

# Archaeological Investigation: Excavation and Recording

Fishpool Valley,  
Croft Castle,  
Yarpole,  
Herefordshire,  
HR6 9PW

OS Grid ref. SO 454 658

Herefordshire HER Event Number: EHE80319

Report by Stephen Wass MA, MCifA (7651)  
Polyolbion Archaeology  
For  
Imogen Sambrook, Project Manager,  
Janine Young, Archaeologist,  
The National Trust

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*Polyolbion*  
**Archaeology**  
3, Chapel Row, Cropredy  
OX17 1NS  
01295 758222  
07776 186087  
old.mettle@btinternet.com



Fig. 1 Excavations underway on Dam 1, IP2.

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## 1. SUMMARY.

1.1 A series of small scale excavations were undertaken in order to clarify questions relating to the management of water within a picturesque landscape of the late eighteenth and early nineteenth centuries. Sixteen separate structures were examined and records kept of their differing features. The main findings were:

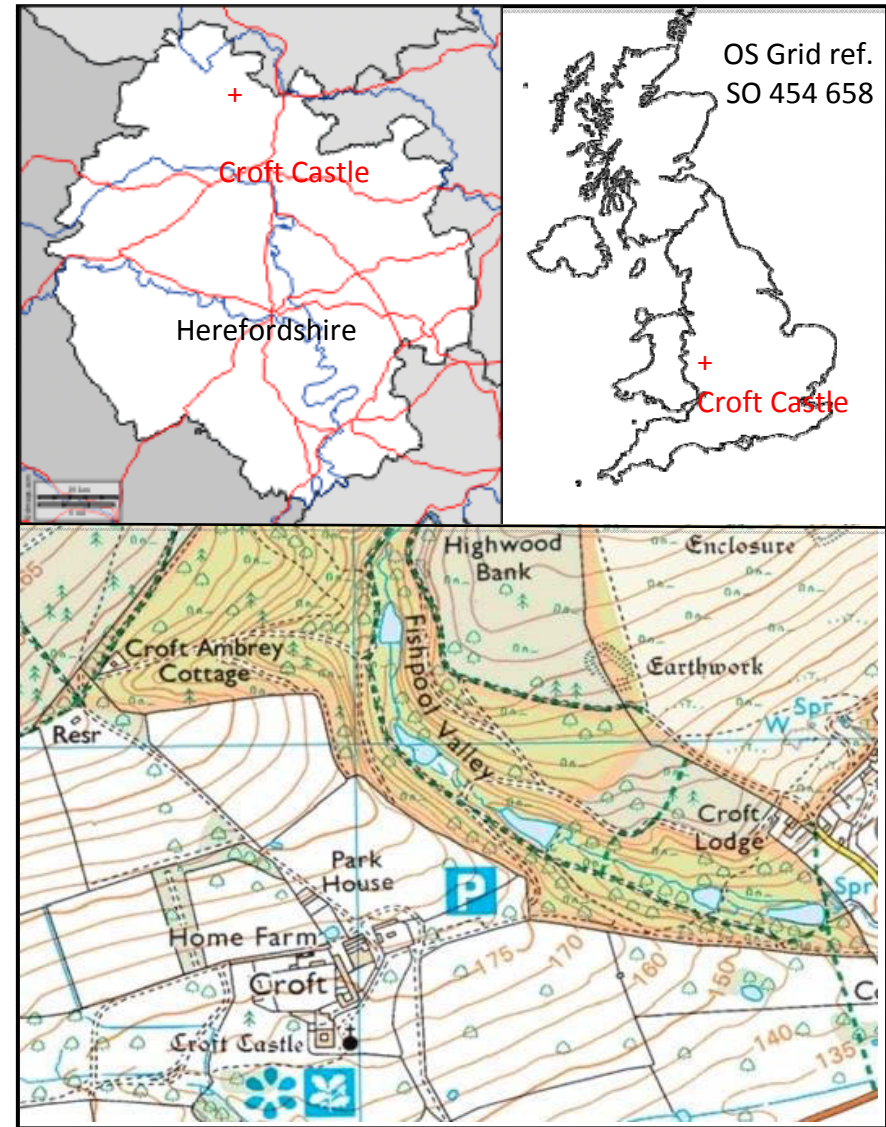
- There was evidence for at least two phases of remodeling within the valley possibly associated with changing levels of water supply.
- Although no firm dating evidence was recovered in some instances a relative chronology was established.
- Some monuments were deeply buried indicating the rapid build up of silt within the valley and the possibility of earlier buried features.
- Much thought went into the spatial separation between the functional and the decorative within the valley whilst at the same time matters of inter-visibility were carefully considered.

## 2. BACKGROUND

### 2.1 General background

2.1.1 Following a process of tendering Polyolbion Archaeology was commissioned by Imogen Sambrook on behalf of the National Trust to undertake this work in accordance with the brief provided by the Trust's

regional archaeology advisor Janine Young. There were no formal



planning conditions which required archaeological input.

2.1.2 Because of time constraints in getting the work started it was not possible to produce a detailed WSI with appropriate method statements. Instead a general procedure was laid out in the detailed brief then individual variations agreed on site reflecting the specific conditions at each of the sixteen intervention points (IPs).

## **2.2 History and Archaeology**

2.2.1 Geology and Topography. Fishpool Valley is a narrow steep sided declivity cut into the south east scarp of Yatton Hill. It begins running in a southerly direction before turning towards the east and the village of Yarpole (Fig. 2). The part of the valley that is occupied by ponds extends for nearly 1.2 km. with a fall of around 40 m over this distance. At its midpoint the valley is around 250 m wide and 45 m deep. Water is supplied by two springs to the north and other drainage coming off the fields to the west and Bircher Common to the east. The underlying rock, exposed in a number of quarries, is a Silurian limestone. The valley bottom is occupied by a variety of colluvial silts and clays.

2.2.2 Archaeology. The well known Iron Age hill fort of Croft Ambrey stands on the crest of the escarpment around 700m to the north west and it seems likely that the springs which provide the water for Fishpool Valley would have been a focus for activity in the Iron Age.<sup>i</sup> Bircher Common to the east also has traces of prehistoric enclosures and a possible early field system. There have been a variety of comparatively small scale archaeological investigations and watching briefs on the medieval and later settlement and castle of Croft summarized up to 2014 by Hoverd.<sup>ii</sup> The Trust have also commissioned a series of archaeological surveys of the parkland, the most important of these for the purposes of this study having been undertaken in 2006 by Jeremy Milln.

Fig. 2 Location Maps

2.2.3 History. The earliest reference to Fishpool Valley is ‘an agreement between Abbot Adam of Lathbury (1226-38), formerly prior of Leominster, and Hugh de Croft concerning the construction by the latter of a mill on the brook in Fishpool Dingle, the boundary between Hugh’s wood at Croft and the abbot’s at Highwood to the east.’<sup>iii</sup> In general the medieval and early modern history of the estate seems poorly documented. Hovverd sums up the situation from the eighteenth century onward thus:

The Croft family heavily mortgaged the estate in the early years of the eighteenth century. Eventually the mortgages came into possession of both mansion and estate. During the remainder of that century, the Knight and Johnes families were in ownership and occupation. In 1799, Somerset Davies purchased the house, having already acquired significant parts of the estate land. The Davies and later, Kevill-Davies family remained in ownership and occupation throughout the nineteenth century, eventually selling in 1923 to Sir James Croft, the 11<sup>th</sup> Baronet.<sup>iv</sup>

### **3. METHODOLOGY**

3.1 Work was undertaken over a period of four weeks starting in August 2017 with a follow up visit early in October. A total of 18 working days were spent on site. Apart from the lead archaeologist and a trainee for the first two weeks the work was done by an established team of volunteers (Fig. 1) who, although they had had no experience of working in archaeology, were well used to employing hand tools. A rota was established so that on most days there were at least two helpers and occasionally this number rose to four. Some assistance was also provided by the Trust’s salaried rangers and other staff. Although there were a couple of wet days no time was lost due to bad weather nor did conditions affect the archaeology adversely.

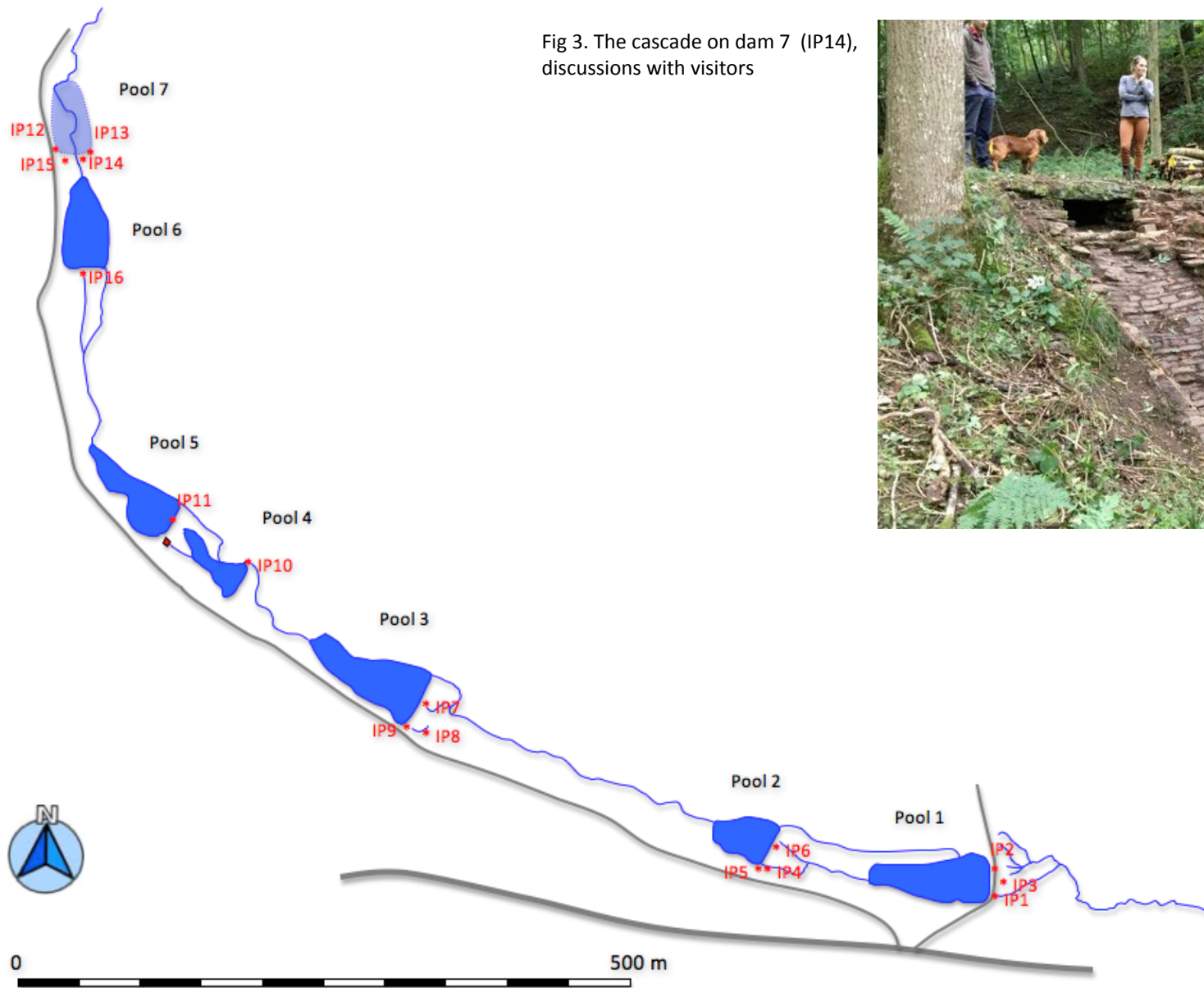


Fig 3. The cascade on dam 7 (IP14), discussions with visitors



Fig. 4 Location of IPs

3.2 Initially the valley was walked with the project manager and the sites mentioned in the initial brief identified and marked out with plastic flags. The procedure on arrival to start work at each location was broadly similar. First off the ground would be cleared of undergrowth and fallen branches then, where exposed stonework had already been identified, further plant growth would be carefully removed by pruning rather than pulling. At this point the decision would be made as to precisely what area would be subject to archaeological excavation and the trench, often 2m x 1m would be marked out.

3.3 All excavation was done with hand tools and mainly by the volunteers. Turf, where present, and topsoil were cut and lifted by spade but most subsequent digging was done using hand trowels. In some instances where deep compact deposits of silt were identified material was removed using a combination of mattock and rabbiting and conventional spades. From time to time when it was necessary to remove dead roots the volunteers were able to supply suitable saws to do this. Other special techniques were used from time to time, these are described under the IP for which they were employed.

3.4 All IPs were located by measurement from fixed points on the topographical survey of 2013 provided by Atkins. Planning was undertaken using a planning frame and profiles were measured and drawn from section lines. Levels were established from spot heights also recorded on the topographical survey. Individual contexts were numbered according to the convention FPV (Fishpool Valley) 17 (Year) IP1 (Number of IP) / 001 (context number)

3.5 A number of site meetings were held to assess progress made and discuss next steps, attendees included the project manager, the regional archaeology advisor, the consulting engineer and other National Trust

staff members. In addition time was made to discuss the work with a wide selection of members of the public many of whom stopped to engage in quite detailed discussions relating to the valley and its future. (Fig. 3)

## 4. RESULTS

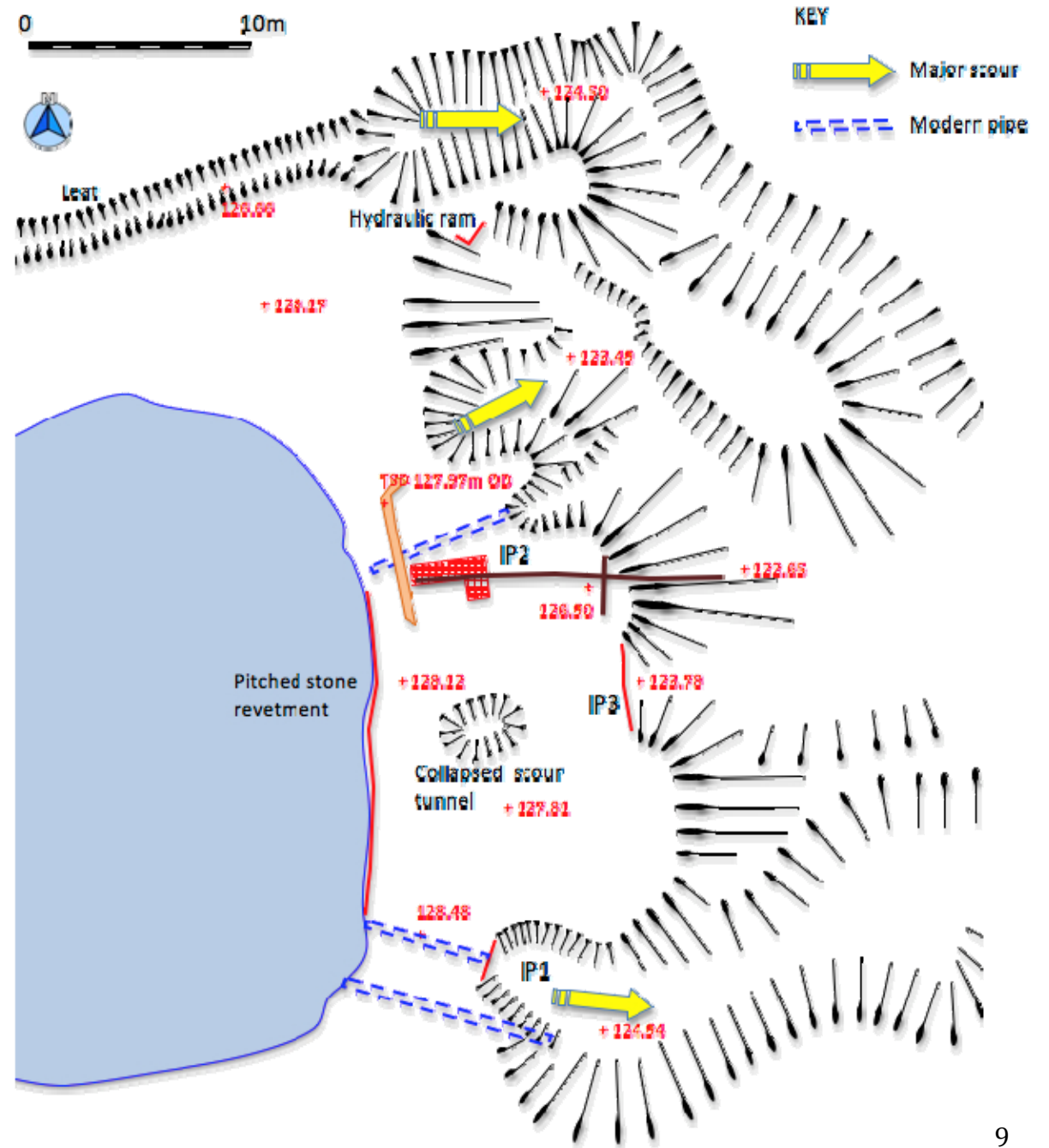
*Note. Instructions from the original brief are included in italic at the start of each IP. See Fig. 4 for locations.*

**4.1 POOL AND DAM 1.** Work began at this location with three IPs as it appeared to be the dam in most urgent need of attention. Given that it is the final pool and dam in the series it is clear that when heavy flooding does occur the full force of the accumulated water will be expressed here. Indeed the topographical survey and observations on the ground suggest that there are at least three large scour channels resulting from flood episodes (Fig. 5). The dam is unusual within the valley as it is rather broad with a shallow sloping top, in contrast to the narrower steeper dams seen up stream. The pool side face of the dam has a pitched stone revetment which appears to be in quite good condition. To the north of the dam is a shallow leat which originated at dam 2 and judging by the small amount of stonework surviving further west could have been used either to divert water into pool one or function as a by pass channel around it. To the north east is a hydraulic ram, now inoperative, in a brick and concrete housing. South of the centre is a major depression caused by the partial collapse of the roof of the scour tunnel. Recent control measures include ceramic pipes: a pair set just north of the centre and another set to the south where the pipe emerges high in a stone retaining wall. Close to this is the large modern plastic pipe installed after the most recent partial collapse of the dam (Fig. 6).



Fig. 5 Dam 1, location of IPs and other features.

Fig. 6 Southern scour channel, looking west towards IP 1 and overflow pipes.



4.1.1 IP1 *A basic investigation of the downstream face on southern side to determine presence/absence/likelihood of ever being a cascade or similar structure. The result of this investigation should be a paragraph stating what the investigation of surface and profile of ground here indicated: presence/absence of how/whether water passed over here.*

Access to IP1 was problematic with a large mass of loose stones and tangled branches making for an unstable footing. However after some initial clearing of vegetation a stone retaining wall supporting the outflow end of a large ceramic pipe (001) was revealed (Fig. 7). Although this appeared to be entirely recent in construction with Portland cement in use the possibility remains that this was a rebuild of an earlier wall. This feature is comparable with the wall in a similar position on dam 2 which was demonstrated not to be part of a cascade. The opportunity was taken to clean down a section of the near vertical face of the scour channel 5m to the east of the wall to examine the make up of the dam. Below a reddish grey clayey loam topsoil (004) was a capping of silty clay up to 0.5m thick (002) which was above a deep deposit of gravel in red silty clay (003).the friable nature of this deposit goes some way towards explaining the heavy erosive impact of the flooding events which have damaged the fabric of the dam.

Conclusions: There was no evidence of a spill way or cascade although recent construction and flooding may have obscured the situation.

4.1.2 IP2 *Investigate existing weir at centre-north to look at historic masonry possibly framing water at the site of former weir pre-dating modern concrete intervention. investigate with trench to follow one wall face back towards the dam crest determining west extent and how this connects with contexts/surfaces beneath.*

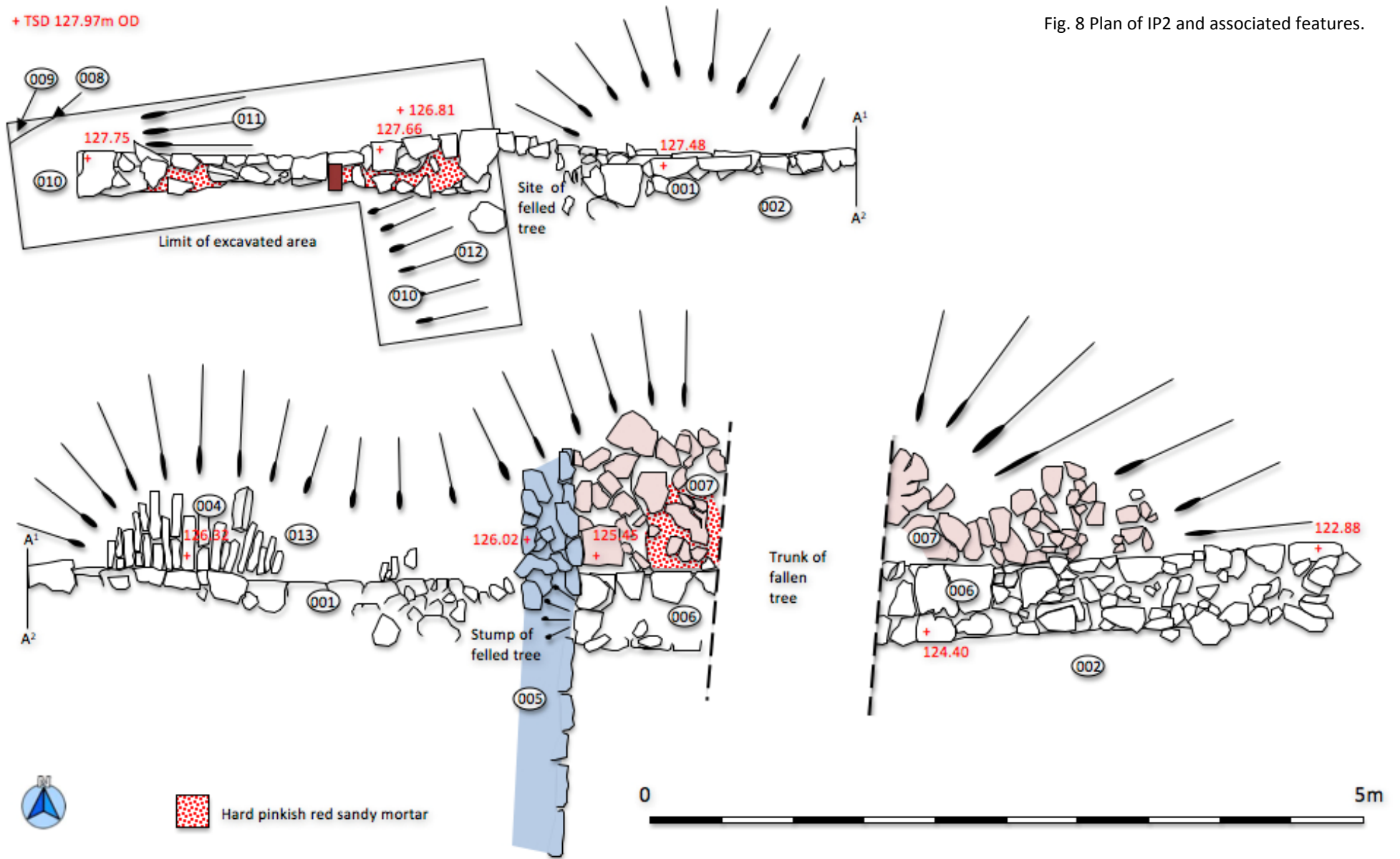


Fig. 7 IP1 Retaining wall and pipe view looking west.

After clearing ivy and moss the exposed remains of a roughly coursed stone wall (001) were traced for around 8m to the east and west and an area 3.5m x 1m marked out just behind the crest of the dam and behind what appears to be a cast concrete beam (With the date 1938 scribed into its southern end) set in to strengthen the dam at the point where ceramic pipes were inserted. The wall stands to a maximum height of just under a metre ( Fig. 10) although originally at least half of this appears to have been below ground.

+ TSD 127.97m OD

Fig. 8 Plan of IP2 and associated features.



