

Ford Colliery engine houses
Northumberland

Volume 2:
Historic Building Survey and Analytical Assessment

for Ford and Etal Estate

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The engine houses at Moss Pit

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Executive Summary

This report presents the results of a standing building survey and analytical assessment of two groups of pit-head buildings carried out by Addyman Archaeology at the Ford Moss colliery site, near the village of Ford in Northumberland. The two sites – respectively the Temple Pit and the Moss Pit – are complex, multi-period sites the former likely spanning the later 18th – early 20th century and the latter of later 19th century date. Each combines upstanding structural remains and buried structures and each represents an important monument to the mining industry in Northumberland.

A record of the project has been deposited with the Online Access to the Index of Archaeological Investigations (OASIS) website hosted by the Archaeological Data Service (OASIS ID addymanal-131374).

1. Introduction

i. The project

Simpson and Brown Architects and Addyman Archaeology were commissioned by the Ford and Etal Estate (contact, Mark Cuddigan, Factor) to undertake survey work, analysis and wider architectural and condition assessment at the remains of two groups of pit-head structures at Ford Moss colliery site, near the village of Ford, Northumberland. The work was funded both by the Ford and Etal Estate and by English Heritage (contact, Kate Wilson, Inspector of Ancient Monuments, Team Leader NE). The brief for recording works was developed both with English Heritage and with Northumberland County Council (contact, Dr Chris Burgess, County Archaeologist).

The survey work was undertaken in May 2012, by Kenneth Macfadyen, Tanja Romankiewicz, Jenni Morrison and Ross Cameron. The project was overseen by Tom Addyman.

ii. The site - general

The Ford Moss colliery site, Scheduled Ancient Monument 34236, is located about 2.5km ENE of the village of Ford. Lying in an area of undulating grassland and rough grazing bordered to the S and W by conifer plantations, the Ford Moss mining complex lies on an area of slightly higher ground on the edge of a large bog or wetland to the S. To the N of the Scheduled area, improved land is currently under cultivation.

The underlying bedrock geology comprises Sandstone, Siltstone and Mudstone from the Scremerston Coal measure. This is overlain by superficial deposits of peat which formed up to 2 million years ago in the Quaternary Period. The geology indicates a local environment dominated by wetlands, initially swamps, estuaries and deltas and subsequently swamps or bogs.¹

