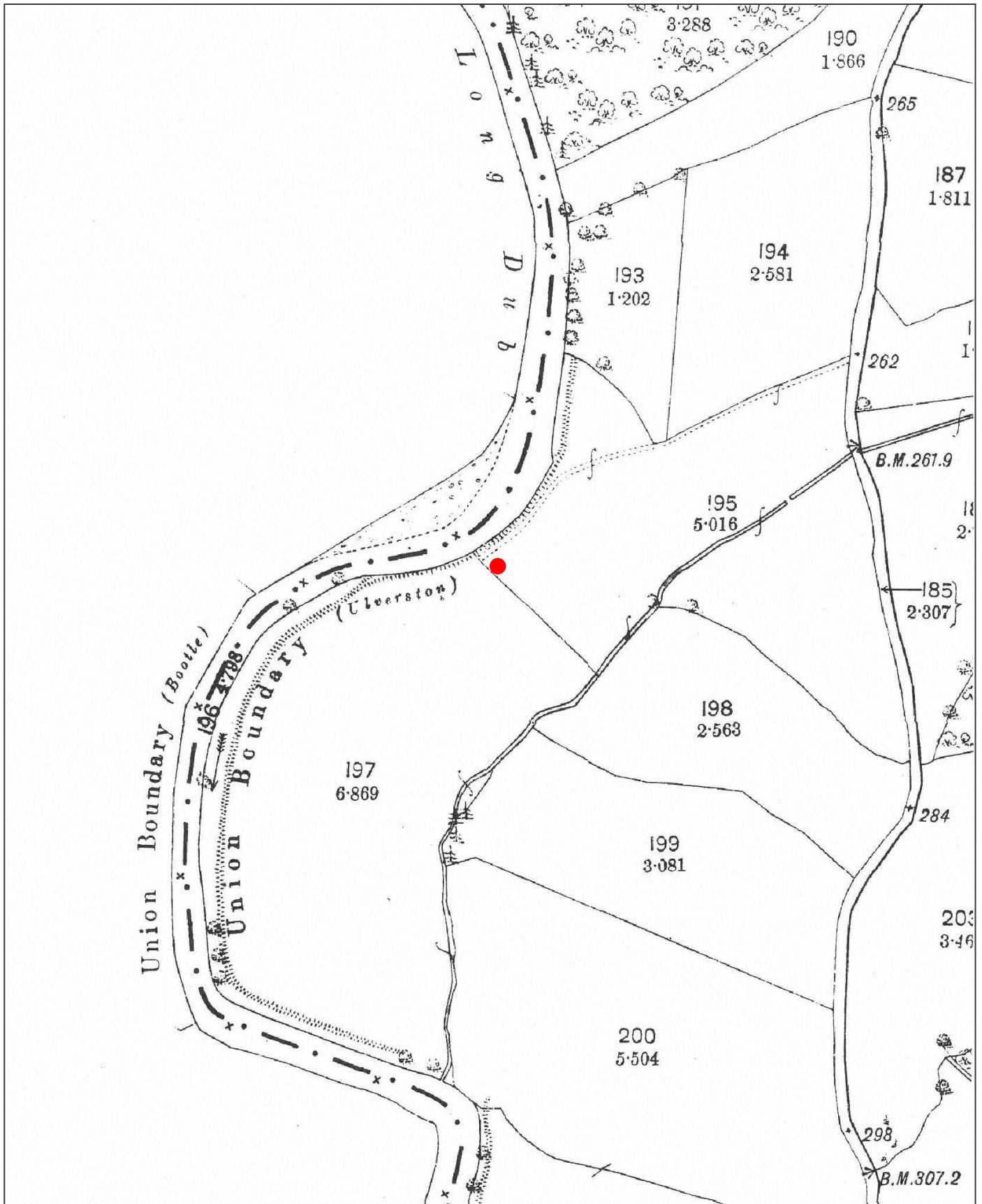
 <p>Wardell Armstrong Archaeology 2016</p>	<p>PROJECT: Ulpha Water Treatment Works, Cumbria</p> <p>SCALE: 1:2,500 at A4</p> <p>REPORT No: CP11824</p> <p>CLIENT: Advance</p> <p>DRAWN BY: HP</p> <p>CHECKED BY: AB</p> <p>DATE: June 2016</p>	<p>KEY:</p> <p> Location of proposed new tank</p>	
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Figure 4: First Edition Ordnance Survey Map, 1851 (6 inches to 1 mile scale).