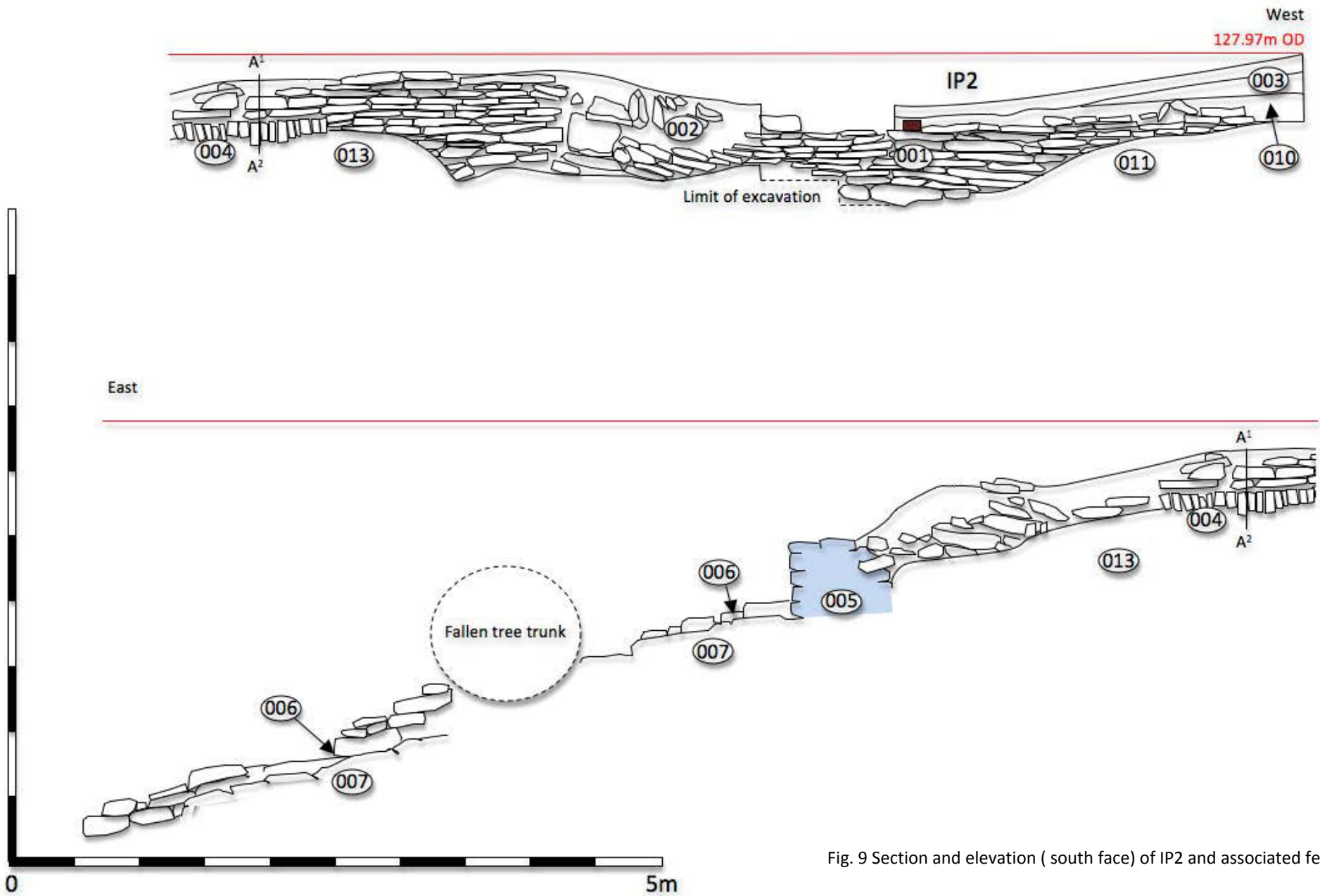


Fig. 9 Section and elevation ( south face) of IP2 and associated features.

As the north face is well finished but the south face is rough and irregular the structure was clearly built partially as a revetment wall. Whilst appearing to be dry built removal of some stones revealed a hard gritty reddish mortar. In places the wall has been all but reduced to a scatter of rubble by the action of tree roots. Immediately adjacent to its northern face is a small area of pitched stone paving (004) roughly 1.2 x 0.8m (Fig. 13) and bedded in a light grayish brown clay (013). This is assumed to be a small surviving section of a water channel or spill way leading down from the crest of the dam, the rest having slipped into the scour channel to the north.



Fig. 10 IP2 wall 001 west end looking south west.

The eastern end of the wall 001 appears to butt up against an earlier, although similarly constructed, wall (005) running north - south and so partially revetting the east face of the dam (Fig. 12). The east face of this wall stands in places to a height of 0.6m but when drawn as part of the 2006 survey its northern end was much higher, up to 1.2m. Most of this part of the wall has also collapsed down into the scour channel to the north. Below and beyond 005 to the east is an area of flat shallowly stepped flagstones set in a hard reddish gritty mortar (007). This extends further east below the trunk of a fallen tree and runs out around 2.5 m further down the slope (Fig. 14). It is flanked by the remains of a low wall (006) which butts up against 005 yet maintains the line of 001 for a further 6m (Fig. 9). There is no trace of a similar wall on the north.

In the excavated area the removal of the turf and fine brown silty loam topsoil (002) revealed a low pebble and small rubble bank in a matrix of brown loam (003). This may be the upcast resulting from the insertion of the concrete beam further west. Below this was a second low bank of very compact red gravel in a sandy clay (010). This sealed the wall and filled the channel to the north and looks very much like a deliberate attempt to close the channel and further reinforce the dam at this point. There are no traces of the pitched stone surface seen further to the east and so it may have been scoured away or possibly removed before the channel was filled in. Below the red gravel bank and pressed up against the face of the wall 001 is a sloping bank of dark yellowish brown silty clay (011). This is similar to the clay seen below the pitched stone surface 004 and presumably formed a water proof base to the channel. Its irregular sloping profile is probably the result of erosion once the spill way failed or was dismantled. Traces of the cut (008) and fill (009) of the trench for the pipes to the north were seen in the corner of the excavated area. Finds were very limited but included a fragment of whetstone and a foot from a glass vessel both within the topsoil.

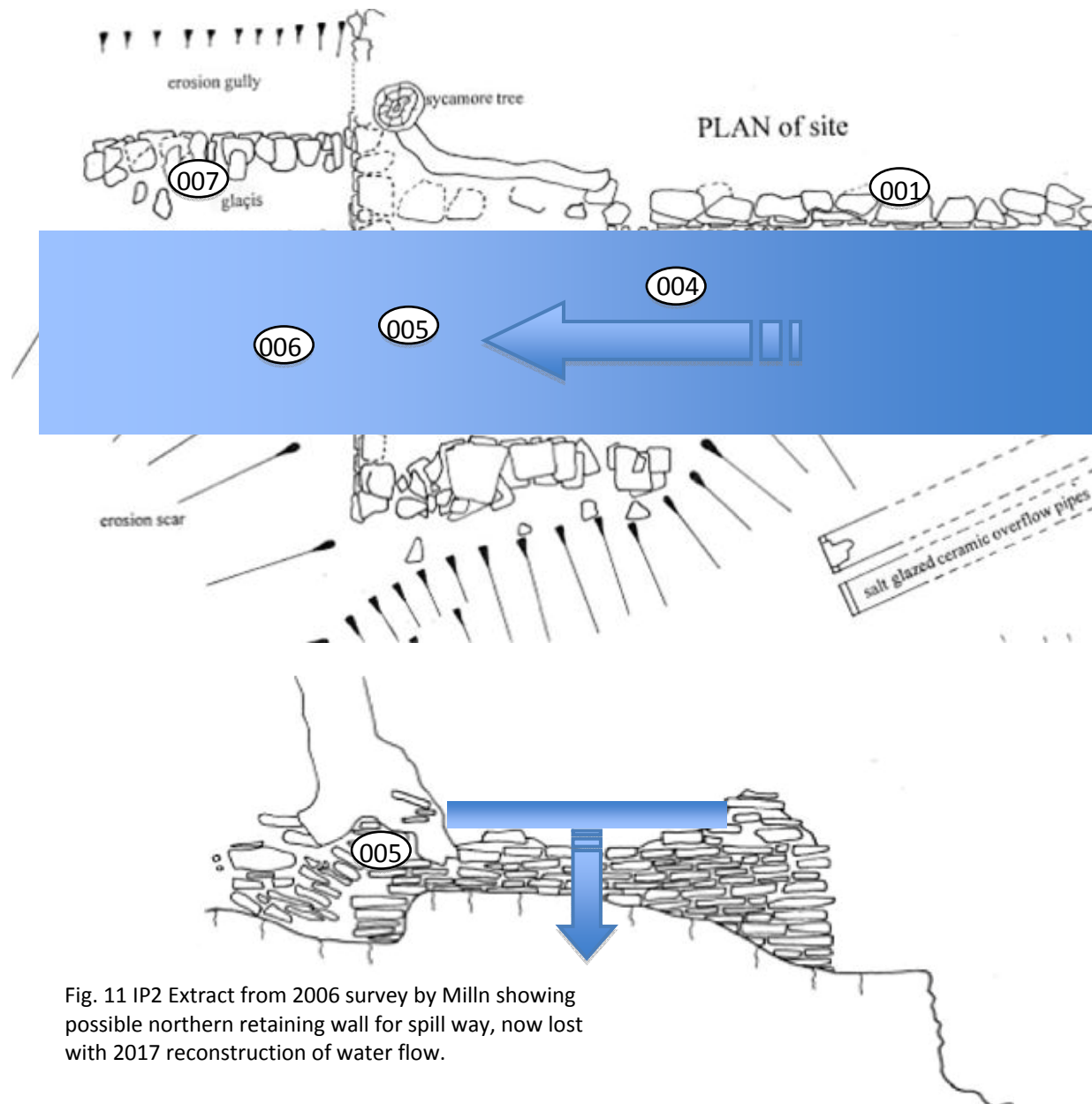


Fig. 11 IP2 Extract from 2006 survey by Milln showing possible northern retaining wall for spill way, now lost with 2017 reconstruction of water flow.



Fig. 12 IP2 Features associated with possible cascade, view looking north

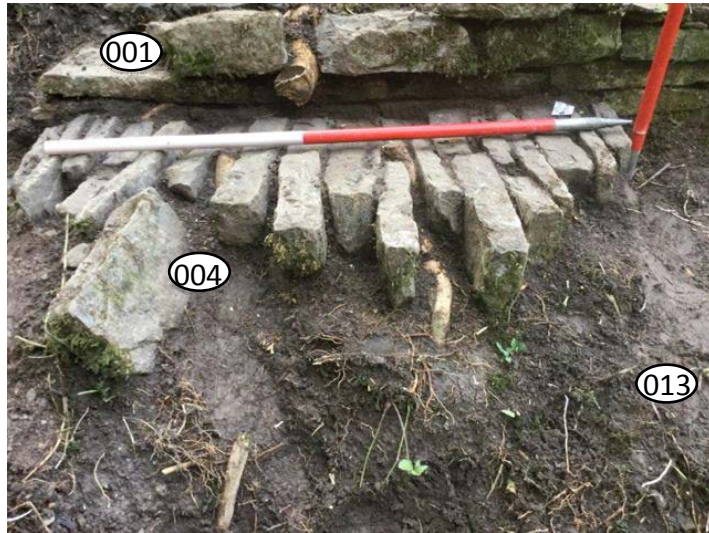


Fig. 13 IP2 Surviving portion of pitched stone surface



Fig 14 IP2 Extension of wall and cascade down slope looking south.

Conclusions. Although badly damaged and largely eroded away enough remains to tentatively reconstruct the arrangement here for a long shallow spill way. The observations made in 2006 give us an idea of the possible width (Fig. 11) indicating that the whole structure was around 10m x 1.2m. The spill way terminated in a vertical plunge of around 0.7m and the water then flowed out along a gently sloping cascade made a several shallow steps. It is possible that at some point this arrangement failed catastrophically, this and the subsequent insertion of pipes and a drainage gully to the north has removed all traces of the northern retaining wall of the structure. The weak point in the dam left after the spill way was abandoned was made good with a dump of clay and gravel and later by the addition of a concrete beam.

4.1.3 IP3 *Investigate scour tunnel at base of dam on downstream face, visual inspection to attempt to interpret and understand prior use and relationship to other aspects of the dam.*

This task was initially left in the hope that the flow of water out of the tunnel (estimated at around 2 litres/minute ) would partially dry up. This did not happen and so a small trench was eventually dug through liquid mud and silt to determine where the bottom of the tunnel lay. A section roughly 1m x 0.5m adjacent to the south jamb of the retaining wall that framed the tunnel (001) was excavated much of the time under water. The top 10cm consisted of partially decayed leaf mould and twigs (002), below that was a more compact layer of very dark grey organic rich silt (003) around 25cm deep. This became increasingly gritty until it transformed in the lowest level of silting (004) which was a coarse sandy gravel 15cm in thickness above stone slabs (005). These felt fairly solid but it was not possible to determine whether they were part of a laid surface of just rubble fallen from above (Figs. 15 and 16).

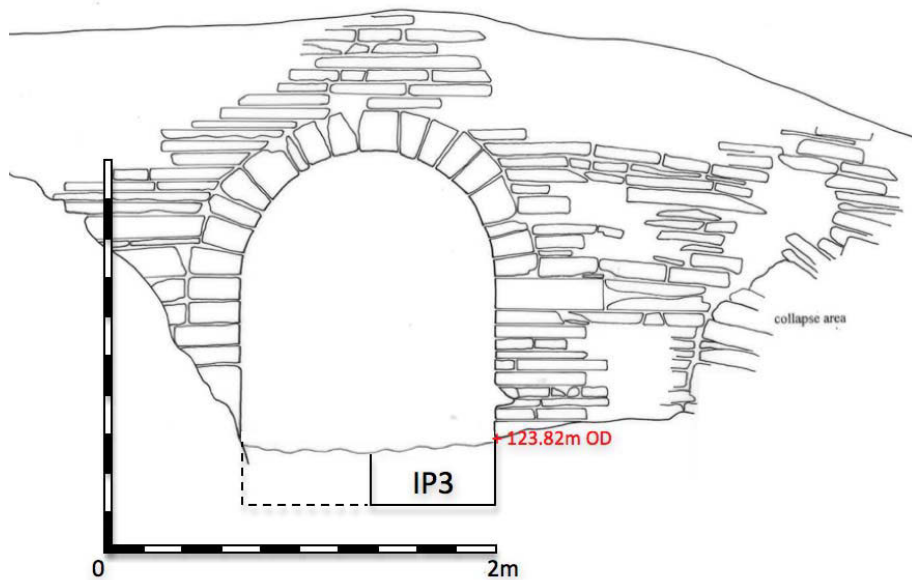


Fig. 15 IP3 Elevation from 2006 survey with location of trench.



Fig. 16 IP3 view of tunnel entrance and trench looking west.

Conclusions. Scour tunnels are generally employed when the need arises to completely drain a pool. The idea that fully opening these tunnels in order to use a vigorous flow of water to partially scour out accumulated silts and sediments has been largely dis-credited.<sup>v</sup> However the character of the lowest silt indicates an initial fairly lively flow of water whether by accident due to a faulty sluice or managed for ornamental effect is uncertain. At some point a 6m section of the tunnel collapsed and this clearly restricted the water flow allowing the accumulation of an organically rich silt. The tunnel exit appears well built. The voussoirs are reasonably well formed and dressed but the retaining wall is of roughly coursed random rubble and has suffered from a partial collapse on its northern end.

4.1.4 Dam 1 - Discussion. The overwhelming impression at dam 1 is that of chaos: fallen trees and massive gullies eroded by flood waters contrast with the orderly arrangement charted in the Ordnance Survey map from the 1880s (Fig. 17) which presumably most closely reflects the original picturesque layout. The broad top of the dam with a footpath crossing the spill way is clearly shown as is the small trickle of water presumably emerging from the scour tunnel. Particularly interesting is the line which appears to indicate that the dam crest was fenced or walled to create a small enclosure. Evidence for a continual run of walling along the east side of the dam is lacking, the cross wall which is part of the spill way and cascade does not line up with the retaining wall to the tunnel mouth so it seems most likely that the area would have been fenced. By 1900 (Fig. 18) the fence has been pushed out to the north from the spill way and for the first time water is shown to be exiting from the southern end of the dam. In both instances the leat along the northern side of the pool is shown entering at a midpoint but its continuation to the east is not marked nor does the hydraulic ram appear on any of the maps.



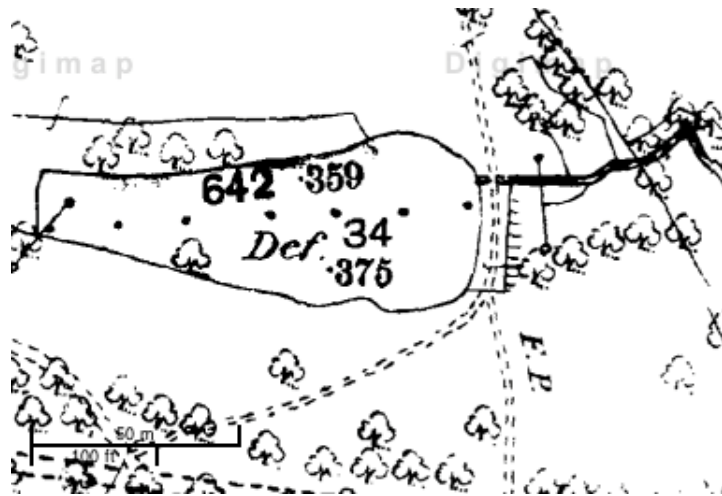


Fig. 17 Pool and dam 1 OS map 1:2500 1880s.

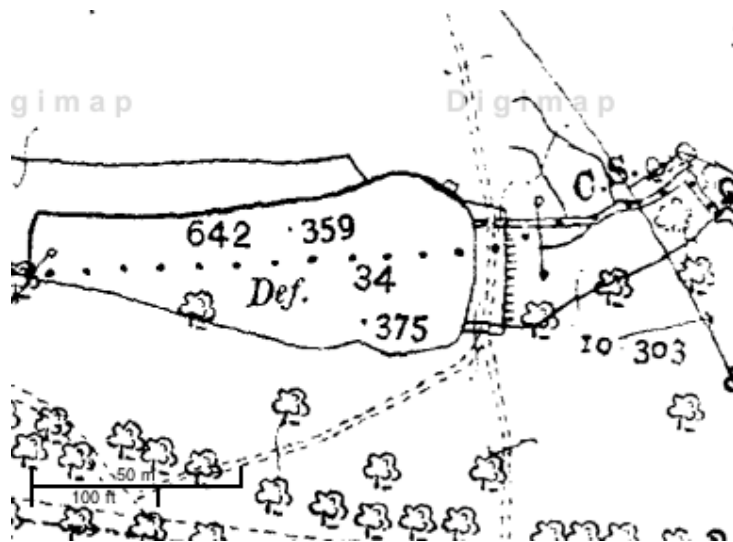


Fig. 18 Pool and dam 1 OS map 1:2500 1900s.

**4.2. POOL AND DAM 2.** Work was begun here on three small scale interventions whilst the recording was being completed down at dam 1. IPs 5 and 6 were opened dug, recorded and back-filled within a few days

4.2.1 IP4 *At base of south downstream face investigate presence of pipe. General understanding of this face required: investigate base of structure and record measurements to enhance 2006 drawings, (photograph no stone by stone drawings required).*

After fallen branches and other debris and some topsoil (002) were cleared by the volunteers the gravelly silt (003) at the base of the retaining wall (001) was dug to a depth of around 20 cm. This deposit proved to be very compact and a mattock, fork and small pick were used to loosen it. A fairly active flow of water (around 5 litres / minute ) caused us to take advice as to the likelihood that further opening the channel could increase the flow and perhaps cause a major draining problem for pool 2. In the end this was judged to be very unlikely and so a further 30 cm of silt was removed at the foot of the wall. This revealed that the lower two courses were partially recessed and below this was a void from which the water was flowing (Fig. 22). There were no traces of a pipe or arched opening. An examination of the face of the wall (Fig. 21) showed no indications of smoothing by water action and on these grounds it was judged unlikely that water had ever flowed consistently down its face.

Conclusions. There was some evidence of a conduit emerging from below the wall but without further digging it is impossible to fully characterize it.

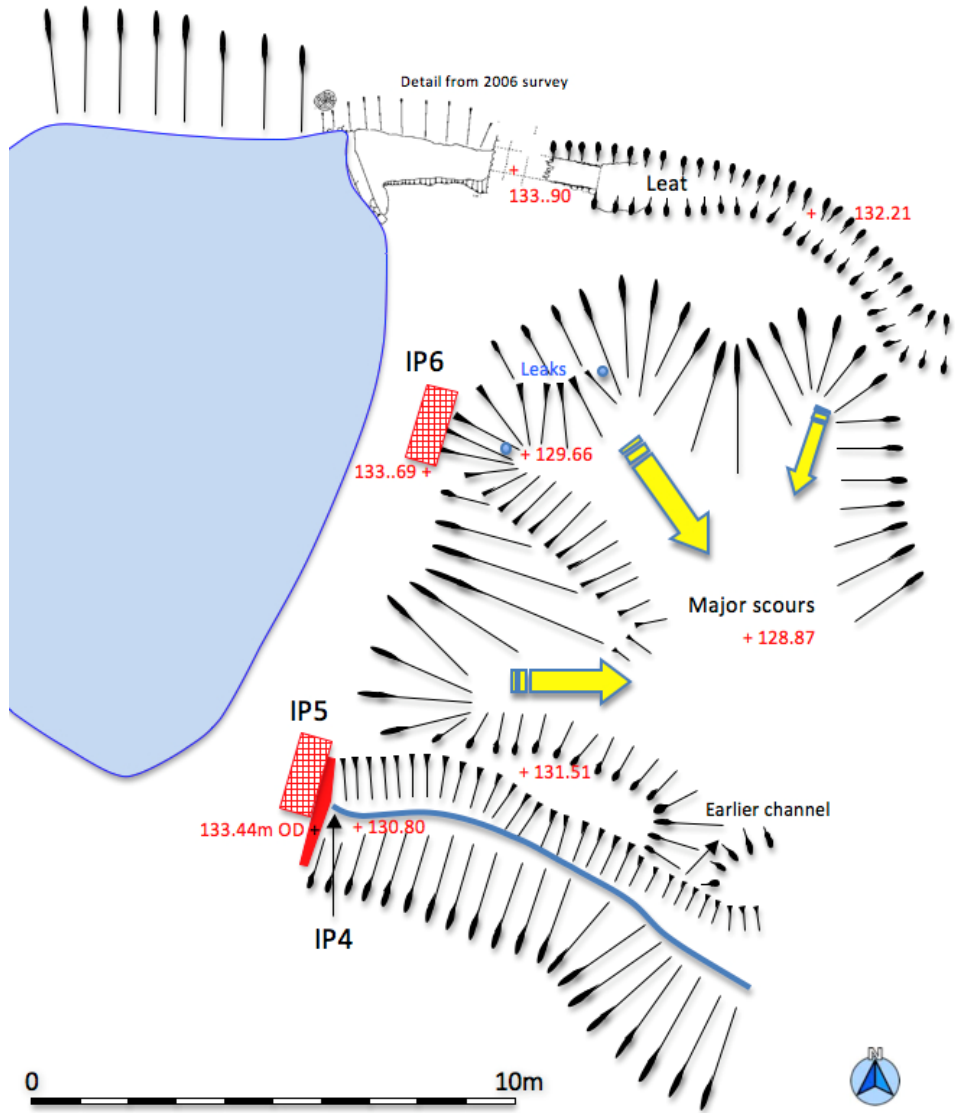


Fig. 19 Dam 2, location of IPs and other features.

Fig. 20 IPs 4 and 5 looking north west.

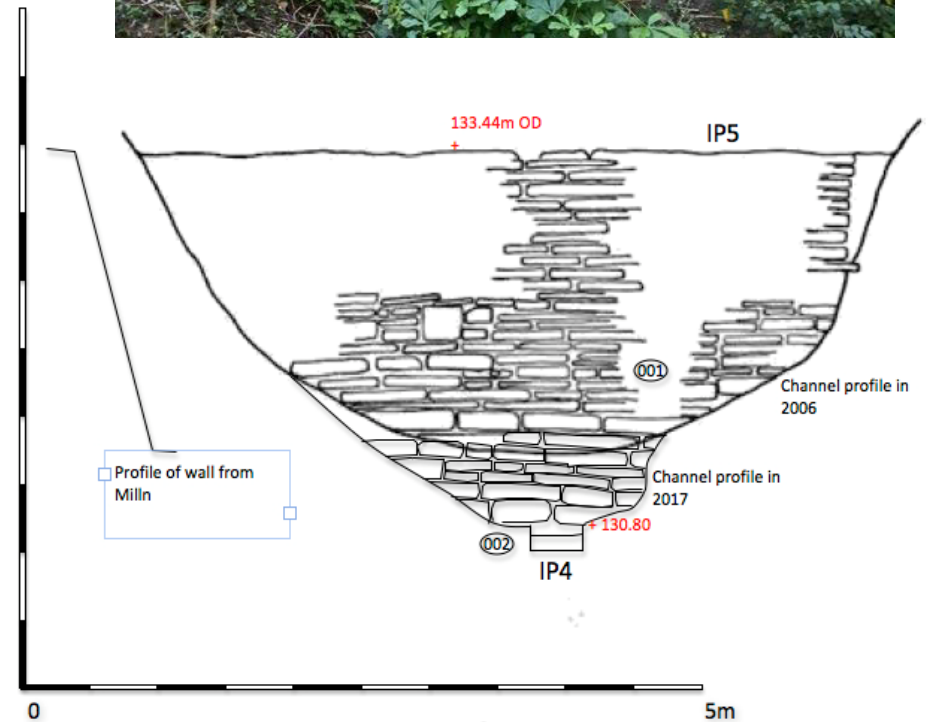


Fig. 21 IP4 Elevation of retaining wall, Milln 2006 with additions

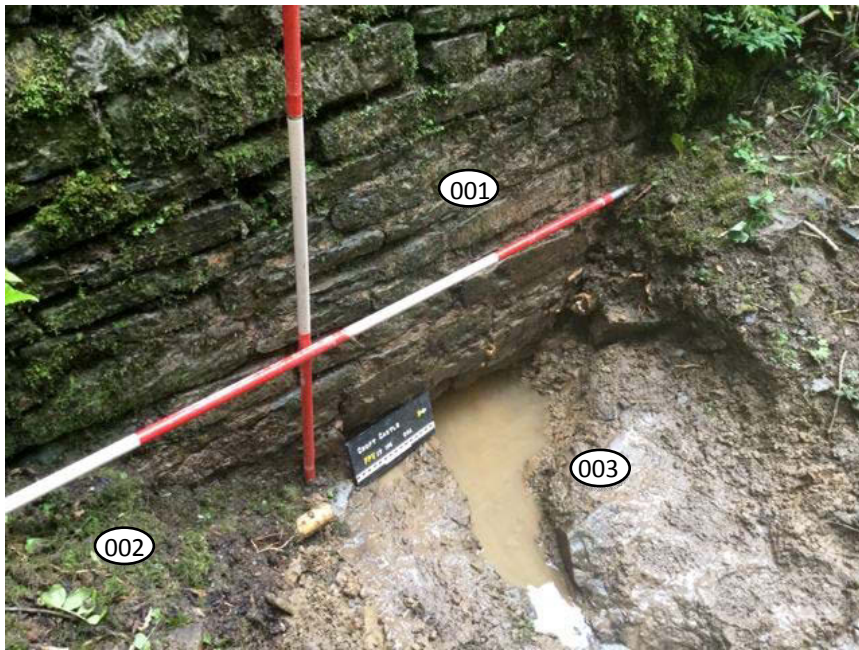


Fig. 22 IP4 recessed courses at foot of wall.

