

LEW MILL, NORTHLEW DEVON

**ARCHAEOLOGICAL APPRAISAL
and HISTORIC BUILDING RECORDING**



January 2012

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1 Trinity Cottages
Cullompton
Devon
EX15 1PE

Project No. 179/2009

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Summary

Lew Mill is a former water-powered corn mill at Northlew, Devon. Its waterwheel and machinery were removed in the late 1970s. The building complex was Listed Grade II in 2009 and an archaeological and historic building appraisal was carried out shortly afterwards, to identify features connected with the building's milling history. A series of test pits, which were excavated to determine the depth of wall foundations, were monitored, in order to inform a proposed planning application for re-use of the buildings. Further recording and monitoring were carried out in 2011 at the commencement of site and building work.

Introduction

An initial appraisal was prepared at the request of [REDACTED] in response to a request from West Devon Borough Council and Devon County Council Historic Environment Service that an archaeological watching brief be kept on a series of test pits that were to be excavated in order to determine the depth of building foundations, and an historic building appraisal was made prior to the submission of a formal planning application for conversion and re-use of the former mill and other buildings. A preliminary site visit was made on 1 July 2009 and the archaeological watching brief and building assessment were undertaken on 21 September 2009.

Subsequent monitoring and building recording were undertaken in July and August 2011, as required by the Written Scheme of Investigation for historic building recording and archaeological monitoring and recording of groundworks, in accordance with *Planning Policy Statement 5: Planning for the Historic Environment* (PPS5) as Condition 3 of planning consent granted on application 00002/2010 and 00003/2010 for the conversion of the mill building to a dwelling. The Written Scheme of Investigation was based on a Brief prepared by the Historic Environment Service (HES) of Devon County Council, reference Arch/dc/wd 14414.

The former mill building was added to the statutory list of buildings of architectural and historic interest, Grade II, in May 2009 (Appendix A).

A copy of the site record and photographs will be deposited with Plymouth City Museum and Art Gallery under accession number AR.2010.29. A digital copy of the report will be uploaded onto the OASIS (Online AccesS to the Index of archaeological investigationS) database, under reference martinwal-81716.

Background information has been compiled from a variety of sources, which are referenced and acknowledged. The drawings are based on survey drawings prepared by Nils Westman Architects, to whom the writer is grateful for permission to use them.

This report includes revised information taken from an appraisal produced by the writer [REDACTED] in October 2009 and is intended to be read with the drawings and photographs attached.

Location

Lew Mill is situated in the northern part of the parish of Northlew, Devon, NGR SS 5138 0070. It is located to the west of a minor road that runs northwards along a small valley which descends from South Yeo to the river Lew. The mill building and a former cider barn to its west formed part of a small complex of buildings that once included a dwelling house and other outbuildings to the north (Figures 2 & 3). The site stands at about 94m above Ordnance Datum. The buildings are located on tongue of alluvial (river) deposits in the bottom of a small side valley that extends southwards from river Lew, the underlying geology being Culm Measures, mainly shales (Geological Survey, One Inch Series Map, Sheet 324 Okehampton, 1969). In 1889 the brief description of Northlew parish in Kelly's *Directory* noted that generally the 'soil is sand and clay; subsoil, stone'.

Historical background

Northlew or North Lew is first recorded in Domesday Book (1086) as *Leuia*, when it was held by the King. The place takes its name from the river on which it is situated, with the prefix *North* to distinguish it from Lewtrenchard (Thorn & Thorn 1986; Gover, Mawer & Stenton 1969, 154). The river name Lew is considered to be a British name, identical to the Welsh *lliw*, perhaps meaning 'bright stream' (Ekwall 1960, 297; Gover, Mawer & Stenton 1969, 8). The parish contained several Domesday manors: Lew itself, Rutleigh (formerly Redcliff), Gorhuish, and East and West Kimber (Hoskins 1954, 423). The earliest mention of a mill so far found in Northlew dates from 1364, when '1 messuage, 1 mill, 1 carucate of land, 20 acres of meadow, 10 acres of wood, 20s of rent in NORTHLYWE' are referred to (Reichel 1939, 429). The names *Milleham* and *Lewe Mille* both appear in a rental dating from the time of Henry VIII (Gover, Mawer & Stenton 1969, 154). In a 1544 deed of mortgage between John Cary of Okehampton and Robert Cary, his son, to Thomas Cary of Cokynghton, *mylls* are referred to among the various lands and tenements of the manor of Northlew (WSL, parish file, A4). In common with many other watermills in Devon, records of ownership and descent from the later Middle Ages to the 19th century are generally sparse and some confusion is likely as there are other mill sites in the parish (see Appendix C). Writing in the early-mid 20th century, W.R. Hervey noted that "There are Three Flour Mills with leets & water wheels, & corn lofts in The Parish. Lew Mill, Wigdon Mill [in Ashbury, which became joined with Northlew in 1876] & Crowden Mill. Lew Mill & Wigdon Mill are still and silent, but the water of the leet still turns the wheel at Crowden, & grinds the meal" (Hervey nd, 123).

The site of Lew Mill is about 1.7km north-north-east of the village. Its leat was taken off the stream that runs from the south, through Northlew village, just upstream of its confluence with a stream which flows from the west, and ran for about 1km, terminating in a mill pond above and to the south of the building complex (Figure 2). The tailrace, which ran north from the wheelpit, returned water to the river Lew on the upstream side of the bridge which has superseded a ford across the river, below Rutleigh. An historical note included in the listing description makes the interesting observation that 'The leat carrying water from the River Lew to Lew Corn Mill forms the edge of a late medieval field system. This strongly suggests that it was already in existence when the fields were established. It is therefore very likely that Lew Corn Mill is on the site of a medieval mill' (DCMS May 2009, see Appendix A).

At the time of the tithe award (1841) Lew Mill was owned and occupied by John Glass. His holding comprised about 23ha (over 56 acres), of which about half was arable land, the remainder comprising (in decreasing area) pasture, meadow, waste, copse, coppice and orchard (Figures 10 & 11). John Glass was recorded as miller in 1857, William Glass in 1878, William Glass and Son in 1897 and George William Glass in 1926 (trade directory entries transcribed by H.E.S. Simmons). According to Hervey's notes, cited above, the mill had stopped work by c.1944. It was about this time that the mill complex was bought from the Glass family by Mr Dufty's grandfather. It is understood that the waterwheel and machinery remained intact until the late 1970s, when they were removed; it is thought that some of the shafting and gearing was re-used in Town Mill, Okehampton.¹ It appears that accessible parts of the waterwheel were removed, while other components were buried in the backfill in the wheelpit (see below).

Description of the mill building

Exterior

The mill comprises a two-storey building with walls of stone and cob under a hipped slated roof. It is orientated almost north-south, with the waterwheel pit located externally on its west side. On the east side of the mill, against the west side of the road, is a rectangular space which, although now referred to as a granary, was built as an animal house or stock shed with ventilation slits and provision for fodder storage at first floor level. To the south of the mill is an open-fronted cart shed or cart linhay which fronts the road. The present square plan of the mill building is shown on the tithe map (Figure 1). To the west of the wheelpit area is a stone- and cob-walled barn that formerly housed cider-making equipment. This building and the cart shed are not shown on the tithe map of 1843 but both were built between then and 1885, when the fieldwork for the 1:2500 Ordnance Survey map was carried out (Figure 2).

The south wall of the mill is built into the natural slope of the ground. There is a ground floor window opening to the mill and narrow ventilation slits to the animal house at ground and first floor levels. The east wall, fronting the road, has a door at its south end, a narrow ventilation slit at ground floor level and a loading door at first floor level towards its north end. There are ground floor doors into the granary/animal house and mill at the north end, and a narrow ventilation slit in the north-west corner of the animal house. There is a straight joint in the wall between the west side of this window and the mill. On the west side of the mill door an external quoin stone has been carved with several initials and the feet of the door frame sit on neatly cut cylindrical stone blocks. There are two window openings in the north wall of the mill, the smaller towards the west side, which now houses the box containing the electricity meters and switches, formerly provided light to the mill machinery which was positioned along the inside of the wheelpit wall. There are two rows of dove or pigeon holes in the cob top section of the north wall, four to the animal house and three to the mill wall. Because the north end of the animal house is set back from that of the mill, the roof structure overhangs above the mill door, forming a small porch.

¹ In the late 1970s MW met David Harrison, who then owned the former Town Mill in Okehampton. Mr Harrison said that he had salvaged some machinery from a mill where the waterwheel was by the same millwright as that at Okehampton, (J. Luxton of Hatherleigh, whose name appears on the castings of the Okehampton wheel). Some of the salvaged machinery was set up in Town Mill, where it was photographed by MW in 1993. [REDACTED] has confirmed that the machinery at Lew Mill went to a mill at Okehampton, so it seems evident that this was Town Mill, where the machinery remains in turning order.

