ARCHAEOLOGICAL WATCHING BRIEF AT GLENDORAN, WHITECLIFF, COLEFORD, GLOUCESTERSHIRE

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Part 1 Project summary

An archaeological watching brief was undertaken at Glendoran, Whitecliff, Coleford, Gloucestershire (NGR: SO 5687 1016) during water mains rehabilitation works. It was undertaken on behalf of Severn Trent Water. The watching brief was required for a c.250m stretch of open-cut pipeline in the vicinity of Whitecliff Furnace, an important industrial archaeological site dating from the late 18th century and a Scheduled Ancient Monument (SAM470). The project aimed to determine if any significant archaeological remains were present and, if so, to indicate their location, date and nature.

The watching brief demonstrated the existence of a large amount of re-deposited waste material from the blast furnace which had been spread out to the east of the monument and along the course of the adjacent road (Newland Street). The material may have been dumped to create a solid yard and trackway to service the furnace. A sandstone surface was also discovered but its purpose remains unclear. In addition, a stone-built culvert, probably also of 18th century date, was recorded in a test pit located beyond the formal limits of the watching brief. No evidence of activity pre-dating the furnace was discovered.

Part 2 Detailed report

1. Background

1.1 Reasons for the project

An archaeological watching brief was undertaken at Glendoran, Whitecliff, Coleford, Gloucestershire (NGR: SO 5687 1016; Fig 1) during water mains replacement and rehabilitation works undertaken by Balfour Beatty on behalf of Severn Trent Water. The water main follows the course of Newland Street (running south-west from the village of Coleford) and passes Whitecliff Furnace, an important late 18th century blast furnace and a Scheduled Ancient Monument (SAM470; Plate 1). The course of the pipeline lies outside the scheduled area. However, prior to work commencing, and on the advice of English Heritage, it was decided to relocate the water main in the vicinity of the monument so as to avoid a previously identified stone-built culvert, probably also of 18th century date, which runs along the north-western side of Newland Street. This required the cutting of a new pipe trench opposite the furnace, running along the south-eastern edge of Newland Street for a distance of approximately 250m. It was considered that structures and remains associated with the furnace might be encountered during this work and an archaeological watching brief was therefore required by Gloucestershire County Council.

1.2 Project parameters

The project conforms to the Institute of Field Archaeologists' *Standard and guidance for an archaeological watching brief* (IFA 1999). The project also conforms to a brief prepared by Charles Parry, Senior Archaeological Officer, Gloucestershire County Council (Parry 2006) and to a project proposal produced by the Historic Environment and Archaeology Service, Worcestershire County Council (HEAS 2007).

1.3 Aims

The aims of the watching brief were to locate archaeological deposits and to determine, if present, their extent, state of preservation, date, type, vulnerability and documentation. The purpose of this was to establish their significance. The project also aimed to improve existing knowledge of surviving archaeological deposits in the vicinity of Whitecliff Furnace.

2. Methods

2.1 Documentary search

A search was made of the Gloucestershire Sites and Monuments Record (SMR). In addition to the sources listed in the bibliography the following were also consulted:

Cartographic sources

- Ordnance Survey maps: 1880, 1900, 1925

2.2 Fieldwork methodology

2.2.1 Fieldwork strategy

Fieldwork was undertaken on the 4th and 8th October 2007. Four test pits of varying dimensions and depths (see Appendix 1) were excavated along the course of the pipe trench and in advance of the mains renewal. These were observed and recorded by the on-site

archaeologist after they had been excavated. An additional test pit, outside the area covered by the watching brief, was also observed and recorded as it revealed a small section of the previously identified 18th century culvert (test pit 5). The location of these test pits is indicated in Figure 2.

With the approval of Gloucestershire County Council the original brief was modified to permit the use of a toothed trenching machine, given the nature of the below-ground deposits (the test pits had shown that these consisted of compacted stony material which could not be excavated practicably by any other means). The project archaeologist was present during the excavation of the trench and monitored the work.

The sides of the trench were observed and, where feasible, representative sections were cleaned and recorded (the trench varied in width from 0.27-0.50m, making access difficult in places). Selected deposits and structures were also cleaned and, where appropriate, excavated to determine their nature and retrieve artefactual material. All deposits were recorded according to standard Service practice (CAS 1995).

2.2.2 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural and artefactual evidence, allied to the information derived from other sources.

2.3 Artefact methodology

2.3.1 Artefact recovery policy and method of analysis

The artefact recovery policy conformed to standard Service practice (CAS 1995; appendix 2). In the event, very few artefacts were encountered. However, all hand-retrieved finds were examined by a specialist and their conclusions have been incorporated into this report. Pottery fabrics are referenced to the fabric reference series maintained by the Service (Hurst 1994).

2.4 Environmental archaeology methodology

2.4.1 Sampling policy and method of analysis

The environmental sampling strategy conformed to standard Service practice (CAS 1995; appendix 4). In the event, no deposits considered suitable for environmental analysis were encountered.

2.5 The methods in retrospect

The methods adopted allow a high degree of confidence that the aims of the project have been achieved. However, the narrow width of the pipe trench significantly limited access to and visibility of deposits in places.

3. Topographical and archaeological context

The water main follows the course of Newland Street which runs south-west from the village of Coleford on the edge of the Forest of Dean (Fig 1). The road follows the course of a narrow valley which slopes from north-east to south-west. The solid geology is carboniferous limestone and Devonian and Permo-Triassic reddish sandstone, siltstone and silty shale; this is overlain by well-drained, often shallow loamy soils of the Crwbin and Eardiston associations (British Geological Survey 1974; Soil Survey of England and Wales 1983).

