CPAT Report No 1097

Pentre Mill, Dyserth Hydro Scheme

CULTURAL HERITAGE ASSESSMENT

THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

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May 2011

Report for Carter Jonas LLP, Bangor

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CPAT Report Record

Report and status

CPAT Report Title	Pentre Mill, Dyserth Hydro Scheme: Cultural Heritage Assessment		
CPAT Project Name	Pentre Mill, Dyserth		
CPAT Project No	1743	CPAT Report No	1197
Confidential (yes/no)	Yes	draft/final	Draft

Internal control

	name	Signature	date
prepared by	N W Jones		11/05/2011
	R J Silvester		11/05/2011
checked by	R.J. Silvester		11/05/2011
approved by	R.J. Silvester		11/05/2011

Revisions

no	date	made by	checked by	approved by

Internal memo

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1 Introduction

In March 2011 the Contracts and Field Services Section of the Clwyd-Powys Archaeological Trust was invited by Mr R Rees on behalf of Carter Jonas LLP, agents to the Bodrhyddan Estate, to provide a costed proposal for undertaking an archaeological assessment in connection with a proposed hydro scheme at Pentre Mill, near Dyserth in Denbighshire. The Curatorial Section of the Clwyd-Powys Archaeological Trust, in their capacity as archaeological advisors to the local authority, had advised the developer that an cultural heritage assessment should be conducted to include a desktop study and a field examination. Together these would provide the material for a report that could inform a future planning decision on the development.

The fieldwork and desk-top assessment were undertaken during April 2011, and this report was completed immediately afterwards.

2 Location

The position of the proposed hydro scheme is based on original infrastructure elements that formerly provided water to Pentre Mill on the Bodrhyddan Estate. Pentre Mill, with its adjacent farm buildings, lies at the western end of Dyserth parish but little more than one kilometre from the centre of Rhuddlan, where the Vale of Clwyd opens onto the coast. The Mill is now derelict but the farm buildings still function under the name of Pentre Mill Farm.

Though the mill has long ceased to function, its water abstraction and leat system is still in place and is deemed to provide sufficient water for the supply to an Archimedes Screw turbine. The turbine would be located to the north-west of the mill pond and be fed from it to discharge into the present channel of the Afon Ffyddion.

