wardell-armstrong.com

ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT



THE BAXTER GROUP

LAND AT BOURBLES FARM, PREESALL, LANCASHIRE

HISTORIC ENVIRONMENT DESK BASED ASSESSMENT

MARCH 2021



Wardell Armstrong

Marconi Road, Burgh Road Industrial Estate, Carlisle, Cumbria, CA2 7NA, United Kingdom Telephone: +44 (0)1228 550 575 www.wardell-armstrong.com



DATE ISSUED: MARCH 2021

JOB NUMBER: CL12551

REPORT NUMBER: 0001

VERSION: V0.1

STATUS: Final

THE BAXTER GROUP

LAND AT BOURBLES FARM, PREESALL, LANCASHIRE

HISTORIC ENVIRONMENT DESK BASED ASSESSMENT

MARCH 2021

PREPARED BY:

Ariane Buschmann Senior Archaeologist

REVIEWED BY:

Kimberley Teale Associate Director

APPROVED BY:

Chloe Brownlee-Chapman Regional Director

This report has been prepared by Wardell Armstrong LLP with all reasonable skill, care and diligence, within the terms of the Contract with the Client. The report is confidential to the Client and Wardell Armstrong LLP accepts no responsibility of whatever nature to third parties to whom this report may be made known.

No part of this document may be reproduced without the prior written approval of Wardell Armstrong LLP.





ENERGY AND CLIMATE CHANGE ENVIRONMENT AND SUSTAINABILITY INFRASTRUCTURE AND UTILITIES

LAND AND PROPERTY

Bluggman.



CONTENTS

Sl	JMMA	RY	1
Α	CKNOV	VLEDGEMENTS	2
1	INT	RODUCTION	3
	1.1	Circumstances of Project	3
	1.2	The Purpose of the Desk Based Assessment	3
	1.3	Planning Policy and Legislative Framework	3
	1.4	Local Planning Policies	4
2	MET	THODOLOGY	6
	2.1	Introduction	6
	2.2	Historical and Cartographic Sources	6
	2.3	Secondary Sources	6
	2.4	Geological Information	7
	2.5	Site Walkover Survey	7
	2.6	Assessment of Significance	7
	2.7	Assessment of Setting	
	2.8	Assessment of Impact	8
	2.9	Reporting	9
	2.10	Glossary	9
3	DES	CRIPTION	10
	3.1	Location	
	3.2	Geology	
	3.3	Landscape Character	
	3.4	Archaeological and Historical Background	
	3.5	Site Visit	13
4	DISC	CUSSION	
	4.1	Character of the Proposed Development	
	4.2	Designated Heritage Assets in Proximity of Proposed Development	
	4.3	Non-Designated Heritage Asset	
	4.4	Significance of Impact	
	4.5	Summary of Impacts	
5		IOGRAPHY	
	5.1	Primary Sources	
	5.2	Secondary Source	18



33

APPENDIX 1: HERITAGE IMPACT ASSESSMENT TABLES	20
APPENDIX 2: GAZETTEER OF HERITAGE ASSETS	23
APPENDIX 3: PLATES	27
APPENDIX 4: FIGURES	37
FIGURES	
Figure 1: Site Location	
Figure 2: Detailed site location	
Figure 3: Location of heritage assets within 1km linear study area	
Figure 4: First Edition Ordnance Survey Map 1848 (6 inch to 1 mile)	
Figure 5: First Edition Ordnance Survey Map 1892 (25 inch to 1 mile)	
Figure 6: Second Edition Ordnance Survey Map 1912 (25 inch to 1 mile)	
Figure 7: Third Edition Ordnance Survey Map 1932 (25 inch to 1 mile)	
Figure 8: Ordnance Survey Map, 1966 (1:2500)	
PLATES	
Plate 1: Plan of the District consisting of the whole of the Township of Preesall with Hack	ensall
in the Parish and County of Lancaster 1839, field boundaries of site highlighted in red	27
Plate 2: Plan of the District of Pilling Lane in the Township of Preesall with Hackensall,	in the
Parish of Lancaster and County Palatine of Lancaster 1847, field boundaries of site highli	ghted
in red	27
Plate 3: Advert from F Mortons 1896, wire fencing displayed matches remnants obs	erved
(Asset 42)	28
Plate 4: Google Earth image 2010, showing presence of former field boundaries	28
Plate 5: view south-east towards ponds	29
Plate 6: Steps towards pond	29
Plate 7: Laid hedgerow to the south-west of the ponds (Asset 27)	30
Plate 8: Laid hedgerow to the south-west of the ponds (Asset 27)	30
Plate 9: Potentially historic hedgerow (Asset 18) at location of proposed access road	31
Plate 10: Fenced in field in centre of site looking east	31
Plate 11: Fenced in field in centre of site looking north	32
Plate 12: Fenced in field in centre of site looking south-west	32
Plate 13: Laid hedge and water course to south of central field (Asset 30)	33

Plate 15: low bank in eastern fields, potentially former access ramp to neighbouring field 34

Plate 14: tree line to the north of eastern fields along Asset 38

THE BAXTER GROUP LAND AT BOURBLES FARM, PREESALL, LANCASHIRE HISTORIC ENVIRONMENT DESK BASED ASSESSMENT



Plate 16: Low bank in eastern fields, potentially remnants of Asset 39	34
Plate 17: View east across eastern fields	35
Plate 18: Remnants of wire fence (Asset 42)	35
Plate 19: Detail of wire fence post, with PATENT LIV F MORTONS	36
Plate 20: Detail of wire fence post, with PATENT LIV F MORTONS	36



SUMMARY

Wardell Armstrong LLP (WA) was commissioned by The Baxter Group through CFM Consultants Ltd to prepare a Desk-Based Assessment (DBA) for the proposed development at Bourbles Farm, Preesall (centred on NGR SD 37788 47577). This DBA aims to show the impact of the scheme on the heritage significance of upstanding and below ground heritage assets within the study area.

The site is set in a rural area with dispersed settlements surrounding it at the outskirts of Preesall. One part of the site has previously been used to extract sand, which created the ponds noted within the site. The proposed scheme within the site will involve significant groundworks to create the required extraction infrastructure and during the removal of the sand and gravel. These groundworks will remove known and potentially unknown archaeological remains present within the site, which will be permanent and irreversible. No significant archaeological remains have been identified through this DBA within the site. Heritage assets comprise predominantly of former field boundaries, which are of a low significance, and based upon the currently available information the site is considered to have a low potential to contain significant archaeological remains.

A total of 42 known heritage assets have been identified within the study area;30 of which are at risk of direct impact from the proposed works. Of these, a total of 3 known heritage assets at risk of direct impact are of probable medium significance as they are likely to be historic hedgerows. It is anticipated that the full extents of the hedgerows are unlikely to be destroyed, though any level of impact may require some form of mitigation. The remaining 27 of the 30 known heritage assets within the site are of a low significance, the magnitude of impact of the Scheme likely to be 'limited', which may require a low level of mitigation. They comprise former hedgerows and features associated with the former Garstang and Knott End Railway.

The proposed works may have a minor adverse impact upon the setting of the upstanding heritage assets in close proximity of the site, especially Bourbles Farm and Bourbles Farm Barn, both of which originate from the late 19th century and are of low significance.

Any future mitigation is dependent on the Local Planning Authority archaeologist.



ACKNOWLEDGEMENTS

Wardell Armstrong LLP (WA) thanks The Baxter Group and CFM Consultants Ltd for commissioning the project and for all assistance throughout the work.

WA also thank Joanne Smith, Planning Officer at Lancashire County Council, for providing HER data for the work.

The report has been written by Ariane Buschmann with the figures produced by Helen Phillips. Kimberley Teale managed the project, edited the report, and provided final quality assurance review.



1 INTRODUCTION

1.1 Circumstances of Project

1.1.1 Wardell Armstrong LLP (WA) was commissioned by The Baxter Group (hereafter referred to as the client), commissioned through CFM Consultants Ltd, to prepare a Desk Based Assessment (DBA) for the proposed development at Bourbles Farm, Preesall (centred on NGR SD 37788 47577).

1.2 The Purpose of the Desk Based Assessment

- 1.2.1 This Desk Based Assessment is designed to assess the impact of the scheme on the heritage significance of upstanding and below ground heritage assets within the study area.
- 1.2.2 The Desk Based Assessment seeks to address in detail the issues of impacts on heritage significance of upstanding and below ground heritage assets and to do this it both seeks to understand the significance of the assets before evaluating the impact of the development proposals upon them.

