NAA

DESK BASED ASSESSMENT

AND SURVEY

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WOODHEAD TUNNELS

SURFACE ROUTE

prepared for

NGC

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1.0 INTRODUCTION

1.1 This report presents the results of a desk-based assessment and survey of the above ground route of the Woodhead tunnels undertaken by Northern Archaeological Associates for National Grid (NG) in connection with an on-going programme of remedial work.

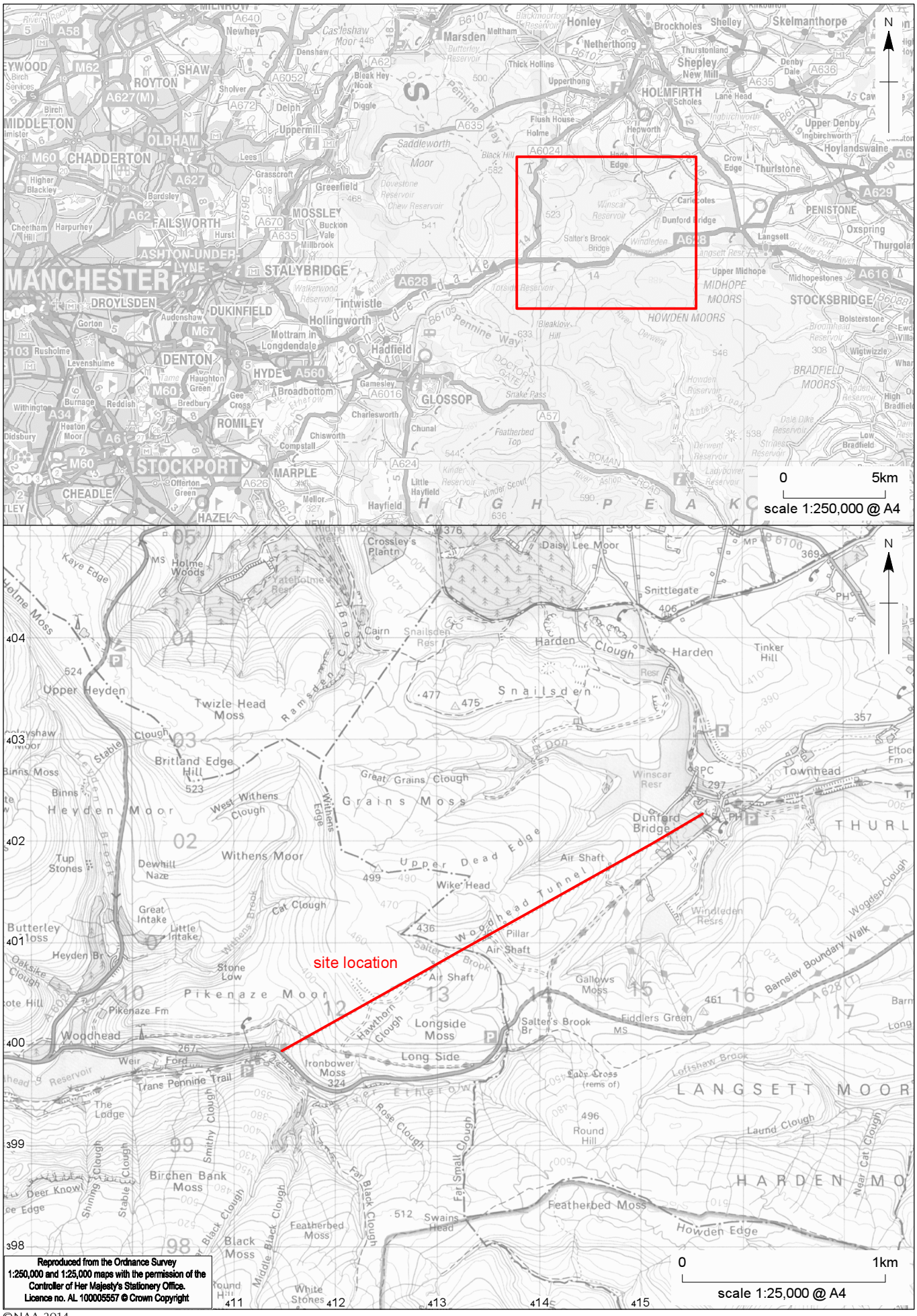
1.2 The disused Woodhead Tunnels lie beneath the Pennines, between Dunford Bridge (SE 15600225) and Woodhead (SK 11409990), approximately 32km to the west of Barnsley (Figure 1). They lie on a section of railway which formerly connected Manchester and Sheffield and comprise a modern double line tunnel built by British Rail in 1954 and two earlier mid 19th-century single line tunnels which are located slightly to the north. All three tunnels are owned by the National Grid Company (NGC).

1.3 Since 1968 the earlier tunnels were used by the Central Electricity Generating Board (CEGB), now NG, to house and maintain 400kV electricity cables which form part of two circuits (Macclesfield-Stockbridge and Stalybridge-Thorpe Marsh). These cables recently reached the end of their design life and have been replaced by cables which have been re-routed to run through the 1950s tunnel. The railway line running through this tunnel was closed to all rail traffic in 1981 and the tunnel was acquired by CEGB in 1993. The decision to run the new cables through this later tunnel was taken as a result of several incidents in the older tunnels, including collapses and a major fire, raising concerns about the safety of their continued use.

1.4 As a result of the cable being rerouted, both of the Victorian tunnels are now redundant and need to be sealed and made safe. As part of this process the former ventilation shafts running across the line of the tunnels at surface level require similar treatment. At present there are three surviving shaft-head structures, all three being located above former Construction Shafts and later used for ventilation purposes. Two of these relate to the construction of the Victorian tunnels, the third being associated with the creation and ventilation of the 1950s tunnel. All three are situated amongst complexes of spoil-heaps and other structures arising from the former construction works.

1.5 An archaeological appraisal, and a detailed historical and archaeological survey have already been undertaken for the Victorian tunnels (NAA 03/119 and NAA 05/48 respectively), both of which concentrated on the subterranean aspects of the railway route. A preliminary report considering the above-ground elements of the same complex was prepared in 2013 (NAA13/66), and this report should be used in conjunction with all three of the earlier reports.

1.6 The fieldwork forming the basis of this study was undertaken in May 2014.



Woodhead Tunnels: site location *Figure 1*

2.0 LOCATION, TOPOGRAPHY AND GEOLOGY

2.1 The route of the tunnel lies between the hamlets of Dunford Bridge in South Yorkshire, and Woodhead in Derbyshire, and with the exception of approximately 250m of the eastern end of the tunnel, it is situated within the Peak District National Park (Figure 1). The tunnel passes beneath a tract of high moorland within a Landscape Character Area area known as the Dark Peak (Character Area 51 Countryside Commission 1998 111-115), a term commonly used to differentiate it from the White Peak to the south which possesses different geology. The Dark Peak is characterised by substantial deposits of impermeable Millstone Grit which, in the area addressed by this study, has resulted in an Open Moorland (ibid) landscape character type, largely covered by blanket peat, and rendered unsuitable for most forms of agriculture as a result. Approximately 32,000 hectares of this landscape is designated as the Dark Peak Site of Special Scientific Interest (SSSI), which extends over the borders of into Greater Manchester and West Yorkshire, a large part of the SSSI is also included within the South Pennine Moors Special Area of Conservation.

2.2 The tunnel was routed beneath the watershed of the Rivers Don (to the east) and the Etherow (to the west) at a relatively low point on the South Pennines. The bulk of the landscape above the route of the tunnel is classified as being Open Wastes and Common in terms of its Historic Landscape Character, with a tract of Managed Plantation/Woodland situated adjacent to the eastern portal. Despite being the subject of Parliamentary enclosure allotment in *c.*1813, this latter area is still depicted as being open moorland in the earliest editions of the Ordnance Survey in 1850 (PDNPA HER).

2.3 The route of the tunnel follows a similar route to that of the A628 trunk road over the Woodhead Pass, and an unclassified road known as Goddard Lane/Windle Edge; these roads being themselves preceded by two turnpike roads. The turnpike roads seem to have followed the course of an earlier, undated route, between the salt-producing areas of Cheshire and the east of the country, which may have originated in the Roman or earlier periods. The Salt Road over Woodhead Pass appears to have divided into two sections just to the south of the A628, near Salter's Brook, which itself is a historic county boundary.

2.4 The tunnel was driven through moorland which reaches elevations in excess of 470m AOD, from points in the region of 300m AOD at either end. From the east, the landform above the tunnels rises relatively gently from about 320m AOD at the Dunford Bridge portal to 460m AOD at Wike Edge, then descends rapidly into a broad shallow basin containing a small watercourse, the Upper Head Dike. Thereafter the land above the tunnels rises moderately steeply to an elevation of about 450m AOD on the flanks of Round Hill before descending moderately towards the Woodhead portal. The last 200m or so of the route descends steeply to an elevation of below 300m AOD at the western end of the tunnel.

2.5 The underlying geology is Namurian Millstone Grit of the Carboniferous period (IGS 1979), largely overlain by blanket peat (IGS 1977). The soils of the study area are the blanket peats of the Winterhill association, with some areas of the, slowly permeable, acid fine loamy upland soils of the Wilcock's 1 association being present in association with stream or river valleys (SSEW 1984).

3.0 POLICY CONTEXT

3.1 The current historic environment legislation, policies and guidance against which the proposals should be considered are set out below.

- The Ancient Monuments and Archaeological Areas Act 1979
- Planning (Listed Buildings and Conservation Areas) Act 1990
- The Electricity Act 1989 - Schedule 9, Preservation of Amenity and Fisheries
- National Planning Policy Framework (NPPF) (2012) – **Policy 12:** *Conserving and enhancing the historic environment*
- Peak District National Park Authority Local Development Framework (Core Strategy Policy L3, adopted 2011)

The Ancient Monuments and Archaeological Areas Act 1979

3.2 Scheduled Monuments are designated by the Secretary of State for Culture, Media and Sport on the advice of English Heritage as selective examples of nationally important archaeological remains. Under the terms of Part 1 Section 2 of the Ancient Monuments and Archaeological Areas Act 1979 it is an offence to damage, disturb or alter a Scheduled Monument either above or below ground without first obtaining permission from the Secretary of State. This Act does not allow for the protection of the setting of Scheduled Monuments.

Planning (Listed Buildings and Conservation Areas) Act 1990

3.3 Sections 16 and 66 of the Act require authorities to have special regard to the desirability of preserving the setting of any listed building that may be affected by the grant of planning permission. Section 72 requires that authorities have special regard to the desirability of preserving or enhancing the character and appearance of Conservation Areas.

The Electricity Act 1989

3.4 Section 1.1 of Schedule 9 of the Act requires that in formulating any relevant proposals National Grid:

a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and

b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

National Planning Policy Framework (NPPF) (March 2012)

3.5 The NPPF, sets out the Government's planning policies for England and how these are expected to be applied. The foreword states that "our historic environment – buildings, landscapes, towns and villages – can be better cherished if their spirit of place thrives, rather than withers." The historic environment is defined in terms of all aspects of the environment resulting from the interaction between people and places through time. It includes all surviving physical remains of past human activity, whether visible, buried or submerged, and also landscaped and planted flora. Any remains of these activities are classified as a "heritage asset."

3.6 The term "heritage asset" is defined in NPPF Annex 2: Glossary. It is deemed to embrace all manner of features, including: a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions because of its heritage interest. It includes designated heritage assets (a World Heritage Site, Scheduled Monument, Listed Building, Registered Park and Garden, Registered Battlefield or Conservation Area) and assets identified by the local planning authority (including local listing). One of the Core Planning Principles within the NPPF is to "conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life for this and future generations."