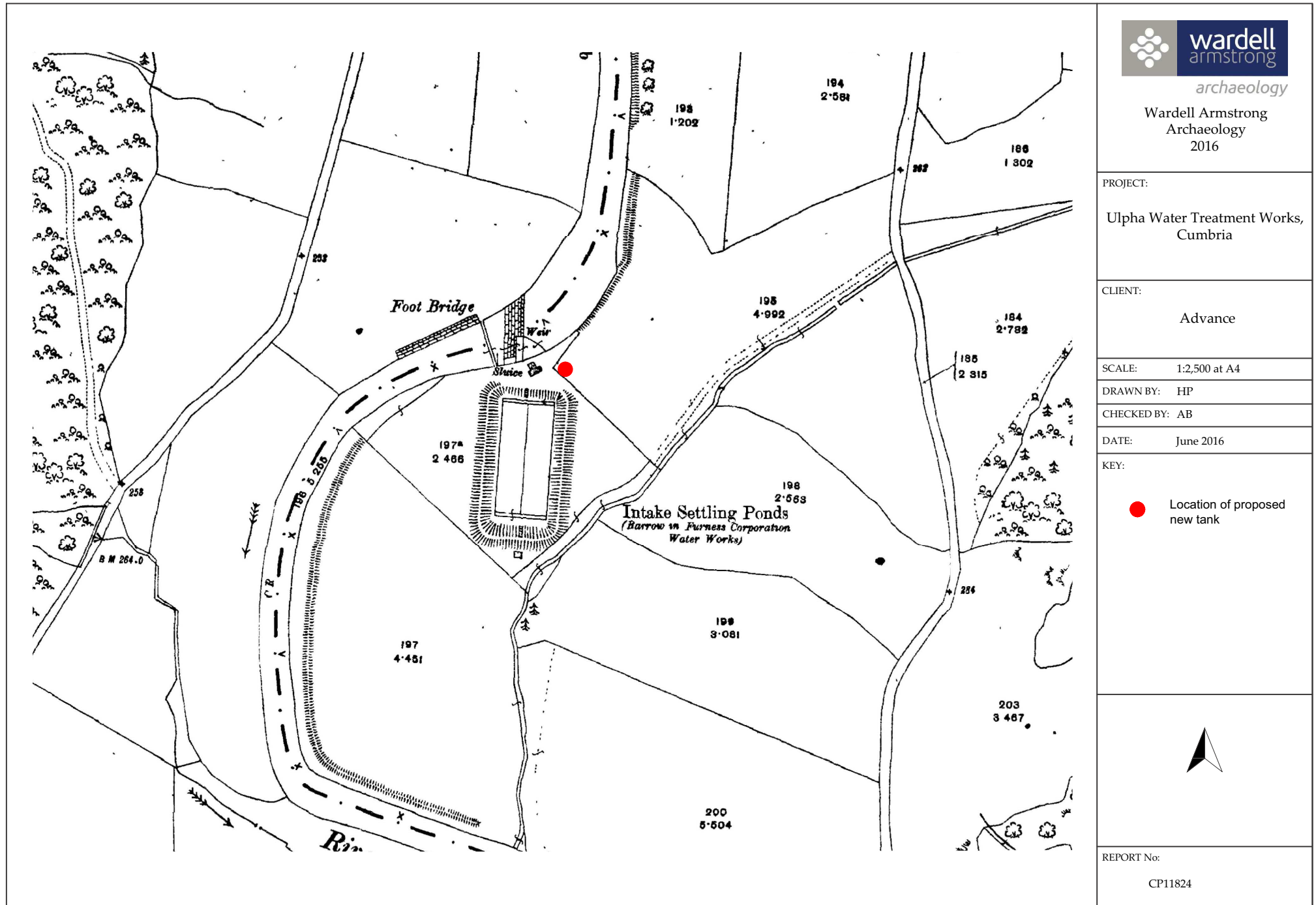
 <p>Wardell Armstrong Archaeology 2016</p>	<p>PROJECT: Ulpha Water Treatment Works, Cumbria</p> <p>SCALE: 1:2,500 at A4</p> <p>REPORT No: CP11824</p> <p>CLIENT: Advance</p> <p>DRAWN BY: HP</p> <p>CHECKED BY: AB</p> <p>DATE: June 2016</p>	<p>KEY:</p> <p>● Location of proposed new tank</p>	
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Figure 5: Second Edition Ordnance Survey Map, 1890 (25 inches to 1 mile scale).