Whitecliff Furnace is located on the north-west side of Newland Street approximately 0.75km from the centre of Coleford. The history of the ironworks has not been fully elucidated and there are inconsistencies in the sources (see Standing 1980, 1981 and 1986 for the most comprehensive survey). Construction of the blast furnace began during 1798-1799 and, after initial difficulties, it appears to have been operational by 1801-1802 (Standing 1980, 22), although its SMR description notes a completion date of 1804 (GSMR470). The furnace was designed for smelting with coke rather than charcoal, a practice first attempted in the early 18th century but which did not become commonplace until the latter part of that century. The furnace bellows appear to have been steam driven (GSMR470), the water possibly deriving from the culvert that runs adjacent to Newland Street and which is also likely to be of 18th century date. Raw materials (coke, ore and limestone (the latter used as a flux)) were all sourced locally from the Forest of Dean (Standing 1980, 24). Whitecliff quarry, located to the west of the ironworks, may have been a source of limestone (GSMR4399).

A map of 1808 depicts two furnace structures, suggesting that by this date two blast furnaces were operational; the existence of a second furnace has been confirmed by excavation (GSMR470). During 1808-1810 the noted metallurgist David Mushet (1772-1847) supervised a major rebuilding of the ironworks and appears to have constructed a third furnace (GSMR470; Standing 1986, 2). The latter part of Whitecliff's history, however, is marked by decline. The ironworks proved unprofitable for a variety of reasons (declining iron prices, poor quality ore and an expensive and unsuitable type of coke) and production ceased at some point between 1812 and 1816 (Standing 1986, 4-6, 9; GSMR470).

There are two (possibly three) associated limekilns in the vicinity of the site (GSMR470/3-4). These may have been operational at the same time as the furnace but probably mainly relate to later lime burning (Standing 1986, 6). In addition, a paintworks was operational near to the furnace during the early 19th century, functioning at the same time as the ironworks (GSMR470/6; GSMR21329). The Monmouth Tramroad, which opened in 1812, ran along the ridge to the west of the furnace; it was replaced by the Coleford Railway in 1872 (GSMR20425; GSMR6076).

Evidence for iron working in the Forest of Dean is known from the Iron Age onwards (Walters 1999) and there is some evidence for pre-industrial ironworking in the vicinity of Whitecliff furnace. Significant accumulations of bloomery slag, thought to be medieval, have been identified, notably outside Whitecliff House, just beyond the northern limit of the present works (GSMR4928). Additional evidence for medieval activity in the area consists of ridge and furrow (GSMR4923; GSMR4926) and Rock Lane, an early roadway with associated deserted settlement (GSMR4925).

Earlier archaeological work at the site includes a desk-based assessment of Whitecliff by Cotswold Archaeological Trust in 1992 (GSMR20401) which noted prehistoric and Roman finds from sites in the vicinity, early post-medieval field systems and the presence of bloomery slag as well as the later industrial heritage. A further desk-based assessment and two associated watching briefs were carried out during 1999-2000 in relation to a new sewer scheme (CgMS, Gloucestershire County Council, Foundations Archaeology; GSMR20567). These works concluded that there was low archaeological potential along the route of the sewer (which passed the furnace site) but located some cultural material of Roman, medieval and modern dates. There has also been some excavation to investigate the furnace site itself, undertaken between 1983 and 1986 (Gloucestershire Society for Industrial Archaeology and Dean Heritage Museum Trust; GSMR470; Standing 1986, 19). This work located the remains of a second furnace, quantities of lime-burning waste, brick-lined tanks and additional structures. It also confirmed the use of the site for other industrial purposes into the mid-19th century.

4. Results

4.1 Structural analysis

The test pits and features recorded are shown in Figures 2-4. The results of the structural analysis are presented in Appendix 1.

4.1.1 Phase 1 Natural deposits

Natural geological deposits were not observed in any of the test pits or in the pipe trench. The maximum depth of ground disturbance associated with the works was 1.40m (test pit 1); the majority of the pipe trench was cut to a depth of c.0.70-0.90m below existing ground level.

4.1.2 Phase 2 Post-medieval deposits

The test pits and the pipe trench revealed essentially the same profile for the entire open-cut section of the works. This consisted of a sequence of narrow, superimposed layers of re-deposited stone and industrial waste derived from the blast furnace, all tightly compacted (Fig 3; Plates 3-8). The nature of the layers varied. Some consisted predominantly of small-medium sized, angular fragments of stone and in many layers these stones were blackened with soot. A number consisted of limestone fragments, many of which had been scorched prior to deposition (these had a distinctive pinkish-orange hue). Others layers contained various combinations of stone, soot, clinker, iron working slag and mortar fragments, generally within a silty sand matrix. This sequence of layers extended down to the limit of excavation in all ground works that were monitored (to a maximum depth of 1.40m below current ground level).

In one section of the pipe trench (pipe trench section 7) a stone surface was located at a depth of 0.46m below current ground level (Fig 4; Plate 9). The surface was constructed of a single layer of green sandstone blocks (0.18m deep) and extended for 4.70m. It lay within the sequence of stone and industrial waste layers (that is, it sealed such layers and was, in turn, sealed by them). At its southern end an associated cut was observed in section, possibly a construction cut, which was similarly sealed by later layers of stone, iron working slag and soot. The surface clearly relates to the same general period of deposition as the waste layers.

In test pit 5, outside the limits of the watching brief and to the south of the furnace site, the construction company encountered part of the stone-built culvert that had previously been identified in the vicinity of the monument itself (Plate 10). The culvert was constructed of dressed, green sandstone blocks and bonded with lime mortar. Its height was c.1.20m, its width c.1.00m and water continued to flow along its course.

