

**CAWSEY MEETHE MILL,  
KING'S NYMPTON, DEVON**

**HISTORIC BUILDING RECORDING**

**April 2014**

**Martin Watts**

1 Trinity Cottages  
Cullompton  
Devon  
EX15 1PE

Project CMM60/2014

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### Generally

This report has been compiled at the request of the building owner, to record the historic fabric and working parts of Cawsey Meethe Mill. It follows a Written Scheme of Investigation for historic building recording submitted to the Historic Environment Team (HET) of Devon County Council, for an historic building survey to support planning and listed building applications to North Devon Council.

The building which is the subject of this report was listed Grade II on 25 October 1988, as follows:

Cawsey Meethe Mill approximately 20 metres north-west of Cawsey's Meethe Farmhouse. Water mill. Probably late 18th century (1796 carved on beam) remodelled and extended in early to mid 19th century. Unrendered stone rubble. Slate roof with gable ends. The mill consists of two undershot water wheels, one each side of the leat, the lofted mill building itself straddling the leat with storage/granary facilities of single cell plan to each side. The original core appears to consist of the left-hand side section, the mill having been extended over the leat and on the right side in the 19th century. The stone floor, with provision for one set of stones, is situated over the right-hand section, with loft floor over left side. Exterior: largely obscured by ivy, there appears to be two shuttered windows on each floor and plank door at right end. Cambered arched lintel to leat entrance. Loft door over plank door at left gable end. Interior: two undershot wheels, the earlier, possibly late 18th century wheel situated to left, all timber construction and 19th century wheel to right are largely intact, as is the gearing and sluice arrangement. The millstones have been removed. Hopper arrangement survives to left-hand section which has 'IH 1796' carved on cross ceiling beam.

Department of Environment, 1988, *Kings Nympton* (List of Buildings of Architectural or Historic Interest)

The information contained in this report is taken from a non-intrusive site survey undertaken by Martin and Sue Watts on 14 April 2014. It is supplemented by notes and photographs taken on visits made by Martin Watts from 1989 onwards and from a report prepared for Jonathan Rhind Architects in August 2012. Historical and other background information has been compiled from a variety of sources which are referenced and acknowledged. The building recording broadly conforms to Level 2-3 as set out in *Understanding Historic Buildings: a guide to good recording practice* (English Heritage 2006).

Copies of this report will be deposited with the Devon County Historic Environment Service and a digital copy will be uploaded onto the OASIS (Online Access to the Index of archaeological investigationS) database under the identification number martinwal-176136.

## Location

Cawsey (or Cawsey's) Meethe Mill is located in the north of King's Nympton parish, at NGR SS 6772 2278. The mill is sited to the north east of Cawsey's Meethe Farm, on the flood plain of the rivers Mole and Bray, the latter joining the Mole at Meethe Bridge further to the north. The mill stands on a relatively level site at the west end of a leat that ran from a weir, now gone, across the river Mole, at SS 679 228 (Figure 4). The course of the leat, which is now largely dry except in times of flood or high rainfall, can still be followed upstream of the mill. The first and second edition Ordnance Survey 1:2500 maps shows a spillway channel running around the south mill and a tail pond immediately downstream, between the mill and the minor road to the west. The tailrace passes under the road and returned water to the Mole north-west of Cawsey Meethe Farm. A bench mark on the bridge over the tailrace is at 56.6m above Ordnance Datum. The ground rises quite steeply to the south of the mill and farm and the whole flood plain area, on which the mill stands, is susceptible to flooding.

The underlying geology comprises Carboniferous period (Culm Measures) sandstones and siltstones overlain by alluvium - river deposits of clay, silt, sand and gravel (<http://www.bgs.ac.uk/opengeoscience/> accessed 17.04.2014)

## Historical background

The available evidence suggests that Cawsey Meethe Mill is of post-medieval foundation. It is located some distance away from the principal settlement of King's Nympton and the two other medieval manors, East Heal and Wampford, which made up the historic parish (Mortimer 2006). Wampford Mill, higher up the Mole, appears latterly to have been the largest mill serving the district.

The place-name Meethe is first recorded in South Molton parish in 1249 (Gover *et al* 1932, 347). While Gover *et al* propose a derivation from an Old English word meaning 'hay land', Ekwall (1960, 320) suggests it is from the Old English *gemȳþe*, meaning 'junction of streams', which would be appropriate for its location near the confluence of the Mole and the Bray. It seems probable that the 'cawsey' element of the name of the farm and mill comes from the location of the site on a causeway that provided a link from the higher ground to the south across the flood plain of the river Mole to Meethe Barton, in South Molton parish. A closer historical connection between Meethe Barton and the mill is doubtful, however, as the two sites were in different parishes, the river Mole forming the boundary. The hamlet of Meethe is situated to the west of the Mole, in Satterleigh and Warkleigh parish, just south of the parish boundary with Chittlehampton. The rivers Mole and Bray and the smaller stream running eastwards from Satterleigh form a complex arrangement of parish boundaries. The situation is further confused because South Molton, Satterleigh and Warkleigh were historically in South Molton hundred and King's Nympton was in Witheridge hundred. The historical detachment from the both the settlement and barton with a Meethe name and the location of the mill on the flood plain, as well as a lack of early references, are considered to mitigate against a medieval date for its establishment.

The earliest references found to the mill date from the 18th century. In 1765-6 a deed refers to 'Nympton Meeth als. Cawseys Tenement with Meeth Mills and Vens House in Kings Nympton, bought by Wm. Melhuish of Salterleigh as executor of Rob. Awse of Horwood House, Frithelstock, whose sole heir was William's wife, Mary (1765-66)'

(Miscellaneous deeds of Devon property, 1708-90: Somerset Archive and Record Service DD\DP/3/4).<sup>1</sup> A building is shown at about the location of the mill on Donn's map of Devon of 1765, but is not specifically marked as a mill (Figure 1).



Figure 1: Extract from Donn's map of 1765 (Ravenhill 1965, 2b)

The initials and date IH 1796 are cut into the face of the bressummer beam in the north mill (see discussion below). 'Meeth Mill' is marked on the Ordnance Survey surveyor's drawing of 1804 (Figure 2) and similarly on Greenwood's county map of Devon of 1827.



Figure 2: 'Meeth Mill' on Ordnance Survey drawing of 1804 (<http://www.bl.uk/onlinegallery/onlineex/ordsurvdraw/>)

<sup>1</sup> A2Aonline catalogue, accessed 18.07.2012

In 1842 Meeth was owned by Mrs Byne, a significant landowner in King's Nympton parish, and occupied by John Hancock. The total holding was a little over 96 acres (about 39 hectares), of which half was under arable cultivation. The mill and farm are grouped together in one plot (612) in the tithe apportionment under 'Mill Leat Buildings &c.' (Figure 3).

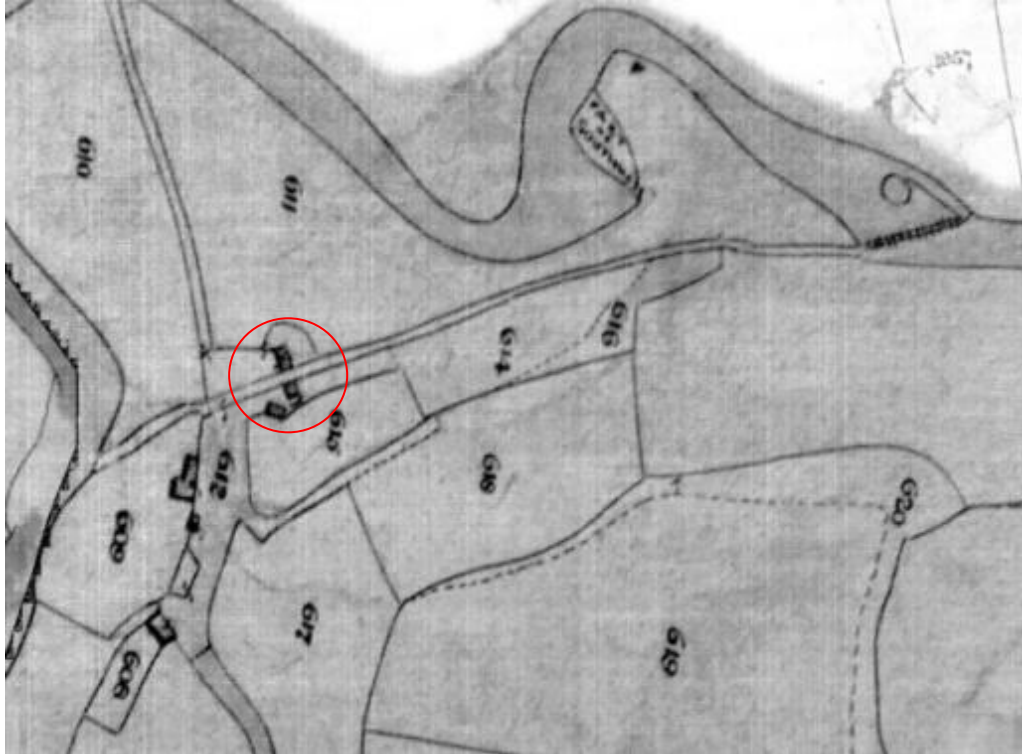


Figure 3: Meethe, as shown on the King's Nympton tithe map of 1842 (DCC HES)

