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SUMMARY

Examination of the study weir indicated utilitarian sandstone construction. The weir possibly dating from the mid-1860s to 1899 displayed little architectural merit and there were no embellishments or decoration.

1. INTRODUCTION

1.1 Project origins

Cumbria County Council Historic Environment Service (Development Control) was consulted by Eden Rivers Trust regarding the demolition of a weir in order to improve the flow of the River Eamont and prevent localised flooding (figure 1).

The development proposal covered by planning application 16/0459 will remove an extant weir and as a result, a building survey has been requested by the curatorial authority requiring a programme of archaeological building recording to be undertaken prior to any demolition taking place.

The curatorial authority has requested a programme of building recording equivalent to Level 2 as described by English Heritage *Understanding Historic Buildings, A Guide to Good Recording Practice*, 2006 subsequently updated in 2014.

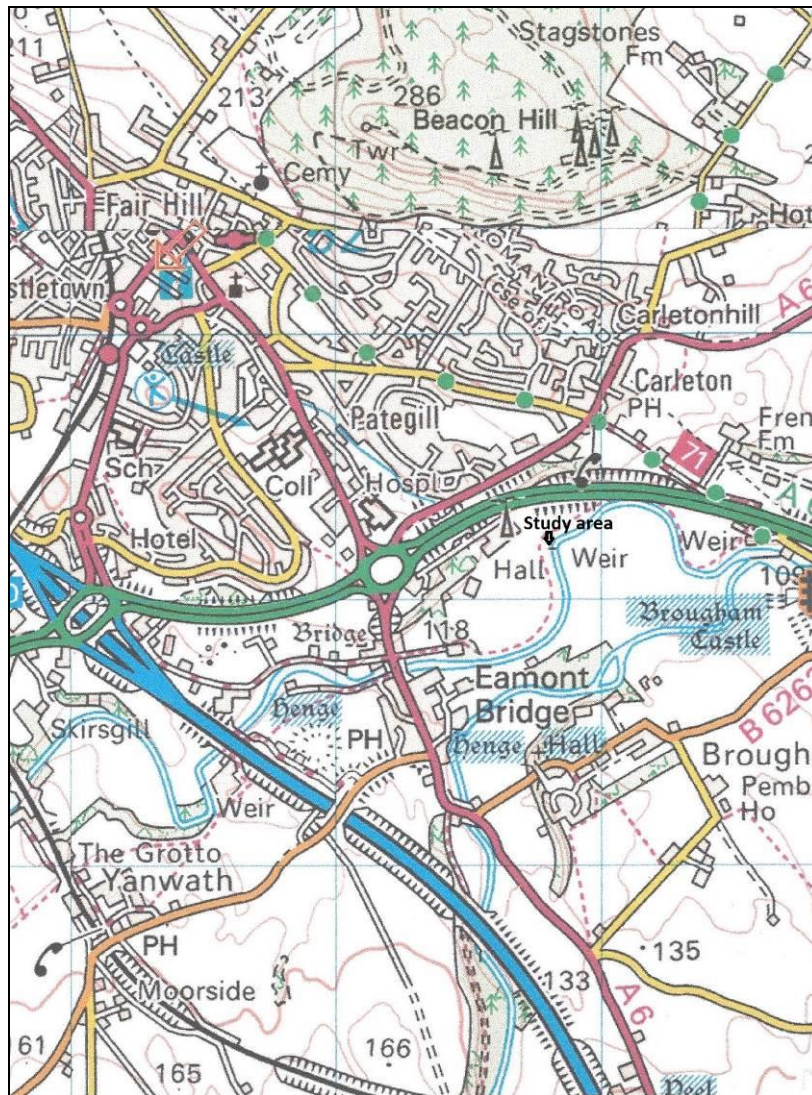


Figure 1. Location of survey. (OS copyright licence no. 100044205).

Subject to safe working conditions, a programme of archaeological building recording required documentation of a single weir. The study structure is located below (figure 2).