3.7 **Policy 12: Conserving and enhancing the historic environment** sets out the framework for local planning authorities to make informed decisions. The paragraphs of particular relevance to the proposed development are detailed below.

3.8 **Paragraph 128** sets out the information requirements for applications where development potentially affects heritage assets. It states that planning applicants should provide, as part of the application process, appropriately detailed descriptions of heritage asset significance and the contribution of

setting to that significance. The level of detail should be proportionate to the importance of the asset and no more than is sufficient to understand the potential impact of the proposal on that significance. It also states that where an application site includes, or is considered to have the potential to include, heritage sites with archaeological interest, local planning authorities should require submission of a desk-based assessment and, where desk-based research is insufficient to properly address the interest, a field evaluation.

3.9 **Paragraph 129** sets out the policy principle whereby local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by the proposal, including any development effects on the setting of assets. This assessment should be taken into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

3.10 **Paragraph 132** sets out the policy principle guiding the consideration of applications for consent relating to designated assets. It also states that significance can be harmed or lost though alteration or destruction of the heritage asset or development within its setting. Paragraphs 133 and 134 refer to the level of consideration to be given depending on the level of harm to designated assets.

3.11 **Paragraph 133** states that where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, the local planning authority should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or that it can be demonstrated that there is no alternative viable use of the site.

3.12 **Paragraph 135** sets out policy principles guiding the consideration of applications for consent relating to non-designated assets. It 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.

3.13 **Paragraph 141** sets out policy principles guiding the recording of information related to heritage assets and making it publicly accessible. It states that, there should be a requirement 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. Developers should make this evidence (and any archive generated) publicly accessible and deposit copies of the reports with the relevant historic environment record and deposit archives with the local museum or other public depository. The ability to record evidence of our past, should not, however, be a factor in deciding whether such loss should be permitted.

Peak District National Park Authority Local Development Framework (Core Strategy Policy L3, adopted 2011)

3.14 Policy L3 of this document stipulates that

- Development must conserve, and where appropriate, enhance or reveal the significance of archaeological, architectural, artistic or historic assets and their settings, including statutory designations and other heritage assets of international, regional or local importance or special interest.

- Other than in exceptional circumstances, development will not be permitted where it is likely to cause harm to the significance of any cultural heritage asset of archaeological, architectural, artistic or historic asset or its setting, including statutory designations and other heritage assets of international, regional or local importance or special interest.

- Proposals for development will be expected to meet the objectives of any strategy, wholly or partially covering the National Park, that has, as an objective, the conservation and where possible, the enhancement of cultural heritage assets. This includes, but is not exclusive to, the Cultural Heritage Strategy for the Peak District National Park and any successor strategy.

4.0 METHODOLOGY AND INFORMATION SOURCES

4.1 This report has been undertaken in accordance with the relevant standards and guidance published by the Institute for Archaeologists (2012), *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (English Heritage 2008), and is in accordance with best practice as published by South Yorkshire Archaeology Advisory Service (revised 2012).

4.2 The present assessment was undertaken with the following objectives:

- identify all archaeological and other cultural heritage sites within the study are of 1km around the proposed development, whose significance could be affected by the proposed development;

- assess the potential for unrecorded sites of archaeological interest within the proposed development area;

- assess the direct and indirect effects of the proposed development on archaeological and other cultural heritage sites and their settings;

- recommend appropriate mitigation measures which could be taken to prevent, reduce or remedy any adverse effects identified;

- assess the degree of conflict and/or compliance with national and local planning policies relevant to the resource.

4.3 In order to identify the heritage assets within the study area, the following sources were consulted:

- Peak District National Park Authority
- South Yorkshire County Council;
- Derbyshire County Council;
- The English Heritage Archive;
- South Yorkshire County Records Office;
- Derbyshire Records Office;

The following data sources were utilised for the assessment:

- South Yorkshire Historic Environment Record (HER);
- Derbyshire Historic Environment Record (HER);
- Peak District National Park Historic Environment Record (HER);
- Aerial photographs;
- Published and unpublished historical and archaeological studies;
- Cartographic sources (including estate, tithe and historic Ordnance Survey maps);
- The English Heritage Archives: Archaeology;
- The English Heritage Archives: Aerial Photographs;
- English Heritage Listed Buildings database;
- English Heritage Registers of Historic Parks and Gardens;
- English Heritage Register of Historic Battlefields;

Survey

4.4 A site inspection of the proposed development area was carried out in April 2013. Both the proposed development area and designated assets within the

1km study area were examined, with the following specific objectives: to confirm the presence of previously recorded assets, to identify additional sites, to assess current ground conditions and land use, and to assess the likely impact the development might have on the significance and setting of designated assets. A detailed inspection and survey of features in the vicinity of Construction Shafts 2 and 3 was undertaken in May 2014.

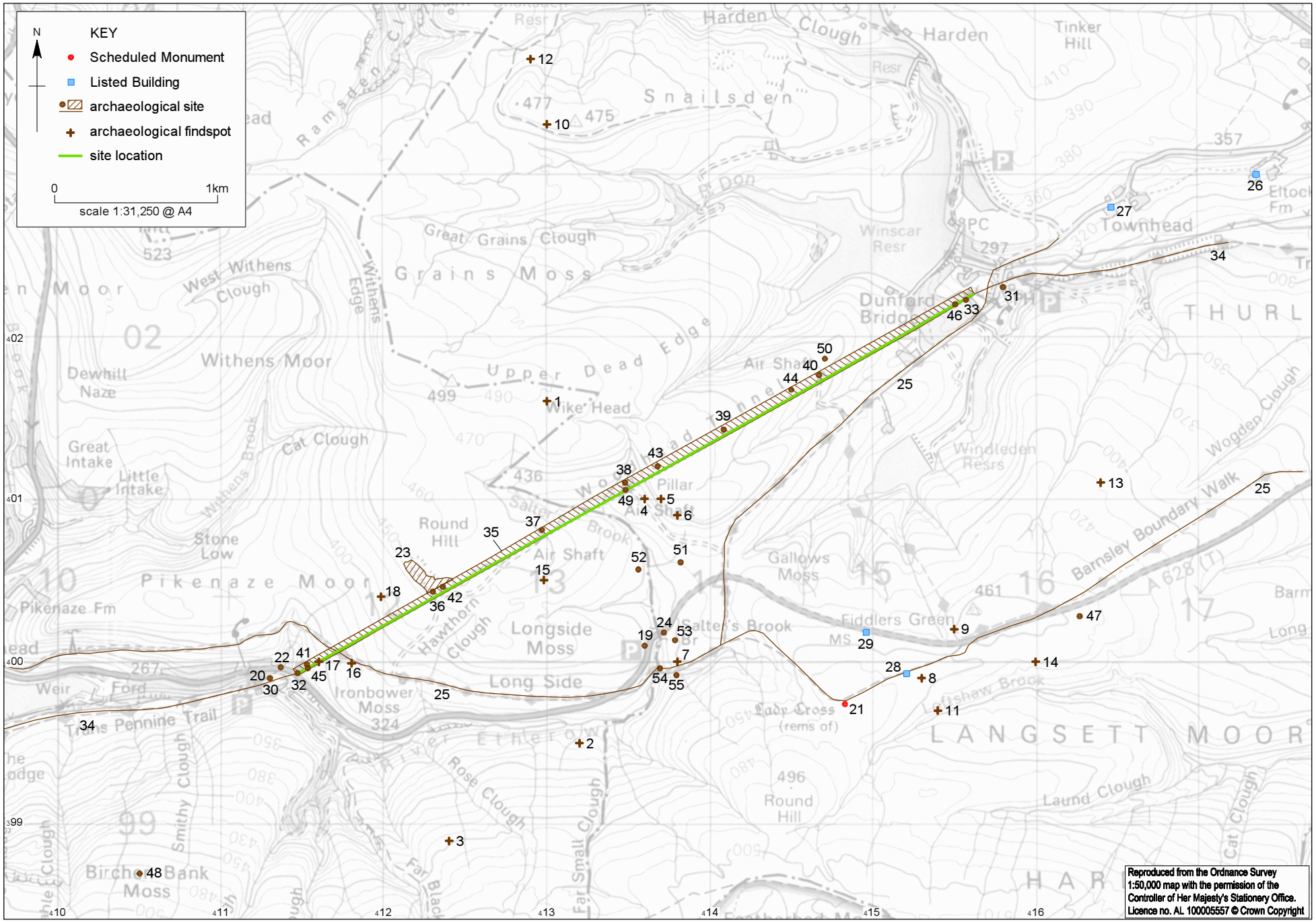
Importance and sensitivity

4.5 Archaeological and other cultural heritage sites (Heritage Assets) identified within 1km of the development boundary, and others within the wider vicinity, are listed with a unique reference number in Table 2, and shown on Figure 2. A central grid reference, description and a grading of archaeological significance are provided for each Heritage Asset (HA). Assessment of importance is based on a combination of designated status and professional judgement. It is recognised that occasionally sites of local importance can have an increased sensitivity in a local context.

Table 1 Grading of importance of the Heritage Assets

Importance Scale	Examples of Heritage Asset
National (High sensitivity) (1)	Scheduled monuments; listed buildings, registered parks and gardens; registered battlefields Undesignated features or landscapes of national archaeological, historical, architectural or artistic interest and value
Regional (High sensitivity) (2)	Conservation areas; locally listed buildings
County (Medium sensitivity) (2/3)	Undesignated features or landscapes of county archaeological, historical, architectural or artistic interest and value
Local (Low sensitivity) (3)	Undesignated features, buildings or landscapes of local archaeological, historical, architectural or artistic interest and value Severely damaged sites where resource survival is too low to justify inclusion into a higher grade The Heritage Asset is tolerant of change without detriment to its character

4.6 In accordance with the requirements of paragraph 128 of the NPPF this assessment has concentrated on identifying those Heritage Assets whose significance could potentially be affected by the proposed development, whilst also assessing the potential for unrecorded remains to be affected by the proposals. The NPPF requires the level of detail to be proportionate to the importance of the asset and no more than is sufficient to understand the potential impact of the proposal on that significance.



Woodhead Tunnels: heritage assets in the vicinity

Figure 2

5.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Heritage Assets

5.1 A total of 55 Heritage Assets (HA) are recorded within the study area and its environs, including one Scheduled Monument and four are Listed Buildings. There are no Conservation Areas, Registered Parks and Gardens or Registered Battlefield sites within the study area or its near vicinity. Only those assets associated with the 19th century tunnel are judged to be of county importance (Grade 2/3); the remainder are considered to be of local importance (Grade 3)

Designated sites

5.2 There are no designated Heritage Assets within the 1km study area, however, there are two Listed Buildings within 1.0 - 2.0km of the Dunford Bridge tunnel portal, and two Listed Buildings and a Scheduled Monument (a stone cross) situated 1.5 - 2.0km south of the A628 on the lower slopes of Langsett Moor. A cluster of three Listed Buildings lie some 3.5km to the west of the Woodhead tunnel portal, adjacent to the dam of Woodhouse Reservoir. None of these assets or their setting would be affected by the proposed works and they are not considered further.

Undesignated sites

5.3 A total of 50 undesignated Heritage Assets have been identified within the study area or its environs; these are presented in Table 2 below.

