

ARCHAEOLEG CAMBRIA ARCHAEOLOGY

**THE WINDMILL
ANGLE, PEMBS
PRN 4386**

**AN HISTORICAL SUMMARY AND
STRUCTURAL DESCRIPTION**

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Report prepared for Pembrokeshire County Council
by
Neil Ludlow

Archaeoleg CAMBRIA Archaeology
Shire Hall
8 Carmarthen Street
LLANDEILO
Carmarthenshire SA19 6AF
Tel: 01558 823121
Fax: 01558 823133

THE WINDMILL, ANGLE, PEMBS. DYFED PRN 4386

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THE WINDMILL, ANGLE: A HISTORICAL SUMMARY AND STRUCTURAL DESCRIPTION

INTRODUCTION

Summary

The windmill at Angle (Dyfed PRN 4386) was a former corn-mill which in its present form possibly dates to the 16th century and succeeded a timber mill that had been established before 1278. It belonged to the medieval Manor of Angle. The present structure represents a 'cap-mill', in which a former timber superstructure, housing the sail-mountings, turned upon the masonry tower to face the wind.

The mill was disused by the 1780s, but during World War II it was converted into a defence post, involving internal alterations and the provision of four machine-gun loops.

The windmill is not mentioned in the RCAHM(W) *Inventory* for Pembrokeshire of 1925. However, there is a good, if brief, account of it in a short study of Pembrokeshire windmills by Gerallt Nash of the National Museum of Wales, St Fagans. This is frequently referred to within this report.

The windmill is a fine example of this type of building and the World War II alterations only add to its historical interest. It is in fair-good condition, but probably not complete (having originally been taller), and its superstructure, including the sails, has long gone. The walls are free from cracks. There is little external plant growth. It is not a Scheduled Ancient Monument; neither is it listed.

Project methodologies

The brief, prepared by Pembrokeshire County Council, requested an archaeological survey of the site, comprising:

1. The undertaking of a physical measured survey including the presentation of plans and elevations of the structures and their immediate boundaries.
2. Accompanying documentary and historical research.
3. The production of a report based upon the information obtained in (1) and (2) above.
4. The production of 1 set of copy negatives of all drawings.
5. The production of 3 sets of dyeline prints of each drawing.
6. The production of a suite of photographs in colour print format

The project effectively represents the first stage of an on-going management strategy for the individual sites and buildings, to be supplemented by further investigative work.

The level of survey suggested by the client conformed broadly to Level 2, as defined by the Royal Commission for Ancient and Historic Monuments (England), *Recording Historic Monuments: A Descriptive Specification*, 1990, as 'essentially a visual record, supplemented by the minimum information needed to identify the buildings location, age and type.' The visual component is represented by a full photographic record of both interiors and exteriors of the individual buildings concerned, and plans and elevations drawn to 1:50 scale and output via AUTOCAD. Stone-by-stone recording was not requested. The record also includes a topographical survey and location plan of the

structures, undertaken using an EDM theodolite and data recorder and reproduced at 1:100 scale. The above will be submitted as separated enclosures from this report.

Further, more detailed survey is anticipated. This will be a component of the future archaeological study, detailed specifications for which will be drawn up as a result of the present study.

PART 1: ANGLE WINDMILL - A HISTORICAL SUMMARY

During the medieval period Angle formed a manor associated with the Lordship of Pembroke. This was assessed at 2 knights' fees. The windmill was erected by a Lord of the Manor of Angle and its history was linked with the manor until its abandonment and re-use as a World War II defence post.

Much of the general background for this section has been obtained from Ludlow, 1997, *The Dovecote, Angle*, commissioned by Pembs. County Council.

ANGLE: MANORIAL HISTORY

Angle was a manor of the Lordship of Pembroke during the medieval period, probably coterminous with the present parish, but its precise relationship to the lordship is not clear. The manor comprised 2 knights' fees and indeed, during the later medieval period, the manor appears to have been divided into two, 'Angle' and 'Hall in Angle'. Angle Hall, the descendant of the manor-house of the latter, remains inhabited to this day.

A settlement at Angle cannot be proposed to have originated before the post-conquest medieval period, and indeed the morphology of the settlement would appear to confirm this (see below, 6). The place-name has traditionally been regarded as having Scandinavian origins, but it has recently been suggested that it is of Middle English derivation in the form of *angle*, 'land in a corner or nook' (Charles, 1992, 672).

