

**Ribblehead Construction Camps.
Excavation of Building n6.**

**Report on an Excavation carried out by the Ingleborough Archaeology
Group on behalf of the Yorkshire Dales National Park Authority**



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1. Introduction

1.1 Construction work on the Midland Railway Company's Settle to Carlisle Railway began at Settle Junction in 1869 and was divided into several separate contracts. The length from Settle Junction to Dent Head formed Contract No.1 and work at Ribbleshead commenced in 1870 once land-purchase formalities had been concluded. Building of the viaduct and Blea Moor tunnel were to take almost six years, and a series of settlement and commercial-industrial camps were put up around Ribbleshead. Most of the buildings were of wood, set on stone bases, and only building n6 (the subject of this report) is known to have been mainly built in stone.

2. Research Objectives

2.1 The Project

2.1.1. The Ingleborough Archaeology Group was asked by the YDNPA, in 2007, to undertake the project which took the form of a mitigation programme for building n6 which had been flagged up in a Monuments at Risk Survey (MARS) in 2005 as giving cause for concern. At some point between the initial archaeological survey in 1995, completed by Northern Archaeological Associates (NAA), and the MARS visit, and possibly since that date, substantial disturbance had been caused to the rubble within the building. Persons unknown had randomly redistributed quantities of stonework within the structure leaving two large 'quarry' holes. It is possible that this disturbance was the work of metal detectorists chasing positive signals from metalwork beneath the stone rubble spread.

2.1.2 **The aims and objectives** of the mitigation programme were to:

- remove existing rubble within the stone spread to reveal the structure's external form,
- expose any external wall lines and internal features,
- provide a detailed record of the structure,
- attempt an interpretation of the structure and suggest its original functions,
- backfill on completion and leave in a secure manner with wall lines exposed.

2.2. Outline of Project Plan

2.2.1 The project aimed to record the structure at all phases of the mitigation programme. Thus a full photographic record was to be kept at all stages to enable comparison of the structure prior to, during and at the end of the process. Scale plan and section drawings were to be completed at the final stage; a full inventory of artefactual finds was to be compiled; and context and other relevant recording sheets were to be completed on site on a daily basis.

3. Prior Work

3.1 Archaeological survey

3.1.1. A comprehensive topographical and archaeological survey of the main parts of the Ribbleshead Construction Camps site was carried out in spring 1995 by Northern Archaeological Associates (NAA) for the Yorkshire Dales National Park Authority.¹ This

survey recorded the structure, within Survey Area B (the main engineering camp), as a building and it was given the site code n6.

3.1.2 The building was described on NAA's Field Survey Recording Sheet (27-4-95) as 'a rectangular patch of exposed limestone rubble (with) a hint of a surrounding wall along the northern and western sides' (Fig. 1). Appendix 1 shows an aerial image of the site (© 'Flash Earth'): the stone spread is depicted clearly as a whitish rectangle just north-west of the cross in the centre of the image. It was interpreted by NAA as a demolished building that had collapsed inwards. The survey noted 'more substantial walling in centre of south side', and retrieved a cast-iron flue vane from that spot, suggesting the possibility of an internal chimney and belly stove type of fireplace.

3.1.3 The condition of the building was noted in the NAA survey as 'good'.

3.1.4 The sketch plan in the Field Survey Recording Sheet measured the building – or stone spread – at 10.20m by 6.35m, aligned NW-SE on the long axis.

3.2 Monuments at Risk Survey

3.2.1 In May 2005 a MARS survey was undertaken by Dales Volunteers² and this pinpointed 'significant' causes for concern in terms of management of the entire Ribbleshead Construction Camps complex. In particular, building n6 had been subjected to 'extensive illicit disturbance' mainly by assumed wall chasing.

4. Site Plan

See Appendix 2.

5. Sections and Plans

5.1 See Section 9.2. Original field drawings (plans and sections) are lodged within the Project Archive submitted with this report.

6. Stratigraphic Units

6.1 Contexts

6.1.1 Fourteen discrete contexts were identified and logged. All context sheets, together with the Trench Record sheet, have been filed within the excavation archive.

6.1.2 Context 100: allocated to the entire rubble spread within the building and across the four walls. As all the rubble originated from demolition of the building, it was considered to consist of one single context, given the Category of 'wall collapse' and Form of 'fill'.

6.1.3 Contexts 101-104: each external wall of the building was allocated a separate context number as the construction and form of each varied. The long north wall was given the number 101, the east gable wall 102, the long south wall 103, and the west gable 104.

6.1.4 Contexts 105 and 106: these contexts were allocated to the floor surface within the building. The eastern portion, encompassing roughly one-third of the floor area, had been coated with lime mortar and consisted of limestone slabs laid vertically (Fig. 2): this was given context number 105. The remaining floor area (context 106) consisted of limestone slabs laid horizontally with no evidence of a mortar coating.

6.1.5 Context 107: in the north-west corner of the building there was a neat, though slightly collapsed, pile of ordinary red brick, laid alternately as headers and stretchers (Fig. 3).

6.1.6 Context 108: in the south-west corner there was a single row of similar brick laid as stretchers parallel to the west gable wall (Fig. 4).

6.1.7 Context 109: within and immediately outside the doorway in the south wall – in the threshold – were two wooden planks laid side by side parallel to that wall, forming a distinct feature within the overall structure.

6.1.8 Contexts 110-113: outside each of the four walls there was a narrow linear depression which had been filled with demolition or collapse rubble from the walls, removed during the excavation process. These were given separate context numbers with (110) along the north wall, (111) along the east, (112) along the south, excluding the threshold, and (113) along the west gable.

6.1.9 Full details can be found on the individual Context Record sheets within the project archive.

7. Finds Report

7.1 Finds Processing

7.1.1 See paras 9.4 and 9.5.

7.2 Categorisation of Finds

7.2.1 Object Numbers were allocated to all artefactual finds from the site running from Object no.101 to 426. Finds were numbered with a separate prefix for each day of the excavation period to aid on-site organisation and post-excavation processing: those on day one were numbered from 101, on day two from 201, and so on. A total of 150 object numbers were recorded. However, if several similar items were recovered from the same micro-location, they were allocated the same Object Number and bagged together, so this substantially increases the total number of objects recovered, namely 437 in all.

7.2.2 Outline details of all finds were entered on an Object Index sheet which has been filed within the site archive. Appendix 3 contains the full finds database as compiled by the site supervisor.

7.2.3 Various types of object were recovered from the building during the excavation, totaling 437, and they can be grouped as follows:

Metalwork	116
Ceramics	113
Glass	51
Bone	129
Clay pipe fragments	4
Wood	3
Coal	4
Slag	1
Bitumen	3
Copper alloy	6
Other	7

7.2.4 In addition, large quantities of broken drainpipe, of large-bore salt-glazed stoneware, were removed from the building. Only one piece was retained and bagged, as a sample for the record, as most pieces were too large to be bagged and were all unstratified, being on top of the rubble pile. The large quantities of animal bone recovered were not individually logged or recorded, but were examined by an osteoarchaeologist (see Section 7.6).

7.3 Metalwork

7.3.1 The most frequently occurring objects, some hand-forged, were nails. Most of these were squared in profile, and thus were hand-forged, but they came in various lengths. A total of 106 nails were processed. States of preservation varied with some being severely corroded. Nails were recovered from within the rubble spread (context 100), and within the threshold (109), with many lying on the surface of the internal floor (105 and 106). They were spread across the entire building.

