

9 Archaeology and Cultural Heritage

9.1 Introduction

- 9.1.1 This chapter of the Environmental Statement ("ES") considers the effects of the Proposed Development on archaeology and cultural heritage within and surrounding the site, in order to identify opportunities to minimise damage to, or enhance, the significance of historic assets. The assessment considers direct effects on known heritage assets and potential heritage assets, including buried remains, whether soil deposits, features, artefacts or environmental evidence.
- 9.1.2 The baseline situation is considered before the likely environmental effects of the proposed development on the heritage assets are identified. Mitigation measures to reduce any adverse environmental effects are identified as appropriate, before the residual environmental effects are assessed.
- 9.1.3 This chapter has been prepared by Jim Bonnor, MCIfA, of Prospect Archaeology Limited ("Prospect Archaeology"). Prospect Archaeology has collaborated in the production of numerous Environmental Impact Assessments. Jim Bonnor has worked in professional development led archaeology for over thirty years and has been responsible for writing and providing critical input into ES chapters for a number of large residential developments and major cross-country infrastructure projects.
- 9.1.4 Physical limitations to the assessment comprised restricted access to parts of the site which have been reflected in the considerations below.
- 9.1.5 Assessment of significance carries an intrinsic level of subjectivity. Where an element of choice is shown, this is intended to permit a level of professional judgement with respect to individual assets within what is otherwise an overly mechanistic process.

9.2 Assessment Approach

Methodology

- 9.2.1 The assessment of existing conditions has been considered through a desk-based assessment (Appendix 9.1) of a study area extending 1000m from the boundary of the proposed development, a heritage statement for a designated milepost on Barugh Green Road (Appendix 9.2) and a geophysical survey (Appendix 9.3).
- 9.2.2 Information on heritage assets from various sources was compiled from within this study area - a full list of referenced sources is provided in Section 9.12. Staff at the South Yorkshire Historic Environment Record (HER) gave advice and information about known heritage assets of interest in the vicinity of the study area, and where relevant, these were further investigated. Relevant primary and secondary sources were consulted at the Barnsley Archives and Local Studies Centre Service (BALS) and the Sheffield City Archives Service (SCAS) Additional sources consulted included:
- information available on a variety of internet sites including, The National Archives (<http://discovery.nationalarchives.gov.uk/>) and the Archaeology Data Service (<http://ads.ahds.ac.uk/>); the Heritage Gateway (www.heritagegateway.org.uk); and data from PastScape (www.pastscape.org.uk).

- cartographic sources held by the Ordnance Survey and Promap (www.promap.co.uk);
- A site visit was undertaken by Jim Bonnor.

9.2.3 The historical development of the site has been established through reference to these sources and is described in the Baseline Conditions section of this report. This has been used to identify areas of potential heritage interest. Each area of heritage potential has been assessed for its archaeological significance in geographical terms.

9.2.4 The methodology conforms the requirements of the Chartered Institute for Archaeologists Guidelines on Desk-based Assessments (CIfA 2014). A full methodology for the assessment along with the results is provided in Appendix 9.1.

9.2.5 A heritage statement was also prepared to accompany a planning application for the construction of the roundabout on Barugh Green Road (A635), which included all necessary mitigation proposals for the listed milepost (receptor F).

9.2.6 Detailed Magnetometer survey was undertaken on selected areas agreed with South Yorkshire Archaeology Section (SYAS). A total of c.46 hectares of the Site was surveyed, representing those areas considered to be unaffected by previous opencast coal mining. A proportion of the survey overlapped with supposed former opencast areas to confirm their extents. A detailed methodology for the survey is provided in Appendix 9.3.

Assessment Criteria

9.2.7 For the purposes of the Environmental Impact Assessment (EIA) the aim and scope of this assessment has been to examine all readily available archaeological and historic sources in order to:

- Describe the survival and extent of known or potential heritage/archaeological features that may be affected by the proposals.
- Provide an evaluation of their significance.
- Assess the likely scale of direct and indirect impacts, both construction and operational, arising from the proposals.
- Outline suitable mitigation measures to avoid, reduce or remedy adverse impacts.
- Provide an assessment of any residual impacts that may remain after mitigation.

Significance Criteria

9.2.8 Each area of heritage potential has been assessed for its archaeological significance in geographical terms (i.e. the heritage receptors' value/sensitivity), as defined in Table 9.1, although it should be noted that there is no statutory definition for these classifications:

Table 9.1 Archaeological Significance (Sensitivity)

Heritage Significance	Factors for assessing value of archaeological assets
International (Very High)	World Heritage Sites (including nominated sites). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives.
National (High)	Scheduled Monuments (including proposed sites), Listed Buildings Grade I and II*(some Grade II) Undesignated assets of schedulable quality and importance. Assets that can contribute significantly to acknowledged national research objectives.
Regional (Medium)	Designated or undesignated assets that contribute to regional research objectives.
Local (Low)	Designated and undesignated assets of local importance. Assets compromised by poor preservation and/or poor survival of contextual associations. Assets of limited value, but with potential to contribute to local research objectives.
Negligible	Assets with very little or no surviving archaeological interest.
Unknown	The importance of the resource has not been ascertained.

Impact Assessment

9.2.9 This assessment uses the baseline data to describe the survival and extent of heritage receptors that may be affected by the development proposals. The assessment has paid careful attention to the attribution of levels of significance to both potential heritage receptors and to potential effects arising from the development.

9.2.10 The determination of magnitude of impact is based on the degree to which the impact will affect the significance of an asset and includes the sensitivity or vulnerability of a site to change (for example, depth of alluvium, or the presence of made-ground), the nature of past development or management effects, and the differing nature of proposed development processes such as piling and topsoil stripping. The criteria for assessing the magnitude of impact are summarised in Table 9.2.

Table 9.2 Factors in the Assessment of the Magnitude of Impact - Heritage

Magnitude	Assessment criteria
Major	Change to most or all key archaeological materials, such that the resource is totally altered. Comprehensive changes to setting.
Moderate	Changes to many key archaeological materials, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset.
Minor	Changes to key archaeological materials, such that the asset is slightly altered. Slight changes to setting.
Negligible	Very minor changes to archaeological materials or setting.
No Change	No change.