4.2.2 IP5 *Investigate dam crest above stone-faced downstream face. Determine presence of previous surface/pipe present? North - south oriented trench approximately 2m x 0.5m aligned parallel to dam crest.*

A trench 2.5m x 1m was laid out taking in, along its eastern margin, the top of the retaining wall (001). The wall was cleared of plant growth and turf and topsoil (002) removed to a depth of around 15cm. Below this was a deposit of brown silty clay (003) which was taken down by another 15cm to fully reveal the back of the retaining wall against which it had been packed (Fig. 23).



Fig. 23 IP5 Rear of retaining wall and clay make up looking east.

Conclusions. There was no evidence either in the material behind the wall or in the nature of the wall itself to suggest that there was ever a cascade present at this point.

4.2.3 IP6 *Investigate dam crest above central drop-off /scour point .Determine presence of previous surface/pipe/cascade/ weir present? North-south oriented trench approximately 2m x 0.5m to catch point of focus aligned parallel to dam crest.*

A trench 2m x 1m was laid out just above the break of the slope at the top of dam 2 and once the thin layer of turf and topsoil (001) had been lifted a dense band of red clay (002) was exposed capping the crest of the dam and tailing away to the east. Below this was a light brown clay (003) which appeared to be making up the main body of the dam at this point. This was examined to a depth of 0.5m without any further contexts becoming apparent. The slopes below what appears to be a scour point were examined for evidence of stonework but nothing was picked out as being significant (Fig. 24).

Conclusions. No evidence for a spill way or cascade was found, however, the possibility of a low level pipe whose outflow has been obscured by silting cannot be discounted and could not be confirmed without a much larger exploration of the down stream face of the dam.

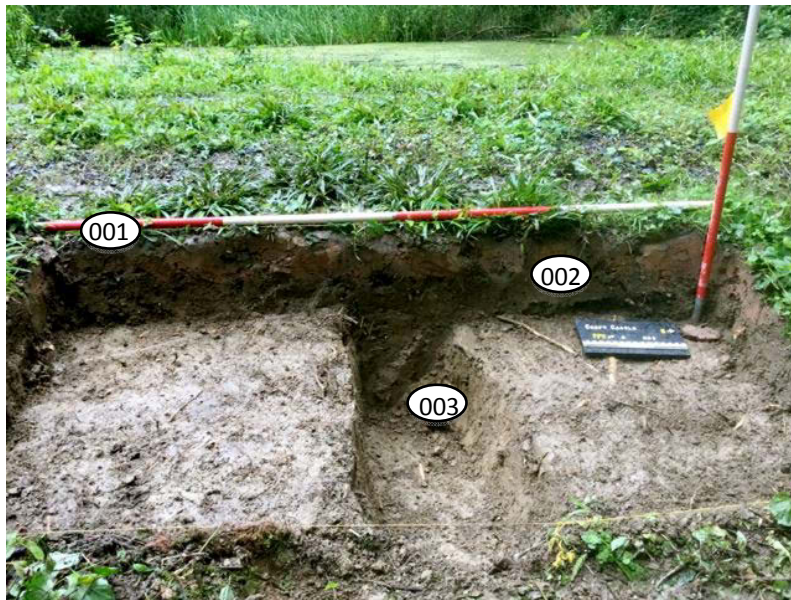


Fig. 24 IP6 Looking west.

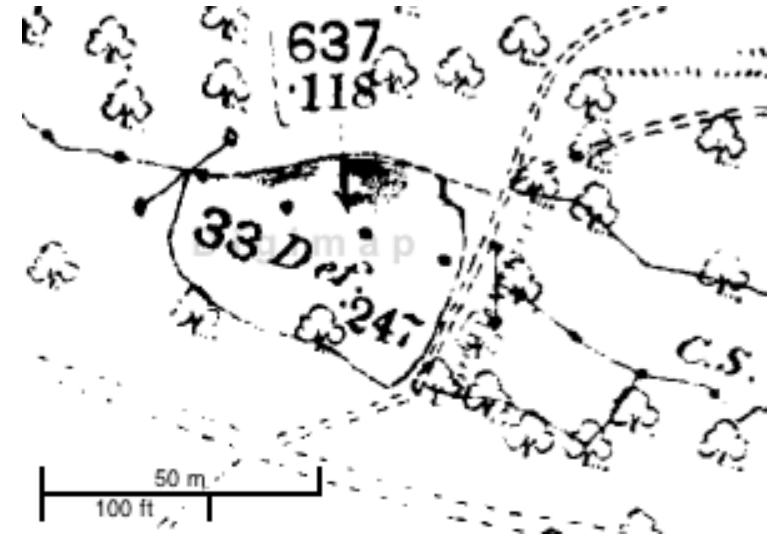


Fig. 25 Pool and dam 2 OS map 1:2500 1880s

4.2.4 Dam 2 – Discussion. The first edition of the OS map (Fig. 25) shows water passing the dam at the southern and northern ends and apparently appearing through the dam just north of the centre. Milln has previously documented the modern concrete spill way and downstream from it a partially collapsed tunnel which allowed a footpath to cross over the by pass channel on the north end of the dam. More work is needed to confirm the presence of a low level pipe or tunnel at the southern end but it seems the most likely explanation for the large retaining wall. The irregular form of the dam as revealed by the topographical survey (Fig. 19) indicates a number of major flooding and scouring events and there is, possibly as a consequence of this, no obvious source for the central flow of water apart from leakage. These marked streams could originate from low level seepage through the dam and it is possible, especially as these streams are marked as boundaries, that they represent the line of the original stream through the valley

which survives as a relict in the landscape because of that boundary function. The presence of a former stream buried below the dam could prove an obvious point of weakness for later seepage.

**4.3 POOL AND DAM 3.** The best part of five working days were spent at this location and a base camp was set up here. A small investigation (IP9) on the northern side of the channel close to the south end of the dam began by uncovering some tumbled stones which eventually turned into another pitched stone surface. The existence of this then prompted an additional trench closer to the water's edge which revealed further pitched stones and a blocking wall. Meanwhile at the lower end of the same channel the clearance of some small stubs of walls became a major excavation of what was dubbed the 'sunken building' (IP8). Extensive searching and a small trench in a gully below the centre point of the dam crest (IP7) proved inconclusive.

*4.3.1 IP7 Investigate with small targeted trench behind concrete to identify scour pipe presence at centre of dam. Determine relationship of concrete to what is south east of this point.*

After on site discussion it was decided to locate a small trench 1m x 0.5m around 4m east of the dam's crest down in a steep sided gully. A combination of tangled tree roots plus rubble (001) and a dump of domestic debris from the twentieth century (002) meant that only limited progress was made here. The entire gully was searched both by visual inspection and probing with road irons but no traces of any stone structures or related debris were encountered (Fig. 26).

Conclusions. The regular form of the gully at this point and its being in line with a concrete bastion-like feature at the pool's side suggest



Fig. 26 IP7 Looking north west up the gully.

that the gully resulted from the collapse of a tunnel the remains of which, by comparison with other sites upstream, could be quite deeply buried, equally we could be seeing the effects of erosion with the added construction simply a measure to reinforce the dam.

*4.3.2 IP8 Investigate down stream dead-end gully at southern end east of downstream face to establish where water goes here. North west to south east 1m x 0.5 m strip to find anything across site of potential pipe/tunnel.*

Earthwork remains (Fig. 28) indicated a deep channel emerging from the southern end of the dam which after proceeding down the valley for something over 10m makes a right angle turn towards the north east.



Fig. 27 Dam 3 looking north east with IP9 in the foreground.

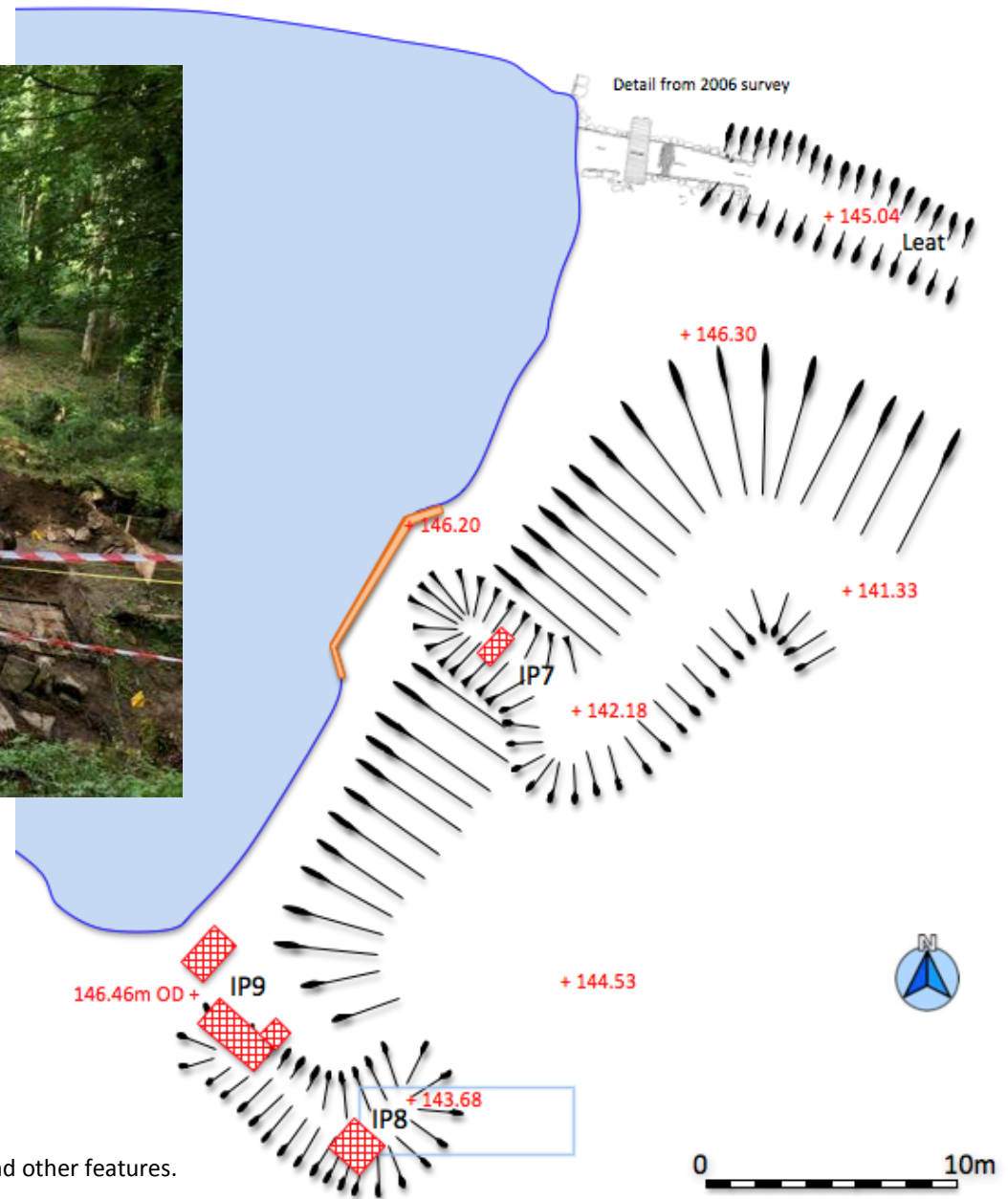


Fig. 28 Dam 3, location of IPs and other features.

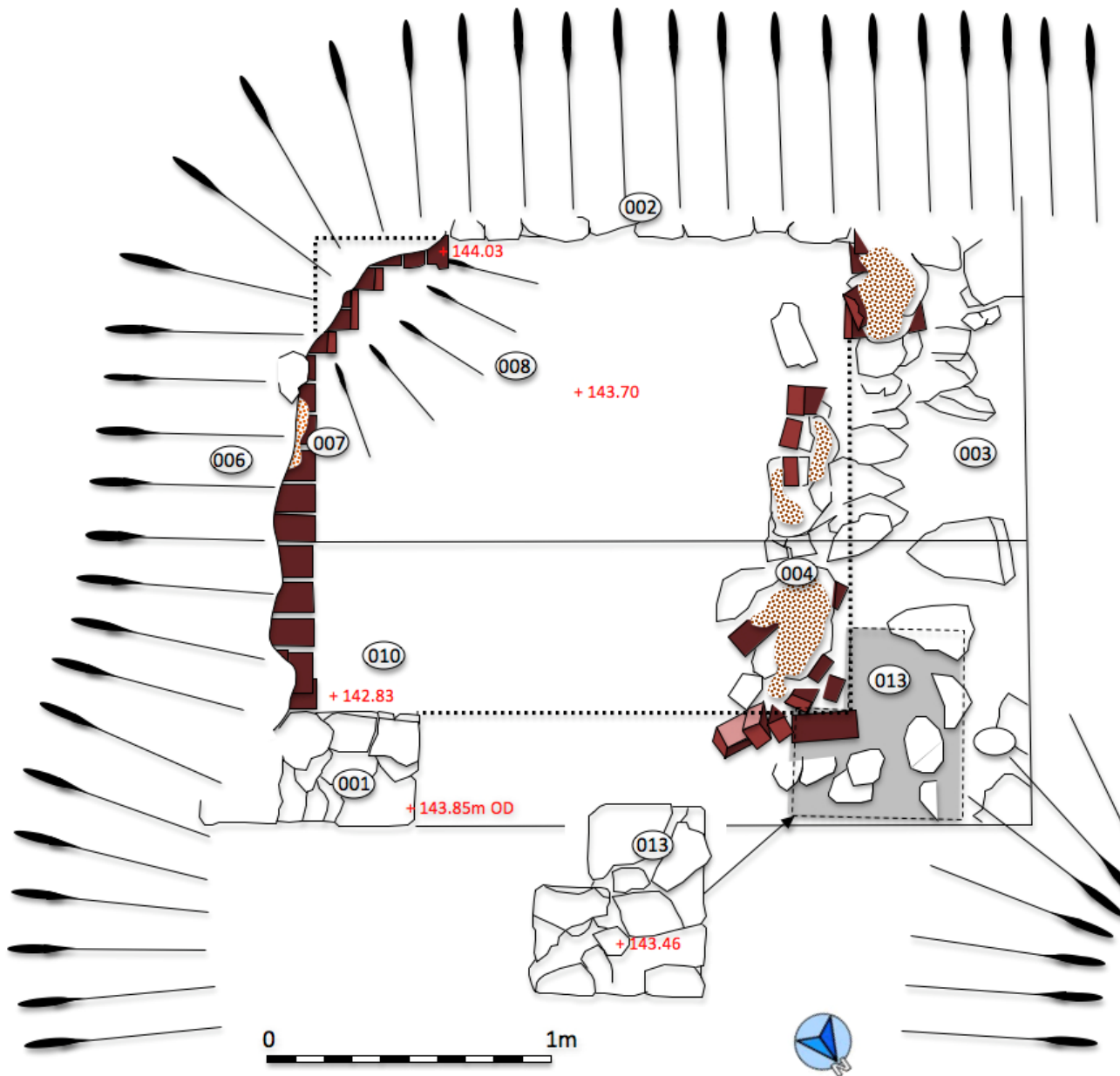


Fig. 29 IP8 'Sunken Building' Plan.



Fig. 30 IP8 'Sunken Building' looking south east.



Fig. 31 IP8 'Sunken Building' section south west.

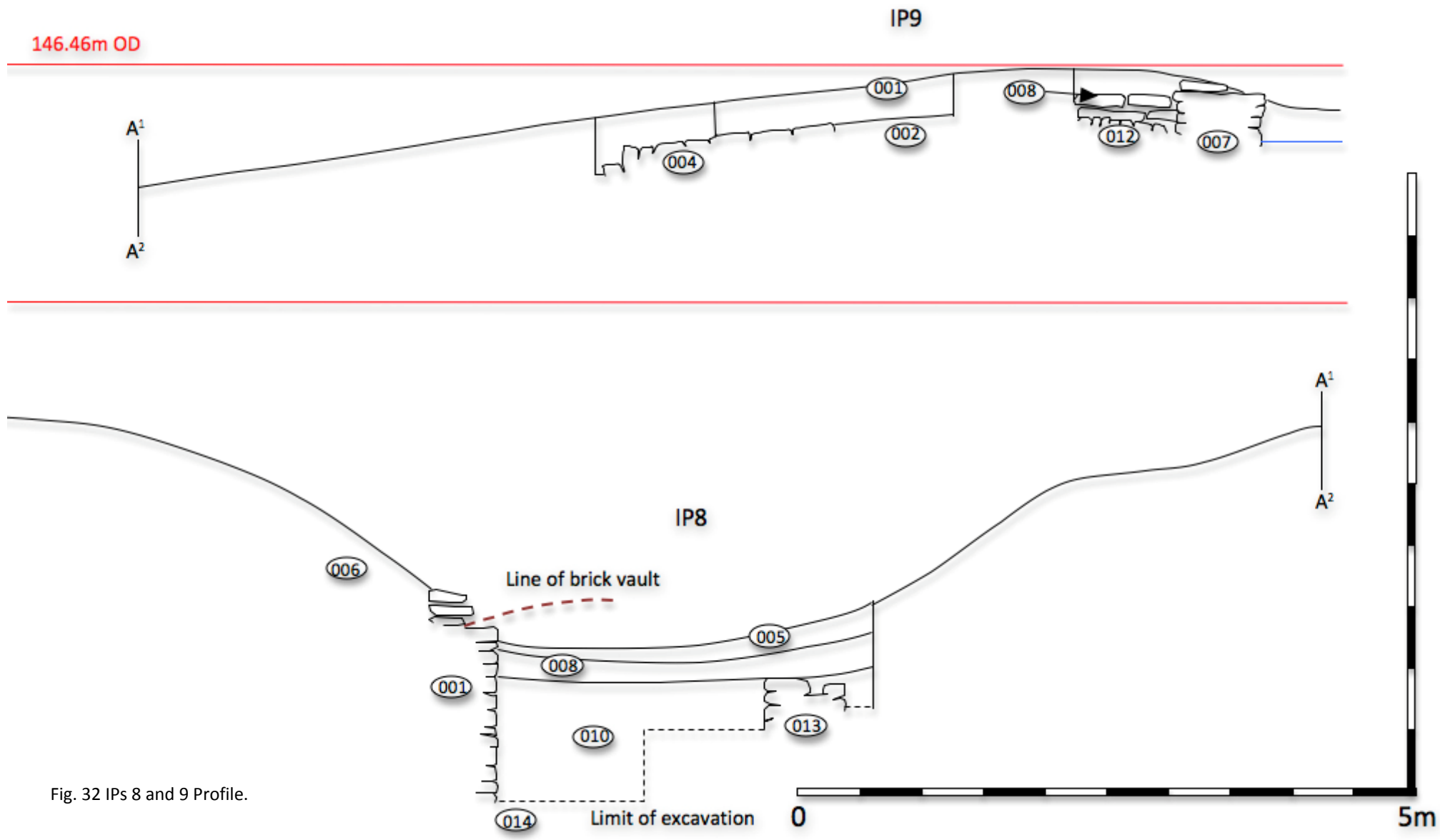


Fig. 32 IPs 8 and 9 Profile.



After clearance two structural elements were noted in the banks to the south west and south east. These were part of the same building so an area roughly 3m square was marked out for excavation. The topsoil, a shallow dark brown sandy loam (005), was removed but in places the slopes were so steep that there was little covering and the eroded face of the subsoil, a dense brown silty loam (006) was exposed. The full extent of the building was then revealed fitting neatly in to the corner of the channel. The structural elements comprised the south west and south east retaining walls (002) built hard against the rising scarps. These walls were built of roughly coursed rubble using a hard pinkish red sandy mortar. The eastern corner was marked by a similarly constructed pillar (001) bonded into the wall and viewed from the outset as a jamb for an opening. At this stage the location of the northern corner was not apparent and the line of the north west was marked by a mass of tumbled rubble including chunks of brickwork still mortared together with a whitish buff gritty mortar (004). Partial removal of this revealed full extent of the stub of wall noted earlier and the line of the west wall to be fixed. Upstream the channel was filled with a mixture of rubble in silty loam (003). Most significant was the survival, on top of the south east wall, of a course of bricks acting as the springing for a low vault. Remnants of this projected out for six courses in the south corner below which was a void (Figs. 29, 30, 31).

A test pit 2m to the north east of the main trench (Fig. 33) was opened up to determine if the channel had continued in a north easterly direction. Below the topsoil was a thick (40 cm) layer of firm brown clayey loam (011) above a light brown compact silty loam with some rubble (012) of an unknown thickness (excavated to a depth of 30 cm). At the time this was interpreted as undisturbed natural, however Later examination of deposits further up the valley suggest that this conclusion was wrong and the channel here shown on a number

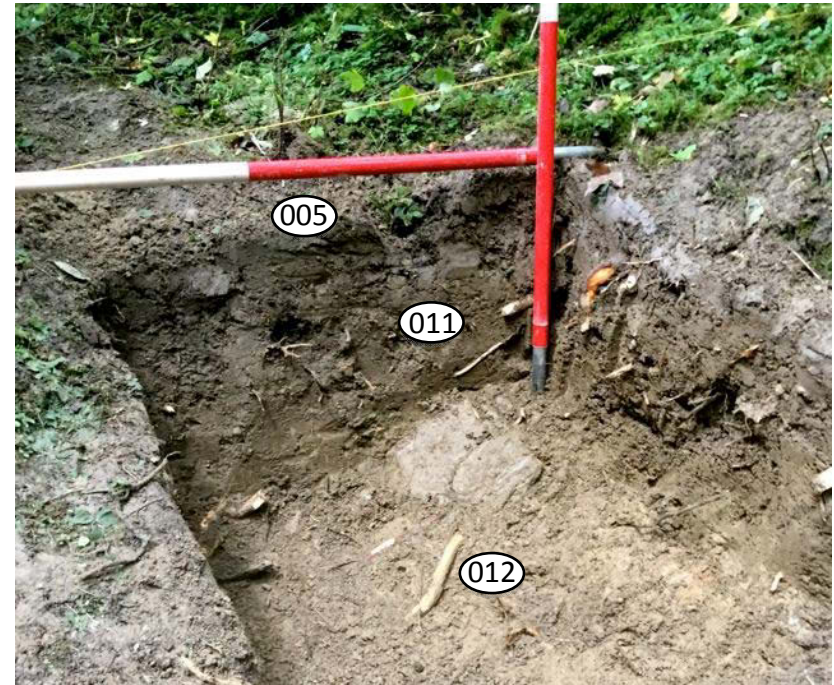


Fig. 33 IP8 test pit looking north.

of sources must have been filled in at the point when it was no longer in use ( see IP9).

Within the limits of the building there was a thick deposit of fine brown sandy silt (008) which had accumulated from the southern corner. This was above very compact layer of sandy rubble (010) which completely filled the inside of the building to a depth of over a metre. Because of safety considerations only the northern half of the fill was taken down deeper where the beginnings of a layer of tumbled brick (014) was noted, presumably the remains of the collapsed vault. The removal of the northern portion of 004 enabled the northern corner of the building

to be identified. This stood as an isolated rubble pillar (013) clasping the interior northern angle of the structure indicating another opening in the north west wall.

Conclusions. The existence of an important structure here is without doubt but its function remains debatable ( see 4.3.4 Discussion). It was unfortunate that the findings of the test pit were not questioned further, perhaps a larger area should have been examined.

4.3.3 IP9 *Investigate water flow historically with trench at crest of south shoulder (Stone facings evident in downstream face below crest): follow wall back to dam crest to investigate extent surface of dam here and connection to water flow at this point.*

Initially attention was focused on a set of stones eroding out of the north slope (013) of the channel running in a south westerly direction from the southern end of the dam. Removal of the topsoil (001) showed these to be a remnant of a pitched stone spill way (004) set on a bank of yellowish brown silty clay (002). The trench of 4m x 1.5m which had taken in a portion of the channel and the tumbled stones was extended by a further metre to the north east and this uncovered an additional portion of the spill way including a central gully set around 5cm lower than the flanking stones. This feature was terminated by two large stones set crossways on edge with a gap in between to create the effect of a small cascade (Fig. 36). This gully presumably accommodated the usual limited flow of water but could also cope with larger on-rushes. There were no remains of a retaining wall for the spill way, dug away by the channel to the south and possibly robbed out to the north. The later channel was partially filled in by a dump of brick rubble (003) at its western end.