4.1.3 Phase 3 Modern deposits

A small number of modern intrusions was observed, most apparently related to earlier services and drainage works along the course of the road. An earlier tarmac road surface was also in evidence in some sections of the pipe trench, as were occasional layers of apparently modern ‘hardcore’.

4.2 Artefact analysis

The assemblage consisted of stone samples, iron working slag fragments and three unstratified pottery sherds.

The iron working slag could be broadly divided into two general types. First, medium-large lumps of dark, rust-coloured iron slag of a miscellaneous type which was not datable to any

particular period. Second, smaller fragments of dark, glassy iron slag; this material is particularly characteristic of waste material derived from blast furnaces such as that at Whitecliff (pers. comm. Derek Hurst, HEAS).

The pottery assemblage is summarised in Table 1.

Context	Fabric	Fabric common name	Total	Weight (g)
Unstratified	78	Post-medieval red wares	2	23
Unstratified	85	Modern china	1	0.5

Table 1: Quantification of the pottery by fabric

The red wares possibly derive from a bowl and from a plate; they are both most likely to be of 17th to 18th century date (pers. comm. Derek Hurst, HEAS). The small size of the assemblage and its unstratified nature limits further analysis.

5. Synthesis

The results of the watching brief suggest that there is a large quantity of dumped material relating to the use of Whitecliff furnace in the vicinity of the monument. Although no direct dating evidence was retrieved, the glassy iron working slag, clinker and soot observed in many of the layers are all by-products of blast furnace operations and must relate to Whitecliff furnace. The presence of layers of limestone fragments is also indicative as limestone was used as a flux in blast furnaces (Jones 1996, 28-29). A paintworks and limekilns also functioned near to the site of the furnace and both these industries also required raw materials to be heated (Jones 1996, 225; Standing 1986, 6). Some of the material observed during the watching brief may, therefore, derive from other industrial activities. No evidence of earlier ironworking was recorded.

The dumped material appears to have been spread out to the east of the furnace and along the course of Newland Street. It was laid down as a series of narrow, horizontal bands, the upper surface of each one forming a flat, slightly sloping surface. It seems most likely that this material was laid down gradually over time as waste products from the furnace accumulated and required dispersal. It is also possible that a deliberate attempt was made to form a flat yard or surface in front of the furnace and to counter the natural slope of the land in this area (the ground surface (and Newland Street itself) slopes from north to south in the vicinity of the monument). A solid, reasonably level surface and roadway would have been required to receive and store large quantities of raw materials for the furnace (for instance, it is estimated that 200 tons of raw materials were being carted to the furnace for each week of production in 1808; Standing 1980, 26).

The re-deposited material was clearly visible in section for the entire 250m length of pipe trench and survived to a depth of at least 1.40m in places. This represents an enormous volume of waste products and indicates that, in its prime, the scale of production at the site must have been high. This conclusion supports the historical evidence which suggests that upto three furnaces were constructed at Whitecliff (GSMR470; Standing 1980, 18).

The stone surface observed within the pipe trench is of unknown purpose but clearly relates to the same period of deposition as the waste layers. It appeared to align approximately with a straight joint in the masonry of the retaining wall running along the north-west side of Newland Street, though this may be coincidental. The surface may be a yard or platform related to the furnace, the paint works or a property on Newland Street but the limited amount of this feature that was exposed makes any interpretation entirely speculative.

The watching brief has also demonstrated that the stone-built culvert that had previously been identified in the vicinity of the blast furnace also survives intact (and functional) several meters to the south of the monument. It represents a major feat of engineering in its own right.

6. Publication summary

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, the Service intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

An archaeological watching brief was undertaken on behalf of Severn Trent Water at Glendoran, Whitecliff, Coleford, Gloucestershire (NGR: SO5687 1016). A c.250m section of open-cut pipe trench was monitored. This section of the pipe trench passed Whitecliff Furnace, an important late 18th century coke-fired blast furnace and a scheduled ancient monument. The watching brief demonstrated the existence of a large amount of re-deposited waste material from the blast furnace which had been spread out to the east of the monument and along the course of the adjacent road (Newland Street). The material may have been dumped to create a solid yard and trackway to service the furnace. A sandstone surface was also discovered but its purpose remains unclear. In addition, a stone-built culvert, probably also of 18th century date, was observed and recorded in a test pit located outside the formal limits of the watching brief. No evidence of activity pre-dating the furnace was discovered.

7. Acknowledgements

The Service would like to thank the following for their kind assistance in the successful conclusion of this project, Severn Trent Water, Kirk Finlinson and Ian Dawson of Balfour Beatty and Charles Parry, Gloucestershire County Council.

8. Personnel

The fieldwork and report preparation were led by Stephen Potten. The project manager responsible for the quality of the project was Derek Hurst. Finds analysis was undertaken by Derek Hurst and report illustration by Sarah Phear.

