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**PROVIDENCE SMELT MILL, BRANDSTONE BECK,
GREENHOW, NORTH YORKSHIRE**

Scheduled Monument Number 30937

ARCHAEOLOGICAL RECORDING



JB Archaeological Services

On behalf of

Harrogate Borough Council

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07 DEC 2009

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Contents

Summary

1.0	Introduction	2
2.0	Background	2
	Location	
	Geology and Soils	
	Topography and Land Use	
	Historical Background	
3.0	Aims and Objectives	3
4.0	Methodology	3
5.0	Results	4
6.0	Archival Research (Meerstone Archaeological Consultancy)	11
7.0	Discussion	13
8.0	Conclusions	17
	References	17
	Appendix I Catalogue of pictures	19
	Illustrations	31

Illustrations

Unless stated the illustrations are bound at the end of the report

Front Cover. General view of the consolidated Providence Smelt Mill.

Plates

- Plate 1. General shot of smelt mill, looking north-east before works, scales 2m.
Plate 2. General shot of smelt mill after works, looking north-east, scales 1&2m.
Plate 3. East side of arch over track-way before works, looking west, scale 2m.
Plate 4. East side of arch over track-way after works, looking west.
Plate 5. Looking south along the line of the flues before works, scale 2m.
Plate 6. Looking south along the line of the flues, after works.
Plate 7. General view of Room 1, looking north-east before works, scales 2m.
Plate 8. General view of Room 1, looking north-east after works, scales 1&2m.
Plate 9. Opening at north end of western wall during works, looking west. Scales 1m.
Plate 10. Archway in Room 1 looking north-east during works. Scales 1&2m.
Plate 11. Spring point for northern end of arch in Room 1, looking east. Scale 0.5m.
Plate 12. Spring point for northern end of arch in Room 1, looking north-west.
Plate 13. Spring point at south end of arch, Room 1, looking south-east. Scale 0.5m.
Plate 14. Wedge shaped stone noted during clearing of Room 1.
Plate 15. Looking down into Room 2 before works, scale 1m.
Plate 16. West side of north end of Room 2 showing 'step', after works. Scale 0.3m.
Plate 17. Room 3 with stone tumble fill before works, looking north-east, scales 1m.
Plate 18. Top of arch showing during clearance in Room 3, looking north.
Plate 19. Blocked arch in east wall Room 3, after works, looking east. Scales 1&2m.
Plate 20. Detail of spring point at the eastern end of arch between Rooms 2&3.
Plate 21. Detail of spring point at the western end of arch between Rooms 2&3.
Plate 22. Detail of spring point at the southern end of arch between Rooms 1&2.
Plate 23. Room 4 prior to works, looking north. Scale 2m.
Plate 24. Room 4 after works, looking south-east.
Plate 25. Rectangular dressed stone block found in rubble fill. Scale 0.5m.
Plate 26. General view of Room 5 before works, looking north-west, scales 2m.
Plate 27. Room 5 after works, looking north-west. Scales 1&2m.
Plate 28. Sub-circular depression to east of Room 5, possible further room or structure, looking south-east. Scales 2m.
Plate 29. Looking west showing area of darker vegetation which possibly marks a reservoir of some form.
Plate 30a. Providence Smelt Mill from the east (Clough 1980)
Plate 30b. Providence Smelt Mill from the east with annotations (Clough 1980)
Plate 31a. Providence Smelt Mill from the west (Clough 1980)
Plate 31b. Providence Smelt Mill from the west with annotations (Clough 1980)
Plate 32. Providence Smelt Mill Flue (M Roe, 2003)
Plate 33. Providence Smelt Mill interior Room 5 (M Roe, 2003)
Plate 34. Providence Smelt Mill flue and pathway (M Roe, 2003)

Figures

- Figure 1. Site location.
- Figure 2. Topographic survey.
- Figure 3. Plan of building/rooms and flues 1:50 @ A3.
- Figure 4. Arch over track – west side. Scale 1:20 @ A3.
- Figure 5. Arch over track – east side. Scale 1:20 @ A3.
- Figure 6. Arch over track – north side. Scale 1:20 @ A4.
- Figure 7. Arch over track – south side. Scale 1:20 @ A4.
- Figure 8. Room 1 elevations of west wall. Scale 1:20 @ A3.
- Figure 9. Room 1 elevation of east wall. Scale 1:20 @ A3.
- Figure 10. Room 1 elevation of north wall. Scale 1:20 @ A4.
- Figure 11. Isometric drawings of arch support blocks. Not to scale.
- Figure 12. Room 2 elevation of west wall. Scale 1:20 @ A4.
- Figure 13. Room 3 elevation of north wall. Scale 1:20 @ A4.
- Figure 14. Room 3 elevation of east wall. Scale 1:20 @ A4.
- Figure 15. Room 4 elevation of north wall. Scale 1:20 @ A4.
- Figure 16. Room 5 elevation of west wall. Scale 1:20 @ A3.
- Figure 17. Room 5 elevation of north wall. Scale 1:20 @ A4.
- Figure 18. Room 5 elevation of east wall. Scale 1:20 @ A3.
- Figure 19. First Edition 6" OS Map (1854).
- Figure 20. Plan, section, and elevation of Providence Smelt Mill (Clough 1980).
- Figure 21. Plan, elevation, sections of Providence Smelt Mill (Jennings 1983).

**PROVIDENCE SMELT MILL, BRANDSTONE BECK, GREENHOW,
NORTH YORKSHIRE**

ARCHAEOLOGICAL RECORDING

Summary

As part of the works undertaken for the consolidation of the remains of the Providence Smelt Mill near Greenhow, North Yorkshire (SE 1165 6503) a programme of archaeological recording was undertaken prior to and during the consolidation process. The archaeological recording involved pre-disturbance survey of both the remains of the building and its setting in its immediate landscape. The site lies within an area of intensive and extensive industrial archaeological activity and the site itself is a Scheduled Monument (National Monument Number 30937).

The initial surveys undertaken in February 2008 recorded the ruinous remains of a five or six roomed building which appears to have contained a smelt hearth, an ore store and associated activities. To the north of the building there is a stone built arch which spans a grass track and carries the remains of either a double flue or two phases of flue construction. The flues run for some 150m up the hillside. The archaeological recording was undertaken between June and November 2009.

A watching brief was maintained during the various stages of the consolidation works, particularly when the interiors of the rooms were being cleared to provide material for rebuilding. The primary result of the watching brief was that it recorded additional areas of the walls and arches that had previously been obscured by the debris infilling the remains. The brief also recorded some of the details of the construction of the arches for the ore hearth and indicated where at least one further arch may have been sited. The excavations in the interior of the building did not extend as far as any floors or hearths.

A topographic survey was carried out on the surrounding area which recorded further details of the landscape setting for the mill including the course of two leats, a possible mill pond and two track ways.

1.0 INTRODUCTION

- 1.1 This report presents the results of a programme of archaeological recording undertaken prior to and during various consolidation works on the remains of the Providence Smelt Mill near Greenhow, North Yorkshire (SE 1165 6503) (Plate 1, Figure 1). The recording was a condition of a grant for the consolidation works (Roome, 2006) as the site was a Scheduled Monument (Monument Number 30937).
- 1.2 The recording programme was conducted by JB Archaeological Services (JBAS) for Harrogate Borough Council and was carried out between February 2008 and November 2009.

2.0 BACKGROUND

Historic Background

- 2.1 As part of the recording programme archival research was carried out into the background and history of the smelt mill and is given in detail in section 6.0 below.
- 2.2 The landscape around the smelt mill contains extensive remains of a once major extractive industry and its associated processes. These remains are of regional and national significance (see Gill, 1993 and Roe, 2003 for details).
- 2.3 The place name for Greenhow Hill, the closest significant settlement, is first recorded in 1540 as *Grenehoo* meaning 'Green mound or hill'. The name is derived from the Old English *grene* and Old Scandinavian *haugr* with the later addition of *hill* (Mills, 1998, 155).