The medieval history of Angle begins with the conquest of South-west Dyfed by the Anglo-Normans under Roger de Montgomery, Earl of Shrewsbury, in 1093, and the establishment of Pembroke Castle. From this centre, Roger's son Arnulf carved out dependant territories occupying most of what is now South Pembrokeshire, Angle included. By the 12th century, the area was formally recognised as the Lordship (or County) of Pembroke and, in 1138, after a period of royal control, an Earldom was created by King Stephen.

Much of the western half of the peninsula of South Pembrokeshire was directly dependent, in the form of the demesne manor of Castlemartin, to the earl at Pembroke Castle. However, the status of the Manor of Angle and its relationship to the lordship is, like that of Stackpole and Bosherton, unclear. Whilst recognised as a member of the lordship, it neither formed part of the demesne of the lordship, did not owe 'castle-guard' to Pembroke and the Earls of Pembroke themselves may have had no direct tenurial rights. However, at the same time it appears not to have had the status of a barony nor a sub-lordship. George Owen, writing in the early 17th century, lists the among the discrete holdings in the peninsula, the following - 'The Barony of Pembroke; Castlemartin; Stackpole and Bosherton; Angle' (Owen, 1897, 374); the Lordship of Castlemartin appears to have been a recent upgrading of the demesne manor, created for William Herbert in 1551 (Jones, 1987, 200).

Early lords of the Manor of Angle appear to have included Gilbert de Angle who joined King Henry II in his invasion of Ireland in 1171 and in return was granted lands in Meath (Owen, 1875, 86, citing Giraldus, *Expugnatio Hibernica*).

Upon the death without heirs of Anselm Marshal, Earl of Pembroke, in 1247, the Lordship and Earldom were divided among his four coheirs through the female line. Whilst the Lordship of Pembroke eventually passed to William de Valence, Angle passed to Gilbert de Clare, Earl of Gloucester, held in chief by Guy de Brian (Owen, 1918, 99-100). By this time at least, Angle comprised two knights' fees, and it was held in turn of de Brian by Richard de Angle. Interestingly, an unidentified 1/20th of a knights' fee was held by one Adam de Angle.

The tenure of Angle appears to have soon afterwards passed to the Shirburn family. Fenton, writing in 1811 (Fenton, 1903 edn., 219), claims that he had in his possession 'a very ancient deed', whereby Robert de Vale, the mid 13th century lord of Dale acting on behalf of de Brian, permitted Stephen de Angle and Phillip de Angle to grant the Manor of Angle to Phillip's son-in-law, Robert Shirburn,

Sheriff of Pembroke. The deed is discussed more fully in Owen, 1875, who therefore must have seen it, and dated to 1278 (Owen, 1875, 86).

ANGLE WINDMILL

The first windmill to be recorded in Pembrokeshire was at Angle, and the record is from this period. A charter of 1298 refers to '...a grant from Phillip de Angle to William de Rupe (Roch) of all his lands in the holdings of Angle, together with.....all his rents from his windmill at Angle' (Nash, 1986, 34; Owen, 1918, 263). The grant had presumably occurred when the manor was granted to Robert Shirburn in 1278. It has been suggested that this windmill was located elsewhere within the parish (SPARC, 1994) but this seems unlikely, and Rees, 1932, certainly thought the present windmill was the one in question, as did Nash in his paper on Pembrokeshire windmills (Nash, *ibid.*).

Shirburns are recorded as landowners in Angle into the late 15th century. At some period during the early 16th century Sir Rhys ap Thomas appears to have obtained lands in - or the manor of - Angle. He was a ruthless estate builder and held extensive lands and offices - Justice of the Principality of South Wales, Steward, Reciever and Chancellor of the Crown Lordship of Haverfordwest, Lord of Carew and Knight of the Garter. He died in 1525, his lands and possessions largely falling to his grandson, the 17 year old Rhys ap Gruffydd who was arrested for alleged treason in 1529 to be executed in 1531 (Rees, 1987, 33). A later agreement, made sometime between 1593 and 1603, reads '...(Late Rhys ap Gruffydd, late parcel of jointure of Katherine, Countess of Bridgewater) manor of Angle....windmill demised to John Bridge, indenture term of years, 23s. 4d....' (Nash, 1986, 40). Nash, *ibid.*, has suggested that this is when the mill was rebuilt in its present form (see below, 6). If John Bridge was the miller, he is the only early one from Angle whose name has been preserved.