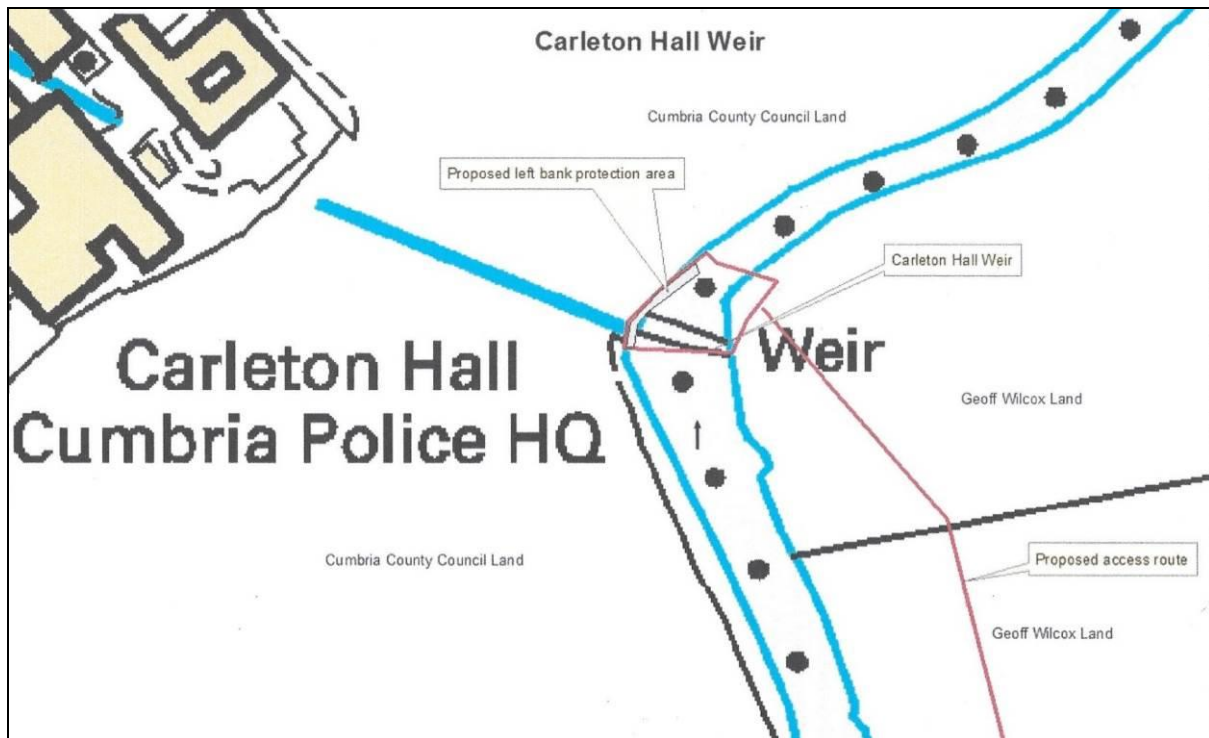


Figure 2. Location of study area. (OS copyright licence no. 100044205).

A Working Scheme of Investigation was submitted to the curatorial authority for their approval prior to the field survey being undertaken. Upon approval the fieldwork was undertaken on August 25-26th 2016 and from this evidence the following report collated.

The study weir was located at NY 52819 29178.

2 HISTORICAL CONTEXT

2.1 Historical background

A Cultural Heritage Assessment (CHA) was compiled by FAS Heritage during January 2016 (FAS 2016 641 RMW599) that deals with the historical significance of the weir and its setting.

Carleton Hall Weir (NY 52819 29178) was reputedly constructed in the late 19th century, possibly in association with the construction of the Westmorland Holme Dykes between the Rivers Eamont and Lowther. The weir is located within Carleton Hall Park, an expanse of former parkland within the environs of Grade II* listed Carleton Hall.

The manor and settlement at Carleton was recorded as existing in 1170 although the earliest documented house was not until the 17th century.

Thacka Beck discharges into the River Eamont by Carleton Hall Weir, the study structure. The water course was created to take water from the River Petteril to Penrith and was financed by William Strickland, Bishop of Carlisle from 1400 to 1419.

Little is recorded of the channel that takes water to the Eamont (FAS 2016, 10). William Wellan writing in 1860 stated Thacka Beck was almost entirely arched over (Wellan 1860, 594).

In 1425, Eamont Bridge to the west was built by Langley, Bishop of Durham (Hutchinson 1794, 312).