7.3.2 A ferrous metal window stay (Object no.401) was recovered from within (105) near the south-east corner beneath the south wall (103).

7.3.3 A ferrous metal knife with a bone handle (no. 101) was recovered from within the rubble in the south-east corner of the building. It was interpreted as a kitchen-type knife.

7.3.4 Other identifiable metal items comprised:

- a hammer wedge (no. 301) 88mm by 40mm, in sound condition
- two long coach bolts (nos. 326, 331)
 - a roof dog (no. 327) with a shaft 430mm long
- a cranked hinge (no. 322) from the lid of a wooden chest
- a clog iron (no. 312)
- a small coal shovel (no. 329), with handle (no 330), severely corroded
- two skewers (no. 229)
- two hooks, including one S-hook (no. 305)
- an iron bar 630mm long (no. 332)
- a cast-iron frame (no. 336) probably from the ash bin at the base of a stove
- two wrought-iron hoops (no. 316), one from a wooden barrel, one from either a small barrel or a wooden bucket
- a tapered masonry bolt (no. 235)

7.3.5 Metal objects were examined and identified by David Clements, blacksmith, of Settle.

7.4 Ceramics

7.4.1 Sherds were recovered throughout the rubble spread though there was a dominance in the eastern part of the building and in and around the threshold.

7.4.2 The majority of the sherds were from industrially-produced white earthenware tablewares, many of them blue and white underglazed transfer-printed. Although the technique was introduced in the late 18th century, the vessels and designs represented are characteristic of the mid to later 19th century.

7.4.3 A number of sherds are of interest. No. 214 is part of china saucer with a 'Chinoiserie' pattern, and no. 406 is most probably part of the same vessel. No. 414 is an example of industrially-produced slipware tableware of similar date. No. 109 is part of a straight-sided jug made of white earthenware with the bluish tinge suggesting it to be Pearlware in production from the late 18th century to the end of the first quarter of the 19th.

7.4.4 No. 207 is part of a large bowl-like vessel composed of beige slip on a red fabric with internal slip and a colourless glaze, while no. 426 is made of white earthenware with a hand-painted applied lustre decoration, in pink or mauve.

7.4.5 Object no. 216 is an assemblage of small tableware sherds which includes one piece that stands out from the rest. This was printed with a green transfer displaying what is known as sprigged decoration. This was part of a jug and the intention of this type of sprigging was to provide a (cheap) imitation of Wedgwood pottery. Also within this assemblage is part of another essentially white vessel which had been slipped in blue clay with white decoration added afterwards before a colourless glaze was applied.

7.4.6 A complete brown stoneware glazed inkwell (no. 115) was recovered from the south-east corner, beneath the south wall.

7.4.7 Several bottle fragments were recovered, including a section of a grey stoneware bottle (no. 103) of the type used to hold ginger beer or mineral water as well as fragments of jars of the same fabric. The bottle was partially coated with black bitumen that had clearly spilled over the already broken bottle. Object no. 320 displays what at first sight could be taken for a bowl, given the apparent carination (sharp, inward change of direction on the body), but it was interpreted as part of a large jar, possibly a one-gallon vessel for holding ginger beer. No. 203 is a fragment of a cast-moulded, white earthenware jug.

7.4.8 One sherd in red fabric with a white internal slip (no. 317) was an example of kitchenware, while no. 208 proved to be a fragment of what was probably the lid for a large, non-glazed and non-domestic vessel.

7.5 Glass

7.5.1 Large quantities of thin, clear window glass were recovered from within and below the rubble spread. The majority was found near or at the base of the rubble spread in the south-eastern part of the building though a few pieces were found in the external doorway and along the north wall. All fragments were of the same thickness which is a strong indication that, however many panes had been inserted into the window frames, it was all of the same period and presumably from the same supplier.

7.5.2 Various fragments of bottle glass, differing in size and colour, were found within the rubble spread, again mainly in the south-east or east parts of the building. One almost complete, two-piece machine-moulded, clear glass phial (no. 415), 45mm high and 30mm in external diameter, was recovered from within the drain just inside the threshold. It appears to have an abraded rim but this has been identified as a 'cracked-off' top. There were other pieces of glass bottle (nos. 228, 249 and 351), very dark olive-green in colour, which probably held beer or wine. Two fragments (nos. 114 and 345) are from bottles with rectangular section which would have held either ink or beer. No. 248 is part of a bottle with an 'applied rim: the body was machine-blown, with the top then being broken off and a hand-blown rim affixed to the body.

7.5.3 No. 342 is part of a machine-made sugar bowl, imitating cut-glass, which can be dated to the late 19th century.

7.5.4 Several glass sherds now have an iridescent finish but this has resulted from the natural chemical process of hydration that has occurred over the decades under the stone spread.

7.6 Bone

7.6.1 In total 128 fragments of bone were recovered from within the stone spread, most of which showed signs of having been butchered, and some of which had been gnawed by rodents presumably since their deposition within the former building. The breakdown of bone fragments by species is shown in the following table:

Species	Number of fragments
Sheep or goat	20
Cow	15
Pig	16
Deer	1
Cat	4
Miscellaneous vertebrae	19
Misc. ribs from large mammals	22
Misc. large mammal fragments	22
Misc. medium mammal fragments	6
Unidentifiable	4
Total	129

A full breakdown of all bone fragments is given in Appendix 3a.

7.6.2 Distinguishing between sheep and goat bone is notoriously difficult but the likelihood is that the assemblage here is of sheep. A number of bones had signs of deliberate butchery: three had clearly been sawn for dismemberment, two of which also had cut marks showing the animals concerned had been filleted. A further two fragments had similar filleting marks. Three further fragments had wear marks associated with rodent gnawing. It was not possible to determine if the bones all came from one animal or from several.

7.6.3 The assemblage of cattle bone could be identified as coming from more than one specimen and, of the total of fifteen fragments, nine displayed marks showing they had been sawn for dismemberment: they had been butchered. One unsawn fragment was a second phalanx and this showed prominent signs of osteopathic growth resulting from a non-specific infection, most probably haematological and the result of an open wound.

7.6.4 Several of the pig bone fragments also displayed signs that they had been sawn for dismemberment with one having been chopped rather than sawn. One of the sawn bones and two other fragments had also been filleted. Two fragments had the marks of rodent gnawing and a further bone had probably been gnawed by a dog. One fragment had green staining on its surface which could have been derived from prolonged contact with faecal or decaying organic matter.

7.6.5 One bone fragment – a radius – was from a deer, possibly a red deer but more likely from a fallow deer.

7.6.6 It is unusual to find cat bones within such assemblages but four limb bones were recovered, two of which were femurs probably from the same individual. It was not possible to determine if the other two bones also came from the same animal.

7.6.7 More than half of the assemblage – 72 fragments – could not be ascribed to particular species. These included 19 vertebrae, seven of which had been sawn longitudinally and two laterally. The fragmented nature of these bones precluded the drawing of any conclusion concerning the number of individual animals represented.

7.6.8 A similar picture emerged with the 22 rib fragments, six of which had been sawn through during butchery. Of the twenty-two fragments there were only four rib heads so, again, it was not possible to identify the total number of individual ribs, never mind the number of individual animals. All were from large mammals, either cow or horse or red deer but the probability is that they were from cow. In addition there was one similar fragment from a medium-sized mammal such as sheep or pig.

7.6.9 A further 22 fragments were from large mammals but they were too decayed to enable identification of the actual bones; five were similarly from medium-sized mammals. Four fragments were even more decayed and could not be identified at all.