Geology and Soils

- 2.4 The site lies on the eastern edge of the Yorkshire Dales in an area of Carboniferous millstone grit – the Namurian series – which is rich in lead bearing minerals (British Geological Survey, 2001). Overlying this, the quaternary geology is primarily of alluvium deposited Brandstone Beck (British Geological Survey 1977). The soils that have weathered from this are the Wilcocks 1 association which are slowly permeable, seasonally waterlogged fine loamy soils with a peaty surface horizon (Soil Survey of England and Wales, 1983). In addition to this, due to the extraction industry and associated activities, there are numerous localised areas of spoil and various other waste products along with small areas of water logging due to the abandoned workings and various water management features.

Topography and Land-use

- 2.5 The smelt mill is situated at the foot of a steep, south facing slope at a height of c.290mOD. The slope forms the northern side of a valley along the bottom of which flows Brandstone Beck from west to east. To the south-east of the smelt mill is an area known as Cock Hill which contains further remains of the lead industry.

- 2.6 The smelt mill appears to have been partially cut into the base of the slope on its northern side and an old track way runs to the immediate north of the mill building. To the south of the building a second un-made track winds up from the valley floor towards Near Manakin. The land around the smelt mill is primarily used for upland sheep grazing.

3.0 AIMS AND OBJECTIVES

- 3.1 The objectives of the archaeological recording were to record the standing remains of the smelt mill and the immediate surrounding landscape prior to the consolidation works. It was also to carry out archive research into the history and background of the smelt mill and to maintain a watching brief in order to identify any additional archaeological features during the consolidation works. The specific aims were to:

- archaeologically record by scale drawing the standing remains of the smelt mill;
- archaeologically record by photograph the standing remains of the smelt mill;
- complete a topographic survey of the vicinity of the smelt mill;
- assess the fallen masonry for potential for use in reconstruction;
- carry out archival research in order to determine both the background and history of the smelt mill and to identify any imagery to help inform the consolidation works
- maintain a watching brief during any clearance of the interiors of the buildings in order to identify and record any archaeological features revealed by the works.

4.0 METHODOLOGY

- 4.1 Hand measurements were undertaken of the standing remains which were then drawn up to an appropriate scale – usually 1:10, 1:20 or 1:50 on archival standard drawing film.
- 4.2 The standing remains were also recorded photographically, on 35mm colour slide, black and white print film and digitally at 5m pixel resolution. 0.5m, 1m and 2m bi-coloured poles were used as scales and a north pointer for orientation. For the detailed photography 0.2 and 0.5m bi-coloured scales were used. All photographs were assigned a reference number which relates to a catalogue.
- 4.3 The topographic survey was undertaken using a Topcon TST linked to a laptop computer running PenMap real time data plotting – full details to follow.
- 4.4 The fallen masonry was scanned for obvious material related to the various collapsed features prior to consolidation works. A thorough, detailed

examination of all fallen material was undertaken during the initial clearance of the smelt mill to inform re-building.

- 4.5 Archive research was carried out by Meerstone Archaeological Consultancy, a specialist consultancy for extractive industries.
- 4.6 The project archaeologist attended site during the clearance works of the standing remains in order to identify and record any additional archaeological features.

5.0 RESULTS

- 5.1 The initial part of the project was to record the remains of the building as found and this then formed the basis of a previously circulated draft report. The first report was produced to provide a baseline of archaeological information and to provide information for the planning and design of the consolidation works.
- 5.2 During and after the completion of the consolidation works both a drawn and photographic record was made of any additional features that were exposed. The account below is a result of all of the various visits and surveys carried out over the 18 months of the project.
- 5.3 Scale drawings were made of all the significant standing walls along with a basic ground plan (Figures 3 – 18). The internal elevations of the majority of the rooms were drawn but those walls which were rebuilt were not recorded. The drawings record only the surviving height of the walls and do not include the additional courses added during the consolidation.
- 5.4 In addition to the drawn survey a photographic survey was carried out which included taking elevations of each wall at right angles, or as close as could be achieved. Pictures illustrative of the various features being discussed are reproduced at the end of the report. A full archive of the black and white, colour slide and digital images are included as an appendix and all the digital images are on the accompanying disc.

Flues and Archway over Track (Figures 3 – 7; Plates 3 – 6)

- 5.5 A stone built archway 3.2m wide, 2.2m high and 1.6m wide prior to consolidation work spans the grassed track-way, which runs approximately east-west to the north of the smelt mill. The archway appears to have originally been c.1.9m wide but the steady loss of stones from the western side had reduced its width and is starting to compromise its structural integrity. It was noted during the time spent carrying out the survey that the prevailing weather seems to come from the west which may well have exacerbated any deterioration.
- 5.6 The archway is built from roughly dressed and squared blocks of gritstone with a lime based mortar used as a bonding agent. There appeared to be no use of deliberately tapered blocks to form the arch. The southern end of the arch

had been reduced to a single thickness of blocks and as a result the pressure from the surviving material on the northern end has caused it to start to move and there is now a noticeable asymmetry to it. This asymmetry is not visible in the historic photographs from the 1940s below.

- 5.7 The archway acted to carry the flues from the smelt mill over the track-way and then up the hillside and away from the mill. It also allowed lead to precipitate out along its length which could then be recovered periodically. There appears to be the remains of two flues, the first (Flue 1) to the east runs more or less straight up the hillside in line with the archway and at right angles to the line of the building below. The second (Flue 2) diverges from this first at an angle of approximately 14°. This would seem to suggest that the second flue was added later as it would seem logical to either run both flues up at right angles or to 'splay' them out from the bottom to the same degree.
- 5.8 Where the southern end of the remains of the flues survive it can be seen that they were both built from the same types of stone blocks laid in courses with a possible core of stone chips and lime mortar, though this could be a result of decay, stone salvage and natural accumulation and infilling. Only parts of the surviving walls of the flue could be seen along with one or two stone flags that appear to have previously made the top to the structure. No evidence for the chimneys could be seen.

Room 1 - ?Smelting Mill (Figures 3, 8 – 11 and 20 & 21; Plates 7 – 14)

- 5.10 This room was originally c.8.5x3m but with collapse and stone salvage the walls are currently only present for the northern most 6.5m. The original line of the western wall can be seen quite clearly as a low line of grass covered stone blocks. The two earlier plans (Figures 20 and 21) both show walls across the southern side of the building though the return to form this end of the room was not visible during the initial survey nor did any further evidence come to light during the limited clearance of the interior. The reason for this is probably due to their close proximity to the track which meant that it was readily accessible and they have been removed for reuse.
- 5.11 Prior to the consolidation works the remains of the walls were visible for a height of c.2m from the top of the level of the collapsed stonework which partially in-filled and thus obscured the interior. The works removed up to c.0.6m of stone and debris mainly from the mound of material under and just to the west of the arch to the ore hearth. Once this material had been removed it was possible to record further detail of the construction of the building.
- 5.12 The western wall (Figure 8) of this room contains an opening (0.65x0.90m) near its northern end (Plate 9). Interestingly the form of the opening is different between the interior and exterior. It is uncertain why this is, but it could suggest a rebuild at some stage. On the inside the opening is formed to make a simple arch of roughly squared blocks, whilst on the exterior the jambs, lintel and sill are all made from better squared gritstone. On the inside of the opening there are two holes in the southern jamb (located towards the top and bottom) and a single (central) one in the northern jamb. This arrangement suggests some form of door, gate or grill with two holes for the

hinges and one for a catch of some form. From an examination of the historic photographs it would appear that this opening had a matching one towards the southern end of this wall and, judging by their size, they would appear to be windows or loading points rather than doorways. This, along with other features, is discussed in more detail below.