1.3 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 updated by the Ministry of Housing, Communities and Local Government in June 2019 (MHCLG 2019). This is supported by *Planning Practice Guidance* (PPG) which was published in March 2014.
- 1.3.2 The NPPF draws a distinction between designated heritage assets and other remains considered to be of lesser significance. With regard to designated heritage assets, '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 (NPPF, para 194). Therefore, preservation in-situ is the preferred course in relation for such sites unless exceptional circumstances exist.
- 1.3.3 The NPPF states that '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 directly or indirectly affect 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' (NPPF, para 197). The NPPF advises that local planning authorities should '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' (NPPF, para 199).

1.3.4 The NPPF advises that local planning authorities should look for opportunities for new development 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 (NPPF, para 202).

1.4 Local Planning Policies

- 1.4.1 The Wyre Council adopted the Wyre Local Plan (2011-2031) in February 2019. The relevant policy for this project is policy CDMP5 Historic Environment.
- 1.4.2 The policy states that: 'The Council's overall objective in relation to the historic environment is for designated and non-designated heritage assets to be protected, conserved and where appropriate enhanced for their aesthetic and cultural value and their contribution to local distinctiveness and sense of place. New development will be required to protect, conserve and, where appropriate, enhance the historic environment, through high standards of design. Proposals for new development should identify and take advantage of opportunities to integrate with and promote the Borough's heritage assets. Development with the potential to affect the significance of any designated or non-designated heritage asset, either directly or indirectly including its setting, will be required to sustain or enhance the significance of the asset where appropriate (Wyre Council 2019, 58).
- 1.4.3 [...] Proposals which will cause less than substantial harm to the significance of a designated heritage asset or harm to an undesignated heritage asset that is considered by the Council to have local significance will not be granted unless: a) In the case of a designated heritage asset, the public benefits of the proposed development or works where appropriate, clearly outweigh the loss of significance; b) In the case of a non-designated heritage asset, the benefits of the proposed development or works where appropriate, clearly outweigh the loss of significance having regard to the scale of harm or loss. In making its assessment in relation to parts 4 and 5 of this Policy, the Council will require as appropriate evidence to be provided setting out: a)The significance of the heritage asset, in isolation and as part of a group as appropriate,



its contribution to the character or appearance of the area, and the degree of harm that would result; b) The public benefit arising from the proposals for the site; c) The condition of the asset and the cost of any repairs and enhancement works that need to be undertaken; d) The adequacy of efforts made to sustain existing uses or find viable new uses; and e) Appropriate marketing in accordance with Policy SP6 (Viability) (Wyre Council 2019, 58).

- 1.4.4 Where proposals include the loss of important heritage buildings or features, applicants will be required to demonstrate that retaining, reusing, or converting these buildings, or maintaining features, has been considered and found to be unviable. Where some impact on significance is considered acceptable, the Council will require a programme of recording the asset to be implemented prior to any work being carried out (Wyre Council 2019, 59).
- 1.4.5 Where development affecting sites of known archaeological interest is acceptable in principle, preservation in-situ is the preferred solution. Where preservation in-situ is not justified or possible, the developer will be required to make appropriate and satisfactory provision for the excavation and recording of the remains and to agree a timetable for the publication of findings before development commences. Development affecting nationally important archaeological remains and their settings, whether or not they are scheduled, will only be permitted where the archaeological value and interest of the remains and their settings is preserved. Development affecting locally important archaeological remains and their settings will only be permitted where it is demonstrated that the public benefit of the development outweighs the local value of the remains. The developer will be required to provide a programme of investigation and recording of the remains and a timetable for the publication of findings agreed (Wyre Council 2019, 59).



2 METHODOLOGY

2.1 Introduction

- 2.1.1 The preparation of this Desk Based Assessment has been undertaken in accordance with guidance recommended by Historic England and prepared by Bassetlaw District Council (2011). Note is also taken of Historic England guidance on understanding place (2017) and on the setting of heritage assets (2015).
- 2.1.2 The data underlying this Heritage Impact Assessment relies heavily on Lancashire County Council's Historic Environment (HER) dataset, and on readily accessible sources, due to archive and local library closures in relation to ongoing COVID-19 restrictions. Current COVID-19 conditions mean that at the time of producing this report, public libraries and archives were closed on health and safety grounds. The impact of the development on heritage assets within 1km search radius, centred on the site, was assessed using a series of standard tables (confer Appendix 1).

2.2 Historical and Cartographic Sources

- 2.2.1 Several sources of information were consulted, in accordance with professional guidelines (CIfA 2020). An updated search of online resources was undertaken to identify any additional designated sites such as scheduled monuments, listed buildings and conservation areas in the study area. This was done to help assess the possible impact of a development on archaeologically sensitive areas. The principal sources of information were historical maps and websites.
- 2.2.2 The principal sources for this type of evidence were:
 - the Lancashire County Council Record Office;
 - online sources holding historic Ordnance Survey and Tithe maps.
- 2.2.3 Relevant documents are listed in the Bibliography and reproduced in Figs. 3 to 8.

2.3 **Secondary Sources**

- 2.3.1 All sources are listed in the Bibliography. The principal sources of secondary material were:
 - the Lancashire County Council Record Office;
 - the Archaeology Data Service 1;
 - the Wardell Armstrong in-house library.

CL12551/Final MARCH 2021

¹ https://archaeologydataservice.ac.uk/



2.4 **Geological Information**

- 2.4.1 A description of the superficial and solid geology of the local and surrounding area was compiled in order to assess the likely presence and potential condition of any archaeological remains on the site. This information was drawn from appropriate maps published by the Geological Survey of Great Britain (BGS 2021).
- 2.4.2 Where available Site Investigation reports will be referenced as appropriate and detailed within the Bibliography.

2.5 Site Walkover Survey

- 2.5.1 During the desk-based assessment, a physical walkover of the site was undertaken. The inspection had the following purposes:
 - to examine the areas of archaeological potential identified during the deskbased assessment; in particular, with a view to gauging the likely survival and condition of archaeological remains;
 - to identify signs of disturbance or truncation within the Site which could affect archaeological potential;
 - to review the presence/absence of earthworks indicative of the presence of archaeological remains i.e. ridge and furrow earthworks;
 - to confirm the presence/absence of historic hedgerows;
 - to inform the Impact Assessment element of this document.

2.6 **Assessment of Significance**

- 2.6.1 The NPPF stipulates that a description of the significance of each asset potentially affected by the proposed development should be provided in order to satisfy the requirements of the NPPF (Para 189).
- 2.6.2 The significance of a heritage asset is defined within the National Planning Policy Framework (NPPF) as 'the value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic'.
- 2.6.3 For a definition of these 'interests' a useful reference document is Historic England's Conservation Principles for the Sustainable Management of the Historic Environment (2008). The terms used in this document roughly equate to those specified within the NPPF; 'evidential' equating to archaeological, 'historical and communal' equating to historic and 'aesthetic' equating to architectural and artistic. A consultation draft of a



revised Conservation Principles (Historic England 2017) reverts to the NPPF terminology and specifically provides a definition of archaeological interest, architectural interest, artistic interest, and historic interest.

2.7 Assessment of Setting

- 2.7.1 As stated within the NPPF 'significance derives not only from the physical fabric of a heritage asset but also from its setting' (MHCLG 2019, Annex 2 page:71).
- 2.7.2 In respect of identifying the importance of setting to the identified significance of a heritage asset, Historic England's good practice guidance presented in the Setting of Heritage Assets (Historic England GPA 3 2017) will be utilised; specifically, the five-step approach to assessment:
 - Step 1 Identify which heritage assets and their settings may be affected;
 - Step 2 Assess the degree to which settings make a contribution to the significance of the heritage asset(s) or allow significance to be appreciated;
 - Step 3 Assess if any change to the setting identified would affect the appreciation/ understanding of an asset's significance (there may be no change);
 - Step 4 Explore ways to maximise enhancement and avoid or minimise harm;
 - Step 5 Make and document the decision and monitor outcomes.

2.8 Assessment of Impact

- 2.8.1 The NPPF stipulates three levels of potential impact to designated heritage assets. The NPPF references these as:
 - Substantial harm;
 - Less than substantial harm; and
 - No harm (Significance is sustained or enhanced).
- 2.8.2 Planning Practice Guidance (PPG) discusses how to assess substantial harm where it states 'In general terms, substantial harm is a high test, so it may not arise in many cases. For example, in determining whether works to a listed building constitute substantial harm, an important consideration would be whether the adverse impact seriously affects a key element of its special architectural or historic interest. It is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed. The harm may arise from works to the asset or from development within its setting' (Para 19).
- 2.8.3 The application of the terms 'substantial' and 'less than substantial' is made on professional judgement and experience. The level of impact expressed by this



assessment will be either no harm, less than substantial harm or substantial harm, however where EIA terminology is required or in respect to stakeholder preferences, the DMRB methodology will also be referenced, see Appendix 1.