7.6.10 There was some speculation during the excavation that the building may have served, *inter alia*, as a butchery, the drain being suggested as evidence of this and the cast-iron ring being suggested as a tethering point for animals before slaughter. This hypothesis can be ruled out as the total assemblage, the number of individual animals and the lack of certain bones (such as skulls) do not point to n6 having been used for primary butchery. It is certain that the animals represented in the assemblage were brought onto the site as split carcasses – in other words the individuals had been

slaughtered and dismembered elsewhere – but secondary dismemberment into smaller joints had been performed within the construction camp area. Whether this took place within n6 is open to argument. There is no direct irrefutable evidence either way.

7.7 Other Finds

7.7.1 Three fragments of late-date, narrow-bore clay pipe were recovered (nos. 204 and 420) as well as a half-section of a clay pipe bowl (no. 239) which was unusually thick for the date and clearly of an inferior quality though it had a form of decoration known as milling just below the rim.

7.7.2 A small (26mm diameter) stone ball (no. 421) with two flattened faces was recovered and this was identified as the stopper from a pressurised lemonade bottle.

7.7.3 Several fragments of solidified bitumen were found, probably from roofing the building, and two lumps of slag (no. 122) which were either from the belly stove within the building or possibly the result of blacksmithing. There were also six small fragments of solidified copper alloy (no. 226) which were interpreted as spillage from the pouring of molten alloy into a receptacle.

7.8 Finds Identification

7.8.1 Apart from metalwork and bone, all other finds were examined by Chris Howard-Davis of Oxford Archaeology North. The site supervisor compiled this report from the discussions and deliberations of her examination, and any errors remain the site supervisor's own.

8. Photographic Report

8.1 Rationale

8.1.1 The purpose of the project photography was to record for the archive, for public display and for presentations all stages of the project including overall views and details of all contexts, significant features and small finds. It was decided, therefore, that the photographic record should be in the form of both 35mm colour transparencies and digital images.

8.1.2 It was also decided to trial a system devised by the IAG for overhead photography using digital images stitched together using Adobe Photoshop software.

8.2 Equipment

8.2.1 For the digital photography a Nikon D70 was used with a zoom lens focal length 18-70mm. 8.3.2 For the colour transparencies a total of four process-paid 36 exposure Fujichrome 200 films were used.

8.2.3 Standard red and white ranging poles and a 200mm red and white scale were used on site as appropriate, except for one occasion when a white 200mm scale was used (Slides 1.31 and 1.32; Digital 328 and 329). This white scale was found not to be

suitable as the graduations could not be easily read. Black and white scales of various sizes were used when photographing small finds post-excavation.

8.2.4 Overall photos of the building were taken from a 1.80m high stepladder.

8.2.5 The overhead digital photos were taken using a specially constructed frame to hold the camera, an electronic remote shutter release and fluorescent targets to mark the corners of adjoining 1m squares (Appendix 4b).

8.3 Methodology

8.3.1 For the colour transparencies a Nikon F50 was used with a zoom lens focal length 35 – 80mm although on two occasions this was replaced with an 18 – 55mm lens (Slides 3.25 and 4.10) to obtain a wider angle.

8.3.2 All digital photos were taken in RAW format to preserve their integrity. To minimise the amount of compression they were then converted to TIFF format for printing and to JPG format for easier viewing. The only exceptions to this procedure were the 44 overhead photos (Digital 419-462) and the three photos of sections of the north wall (Digital 463-465) which were taken in JPG format for easier stitching together using Adobe Photoshop.

8.3.3 At the end of every day contact sheets of the digital photos were printed so that they could be viewed by the site supervisor.

8.3.4 All the digital photos have been saved on CDR in their RAW, TIFF and JPG formats for the archive. A back-up copy was also made.

8.3.5 The colour transparencies were taken in Auto mode with manual adjustments at the photographer's discretion.

8.3.6 Photos of the whole building were taken from the top of a 1.80m stepladder and from four opposing directions. The site was also photographed under a 3m grid both prior to excavation and at the final cleaned stage before backfilling.

8.3.7 The methodology and results of the overhead photography are outlined in Appendix 4b.

8.4 Results

8.4.1 All slides and digital images were examined by the site supervisor and any unsuitable or duplicate images were removed without compromising the completeness of the photographic record. Unfortunately rain on the lens has caused a slight blur on Slides 1.20 to 1.30 but these are included for the completeness of the record although they are obviously not suitable for publication. The equivalent digital images are not affected.

8.4.2 Details of the selected slides and digital images were then transferred from the Photographic Index to the Photographic Database, on Microsoft Access – see Appendix 4c.

8.5 Archive

8.5.1 Submitted for the archive are:

- A CDR with all selected digital images in RAW TIFF and JPG formats
- A CDR containing the database in Microsoft Access
- A printed copy of the photographic database
- All selected colour transparencies

9. Methodology

9.1 Photography

9.1.1 At the start of the mitigation exercise a 3m string grid was laid out across the entire stone spread and photographs were taken from all prime compass points to enable comparison at the end of the exercise. Both 35mm colour slide and digital photographs were taken.

9.1.2 At every stage of the excavation process slides and digital images were taken either at ground level or from a ladder, of general or close-up views of the building, individual aspects of the structure and of spot finds.

9.1.3 Once the building had been backfilled a final photo set was taken, again to enable comparison with the state of the rubble spread at the outset.

9.1.4 See Appendix 4a for a full photographic report.

9.1.5 Photography was managed by Chris Bonsall and Brian Clark.

9.2 Measurements and Surveying

9.2.1 Initial measurements were taken, using tape measures, of the entire stone spread and, as excavation proceeded, similar measurements were recorded for all wall lengths, widths and heights; for the internal length and breadth of the building once cleared out; and for specific internal features of detail. All data were recorded on context sheets on site.

9.2.2 Surveying of the building and its areal context were undertaken by Jeff Price using a Zeiss Elta total station. For a full survey report, see Appendix 5.

9.3 Excavation

9.3.1 Excavation commenced by hand-clearing wall rubble from outside each of the four external walls, starting with the east gable wall and proceeding clockwise round the building. This enabled the external wall lines to be clearly identified.

9.3.2 The second stage involved removing obviously loose rubble from all wall tops, again working clockwise from the east gable. This enabled *in situ* wall coursing to be identified.

9.3.3 Then, wall rubble from immediately outside the four wall lines was removed, in the same sequence, leaving the remains of the four walls clearly exposed. Turf and moss encroachment was also carefully removed from the south-east and north-west corners of the building to define each corner internally and externally.

9.3.4 Once the four walls had been cleared the excavation team proceeded to remove all stone rubble from within the eastern third of the building, removing all stone to expose the full extent of the internal faces of the east gable and north walls, and to expose the floor of the building.

9.3.5 The project brief required detailed recording of the building so it was deemed important to clear rubble from along the south and north walls to see if there was an internal dividing wall and if the nature of the floor exposed at the eastern end was similar across the building.

9.3.6 It became immediately apparent that details of the floor changed from east to west so, in discussion with Vivienne Metcalf, Historic Environment Field Advisor (HEFA) for English Heritage, the decision was taken to clear all rubble infill from the floor area in the central third of the building.

9.3.7 In turn, it became clear that the rubble within the western end of the building was masking potentially significant features so this, too, was completely removed, again entirely by hand.