9. Bibliography

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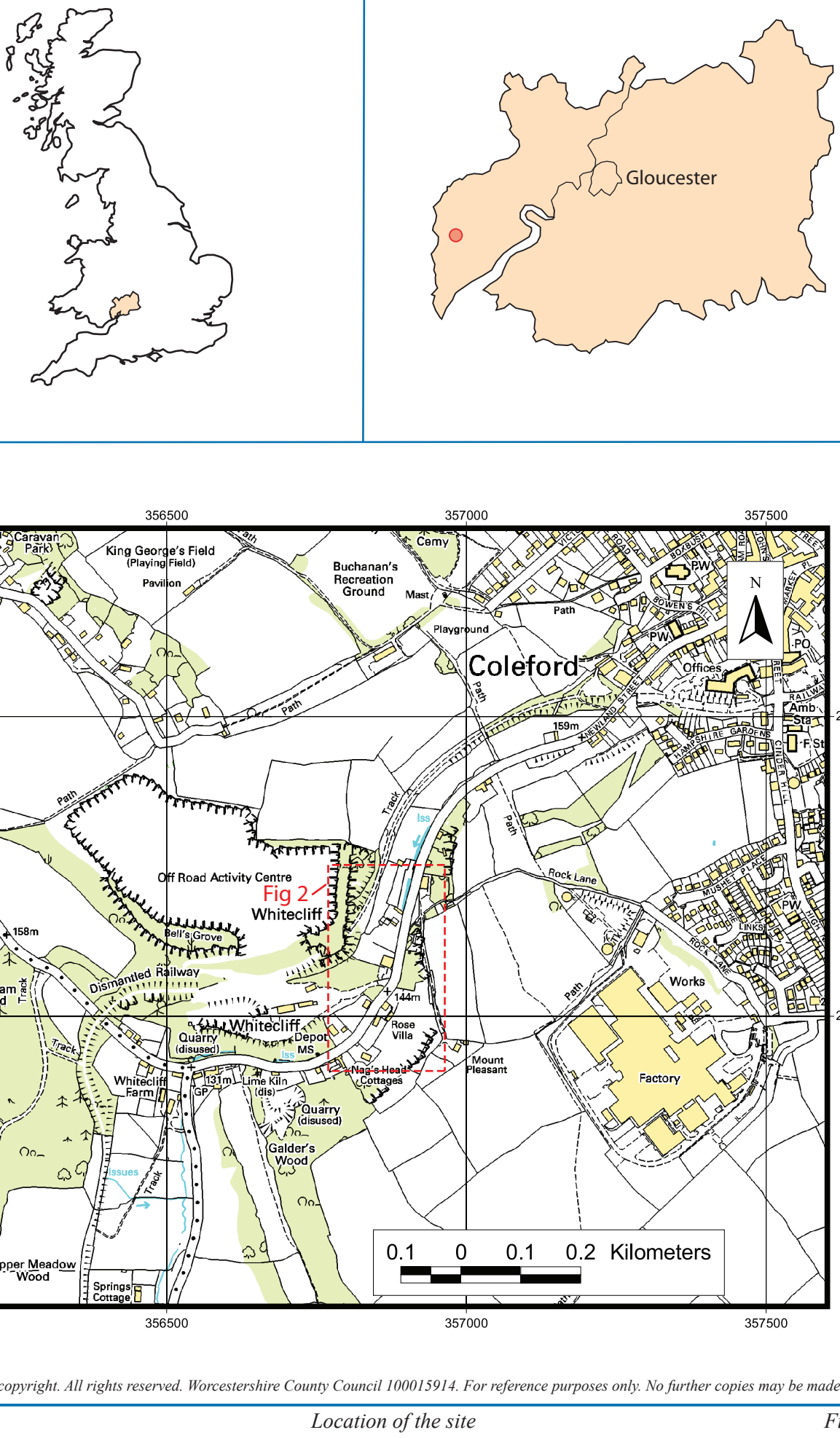
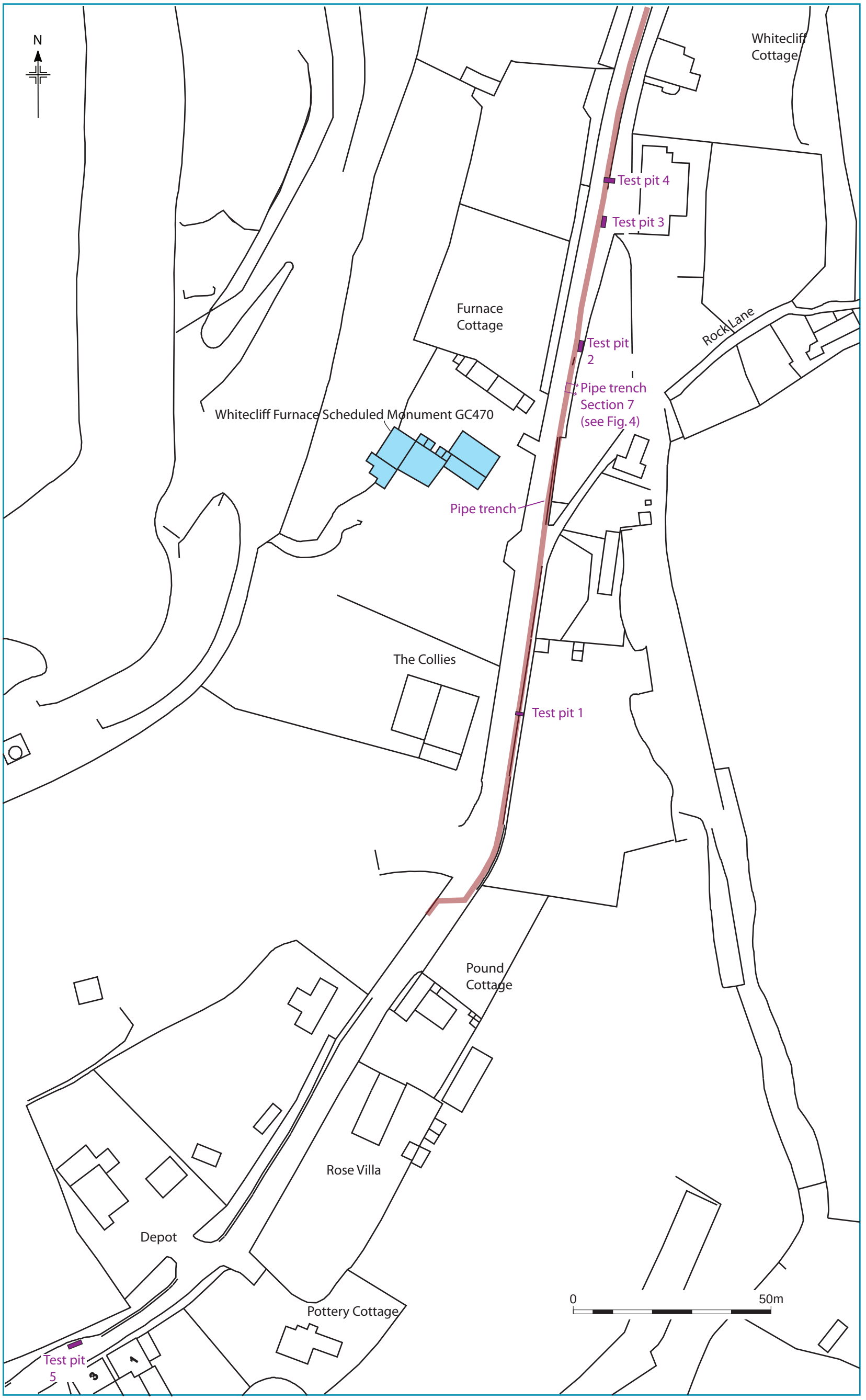
Figures