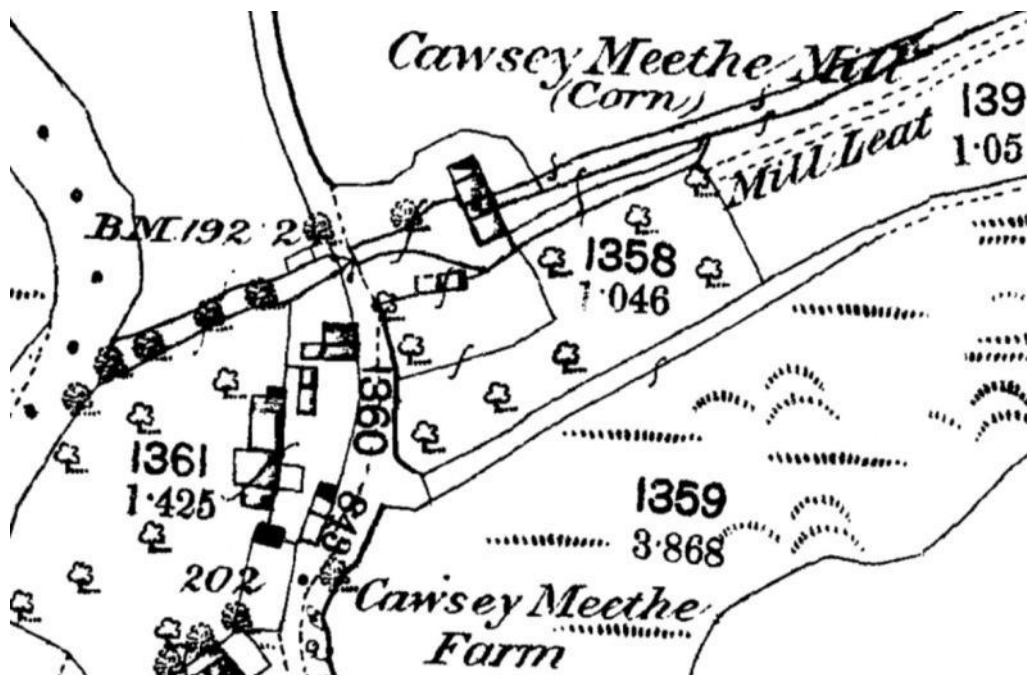


Figure 4: Cawsey Meethe farm and mill. Ordnance Survey 1:2500 first edition, 1889

No miller's names have been found in a search of 19th century trade directories, which suggests that the mill was run as part of the farm rather than as a trading mill, and the relatively small scale layout of the building and its working parts is considered to support this conclusion (see discussion). The building is marked as 'Cawsey Meethe Mill (Corn)' on the Ordnance Survey first edition 1:2500 map of 1889 (Figure 4) and as 'Cawsey's Meethe Mill (Disused)' on the second edition of 1904-6 (Figure 5).

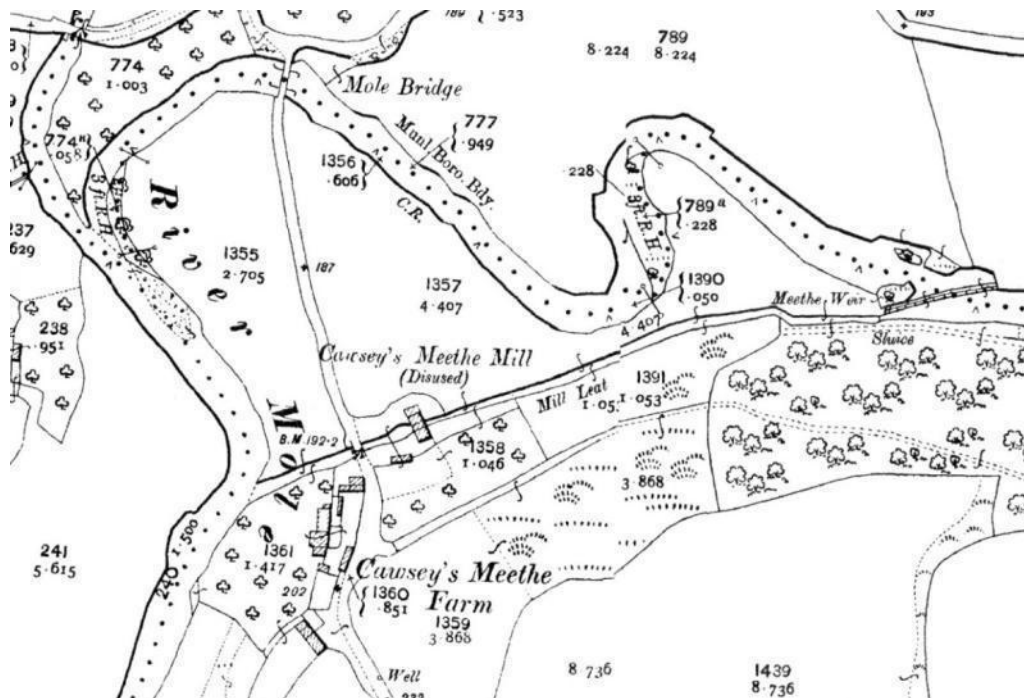


Figure 5: Ordnance Survey 1:2500 second edition, 1904-6 (DCC HES)

Cawsey Meethe Mill was recorded in two surveys of watermills in North Devon. The first was from notes largely compiled by Thomas Spencer in 1974:

**17) CAWSEY'S MEETH MILL, KINGS NYMPTON SS 677228**

There are two undershot water wheels, placed side by side, in need of repair. They are constructed entirely of wood, including the arms and naves, and are each 9 feet in diameter with paddles. The stub axles, on which these wheels revolve, are of iron, and are 2.5 inches thick. The wooden spur wheels and the pit wheels are *in situ*. The two sets of millstones have gone.

The mill house is 50 feet long, close to the road, and stands in a field on the opposite side to the farm house. It is two storeys high, and is constructed of stone with a slate roof. It is in fair condition. Inside the building there is a beam carved with the initials and date "JH 1796". Through the centre of this building there is a vaulted passage, 10 feet wide, spanning the leat, which protects the two water wheels from the weather. The 10 feet wide leat which supplied water to these wheels has now silted up. This is the only mill that has been inspected where the water wheels and the machinery are constructed entirely of wood. There is a reeding machine for thatching in the building. T.E.S. 1974.

The mill building straddles the leat and has a single cell at each side. It is probably late 18th century in date. The hopper arrangement survives. D.O.E. Listed 1987. S.M.R.

The building and wheels are still intact, but are decaying. L.B. 1989.

(Thorpe 1989, 38)

The second survey was undertaken by members of the University of the Third Age, North Devon Coast Branch in 1994 and published in 1995. Most of the information on Cawsey Meethe Mill was taken from the earlier publication, although under Present Condition it was noted that:

'There is a lovely stone-walled building of exceptional design, but the end wall has a serious structural crack. The whole place is rather derelict and the two undershot wheels are disintegrating.' (U3A 1994, 28-9)

The building has been in several different ownerships since being sold off from the farm in the 1990s and its condition has unfortunately deteriorated due to the passage of time and occasional flooding.