9.3.8 This latter task exposed a neat brick stack in the north-west corner of the building. This was cleaned off by hand brush, photographed and recorded, then removed by hand with all bricks being carefully stacked. On completion of the excavation these were all replaced as found prior to backfilling. It also exposed a line of bricks laid along the west wall foot in the south-west corner of the building. This was cleaned off by hand but not removed.

9.3.9 Also revealed was the threshold of the building, within and without the doorway. Externally it consisted of two wooden planks laid horizontally side by side and internally there was a squared drain with a rough brick surround and a cast-iron drain grid cover (Fig. 5).

9.3.10 Recessed into the floor at the eastern end was a series of fixing bolts forming an L-pattern: this could have been for either a bench set against the wall corner or a cupboard or shelving arrangement. This, too, would suggest an office function.

9.3.11 Once all rubble had been cleared from within the structure and from the threshold, the entire floor area was thoroughly photo-cleaned using hand trowels and hand brushes, starting along the north wall with the excavation team working in a line back from that wall to the south wall.

9.3.11 Excavation commenced on Monday 28 May 2007 and was completed on Thursday 31 May.

9.4 Finds processing on site

9.4.1 All finds were immediately reported by the relevant excavation team member to the site supervisor who noted the position of each find and removed it to the site tent where each was given a discrete finds number. A paper record was made of type of artefact (eg glass, pot, metalwork) and location within the building (eg 'in south-east corner', 'along north wall', 'centrally placed'). As most finds came from within the rubble layer (Context 100), which had been heavily disturbed by persons unknown, it was felt inappropriate to electronically log the exact position of the finds.

9.4.2 Objects recovered from the floor of the building, beneath the rubble layer, were logged using the team's total station and tablet computer.

9.4.3 Each object was bagged on site in a separate polythene bag and labelled according to accepted practice, except for bones and drainpipe sections, as discussed in Section 7.2.4.

9.5 Finds Processing off site

9.5.1 At the end of each day all finds were taken off site by the site supervisor and stored at his home. The field note entries were transferred to neat paper copy. Finds were stored in a cool place out of direct sunlight.

9.5.2 A computer database of all finds was compiled by the site supervisor post-excavation.

9.5.3 As no member of the excavation team had sufficient experience to identify pottery sherds and glass pieces, Oxford Archaeology North (OAN) were contacted with a view to examining all artefacts in detail, as a sub-contracted task. This was agreed. Metalwork was similarly examined by a Settle blacksmith David Clements; glass, ceramics and miscellaneous artefacts by Chris Howard-Davis of OAN; and bone by Andy Bates of OAN.

9.5.4 See Section 7 for a detailed Finds Report.

9.6 Drawing

9.6.1 The project brief required drawn survey records to be compiled, and submitted as wet ink plots on matt polyester film sheets.

9.6.2 Three survey plans were drawn on site:
drawing no.1500, floor plan, context 105
drawing no.1503, floor plan, contexts 106 and 108
drawing no.1504, threshold plan, context 109.
All plans were drawn at a scale of 1:20.

9.6.3 Two section drawings were similarly completed:
drawing no.1501, north wall, context 101
drawing no.1502, west wall, context 103.
Both sections were drawn at a scale of 1:10.

9.6.4 All drawings were inked in after the excavation process by the site supervisor, with inked copies being compiled by team member Sheila Gordon.

9.6.5 All drawings are filed within the site archive accompanying this report.

9.7 Backfilling

9.7.1 The process of backfilling took place on Friday afternoon 1 June and Saturday morning 2 June. The process was carried out entirely by hand.

9.7.2 Prior to final photography and drawing and backfilling, the site supervisor made the decision to stabilise a very small section of the north wall above the cast-iron ring (see Section 10.10). There had been partial collapse of the internal facing of this wall and it was obvious that the entire section would collapse if not stabilised.

9.7.3 At the request of Robert White, Senior Conservation Archaeologist for the Yorkshire Dales National Park Authority, similar limited restoration work was undertaken by the site supervisor along the top coursing of the north wall to level it out for long-term stability.

9.7.4 Prior to backfilling, the bricks removed from the north-east corner of the building were all replaced as found.

9.7.5 Stone was initially carefully laid across the entire floor area and along the base of all four walls. Then stone was dumped using wheelbarrows to backfill the building. The project brief required the backfill to be levelled off leaving a 'stable, interpretable structure' with 'small sections of wall' left exposed for the long-term. The YDNPA's SCA requested that all wall tops be left exposed with stable sections of west and north wall remaining visible. This was implemented.

9.7.6 Inevitably there remained a large quantity of stone rubble in excess of what was required for controlled backfilling, a pile amounting to about 6 tonnes. Again at the request of the SCA this was removed from the excavation site by the site supervisor using a 2 tonne mechanical dumper, aided by team member Chris Bonsall. Stone was deposited near existing fly-tipping spoil towards the south end of the viaduct, pending removal off the scheduled monument by the YDNPA. This task was carried out on Friday morning, 6 July.

9.8 Desk-based Research

9.8.1 The site supervisor carried out limited archival research with the hope of locating relevant and useful contemporary, or later, references to the site and to the building. On a visit to The National Archives at Kew for personal research purposes, various documents within the RAIL series were examined but nothing of value was found.³

9.8.2 An engraving⁴ taken from F.S. William's *The Midland Railway: its Rise and Progress* depicts the view through the viaduct, then under construction, towards the residential area known as Belgravia, adjacent to building n6, but the scale is too small to make out any pertinent detail. A copy of the engraving is reproduced in Appendix 6.

9.8.3 The film *The Long Drag*, made from 1960 to 1963, has several minutes footage around the lime kiln, quarry and brickworks but disappointingly does not depict building n6 at all.⁵

10. Interpretation of Results

10.1 The detail of each wall provided clues as to the building's external form. The sturdiest wall was the rear, north wall (Fig. 6); the south wall was footed on very small stone; and the two gable walls were of poor quality build, especially at the southern ends. It is believed, therefore, that the building had a monopitch roof: the gable walls were too narrow to have supported a wall reaching to full ridge height. It is normal practice on a monopitch building to have the highest long wall at the front of a building – where full height would be needed for an entry door – with the rear wall being correspondingly low. In this case, however, the pitch has to have been sloping down from the rear to the front. There are two reasons for this interpretation. Firstly, the front (south) wall was too weakly footed and too narrow to have supported a high wall whereas the rear (north) wall was substantial in scale and well constructed of large coursed limestone blocks. Secondly, the prevailing winds at Ribbleshead are from the south-west so it would have made no sense to have had a high wall at the front facing into the wind.

10.2 It is also possible to conclude that the building had a roof made of bitumen felting nailed onto wooden laths. Several pieces of such roofing material were recovered within the rubble spread and iron nails were found throughout the building's interior. Charcoal fragments were also found across the interior suggesting, perhaps, that the roof, or part of it, had been accidentally or deliberately burned after the building was abandoned.

10.3 There was sufficient evidence within the building to confirm that the interior walls had been covered with a coating of lime plaster and/or whitewash. The rear and west gable walls contained sporadic patches of such finishing.

10.4 It was clear during the excavation that there had been a window in the south wall at its eastern end. It was not possible to determine the size of the window but quantities of clear window glass were recovered from that part of the building as well as an iron window stay, embedded into the floor.