ANGLE: SETTLEMENT MORPHOLOGY

Angle represents a planned village of probable post-conquest date, presumably closely contemporary with the establishment of the manor c.1100. The axial main street appears to have been a primary feature. A planned row, still represented by straight co-axial field boundaries north of the main street, is possibly of two phases but initially immediately post-conquest in date. Boundaries to the south of the main street may preserve the pattern of earlier fields. This type of regular row settlement can be found elsewhere in Pembrokeshire (eg. Letterston, Templeton) and in other parts of Britain and Europe. In all instances they appear to disregard the underlying terrain. The overall morphology is discussed by Kissock, 1990, 238-9 and Kissock, 1993, 17-18.

The windmill stands in a strip field that forms part of this co-axial system. The field was known as Windmill Hill at least as early as 1841 (NLW, Tithe map, Angle, 1841), and 'Windmill piece' in 1787 (NMR, Cawdor 76).

ANGLE: MODERN HISTORY

The Act of Union in 1536 abolished the Marcher Lordships of Wales and with them the Lordship of Pembroke. A new county of Pembrokeshire was drawn up on civil lines, and divided into hundreds. Angle came to lie within the Hundred of Castlemartin.

The Angle estate was in the hands of one Griffith White in the early 18th century. His daughter Elizabeth married one John Hooke and so ultimately Angle came to lie within the extensive Cawdor Estate. The Manor of Castlemartin had passed to the Cawdor line in 1720 when Gilbert Lort, the previous holder, died (Jones, 1987, 201). His sister Elizabeth inherited the estate and married Sir Alexander Campbell whose decendant, John Campbell, was created Baron Cawdor in 1796; his son was created Earl Cawdor in 1827 (*ibid.*, 201-202). A Campbell, John Hooke Cambell, was John Hooke of Angle's godson. He inherited Angle and was succeeded by his nephew John Campbell, Baron Cawdor (Ludlow, 1994, 8). The last Lord Cawdor at Angle died in 1821, but prior to this, in

1805, the Angle estate had been sold to John Mirehouse of Brownslade, from 1778 an agent for the Cawdor estate (Murphy, 1993, 10) whose family are still the major landowner within the parish, including the windmill, and still reside at the Hall.

Contemporary references to the windmill are mainly confined to map sources. It is marked on a chart of Milford Haven by Capt. Grenville Collins, surveyed in 1723 (Nash, 1986, 40) and one hundred years later on a plan of Milford Haven by Lewis Morris (NLW, Lewis Morris, 1793). However, the mill had apparently gone out of use by 1787 - it is not depicted on a map of that year, but the field in which it stands is termed 'Windmill piece (and road)' (NMR, Cawdor 76). In fact it was said that the last miller died in the 1780s; he was murdered and his house burnt down, and his spirit was supposed to haunt the windmill (Nash, 1986, 40).

Nash, *op. cit.*, suggests that the mill may have been adapted for use as a military observation post during the Napoleonic Wars - presumably on the basis of structural evidence (see below, 13).

ANGLE DURING WORLD WAR II

In 1941, Fighter Command, in conjunction with Coastal Command (Development Unit) acquired a large area of land in Angle parish to the south-west of the windmill. An airfield was laid out in the standard form of three connected asphalt runways and opened in June of that year, as RAF Angle (Thomas, 1997). Initially used by Hurricanes and Spitfires of RAF Group Fighter Command no.10 of the Fairwood Common sector, the airfield became disused as an operational station in January 1943 with the departure of 421 Squadron (SPARC, 1994), apart from a short exercise of gliders and Barnes Wallis' 'Bouncing Bomb' in Spring 1943.

Ancillary buildings and defence posts were established all around the airfield. A contemporary MoD plan of the airfield (MoD, AE 492) shows that the area including the windmill was termed Site No. 1. It included the main barracks area, which lay in the field directly to the west of the windmill, while in the north of the windmill field lay the station HQ Offices and latrine; the concrete roadway here dates from this period. More significantly, a Battle HQ was established immediately to the east of the windmill beneath the field boundary, a complex of below-ground rooms with a concrete observation cupola, that can still be seen today.