An extra trench was opened 1m to the west of the first trench (Figs. 27 and 34) the gap being necessary to maintain access for a public footpath. After the removal of a very shallow depth of topsoil the two flanking walls of the spill way were uncovered each standing to a height of 2 courses (009 to the north 008 to the south). The channel was blocked by a later cross wall (007) which would have formed an edging to the pool at this point. Remnants of the pitched stone base of the spill way were noted (012) although presumably some had been lost in the course of the later blocking. Significantly the pitched stones here were set across the channel whereas further down they were aligned longitudinally. A visiting hydraulic engineer commented that this pattern

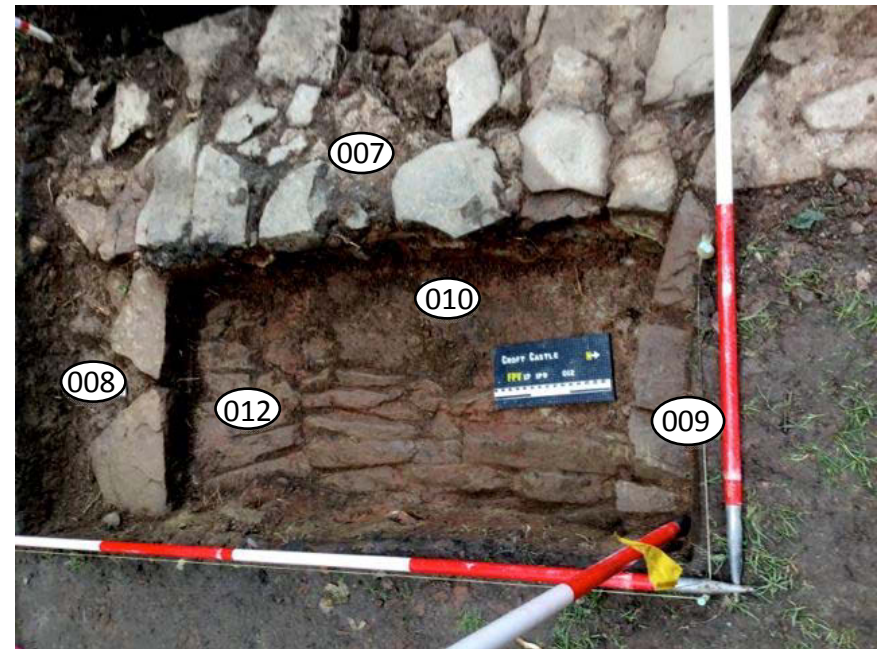
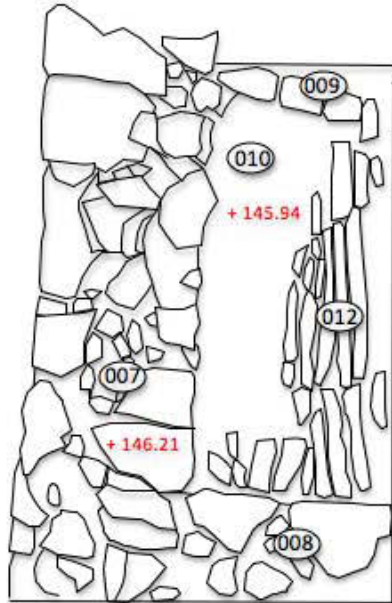
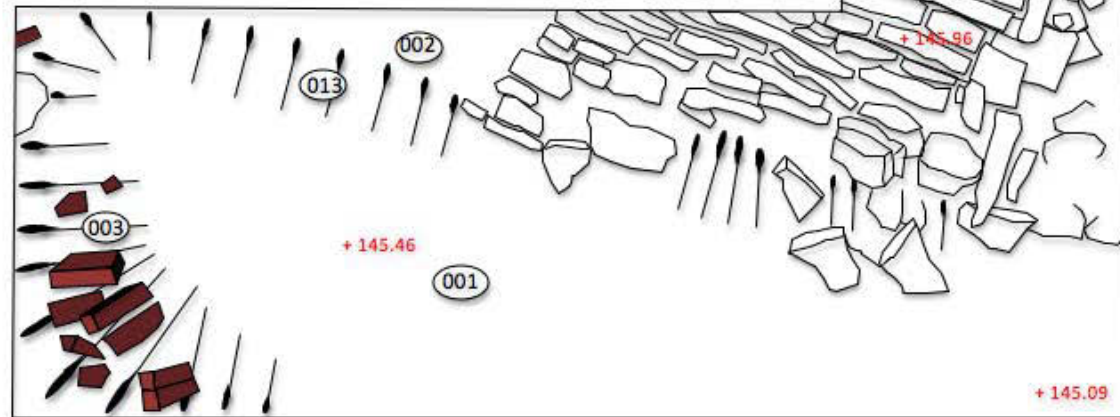


Fig. 34 IP9 Additional trench, north to right.

Fig. 35 Gully to spill way looking north.



+146.46m OD



0



5m

Fig. 36 IP9 Plan.

of setting the stones to different alignments was, in his experience, to accommodate the differing pressures of water flowing over the spill way.<sup>vi</sup> The spill way had been packed with a very dense red clay (010) obviously a further measure to close the channel and make the blocking waterproof.

Conclusions. There is no doubt that a well constructed spill way existed here and that it was taken out of action by careful blocking at the pool side. What remains puzzling is the digging of a channel which partly destroyed the southern edge of the spill way. This suggests that there was an additional overflow point from the pool a little further south. If so it in turn was filled in with dumps of brick rubble.

4.3.4 Discussion. The arrangements at dam 3 whilst perplexing are amongst the best surviving examples as there seem to have been no instances here of the kind of destructive scouring seen further downstream. The sequencing of events seems fairly secure but the explanation of those events and particularly the purpose of the sunken building remains obscure. It is perhaps worth considering the map evidence first. Although a number of early maps of the estate are available as photocopies their provenance is uncertain and in the case of the earliest, assumed to be from the 1790s<sup>vii</sup> errors have been made in pasting the sheets together so at the crucial point the parts do not match up. By making some adjustments a reconstruction of the original image can be made (Fig. 37 ). This indicates two parallel channels issuing from pool 3 although its possible that the uppermost could be a fence line. There is an interesting arrangement further downstream where the channel makes a fight angle bend before feeding into a small rectangular pool. The LIDAR image for the area (Fig. 38) illustrates some of the complexity of this area but shows no trace of the small pool. However the Somerset Davies map<sup>viii</sup> from roughly the same

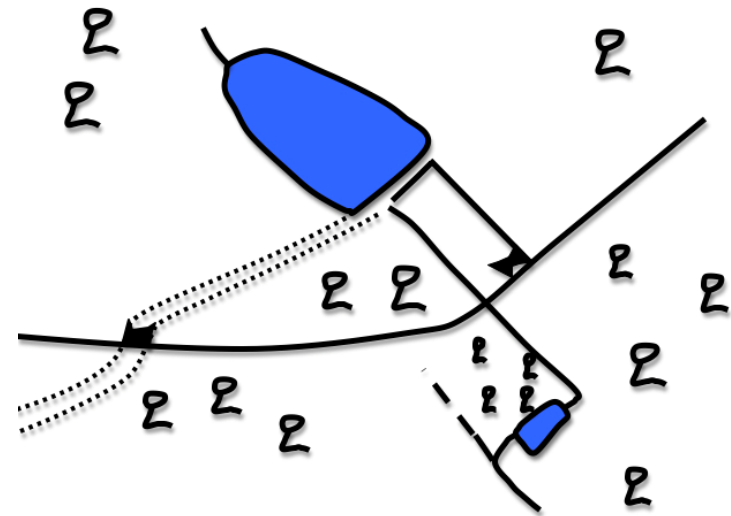


Fig. 37 Pool and dam 3, reconstructed extract of map from late eighteenth century.

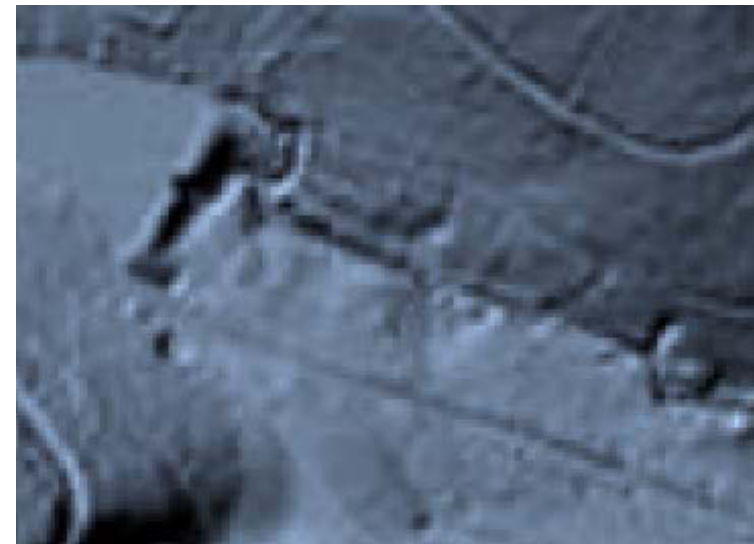


Fig. 38 Pool and dam 3, as represented by DTM data 2017

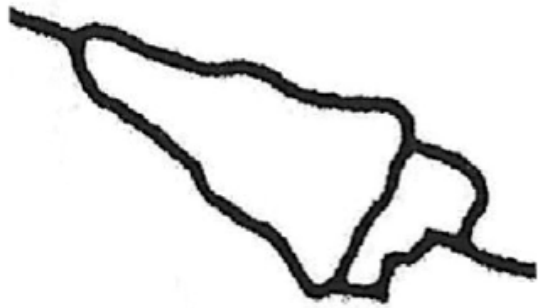


Fig. 39 Pool and dam 3, extract from Somerset Davies map late eighteenth/early nineteenth century



Fig.40 Extract from Tithe Map of 1842 (Private Collection)

time shows an arrangement more in line with what can be seen on the ground today with both the northern bypass and the southern channel making its distinctive right angle bend (Fig. 39). This is a set up clearly illustrated as far as the southern channel is concerned in the tithe map of 1842 ( fig. 40)<sup>ix</sup>. The OS map from the 1880s further bears this out with the addition of water apparently appearing from below the centre point on the dam (fig. 41). This all seems to make sense until a map Labeled as being a redrawn version of the 1839 tithe map<sup>x</sup> (Fig. 42) is examined. This seems to show a leat being taken from the southern end of dam 3 and following the south side of the valley as far as the back yard of Cock Gate Farm a distance of nearly 850 metres. Intriguingly a semi-circular pool surrounded by tumbled stone which is shown terminating this line exists today. There is no evidence of a channel on the ground so this may show a pipeline. If this were the case the contours demonstrate that water would have had to be pumped. This could give us a context



Fig. 41 Pool and dam 3 OS map 1:2500 1880s

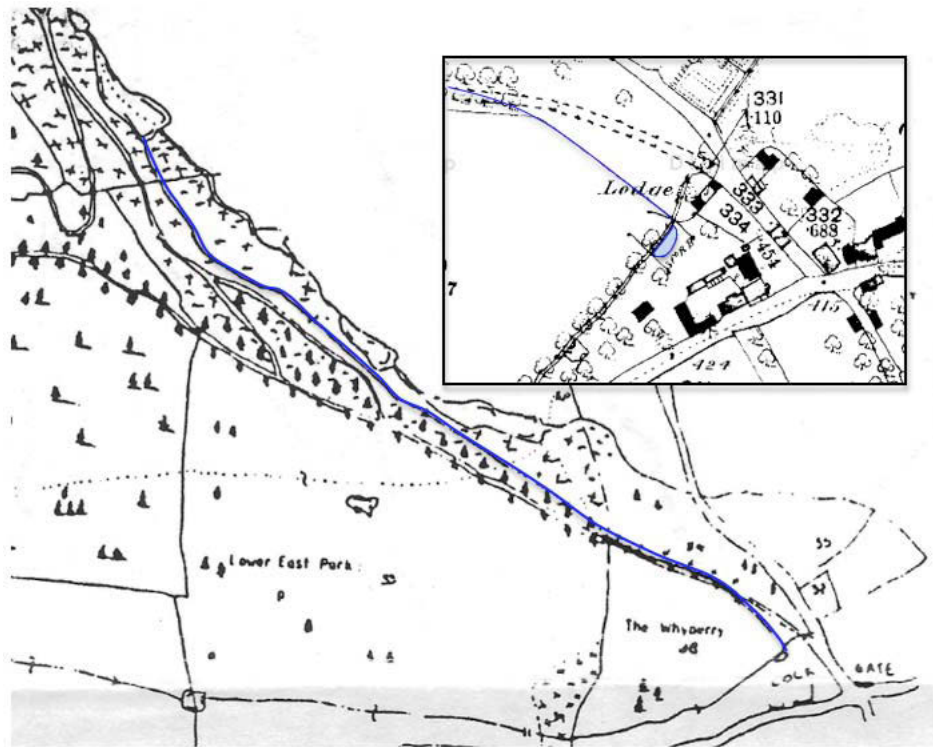


Fig. 42 Route of possible pipeline from a redrawn version of the 1839 tithe map with the terminal pool shown from the 1880 OS 1:2500 map.

for the sunken building which could then be interpreted as a control point and pump house for this pipeline. Another question is the relationship between the excavated spill way and the by pass channel to the north. It is possible that, like the arrangement on the north side of dam 6, the channel here was equipped with a sluice gate and could be used in the absence of a scour tunnel to empty the pool rapidly whereas the spill way on the south side with its small gully was designed to take off the trickle that was the normal flow of water down the valley.

#### 4.4 POOL AND DAM 4

4.4.1 IP10 *Remembering to refer back to 2006 drawings establish whether there was a stone weir here at point of 20th century brick weir. Was it a frame for a sluice or a full stone weir? Was the water in fact lower given the level of the culvert floor?*

No excavation was required here. The volunteers cleared large quantities of fallen braches and the over burden of vegetation enabling access to and visual inspection of the concrete weir, the brick setting for the former sluice and both ends of the tunnel (Fig. 43).



Fig. 43 IP10 Brick sluice looking north.

Fig. 44 Dam 4, location of IP and other features.

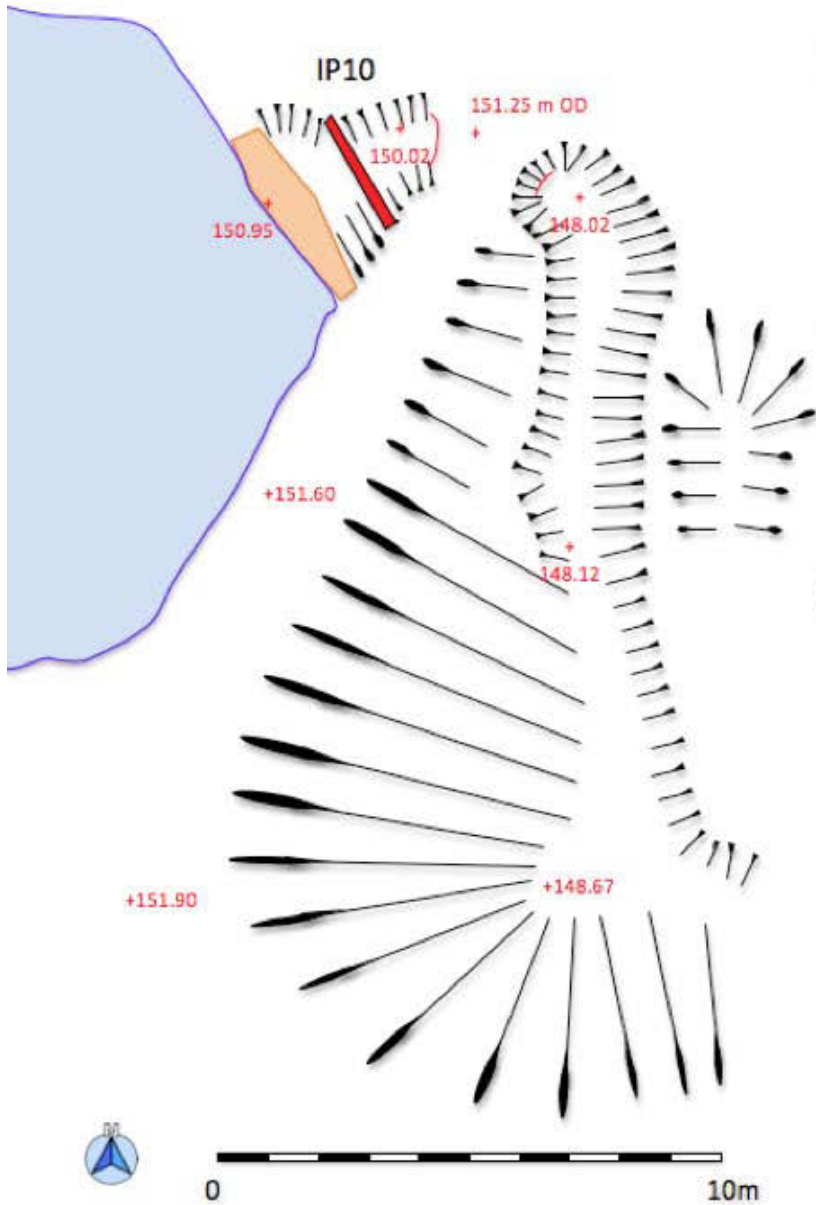


Fig. 45 IP 10 Drawings by Milln with amendments.

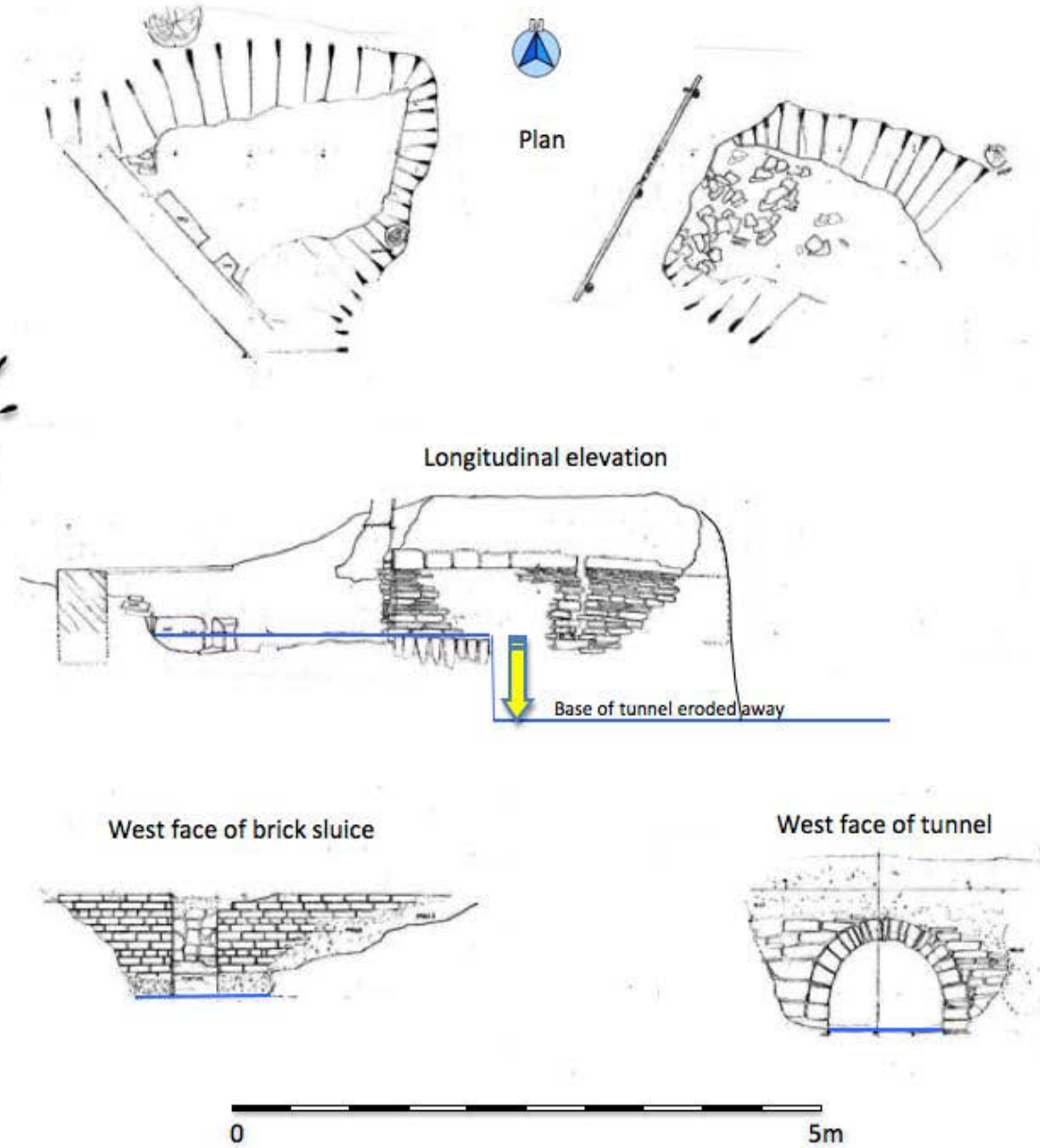




Fig. 46 IP10 Culvert looking west.

Conclusions. Although what could have been earlier stonework lining the channel to the north was noted the brick setting for the sluice itself, on account of the bricks used, the pointing and the concrete rendering on the east face has certainly been heavily repaired in recent times. There was no evidence of an earlier arrangement here although, of course an

older weir at this point could have been swept away. However, it is also possible that what is seen today is simply a rebuild of the original construction. In this connection it is interesting that the 1880 OS 1:2500 map (Fig. 48) shows the pool as drained and it is not refilled until after 1970 suggesting the brick sluice is pre-1880 and the blocking and further addition of a sandbagged concrete weir is post 1970. The level of the base of the culvert drops by over a metre and by comparison with Milln's elevation from 2006 (Fig. 45) it is clear that this face is eroding back rapidly and drastically undercutting the culvert's side walls (Fig. 46). Presumably at some point this fall expressed itself as a cascade probably at the out fall from the culvert where it could be seen.

4.4.2 Discussion. Dam 5 is unique in that at present only a single exit from the pool via the sluice and culvert has been noted. The outgoing channel then cuts across the lower face of the dam in a southerly direction. If the erosive process continues at the same rate beneath the culvert it will be at increasing risk of collapse.

#### 4.5 POOL AND DAM 5

4.5.1 IP11 *Low priority, if time investigate with small targeted trench to locate presence of scour pipe/drain at centre downstream Face with strip trench north north east - south south west aligned 1m x 0.5m at presumed location.*

A 2m x 1m trench was positioned down the slope about 4m east of the dam's crest and excavated in stepped sections to a depth of 0.5m. Below a thin deposit of dark grey loose sandy loam topsoil (001) was a layer of dense light brown silty clay (002) which made up the body of the dam. Towards the lower end of the trench was a gritty loam (003) which



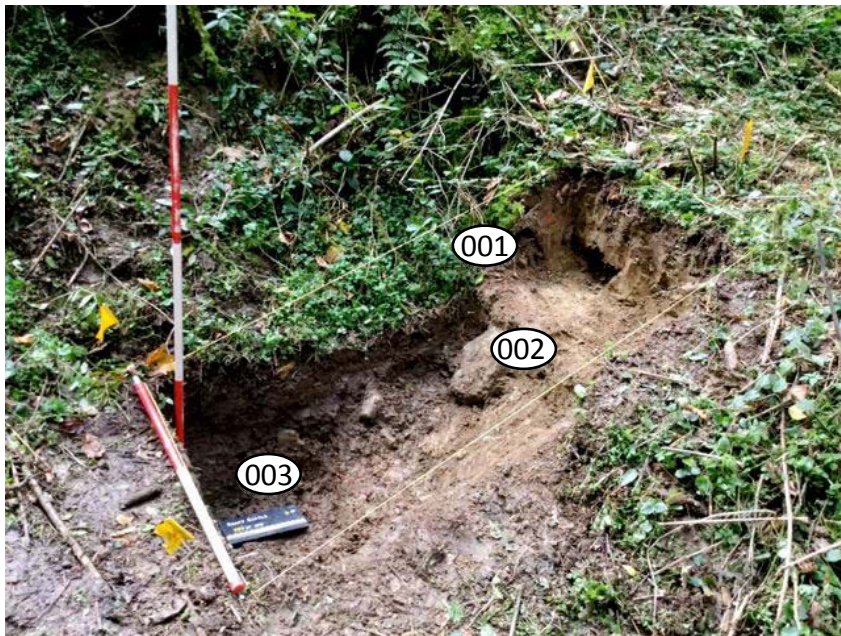


Fig. 47 IP11 looking north west.

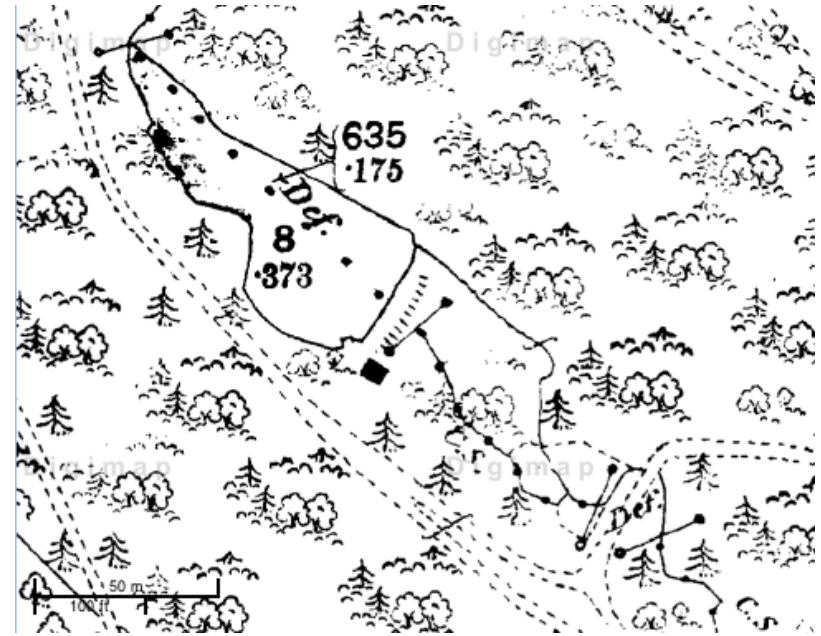


Fig. 48 Pools and dams 4 and 5 OS map 1:2500 1880s.

represented the effects of water leaching through the dam at this point. Apart from a couple of loose slabs little stone was seen (Fig. 47).