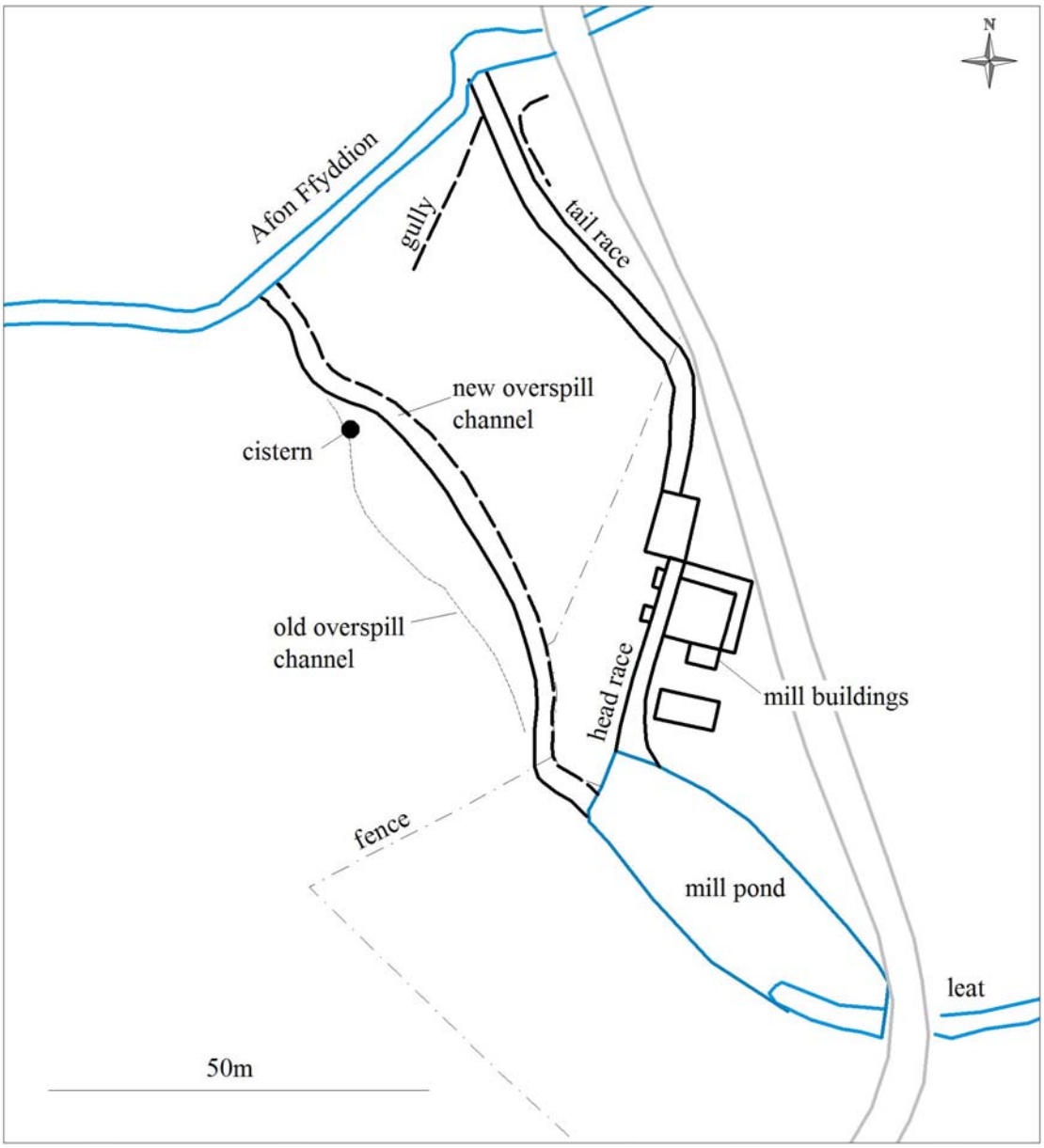
3 Historical Background

The age of Pentre Mill cannot be established with any certainty. What can be said is that a lease held in the Denbighshire archives refers to a mill called Pentreth in the vicinity of Rhuddlan in 1536. The lease does not give the location of the mill with any accuracy, and it is of course conceivable that there were two mills called Pentre(th) near the town in the 16th century. This does, however, seem unlikely.

Pentre felin in Rhuddlan is mentioned in a document of 1785, but by this date maps are of more use. Late 18th and early 19th-century maps consistently depict the mill, but the earliest map source at present is one of 1756 which shows the mill clearly. For copyright reasons it is not possible to reproduce this map, so a written description will have to suffice. The mill is shown together with its waterwheel, but not in a way which would permit a close correlation with the present building ruins, in other words the mill depiction is stylised. The water channel or leat feeding the mill is also depicted stylistically, but in enough detail to show that the present leat running past the farm was in existence in the mid-18th century, and that the tail race at that time is what can still be made out as an earthwork today.

4 The Mill and its Infrastructure today

To facilitate the description, the m ill complex at Pentre has been broken down into its constituent parts.



The mill and its features

The water feed. We are in formed that the existing abstraction poi nt is about 1 km west of Dyserth on the Afon Ffyddion at NGR SJ 04390 79 735 and at an elevation of abou t 19m OD. The flow of water continues south-westwards along a canalised stretch of what the Ordnance Survey has termed Afon Ffyddion (cf the straight m odern course w ith the meandering parish b oundary on late 19th-century maps which must mark the earlier course) to a point at SJ 04005 7 9460 where an overspill weir passed water into an artificial drain running first westwards and then south-westwards. In its present form this is a wholly m an-made creation, though again the former parish boundary hints at an earlier wa tercourse along part of the line and Roberts' map of 175 6 confirms its meandering course which the mapmaker termed the Fyddian Brook. It now carries the main water flow before passing under a small road bridge immediately below Pentre M ill where it picks up the original course of the Afon Ffyddion as it flows towards Afon Clwyd.

Returning to the overspill weir at SJ 04005 79460 the main stream (named as Afon Ffyddion on modern Ordnance Survey mapping) continued westwards to Pentre Farm and Mill passing under the road at NGR SJ 03235 79315 and discharging into the original mill pond. It has probably seen some limited straightening in the past, but it is not clear whether the Ordnance Survey are perpetuating an error by naming this as Afon Ffyddion.

The mill pond. On early Ordnance Survey maps from the end of the 19th century, the mill pond is depicted as an elongated, almost elliptical feature aligned south-east to north-west with two outlets at northern end and an inlet leat at the southern. It was at that time about 50m long and a little under 20m wide. The entire outline of the pond can still be seen but it is now largely silted up and grassed over, with a drop of less than one metre on the northern side. Fed by the leat entering from the east a channel around 4m wide has been created along the southern side of the pond for almost its whole length. This contains sluggish water for only the first 15m or so, but after that exhibits only a damp and marshy base. The fact that the channel is deeper than the pond surface indicates that in the past it continued to funnel water to wards the overspill channel after the pond had silted up.