Significance of Effects

9.2.11 This section sets out the method used in the EIA for assessing the potential significance of environmental effects for each receptor. The significance of potential environmental effects is determined by two variables:

- The value and/or sensitivity of the receptor (Archaeological Significance); and
- The magnitude of change.

9.2.12 The significance of the environmental effect is assessed using the matrix shown in Table 9.3 The significance of the archaeological receptor is correlated against the magnitude of the impact on that receptor, in order to determine whether the overall significance of the effect on the receptor will be neutral, negligible, minor, moderate or substantial.

Table 9.3 Significance of Effects Matrix

Magnitude of Impact		No Change	Negligible	Minor	Moderate	Major
Archaeological Significance	Very High	No Effect	Moderate	Substantial	Substantial	Substantial
	High	No Effect	Minor	Moderate	Major	Substantial
	Medium	No Effect	Negligible	Minor	Moderate	Substantial
	Low	No Effect	Negligible	Negligible	Minor	Moderate
	Negligible	No Effect	Negligible	Negligible	Negligible	Minor

9.2.13 Depending on the nature of the change, the significance of the effect on the environment can range from adverse to beneficial (Table 9.4) and be of a defined duration (Table 9.5). For instance, the loss of archaeological remains is always classed as adverse, while the interpretation or conservation of an extant archaeological feature might be seen as beneficial.

9.2.14 The assessment is then repeated once the proposals to mitigate the impact have been put in place to identify the significance of any residual effects.

Table 9.4 Significance of Effect

Effect Assessment	Definition
Substantial Adverse	The development fails to satisfy the subject environmental objective and results in a major deterioration of the environmental context
Moderate Adverse	The development partly satisfies the subject environmental objective but fails to contribute to the environmental context
Minor Adverse	The development partly satisfies the subject environmental objective but fails to fully contribute to the environmental context
Negligible/neutral	The development satisfies the subject environmental objective but neither contributes to nor detracts from the environmental context

ENVIRONMENTAL STATEMENT

Archaeology and Cultural Heritage

Effect Assessment	Definition
Minor Beneficial	The development satisfies the subject environmental objective and contributes to the environmental context
Moderate Beneficial	The development satisfies the subject environmental objective and contributes to the environmental context
Substantial Beneficial	The development satisfies the subject environmental objective and results in a major contribution to the environmental context

Table 9.5 Duration of Impact

Duration	Definition
Short Term	The effects would be of short duration and would not last more than 2-5 years from the commencement of the works
Medium Term	The effects would take 5-15 years to be mitigated
Long Term	The effects would be reasonably mitigated over a long period of time (15 years or more)
Permanent	The effects would be permanent

Scoping

9.2.15 The general approach to the assessment of archaeological potential was discussed with SYAS. SYAS commented that:

The ES will need to establish with a degree of certainty those areas which have been open cast and those that haven't. This will help us scope out of any further investigation those areas with negligible archaeological potential. A programme of geophysics will be useful in this regard providing a solid evidence base to support the desk-based research.

Once completed, we will need to review all the evidence and I am hopeful that large areas can be scoped out of further work. For the remaining areas, a programme of trial trenching will be required to characterise the significance of any heritage assets. The exact timing of this work will need to be considered but it is highly likely that this will be required prior to determination.

9.2.16 Requirements for the relocating and renovation of the listed milepost (NHL1151794) on Barugh Green Road were discussed with the Conservation Officer for Barnsley Metropolitan Borough Council (BMBC). It was agreed that removal and relocation of the listed milepost was acceptable subject to a programme of conservation being carried out on the milepost in accordance with a methodology to be agreed with BMBC. These works were subsequently secured by conditions on planning permission 2020/0027.

9.2.17 Section 10.12 of the scoping report (Pegasus 2021) identifies that indirect impacts on all designated assets – listed buildings, conservation areas – are scoped out of the EIA. Informal verbal consultation with the BMBC Conservation Officer identified this intention and no further comment was received.

9.3 Baseline Conditions

Site Description

9.3.1 The site is approximately 116 hectares of agricultural land, between the settlements of Gawber, Pogmoor and Barnsley to the east, Barugh Green to the north, Higham to the west and the M1 motorway to the south. Hermit Lane runs northeast-southwest across the middle of the site. The land to the north is principally arable. To the south of Hermit Lane the site is mostly pasture with some arable close to the M1 and to Pogmoor. Hermit House Farm lies just south of the lane in the centre of the site. Boundaries are principally post and wire or hedgerows.

9.3.2 A stream – un-named, but presumably the Redbrook – flows along the eastern edge of the site, fed by a watercourse rising within the site to the south of Hermit Lane. A second watercourse runs north of the Lane through Craven Wood and has a pond at its head adjacent to the lane close to Hermit House Farm.

Geology and Topography

9.3.3 To the south of Hermit Lane the site is gently undulating, cut by watercourses/drains, though generally falling from the southeast. Adjacent to the motorway it stands at c.155m OD, falling toward the lane, at its lowest being c.105m OD.

9.3.4 North of the lane the site appears relatively flat, though still falls from the southwest at c.138m OD toward the Dearne valley to the northeast, at c.83m OD.

9.3.5 The site lies on Pennine Middle Coal Measures Formation with no recorded superficial deposits (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>). Coal Authority sections show the subsoil as yellow clay. According to the Coal Authority interactive map (<http://mapapps2.bgs.ac.uk/coalauthority/home.html>), large areas of the site have been subject to surface mining. Mine entries are also recorded around Redbrook, Hermit House Farm and west of Pogmoor (Fig. 9.1).

Historic Assets

9.3.6 Historic assets have been differentiated into designated assets – those afforded a level of legal protection, and undesignated assets. These are discussed below and represented on Figure 9.1 and Tables 9.6 and 9.7.

Designated Assets

9.3.7 There are five designated assets within the study area, all listed grade II structures. The closest of these is a milepost (NHL1151794), which sits on the Barugh Green Road (A635).

9.3.8 Another milepost is located 400m to the northeast (NHL1151764) on the A637 on the far side of the Claycliffe Business Park. A third milepost is located on the eastern edge of the study area (NHL1151771) on the Wilthorpe Road stretch of

the A635 and a fourth (NHL 1191519) is located almost 600m southeast of the study area on the A628.