Conclusion. There was no evidence of a built structure here although a much larger area would have to be opened to a greater depth to be sure.

4.5.2 Discussion. Although the intervention here was on a small scale dam 5 is in many ways the most interesting of the dams in Fishpool valley being home to the gothic pump house with its surviving technology reflecting measures taken to provide Croft Castle with water from the late eighteenth century onwards. The by pass channel to the north recorded by Milln in 2006 is showing signs of deterioration with the flanking wall to the west now collapsed in places

Early maps ( Fig. 48) again reflect the current situation with a high level by-pass channel to the north and a low level outflow to the south driving in this case the water pump. As noted elsewhere the central outflow may simply be the result of the survival as a boundary of the original stream.

#### 4.6 POOL AND DAM 6

4.6.1 IP16 *Uncover and record the extent of the revealed cascade at the centre and base of the downstream face of dam six*

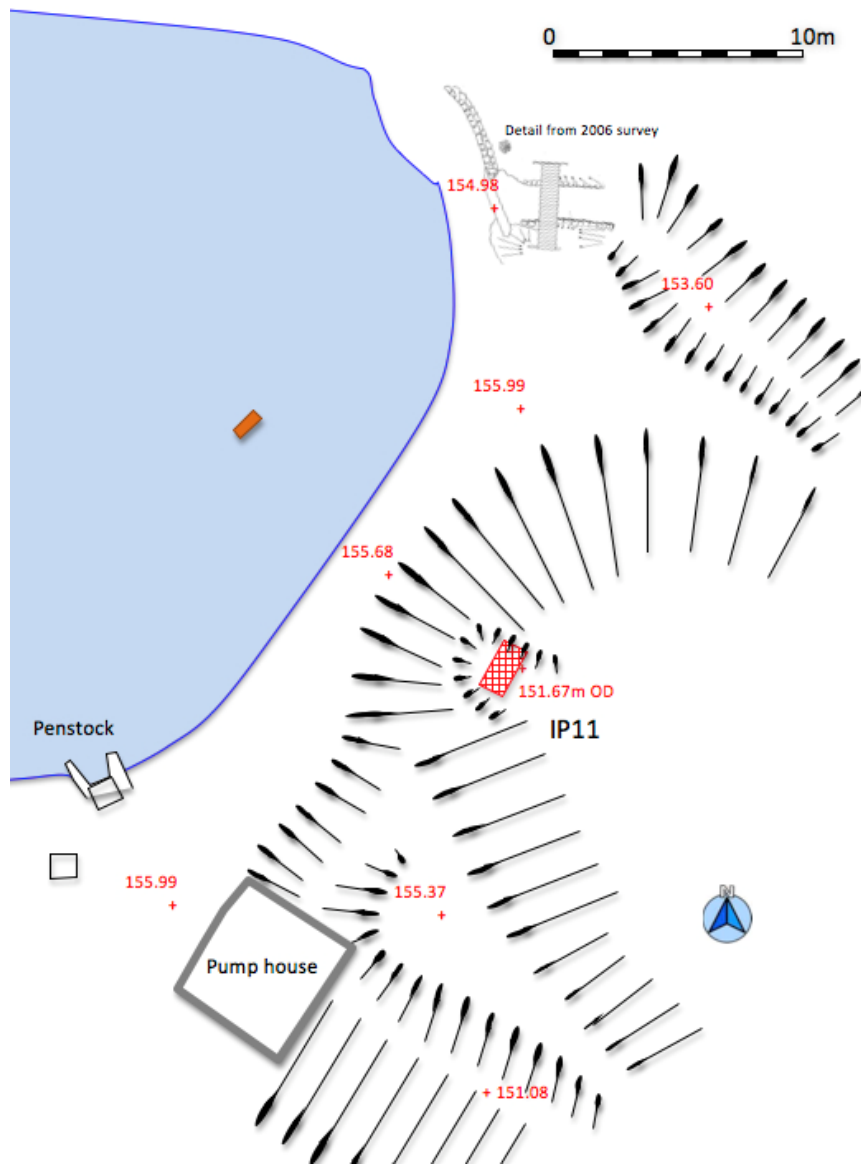


Fig. 49 Dam 5, location of IP and other features.

A late addition to the roster, strimming of the undergrowth uncovered a small patch of pitched stones. This was examined and an area 4m x 2m was marked out for excavation. The thin covering of dark grey sandy loam (006) deepened towards the south but was generally just a thin covering over an expanse of pitched stone creating a spill way just over a metre wide and sloping down gently to the south for a distance of around 3m at which point it took a sudden downward turn and a face was exposed (003) which dropped over a metre at an angle of roughly 45 degrees. The lower parts of this section were constructed with irregularly placed but well dressed stone blocks. It bottomed out onto a large slab of water smoothed stone (009) although immediately to the east no similar stone could be found rather there was a layer of fine dark grey silty clay (010). Because of the depth only a small section of the base of the channel was cleared and it remains to be seen if it was more widely paved.

The fill of the channel began, below the topsoil, with a thin spread of decayed brick rubble (007) which overlay a deeper (40cm) deposit of grey sandy loam with frequent small to medium rubble (011). This was above a final layer of fill, a fine brown silty clay (008). The spill way was flanked by a rubble retaining wall (002) to the east which survived up to a couple of courses. The western wall was almost completely robbed out leaving a loose deposit of loam and rubble (004). It was difficult to determine because of root action the exact form of the flanking wall as it dropped to the lower level. A number of large and very well shaped stone blocks were tumbled alongside 003 and these may have framed the steepest part of the spill way where the water was cascading down. Some thought was given to excavating the spill way further uphill into the body of the dam to examine where it originated from but it soon became clear, due to the steepness of the slope that the amount of over burden to shift, that it would have been beyond our resources.

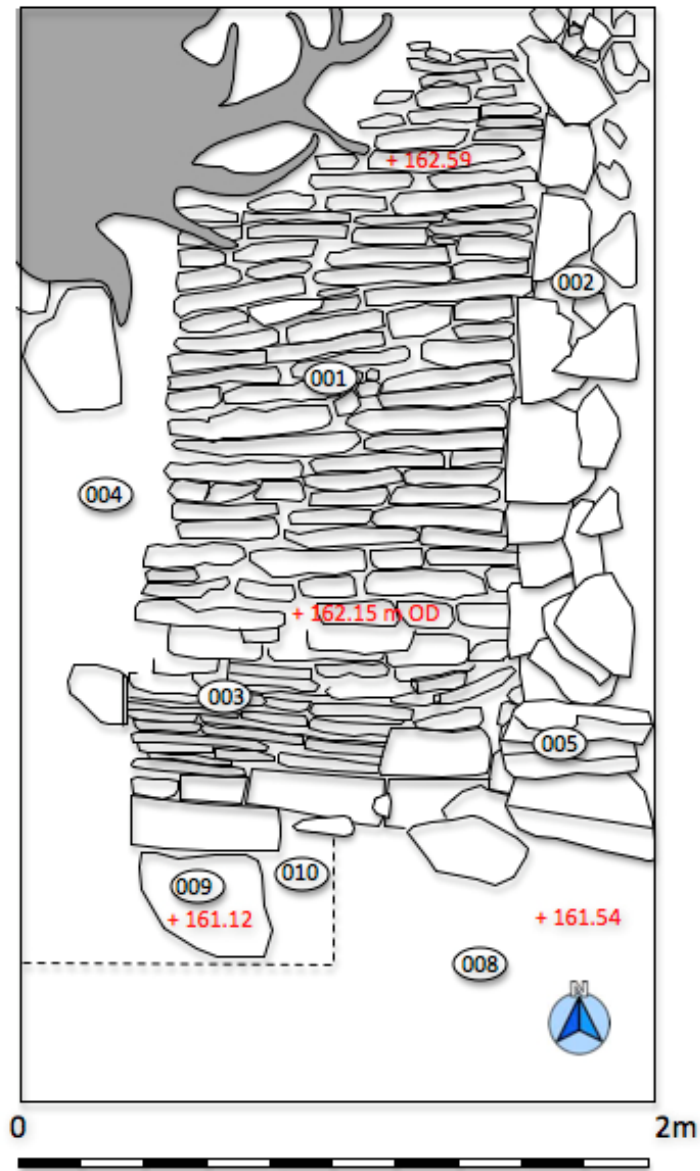


Fig. 50 IP16 Plan

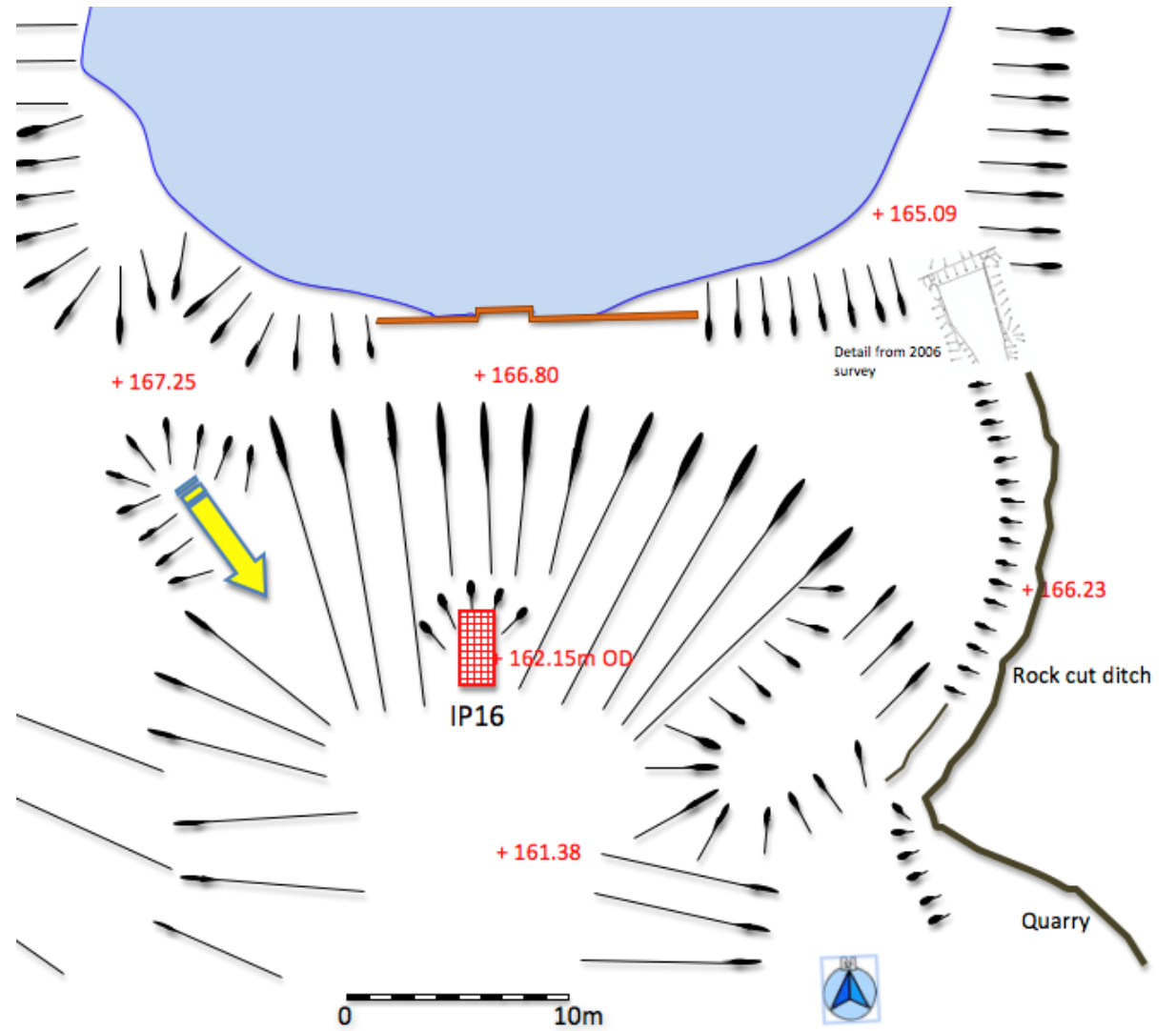


Fig. 51 Dam 6 location of IP and other features.



Fig. 52 IP16 looking north east.

Conclusions. It seems likely that this is the lower section of a spill way and cascade that could have originated from an overflow channel across the top of the dam, possibly in a culvert as on dam 7.

4.6.2 Discussion. There has been a recent instance where the water has over topped the dam and scoured out the ground on the west end of the dam. The volunteers reported that following this the height of the dam had been raised as an emergency measure and elements of a central spill way may remain buried within it. The by-pass channel to the east is a simple stone lined structure with a small modern concrete weir and

some brick walling facing towards the pool. Slots are set in to the walling presumably so that boards could be inserted to effect a temporary closure of the channel. This is a less effective mechanism than the guillotine pattern sluice assumes to have been used on dam 4. Beyond the sluice the channel is rock cut and leads down to a small natural looking cascade. Close to this is a ramp which has the appearance of leading down to a viewing platform looking out over the spillway to the north west. There are significant deposits of brick rubble around 40m south of the dam which may be associated with quarrying activity.

**4.7 DAM 7.** The area around dam 7 (Fig. 53) occupied the best part of the final two weeks of the project and a base camp was established here. The tunnel and upper part of the cascade (IP14) had already been surveyed by Milln but the scale, complexity and good state of preservation of a series of structures was notable. Two small trenches to investigate possible by pass channels to the north and south were comparatively straight forward but the combination of probable scour tunnel and a later weir (IP15) demanded several days of close attention

4.7.1 IP12 *Investigate spill way on West side with east west strip to establish previous cut /fill and surface shape. Trench approximately 1.5 m x 0.5 m across spill way channel.*

A trench 2m x 1m was opened across the shallow earthwork that cut into the valley side south of the dam. A deep layer of silty loam (001) topsoil and leaf mould was cleared to reveal the profile of a 'shallow 'V; shaped ditch (003) cut into what appeared to be the natural silty clay. The lower part of the fill of the ditch was a slightly more loamy silty clay (004) and contained a few stone slabs which appear to have slid down into the ditch from the higher slopes to the south (Fig. 54).

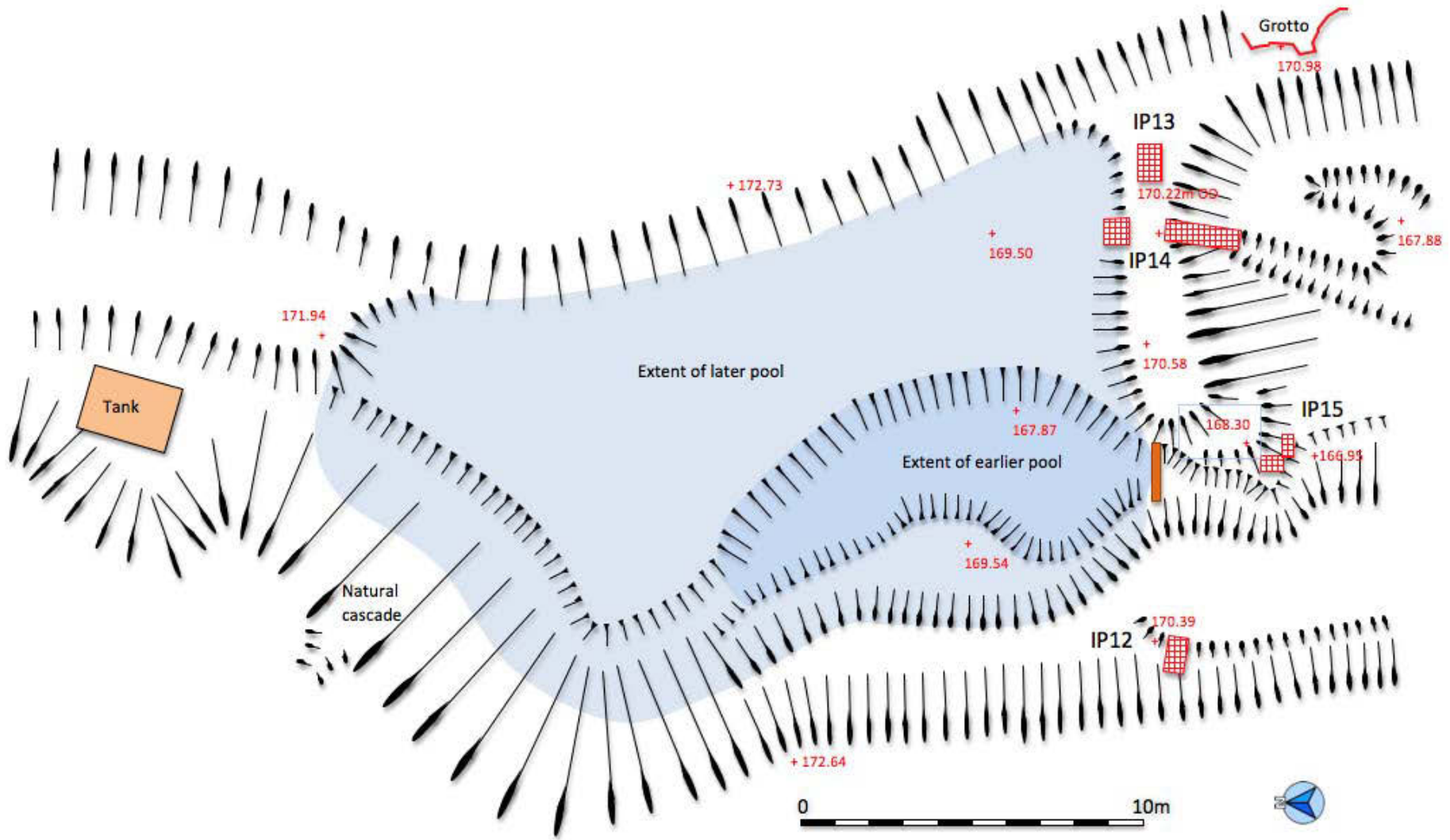


Fig. 53 Dam 7 location of IPs and other features.

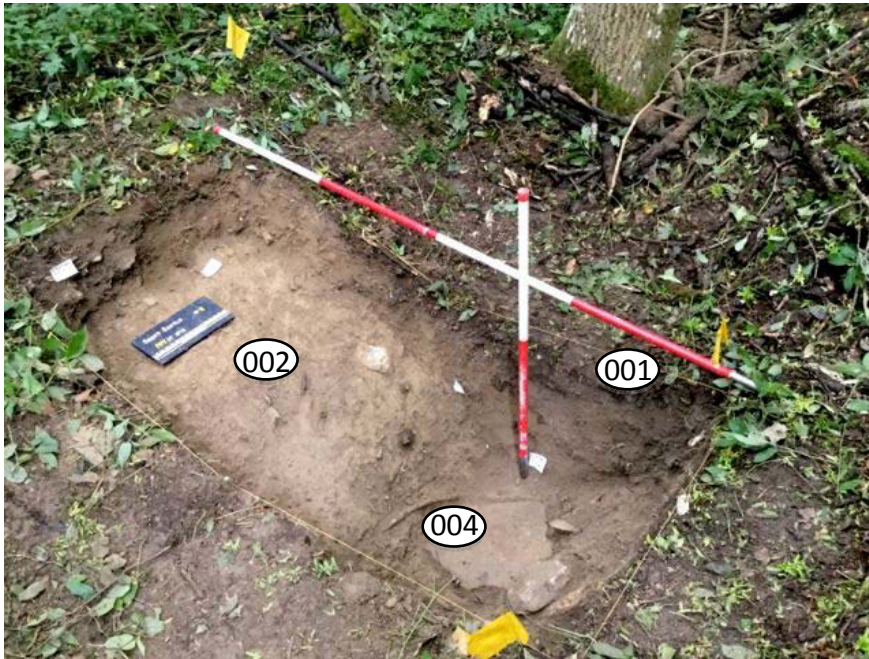


Fig. 54 IP12 looking north east.

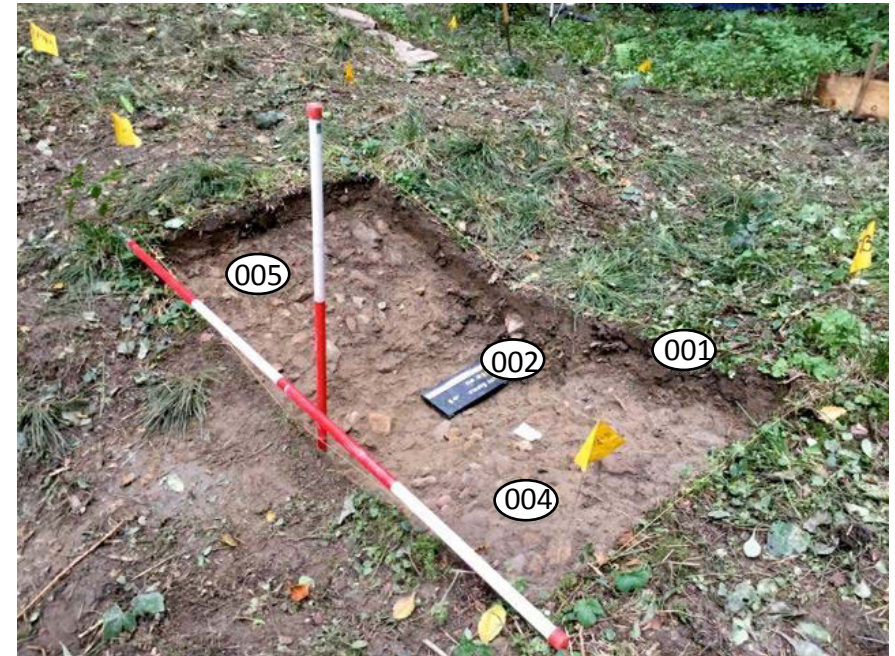


Fig. 55 IP13 looking north west.

Conclusion. Given the course of the ditch, from the south side of the dam round then into the valley below, and that the level of the bottom of the ditch is around 30 cm below the top of the dam there can be little doubt that this was a by pass channel designed to function as a release at times of very heavy rainfall. There was no evidence of a stone lining nor could the site of a possible sluice gate be identified on the surface. It's unusual positioning makes one wonder if it was an after thought perhaps a response to other changes to water flowing over the dam below,

4.7.2 IP13 *Investigate spill way on east side with east west strip to establish previous cut /fill and surface/shape. Trench approximately 1 m x 0.5 m across spill way channel east of culvert.*

This 2m x 1m trench was located on the northern end of the dam at a point where there was a shallow 'V' shaped indentation. This lined up with an 'L' shaped ditch about 5m further south although there was no obvious channel linking the two. Immediately below the dark brown sandy loam (001) were two gently sloping banks of clayey loam with rubble, fragments of brick and roof tile and slag (004 to the east, 005 to the west). This was the first time slag had been seen in the valley. These

deposits were a capping (10cm in depth) above a fine brown silty clay (006) making up the body of the dam. The base of the cut (003) was filled with a shallow deposit of firm brown silty loam (002) (Fig. 55).

Conclusion. The highly unusual deposit of what appears to be industrial waste was viewed as additional make up or capping for the dam. There are considerable traces of stonework showing through the topsoil to the north and west which may be traces of further works associated with this deposit. The declivity which first drew attention to the area may be no more than the result of erosion. The presence of slag is a reminder of the practice in the eighteenth century of decorating grottos with this material. When the adjacent grotto was examined there were no signs that the inside had ever been plastered or decorated although, of course, the material could have been from a now vanished façade as at Enville.<sup>xi</sup>

4.7.3 IP14 *Clean off and reveal extent of cascade on downstream face below rectangular culvert on dam crest on east side, improve upon drawing from 2006 survey to include revealed stonework.*

The whole of the downstream cascade was excavated along with most of the flanking walling, however, as part of the clearance of the culvert on the up stream side it became clear that there were further structures here too and an additional area 2.5m square was opened up (Fig. 56). The dark grey sandy loam topsoil was present across the site at irregular depths ( up to 30cm. in some of the low lying areas, elsewhere it barely covered the stone work ). In places it was mixed with quantities of loose rubble. The most obvious element at the outset were the three very large capstones (002) which closed off the top of the culvert and enabled a walkway along the top of the dam. It is probable that there was a fourth stone, now broken and tumbled to bottom of the cascade (026).

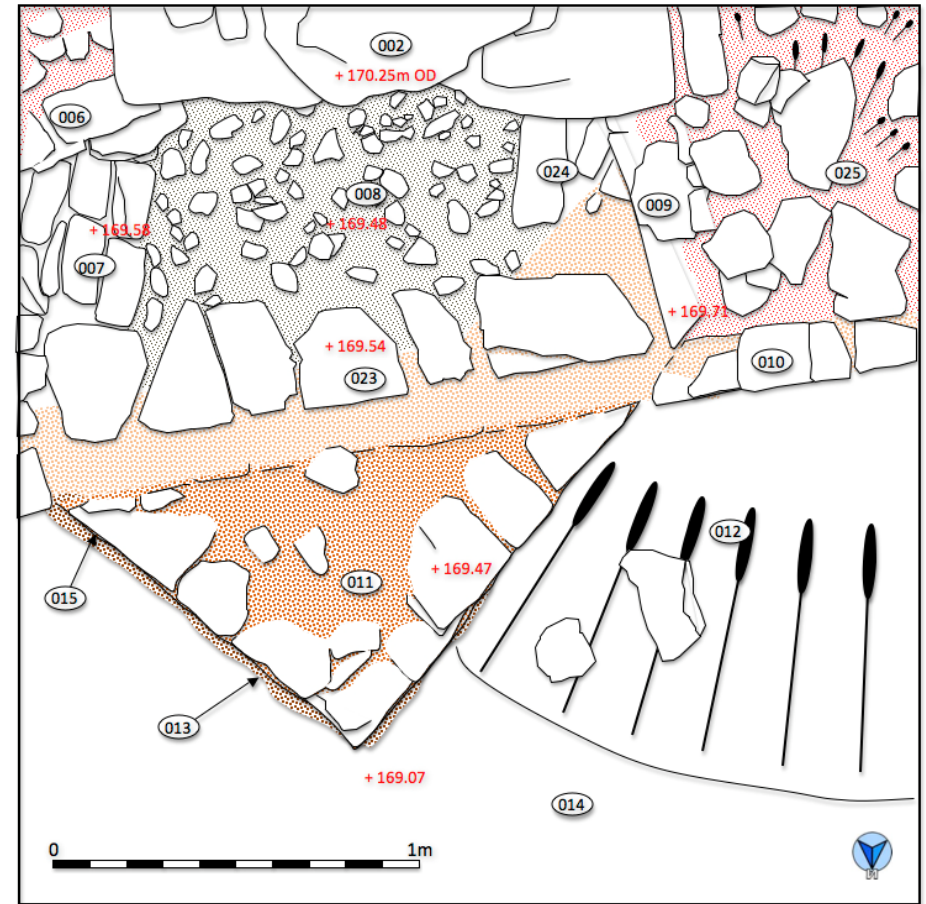


Fig. 56 IP14 Plan of upstream features.