- 5.13 After the partial clearance of the room, the northern wall (Figure 10) was recorded as surviving to a maximum height of 2.17m whilst the southern portion was almost completely missing. The northern wall is devoid of features indicative of fixtures or fittings and there is no obvious indication of a possible doorway recorded on the 1966 survey.
- 5.14 The surviving portion of the eastern wall (Figure 9) was primarily formed from a single, large archway built from well dressed and finished wedge shaped stone blocks (Plate 10). Initially only 0.8m of the upper part of the arch was visible above the level of the stone tumble. However after the partial clearance, the arch was exposed to its full width of 3.18m and its full height from its springing point some 1.35m. The debris was only removed as far as the springing point and so it is uncertain as to the nature of the construction and how much survives below this level. Both of the earlier surveys appear to show the springing point of the arch some 5 feet (c.1.50m) above floor level. This could only be confirmed or otherwise by further excavation, though small scale probing showed that the stone work continued further down.
- 5.15 Both ends of the arch are seated on to shaped stone block in order to allow the transfer of weight downwards (Figure 11). At the northern end the block is wedge shaped (Plates 11 & 12) whilst at the southern end the block is pyramidal (Plate 13). The pyramidal shape of this block would seem to strongly suggest that there is a second arch to the south forming the opening to a second ore hearth, as shown in the 1966 survey. The second arch could also be supported by the presence of a wedge shaped partially dressed stone found amongst the debris when the room was cleared (Plate 14). The stone is of similar dimensions to those used in the surviving arch, though it could equally have come from another lost feature.
- 5.16 The archway opens into Room 3 which at the time of the initial survey was at least half full of stone tumble which made access difficult. The surviving portion of this wall ended at the southern end of the arch but, like its opposite number on the west side of the room, it could be traced, at least in part, further to the south where it formed part of another room – Room 4.

Room 2 – ?Flue/Ore Hearth Access (Figures 3, 12 & 13, Plates 15 – 16)

- 5.17 Due to the large amount of debris initially filling this small room there was limited access. However, once the material had been removed it was possible to record the space in some detail. The most unusual feature of this 0.77m long room is its wedge shape (Plate 15). At its widest at its eastern end it is 0.90m wide and it then tapers down to 0.38m at its western end. At the eastern end of the room there is an arched doorway which leads through to Room 5. The western end is formed by a stone wall with a simple, shallow recess 0.90m above the excavated ground level (Figure 12). Its northern wall is built from

stone blocks with no obvious features, whilst the southern side is formed by the stone arch leading to Room 3, one of the ore hearths (Figure 13 & Plate 18).

- 5.18 The recess in the western wall does not appear to have an obvious function as there are no other apparent fittings visible (Plate 16). However, there is a hole in the wall which connects with Room 1 to the west. The hole is irregular in shape and appears to have been chopped through at a later date and is not contemporary with the original build. Its very crude nature, compared with the quality of the rest of the structure, strongly suggests that it was created towards the end of the life of the building or even after it had gone out of use when less care of the fabric of the building was being taken. The 1946 survey tentatively suggests that this hole was part of a water supply system used to power bellows for the ore hearths. However because of the sharp dog-leg that the hole takes through the wall and because of the small diameter of any potential pipe that would actually fit through this opening, it seems unlikely that water was piped through it.
- 5.19 During the initial survey it was noted that part of the western end of its stone slab roof was intact and the remainder has now been rebuilt, though it is not certain that the roof to this room was a solid structure.

Room 3 – Ore Hearth (Figures 3, 13 & 14; Plates 11- 13 & 17 – 22)

- 5.20 At the time of the initial survey, Room 3 was substantially choked with fallen stonework which prevented any meaningful investigation and recording being made (Plate 17). However once the debris had been removed, a substantial amount of detail of the interior of the room could be recorded.
- 5.21 The most striking feature of this ore hearth are the two large, well made stone arches which form the bulk of the northern (Plate 18) and western (Plate 19) sides of the room. As already mentioned above, the arch on the northern side connects directly to Room 2 for the full width of that space. The 1.7m wide arch is built from nine dressed, wedge shaped stone blocks which are securely sprung from carefully cut and shaped stones (Plates 20 & 21). The reason for this arch is not initially obvious but from its size and good construction it was an integral part of the operation of the building. Unfortunately due to the reconstruction work, it was not possible to obtain a suitable camera angle to photograph the whole of this feature.
- 5.22 The arch in the west wall is the reverse of the eastern side of Room 1. As with the northern arch, it too is well constructed and sprung from carefully formed blocks allowing the weight to be transferred downwards (Plates 11-13 & 22).
- 5.23 In the eastern wall the remains of a less well formed and now blocked arch were recorded. This opening was partially rebuilt during the consolidation work, as can be clearly seen in Plate 19. This opening is not recorded in the 1946 survey but is on the 1966 one. Interestingly for an ore hearth there were no obvious signs of heat damage to the stonework.

Room 4 – ?Second Ore Hearth (Figures 3, 15, 20 & 21; Plates 13, 14, 23, 24, 30 & 31)

- 5.24 At the time of the initial survey little remained visible of this room, once again probably due to its proximity to the track and ease of salvage. There was no obvious evidence for the remains of the opening shown on both of the earlier surveys in the northern wall. However, on Plate 30 taken in the 1940s a dark opening can be seen the northern wall which would seem to be the remains of the flue shown on the surveys.
- 5.25 The northern wall of this room (Figure 15) survived to the same height as the southern wall of Room 3. However the start of the spring or curve for the roof vault/flue seen on the southern wall of Room 3 was not apparent here on the northern wall in Room 4. This could suggest either a different function or a different configuration for this room.
- 5.26 As already seen above, the stone block at the bottom of the southern end of the large arch in eastern wall of Room 1 is pyramidal in shape (Plate 13). It also retains the start of a second arch running to the south which would mirror the one in Room 1. This ties in well with the 1966 survey which shows two symmetrically located arches (Figure 21). The 1946 survey shows an opening but does not record it as an archway (Figure 20). Further evidence to support the presence of a second large arch was the recovery of a wedge shaped, dressed stone block very similar to those seen in Room 1s arch (Plate 14).
- 5.27 The remains at ground level of second much smaller opening were noted in the eastern wall. This is also recorded in both of the earlier surveys and can also be clearly seen as an arched opening in the 1940s photographs and appears to mirror the one further to the north in the same wall (Plates 30 & 31).
- 5.28 The remainder of the outline of the room was visible as a series of low linear mounds of soil and grass covered stonework, which petered out towards the track, presumably due to stone salvage.

Room 5 (Figures 3, 16 – 18, 20 & 21; Plates 26, 27, 30 & 31)

- 5.29 This was the largest room in the building (c.8.5x5m) and the least obscured by fallen stonework during the initial survey. Here the walls survive to a maximum height of c.2.8m above the rubble infill, not all of which was removed during the consolidation works.
- 5.30 The western wall retained evidence for three openings. The first was at the northern end and provided an arched, rectangular opening through to Room 2 as previously described above. The second opening was a blocked and subsequently partially collapsed arch in approximately the middle of the surviving section of wall. This archway had originally provided access into Room 3 but had subsequently been blocked presumably as part of a later phase of use of the building. The final opening, seen to have been arched from the 1940s photographs (Plates 30 & 31), was located just to the south of the dividing wall between Rooms 3 and 4. It only appears to survive at approximately ground level, though further details may be revealed by

excavation. All of these various openings have already been described above in relation to the rooms that they connect to and their possible functions are discussed in detail below.

