

# The Mill of Benholm



## Conservation Plan



Document version

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Acronyms	
BARR	Buildings at Risk Register
HES	Historic Environment Scotland
JHH	Johnshaven Heritage Hub
K&D DC	Kincardine and Deeside District Council
LB	Listed building
LCNS	Local Conservation Nature Site
MoBE	Mill of Benholm Enterprise
NESPT	North East Scotland Preservation Trust
NLS	National Library of Scotland
NSA	New Statistical Account
NTS	National Trust for Scotland
OS	Ordnance Survey
OSA	First (or 'old') Statistical Account
R&D	Refurbishment and Demolition (asbestos survey)
SIAS	Scottish Industrial Archaeology Survey
SRO	Scottish Records Office also known as National Records of Scotland
SSSI	Sites of Special Scientific Interest
WE Ltd	Whittaker Engineering Limited

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## Executive Summary

In 1970, the Mill of Benholm was described as a ‘ferly’, the Scots word for a wonder; something strange or marvellous. Fifty years later, this term is as true as it was then. The survival of such a modest meal mill, in a quiet rural district of south Aberdeenshire, is a credit to those individuals and members of the local community which kept it alive over the 20<sup>th</sup> century, when so many closed or were lost entirely. With literally only a handful of operational water-powered meal mills today, those like Benholm which retain all the machinery to demonstrate this traditional industry, are highly significant and exceptional survivors of our everyday social history. The fact that Benholm is a complete mill complex comprising meal mill, miller’s house, byre and grain store, set within its original mill croft alongside the historic water infrastructure, is a rare find.

The asset’s significance to our historic and natural environments is recognised by its designations as a Category A listed building, lying within the Benholm Conservation Area and a Local Conservation Nature Site. Across the Burn of Benholm, the ancient woodland of the Mill Brae Wood, contributes to this site which offers a range of habitats including aquatic, wood and grassland, and is valued as an environmental and educational resource.

At one time meal mills were perhaps the most numerous of processing plants in Scotland, hundreds of mills have now been lost or converted to other uses. This vulnerability was already recognised in the 1980s when the last miller died and his widow sold the entire site, excepting her home in the ‘new’ miller’s cottage, to Kincardine & Deeside District Council for the benefit of conserving it for the local community. Research for this report has confirmed the depth of interest, still felt today, for the work undertaken to restore the mill in the late 1980s until its opening as a visitor centre in 1995.

The adaptation to a visitor centre retained the meal mill with a restored waterwheel, milling machinery and water infrastructure. The former byre, miller’s house and grain store all found new uses in support of the facility. Great care was taken by a local millwright and engineering company to restore the waterwheel and primary machinery, embodying the knowledge and expertise of traditional craft skills which are now extremely rare in Scotland. The secondary milling machinery, left by the last miller with parts which likely date to at least Victorian times, is also highly significant as an example of traditional timber milling equipment much of which has been removed in surviving mills.

The provenance of the mill is impressive, from historic records which suggest that there may have been a mill in the Parish of Benholm from the late 12<sup>th</sup> century, to the certainty that a mill was associated to the kirkton of Benholm in the early 16<sup>th</sup> century. The meal mill’s current earliest remains are thought to be over 300 years old, with 19<sup>th</sup> century rebuilding and extension, including in 1817, at the time of agricultural improvements in the parish.

Thirty years on from its adaptation, the Mill of Benholm is again threatened, having laid unused for almost a decade since its closure in 2014. The mill buildings were added to the national Buildings at Risk Register in 2023. Aberdeenshire Council wishes to dispose of the property which is surplus to its requirements, and out with the local authority’s resources to undertake the necessary repair and improvement the asset now requires. Securing an appropriate new owner, and bringing the buildings and site back into use, is critical to the survival of the Mill of Benholm. Its current vulnerability, including uncertainty over the future ownership of the complex, is causing community concern.

The mill is of course more than its built heritage, and the local community has rallied once more. Since 2016, there have been extended investigations, interrupted by the Covid-19 pandemic, into

community use and ownership of the mill, driven firstly by The Friends of Mill of Benholm and the North East Scotland Preservation Trust, and latterly by the Mill of Benholm Enterprise (MoBE).

MoBE is a registered SCIO (SC 047943) established in 2017 with the specific purpose to secure the future of the Mill of Benholm, in its entirety, for the benefit of the local community. Its vision is that the Mill of Benholm will be a well maintained traditional meal mill complex set within this special local landscape and the historic kirktoon. It would be open to everyone who lives there regardless of age, ability and circumstances, and provide a heritage based visitor attraction for the public from the Mearns, Aberdeenshire, and beyond. MoBE would seek funds to undertake all urgent actions and necessary repairs to halt further deterioration and conserve the mill complex for the future.

MoBE envisions a busy complex with a popular community café, events and activities. The site would provide training and learning opportunities, particularly in the open environment, to support mental and physical well-being. This reinvigorated recreational area in south Aberdeenshire would enable charities, youth groups, local primary schools and other organisations to access a safe outdoor space with supporting facilities (accessible café and toilets). The Mill of Benholm would function as a hub for walkers and cyclists being located between the Coastal Path and the historic Old Coach Road. The reuse of the Mill of Benholm would therefore aim to create local impact, as well as provide a tourism focus in support of the area's network of visitor attractions and sector businesses.

This plan looks to inform, guide and support those with an interest in the Mill of Benholm and its unique story, significance and opportunities.

## 1.0: Introduction to the Plan

### 1.1 What is a conservation plan?

This conservation plan concentrates upon the assets which form the Mill of Benholm. The objectives of the plan are multi-faceted and include the following:

- To understand the asset
- To ascertain the heritage merit and significance of the asset
- To determine the physical condition and vulnerability of the asset
- To explore a 'vision' for the asset
- To suggest appropriate conservation policies to secure the asset
- To assist in the future management of the asset
- To assist in funding applications and future engagement

Producing a conservation plan is consequently advocated by a number of heritage organisations and funding bodies such as Historic Environment Scotland and the National Lottery Heritage Fund. This plan follows the requirements of the National Lottery Heritage Fund in their advisory publication *Conservation Plans Guidance (2017)*.

It should be recognised that the conservation plan is not a fixed document; instead, this document should be reviewed and modified to suit developments as deemed appropriate.

This conservation plan should be read in conjunction with the Gazetteer which forms part of a series for the assets at the Mill of Benholm including:

- Part 1: Mill Buildings
- Part 2: Meal Mill Lower Floor
- Part 3: Meal Mill Upper Floor & External Items
- Part 4: Water Mill Infrastructure

### 1.2 Note on authorship & copyright

The conservation plan was prepared by Sonya Linskaill RIAS RIBA, conservation accredited architect and heritage consultant on behalf of the North East Scotland Preservation Trust. The plan was funded by the Architectural Heritage Fund.

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### 1.3 Method & consultation

The method of research comprises of a balance between desktop study, site survey and discussion with stakeholders. Research took place at Canmore (National Record of the Historic Environment), online at the Scottish Records Office, National Map Library for Scotland, the national Mills Archive and British Newspaper archive amongst others. A full list of research resources is provided in the bibliography.

Consultation took place with the following principal stakeholders:

- Mill of Benholm Enterprise
- Historic Environment Scotland
- Aberdeenshire Council
- Historic Churches Scotland
- Johnshaven Heritage Hub

The role of Mill of Benholm Enterprise was central in the development of this plan, sharing their knowledge, and introducing key local stakeholders.

Other key individuals, who had been involved with the asset in the past, were consulted:

- Ken Whittaker, Whittaker Engineering Limited
- Pete Babs, former custodian miller
- Councillor George Carr, former Trustee of the Mill of Benholm company
- Wilma Scott, niece of the last miller

The process proved to be most beneficial in terms of understanding the asset and issues pertaining to its conservation. It is recommended that this conservation plan be circulated amongst those consulted to ensure continuity of interest and initiative.

### 1.4 Definition of the asset

For the purposes of this plan, the asset comprises of the following (refer to site drawing references below):

- Mill buildings including the meal mill (1), former miller's house (2), former byre (3) and former grain store (4). For the purposes of this plan these original building terms will be used rather than their adapted uses.
- Mill water infrastructure including weirs, lade (7), sluices, mill pond (5; also referred to as the mill dam in other resources) and waterwheel.
- Milling machinery, both primary and secondary machinery.
- Open space and woodlands both on the mill lands (8) and the neighbouring Mill Brae Wood, now commonly referred to as the Mill Brae 'woods' (6).
- External items of agricultural / milling machinery.
- Benholm Bridge over the Burn of Benholm.

For the purposes of the conservation plan, the term 'meal mill' will be used for the individual mill building containing the milling machinery and with the waterwheel. This may also be referred to as the 'mill building' in other project documents, or as a 'grain' or 'corn' mill in other resources.

The village of Benholm is referred to as the 'kirktoon' or 'kirkton', a Scottish term reflecting its historic origins as a settlement associated with the Parish church.



*Mill of Benholm site drawing from Miller (1996) indicating the main buildings and features (refer section 1.4); note the later miller's cottage by the car park which is no longer part of the mill ownership. © Aberdeenshire Council.*

## 1.5 Definition of terms

The work undertaken in the late 1980s and early 1990s was often described as 'restoration'. The term 'restoration' in conservation terms would mean repair and reinstatement of the original form of the buildings, with materials, details and features based upon respect for the surviving historic fabric and evidence of previous forms. On examining the works, it can be concluded that the buildings were not 'restored', but elements of the buildings were repaired and/or altered to varying degrees, with other parts left as existing with very little work undertaken. The works were not necessarily undertaken in an appropriate way, particularly in comparison to how this would be approached today, with improved conservation methods and knowledge of suitable materials. Therefore the works are described in this report generally as 'repair', or 'adaptation' where the buildings were converted to new uses.

Restoration also implies a bringing back of the original form, which was not the case for the building related works. However, there appears to have been more consideration of restoration of the mill machinery especially the primary mill gearing which used salvaged material and new fabrication based on original parts. The wheel itself was based on evidence of earlier wheels and could be described as reconstruction.

## 2.0 The Asset

### 2.1 Introduction to the asset

Mill of Benholm is situated in the Den of Benholm, across the Burn of Benholm from the Mill Brae Wood, and close to the historic kirktoon of Benholm in Kincardineshire. It is a stone built 2-storey L-plan water-powered meal mill, established as a barony mill. The current meal mill is thought to date to the 18<sup>th</sup> century with rebuilding and extension in the 19<sup>th</sup> century. The mill was supported by ancillary buildings including the miller's house, byre and grain store as well as its water infrastructure.

Purchased by the former Kincardine & Deeside District Council (K&D DC) in 1986, the mill buildings were restored and adapted as a visitor centre opening in 1995. Latterly the site was leased to the Mill of Benholm company and used as a location for training and support for people with disabilities. The centre closed in 2014 and was added to the Buildings at Risk Register for Scotland in 2023.



*The Mill of Benholm sited along the riverside in the Den of Benholm.*

### 2.2 Location

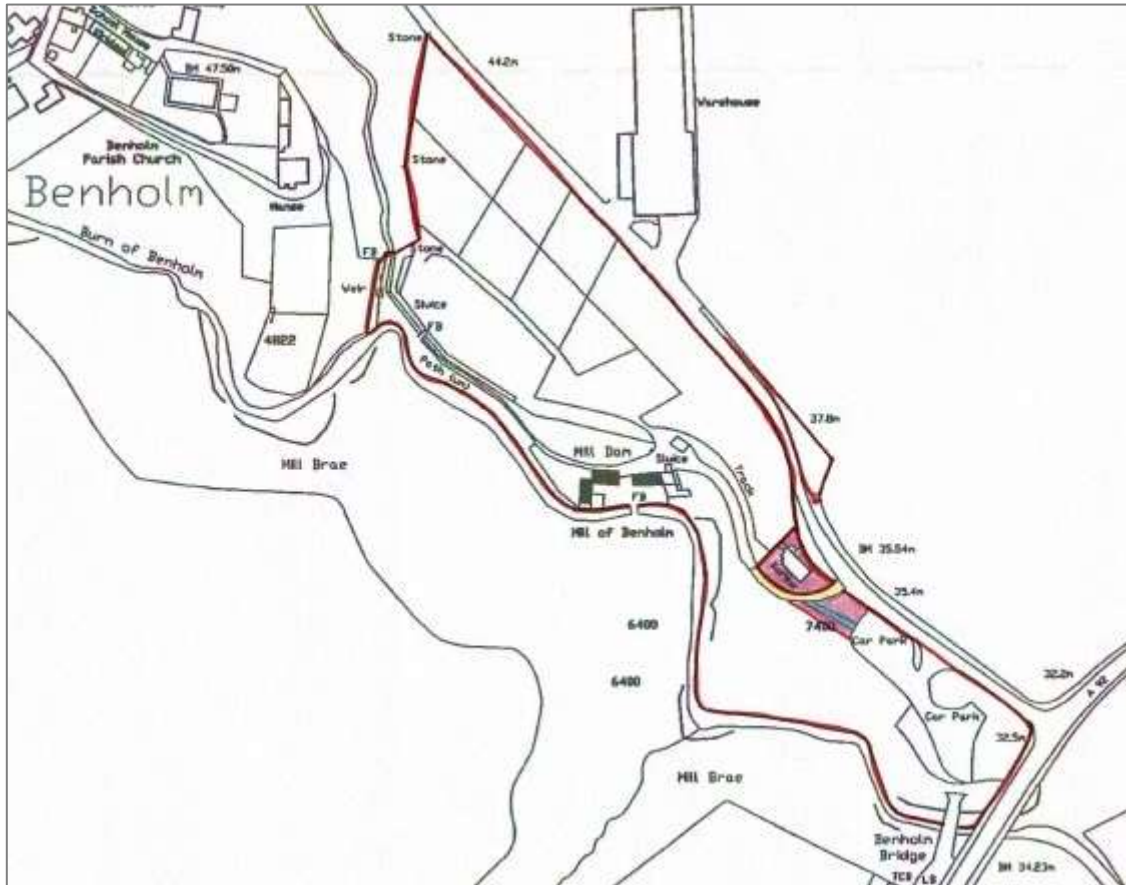
The Mill of Benholm, Benholm, Johnshaven, Aberdeenshire DD10 0HT; OS grid reference NO 806 691 is situated to the south-east of the village of Benholm just off the A92, a mile and a half from the coastal town of Johnshaven.

The parish of Benholm was part of the former County of Kincardineshire. Benholm stood in the southern section of the county which was transferred to Grampian Region (Kincardine & Deeside District Council) after reform of the County Councils following the Local Government (Scotland) Act 1974. Further government reorganisation in 1996 saw Grampian Region divided; Benholm is now in Aberdeenshire Council.

Today, Benholm forms part of Kincardine and Mearns, the southernmost administrative area of Aberdeenshire Council, close to its boundary with Angus Council. It is approximately 10 miles north of Montrose, and 32 miles south of Aberdeen, connected by the A92.

## 2.3 Ownership

The Mill of Benholm is owned by Aberdeenshire Council. The extent of the land ownership is indicated on the figure below. Note that the former Miller's Cottage at the head of the brae did not form part of the title transfer in 1986. A small triangular plot of land remains as part of the title, now detached by the road into Benholm.



*Land associated with the current Mill of Benholm ownership title outlined in red and excluding the shaded area. Map provided by NESPT.*

## 2.4 Designations

### 2.4.1 Listed Building

The Mill of Benholm is a Category A listed building (ref. LB2805; listed in 1972; upgraded to Category A in 2009). Historic Environment Scotland states that this category reflects,

*Buildings of special architectural or historic interest which are outstanding examples of a particular period, style or building type.*

Listing applies to the whole building(s) or structures at the statutory address on the listed building record including both the interior and exterior. Therefore in the case of the Mill of Benholm, this extends to all the historic buildings and structures on site, plus any of the historic fittings such as the mill machinery and the waterwheel. The owner is required to seek listed building consent to make changes to a listed building that the local planning authority deems will affect its character.

Listing is not intended to prevent change or development. It simply signals a special interest that should be taken into account in the planning process, and that consideration will be given to preserving its particular character. Any proposal to demolish, or to alter or extend a listed building in a way which would affect its character, must be granted listed building consent before it can proceed. This can include for example repair work which involves a change in materials.