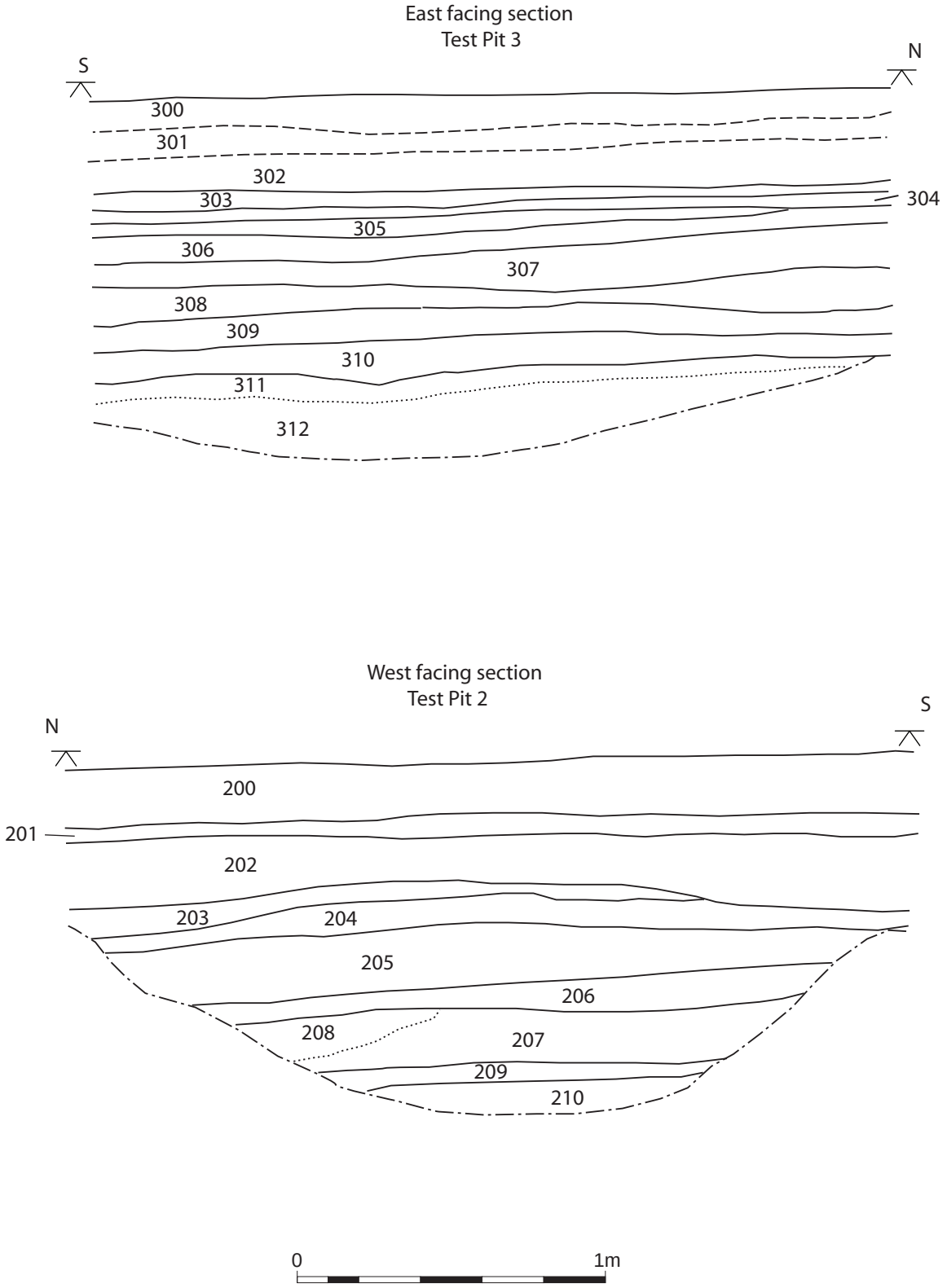


Location of the site *Figure 1*



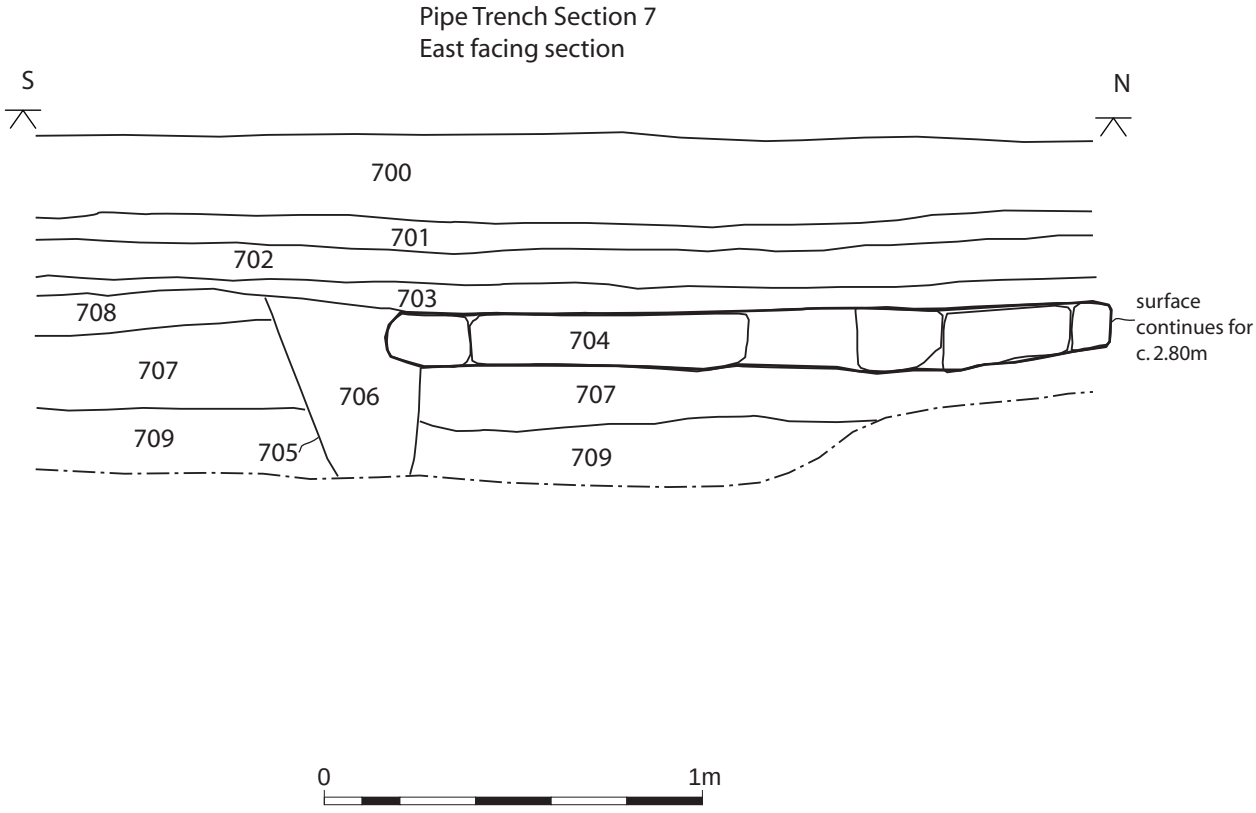
Location plan of pipe trench and test pits

Figure 2



Sections of Test Pit 2 and Test Pit 3

Figure 3



Section drawing of Pipe Trench 7

Figure 4

Plates

Plate 1 Whitecliff Furnace

Plate 2 Trenching machine in operation

Plate 3 Test pit 1,north-facing section

Plate 4 Test pit 2, west-facing section

Plate 5 Test pit 3, east-facing section

Plate 6 Test pit 4, north-facing section

Plate 7 Southern end of pipe trench

Plate 8 Northern end of pipe trench

Plate 9 Stone surface, facing north

Plate 10 Stone-built culvert, test pit 5 (running from bottom left to top right)

Appendix 1 Trench descriptions

Test Pit 1

Maximum dimensions: Length: 1.80m Width: 0.75m Depth: 1.40m

Orientation: E - W

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
100	Modern Layer	Modern tarmac surface.	0.00-0.10m
101	Made ground	Compact, abundant small to medium sub-angular stones in a silty black/brown matrix. Includes a lens of modern hardcore. Modern?	0.10-0.60m
102	Made ground	Very compact, abundant small-medium sub-angular stones in a silty black/brown matrix with occasional mortar fragments.	0.60m-0.67m
103	Made ground	Compact mixed rubble comprising of abundant small to medium sub-angular stones in a brown silty matrix.	0.67m-0.92m
104	Made ground	Compact, small-medium yellowish green sub-angular stones.	0.92m-1.00m
105	Made ground	Compact, abundant rust coloured (orange brown) sub-rounded and sub-angular stones in a silty brown matrix, occasional small to medium iron slag fragments.	1.00m-1.06m
106	Made ground	Mixed rubble deposit. A full description could not be recorded due to the depth of the trench.	1.06m+

Test Pit 2

Maximum dimensions: Length: 2.70m Width: 0.85m Depth: c.1.13m