Table 2. Heritage Assets recorded within the vicinity of the tunnel route

HA	HER/NMR	Grid ref			Description	Period / date	Grade
1	48991	SE	1300	01600	Findspot, flints, Wike Head	Mesolithic	3
2	606547	SK	1320	9950	Findspot, flints, Ridgemount Moor	Mesolithic	3
3	309733	SK	1240	9890	Findspot, flints, Far Black Clough	Mesolithic	3
4	48992	SE	1360	0100	Findspot, flints,	Mesolithic	3
5	48993	SE	1370	0100	Findspot, flints,	Mesolithic	3
6	48994	SE	1380	0090	Findspot, flints, Carr Top	Mesolithic	3
7	48995	SE	1380	0000	Findspot, flints, Salterbrook	Mesolithic	3
8	309671	SK	1530	9990	Findspot, flints, Ladycross Road	Mesolithic	3
9	620462	SE	1550	0020	Findspot, flints, Fiddler's Green	Mesolithic	3
10	48990	SE	1300	0330	Findspot, flints, Snailsden Pike End	Mesolithic	3

HA	HER/NMR	Grid ref			Description	Period / date	Grade
11	309719	SK	1540	9970	Findspot, flints, Loftshaw Clough	Mesolithic	3
12	48989	SE	1290	0370	Findspot, flints, Snailsden End Moss	Mesolithic	3
13	620464	SE	1640	0110	Findspot, flints, Long Grain Head	Mesolithic	3
14	620465	SE	1600	0000	Findspot, flints. * *probably an HER entry error (for SK 1900)*	Mesolithic	3
15	D14221	SE	1298	0050	Findspot, flint, Longside Moss	Mesolithic	3
16	D14224	SK	1180	9999	Findspot, flints	Mesolithic / Neolithic	3
17	D14222	SE	1160	0000	Findspot, hammerstone, Ironower Moss	Neolithic / Bronze Age	3
18	D14223	SE	1198	0040	Findspot, flint,Pikenaze Moor	Neolithic / Bronze Age	3
19	D3652	SE	1360	0010	Stone sculpture	? Iron Age	3
20	D3653	SK	1130	9990	Stone Sculpture	? Iron Age	3
21		SK	1483	9974	Lady Cross	1509-present	SM
22	D14242	SK	1136	9997	Horse \Trough	Post-medieval	3
23	D14248	SE	1227	0052	Quarry, Greystone Edge	Post-medieval	3
24	D14250	SE	1371	0017	Boundary Stone, Salters Brook Bridge	Post-medieval	3
25	D14276	SK	0800	9950	Turnpike Road	Post-medieval	3
26		SE	1750	0310	Building, Dick Royd Farmhouse	1733	LB II
27	1151136	SE	1642	0279	Barn, Upper Town Head farm	Early C18	LB II
28	1151102	SK	15209	99928	Milestone	Late C18	LB II
29	1151136	SE	1496	0018	Milestone	C19	LB II
30		SK	1147	9993	Former Woodhead Station	1846-1964	2/3
31		SE	1580	0230	Former Dunford Bridge Station	1846-1970	2/3
32	D14240	SK	1130	9990	Woodhead Tunnel, Western Portal	1846	2/3
33		SE	1555	0225	Woodhead Tunnel Eastern Portal	1846	2/3
34	D3649	SE	1139	9991	Railway	1846	2/3
35	D14253	SE	1199	0024	Railway Tunnel	1846	2/3
36	D14252	SE	1230	0043	Construction Shaft 1, Woodhead Tunnel	1843	2/3
37	D14249	SE	1279	0081	Construction Shaft 2, Woodhead Tunnel	1844	3
38		SE	1348	0110	Construction Shaft 3, Woodhead Tunnel	1842	2/3
39		SE	1480	0143	Construction Shaft 4, Woodhead Tunnel	1841	2/3
40		SE	1467	0176	Construction Shaft 5, Woodhead Tunnel	1841	3

HA	HER/NMR	Grid ref			Description	Period / date	Grade
41	D14243	SK	1152	9998	Observation Tower 1, Woodhead Tunnel	1840	2/3
42		SE	1236	0046	Observation Tower 2, Woodhead Tunnel	1840	2/3
43		SE	1368	0120	Observation Tower 3, Woodhead Tunnel	1840	2/3
44		SE	1450	0176	Observation Tower 4, Woodhead Tunnel	1840	2/3
45		SK	1153	0028	Ventilation Shaft, Woodhead Tunnel (west)	1840	2/3
46		SE	1551	0219	Ventilation Shaft, Woodhead Tunnel (east)	1840	2/3
47	1470028	SE	1627	0028	?Searchlight Battery	1939-1945	3
48		SK	1050	9870	Crash Site R1011	1943	3
49		SE	1348	0106	Construction Shaft (1950s), Woodhead Tunnel	1950s	3
50					Enclosure	Undated	3
51					Enclosure	Undated	3
52					Enclosure	Undated	3
53					Enclosure	Undated	3
54					Bridge	Undated	
55					Inn	Undated	

Earlier prehistoric (to 1000 BC)

5.4 Eighteen early prehistoric sites lie within the study area, the earliest remains being a series of findspots of flint artefacts and flint-working debris attributable to the Mesolithic period. Mesolithic artefacts are relatively commonplace in areas where peat is eroding on the high moorlands of the Dark Peak, whereas material culture originating in the succeeding periods is not. This most likely reflects the area's suitability for hunting, but not for agriculture (Barnatt and Smith 1997, 20), or perhaps less likely, simply reflects the research interests of those archaeological and antiquarian investigators active in this area to date.

5.5 Sites 1 to 15 comprise findspots of exclusively Mesolithic lithic material. The quantity of material recovered from any one site varies considerably. For example, Site 4 was the site of a small excavation undertaken by Jeffrey Radley at Wike Edge in the 1970s which yielded over 50 blades, 42 microliths, 13 microburins and 7 cores (Wymer and Bonsall 1977, 383); Site 5 represents an assemblage of over 100 blades and other artefacts found eroding out of a peat gully in close proximity and Site 6 records the recovery of an unspecified number of blades, flakes and core nearby at Carr Top (ibid). All three sites are close to the site of the 1950s ventilation shaft which forms part of this proposed development, but all three sites are situated some 40m above the shaft on open moorland to the east. An inspection of the eroding peat in this

vicinity was undertaken as part of the site survey in May 2014, and no further lithic material was noted.

5.6 The remainder of the findspots of this period (Sites 1-3 and 7-14) have a more disparate distribution, but are predominantly located on high ground. Many of the finds were made by one individual, F Hepworth, in the 1950s and early 1960s. The collections eventually came to the attention of Radley who recorded them more carefully but their given positions can only be regarded as being approximate.

5.7 Approximately 13km to the east an important Mesolithic site at Deepcar, close to the junction of the Don and Little Don at Wharcliffe Wood, was excavated in 1962 (Radley and Mellars 1964, 1–24). Although situated at some distance from the development site, lying as it does on the eastern fringe of the town of Stocksbridge, the site is located near the junctions of the A616 road and A6102 roads, and the former junction of the former Woodhead railway line. As a consequence this may lend support to suspicion that the medieval salt-road had its origins in a much earlier period, and that Woodhead Pass was an important routeway from the earlier prehistoric period onwards.

5.8 The blanket peat that covers the Dark Peak area seems to have formed after the Mesolithic period, and there is evidence, in the form of tree stumps within the peat, that the higher ground of the region was once afforested, probably in the later Mesolithic period. The clearance of this vegetation in the area has been attributed to later Mesolithic populations creating clearings in the forest to facilitate hunting, and not for agricultural purposes. Whilst the forest appears to have regenerated elsewhere, this seems not to have been the case for the Dark Peak as a consequence of the erosion of its thin, acid, gritstone-derived soils (Barnatt and Smith 1997, 20). The subsequent formation of peat on these landscapes made it unsuitable for cultivation, or even pasture, by later populations. This is reflected by the general lack of evidence for monuments, habitation sites and material culture within the vicinity of the development site from the Mesolithic period onwards.

5.9 Of the 18 earlier prehistoric sites identified, only three are considered to contain elements which post-date the Mesolithic. Site 16 is a findspot of lithic material, the material being of either Mesolithic or Neolithic date; while sites 17 and 18 comprise material of Neolithic or Bronze Age date. Interestingly, all three of these sites are located at the western end of the study area, near the head of the valley of River Etherow.

5.10 The traditional view is that Neolithic and later period activity within the Peak District was largely confined to the White Peak limestone plateau. Whilst Neolithic settlement has been proved in at least one valley basin at Lismore Fields, near Buxton, it has been posited that the higher grounds of the limestone plateau and the eastern gritstone uplands could have provided

adequate summer grazing, but that the higher gritstone moors of the north and west of the area were probably only suited to hunting.

5.11 Similarly, few Bronze Age sites are known in the general area; the majority of sites of this period lying to the south and south-east of the development area, such as the spectacular Bronze Age landscapes at Big Moor and Ramsley Moor, near Baslow, some 30km distant. It would seem likely that the Dark Peak was as unattractive a prospect for settlement to Bronze Age populations as it was to those in preceding periods.

Later prehistoric and Roman periods (1000 BC to AD 410)

5.12 Heritage Assets attributable to the Iron Age are also few within this area. The Dark Peak may have been an area considered to be peripheral in the Iron Age, lying as it does on the southern boundary of the posited tribal territory of the Brigantes to the north, the western side of the territory of the Corieltauvi to the west, with the former lands of the Cornovii usually considered to lie to the south. There are known Iron Age hillforts/fortified sites at Wincobank and Hathersage Moor, both in excess of 25km away in South Yorkshire, and at Ball Cross, Borough Hill, Finn Cop, Mam Tor, Markland Grips and Mouselaw Castle in Derbyshire. Of these, the latter site is perhaps the most pertinent to this study, lying at the mouth of the Etherow Valley, and therefore in a position to monitor, perhaps even control, movement across the Pennines through the valley.

5.13 There are no known settlement sites within the vicinity, but two Heritage Assets which may belong to this period have been noted, although there is considerable doubt over their attribution. Sites 19 and 20 are both records of stone sculpture of a type which may be considered to be of 'Celtic', and therefore possibly Iron Age, form. Site 19 is a carving of a head on a gritstone boulder located within a layby on the A628 near Salter's Brook. This is considered to be similar to a carving of a face set into a house wall at Todmorden in West Yorkshire. Attention was drawn to sculpture of this nature in the late 1960s, particularly in West Yorkshire, where such images are found in field walls, on houses and in other locations. However, more recent research indicates a particular concentration of such stone heads in the Calder valley dating from the 17th and 19th centuries, and therefore the comparison between the sculpture at Woodhead Pass and those in West Yorkshire would seem to reinforce a post-Iron Age date for the former.

5.14 Site 20 is perhaps similar in character, if not form. The site relates to the reputed discovery of a throned male figure without its head hand or feet, with three small 'Celtic' heads carved on the back of the sculpture, near the Woodhead tunnel portal. There is little primary information relating to the discovery of this sculpture but nevertheless parallels for this find were sought, and found, in Iron Age contexts by a number of authors. However conclusions

of this nature should be treated with caution given the occurrence of the later examples noted above within the wider region.

Roman

5.15 There are no Heritage Assets attributable to the Roman period within the study area or its environs. The development site lies sandwiched between two road networks lying either side of the Dark Peak, and a pair of roads running through the Pennines to the north and south. To the west there is a principal road leading northwards through Buxton, Manchester, and Ribchester towards Carlisle and south-west Scotland (Margary 71b and 7b-e) and to the east the network leading from Lincoln, (Margary 28a) through Doncaster and Castleford (28b) to connect with Dere Street (8b) north of York. There are also two major cross-Pennine routes within the wider region; to the south the Buxton to Doncaster road (710a and 710b) running adjacent to Templeborough, and the Manchester to Tadcaster road (712) to the north. The Dark Peak sits within the rectangle defined by the above roads, with only one known road, Brough on Noe to Manchester (711) running anywhere near the development site (Margary 1973, 359).