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Archaeology
2016

PROJECT:
Ulpha Water Treatment Works,
Cumbria

CLIENT:
Advance

SCALE: 1:2,500 at A4

DRAWN BY: HP

CHECKED BY: AB

DATE: June 2016

KEY:
● Location of proposed
new tank



REPORT No:
CP11824

Figure 6: Third Edition Ordnance Survey Map, 1913 (25 inches to 1 mile scale).

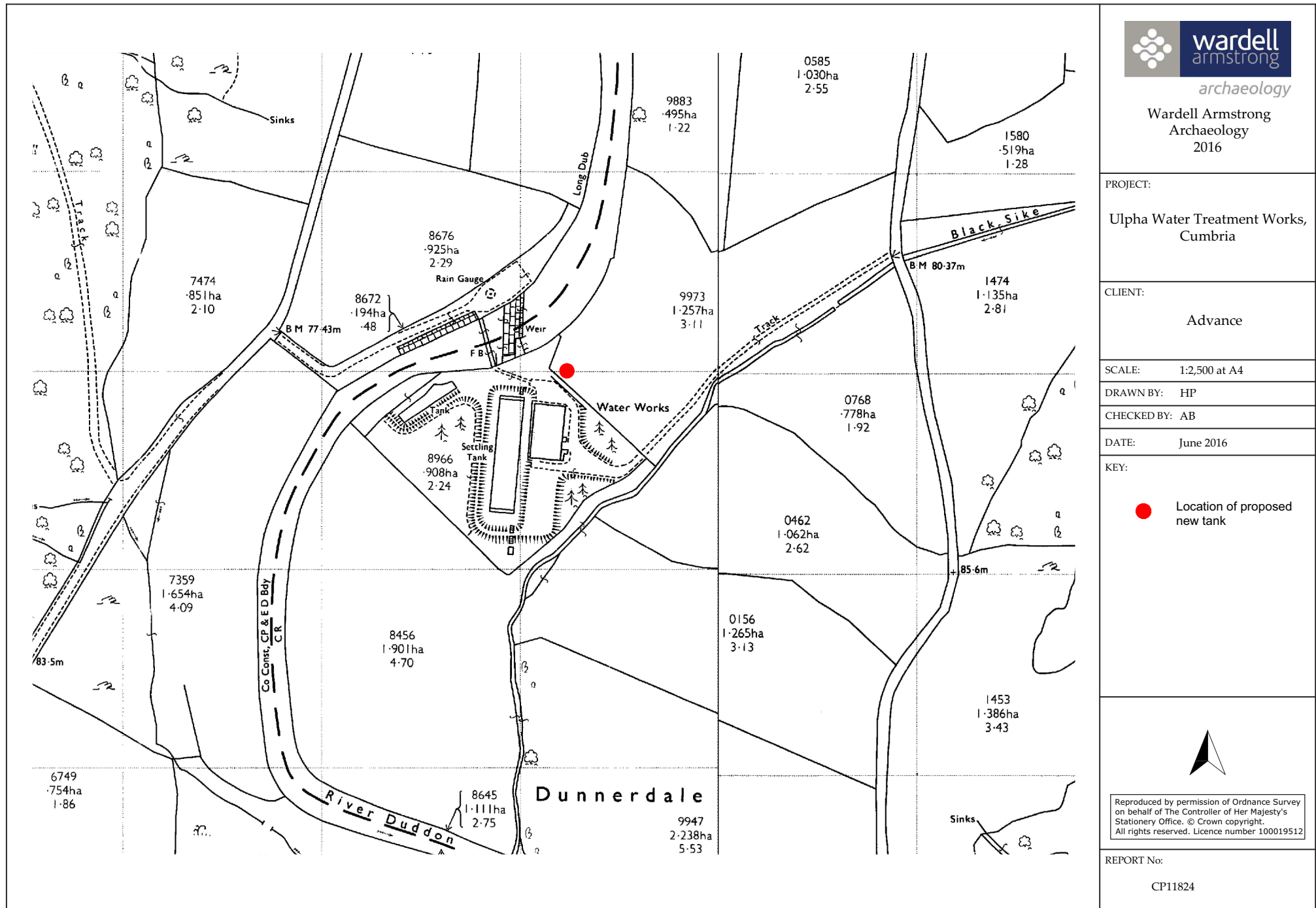


Figure 7: Ordnance Survey Map, 1977 (1:2,500 scale).

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