Benholm Bridge, over the Burn of Benholm, is a Category C listed building (ref. LB6418; listed in 1980). Category C listing means:

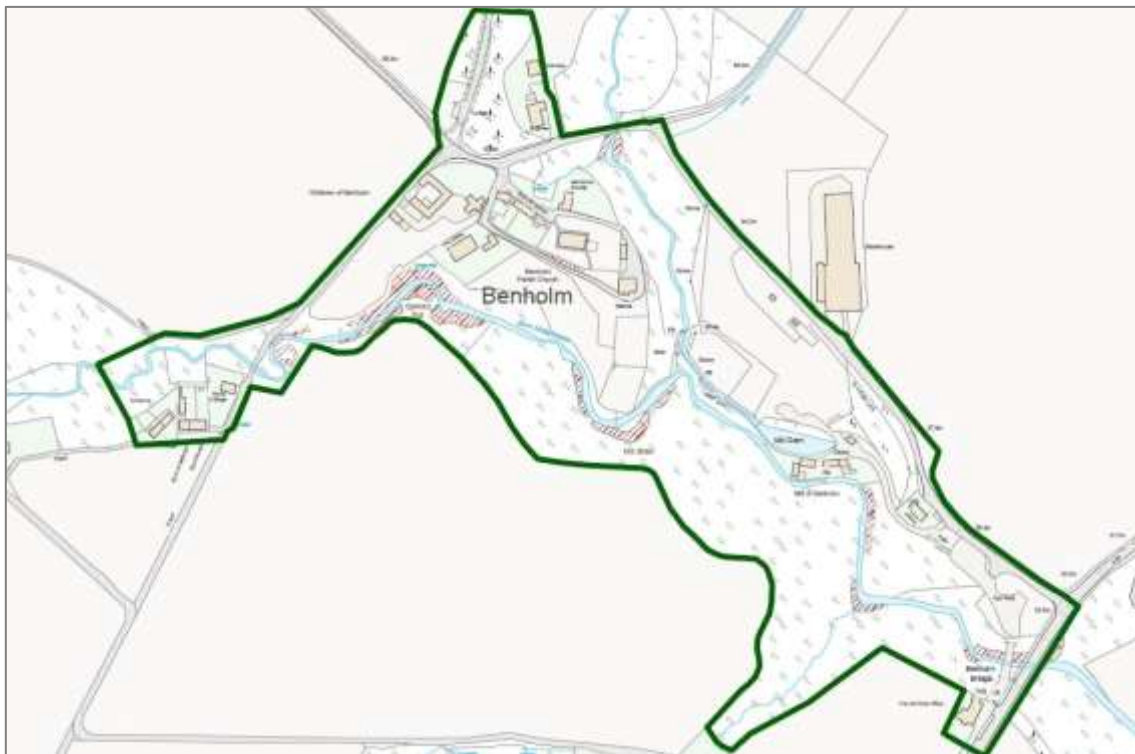
*Buildings of special architectural or historic interest which are representative examples of a period, style or building type.*

#### 2.4.2 Conservation area

The Mill of Benholm lies within the Benholm Conservation Area. Conservation areas are:

*Areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance.*

The designation of a conservation area is a means to safeguard and enhance the special qualities, character and appearance of our most valued historic places. The conservation area extends from the A92 to encompass the mill, kirktoon of Benholm, the Mill Brae Wood and the small grouping of properties at Burn of Benholm including the Birnie Bridge. Further information can be found at <http://publications.aberdeenshire.gov.uk/dataset/conservation-areas>



*Conservation Area Boundary Map from Benholm Conservation Area Management Plan, Aberdeenshire Council. Crown copyright.*

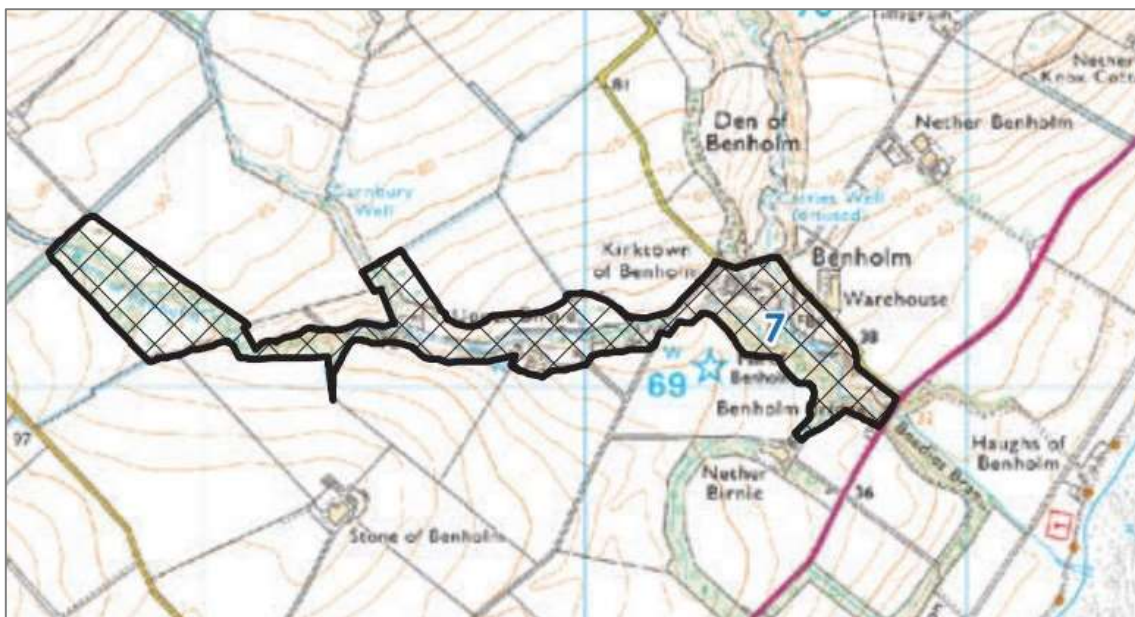
### 2.4.3 Archaeological sites

Archaeological findings are recorded by Aberdeenshire Council and can be found on the Council's online Historic Environment Record. The entry in the Historic Environment Record for the Mill of Benholm does not contain archaeological information beyond the standing buildings, however references have been found to earlier buildings and structures associated with a mill on the site. The earlier origins of the site (e.g. evidence of previous structures, artefacts etc.) should be borne in mind during any physical works to the buildings or surrounding site. Any findings or inquiries should be reported to Aberdeenshire Council's Archaeology Team.

### 2.4.4 Local Conservation Nature Site

Benholm is identified as a Local Conservation Nature Site (LCNS) in the Aberdeenshire Local Development Plan 2017 which also contains policies for its protection. This means the site is one of the "...best local biodiversity and geodiversity sites in Aberdeenshire." ([Nature conservation - Aberdeenshire Council](#)). A LCNS is given protection from development except where public benefits clearly outweigh the nature conservation value of the site. The site encompasses the majority of the conservation area and extends westward upstream on the Burn of Benholm. The Benholm LCNS is described as an:

*"Important geological site for establishing the sequence of glacial events, ice movement patterns and environmental changes that occurred in northeast Scotland during the Late Quaternary. Base rich lowland woodland. Extension of boundary to the north to include wetland and grassland."*



*Local Conservation Nature Site from Aberdeenshire Local Development Plan 2017, Aberdeenshire Council. Crown copyright.*

Also identified as an LCNS in Annie's Dam, which played an historic role in the water infrastructure at Benholm, it is described as a: *"Wet area created by a dam. Birch woodland, wet woodland, rush pasture and acid grassland. Good diversity of plants with locally uncommon sedges"*.

#### 2.4.5 Site of Special Scientific Interest

Sites of Special Scientific Interest (SSSI) are those areas of land and water that best represent Scotland's natural heritage in terms of their flora, fauna, geology, geomorphology or a mixture of these natural features. SSSIs are a statutory designation made by NatureScot.

The Burn of Benholm SSSI (site code 274) is designated for its geology and geomorphology and is situated slightly further upstream from the Mill of Benholm. The location can be viewed on NatureScot: [SiteLink \(nature.scot\)](https://www.naturescot.gov.uk/locations/274)

#### 2.4.6 Ancient Woodland

The Mill Brae Wood covers the steep southern bank of the Burn of Benholm opposite the mill, and can be accessed from the mill car park and over the old Benholm Bridge or by a timber bridge from the mill courtyard (both currently closed). It is part of the Brotherton estate, and whilst not within the asset's ownership, there has been a long standing relationship between wood and mill. In addition, the wood provides the natural setting for the mill buildings. The Mill Brae Wood forms part of the Ancient Woodland Inventory [Map | Scotland's environment web](https://www.nature.scot/ancient-woodland). In Scotland, 'Ancient Woodland' is defined as land that is currently wooded and has been continually wooded, at least since 1750 (Nature Scot: [A guide to understanding the Scottish Ancient Woodland Inventory \(AWI\) | NatureScot](https://www.nature.scot/ancient-woodland)).



*Mill Brae Wood outlined in blue. Map from MoBE, Mill Brae Wood Management Plan.*

## 3: Understanding the Historic Asset: Historic Records

### 3.1 Introduction

It is essential to have a thorough understanding of a given site before attempting to ascertain the asset's heritage merit. This section therefore presents information both on the location and the asset itself.

### 3.2 Cartographic records

This area of Aberdeenshire is not mapped by Scotland's early map maker Timothy Pont (c.1564-c.1614) but Benholm is recorded on Roy's *Military Survey of Scotland* (1747-55) although the mill itself is not named. The first detailed mapping of the parish of Benholm is Garden's *Map of Kincardineshire* (1774) which illustrates the late 18<sup>th</sup> century parish well.



*Garden's Map of Kincardineshire (1774): The kirk and manse are illustrated between the two river crossings on the earlier 'coach road', and the mill a little further south close to the convergence of the two water courses. Note Annie's Dam at the northern boundary of the parish. © NLS*

[View map: Garden, William, fl. 1771-1806, A map of Kincardineshire. Drawn from a survey taken anno MDCCLXXIV / \(by William... - Counties of Scotland, 1580-1928 \(nls.uk\)](#)

Detailed cartographic evidence of the buildings at Mill of Benholm does not appear until the Ordnance Survey of the later 19<sup>th</sup> century. The 1<sup>st</sup> edition Ordnance Survey (25" surveyed 1864, published 1866) illustrates the mill complex with the L-plan meal mill, the miller's house and two smaller structures alongside (byre) and the grain store. The water infrastructure for the mill at that time is well illustrated in colour on the 25" map (Sheet xxv.9 Kincardineshire). This varies from the later (and current) situation, as there is a mill dam at the confluence of the burns with a sluice to the lade flowing into

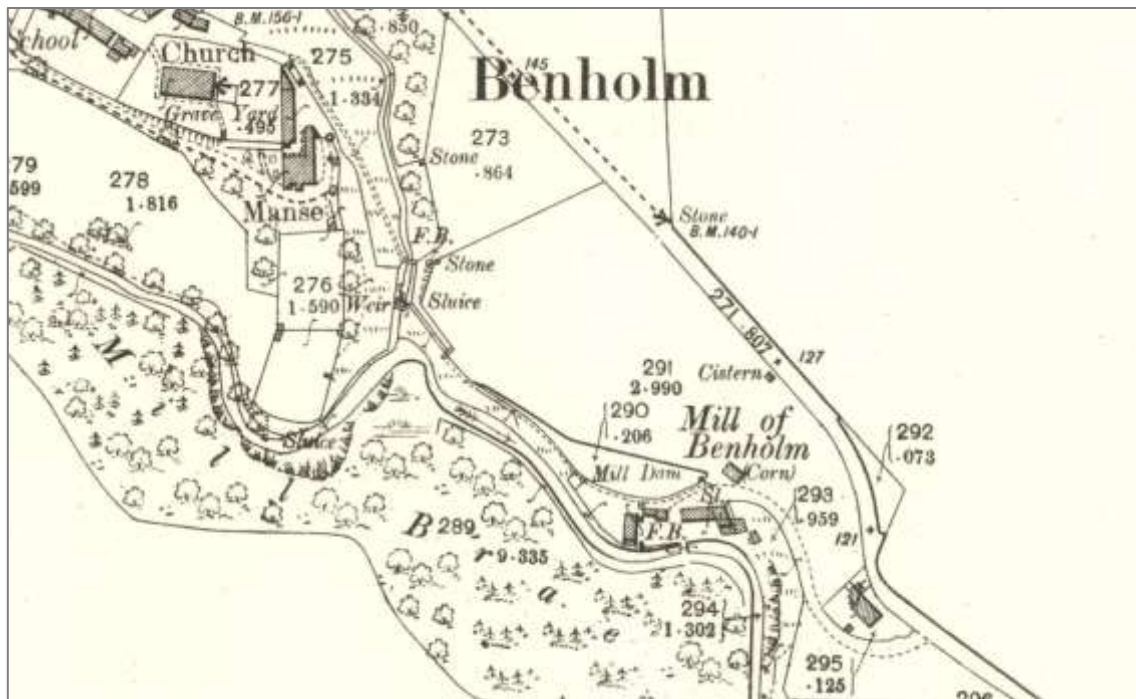


the pond. This is also the first mapped record of the Mill Brae Wood and bridge connections to them at the mill and further upstream on the Burn of Benholm. There is a linen copy of this map at the Benholm Kirk which includes hand written notes on crop rotations.



1st edition Ordnance Survey (25" surveyed 1864, published 1866). © NLS

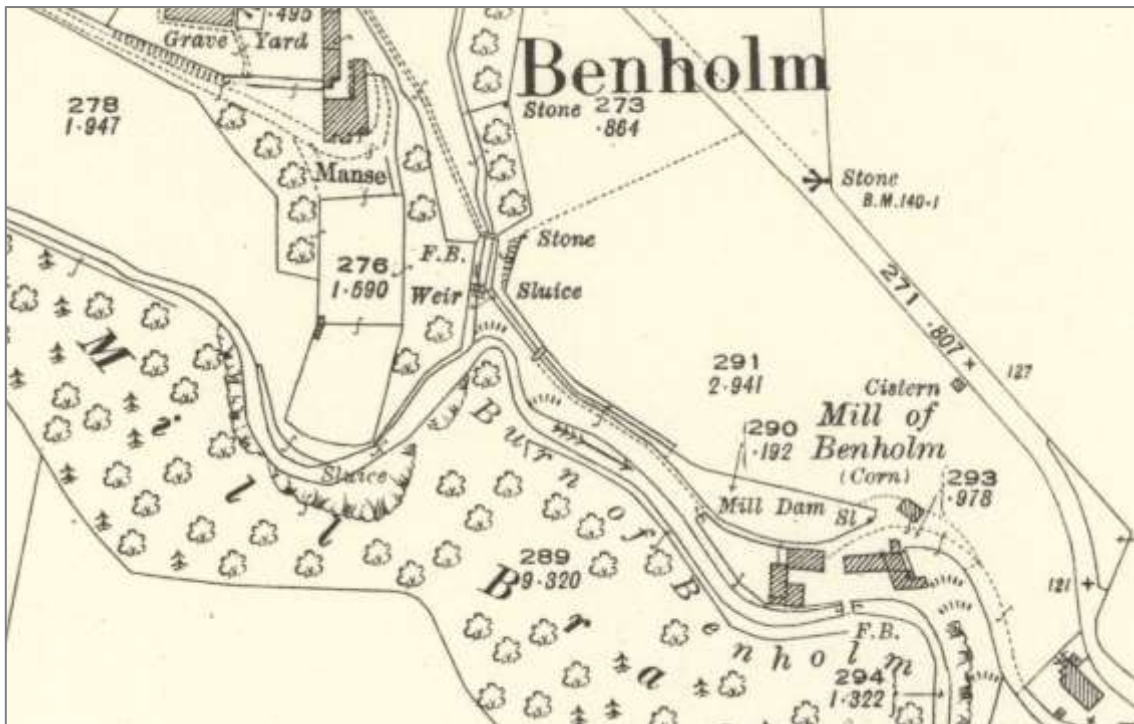
[View map: Ordnance Survey, Kincardineshire XXV.9 \(Benholm\) - Ordnance Survey 25 inch 1st edition, Scotland, 1855-1882 \(nls.uk\)](#)



2nd edition Ordnance Survey (surveyed 1901, published 1904). Note the extension of the L-plan meal mill and also the new miller's house close to the road at the head of the brae. © NLS

[View map: Ordnance Survey, Kincardineshire XXVIII.6 \(Benholm; Bervie\) - Ordnance Survey 25 inch 2nd and later editions, Scotland, 1892-1949 \(nls.uk\)](#)

Benholm was first resurveyed in the 20<sup>th</sup> century in 1923, when extensions are visible to the miller's house. Historic development of the buildings and water infrastructure is discussed in section 4.