5.16 The latter road, also known as Doctor Gate (ibid 363) runs to a fort at Melandra, near Glossop, some 15km to the east of Woodhead, on its way northwards. This fort, probably known as *Ardotalia*, appears to be the only significant Roman site within this part of the Dark Peak. It was a small fort constructed around AD 78, during Agricola's campaigns in northern England and would have housed a cohort of auxiliary soldiers. The fort was rebuilt in stone around AD 120 in the reign of Hadrian but was abandoned some 20 years later.

5.17 The fort is situated on a bluff overlooking the River Etherow at the western end of the Longdendale Valley, about 2km from the Iron Age site at Mouselaw Castle. Athough there is no accepted Roman routeway through the valley, the existence of a later salt road leading from Cheshire eastwards suggests that such a route could well have existed this period, perhaps leading towards Castleford, and that *Ardotalia* was reoccupied to exert some level of control over this route if and when required. Alternatively it has been suggested that a route through Longdendale could have been a now-lost road between the forts at Manchester and Templebrorugh (Brightman and Waddington 2011, 100)

Early Medieval (AD410 to 1100)

5.18 There is little archaeological evidence for this period within either the study area or wider vicinity. The study area probably lay within the influence of the relatively short-lived post-Roman British polity of Elmet, the precise boundaries of which are conjectural. Some authorities consider that it was delimited by the River Sheaf, and the Anglo-Saxon kingdom of Merica to the south, the River Wharfe in the east and the Anglo-Saxon kingdom of Deira to the north. Its

western boundary appears to have been with Craven, another minor British kingdom whose former borders are similarly obscure. Elmet was the subject to the expansionist policies of both Deira and Mercia at the end of the 6th century, and in AD 616 a united Northumbria invaded and overran Elmet, its people being referred to as the *Elmetsæte* in historical texts from this point onwards.

5.19 In the latter half of the 9th century, this part of England came under the influence of the Danelaw. The Danelaw, formalised by treaty in AD 886, comprised 15 shires which included Yorkshire, and the 'Five Boroughs'; essentially the combined territories of Leicester, Nottingham, Derby, Stamford and Lincoln and the study area appears to have been located within the Five Boroughs.

5.20 There are only 13 known sites or findspots attributable to the early medieval period on the any of the millstone grit landforms within the Peak District and Derbyshire as a whole (Brightman and Waddington 2011, 100) and none of these lie within the vicinity of the development. Most of the sites of this period lie further to the south and east, and whilst it is again tempting to view this distribution being a result of the topography and environment of the Dark Peak and geologically similar parts of Derbyshire, it may also have also been a product of the areas proximity to a series of unstable political boundaries.

5.21 Place-name evidence does, however, suggest some level of activity of this period within the wider area, although sizeable settlements of any demonstrable antiquity are relatively few. Longdendale, as a place-name, clearly contains Scandinavian elements; Glossop and Penistone, both of which are noted in the Domesday Book are of Old English derivation (Ekwall 1960, 362). The concepts of the wapentakes and hundreds which persisted as administrative units into the post-Conquest period, and indeed later, also had their origins in the earlier medieval period. It is interesting to note that it was the Anglo-Saxon 'hundred' that was employed as an administrative unit to the west of Woodhead Pass, whilst the 'wapentake', a unit of Scandinavian derivation, was that used in most of Yorkshire, including the West Riding. This again serves to illustrate the peripheral position of the study area, in this case to the focii of the political institutions of this period.

Later Medieval (AD1100 to 1500)

5.22 There are no Heritage Assets of certain or likely later medieval date within study area, and only one within its near vicinity.

5.23 The western part of the study area lies in an area formerly known as Longdendale which existed as an identifiable entity in the early post-Conquest period. The easternmost part of Longdendale now lies in Derbyshire and South Yorkshire. The western part of the valley now lies in Greater Manchester, but

the whole of Longdendale once formed the easternmost extension of the lands within the historic boundaries of Cheshire.

5.24 Longdendale is recorded in the Domesday Book as being eight leagues long and four leagues broad. It contained six carucates of land and 12 manors which were under the control of a number of Anglo-Saxon individuals prior to 1066, but the whole area was under the jurisdiction of King William by 1086. All of Longdendale is described as waste, a result of the harrying of the north in 1069, but the same document also observes that within Longdendale "there is woodland, not for pasture, but suitable for hunting" (Williams and Martin, 1992, 743). Longdendale was originally part of the Hundred of Hamestan, but became part of the Hundred of Macclesfield by 1242.

5.25 The 'Lordship' of Longdendale was a feudal estate created by the Earl of Chester in the late 12th century; William de Neville being appointed as the first Lord of Longdendale by the Earl. It would seem that Buckton Castle, near Carrbrook, was the centre of Lordship of Longdendale as it is the only castle within the lordship. Thereafter it passed between the crown and various families, the Tollemache family inheriting it in the 1690s.

5.26 The eastern side of the study area lies within the parish of Penistone, centred upon the market town of the same name which now lies within in the Metropolitan Borough of Barnsley, but was formerly in the Wapentake of Staincross in the West Riding of Yorkshire. In 1066 the Manor of Penistone was held by Ailric but was also laid waste in 1069, and was described as such in the Domesday Book in 1086 (ibid, 825). The countryside of the parish is predominantly rural with farming on rich well-watered soil on mainly gentle slopes rising towards the moorland to the west of the town centre.

5.27 By and large, there is no evidence that the moors themselves were settled in the medieval period but they would have been an important resource for the inhabitants of the valleys below. The moors were generally seen as a resource held in common and that certain groups of individuals held traditional rights to graze animals and gather resources such as bracken for thatch and bedding, and heather and peat for fuel (Bevan 2004, 89).

5.28 There is only one site of the medieval period within the vicinity of the study area; Site 21, Lady Cross, the remains of which are a Scheduled Monument. The cross is a medieval wayside cross, surviving as a socket stone and a fragment of its displaced shaft. The earliest historical reference to the cross dates to 1509, and as a consequence the monument is likely to date from the medieval period. The cross is situated at the side of the salt-road discussed below, at a position which almost precisely marks the watershed of Salter's Brook, which feeds into the River Etherow to the west, and Loftshaw Brook, which is a tributary of the Little Don to the east, and as such may once have marked the former boundary between Cheshire and the West Riding of

Yorkshire, later to be superseded by the boundary stone at Salter's Brook bridge (Site 24).

5.29 The salt-road, leading from the salt producing areas of Cheshire over Woodhead Pass, is considered to be of medieval origins, although such an obvious route is likely to have been established in an earlier period. The precise line of the medieval route is not known, but it has probably been fossilised, in part, by the later turnpike road (see Site 25 below). There may have been a fork in the pre-turnpike road just to the east of Salter's Brook, with a road leading northwards along Goddard Lane. This branch was not turnpiked.

Post-Medieval (AD 1500-1900)

5.30 The 18th and 19th centuries saw changes in the established practices of the utilisation of common land. Large areas of moorland and other common land were enclosed under the authority of parliamentary enclosure awards. However, in many areas of open moorland parliamentary enclosure was only reflected in formalised ownership, rather than by a process of physical enclosure. This process resulted in the removal of communal rights to a tract of land and the award of the control, even ownership, of that land to an individual who could then dictate its use, and the rights of access to it (Kain et al 2004, 1). Parts of this zone were enclosed in the early 19th century. For example, in 1830 John Spencer-Stanhope of Cannon Hall acquired around 1,000 acres of recently enclosed land near Dunford Bridge, which he used for grouse shooting (Sykes 1996, 195). Sometimes walls enclosing the edges of the moors were built, these primarily intended to exclude people, rather than control livestock. Grouse butts were also built, and the moorland managed by strip burning to maintain the low heather growth used by grouse.

5.31 The majority of the identified Heritage Assets within the study area and its environs belong to the post-medieval period and include all 4 Listed Buildings.

5.32 Several of these sites relate to the roadway, in one form or another, that constituted the only route across the Pennines in this area prior to the construction of the railway. Site 25 represents the route of the turnpike road that preceded the course of the modern A628. The route was turnpiked in two stages, by two different turnpike trusts. The Manchester to Saltersbrook (sic) Turnpike Road was authorised by the Manchester Roads Act 1732, and was built up to the county boundary at Salter's Brook. The Doncaster to Salter's Brook turnpike was authorised in 1740, the road dividing into the Sheffield/Rotherham branch, and the Barnsley/Doncaster branch at Hartcliff. The roads were disturnpiked in 1884, when turnpike roads became unprofitable undertakings as a result of railway travel.

5.33 The turnpike roads originally met at Lady Shaw Bridge (Site 54) an undated structure, which may have preceded the turnpikes, and which may have been

reduced in width in about 1830, when the turnpike road was rerouted over the present bridge at Salter's Brook. Lady Shaw Bridge was probably reduced in size in order that the later bridge, and the toll, could not be bypassed by wheeled traffic. A complex of buildings that once stood just to the east of the earlier bridge is considered to be the remains of a former inn (Site 55). This complex is also undated, but would also have been bypassed when the turnpike was rerouted and probably became redundant at about the same time. There are two Listed milestones associated with both phases of the turnpike; Site 28 is a late 18th century milestone located alongside the line of the original Doncaster to Salter's Brook turnpike road; Site 29 is its counterpart on the post 1830 diversion. A boundary stone (Site 24) seems to be associated with the later road at Salter's Brook Bridge (but seems to have been moved in the relatively recent past), whereas a horse-trough (Site 22) near Woodhead Station is probably associated with the Manchester to Saltersbrook turnpike.

5.34 There are two further Listed Buildings attributable to this period, both of which lie outside of the study area to the east of Dunford Bridge. Dick Royd Farmhouse (site 26) was built *c*.1733 and is situated some 2km from the Dunford Bridge tunnel portal, while the barn at Upper Town Head Farm (site 27), dates to the early 18th century and is located about 1km away from the same portal.

5.35 Sites 30 to 46, and perhaps site 23, a quarry at Greystone Edge, all relate to the original pair of railway tunnels constructed by the Sheffield, Ashton-under-Lyne and Manchester Railway between 1838 and 1852. These all lie within the study area and, with the exceptions of sites 30-33, the stations and the portals, have been discussed at some length in an earlier study prepared for this Scheme (NAA 2013), and in a detailed account of the methodology employed in the construction of the southernmost tunnel published shortly after it was completed (Purdon 1849). As a consequence, the details of these sites will not be repeated here.

5.36 Sites 30 and 32, comprise the former site of Woodhead Station and the remains of the two portals of the 19th century tunnels at their western end. The station was opened on 8 April 1844 and was served by stopping passenger trains operating on the route from Manchester London Road to Sheffield Victoria. The station was replaced by a new station serving the 1950s tunnel in 1953, which was built slight to the west of the original and this station was closed in July 1964, but the line remained open for passenger trains until 1970 and to freight traffic until 1981. The architecture of both the original station and tunnel portal was overtly ostentatious, both comprising heavily castellated structures executed in the Gothic style (Plates 1 and 2). The original station was demolished in the 1950s, and the castellations removed from the portal when the tunnels were modified to carry electricity cables shortly afterwards. Sites 31 and 33 were the counterparts of these structures at the Dunford Bridge end of the tunnel and were essentially similar structures suffering similar fates.