Carleton Hall dates to the 18th century with late 18th century alterations, built directly above a former Hall visited by the future King Charles II in 1651.



Figure 3. Hutchinson's map of the River Eamont published in 1794

Hutchinson's map published in 1794 illustrates Thacka Beck discharging waste water into the River Eamont and also the River Lowther from Penrith town centre (figure 3). The distinctive loop that was extant by 1860 on the first edition Ordnance Survey map (figure 4) was not present on the earlier map (Hutchinson 1794, 312-313). The tithe map for the township of Carleton produced *circa* 1840 was not available for inspection at Cumbria Record Office.

Such variation does suggest that the river system had been remodelled in the early 19th century introducing a bend to the north and removing the earlier straighter course evident in the 18th century.



Figure 4. First edition Ordnance Survey map surveyed in 1860

The programme of river diversion was probably initiated to decrease the flow of the River Eamont and by consequence increase the land yield for agriculture, a common practice in this period (Brazier *pers comm*).

Evidence for this action was not clear although an oxbow seen in the adjacent southern field by the author may conform to an arcing feature known as Westmorland Holme Dyke (figure 5). Illustrated

no earlier than the 1899 Ordnance Survey, it is believed to belong to a later system of river management (FAS 2016, 11).

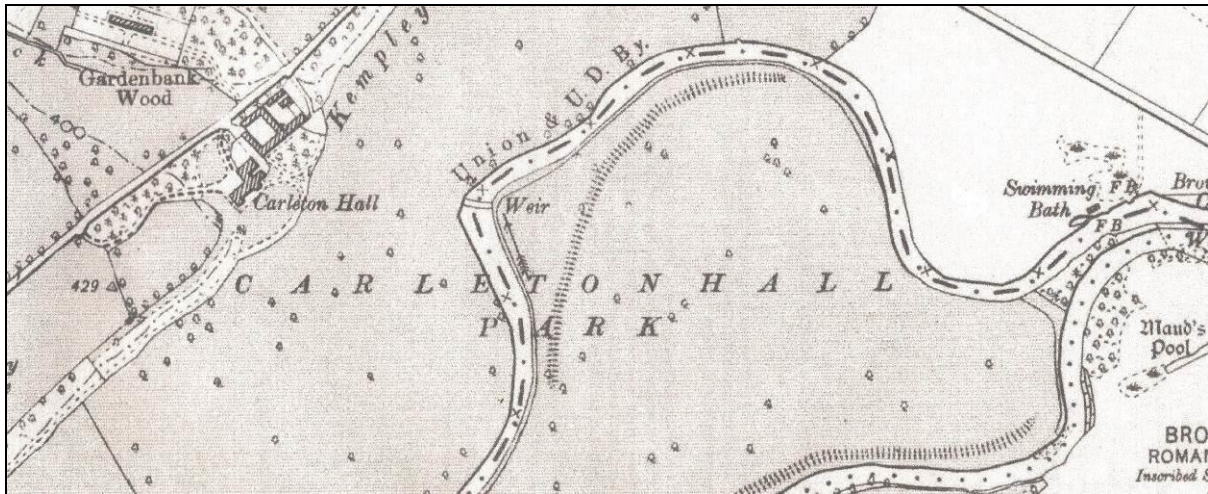


Figure 5. Ordnance Survey map of 1899

The wider park is shown as an open expanse with little variation since the mid-19th century. The weir first appears on the 1899 Ordnance Survey map probably contemporary with the Westmorland Holme Dykes also illustrated. These heritage assets are currently in a poor condition.

Thacka Beck does not appear on Ordnance Survey mapping as discharging into the River Eamont terminating at Gardenbank Wood (figure 5). Presumably, the course from Gardenbank Wood to the Eamont had become a culvert by the mid-19th century, discharging beside the weir as an open cut.

Subsequently, the estate was purchased by Cumbria County Council and serves as the headquarters of Cumbria Police Service.

3 RESULTS

3.1 Methodology

An attempt to survey the weir in the study area was undertaken on August 12th 2016 by Gerry Martin using tapes, a Disto measuring device, hand-held GPS equipment and photography.

Access to the weir was severely inhibited by the flowing River Eamont which was unfortunately at a high water level due to unseasonal weather when the survey was conducted. This seriously compromised access to the weir, it being too dangerous to access the river.