- 5.31 The northern wall of this room had a slightly irregular hole located just to the west of its centre. From the 1966 survey described below, this could relate to a waterwheel to power bellows, though this is only conjectural in the survey (Figure 17). There does not appear to be any evidence to support the idea of a water wheel on this wall. Normally it is expected that there would be at least traces of holes for metal work to support and brace any the wheel housing along with supports for the suggested piped water supply. It could also be expected that there may be wear marks from the turning of the wheel rubbing against the wall. It is possible that the excavation of the floor of this room could reveal additional evidence for a water wheel positioned here.
- 5.32 The top of the northern wall appeared to be stepped back some 0.3m and this could indicate the height of timbers which formed the ceiling of this room and the floor of any room above. There could be further evidence to support this idea in Plate 30, where possible joist holes/corbels can be seen in a line above the top of the northern most opening in the western wall.
- 5.33 At the time of the initial survey, the remains of the eastern wall was devoid of features. However one of the 1940s photographs shows what appears to be part of a window surviving as a jamb and lintel. The presence of this window is also recorded in the 1966 survey (Figure 21) but interestingly not in the 1946 one (Figure 20).

Other Features (Figures 2 & 21, Plates 28 & 30)

- 5.34 Within the wider landscape around the building, there are a number of other features which appear to relate to the smelt mill. To the east of Room 5 there is a large (c.5m diameter) circular depression (Figure 2, Plate 28). On the 1966 survey this was shown as being a further square room accessed from the southern side, whilst the 1946 survey does not record this feature at all. Although not immediately visible on Plate 30, it is possible that the rubble tumble seen on the right hand side of the image below the window in the eastern wall of Room 5 is the remains of this room. Unfortunately the consolidation work did not involve this area, so without further excavation it is not possible to be certain if another room was present here or not.
- 5.35 Already mentioned above, the track-way to the north of the building runs under the arch supporting the two flues. This track-way continues to the east where it forms a small hollow-way cut into the slope of the hillside. Where it passes to the north of the building it probably would have had a retaining wall. The track-way then joins the large stone track which currently runs up from the valley floor and then continues up over the hillside.
- 5.36 To the west of the flues the track-way heads towards the remains at Cock Hill. This western section runs along a short terrace which appears to split into two smaller paths (Figure 2). The first of these drops down and eventually peters out as it joins the flatter part of the valley bottom. The other path continues

along the denuded terrace along the foot of the hill slope until it too peters out close to Brandstone Beck. The northern side of this footpath is cut into the base of the steep slope and is marked by a small retaining wall which runs in sections along the length of the base of the slope to join with the beck. This was presumably to prevent material falling on to the path.

- 5.37 The area to the west of the building contains a series of additional features including one or possibly two water course/leats, at least one waste mound and a number of other possible features. The larger of the two water courses runs east from Brandstone Beck from a point where the beck joins the base of the steep slope to the north of the mill across the flat valley floor towards the mill. The route of the water course towards its eastern end is partially overlain and obscured by a mound of waste material. To the east of the mound the water course appears to have supplied a small reservoir, which is now marked by an area of wet ground and distinctive vegetation. This would appear to be the same area as is delimited on the Area Plan of the 1966 survey (Figure 21).
- 5.38 The partial remains of a second water course can be seen towards the base of the steep slope immediately below the line of the upper footpath and appears to be the one shown on the 1966 survey. This too also seems to have run from the same point on Brandstone Beck as the larger one and to have discharged into the same small reservoir. It is possible that this represents an earlier phase of the site with the larger leat being used later when there was a greater demand for water.
- 5.39 As mentioned above, a mound of waste material lies across the larger of the two leats indicating that the water course was out of use by the time this material was dumped.
- 5.40 In addition to the visible topographic features, two distinct areas of change in vegetation were also recorded. Two irregular patches of bracken were noted, the first lay across the line of the larger water course whilst the second was to the north-west of the probable reservoir. It is uncertain what, if anything, this represents but as bracken is a species that readily colonises poor ground it could indicate further areas of dumped waste material, though this could only be determined by excavation.

General Condition/Construction

- 5.41 Generally the smelt mill has been built using roughly squared, local gritstone blocks with a lime based mortar. The construction of the walls was in courses of uneven thickness though with a degree of vertical jointing (or snecked joints (Brunskill, 1978, 39)). This undoubtedly was a product of the nature of the available building material and the skill of the original builder.
- 5.42 The rectangular opening in the western wall of Room 1 and those seen on the historic photographs had been built using a series of quoins on the inside and single large blocks on the outside – presumably for the benefit of the external appearance. The smaller of the arches had been built using the same type of roughly squared blocks simply set on edge and not with tapered blocks.

- 5.43 The two large archways between Rooms 1 and 3 and Rooms 2 and 3 had been built from stones that had been squared and finished to a much higher standard. The reason for this was presumably to achieve a better joint between the blocks and thus improve the load bearing ability of the structures. The blocks are all slightly tapered and were well fitted in order to form a stable structure. The blocks used at the base of each side of these arches had all been carefully cut into very specific shapes unique to each location in order to both transfer the weight from the building above down to the ground but also to prevent any lateral movement (Plates 11 – 13, 20 – 22).
- 5.44 The general condition of the remains is fair. The stonework along the tops of almost all of the walls prior to consolidation was loose and vulnerable to damage through weathering/frost action, deliberate vandalism or stone salvage. The archway over the track had had significant and noticeable movement southwards presumably due to the removal of material from down slope causing pressure from the weight of the surviving remains upslope. It had also lost a significant number of stones from the western side. These problems have now been resolved through the consolidation work.
- 5.45 An assessment of the fallen stonework removed from the interior during the works was carried out. This showed that although there were a small number of stone blocks that had obviously originated from some of the arched features – normally because they retained fresh mortar as did the arch above – the majority of the fallen stone was un-diagnostic to specific features. A few pieces were more obviously tapered, though still only roughly squared, and had originated from arches over openings. From within Room 3 several large, elongated slabs were recovered which had been used to repair the roof over Room 2. Surprisingly only two stones similar to the well worked blocks that formed the arches between Rooms 1 and 2 and 2 and 3 were noted (Figure 15, Plate 26). This is presumably due to their higher worth as reusable building blocks.

6.0 ARCHIVAL RESEARCH

Prepared by Anna Roe & Martin Roe of Meerstone Archaeological Consultancy March 2008

History

- 6.1 There is little written about the history of Providence Smelt Mill due to a lack of primary source material. The most detailed account is by Gill who summarised current historical knowledge in his paper “Yorkshire Smelting Mills, Part 2” (1993). Jennings, writing in the *History of Nidderdale* (1983) suggested that Providence Smelt Mill was used in the 1780s for the mines in the White royalty as they had no mills of their own. He quotes a lease of ground to Sir John Ingleby from 1785 which allowed him to have use of the “south end of the smelting mill, with the hearth, bellows, etc, thereunto belonging”. However Gill suggests the lease refers to Whites Mill, near Eagle Level. He also notes that this smelt mill is not present on a plan of 1800, and was likely to have been built c1814 to replace Whites Mill, to serve mines at Toft Riggs, Stoney Grooves, and Hardcastle Moor (Gill 1993).

- 6.2 Jennings (1983) notes that the White royalty had 4 small smelt mills: Cockhill, Sunside, Providence (on the side of Brandstone Beck) and Prosperous (in Ashfold Gill). He suggests that Providence Smelt Mill was in use in 1818. Gill states that from 1793-1817 Providence Mine was worked along with Prosperous Mine and smelting was carried out at Prosperous Smelt Mill rather than Providence Smelt Mill. Providence Mill probably closed in the slump of 1830-31 and was still not working in 1839 when the agent's report makes no mention of it (Gill 1993). Gill further suggests it may have been used by the Perseverance Mining Company which worked between 1825-1830. It may have reopened in 1859 and used by the Nidderdale Lead Mining Company Ltd to smelt its ore until 1863 when work moved again to Prosperous Smelt Mill (Gill 1993). Jennings suggests that in later years it was probably used as a back-up mill for busy periods and closed when the mines closed in the late 1880s, early 1890s. It can be seen that the known history of the site is far from clear.