The leat. This is now fenced off to the east of the lane, and the tenant farmer intimated that it no longer carried water a steady water flow because of an Environment Agency decision.

The silted millpond from the south. CPAT 3272-0025

The head race. At the northern end of the mill pond the water was channelled into a short head race to the mill wheel via converging stone-built walls, that on the west side being rather longer than that on the east. Although the vegetation makes assessment difficult, it appears that the head race was fairly level or had a slight slope at most, and was designed to feed an overshot wheel. A portion of the mill race wall (on the east) still stands to a height of about 2.2m.

The mill remains looking up from the tail race. CPAT 3272-0018

The mill buildings. These are positioned around about 2m or more below the mill pond, as a result of the careful adaptation of a valley slope here. Two buildings are shown on the 19th-century Ordnance Survey maps; both have now been reduced to low stony foundations and in places these are barely discernible. The larger of the two was presumably the mill itself, and fragments of mill machinery and at least one millstone are scattered across its surface. The purpose of the smaller building immediately to the south is not clear.

Another structure depicted on the Ordnance Survey immediately north of the mill house and rectangular in shape cannot be easily identified on the ground though stone walls certainly survive here. Its function is obscure, but it might have housed another wheel and accompanying machinery.

All these features are covered in sparse, unmanaged scrub and the area is completely fenced off to prevent stock from straying into what is potentially an unsafe environment.

The tail race. In the fenced off scrub, the tail race still shows as a pronounced gully as it descends the slope, though there is no convincing visible evidence of a stone-built element to its structure. In the pasture ground to the north it takes the form of a hollow around 1.8m wide with a bank of spoil on its eastern edge. The mill race has, then, been allowed to silt up. It might be mentioned here that the local topography implies quite strongly that this channel followed the original course of Afon Ffyddion.

The tail race from the north-west. CPAT 3272-0015

Just before its northern end where the mill race emptied into the stream, the bank turns back on itself to suggest a levelled area that could have had a structure on it. Apart from the increased growth of nettles, there is, however, nothing else to confirm the former presence of a structure.

The overspill channel. Immediately to the west of where the mill race runs off the mill pond, there is another egress for water in the form of an overspill channel. This is a formalised construction. A short length of stone-built channel with some concrete facing is about 1.9m wide and 0.6m deep. Along its short length of around 8m, there are two stone 'steps', presumably designed as a fish ladder. Beyond this short stretch, the channel adopts a curving course downhill, its stone base and low side walls still very clear, making it the best-preserved part of the mill infrastructure. There are no obvious steps in this section. At the bottom of the slope, the stonework stops and the channel becomes a flat-bottomed grassy hollow leading to the stream.

The overspill channel looking northwards. CPAT 3276-0006

Earlier overspill course. Prior to the construction of the stone overspill channel, excess water followed a meandering course downhill a short distance to the west of its stone-built successor. The short straight length of stone channel leading off the mill pond and the grassy channel by the stream are relics or at least are on the line of this earlier overspill course. In between the earlier, meandering course is distinguished by a gentle hollow with lusher grass in it, at the base of the natural escarpment.

Cistern. A brick-lined cistern or tank captures water on the line of the earlier overspill course. This looks to have been long-abandoned and its protective cover is ruined.

Channel or gully. A silted up channel or gully, about 0.7m wide and less than 0.1m deep, traverses the field from north to south. It is most visible at the northern end, terminating at the place where the mill's tail race enters the stream. It can be trace southwards heading in the general direction of the cistern but fades out before reaching the stone overspill channel.