¹ www.bgs.ac.uk/opengeoscience - 01/08/12

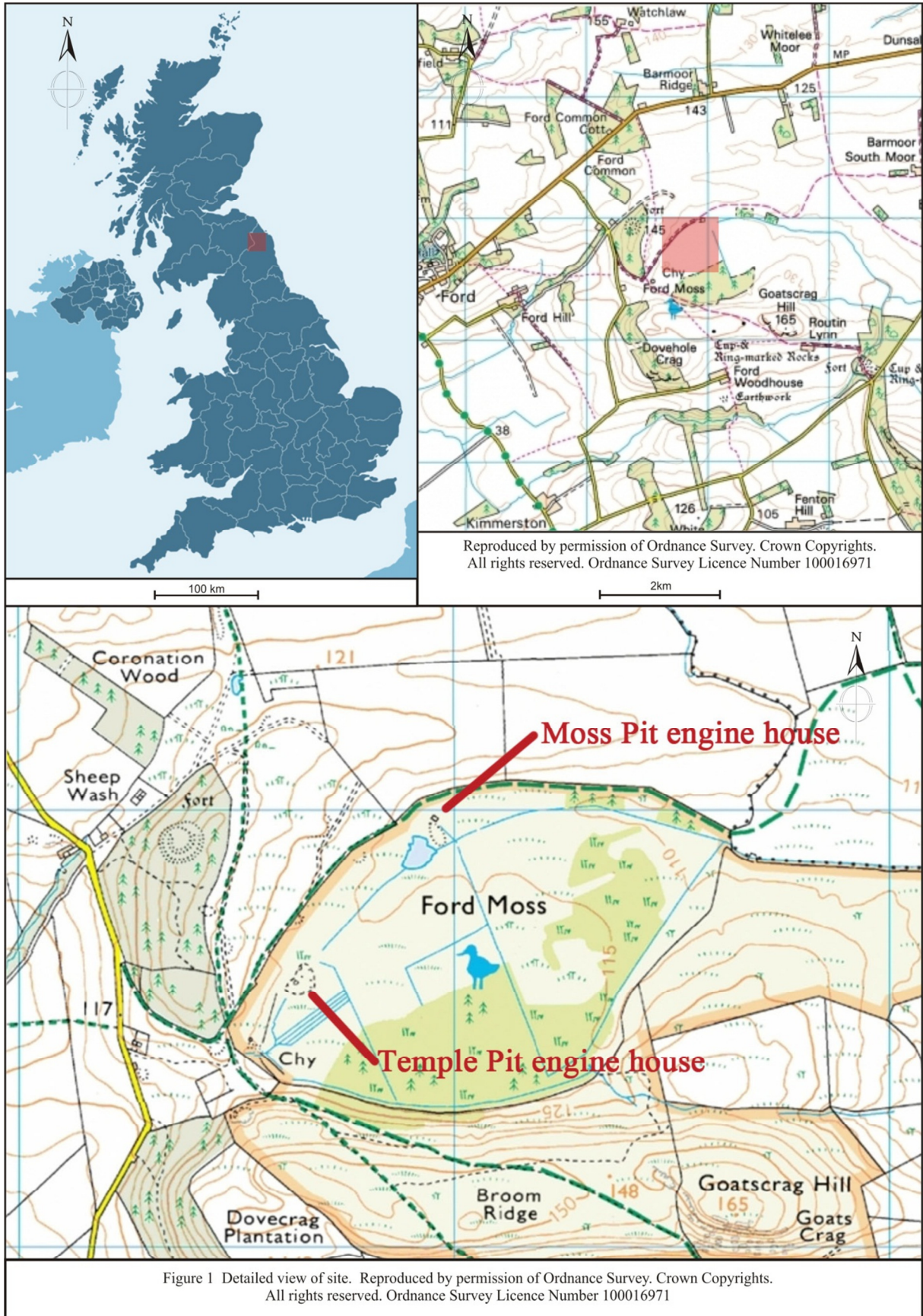


Figure 1 Location

iii. Survey methodology

Work began with the clearance of undergrowth. This had been mostly been sprayed by the estate and spindles (mostly alder) were already cut. Clearance simply involved hand removal of cut and/or dried vegetation.

The survey was undertaken by hand measurement by off-set from a horizontal datum, with stone-by-stone level of detail achieved by digitizing from digital photographs following rectification in relation to fixed survey points.

Internally a full stone-by-stone survey was not undertaken although all dressings, analytically significant features and phasing information were recorded. Some interior areas were not recorded on account of safety concerns (west wall of engine house 1).

The site was also recorded in plan. During the ground clearance limited investigation was carried out, this concentrating upon better-defining wall alignments already visible at the surface – localized weeding and minimal moss/turf removal.

A general photographic survey of the site was also undertaken.

iv. Sources of information and historical summary

A detailed assessment of the site's history was undertaken for Ford and Etal Estates by Pre-Construct Archaeology in 2010.² The present study did not require additional research in this area, and the information is exclusively drawn from Pre-Construct Archaeology's report. See volume 1, conservation statement, for more detailed historical analysis of the development of the colliery.

The Temple Pit buildings probably date from the early nineteenth century, but may be earlier at least in part. The Moss Pit buildings date from between 1862 and the mid 1880s. Both buildings were altered several times in their working lifetime, which though brief was probably very intensive.

The buildings housed steam engines, one in each pair used for winding loads up and down the adjacent mine shaft, and the other used to pump water out of the shaft. The pumping engines may have pumped for 24 hour stretches, with only brief pauses for maintenance. The strain that the rocking beam put on the adjacent wall structures must have been considerable, explaining some of the subsequent repairs.

Both buildings were abandoned by c.1900, but it appears that Temple Pit was reopened shortly after that date, and a large new building built to the N. The colliery closed officially in 1920, and all the buildings were abandoned. However residents of the village did not all leave until c.1945. The site was scheduled in 2002 as 'Ford Colliery 920m north east of Blackcrag Wood'. Further information on the statutory protection of the structures is in volume 1, conservation statement.

2. Moss Pit

i. General

The Moss Pit lies at the extreme easterly extent of the wider Ford Moss colliery site, situated, as its name indicates, close to the northern edge of Ford Moss itself. Here it occupies a slight eminence of the land that is in part natural, providing a better-drained construction site, and partly constituting accumulated material deriving from the mining operation itself.

² Pre-Construct Archaeology (PCA) *Archaeological desk-based assessment and topographical survey: Ford Moss colliery...* (2010).

ii. Pit shaft

The Moss Pit pit shaft lies at the reentrant at the junction of the two engine houses where a circular depression marks its site. The shaft head is presently obscured by debris, evidently deliberately pushed in to cap the shaft. Much of this material apparently comes from the adjacent walls of the engine houses themselves – perhaps their upper parts and, particularly, from the massively constructed eastern wall of engine house 2.