Plate 1: Woodhead Tunnel, western portals

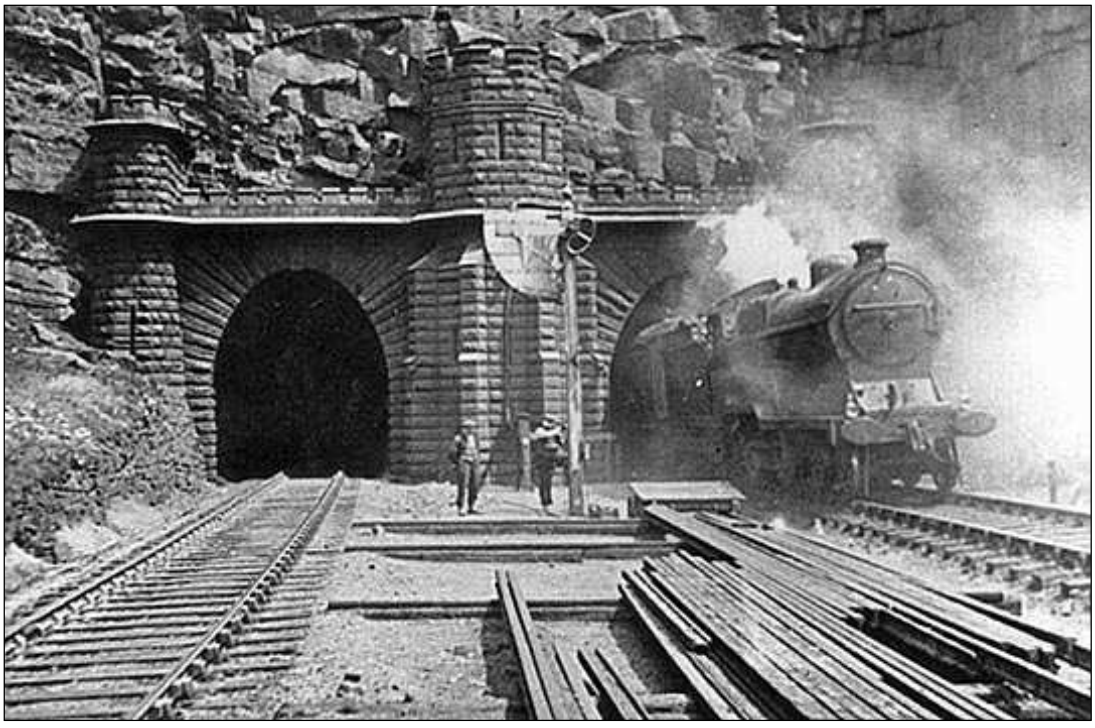


Plate 2: Woodhead Station

5.37 The British Geological Survey record the former Greystone Edge Quarry (site 23) as being opened in the 1830s, but closed by the 1840s (www.bgs.ac.uk). The product of the quarry was Midgley Grit, a type of sandstone that may have been used to line the Woodhead Tunnels. However, this would seem to be questionable given that both Construction Shaft 1 and Observation Tower 2

are both located within the quarry complex and are surrounded by quarry debris. Cartographic evidence suggests that the quarry was still operational in 1893 (Cheshire 1888 1:2500, Cheshire 1881 and Derbyshire 1893 1:10560 OS editions), but that it was disused by 1899 (and marked as such on the Cheshire 1:10560 map of 1899).

Modern (AD 1900-present)

5.38 There are three Heritage Assets attributable to the modern period within the study area and its vicinity. Site 47 is that of a former Second World War searchlight battery situated on the side of the A628 to the east of the study area. The site comprises a pair of penannular earthworks accompanied by a small compound located to the south of the road. Batteries in locations such as this were often used for navigation purposes rather than acting as part of anti-aircraft batteries.

5.39 Site 48 represents the remains of a Wellington bomber (R1011) which crashed into Birchen Bank Moss in poor visibility, on 30 January 1943. The aircraft was on a training flight and only two of the five crew members survived.

5.40 Site 49 is the extant ventilation shaft, formerly a construction shaft, for the 1950s railway tunnel at Woodhead. It survives as a square brick-built structure in poor condition (Plate 3). The third Woodhead tunnel was authorised by the Railway Executive in November 1948. It was originally designed to be built as two tracks to the south of the original 'down' tunnel, and separated from it by 77 feet except for the westernmost 200 yards where it curved to emerge close to the existing tunnel portal. A temporary camp for 1100 workers was established at Dunford Bridge in 1949 as work on the tunnel commenced.

Plate 3: ventilation tower on site of 1950s construction shaft, from the north

5.41 The original scheme called for three construction shafts to be sunk, but this scheme was changed, and only a single shaft, 16 feet in diameter and located 2,610 yards from the Woodhead portal was sunk (Plate 4). On the surface, the position of the shaft coincided with the same shallow valley from which Construction Shaft 3 of the Victorian tunnels was sunk. This choice of location, reduced depth of excavation required of the new shaft to 467 feet, and it was deliberately sunk 26 feet south of the centreline on the new tunnel in order to separate lifting operations from the construction works taking place below.

5.42 When completed the new tunnel was 131 feet longer than those to the north. The construction shaft was left open for ventilation purposes, and a square brick tower built at the top. In addition an 8-foot diameter stope was bored, 1,205 yards from the Dunford Bridge portal, to connect with the easternmost (No.5) shaft of the Victorian tunnels to assist with ventilation, although the requirements for this were lessened by the fact that the new tunnel was to house an electric railway. A brick tower was built at the top of this shaft, which was backfilled below the point of its intersection with the new stope. Construction Shaft 2, which had previously been enlarged in 1910 to assist with the ventilation of the Victorian tunnels was left open but the remaining 1840s shafts were made safe.

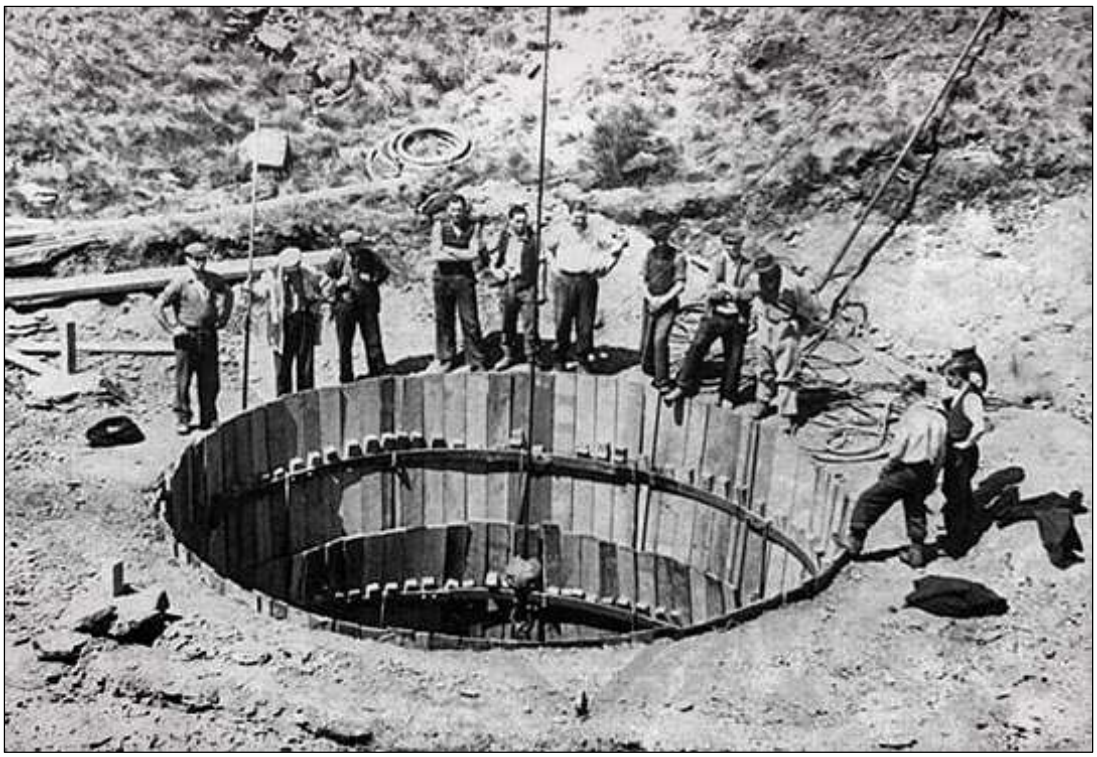


Plate 4: 1950s construction shaft

Undated Heritage Assets

5.43 Although the landscape within which the study area appears to have escaped any form of intensive agriculture throughout time, there are four areas where

some form of enclosure has occurred. Site 50 lies adjacent to, and to the east of, Construction Shaft 5, and is represented by a substantial sub-rectangular dry-stone enclosure some 130m by 80m. It is unclear whether the feature is partially overlain by the spoil heaps generated by construction works, and therefore of an earlier date, or alternatively abutts the mining debris and is contemporary, and therefore some form of construction compound. It does not, however, appear on the Thurlstone Parliamentary Enclosure map of 1813.

5.44 There are two small complexes of enclosures, one either side of Salter's Brook, lying to the north of the A628 (Sites 51 and 52). The complex to the west of the brook (52) comprises a series of three fairly neatly laid-out drystone enclosures, situated in the corner of land defined by two brooks. The complex to the east of Salter's Brook comprises a series of larger, more irregular, enclosures, with a smaller one appended to the western side of the complex close to the present bridge over the brook. This latter enclosure appears to be associated with a series of earthworks probably resulting from the construction of the bridge itself in c.1830. Evidence of quarrying, probably for the same event, can be observed to the south of the A628 in the same area.

5.45 A well preserved drystone enclosure, subdivided into three compartments, also survives to the south of the bridge (Site 53). The proximity of this feature to the former inn (Site 55) suggests that the two are interrelated and that the enclosure may represent some form of holding pens for livestock being moved along the former salt- or turnpike roads prior to 1830.

5.46 None of the enclosure complexes noted above can be dated but it seems likely that they are all of post-medieval date. Given their proximity to both the salt- and turnpike roads, and the former boundary between Cheshire and the West Riding of Yorkshire, it is plausible to suggest that they were associated with the movement of stock along this route rather than with local pastoralism, although the latter interpretation cannot be completely discounted.

Site Inspection Survey

5.47 The site inspection survey of the whole route undertaken in 2013 noted that the only relatively undisturbed example of the site of a former construction shaft is that associated with Construction Shaft 4 (Figure 3). At this site, the position of the shaft head is marked by a circular mound of stone; the spoil heaps remain undisturbed by later activity, and the remains of former buildings are readily discernible on the ground. The line of the trackway leading towards Observatories 3 and 4, and shafts 3 and 4 is well defined, and continues to be used for recreational purposes. As a consequence the surface of this track, and many of the others established as part of the tunnel construction scheme is likely to have experienced many episodes of repair and maintenance over the years, and is unlikely to preserve much of original surfacing material *in situ*.

Figure 3: site of 1840s construction shaft 4

5.48 In contrast, the remains of Construction Shaft 1 and Observatory 2 lie within the former Greystone Edge Quarry. Whilst the remains of the observation tower are relatively easy to locate, the remains of the shaft are virtually indistinguishable from the pile of quarry debris surrounding it. Only the south-western extremities of the original dendritic spoil heaps survive, and no building remains were noted.