Descriptions of the Smelt Mill

- 6.3 Arthur Raistrick describes Providence Smelt Mill as on the south bank of Brandstone Beck and gives a detailed description of the building (1973, p.45) but this seems to be describing Prosperous Smelt Mill instead. Jennings (1983) notes that the mill described in the lease of 1785 had a water wheel operated stamping mill. However, as Gill has attributed, this description to Whites Mill near Eagle Level can be dismissed. Jennings also stated that all four small smelt mills named above in the White royalty were built on the side of steams as waterwheels were used to operate the "furnace bellows". He also states the hearths are aligned roughly north-south. Gill (1993) describes the smelt mill as having two hearths, each with a short flue (approx 15m long) leading to its own chimney.

- 6.4 The most detailed description comes from R Clough (1980) who recorded the site in 1946:

"...near to the Cockhill Mill, on the north bank of the beck. The building is divided into 2 parts; the ore store is 25 feet long, 17 feet wide, with large stone slabs forming a chute in the rear wall. The mill portion, 41 feet long by 29 feet wide had a single furnace with a simple stone arch 8 feet 6 inches wide over the hearth. The flagged flue carried on a stone arch across the roadway, runs for 50 feet up the hillside in a northerly direction".

This description needs to be viewed with some caution as he is assigning uses to the rooms when there is little supporting evidence for this i.e. an ore store.

Map evidence

- 6.5 Providence Smelt Mill is not present on maps before the First Edition 6" OS Map of 1854 (Figure 19).

Images

- 6.6 The earliest known drawn and photographic images of Providence Smelt Mill date from 1946 when the site was recorded by R Clough and J Myers. These are presented in Clough's *The Lead Smelting Mills of the Yorkshire Dales*

(1980). Clough's drawings tend to be less a record of the site as it was when he recorded it and instead they are presented as reconstructions (Figure 20). In 1962-66 GM and RJ Davies surveyed the mill and their drawing is presented in Jennings (1983, p280) (Figure 21). The differences between the Clough and Davies drawings are notable. Clough has shown just one flue whereas Davies marks clearly that there are two flues with two chimneys. Clough notes the room behind the ore hearths is an ore store, Davies states that it might have housed a waterwheel and bellows. Davies is quite clear on the drawing that some parts are conjectural, but there is no such caveat on Clough's drawing.

- 6.7 Clough (1980) includes two black and white photographs of the ruined Providence Smelt Mill, thought to have been taken in the 1940s at the time of his recording of the site. Plate 31 shows part of the flue, an upstanding exterior wall and two footpaths, and the second, Plate 30 shows two upstanding walls.
- 6.8 In later photographs from the *Greenhow Hill Archaeological Survey* (M Roe, 2003) it can be seen that the building has since decayed considerably (Plates 32 – 34).
- 6.9 There are no earlier photographs of the site in the Niddlerdale Museum, the Northern Mine Research Society (NMRS) Records, or the Backhouse collection of photographs (Leeds Central Library with copies with NMRS).

7.0 DISCUSSION

- 7.1 Due to the complexity of the site, a room by room discussion is given followed by an overall interpretation/discussion. These discussions include information from the two previous surveys carried out in 1946 and 1966 in order to try to determine an accurate a record of what is there without further intrusive investigation.

Flues

- 7.2 Although no consolidation work was undertaken on the flues themselves, the results of the topographic survey can be compared with the results of the earlier investigations into the site and some conclusions can be drawn. The earliest survey in 1946 shows a single flue running straight up the hillside whilst the 1966 survey shows two separate flues. These two flues initially run directly up the hill side but then change direction to head north-west. However there are a number of similarities between all of the plans. The 1946 single flue could be seen to be the easternmost of the two flues shown in the 1960s plan and the short section of surviving section of the eastern flue recorded in the latest topographic survey. The 'kink' to the west shown on the 1940s survey would seem to equate to the start in the change of direction recorded in the 1960s plan and again in the most recent survey. All of the surveys show some change in direction to the north-west once the track-way had been crossed by means of the arch. What would appear to be uncertain is the relationship between the two flues and how far they ran up the hillside to their respective chimneys. Due to the present covering of turf and vegetation it is

currently impossible to determine this, though careful excavation should be able to recover this detail.

Room 1 – Smelt Mill

- 7.3 As a result of the various surveys it is possible to describe many of the features of this room with a high degree of certainty. On the western wall both of the historic surveys show the two windows in this wall as being symmetrically positioned, equidistant from the respective northern and southern wall returns. This means that by taking the distance and dimensions of the remaining window from the northern wall return and working back from the end of the now partially buried southern return of the west wall, it is possible to determine the level of collapse now and in the 1940s photographs. By doing this it seems as if the surviving upstanding structure ends at the northern side of the now lost window. This point of collapse can also be seen in the 1940s photographs where in Plate 33 the southern window can be clearly seen but in Plate 34 (obviously taken at a later date) it is missing. It appears that the building had collapsed to that point, possibly because it was a line of weakness or that the various jambs, sill and lintel had been salvaged.
- 7.4 Plate 33 also gives a good indication of the earlier floor level within the room. By comparing the distance the ground level is below the level of the sill of the visible window with its height, it would appear that the original ground level was *c.*0.75m lower than it is today. Though this does not mean that this was the level of the working floor, as there will have been a build up of material between abandonment and the 1940s when the photograph was taken.
- 7.5 Also visible in the 1940s photographs is a single window in the gable end of the western wall. From its shape in the pictures it appears to be the same in form as the two lower ones, indicating that they were probably all contemporary. Clearly visible in Plate 33 is a line of holes for joists to carry a first floor a few feet above the head of the ground floor windows. From this it is possible to make a rough estimate of the height of the room. By comparing the distance between the ground level shown in the photograph and the line of joist holes with the known size of the window, it would seem that the room was at least 7 feet (2.1m) high.

Room 2 – ?Flue/Ore Hearth Access

- 7.6 If water did flow through here as is suggested in the 1966 survey, then it would have had to have followed a narrow twisting route that was also exposed to the heat of the ore hearth. If it did travel through here, then it seems as if it would have arrived at the putative wheel location to power the wheel in either the breast shot or over shot position – neither of which are the most efficient methods of powering a wheel.
- 7.7 Overall there is very little evidence for the passage of water through this room as suggested in the 1960s survey. The hole that is in the wall between the two rooms is small and poorly executed, which is in sharp contrast to the construction of the rest of the building. The route involves several sharp turns in any pipe work that would have been used, which would create problems with pressure build up. The size of the hole is very small to power a wheel to

drive the two suggested bellows. Finally its location partially up the wall would require some form of support for which there was no evidence either in Room 1 or 2. Overall it seems that the hole through the wall here was probably added at a later date for a currently unknown reason.

- 7.8 The recess in the western side of this room is of uncertain function and may simply be the result of the way the building was constructed.
- 7.9 The access to Room 2 from Room 5 to east is via a well constructed, large doorway/opening. This shows that there was a good reason for either easy, regular use or that something large had to be moved in and out. Possible reasons for this access include maintenance of the ore hearth or adding materials to the ore hearth from that side. If the latter is the reason, then there should be a similar feature to the south of Room 4 (if this is a second ore hearth) However it will probably only be able to determine this by excavation.
- 7.10 A further possible function for this room is as an access point to the base of flues in order to recover lead from them or for cleaning and maintenance. Though it should be noted that neither of the historic surveys shows any access from Room 2 to the flues.