Figure 2 The two engine houses with the rubble-clogged pit head between, looking NW

iii. Engine house 1 and associated structures

a. Engine house 1: winding engine house

Engine house 1, the earlier of the two main buildings at Moss Pit, is a stoutly built structure measuring 4.0m by 6.6m externally, aligned N/S. The structure was of at least two floors (or part-floors surrounding upstanding machinery); it was accessed at the lower level by means of an entrance at the south end of the east wall and by a further entrance at the centre of the north wall, at 1st floor level.

The upstanding walls are constructed of mortar-bonded rubble masonry employing a hard, locally quarried sandstone that varies in hue, ranging from stone of a pale grey-cream hue, to buff, to an orangey-brown colour. Within the main construction of the building two principal phases of construction are apparent. The existing engine house incorporates the lower, northern parts of a pre-existing structure whose remains occur in the northern parts of the east wall, the north wall at the north end of the west wall, in the latter area extending only a little beyond the quoining. This earlier construction is characterized by the use of the greyer stone, the rubblework employing larger angular blocks than is generally apparent in the later fabric. This contrast is most readily seen on the east exterior elevation but is also quite apparent internally where the break between the phases corresponds accordingly. Presumably this had been an earlier engine house.

Excluding these areas of earlier fabric the masonry of the structure more generally is formed of rubble-stone of the buff and browner hues, with occasional apparent reuse of paler stones from the earlier building. The rubble stone employed is generally smaller and less angular and a degree of coursing is apparent. Dressed stone, generally neatly jointed and detailed with a 1cm margin at the arises but with coarse, bossed faces, is employed for quoining, entrance surrounds and, in contrast to the remainder of the structure, for the facings of the southern gable wall. Lintels are also formed of larger dressed stones.

At about 0.95m thickness the southern wall is massively constructed in contrast to the other walls of the structure (at 0.50m). This, the bob-wall that formed a principal support for the machinery above the pit-head, rises from a projecting base (1.10m thick overall) that is detailed with a chamfered plinth course. On the exterior face of the surviving masonry of the south wall some cut sockets and trimming back of the wall face can be seen in the area of its principal feature, a centrally-positioned large aperture. The sockets presumably relate to mechanisms above the shaft head. To the west of and below the opening a neatly cut socket cuts in at a steep angle to the masonry; a possible second one sits at lintel height. Two small cut seating holes are cut into the base of the sill of the opening, with a larger socket below. The face of the upper parts of the opening have been trimmed back flush to the line of the general wall face.

This rebuilding of the earlier structure perhaps reflects the installation of a later generation of machinery. There are a number of openings and apertures within the later fabric, particularly within the west and east walls, that were deliberately formed during its construction. To the east this includes the existing ground level entrance and two smaller rectangular openings built high up possibly for pipe work from the possible boiler house to the east. To the west at first floor level there is a broad rectangular opening incorporating a stoutly formed embedded timber frame (Figure 5 and Figure 6). The sill of this wide opening preserves the bolted seatings for two axle housings; the base of one of the axle housings remains *in situ*. The timber lintel is failing, causing the masonry of a window opening above to fail in turn, its displaced southern jamb now hanging precariously.



Figure 3 Engine House 1: east exterior; Figure 4 south elevation, with pit shaft in foreground



Figure 5 Engine House 1: west elevation

Figure 6 north elevation

Within the lower opening in the west wall four vertical bolts remain *in situ*; the southern two hold down the lower half of a cast iron axle housing. It is likely that the northern two held something similar though they are not parallel. Some black substance, perhaps residues of grease, can be seen in the vicinity of this housing, dripping down the wall face from it.



Figure 7 *In situ* axle housing, exterior of west wall

Figure 8 Interior with curved cut in plinth top

Centrally set within the southern part of the interior is a stout masonry plinth, aligned N/S and capped with substantial squared blocks (Figure 8). The latter are held in place by a series of iron uprights set within drilled holes. In the centre of the plinth top there is a shallow curved cut depression 0.39m wide and 1m long; this had evidently been cut to accommodate rotating mechanical apparatus. The position of this cut corresponded to the line of the surviving iron axle housing within the opening in the west wall. The cut depression (and associated wheel?) were set on the central axis of the structure, and also aligned with the aperture in the south wall.

On the north elevation an entrance leads into the building at first floor level; the top of the machine plinth lies at this level. It is clear that between the plinth and the entrance there had existed a partial timber floor. Joist sockets cut into the north wall, etc are patched around with brickwork of 19th century character.