Later Ordnance Survey (surveyed 1923, published 1925). Note the extension to the miller's house. © NLS

[View map: Ordnance Survey, Kincardineshire XXVIII.6 \(Benholm; Bervie\) - Ordnance Survey 25 inch 2nd and later editions, Scotland, 1892-1949 \(nls.uk\)](#)

### 3.3 Written records

#### 3.3.1 Royal Commission on the Ancient and Historical Monuments of Scotland

During the 1970s, work was undertaken to record Scotland's industrial buildings led by John R Hume and published in two volumes of *The Industrial Archaeology of Scotland*. Hume's photographs and field notes for the Mill of Benholm (1974) are available at Canmore, the National Record of the Historic Environment, maintained by Historic Environment Scotland.

Following on from Hume's work, more detailed research was undertaken for the Scottish Industrial Archaeology Survey (SIAS; <http://canmore.org.uk/collection/1176540>). The SIAS was established in 1977 with the aim of carrying out systematic surveys of significant Scottish industrial monuments. Originally based in the University of Strathclyde, in 1985 the survey became an integral part of The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS; now Canmore). In July 1983, Mill of Benholm was recorded by Graham J Douglas as part of the SIAS (Canmore, MS/500/35/83; Appendix 1). This provides the most detailed recording of the mill found to date, made approximately 6 months after the death of the last miller, Lindsay C. Watson, and prior to purchase by Kincardine and Deeside District Council. Graham J Douglas was experienced, having worked on the survey of Scottish grain mills and their machinery over a number of years.

### 3.3.2 Whittaker Engineering Ltd files

For this report, the author and members of the Board of Mill of Benholm Enterprise (MoBE) met with Kenneth Whittaker of Whittaker Engineering Limited (WE Ltd). Whittakers were contracted by Kincardine and Deeside District Council to reinstate the waterwheel, repair and restore the water infrastructure and primary mill machinery in the early 1990s. Kenneth Whittaker kindly provided the project file for information and archive purposes to the MoBE. This includes:

- Correspondence between WE Ltd and K&D DC, and Grampian Regional Council
- Copies of the millwright's timesheets over 2 years and notes including some measurements.
- Correspondence with suppliers.
- Copies of historical research notes and draft text for the mill booklet (Miller, 1996).

### 3.3.3 Johnshaven Heritage Hub

As the primary location for local social history, the Johnshaven Heritage Hub was contacted and has provided copies of images in their collection as well as checking written records, including a number of newspaper articles, and undertaking further research on a selected number of the millers at Benholm.

### 3.3.4 Other useful references

Enid Gaudie in her book *The Scottish Country Miller 1700-1900* (1981) makes several very helpful references to the mill during its history, some of which make reference to the Scottish Records Office (SRO) and also the Register of Sasines. It is also clear from notes in the Whittaker Engineering Ltd files, that the District Council, in preparing the project information on the mill, planned to undertake extensive research on the history of the site as well as related social history, for example on the millers and the production and use of oats. It is presumed that this research, which included proposed interviews with Helen Watson (Lindsay C Watson's widow), was collated in the visitor centre booklet *The Mill of Benholm the Story of a Scottish Meal Mill*, written by Lesley Miller and published by the District Council in 1996. Therefore for the purposes of this report, no new archival research has been undertaken on the history of the site, however where possible references have been checked including those available online at the SRO.

### 3.3.5 Local authority and HES records

Both Aberdeenshire Council and HES were contacted for historic records, particularly for the adaptation, which would have required listed building consent, planning permission and building warrant. To date these records have not been located, although it was confirmed that planning permission and building warrant were obtained by W&D DC (WE Ltd files, report 28.11.1990). HES checked their internal files and provided a small number of images, but any written records of consents were not found.

It is noted that K&D DC had surveyed the mill at purchase including a site investigation with photographic record and site survey drawings (Aberdeen Press & Journal, 12<sup>th</sup> Dec. 1986) and intended to undertake considerable research. If this information could be located it would be a valuable archive and source of information on the mill before adaptation. The relevant departments were K&D DC Leisure and Recreation and also the architects' department of Grampian Regional Council.

### 3.4 Photographs and other images

Few early photographs of the mill have been found. The following were identified; further details in the bibliography.

#### National archives

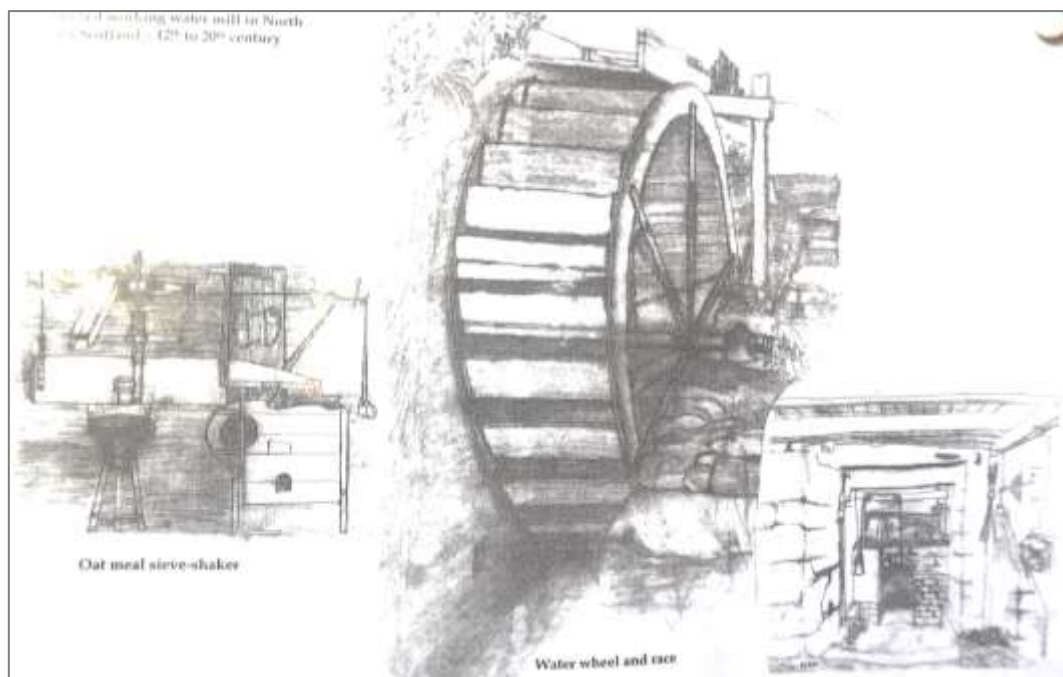
- Canmore: John R Hume, 1974
- Canmore: site photographs, December 1982
- Canmore: Graham J Douglas survey and photographs as part of the SIAS, 1983
- Mills Archive Trust: photographs in Jim Woodward-Nutt collection, 1983
- Mills Archive Trust: photographs by Eric H Fisher, March 2019

#### Local archives

- Johnshaven Heritage Hub

#### Miscellaneous

- Postcard, no date, reproduced courtesy of Brian H. Watt on Benholm Conservation Area Appraisal cover (original not located)
- Newspaper image in *The People's Journal*, 1934
- Photographs and cover postcard in Miller (1996) including those from Helen Watson (originals not located)
- Sketches of the mill by W H Turner, dated 1969, copies in Benholm Kirk
- HES internal file images c. 1992
- Whittaker Engineering Ltd, images before and during their work between c. 1991 and 1993, copies held by MoBE.
- BBC serialisation of *Sunset Song* broadcast March to April 1971.



*Copy of sketches of the mill by W H Turner, dated 1969, in Benholm Kirk. The copy, states "With fond memories of my uncle Lindsay Watson, the last miller of Benholm." Reproduced courtesy of Benholm Kirk.*

## 4: Understanding the Historic Asset: Historic Development

An historic Timeline is also provided in Appendix 2.

### 4.1 Parish of Benholm: early history

The mill is located just south of the village of Benholm, a picturesque former kirktoon situated on the Castle Burn. Its historic role as the focal point of the parish community is evident in its original composition of kirk and manse, coaching inn, smithy (datestone 1723, closed 1950s, now demolished), and schoolhouse. The name 'Benholm' comes from the characteristics of the local topography of hill (ben) and low lying ground (holme). It can be recorded in historic records as *Bennem* or *Benhome* or *Benholme*; the family name 'de Benne' now known as *Benham*.



*Johnston's map of the County of Kincardineshire 1850 is not as detailed as Garden's 1774 map but provides a clear graphic representation of the parish and its key components.*

[View map: W. & A.K. Johnston Limited, Johnston's map of the county of Kincardine with the railways. - Counties of Scotland, 1580-1928 \(nls.uk\)](http://www.nls.uk)

The parish of Benholm can trace its history back to the late 12<sup>th</sup> century when William I, the Lion, King of Scots (1165-1214) granted the lands of Benne [Benholm] to Hugo, brother of Helias the clerk, Benne, sometime between 1189 and 1196 (SRO/GD4/1). The Lundins [Lundies] acquired Benholm by the marriage of Walter de Lundin with Christian, daughter and heiress of Hugo de Benne, sometime in the first half of the 13<sup>th</sup> century (SRO/GD4/2), and the parish church was consecrated around this time in 1242 (Geddes, 2001). Benholm Castle was established by the Lundy family in the 15<sup>th</sup> century (Geddes, 2001).

A number of sources suggest that it is probable that there has been a mill at Benholm since at least the 12<sup>th</sup> century. This is based on the text of the charter by William the Lion, which grants the lands

*“...with all its just pertinents: To be held by him and his heirs of me and my heirs in fee and heritage, in wood and plain, in lands and waters, in meadows and pastures, in moors and myres, in stanks [pools/weirs] and mills...”*

SRO/GD4/1

It is unclear if the reference to ‘mills’ is a general provision rather than a specific reference.

A firmer record of the mill is provided in 1491/2 when in the charter by John Lundy and his spouse Isabel (ne Forrester) to their son, Robert, grants the lands and barony of Benhame “with the mill” (Gauldie, 1981, 120; SRO/GD4/10). In the first half of the 16<sup>th</sup> century when the estate passes through inheritance, the mill is described more specifically as ‘part thereof’ of the “Kirktoon of Benholme” (SRO/GD4/24 & 27). The phrase ‘thereof’ would mean that the mill was an appendage to the larger land holding of the kirktoon (Gauldie, 1981, 212). It is therefore more accurate to say that a mill at Benholm has been there since at least the late 15<sup>th</sup> or early 16<sup>th</sup> century. And as in Benholm parish there were only the two converging burns on which to locate a mill, it makes sense that this mill would have been on, or close to, its current location.

In the second half of the 16<sup>th</sup> century, the mill passed through marriage from the Lundy family to the family of Keith, Earls Marischal with a charter by Henry and Mary, King and Queen of Scots, granted including erecting Benholm into a free barony (Gauldie, 1981, 24).

In the early 1600s the barony was divided amongst four heirs, and four divisions, the mill and mill lands were halved as part of that division (SRO/GD4/169 & 172), which was not uncommon, as the mill would have had considerable value to the landowners as a source of income. Tenants living on the estate were ‘thirled’ (or on the north east ‘bunsucken’) to the estate mill i.e. under the terms of their lease they had to bring their grain to be ground at the landlord’s mill, and a fixed proportion of the ground meal (the ‘multure’) was paid to the proprietor or tenant. These divisions could still be seen in Garden’s 1774 map, and the First Statistical Account confirms these estates as Benholme, Brotherton, Nether Benholme and Knox (OSA, 1795). In 1670 Benholm estate was bought by Robert Scott (SRO/GD4/190 & GD70/93).

## 4.2 Parish of Benholm: 18<sup>th</sup> and 19<sup>th</sup> centuries

The original coach (or post) road from Montrose to Aberdeen passed through the settlement at Benholm across two bridges, one over the Burn of Benholm sometimes referred to as the Birnie Bridge, and the other over the Castle Burn. Both were constructed (or reconstructed) in the 18<sup>th</sup> century with date stones of 1729 and 1775-77 respectively.

The early 1800s appear to have witnessed significant improvement in the agricultural life of Benholm parish, with the union of small farms and associated population loss, but also farms improved, waste land reclaimed and grain production increased (CAA, 2006; NSA, 1845). The New Statistical Account states that the parish has eleven farms provided with threshing machines, more than half of which are driven by water. The Lands of the Haughs of Nether-Benholm with mill and mill Lands of Benholm were advertised for let by James Scott of Brotherton in 1806 and described thus:

*“The Mill is well supplied with water, and is in the midst of a fine corn country”*

*“The Lands of Haughs [...] produce very abundant and early crops of Grain”*

Aberdeen Press & Journal, 15<sup>th</sup> October 1806

This coincided with other infrastructure improvements, around 1800 a new turnpike road (now the A92) replaced the ‘coach road’ through the kirktoon, with a new bridge built over the Burn of Benholm, itself now bypassed by road realignment and the current bridge built in 1932).



*New Benholm Bridge opened in 1932. The road realignment saw the demolition of Seabank Cottage and Post Office to the north side of the Burn of Benholm. Image courtesy of Johnshaven Heritage Hub.*

### 4.3 Parish of Benholm: 20<sup>th</sup> century

After the Second World War increasing mechanisation of the farming industry accelerated rural depopulation. There was a decline in oats in favour of barley and a dramatic reduction in the number of independent small farms. This can be illustrated over the course of the working life of the miller Lindsay Watson (b.1882 - d. 1967). When he arrived at the Mill of Benholm in 1929, his eldest son Lindsay C Watson was 12 years old and attended the parish school, then with 60 pupils. The school closed in 1968, leaving Johnshaven Primary as the only one in the parish, then with a role of 69 and only 6 pupils from a rural home. Over these four decades, Lindsay had witnessed 30 rural homes given up or abandoned, marking the depopulation and the “...death of the crofter way of life” (Graham, 1970). This decline was described eloquently in Lewis Grassie Gibbon’s novel *Sunset Song* (1932).

## 5: Understanding the Historic Asset: Millers at Benholm

### 5.1 Introduction

A full list of known millers is provided in Appendix 3. The miller furthest back in these records is Archibald Brown in 1696. There are small gaps in this list as only records of births, deaths and marriages are available, so between these life events the picture can be unclear. From 1841, it is possible to trace the millers by the use of the census records, and from 1855 statutory records come into force which can provide more detailed information.

The Johnshaven Heritage Hub kindly undertook additional voluntary research for this report to provide an insight into a number of the millers at Benholm.

### 5.2 Kemlo family

John Kemlo (b.1753 Bervie – d.1836 Montrose) is known to have been the miller at Benholm from 1784-93, from his children's birth records. John was the son of Adam Kemlo and Margaret Anderson, Adam was recorded as the miller at the Mill of Peattie, Arbuthnott in 1753 and at Garvock in 1755. Adam's wife died in the Parish of Benholm in 1769, suggesting the family may have been living there before John is recorded as the miller at Benholm. There is a gap in the miller records from 1771 to 1782.

The mills of Garvock and Peattie both lay near the River Bervie in parishes neighbouring Benholm (Parish of Garvock and Parish of Bervie respectively).



*Garden's Map of Kincardineshire (1774): showing the parishes north of Benholm, with along the River Bervie (from left to right) Mill of Garvock, Mill of Pa-tie [Peattie], Mill of Allardice and Mill of Pitcarry. © NLS*



### 5.3 Dallas family

James Dallas (b. 1810 Glenbervie – d. 1895 Mill of Benholm) was the miller at Benholm from around 1853 to 1878, then continuing with his son David Seivewright Dallas (b.1847) until 1895. James Dallas had served his apprenticeship at the Mill of Glenbervie, and was a journeyman miller on the Dighty Water, Forfarshire before commencing business on his own account at the Mill of Garvock. After which he leased the mill and croft at Benholm (Montrose Standard, 1<sup>st</sup> March 1895).

*“Mr Dallas was held in high esteem by all classes, and was much respected in his dealings, and farmers and others would often drop in to have a chat on olden times with the miller. Up to about three weeks ago he was daily attending to some light duties about the mill”*

Montrose Standard, 1<sup>st</sup> March 1895

Like Adam Kemlo, James Dallas had also been the miller at Garvock, from at least 1837 to 1851.

James’s son David S Dallas, who would take over as miller at Benholm from 1878, was not listed in the 1871 census, only his younger brother Alexander. David may have been at sea (Aberdeen Press & Journal 10<sup>th</sup> January 1908), but in 1874, on his marriage, and in 1881 both father and son are listed as ‘master meal millers’ at Benholm; in 1881 James now living solely with his son David’s family. After James’ death in 1895, the 1901 census has David and his son George (b. 1880 – d.1908) as ‘meal and barley millers’ at the Mill of Benholm.