The capstones were supported on two side walls flanking the culvert ( 004 to the south and 005 to the north). These were made with three courses of large blocks with some additional packing below the capstones themselves. The base of the culvert was lined with pitched stones (005) although at one point water had evidently eroded away the



Fig. 57 IP14 Entry to culvert and base of debris catcher looking south.



Fig. 58 IP14 Detail of junction between 009, 010 and 011.

material these stones were set in and some of them had dropped into a void nearly 40cm deep. There are some traces of the pitched stone surface extending out beyond the culvert to the north (007 to the east and 024 to the west) but these are overlaid by the remains of a slabbed surface (023) which presumably extended southwards to the entrance to culvert over a base layer of rubble and mortar (008). Further to the north is a large well built, in stone and a hard pinkish gritty mortar, foundation in four courses (011), almost certainly the base for a debris catcher. The flanking wall to the face of the dam to the east of the opening looks like a rather haphazard repair (006) whilst to the west the wall (009 then 010 along the face of the dam) is well made and clearly also associated with

011 (Fig. 57). The sequence of construction here can be followed in some detail (Fig. 58). The flanking wall (009) goes in first then the side of 011 is brought up against it. The front wall 010 is added and then continued across the top of 011 to establish a base for the slabs (023). It is likely that this is all part of one campaign of construction to insert the debris catcher and strengthen the approach to the culvert. Below the walling to the north is a compact light brown clay bank (012), part of the fabric of the dam and towards the base of its slope it is partially overlain by a deposit of fine grey silty clay (014) presumably some of the original pool bed silting. This in turn is above thin deposits of mortar (014 and 015) arising out of the construction of 011.



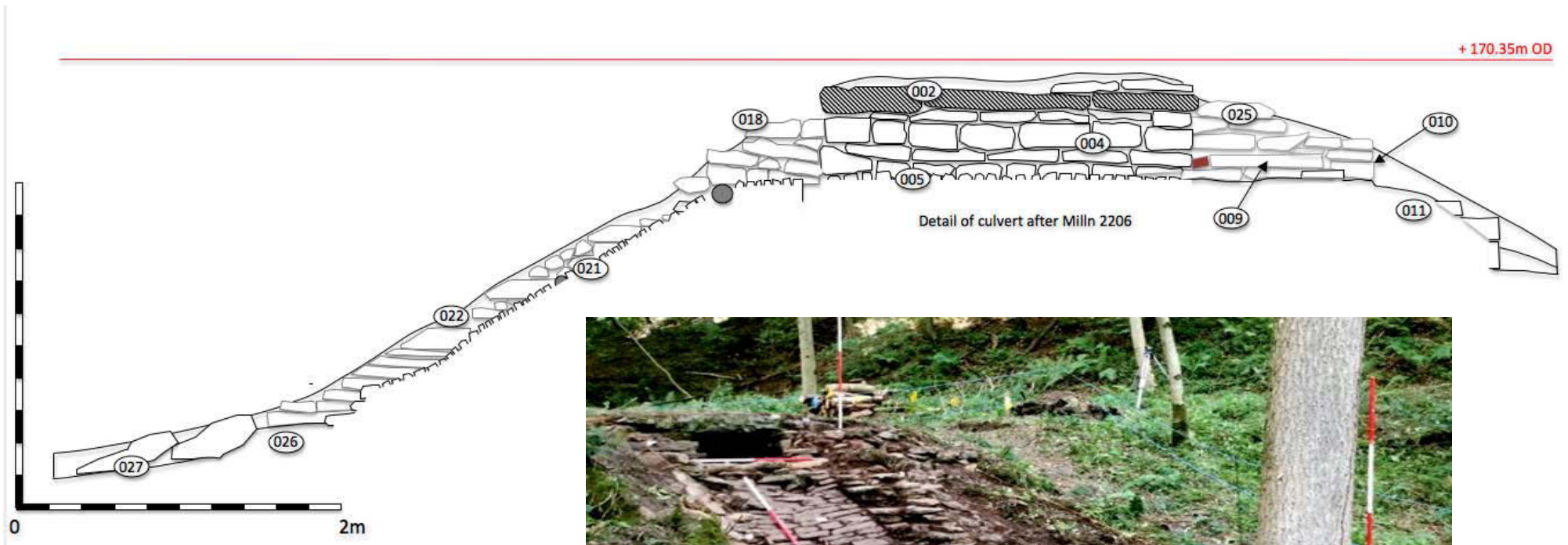


Fig. 59 IP14 culvert and cascade profile.



Fig. 60 IP14 cascade looking north east.

On the cascade side the situation was a little less complex (Fig. 60). The evenly sloping ( around 30 degrees from horizontal) pitched stone face of the cascade ( 021) has suffered some root displacement and there were a number of voids underneath where the substrate had been washed away but generally the condition was good. Roughly built walls edged the crest of the dam (017 to the east and 018 to the west) and may have partially supported the fallen capstone. The side wall to the cascade to the west (022) was particularly well preserved to the point where several examples of shaped stone blocks, cut to echo the line of the fall of the cascade, had survived. The eastern side wall was less well preserved (019). Beyond that a spread of rubble down the face of the dam (020 ) looked purposeful and may have been laid to enhance the rustic surroundings of the cascade. At the foot of the cascade the outgoing channel was lined with stone slabs (026) but much of it was filled by two large stone blocks (027) which on close examination proved to be the two broken halves of what appeared to be an additional capstone fallen down from above.

Conclusion. This well preserved monument was obviously carefully designed and sited to be an attractive element within this 'picturesque' landscape. The view of it from the window in the grotto to the south east is particularly striking (Fig. 61) . It appears that a certain amount of repair was needed on the up stream side and it may be that the original pitched stone front was lost to erosion necessitating repairs and perhaps the addition of the base for a debris catcher which on the basis of parallels from Croome (Fig. 62) and Packwood would have been in the form of an upright fence like iron grid.



Fig. 61 IP14 the cascade viewed from the grotto looking north west.



Fig. 62 The debris catcher, Croome Court park, Worcestershire.

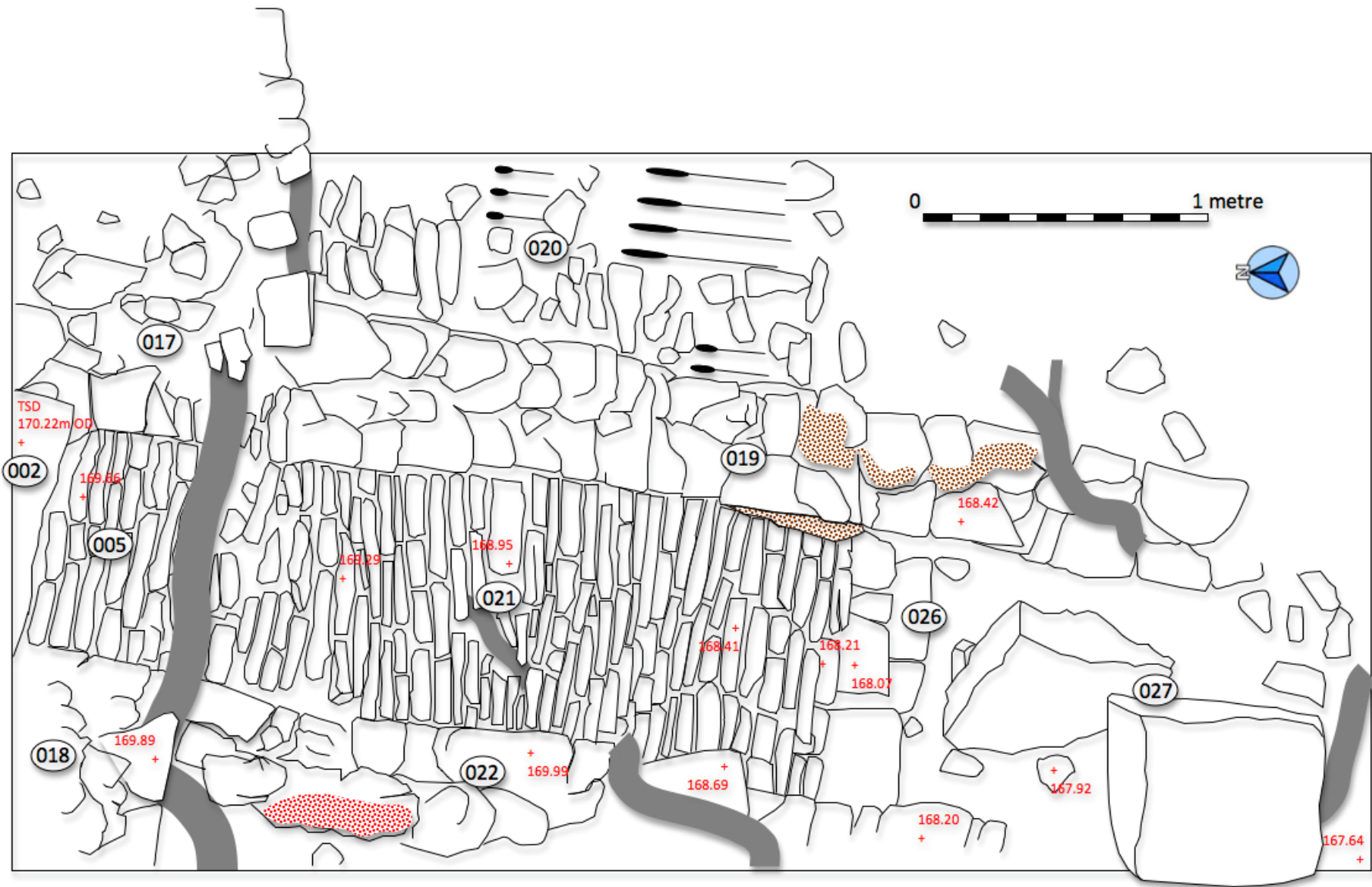


Fig. 63 IP14 Plan of cascade.

4.7.4 IP15 *Low priority look at bricks at base of downstream face in streambed forming weir. Produce interpretation and estimate date of intervention, limited investigation of extent either side.*

Although not initially assigned a high priority this location proved in many ways to be the most complex, challenging and surprising of those examined. Attention was initially drawn to the area because of the presence of a low brick and stone weir across the line of the stream which currently exits through a breach in the dam, partly closed by a modern concrete barrier. Next to it and revealed by clearing the undergrowth were the upper two or three stones of what was seen as a low stone arch for a small culvert. A trench 2m x 1m was laid out in front of this arch and was eventually excavated in places to a depth of nearly 2m. A further area to the west of 2m x 1m was laid out to investigate the possible weir. All of the work was complicated by the presence of the adjacent stream. On the one hand it was important that we did not contaminate it with spoil on account of the population of White Clawed Crayfish but equally we could not allow it to break through into the excavation and flood it.

Once the topsoil, a loose brown silty loam (001) had been cleared a deep deposit of compact brown clayey silt (008) was exposed filling the opening below the arch to a depth of around half a metre. Below that was a similar depth of a darker more compact silt (009). Removal of this enabled an assessment of the character of the arched opening. Above the arch was a thick bank of brown silty clay (002) which formed the body of the dam at this point. The eastern jamb was constructed of very well dressed large ashlar blocks (006) typically in excess of 35cm. Above this were the voussoirs of the arch (003). Only single examples of the facing stones to the opening of the arch survived on top of the jambs, otherwise the front had fallen away and the arch was formed by rough

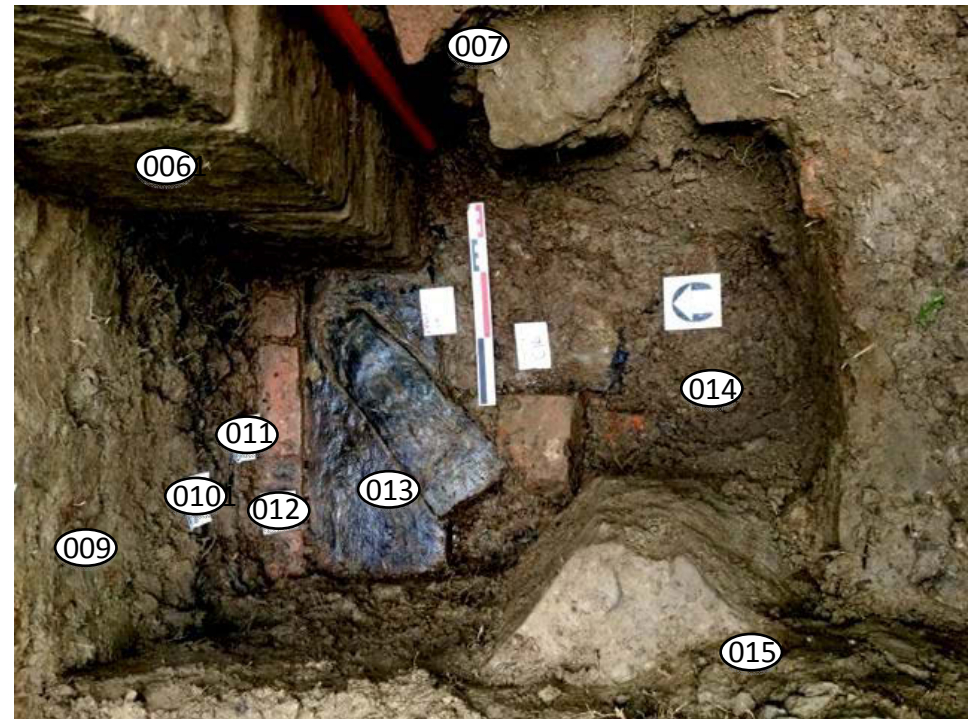


Fig. 64 IP15 vertical view of features at foot of arched opening.

rubble jammed together in the same way as in the pitched stone surfaces examined. The western jamb was offset forward by around 15 cm presumably to improve the stability of the structure on this corner. This may be a partial rebuild in response to later development with the weir to the west. There was some evidence of plaster on the underside of the arch above the west jamb. In order to discover the original height of the arched opening an area roughly 75cm square was stepped down to the base of the wall. This revealed further levels of silting: a thin (5cm) organic layer (010) indicative of stagnant or slowly flowing water, above a more gravelly deposit (011). Below this and the foot of the eastern

Fig. 65 IP15 Elevation of arched opening and weir.

Fig. 66 IP15 Arched opening looking north.

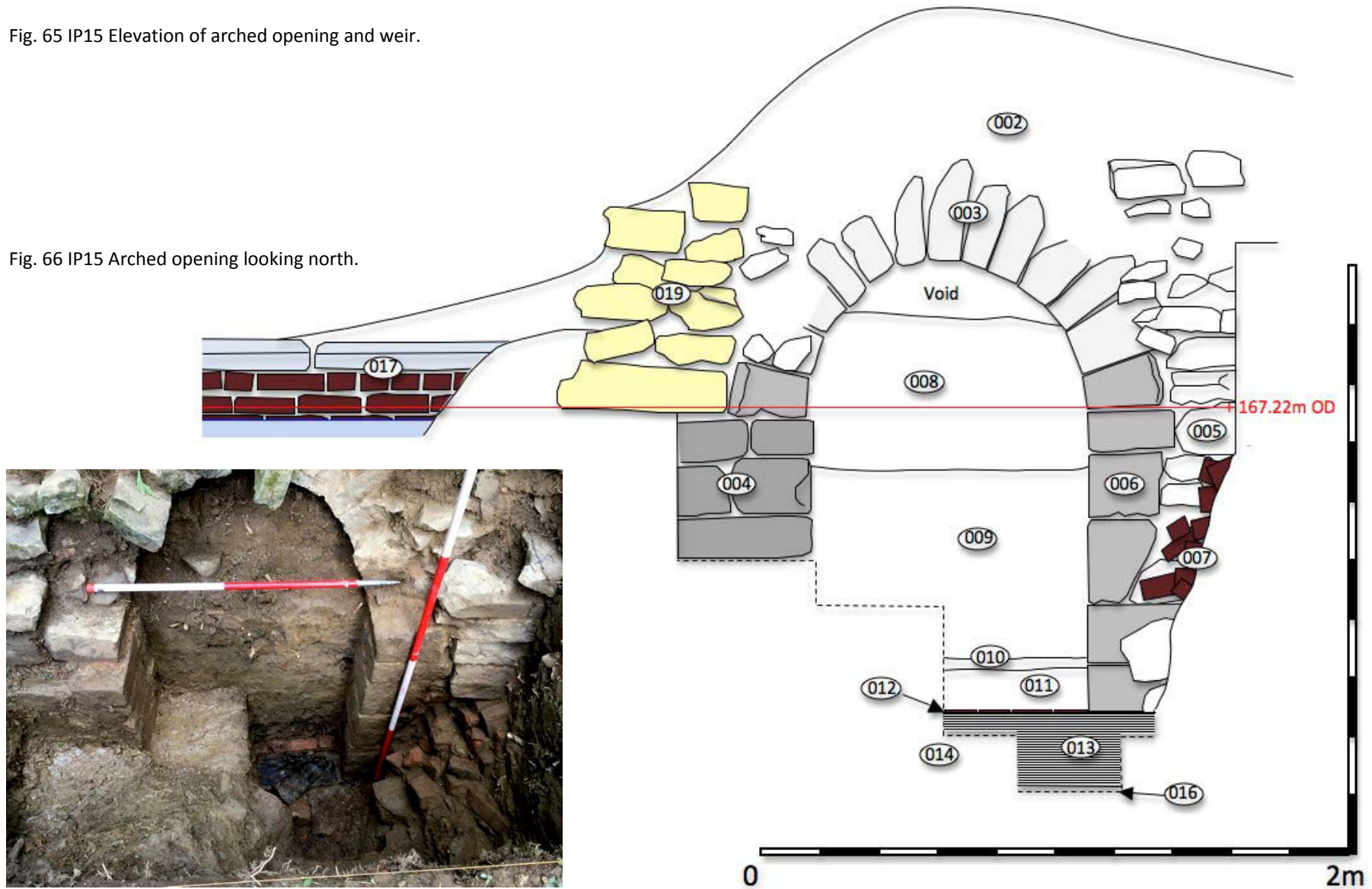
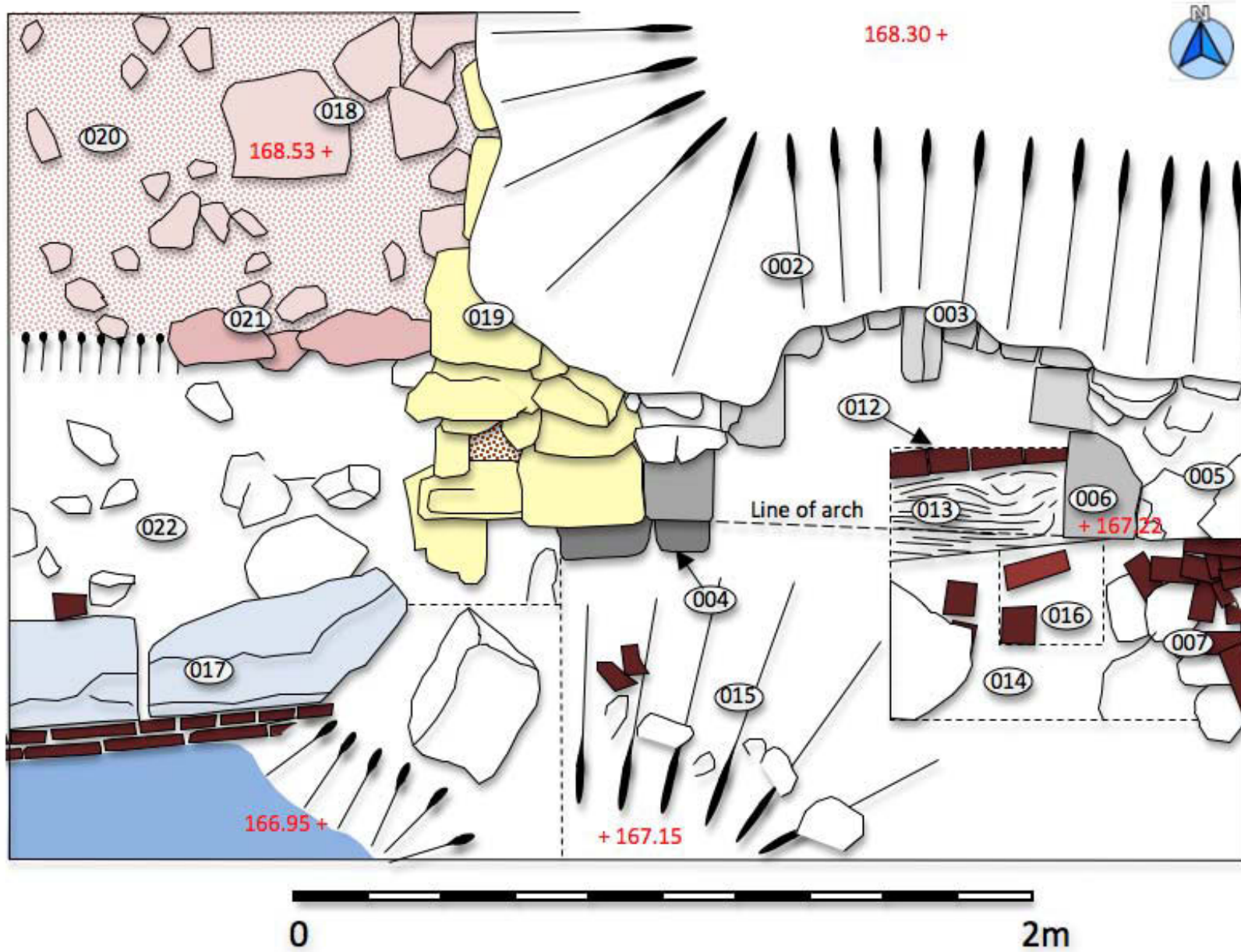


Fig. 67 IP15 Plan.



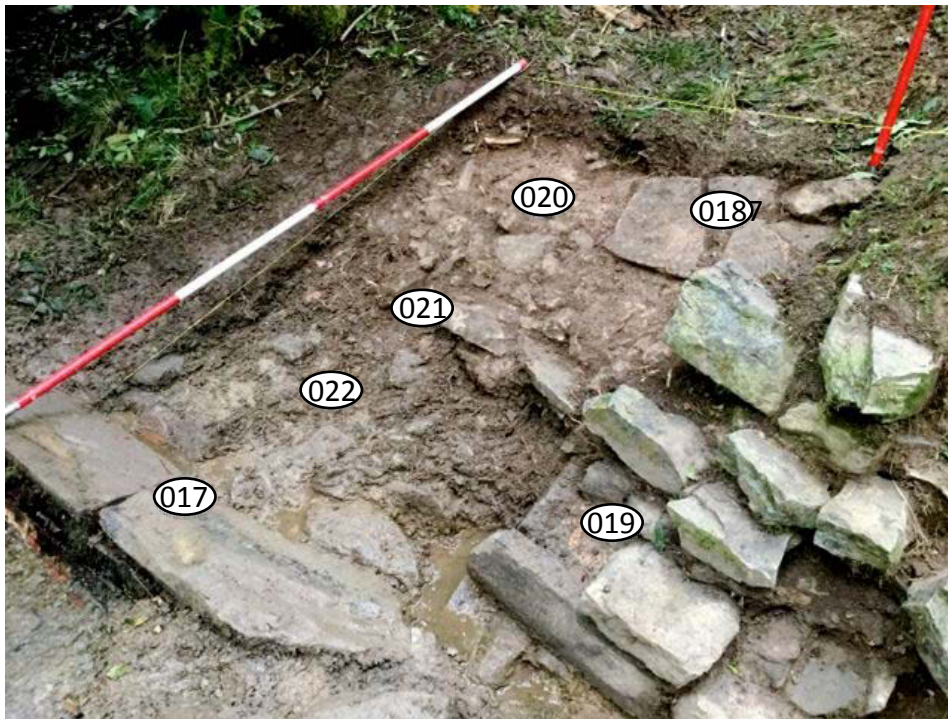


Fig. 68 IP15 Site of spill way and weir looking north west.

jamb was a large timber beam roughly 30cm square, probably oak, which acted as a foundation for the walling but also as a sill for the brick bottom of the tunnel to the north (012). Lying on top of this timber was a loose piece of boarding which when lifted and cleaned bore some scribed markings (FPV17 IP 15 014/1). In front of the beam was an area of silt with rubble fragments (014) and below that a further deposit and grey clayey silt (016) which appeared to seal further brick work, although these could have been bricks simply discarded within the silting. At this depth the excavation was being carried out at arm's length within what was in effect a keyhole so no further progress was possible (Fig. 64).