The door was linteled over the interior with timber, the eroded stub of the timber lintel remains. The exterior may have been linteled with stone but the façade has now fallen. The quoining of the NE corner has largely gone, possibly the structures to the north were latterly tied into the corner and when they collapsed the rubble work of the original build was exposed

b. Ancillary structures

Engine House 1 is flanked on its north and eastern sides by the footings and lower walls of a series of ancillary structures. Although of secondary build and clearly abutting the engine house it is likely that they are of broadly similar date to the existing engine house.

Possible boiler house

The footings of another structure lies against the east wall of engine house 1, extending further to the north for some distance (Figure 9). This associated structure may have been a boiler house, tank, coal store or workshop. It was possible to define the leading edge of its wall top to the north, east and south; this survived to a greater height to the east and north. The wall foot is obscured by debris in all areas and it is thus unclear how high the remains still stand – possibly up to 1.5m – 2.0m in some places. The building measured 9.86m N/S by 3.40m in width to its exterior faces. Within the northern interior of the structure alignments of brickwork were visible at the surface at two points (one, off-set to the west, N/S aligned (Figure 10); the other towards the N end, E/W aligned). It is possible that these formed parts of the basal support for a boiler.



Figure 9 Remains of structure (north side) in foreground, with brick lining part exposed



Figure 10 Remains of structure alignment of brickwork on west side, partly exposed

The function of a boiler house would be typical in this position – adjacent to the probable chimney and the engine house itself. This appears to be confirmed by the presence of an opening at the NE angle of the engine house at mid level, which is likely to have housed piping.

Possible boiler or chimney base, ramp and associated structures

Immediately to the north of engine house 1 is what may be the base of another boiler, *figure 13*. Boilers often wore out and were replaced and it is possible that the base of one was not demolished before the installation of its replacement. Visible is the outline of a square chamber within, measuring about 1.8m², which may have been the ash pit under the boiler. The east wall of this structure seems to have been tied in to engine house 1 at its NE angle, and may indicate the remains of the chimney. Here the quoining at the angle seems to have been deliberately extracted in order to permit a better masonry bond.

This feature was accessed by what appears to have been a broad ramp-like feature rising gently from the WSW for a distance of 8m – 10m (Figure 11). Sections of retaining walling on either side are visible at the surface at points, most exposed to the SE; these indicate the width of the feature to have been some 3.6m – 3.8m. A gap between the ramp and the engine house at its NW corner seems likely to have been occupied by a stair, now choked with debris (Figure 12).

On the north side of the possible chimney the ramp top levels off to form a platform whose retaining walling on its north side is contiguous with that of the north side of the possible boiler house. Visible at the surface there are further masonry alignments that suggest there had been an additional structure erected against the retaining wall – possibly some form of lean-to shed. Its east wall lies in alignment with the east side of the engine house.



Figure 11 Ramp to the north and NW of engine house 1



Figure 12 Possible site of stair at NW angle of engine house 1

Figure 13 Base of possible chimney, looking east

c. *Approach from the NW*

A section of low retaining walling is visible to the NW of engine house 2. This runs perpendicular to the principal axis of the ramp, lying some 3.2m from its base. This walling flanked a sunken area on the north side of engine house 2 and seems to have been a formalization of an access point to the Moss Pit complex running off to / approaching from the NW.

d. *Structure at the SW angle of engine house 1*

Running up to and abutting the SW angle of engine house 1 on its west side there exists an E/W aligned section of walling whose former purpose remains unclear. This walling fragment was

subsequently incorporated within the north wall of engine house 2; however it can still be seen within the interior of the latter, where it rises to a visible height of 1.9m, and to the exterior, where later facing masonry has fallen away. Further west the earlier walling angles sharply to the NW and continues in that direction for about 3m at which point it terminates at a wall end formed of regular dressings.

iv. Engine house 2: pumping engine house

Engine house 2 is an E/W aligned structure that lies at right angles to engine house 1, its NE corner abutting the SW corner of engine house 1 on its west side (tied in at two points); in plan the structure measures 7.35m by 4.0m. The massively thick east wall – the bob wall – rises adjacent to the pit shaft. The wall is some 1.5m thick, with two further steps towards the wall base internally. The other walls of the structure are of some 0.5m thickness. The structure is formed of mortared sandstone rubble that is generally grey to reddish brown in colour, becoming a more purple hue on its north side. The quoining and facing blocks of the east gable is of generally of a grey sandstone. With the exception of earlier walling incorporated within its north wall this structure is of a single build. To the west its walls still rise to a height of over 6m; further east this decreases to 4m – 5m overall. The exterior face of the east wall has been extensively reduced; however enough remains to demonstrate that this had been faced with cut blocks laid to courses; the construction is of similar character to the internal face of the same wall.