5 Recommendations

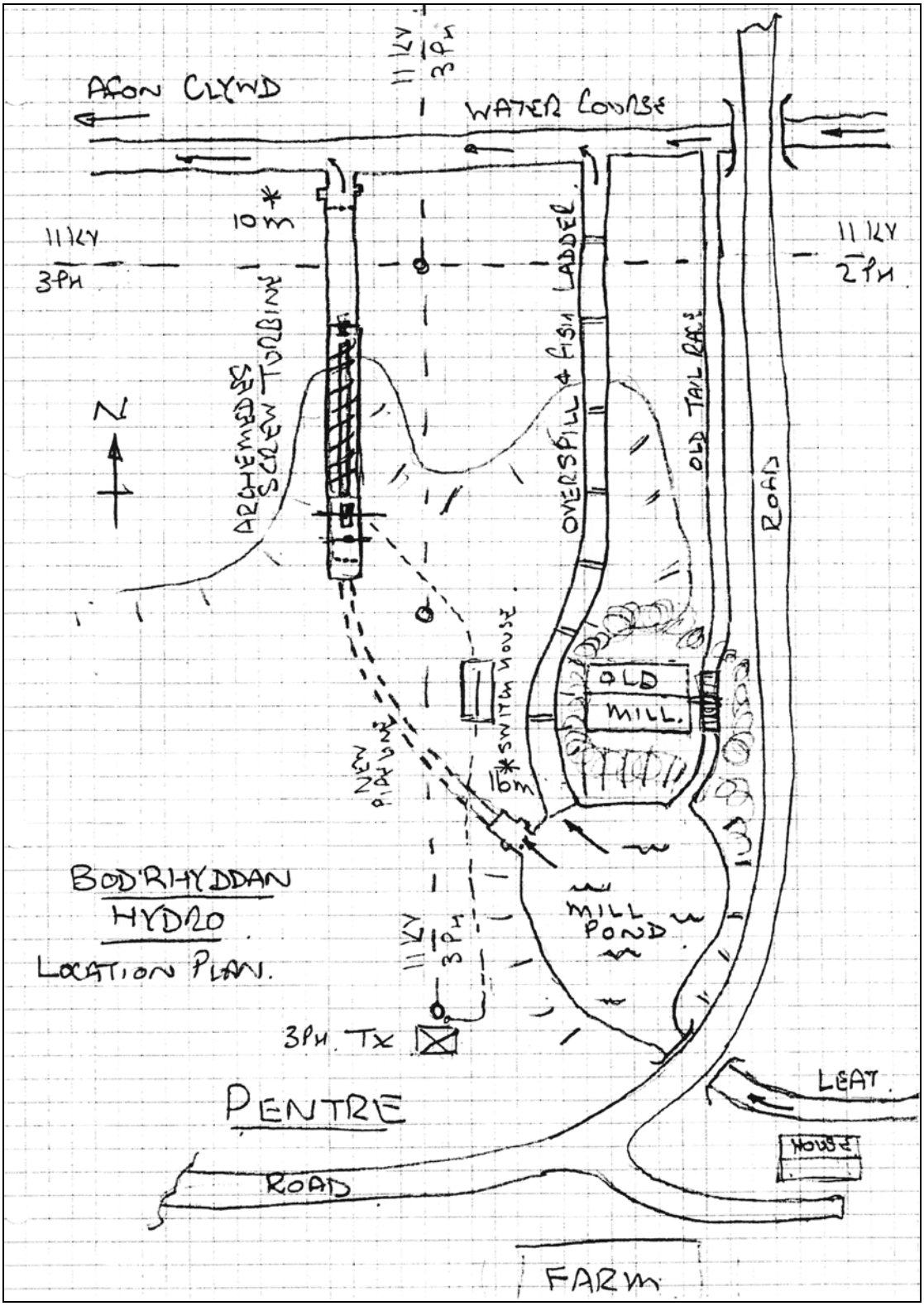
It has been possible to plot the salient features of the mill complex from the early Ordnance Survey mapping and from field observations. A measured survey would provide considerable subs tantive additional detail about the tail race earth works, but with the vegetation in its current condition, the mill itself would benefit but little from detailed measurement and recording, and an appreciation of the most impressive, visible feature on the site, the overspill channel, would be best served by further photography linked to the Ordnance Survey plan. As a consequence no full survey of the mill complex is recommended.

What is termed in the development plan the westerly leat that feeds into the mill pond (and is actually the original course of Afon Ffyddion) will be cleaned out of silt and debris. While an archaeological watching brief might be maintained during this work it is difficult to conceive what it would achieve.

The mill pond is completely silted up, but there is no indication in the development plan that this will be affected by the hydro works.

The overspill channel and weir is a fine piece of archaeology. It is to be retained and fitted with cross strakes and it is recommended that damage for any structural modifications be kept to a minimum.

Alternative locations have been suggested for the turbine planned for the development. The sketch map attached to the development plan reveals that one location would be in the field which should be away from the mill complex and have few if any archaeological implications. The alternative is to use the mill wheel pit. This would require the clearance of vegetation and presumably some of the collapsed material from the mill itself, while the introduction of the turbine as well as the clearance work would require the use of heavy equipment which could cause further damage to the mill site. A watching brief coupled with detailed recording is recommended.



Carter Jonas' sketch plan of the proposed works

6 Sources

Manuscript papers

1536 Lease of Pentreth Mill (Denbighshire Record Office DD/WY/2034)

1785 Deed (National Library of Wales Bodrhyddan 54)

Manuscript maps

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1819 Ordnance Surveyors' survey drawing (British Library)

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