2.9 **Reporting**

- 2.9.1 A digital copy of the report will be sent to the Historic Environment Record at Lancashire County Council's offices in Preston, where access will be made available on request.
- 2.9.2 Wardell Armstrong support 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 Wardell Armstrong, as a part of this national scheme, under the code: wardella2-417572.

2.10 Glossary

- 2.10.1 The following standard terms 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 nonstatutory 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.
 - 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 DESCRIPTION

3.1 Location

3.1.1 The proposed development site is situated to the east of Preesall, between Lancaster Road and Bourbles Lane in Lancashire, England (NGR SD 37788 47577; Figure 1). The site comprises a series of agricultural fields, with three ponds located in the northern section of the site (Figure 2). It abuts farmsteads to the north, east and west.

3.2 **Geology**

- 3.2.1 The bedrock geology of the site comprises red, yellow and brown sandstone of Sherwood Sandstone Group; a sedimentary bedrock formed approximately 237 to 272 million years ago in the Triassic and Permian Periods in a local environment previously dominated by rivers (BGS, 2021).
- 3.2.2 The superficial deposits comprise sand and gravel of Raised Storm Beach Deposits; formed up to 3 million years ago in the Quaternary Period in a local environment previously dominated by shorelines (BGS, 2021).

3.3 Landscape Character

3.3.1 Lancashire Historic Landscape Characterisation defines the site as Post Medieval Enclosure (1600-1850). 'The Post-Medieval Enclosure type comprises a variety of field forms. Size tends to be medium (4 to 16 hectares) but with a significant percentage of small enclosures. Two thirds of the type has an irregular layout with one third showing a more regular, planned pattern. This is a reflection of the piecemeal private enclosure of land in Lancashire in the period between AD1600 and 1850, rather than the widespread planned enclosure more prevalent in other parts of England such as the Midlands (Lancashire County Council 2017, 106). The enclosure size is classed as small to medium enclosure (Lancashire County Council 2017, 93), and to be of an irregular pattern (Lancashire County Council 2017, 94). Since 1850, the boundary loss had been assessed to be of little or no loss within the area. The site is bound by modern settlement. Modern Settlement is mainly an expansion of previously existing settlements so, often, the Ancient & Post-Medieval Settlement type is to be found at its core. Even where the earlier settlement type has not been mapped, Modern Settlement is likely to focus on a small pre-1850 core comprising a farm building, hamlet, or small village. Evidence for time depth in the present-day landscape is provided by the survival of farmsteads, roads, tracks, and boundaries of the preurbanised agricultural landscape. The former mainly date from the 17th to early 19th



centuries, whilst the remainder are often medieval in origin. The preservation of the course of pre-1850 tracks, roads, and field boundaries, if not the features themselves, is variable across the county (Lancashire County Council 2017, 156).

3.4 Archaeological and Historical Background

- 3.4.1 This historical and archaeological background is compiled predominantly from primary and secondary sources consulted in March 2021 during strict COVID-19 pandemic related lockdown measures in England when local libraries and archives were closed. It is intended only as a summary of historical developments around the site. The locations of known heritage assets within the study area are represented in Figure 3 and summarised in Appendix 2.
- 3.4.2 *Prehistoric:* There is no evidence for prehistoric archaeological activity within the search area.
- 3.4.3 Romano-British: A small hoard of Roman coins was found on Preesall Hill in 1934 (Asset 8). At the time there was no secrecy about this, and no-one appeared to be very interested. The find was made by Mr Charles Preston and J Fairclough 1985 whilst employed by Messrs Keirby and Perry Ltd of Thornton. In an article from 1985 Mr Fairclough describes the circumstances of the find as follows: 'We were opening up a sand quarry in Cartgate a little higher up the hill than the steps leading to the footpath. We had quarried back about forty yards from the entrance and had removed the turf and soil to a depth of approx. ten inches. At this depth I picked up the first coin. Realising that it was of Roman origin, we made a close search of the area and found about 23 coins scattered in line over a distance of roughly six yards. After this we kept close observation, but nothing further was found. There was no sign of a container nor any other objects. Neither was there any sign of habitation or occupation. The land appeared to have been cultivated at some time in the past and I concluded that the coins had been lost or hidden and never recovered. At some later date they may have been scattered through contact with some sort of agricultural implement. The material being quarried at the time of the find was delivered to Fleetwood Corporation and used for laying out of the Marine Gardens. Thus, any unnoticed coins may now lie on that site in Fleetwood' (Lancashire HER PRN18839).
- 3.4.4 Potentially eleven of these coins could be identified as coins of Gallienus, Postumus, Victorinus, Tetricus I, and Tetricus II. Due to the lack of proper recording, there is, however, also a possibility that they are part of the hoard from nearby Hackensall Hall Farm.



- 3.4.5 *Medieval:* A settlement at Preesall is known from at least the medieval period, as it is noted as Pressouede in the Domesday Book. Over the course of the 12th and 13th century, it is mentioned several times in documents as: Presoure, 1168; Pressore, 1176; Presho, 1199; Preshou, 1246; Presoude, Presehou, Presthowe, 1292. Although it is Preesall which is named in Domesday Book, the manor in later times seems to have been known primarily as Hackinsall. Only from the 16th century onwards a manor of Preesall is separately mentioned, but usually in connexion with Hackinsall (British History 2021). An Elizabethan Sixpence (Asset 12) was found in a field to the far southwest of the site during a metal detector survey.
- 3.4.6 **Post-medieval to Modern:** Several farmsteads and their associated wells are known to date from at least the early 19th century in the surrounding area. They comprise Tongues farmstead (Asset 3), wells at Pointer House (Asset 4) Crossing Cottage (Asset 5) and Holmes Farm (Asset 6). Bourbles Farm (Assets 9 and 10) was built to the immediate north of the site by 1892.
- 3.4.7 The site is situated within two tithe maps; the Preesall with Hackinsall Tithe as well as the Pilling Lane Tithe. Pilling Lane occupies its north-east corner of the township of Preesall with Hackinsall (Plates 1 and 2). A high number of historic field boundaries are noted within the site, 12 of which are within Preesall with Hackinsall (Assets 14 to 25), and 16 within Pilling Lane (Assets 26 to 41). The detached part of Pilling was added to Preesall under the Divided Parishes Act of 1882. Some of these field boundaries were still faintly visible until 2010 but have since disappeared (Plate 4). Although some field boundaries are still present and could be noted during the site visit, they have predominantly been replaced with modern fencing and modern hedgerows. In the mid-19th century, the fields were owned and occupied by a number of people: fields no 329 to 331 (referred to as East Field, B Field and Three Nooks) on the Preesall tithe were owned by William Nickson and occupied by John Nickson, the remaining fields were owned and occupied by Thomas Hodgkinson. They are referred to as West Patrick (411), Next Patrick (446 and 447), and East Patrick (449). All affected fields on the Pilling tithe were owned by John Wilson Patten, but were occupied by John Singleton, Alice Hornby, George Lancaster, as well as Peter and Christopher Carter.
- 3.4.8 Already in the early 1860s, local businessmen from the areas around Garstang envisioned to provide a better method of transport for the increasing volume of agricultural produce that was being produced from the reclaimed mosslands of the area, and develop Knott End. In December 1863, the Garstang & Knot End Railway



- (G&KER) company was formed to provide a railway line for this purpose (Disused Stations 2021).
- 3.4.9 The Garstang and Knott End Railway (Asset 7) was built crossing the site in 1870, initially only connecting Garstang and Pilling as a single-track line of 7 miles in length. After initial issues of sourcing an engine for the line, the Knott Railway Company was formed, and the line was extended for 4.5 miles from Pilling to Knott End, opening in 1908. The line, however, had little success and passenger transport was discontinued by 1930. On 1 January 1948, the line became part of British Railways London Midland Region (BR[LMR]) (Disused Stations 2021). The line however did not survive for long and goods service was terminated fully by 1963. The line was fully removed by 1966 (Figure 8). Only a few remnants of this can be identified in the present-day landscape, including ironwork stained wire fencing (Asset 42), with the lettering PATENT LIV F MORTONS. This refers to the company Francis Morton & Co, who operated an ironworks in Liverpool from 1853 to 1992 (Plate 3, Graces Guide 2021).
- 3.4.10 *Undated:* Through aerial photography, a low, featureless oval mound could be noted to the north-west of Pointer House Farm (Asset 1). Similarly, a former watercourse was noted at Bibby's Farm (Asset 2).