Orientation: N - S

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
200	Modern Layer	Modern tarmac surface.	0.00-0.16m
201	Made ground	Compact, abundant medium to large sub-angular pinkish stones in a mid to light brown silty sand.	0.16-0.23m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
202	Made ground	Compact, abundant small to large sub-angular stones in a mid to light brown silty sand with occasional large off-white sub-angular stones.	0.23-0.40m
203	Made ground	Compact, abundant medium to large sub-angular pinkish stones in a mid to light brown silty sand.	0.40-0.43m
204	Made ground	Moderately compact and cohesive dark brown silty sand, moderate small iron slag fragments, occasional small stones, rare mortar flecks.	0.43-0.52m
205	Made ground	Moderately compact and cohesive mid brown sandy silt, occasional small to large sub-angular stones, charcoal flecks, mortar flecks and small pieces of iron slag, rare large lumps of iron slag.	0.52-0.62m
206	Made ground	Moderately compact but un-cohesive layer of charcoal, soot and clinker, moderate small to large lumps of iron slag, occasional small to medium sub-angular stones and mortar flecks.	0.62-0.81m
207	Made ground	Moderately compact and cohesive mid dark brown sandy silt with lenses of mid orangey brown sandy silt, occasional charcoal, clinker and small to medium lumps of iron slag.	0.81-0.98m
208	Made ground	Moderately compact and cohesive mid orangey brown sandy silt, occasional charcoal, clinker and small to medium lumps of iron slag.	0.81-0.98m
209	Made ground	Moderately compact and cohesive mid orangey brown sandy silt, occasional charcoal, clinker and small to medium lumps of iron slag.	0.98-1.05m
210	Made ground	Moderately compact but un-cohesive mid to dark brown sandy silt, moderate charcoal, soot and small to large iron slag fragments.	1.05m+

