



Herefordshire Archaeology
Conservation and Environmental Planning
Planning Services
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Moccas Park: Archaeological recording of a sluice

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Herefordshire Archaeology is Herefordshire Council's county archaeology service. It advises upon the conservation of archaeological and historic landscapes, maintains the county Sites and Monument Record, and carries out conservation and investigative field projects. The County Archaeologist is Dr. Keith Ray.

Moccas Park: Archaeological recording of a sluice

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Summary:

The survey described in this report (EHE42927) is an account of a detailed record of the masonry remains of an 18th Century sluice and associated culvert in Moccas Park. The features were recorded photographically and by scale drawing.

The survey was undertaken in order to provide a better understanding of the structures extent and condition prior to conservation and consolidation and restoration.

The survey identified a number of features associated with the structural remains which will aid future restoration work.

Disclaimer: It should not be assumed that land referred to in this document is accessible to the public. Location plans are indicative only. NGRs are accurate to approximately 10m. Measured dimensions are accurate to within 1m at a scale of 1:500, 0.1m at 1:50, and 0.02m at 1:20.

Figures contain material from the Ordnance Survey. The grid in this material is the National Grid taken from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office. This material has been reproduced in order to locate the site in its environs.

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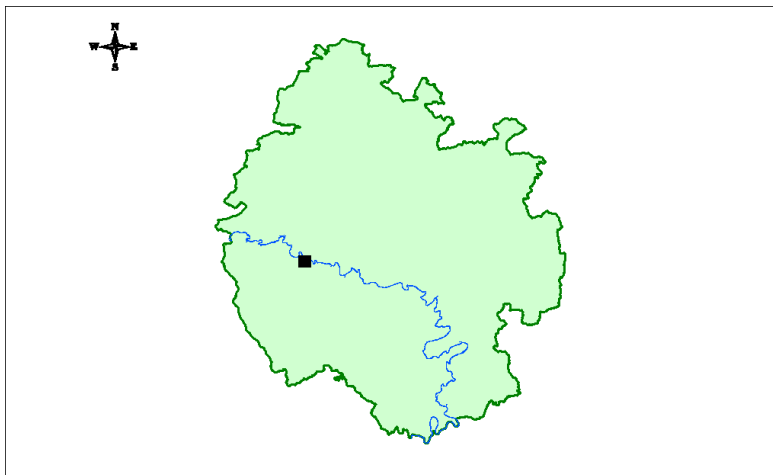
Introduction

This report provides an account of a detailed survey of the surviving elements of a masonry sluice and culvert within Moccas Park, (HSM 42927). The survey was carried out in August 2005 and comprised localised clearance of vegetation prior to the production of a photographic record and detailed recording by scale drawing. The purpose of the survey was to provide a better understanding of the structures extent and condition prior to consolidation and restoration.

Moccas Park, Location and Setting: (Figure 1).

Moccas Park is located approximately 17km to the west of Hereford City. It has an area of over 139ha and covers much of the north east facing slope of Dorstone Hill. The sluice and culvert recorded in this survey are located at SO 34772 42742, within a level area at the base of slope. Immediately to the north of a naturally marshy area which has historically been used as medieval fish ponds and later as part of the 18th century picturesque landscape. The sluice and culvert regulated the supply of water to other water features within Moccas Estate and maintained the water level within the marshy area to the south.

The solid geology under Moccas Park comprises Old Red Sandstone of the Raglan Mudstone series. Overlying this is a variety of fluvio-glacial deposits associated with the late Devensian glaciation. Soils are typically slightly acidic reddish loams.(Harding and Wall, 2000, 22-4)



The Soil Survey Classification identifies the Lower Park and the Eastern Extension as being of Class 1, the lower slopes of the Upper Park and the Plateau as Class 3 and the steeper slopes in the Upper Park as Class 4g and Class 5. The park is grazed by sheep, cattle and deer and is managed as a National Nature Reserve.

Figure 1: Location of survey area.