The windmill was adapted as a defence post, in a position where, had it not been present, a disguised post would normally have been established (Thomas, pers. comm.). A concrete floor was inserted and four concrete embrasures fitted with 'Turnbull' machine'gun mountings were inserted at first floor level (Thomas, 1997). It appears to have become disused with the airfield in 1943, and has since lain empty.

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PART 2 : ANGLE WINDMILL - A STRUCTURAL DESCRIPTION

LOCATION AND TOPOGRAPHY

Angle Windmill (NGR SM 8668 0194) lies upon a gentle north facing slope down to Angle Bay, at 57m OD. The solid geology comprises Devonian Old Red Sandstones which have weathered to a fine, rich fertile soil.

The windmill is situated within a rectangular north-south trending field, which forms a part of a co-axial system of properties dating from the immediate post-conquest period (Kissock, 1993, 17-18). The northern, eastern and southern field boundaries, which are hedgebanks with possible rubble cores, are probably early. The western hedgebank has been removed, presumably when the MoD straightened and enhanced the adjoining road in 1941 (MoD, AE 492), which itself was established after 1841 (NLW, Tithe map, Angle, 1841). Beneath the central section of the eastern hedgebank lies the Battle HQ (see above, 7).

The field is now pasture but, away from the windmill, was probably arable during the medieval period. There is now no physical evidence for associated medieval features.

THE WINDMILL

The windmill is a cylindrical, two-storeyed structure constructed from roughly coursed, medium-sized Carboniferous Limestone rubble from a local source. It was of 'cap-mill' (otherwise termed 'tower-mill') type (see below, 12).

It has an external diameter of 6m and an internal diameter of 3m, and is 4.6m in height, but has probably been truncated, possibly during conversion in 1941. The walls are 1.15m thick in their original form. The structure features no dressed stone. It appears to be mainly of a single build, with the exception of some later curious blocking and the World War II remodelling. There is only one surviving original opening, the entry, of broadly late-medieval/early modern type. Except for within one opening, there are no remains of any finishes, either externally or internally.

The windmill is a fine example of this type of building and the World War II alterations only add to its historical interest. It is in fair-good condition, but probably not complete (having originally been taller), and its superstructure, including the sails, has long gone. The walls are free from cracks.

The exterior

Externally, the structure is a plain cylinder to its full height of 4.6m above ground level. In its initial form, the exterior was almost completely featureless except for the entry.

The entry is on the ground floor and faces east. It has rough, shallow segmental rear- and outer arches with limestone rubble voussoirs, the outer arch lying 1.9m above ground level, the rear arch lying 2.1m above floor level. The intrados between the two features a corbelled ledge, clearly original. The entry displays jambs for a door, but the southern one has gone (weathered? removed?) whilst the lower half of the northern jamb is exaggerated into a half-height offset.

There are two curious vertical areas of blocking, opposite each other on the north and south sides. They average 1m in width, and rise from sills 0.4m above ground level to plain limestone lintels 0.8m below the present wall tops. The lintel to the south lies beneath a segmental outer arch like that of the entry. The blocking is of similar limestone rubble to the walls but uncoursed; the area to the south is pierced by a ceramic pipe at first floor level, a drainage feature inserted during World War II.

At first floor level are four openings, machine-gun loops inserted during World War II and facing north-east, north-west, south-west and south-east. They measure between 1.5m and 1.9m in width, but are only 0.5m high beneath thick concrete lintels at the level of the present wall top. Each has a

wide, shallow external splay, with brick reveals, into a timber-framed, square gunport 0.25m square. Internally, the openings also have wide splays with iron frames, the embrasures averaging 1.7m in width and 0.55m in height beneath thinner concrete lintels; that to the north-east has a lower sill with an offset beneath the gunport, and lies beneath a cement render. The internal wall face is carried diagonally across the circumference beneath each gunport, with two offsets (one to the south-east) up to sill level; these wall thickenings are also World War II. The gunports formerly featured 'Turnbull' machine-gun mountings (Thomas, 1997).

There are no other external features. The windmill does not stand upon a raised, artificial earthwork as do so many other examples. Indeed, the only external feature is the depression that has been weathered from around the circumference by the passage of livestock.