The pit wall, which is mostly built of rubble stone with cob above the head of the northernmost window, was formerly whitewashed. It is probably the oldest wall and is thus the most interesting, with several phases of openings, as well as evidence of movement and settlement and some recent patching and repair (Figure 6). There were formerly two openings at ground floor level, which indicate that there were once two waterwheels in line (see below and Figure 7). Below the upstream (south) wheelshaft opening is a small drain through the pit wall, which would have taken ground and possibly flood water away from the cog pit. At a higher level, there are a number of smaller square and rectangular recesses for timbers, some of which carried the ends of beams which supported the launder that took the water to the top of the wheels. The area of open-jointed masonry below the first floor window at the north end indicates where mortar was washed out when the lower (north) wheel was working. The shaft opening for this wheel was closed in concrete blockwork and the date 1979 is inscribed in the cement pointing. The shaft hole for the south waterwheel has a granite lintel (noted in the listing description). At first floor level there are two timber-framed windows, one set slightly lower than the other, under timber lintels, with slate cills. Both window frames have central mullions, the openings on each side of which are divided by a vertical iron bar. The north window had four horizontal glazing bars on each side and the external rebates on the frames and central mullion of both windows indicating that they were simply glazed with fixed panes. Three small high level recesses close to the stone/cob junction with cement pointing indicate the positions of beams or rafters that carried a roof which sloped down from south to north, which is understood to have been put over the former wheelpit after it was back-filled.

After removal of the waterwheel and machinery in the late 1970s, the wheelpit was backfilled to ground level. As part of the present works, the wheelpit has been excavated and the fill and debris removed. At its upstream (south) end the pit was about 1.64m wide, narrowing to 1.38m about half way along. It then splays out to 1.92m wide in line with the north wall of the mill. Part of the outer wall at the upstream end of the pit, where the shaped granite block that carried the outer bearing and some granite slabs were visible before excavation collapsed when the former wheelpit was excavated.

Interior (Figures 4 & 5)

The ground floor of the animal house falls to the north; it is cobbled with vertically-set flat stones (river worn cobbles), with a drain running along the foot of the east wall. A water trough remains at floor level at the south end. The west wall is built of narrow-coursed slatey stonework up to a height of about 1m, with sandstone rubble blocks above for about 0.7m, then thinner stone courses for a further 0.7m above that, being capped with cob, with timber studding and horizontal boarding above. Recesses in the stonework of this wall indicate the position of a manger or hay rack, which would have been fed from the floor above. The seven east-west beams that supported the first floor in the animal house remain, but the joists and floorboards have gone. There is a set of timber steps rising to first floor level in the north-west corner.

The ground floor of the mill is now very uneven, partly due to pigs being kept in there after the mill was gutted ([REDACTED]). There are remains of vertically-set stone cobbles in some areas (see Figure 5) and some isolated larger stones towards the north end. There is a water trough at floor level on the east side which, like that in the animal house, is a relatively modern insertion. Running from close to the south-east corner, parallel with the south wall, is a stone-lined drain about 18cm wide which appears

to have drained into the cogpit. It is rectangular in cross section and capped with concrete. The wall in the south-west corner, above the cog pit, has been rebuilt. The cog pit is stone-lined, the inner face at its south end being partly built into the south wall of the mill. There is a skewed granite beam across the north end of the pit, with evidence of a bearing having been fixed to its upper face. The wall that this bears on and which forms the north end of the present cog pit has been inserted, the east wall of the pit running northwards beyond it.

The northern cog pit area beneath the hurst (the timber structure that enclosed the machinery and supported the millstones) on the west side is filled with earth and debris and has not been excavated. There are several decayed horizontal timbers across this area and four vertical timbers on the line of the former hurst face. All are considered to be re-used or secondary and not part of the original hurst. The southernmost vertical timber is of oak timber with mortises and peg holes and chamfers on all four corners. Its lower section is worn, presumably from having been rubbed by pigs. Towards the north end of the former hurst face is a smaller vertical prop, a re-used oak timber 7.5 x 5cm in section with a series of regularly spaced holes (about 6.5cm centres) that contained small iron fittings or fastenings. This may be a beam from a tenter frame, on which newly-fulled cloth was stretched out to dry and shrink it. None of the tenter hooks now survive, but the spacing of the holes has close parallels with other examples recorded in Devon (Richard Parker, pers comm.). The surviving timber and stone features at ground floor level which are associated with the working parts of the mill are shown on the plan (Figure 5) and discussed further below.

The first floor is reached by a set of open-tread timber steps rising at an angle of about 45 degrees up the former face of the hurst (Figure 8). The timber first floor structure is basically intact, but large areas of boarding and some joists are missing. In the south-west corner the remains of a penstock control for the waterwheel projects through the west wall. There are also remains of the sack hoist mechanism, with the position of the sack traps, through which bags of grain were hoisted, surviving on the east side, with a sack platform formed of timber boards over.

The roof structure is common to both the mill and the animal house. The roof is fully hipped on all four sides, with two principal and two hip trusses orientated north-south. The roof trusses are of similar construction, with the principals lapped and bolted at their apexes, with low collars pegged and bolted on their west faces. There are three rows of purlins on the north and south slopes, running over the backs of the purlins, and three rows on the east and west hip slopes. The feet of the principals are built into the cob wall heads, rather than being carried on timber blocks or wall-plates. The roof timbers are generally of pit-sawn and hewn hardwood (oak and elm), some having been economically converted from relatively small trees and the structure appears to be of early 19th century date. The roof is clad with slate, noted in the listing description as being local Coryton slate laid in diminishing courses (Appendix A).

The cider barn

The cider barn is a stone- and cob-walled building, orientated approximately north-south, its south end being built into the natural slope of the ground. It was built sometime between 1843 and 1885, presumably to house an apple mill and cider press, as well as providing cover for vehicles. At the time of the tithe award, the Lew Mill holding

included just over half an acre of orchards, which were located on both sides of the road to the south of the mill house (shown on the Ordnance Survey map, Figure 2). The cider barn has a ground floor door with a first floor (loading) door over at the south end of its west elevation and a wide doorway at the north end, slightly offset to the west, with heavily chamfered stone jambs internally and vertical stone and cob piers externally. On the east side, facing the pit wall of the mill, is a blocked opening built to take a drive shaft directly from the waterwheel. This drove an apple mill slung below the first floor, a familiar arrangement in Devon cider houses. The remains of part of the apple mill were found in the backfill of the wheelpit (see below). At the south end of the east wall, close to the retaining wall of the millpond, is a window opening with the remains of a timber-framed window. There is a doorway to first floor level in the south east corner, which would have provided access for bringing apples in to be placed in the mill. There may not have been a full first floor, as joist holes are visible only at the south end (see photographs). The roof has three full and two hip bays, with four trusses orientated east-west. The feet of the principals sit on the head of the cob wall. The principals are lapped at their apexes, with a vertical board to support the ridge. The trusses have low collars bolted on their north sides and three rows of through purlins. There is a central hip rafter at both the north and south ends. The roof is clad with corrugated metal sheeting.

Remains of the working parts of the mill

The waterwheel and gearing were removed in the 1970s and only fragmentary evidence of the working parts of the mill was identified during the preliminary assessment. Further remains, including parts of a waterwheel, some structural timbers and remains of an apple mill were found during removal of the fill in the external waterwheel pit and internal cogpit.

Waterwheel

The last waterwheel (south) appears to have been overshot, fed at the top via a timber launder. It was of timber and iron construction, mounted on a timber shaft. At both ends of the shaft position (one inside the mill, the other on the west side of the wheelpit) is a shaped granite block with a curved recess, to allow for the rotation of the shaft, and iron plates on which the shaft bearing pedestals were located. Part of the outer end of the timber shaft was found in the wheelpit fill. It was about 1.37m long and 0.45m in diameter over the outer ring at its end. An iron cross-tail gudgeon which formed the end bearing was still in place, held in by three gudgeon rings. The cross-tail gudgeon from the inner end of the shaft also survives on site. Three cast-iron shroud sections [the curved sections that form the circumference of the wheel and carry the buckets] were also found in the wheelpit fill. Two are from the inside face of the wheel and one from the outside. These sections are 20.5cm deep, with integrally cast flanges that located the ends of the timber bucket boards. From measurements taken of these components the waterwheel was about 3.8m (12ft 9in) overall diameter by 1.22m wide, with 42 timber buckets, each formed of three boards ('elbow shaped'). The wheel had two sets of six timber arms, 15 x 7.5cm in section, part of one being found in the wheelpit fill. There was an annular ring gear attached to the outer (west) set of arms from which a drive was taken to the apple mill (Figure 8 and photographs). This gear comprised a chunky timber ring made in sections with arc-shaped cast-iron toothed segments bolted onto its inner circumference. There appear to have been 13 gear sections each with 13 teeth, giving it a working diameter of about 3.05m (10ft).