Test Pit 3

Maximum dimensions: Length: 2.70m Width: 1.20m Depth: c.1.20m

Orientation: N - S

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
300	Modern Layer	Modern tarmac surface.	0.00-0.10m
301	Modern Layer	Abundant small sub-angular stones. Modern hardcore.	0.10-0.18m
302	Made ground	Compact, abundant small to medium sub-angular stones in a light greyish brown sandy silt with occasional bands of orange/brown stone.	0.18-0.30m
303	Made ground	Compact but un-cohesive orangey brown sandy silt with moderate small to large sub-angular stones. Surface / levelling material?	0.30-0.36m
304	Made ground	Compact but un-cohesive, abundant yellowish brown small to medium sub-angular stones in a light greyish brown sandy silt.	0.36-0.39m
305	Made ground	Compact but un-cohesive, abundant black sub-angular small stones and clinker fragments in a dark brown silty matrix, moderate iron slag fragments.	0.39-0.45m
306	Made ground	Compact, small to medium sub-angular stones in a yellowish grey sandy silt.	0.45-0.52m
307	Made ground	Compact, medium to large sub-angular stones in a light orangey brown sandy silt. Some stones show evidence of scorching/burning.	0.52-0.62m
308	Made ground	Compact, medium to large sub-angular stones in a yellowish grey sandy silt.	0.62-0.69m
309	Made ground	Moderately compact, iron-rich layer comprising of mid reddish brown silty sand and charcoal-rich black silty sand, occasional small iron slag fragments. Some banding visible in deposit.	0.69-0.79m
310	Made ground	Moderately compact and cohesive light orangey brown sandy/silty clay, moderate large sub-angular stones, rare small clinker and charcoal lumps.	0.79-0.90m
311	Made ground	Moderately compact, iron-rich layer comprising small to medium sub-angular lumps of iron slag in an orangey brown sandy silt.	0.90-0.96m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
312	Made ground	Compact and moderately cohesive mid greyish brown sandy silt with frequent bands of iron-rich material with charcoal, clinker and iron slag. Depth of trench prevented further analysis.	0.96m+

Test Pit 4

Maximum dimensions: Length: 1.85m Width: 0.85m Depth: 0.66m

Orientation: E - W

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
400	Modern Layer	Modern tarmac surface	0.00-0.10m
401	Made ground	Moderately compact and cohesive blackish brown sandy silt with abundant small to medium sub-angular stones.	0.10-0.32m
402	Made ground	Moderately compact and cohesive mid yellowish/greyish brown sandy silt, moderate small to medium grey sub-angular stones, occasional mortar fragments. This deposit is a lens within deposit 401.	0.22-0.30m
403	Made ground	Compact, moderately cohesive mid orangey brown sandy silt with occasional clinker, charcoal and small sub-angular stones.	0.32-0.36m
404	Made ground	Moderately compact and cohesive mid brown sandy silt with occasional clinker, charcoal and small sub-angular stones.	0.36-0.49m
405	Made ground	Moderately compact and cohesive blackish brown, charcoal-rich silty sand, occasional small sub-angular stones, rare large sub-angular stones.	0.49-0.60m
406	Made ground	Moderately compact and cohesive mid brown silty sand, occasional small to medium sub-angular stones, rare lumps of iron slag.	0.60m+
407	Modern Cut	Cut for modern service pipe. Filled by 408.	0.10-0.66m+
408	Modern Fill	Rubble backfill. Fill of 407.	0.10-0.66m+

Test Pit 5

Maximum dimensions: Length: 3.10m Width: c.0.85m Depth: c.1.20m

Orientation : NE - SW

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
500	Modern Layer	Modern tarmac surface.	0.00-0.11m
501	Modern Layer	Modern cement layer.	0.11-0.27m
502	Stone structure	Stone-built culvert made of large green sandstone blocks and bonded with friable white lime mortar. Sandstone blocks: c.0.55m x 0.48m x 0.15m. Depth of culvert: c.1.20m; width c.1.00m. Culvert aligned NE-SW. Structure damaged by construction workers during excavation of test pit.	0.27m+

Pipe Trench 6

Maximum dimensions: Length: N/a Width: c.0.50m Depth: 0.89m

Orientation : NE - SW

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
600	Modern Layer	Modern tarmac and rubble surface.	0.00-0.15m
601	Modern Layer	Compact, small sub-angular stones in a light orangey brown medium sand. Modern hardcore.	0.15-0.21m
602	Modern Layer	Modern tarmac road surface.	0.21-0.26m
603	Modern Layer	Moderately compact but un-cohesive light orangey brown medium sand with small sub-angular stones. Possible bedding for 602.	0.26-0.29m
604	Made ground	Moderately compact but un-cohesive mid greyish brown silty sand, moderate small to medium grey sub-angular stones, occasional charcoal flecks, rare small fragments of glassy iron slag.	0.29-0.39m
605	Made ground	Compact, abundant small to large sub-angular stones in a dark black/brown silty sand, moderate small to medium lumps of glassy iron slag, occasional charcoal.	0.39-0.50m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
606	Made ground	Compact, abundant small to medium sub-angular stones and iron slag in mid brown silty sand, occasional charcoal flecks/lumps.	0.50-0.70m
607	Made ground	Very compact, abundant small to medium sub-angular stones and iron slag in a dark blackish brown silty sand.	0.70-0.81m
608	Made ground	Moderately compact but un-cohesive light orangey brown silty sand with occasional medium to large sub-angular stones.	0.81m+