Room 3 – Ore Hearth

- 7.11 The arch which lies between this room and Room 1 is probably the most impressive surviving feature of the complex. Both the earlier surveys show the opening as being much taller than is visible now. This is probably due to the limited removal of material from inside the rooms and no actual excavation being undertaken. The detail of the arch's construction is described above and its presence is clearly recorded on both of the historic surveys. What is not recorded on the 1946 survey but is on the 1966 survey is the smaller, less well constructed opening (now blocked) that is in the eastern wall which adjoins Room 5. Interestingly the 1946 survey records what appears to be its pair in Room 4 to the south. This could be seen to suggest that by this time the opening between Rooms 3 and 5 had already been blocked up or was obscured by fallen stonework. In terms of function the suggestion in the 1966 survey of bellows would seem to be a reasonable one.
- 7.12 The large well constructed archway between Rooms 2 and 3 would seem to indicate that access was an important consideration for either adding material to the hearth or maintenance.

Room 4 - ?Second Ore Hearth

- 7.13 Little remained of this room due to collapse and salvage. However, from what was still visible through the covering turf and from the earlier surveys it appears that this room was very similar to Room 3 to the north and probably much as is shown in the 1966 survey. This could be ascertained through further investigation and excavation.

Room 5 - ?Ore Store/Waterwheel & Bellows Room

- 7.14 Apart from the three opening to the various rooms to the west, this room had no other indications as to its role or function within the smelt mill. The 1940s

survey suggests an ore store with a chute from the track-way to the north. The step in the stone work recorded during the current survey could be seen to support this idea or, as discussed above, may indicate the level of a first floor. The 1966 survey suggests it housed a complex of machinery driven by a waterwheel to power two sets of bellows. Both are plausible ideas but without further investigation it is currently not possible to give a definitive answer. However from the presence of the water supply to the west and the smaller openings to Rooms 3 and 4, it would seem quite likely that bellows were located here. It is more likely however that they were driven by a water wheel on the south side of the building, where the flow would be in line with the supply from the reservoir. This would then allow the tail race to flow away to the south-east back to the beck as shown of the 1966 plan. It could be possible that some ore was indeed dropped in via a chute on the northern side as there would be room if the wheel was not there and it could have then been added to the hearth via the access through Room 2. It is also possible that the water wheel powered some form of crushing mechanism as well.

- 7.15 From the 1940s photographs and survey, it would seem that the room may well have not had a gabled roof. The lack of any upstanding wall to the east of the gable for Room 1 and no obvious amounts of fallen stonework would seem to support this suggestion. Plate 30 shows the remains of a window in the eastern wall. This wall is flat topped and significantly lower than the one on the western side of the room. This could be seen to suggest that the roof of Room 5 is closer to that shown in the 1946 survey than the 1966 one.

Surrounding Landscape

- 7.16 The upper and lower footpaths running westwards from the mill could have been to provide access to sluice gates to control water flow. The upper sluice gate would have been to control the flow from the beck into the leat, the lower one to control the flow from the reservoir to the mill. However, a rapid examination of the western end of the upper footpath where it joins Brandstone Beck did not reveal the remains of any sluices or bridges over the beck.
- 7.17 The fact that there appears to be two leats would seem to suggest that there may have been two phases of development. The first being the smaller, more northern leat adjacent to the upper footpath and then as the demand develops for either a greater or more regular supply, the second bigger one is dug. They would both appear to supply the same small reservoir in the area of wet ground which would have provided the head of pressure to power the wheel.
- 7.18 During the current survey no sign of a piped water supply within the building as per 1966 survey was recorded. What would seem logical is that the water was supplied from the reservoir in a straight line across the southern end of the mill with the wheel at the end of Room 5 (located either internally or externally). This would allow for bellows to power the hearths in Rooms 3 and 4. The tail race would then be back towards Brandstone Beck using the slope to prevent a build up of water and any possible flooding and would also tie in with the water outlet from the mill that is shown from the corner of Room 5 in the 1966 survey.

8.0 CONCLUSIONS

- 8.1 Overall from historic and current data, the most likely interpretation of the smelt mill is that prior to its abandonment it would have consisted of six ground floor rooms with at least one first floor room. Two of the ground floor rooms appear to have been ore hearths with the some of the others variously used as a bellows room, a store room and a smelting area. The first floor room can be seen from the presence of a window in the western gable end and a line of joists over Room 1. To the east of this room are the two ore hearths with the twin flues running north up the hillside. The presence of the two hearths but with separate flues could suggest that the second hearth/flue was a later addition. The role and function of Room 2 is somewhat uncertain. To the east of the hearths there is a further room (Room 5) which seems most likely to have housed bellows and/or other machinery driven by a water wheel. The existence of a water wheel within the mill complex is not in doubt though its actual location is currently uncertain. The 1946 survey showing the flat roofed Room 5 does seem to have some plausibility about it based on the 1940 photographs and aspects of the surviving building.
- 8.2 The suggestion of two phases of water supply could be related to a second phase of building when the second ore hearth is added along with its associated flue which ran over and then adjacent to the first flue. The second hearth would have required more power for the bellows and more ore crushing hence a greater demand for power therefore supplied by a bigger leat. This second phase could have lead to the modification of the building to produce a mix of gabled two storeys and single storey remains that were recorded in the earlier surveys. It should be stressed that this is a tentative interpretation and further, intrusive work would be required to confirm or deny this.

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APPENDIX I

Photographic Catalogues
Digital Pictures

Site Providence Smelt Mill, Greenhow, North Yorkshire			Film Number
Survey Pre-Consolidation Works			Providence 1
Plate	Facing	Scale	Description
1	NE	2m	General view of smelt mill.
2	W	2m	East side of archway.
3	S	2m	View down slope along the line of the flues.
4	NE	2m	General view of Room 1.
5	Down	1m	Rubble fill of Room 2.
6	NE	1m	Room 3 showing stone tumble fill.
7	NW	2m	General view of Room 5.
8	N		Long shot of Providence Smelt Mill
9	WNW		Long shot of Providence Smelt Mill
10	E	2m	West side of arch.
11	W	2m	East side of arch.
12	NW	1&2m	North-east side of arch.
13	NE	1&2m	North-west side of arch.
14	N	2m	Looking up slope along the line of the flues.
15	NE	2m	Buttress to flues.
16	N	2m	Looking up slope along the line of the flues.
17	NE	2m	Relationship between Room 3 and flue.
18	E	1&2m	Room 1 exterior of western wall.
19	W	2m	Room 1 interior of western wall, north end.
20	W	2m	Room 1 interior of western wall, south end.
21	N	2m	Room 1 interior of northern wall.
22	E	2m	Room 1 interior of eastern wall.
23	Down	1m	Room 3 relationship of arch with Room 2 to right of picture.
24	W	1m	Room 5 interior of western wall with remains of arch.
25	W	1m	Room 5 interior of western wall showing probable location of 2 nd archway.
26	N	2m	Room 5 interior of northern wall.
27	E	2m	Room 5 interior of eastern wall.
28	SE	2m	General view of possible additional room to east of remains.
29	ENE	1&2m	Trackways to west of remains of mill.
30	NW	2m	General view of Room 1.
31	NE	2m	General view of Room 5.