- 9.3.9 The final designated asset is a barn attached to the side of Royd Hill Farmhouse (NHL1151770) 400m to the east on the far side of Higham.

Table 9.6 Designated Assets within 1000m

NHL No	Name / description	Grade
1151764	Milepost	II
1151770	Barn	II
1151771	Milepost	II
1151794	Milepost	II
1191519	Milepost	II

Undesignated Assets

Prehistoric Period (10,000BC – 43AD)

- 9.3.10 There are no known prehistoric assets within the site. An unspecified number of 'Mesolithic type' flints (HER581/01) were found from a broad location on high ground in the area of the Silkstone Golf Course to the west of the site. Eight hundred metres to the east of this asset, area excavation revealed an enclosure (HER5339) at Capitol Park. The enclosure was associated with a ring of fence posts and several pits. Though no dating evidence was recovered it was thought the features were likely to be prehistoric.

Roman Period (43AD to 410AD)

- 9.3.11 Just over 600m to the north of the site is HER4811, a D-shaped enclosure and associated field systems identified from aerial photographs and subsequent geophysical survey, which also revealed evidence for industrial activity within, and almost certainly, extending to the south. The dating of these features to the Roman period is based upon only a few pieces of pottery and there could be a prehistoric element to this asset.
- 9.3.12 In addition, two Roman coins (HER4134/01) have been found almost 900m to the east of Redbrook Farm, although the location is not certain. Both coins were of bronze, and datable to AD 270-3.

Early Medieval & Medieval (5th – 16th centuries)

- 9.3.13 There are no known Early Medieval assets within the site although the township boundaries between Dodworth/Barugh/Barnsley may date this early (Sykes, S, 1993) (Fig. 2). Most of the site lies within the township of Barugh, historically in the parish of Darton, and lies between the settlements of Higham and Gawber. To the south, parts of the site lie in the townships of Barnsley and Dodworth, historically within the parish of Silkstone.

- 9.3.14 Barugh is mentioned in the Domesday survey, as a very small settlement within the lands of Ilbert de Lacey and Darton is also mentioned as a very small holding under the same lord: neither Higham nor Gawber are mentioned. Higham is mentioned in 1271 (Smith, A.H, 1961) and may take its name from its topographical position on relatively higher ground; from the old English elements *haeh*, meaning a high place and *ham* meaning homestead/settlement. Gawber appears as Galgabergh in 1304 and derives from the Old English elements *galga*, a gallows, and *beorg* meaning a hill (Mills, A.D, 1991). Similarly, Barugh derives from the Anglian *berg*, meaning a hill or tumulus. By contrast Barnsley and Dodworth both include personal name elements: Barnsley translating as Beorn’s wood/clearing and Dodworth as Dod’s enclosure (ibid.)
- 9.3.15 Barnsley was granted to the Clunaic priory of St, John at Pontefract in 1156 who established the market there (May, R, 2003). Land within Barugh belonging to Monks Bretton Priory is recorded in chartularies. The monks of St. Laurence of Rivesby also received 26 acres, two acres of which were used to erect ‘edifices’ (ASWYAS 2002). The name Hermit House may suggest a monastic connection. The name first appears in 1817 (Smith, A.H, 1961), though it is probable that the house is depicted on Jeffrey’s Map of 1775. Hermit Lane may also be a medieval route at its eastern end – the western end probably established when the common was enclosed.
- 9.3.16 There is documentary evidence to suggest 12-14th century activity to the southwest of the site in the location of Lane End or Lane Head Farms (HER5538). This farm (and Lane Side Farm to the northwest) is believed to have originated as a medieval ‘assarted’ farm, an area of woodland or common brought into cultivation, of which there were several in Dodworth (Sykes, S, 1993). Sykes points out that the field name ‘Royd’ is associated with assarting and this is attributed to a number of fields to the west and south of Redbrook Farm and north of Hermit House (Plan of Redbrook Farm, no date).
- 9.3.17 Ridge and furrow (HER4984) has been identified in the area of the Silkstone Golf Course to the west of the site.
- 9.3.18 Evidence for early coal mining in the area is limited to documentary references starting in the 14th century, notably around Elscar (Wain, K, 2014). No shafts or pits of this date are known within the study area.

Table 9.7 Undesignated Heritage Assets within 1km of the site

HER No.	Name / description	Period / date
340/01	Site of Gawber Hall	Post-medieval
581/01	Flint Finds	Mesolithic-Neolithic
1557/01	Timber Framed Barn	Post-medieval
2926/01	Site of Gawber Glasshouse	Post-medieval
2926/02	Gawber Glasshouse slag Heap	Post-medieval
3464/01	Barnsley Canal	Post-medieval
4134/01	Coins	Roman

HER No.	Name / description	Period / date
4136/01	Silver coin	Elizabethan
4594	Redbrook Linen Mill and Bleach Works	Post-medieval
4811	Cropmark field systems and enclosures	Iron Age/Roman
4984	Ridge and Furrow	Medieval
5538	Site of Lane Head Farm	Post-medieval
5539	Enclosure	Neolithic-Iron Age
5790	Shaft Mounds	Post-medieval

Post-medieval – Modern Periods (mid-16th – present)