The corpus of the following report is formed from these notes and photographs.

3.2 Survey results; Carleton Hall Weir

At this location, the head water from the River Eamont produced a shallow but relatively wide channel on a sharp bend, the deeper water being on the north side. Thacka Beck consisting of a three course high channel formed from rough-hewn stone blocks, discharged into the River Eamont beside the weir.

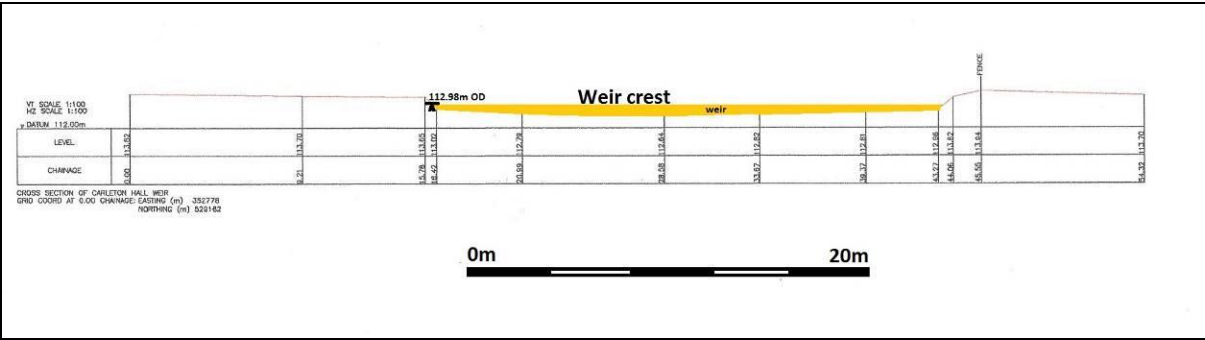


Figure 6. Elevation across weir



Figure 7. The weir at low water level

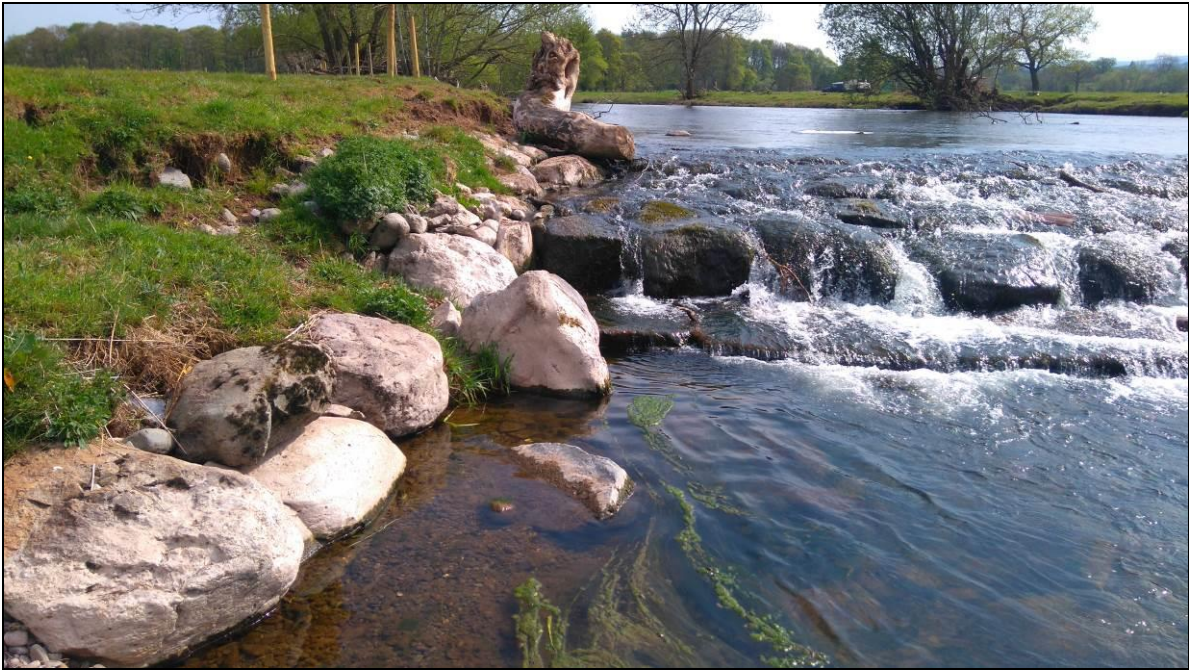


Figure 8. Sandstone blocks forming the weir on the south side with stone revetment

The weir measured 24.85m in length and 3.60m in width and was formed from undressed, rough-hewn red sandstone blocks arranged in a stepped formation two courses high on the south side that was approximately 1.00m in height (figures 6 and 7).