Plate 5: ventilation tower, construction shaft 2 from the south-east

5.49 Construction Shaft 2 was enlarged in about 1915, and is now surmounted by a circular ventilation tower built in the same period (Plate 5). The original spoil heaps survive in part, the finger-mounds being best preserved to the east of the shaft. However, the remainder have been reworked and by the deposition of later debris, and it is likely that the majority of the remains of the original shaft-head structures were removed, or at least compromised, during the later construction works.

5.50 Construction Shaft 3 lies within an area largely reworked during the construction of the 1950s tunnel. The original 1840s shaft has been backfilled, and little, if anything, of the original spoil heaps remain intact. The whole of this area seems to have been tidied up after the later tunnel was completed and the earlier spoil incorporated into the massive 20th century spoil tip (Plate 6). There is evidence for building remains within the wider vicinity, although it is considered that many of these are likely to relate to the construction of the later tunnel, *contra* Morris 1994 (see below).

Plate 6: view of the 1950s spoil heap from 1840s spoil heap at construction shaft 2, from west

5.51 Construction Shaft 5, located towards the eastern end of the 19th century bores, was significantly altered in the 1950s. This shaft was intercepted by a bore running from the later tunnel in order to assist in its ventilation. Once achieved, the shaft below the level of intersection was backfilled, and the 1840s spoil heaps show considerable evidence of having been quarried, probably to use the arisings to backfill the bulk of the shaft, and as a consequence their original form is not clearly discernible. Similarly there were no readily identifiable building components that might relate to the construction of the original shaft, although it is accepted that the fragmentary remains of some may survive beneath later debris. This shaft is presently surmounted by a brick-built ventilation tower clearly of 1950s date (Plate 7).

Plate 7: mural on ventilation tower, construction shaft 5

Detailed Site Survey

5.52 A detailed site survey of the area surrounding Construction Shaft 2, and the 1950s ventilation tower adjacent to Construction Shaft 3, was undertaken in May 2014. The survey in both instances was restricted to a search area of c.100m around the proposed development areas, and their proposed access tracks.

5.53 The survey was undertaken in accordance with the procedures set out in *Understanding the Archaeology of Landscapes; A guide to good recording practice* (EH 2007). A staged approach to the survey was undertaken and this commenced with a site reconnaissance survey and assessment of the significance of the earthworks at the site.

5.54 Topographic survey data was acquired using a Topcon Hiper Pro Base Station GPS with data being post-processed using OS Rinex data to sub-centimetre accuracy. Survey data was exported as .dwg files for subsequent use in AutoCAD.

5.55 A full descriptive record was made of the component elements of the complexes that lay within the search area around each shaft head. A summary of this record is presented as Appendix A; features relating to the landscape around Construction Shaft 3 are identified in the range A-Z, those with Shaft 2,

AA-AF. Insofar as is possible, a correlation with those structures identified in an earlier survey of the area around Construction Shaft 3 (Morris 1994) has been made.

Construction Shaft 3 (Figure 4)

5.56 The remains of Construction Shaft 3 (T, above) are located 590m to the east of shaft 2 in an area that was significantly remodelled during the construction of the 1950s tunnel; the only shaft that was needed for the construction of the latter being situated within the immediate vicinity (B). The remains of the original shaft comprise a low mound of destruction debris containing fragments of brick, timber and a section of former railway line.

5.57 The mound sits within a patch of waterlogged ground, in the vicinity of a former brook, to the west of a scarp that was once surmounted by Observatory 3. The shaft is surrounded by a number of reworked and ill-defined earthwork features, some of which are likely to be of natural origin. There are no obvious indications of former ancillary structures such as the engine house, or former spoil heaps within the immediate vicinity of the original construction shaft, these probably having been cleared during construction works associated with the later rail tunnel. There are, however, a number of other features within the wider area that are probably related to this period of construction.

5.58 Access to the 1950s works was by a trackway (Z), c. 5.5m wide, leading south-eastwards to Goddard Lane. There is a further track (W), 3.5m wide, leading eastwards, up the scarp towards Construction Shaft 4. However it would seem unlikely that this was the principal route used for coaling or otherwise supplying shaft 3 as a consequence of the slope involved. In addition there is no easy means of access from shaft 2 in the west, and a former supply route leading from Goddard Lane in the 1840s would seem probable, the same route being used again for the later construction programme. Both tracks are built upon a rubble base, and are surfaced with coarse gravel, and as a consequence, appear to be contemporary, but this impression is likely to be the result of the continued maintenance of both tracks for recreational purposes.

5.59 Other features that are most likely to be attributable to the 1840s construction programme include a series of bothies, or workers 'cottages'. Structure Q is the bi-cameral structure located to the north of the shaft already identified by Morris as Building 3. Morris' Building 2 (Structure F) was also re-examined as part of this study. It lay on the periphery of the study zone, to the west of the 1950s shaft and was situated alongside an area of scoops and hollows (Features E) which appear to project from under the 1950s spoil, which may be indicative of activity originating in the 19th century. Structure F contained stone-built features which may represent the remains of 'furniture'.

Woodhead Tunnels: site of 1840s Construction Shaft 3 and 1950s construction works *Figure 4*

5.60 A number of features in the vicinity of Structure Q were also noted. Feature R is a rectangular peat cutting situated to the west of the building, possibly used as a source of fuel. Feature M possibly represents a water management feature and comprises a 2m deep channel cut into the slope below the building. It is associated with a bank at its western end. Immediately to its west is a low bank (Feature L) which may have been a low dam that has been breached at some point. Taken together, features L and M may be the remains of some attempt to channel surface water away from the top of Construction Shaft 3 and facilitate the drainage the construction works. Feature P on the other hand, appears to be a leat designed to supply, rather than dispose of, water. It leads toward an area of structural remains, comprising drystone walls standing to about 0.5m, located to the north-west of Construction Shaft 3, perhaps the boiler house. The remains of a possible sluice or other water management feature (G) partially survive in the vicinity of Feature E and Structure F. This comprises a series of substantial steel or iron poles, two of which are equipped with unusual flared, cross-shaped heads. There was a narrowing of a stream channel at this point, which has subsequently been breached.

5.61 The remains of a track (Feature K), leading westwards from the area of the construction shaft may originate in the 19th century. The track is 3m wide, has a 2m wide ditch to either side, and survives to about 1m high. The track continues beyond the survey are to the west, but appears to have been disturbed at its eastern end as it cannot be traced beyond a stream channel. It is possible that Feature M, interpreted as a dam above, represents a branch of the track, but it again seems to terminate at a stream channel.

5.62 Features more likely to be associated with the 1950s programme of works include C, S, U and V; all small concrete slabs or platforms consistently measuring 1.5m in one direction (S and U being 0.5m in the other; feature V being 1.5m square). Feature H is another concrete platform, 1.7m square situated beside a larger platform (J) consisting of stone and concrete demolition rubble. The remains of a grassed over concrete wall, Feature D, are visible along the edge of a stream channel. This probably represents the remains of a demolished building. The shaft-head ventilation tower (B) clearly originates in the 1950s.

5.63 There are a series of buildings of more controversial date situated to the east of track Z, and either side of track W. This area of activity (Complex X) was recorded by Morris as structures 1, 6 and 7. Other than the explosives store (Morris' building 7) the remainder of the features in this area comprise a series of platforms representing the remains of demolished structures now heavily overgrown with reeds and other tall vegetation and impossible to accurately define as separate buildings. Structure Y (recorded by Morris as Building 1) is rather more clearly visible flanking the eastern side of track Z to the south of its intersection with track W. With the exception of the explosives store, which is a bicameral brick-built structure equipped with steel blast-doors, the remainder appear to be of dry-stone construction (so far as is visible).

5.64 Structure Y is a curious complex comprising a double row of six 'cells', arranged in two tiers, the easternmost row being higher than the western row. Each row, is 5m wide, and the entire complex is 25m long resulting in the individual 'cells' being approximately 5m by 4m. Morris tentatively considers these to be a terrace of two-room cottages built in a tradition seen in mining and quarrying communities elsewhere (Morris 1994, 277). However, differential height of the rows in unusual and its location would suggest that it is more likely to be associated with the construction of the 1950s tunnel.

5.65 The sole construction shaft for the 1950s railway is located off the line of the 19th-century works, approximately 55m to the south, and its surface remains are represented by a single, square, brick ventilation tower constructed in English Garden Wall bond (Structure B). The structure is approximately 6m square, its walls being capped with sandstone ashlar coping stones, one having been displaced.

5.66 The spoil heap for the 1950s tunnel is very large in comparison to the dendritic spoil-heaps of the 1800s and comprises a well defined and deliberately shaped, level platform of debris measuring some 240m north-west to south-east by 120m north-east to south-west. It would seem likely that the majority of the spoil from the earlier phase of construction, and the remains of many of the associated buildings, have been 'tidied up' and incorporated into this later heap. There is, perhaps, one surviving remnant of the 1840s spoil regime in the form of what may be the tip of a single finger mound at the limit of the zone containing Features E.

Construction Shaft 2 (Figure 5)

5.67 Construction Shaft 2 was excavated in an elevated position on the eastern slope of one of the two highest points of the route, to the west of Construction Shaft 3 and the 1950s shaft. An air-shaft tower (Structure AC), which is approximately 3m high, now sits over the shaft, which was enlarged from 10- to 16 feet in diameter between 1912 and 1915 (Ball 1916, 307 and NAA 2013, 4), the tower being associated with this event rather than being a mid 19th century structure. It was built of cement-mortared, coursed gritstone blocks of various shapes and sizes and sits upon a concrete ring-beam which is eroding, predominantly on its western side. As a consequence of this erosion, the masonry of the structure has cracked in several places, and in at least one case, the crack extends through the blocks of the masonry rather than through the bonding. Some baulks of timber have also been incorporated into the structure at low level, these now being in poor condition.

5.68 The tower sits amidst a complex of spoil-heaps, predominantly situated to the east of the tower, which undoubted contain the remains of ancillary structures such as the engine house which are difficult to definitively identify on the surface. The spoil tips have clearly been reworked, the dendritic pattern of spoil from the 1840s excavations having been infilled over a considerable

Woodhead Tunnels: site of 1840s Construction Shaft 2 *Figure 5*

section of the heap. However, the remains of a number of possible structures, including sections of mortared walling, survive in an area (AA) to the north of the shaft. This area has been subjected to a significant degree of disturbance with ground levels being considerably lower than the surrounding zones; and it is likely that this, and the infilling if the finger-mounds, occurred when the shaft was enlarged in the early 20th century. Within this area there is a small patch, c. 5m square, patch of recently disturbed soil (AB).

5.69 There are, however, a number of visible features which can be attributed to the original construction programme with a greater degree of confidence. A chimney-base, and a 25m length of flue (AD) survive to the west of the shaft. The flue is double walled and sealed with stone cap-stones but its remains have been truncated within the area that has been subjected disturbance (AA). The chimney-base is a stone-built structure approximately 2m square, and both features were undoubtedly associated with the former boiler-house once supplying a steam pumping-engine.