- 9.3.19 Enclosure took place at different times within the three townships. Barnsley was enclosed around 1779, Dodworth, 1807 and Barugh around 1823, though piecemeal enclosure, particularly in Dodworth had accounted for much of the land prior to then and some of the landscape in this area may pre-date the Act (Sykes, S, 1993).
- 9.3.20 The Barugh Green Road was established as a turnpike in 1825, known as the Barnsley and Shepley Lane Head Turnpike road, under the management of the Shepley to Cawthorne Turnpike Trust. Designated milepost NHL1151794 is one of seven surviving mileposts along this road and dates to the mid-19th century.
- 9.3.21 The earliest physical evidence of coal mining is the area of bell pits and shaft mounds to the west of Higham (HER5790) dug between 1800 and 1806, but the expansion of the industry did not accelerate until suitable communications were in place (Wain, K, 2014). The Barnsley canal (HER3464/01), as opened in 1799, extended from the River Calder below Wakefield to the River Dearne at Hoyle Mill. An extension in 1802 connected the basin at Barugh where the tram road brought coal from Silkstone collieries (Trinder, B, 2013). As well as coal, the canal transported corn and limestone and remained profitable until 1942 (Hadfield, C, 1973.). The shaft at Redbook was sunk in 1903 as a ventilation and access shaft serving the Fenton seam. At Higham there was a pumping shaft. Higham is mentioned in 1860 when there was an explosion within the mine. Both were owned by Silkstone Colliery until it closed in 1987 (Taylor, W, 2001). There was also a cluster of shafts within the site to the west of Pogmoor and southwest of Hermit House Farm (Fig. 9.1).
- 9.3.22 Open cast coal mining is shown on the 1960s OS mapping. Information from the Coal Authority shows the full extent of the workings both north and south of Hermit Lane. The workings south of Hermit Lane were known as Hunters Cottage (working between 1945 and 1950) and Hunters Cottage Extension (worked 1954-6), thus neither area south of the Lane appears on OS historic mapping. There is an area directly north of Hermit House Farm shown as opencast on the 1960s mapping, but this does not appear on the information from the Coal Authority. There is also some doubt about the extents of the opencast workings in the area around Drury Spring wood due to a discrepancy between the archaeological evidence (see section 9.5.4), the cartographic evidence (see section 9.4.13) and information from the Coal Authority which suggests some pre-opencast landscape features may survive in this area.

- 9.3.23 Other industry in the area included the Redbrook Linen Mill and Bleach Works (HER4594). This dates to the latter part of the 18th century. The works used water from the Redbrook and its tributary, stored in a series of dammed ponds, one of which still survives within the site (Appendix 9.1 - Plate 16). Archaeological evaluation on the site of the former mill identified well preserved remains of the bleach works, including 19th century tableware pottery and several wheel pits, indicating the importance of the stream to the process, both in terms of water for washing and bleaching and as a source of power. Fields to the northwest were used as the bleachcroft, for drying the bleached linen (HLC6759).
- 9.3.24 To the east was Gawber Glasshouse (HER2926/01) and its associated slag heap (HER2926/02). Glassmaking here dates from the late 17th century until 1821, the buildings eventually being demolished in 1885. Two phases of the industry were identified during excavations, consisting of a pre-cone technology replaced by an 18th century glass cone.
- 9.3.25 Gawber Hall (HER340/01) stood close by and was a timber framed hall with two wings and date stones of 1567 and 1619. It was demolished in 1937. A silver Elizabethan coin (HER4136/01) was reportedly found to the west of the site near Royd Hill.
- 9.3.26 Lane Head farm (HER5538) is shown on maps of 1770, and during demolition the 18th century stone house was found to enclose a timber framed building – possibly agricultural – of c.1627.

9.4 Map Regression

Map of Yorkshire, Jeffreys, 1775 (Figure 9.2)

- 9.4.1 The topography of the position is shown, occupying high ground and straddling the Redbrook valley. Buildings are shown in the location of Redbrook Farm and in the centre of the site (possibly Hermit House). Woodland and Higham Common are also visible.

Plan of the Township of Barnsley, 1777 (Figure 9.3)

- 9.4.2 Shows only a small part of the southern area of the site within which there are no structures, only fields.

Barnsley Enclosure Map, 1779 (Not illustrated)

- 9.4.3 This map was of poor quality and showed a smaller area than the 1777 map. The footpath from Pogmoor is noted.

Plan of Barugh Estate, 1828 (Figure 9.4)

- 9.4.4 Shows the area north of Hermit Lane. Hermit House is noted, though not represented. No other structures are shown within the site.

Tithe Map of Barugh Township, 1842 (Not illustrated)

- 9.4.5 The map shows only the details of those titheable fields. Hermit House and cottage are represented.

Plan of the Township of Dodworth in the Parish of Silkstone, 1830-40 (Not illustrated)

9.4.6 Shows the Dodworth portion of the site only, featuring fields and woodland.

Plan of Dodworth Township, 1853 (Not illustrated)

9.4.7 Again, shows just the Dodworth portions along the very southern boundary of the site. No significant change.

Ordnance Survey 1855 (1:10,560) (Figure 9.5)

9.4.8 North of Hermit Lane the site is divided by irregular enclosures. Some boundaries would seem to represent watercourses and there are two ponds/reservoirs close to Hermit Lane on the eastern side. These ponds no doubt controlled the water to the Bleaching Works and Linen Mill at Redbrook. The two hachured fields adjacent to the bleaching works are presumably the bleachcrofts. There are two patches of woodland, Rhodes Wood and Craven Wood. The only buildings shown on the northern side are those at Redbrook. The area is marked as Higham Common.

9.4.9 South of the lane is a complex of buildings labelled Hermit House and to the west Hermit Cottage and a well. Several other wells are marked on the eastern boundary near Pogmoor. Several footpaths run through the area and through two woodlands known as Drury Spring and Hermit Wood.

Ordnance Survey 1893 (1:2,500) (Figure 9.6)

9.4.10 There has been some boundary loss in the northern area. The buildings along Hermit Lane are shown in more detail and Rhodes Wood is now Velvet Wood.

Ordnance Survey 1906 (1:2500) (Figure 9.7)

9.4.11 No significant change.

Ordnance Survey 1931 (1:2500) (Figure 9.8).

9.4.12 Hermit cottage has gone and Hermit Wood has been felled revealing a couple of possible small buildings.

Ordnance Survey 1960-2 (1:2500) (Figure 9.9).

9.4.13 The northern half of the site has now been given over to opencast coal mining, including the area north of Hermit House, leaving only narrow corridors of undisturbed land along the brook and its tributary. There is opencast mining on the eastern boundary near Pogmoor. The configuration of buildings has changed around Hermit House and there has been some significant field boundary changes to the south (probably reflecting reinstatement following the opencast works there). Interestingly there has been little change to the field boundaries along the line of the township boundary between Dodworth and Barnsley, including the narrow curved access at the south of the former Drury Spring wood (which has been felled). This seems to imply that either these boundaries were not disturbed by the opencast mining in the previous decade (contrary to the submitted plans), or, less likely given the movement of field boundaries along the township boundary to the north, the boundaries had been reinstated exactly as they were prior to mining (see also section 9.5).