David S Dallas would continue as miller at Benholm until 1908 when he died there of tuberculosis aged 60. Very sadly, his son George, working alongside him, died only a few months later at the age of 28. In fact in addition to George, David and Margaret Dallas lost seven of their eight children prematurely, three to tuberculosis, two in infancy and one as a result of injuries caused by an accident at work.

In 1911, Margaret Dallas, David’s widow, is still living in the ‘Millar’s House’ and interestingly her occupation is listed as ‘Meal Miller’ and she is employing a William Fairweather (17) who is listed as an ‘Apprentice Meal Miller’ and living in her household. Her son James (b. 1878 – d.1937, Corbieknowe, Kinneff) is living in a 3-roomed house at the Kirkton of Benholm with his wife, 6 children and a lodger; he is listed as an ‘Oatmeal Miller’. This suggests the Dallas family continued at the mill until it was leased in 1912 to William Greig of Suttie Mills, Perth (Aberdeen Press & Journal 20<sup>th</sup> May 1912).

Two more members of the Dallas family, in research so far, were millers. David’s youngest brother Alexander (b.1853) described as a meal miller on his death certificate (1896, Montrose) and his elder step-brother, James (b. 1839) a master meal miller at the Mill of Uras, Dunnottar (death certificate, 1890).

*“The miller now at Benvie Mill is the son of the miller who worked there before him and the grandson of a miller who worked at Benholm mill, fifty miles north, at the beginning of the century.”*

(Gauldie, 1981, 190)

This quotation suggests a miller who was a relation of the Dallas family, although research so far has not identified this miller.

The new lease in 1912 marked the end of almost 60 years of the Dallas family at the Mill of Benholm who must have overseen the extension of the mill, alteration of the water infrastructure and the move to the new mill house at the top of the brae.

## 5.4 Watson family

*“...Mr Lindsay Watson and his family work as oatmeal millers, the fourth generation to do so, and certainly the last of such operatives in Kincardine.”*

The People’s Journal, 30<sup>th</sup> November 1968, 8

*“The grandfather of the present miller at Benholm [Lindsay C Watson] was a ploughman who married the daughter of the miller at Arbuthnott and so got taken on at the mill. He moved from there to Craigie Mill where his son [Lindsay Miller] learned the trade of milling before moving on to Benholm.”*

Gauldie, 1981, 190

In October 1929, the Meal Mill and Croft of the Mill of Benholm extending to 6 acres was advertised by the Brotherton Estate for let describing the mill and machinery as “...suitable for a good country trade” (Aberdeen Press & Journal, 15<sup>th</sup> October 1929). Lindsay Watson (b.1882 Bridgeton, St Cyrus - d. 1967, Mill of Benholm) became the new miller. As the quotes above state, Lindsay was part of a line of millers that spanned four, possibly five, generations.

Name	Occupation
<b>Alexander Carnegie</b> , miller (b. 19.12.1839 - d. 1861, Mill of Criggie)	Mill at Arbuthnott; moved to Mill of Criggie (recorded as miller).
Daughter Jane / <b>Jean Carnegie</b> (bc. 1841 Mill of Criggie; d.19.12. 1916, Mill of Criggie). In 1863 marries <b>Alexander Watson</b> (farm servant; b.c. 1840 Arbuthnott; d. 29.01.1918, Mill of Criggie).	Possibly trained under father-in-law; possibly at Arbuthnot before 1861. AW is living at Woodstone (mill there) St Cyrus at marriage and described as farm servant. 1871 Gardener & Domestic servant Bridgeton. 1882 at Lilybank Bridgeton, gardener. 1881 Gardener & Crofter 10 acres. 1891 Mill of Criggie Farmer and Miller. 1901 Mill of Criggie meal miller and farmer. 1911 meal/barley miller.
Their son <b>Lindsay Watson</b> (b.1882 Bridgeton, St Cyrus – d. 1967, Mill of Benholm)	Mill of Criggie 1901 farmer’s son, miller 1911 meal miller and farmer 1921 oatmeal/barley miller/crofter
Lindsay Watson marries <b>Annie Boyd</b> , Dundee 1909	LW described as a meal miller and AW as a farmer
Their son <b>Lindsay Carnegie Watson</b> (b.1917 Mill of Criggie – d. 27. 12. 1982 Arduthire Hospital Stonehaven)	Master miller retired buried Johnshaven cemetery.
Lindsay C Watson marries <b>Helen Archibald</b> 1946	
Children – Lindsay, Sheila and Ian Watson	Ian mentioned working at mill in 1968 article, and son Lindsay in 1970 article.

From research thus far, the line starts with Alexander Carnegie who is recorded as the miller at the Mill of Criggie, St Cyrus on his premature death aged 42 in 1861. His daughter Jane (or Jean) married Alexander Watson there in 1863, but it would appear that the young couple lived and worked elsewhere initially, as Alexander Watson appears in several records as a gardener at Bridgeton, St

Cyrus, working up to include a croft of 10 acres in 1881. By 1891, he is the farmer and miller at the Mill of Criggie. In 1901 Lindsay Watson, their son, is living at the Mill of Criggie with his father Alexander Watson, meal miller and farmer. Lindsay is described as a 'farmer's son, miller', as was his younger brother David D Watson. By 1911 Lindsay has taken over as employer at this mill and his father, now 71, was described as a 'meal/barley miller and worker'; sadly, Lindsay's brother David died during the First World War at the Battle of the Somme (pers. comm. W. Scott, 2023).



*Garden's Map of Kincardineshire (1774): showing part of the neighbouring St Cyrus parish south of Benholm, with the Mill of Criggie where the Watson family milled before their move the Benholm © NLS*



*Picture thought to be taken in 1913, at the Mill of Criggie, on the Golden Wedding anniversary of Alexander and Jean Watson (couple in the centre) with possibly Lindsay Watson (far left). Image courtesy of Mrs Wilma Scott.*

Lindsay Carnegie Watson was born at the Mill of Criggie in 1917, and worked with his father at this mill before serving in the Second World War with the Cameron Highlanders (from June 1940). He was reported missing, and believed a prisoner of war in June 1941 (Dundee Courier, 17<sup>th</sup> July 1941). His brother William was reported a prisoner of war in September 1940 (Dundee Courier, 16<sup>th</sup> September 1940). Lindsay Watson was wounded in action in the North African Desert under Wavell. He appears to have been hospitalised in Dersa, Benghazi and Italy before returning to Britain in early 1943, when his brother was also reported to be on his way home having been captured at St Valery (Aberdeen Weekly Journal, 29<sup>th</sup> April 1943). Lindsay later received a war disability pension (Graham, 1970).

After the war, in 1951 Lindsay C Watson bought the mill, croft and miler's house from the Brotherton Estate.



*Lindsay Watson (b.1882) and Annie Boyd (left and centre) possibly on their wedding day in 1909; (right) their son Lindsay C Watson and Helen Archibald on their marriage in 1946. Images courtesy of Mrs Wilma Scott.*

In the late 1960s and early 1970s Lindsay ran the croft with the aid of his sons Lindsay Watson 'the Third' and Ian Watson. He also kept a lorry and ran a small transport business (Weekend Review, Aberdeen Press & Journal 10<sup>th</sup> October 1970 article by Cuthbert Graham). This showed, that like his forebears, the miller was not solely a miller but ran a croft alongside, and into the 20<sup>th</sup> century also had a second business. In the late 1960s,

*"Mr Watson and his son Ian often have the stock fed on their wee croft by seven in the morning, and spend the rest of the day milling."*

The People's Journal, 30<sup>th</sup> November 1968, 8

At this time the Watsons were sending oatmeal and animal feed all over Kincardine and around, although it used to be further (The People's Journal 30<sup>th</sup> November 1968). However, in the last years of its operations their only supply of oats came from a local crofter and salmon fisher, with the processed crop sold to the Milltown community, the only regular customers the mill had in the last days of its working life." (Murton, 1983). Handwritten notes at the Johnshaven Heritage Hub record that oatmeal, bruised oats and hashed oats were produced on site; supplying an area south to Montrose and to Laurencekirk, Fordoun, Barras and Catterline.



*Lindsay C Watson beside the watermill in 1968. © The People's Journal, 30<sup>th</sup> November 1968; image courtesy of Johnshaven Heritage Hub.*

With the passing of Lindsay C Watson, the mill ceased to operate until its restoration as a visitor centre in 1995.

*"Lindsay Watson, the miller whose tenacity and devotion to his calling did so much to keep the mill alive..."*

Murton, 1983

## 5.5 Restorers of the mill

Whilst the mill ceased to operate as a commercial meal mill from 1983, following the death of Lindsay C Watson, a number of key individuals were involved in its restoration and adaptation to a visitor centre with working waterwheel and mill machinery. This included:

- John Turner, millwright employed by K&D DC and seconded to Whittaker Engineering Ltd.
- Kenneth Whittaker and team at Whittaker Engineering Ltd.
- Scottish Conservation Projects volunteers (see below).
- Pete Babs, employed as custodian miller after the restoration by K&D DC.
- Assistant miller, Ian Conville.
- David Hancock and John Wombel, K&D DC.

John Turner was a millwright to trade and latterly worked with the council's Roads Department. Turner worked at Whittaker Engineering Ltd from 20<sup>th</sup> December 1990 to 19<sup>th</sup> February 1993 according to the surviving timesheets (WE Ltd files). Alongside WE Ltd he was instrumental in restoring the waterwheel and primary milling machinery as will be described in section 7.

Volunteers of the Scottish Conservation Projects Trust worked at the mill site from Spring 1994 and undertook a considerable amount of work including: rebuilding retaining walls, preparing internal walls and fitting out the cafe and toilet block, clearing water channels, installing a new sluice, installing new footpaths and footbridges. In particular they were involved in restoration of the secondary milling machinery. A core volunteer team was led by Paul Burgon and included Liz Wheatley (joiner), Ray Philips (landscaper), Tony Janetta (engineer), Jen Keddy and Andy Rockall. Liz, Ray and Tony were thereafter commissioned as contractors by K&D DC to complete the work (Scottish Conservation Projects Trust, Annual Review 1994/95; Aberdeen Evening Express, 4<sup>th</sup> July 1995)

SCPT volunteers had also worked from 1987-1989 on minor works to weirs and stream banks and repair of damage to the lade wall (Miller, 1996).



*The team at Whittaker Engineering Ltd in 1991 with one half of the new waterwheel assembly behind; Kenneth Whittaker is third from the right (WE Ltd files).*

## 6: Understanding the Historic Asset: The Function

The form of the asset and its function are closely linked. Understanding the 'function' of the asset is particularly important for a number of reasons. Firstly it provides the justification of the asset and secondly dictates its structure, or form. Finally, an understanding of the asset's use over time can help determine its future opportunities and constraints regarding appropriate conservation.

### 6.1 Introduction

The intended function of this asset was to provide a barony, and then estate, meal mill for the laird, where the local community would be required to grind their grain.

*"For many centuries Benholm and hundreds of similar small mills throughout Scotland were of vital importance to the rural community as the supplier of the main food item, oatmeal."*

(Miller, 1996, 2)

Meal is a general term for a substance, especially plant seeds, which has been crushed to make flour or for animal food. Whilst maps and other records often describe mills as a 'corn mills' this meant a meal mill. Grain milling could involve a number of different grains including wheat, barley, oats and bere (on the Northern Isles). In the parish of Benholm at the end of the 18<sup>th</sup> century the crops included wheat, barley, pease and oats (OSA, 1795).

No records have been found of the daily operations of the mill before the 20<sup>th</sup> century. But we know that after the Second World War, the increased use of combine harvesting led the mill to be in much demand for its grain drying facilities. However as the traditional agricultural lifestyle waned, by the late 1960s the miller was also producing animal feed, as the demand for oatmeal declined (The People's Journal, 30<sup>th</sup> November 1968). It is likely that in the last years of operation the mill produced oatmeal, bruised oats and hashed oats (Douglas, 1983; MS/500/35/83); supplying an area south to Montrose, and to Laurencekirk, Fordoun, Barras and Catterline (JHH notes).

By 1970, the Mill of Benholm was described as the last remaining water-powered meal mill in the county of Kincardine (Graham, 1970). It had become something of a novelty, and was the film set for Long Rob's mill in a BBC2 serialisation of Lewis Grassie Gibbon's novel *Sunset Song*. The mill had received visitors, so much so that the miller commented after a fire in 1971 that he was attempting to re-roof the kiln before the height of the tourist season (Aberdeen Press & Journal, 19<sup>th</sup> June 1971).

When the mill ceased operations it was said to have been "*one of Scotland's last operational watermills*" (Murton, 1983). After a short period of disuse, the mill and mill lands were purchased by K&D DC in 1986, excluding the miller's cottage at the head of the brae. The buildings and infrastructure then underwent a prolonged programme of repair and adaptation before opening as a visitor centre in 1995. In 2005, Mill of Benholm, a company limited by guarantee, was established to operate the site on lease from the local council as a training facility for people with disabilities.

The asset is more than just the mill. From the mid-17<sup>th</sup> century, estate records make reference to 'mill lands' (GD4/176 & 183). This term meant that the mill was effectively a small holding, possibly little more than the average croft, with the mill the prime source of income (Gauldie, 1981, 212). This meant that the miller had land provided for him to farm alongside the mill. By the later 19<sup>th</sup> century

there were a separate stone built byre to support the croft functions. Farm animals were still kept on the croft in the 1970s.

During the operation of the mill as a visitor centre and later training facility, the original mill lands formed space for gardening including allotments with a number of temporary timber sheds, a poly tunnel and raised beds. An orchard was planted, and new trees (now mature) on the north embankment of the access road. There was an area of hardstanding for parking, now overgrown.

## 6.2 The water-powered mill

Powered meal mills mechanised the process of grinding grains which had been done by hand for centuries using stone querns, and the hand operated rotary quern was still used in some remote areas of Scotland in the 20<sup>th</sup> century (Hume, 1977). There are three examples of rotary querns in the meal mill, thought to have been placed there as exhibits.

Whilst there were examples of wind and steam powered grain mills, the vast majority of meal mills were water-powered using a waterwheel (Hume, 1977).

### 6.2.1 Horizontal water-powered mills

The earliest form of waterwheel was the 'horizontal' wheel, sometimes referred to as the 'Norse mill', having become common in Northern Europe after the Dark Ages (Buchanan, 1974). In this type of mill, the wheel sat horizontally in the water course and directly drove a single pair of stones above with no gearing. The wheel and stones were housed in a simple structure which did not incorporate a drying kiln. Water-powered horizontal mills for grinding corn have been known in Scotland since the 7<sup>th</sup> century (HES, 2009, LB2805).

As there may have been a mill on, or close to, this site from the late 12<sup>th</sup> to the early 16<sup>th</sup> century, it is possible there was an earlier horizontal mill somewhere on the watercourse. No evidence of this has yet been found or recorded.

### 6.2.2 Vertical water-powered mills

Vertical water-powered mills were known to the Romans and an English translation of descriptions by Vitruvius was available in 15<sup>th</sup> century England; it is very likely Scottish monks would have begun to apply this type for their abbey mills (Gauldie, 1981, 120). At Benholm we believe, through estate records, that the Mill of Benholm was established as a barony mill. However, technological developments would have filtered down from larger establishments such as the abbey mills, especially after the Reformation when re-apportionment of monastic lands in the late 16<sup>th</sup> century brought many mills into baronial estates.

The construction of a mill with a vertical waterwheel was a more complex undertaking than for a horizontal wheel. The transfer of the water power to the milling stones required gearing (to transfer the now vertical power back to the horizontal milling stones) and structural support for both the waterwheel and the more substantial milling stones. Large section timbers were required to create the 'bridge trees' that supported the milling stones above the gearing, and there required to be a mechanism for lifting the stones to adjust the milling clearance between the stones.





*A view of the mill gearing at Barry Mill, Angus in 1992, note the large section timber, called the 'bridge trees', which supported the gearing for adjusting the milling stones (WE Ltd files).*

The most common form of vertical mill in the north of Scotland had two pairs of stones as at Benholm (one for shelling, one for grinding) and this in turn then required more water power to run, and more gearing to operate two pairs of stones.

HES suggests that larger mills running vertical wheels were introduced in the 17<sup>th</sup> century in Scotland (HES, 2009, LB2805), and Gaudie (1981) agrees that water-powered mills with some form of gearing were well known in Scotland before the start of the 18<sup>th</sup> century. As Benholm is a modest rural mill it is likely that a vertically powered waterwheel was constructed sometime from the later 17<sup>th</sup> century.