For further details concerning the paleoenvironment, trees, flora, fauna (including invertebrates), estate management and natural environmental conservation, readers are referred to “Moccas: an English deer park”, (edited by Harding and Wall., 2000).

The Historic Landscape Characterisation for Herefordshire lists the study area as a retained parkland.

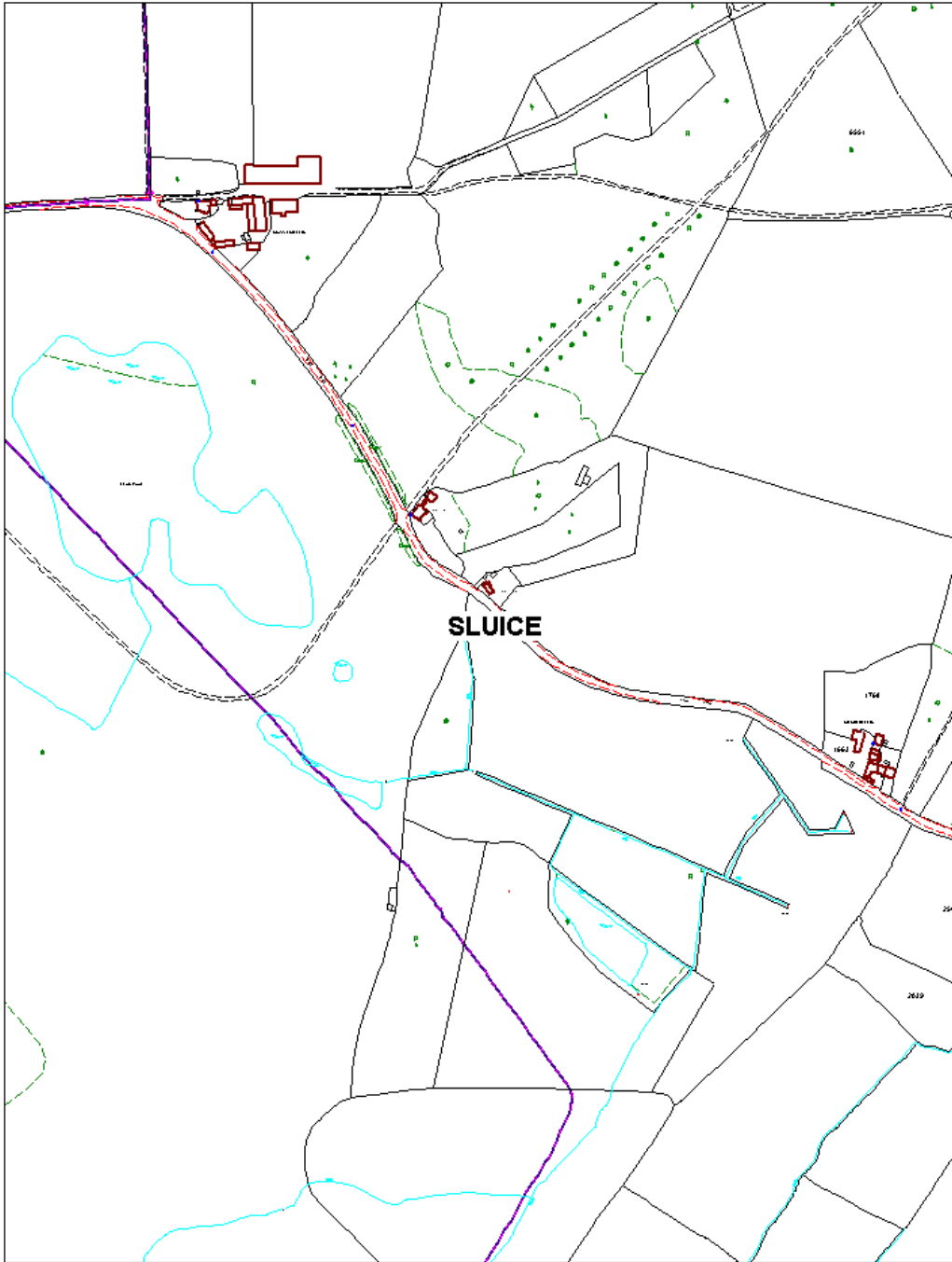


Figure 2: Site Location Plan
Scale 1:5000



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Previous fieldwork / records

Whilst the present Deer Park has been the subject of a number of detailed surveys including:

Harding, P.T. and Wall, T. (Eds.) 2000. "*Moccas: an English deer park*".