3.5 Site Visit

- 3.5.1 A site visit was undertaken on the 9th March 2021. All fields were accessible via Bourbles Lane at the time of the survey. The ponds in the northern area of the site are in use for fishing and also contain a duck pen (Plate 5). Parts of the south-western boundary of the field enclosing the ponds comprise a laid hedgerow (Asset 27), which may indicate that it is of historic date (Plates 7 and 8). The large, central field was completely fenced in with a high fence and enclosed several smaller pens within (Plates 10 to 12). All these features are of a modern date.
- 3.5.2 The large fields to the south and south-west are currently in agricultural use for crops. The north to south aligned boundary, which will form part of the proposed access road, contained a mature laid hedgerow (Asset 18, Plate 9), which may indicate that they are of historic date. The fields are very flat in their landscape. They are surrounded by a drainage watercourse to the south and west, which had recently been cleared of sludge.
- 3.5.3 All fields to the east of Bourbles Lane are used as a grazing area for several horses. The northern fields are associated with Bourbles Farm, while the southern fields fall under



a different owner. The fields are predominantly very flat in their appearance, but dip down towards the east (Plate 17). A low bank could be observed at the eastern end of the fields, which may have been the remnants of an access ramp or former field boundary (Plate 15). Remnants of the former field boundary Asset 39 could be observed in the form of a low bank (Plate 16). A tree line forming the northern boundary of the eastern fields could be remnants of the historic boundary Asset 38 (Plate 14).

3.5.4 The southern boundary of these fields contained a high quantity of remains of a stained iron wire fencing (Asset 42), with the lettering PATENT LIV F MORTONS readable (Plates 18 to 20). The fence posts are in various condition from fair to poor. The fence is most likely associated with the former railway line which once formed the southern boundary.



4 DISCUSSION

4.1 Character of the Proposed Development

- 4.1.1 The site is set in a rural area with dispersed settlements surrounding it at the outskirts of Preesall. One part of the site had previously been used to extract sand, which created the ponds identified within the site.
- 4.1.2 It is proposed to undertake further extraction works in the fields adjacent to the former sandpits, which have been converted into ponds. It is estimated that as the proposed works will predominantly directly impact the assets within the site boundary, then the indirect impacts on heritage assets, such as effects on the setting, are not likely to be of more than low significance. It is assumed that the hedgerows around the perimeter of the site will not be impacted upon by the proposed scheme, or only slightly impacted upon.
- 4.1.3 Such a development will require groundworks, which could directly impact 30 identified heritage assets, as well as any additional as-yet unknown surviving subsurface archaeological remains. As details of the design are not known at this stage, the potential magnitude of impact upon these 30 heritage assets may be a loss, as it is likely to create a 'Loss of resource and/or quality and integrity of resource' and noticeably change the setting (Appendix 1, Table 2).

4.2 Designated Heritage Assets in Proximity of Proposed Development

4.2.1 The site is not considered to contribute towards the setting or significance of any designated heritage asset, and as such will not result in harm to any designated heritage asset.

4.3 **Non-Designated Heritage Asset**

4.3.1 A total of 42 known non-designated heritage assets have been identified within the study area. Of these, a total of 30 are at risk of direct impact from the proposed development, although this number is dependent on the detail of the design, and on sub-surface survival of as-yet unknown features. They are features associated with the former railway line (Asset 7 and 42) and historic hedgerows respecting boundaries depicted on historic tithe maps (Assets 14-41), of which three are potentially still present (Assets 18, 27, 30) and may be protected under Hedgerow Regulations 1997 (DEFRA 1997). These three heritage assets would be considered to be of Medium significance (Appendix 1, Table 1). The remaining heritage assets are of Low significance (Appendix 1, Table 1).



- 4.3.2 Of the remaining 12 heritage assets at risk, ten heritage assets would be considered of low significance (Appendix 1, Table 1). Of these heritage assets, four can be considered as upstanding heritage assets, comprising Bourbles Farm and Barn (Assets 9 and 10), Tongues Farm (Asset 3) and the former Poor Hall (Asset 13).
- 4.3.3 The remaining assets are findspot sites (Assets 8, 11 and 12), and therefore of negligible significance (Appendix 1, Table 1). The sub-surface remains of unknown heritage assets may also be affected by the Scheme.

4.4 Significance of Impact

- 4.4.1 For three heritage assets which could be considered to be of Medium significance and have been identified as at risk of impact (Assets 18, 27, 30), a major magnitude of impact will result in a 'moderate to large' impact on heritage significance (Appendix 1, Table 3). As the field boundaries are on the outskirts of the site boundary, it is unlikely that they are fully being destroyed, thus the magnitude of impact could be scaled down to 'minor' (Appendix 1, Table 2), the magnitude of impact would be 'slight' (Appendix 1, Table 3). It is likely that this may require some form of mitigation, dependent on advice from the Local Planning Authority archaeologist.
- 4.4.2 For the 27 heritage assets of low significance within the site boundaries, comprising former hedgerows and the features associated with the railway line (Assets 7, 14-17, 19-26, 28, 29, 31-42), a major magnitude of impact will result in a 'slight to moderate' impact (Appendix 1, Table 3), which may require low level of mitigation (Appendix 1, Table 3).
- 4.4.3 For the four upstanding assets of the remaining ten heritage assets of low significance outside of the site boundaries (Assets 3, 9, 10, 13), a minor magnitude of indirect impact upon their setting will result in a 'neutral to slight' impact (Appendix 1, Table 3).
- 4.4.4 For the remaining heritage assets of low significance (Assets 1,2, 4-6, 9) and the assets of negligible significance (Assets 8, 11, 12), there would be a 'no change' magnitude of impact, which would result in a 'neutral' impact (Appendix 1, Table 3).

4.5 **Summary of Impacts**

4.5.1 The proposed scheme within the site will involve significant groundworks to create the required extraction infrastructure and during the removal of the sand and gravel. These groundworks will remove both known and potentially unknown archaeological remains, which comprise predominantly former field boundaries, which are of low



- significance. Removal of archaeological deposits will be permanent and irreversible. No significant archaeological remains have been identified within the site and based upon the currently available information the site is considered to have a low potential to contain significant archaeological remains.
- 4.5.2 The proposed works may have a minor adverse impact upon the setting of the upstanding heritage assets in close proximity of the site, especially Bourbles Farm and Bourbles Farm Barn, both of which originate from the late 19th century and are of low significance.
- 4.5.3 This research has shown that the site predominantly had been in agricultural use for the last 200 years. Known finds in the surrounding area show a low potential of archaeology. In addition, many elements of this landscape have been impacted upon by the development and dismantlement of the railway line, as well as subsequent merging of fields in the course of agricultural modernisation. As a result, there is some limited potential for surviving as-yet unknown archaeological remains to be impacted by the proposed works. The potential for significant impacts on heritage assets is much reduced.



5 BIBLIOGRAPHY

5.1 **Primary Sources**

Plan of the District consisting of the whole of the Township of Preesall with Hackensall in the Parish and County of Lancaster 1839

Plan of the District of Pilling Lane in the Township of Preesall with Hackensall, in the Parish of Lancaster and County Palatine of Lancaster 1847

First Edition Ordnance Survey Map 1848 (6 inch to 1 mile)

First Edition Ordnance Survey Map 1892 (25 inch to 1 mile)

Second Edition Ordnance Survey Map 1912 (25 inch to 1 mile)

Third Edition Ordnance Survey Map 1932 (25 inch to 1 mile)

Ordnance Survey Map, 1966 (1:2500 scale)

5.2 **Secondary Source**

Bassetlaw District Council 2011, A Guide to Heritage Impact Assessments

CIfA 2020, Standard and guidance for historic environment desk-based assessment, CIfA: Reading

DEFRA 1997, The Hedgerow Regulations 1997: A Guide to the Law and Good Practice, Department of the Environment, Transport and the Regions: London

Highway Agency 2020, Design Manual for Roads and Bridges LA104 (rev 1), August 2020

Historic England 2008, Consultation principles for the sustainable management of the historic environment

Historic England 2015, The Setting of Heritage Assets, English Heritage: London

Historic England 2017, *Understanding Place: Historic Area Assessments in a Planning and Development Context*, English Heritage: Swindon

Historic England 2017b, Consultation principles for the sustainable management of the historic environment consultation draft

Historic England 2019, Statements of Significance: Analysing Significance in Heritage Assets Historic England Good Practice Advice in Planning Note 12

Historic England, Valuing Places: Good Practice in Conservation Areas, Historic



England: Swindon

Lancashire County Council 2017, Lancashire Historic Landscape Characterisation

MHCLG 2019, *National Planning Policy Framework (NPPF)*, Ministry of Housing, Communities and Local Government: London

Wyre Council 2019, Wyre Local Plan (2011-2031), Wyre Council

Internet Sources

BGS 2021, https://mapapps.bgs.ac.uk/geologyofbritain/home.html, British Geological Survey map viewer, accessed 5th March 2021

Disused Stations 2021, http://www.disused-stations.org.uk/p/preesall/index2.shtml, accessed 8th March 2021

Graces Guide 2021, https://www.gracesguide.co.uk/Francis_Morton_and_Co, accessed 10th March 2021

National Heritage List (NHL) 2021, https://historicengland.org.uk/listing/the-list/, accessed 5th March 2021



APPENDIX 1: HERITAGE IMPACT ASSESSMENT TABLES

In ascribing levels of **importance** to heritage assets, the Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Highways England 2019) has been used, see Table 1 below.