10.5 Similarly, the position of the entry doorway can be fixed. There was a wide threshold, 1.70m wide, formed of two wooden planks laid side by side across the doorway. The project brief precluded disturbing *in situ* structural elements of the building but the planks *may* have extended beneath the external wall on the east side of the doorway. Immediately beyond the wooden threshold, internal to the building, was a drain (see para 10.7). The threshold, as excavated, suggested that the door was wider than necessary for pedestrian access.

10.6 On the east side of the doorway the external wall had been more or less completely demolished making it impossible to reconstruct the doorway form on that side but there was some evidence on the west side in the form of a semi-dressed sandstone quoin stone, found partially *in situ*, two courses high. No trace of the door jambs was seen.

10.7 Immediately inside the doorway there was a small sump drain measuring approximately 600mm by 700mm in external dimensions. It was of crude construction,

formed largely of standard brick, with one small section of wood on the south side (Fig. 5). Centred within the feature was the actual sump capped with a cast-iron grid cover measuring 220mm by 220mm. The sump drained out of the doorway beneath the wooden threshold but, again, its extent was not traced as this would have necessitated disturbing the structural fabric of the threshold.

10.8 One of the prime reasons for completely clearing the floor area within the building was to observe and record the fine detail of the surface. The eastern section of flooring differed markedly from the western, though it was all composed of limestone blocks of uneven and varying sizes. For almost 2.5m from the east gable wall, extending from the rear to the front wall, all the stone blocks had been inserted vertically with their long edge forming the floor surface (Fig. 2). To even this off, crevices between individual blocks had been packed with lime mortar and the entire surface had been similarly coated with lime mortar. It is known that such treatment limits rising damp within buildings.

10.9 The remaining 6.6m of floor, again extending for the full depth of the building, had a floor composed of limestone blocks laid horizontally to give a more or less even surface. Between larger blocks small pieces of stone had been packed in to seal the gaps. Approximately 2.2m to 2.8m from the west gable, extending for almost 3m from the rear wall, there was a possible patterning of the flooring blocks. This took the form of a vague arc but there was insufficient evidence to assert that the arrangement was anything other than accidental. It did not describe a complete circle and its curving form may simply have resulted from the way a large round-edged stone had been laid previously.

10.10 Set into the rear (north) wall was what proved to be the building's most perplexing feature. A sturdy cast-iron ring, pivoted on the end of a long cast-iron bar, had been built into the wall during its construction 4.12m from the western end of that wall, and 190mm from the floor (Fig. 7). The bar extended right through the rear wall, was then braced by a vertically-set wooden batten laid against the wall's exterior face, and then extended into the natural banking behind the building. How far it extended could not be determined. The bar had a thickness of 30mm as did the fixed ring at the end which had an internal bore of 40mm. Threaded onto this fixed ring was the free-swinging ring, also with a diameter of 30mm but with an internal bore diameter of 100mm. It was clearly meant to restrain or secure something either very valuable or very substantial in size and/or weight.

10.11 The building was approached along a pathway or trackway from the south. This had clearly been constructed rather than having formed by wear and tear on the ground surface. From the threshold it was vague in extent but, where it dropped downslope, it became marked and joined a similar pathway leading from the residential area known as Belgravia (n7 in the NAA survey), which in turn passed to the north-west of the lime kiln to join a tramway that served both the quarry adjacent to the lime kiln and the brickworks.

10.12 For a discussion of the finds see Section 7 and Appendix 3 for a full inventory and analysis.

11. Summary of Findings

11.1 Function

11.1.1 The excavation produced a sufficient number of clues for interpreting the building's form and functions. Prior to the mitigation process virtually nothing was known: leaders of 'Friends of the Settle-Carlisle Railway' guided tours around the Ribbleshead complex had in fact been interpreting the structure as the probable base of a water tank. This was clearly not the case. All that could usefully have been said previously was that this was the only surviving, mainly stone-built structure on the entire complex. All other buildings were either known or thought to be wooden and of a temporary nature.

11.1.2 Various suggestions were proffered during the excavation process for the building's prime function. These included:

a. a site washroom. The drain within the threshold was the rationale here. This idea is discarded, though, because there is no nearby reliable source of water which would have needed pumping uphill from across the construction site. In addition, it would seem inappropriate to locate a general washroom adjacent to the managerial housing of Belgravia. There is also the matter of whether mid-19th century construction sites would have provided such facilities for staff.

b. a butchery. This idea was put forward to explain the large quantity of animal bone, some worked, found within the rubble spread of the structure. Again, it would seem unlikely to have such a building, with its inherent odours and bellowings next to Belgravia, and there can be no proof that the bones found were there before the building was abandoned and demolished. Much of the bone had been worked anthropogenically but there were insufficient quantities of any animal species to support the notion that the building had primarily served as a butchery.

11.1.3 The most likely explanation is that the building performed a dual function with the eastern section having been an office and the rest a storeroom. The rationale behind this assertion is summarised in the following paragraphs.

11.2 Office Function

11.2.1 The floor in the eastern section had been coated with lime mortar, a treatment used to limit rising damp. Had the building performed an industrial or workshop function, it would not necessarily have needed to be damp proofed. An office, on the other hand, with its stock of paperwork did need weatherproofing.

11.2.2 As described above there was clearly a window in the east end of the front (south) wall. There is a greater likelihood that an office would have warranted a window than an industrial building.

11.2.3 Within the eastern end of the building the excavation team recovered a significant number of pottery sherds, mainly of a patterned 'cup and saucer' nature, with a number of glass fragments, some clearly from bottles. These point to a clerical/office function.

11.2.4 The NAA survey recorded possible evidence of a belly stove in the 'centre of S. side' within the building in the form of a cast-iron flue vane which, again, would suggest this section of the building was used as an office by clerical and managerial personnel.

11.2.5 The close proximity of building n6 to the higher class housing of Belgravia (n7) might indicate a function appropriate to its inhabitants. Having an office adjacent to the housing would not only be convenient but would also provide a high level of security if it housed documents of a confidential nature. Given the stereotypical rowdiness and, at times, lawlessness of large construction sites of the era, security must have been a matter constantly on the minds of management.

11.2.6 If one stands within the building, where the window was, and looks south, one is immediately struck by the view across to the viaduct. This particular spot, higher than the area containing the brickworks and other known industrial features, has an unbroken and unparalleled field of vision, apart from the domestic accommodation of adjacent Belgravia. It would have been perfect for whoever sat behind that window to observe progress on constructing the viaduct and work across the site as a whole.

11.2.7 The NAA survey suggested that the railway company offices could have been located at Batty Wife Hole near the current Ribblehead road junction.⁵ This would not preclude the suggestion in this report that the construction office was in fact building n6. The main offices would have benefited from having an accessible location, but it would not have been possible to oversee construction work directly from Batty Wife Hole. It may also be possible that building n6 may have been the site office for the construction company while the railway company's offices may have been at Batty Wife Hole: details of how the whole construction process were organised are not known, so no firm conclusion can be drawn in this respect.

11.3 Storeroom Function

11.3.1 The floor in the western section was, presumably, not sealed with lime mortar and was of a totally different construction form so it obviously had a markedly different use. Even so, its walls had been plastered or whitewashed so it could be considered a high status room within the industrial-constructional scheme of things.

11.3.2 Artefactual evidence suggests a storage function with a collection of iron tools and other objects lying on or close to the floor (Fig. 7).

11.3.3 The neat stack of unused red brick in the north-west corner seems odd (why stack bricks within a building?) but again points up a storage function.

11.3.4 There was evidence of a small pile of coal within the north part of this section of the building as well as an iron coal shovel lying on the floor close by. It is felt that the coal was stored here in the dry for use on the belly stove in the adjacent office room.