Hoverd, T. 2003. "*An Archaeological Reconnaissance survey of Moccas Deer Park*" (Herefordshire Archaeology Report No 67, January 2003.)

The features described and recorded within this report were not included within these publications.

Method

After the clearance of vegetation from both within and around the built structures a full photographic record was made of all elevations and any other significant features / artefacts relating to the culvert or sluice construction using colour print, colour slide, black and white print and digital formats. A plan was produced at a scale of 1:20, showing the extent of the structural remains and including a record of damage / stone displacement due to tree root action etc. All elevations of the sluice were recorded by 1:20 scale drawing and a cross section was produced of the culvert.

Results (Figures 3 & 4)

The Sluice

The structural remains of the sluice comprise a pair of splayed (in plan) walls with a recess at their waist, (the narrowest point between the two walls), to hold a timber sluice gate. Each splayed wall is either side of a man made drain or leat, which runs north from a naturally boggy area which has traditionally been used as fishponds during the medieval period and later as a pool or series of pools which were maintained as a further element of the picturesque parkland features which survive within the bounds of the present deer park to the west. Although no documentary evidence for its construction has been found; it is assumed that the sluice and its associated culvert were constructed during the late 18th century in order to maintain the water level in the pool to its south and to feed further water features / pools over much of the Moccas Estate.

For the purpose of this report the structural remains of the sluice have been divided into two main elevations; the western elevation and the eastern elevation. Each elevation has been further divided into faces A & B and C & D respectively, (see figure 3). The description of each face will include its build, evidence for bonding, structural integrity and condition.