### **Water supply**

The mill was fed by a leat, an artificial channel taken from the west end of a weir built across the river Mole (Figure 5). The weir no longer stands. The leat channel can still be traced, however, although it is silted up and largely dry except in times of flood or high rainfall. Immediately upstream of the mill the leat is revetted with stone walls, the walling extending about 12m to the east on the north side. Stone footings about 0.86m thick survive on the south side, where the wall appears to have been broken down, allowing flood water to divert into the spillway channel around the south end of the mill. There is some standing water in this channel. The south mill effectively stands on an island between the spillway and the wheel chamber.



Site of weir across river Mole, with leat entrance bottom right, looking upstream (south-east)



## Description of the building

Cawsey Meethe Mill comprises two milling units with a central chamber containing the remains of two waterwheels either side of a central spillway. It is effectively two mills under one roof. The building is orientated SSE-NNW; for the purposes of this report the milling units are referred to as the north mill and the south mill. The total ground floor area of the building on plan is about 15.7m by 6m (see drawings).



West elevation

### *Exterior*

The walls are of random rubble local stone, bedded in lime mortar. There have been several recent phases of re-pointing and some repairs to the masonry. All of the door and window openings have timber lintels, some of which have been renewed.

The roof was clad with 27 courses of slate on both slopes and clay inverted V-shaped ridge tiles. Some tiles, which are on the ground, bear the maker's stamp: BROWNE & C<sup>o</sup> BRIDGWATER PATENT N<sup>o</sup> 8. The roof over the south mill and wheel chamber is now partly sheeted over the slates and that of the north mill is clad with corrugated metal sheeting. The common rafter ends project through the stonework at eaves level.

The west side is the principal downstream elevation which faces the road. There is a projecting base course along lower wall of south mill at about floor level. The doorway to the south mill has a pegged oak frame which has rotted and dropped and the lower leaf of the stable-type door has now gone. The top leaf is ledged and braced with six vertical boards and has a wooden latch lifter and flame-ended blacksmith-made hinges. The ground floor window to south mill has a softwood frame and an outward-opening shutter which is hung on modern T hinges on the left side. The shutter is ledged and braced with five vertical boards. The first floor window above is similar, with a decayed outward-opening shutter in a softwood frame and the remains of a stone cill.

In the centre of the west elevation is the opening of the wheel chamber, which has a segmental arch over with stone voussoirs. In the return walls on both sides of wheel chamber is a single beam recess for a 16cm deep by 13cm wide timber which would have spanned the full width of the opening at about the level of the waterwheel shafts. There are three further beam recesses higher in the wall behind the north waterwheel position.

The first floor window opening to the north mill has new oak lintels and some brickwork in the return on its south side. Some rebuilding of the stonework is apparent around both this and the ground floor opening slightly to the north. Both of these openings formerly had timber frames and shutters similar to those on the south mill.



North gable and west elevation, from the north west

The north gable end has a ground floor doorway into the north mill, now without a frame or door. The first floor doorway has a pair of outward-opening doors, which are ledged and braced with vertical boards hung on modern T hinges in a timber frame.

The upstream (east) elevation has a doorway into north mill with a slightly raised stone threshold. Marks in the mortar indicate that there was formerly a frame set in from the outer face of the wall. This opening appears to have acted as an outlet or exhaust from a machine formerly positioned inside, rather than being a doorway for access (see below). To the south of this opening is a first floor window with a timber frame for two fixed glazed lights; the mullions have notches in them for three horizontal bars. The frame appears to have been painted brown. There is a clear building break to the north side of the wheel chamber opening. This has been repaired recently, but formerly read as a full height crack in the wall. The opening for the wheel chamber, which is 2.95m wide, has a low arched head with stone voussoirs, similar but set lower than that on the downstream side. Above the centre of the arch is a window with a thick cut slate cill and a pegged timber frame for an outward-opening shutter which is hung on the south side. No further openings or features are visible in the east wall of the south mill.



East elevation, with stone revetted leat and spillway to left

The south gable end has a ground floor window opening with some brick quoins and two timber needles through wall beneath the cill, although no external cill survives. The opening retains a pegged softwood timber frame. There are remains of the timber frame in the first floor window opening above.

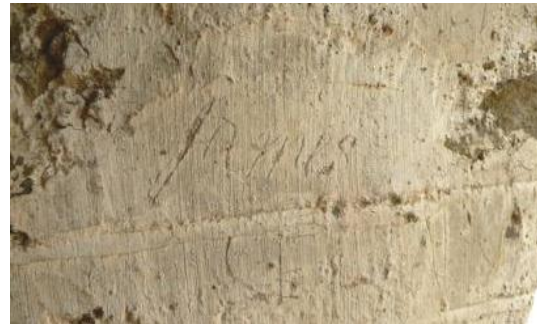


South gable

### ***Interior***

The waterwheels and working parts, which are largely confined to the area defined by the hurst frames on the ground floors of the north and south mills, are described separately below.

South mill: The ground floor has a layer of silt and debris over it which prevented close inspection. The walls are of unfinished rubble stone, with some lime plaster in places. In the reveals of the ground floor window in the south gable several apotropaic marks have been cut into the plaster on both sides. These symbols, also known as white witches' roses, were thought to have the power to avert evil influences or bad luck. In the east reveal the name *James* has been neatly carved; the style of the lettering suggests this is an historic rather than a recent addition.



The hurst frame occupies the north side of the ground floor, the bressummer beam carrying the ends of the first floor joists. There is a void in the south-east corner, where part of the floor has been removed; joist holes in south wall indicate that it was once fully floored, although there was perhaps formerly a set of steps giving access to the first floor in this area. At first floor level the area around the former millstone position has been built up and there is a timber ramp of butt-jointed elm boards which rises from the front of the hurst to the level of the floor over the waterwheels. This was to facilitate the handling of sacks of grain using sack trucks. A similar ramp exists on the north side.

Wheel chamber: The central chamber is divided into three channels by two rubble stone walls capped with timber boards. The south and north channels contain the waterwheels, while the central channel was a spillway. Water flow through all three channels was controlled by vertical timber sluice gates at the upstream end. All three channels are now heavily silted. The spillway channel appears to have had a sloping flagged floor, some broken remains of which are visible at its upstream end. The lower part of the wall on the south side of this channel has some *in situ* concrete repair and the wall to the north wheelpit has partly collapsed towards the upstream end. The south wheelpit has curved stone breastwork which starts just downstream of the vertical sluice or penstock that controlled the water flow onto the wheel. This sluice has become displaced and although relatively complete, is now inclined at an angle towards the wheel. The north wheelpit was noted as having some concrete breastwork at its upstream end on a previous visit, but this is now covered with silt and debris. The vertical timber penstock to the north wheelpit is still *in situ*. Both of the penstocks are positioned downstream of the central spillway gate. All three sluice gates are of horizontal timber boards with a single central post, located in channels formed by battens fixed to the faces of vertical posts which are built into the stonework. The gates were raised by a chain and timber windlass arrangement. Both the spillway and south wheel gates were operated from the small timber framed and clad compartment built over the central race inside the east wall, by turning timber bollards which wound up the chain. The bollard for the spillway gate has fallen out of its half-

round timber housings. The penstock for the north wheel was operated from the platform at the east end of the hurst, the inner end of the bollard having a ratchet and pawl and provision for a metal handle.



Headrace entrance, with penstocks to waterwheels each side of the central spillway



Wheel chamber with north wheel to left and south wheel to right, with central spillway. The short ladder down from the small timber boarded compartment over the spillway entrance was in place in 2012 but has now gone. There appears formerly to have been boards spanning over the spillway channel, to allow access to the outer wheelshaft bearings

for lubrication. Above the tops of the waterwheels the wheel chamber is joisted and boarded over at a raised first floor level (see section drawing).

North mill: There is a layer of silt and some debris obscuring the floor in the north mill, and temporary props have been introduced in several places to support the first floor structure and hurst bressummer. The walls are of unfinished rubble stone. There was formerly a raised platform at the east end of the hurst, forming a half landing which gave access to the compartment over the spillway, and wide steps which led up to the millstone level. This structure has now mostly collapsed and access to the upper level in the north mill was not achieved. The first floor joists span from the north gable to the hurst bressummer and the timber boarded floor is generally decayed, with rubble and building debris on it. There was a void in the south-east corner, between the hurst and the position of the ancillary machine (see discussion).