The **magnitude of impact** is measured from the condition that would prevail in a 'do nothing' scenario and it is assessed without regard to the importance of the receptor (Highways England, 2019).

The worst magnitude of impact would be Loss of resource and/or quality and integrity of resource and severe damage to key characteristics, features, or elements.

In ascribing the magnitude of impact, guidance presented in the Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Highways England 2019) has been used, see Table 2 below.

The **significance of impact** is devised by cross referencing the importance of the receptor with the magnitude of the impact, see Table 3. In some cases, the significance of impact is shown as being one of two alternatives. In these cases, a single description should be decided upon with reasoned judgement for that level of significance chosen.

Table 1: Establishing the importance of a heritage asset

Value (sensitivity)	Typical description
Very High	Very high importance and rarity, international scale and very limited potential for substitution
High	High importance and rarity, national scale, and limited potential for substitution
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution.
Low	Low or medium importance and rarity, local scale
Negligible	Very low importance and rarity, local scale

Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Highways England 2019)



Table 2: Establishing the magnitude of impact

Magnitude (change)	of impact	Typical description
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features, or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features, or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features, or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality, or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features, or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features, or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features, or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features, or elements.
No change		No loss or alteration of characteristics, features, or elements; no observable impact in either direction.

Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Highways England, 2019)

Table 3: Establishing the significance of impact

	Very	Neutral	Slight	Moderate/large	Large or very	Very large
	High				large	
a	High	Neutral	Slight	Slight or	Moderate or	Large or very
Value/Importance				moderate	large	large
port	Medium	Neutral	Neutral/slight	Slight	Moderate	Moderate or
m/i						large
alue	Low	Neutral	Neutral or	Neutral or slight	Slight	Slight or
>			slight			moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or	Slight
					slight	
		No change	Negligible	Minor	Moderate	Major
			N	lagnitude of impa	ct	

Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Highways England, 2019



Table 4: Significance categories

Significance Category	Typical Description
Very large	Effects at this level are material in the decision-making process.
Large	Effects at this level are likely to be material in the decision-making process.
Moderate	Effects at this level can be considered to be material decision-making factors.
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring (Highways England, 2019)



APPENDIX 2: GAZETTEER OF HERITAGE ASSETS

The table below summarises known heritage assets within the 1km buffer study area and includes assets from Lancashire County Council's Historic Environment Record (CCC HER), PastScape (PS) and National Heritage List England (NHLE) Historic England web resources. The locations of all known heritage assets are shown in Figure 3 as dots for ease of reference, except the railway line and field boundaries, which are shown as linear features.

Asset	Reference	Site Name	Period	Description	Grid Reference	Significance
No.						
1	PRN3009	West north west of Pointer House Farm, Lancaster Road, Preesall	Undated	The photograph shows up a low featureless oval mound, located west-north-west of Pointer House Farm. {3}{4}	337530,447329	Low
2	PRN3742	Bibby's Farm, Preesall	Undated	Former watercourses, covering an area east - west of 0.8km, and north - south of 0.4km. The area is now heavily drained	337900,448050	Low
3	PRN5473	Tongues, Tongues Lane, Preesall	Pre-1848	A farmstead and well is marked on the OS first edition 1:10,560 map	337386,448346	Low
4	PRN5474	Pointer House, Lancaster Road, Preesall	Pre-1848	A well is marked on the OS first edition 1:10,560 map at Pointer House Farm	337730,447249	Low
5	PRN5475	Nr Crossing Cottage, Pilling	Pre-1848	A well is marked in a field on the OS first edition 1:10,560 map, 1848, south of Crossing Cottages	338410,447370	Low
6	PRN5476	Holmes Farm	Post- medieval	A well is shown at Holmes Farm on the Os first edition 1:10,560 map	338490,448079	Low



Asset	Reference	Site Name	Period	Description	Grid Reference	Significance
No.						
7	PRN10616	Garstang and Knott End	Post-	In 1864 it was decided to construct the line from the junction with	Centred	Low
		Railway	medieval	the LNWR line only as far as Pilling, and not Knott End. The line	342674,446824	
			to modern	was opened in 1870. In August 1898, the Knott End Railway		
				Company was formed for the purpose of extending the line from		
				Pilling to Knott End. This company bought out the original		
				company in spring 1908 but the original name was retained. The		
				line to Knott End opened July 1908		
8	PRN18839	Preesall Hill Findspot	Roman	A find of Roman coins was made on Preesall Hill in 1934	336851,447257	Negligible
9	PRN25217	Bourbles Farm Barn,	Undated	OAN carried out building recording of the barn prior to its	337863,447751	Low
		Preesall		conversion to domestic use. The building is of red brick in an		
				English Garden Wall Bond and the roof is of corrugated asbestos,		
				supported by a seven-bay arrangement of trusses. The barn was		
				constructed in the 1880's		
10	PRN25218	Bourbles Farm Barn,	Victorian	Bourbles Barn is shown on the 1895 OS map and was likely to	337863,447751	Low
		Preesall		have been constructed during the later nineteenth century. On		
				the 1895 map, the barn originally formed the northern side of an		
				enclosed courtyard farmstead. The two buildings connecting the		
				barn to the house have since been demolished. It is likely the barn		
				was used for the processing and storage of crops and the eastern		
				room might have been for stabling horses. The threshing floor		
				would have been at the centre of the building		
11	PRN31880	Preesall Pottery Findspot	Post-	Five pottery sherds of post-medieval household ware, 1600-1800	337950,447239	Negligible
			medieval			
12	PRN31976	Preesall Coin Findspot	Elizabethan	Sixpence of Elisabeth I (1564) Portable Antiquities Scheme find	336999,446999	Negligible



Asset	Reference	Site Name	Period	Description	Grid Reference	Significance
No.						
13	PRN39945	Poor Hall, Cart Gate,	Pre-1848	Structure, perhaps squatters' cottages or a poor house, shown on	337096,447194	Low
		Preesall		OS 1848 mapping. Said to be a 'poor house' (i.e. a		
				workhouse) but the evidence for this is not given		
14		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
15		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
16		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
17		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
18		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Medium
				1839, still visible in 2010		
19		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
20		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
21		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
22		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
23		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		



Asset	Reference	Site Name	Period	Description	Grid Reference	Significance
No.						
24		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
25		Field Boundary	Pre-1839	Field Boundary noted on the Preesall with Hackensall Tithe Map		Low
				1839, still visible in 2010		
26		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
27		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Medium
28		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
29		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
30		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Medium
31		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
32		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
33		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
34		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
35		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
36		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
37		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
38		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
39		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
40		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
41		Field Boundary	Pre-1847	Field boundary noted on the Pilling Lane Tithe Map 1847		Low
42		Ironwork Fencing	c1890s-	Remains of Strained Wire Fencing, with the lettering 'PATENT LIV		Low
			1910	F MORTONS', most likely associated with the railway line		



APPENDIX 3: PLATES

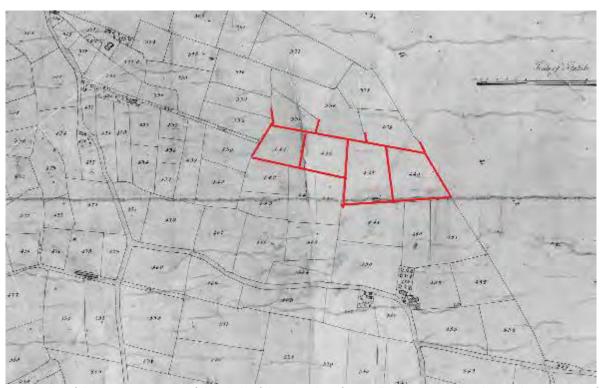


Plate 1: Plan of the District consisting of the whole of the Township of Preesall with Hackensall in the Parish and County of Lancaster 1839, field boundaries of site highlighted in red