11.3.5 The drain sump in the doorway is taken as further evidence of a storage function. It was clear that the drain was not constructed at the same time as the rest of the building and the floor. The build quality was poor and sloppy, with red brick used as a lining but in an irregular manner. It is felt by the excavation team that it became apparent – sooner or later – to the building's occupiers that they had a constant problem of mud being brought into the building on the boots of whoever had reason to enter. The entire site must have been a sea of mud, not a grassed area as now, for the duration of construction work at Ribblehead. With key workers coming from the site to the storeroom and/or office, tramping mud in with them, the floor would very quickly have become an

intolerable mess. It is postulated that the sump was a later insertion to allow periodic swilling out of mud from the room.

11.3.6 There was evidence within the south-west corner of this section of the building that there had been some sort of partition to create a small square cupboard or recess. This evidence took the form of floor-mounted fixing bolts and a groove within the flooring, and the single line of bricks laid against the west gable.

11.3.7 If this dual function model is accepted, it is assumed that the two parts of the building would have been separated by a partition, probably of wood. Such a partition must have been erected along the divide between the two types of flooring.

11.4 Cast-iron Ring

11.4.1 The cast-iron ring described in para 10.10 defied meaningful interpretation (Fig. 8). Various ideas were considered but none was really convincing. It could have been used to secure something of value, such as a safe, but it would seem to have made more sense had this been within the office part of the building rather than within the storeroom. It could have acted as part of the means to haul heavy objects into the storeroom, but its position was offset from the doorway so this is unlikely. It could have been there to secure a beast, in the unlikely case the building had been a butchery, but the ring is probably set too low down for this to have been feasible. All that can be said with conviction is that it was designed to secure something either very substantial or valuable.

11.4.2 It was not possible to determine if the original door width had been greater than as found in the excavation: it may have extended under the eastern section of south wall but the project brief precluded disturbing existing structural fabric. Had the door been wider, the ring would have lined up with it suggesting that it may have been intended for some form of pulley mechanism.

11.5 Demolition

11.5.1 The excavation process confirmed that the building had been deliberately demolished rather than having been abandoned to slowly decay and collapse. The evidence for this was the reality that virtually all of the rubble from the four walls was confined within the structure and not spread beyond its bounds. The walls must have been pushed inwards once the roof had gone and once all interior fittings – bar the belly stove noted by NAA – had been taken out. If it had slowly decayed over a period of time more stone would have been spread outside the wall lines.

11.5.2 The general absence of interior fittings beneath the rubble spread suggests that the building had been stripped of all salvageable material, and the tools recovered from the floor were probably not considered to be worth saving.

11.5.3 The widespread scatter of charcoal flecks across the entire building is thought to indicate that the roofing timbers had been burnt either deliberately or accidentally after abandonment.

11.5.4 The issue of when the building was demolished caused a certain amount of discussion. The event could have occurred on abandonment or at some later date. It is

perfectly possible that at some later time graziers deemed it to be unsafe and so decided to knock it down but the balance of probability tends to suggest it was demolished at abandonment. The thinking here is the absence of artefacts from a later date. If the building had stood for some time, it would almost certainly have been used intermittently even if only by sheep: this would have left some clues within the stone spread. However, the artefacts recovered during the excavation were all of a general period.

11.5.5 F.S. Williams in his history of the Midland Railway company, first published in 1876, described 'innumerable piles of contractor's materials no longer required, but ready marked off in lots for a great clearance sale' at Settle station. Among the lots were the horse-drawn ambulance and a bog cart from the Ribbleshead construction site. This could be taken to confirm that the site was fully cleared on completion of works at Ribbleshead and Blea Moor, and that demolition of n6 could have been part of this end process.

12. Conclusion

12.1 The mitigation exercise was able to interpret the form and probable functions of structure n6, and to prove that it had been a stone-built building with a monopitch roof, sloping down from back to front. It had a roof composed of bitumen felt on timber joists, a window at the east end of the front wall, and a doorway towards the west end of that same wall. The floor was made up of raw limestone blocks, set vertically at the eastern end of the building and laid flat over the remainder. The vertically set flooring had been covered with a coating of lime mortar to prevent rising damp. The doorway had a timber threshold with a brick-lined drain immediately inside.

12.2 It is most probable that the building was divided internally by a wooden partition wall to separate the building into two discrete rooms, and that a squared cupboard-type recess had been built into the south-west corner. In the north-east corner there had been a fitted L-shaped bench or cupboard/shelving arrangement set against the walls.

12.3 The eastern room is interpreted as an office to oversee construction work on the viaduct while the western room is interpreted as a storeroom.

12.4 It is concluded that the building had been deliberately demolished once construction work moved further up the new railway line, and that its walls had been pushed inwards. It is unlikely that it stood beyond completion of works here and equally unlikely that the building was demolished at some later date by either a grazier or the landowner.

13. Notes and References

¹ Northern Archaeological Associates. 1995. *Batty Moss Navy Settlements, Ribbleshead, North Yorkshire. Topographic and Archaeological Survey for the Yorkshire Dales National Park*. Unpublished report NAA95/23.

² MYD1813 MARS Survey Report 17th May 2005. YDNPA Heritage Environment Record.

³ National Archives, RAIL 1035/41 Settle and Carlisle Ordnance Sheets.

⁴ Williams, F.S. 1876. *The Midland Railway: its Rise and Progress*. London: Strahan.

⁵ *The Long Drag*. 1963. Reproduced on DVD by Kingfisher Productions, Settle.

⁶ Cardwell, P, Ronan, D and Simpson R. 2004. 'An Archaeological Survey of the Ribbleshead Navy Settlements' in R.F. White and P.R. Wilson *Archaeology and Historic Landscapes of the Yorkshire Dales*, Yorkshire Archaeological Society Occasional Paper 2.

14. Personnel

Project advisor	Vivienne Metcalf, ArcheType
Site supervisor	David Johnson
Slide photography	Chris Bonsall
Digital photography	Brian Clarke
Surveying	Jeff Price
Excavation team	Arthur Batty Sandra Bonsall Barbara Dray Sheila Gordon Carol Howard Brenda Jackson Peter Jackson Frank Laver Alan Mosey Carol Ogden
Excavation report	David Johnson
Finds analysis	Chris Howard-Davis and Andy Bates of Oxford Archaeology
North were sub-contracted to analyse ceramics and glass, and bone respectively; and metalwork was examined by David Clements.	

Excavation dates Monday 28 May to Saturday 2 June 2007.

15. Acknowledgements

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1. Dr J Farrer of Ingleborough Estate, landowner, for permission to carry out the work,
2. Messrs Handley and Mr C.White, principal graziers, for allowing access to the site.
3. Vivienne Metcalf for onsite and online encouragement.