Ordnance Survey 1973 (1:10,000) (Figure 9.10)

- 9.4.14 The straightened boundaries south of Hermit Lane seen in the 1960s OS map appear to have reverted to their previous sinuous forms in some cases, particularly along the township boundaries. Other boundaries on the 1960s map have been removed. The pond adjacent to Hermit Lane has been filled in.

Ordnance Survey 1983 (1:10,000) (Figure 9.11)

- 9.4.15 Hermit House is now labelled Hermit House Farm.

9.5 Site visit, LiDAR and Historic Landscape Characterisation

- 9.5.1 A site visit was undertaken on 17th September 2018 by Jim Bonnor. Access was limited to footpaths and highways. The fields to the north of Hermit Lane were generally flat and arable (Appendix 9.1 - Plate 12). The Redbrook stream was set within a steep sided wooded valley (Appendix 9.1 - Plate 17). A pond just south of the confluence was examined where there were modern breeze blocks and concrete as well as older worked stone (Appendix 9.1 - Plate 16).
- 9.5.2 To the south of Hermit Lane the area was largely pasture (Appendix 9.1 - Plates 6, 8, 10 & 11), given over to horse grazing with the exception of the former opencast field (Appendix 9.1 - Plate 2) on the eastern boundary by Pogmoor and adjacent to the M1, which were arable. Where the footpaths converged at the edge of Pogmoor the field was largely devoid of grass (possibly previously stripped or graded) with frequent stone, brick and coal fragments (Appendix 9.1 - Plate 3). In the northeast corner of this field was a short section of stone wall foundation, roughly north-south, faced either side of a core. Adjacent was a large stone showing signs of wear and possibly a threshold stone (Appendix 9.1 - Plate 4). The area has clearly been disturbed, but there was the suggestion of concentrations of stone, some faced and quite large, and at least one possible platform area. No pottery or datable artefacts were observed.
- 9.5.3 A linear dip in the centre of this field on the line of a previous field boundary led down the slope to the stream where there was a stone weir/outlet structure fed by ceramic pipes (Appendix 9.1 - Plate 9). Within the surrounding pasture fields the ground was uneven in places, formed by ephemeral linear banks, probably relating to drainage and visible on the LiDAR (Figure 9.12).
- 9.5.4 Along the east-west township boundary between Dodworth and Barnsley, hard up against the hedgerow, ran the remnants of a stone kerbed track, extending from the site's eastern boundary toward the old Drury Spring wood (Appendix 9.1 - Plates 5, 7 & 8). The track was traced into the field to the west for at least sixty metres and appeared to extend all the way to the western edge of the field. It was about 2.5-3m wide, kerbed by faced local stone, of at least two courses in places with an infill of earth and stone and, at the eastern end, by a layer of unfrogged bricks (frogged bricks were also found loose further west, but not as part of the track construction and possibly just imported as hard core). It is suggested that the track is connected to Drury Farm and is that shown on the 1855 OS mapping.
- 9.5.5 Hermit House Farm consisted of barns and sheds constructed from modern concrete masonry units, wood and corrugated iron and at least one brick building, buttressed at its western end. Within was hard standing and at least two single storey buildings (Appendix 9.1 - Plates 13 & 14). All the buildings appeared 20th century. The field to the southwest of the farm buildings contained buried brick and concrete structures which are probably cisterns or relate to mining.

- 9.5.6 The LiDAR imagery (Fig. 9.12) shows the topographical detail of the site, notably the predominant fall to the Redbrook watercourse from the south and on toward the Dearne valley to the north. The feeder channels for the Redbrook are clear as is the lack of features north of Hermit Lane and on the eastern boundary where the opencast mining occurred, as well as the southern arable fields adjacent to the M1. A mound on the eastern boundary, to the rear of Harden Close, was not evident during the site visit and the mound adjacent to the M1 boundary, south of Hermit Lane, is a muck heap.
- 9.5.7 The site consists of several Historic Landscape Character units. In the north, HLC6757 is the former opencast site described as modern enclosed land. To the east around Redbrook are HLC6759, former bleachcroft and described as enclosed land.
- 9.5.8 HLC6782 refers to the area around Hermit House Farm and is described as medieval to modern assarts, it includes the northern part of the stream valley. Toward Higham, straddling the Lane is HLC6780, enclosed land known as Higham Common. To the south of Hermit House Farm is the area of former Drury Spring and Hermit woods, described as piecemeal enclosure of the 1950s onwards.
- 9.5.9 HLC7923, called Pogmoor is described as industrial to modern enclosed land and to the south HLC6467 is piecemeal enclosure on former opencast land.

9.6 Geophysical Survey

- 9.6.1 Detailed magnetometer survey was undertaken by Pre-Construct Geophysics (PCG) across c.46 hectares of the Site (Appendix 9.3). The areas surveyed were those least likely to have been affected by opencast mining, though an overlap was provided in places to confirm the limits of disturbed ground. The results of the survey are discussed below in relation to Figures 9.13-16 and in consideration of the results of the geotechnical borehole (BH) and test pit (TP) investigations undertaken by JPG (JPG 2019).
- 9.6.2 In general, very few anomalies were recorded which appear to be of archaeological origin and there was much evidence of ground disturbance, whether through mining or associated soil storage.
- 9.6.3 Areas A1-3 were to the west and north of historic opencast coal mining areas known as Craven I and II. The survey revealed no anomalies of potential archaeological origin. Linear features probably related to recent field boundaries/cultivation and/or drainage were identified. There was no clear delineation to the edges of opencast mining though most of the area appears sterile and probably disturbed, with some frequent modern debris/colliery waste. The exception is a strip of land running southwest-northeast – also visible on satellite imagery (Google Earth Pro 04/22/2020) - across the area (Fig. 9.14), which corresponds in places with the mapped edges of the area of high wall influence. There were no geotechnical investigations in these areas.
- 9.6.4 Areas A4-6 were positioned over an apparent pillar of un-worked ground within the opencast workings. Survey revealed a similar response to areas A1-3. No archaeological features were evident – A5 contained potential drainage features. A borehole in the centre of this area (BH117) recorded 0.2m of topsoil over highly weathered mudstone, while TP102 and 102A recorded 0.8m of reworked topsoil and natural over colliery spoil.
- 9.6.5 Area A7 produced similar readings of probable made ground/natural with colliery waste/modern disturbance in the eastern part of the area, with possible evidence

of cultivation on the very eastern edge. In the northern tip there was evidence of disturbed ground, more in keeping with what was expected from landfill. Between the two was a strip containing drainage and cultivation features, which appeared less disturbed and corresponded with the strip of undisturbed land seen in area A3. BH119 in the eastern corner of this area recorded 0.2m of topsoil over weathered mudstone. BH104, to the southwest, on the edge of the surveyed area, recorded 0.2m topsoil over colliery spoil.