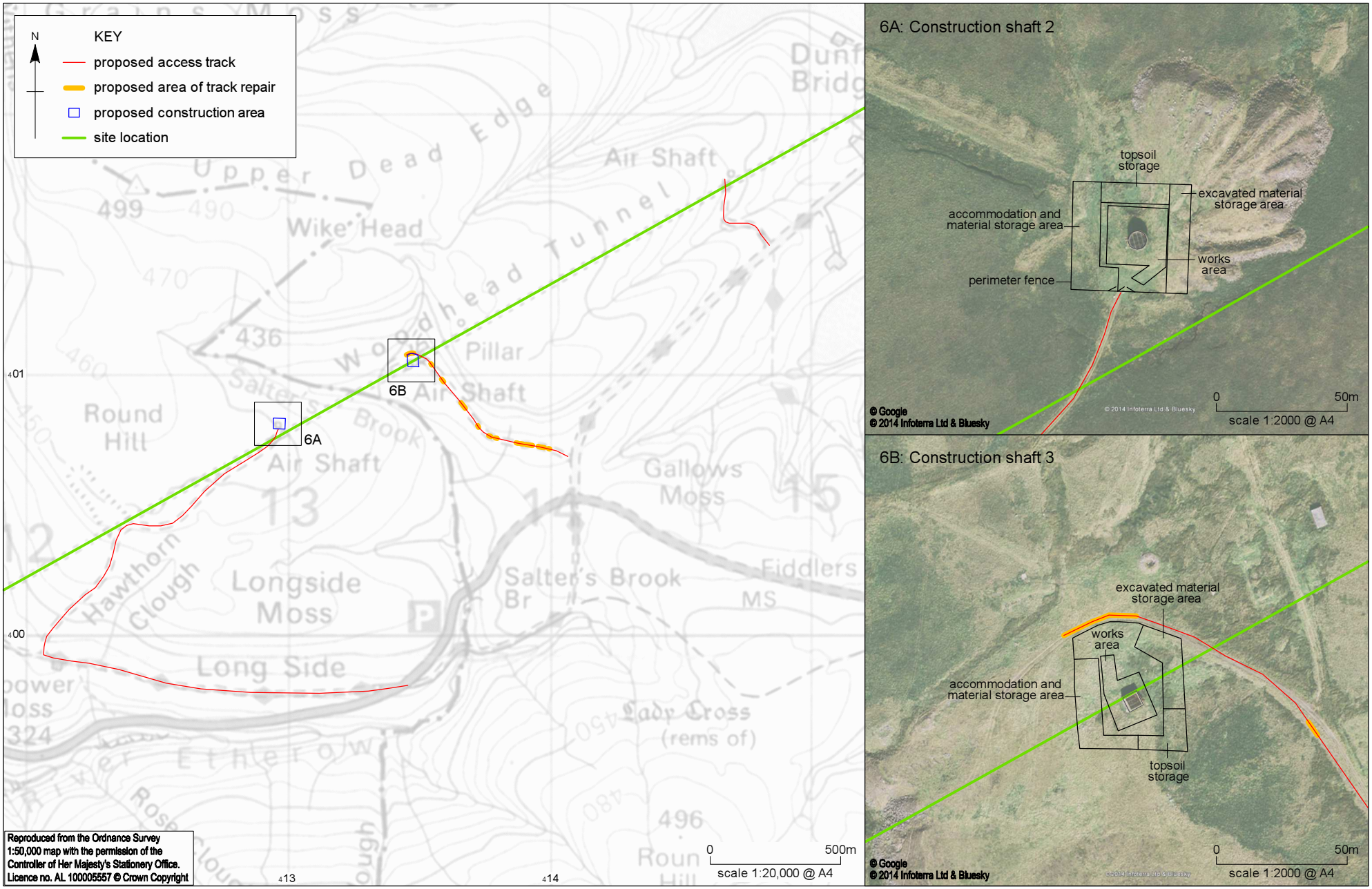
5.70 A large drain (AE), up to 8m wide at its base, cut into through the hillside to the north-west of the shaft was probably also associated with the process of de-watering the shaft. Water ingress was a considerable problem to the construction of the first tunnel, and over eight million gallons of water were pumped from the construction shafts over the six years it took to build the tunnel (NAA 2013, 3). The drain appears to feed into a tributary of Salter's Brook but its south-eastern end has been disrupted by later groundworks.

5.71 A 3m wide track (AF) leads northwards from the shaft. The track is grass covered with no surface being visible, but has a ditch on either side and the feature is similar to track K situated at Construction Shaft 3. This track could represent the only means of former intercommunication between shafts 2 and 3 during construction works. The track heads northwards towards higher ground, and may have looped eastwards towards shaft 3 in preference to a route that dropped into the valley of Salter's Brook, and the marshy ground beyond. The track also heads towards a complex of ruined buildings, and something that appears to be a further spoil heap, just short of 200m distant from the shaft-head. Beyond these it appears to loop towards the east. The site is currently accessible by a track leading south-westwards towards Construction Shaft 1, and Geystones Edge quarry.

5.72 No features or buildings that could be interpreted as workers accommodation, bothies or otherwise, were identified within 100m of the head of Construction Shaft 2 but the features noted some 200m to the north could represent the remains of buildings constructed for such a purpose.

Development description (Figure 6)

5.73 At present, it is proposed to seal the shaft-heads at Construction Shaft 2 and the 1950s shaft adjacent to Construction Shaft 3. Shafts 1, 3 and 4 have already



Woodhead Tunnels: development proposals

Figure 6

been backfilled and shaft 5 has been partially backfilled to a point below an intercepting stope driven from the 1950s tunnel. Current proposals for this shaft appear to involve backfilling the remainder of the shaft only.

5.74 Access to all three shafts will be along existing trackways perhaps of 1840s origin, but which have been modified and maintained through time in order to provide vehicular access to the moors for recreational purposes. There will be some need to upgrade or repair sections of these trackways where they have been subjected to recent erosion or other damage as part of the development proposals.

5.75 The present ventilation tower at Construction Shaft 2, which is an early 20th century structure, will be dismantled, and a new, albeit smaller, tower built upon the site once shaft-capping works have been completed. The brick ventilation tower near Construction Shaft 3 with be dismantled and not replaced. Proposals for the brick-built ventilation tower over Construction Shaft 5 are unclear at present; but it may be possible to backfill the shaft without altering the tower.

5.76 Small construction compounds will be established around the two shafts to be capped. The details vary from tower to tower but their locations and layouts are presented in figure 6. Both sites will be provided with construction compounds approximately 40m square, although some local variation will be necessary for engineering reasons. The compounds will serve to exclude public access to the works, and act as storage areas for topsoils and other arisings, and provide some limited site accommodation facilities. Security Heras fencing will be transported to the area using tractor and trailer and installed around the compound. Once the site compound is formed, topsoil within the area of the compound will be excavated using a 360-degree mechanical excavator to a maximum depth of 150mm. Excavated topsoil will then be stored within the compound ready for reinstatement on completion of the works.

5.77 The groundworks involved with the demolition of the 1950s ventilation tower and the sealing of the construction shaft will involve the excavation of trenches around the northern and southern perimeter of the shaft to a maximum width of 1200mm to facilitate construction works. This work will be undertaken in accordance with a methods statement produced by JSM on behalf of the National Grid Company (MS/P/AQ/128). The shaft-head is approximately 6.25m in diameter, constructed of concrete and extends beyond bedrock to ground level and it is upon this foundation that the brick tower is built. The ventilation tower will be demolished to the top of the shaft-head and the shaft will be capped with a concrete slab extending the full width of the excavation area. The excavation area will be backfilled to the original ground level using the excavation arisings, and reprocessed demolition material originating from the ventilation tower. The surface will be finished with the upper soils excavated from the site and contoured to match the surrounding topography.

5.78 Construction Shaft 2 will be sealed in a similar manner (National Grid drawing number NG 78-MM-1046). The excavation trench will be slightly larger as a result of local topographic conditions and the need to maintain a 45-degree batter on the trench sides. The current design requires the excavation of a square trench, approximately 20m square at surface level but tapering to 10m at its base. In this case, the 20th century masonry tower is built upon a brick shaft-head structure which extends beyond the level of the bedrock to ground level, both being approximately 4.8m in diameter. The tower and the shaft will be demolished to bedrock level, and capped with a 10m square concrete slab. Once the shaft is capped, the trench will be backfilled with arisings and reprocessed demolition debris and a new tower, built with stone recovered from the existing tower, will be built on a new foundation slab above the centre-line of the shaft. The new tower will be approximately 3m in diameter, and half filled with granular material. The tower will be topped with a new cover frame and grill to deter intruders. Although the new tower will be narrower than the existing tower, it will act in as a prominent landscape feature in a manner identical to the existing structure.

5.79 All of the construction sites would be accessed along existing trackways that will require some level of reinforcement where these are in eroded or unstable condition. Some 151m of access track will be subject to localised repair. Most repairs will involve only the infilling of potholes along the route of the access track however, in a small number of areas, localised and small scale widening of the access track will also be required. This widening would involve the deposit of a locally sourced, gritstone aggregate to form a stable bank and no material would be deposited further than 3m from the existing edge of the access track.

6.0 DISCUSSION

Predicted impacts

6.1 The remediation of the shaft-heads at Construction Shaft 2 and the 1950s construction shaft will involve the removal of all top and subsoils from within the construction compounds, and the excavation of working trenches around the tops of the shafts themselves. At present, the precise details of the works to be undertaken at Construction Shaft 5 have yet to be formalised, but it appears that there are no requirements for intrusive groundworks at this site. In addition there will be some requirement to repair, and in some places, enlarge, existing trackways to permit the safe passage of site vehicles and plant to and from the shaft heads. This will involve building up existing surfaces; however, no intrusive groundworks are presently envisaged along the courses of the routes in question.

6.2 All intrusive groundworks have the potential to damage or destroy hitherto unidentified archaeological deposits, and given the nature of previous works

within these areas, any such remains are likely to be associated with the construction of the 19th and 20th century railway tunnels themselves.

6.3 There are no recorded archaeological sites or other Heritage Assets attributable to the prehistoric, Roman, early- and/or later medieval periods within those areas likely to be affected by the proposed works. There are a series of findspots relating to the recovery of Mesolithic lithic material from within the vicinity, with a particular cluster (Sites 1, 4, 5 and 6) adjacent to the proposed works area around the 1950s construction shaft. These sites, however, are located within peat deposits which survive at an elevation in excess of 30m above that of the proposed development area. In addition, given the intrusive nature of development in this zone in both the 1840s and the 1950s, there is no potential for any meaningful archaeological deposits to have survived in this area that predate the construction of the railway tunnels. Furthermore, the construction methodology during the sinking of the later shaft, where the construction area seems to have been stripped to bedrock (see Plate 4) and site remediation works undertaken subsequent to the construction of the tunnel, are likely to have resulted in the destruction of all archaeological deposits relating to any period, including the 19th century, from the area identified for remediation. All of the features recorded during the site survey work undertaken as part of this study which could be potentially attributable to the 19th century exist beyond the works, and will therefore remain undisturbed.

6.4 Superficially there would, perhaps, seem to be a slightly greater potential for deposits predating the construction of the 1840s tunnel within the vicinity of Construction Shaft 2. Site 15 is the findspot of further Mesolithic material but it is situated several hundred metres to the south of the shaft. Purdon describes in great detail, the mechanical means by which the shafts were dewatered, and the mechanisms required for raising spoil from the shafts in his publication of 1849. All of these required the construction of substantial machines, engines and boiler-houses in the immediate vicinity of the shaft-heads, and it is the remains of these devices which are more likely to survive at these locations rather than anything belonging to earlier periods. In the case of Construction Shaft 2, water ingress was of such a magnitude that a second engine had to be installed to assist with the pumping operations (Purdon 1849, 124). However, Construction Shaft 2 was enlarged in the first decades of the 20th century, and the quantity and nature of the machinery involved in this procedure are at present, unclear. It was apparent from the site survey undertaken around this shaft, that much of the area of the development had been subjected to secondary activity, unquestionably related to the enlargement of the shaft. As a consequence, the potential for the survival of archaeological remains related to the 1840s works, is likely to have been significantly reduced by the later construction programme.