The lower (north) waterwheel appears also to have been overshot and, by measurement and from the evidence still visible on the pit wall, was of similar dimensions to the upper wheel, 3.6 to 3.8m in diameter by 1.22m wide.

Other working parts

Beside the cog pit on the ground floor of the mill two lateral timbers set on top of the inner bearing block acted as bearers for a horizontal timber that carried the bottom bearing of the upright shaft. If the machinery which is now *in situ* in Town Mill, Okehampton, is from Lew Mill as thought, then it represents a fairly typical layout of spurwheel under-driven gearing (see Figure 9) and is a good 19th century blend of timber and iron millwork. The timber which carried the top bearing for the short upright shaft (the vertical shaft which was driven by the pitwheel and transferred the drive to the millstones) the position of which was adjusted by wedges, is still in place (see photographs). A granite beam set at an angle across the downstream (north) end of the cog pit once carried a bearing for a horizontal shaft, an ancillary drive taken off the pitwheel. It is likely that this provided a secondary drive function for the sack hoist and the grain cleaner, although exactly how this was arranged is unclear. There is a second horizontal bearing position on the east-west timber set into the floor at the foot of the re-used bridge post further to the north. This does not appear to have been a heavyweight bearing and its exact function is unclear.

Also found in the debris cleared from the waterwheel pit were three decayed structural timbers from the hurst, the timber frame that supported the millstones and their drive. These timbers comprise two bridge posts and a bridge tree (Figure 12), all probably of oak. Both bridge posts have double mortises, indicating that they were rear posts, formerly located against the pit or back wall of the mill. The bridge tree, which spanned between the rear and front bridge posts and carried the foot (bottom) bearing of the millstone drive spindle, has the remains of a pair of tenons at one end and a long, single tenon at the other.

In the debris cleared from the cogpit within the mill was an iron mace, a circular casting which was mounted on the top of the millstone spindle, with a slot for the bridge or rynd by which the upper millstone was turned, and a forged damsel with four raps and a square socket end, which shook the feed shoe to deliver grain into the eye of the runner millstone (see photographs).

At ground floor level in the mill is a displaced cylindrical screen from corn cleaner, along with central spindle and beaters, the remains of a typical 19th century machine which would have usually been located at first floor level and used for cleaning grain prior to milling. The cylinder is 1.1m in length and 34cm internal diameter, with 10 timber ribs.

At first floor level a millstone (a bedstone) 1.22m in diameter survives *in situ* towards the north end of the hurst, supported on timber beams which form part of the first floor. This stone is visually identified as being of Old Red Sandstone conglomerate. Its source was probably the Wye valley, from where considerable numbers of millstones were imported into the south-west peninsula in the post-medieval and early modern periods. Two other millstone positions are indicated by the timber skirtings that surrounded and located them, one *in situ* at the south end of the first floor, the other now displaced. The working position for the latter is not certain, although it was most likely in the position shown on the plan, Figure 8. The millstone position at the south end is offset rather than being in

line with the centre of the vertical shaft, in order to fit it in close to the south wall. This indicates that the last gearing layout was fitted in to an existing space without altering the centreline of the waterwheel. There is a typical mid/late 19th century circular millstone case (tun), also displaced at the north end of the first floor.

There are remains of one of the traps through which sacks were lifted on the east side of the first floor as well as parts of the sack hoist mechanism and support structure (see photographs), including a boarded platform at high level, although there is no real evidence of an extended loft floor.

On the first floor beams in the animal house is a displaced timber bevel gear, made to fit a hexagonal timber shaft. It carries approximately 30 inserted timber cogs with a maximum pitch of 83mm (3¼in), suggesting a relatively early 19th century date for its construction (Stoyel 1997, 13). This centre of this gear indicates that it was mounted on a hexagonal-section timber shaft 30cm across the flats. This gear does not appear to be part of the last working machinery of the mill.

Also recovered from the debris filling the wheelpit was the remains of an apple mill – some substantial timbers with two coarsely-toothed iron rollers which performed the primary breaking up of the apples – and a square section iron shaft with the remains of two timber belt wheels or pulleys mounted on it. The shaft and pulleys may have been part of the drive to the apple mill (see photographs).

Discussion and interpretation of the mill layout

Several phases of development are evident in the structure and fabric of Lew Mill. Although the surviving building layout and roof structure appear to be of 19th century date, there is clear evidence that the mill once had two overshot wheels in line in the wheelpit on its west side. This is confirmed by the position of the millstone that survives in the floor at north end, the evidence for a full length cog pit inside the west wall, and the small ground floor window at the north end, which would have provided light for lubrication and maintenance of the machinery within the hurst frame. In Devon such a layout can be considered to be of late-medieval/early post-medieval (16-17c) origin, by comparison with other known examples, such as Bidlake Mill at Bridestowe, which was rebuilt in the 1560s (Watts 2005, 41) and Dowrich Mill, Sandford. It is possible that at some time the two wheels drove machinery for both corn milling and fulling (as implied at Bidlake), although neither the documentary nor the remaining physical evidence at Lew Mill can confirm this. The cottage to the south of the mill is called Tucking Mill, as it was in the tithe award. From its location and distance from the watercourse it appears to be an unlikely candidate for a mill site, and it is feasible that an association with a tucking or fulling mill nearby could have been responsible for its name. The vertical timber at the north end of the former hurst frame which may be a beam from a tenter frame has been described above.

Latterly Lew Mill was a corn mill, and the survival of a bedstone *in situ* at the north end of the hurst suggests that the two-wheeled arrangement survived into the early 19th century. The last waterwheel was of iron and, if the writer's information is correct, was made and/or installed by J. Luxton of Hatherleigh, which would date it to the second half of the 19th century, perhaps even to the last quarter (*inf ex* Martin Bodman). This suggests that the mill was remodelled with a single waterwheel, latterly driving two pairs of stones, ancillary equipment and a hoist, sometime during the second half of the 19th

century. It is simply referred to as Lew Corn Mill on the large scale OS maps of c.1888-1904, indicating a general, local milling trade, rather than a specific flour trade, so having much in common with many rural corn mills in Devon in the late 19th century.

Conclusion

Lew Mill appears to have late medieval origins, the oldest surviving structural evidence probably being found in the fabric of the west (wheelpit) wall, although this is not closely datable. The corn mill was remodelled, both structurally and mechanically, in the 19th century, and the cider barn and cart linhay were added between c.1840 and 1888. The use of waterpower to drive an apple mill, for reducing apples to pulp for cider making, as well as for driving millstones, dates from this time. Built of local stone and cob under hipped slate roofs, this small complex represents a good example of 19th century local Devon vernacular building. Regrettably little has survived of the working parts of the mill, due to the wholesale removal of the mill machinery in the 1970s. Nevertheless the mill building retains some features of interest, summarised above, that enable an understanding of its mechanical development and an interpretation of its last working layout to be pieced together.

Martin Watts
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Acknowledgements

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Appendix A

Listing description

506891

NORTH LEW

LEW VALLEY
Lew Corn Mill
II

Corn mill, probably early-C19, with possible medieval origins.

MATERIALS: Mainly stone with cob above and hipped roof with Coryton slate in diminishing courses. All the openings have wooden frames and lintels except for the axle hole which has a granite lintel.

PLAN: Irregular shaped mill with rectangular granary attached to the east.

EXTERIOR: The northern elevation includes two doors, one leading into the granary on the left and the other into the mill, a pair of windows and two groups of pigeon nesting boxes. The eastern elevation which is adjacent to the public highway has a doorway and slit window on the ground floor and a large loading door on the first floor. The southern elevation faces the cart shed, has a small opening and slit window at ground level and a narrow slit window on the first floor. The western elevation, to which the wheel was attached, has a large number of openings some of which have been blocked. The southern of the two openings at ground level carried the axle of the wheel into the mill, the other may represent the site of an earlier axle opening. At first floor there are two window openings, a door and adjacent to this a metal rod which would have connected to the sluice above the overshot water wheel.