### ***Roof***

The roof is a seven bay structure with six A-frame collar trusses. The feet of the principals are built into the wall heads on both sides. The wall heads on the west and east sides above the wheel chamber and the south mill are built up to a higher level than those of the north mill. The roof trusses are of pit-sawn timber, with softwood collars and, although visually similar, there is some variation between them. The collars are set at different heights and not all are fixed on the same faces of the principals; those to T5 and 6 (in the north mill) are on the south sides and are pegged as well as nailed. The remainder, over the wheel chamber and south mill, are nailed. The principals are lapped and crosses at their apexes, although not all in the same direction, and they have vertical boards nailed over them to support the ridge purlin. The truss timbers are generally sparingly converted and rustic, with some plain chamfers. There are two rows of softwood purlins to each slope, which pass over the backs of principals. Between T3 and T4 the purlins are short and set slightly higher than elsewhere. There are two vertical pieces of wood fixed towards the east end of the collar of T5, apparently to act as a guide for a rope or chain. The bays between the principals are quite regularly laid out with softwood common rafters and battens for slates.



Roof, general view showing construction, looking to north

### The working parts

Technical details of the waterwheels and working parts are given in the Appendix and only a brief summary description is given here.

The southern mill wheelpit is about 1m wide and contains the remains of a low-breast waterwheel. Water entry is estimated to have been about 0.8m below the shaft centreline. The waterwheel is of timber construction, with two sets of three pairs of compass arms mortised radially through the wheelshaft. One arm has been deliberately sawn off on the north side. The arms carry timber felloes, curved sections which are joined midway between the arms and mortised for the shafts, the short radial timbers which project beyond the rings to which the floats or paddles are fixed. There were 36 floats, with sole boards fixed across the rings. The overall diameter of the south wheel is about 3.8m and the width over the floats 0.89m. The timber wheelshaft is circular in section, about 0.36m diameter, with iron cross-tail gudgeons forming the bearings and two iron gudgeon rings binding the shaft at both ends. The outer bearing is a simple brass or bronze half bearing let into a timber pillow block which is carried on two timber bearers on top of the stone wall which divides the wheel pit from the spillway.



South waterwheel. Note the sawn off arm on the outer side

On the inner end of the wheelshaft is the pitwheel, a fine all timber gear with a bevelled face which carries about 66 cogs. The pit in which this gear rotated is neatly built with a timber surround at the top. The pitwheel meshes with the wallower, a solid-planked timber gear with 24 cogs which is fixed to the upright shaft. The upright shaft is elegantly turned, tapering to head and foot. Its foot bearing is carried in a cast-iron bridging box on a timber bearer, which also supports the inner wheelshaft bearing. Close above the wallower is the spurwheel, also of timber, which has three pairs of compass arms carrying the cants and felloes which make up the cog ring. This gear has about 102 cogs. The gearing in the south mill is well made and still in fair condition, although the spurwheel is slightly warped.

There was formerly a single pair of millstones, the drive being taken off the downstream side of the spurwheel, but the drive spindle and stone nut are missing. A single millstone survives at first floor level, leaning against the east wall. This is a worn French burr stone, 1.19m in diameter. The stone beams and circular emplacement which carried and located the bedstone survive in the floor on the downstream side of the hurst, with the remains of skirting boards for an octagonal tun (millstone case). No millstone furniture or other fittings survive.



South mill hurst and primary machinery, with bridge post and tentering adjuster on left

The hurst, the timber frame that encloses the driving gears and supports the millstones, has a 20cm x 20cm oak bressummer at first floor level, which runs the full width of the mill. The first floor joists bear on a timber nailed to the face of this beam. The front cill beam is in poor condition. It supports four posts, including the bridge post through which the front end of the bridge tree, the horizontal timber that carries the foot bearing of the stone drive, is tenoned. The elevation of the bridge tree can be altered by the tentering screw, which raises and lowers the upper millstone whilst working, so controlling the texture of the ground product. The inner ends of the beams that supported the lower millstone bear on a timber plate built into the pit wall.

The cider press on the ground floor of the south mill is not an original feature, having been moved into the mill from the farm in the second half of the 20th century (Mr Herniman, pers comm).

The northern wheelpit and the waterwheel that drove the machinery in the north mill are narrower than those of the south mill and the wheel is of slightly larger diameter, up to 3.9m, its wheelshaft centre being set higher. The working head and water feed arrangements were similar for both wheels. When first recorded by the writer in 1989 more of this wheel, including some of the floats, was in place. Part of one of the ring sections still survived in 2005, although this appears to have gone and what remains is generally in



a poor and fragmented condition. The north wheel is an unusual survival in having only a single set of three sturdy compass arms. As with the south wheel, these carried timber felloes which made up a circular ring from which V-shaped timber starts projected. These carried flat timber floats which were 0.7m wide. It was calculated that there were 36 floats and also sole boards which were fixed to ring. The timber wheelshaft is now very eroded, but was circular in section, about 36cm diameter and 2.2m in length. It has cross-tail gudgeons fitted in both ends, the outer journal running in a bronze half bearing let into a timber bearer, similar to the south wheel. On the north side of the waterwheel arms an iron or steel clamp has been fitted around the shaft, presumably an historic repair as the timber is split from this point. Close inside the pit wall, behind the present pitwheel, there are mortises through the shaft through into the timber arms of the original pitwheel were fixed. The wheelshaft appears to have broken within the pitwheel centre.



Remains of north waterwheel



Remains of north waterwheel and detail of V-shaped start and float, July 1989



The present pitwheel is a split-cast iron bevel gear with approximately 96 oak cogs. It formerly meshed with the wallower, a cast-iron bevel gear with 34 teeth, which is mounted on a short oak upright shaft. The foot bearing of the upright shaft is carried on a timber block along the edge of the cog pit, which is filled with silt and debris. Above the wallower is the spurwheel, a timber gear with two pairs of compass arms which carry a cog ring with about 64 cogs mortised into it. As in the south mill the millstone drive and millstones are long gone, but there was a single pair of stones of about 1.2m diameter on the downstream side. The stone beams and circular opening in the floor on the top of the hurst remain. The bridging timbers that supported the millstone drive were displaced but were still in the mill in 2012, although they now appear to be missing. Their positions and dimensions have been recorded, however.



North mill: remains of hurst and primary machinery

The oak bressummer of the hurst has rotted at its downstream end where it was built into the wall, but has been propped and retains one original post at its upstream end. There must originally have been a cill beam on the floor directly below this beam, for the feet of the posts to bear on, and the floor area will require careful clearance to determine its exact position and dimensions. The bressummer has \* I H \* 1796 \* chisel-cut into its vertical face and has a curiously moulded upstream end (see discussion below). There was a raised platform about 1.2m over the ground floor at the east end of the hurst, which gave access to the penstock and spillway sluice controls, then a further two steps up to the millstone level. No millstone furniture or other fittings appear to have survived.

There was a secondary drive train taken off the upstream side of the pitwheel. There are three horizontal timbers with bearings attached, which formerly supported two iron shafts with gears and pulleys attached, from which ancillary drives were taken. The latter are now displaced, but are still in the mill.

## Dating and discussion

The only positive dating evidence in the mill is the initials and date cut into the face of the hurst bressummer beam in the north mill.<sup>2</sup> Taken with other mechanical features, it is considered that this may represent a primary construction date for some of the surviving gearing at the north end. The upright shaft and spurwheel appear contemporary with each other and both may date from 1796, the laid-in gudgeon in the foot of the upright shaft and the coarse pitch of the spurwheel teeth being consistent with a late 18th date (see Watts 1994; Stoyel 1997). However, the machinery of the north mill was 'modernised', probably about the middle of the 19th century, with a cast-iron pitwheel and wallower being introduced to replace earlier timber ones. The mortises through the wheelshaft behind the present pitwheel indicate the position of the arms of the earlier gear.

The full first floor of the north mill also appears to be a later insertion, as the joists sit on top of the hurst bressummer rather than being notched into it. This floor also cuts across the upper level window in the east elevation of the north mill, which is the only opening to retain a frame for fixed lights rather than a shutter. This could lend support to an interpretation that the north mill was originally a single cell mill, with the millstones set on a hurst which was accessed by steps up at the east end from ground floor level, vestiges of which remain. The documentary evidence for the existence of a mill here earlier in the 18th century might therefore suggest that the north mill was rebuilt in 1796, perhaps after flood damage or simply wear and decay through the passage of time.