6.5 Construction Shaft 5, similarly has been subjected to significant later works; the surviving tower being of 1950s date. There are no recorded sites other than an undated enclosure within its near vicinity and it is considered unlikely that any significant archaeological remains predating 1840 would have survived

both programmes of construction works. Any future programme of shaft remediation works here are unlikely to have an impact upon any surviving archaeological remains relating to the 1840s engineering scheme if they not of an intrusive nature.

6.6 There are no current proposals for intrusive groundworks on any of the access tracks, all of which appear to have been maintained through time by the additional of successive surfaces. All construction works proposed for these are restricted to the reinstatement, or enlargement, of the tracks, such works in effect providing additional protection for these features and any underlying deposits.

6.7 Whilst the construction programme will have a temporary, adverse, impact upon the settings of those Heritage Assets within the near vicinity of the works, the remediation works to the shaft-heads will result in the loss of the 1950s ventilation tower and the replacement of a ventilation tower on the site of Construction Shaft 2, which was constructed *c*.1915, with a facsimile of slightly smaller dimensions. The 20th century ventilation tower over Construction Shaft 5 is expected to remain unaltered by remediation works. The three ventilation towers are considered to be of Local Importance but are prominent landscape features. The replacement of the early 20th century ventilation tower with a smaller structure on the same location will go some way towards retaining a landmark structure at this location.

7.0 CONCLUSION AND RECOMMENDATIONS

7.1 There is little potential for the survival of archaeological features of any period within the confines of the proposed developments sites as a result of earlier intrusive works related to the construction of the 1840s and 1950s railway tunnels, other than features related to those construction programmes themselves.

7.2 Of the five original Construction Shafts employed during the construction of the Woodhead tunnels in the 1840s, none survive in their original form. Construction Shaft 1 appears to have been filled with rubble prior to 1911 and shafts 3 and 4 seem to have been sealed and backfilled sometime after the CEGB acquired the Victorian tunnels in the mid 1960s. Shaft 2 was modified and enlarged between 1912 and 1915, and received further attention at the hands of the CEGB who retained this particular shaft for ventilation purposes in the 1960s. Shaft 5 was intercepted for use as a ventilation facility during the construction of the third railway tunnel in the 1950s, and partially backfilled by the CEGB thereafter. The surviving shaft-head structures relate solely to the use of their respective shafts as ventilation structures, and there is no surface evidence for the shaft-head gear used during the construction of the tunnels, although copious evidence for the spoil-heaps resulting from this activity survives at the sites of shafts 2, 4 and 5. It is likely that some subsurface remains relating to the use of the shafts as Construction Shafts will survive at

all of the sites, with perhaps shafts 1 and 3 having the lowest potential for the good survival of such remains (NAA 2013 24-25).

7.3 A number of structures that could potentially be equated with workers accommodation were identified within the landscape around the 1950s shaft-head as a result of this study, these already having been recorded by Morris in 1994. However, there is a difference of opinion in the dating of these structures; two buildings are considered by both studies to potentially equate with navvy huts associated with the 1840s tunnel (Structures F and Q above, Morris 4 and 5). The remainder of the Morris' structures situated within the present study area, Buildings 1, 6 and 7 (Morris 2000, 279) appear to be later. Building 7 in particular, is brick-built and attributed to works undertaken on the second tunnel in 1880 by Morris. However, the second bore was driven sideways, through cross-passages from the first in the 1850s, not in the 1880s. It is therefore considered more likely that Morris Building 7 is of 1950s vintage, and the remaining buildings within its vicinity (1 and 6) could be of the same date on the basis of their proximity and alignment alone. It is interesting to note that similar buildings are not apparent at any other shaft-head along the line of the tunnel.

7.4 These remains all lie outside of the proposed works area around the 1950s shaft-head, and will not be adversely affected by the remediation works. However, access to the former shafts is by a track that runs between a number of structures and vehicle passage along this track could potentially have an impact upon them if vehicles stray off the track.

7.5 There is some potential for the remains of former ancillary structures to be in the vicinity of Construction Shaft 2, especially if these originally lay to the north of the shaft. However, survey evidence suggests that the remains of any 1840s buildings once situated immediately around the shaft-head will have already been compromised by development undertaken in 1915. The development proposals are located directly above the enlarged shaft, and the compound situated over an area that may still preserve some elements of the 1840s work.

7.6 Proposals for the remediation of Construction Shaft 5 are still emerging but it seems likely that this shaft will simply be backfilled with imported stone. Again, this shaft-head has been subjected to later development, and any 1840s remains are likely to have been significantly compromised as a result. The development proposals so far indicate no, or a minimal impact upon any surviving remains at this site.

Recommendations

7.7 The development area around the 1950s shaft-head will not extend sufficiently to impinge upon any of the structures in the vicinity identified as a result of this study, or an earlier study undertaken by Morris in 1994. Intrusive works around the shaft-head itself will be undertaken in a limited area that already seems to have been stripped to bedrock and as a consequence no further work

is warranted at this site. Access tracks will be further protected as a part of this development and no further archaeological mitigation works are required as a consequence of this process.

7.8 There is limited potential for the construction compound to impinge upon archaeological remains associated with the construction of the 1840s tunnel and this could be mitigated by undertaking an archaeological watching brief during soil stripping works for the compound itself.

7.9 Although the superstructure of Construction Shaft 2 relates to the enlargement of the shaft in the first decades of the 20th century, it is still a prominent landscape feature. In sealing the shaft, the tower will be dismantled and a facsimile rebuilt on the site in order to retain its cultural heritage value to some extent. The existing tower should be subjected to a programme of building recording prior to its demolition in order to preserve its original form by record.

7.10 Proposals for Construction Shaft 2 have yet to be refined but should generally seek to avoid damaging any of the surviving earthwork features that may represent original elements of the construction programme undertaken in the 1840s and 1850s, outwith the defined works area, and use existing trackways as means of access and egress. These should be repaired and further protected wherever necessary prior to the main works occurring.

7.11 It is recommended that on-site interpretation is installed adjacent to the present portals, possibly linked to the nearby Trans Pennine Trail, in order to enhance public understanding of the railway tunnels and appreciation of the monument. The Peak District National Park should be given the opportunity to provide an input into the siting and content of any on-site interpretation in order that it should complement any existing or planned initiatives and literature for the area.

7.12 A report on all of the archaeological mitigation works undertaken to date should be prepared and submitted to the Peak District National Park Historic Environment Record, and the National Monuments Record and a short report for publication in an appropriate journal prepared if this is considered appropriate.

7.13 A Written Scheme of Archaeological Investigation for the recommended works should be prepared, submitted to, and agreed as a suitable scheme of works with the Peak District National Park Archaeological Officer in advance of any remediation works in the vicinity of the former Construction Shaft 2 occurring.

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Appendix A

Features recorded during site survey

Ref	Type	Description	Period	Condition
A	Spoil	1m High platform fringing trackway end	Modern	Stable
B	Structure	2m + high c. 6m square brick built ventilation tower	Modern	Stable
C	Platform	Concrete floor/platform	Modern	Stable
D	Wall	Grassed over ridge along drain edge with shaped concrete visible, probable wall	Modern	Stable
E	Structures?	Area of scoops and hollows which appear to project from under 1950s spoil reshaping. No definite walls visible so may just be earlier robbing scoops	C19	Stable
F	Structure	One possibly two celled rectangular dry stone structure, c.8.5m by 4m. Grass covered standing up to 0.4m high with some stone courses visible. Orthostatic furniture in interior. Hollow to north may be natural but could represent peat cutting	C19	Stable
G	Sluice	Approximately 1.3m apart, two 3cm wide round iron poles with flaring cross shaped heads project from a breached bank forming a narrowing of a stream channel. A third headless bent iron pole is visible to the south of the breach.	C19	Stable
H	Platform	1.7m square concrete platform	Modern	Stable
J	Platform	1.2m high grass and reed covered stone rubble platform. Concrete rubble visible in interior	Modern	Stable
K	Track	1m high x 3m wide trackway with c.2m wide ditch to either side. Grass and reed covered, very waterlogged. Possibly disturbed at eastern end as no clear continuation to east of stream channel, continues beyond survey area to west	C19	Stable
L	Dam?	Possible branch of track K (leading towards structure Q) though location suggests water management feature. Shallow dam? (breached)	C19	Stable
M	Leat	Cut around slope from natural stream running below structure Q. Widens out to over 4m at western end, over 2m deep. Remains of a bank at the western end suggest an attempt at flow management.	C19	Stable
N	Structure	Area of structural remains north-west of original shaft, beyond natural stream course. Standing dry stone walls visible to c.0.5m high.	C19	Stable
P	Leat	Possible feeder leat running around slope below leat M towards structure N. 0.4m wide and up to 0.3m deep.	C19	Stable
Q	Structure	Rectangular 2 celled dry stone structure, entrance to east. Mostly tumbled but up to 1m high. Approximately 10m long by 5.5m wide. Equates with Morris Building 3 3.	C19	Stable
R	Peat cutting?	Rectangular peat cutting area behind structure Q	C19	Stable
S	Platform	Rectangular concrete platform/ slab measuring some 1.5m by 0.5m.	Modern	Stable

T	Shaft	Visible backfilled remains of original shaft, c. 8m in diameter. Equates with Morris Structure 8	C19	Stable
U	Platform	Rectangular concrete platform/ slab measuring some 1.5m by 0.5m.	Modern	Stable
V	Platform	1.5m square concrete platform	Modern	Stable
W	Track	3m wide rubble based gravel surfaced track branching from track Z and running through structural area X	Modern	Stable
X	Structures	Large area of structural remains to either side of track W. Dry stone walls of up to 0.4m high are visible along with mounds and hollow suggestive of further structures. Area is covered in reeds and tall grasses. Equates with Morris structures 6, and explosives store, structure 7,with a further potential structure identified to the east.	Modern	Stable
Y	Structure	Large rectangular two tiered grass covered structure running alongside track Z. Structure measures some 25m long by 10m wide. Each 5m wide tier comprises 6 roughly equal sized cells of drystone construction. Equates with Morris Structure 1.	Modern	Stable
Z	Track	5.5m wide rubble based, gravel levelled track leading from main road to later shaft workings	Modern	Stable
AA	Structures	Lowered area of spoil tip to north of shaft 2, possibly containing structural remains. Area measures some 30m north to south by 20m east to west and is grass covered. Possible platforms and linear mounds suggest structure on the surface with remains of mortared walling visible along the western hollow edge. This area truncates both the flue AD and the drain AE.	Modern	Stable
AB	Disturbance	5m square patch of recently disturbed soil	Modern	Stable
AC	Shaft	C.8m min diameter and over 2.5m high stone built shaft cap.	Modern	Stable
AD	Chimney	2m square stone built chimney base with adjoining 25m long flue running up hillside. Flue is approximately 2.5m wide and stone capped. Flue is truncated at eastern end by later ground lowering of possible structural area AA	C19	Stable
AE	Drain	Large drain cut through hillside, measuring some 8m wide at the base and up to 19m wide at surface level. Upcast spoil mounds are visible to the northern side of the cut beneath a continuous bank. Drain aligns with the northern edge of the shaft but has been truncated by the lowering event AA, at which time its eastern end was blocked by a low bank.	C19	Stable
AF	Track	3m wide probable track running north from area AA - unclear whether it predates or is contemporary with AA. Track is grass covered with a ditch to either side, no visible surface material present.		Stable