INTERIOR: The interior is divided into two rooms. The eastern room (Granary) includes a large space with floor joists denoting the position of the first floor. The roof is supported by a single double braced A-frame truss carrying purlins and three substantial timbers supporting the hip. Within the western room (mill) elements of the original milling process are still clearly discernable. On the ground floor adjacent to the western wall is a pit wheel with associated timber axle bearing block with metal fittings. The first floor is supported by a series of substantial beams some supported by ample posts. Although many of the floor boards have been removed the housing for two millstones, one of which remains in place, together with access and sack hatches survive. The remaining millstone is a bedstone and is situated in the north west corner of the building. In the roof timbers further evidence of milling includes a hoist and the possible remains of a grain hopper.

HISTORY: The leat carrying the water from the River Lew to Lew Corn Mill forms the edge of a late medieval field system. This strongly suggests that it was already in existence when the fields were established. It is therefore very likely that Lew Corn Mill is on the site of a medieval mill. The existing structure does not however have any obvious particularly early elements, although traces of the earlier building may have been incorporated into the structure now standing. The earliest Ordnance Survey (1886) depiction of the mill complex shows it was standing at that time, together with a group of other buildings immediately to the north, which have subsequently been destroyed. Judging by materials and construction techniques, the mill clearly pre-dates this. The northern buildings were the miller's accommodation. The mill ceased operating in the C20 and some parts of the machinery were removed to renovate a mill in Okehampton. In recent years the buildings have been used for agricultural storage.

Dated 27 May 2009

Appendix B

Note on test pit excavations

A series of test pits were excavated, in order to determine the depth of wall footings and the nature of the ground adjacent to the buildings. The positions of these pits are shown on Fig.A. Most of the pits were dug by machine, to varying depths, but generally only deep enough to expose the wall foundations. Most of the stone footings were found to be at or only just below the present ground levels. The underlying subsoil was generally a mixture of yellow/grey clay and shillet, which is reflected in the colour and composition of the cob used for the upper parts of the walls. No finds or other dating evidence were found. The following summary is based on observation during and after excavation.

TP 1: shallow excavation exposing wall foundation at ground level, rubble stone laid on clay and shillet subsoil.

TP 2: shallow excavation exposing well-laid thin stone rubble walling to ground level, laid on clay/shillet subsoil.

TP 3: against north wall, excavated to c.0.8m depth, rubble stone walling continues down to at least 0.5m below ground/yard level, excavation filled with ground water to that depth.

TP 4: shallow rubble stone footings on clay/shillet subsoil.

TP 5: loose fill in former wheelpit, not excavated to any depth. Pit wall (west wall of mill) assumed to be of stonework to bottom of wheelpit.

TP 6: rubble stone wall at corner laid on clay/shillet subsoil, just below present ground level. Excavation exposed a granite slab, 1.1m from corner, 1.5m long x 0.58m wide x 0.19m thick at east end, sloping down to west (towards tailrace). Loose surface fill included displaced yard cobbles, which must have extended over much of the area in front of the mill.

TP7: shallow excavation exposing rubble stone footing of wall built off clay/shillet subsoil close below present ground level, as elsewhere.

TP 8: Exposing south wall of mill, rubble stone on clay/shillet, cut into natural slope.

TP 9: south-east corner of mill, exposing inclined slate slab, possibly over or forming drain (not lifted), with evidence of lime mortar bedding. Stone wall sitting on natural clay.

TP 10: small hand-dug pit, revealing foot of rubble stone wall on clay/shillet subsoil just below present ground level.

TP 11: exposing poor rubble stone wall, no mortar visible between stones, with clay covering – presumably as waterproofing at east side of former millpond.

TP 12: rough rubble stone south face, built off clay/shillet subsoil.

TP 13: excavated to c.1.5m below external ground level, exposing rubble stone wall of consistent thickness built on clay/shillet platform cut back into natural slope of ground, with V-shaped cut against wall filled with water-worn stones, to act as drain.

TP 14: line of vertical stone cobbles, outer edge about 0.22m off inside of south gable, with remains of half-round clay tile drain which appears to fall from west to east, perhaps draining to wheelpit, within side walls of barn. Loose cobbles and soil/debris forming floor.

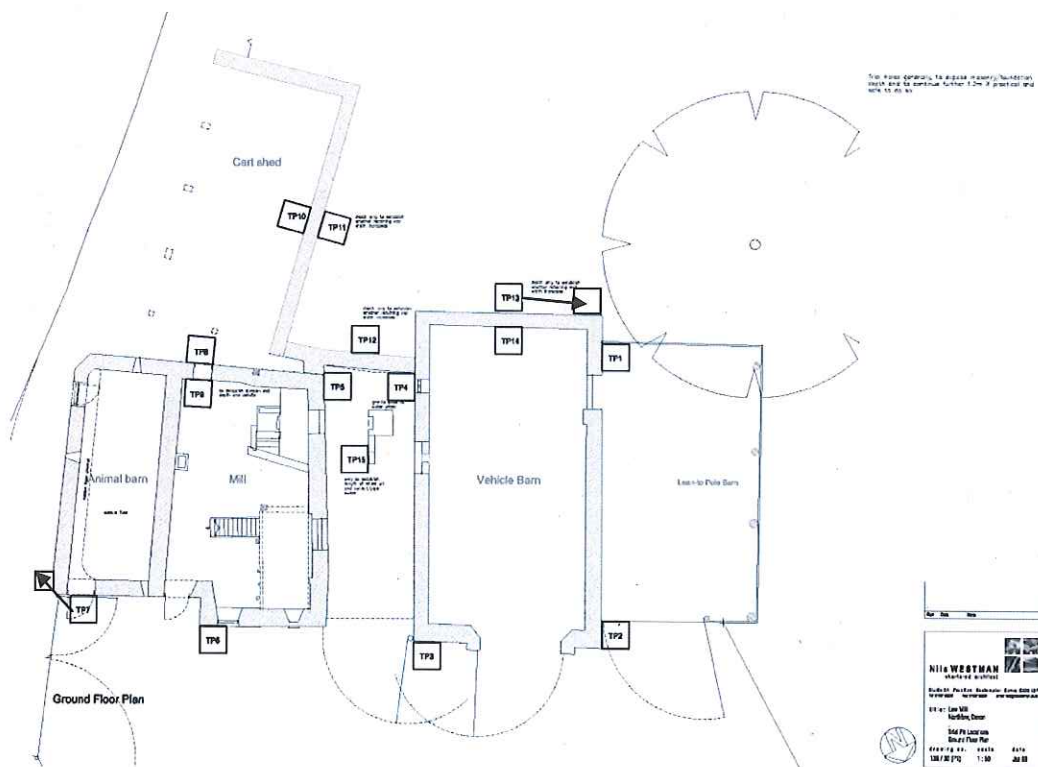


Figure A: Lew Mill: positions of test pits. Plan courtesy of Nils Westman Architects

Appendix C

Notes on mills/mill sites in Northlew

Crowden Mill is located in the hamlet of Crowden, about 1.4km to the west of the church (at SX 492 997). It is said to be of late-17th century origin, the surviving building dating from before 1721 (DCC HER 75776). It was fed by a short leat from the river Lew. It was sold for conversion in 1983 and its machinery was subsequently removed. In 1841 it formed part of a small holding of c.3.8ha (a little over 9½ acres), owned and occupied by John Lavis (DRO TA). An earlier mill site to the west of Crowden, upstream from Stock Hole Bridge, appears to be indicated by a series of field names called Long, Lower and Higher Old a Mill and Old a Mill Meadow in the tithe award (centred on SS 484 001). A possible leat was identified during archaeological investigation on the course of a pipeline in 1990 (DCC HER 37916; 44563). This mill may have been associated with Whiddon, to the west, or possibly Northlew Manor, which is a short distance to the north.

'Mill House' is listed in the tithe award at (approx. SX 507 990), to the west of Millcombe Down.

'Milltown' appears on the Ordnance Survey maps at SS 505 000, as the name of a building complex standing about 0.8km north of Northlew church. This was a farm at the time of the tithe award, with no particular evidence for it being associated with a mill site, although the farm is located on a spur of land slightly upstream of, but overlooking, the weir and leat take-off for Lew Mill.

There are two pieces of evidence for tucking, or fulling, mills in Northlew. Close to Norley bridge (at SS 501 000) Little Tuckers Hill and Great Tuckers Hill are recorded as field-names in the tithe award. 'Tucking Mill' is similarly listed as dwellings, house, garden and orchard comprising just over half an acre, owned by John Vowles and occupied by – Worth. The house, still called Tucking Mill, is located just to the south of Lew Mill. In 1866 & 1878 John Worth was recorded as a farmer at Tucking Mill in the trade directories (Bodman 2002, 312).