To the east of the opening was a tumbled mass of loose bricks piling in from the side (007) which rather curiously had then been used as the basis for rebuilding part of the retaining wall to the dam (005). Similarly a mass of rubble including a few brick fragments in a matrix of silty brown clay (015) formed a bank to the south west of the opening. These materials appear to be an attempt to fill the outgoing channel from the arched opening whilst at the same time maintaining its visibility, perhaps for ornamental effect.

To the west the stream was partly bounded by a low brick wall of three courses capped by some large stone slabs (017). This construction steeply sloped backwards, an arrangement which could not have been sustainable without the water rapidly under-mining the bricks. Rather it appears that material, possibly a wall, behind the front edge of the weir was dug out leaving a loose area of sandy loam and rubble (022) causing the leading edge of the weir to subside backwards. Up stream from this was a sloping ramp of mortar and stone fragments (020) edged with some larger pieces of rubble (021). A few surviving slabs along the east side (018) indicates that this ramp could have been paved with flat slabs to create a smooth spill way above the low weir to the south. The existing stream may have eroded away the flanking wall to the west but the eastern wall (019) of random rubble was preserved partly revetting the dam and clearly inserted over the top of the jamb for the arched opening (Fig. 68).

Conclusions. Much debate focused on the exceptional nature of the stonework associated with the archway, much better quality for example than that seen at dam 1 (IP3) or indeed anywhere else in the estate. The fact that this structure has some architectural pretensions lead to speculation that it was of better quality because this part of the valley was particularly dedicated to the creation of an attractive setting.

Functionally it could have acted as a scour tunnel but the possibility exists, especially as it may have been plastered, that the water could have been expressed through some sort of ornamental mask or fountain head as seen at Hafod (Fig. 69).<sup>xii</sup> As the pool is currently drained the possibility exists that remains of the sluice controlling the up stream end of the scour tunnel may still be preserved below the silting in the pool. We may assume that at some stage the tunnel was partially closed and an alternate arrangement bringing the water over the dam via a spill way and small weir was instituted immediately to the west. This failed and has been largely swept away by later flooding.



Fig. 69 The mask fountain at Hafod.

#### 4.7.5 Discussion.

The area around dam 7 ( Fig. 53) contains several notable features and this presumably signifies its primacy as being at the head of a long series of water ways. One feature that is visible due to the absence of water is that there seems to be a smaller pool ‘fossilized’ within the bottom of the larger one. This appears as a low (just over a metre ) but well marked terrace outlining a pool roughly 10m x 5m (Fig. 70). The suspicion exists that an earlier chain of medieval fishponds were a precursor to the later landscape additions and this could be a survivor of that set up.

The earliest map we have, the demesne map from the late eighteenth century, shows the larger pool water filled but as well as the stream that supplies it approaching from the north it also shows a small feeder coming in from the north west which originates in a structure marked as ‘conduit’ (Fig. 72). By 1880 the OS map (Fig. 73) shows the pool to be dry but a small building is marked on the conduit’s site. This may have been a small building, possibly ornamental, built over a natural spring but whatever the case a spread of building debris mainly brick and tile fragments is scattered over the area (Fig. 71).

Water from this source still occasionally flows into the valley at this point past a twentieth-century structure which houses a diesel pump used to fill a reservoir on the top of the hill to the west. There is something of a natural cascade at this point where the water flows over the exposed base rock before entering the former pool.





Fig. 70 Dam 7 looking south with terrace of earlier pool to the right.



Fig. 71 Building debris on the site of the 'conduit'.

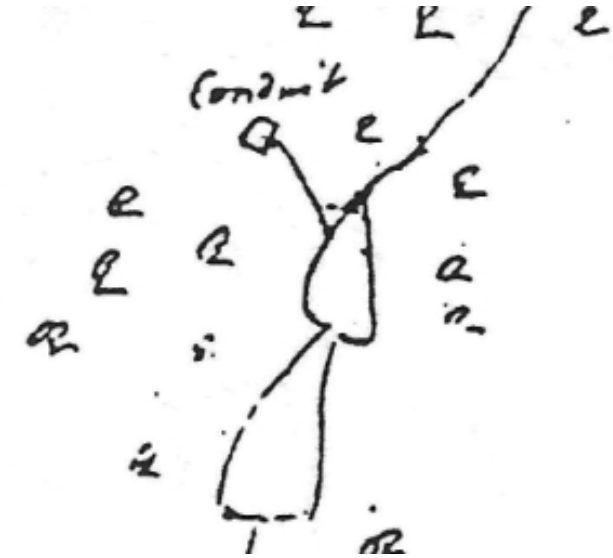


Fig. 72 Extract from the late eighteenth century demesne map.

The complex sequence of construction and repair around dam 7 also perhaps reflects its importance within the overall layout of the park. Absolute chronology is absent ( although its possible that dendrochronology could date the timber beam below the archway) although it is possible to establish a rough sequence with the scour tunnel and cascade being constructed first perhaps at the same time as the grotto. The western by pass channel could have been part of this scheme. Repairs and improvements are made to the inflow on the cascade but then the scour tunnel is blocked at which point the western spill way and weir is inserted at a significantly lower level. The western by pass channel is unlikely to be late if falling water levels became an issue.

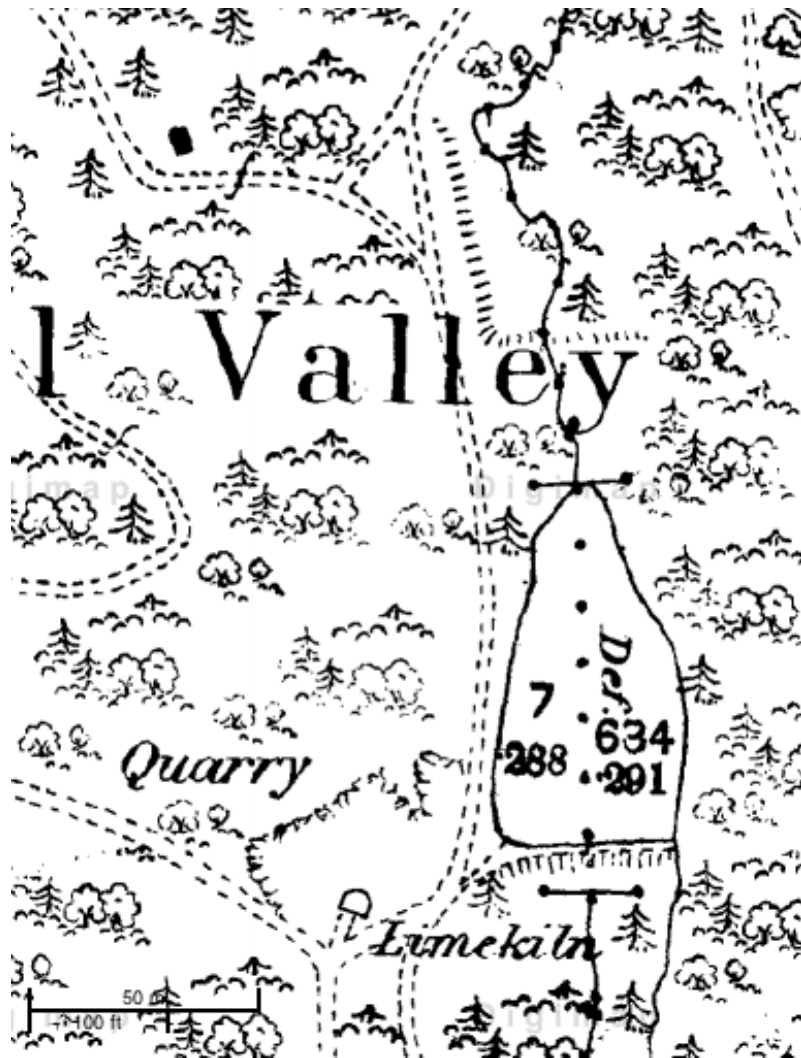


Fig. 73 Pool and dam 6 and sit of pool 7 OS map 1:2500 1880s.

## 5. CONCLUSIONS

5.1.1 It is clear that the normal system of transmission of water down the valley was by a series of by pass channels running along the eastern and northern side of the valley (Fig. 74). Although traces of only two later sluices survive it seems likely that a series of well engineered sluice gates regulated the flow of water on a day to day basis. Spill ways with cascades were seen on four out of the seven dams. Two survive at the head of the valley where the presence of the grotto shows that this was a favoured location for enjoying the picturesque. The example on dam 3 is close to the path and the large spill way on dam 1 seems part of a more structured arrangement designed to signal the start or end of the watery experience. Dam 5 with its pump house and water wheel is perhaps a special case but the implication is that spill ways may yet be waiting to be discovered at dams 2 and 4.

5.2 The restricted size of the gully in the spill way at dam 3 (IP9) suggests that even in its heyday the usual flow of water through the valley was not excessive and so it was probably the case that in normal times the sluices remained closed and the by pass channels were generally dry. However, one can imagine a management regime whereby workers were on hand to open these sluices to divert water along the side of the valley in times of high rainfall. Labour was cheap. Of course such measures could also be brought in should a more lively flow be required to impress spectators walking the valley. It's interesting that the main pathway for close up viewing of the complex is on the side away from the less sightly business of opening and closing the sluices which may have been screened by planting.

5.3 It seems that scour tunnels were not reckoned to be essential components for the management of the pools within the valley and that

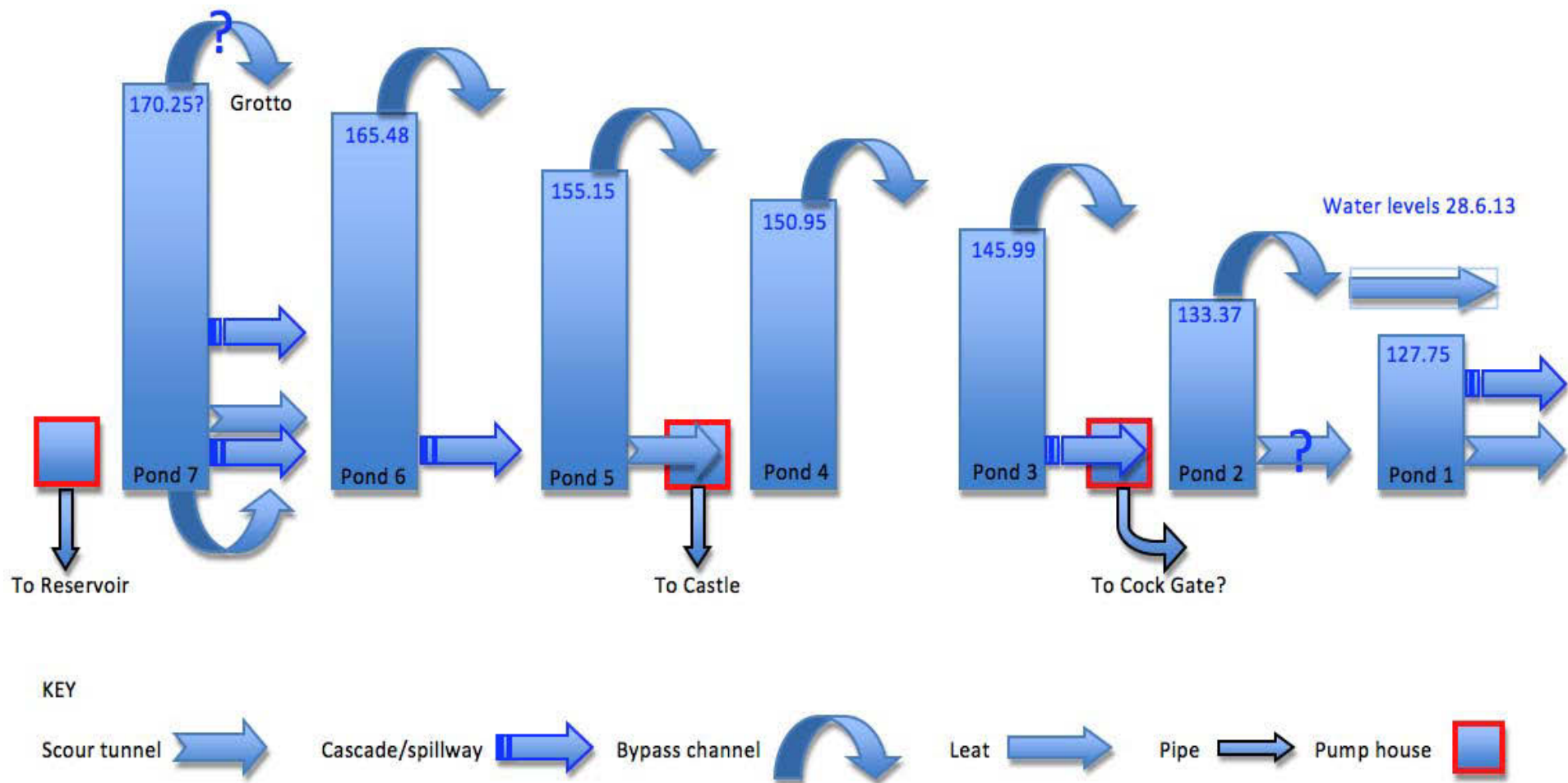


Fig. 74 Water in Fishpool Valley, schematic summary

where they did occur, on dams 7 and 1 they may have been there more as a visual effect to make a statement about the arrival and departure of water from the complex. The possible example at dam 2 with its lack of arched opening may be a later modification.

5.4 Water has been extracted from the valley at a number of points and a number a stages in its history which poses the question as to what was

the relationship between the demands made on water for consumption and the use of water to support the aesthetic and environmental needs of the valley landscape, a balance which may have to be struck within any future management scheme. The only current extraction that takes place is from the concrete tank and pump house above dam 7 where a pump is operated from time to time when the reservoir needs filling. It is important to note that whilst this was going on in late September the

flow of the stream stopped altogether! A major architectural feature within the valley and obviously an important supplier of water for the castle was the pump house situated below dam 5 where presumably if supplies were running short sluices upstream could be opened to top up pool 5. The exact nature of the extraction process below dam 3 remains unclear without further excavation and finally there is the surviving hydraulic ram presumably of the nineteenth century and possibly feeding water to properties to the north east.

5.5 Thoughts about the supply of water immediately make one consider the limited flow of water through the valley today and to what extent it mirrors the arrangement in the park's hey day. It has already been suggested (sections 4.3.4 and 5.2) that the small gully in the centre of the spill way on dam 3 (IP9) gives some idea of the expected amount of water to pass over this dam in normal conditions. A walk up the valley as far as the main source at Whiteway Head (SO4567 6733) reveals a sluggish flow of water in a deeply cut channel which in places seems to have been artificially cut or straightened. This then effectively vanishes underground for a run of around 300m where there is no obvious channel before reappearing just upstream from the site of pool 7.

5.6 Is it possible that more water was around in the valley in the past? A conversation with the operator of the reservoir pump, a task he has undertaken for 30 years, suggested that amounts had been falling consistently over this time. Whereas they had been able to pump for twelve hours or more now the water is exhausted after just a couple of hours. Of course as the valley lies on limestone in a comparatively active seismic region on the line of the Ludlow fault its possible that shifts in the underlying rocks have opened up small swallow holes into which some of water has disappeared. This is likely to be an important issue for future management of water resources in the valley.

## 6. SIGNIFICANCE

6.1 In order to consider the context within which the features in Fishpool Valley were developed it is necessary to examine the historical framework that surrounds the parkland. The Croft family were in residence since at least the time of Domesday. They occupied the site throughout the middle ages and the early modern period until financial difficulties forced Sir Archer Croft to sell the estate to wealthy ironmaster Richard Knight in 1746.<sup>xiii</sup> Despite the possibility that medieval fish and mill ponds existed in the valley and the likelihood that faint earthworks in the vicinity of the castle mark the site of formal gardens from the sixteenth or seventeenth centuries it is assumed that the serious job of remodeling the park took place after this sale.

6.2 The key players in this are likely to be Knight's daughter, Elizabeth and her husband Thomas Johnes. The couple were no doubt much engaged by remodeling the castle in the new Gothick style in the 1760s. Their son, also named Thomas, was brought up at Croft and became a great devotee of the picturesque under the influence of his cousin Richard Payne Knight and his friend Uvedale Price. It seems that Croft was not picturesque enough for in 1782, shortly after inheriting Croft at the age of 32, he moved to Hafod (now in Dyfed) where the landscape was notably more rugged.<sup>xiv</sup> Shortly afterwards, presumably to help with financing the Hafod project, he sold Croft to Somerset Davies a Ludlow mercer and MP for the town. The castellated wall and entry north east of the castle has been ascribed to John Nash who was working locally around 1810 and Mowl and Bradney also suggest that the valley, 'was landscaped in the picturesque style in the early nineteenth century'.<sup>xv</sup> The estate was let out to a variety of tenants through the nineteenth century.

6.3 The archaeological evidence indicates that there were at least two main periods of construction in the valley but in the absence of secure dating evidence it is difficult to ascribe any particular construction to any particular date. One could speculate that major improvements to the landscape could be attendant on the initial purchase of the property by Richard Knight in the mid-eighteenth century or that his nephew, Thomas Johnes II may have been influential in developments in the 1770s before he inherited and moved away. Another impetus to work in the park could have come after the purchase by Somerset Davies in the 1780s although suggestions exist that most work was undertaken early in the next century.

6.4 Arguments for dates on stylistic grounds are equally hard to make. In many ways the features of Fishpool Valley seem more in line with the gentler landscapes of pools and cascades associated with the mid-eighteenth century West Midland gardens of Enville, Hagley and the Leasowes, in particular the cascades leading down to and beyond Virgil's grove at the Leasowes<sup>xvi</sup>. It could be argued that a major source of inspiration was Payne Knight's dramatic park and walks at Downton just west of Ludlow. Work began there from around 1772 so perhaps Thomas Johnes II could have used Croft as try out before moving on to Hafod.<sup>xvii</sup> In terms of the conventional understanding of the picturesque landscape Croft falls rather short. The expected unity of composition leading from the formal terracing to managed park works well but the sublime effect of tumbling waters, if ever present, are hidden from view in the valley.

## 7. EVALUATION

7.1 The task of investigating 16 intervention points in 16 days on site was a challenging one which meant that timetables and logistics had to be carefully thought through but the quality of local volunteers and the

level of co-operation from Trust staff were outstanding. There were a few locations notably IP8 and IP15 where additional excavation would have been desirable but in terms of answering the specific questions posed by the brief virtually all objectives were met. In some cases a photographic record was made where one might have expected a drawing but this was always undertaken with the approval of the project manager.

7.2 Weather conditions were good and virtually no time was lost to bad weather. One factor which led to a degree of time lost was the necessity from time to time to sweep the sites clear of falling leaves. Some time was spent with passing members of the public because of the requirement to share what was going on but this was acceptable as it was a task that was part of the brief.

7.3 The work was out of necessity very tightly focused on the dams and associated features. It is important for a full understanding of the valley to also look in detail at other features: buildings such as the grotto and pump house, paths and track ways, viewpoints and other monuments within the valley. The possibility exists that work along these lines could be undertaken in the future and then used to expand this account.

## 8. PUBLICATION AND ARCHIVE

8.1 As noted above this study would benefit from being placed in a wider context so until further work is completed or passed on to another contractor the archive will remain in the care of Polyolbion Archaeology.

### Acknowledgements:

Imogen Sambrook and Janine Young (National Trust) for support and advice;

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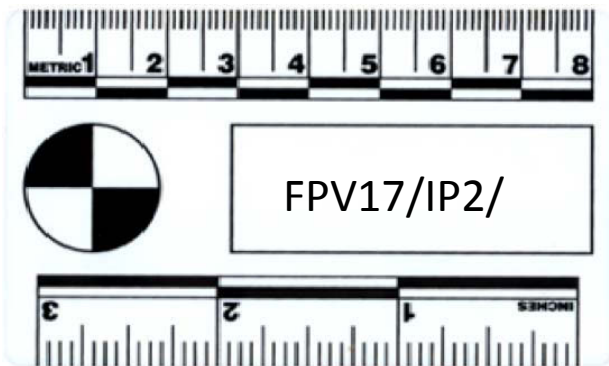
### APPENDICES

#### Appendix 1 Catalogue of Finds

Apart from brick and occasional fragments of tile finds were few on the ground, a point which reinforces the difficulty of dating these structures.

Context	Material	Dimensions (mm)	Weight (g)	Identity	Discussion
IP2/002/1	Glass	42 x 25 x 3 max. thickness	18	Foot of clear glass vessel	Possibly a footed bowl or a glass tripod censer but unusual in that the base has been ground and the foot is hollow
IP2/002/2	Stone	105 x 33 x 37	144	Broken end of scythe stone	Long rounded tapered stone typically used for sharpening sickles/scythes probably late 19 <sup>th</sup> . early 20 <sup>th</sup> . century
IP2/002/3	Lead	270 x 70 x 1.5	268	Large piece of lead sheet	Clipped triangular piece of lead sheet. Lead has not been seen in any other context with the IPs in the valley
IP13/005/1	Slag	45 x 35 x 35	48	Dense tapped slag from puddling furnace	NSC Box 002A *
IP13/005/2	Slag	94 x 64 x 50	211	Iron working slag with some crucible fragments	NSC Box 003D*
IP14/001/1	Slag	108 x 82 x 70	223	Green glassy blast furnace slag	NSC Box 013* These three instances at the east end of dam 7 close to the grotto are the only instances of slag being seen in the valley.
IP14/001/2	Iron	97 x 14 diam. head	22	Hand made nail	Round headed nail with wedge shaped point
IP15/011/1	Wood	308 x 105 x 18	552	Section of adzed plank	Section of plank, probably oak, one face adzed the other with a series of scribed marks, probably used to support other pieces of wood whilst being worked

\* National Slag Collection, Ironbridge Gorge Museums Trust



002/3



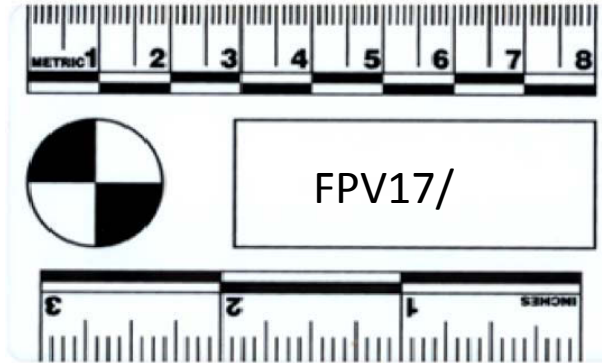
002/1



002/2



IP13/005/1



IP13/005/2



IP14/001/1



IP14/001/2





METRIC 1 2 3 4 5 6 7 8

FPV17/IP15/  
011/1

3 2 1 INCHES



## Appendix 2 Catalogue of Contexts

Construction

Layer

Cut

### IP1

IP1	Location	Descriptor	Length	Breadth	Depth	Colour	Value	Particle size	Structure	Modifier	Compo	Texture	Inclusions	Description	Discussion	Below	Above
001	east face	retaining wall for concrete pipe	2.5		1.6									roughly coursed stone retaining wall in a hard pink mortar slight batter (20 cm in 1 m) top of wall 70 cm below ground level concrete pipe 54 cm diameter	retaining wall similar to wall at north end of dam 2 modern pointing possible reuse of earlier structure		
002	south face	clay capping to dam	7		0.4	light brown reddish	7.5 YR 6/4	Medium	Crumb	Silty	clay	Firm		deposit of clean silty clay	clay capping for dam	004	003
003	south face	gravel and clay bank	7		1.2	brown	5 YR 5/4	Medium	Crumb	Silty	clay	Friable		deep deposit of gravel in red silty clay	make up of dam could be natural?	002	
004	south face	top soil	7		0.4	reddish gray	5 YR 5/2	Medium	Crumb	clayey	Loam	Friable		clayey loam top soil with brambles	top soil		001 002

### IP2

IP2	Location	Descriptor	Length	Breadth	Depth	Colour	Value	Particle size	Structure	Modifier	Compo	Texture	Inclusions	Description	Discussion	Below	Above
001	south edge of trench	wall	5.10	1.10	0.80									wall along south edge of trench up to 10 courses	South wall of spillway		
002	west side	top soil and turf	4.00	1.00	0.15	dark brown dark reddish brown	7.5 YR 3/2	Fine	Crumb	Silty	loam	Loose		fine dark brown loam	Topsoil		
003	west	pebble bank	4.00	1.00	0.60									firm silty loam bank with frequent rubble inclusion			
004	north side of wall 001	pitched stone surface	1.25	0.70	0.15									pitched stone surface attached to north side of wall 001		002	001
005	west	stone wall N to S perpendicular stone wall to 005	6.00		0.80									stone wall cutting across E to W wall adjacent to cascade			006
006	west		6.00	0.80	0.35									continuation of wall 001		002	005
007	west of wall 005	paved stone surface	4.00											paved stone surface with white and orangey mortar made for cascade			005 006
008	north west corner	cut for modern drainage pipes	0.50	0.15	0.35									steeply sloping cut	cut for large modern drainage pipe	001 009	010
009	north west corner	fill of cut for drainage pipes	0.40	0.15	0.40	dark brown	7.5 YR 3/2	Medium	Crumb	Silty	Loam	loose		loose loamy fill mixed with some clay and stone lined with plastic sheeting	fill of cut for modern drain pipes	001	008
010	western half of trench	red gravel bank	3.50	2.00	0.55	weak red dark yellowish brown	2.5 YR 4/2	Fine	Crumb	Sandy	Clay	Hard		compact bank of red gravel rising to peak 1.45 m from western edge of trench	repair and raising of dam filling in earlier spill way and sealing wall 001	003	001 011
011	west end of trench	clay bank	2.00	0.50		yellowish brown	10 YR 4/6	Medium	Block	Silty	Clay	Soft		bank of yellow clay against face of wall 001 drops away markedly towards east	possible eroded. clay base to channel ?	010	001
012	south of wall 001	clay capping to crest of dam	3.50	1.00		yellowish brown	10 YR 5/4	Medium	Crumb		Clay	Friable		yellowy clay makeup to dam	make up	010	001
013	east end of 001	clay base for pitched stone surface	8.00	0.40		dark greyish brown	2.5 YR 4/2	Medium	Block		Clay	Friable		Greyish brome clay	base for pitched stone surface	004	001