16. Appendices

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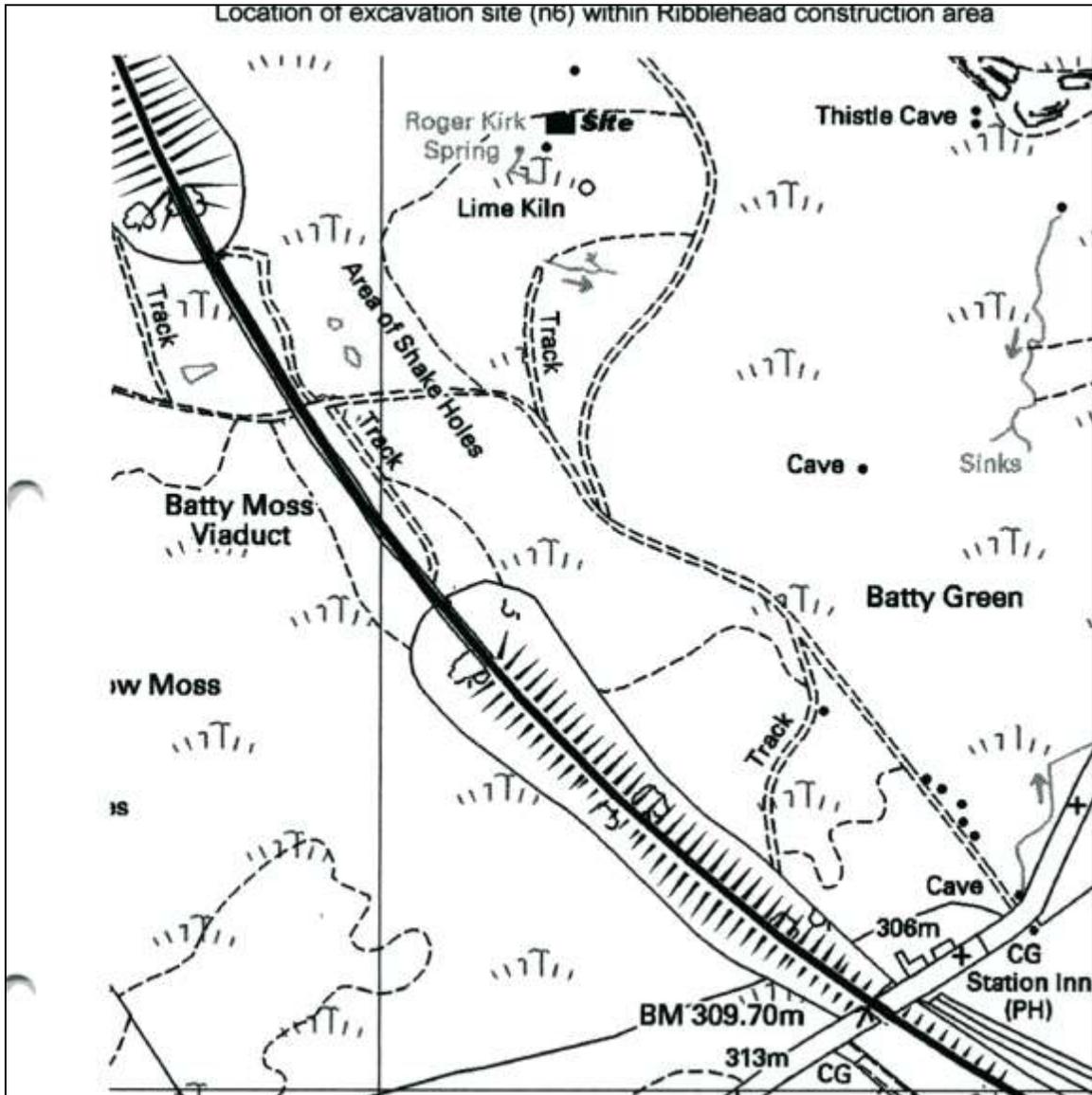
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APPENDIX 1 Flash Earth Image of the Construction Area



APPENDIX 2



(Jeff Price)

APPENDIX 3 Finds (non-Bone) Database

See separate Excel spreadsheet.

APPENDIX 3a Bone Database

Sheep or Goat

1 mandible of probable 3 to 4 year old animal, with impacted M1 tooth.
1 mandibular 1st/2nd molar
1 scapula
3 humerus fragments, including 1 gnawed by a rodent
4 radii, including one gnawed by a rodent
2 pelvic fragments, 1 of which sawn for dismemberment and filleted
5 femur fragments, 1 rodent-gnawed, 1 sawn for dismemberment, 2 filleted
2 tibia fragments, 1 sawn for dismemberment and filleted
1 clavicle fragment

Cattle

5 scapula fragments each sawn for dismemberment
2 radius fragments, both the distal end, both sawn for dismemberment
1 pelvic fragment of a male beast, sawn for dismemberment
1 distal femur fragment, sawn for dismemberment
1 patella
1 tarsal bone
1 1st phalanx and 1 2nd phalanx, possibly from the same individual animal, with the 1st showing osteopathic growth of a non-specific infection, probably haematological resulting from a wound
1 other 1st phalanx
1 axis (2nd vertebra) with no obvious butchery marks

Pig

1 humerus, gnawed possibly by a dog
4 radii, 1 of which had been gnawed by a rodent and 1 showing filleting marks
5 ulnas, 1 gnawed by a rodent and 1 showing filleting marks. A further ulna displayed green staining that resulted from contact with faecal or decaying organic matter
2 pelvic fragments, 1 of which had been sawn for dismemberment
3 femur bones, 1 of which had been chopped for dismemberment, and 1 showing both dismemberment and filleting marks
1 tibia

Deer

1 radius of either red deer or fallow deer

Cat

1 radius
1 tibia
2 femurs, probably from the same individual animal

Vertebrae

19 NISP (number of individual specimens), including 8 vertebra bodies, 7 of which had been split and sawn longitudinally and 2 which had just been sawn, all for dismemberment

Ribs

22 NISP from unidentified large mammals – cattle, horse, or red deer – of which 4 were rib heads and 6 had been sawn through for dismemberment.
1 NISP from a medium-sized mammal, either sheep or pig

Miscellaneous NISP

22 large mammal bone fragments, of unidentified species and bone type
5 medium-sized mammal bone fragments, similarly unidentifiable
4 fragments too degraded and too small to be identified at all

APPENDIX 4a Photography Report

Rationale

The purpose of the project photography was to record for the archive, public display and presentations all stages of the project including overall views and details of all contexts, significant features and small finds. It was decided, therefore, that the photographic record should be in the form of both 35mm colour transparencies and digital images.

It was also decided to trial a system devised by the IAG for overhead photography using digital images stitched together using Adobe Photoshop software.

Equipment

For the digital photography a Nikon D70 was used with a zoom lens focal length 18-70mm.

For the colour transparencies a Nikon F50 was used with a zoom lens focal length 35 – 80mm although on two occasions this was replaced with an 18 – 55mm lens (Slides 3.25 and 4.10) to obtain a wider angle.

For the colour transparencies a total of four process-paid 36 exposure Fujichrome 200 films were used.

Standard red and white ranging poles and a 200mm red and white scale were used on site as appropriate, except for one occasion when a white 200mm scale was used (Slides 1.31 and 1.32; Digital 328 and 329). This white scale was found to be unsuitable

as the graduations could not easily be read. Black and white scales of various sizes were used when photographing small finds post-excavation.

The overhead digital photos were taken using a specially constructed frame to hold the camera, an electronic remote shutter release and fluorescent targets to mark the corners of adjoining 1m squares (Appendix 4b).

Methodology

Every photo taken was recorded on site on a Photographic Index sheet. This record was then transferred, post-excavation, to a Photographic Database (Microsoft Access) for the project archive (Appendix 4c).

All digital photos were taken in RAW format to preserve their integrity. To minimise the amount of compression they were then converted to TIFF format for printing and to JPG format for easier viewing. The only exceptions to this procedure were the 44 overhead photos (Digital 419-462) and the three photos of sections of the north wall (Digital 463-465) which were taken in JPG format for easier stitching together using Adobe Photoshop.