The interior: the ground floor

The ground floor was lined with brickwork 0.3m thick during World War II, presumably for strengthening purposes, and is now almost featureless apart from the entry.

It exhibits a flat ceiling of brickwork and corrugated iron, 0.35m thick and carried on north-south running iron girders. The floor was inserted during World War II with disregard for the original floor level which it may or may not respect. The first floor above is concreted. To the east, just north of the entry is a square hatch through the ceiling up to the first floor, which measures 0.55m square. A series of seven iron rungs has been let into the wall leading up to the hatch, also World War II work.

The interior: the first floor

The only internal features on the first floor are the embrasures for the gunports. These have been described above. The first floor is open to the sky, and there is no evidence for a roof having been present during World War II. The windmill may have been higher as originally built and there is similarly no evidence for an earlier roof.

DISCUSSION

The mill mentioned as having been established before 1278 on the site of the present mill (see above, 5) would have doubtless been of timber. It would have been a post-mill, in which the entire structure revolved on a central post and was turned to face the wind - this appears to have been the only type of windmill in use in Britain - or indeed, in Western Europe - during the medieval period (Nash, 1986, 35).

The present windmill at Angle was evidently of 'cap-mill' (otherwise termed 'tower-mill') type, ie. it comprised a tower upon which sat a rotating cap which housed the sails. The sails were turned into the wind through the use of a long tail-pole, which was fixed to the back of the cap and extended down to the ground, and which the miller pushed or pulled around, in some cases employing horse or ox power. The absence of any surviving evidence for a roof it is likely that Angle windmill was originally taller and always had two floors. The original height would then have been at least 5m, giving a sail-span of about 10m. Angle, like all early cap-mills, was confined internally, mainly due to the necessary wall thickness, and was probably restricted to a single pair of stones (Nash, 1986, 37); the World War II remodelling has erased all trace of the internal arrangements of the corn-grinding machinery.

Cap-mills appear to have been introduced to Wales during the late 14th-early 15th centuries having become first established in England (*ibid.*, 37). Nash speculates as to whether a number of windmills in Pembrokeshire recorded as in disrepair in the 14th century, but operational again by c.1550, were rebuilt as cap-mills (Nash, 1986, 37-8); and argues convincingly that a masonry cap-mill had been erected at Waterwynn, near Tenby, by 1553.

It is quite possible, therefore, that the mill referred to in the grant of 1593-1603, but referring to events in the 1520s, represents the present building, as suggested by Nash, *ibid.*, 40. The one

surviving original opening, the entry, is stylistically consistent with such a date. It may be that John Bridge himself was responsible for its reconstruction (see above, 5) under the patronage of Sir Rhys ap Thomas or his grandson, Rhys ap Gruffydd.

The mill does not stand upon a raised artificial platform. This was, however, a common feature and intended to give the cap and sails extra height (Vince, 1968, 13). In the case of many medieval and early modern mills, this mound is the only surviving physical evidence.

There are no remains of external finishes, and the only internal finish is of World War II date. A render finish was normally applied to windmill exteriors for weatherproofing (Vince, 1968, 14); when limewashed it also served as a navigational aid. The windmill at Dale, on the opposite shore of Milford Haven, still retains its whitewash (Nash, 1986, 45).

The cap, sails and tail-pole would all have been constructed of timber and are long gone. The shape of the cap is crucial to the classification and dating of mills, and in its absence only broad date-ranges can be applied. Caps can be conical, domed, gabled, 'boat-shaped', or ogee, and the shape is often peculiar to a geographical area (Vince, 1968, 15-18). No windmill survives complete with its cap in Wales but antiquarian prints and old photographs of windmills at, for example, St Davids and Tenby, show what appear to be boat-shaped caps (reproduced in Nash, 1986, 52-3). These are, however, rather later examples and the form of the cap in 16th century Pembrokeshire is unknown. The mill at St Davids is pictured with cloth spread on the sails.

The nature of the two vertical areas of blocking is unknown. Nash terms them 'openings' but forbears to comment further (Nash, 1986, 40). Their size and location appear to be unique, but there can be no doubt that the features are primary. It is more likely that they represent vertical chases rather than openings, but again it is difficult to assign a function to them. The blocking is later, and possibly represents the Napoleonic 'adaptation' suggested by Nash (*ibid.*), see above, 6.