The introduction of the ancillary drive off the pitwheel in the north mill appears to be contemporary with, or perhaps slightly later than, the replacement of the pitwheel and wallower with iron gears. This drive was a two-step arrangement, designed to give a significant increase in speed from the relatively slow rotation of the waterwheel. The final drive was taken by belt from a timber pulley or belt wheel on the secondary shaft. This appears to have been to drive the machine which was formerly located in the opening in the east wall. The 1974 report referred to 'a reeding machine for thatching in the building' (Thorpe 1989, 38), but the remains of the machine seen by the writer in 1989 and 1990 appears to have been a small purpose-made threshing machine (see photograph, p.35). Some iron parts of this ancillary machine still survive on site, though now displaced.

The south mill was certainly in existence by *c.*1842, when it is shown on the tithe map (Figure 3). It is interesting to note that although both mills are shown on the tithe map, the wheel chamber does not appear to have been roofed over at that time. The only dating evidence for the roof is somewhat vague: the maker's stamp on the clay ridge tiles would favour a date for their manufacture sometime between 1838 and 1892 (Brian Murless, pers comm). Of further note is that the tithe map appears to show extensions on both ends, north and south. By the time of the first edition 1:2500 Ordnance Survey map of 1889 (Figure 4) only an extension at the north end is shown. No evidence of this was seen on site.

The waterwheel and gearing in the south mill appear to be slightly, but not significantly, later than the timber elements in the north mill, perhaps of early 19th century date. The timber machinery in the south mill in particular is of high quality, contrasting with the less sophisticated, earlier millwork represented in the north mill. The construction and detailing of both waterwheels bears close comparison which, although they are of different widths, suggests they are contemporary with each other and, possibly, with the machinery of the

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<sup>2</sup> The writer has a note that one John Hulland was occupier of Meethe in the 1790s (source not recorded)

south mill, although some parts of both waterwheels would have needed replacement from time to time, due to weathering and decay.

The mechanical layout of both mills is relatively unsophisticated in that both waterwheels were relatively low powered and each drove only a single pair of millstones. Both pairs of millstones, with all of their furniture and drives, are missing, having been removed long before the writer's first visit in 1989. The single French burr millstone which survives in the south mill, leaning against the wall at first floor level, appears to be the only such artefact now on site.

There do not appear to have been any storage bins for grain on the upper level and there is no clear evidence for mechanical sack handling, in the form of a hoist. The ramps from the millstone levels up to the raised floor over the central chamber would have made the use of sack trucks possible on the upper floor. Sacks of grain would therefore appear to have been manually handled from carts or waggons through the first floor doorway in the north gable end. This would also have provided access for sheaves of corn to be pitched in, for feeding into the thresher in the north mill.

In summary, the north mill appears to be the older, perhaps occupying a site established by the mid-18th century. Some significant rebuilding or reconstruction of the working parts of the north mill are likely to date from 1796, at which stage it was a single cell building with one pair of millstones on a hurst frame driven by spur gearing. The south mill was added sometime before *c.*1842, effectively doubling the output of the mill, and the waterwheels of both mills were perhaps reconstructed at that time.<sup>3</sup> The machinery of the north mill was 'modernised' with the introduction of a cast-iron pitwheel and wallower, perhaps in the mid-19th century, and the ancillary drive to work a small purpose-built threshing machine was also installed.

Because of the difference in the widths of the waterwheels, and therefore their power output, it is likely that the south mill continued to be used for milling, whilst the northern waterwheel would have been used to drive the thresher, particularly during the winter months. No ancillary machinery, other than a small thresher, appears to have been installed for cleaning grain or sifting flour, so an agricultural context for the mill is most likely, preparing and grinding grain grown on the farm, predominantly for animal feed. From map evidence, the mills stopped work before *c.*1904.

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<sup>3</sup> The life of timber waterwheels is generally about 20-30 years for arms, rings, floats etc., and perhaps 60-80 years for a wheelshaft, depending much on the location of the wheel and the quality of the timber used.

## Significance

Cawsey Meethe Mill, King's Nympton, was highlighted in a survey of watermills in North Devon made between 1971 and 1975 as 'the only mill that has been inspected where the water wheels and the machinery are constructed entirely of wood'. It was also one of only three mills out of a total of 112 in the area of north Devon surveyed that was recommended for grant aid and preservation (Thorpe 1989). The mill was subsequently listed Grade II in 1988.

Although the condition of the building and its working parts has deteriorated since first visited by the writer in 1989, it can still be considered to be an outstanding and remarkable survival of a small traditional water-powered corn mill. The primary gearing in the south mill is complete and beautifully wrought in timber, with clear evidence that both shafts and gears were lathe-turned. The less sophisticated but earlier gearing in the north mill provides an interesting contrast and the remains of the waterwheels and two sets of machinery which date from the late 18th and early 19th centuries must be considered as an exceptional survival in Devon and the south-west of England. Timber waterwheels and machinery generally have a very low survival rate in the south-western counties, and no comparable machinery has been recorded elsewhere in Devon.