### 6.2.3 Types of vertical waterwheels

There are four principal forms of vertical wheel: under-shot, over-shot, breast and pitch-back. The under-shot waterwheel is the simplest and oldest method, and that used in the later Roman Empire (Buchanan, 1974). The undershot wheel could be constructed without the expense of extensive sluice building and simply situated on the bank of a stream or in an artificial watercourse known as a 'lade'.

Overshot wheels may also have been known to the Romans and began to be used in Britain from the Middle Ages (Buchanan, 1974). Quite a small supply of water can be used to set the overshot wheel in motion and as such it was suited to smaller streams where water could be fed into a reservoir, as at Benholm with the creation of a mill pond. The water is then piped or channelled to the top of the waterwheel where it falls into wooden buckets which set the wheel in motion (where the wheel was set to rotate in reverse of the water flow it was known as a 'pitch-back' wheel).



*A view of the overshoot wheel at the Mill of Benholm, shortly after installation in 1992. Note the long trough known as a trowse which directs water from the mill pond via a culvert under the road to the top of the waterwheel (WE Ltd files).*

The ‘breast-shot’ wheel was one of the most prominent improvements in the efficiency of waterwheel technology in the 18<sup>th</sup> and 19<sup>th</sup> centuries (Buchanan, 1974). Here the water enters the wheel buckets just above or below the point of the central axle. It was suited to locations where there were substantial water supplies often channelled through long lades.

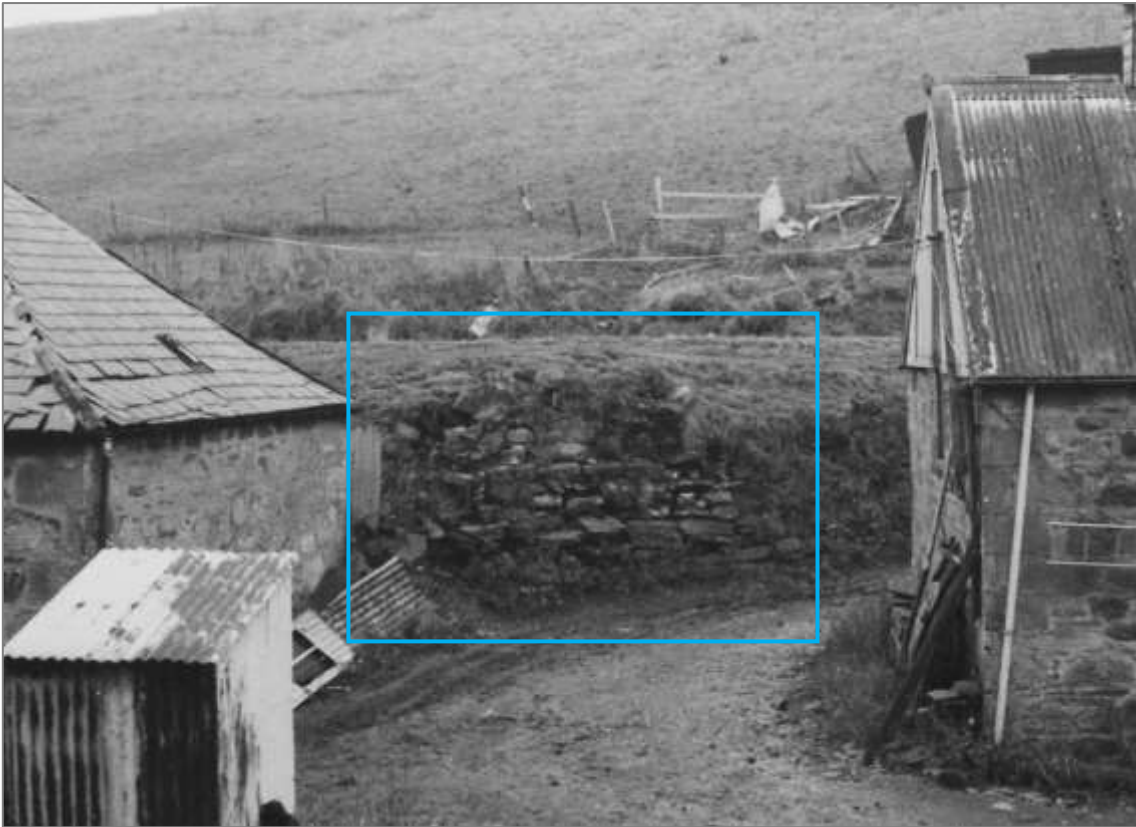
*“At the ancient site of Mill of Benholm, where the wheel is now turned by an overshoot wheel from a mill dam, there is a point on the main stream above the issue of the present wheel’s tail race, where masonry embanking suggests the very much earlier existence of an undershot wheel. It is to be expected that a mill of this age would originally have had the simplest form of wheel”*

Gauldie, 1981, 130

Gauldie (1981) therefore suggests that an earlier mill with an undershot wheel could have existed at Benholm. Due to the nature of the water infrastructure, this mill building would have had to have sat closer to the Burn of Benholm than the current mill.

#### 6.2.4 Grain drying kilns and grain stores

The earliest mills did not combine a kiln for drying the grain. This would have taken place in a separate structure. The earliest kilns were often circular in form and the remains of a circular kiln were recorded at Benholm in 1983 (Canmore, MS/500/35/83), and captured in a photograph taken in 1982 (Canmore, B68973). It is unclear what happened to these remains, which appear to have either been removed or rebuilt into the retaining walling close to the east side of the byre.



Part of a view taken in 1982 showing the stonework remains of the earlier circular kiln at the Mill of Benholm © HES SC2550726 under license; <https://canmore.org.uk/collection/2550726>

This early kiln is likely to have been built by at least the early 18<sup>th</sup> century as circular kilns were widespread in 1730 (Shaw, 1984, 115). With improvement and industrialisation of farming methods and technology, the requirement for more efficient grain drying led to the addition of kilns to meal mills (HES, 2009, LB 2805). The Mill of Benholm is a good example of this where a kiln, significantly larger than the remains of the circular kiln, was added at the western end of the earlier meal mill. Its construction is likely to have coincided with local agricultural improvements in the parish of Benholm recorded by the first and second Statistical Accounts (1795 and 1837) in the first decades of the 19<sup>th</sup> century. The NSA (1837-45) records that grain production had increased in the parish, and that “*Mr Scott of Brotherton retains several farms in his own hands, and has brought them into a state of high cultivation*” (NSA, 1845, 60). This also coincided with a growth period for meal milling between c.1760 and the end of the Napoleonic War (Gauldie, 1981).

The date stone on the south elevation of the mill, carved ‘William Davidson 1817’, is considered to record works undertaken to adapt or extend the mill at that time, so it is possible the kiln was added then, and covering the original entrance to the lower floor.

With the improved grain drying facilities, the need to store more grain would have arisen. This was both to store grain brought by others to the mill and where the miller could buy grain speculatively. The bigger kiln required more fuel to fire and the miller would be required to store grain until there was enough to justify firing the kiln. Therefore grain stores generally date from the 19<sup>th</sup> century. Millers with the ability to do so would build a third storey on the mill so that oats could be stored on the upper floor and moved by a sack hoist powered from the waterwheel. However,

*“In the East of Scotland, at least, most meal mills remained two storey buildings with a kiln at one end and only a very small amount of storage space. This reflects the kind of customer attending the mill. In the oat-producing counties the customer was most often still the farmer requiring meal for his own household and for the wages of the farm servants”*

Gauldie 1981, 163

At Benholm, the small single storey grain store was added, providing additional storage but also requiring movement of the grain to the meal mill.

### 6.3 Visitor Centre

From 1995 to 2005 the mill was operated as a visitor centre by the local authority. It employed a full time custodian miller and an assistant miller on a part time basis, plus seasonal help. The mill waterwheel and machinery were regularly operated although oat meal was not produced but rather bought in and sold to visitors. The principle was to give visitors an authentic experience of a traditional country mill, to the point that even keeping farm animals and growing of grains were attempted at the start. Changes in the structure of the local authority (in particular reorganisation and resultant key staff leaving) meant that the focus of the visitor centre began to shift. Latterly difficulties in employing council staff at weekends meant the mill remained closed over these key visitor days.

From 2005, the Mill of Benholm, a company limited by guarantee, was established and leased the mill from the local authority. The company provided training and work experience for people with disabilities, referred and funded as placements by the local authority. The company operated with a project manager (Mike Burleigh) and volunteers, plus some paid catering staff. The main functions were the café and garden / allotments. The mill played a secondary role with some demonstrations and occasional use as an education space (on other subjects). The company ceased operations in 2013/14 when their capacity to put in place regulatory requirements was becoming increasingly onerous for an organisation with few staff and a voluntary Board. The change in the method of funding their activities (moving to ‘self-direct’ funding) also played a small part, removing the former’s continuity and certainty of core finance. The main attraction at this time was the café but the ambience of the mill and its auxiliary buildings played a big part.

## 7: Understanding the Historic Asset: The Form

### 7.1 Introduction

The form of the asset can be defined through its site layout, associated infrastructure, and its buildings or other built structures. The form of a building is defined by its architectural design and construction (materials and methods). These factors combine to create a distinctive asset with a number of attributes which betray both its function, period of construction and geographical site.

This section will look at the design of the mill complex, any significant adaptation or repair, and the construction of the building elements and relevant historic context. It is set out under three subheadings:

1. Buildings including the meal mill, miller's house, byre and grain store
2. Infrastructure including waterwheel, weirs, lade, sluices and mill pond
3. The milling machinery

A description of the asset's condition, and therefore its vulnerability, is provided in section 9.

### 7.2 Buildings at the Mill of Benholm

Set alongside the Burn of Benholm, the group of buildings which form the Mill of Benholm complex include the following:

- 2-storey L-plan meal mill
- single storey byre (adapted as toilets)
- single storey miller's house (adapted as a café)
- single storey grain store (adapted as an office)

The house, byre and gable of the mill form a loose courtyard with the house frontage facing east towards the meal mill. The former grain store sits slightly apart and above the other buildings on the track descending into the courtyard.

With very few written records of the mill buildings at Benholm, its history has to be pieced together from what evidence there is and what can be observed on site today. Development of the mill buildings and infrastructure from the second half of the 19<sup>th</sup> century can be traced using the Ordnance Surveys, and images from the 20<sup>th</sup> century. Over time the meal mill and miller's house had several extensions and extrusions, prior to the District Council's adaptation, during which these were cleared away. The nature of these extensions can be difficult to determine, although the 1<sup>st</sup> edition Ordnance Survey helpfully distinguished between buildings of stone or brick, and those of timber or iron, giving an indication of perhaps more temporary extensions added to aid the miller's operations.

Only very limited information has been found on the work undertaken by the K&D DC from 1987 to 1995. Initially work was carried out by the Manpower Services Community Programme, and then after its demise, by a successor scheme, Employment Training, under grant from the Scottish Development Agency; however the latter was not suited to the project and the council had to change its delivery model (report W&D DC, 28.11.1990, WE Ltd files). This appears to have involved specific external contracts such as Whittaker Engineering Ltd and volunteers from the Scottish Conservation Projects Trust.



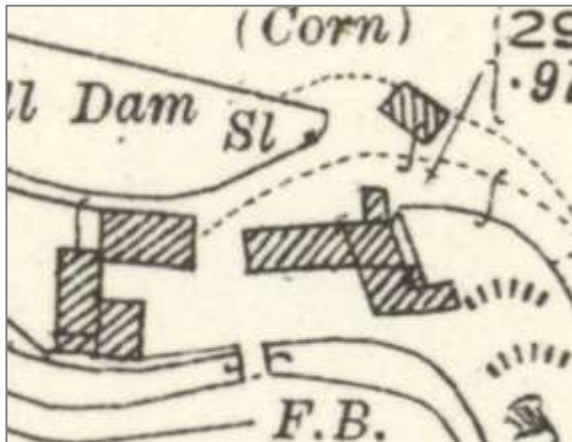
1864: L-plan meal mill with partial southern extension; miller's house; grain store; small square plan byre or other outbuilding coloured in grey suggesting a more temporary structure of wood or iron, the pink indicating masonry constructions.

© NLS [View map: Ordnance Survey, Kincardineshire XXV.9 \(Benholm\) - Ordnance Survey 25 inch 1st edition, Scotland, 1855-1882 \(nls.uk\)](#)



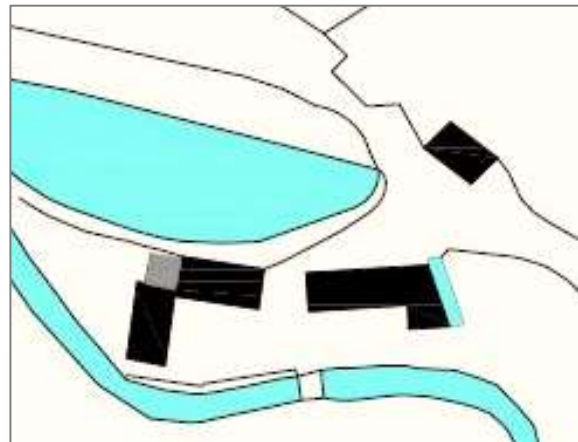
1901: L-plan meal mill has been extended further to the south and an eastern extension built over the waterwheel pit; a small outbuilding has been added south-east of the mill; former miller's house possibly extended or lean-to added (no longer residential); grain store no change; small square plan byre extended partly to the west.

© NLS [View map: Ordnance Survey, Kincardineshire XXVIII.6 \(Benholm; Bervie\) - Ordnance Survey 25 inch 2nd and later editions, Scotland, 1892-1949 \(nls.uk\)](#)



1923: L-plan meal mill with full southern extension but eastern extension over the waterwheel pit has reduced slightly, and an extension added to the north side; the small outbuilding to the south-east of the mill has been removed; former miller's house has an extension to the east; grain store no change; byre extended further to form rectangular plan building.

© NLS [View map: Ordnance Survey, Kincardineshire XXVIII.6 \(Benholm; Bervie\) - Ordnance Survey 25 inch 2nd and later editions, Scotland, 1892-1949 \(nls.uk\)](#)



2023: later extensions have been removed from the miller's house and meal mill, and a small late 20<sup>th</sup> century extension added between the byre and the miller's house.

### 7.3 The meal mill

Reference can also be made to the Gazetteer.

The meal mill is a small, 2-storey L plan building, with a short southerly leg positioned at an obtuse angle to the main block. The sloping site creates a single storey north elevation with 2–storey south elevation on the riverside. The waterwheel is located on the east elevation, with the kiln abutted to west side forming an extension to an earlier form of the mill building.

We know with some certainty, as described in section 4.1, that a mill was located on or close to this site from at least the late 15th or early 16th century. From looking at the establishment of vertically powered water mills in Scotland, it is likely that there has been a mill constructed on this site since sometime in the later 1600s. We know who the miller was in 1696 (Miller, 1996). There is a tantalising reference to “...a corner stone in the present building marked 1711” (Murton, 1983; Miller, 1996), however this has not been located nor has it been recorded in any surveys or images researched thus far. It is of course also possible that this was a stone reused from elsewhere. However there is a stone lintel dated 1817 over the door of the mill on its south elevation which looks to be original to its location. This appears to be part of an extension to, or rebuilding of, an earlier building, thus dating the standing remains prior to this to at least the 18th century. This opinion was also noted by Hume (1974). From research to date, the possible early development of the meal mill building is indicated in the diagram below.

As illustrated in section 7.2, the development of the meal mill in the later 19<sup>th</sup> and early 20<sup>th</sup> centuries can be seen in the Ordnance Surveys. A drawing dated 1899 of a proposed extension to the meal mill for the Brotherton Estate (Canmore, KCD15/1) confirms that there was a shorter L-form meal mill (as indicated in the 1st Ed OS) and that a larger extension was added around 1900 (as recorded on the 2nd Ed OS).

Later extensions to the meal mill, visible in 1970s and 1980s photographs, were removed during adaptation of the mill to a visitor centre. Most appear of ‘temporary’ construction using corrugated sheets etc., but remnants of the southern Victorian extension appeared to include a section of single storey masonry walling and parts of a cement fillet from its single pitched roof. This extension was used as an Engine House in the 20<sup>th</sup> century which enclosed a stationary engine used to power the mill when the water level was low. Before the Second World War this was a stationary engine made by Allan Brothers of Aberdeen, and then a more powerful Fordson Tractor (mill interpretation panel).