- 9.6.6 Area A8 revealed potential cultivation features and two parallel linear anomalies of uncertain origin, probably modern, in the northern and eastern parts of the field. The western quadrant appeared to have been disturbed by possible opencast mining as indicated on 1960-2 OS mapping. No ground investigation has been undertaken in this area.
- 9.6.7 Area A9 produced a single linear cultivation anomaly. Area A10 contained a linear anomaly of uncertain origin running northwest-southeast. A11 contained several possible cultivation features aligned northeast-southwest. Areas A12-14 contained no features, while A15 revealed a curvilinear feature of possible archaeological origin along with cultivation features. BH122 on the very southern edge of A14 recorded 0.5m of stiff brown clay over 0.3m weathered mudstone and 0.3m of firm orange/brown clay. Neighbouring TP109 recorded 0.15m reworked topsoil above reworked natural and colliery spoil to a depth of 1.5m.
- 9.6.8 A16 spanned the high wall on the northern extents of Hunters Cottage opencast workings. An anomaly of uncertain origin was recorded in the northeast part of the site, oriented roughly east-west.
- 9.6.9 Area A17 lies adjacent to the Farmhouse Lane workings and contained no anomalies other than the projected line of a service and evidence of considerable disturbance/debris in the northeast. BH125 recorded 0.25m of stiff brown clay over interwoven mudstone and sandstone, with a coal seam at 3.3m depth. A18 is criss-crossed with probable cultivation features, broadly north-south, east-west and there is an area of disturbance in the northwest corner. TP110 in the southwest corner of A18 recorded reworked topsoil over colliery spoil.
- 9.6.10 Areas 19 and 20 are similar to A18, some probable cultivation anomalies on various alignments. An anomaly of unknown origin runs east-west through A20, approximating to the line of the suspected highwall and where there is a break of slope falling to the south. No ground investigations were done in these areas.
- 9.6.11 Areas 21-23 cover land around the Hunters Cottage Extension opencast workings. Area 21 has a pair of parallel linear features which may be archaeological. To the east of these is an area of disturbance which probably relate to the demolished Hermit Cottage. A22 to the east is blank and A23 has signs of cultivation as well as areas of probable modern disturbance/colliery waste. BH107 on the eastern side of A23 recorded 0.4m of topsoil over 1.6m of firm brown clay.
- 9.6.12 Area 24 exhibits evidence of widespread modern landfill/colliery waste, save for a small area of possible cultivation in the northeast. There is no record of opencast mining recorded here and it is believed the response could be due to imported spoil spread over the area from the M1 construction works (pers. comm). Area 25 to the south does have two parallel linear features which may be archaeological, running roughly north-south into A24. It also shows signs of dumping/disturbance, cultivation and includes curvilinear anomalies of uncertain origin. These latter coincide with similar features in A26 to the south and could represent a haul road from the M1, adding credence to the theory that A24 is covered in dumped spoil.

9.6.13 A27 lies within the area of Hunters Cottage opencast workings and exhibits similar responses to A1-3 with no sign of archaeology.

9.7 Archaeological Potential, Receptors and Significance

9.7.1 The following section discusses the archaeological potential of the site in the light of the evidence presented above and identifies the heritage receptors that may be affected by proposed development. These receptors are identified on Fig. 9.17.

9.7.2 The evidence for early prehistoric activity is restricted to a few possible early flints from the edge of the study area. The composition of the finds is not clear and there is no indication they represent a significant asset. Evidence for later prehistoric and Roman activity takes the form of cropmark/excavated enclosures in the surrounding area. The land use of the site will not have been conducive to cropmark formation or artefact recovery that would reveal settlements, enclosures or field systems as found at Capitol Park and Low Barugh. However, the geophysical survey results have revealed minimal evidence for archaeology which might relate to these periods and the potential is deemed low for remains of more than low significance of the later prehistoric or Roman periods.

9.7.3 The site contains at least two ancient boundaries: those between Dodworth and Barnsley/Barugh and that between Barnsley and Barugh. The former (receptor E) would appear to survive intact in places, though with no corresponding earthwork or ditch; the latter (receptor D) follows the line of a natural channel draining the hillside, some of which may have been impacted by mining/dumping. These boundaries probably date back at least to the Early Medieval period and are potentially of local significance.

9.7.4 The site avoids settlement centres of surrounding villages and, therefore, medieval settlement cores. Despite the phenomenon of assarting and the establishment of dispersed farmsteads during this period, no other evidence for medieval settlement has been identified and no geophysical anomalies can be attributed to such. The exception is perhaps the landscape around Hermit House Farm, which is described in the Historic Landscape Characterisation as assarts and may have medieval, perhaps monastic, origins – assarting is reinforced by field name evidence in the environs. The demolition and new construction over and around Hermit House Farm will have removed most, if not all of the remains relating to this asset. Brick and concrete structures to the southwest of Hermit House Farm are probably related to agricultural or mining activity of the 19th or 20th century. There is a low potential for medieval remains of more than low significance.

9.7.5 There is evidence for management of the streams from at least the early Post-medieval period in relation to the Redbrook Mill and Bleaching Works (Receptor A). One artificial pond was observed and there is a moderate potential for other water management remains along the valley; their significance is likely to be low.