Martin Watts  
April 2014

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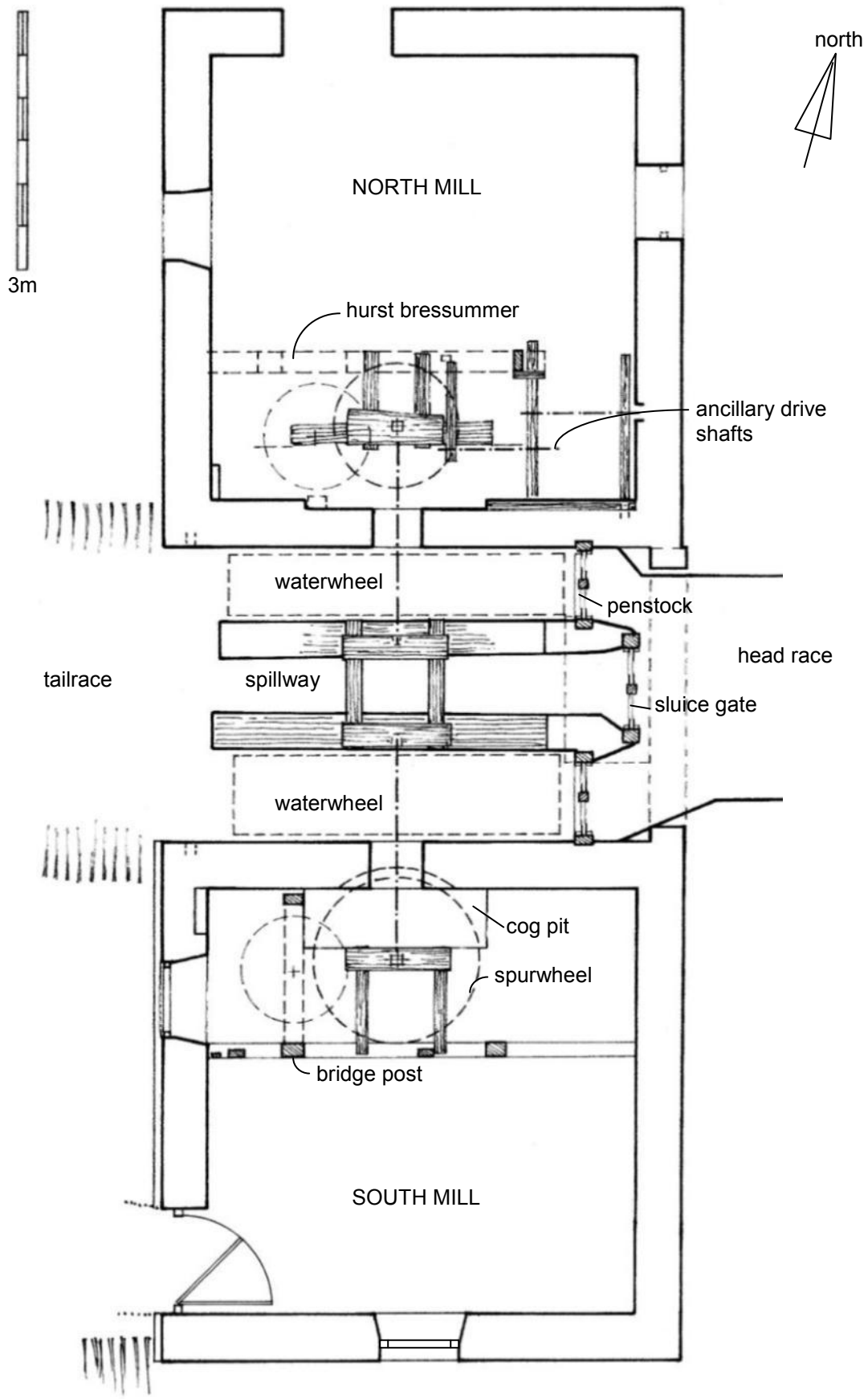
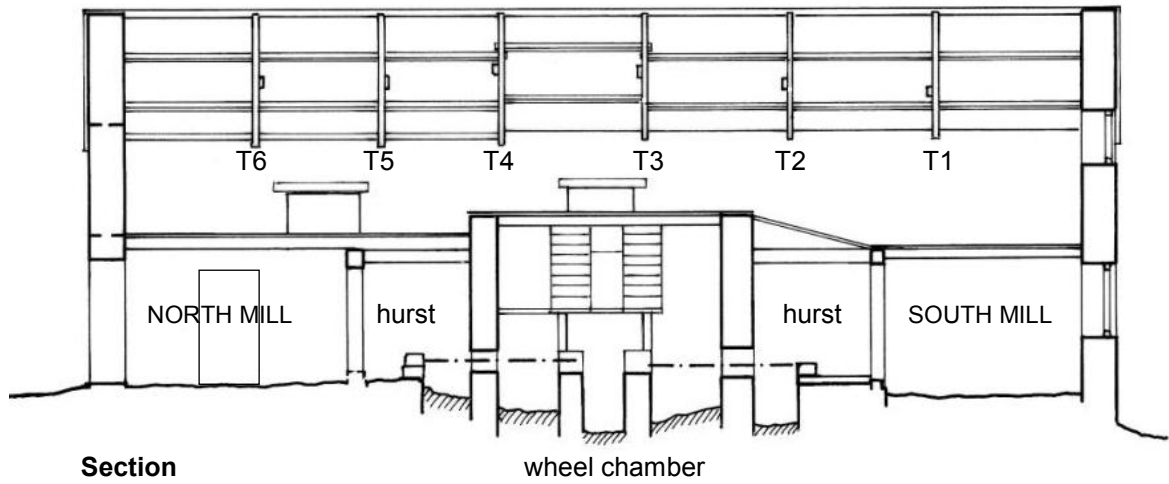
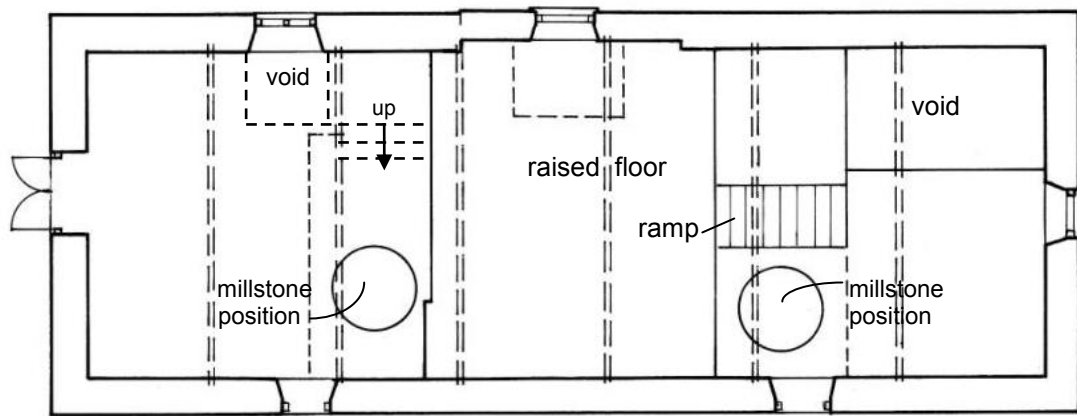
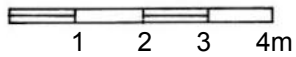


Figure 6: Cawsey Meethe Mill. Ground floor plan



**Section**

wheel chamber



**First floor plan**

positions of roof trusses indicated by broken lines

Figure 7: Cawsey Meethe Mill. First floor plan and north-south section

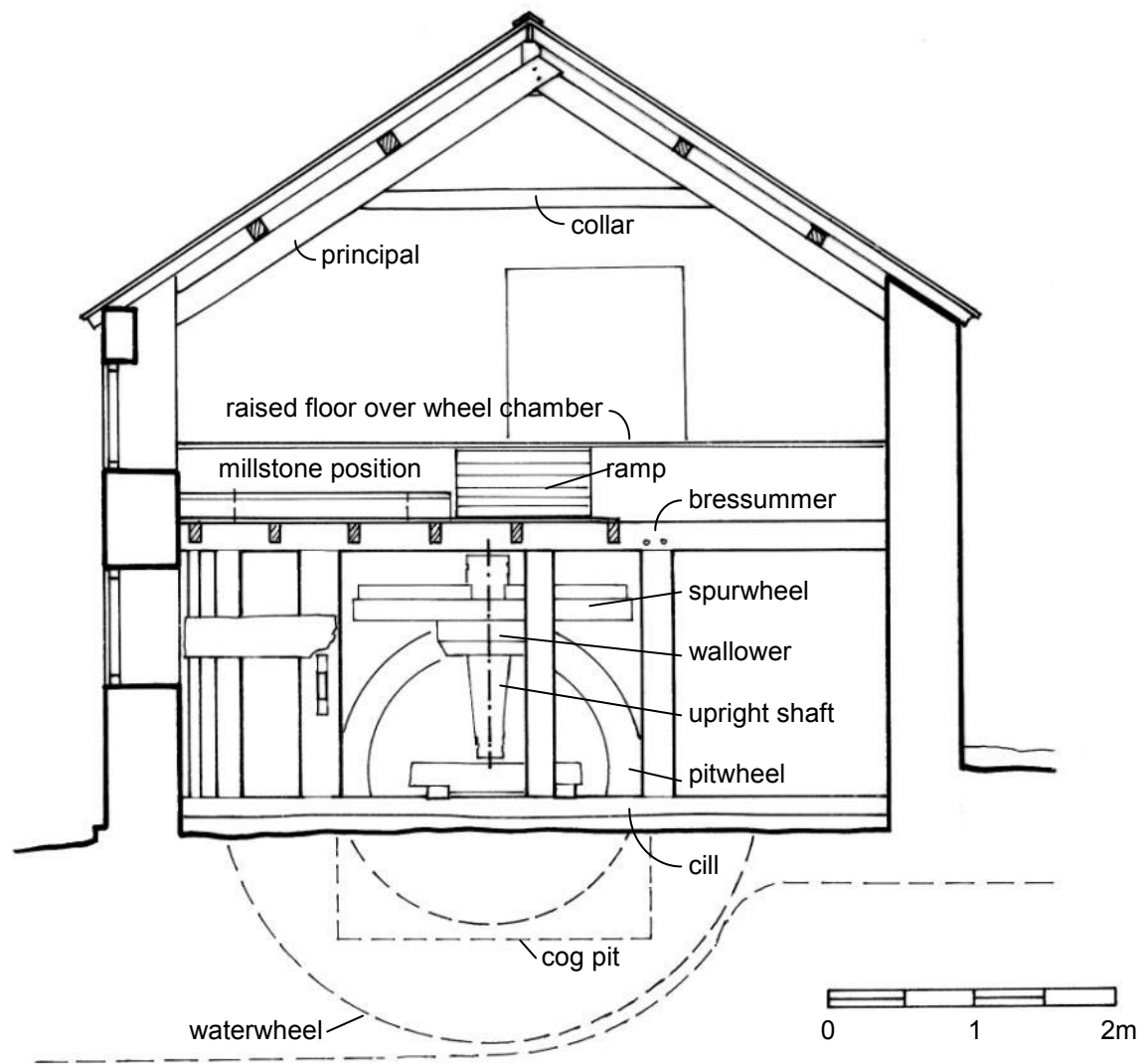


Figure 8: West – east section through south mill,  
 looking at hurst face with machinery shown in outline