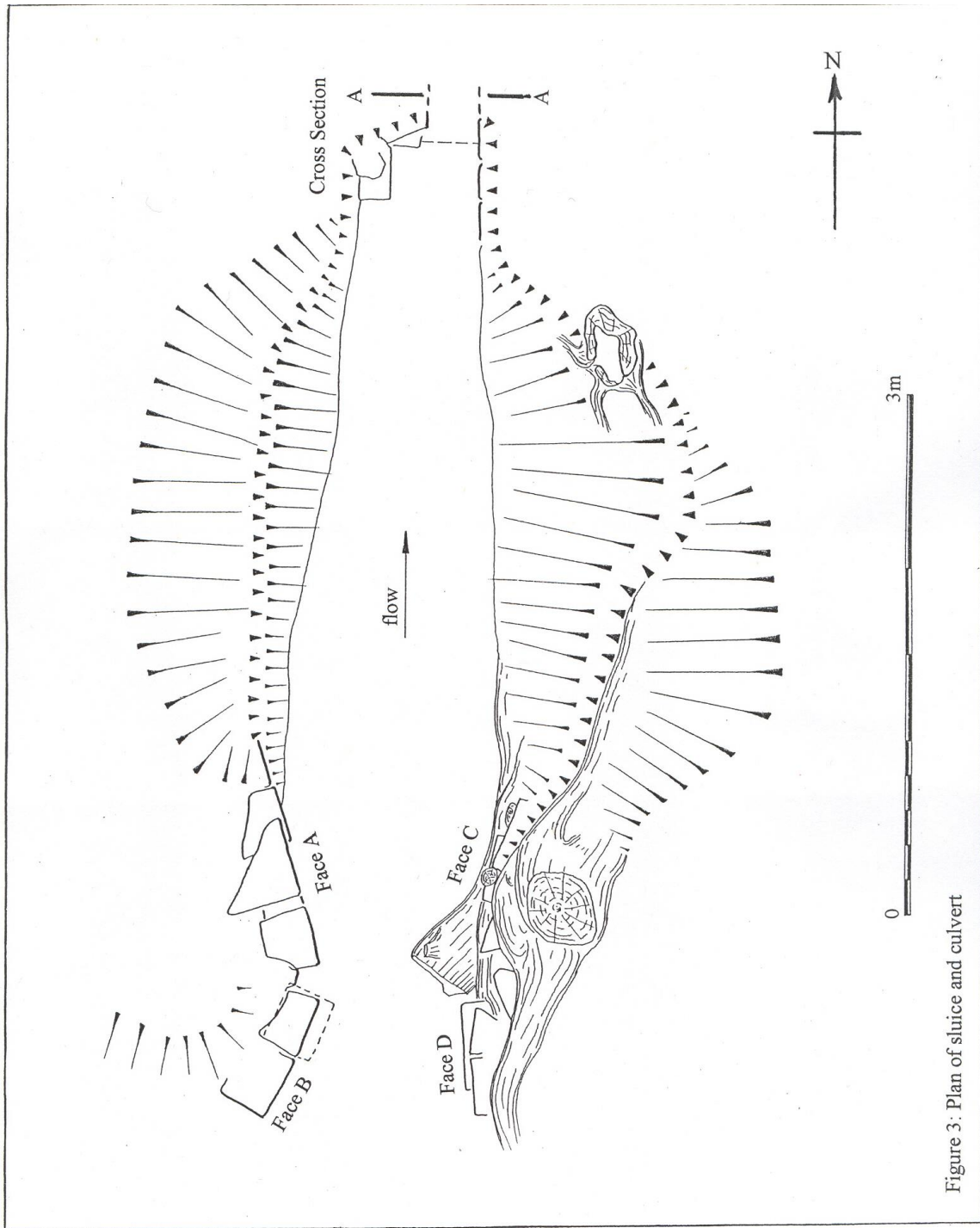


Figure 3: Plan of sluice and culvert

Western Elevation, Face A:

This comprises a well coursed wall approximately 1.2m long and surviving to a height of approximately 1.2m above the height of the present drain base. The masonry is squared with some evidence of tooling on the exposed face and the jointing appears to be quite tight. There is evidence within the central area of this face of a strong, lime mortar bonding, however all but one small patch has been eroded out of the joints.

The wall is generally structurally sound and erosion of most of the face appears to have stabilised. However, the wall top is prone to further erosion, (as indicated by the lamination of the southern-most top stone), and stone displacement as is its northern extent, (at the point where it runs into the present bank), as tree roots have already led to the fragmentation of the northern-most stone.

Western Elevation, Face B:

This comprises a well coursed wall approximately 0.8m long and surviving to a height of approximately 1.15m above the height of the present drain base. The masonry is squared with some evidence of tooling on the exposed face. The coursing does not run through to Face A for at least the lowest two courses. The presence of the carefully cut, square stone on the lowest course of the wall's southern extent together with the vertical edge of this wall; suggests that this was the original extent of this wall face.

The wall is generally structurally sound and erosion of most of the face appears to have stabilised. However, the wall top is prone to further erosion as indicated on plan (figure 3) which shows the dotted outline of a displaced stone.

Between Faces A and B there is a 0.2m wide (at face) and 0.25m deep recess. This held a vertical wooden post which in turn would have held the sluice gate. The remains of the post survive below water level, (see plate 8, appendix 1).

Eastern Elevation, Face C:

Whilst equally well squared masonry has been used for both faces of this elevation, it is difficult to comment further on its build due to the considerable amount of stone displacement, (both vertically and horizontally), caused by roots from a large sycamore tree. It is suggested that the lowest course has suffered minimal displacement, however as is evident on plan, (figure 3), Face C bears little resemblance to its opposite number, Face A.

Eastern Elevation, Face D:

As with Face C, Face D has suffered from considerable stone displacement through sycamore root action. Whilst the masonry is more visible and despite root intrusion, still well coursed, all recorded courses have been displaced horizontally by roots behind the wall face.