No fieldwork has been carried out on these sites.

MW.10.09

Sources

Bodman, Martin. 2002. *Watermills and other water-powered sites in Devon*.
Unpublished compilation, copy in Westcountry Studies Library, Exeter

DCC HER: Devon County Council, Historic Environment Record

DRO TA: Northlew tithe award, map and apportionment, Devon Record Office, Exeter

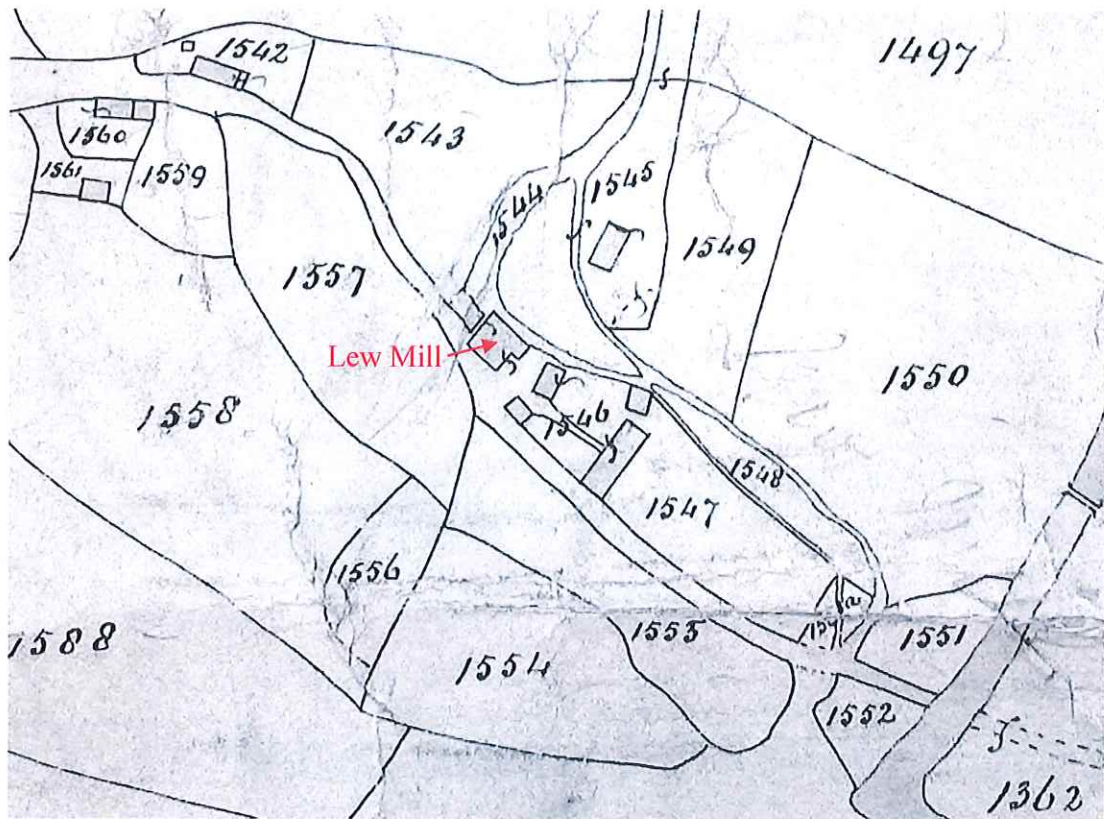


Figure 1: Lew Mill, detail from the tithe map of 1843 (north is to the lower right)

DRO

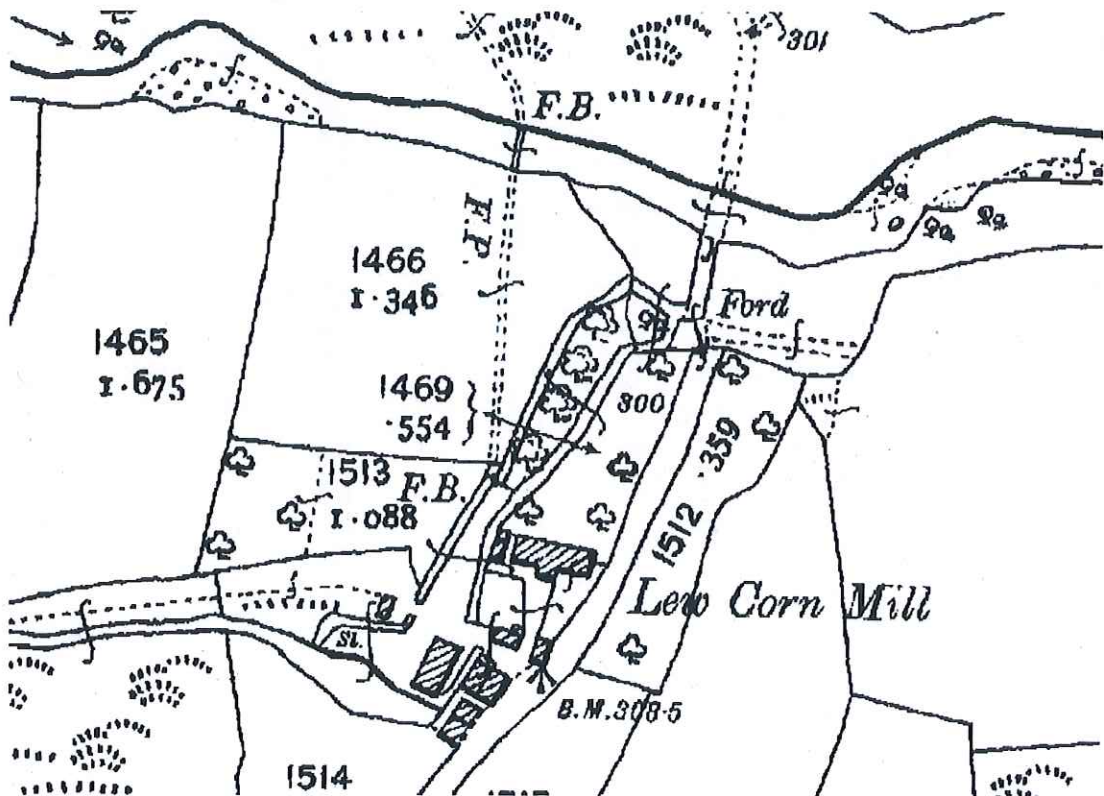


Figure 2: Lew Mill, Northlew, from OS 1:2500, 2nd edition of 1904.