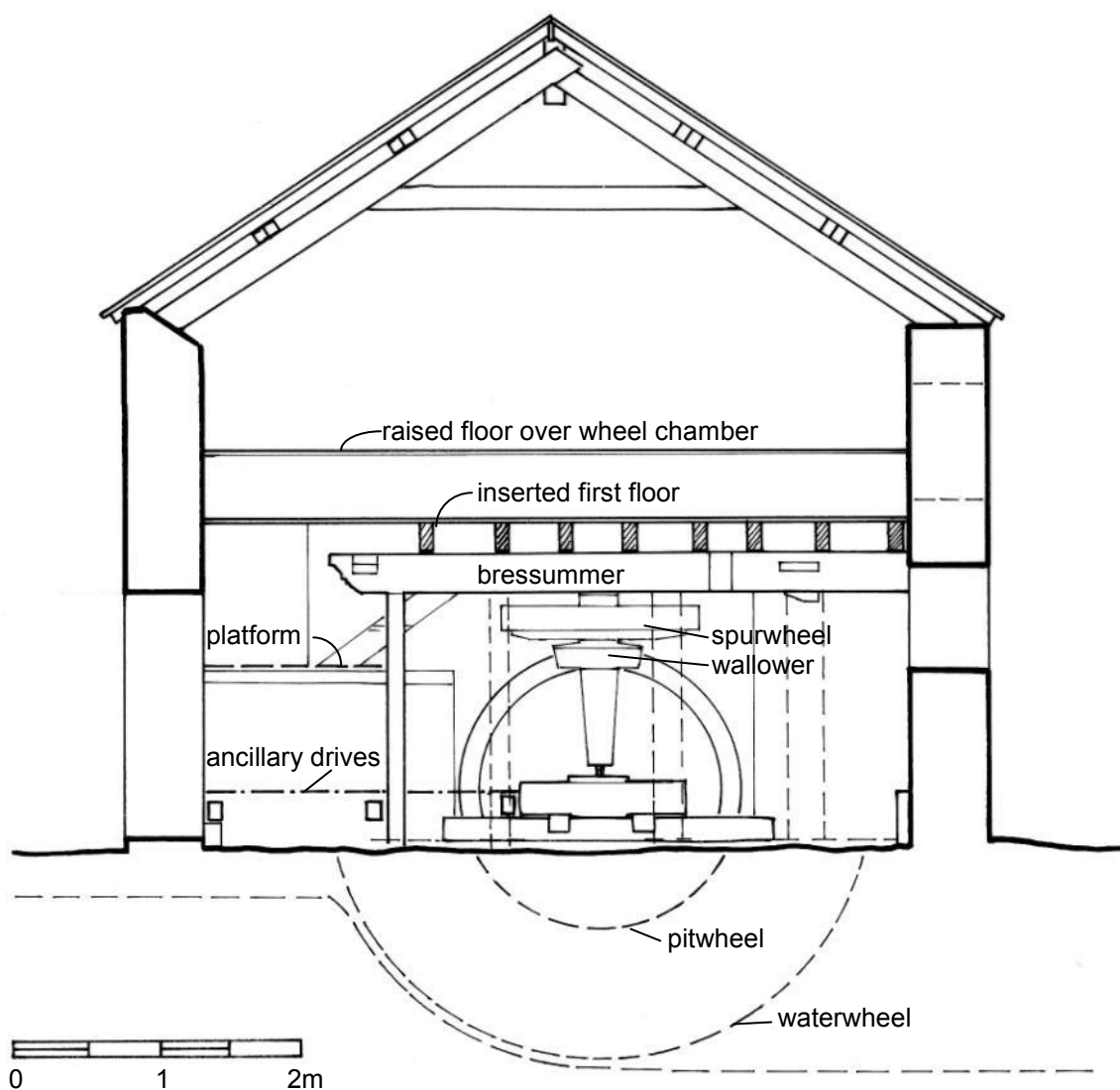


Figure 9: East – west section through north mill,  
 looking at hurst face with machinery shown in outline.  
 Position of missing bridge posts indicated by broken lines

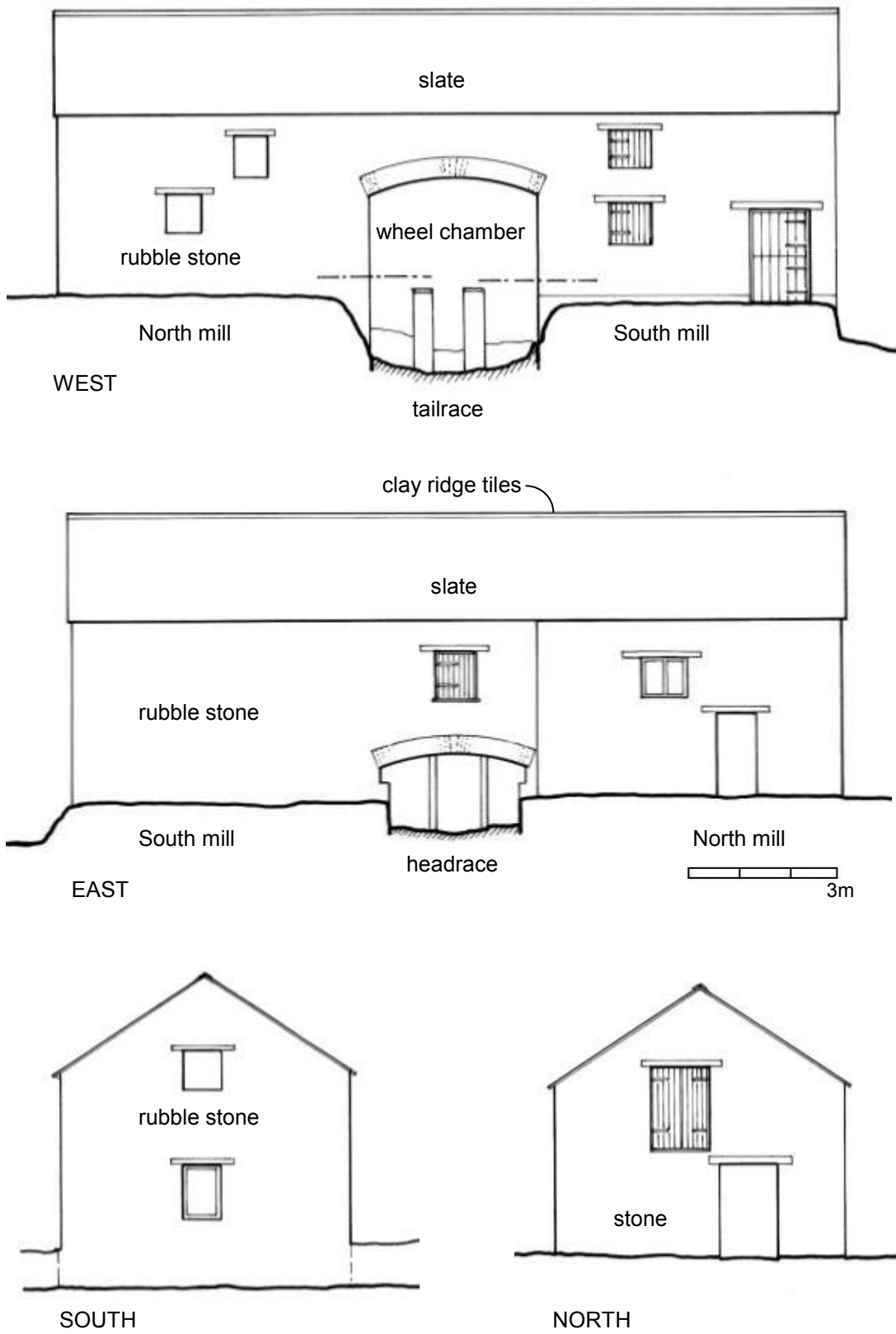


Figure 10: Elevations



Headrace with wall to spillway on right



Timber-framed two light window, east elevation of north mill



Displaced penstock to south waterwheel, showing edge of curved stone breastwork



Top of penstock to north waterwheel, with timber supports for compartment over spillway



West end of wheel chamber and tailrace channel



Floor support structure over central wheel chamber, looking east



< Bridge tree and north-west corner under hurst in south mill

Detail of wallower, south mill



Millstone emplacement in hurst floor, south mill



Displaced French burr millstone in south mill



Roof structure, looking north



Detail of truss apex



Detail of collar/principal joint, T5, with roundwood uprights for rope guide?