The World War II adaptations, and the former presence of 'Turnbull' machine-gun mountings, have been described fully in Parts 1 and 2 and need no further discussion. However, it is possible that it was during these alterations that the windmill was truncated to its present height.

CONCLUSIONS AND RECOMMENDATIONS

The windmill at Angle was a former corn-mill, in its present form possibly dating to the 16th century. It succeeded a mill, doubtless of timber, that had been established before 1278 making it the earliest windmill recorded in Pembrokeshire. It belonged to the medieval Manor of Angle.

The present structure represents a 'cap-mill', in which a timber cap, housing the sail-mountings, was formerly turned upon a masonry tower to face the wind. The cap and sails would have been of timber and no evidence now remains. All evidence for the internal corn-grinding machinery has been similarly lost.

The mill was disused by the 1780s and was presumably stripped. It probably lay empty until World War II, although it has been suggested that it was used as a military observation post during the Napoleonic Wars.

During World War II a Battle HQ was established next to the abandoned windmill to serve the nearby fighter airfield. The windmill was converted into a defence post, involving internal alterations and the provision of four machine-gun loops.

The windmill is a fine example of this type of building and the World War II alterations only add to its historical interest. It is in fair-good condition and its walls are free from cracks. There is little external plant growth. The site lies within the Pembrokeshire Coast National Park. It is not a Scheduled Ancient Monument; neither is it listed. However, prior to any consolidation a themed, detailed survey must be undertaken, possibly to a stone-by-stone level (RCHME Level 4) of the standing remains, within their setting and context.

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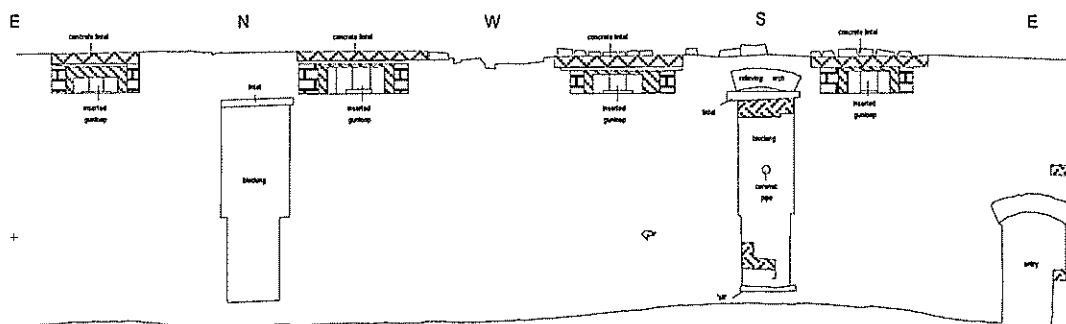
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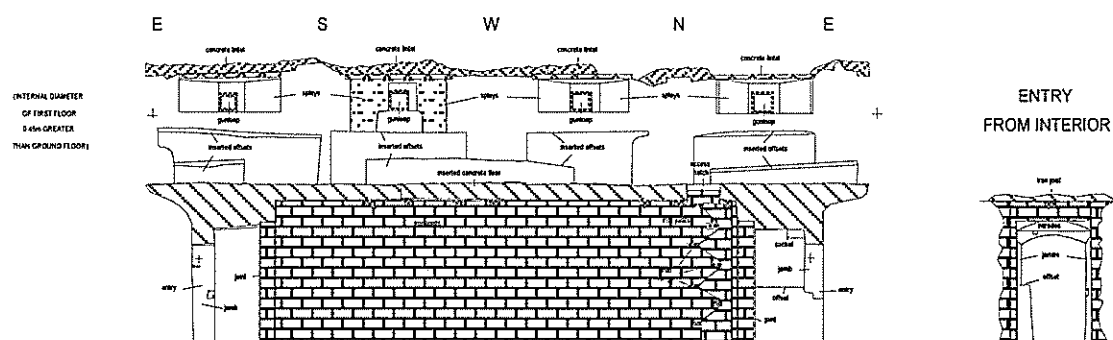
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EXTERNAL ELEVATION (OPENED OUT)



INTERNAL ELEVATION (OPENED OUT)



THE WINDMILL, ANGLE

Archaeolog CAMBRIA Archaeology

Survey by: M Trethowan & H Wilson

Scale 1:50

May 1997

Record No. 4386