1



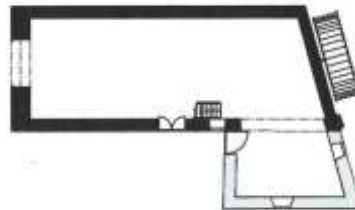
Earliest form as single storey mill with west entrance (poss. 1711)

2a



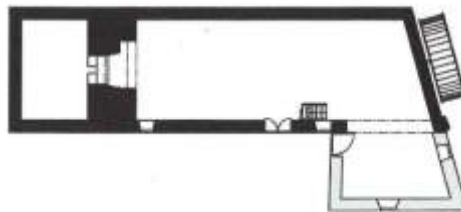
Meal mill is raised to form a two storey building with single storey lean-to southern extension (before 1817)

2b



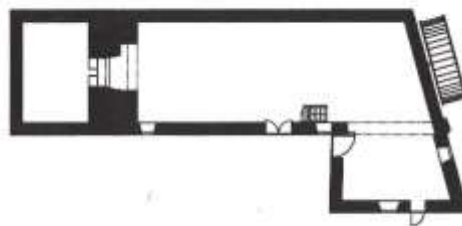
Alternatively meal mill is raised to form a two storey building with single storey lean-to southern extension including the new southern door openings (1817)

3



The kiln is added to the meal mill, either in 1817 which necessitates the new southern doorway, or some time between 1817 and 1864.

4



An upper storey is added to the southern extension.

*Possible meal mill development*





*View of the Mill of Benholm in 1983 prior to adaptation showing its roof finishes including the earlier stone slates and later grey slate, note also the corrugated sheet roofs over the southern Engine House area. © Mills Archive Trust: JWN collection image 10742 <https://catalogue.millsarchive.org/benholm>*



*View of the east end of the meal mill (late 1990 or early 1991). Note the remnants of the waterwheel (wheel axle, wooden trowse), and on the left a freestanding stone wall, part of the southern extension, possibly dating to c.1900, now removed. The meal mill has been re-roofed in a uniform Welsh slate (WE Ltd files)*

### 7.3.1 Meal mill: roof

The current roof is pitched with hipped slopes to the southern and western kiln extensions. The roof is finished uniformly in Welsh slate with concrete ridges and hips and cast iron rainwater goods. Miller (1996) states that the mill was reroofed in 1989. There is a cat-slide roof over northern entrance doors at the upper level with lead flashings and slate haffits. A timber louvered flat-roof ventilator sits over the kiln (not present when the roof was first re-roofed). There are no other roof penetrations such as rooflights or dormers. The roof, as recorded in 1983, had five small cast iron rooflights, two on the southern roof slopes, two on the northern slope and one on the eastern slope, to aid illumination of the mill interior.

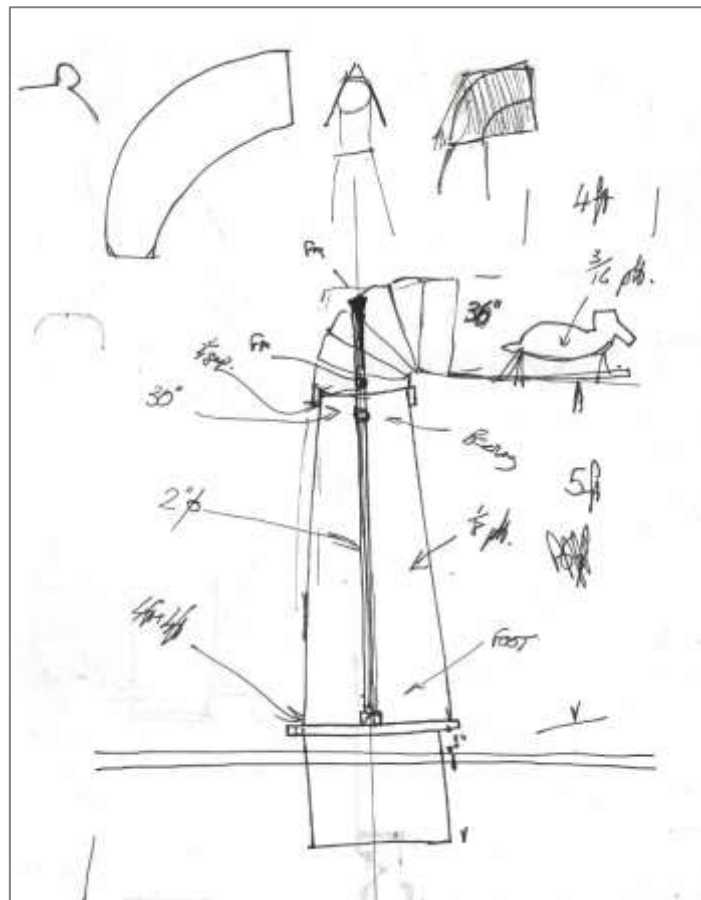
Historic photographs around the time of the mill's closure, show that the oldest sections of the mill had a local stone slate (likely of local origin or Carmyllie slate). Two smaller roof pitches on the southern extension (the hipped end slope and the west facing return slope) had a flat grey slate suggesting that these were not slated originally with heavy stone slate when the extension was built, and that existing slates may have been reused to complete the newly extended eastern slope. The roof over the kiln was finished in asbestos sheet at this time, and when recorded by Hume in 1974. However film footage (BBC, 1971) shows that the kiln roof was previously hipped and slated, and the alteration to a gable ended sheet roof (and partly sheeted gable wall) was the result of damage and repair after a fire in the kiln (Aberdeen Press & Journal, 19<sup>th</sup> June 1971). The same slated and hipped roof appears in an early postcard of the mill used on the front cover of Miller's 1996 booklet. An image, thought to be taken in 1974, shows the adjacent stone slates with what appears to be fresh mortar bedding indicating repair to the stone slates after the fire (Canmore image B28076/PO).



*View of the Mill of Benholm in 1983 prior to adaptation showing an extension on the north elevation carried out in more 'temporary' corrugated iron sheet. Note the asbestos sheet roofing used to repair the kiln roof after a fire in 1971, and also the kiln vent (or piggy) of the same date. © Mills Archive Trust: JWN collection image 10751 <https://catalogue.millsarchive.org/benholm2>*

The original ventilator (or piggy as they were called) was also replaced after the 1971 fire. The new ventilator appears in images taken in 1974 and 1983 as a slim square plan timber boarded base with circular vent capping. The earlier film footage and postcard, whilst unclear on the detail of the ventilator, show a tall slim construction. It is now a larger and shorter square form with louvered sides and flat roof (previously with the pyramid roof in 1990s construction). The new ventilator is fitted with a negative pressure fan which is geared to be powered by the waterwheel. It is thought that the kiln was only fired up once during its use as a visitor centre. The custodian miller reported that the smoke was not drawn by the chimney, resulting in a smoke filled upper floor.

Gauldie (1981, 164) explains that ventilators were usually cone shaped on the new 19<sup>th</sup> century kilns and in the east of Scotland typically tall and often topped by an exuberant weather vane most often and particular to mills in the form of a wrought iron pig: *“The pig on the vane was an advertisement of the miller’s prosperity and of his availability to his customers.”*



*Sketch from Whittaker’s files illustrating a possibly design for restoring a traditional ‘piggy’ on the kiln roof extract fan; not executed. (WE Ltd files)*

### 7.3.2 Meal mill: masonry walls

The mill is constructed from a mixture of stone and lime masonry predominantly, with some cement based mortar repairs and brick infill, for example where an opening has been enlarged on the south elevation and internally at the upper kiln door opening. Douglas (1983; MS/500/35/83) noted that the mill walls are all about 500mm thick *“which is considerably thinner than in most mills”*; *“...infact*

*the only other mill with walls as thin as this is Anniston Mill, Inverkeilor, Angus*". The former gable wall, now the internal wall between the milling space and the kiln measures 560mm thick.

The nature of the masonry construction indicates the building's historic development. The earliest visible construction appears on the south elevation using uncoursed field stones built to form a rubble wall. This is visible from the butt joint with the kiln masonry to the junction of the L-plan. It only survives to about a meter in height. The doorway with lintel inscribed 'William Davidson 1817' has been inserted within this rubble wall at a later date.

On the northern elevation the masonry consists of roughly coursed masonry formed using large irregularly shaped blocks of mixed sandstone and other local stone types with small pinning stones filling the gaps, using a technique known as 'cherry caulking'. The same pattern of construction appears on the southern elevation above the rubble walling and on the lower section on the L-plan extension, most clearly visible on its west facing side.

The similarity of this masonry, suggests a partial rebuilding or extending and raising the height of an earlier rectangular plan mill, possibly only single storey with an attic. A possible trace of a lower pitched gable is visible in Hume's 1974 photograph of the east wall (Canmore ID 36753, image SC 444643: <https://canmore.org.uk/collection/444643>).

The remaining masonry forming the kiln extension, and the upper part of the L-plan extension comprises chiefly of coursed rubble of mixed sandstone (pale pink-grey /purple-grey/red) using roughly squared blocks with larger pinning stones. A stugged texture is evident on some of the paler coloured stones (possibly reused?). There are dressed and squared quoins, although those on the lower north-west corner appear damaged or lost, probably due to mechanical damage from vehicles turning here. The kiln's south elevation at lower level illustrates well this more regular construction with clear courses formed by thinner levelling stones, creating a banded pattern.

The similarities in the kiln masonry and the upper floor of the southern extension, suggest they were either built around the same period, although the upper extension appears a more refined build and could be later.

The waterwheel wall presents a more confused picture including an area of smooth ashlar masonry next to the waterwheel. It was usual to use the best masonry next the wheel to minimise water penetration and erosion:

*"The 'water-wall' of the mill required a more solid form of building – of dressed stone blocks carefully mortared with lime to withstand the constant rushing past of the water and the vibrating of the wheel"*

WE Ltd files, typed history

There is also a section of protruding masonry. Early plans indicate a structure extending over the wheel pit, so it is possible this is the remains of an earlier section of building, or perhaps the remnants of an earlier wall, adjoining a section which has been rebuilt. The stresses on the waterwheel wall may have required repair or rebuilding in the past. WE Ltd reported the wall to be in poor condition when they were undertaking replacement of the waterwheel and installed a heavy steel angle tied through the wall to provide reinforcement.



*Mill of Benholm, meal mill south elevation showing the later kiln construction abutting the meal mill, note the large squared sandstone blocks and thinner levelling stones. Visible below the window is the older field stone rubble wall construction.*



*Mill of Benholm, meal mill south elevation meeting the L-plan extension. Note on the lowered left, the older field stone rubble wall is interrupted by the insertion of the doorway in 1817. The upper south elevation is of a later different masonry build as is the west facing elevation of the extension, where its earlier single storey pitched roof line is still evident. Above that a later build again as the extension was heightened and lengthened.*



*Mill of Benholm, meal mill east elevation showing a variety of masonry construction including smooth ashlar behind the lower waterwheel, and protruding masonry.*

All the stone used is likely of local origin:

*“In this parish there are several quarries of free stone, and one in particular upon the estate of Benholme, of an excellent quality.”*

OSA, 1795, 236

*“There is only one quarry of any importance in the parish, which is at Benholme. The rock is a sandstone, not very fine grained”*

NSA, 1845, 60

The New Statistical Account goes into a great amount of detail about the geology of the parish which could be useful for further analysis.

It is not clear if any part of the masonry was harled and/or lime washed in the past. However in places there is still evidence of the lime mortar having been built up flush to the high points of the stone.

### **Adaptation**

In many places the original, or early, lime mortars are still in place suggesting that little repair was undertaken to the external masonry during the 1990s adaptation. However, the west kiln elevation may have been repaired at the upper levels where damage may have been caused following the 1971 fire and roof repair, which at that time created a gable ended (not a hipped) roof with corrugated cladding at the upper gable (refer Canmore ID 36753, image SC 444642). The earlier opening to the kiln (presumably for hoisting sacks) has been reduced in height with a new lintel above.



*Mill of Benholm, meal mill west elevation showing the rebuilt kiln wall and opening into the drying kiln. Compare to Hume (1974) image at <https://canmore.org.uk/collection/444642> .*

One area where intervention was undertaken using inappropriate materials was at the wallheads. These were repaired / rebuilt using cement to rebed the new timber roof construction. Cement internal pointing can also be seen on the exposed masonry inside the kiln at the upper level suggesting there may be more internal pointing repairs hidden by the current paint finishes.



*View of the meal mill interior during adaptation, note the cement based wallheads repairs (WE Ltd files).*

### 7.3.3 Meal mill: windows and doors

The exact form of original openings in the meal mill is unclear, some openings now forming windows may have originally been without glass or formed other functions. In the most part, any opening would have provided a specific function for the miller, such as the small ground level opening which held the lever to adjust the trowse divert (now glazed and the lever repositioned) and the opening near the kiln which formed the outlet for the husk cupboard below.

During the adaptation, all openings were fitted with timber framed fixed glazing, some with small pane fenestration patterns.

The existing doors are timber braced and vertically boarded doors. Only the southern door is thought to be of some age as it bears graffiti dated 1917.

The original entrance doorway to the mill, suggested by carved stone detailing (HES, 2009, LB2805), now forms part of the kiln construction and as such was covered by the addition of the kiln. This suggests that the 1817 doorway was inserted at this time to form a new entrance to the lower floor. The upper entrance may also be later, as the eaves height here is low and required the door to adopt a cat-slide roof to raise the entrance height. The entrance door on west wall of the L-plan extension is poorly detailed as it abuts directly onto the south elevation, confirming it is of later date. The door on the south wall of this extension was formerly an internal door to the larger extension (now removed).



*Mill of Benholm, meal mill south elevation, door graffiti dating to 1917.*





*Mill of Benholm, timber stair with reused timber boards finished in earlier wallpaper.*

### 7.3.4 Meal mill: other elements

The first floor joists and timber floor were largely renewed during the 1990s work, although some older joists appear to survive in the eastern section of the mill and the southern extension. The lower floor has mix of flagstone flooring, older concrete in the extension and modern concrete. Miller (1996) stated that the main buildings were damp-proofed but it is unclear what this included. The internal masonry is generally now finished in a thick layer of inappropriate non-breathable paint. However, the lower north wall and wheel wall have exposed masonry and remnants of lime wash.

A key component of the meal mill interior is the timber stair connecting the two floors which is characterful and worn from use. The underside is lined out with wallpapered timber boards, some with graffiti of Lindsay C Watson's daughter, Sheila (dated 1960s). The wallpaper indicates the boards were reused, possibly from the former miller's house when it was converted to farm use.

### 7.3.5 Meal mill: kiln

The usual 19<sup>th</sup> century kiln was typically 12 foot square with flooring constructed from perforated iron, (Gauldie, 1981). At Benholm the 'wire-mesh' kiln floor measured 4 x 4.1 m, roughly 13 foot square (Douglas, 1983, MS/500/35/83) prior to its replacement by Whittaker Engineering Limited. The kiln had been floored just 3 weeks before the fire in 1971 (Aberdeen Press & Journal, 19<sup>th</sup> June 1971) and must have been replaced thereafter with this 'wire-mesh' floor. The current floor was most probably supplied by Thomas Hudson Ltd., Airdrie in a looped type 28F construction. Millwright John Turner had visited the Barry Mill in August 1992 and asked for their suppliers details (WE Ltd files, letter from NTS Barry Mill to J Turner, 8<sup>th</sup> November 1992). The kiln interior is blackened with smoke from its historic use, and the timber around the upper doorway is charred, presumably from the 1971 fire. The heavy cast iron door at the upper floor was refurbished as part of the 1990s works.



*Mill of Benholm, meal mill kiln firebox on the lower floor. Note the deep wall construction part of which is thought to be an earlier doorway. Staining (damp) on paintwork around kiln opening.*

## 7.4 The miller's house

The original miller's house was sited to the west of the meal mill, a single storey and garret (attic) designed on a simple rectangular plan. There is little change indicated in the cartographic evidence (section 7.2). However, evidence in the stonework suggests the house could have been lower and smaller on plan previously as described below. The earliest house may have taken the form of a cottage and byre under one roof, as was quite common in Scotland before agricultural improvements in the 19<sup>th</sup> century. Therefore changes to the miller's accommodation could have taken place during the first half of the 19<sup>th</sup> century.