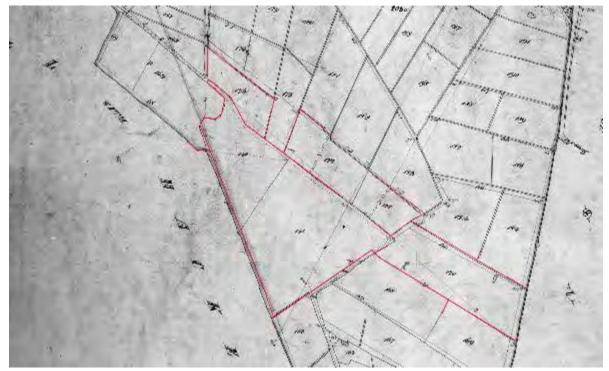


Plate 2: Plan of the District of Pilling Lane in the Township of Preesall with Hackensall, in the Parish of Lancaster and County
Palatine of Lancaster 1847, field boundaries of site highlighted in red





Plate 3: Advert from F Mortons 1896, wire fencing displayed matches remnants observed (Asset 42)



Plate 4: Google Earth image 2010, showing presence of former field boundaries





Plate 5: view south-east towards ponds



Plate 6: Steps towards pond





Plate 7: Laid hedgerow to the south-west of the ponds (Asset 27)



Plate 8: Laid hedgerow to the south-west of the ponds (Asset 27)





Plate 9: Potentially historic hedgerow (Asset 18) at location of proposed access road



Plate 10: Fenced in field in centre of site looking east





Plate 11: Fenced in field in centre of site looking north



Plate 12: Fenced in field in centre of site looking south-west





Plate 13: Laid hedge and water course to south of central field (Asset 30)



Plate 14: tree line to the north of eastern fields along Asset 38





Plate 15: low bank in eastern fields, potentially former access ramp to neighbouring field



Plate 16: Low bank in eastern fields, potentially remnants of Asset 39





Plate 17: View east across eastern fields



Plate 18: Remnants of wire fence (Asset 42)





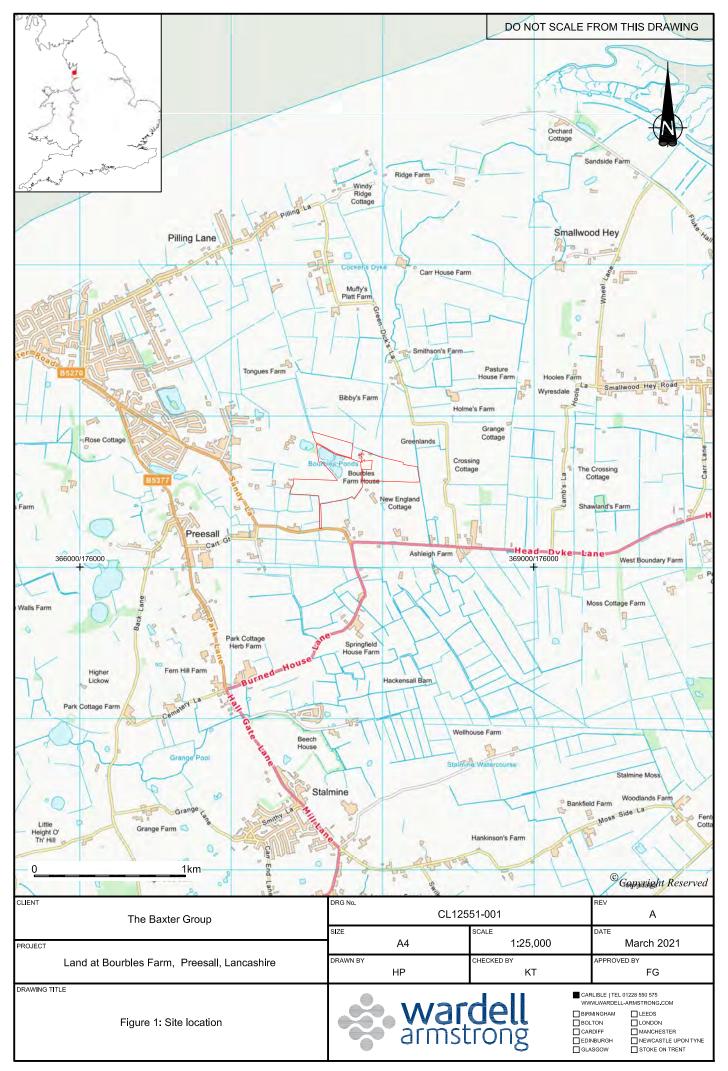
Plate 19: Detail of wire fence post, with PATENT LIV F MORTONS