The Culvert

A stone lined culvert runs from approximately 5m north of the sluice and was used to supply water features and pools on the Moccas Estate. It is believed to be approximately 1.5km in length, eventually emptying into the River Wye.

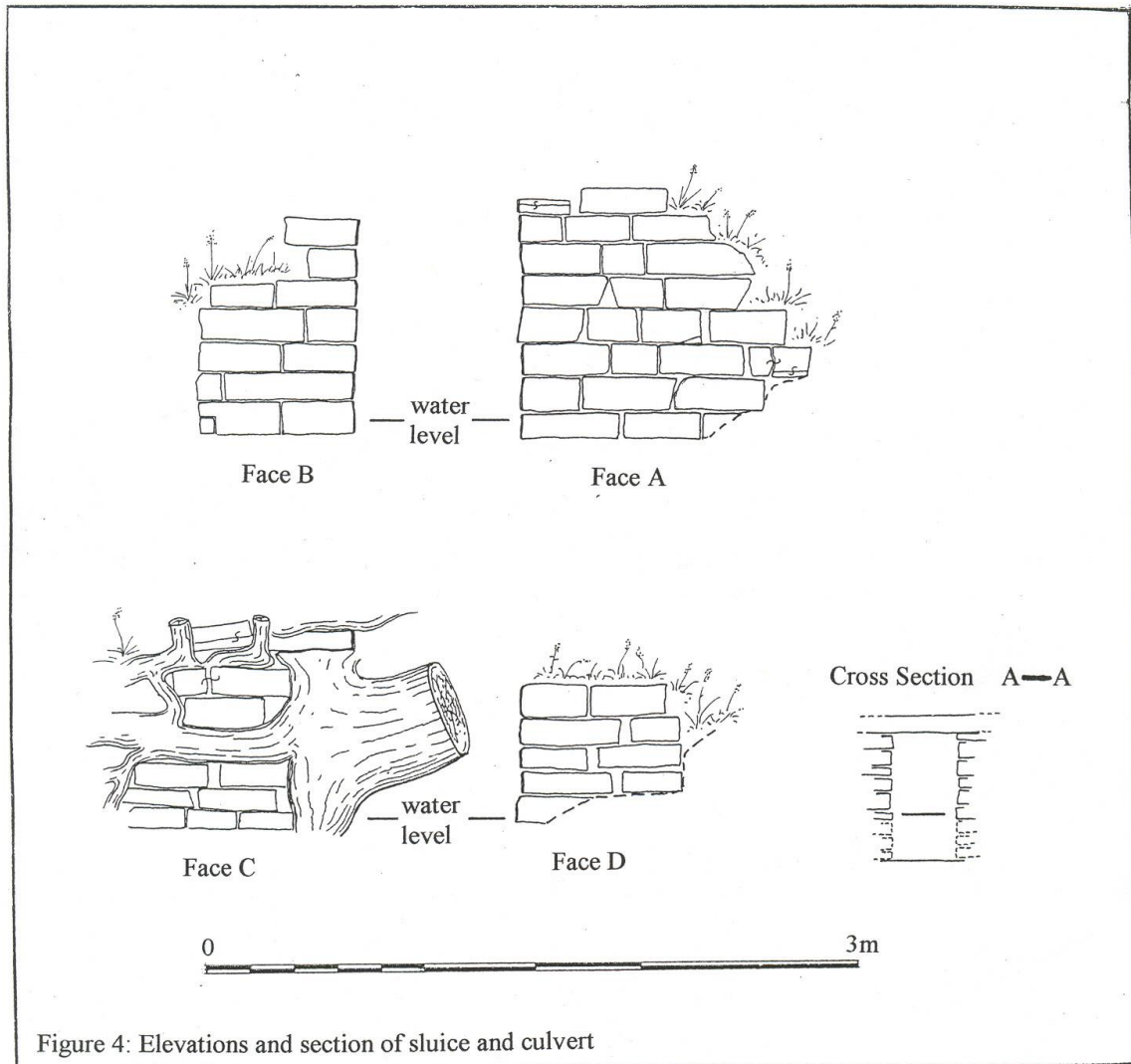


Figure 4: Elevations and section of sluice and culvert

The culvert is constructed of two stone walls capped by stone flags, it is suggested, (by probing), that the original base of the culvert also comprises flagstones. The culvert is approximately 0.3m wide and 0.55m in height and does not appear to have been bonded by mortar and was probably built “dry”, (see Figures 3 & 4 cross section A-A and Appendix 1, Plate 9). Rubble immediately to the south of the present mouth of the culvert suggests that it continued for possibly as much as 1.0m further south.

Discussion and Implications

Additional comments

The entire bed of the drain / leat from the recess for the timber sluice superstructure north to the culvert appears to have been lined in stone. It is possible that both banks were also revetted in stone and this would help explain the large quantity of masonry fragments both lying in the drain and on either bank. A stone based and canalised section would

increase flow velocity and minimise silt build up; something that may have been desirable given the overall length of the culvert.

A flagstone fragment (Appendix 1, Plate 10), was recorded during the survey. This appears to have a notch carved into one end. The water staining in the fragment suggests that it was part of a capstone for the culvert. It is suggested that the notch may be for securing the iron grille (Appendix 1, Plate 11), to the culvert mouth to prevent detritus or livestock entering the culvert.

The vertical extent, (original build height), of the sluice is not known. There is a considerable quantity of loose masonry on the western bank both immediately to the west of the western elevation and heaped up to the north-west. This may suggest that much of the upper portion of this structure has collapsed or even been purposefully removed.

Implications for future management

From this survey it is clear that both the sluice elevations and the culvert mouth are in need of conservation and consolidation if further collapse and erosion is to be avoided. Whilst the western elevation is in relatively good condition and appears to be relatively stable, the eastern elevation has been subjected to almost total displacement by massive tree root intrusion which is continuing.