9.7.6 During the Post-medieval period enclosure was completed and the area was largely agricultural, probably pasture, with a good proportion of woodland. The stone kerbed track (receptor E) must date to this period and is pre-opencast mining. It follows an ancient boundary and forms an access roughly east-west to the former Drury Spring. Despite borehole evidence directly north of this, showing backfill to Hunters Cottage workings, the track and boundary cannot have been removed during the opencast mining. The track is of low significance.

- 9.7.7 Hermit Cottage is marked on the historic mapping to the west of Hermit House from 1845 to 1893. The geophysical survey suggests remains of the cottage survive (receptor B). Such remains would be of low significance.
- 9.7.8 The exposed wall and stonework at the junction of footpaths west of Farmhouse Lane workings (receptor C) could represent an isolated medieval farmstead - or could date even earlier - as it does not correspond with any buildings shown on historic mapping. However, the geophysical survey failed to identify any associated archaeology typical of earlier periods and there is a cluster of mineshafts at the Farmhouse Lane workings suggesting the remains are most likely to be of post-medieval date. The very fact the remains are visible also suggests significant disturbance has taken place in this area and any related remains will be relatively poorly preserved, though still have the potential to be of medium significance.
- 9.7.9 Receptor F represents the designated milepost NHL1151794. Its significance derives from its evidential, historical, and aesthetic value along with its setting on the former turnpike road. This has been dealt with in more detail in a separate report (Bonnor 2019).
- 9.7.10 Large parts of the site have been opencast mined, as indicated on Fig. 9.17, and ground investigations and geophysical survey suggest the influence in terms of ground disturbance extends beyond the surveyed limits of the workings, with some areas exhibiting evidence of truncation, if not mining. The potential for unknown archaeological remains is therefore limited to those areas unaffected by previous opencast mining and is generally low. The geophysical survey has identified three anomalies of potential archaeological origin (receptor G) which are probably of no more than low significance.

Future Baseline

- 9.7.11 North of Hermit Lane most of the land is reinstated ex-opencast coal mining, and under arable cultivation: any archaeological remains which survive in this area will be subject to degradation through ploughing and use of fertilizers. The milepost on Barugh Green Road will be subject to ongoing corrosion from exhaust fumes and natural weathering. To the south of Hermit Lane, the land is predominantly pasture, also with large areas restored following opencast coal mining. These conditions will afford any archaeological remains in undisturbed areas reasonable ongoing preservation. There are exceptions to this, such as in the area of receptor C where erosion around archaeological remains is clearly taking place. Similarly, areas of woodland will afford decent preservation of historic assets, though root growth and fallen trees can cause damage.

9.8 Assessment of Likely Significant Effects

Assessment of Impact

- 9.8.1 Archaeological assets can be both directly and indirectly impacted.
- 9.8.2 Direct impacts can take the form of the physical removal of, or damage to, material that contributes to the values of a heritage asset. This can occur through ground disturbance associated with landscaping, foundations, infrastructure and services, or through demolition and alterations to existing structures, as well as through vibration and pollution damage from traffic during construction or operation. Such impacts can lead to the loss of the assets themselves and the information they hold (adverse). Alternatively, the impacts may involve the

preservation or conservation of an asset and/or raising greater public awareness of its significance (beneficial).

- 9.8.3 Indirect impacts relate to how an asset is viewed and experienced (setting). Potential changes in the landscape, such as construction of buildings or landscaping, may remove associations between assets, or landscape features, or detract from ambiance, critical to the understanding and appreciation of those assets (adverse). Conversely, impacts may create opportunities for the enhancement of an asset's setting, such as the removal of incongruous structures or noise, the opening up of views to an asset or provision of interpretation (beneficial).

Construction Phase

- 9.8.4 During this phase there will be direct impacts through substantial earthmoving operations. Large areas of the Site will be subject to a topsoil strip and potentially cut and fill operations for roadways and construction sites. Other deeper excavations will be required for buildings foundations and for services. Where receptors are affected, these works will have a major negative impact. Areas of open space may provide the opportunity to preserve archaeological remains in situ.
- 9.8.5 The parameters plan (Figure 3.1) indicates there will be a major negative impact on any unknown archaeological remains and potential remains associated with medieval or later settlement in the vicinity of receptor B. Receptor C, the remains of a stone building, is located within an area of proposed Employment Area Strategic Green Space, though also in close proximity to a large attenuation pond. There is the potential here for a major negative impact, although some preservation may be achievable depending on the extents of the archaeology. There will be a major negative impact on the historic boundaries and trackway (receptors D and E). The retention of Craven Wood will have a neutral impact on any associated remains (receptor A). The construction of the northern roundabout will have a major negative impact on the designated milepost (receptor F). Geophysical anomalies of possible archaeological origin (receptor G) are spread over the land south of Hermit Lane and in general will suffer a major negative impact.

As summarised in Table 9.8, receptors B-G, as well as any currently unknown archaeological remains, will suffer a moderate-substantial adverse effect without mitigation, which is significant in EIA terms in that the ability to understand these assets will be substantially impaired by removal of all or part of the remains.

Table 9.8 Significance of Effect - Construction Phase

Nature of Impact	Receptor Significance	Environmental Impact	Significance of Effect	Confidence Level
Retention of Craven Wood, receptor A	Low	Neutral	Neutral	High
Construction activities on settlement remains, receptor B	Low	Major Negative	Moderate Adverse	High
Construction activities on stone building, receptor C	Medium	Major Negative	Substantial Adverse	High
Construction activities on Historic Boundaries and trackway, receptors D and E	Low	Major Negative	Moderate Adverse	High
Roundabout Construction on historic milepost, receptor F	Medium	Major Negative	Substantial Adverse	High
Construction activities on geophysical anomalies of possible archaeological origin, receptor G	Low	Major Negative	Moderate Adverse	High
Construction activities on unknown archaeological remains	Low	Major Negative	Moderate Adverse	High

Operational Phase

- 9.8.6 By the operational phase, all receptors will have been removed, reinstated, or preserved in areas of open space.