Not reproduced to scale

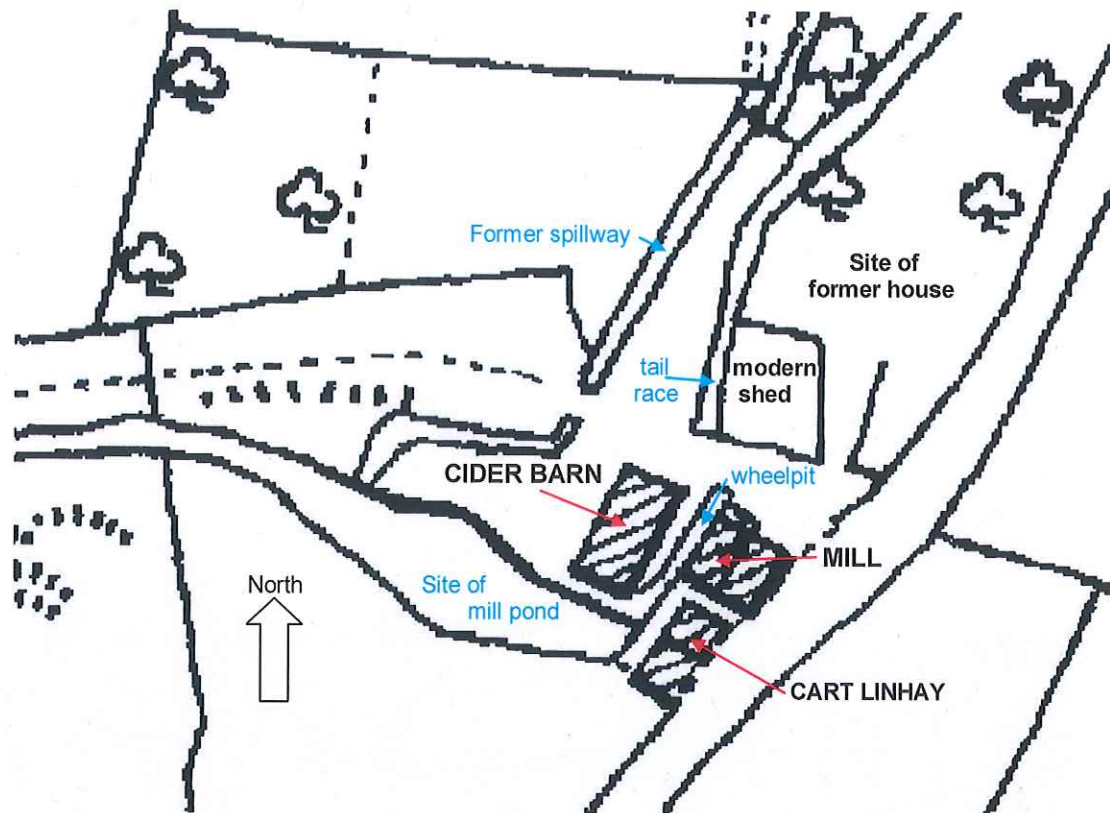


Figure 3: Lew Mill. Site plan showing principal buildings and features

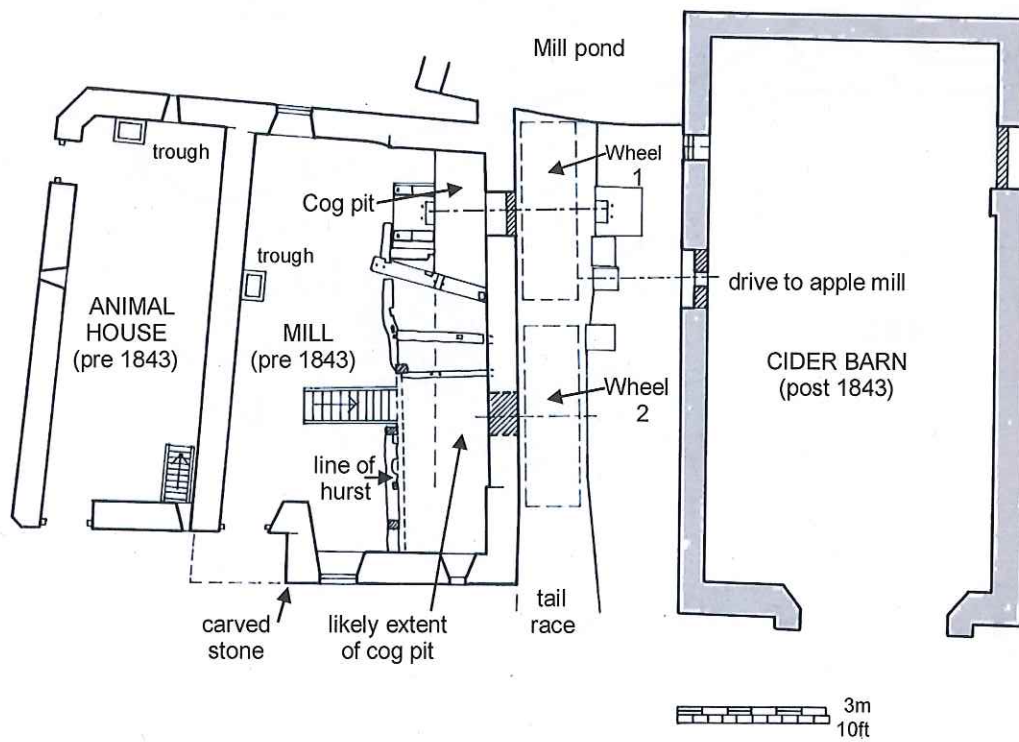


Figure 4: Lew Mill. Ground floor plan, principal features

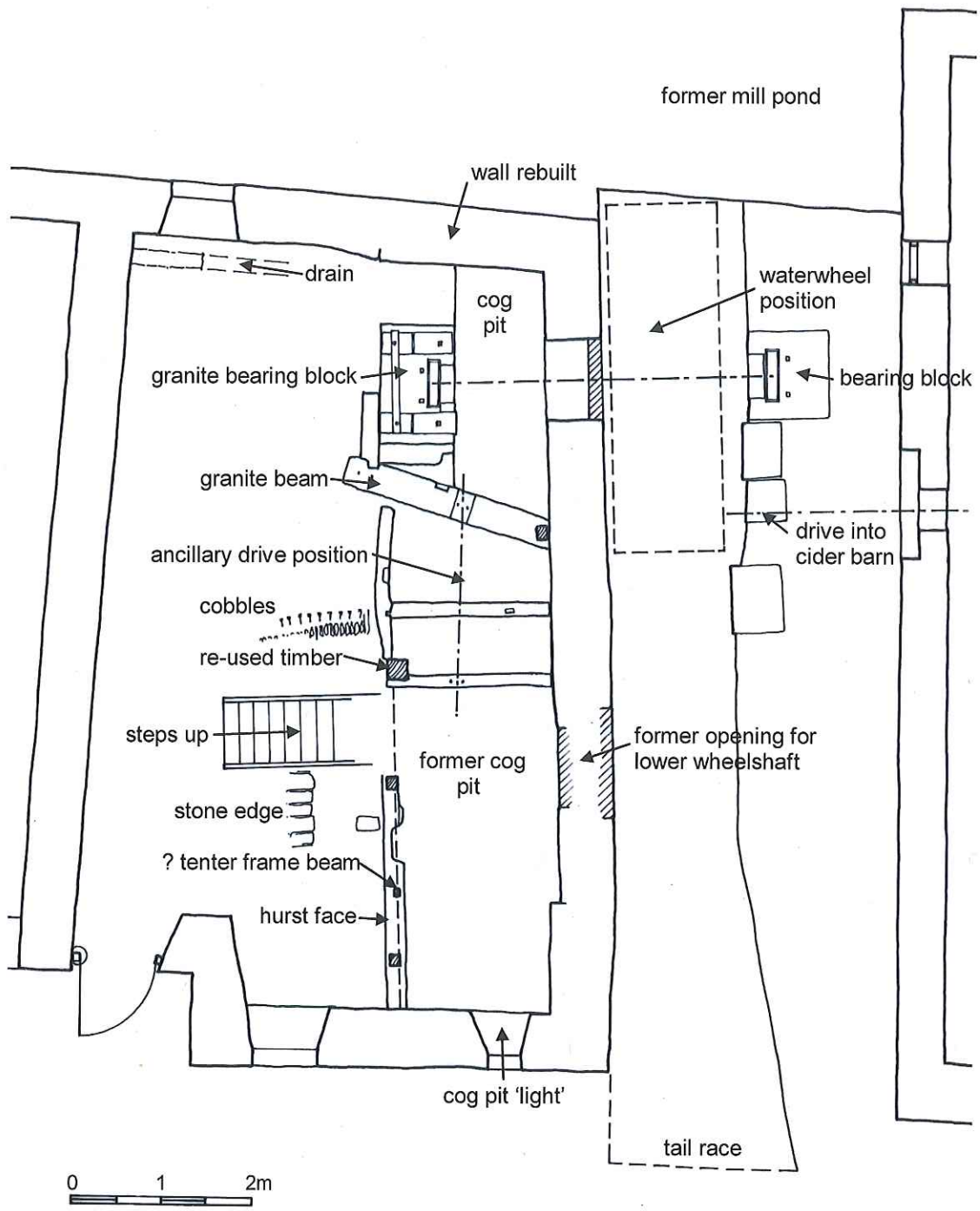


Figure 5: Lew Mill. Detailed ground floor plan of mill and wheelpit area

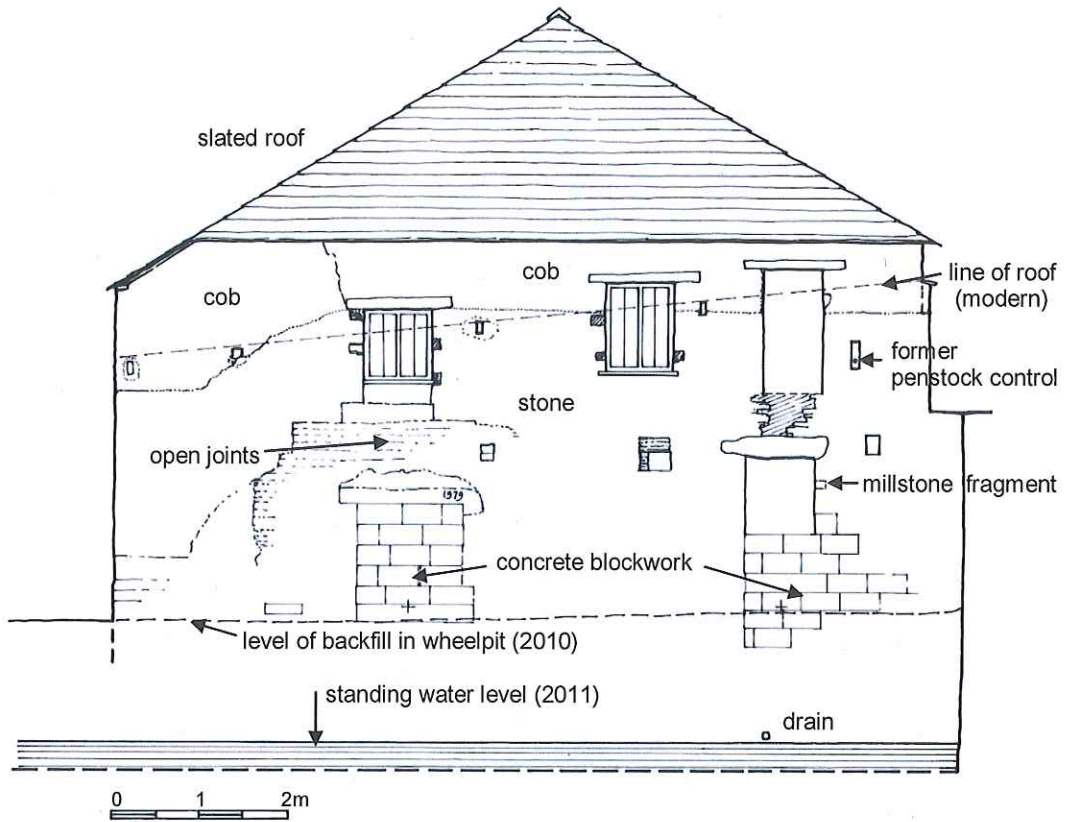


Figure 6: Lew Mill. West elevation of mill – wheelpit wall

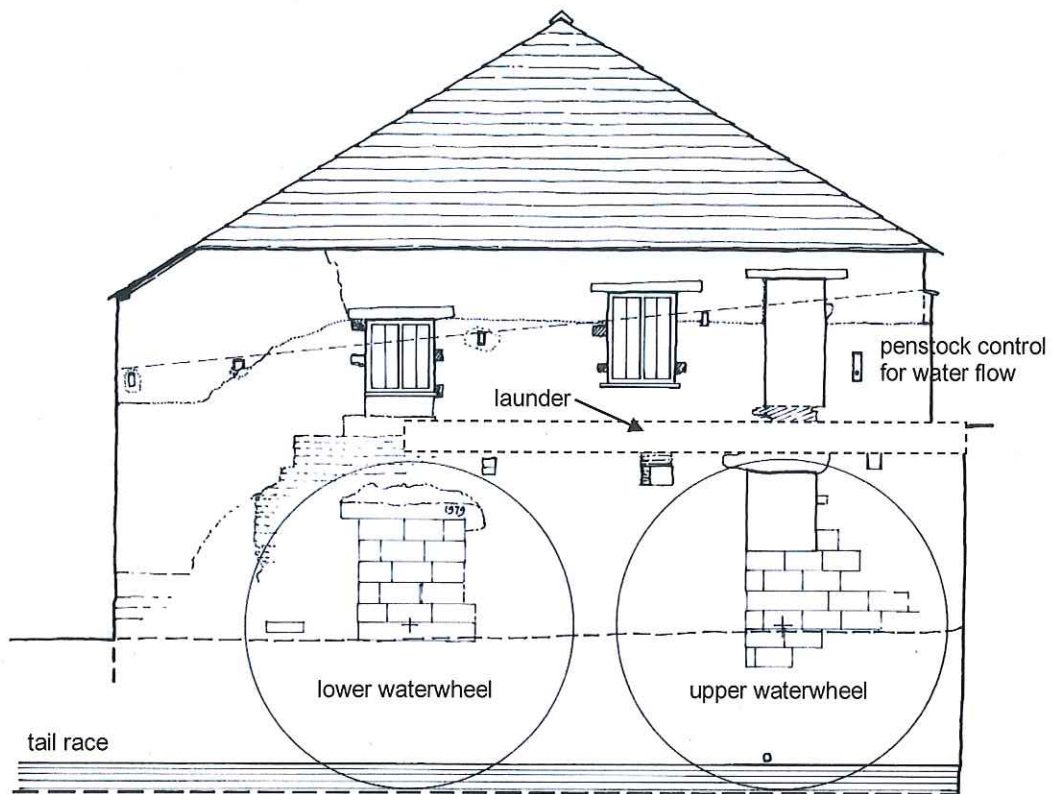


Figure 7: Lew Mill. West (wheelpit) elevation, showing positions of waterwheels

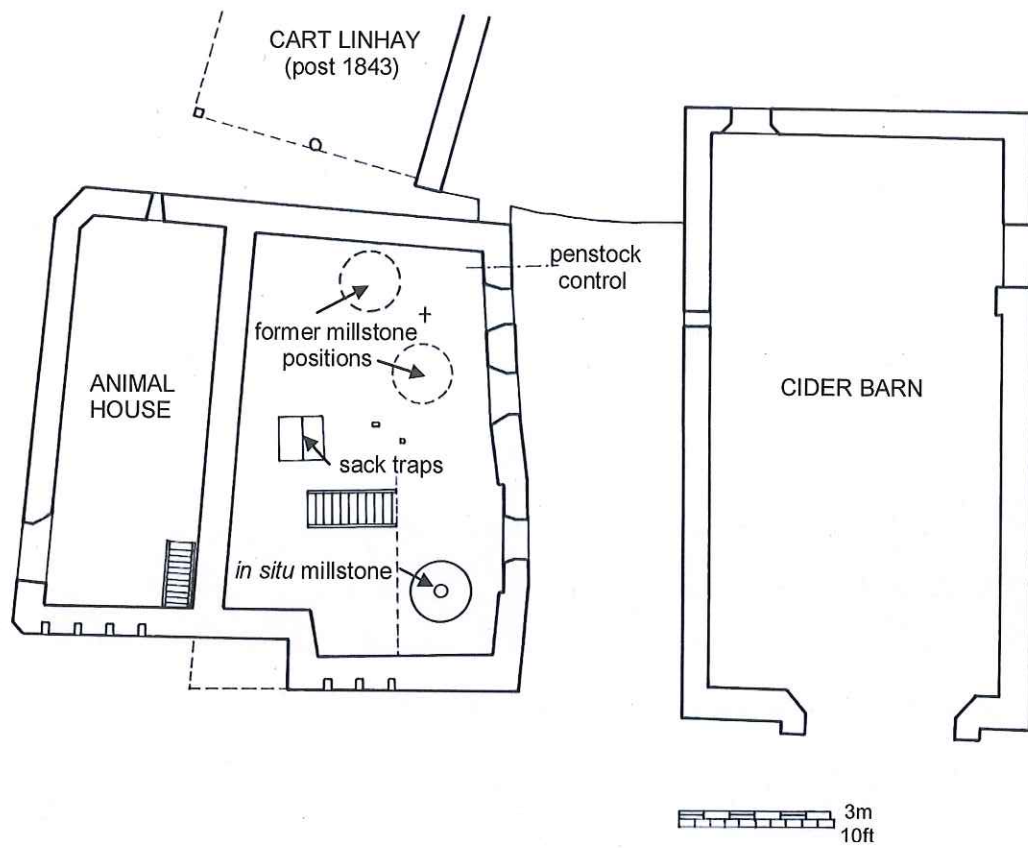


Figure 8: Lew Mill. First floor plan, principal features

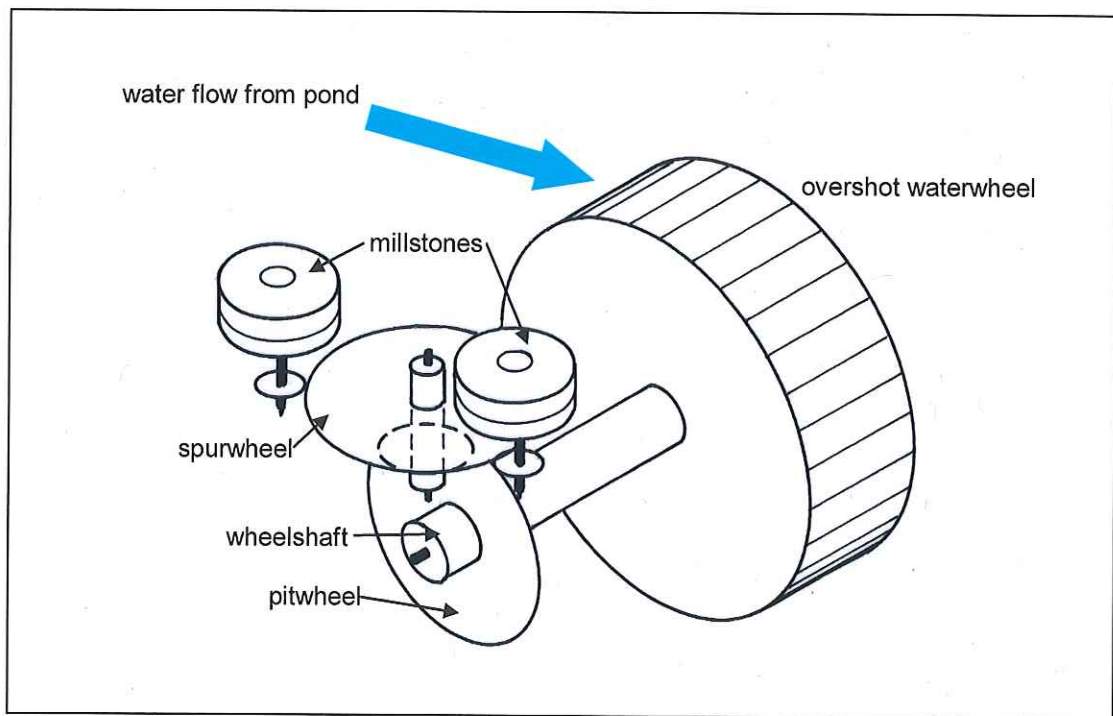


Figure 9: Lew Mill. Diagrammatic reconstruction of final phase of mill machinery at south end



Figure 10: Lew Mill, Northlew, from the tithe map of 1843

DRO

Lew Mill				
1546	Dwelling house Mill house			
	Yards & Buildings		33	
1547	Orchard		1 3	1 11
1578	Copse		15	
1549	Garden plot	Meadow	1 24	1 10
1530	Mill Meadow	do	1 1 23	5 11
1575	Waste		1 32	
1544	Mill Leat		2 19	
1467	Lower Middle Ham	Meadow	1 3 3	6 11
1467	Upper East Ham	Arable	5 2 23	15 11
1496	Island	Meadow	1 25	4 8
1498	West East Ham	Arable	4 17	11 8
1495	Ten ham	do	5 3 16	19 11
1493	Higher ten ham	do	3 3 37	2 6
1494	Island	Copse	1 17	8
1499	West Ham	Arable	5 1 28	14 10
1500		Copse	2 15	10
1501	Lane & waste		1 20	
1502	Near Ham	Arable	5 1	11 11
1491	Island	Pasture	1 15	1
1492	Island	do	38	11
1474	Waste		28	
1457	Broad Mead Copse	Pasture	4 1 13	3 8
1461	Broad Mead	do	10 1 24	17 11