Site Providence Smelt Mill, Greenhow, North Yorkshire			Film Number
During Consolidation Works			Providence 2
Plate	Facing	Scale	Description
1	N	2m	General view of remains of smelt mill during works.
2	NW	2m	Room 5 partially cleared.
3	NNE	2m	Rooms 1, 3 and 4 partially cleared.
4	W	1m	West wall of Room 5 with collapse of old infill of opening.
5	N	1m	Top of arch between Rooms 2 and 3.
6	NE		General view of west side of building during works.
7	SE	1m	Room 1 partially cleared, showing size of arch.
8	E		West side of arch during repair.
9	W	1m	Opening at northern end of west wall of Room 1 from inside.
10	SE	1m	Room 1 partially cleared.
11	W	2m	Top of northern wall of Room 5 cleared of turf.
12	W	2m	Eastern side of archway undergoing repairs.
13	S		Detail of repairs underway on west side of archway.
14		0.5m	Wedge shaped dressed stone recovered during clearing.
15		0.5m	Wedge shaped dressed stone recovered during clearing.
16		0.5m	Rectangular dressed stone recovered during clearing.
17	NE		General view of mill complex during works.
18	W		Reinstated roof to Room 2.
19	NW		Partial rebuild of flue over archway.
20	N		Rebuilding of wall between Rooms 2 and 3.
21	NW		West side of arch during repair.
22	SE		Reinstated roof to Room 2.
23			Wedge shaped dressed stone recovered during clearing.
24	Down	1&2m	Room 1 arch fully exposed.
25	NE	1&2m	Room 1 arch fully exposed with Room 2/3 arch behind.
26	W	0.3m	Detail of 'step' in west wall of Room 2.
27	W	0.3m	Detail of 'step' in west wall of Room 2.
28	W	0.3m	'Step' in west wall of Room 2.
29	W	0.3m	'Step' in west wall of Room 2.
30	NE		Spring point at eastern side of arch between Rooms 2 & 3.
31	NW		Spring point at western side of arch between Rooms 2 & 3.
32	NW		Spring point at northern side of arch between Rooms 1 & 3.
33	SW	0.3m	Spring point at southern side of arch between Rooms 1 & 3.
34	SE	0.3m	Spring point at southern side of arch between Rooms 1 & 3.
35	E	0.5m	Spring point at northern side of arch between Rooms 1 & 3.
36	E	1&2m	Blocked and repaired opening between Rooms 3 and 5.
37		0.2m	Finds recovered during clearing (whetstone, handle, spanner, tap) none retained.

Site Providence Smelt Mill, Greenhow, North Yorkshire			Film Number
After Completion of Consolidation Works			Providence 3
Plate	Facing	Scale	Description
1	NE		General view of remains of smelt mill after works.
2	NNE	1&2m	General view of mill of consolidation works.
3	NW	1&2m	Rooms 1 and 4 rebuilt.
4	NW	1&2m	Rooms 1, 4, 5 and arch consolidated.
5	SW		Rooms 3, 4 and part of 1 consolidated.
6	SE		Room 4 consolidated.
7	NE		Rooms 1, 3, 4 and arch consolidated.
8	ENE	1&2m	Room 4 consolidated.
9	W		General view of mill after completion of works.
10	S		View along line of flues after completion of works.
11	ESE		General view of mill after completion of works.
12	SE		General view of mill after completion of works.
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37			

Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	1	Black & White print	400

Frame	Facing	Scale	Description	Who/Date
1			Not used on this project.	JB
2			Not used on this project.	JB
3			Not used on this project.	JB
4			Not used on this project.	JB
5			Not used on this project.	JB
6			Not used on this project.	JB
7			Not used on this project.	JB
8			Not used on this project.	JB
9			Not used on this project.	JB
10			Not used on this project.	JB
11			Not used on this project.	JB
12			Not used on this project.	JB
13			Not used on this project.	JB
14			Not used on this project.	JB
15			Not used on this project.	JB
16			Not used on this project.	JB
17			Not used on this project.	JB
18			Not used on this project.	JB
19			Not used on this project.	JB
20			Not used on this project.	JB
21			Not used on this project.	JB
22			Not used on this project.	JB
23			Not used on this project.	JB
24			Not used on this project.	JB
25			Not used on this project.	JB
26			Not used on this project.	JB
27			Not used on this project.	JB
28			Not used on this project.	JB
29			Not used on this project.	JB
30			Not used on this project.	JB
31			Not used on this project.	JB
32			Not used on this project.	JB
33	N	2m	Interior elevation of north wall of Room 5	JB 01/03/08
34	E	2m	Interior elevation of east wall of Room 5	JB 01/03/08
35	W	2m	Interior elevation of west wall of Room 5, with remains of archways.	JB 01/03/08
36	SE	2m	Circular depression to E of Room 5, possible further room/structure.	JB 01/03/08
37	W	2m	E side of arch supporting flue over track way.	JB 01/03/08

Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	2	Colour Slide	400

Providence Smalt Mill, Beverley, North Yorkshire. Archaeological Recordings				
Frame	Facing	Scale	Description	Who/Date
*1	N	2m	Interior elevation of north wall of Room 5	JB 01/03/08
*2	E	2m	Interior elevation of east wall of Room 5	JB 01/03/08
*3	W	2m	Interior elevation of west wall of Room 5, with remains of archways.	JB 01/03/08
*4	SE	2m	Circular depression to E of Room 5, possible further room/structure.	JB 01/03/08
*5	W	2m	E side of arch supporting flue over track way.	JB 01/03/08
*6	E	2m	Interior elevation of east wall of Room 1 showing top of arch to the ore hearth	JB 01/03/08
*7	N	2m	Interior elevation of N wall of Room 1, ore hearth to east (right)	JB 01/03/08
*8	W	2m	Interior elevation of S end of W wall of Room 1	JB 01/03/08
*9	W	2m	Interior elevation of N end of W wall of Room 1 showing window	JB 01/03/08
*10	E	1&2m	Exterior elevation of W wall of Room 1	JB 01/03/08
*11	E	2m	W side of arch for flue over track way	JB 01/03/08
*12	N	1&2m	Buttress on W side of N end of flue arch	JB 01/03/08
*13	N	1&2m	Buttress on E side of N end of flue arch	JB 01/03/08
*14	W	1m	Door or archway in E wall of Room 4 connecting to Room 5	JB 01/03/08
*15	N	1m	Interior of Room 3 – ore hearth with tumbled roof slabs	JB 01/03/08
16	N	2m	Interior elevation of north wall of Room 5	JB 01/03/08
17	E	2m	Interior elevation of east wall of Room 5	JB 01/03/08
18	W	2m	Interior elevation of west wall of Room 5, with remains of archways.	JB 01/03/08
19	SE	2m	Circular depression to E of Room 5, possible further room/structure.	JB 01/03/08
20	W	2m	E side of arch supporting flue over track way.	JB 01/03/08
21	E	2m	Interior elevation of east wall of Room 1 showing top of arch to the ore hearth	JB 01/03/08
22	N	2m	Interior elevation of N wall of Room 1, ore hearth to east (right)	JB 01/03/08
23	W	2m	Interior elevation of S end of W wall of Room 1	JB 01/03/08
24	W	2m	Interior elevation of N end of W wall of Room 1 showing window	JB 01/03/08
25	E	1&2m	Exterior elevation of W wall of Room 1	JB 01/03/08
26	E	2m	W side of arch for flue over track way	JB 01/03/08
27	N	2m	Buttress on E side of N end of flue arch	JB 01/03/08
28	N	1m	Interior of Room 3 – ore hearth with tumbled roof slabs	JB 01/03/08
29	Down	1m	Looking down into Room 4	JB 01/03/08
30	S	2m	View down along remains of flue(s)	JB 01/03/08
31	S	2m	View down along remains of flue(s)	JB 01/03/08
32	N	2m	View upslope along the remains of the flue(s)	JB 01/03/08
33	E	2m	W side of arch and flue(s) over track way	JB 01/03/08
34	W	2m	E side of flue arch over track way	JB 01/03/08
35	E	2m	W side of flue at its southern end adjacent to track way	JB 01/03/08
36	W	2m	E side of flue at its southern end adjacent to track way	JB 01/03/08
37	N	2m	S side of mill in area of Room 4	JB 01/03/08
38	NW	None	General view of mill prior to consolidation works	JB 01/03/08
39	NE	None	General view of mill prior to consolidation works	JB 01/03/08

* Due to fogging processing film these shots were retaken at a later date as close to the originals as possible.

Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	3	Black & White print	400

Frame	Facing	Scale	Description	Who/Date
0A	E	2m	Interior elevation of east wall of Room 1 showing top of arch to the ore hearth	JB 01/03/08
1A	N	2m	Interior elevation of N wall of Room 1, ore hearth to east (right)	JB 01/03/08
2A	W	2m	Interior elevation of S end of W wall of Room 1	JB 01/03/08
3A	W	2m	Interior elevation of N end of W wall of Room 1 showing window	JB 01/03/08
4A	E	1&2m	Exterior elevation of W wall of Room 1	JB 01/03/08
5A	E	2m	W side of arch for flue over track way	JB 01/03/08
6A	N	1&2m	Buttress on W side of N end of flue arch	JB 01/03/08
7A	N	1&2m	Buttress on E side of N end of flue arch	JB 01/03/08
8A	W	1m	Door or archway in E wall of Room 4 connecting to Room 5	JB 01/03/08
9A	N	1m	Interior of Room 3 – ore hearth with tumbled roof slabs	JB 01/03/08
10A	SE	1m	Interior of Room 3 from above showing start of corbelling of roof	JB 01/03/08
11A	N	1m	Interior of Room 3 from above showing top of arch to Room 4	JB 01/03/08
12A	Down	1m	Looking down into Room 4	JB 01/03/08
13A	S	2m	View down along remains of flue(s)	JB 01/03/08
14A	N	2m	View upslope along the remains of the flue(s)	JB 01/03/08
15A	E	2m	W side of arch and flue(s) over track way	JB 01/03/08
16A			Not used on this project.	JB 01/03/08
17A			Not used on this project.	JB 01/03/08
18A			Not used on this project.	JB 01/03/08
19A			Not used on this project.	JB 01/03/08
20A			Not used on this project.	JB 01/03/08
21A			Not used on this project.	JB 01/03/08
22A			Not used on this project.	JB 01/03/08
23A			Not used on this project.	JB 01/03/08
24A			Not used on this project.	JB 01/03/08
25A			Not used on this project.	JB 01/03/08
26A			Not used on this project.	JB 01/03/08
27A			Not used on this project.	JB 01/03/08
28A			Not used on this project.	JB 01/03/08
29A			Not used on this project.	JB 01/03/08
30A			Not used on this project.	JB 01/03/08
31A			Not used on this project.	JB 01/03/08
32A			Not used on this project.	JB 01/03/08
33A			Not used on this project.	JB 01/03/08
34A			Not used on this project.	JB 01/03/08
35A			Not used on this project.	JB 01/03/08
36A			Not used on this project.	JB 01/03/08
37A			Not used on this project.	JB 01/03/08

Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	4	Colour Slide	400

Frame	Facing	Scale	Description	Who/Date
1	N	2m	General view to N showing re-building work started	JB 20/06/09
2	NE	2m	Rooms 1-3 partially emptied of rubble	JB 20/06/09
3	W	1m	W wall Room 5, arch showing further collapse	JB 20/06/09
4	N	1m	N wall of Room 3 (ore hearth) showing archway	JB 20/06/09
5	SE	1m	E wall of Room 1 partially cleared out ready for consolidation work	JB 20/06/09
6	E	None	W side of arch carrying flue over track way with former in place and consolidation work started	JB 20/06/09
7	E	None	W side of arch carrying flue over track way with former in place and consolidation work started	JB 20/06/09
8	W	1m	W wall of Room 1 with window partially cleared	JB 20/06/09
9	S	1m	Spread of removed rubble to W of Room 1 (underexposed)	JB 20/06/09
10	W	2m	View along top of N wall of Room 5 prior to consolidation works, also showing flue archway	JB 20/06/09
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37				
38				
39				JB 01/03/08

Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	5	Black & White print	400

Frame	Facing	Scale	Description	Who/Date
0A			Not used on this project.	
1A			Not used on this project.	
2A			Not used on this project.	
3A			Not used on this project.	
4A			Not used on this project.	
5A			Not used on this project.	
6A			Not used on this project.	
7A			Not used on this project.	
8A	N	2m	General view to N showing re-building work started	JB 20/06/09
9A	N	2m	General view to N showing re-building work started	JB 20/06/09
10A	NE	2m	Rooms 1-3 partially emptied of rubble	JB 20/06/09
11A	W	1m	W wall Room 5, arch showing further collapse	JB 20/06/09
12A	N	1m	N wall of Room 3 (ore hearth) showing archway	JB 20/06/09
13A	SE	1m	E wall of Room 1 partially cleared out ready for consolidation work	JB 20/06/09
14A	E	None	W side of arch carrying flue over track way with former in place and consolidation work started	JB 20/06/09
15A	E	None	W side of arch carrying flue over track way with former in place and consolidation work started	JB 20/06/09
16A	W	1m	W wall of Room 1 with window partially cleared	JB 20/06/09
17A	S	1m	Spread of removed rubble to W of Room 1 (underexposed)	JB 20/06/09
18A	SE	1m	Exterior of Room 1 at W side prior to consolidation works	JB 20/06/09
19A	W	2m	View along top of N wall of Room 5 prior to consolidation works, also showing flue archway	JB 20/06/09
20A			Not used on this project.	
21A			Not used on this project.	
22A			Not used on this project.	
23A			Not used on this project.	
24A			Not used on this project.	
25A			Not used on this project.	
26A			Not used on this project.	
27A			Not used on this project.	
28A			Not used on this project.	
29A			Not used on this project.	
30A			Not used on this project.	
31A			Not used on this project.	
32A			Not used on this project.	
33A	Down	1&2m	E wall of Room 1 with archway cleared and after consolidation works	JB 15/07/09
34A	NE	1&2m	E wall of Room 1 with archway cleared and after consolidation works	JB 15/07/09
35A	NE	1&2m	E wall of Room 1 with archway cleared and after consolidation works (duplicate shot)	JB 15/07/09
36A	SW	0.3m	Detail of spring point of southern end of arch between Room 1 and Room 3 (ore hearth)	JB 15/07/09

Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	6	Colour Slide	400

Frame	Facing	Scale	Description	Who/Date
1				
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Site	Film Number	Film Type	ASA
Providence Smelt Mill, Greenhow	7	Black & White Print	400

Frame	Facing	Scale	Description	Who/Date
1	SE	0.5m	Southern end of the arch between Rooms 1 and 3	JB 04/11/09
2	SE	0.5m	Southern end of the arch between Rooms 1 and 3	JB 04/11/09
3	E	1&2m	E wall Room 3 showing repair to archway, after works	JB 04/11/09
4	ENE	0.5m	N end of archway between Room 1 and 3 (ore hearth)	JB 04/11/09
5			Not used on this project.	
6			Not used on this project.	
7			Not used on this project.	
8			Not used on this project.	
9			Not used on this project.	
10			Not used on this project.	
11			Not used on this project.	
12			Not used on this project.	
13			Not used on this project.	
14			Not used on this project.	
15			Not used on this project.	
16			Not used on this project.	
17			Not used on this project.	
18			Not used on this project.	
19			Not used on this project.	
20			Not used on this project.	
21			Not used on this project.	
22			Not used on this project.	
23			Not used on this project.	
24			Not used on this project.	
25			Not used on this project.	
26			Not used on this project.	
27			Not used on this project.	
28			Not used on this project.	
29			Not used on this project.	
30			Not used on this project.	
31			Not used on this project.	
32			Not used on this project.	
33			Not used on this project.	
34			Not used on this project.	
35			Not used on this project.	
36			Not used on this project.	