Pipe Trench 7

Maximum dimensions: Length: N/A Width: c.0.50m Depth: 0.92m

Orientation: N - S

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
700	Modern Layer	Modern tarmac surface.	0.00-0.23m
701	Made ground	Very compact but un-cohesive light orangey brown silty sand with abundant small to medium sub-angular stones.	0.23-0.30m
702	Made ground	Very compact but un-cohesive light greyish brown silty sand, abundant small to medium sub-angular stones, moderate small to medium fragments of glassy iron slag, occasional charcoal flecks.	0.30-0.40m
703	Made ground	Very compact but un-cohesive light orangey brown coarse sand with abundant small to medium sub-angular stones.	0.40-0.46m
704	Stone surface	Stone surface made of green sandstone blocks and bonded with light brown sandy/silty clay.	0.46-0.62m
705	Cut	Only visible in section. Steeply sloping sides, base not observed. Possible construction cut for stone surface 704. Filled by 704 and 706.	0.42m+
706	Fill	Moderately compact buy un-cohesive mid brown silty sand, occasional charcoal flecks, mortar flecks and small sub-angular stones. Fill of 705.	0.42m+
707	Made ground	Moderately compact and cohesive light orangey brown silty/sandy clay, abundant mortar flecks, occasional	0.49-0.74m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
		charcoal flecks and small to medium sub-angular stones.	
708	Made ground	Moderately compact and cohesive mid brown silty sand, moderate charcoal flecks, occasional small to medium sub-angular stones.	0.42-0.50m
709	Made ground	Moderately compact and cohesive light greyish brown silty sand, abundant small to medium sub-angular stones, occasional small to medium fragments of glassy iron slag.	0.74+
710	Made ground	Moderately compact and cohesive mid greyish brown silty sand, abundant small to medium sub-angular stones, occasional small to medium fragments of iron slag, rare lumps of orange fired clay.	0.30-0.38m

Pipe Trench 8

Maximum dimensions: Length: N/A Width: 0.32m Depth: 0.93m

Orientation: N - S

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
800	Modern layer	Modern tarmac surface.	0.00-0.17m
801	Made ground	Very compact light pinkish brown silty sand with abundant small to medium sub-angular stones.	0.17-0.22m
802	Made ground	Compact but un-cohesive light greyish brown silty sand, abundant small to medium sub-angular stones, occasional charcoal flecks.	0.22-0.28m
803	Made ground	Moderately compact and cohesive light orangey brown silty sand with abundant small to large sub-angular stones.	0.28-0.36m
804	Made ground	Very compact but un-cohesive blackish brown silty sand, abundant small to medium sub-angular stones and iron slag, moderate charcoal/soot staining.	0.36-0.46m
805	Made ground	Very compact but un-cohesive greyish brown silty sand, abundant small to medium sub-angular stones, occasional charcoal flecks.	0.46-0.53m
806	Made ground	Compact but un-cohesive light orange fine silt and sand	0.53-0.60m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
		with abundant small to medium sub-angular stones.	
807	Made ground	Moderately compact but un-cohesive light greyish brown silty clay, abundant small to medium sub-angular stones, moderate large sub-angular stones, occasional charcoal flecks.	0.60m+
808	Modern cut	Only visible in section. Near-vertical sides, base not observed. Construction cut for stone structure 809. Filled by 809 and 810.	0.26m+
809	Stone structure(?)	Blocks of stone with no apparent bonding material. Blocks: 280-560mm x 100-120mm. Structure or backfill material? Fill of 808. Modern.	0.48-0.64m
810	Modern fill	Moderately compact and cohesive mid brown sandy/silty clay, occasional mortar and charcoal flecks and small to medium sub-angular stones. Fill of 808.	0.26m+

Pipe Trench 9

Maximum dimensions: Length: N/a Width: 0.27m Depth: 0.90m

Orientation: N - S

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
900	Modern Layer	Modern tarmac surface.	0.00-0.14m
901	Made ground	Compact but un-cohesive light pinkish/orangey brown silty sand with abundant small to medium sub-angular stones.	0.14-0.22m
902	Made ground	Compact but un-cohesive blackish brown silty sand, abundant small to medium sub-angular stones and iron slag, moderate charcoal/soot staining.	0.22-0.32m
903	Made ground	Very compact but un-cohesive mid to dark brown silty sand, abundant small to medium sub-angular stones, moderate small to medium glassy iron slag fragments, occasional charcoal flecks.	0.32-0.51m
904	Made ground	Very compact but un-cohesive blackish brown silty sand, abundant small to medium sub-angular stones and iron slag fragments, moderate charcoal/soot staining.	0.51-0.61m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
905	Made ground	Compact but un-cohesive light yellowish brown fine sand with abundant small to medium sub-angular stones.	0.61-0.72m
906	Made ground	Moderately compact deposit with occasional large sub-angular stones. Depth of trench prevented further analysis.	0.72m+

Appendix 2 Technical information

The archive

The archive consists of:

2	Fieldwork progress records AS2
3	Photographic records AS3
169	Digital photographs
1	Drawing number catalogues AS4
9	Trench record sheets AS41
11	Scale drawings
	Finds not retained

The project archive is intended to be placed at:

Dean Heritage Centre
Camp Mill
Soudley
Gloucestershire GL14 2UB
Tel 01594 822170