A new house for the miller's family was built above the mill complex at the top of the brae some time after 1864. This later residence is referred to locally as the 'miller's cottage'. Records suggest it was built in 1874-6 by Hercules Scott of Brotherton (JHH notes), although a later date of 1896 is suggested in the Benholm Conservation Area Appraisal. The building is not listed independently in the census until the 1901. This latter building remained the miller's home until the passing of Lindsay C Watson in 1982, after which his widow lived there. It remains a private residence having not formed part of the sale of the mill complex in 1986.



*The 'new' miller's cottage at the head of the brae, now in private ownership and no longer part of the Mill of Benholm land holding.*

### Adaptation

The original miller's house formed part of the croft buildings after the miller moved to the new cottage. The house was extended in 'temporary' materials as part of the croft use sometime from 1901 to 1923. It was still being used as a byre and known to be housing pigs, cattle and hens just prior to the mill's closure (Gauldie, 1981).

Images from 1974 (Canmore, SC 444641: <http://canmore.org.uk/collection/444641>), 1982 (Canmore, B68973: <https://canmore.org.uk/collection/2550726>) and the slightly later K&D DC postcard (c. 1986,

below) show the house with a timber lean-to extension and corrugated roof, opening onto the courtyard. The building was converted to a café as part of the visitor centre project. The attic floor and associated access was removed creating one open space with a new timber boarded ceiling. An image taken during the adaptation shows the interior stripped back with evidence of an upper floor and possibly lower roof line. Little interior detail remains and a concrete floor has been installed.



*Mill of Benholm, miller's house in around 1986 awaiting repair and adaptation, note the timber and corrugated sheet extension probably added sometime from 1901 - 1923 (W&D DC postcard, © Aberdeenshire Council).*



*Mill of Benholm, miller's house in around 1992. The attic floor has been removed. The stripped back interior shows evidence of a possibly lower roof line showing as an unpainted part of the gable (HES file image).*

#### 7.4.1 Miller's house: roof

The current roof of the miller's house is double-pitched, gable ended and finished in Welsh slate with concrete ridges and cast iron rainwater goods. The timber roof construction is thought to have been fully renewed during the adaptation. There is a single flue chimney stack at each gable end constructed in brick, indicating their construction at a later date, either as a rebuild of earlier chimneys or during replacement or alteration of the roof. The roof has no wallhead copes or skews which would have been a typical construction detail until the end the 19<sup>th</sup> century. There is evidence that wallheads have been altered, so it is possible earlier skew copes were removed. It is also possible that the original roof would have been thatched, as was more typical of small rural homes, and this would fit with a lower and steeper earlier roof form.

There are three rooflights on the front slope, set out symmetrically with a smaller central light, this suggests a central stair with an attic room to each side. The rooflights do not align with the openings below, which suggests they, and/or the roof, are later interventions; cast iron rooflights, manufactured by iron foundries, were in widespread use by the mid-19<sup>th</sup> century (Beaton, 1997).



*Mill of Benholm, miller's house front elevation in 2023. Note the symmetrical roof over the asymmetrical elevation. What may be the remains of a very small low window are located to the south of the current door.*

#### 7.4.2 Miller's house: masonry walls

The house is constructed from stone and lime masonry predominantly, excepting the chimney stacks built in brick. There are heavy lime based mortar repairs, for example around the rear entrance and on parts of the front elevation.

Like the meal mill, the nature of the masonry construction can help to uncover the building's historic development. There are some sections of masonry constructed using rounded field stones and small pinning stones suggesting the earliest parts of the building, or remains of an earlier house. There is no obvious change in the masonry like the butt joint of the kiln, but there are changes in the coursing

which suggest later heightening or consolidation of the wallhead, which could be associated with changes to the roof. This probable raising of the wallhead is more clearly seen on the rear elevation and also in the north facing gable where it is possible to see the protruding outline of an earlier lower and steeper gable slope (the height of which may have been reduced whilst rebuilding to accommodate the large wallhead stones now evident). Further evidence of this earlier roofline is provided in an image of the interior taken during the adaptation (refer HES image above).



*Mill of Benholm, miller's house rear elevation in 2023. Note the protruding masonry on the north gable suggesting an earlier wall with later build up supporting a raised or reconstructed wallhead for a later roof.*

If found, records of the building made before K&D DC started work could assist in determining the historic development of the house.

It is not clear if any part of the masonry was harled in the past, but there is evidence of lime wash above the front entrance door. This may date from when the wall became part of the interior, or have been better protected as it is in the hollows of the stugged stone texture. In places the original, or early, lime mortars are still in place, however pointing repair and rebuilding around some openings (rear door lintel and small rear window lintel and jamb) was undertaken to the external masonry during the 1990s adaptation. The interior masonry has been finished in a thick layer of inappropriate non-breathable paint.

#### 7.4.3 Miller's house: windows and doors

The exact form of original openings in the house is unclear. There are two windows in the front and rear elevations, and a small garret window in each gable, and a small window in the lower section of the south gable. An opening in the north gable provides access to the rear kitchen extension and is likely a late intervention. The windows are all of different dimensions suggesting some may be later additions or alterations such as the largest window on the front elevation.

During the adaptation, all openings were fitted with timber framed fixed glazing, with small pane fenestration patterns.

The existing doors are timber braced and vertically boarded doors, replacements during the adaptation.

The front entrance appears original to the house, suggested by the low and worn stone lintel and jambs. However the rear door looks to be a later alteration due to the lack of consistent dressed stones forming this opening. A photograph prior to the adaptation suggests it was present prior to that, so possibly formed when the building was used as a byre (refer HES file image). A new lintel and consolidation of the masonry occurred during the adaptation.

## 7.5 The byre

Often referred to as the byre or barn, the building at right angles to the miller's house has developed over time as can be seen in the historic maps which suggest the oldest part is the eastern section of the building now converted to toilets (section 7.2). The western section took various temporary forms before the form evident today was constructed sometime between 1901 and 1923. Abutting the byre west wall and house north wall is a modern extension for the café kitchen.

The earlier byre building was converted to toilet facilities as part of the visitor centre project. The western section, initially remained as a store for grounds equipment, before being converted to a shop, sometime after 2005, with a new glazed timber wall behind its sliding barn door. The toilet area has fitted out with partition walls and plasterboard ceilings so there is no visible interior detail and concrete floors have been installed.



*Mill of Benholm, byre front elevation in 2023.*

### 7.5.1 Byre: roof

The current roof is double-pitched and hipped at each end, finished in Welsh slate with concrete ridges and cast iron rainwater goods. There is a single cast iron rooflight on the south and east roof slopes. The position of the rooflights has been altered during the adaptation and the eastern rooflight increased in size. There is a timber ventilator on the ridge similar to the original, with a slate and ridge tile roof. The byre roof abuts the miller's house roof with a short lead valley. The timber roof construction is thought to have been fully renewed during the adaptation.

### 7.5.2 Byre: masonry walls

The byre is constructed from stone and lime masonry. There are heavy lime based mortar repairs on the main elevation. The construction appears to date from one period, unlike the meal mill and miller's house. There is a doorway (now internal) in the west elevation which formed a side access. Generally the build is of sandstones, in large roughly squared blocks. There is evidence of the original pointing on the east elevation, and some remnants on the front elevation, which show 'lining out', a technique used to score pointing for aesthetic reasons.

### 7.5.3 Byre: windows and doors

The byre has no window openings, originally being lit by the rooflights. There are two recesses in the southern wall internally. Reflecting its function, the doorways are wide. The front entrance retaining its original cast iron bar hinges although the timber boarded door is a replacement during the adaptation.



*Mill of Benholm, byre prior to adaptation, note the original cast iron door hinges which were retained (HES file image, c.1992).*

As mentioned above, a side entrance is now infilled, with concrete blockwork, but looks to retain its original timber lintel. The original sliding barn door has been replicated in the adaptation although it may have retained the cast iron mechanism. The glazed timber wall is a new intervention.



## 7.6 The grain store

Historic maps indicate the grain store was constructed by 1864, and it is likely it was built around the same time as the kiln was added to the meal mill. The modest single storey rectangular plan was not extended although an image from 1974 (below) shows there was a corrugated roofed lean-to structure on the east elevation.

The grain store was converted as the custodian miller's office for the visitor centre, and remained as a general office and training space until the site's closure. The building is described by Miller (1996) as being "partially rebuilt" and altered as described below. This work was carried out by the aid of teams on government work programmes in 1989.

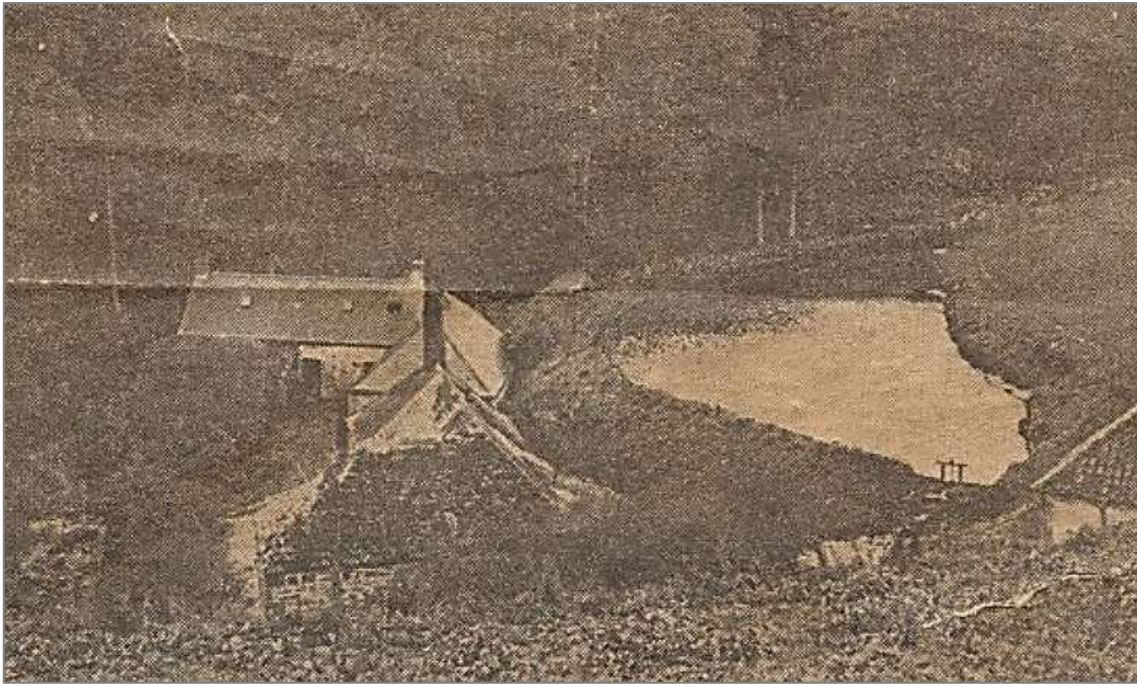


*Mill of Benholm, grain store front elevation in 2023.*

### 7.6.1 Grain store: roof

The current roof is double-pitched with hipped ends and finished in Welsh slate with concrete ridges and cast iron rainwater goods.

Photographs indicate that the roof was finished in corrugated iron sheets in 1970 and still in place in 1983 (Canmore, 1974, SC444639: <http://canmore.org.uk/collection/444639>) with a colour image confirming the roof was corrugated iron sheet as rusting is evident (Canmore, 1983, B26873PO). The roof is only partially seen in these images, but a photograph in Miller's booklet (1996, 28) has an intriguing image of the roof with two rooflights and a roof covering which is unclear. An earlier newspaper photograph from 1934 could indicate a clay pantile roof.



*Mill of Benholm, photograph from 1934. Note what could be a clay pantile roof over the grain store. Image from The People's Journal 10<sup>th</sup> Nov. 1934, courtesy of MoBE.*



*Mill of Benholm, photograph from 1970. Note the corrugated sheet roof over the grain store and no windows in the front elevation. Image by Ian Hardie in Aberdeen Press & Journal, 10<sup>th</sup> Oct. 1970, courtesy of MoBE.*

### 7.6.2 Grain store: masonry walls

The grain store is constructed from stone and lime masonry, but has heavy inappropriate cement pointing over all the masonry walls which makes interpretation more difficult. The windows are new interventions and it is also possible the door has been repositioned. The original construction appears to date from one period, unlike the meal mill and miller's house.

Generally the build is of sandstones, with large squared quoins and smaller stones forming the main walling. The masonry style therefore varies from the other buildings, and lacks field stones found in the older sections of the meal mill and miller's house. It also differs from the kiln addition, suggesting the two were either constructed a slightly different times, by different people, or perhaps because one reused material from the circular kiln. It is possible the new kiln extension or the grain store could have reused stones from the circular kiln which would have had to be partly removed to allow the track to pass the new kiln extension.

### 7.6.3 Grain store: windows, doors and interior

As mentioned above, the windows are modern additions and give the grain store a more residential appearance. The windows are timber framed fixed glazing, with a 6-pane fenestration pattern. The existing door is timber braced and vertically boarded, split horizontally into two sections so the upper part can be opened separately.

Formerly one space after the adaptation, the grain store was subdivided (possibly in 2008) into two separate spaces to allow the Mill of Benholm staff and volunteers to use half the space and the custodian miller the other half. Internally the building is lined out in new insulated plasterboard and there is a new concrete floor (graffiti, "Keith 2008"). The floor is slightly sloping, possibly to reflect the original floor.

## 7.7 The water infrastructure

If you compare the 1<sup>st</sup> edition to the 2<sup>nd</sup> edition Ordnance Survey it is possible to see that the water infrastructure has been adapted historically. An earlier dam at the convergence of the burns was replaced by a weir sometime between 1864 and 1901, with a new footbridge just north of this connecting to the village. There appears to have been difficulties with water levels in the burns in the past with mention of Anniston Farm Dam (or Annie's Dam) providing back up for the mill historically (Miller, 1996), and also we know that in the 20<sup>th</sup> century the miller used an ancillary engine to power the milling stones at times when the water level was low (mill interpretation panel; The People's Journal, 30<sup>th</sup> November 1968).



1864: 1<sup>st</sup> ed. OS records a dam at the convergence of the burns, as well as the mill pond.

© NLS [View map: Ordnance Survey, Kincardineshire XXV.9 \(Benholm\) - Ordnance Survey 25 inch 1st edition, Scotland, 1855-1882 \(nls.uk\)](#)



1901: 2<sup>nd</sup> ed. OS shows the dam is no longer in place, either adapted by the miller or perhaps as a result of changes to the water courses or embankments. The dam has been replaced by a weir.

© NLS [View map: Ordnance Survey, Kincardineshire XXVIII.6 \(Benholm; Bervie\) - Ordnance Survey 25 inch 2nd and later editions, Scotland, 1892-1949 \(nls.uk\)](#)



1923: this later OS shows little change from the 1901 arrangement although the laide appears more structured.

© NLS [View map: Ordnance Survey, Kincardineshire XXVIII.6 \(Benholm; Bervie\) - Ordnance Survey 25 inch 2nd and later editions, Scotland, 1892-1949 \(nls.uk\)](#)



2023: there is effectively no change to the infrastructure excepting that the aqueduct (underground pipe) from the upper weir to the Castleburn is not functioning.

Currently, the water infrastructure comprises of the following components:

- the water sources: Castle Burn and Burn of Benholm (note connection to Burn of Benholm has not been functional since at least the 1990s restoration)
- upper and lower weirs (upper weir on Burn of Benholm no longer feeding water flow to mill pond since at least the 1990s restoration)
- mill lade and sluice gates at lower weir
- mill pond, sluice gate and culvert to bring water to the overshot waterwheel
- Trowse, divert channel and tailrace

In addition, there is a path infrastructure to support access to the lower weir and sluice at the western end of the lade.

The water-powered infrastructure feeds the milling ‘machinery’ which comprises of:

1. Primary machinery: waterwheel, distribution gearing and millstones
2. Secondary machinery: sifters, shakers, fanners and elevators

Specific background research on significant elements is summarised in the following subsections:

- The waterwheel
- The milling stones
- The mill gearing
- The secondary machinery

Further detail on these components is provided in the Gazetteer.

## 7.8 The waterwheel

The last waterwheel recorded at Benholm was definitely still operable in the late 1960s and probably longer.