Roof structure and first floor of north mill



First floor joists, north mill, looking south to hurst frame



Position of raised platform at east end of hurst, north mill



Ratchet on inner end of penstock control, north mill



Remains of platform at east end of hurst, with ancillary drive support timbers beneath



Ancillary drive support timbers with bearing against east wall





Ancillary drive shaft support timber with bearing at upstream side of pitwheel



Displaced drive shaft (1). The iron bevel gear meshed with the pitwheel and the spur gear with the pinion on drive shaft (2)



Displaced drive shaft (2), with cast-iron pinion and remains of timber pulley for belt drive to ancillary machine



Inscription on hurst  
bressummer, north mill



Moulded upstream end of  
hurst bressummer



Downstream end of hurst  
bressummer, north mill, with  
cut out (left of prop) for  
meal spout from millstones

## Appendix

### Technical details of waterwheels and working parts

#### South mill:

Waterwheel: timber, low breast, water entry about 0.8m below shaft centreline. About 3.8m overall diameter x 0.89m wide. Timber shaft, circular (turned?); cross tail gudgeons let in, with two gudgeon rings, both ends. Two sets of three compass arms, 16 x 5cm section, long dimension parallel with shaft, mortised through shaft and wedged. One outer arm has been deliberately sawn off on downstream side of wheel. Double tenon at end of each arm, clasping and mortised into rings/felloes. Rings 15cm x 12cm section, thickening to 20 x 12cm where arms tenoned and bolted to them. Six ring sections each side, joined end to end midway between arm ends with iron plates and bolts. Approx diameter over rings 2.97m. Starts 9.5 x 6cm, overall length 60cm, project 36cm beyond rings. Float boards about 89cm wide, varying thicknesses (2 - 3.5cm measured), pegged with faceted tapering dowels to starts. Sole boards fixed to rings are 24cm wide x 2.5cm thick; only a few remain.

Pitwheel: timber, about 0.9m pitch radius. Three pairs of compass arms, of flat deep section, 26 x 6.5cm. Six felloes form bevelled face, max 16cm thick, 21cm face, joined with iron plates and bolts. Approx 66 cogs, 9cm [3½in] pitch, 10cm face, shanks apparently just wedged/tapered fit.

Upright shaft: timber, lathe turned, about 18cm diameter at foot, with two gudgeon rings, tapering out to 30cm diameter at wallower. Shaft tapers to head and foot, stopping below hurst floor.

Lower sprattle beam carrying footstep bridging box is 1.22m long x 24 x 23cm; upper beam is 19 x 13cm section, with bearing on downstream face.

Wallower: solid timber, in two halves - top and bottom - 22.5cm overall depth; upper section cylindrical, lower bevelled with 24 cogs.

Spurwheel: mounted on top of wallower, with bolts passing through arms and wallower. Three pairs of oak compass arms 20 x 5cm section. Six cants, max 27cm wide x 7cm thick, with 14cm wide x 7cm thick felloes on underside forming cog ring, with turned mouldings on cog face and outer corners. About 102 cogs of 6cm [2¾in] pitch and 8cm face.

Bridging for single pair of stones on downstream side only, tentering direct to outer end of bridge tree, with fork-ended forged hanger and threaded section with square nut above. Bridge tree 25 x 20cm section, spans 1.62m between rear and front posts. Bridging box conventional cast-iron, with four ring-ended centreing screws.

#### Millstone:

Single displaced French burr runner leaning against east wall at first floor level. Very worn 1.19m diameter French burr, 18cm thick, 22cm diam eye, but was formerly square, so possibly a re-used bedstone. 40cm span bridge chases. Anti-clockwise dress, very coarse pitched furrows. Possibly re-backed as plaster in good condition; no maker's name or other marks visible.

#### North Mill:

Waterwheel: low breast wheel with water entry and control as south wheel. Slightly larger diameter, about 3.92m, as shaft centre set about 7.5cm higher than south wheel. Circular section shaft only about 2.2m long by about 36cm diameter inside outer gudgeon rings, in poor condition, with long split from where compass arms are mortised through towards pitwheel. Single set of three compass arms, 22 x 5cm section, with double tenon at outer ends to clasp rings, to which they were held with a single bolt. No ring/felloe sections visible (2014) but when measured before they were 15cm square, increasing to 15cm thick x 17.5cm deep where they met the arms. Rings were mortised for starts, two in V-shaped arrangement for single float board, pegged to starts. Estimated to have had 36 floats, flat radial boards 0.71m long x 30cm wide, with sole boards fixed to rings. Mortises 30 x 10cm for compass-arm gear behind present pitwheel.

Pitwheel: split-cast iron bevel gear with 6 T-section arms, castings bolted along one pair of arms with massive square-headed bolts with hex nuts. Centre 21cm deep, with about 4cm tidy packing and wedging off shaft. 13 x 6cm iron cog ring with approximately 96 oak cogs of about 6cm [ $2\frac{1}{4}$  -  $2\frac{3}{8}$ in max] pitch, 10cm face, in; shanks wood wedged.

Upright shaft: foot of upright shaft bears on timber sprattle which sits on two bearers, approx 17/18cm x 13cm, running N-S. Bottom gudgeon is let in (rather than cross tail), with 3.5cm diam pintle. Two gudgeon rings, one at foot, the second some 9cm above. The upper does not clasp the shaft fully, due to its shape. Shaft 'sub-octagonal' at foot, about 18cm across, tapering upwards to 26cm square for spurwheel. Shaft only about 1.2m high.

Wallower: cast-iron unit, six flat arms, 34 teeth.

Spurwheel: two pairs of compass-armed, nicely detailed. Four cants 35cm max width x 8cm thick, with 12cm wide x 6cm thick felloes on underside, carrying approx 64 cogs of 8cm [ $3\frac{1}{2}$ in] pitch, 9cm face. Assembly numerals I, II, III, IIII cut into arms and cants.

Stone drive and stones gone, but from evidence of bridging and circular cut out in floor, with stone beams spanning from rear of bressummer into pit wall, there was formerly a single pair on the downstream side only.

Secondary drive off upstream side of pitwheel; completely displaced by 2005. Comprised two horizontal shafts, one driven by pitwheel, the other from the first:

Layshaft 1: 4cm square iron, about 1.2m long overall, journal at each end. CI bevel gear on one end which meshed with pitwheel, 36cm max diam, about 20 teeth, worn to quite thin section; 40cm diam x 8cm wide solid timber pulley, decayed, with groove for rope drive; 66cm diam x 5cm face CI spur gear, 6 + section arms, 80 teeth at outer end.

Layshaft 2: 3.6cm square iron, about 84cm long. Shrouded CI pinion at one end, beyond journal, 13cm diam oa, 7cm total width. Small iron bevel against 73cm x 10cm face solid timber belt wheel, with journal at end.

The timber bearers a little above ground level under the former raised platform at the upstream end of hurst have shackle-type bearings for the two shafts at about 39cm centres.

Hurst originally table type, as first floor joists are relatively crudely converted timbers which sit on top of bressummer. Steps up to millstone/first floor level on upstream side. ? number of steps to small landing, about 1.22m above ground floor level, then 2 treads to hurst floor, which is 1.44m wide. Landing and upper steps still in place, although

collapsing. Bottom steps appear to have been removed for insertion of gearing for secondary drive.

Oak hurst bressummer, 26cm face x 24cm wide, with 'I H \* 1796 \*' chisel-cut into face. This beam spans 3.37m from W wall, stopping with curious 'moulded' end – is this original or the result of cutting off? – 1.11m off upstream wall. Shouldered mortise in face near upstream end. Front of bridge post is 1.87m off pit wall. There were four posts under the beam: from upstream 1) 24 x 11.5cm oak; 2) 25 x 11.5cm, tenoned in 11.5cm; 3) 21.5 x 24cm, with deep mortise in one face for brayer; 4) 20 x 23cm, also with blind mortise for brayer. Stone beams run into pit wall, 72.5cm apart (inner ends saturated and soft). Cut out for meal spout on downstream face, also second angled cut out in back of timber, suggesting two phases and earlier, smaller diameter, millstones. Rear bridge post 22 x 13cm, with double through mortises for end of bridge tree, displaced on downstream side of wheelshaft. Only E front post still *in situ* 2012, but bressummer propped and generally stabilised.

The ancillary drive was to a wooden framed machine with a winnowing fan in it, probably a small purpose-built thresher rather a reed comber (as in Thorpe 1989, 38), from the remains seen by MW in 1989 and with Peter Child in 1990. The woodwork of this machine was in poor condition and with the exception of some iron parts, now displaced, has been subsequently lost.

From notes and photographs taken by Martin Watts 29 July 1989; 8 May 1990; 23 April 1994; 8 November 2000; 26 April 2005; 20 July 2012; 14 April 2014



Remains of small threshing machine in north mill, looking north along the east wall. 29 July 1989