At the end of every day contact sheets of the digital photos were printed so that they could be viewed by the site supervisor.

All the digital photos were saved on CD in their RAW, TIFF and JPG formats for the archive. A back-up copy was also made.

The colour transparencies were taken in Auto mode with manual adjustments at the photographer's discretion.

Photos of the whole building were taken from the top of a 1.80m stepladder and from four opposing directions. The site was also photographed under a 3m grid both prior to excavation and at the final cleaned stage before backfilling.

The methodology and results of the overhead photography are outlined in Appendix 4b.

Results

Any unsuitable or duplicate images were removed without compromising the completeness of the photographic record. Unfortunately rain on the lens caused a slight blur on Slides 1.20 to 1.30 but these are included for the completeness of the record although they are obviously not suitable for publication. The equivalent digital images were not affected.

Archive

Submitted for the archive are:

- a CD with all selected digital images in RAW TIFF and JPG formats
- a CD containing the database in Microsoft Access
- a printed copy of the database
- all selected colour transparencies

Appendix 4b Overhead Photography

Rationale

The Ribblehead Project was used to trial a method of overhead photography as developed by the IAG. The aim of the trial was to provide a true photographic record of the whole of the floor of the excavated building – contexts 105 & 106. It was not intended to replace the more traditional planning and drawing method but to complement it.

Equipment and Methodology

The apparatus used is as shown comprising a gallows-style frame with a tripod centre post firmly attached. The camera attaches to a standard mounting bracket and the frame is equipped with a levelling bubble to assist consistent positioning.

The site to be photographed is marked out with targets set at each corner of adjoining 1 metre squares. It is imperative that a target is not moved until all photographs containing its image are taken as these are the anchor points used when stitching the composite image.

A remote shutter release device is required to fire the shutter.

Adobe Photoshop is used to adjust each image to the same size and to correct any out of square caused by either misalignment of the frame or level variation, as well as for the final stitching. All photos were taken in JPG format for easier stitching together.



Results and Evaluation

The whole of the floor was covered by 44 separate photos each representing a 1m square. The whole process took 2 people approximately 2½ hours.

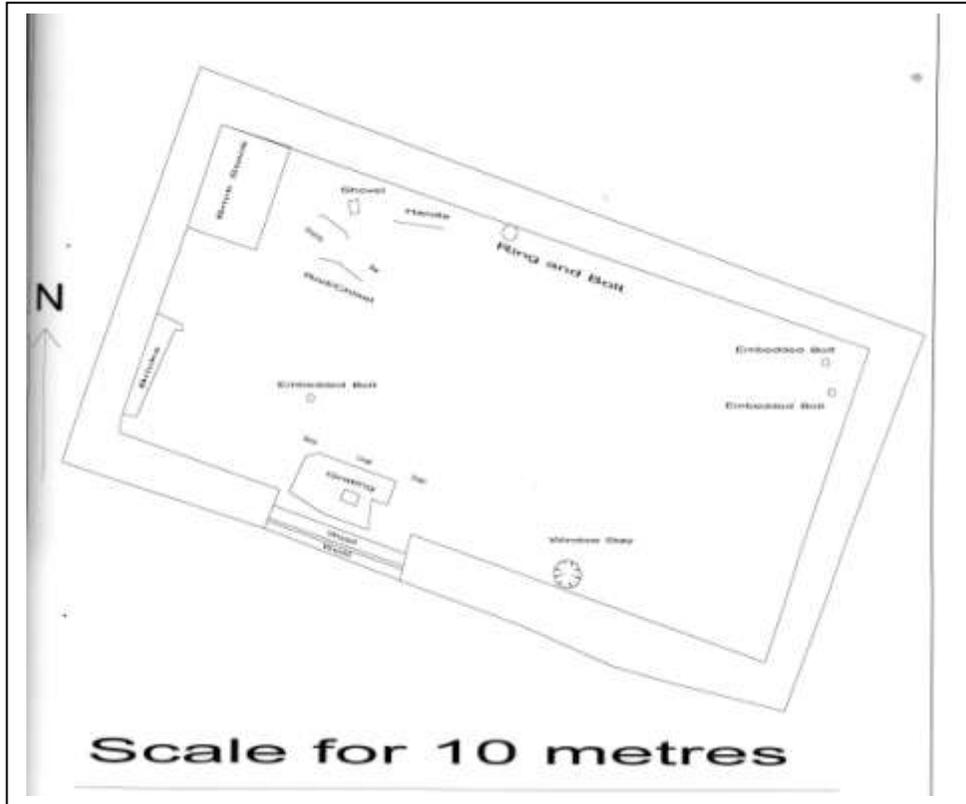
The process of stitching the photos together using Adobe Photoshop was found to be very time consuming but the resultant composite photograph (Figure 2) was considered to provide a good representation of the entire floor area.

APPENDIX 4c Photographic Database

See separate Excel file in the project archive.

APPENDIX 5 Topographical Survey of Ribblehead Building n6
Jeff Price

A full topographical survey was carried out using a Zeiss-Elta R55 total station prior to excavation. The total station was also used during excavation for plotting and logging artefacts and features.



FIGURES

□

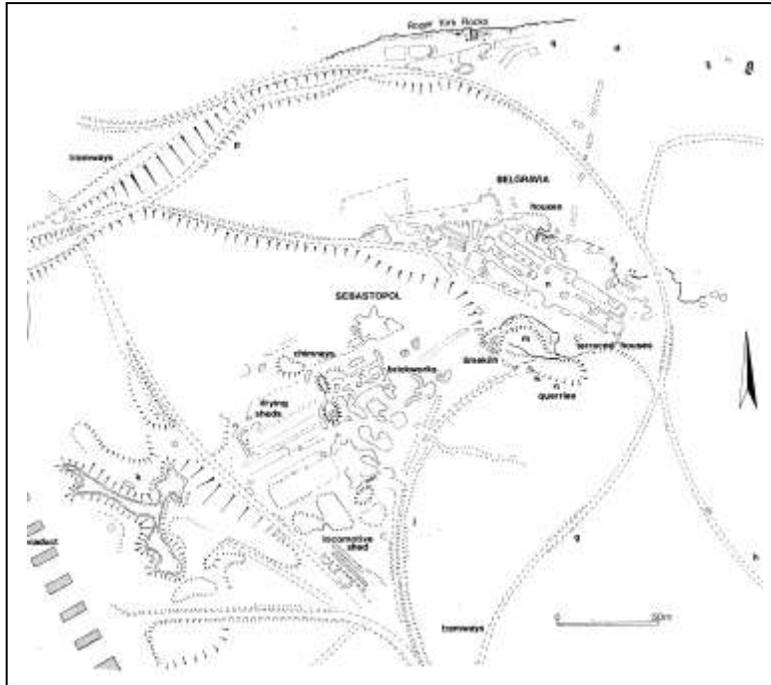


Fig. 1 Earthwork plan of Sebastopol and Belgravia (Reference 6, p. 199)



Fig. 2 Vertical photograph of the building floor



Fig. 3 Brick stack, Context 107



Fig. 4 Single line of red brick, Context 108



Fig. 5 Drain and threshold, Context 109



Fig.6 Long-profile of the rear wall interior



Fig.7 Iron Tools appearing from beneath the stone spread



Fig.8 Cast-iron ring on rear wall

APPENDIX 6 Contemporary engraving of the viaduct under construction