1553	Orchard		1 20	2 10
			56 3 17	6 5 10

Figure 11: Lew Mill. The extent of John Glass's holding, from the tithe apportionment 1841

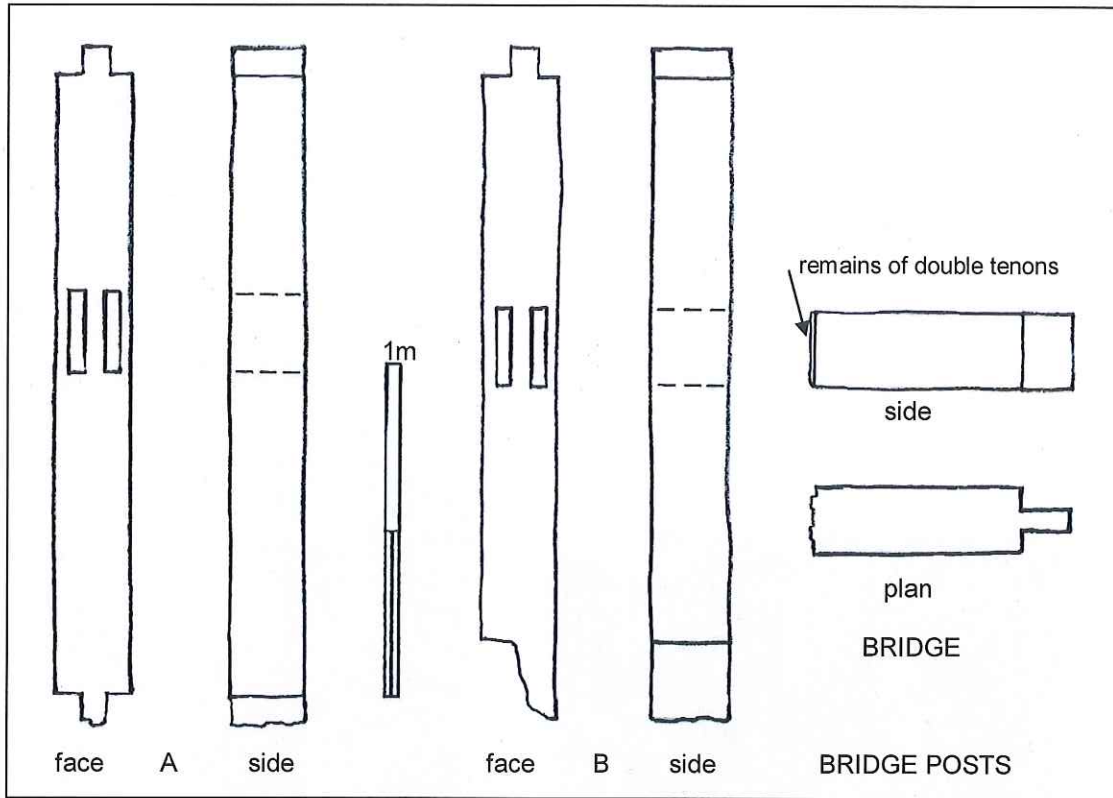


Figure 12: Lew Mill. Bridging timbers from hurst, recovered from wheelpit fill



Iron gearing and timber upright shaft in
Town Mill, Okehampton, Devon,
probably that from Lew Mill
30 October 1993 Martin Watts

2009 photographs



Cider barn and Lew Mill, from south (pond)



Lew Mill, south-west corner



Cart shed and south-east corner of mill



Wheelpit

Bearing stone



Lew Mill, north elevation



1st floor window, west elevation (south)



Wheelpit (west) elevation, from north



1st floor window, west elevation (north)



Mill, ground floor looking south, under hurst



Hurst, north end. Possible tenter beam reused



Bearing block and south cog pit



Conglomerate millstone, 1st floor



Bearing point for upright shaft



Beams supporting conglomerate millstone



Timber bevel gear (in animal house)



Cylinder and shaft of corn cleaner



1st floor, looking south penstock control



Mill roof: general construction, looking east



1st floor, remains of sack traps



Mill east wall and roof from north-west



Remains of sack hoist mechanism



Millstone case and displaced stone skirting (behind) at 1st floor level



Remains of hoist and sack platform in roof



Mill, north elevation, and cider barn



Carved stone by mill door, north elevation



South end of cider barn



Mill door threshold



Position of mechanical drive into cider barn



Roof of cider barn, looking south