The sandstone blocks were 0.50m in height and left unbonded, producing a concordant surface formed from approximately seven rows of stone.

On the southern side, the sandstone blocks were neatly inter-locking but mid-stream this quality diminished, developing into a series of sandstone blocks that were arranged with less deliberation (figure 7). This suggests that construction had emanated from the southern side with contractors utilising the sandstone platform to encroach into the river.

The river margins on both sides of the river had been formalised by coarse rubble walls forming revetments probably contemporary with the introduction of the weir (figure 8).

3.3 Watching brief

The weir was removed on 25th and 26th August 2016 under archaeological supervision.

Proceeding from the south bank, the removal of the stone weir was undertaken by a 30 tonne excavating machine sitting within the river (figure 9). Each red sandstone blocks was easily lifted confirming that these stones were unbonded and rough-hewn (figure 10). The removed stone was employed to build a rock shield on the northern side of the river in order to protect the bank from erosion (figure 13).



Figure 9. Removal of the weir



Figure 10. Specimen removed stone block

The removal of the stone weir on the south side produced a deeper channel that exposed the weir in section, revealing a slightly bevelled stone surface (figure 11). It was unknown whether there was any stone core to the weir but this was probably unlikely.

Behind the sandstone weir were large river cobbles lain by turbulence in the river and as a consequence had increased the height of the river bed, the cause of recent flooding.

A wooden pile was observed on the southern side of the river (figure 12). It is not known whether this was part of a tie relating to a late 19th century construction programme perhaps part of a coffer dam or whether an earlier predecessor to the weir was identified.

Removal of the stone weir had created murky water. On the following day, Friday 26th August, water clarity had greatly improved and it was apparent that all the stone fabric had been removed.

This demolition action removed a fall (figure 13) leaving a relatively even river bed with water turbulence greatly reduced (figure 14).



Figure 11. Part of the weir during removal



Figure 12. Timber pile



Figure 13. River Eamont with weir



Figure 14. River Eamont following removal of weir

3.4 Survey results; Discussion

The Level II Building Survey confirmed uniformity in design comprising an outward, rough-hewn, red sandstone finish for the weir. The effects of water turbulence had damaged the weir mid-stream, but observations were severely compromised by the rapid flow of the river and the inability to observe the structure at close quarter.

There were no outstanding architectural features of historical or artistic merit. This action confirmed that the weir possessed a utilitarian function.

Documentary evidence based on cartographic evidence suggests that the weir was constructed between 1860 and 1898 as part of a scheme of river improvement. There does exist however, some suggestion that the river was diverted in the early part of the 19th century but before 1860, the former course of the river infilled and possibly articulated as Westmoreland Holmes Dykes.

The stone revetment that cut into brown alluvial sand (figure 15) and the weir appear to be contemporary. There remains a good case that the weir and revetment were introduced simultaneously, whilst the bed of the river was relatively dry either through the introduction of a coffer dam or as a new engineering enterprise.



Figure 15. Stone revetment

4 ARCHIVE

The archive has been compiled in accordance within a generic project design and the guidelines set out by English Heritage (1991) and the Chartered Institute for Archaeologists (1994, 2007, 2008 and 2014).

The archive for this project will be deposited with the appropriate archaeological curator. This archive has been assembled in accordance within the protocols of Management of Archaeological Projects (MAP2).

5 ACKNOWLEDGMENTS

I am grateful to Eden Rivers Trust; Daniel Brazier for his assistance with the fieldwork and Joanne Backshall for commissioning the project. I am also grateful for the various staff at Carlisle Library and Cumbria Record Office for helping with my research.

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