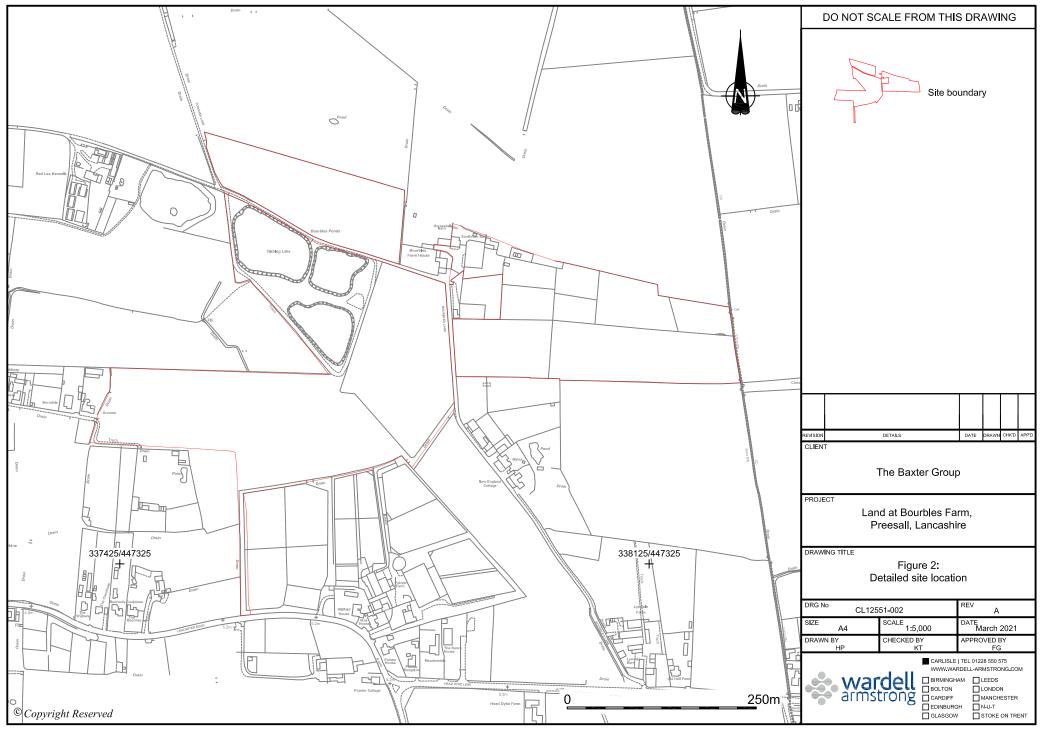


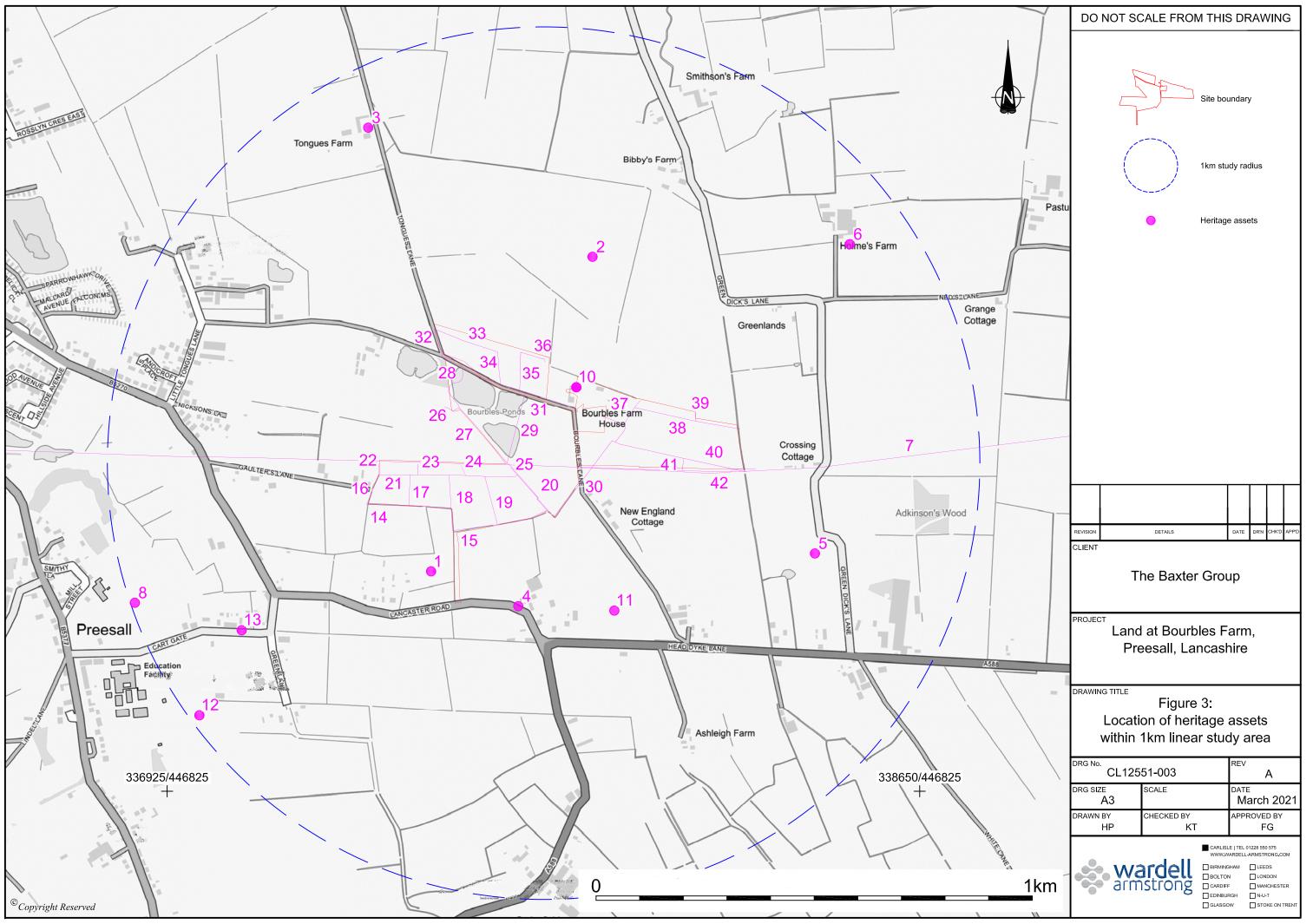
Plate 20: Detail of wire fence post, with PATENT LIV F MORTONS