South-west corner of cider barn



Interior of cider barn, looking south

Additional photographs 2010-11



Wheelpit area prior to excavation, June 2010



Granite blocks on west side of wheelpit



Upstream end of wheelpit during excavation
July 2011



Looking west across wheelpit to bearing
block



West wall and excavated wheelpit, flooded,
August 2011



Miscellaneous debris from wheelpit
excavation, including remains of timber arm
from waterwheel, July 2011



Remains of waterwheel and gear ring



Outer end of timber wheelshaft



Remains of waterwheel and gear ring



Part of timber gear ring from apple mill drive



Cast-iron shroud section of waterwheel



Remains of apple mill



Detail of shroud, showing bucket flanges



Bridge post



Drain in south-east corner, mill ground floor



Internal cog pit after clearance



South-west corner and cog pit



Damsel



Miscellaneous ironwork from cog pit clearance



Cross-tail gudgeon from inner end of wheelshaft



Lew Mill: north elevation, with cider barn to right. August 2011



Wheelpit during excavation and clearance, with mill to left and cider barn to right. July 2011



Wheelpit from downstream after clearance, showing standing ground water. August 2011



Animal house, adjoining east side of mill, after floor cobbles have been lifted. August 2011

Remains of working parts and mill-related artefacts

Waterwheel shaft (outer end) Remains of apple mill Waterwheel shroud



Waterwheel shroud sections Section of gear ring from apple mill drive

Damsel Roller/cutter from apple mill



Miscellaneous ironwork