The proposed restoration of the sluice and culvert

1. The removal of the sycamore tree is necessary in order to conserve and restore the eastern portion of the structure. This will inevitably result in major disturbance of much, (if not all), of the eastern elevation.
2. The works need to be carried out by a builder who can demonstrate experience and competence within the field of conservation and restoration of historic structures.
3. All masonry that relates to the structures should be retrieved during the works and where practicable re-used during the restoration.

The re-wetting to the south of the sluice

1. The impact of a re-wetting scheme upon a site of paleo-environmental significance needs to be considered. A scheme which maintains a constant level of wetting may minimise the decay that cyclical wetting with oxygen rich water can cause.

Acknowledgements

Herefordshire Archaeology would like to thank Mr. Ben Chester-Masters and the staff of English Nature (and in particular Tim Dixon), for their assistance in making this survey possible.

Dr. Keith Ray, County Archaeologist, for his editorial input into this report.

The partnership project was made possible by grant-aid from English Nature.

Archive

2 Sheets of field drawings

2 Sheets of inked drawings

11 Frames Colour Print

11 Frames Colour Slide

11 Frames Black & White Print

11 Frames Digital

This document

Appendix 1: Photographic Record



Plate 1: General view of sluice looking south



Plate2:
General view
of eastern side
of sluice
showing root
damage.



Plate 3: Western elevation, face A



Plate 4: Western elevation, face B



Plate 5: Eastern Elevation, face C



Plate 6: Eastern Elevation, Face D



Plate 7: Eastern and Western Elevations, faces B & D looking North



Plate 8: Detail of recess in Western Elevation showing remains of timber post.



Plate 9: Culvert looking North,



Plate 10: Slab with notch cut into one edge possibly for holding an iron grille



Plate 11: Iron grille originally located at mouth of culvert.

Validation

Herefordshire Archaeology operates a validation system for its reports, to provide quality assurance and to comply with Best Value procedures.

This report has been checked for accuracy and clarity of statements of procedure and results.

Dr. K. Ray, County Archaeologist.