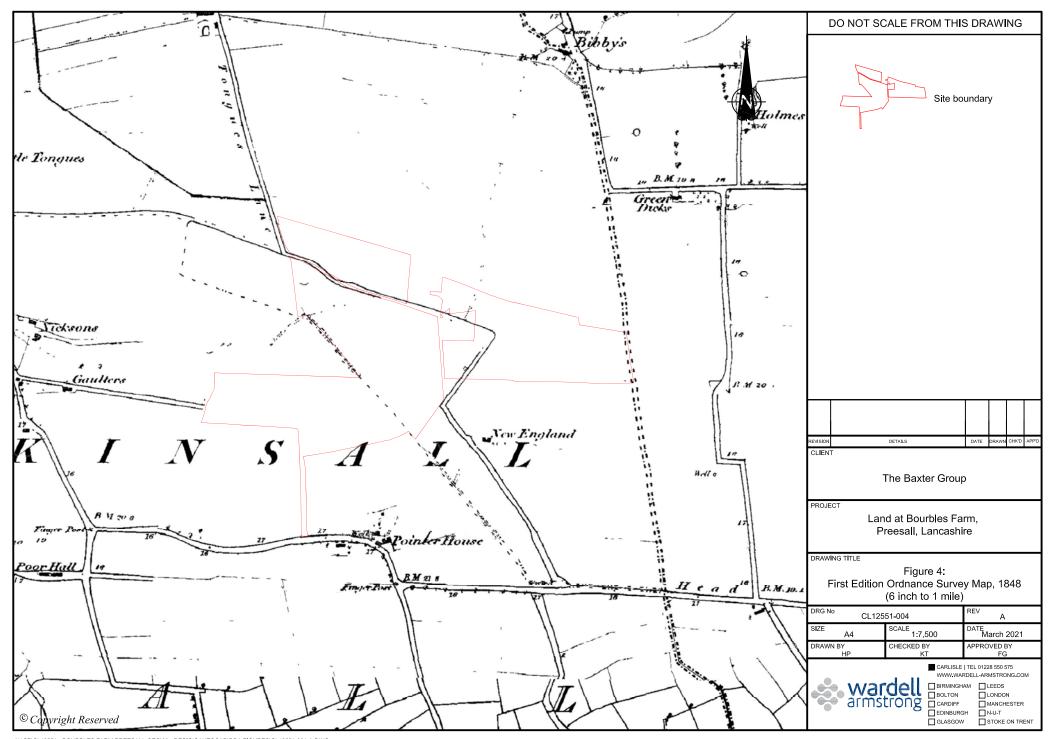


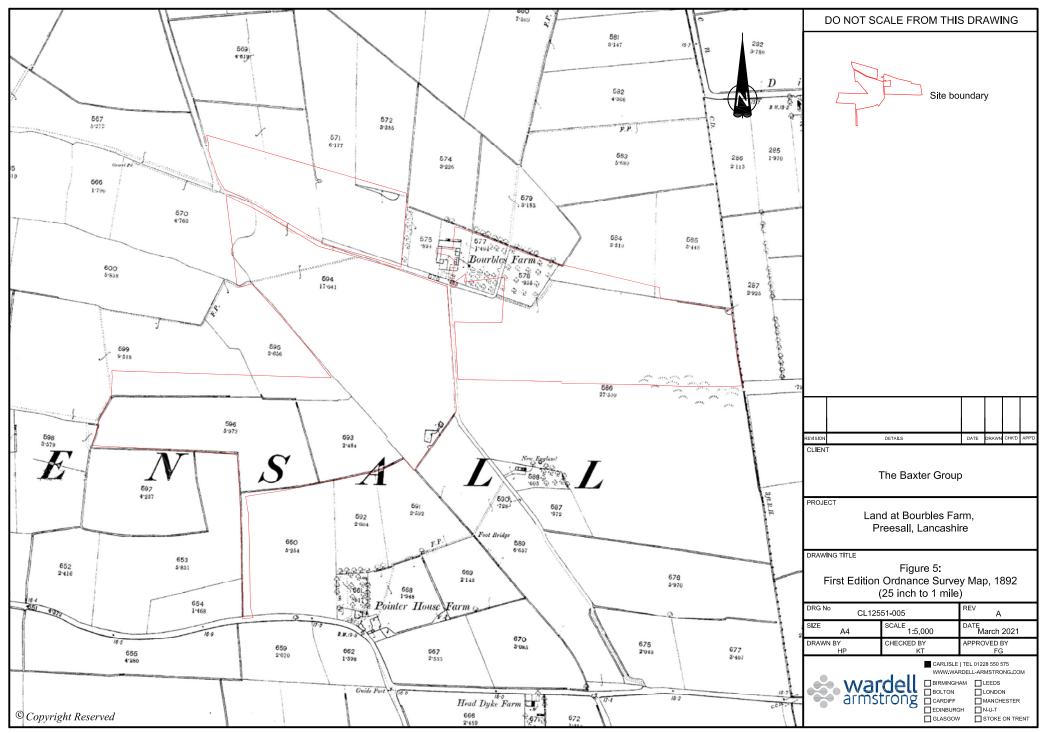
APPENDIX 4: FIGURES

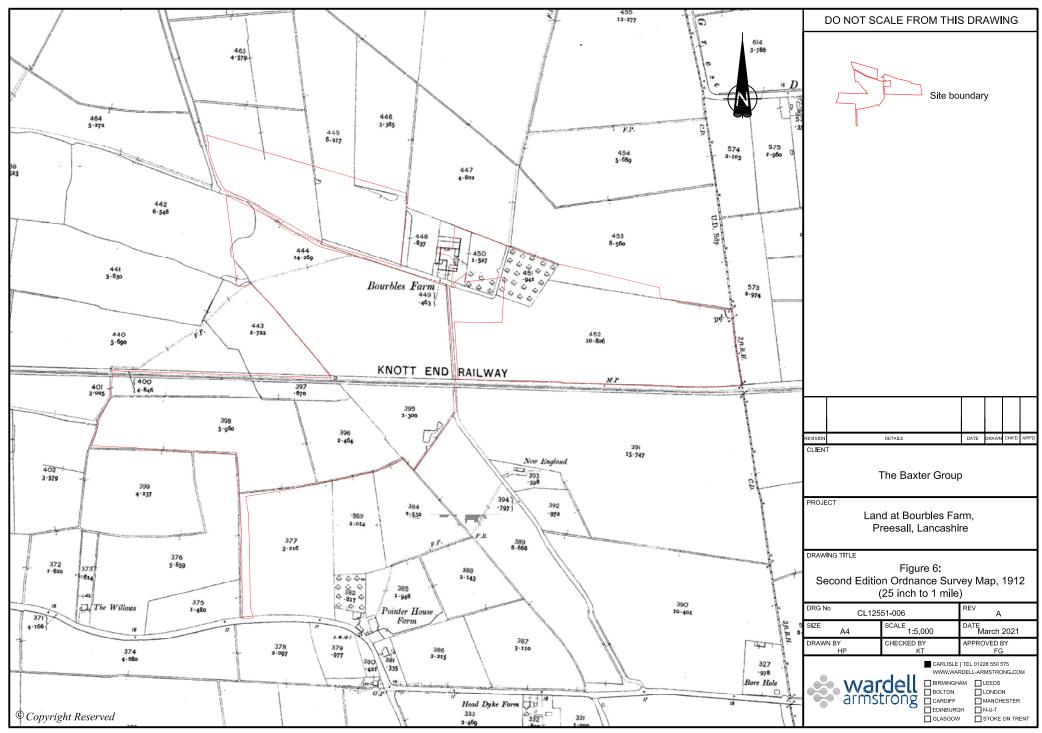


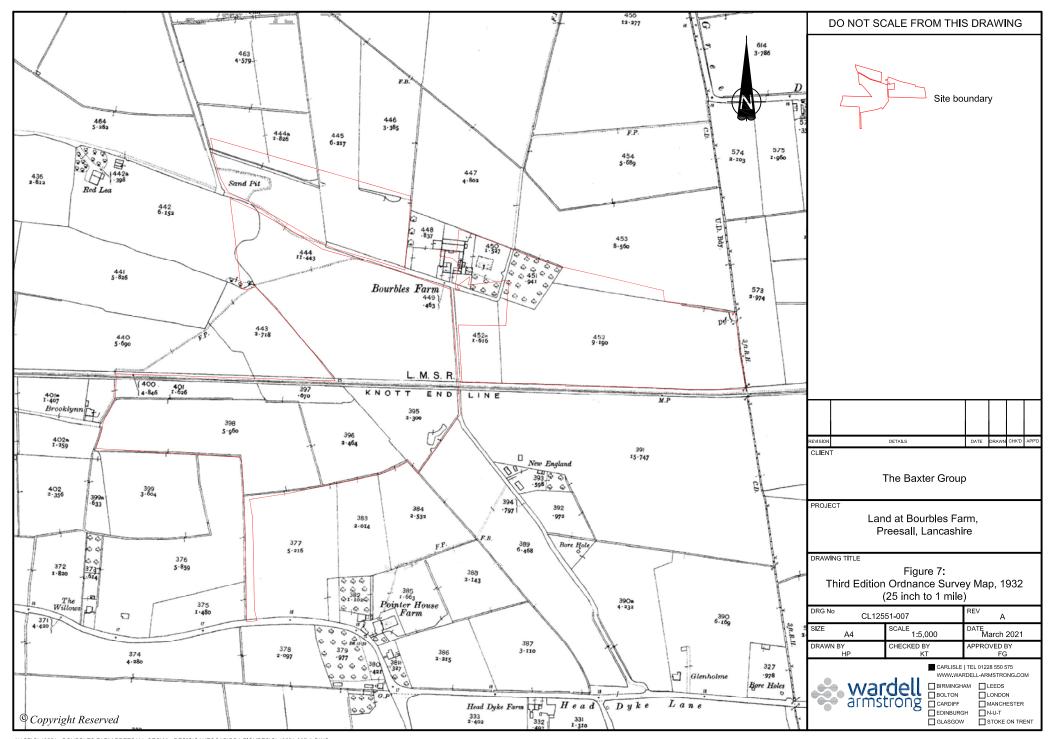


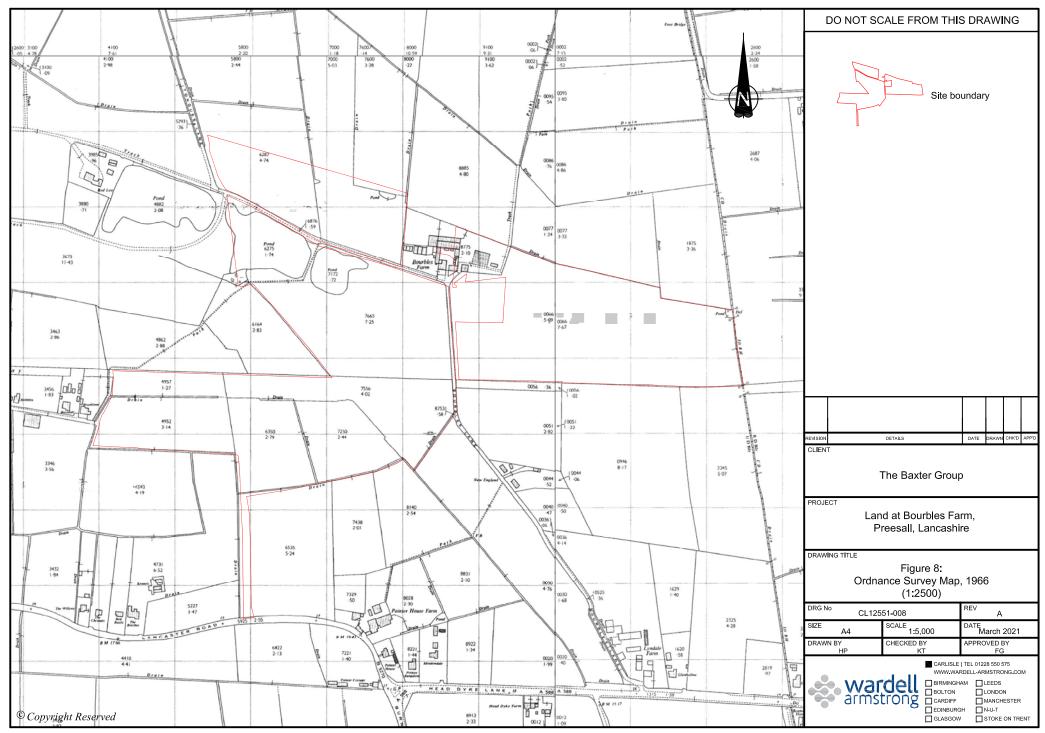












wardell-armstrong.com

STOKE-ON-TRENT

Sir Henry Doulton House Forge Lane Etruria Stoke-on-Trent ST1 5BD Tel: +44 (0)1782 276 700

BIRMINGHAM

Two Devon Way Longbridge Technology Park Longbridge Birmingham B31 2TS Tel: +44 (0)121 580 0909

BOLTON

41-50 Futura Park Aspinall Way Middlebrook Bolton BL6 6SU

Tel: +44 (0)1204 227 227

CARDIFF

Tudor House 16 Cathedral Road Cardiff CF119LJ Tel: +44 (0)292 072 9191

CARLISLE

Marconi Road **Burgh Road Industrial Estate** Carlisle Cumbria CA2 7NA Tel: +44 (0)1228 550 575

EDINBURGH

Great Michael House 14 Links Place Edinburgh EH6 7EZ Tel: +44 (0)131 555 3311

GLASGOW

2 West Regent Street Glasgow G2 1RW Tel: +44 (0)141 433 7210

LEEDS

36 Park Row Leeds LS1 5JL Tel: +44 (0)113 831 5533

LONDON

Third Floor 46 Chancery Lane London WC2A 1JE Tel: +44 (0)207 242 3243

MANCHESTER

76 King Street Manchester M2 4NH Tel: +44 (0)161 817 5038

NEWCASTLE UPON TYNE

City Quadrant 11 Waterloo Square Newcastle upon Tyne NE1 4DP Tel: +44 (0)191 232 0943

TRURO

Baldhu House Wheal Jane Earth Science Park Baldhu Truro TR3 6EH Tel: +44 (0)187 256 0738

International offices:

ALMATY

29/6 Satpaev Avenue Regency Hotel Office Tower Almaty Kazakhstan 050040 Tel: +7(727) 334 1310

MOSCOW

21/5 Kuznetskiy Most St. Moscow Russia Tel: +7(495) 626 07 67