### IP3

IP4	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001		retaining wall	6	0.54	3									battered stone retaining wall roughly 25 rough courses to deepest point some evidence of repair to upper left hand part lowest course recessed back 5 cm above lintel to channel	retaining wall above drain to pool 2	002 003	
002	east of wall	top soil mixed with rubble	2	1	0.35	grey	6.5 YR 6/1	Fine	Crumb	Silty	Loam	Loose	Rubble	loose mix of top soil fallen branches and rubble filling channel to E of wall			001 003
003		compact silty gravel	1.5	1		reddish yellow	7.5 YR 6/6	Fine	Crumb	Silty	gravel	Firm		compact layer of hard silty gravel	silting of channel and drain some concretion	002	001

### IP4

IP4	Location	Descriptor	Length	Breadth	Depth	Colour	Value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001		retaining wall	6	0.54	3									battered stone retaining wall roughly 25 rough courses to deepest point some evidence of repair to upper left hand part lowest course recessed back 5 cm above lintel to channel	retaining wall above drain to pool 2	002 003	
002	east of wall	top soil mixed with rubble	2	1	0.35	grey	6.5 YR 6/1	Fine	Crumb	Silty	Loam	Loose	Rubble	loose mix of top soil fallen branches and rubble filling channel to E of wall			001 003
003	east of wall	compact silty gravel	1.5	1		reddish yellow	7.5 YR 6/6	Fine	Crumb	Silty	gravel	Firm		compact layer of hard silty gravel	silting of channel and drain some concretion	002	001

### IP5

IP5	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	E side of trench	Retaining wall	6	0.54	3									see IP 4 roughly constructed top no sign of lip of channel for cascade, stones angular and sharp edged		002 003	
002	west of wall	top soil clay make-up behind wall	2.5	1	0.15	brown	7.5 YR 5/2	Fine	crumb	Clayey	Loam	loose		dark clayey loam	top soil		001 003
003	west of wall	clay make-up behind wall	2.5	1		brown	7.5 YR 5/4	Fine	crumb	Silty	Clay	Firm		fine light brown silty clay	make-up behind dam	002	001

### IP6

IP6	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	overall	top soil	2	1	0.1	reddish grey	5 YR 5/2	Medium	Crumb	Silty	Loam	loose		loose dark loam	top soil		002
002	overall	band of red clay light clay makeup of dam	2	1	0.2	red	2.5 YR 5/6	Fine	block		clay	Firm		deposit of red clay tailing away towards the east	clay capping to dam possible response to erosion	001	003
003	overall	light clay makeup of dam	2	1		brown	7.5 YR 5/2	Medium	Crumb	Silty	clay	Friable		thick deposit of light silty clay	make up of dam	002	

**IP7**

IP7	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	overall	Topsoil	1	0.5	0.2	dark brown	7.5 YR 3/4	medium	Crumb	silty	loam	loose	rubble	tangled mass of roots and rubble in matrix of topsoil	topsoil		002
002	overall	Dump	1	0.5		very dark grey	7.5 YR 3/1	fine	Crumb	silty	loam	loose	rubble	dark loam matrix containing large amounts of mid-twentieth century domestic debris mainly china and glass	Dump of domestic debris	001	

**IP8**

IP8	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	east corner	stone wall	0.85	0.38										roughly constructed wall with angular stones	possible jamb for entrance	005 006	
002	south east and south west sides	stone wall on two sides	1.78	1.6										roughly constructed wall with angular stones	stone wall forming enclosure for possible room or grotto supporting brick arch	005 006 007	
003	west side	rubble layer	1.8	0.5		dark brown	7.5 YR 3/2	Fine	Crumb	clayey	loam	Soft	Rubble	dark brown layer of clayey loam with > 50% inclusion of angular rubble	collapsed rubble	005	004 013
004	west side	layer of brick and mortar rubble	1.4	0.39	0.5	very dark grey	7.5 YR 3/1	Fine	Crumb	silty	loam	Soft	Rubble	layer of rubble with thick red brick and pale orangey mortar brick: width 0.10 depth 0.09 length 0.20 some angular stones	rubble coming from collapsed arch	003 005	002 010 013
005	overall	top soil	3	2.5	0.15	dark brown	7.5 YR 3/2	Medium	Crumb	Loamy	Sand	Friable		Dark friable loamy sand	topsoil		001 002 003 004 006 007 008
006	south east and south west sides	sub soil	3	2.5		brown	7.5 YR 4/2	Medium	Crumb	clayey	loam	Soft	rubble	sub soil makeup with rubble inclusion	sub soil	005	007
007	south west	brick arch	2.15	1.39	0.4									Line of mortared bricks projecting out at south corner for 5 courses	remains of arch of red brick resting on stone wall 002	006	
008	centre	filling of enclosure	1.78	1.6	0.45	brown	10 YR 4/3	Fine	Crumb	Sandy	Silt	Firm	Rubble	Fine brown sandy silt with rubble	Fill washed down from surrounding banks	005	002 004 010
009	north east corner	layer of rubble next to 001	0.54	0.18	0.5	very dark grey	7.5 YR 3/1	Medium	Block	Silty	Clay	Firm	Rubble	Rubble in matrix of silty clay	collapsed layer of rubble	005 008	010
010	within structure	Very compact sandy rubble	1.5	1.5		Light yellowish brown	10 YR 6/4	Fine	Crumb		Sand	Hard	Rubble	Deep deposit of packed rubble < 10 cm in sandy matrix occasional brick fragments	Material filling structure possibly brought in and dumped	008	002 013
011	Test pit to north	Topsoil	1	1	0.4	Brown	7.5 YR 4/3	Fine	Crumb	Clayey	Loam	Firm		Clean silty loam	topsoil		012
012	Test pit to north	Sub-soil	1	1		Light brown	7.5 YR 6/4	Medium	Crumb	Silty	Not Sel	Firm	Rubble	Compact light brown subsoil	Subsoil natural?	011	
013	north corner	Stone wall	0.6	0.6										Rubble pillar with internal angle	corner of building with openings to north east and north west	003 008	

## IP9

IP9	Location	Descriptor	Length	Breadth	Depth	Colour	Value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	Overall	Topsoil	3.75	2.75	0.2	Dark grey	7.5 YR 5/1	Medium	crumb	Silty	Loam	loose		Dark loam	Topsoil		002 003 004 005 006 007
002	N side	Yellowish clay make up	3	1.5		Yellowish brown	10YR 5/4	Medium	Block	Silty	Not Sel	Firm		Deposit of light yellowish clay	Make-up / bedding below spill way 004	001 004 005	
003	SW corner	Tumbled bricks in loam	0.75	0.6	0.45	Grey	10YR 5/1	Medium	crumb	Clayey	Loam	loose	Brick	Tumbled pile of bricks and mortar	Filling of channel / hard core for dam top walk recycled from roof of IP8?	001	002
004	North side	Spill way with gulley	2.5	1.5	0.4									12 or so courses on longitudinally laid pitched stones, central two courses dropped by 5 cm to create gulley which ends with larger oblong block flanked by two end stones on edge	Overspill from pool with central spill way terminating in small cascade	001	002
007	West end	Pool side wall	2	0.6	0.4									5 or more courses of thin rubble slabs	Blocking wall to spillway	001 010 001 010	008 009
008	West end	Spillway south wall	1	0.5	0.3									3 courses of rubble slabs	South wall of spillway	007	012
009	West end	Spillway north wall	1	0.5	0.3									3 courses of rubble slabs	North wall of spillway	001 010 007	012
010	West end	Clay packing	1.4	0.6	0.35	red	2.5 YR 5/6	Fine	block		clay	Firm		Dense hard red clay	Water proof packing behind blocking wall	001 012	007 008 008
011	North side	loam with rubble	0.75	0.65		brown	7.5YR 4/2	Medium	crumb	clayey	loam	loose	rubble	Loose brown loam with stone fragments	debris from removal of flanking wall to spillway	001	004
012	West end	Spillway with stone setts	1.2	0.6										Pitched stone base of spillway stones set across width of channel	Spillway to edge of pool, stones removed towards western edge for insertion of blocking wall 007	010	012
013	South side	Cut for channel	4	2	1.8									Steep sided cut for U shaped channel running further east for about 8m	Channel associated with sunken building at IP8?		002 005

## IP10

No contexts

## IP11

IP11	Location	Descriptor	Length	Breadth	Depth	Colour	Value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	overall	topsoil	2	1	0.15	dark grey	7.5YR 4/1	medium	crumb	sandy	loam	loose		dark grey loose sandy loam	topsoil		002 003
002	east end	silty clay	1.4	1		light brown	7.5YR 6/4	fine	crumb	silty	clay	firm		dense light brown silty clay	make-up of dam	001 003	
003	west end	gritty loam	1	0.6		light reddish brown	5YR 6/4	medium	crumb		loam	friable	gravel	Reddish brown gritty loam	Silting from water flow	001	002

## IP12

IP12	Location	Descriptor	Length	Breadth	Depth	Colour	Value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	overall	Topsoil	2	1	0.3	brown	7.5YR 4/2	Medium	Crumb	Silty	Loam	Friable		Loam and leaf mould becoming drier and more silty with depth	Topsoil		002 003 004
002	east end	Natural silty clay	1.2	1		reddish yellow	7.5YR 6/6	Medium	Block	Silty	clay	Firm		Thick deposit of light silty clay. Shallow sloping cut steepening and deepening towards centre	Natural silting within valley. Ditch to accommodate overflow from pool to north	001 003 004	
003	Centre	Cut for channel	1	2	0.6											001	002
004	Centre	Fill of channel	2	2	0.25	brown	7.5 YR 5/4	fine	crumb		silt	firm		Fine brown silt	Silting	001	002

## IP13

IP13	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	Overall	Topsoil	2	1	0.1	Dark brown	7.5YR 3/2	Fine	crumb		Loam	Firm		Fine dark loam; few stone fragments	Topsoil		002 003 004 005
002	Centre	Silty fill of ditch	1	1	0.2	Brown	7.5YR 5/3	Very fine	crumb	Silty	Loam	Firm		Clean silty loam	Lower portion of fill of ditch	001	004 005
003	Centre	Shallow cut	1	1	0.5									Shallow 'V' shaped cut	Cut running N - S across crest of dam ? Temporary overflow channel? May relate to 'L' shaped ditch to south	001	004 005
004	E half of trench	capping for top of dam	1	1	0.15	Brown	7.5YR 4/3	Medium	crumb	clayey	Loam	Firm	Rubble	Mixed deposit of clayey loam with small < 10cm rubble 20% some brick and tile	capping / consolidation of E end of dam	001 002 003	
005	W end of trench	capping of top of dam	1	1	0.1	Brown	7.5YR 5/4	Medium	crumb	clayey	Loam	Firm	Rubble	Mixed deposit of clayey loam with rubble 10% and tile brick 5% with slag	capping / consolidation of dam material derived from industrial source?	001 002 003	
006	Overall	make-up of dam	2	1		Brown	7.5YR 5/4	fine	crumb	silty	loam	firm		Clean compact silty loam	make-up of dam	002 003 004 005	

IP14

IP14	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	Overall	Turf and topsoil	9.5	2.5	0.4 max	Dark brown	7.5YR 3/2	Coarse	Crumb	Silty	Loam	Soft	Rubble	Mixed dark silty loam under mainly grass	Turf and topsoil		All
002	N of centre	Capstones to culvert	2.7	1.6	0.15									Three massive capstones below thin covering of topsoil to centre laid on supporting side walls of culvert	Capping for culvert to take overspill from pool may have been two stones wider originally. Two large stones tumbled to foot of cascade to south may have been part of capping	001	003 004
003	NW of centre	W wall of culvert	2.8	0.4	0.3									Three courses of roughly dressed stone in a fine reddish brown mortar largely washed away	W wall of culvert appears to have been remodeled at N ( upstream end )	002 005 009	
004	NE of centre	E flanking wall to culvert	2.8	0.4	0.3									Three courses of roughly shaped stone in fine reddish brown mortar	E wall of culvert	001 002 005 006	
005	Centre	Pitched stone surface at base of culvert	2.7	0.75	0.2									Level surface of pitched stones typically upper face 30 x 10 cm set across flow of water; no trace of mortar large void underneath into which a few stones towards south east corner have dropped.	Pitched stone base to channel	001 008	003 004
006	E of N end of culvert	Stone revetment wall	0.65	0.4	0.4									Roughly constructed wall with large rounded or irregular stones two courses visible additional upper course lost set in hard sandy buff mortar	Flanking wall to opening of culvert later repair alteration	1	003 007
007	E of N end of culvert	Remains of pitched stone surface	0.6	0.4										Pitched stone surface revetting north sloping face of dam	Pitched stone surface partly revetting dam partly channeling water into culvert relationship with 010?	001 006 008	
008	N of N end of culvert	Small rubble in loam	1	0.6		brown	7.5 YR 5/3	Fine	Crumb	Silty		Loose	Rubble	Loose deposit of small (< 10 cm) rubble (80%) in silty loam	Possible base for slabs not water resistant as it stands	001	005 007
009	W of N end of culvert	Flanking wall	0.85		0.16									Low flanking wall of two courses ( third upper course probably missing ) of well cut stone single brick incorporated at S end Cut angle at N end corresponds with line of W face of 011	Flanking wall part of later remodeling of entry to culvert	023	004
010	W of N end of culvert	Retaining wall for north face of dam	0.7	0.2	0.3									Low retaining wall of up to 5 courses, well cut blocks end shaped to butt up against 011	retaining wall for north face of dam installed after debris catcher	001 012 023	011
011	N of N end of culvert	triangular stone foundation	1.8	0.8	0.4									Triangular stone foundation up to 5 courses well cut and laid stones in a pinkish gritty mortar	Base for debris catcher probably carried iron fencing with closely spaced vertical bars. Later addition to cascade	012 013 014 015 023	010
012	NW of N end of culvert	clay bank	1.2	1.2	0.4	Light brown	7.5YR 6/4	fine	crumb	silty	clay	compact		firm clean light brown clay bank	Body of dam partly piled against face of wall	001 014	010 011
013	Edges of 011	Mortar deposit	2	0.02	0.1									Thin layer of hard pinkish gritty mortar pressed against face of wall 011	Left over mortar from construction of wall	012 014	011
014	N edge of trer	Silty clay	2.5	0.8		grey	7.5YR 6/1	fine	plate	silty	clay	firm		Fine grey silty clay	Pool based deposit	001	012 011
015	Below NE corner of 011	Mortar deposit	0.45	0.02	0.2									Thick deposit of mortar packed under base of wall 011	Part of foundations of 011	011 012	

015	Below NE corner of 011	Mortar deposit	0.45	0.02	0.2									Thick deposit of mortar packed under base of wall 011	Part of foundations of 011	011 012	
017	E of S end of culvert	Remains of retaining wall	0.8	0.65	0.35									Tumbled stone blocks, some still coursed or in alignment	Subsided remains of retaining wall to south face of dam	001 020	019
018	E of S end of culvert	Retaining wall	0.7	0.55	0.4									Three courses of large stone blocks	Retaining wall to south face of dam plus support for tumbled cap stone	001	022
019	E side of cascade	Flanking wall	4.2	0.4	0.3									Stepped wall of two to three courses running down slope on east side of cascade	Flanking wall	001 017 020 005	
020	E side of cascade	Stone facing to bank	2	0.8		dark brown	7.5YR 3/2	medium	Crumb	sandy	loam	loose	rubble	Numerous stone slabs pressed into matrix of loam	Stones laid on face of bank 'rockery' like	001	017 019
021	centre of cascade	Pitched stone surface	2.3	1	0.3									Pitched stone sloping face of cascade, some root damage and occasional voids but largely intact	Face of cascade	001	019 022
022	W side of cascade	flanking wall	3.5	0.4	0.35									Stepped wall of two to three courses running down slope on west side of cascade. Some stones have sloping tops cut to match fall of cascade. Mortar shaped to give rounded profile to top of rear of wall	Flanking wall	001 018 023	
023	N of culvert	Slabbed surface	1.6	0.3	0.05									Line of thin stone slabs across exit from culvert	Remains of secondary stone slabbed approach to culvert	001	008 009 011 024
024	NW of culvert	Pitched stone surface	0.4	0.3										Small area of pitched stones	Remains of earlier pitched stone surface	001 008 009 023	
025	NW of culvert	Rubble and mortar bank	0.8	0.7										Bank of irregularly spaced rubble set in mass of pinkish mortar	Consolidation of bank above walls 009 and 010	001	009 010
026	S of end of cascade	Stone channel bottom	0.3	1										Area of flat rounded slabs extending south past base of cascade	Stone base to out flowing channel, only partially cleared	001 021 027	019 022
027	S end of cascade	Broken capstone	1.1	0.6	0.3									Two large tumbled blocks of stone	Matching edges show once single piece, tumbled capstone once part of 002	001	022 025



IP15

IP15	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	Overall Above archway	Topsoil	3.5	1	0.15	Dark brown	7.5YR 3/2	Medium	crumb	Silty	Loam	loose		Loose dark brown clayey loam	Topsoil		002 017 018 019 020 021 022
002	Centre	Subsoil	2	1	0.8	brown	7.5YR 5/2	Medium	crumb	silty	clay	firm		Silty clay subsoil	Make up of dam	001	003 019
003	W of arch	Arch	1.4	0.4	0.5									Roughly shpd stones set to form an arch	Roof of tunnel	002	004 005
004	E of arch	W abutment to arch	0.4	0.4	0.6									Well dressed stone blocks (4 courses seen offset by 15cm from front of arch	Abutment / jamb for arch, added strengthening for corner	003 008 019	
005	E of arch	Rebuilt wall	0.2		0.8									Roughly bulky retaining wall, few slabs projecting out from original face of wall set on 007	Repair to revetment wll on S side of dam	001 002 003 005 007008	006 007
006	E of arch	East abutment of arch	0.3	0.25	1									Six very well shaped and dressed stone blocks including first voussoir of face of arch	E jamb of arch	009 010 011	013
007	E of arch	dump of brick	0.45	0.4	0.5	reddish brown	5YR 5/3	Medium	crumb	clayey	loam	loose	brick	Tumbled mass of brick tipped in from E side, some rubble to base	Filling in of channel from tunnel?	001 005 008 009	014
008	Below arch	upper portion of silting	1		0.5	light brown	7.5YR 6/3	fine	crumb	clayey	silt	compact		Fine light brown clayey silt	Last pahse of silting up of tunnel		004 006 009
009	Below arch	Lower portion of silting	1		0.6	brown	7.5YR 4/3	Medium	plate	silty	clay	compact		Darker silty clay	Intermediate phase of silting	008	004 005 010
010	Below arch	Thin layer of organic silting	1		0.05	Dark grey	7.5YR 4/1	Medium	crumb	silty	loam	soft		Dark silty loam, large organic componant	Silting under conditions of stagnant water	009	006 011
011	Below arch	Gritty silting	1		0.2	reddish brown	2.5YR 5/4	medium	crumb	silty	clay	soft	gravel	Silty clay with gravel	Silty under conditions of running water	010	006 012 013 014
012	Below arch	Brick paving	0.45	0.1	0.02									Line of 4 bricks	brick base of tunnel?	011	013
013	Below arch	Timber sill beam	0.65	0.3	0.3									Massive timber beam probably oak	Foundation beam for arch, sill for channel	011 006 014	016
014	Below arch	Grey clay	0.6	0.4	0.2	dark reddish grey	7.5YR 4/1	fine	plate	silty	clay	firm		Grey silty clay	Channel fill beyond arch	007 011	013 016
015	SW of arch	Rubble bank	0.9	0.8	0.75	brown	7.5YR 5/3	medium	block	clayey	loam	hard		Bank of mixed rubble in brown clayey loam tipped from SW	Material dumped to fill in channel cf. 007	001 009	011
016	Below arch	Clay and gravel	0.3	0.3		very dark grey	7.5YR 3/1	fine	plate		clay	hard		Grey gravelly clay	Early silting of valley, pre-construction?		014
017	SW corner	Brick and stone weir	0.85	0.45	0.3									Three courses of brick work topped by shaped stone slabs all tilted backwards to N	Later weir to slabbed spillway	001 022	
018	NW corner	Remains of stone paving	0.6	0.45	0.1									Small number of split stone slabs in hard buff mortar	Remains of stone slabbed surface to weir	001	019 020
019	W of arch	Flanking wall to weir	1.25	0.6	0.75									Roughly built stone wall some large blocks	flanking wall to spillway	001 002 018 020	004
020	NW corner	Mortar bedding for stone slabs	1.2	0.9		light reddish brown	2.5YR 6/4	medium	crumb	sandy	loam	loose		Surface of stone fragmenst set in distrubed marix of loam and mortar	Remains of bedding for slabs	001 018	021
021	W side	stone edging	1.2	0.2	0.15									Small number of rough moatared blocks in line defining edge of 020 line extended by shallow scarp slope	Part of structure of spillway	001 020 022	
022	SW corner	Rubble in loam	1.2	0.65		reddish brown	5YR 5/4	medium	crumb		loam	loose	rubble	Rubble in loose loam	Disturbed ground, possible result of robbing material from behind weir	001	017 021

IP16

IP16	Location	Descriptor	Length	Breadth	Depth	Colour	Colour value	Particle size	Structure	Modifier	Compos	Texture	Inclusions	Description	Discussion	Below	Above
001	Centre	Pitched stone surface spillway	2	1.1										Gently sloping surface of pitched stones running across the width of the channel, NW corner disturbed by tree roots	Spillway, associated with lower dam or appearing from culvert. Dam raised recently	004 006	002 003
002	East side	East flanking wall to spillway	2	0.45										Row wall of two courses along E side of spillway	Retaining wall for spillway	001	
003	South end	Pitched stone surface face of cascade	0.4	1.1										Pitched stone surface with a number of large faced stone blocks inserted towards base	Face of cascade below spillway, irregular placement of c blocks suggest repair	001 008	
004	West side	Robbed out remains of W flanking wall	1.35	0.5		Brown	7.5YR 5/2	Medium	crumb	silty	loam	loose	rubble	Loose grey brown silty loam with rubble fragments lying alongside spillway		006 007	001
005	East side	East flanking wall to cascade	0.6	0.5										Large well dressed stone blocks largely displaced by root action edging steep face of cascade on E	Retaining wall for cascade	003 006 008	
006	Overall	Topsoil	3.5	2	0.1	Grey	7.5YR 5/1	Medium	crumb	silty	loam	firm		Grey silty loam, very shallow over entire of spillway	Topsoil		001 002 004 005 007
007	South end	Brick rubble	2	2	0.15	Reddish brown	2.5YR 4/4	Medium	crumb	sandy	loam	firm	brick fragments	Dense layer sandy loam with large quantities >50% decayed brick	Tipping?	006	011
008	South end	Silty clay	1.6	2	0.35	Brown	7.5YR 4/3	Fine	crumb	silty	clay	compact		Fine brown silty clay	Flood silts	011	003 005 009 010
009	South end	Base of channel	0.4	0.4										Large stone block, top rounded by erosion	Stone base of channel?	003 010	
010	South end	Clay silting	0.4	0.2		Dark grey	7.5YR 4/1	fine	block	silty	clay	soft		Fine grey silty clay	Silting to base of channel	008	009
011	South end	Rubble in sandy loam	1.6	2	0.4	Grey	7.5YR 6/1	fine	crumb	sandy	loam	friable	rubble	Grey sandy loam with frequent rubble	upper fill of channel	007	008

## Endnotes and Bibliography

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- <sup>i</sup> A major series of excavations on the fort were carried out in the 1960s: Stanford, S.C. (1974) *Croft Ambrey :Excavations carried out for the Woolhope Naturalists' Field Club (Herefordshire) 1960-1966*, Hereford.
- <sup>ii</sup> Hoverd, T (2014) *Watching Brief in advance of the installation of a Biomass Boiler, Croft Castle, The Croft Estate. Herefordshire. Hereford: Herefordshire Archaeology, HAR 343.* <https://doi.org/10.5284/1044066>
- <sup>iii</sup> Unattributed on-line reference <http://leominster1941.tumblr.com/post/149754455753/leominster-s-mills> accessed 26.9.17
- <sup>iv</sup> Ibid. p. 4
- <sup>v</sup> Jonathan Butterworth BSc (Hons) CEng FICE, personal communication 17.9.17
- <sup>vi</sup> D.J. Jones Crossing Cottage, Llanfynydd, Flintshire LL11 5HN.
- <sup>vii</sup> Photocopied map with the title *Map 7 Croft Castle Demesne Map undated: 1790s, possibly 1798 / 99*
- <sup>viii</sup> Extract from map entitled the Somerset Davies Improvement Map provided by Imogen Sambrook.
- <sup>ix</sup> 1842 Tithe Map in private collection
- <sup>x</sup> Photocopied map entitled *Map 9 Croft Parish Tithe Map 1839 Tracing*
- <sup>xi</sup> For example at Enville and Hagley in the 1740s ( Symes, M. and Haynes, S, 2010 *Enville, Hagley, the Leasowes: Three Great Eighteenth Century Gardens* Redcliffe Press, Bristol p. 72)
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