9.9 Mitigation and Enhancement

- 9.9.1 The effect on the designated milepost (receptor F) has been considered in planning application 2020/0027, and listed building consent (2019/1567) has been granted subject to the following condition:

No development shall commence until an agreed set of conservation works to include repainting and restoration by a professional specialist conservation laboratory / contractor has been submitted to and approved in writing with the Local Planning Authority. Thereafter the development shall be carried out in accordance with the approved details. Treatment of the asset should be in accordance with the Milestone Society publication Guidance on Conservation of Milestones & Other Waymark Feature and in consultation with the local authority Conservation Officer - specifically sections 5 / 6 of the attached guidance.

- 9.9.2 Receptor F will, therefore, be removed and conserved prior to being reinstated in a new position along the Barugh Green Road in accordance with an approved scheme of works.
- 9.9.3 The potential for unknown archaeological remains will be addressed through further field evaluation. This will involve undertaking a targeted scheme of trial trenching to assess the results of the geophysical survey.
- 9.9.4 Trial trenching will also be undertaken to further assess the potential for receptors B, C, D E and G. In the light of the evaluation results, appropriate mitigation will be considered. Significant remains which cannot be preserved, will be excavated and recorded prior to construction activities commencing. All archaeological fieldwork will be carried out in accordance with a written scheme of investigation agreed with the local authority. The results will be subject to post-excavation assessment, followed by analysis and publication as appropriate.
- 9.9.5 No mitigation measures are considered necessary for receptor A, though any proposed ecological enhancement should consider the area's heritage potential.

Operational Phase

- 9.9.6 No archaeological mitigation is anticipated.

9.10 Potential Residual Effects

- 9.10.1 Following mitigation, although the buried archaeological deposits will have been removed, recording and dissemination means the results will be a public record and aid understanding of the historic environment.
- 9.10.2 The significance of the archaeological resource lies principally in its evidential value. Thus, a moderate-substantial adverse effect to an asset (i.e. without mitigation) would equate to a significant loss of the information contained in that asset. While the loss of the primary archaeological record (whether designated or not) is always considered as an adverse effect - due to the necessary sampling of the remains in mitigation - the undertaking of the mitigation measures detailed above will enable an adequate record of the remains to be created, along with an

archive of excavated material and thus ensure the evidential value contained within those remains is retrieved and conserved and any loss is significantly reduced. Subsequent analysis of the results and suitable synthesis will make the information held within the remains accessible to the profession for further academic study and management and to the wider public, to enable an appreciation of their heritage and by contributing to a sense of place. Therefore, it is considered that residual effects of minor adverse or less are not significant in EIA terms.

Potential Residual Effect – Construction Phase

9.10.3 The residual effect resulting from this mitigation is summarised in Table 9.9.

9.10.4 The designated milepost (receptor F) is currently in poor condition. The proposed conservation works will improve the asset's condition. The reinstatement of the asset on the Barugh Green Road close to its original position will ensure a negligible effect on the contribution of its setting to its significance. The asset has no archaeological potential.

9.10.5 Excavation and recording of significant archaeological remains will enable their evidential value to be preserved and the subsequent analysis and publication of the results will further minimise the residual effect by bringing the information to a wider audience, resulting in a minor adverse permanent residual effect.

9.10.6 It is concluded that once the mitigation measures have been undertaken, the adverse residual effects on the receptors will not be significant.

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Table 9.9 Residual Significance of Effect - Construction Phase

Nature of Impact	Receptor Significance	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Retention of Craven Wood, Receptor A	Low	Neutral	Neutral	High	None	Neutral
Construction activities on settlement remains, Receptor B	Low	Major Negative	Moderate Adverse	High	Evaluation/excavation and recording of any archaeological remains affected by the proposed development	Minor Adverse Permanent
Construction activities on stone building, Receptor C	Medium	Major Negative	Substantial Adverse	High	Evaluation/excavation and recording of any archaeological remains affected by the proposed development	Minor Adverse Permanent
Construction activities on Historic Boundaries and trackway, Receptors D and E	Low	Major Negative	Moderate Adverse	High	Evaluation/excavation and recording of any archaeological remains affected by the proposed development	Minor Adverse Permanent

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Nature of Impact	Receptor Significance	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Construction activities on geophysical anomalies of possible archaeological origin, receptor G	Low	Major, Negative	Moderate Adverse	High	Evaluation/excavation and recording of any archaeological remains affected by the proposed development	Minor Adverse Permanent
Construction activities on unknown archaeological remains	Low	Major Negative	Moderate Adverse	High	Evaluation/excavation and recording of any archaeological remains affected by the proposed development	Minor Adverse Permanent
Roundabout Construction on historic milepost, Receptor F	Medium	Major Negative	Substantial Adverse	High	Removal, conservation, and reinstatement in accordance with scheme agreed with local authority	Negligible

Potential Residual Effect – Operational Phase

9.10.7 No residual effects are anticipated during this phase.

9.11 Summary

9.11.1 The assessment of archaeology has involved undertaking a desk-based assessment, heritage statement and geophysical survey. Data was collected from the South Yorkshire Historic Environment Record, local archives and secondary sources as well as a site visit and examination of LiDAR data.

9.11.2 The assessment has concluded that a designated milepost NHL1151794 will be directly impacted by the proposed development. Other non-designated receptors identified were as follows:

- Unknown archaeological remains of prehistoric, Roman or medieval date which might survive in areas not affected by opencast coal mining
- Potential water management remains in Craven Wood
- Potential settlement remains associated with Hermit House Farm Cottage
- Remains of stone building at Pogmoor
- Historic boundaries and trackway
- Geophysical survey anomalies

9.11.3 With the exception of remains in Craven Wood, these will all be subject to a major negative impact through topsoil stripping and earth moving. The significance of the effects ranges from **moderate adverse** to **substantial adverse**. The effect on the Craven Wood will be **neutral**.

9.11.4 A comprehensive scheme of mitigation has been outlined in this chapter to be undertaken prior to construction activity. Further evaluation of the receptors will be undertaken by trial trenching. Where preservation is not desirable or feasible, any significant remains will be excavated, recorded and the results published and archived as appropriate.

9.11.5 The designated milepost will be removed for conservation and replaced in an agreed location on Barugh Green Road following completion of construction works.

9.11.6 The mitigation measures will bring the residual effects to no more than **minor adverse permanent** and are not considered significant in EIA terms.

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