Figure 14 Engine House 2 south elevation

Figure 15 east elevation

The entrance to the structure is at the centre of the west gable wall, its lintel recently fallen (the broken pieces of the lintel lie where they fell); photographs from the 1980s show this to have had a relieving arch over the lintel. There is a further entrance, somewhat narrower and set at higher level off-set to the east in the south wall, and a square window opening further west in the same wall. A much smaller opening, later blocked, exists in the centre of the north wall. Also in the north wall, at the junction with engine house 1, there survives part of the west jamb of a further opening at higher level.

Few exterior openings were visible the building was entered from the west by a door the jambs of which were formed from plain square blocks of sandstone and was formerly (at least till the 1980s) linteled over in stone with a rubble relieving arch over now collapsed.

The north elevation had a small opening built within the masonry in the centre north above a small lean to structure and a possible window / opening at the NE corner only the west jamb survives.



Figure 16 Engine House 2 north elevation

Figure 17 west elevation

Within this engine house there survives the part-buried remains of a substantial masonry plinth, this running N/S across the centre of the interior. Here there are vertical iron rods for the fixing of machinery. The east side of the plinth is socketed, evidently for substantial horizontal members that extend eastwards; there are corresponding sockets within the lower part of the bob wall.

v. Other remains to the east

There exists what appears to be a water out-flow channel running eastwards from the area of engine house 1 towards the Moss. At one point masonry walling appears to represent the remains of a bridging of the channel.

To the southeast of the Moss Pit complex there is a large bing, evidently debris extracted from the pit.

3. Temple Pit

i. General

The structures recorded at the Temple Pit are far more fragmentary than those seen at the Moss Pit. The remains occupy the interior and sides of a broad hollow some 25m in diameter (E/W) by about 11m (N/S) located upon the rising ground a short distance above the NW perimeter of Ford Moss. The remains comprise the lower walling of various structures of mortar-bonded masonry composed predominantly of buff-coloured sandstone rubble. Other remains at the site, of considerably more recent date, are of concrete construction and correspond well with documented early 20th century re-use of the pit.

Without clearance of the rubble, overburden and vegetation that obscures much of the interior of the depression it is difficult to describe the remains, let alone to offer very informative interpretation.



Figure 18 The Temple Pit engine house structures looking S.

ii. Earlier (stone-built) structures

The head of a pit shaft of some 2.2m – 2.4m in diameter is located above the southern edge of the depression. This is stone-lined internally, the upper parts of which can be seen above the capping. The lower walling of two masonry-built ranges whose principal axes respectively lie on a NNW/SSE and a NNE/SSW alignment have the pit as their focus; indeed they converge upon it. Though the walling is much shattered in places (particularly to the south and west) it still rises to well over 2m. It seems likely that the surrounding ground has seen considerable making-up with mining spoil and that the structures as presently visible are in fact partly buried. This seems to be the case with the western of the two structures, where its west wall incorporates what appears to be an upstanding though buried entrance.

The western range also preserves evidence for two internal partitions. The eastern structure, which may in fact partly overlie the western at its southern end, is somewhat better preserved. There does not seem to be evidence for internal partitions. At the northern end, there is a large square stone-lined pit, which might be the ash pit under the base of a boiler or chimney.

Just at the northern edge of the depression, on the higher ground, there exists the comparatively well preserved masonry base of what may have been a setting for winding gear, this set upon a retained platform. Here parallel wall sections with coped tops retain vertical sockets for iron fixing members (four of these in each wall section), some of which still remain. Scarring preserved on the sides of the wall sections indicate the former presence of rotating apparatus.

There are further masonry remains visible at the surface further to the east – apparent wall lines – but little can be made of these other than to observe that they seem to be in rectilinear relationship with the eastern of the two structures closer to the pit head. These remains include a curved mortar fillet, which may be the remains of the base of a dome-top boiler.

iii. Later re-use

Evidence for secondary use of the Temple Pit comes in the form of various readily recognizable instances of the use of concrete construction. Most striking are the four massive footings arranged around the pit-head itself, these evidently the base for a winding gear derrick or headstock. There are further areas of concrete construction associated with the masonry plinths already described on the northern perimeter of the depression, and an area of concrete surfacing seems to exist on the east side of the eastern of the earlier ranges; within this there is a circular setting of concrete about 2m in diameter, its purpose uncertain.

4. Survey drawings

See following pages.