*“Most of the time the Benholm Burn [and Castleburn] provides the power that keeps the mill wheel turning. When there is a shortage of water from the dam a tractor is used to drive the mill.”*

*“In a dry summer Mr Watson now and then gives the mill wheel a run just to keep the wood in trim, for the side nearest to the sun tends to warp without occasional soaking.”*

The People’s Journal, 30<sup>th</sup> November 1968

Vertical waterwheels came in a variety of designs and sizes (Hume, 1977). The waterwheel at Benholm is an ‘overshot’ wheel which means the water is brought to the top of the wheel, just beyond the central axis, and falls into buckets which set the wheel in motion. The water power could be increased by enlarging the diameter or width of a waterwheel. The wheel size could vary considerably, from eight feet to almost 24 feet in the north of Scotland (Hume, 1977). Most wheels however were in the 10 to 16 foot range, with Benholm at the lower end of this range with a 12 foot diameter. Waterwheels recorded in the 1970s were usually constructed of wood and iron indicated that they had wooden buckets or paddles, with the remainder of the wheel being constructed of iron or steel (Hume, 1977). We know this was the case for Benholm from photographs of the waterwheel in the 1970s and 1980s, and a description in Douglas’ 1983 survey:

*“The wheel was constructed from 2 cast iron rings, which in turn were each assembled from 6 sections. The rings are connected to the wheel hubs by 6 steel bar arms. Each arm is braced by 2cm diameter steel bar. The outer rings accommodate 30 wooden buckets.”*

Douglas, 1983, MS/500/35/83



*The previous waterwheel at the Mill of Benholm. © Mills Archive Trust: Jim Woodward-Nutt collection, 1983, image 10750 <https://catalogue.millsarchive.org/benholm-wh2>*

The current waterwheel was designed, constructed and installed by Whittaker Engineering Limited (WE Ltd) with millwright John Turner. The earlier wheel was still in place in the late 1980s, after the K&D DC had bought the mill, and it is recorded as being freed in 1987 by the Scottish Conservation Projects Trust volunteers (Nicol, 1988). In 1990, K&D DC commissioned WE Ltd to work on restoring the waterwheel. The initial instruction from K&D DC was to dismantle the waterwheel and repair two sections of the rims so that prices could be obtained from foundries for recasting them (WE Ltd files, K&D DC, confirmation memo, 30<sup>th</sup> November 1990). WE Ltd duly approached two foundries (Ballantine, Bo’ness and Newmill Castings, Elgin) but both expressed surprise at the thinness of the original castings and suggesting either a thicker casting or the use of a stronger ‘modern cast iron’ (WE Ltd files, letter WE Ltd to W&D DC 29<sup>th</sup> May 1990). It is unclear how the final decision was made, but by the start of 1991 WE Ltd and John Turner were searching for other mills retaining waterwheels to find a suitable replacement, instead of using the Benholm castings. The decision may have in part been influenced by information from someone who knew the mill when it was working and had told them that it “had never had a good wheel” (WE Ltd files, letter WE Ltd to W&D DC 29<sup>th</sup> May 1990).

The main requirement was to find a similarly sized wheel, either to reuse the cast iron rings or to fabricate new cast iron parts for Benholm. It is thought that after visiting a number of mills in the north east, Angus and Perthshire (including at Kirriemuir meal mill and Cowie Mill, Stonehaven) the

current waterwheel rims were cast from a waterwheel at Borlick Farm, Aberfeldy, WE Ltd paying £200 for the 16 section waterwheel rims:

*“This 16 section mill-wheel was formerly used on a local farm (Borlick beside Dewar’s Distillery at Aberfeldy) to drive a wee conveyor to carry sheaves of corn up to a threshing mill. This information was provided by a previous farmer.”*

Kirstie Dickens, in letter from Tony H Dickens, office & workshops, Mill House, Keltneyburn, Aberfeldy, 4<sup>th</sup> April 1991 (Appendix 4)

John Turner’s timesheets show that he travelled with WE Ltd to uplift the waterwheel parts (WE Ltd files, J Turner timesheets, 23<sup>rd</sup> March 1991).

The new wheel varies slightly in that it has 8 spokes (instead of 6) and 32 buckets (instead of 30) but the overall size is approximately the same at 366cm (12’) diameter and 102cm (3’ 4”) wide, the earlier wheel recorded as 12’ by 3’ 6” (Douglas, 1983, MS/500/35/83). Traditionally the timber used for the buckets and spokes may have been elm, oak or larch. WE Ltd contacted a number of others using timber in wet conditions and were advised to use Opepe or Iroko, both tropical African hardwoods.

The new wheel was installed in April 1992.



*Whittaker Engineering Ltd installing the new waterwheel in April 1992. (WE Ltd image)*

## 7.9 The millstones

### 7.9.1 Historic background

*“The difficulty in transporting millstones meant, first, that mills were always locally supplied where possible and also that those mill-stone quarries which were to develop commercially were likely to be situated on the coast whence the stones could be shipped. At Kinneff in Kincardineshire, [...] at Pennan in Aberdeenshire and at Aberdour in Fife, millstones were quarried from the rock face on the seashore. There is a spot on the shore below Kinneff where millstones formed but not yet detached from the rock can still be seen at low tide.”*

Gauldie, 1981, 90

These references suggest that the earliest milling stones at Benholm were likely not imported burr-stones, as installed at the mill today, but locally quarried single piece stones. As noted above, Kinneff, some six miles from Benholm was producing millstones in the 18<sup>th</sup> and early 19<sup>th</sup> centuries:

*“There are no quarries except the sea-rocks [...] These rocks have been used for mill-stones, and are in great repute for that purpose.”*

OSA, Kinneff Parish, 1793, 199

*“The rocks along the coast furnish excellent mill-stones, which have long been in high repute, and are sent a considerable distance. They cost from L5 to L10.”*

NSA, Kinneff Parish, 1845 (written 1842), 317

With the difficulty in transporting millstones in earlier centuries, the more local the better. There was in fact a more local source than Kinneff from which milling stones were quarried, at the Knox of Benholm. An historic record from 1617/8 recalls an armed dispute at this quarry when the tenants of the Earl Marischal and those of Sir Alexander Falconer of Halkerton, clashed over *“ane mylne stone standing won and dressed for proper use of the Earl’s own mylns”*; the quarryman Alexander Conlie was hurt in the ensuing fight (Gauldie, 1981, 90). This conveys of the high value of millstones during this period.

The millstones for grinding which are installed in the mill (presumed from written sources as not seen) are ‘built up’ stones formed by segments of imported French burr stone, a very hard hornstone quartz from an area east of Paris. Small pieces were held together with a mortar of Plaster of Paris and an iron hoop. Gauldie (1981) explains that this stone became increasingly recognised for its grinding qualities during the 18<sup>th</sup> century especially for milling wheat. As Benholm was predominately an oat mill, and a small enterprise, it is likely burr stones would not have been used until the later 1700s or more probably after the Napoleonic Wars, during which time the trade in the stones had been severely curtailed. Fenton (1987) notes that native stones began to go out of use in the early 19<sup>th</sup> century with the establishment of firms importing French burr such as J. Smith & Co. in Edinburgh in 1823. Therefore it is possible some of the burr stones at Benholm may date as far back at this period.

### 7.9.2 Grinding stones at Mill of Benholm

#### In-situ grinding stones

At the Mill of Benholm the grinding stones were recorded in 1983 as of *“burr-stone 140cm dia.”* i.e. 55 inches (Douglas, 1983, MS/500/35/83), and as 54 inches by John Turner when he arrived at the mill a few years later (WE Ltd files). It is not possible to examine the current stones fully due to their casement, but a tantalising inscription can be seen on the underside of the bed stone looking up from the gear enclosure which reads *“City Mills Perth 1906”* and possibly the initials *“JD”*. This Perth



reference is not recorded by Douglas or Turner, and it remains unclear if the stones were replaced during the restoration of the milling machinery as the following summary explains.



*The underside of the grinding bed stone at the Mill of Benholm with the inscription: 'City Mills Perth 1906'.*

The millstones left in-situ when the mill closed were lifted and moved by John Turner and WE Ltd in March 1991. Partly this was to allow removal of the shafts and gearing for restoration and partly to gauge the condition of the stones. The condition was assessed by "...2 men from Kerrymuir [Kirriemuir]", all four stones were examined and "... were failed and were beyond repair" (WE Ltd files, J Turner timesheet, 26<sup>th</sup> March 1991). They were much later taken outside: "taking the old mill stones outside" (WE Ltd files, J Turner timesheet, 24<sup>th</sup> February 1992).

The story then becomes somewhat confused as John Turner had visited Cowie Mill and removed the three 'top grinding' stones for inspection (WE Ltd files, J Turner timesheet, 13<sup>th</sup> March 1991), examined them (WE Ltd files, J Turner timesheet, 29<sup>th</sup> April 1991) and then removed the Cowie millstones (WE Ltd files, J Turner timesheet, 3<sup>rd</sup> July 1991). The last entry was on 12<sup>th</sup> November 1992 when John Turner was working at cleaning the millstones with a pressure hose and examining the condition of the stones at Whittaker's yard. It isn't mentioned which stones these are, but they were presumably stones which had been removed from another mill as the Benholm stones had previously been examined, and there would be no good reason to take them to the yard for cleaning. It is very likely these are the Cowie millstones, but what is not known is if they are the stones now installed at the Mill of Benholm.

John Turner did record the size of the millstones at Cowie as 43" grinding and 48" shelling. These sizes coincide with the stones currently outside the meal mill at Benholm although all are burr stones. Whereas the Benholm stones were recorded as 54" to 55" grinding and 47" to 49" shelling. This would suggest the two 43" stones outside are the Cowie grinding stones. Canmore records confirm that in

1989 Cowie had one pair of grinding stones of this size (Canmore, 1989, MS 762/192). Cowie Mill was disused by the mid-1970s and converted to housing in 1993.



*The millstones at the Mill of Benholm prior to any restoration works. © Mills Archive Trust: Jim Woodward-Nutt collection, 1983, image 10746 <https://catalogue.millsarchive.org/benholm-st>*



*Mill of Benholm millstones in-situ in 1991 when John Turner was dismantling the gearing at the start of his restoration of the primary milling machinery; the original covers (or tuns) have been removed. (WE Ltd image)*

Ken Whittaker does not recall visiting the Perth City Mills, and there are no references in the Whittaker files. The Perth Upper City Mills were redeveloped in the 1970s and the Perth Lower City Mills ceased to mill oatmeal in 1953 and closed in 1966 (Canmore ID 28357; Mills Archive [City Mills, Perth – The Mills Archive](#)) and from 1982 to 1988 were converted as a visitor centre by Perth District Council. It is possible the Perth millstone at Benholm was bought second-hand sometime after 1906 when its usefulness at Perth was ended, or is it one that came via the Cowie Mill itself refitted in 1920 (Canmore ID77785: [Stonehaven, Cowie Mill | Canmore](#)). There were 3 pairs of millstones in the Perth Lower City Mills, recorded in 1963 (Canmore, 1963, PT1266: <https://canmore.org.uk/collection/745605>). Alternatively the stone may have come from the flour mill in Perth (HES, LB39578).

*“... sometimes stones whose useful life in flour mills had passed were then sold second hand to meal mills where they were used for many years more”*

Gauldie, 1981, 95

The Whittaker files also mention Kirriemuir meal mill and a mill at Nairn briefly in connection to millstones, but their use seems unlikely considered that millstones were removed from Cowie. The Kirriemuir stones were quoted at £750 plus covers etc. (WE Ltd file, handwritten note, c.1991).

Millstones on vertical watermills tended to fall within particular parameters, which is 48” to 54”, with 54” typical where there was a single pair, and 48” near standard for two or more pairs (Hume, 1977).

### 23-piece burr stone

Douglas’ 1983 survey included a detailed recording of a 23-piece burr stone, at that time outside the meal mill (Douglas, 1983, MS/500/35/83) and which is now hanging on the external sign at the head of the road. This stone can be distinguished because of the large number of pieces (the other stones sitting outside the mill have 13-14 pieces) and its size at 136cm is very close to the 140cm stones recorded in-situ in 1983. Further confirmation that this stone was at Benholm, is that it appears in the BBC footage in 1971 sitting against the west kiln wall and is captured by Hume (Canmore, 1974, SC 444642: <https://canmore.org.uk/collection/444642>).



*Mill of Benholm, 23-piece burr stone now hanging by the road to advertise the mill.*

## Loose burr stones at Benholm

There are four further burr stones (one in the exhibit area 48", and three outside the mill, two at 43" and one at 48"). All are smaller than the recorded size of grinding stones at Benholm (54-55") which would suggest they were not used at Benholm. As John Turner recorded the Cowie grinding stones as 43", it strongly suggested these are smaller pair at Benholm.

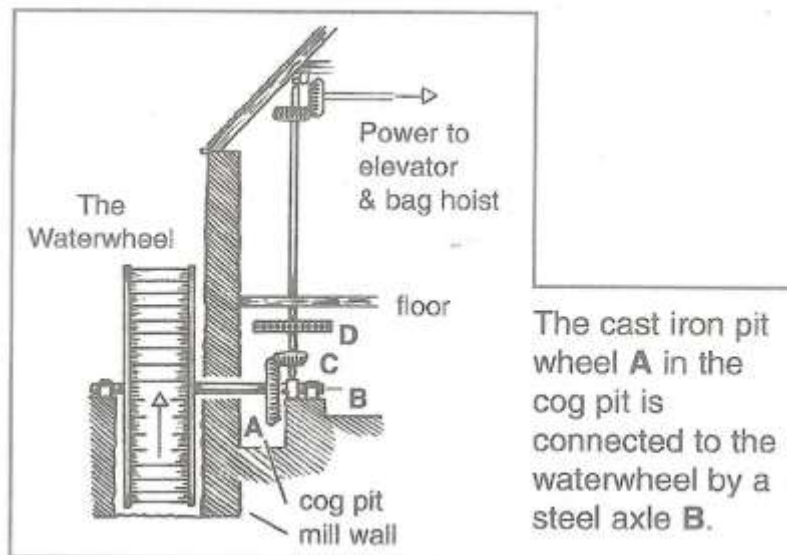
### 7.9.3 Shelling stones

The process to remove the oat kernel (or groat) from its husk was carried out by the shelling stones. Unlike the segmented burr stones these are usually monolithic i.e. dressed from one piece of stone and this was commonly a gritstone as at Benholm (Miller, 1996). Like the grinding stones it is not possible to fully see the current stones in-situ. However it can be seen that the stones are cracked and it was confirmed by Pete Babs that this had been the case when he worked there as custodian miller.

The shelling stones were recorded as slightly smaller than the grinding stones at 120cm (47"; Douglas, 1983). John Turner recorded the stones as 49" (WE Ltd file). The type of stone is not known but it may have been of local origin, for example the 'Glamis Greys' used for millstones. There is one grey shelling stone in the exhibit area (131cm, 51½") which could belong to Benholm as a monolithic stone appears in the BBC footage in 1971 outside the mill. There are no other 'spare' shelling stones at Benholm, which may suggest that the stones there in 1983 have been put back in place despite the assessment that they were not reparable (WE Ltd files, J Turner timesheet, 26<sup>th</sup> March 1991).

### 7.10 The mill gearing

The mill gearing comprises the component parts required to transfer the water power from the vertical waterwheel to drive the millstones and secondary machinery.



*Diagram of the primary machinery including the Waterwheel, Pit Wheel (A), Great Spur Wheel (D) connected by a Wallower (C); from Miller 1996, 11, © Aberdeenshire Council.*

There could be a considerable level of sophistication in some large mills where the gearing would drive several pairs of stones, hoists and elevators over three floors. The design at Benholm is simpler, with the gearing driving two pairs of millstones, the bucket elevator, bag hoist and ventilator in the kiln.

Through a system of belt drives the water power also operated the secondary machinery such as the Shaker & Large Fanner, and the Meal Sieve & Small Fanner, used in the process of producing oatmeal from the husked oats. The bruiser could also be run off an auxiliary drive via the Auxiliary Spur Wheel.

A detailed description of the gearing, and a helpful diagram on the transmission of power in Benholm's milling process (Miller, 1996, 11) is provided in the Gazetteer: Part 2: Lower Mill Floor.

The primary machinery including the Pit Wheel, Great Spur Wheel and the gearing transferring power to the millstones, is located in the gear enclosure or 'cupboard' as Douglas (1983) described it. The later term indicates that prior to restoration the timber enclosure around the gearing was more substantial and parts of this have been removed.



*View of the gear cupboard with the Meal Sieve & Small Fanner still in place, prior to dismantling for restoration. © Mills Archive Trust: Jim Woodward-Nutt collection, 1983, image 10743*  
<https://catalogue.millsarchive.org/benholm-harp>



*View of the gearing cupboard during dismantling for restoration, note the Meal Sieve & Small Fanner have been removed with a section of the timber walling but the form of the cupboard is largely intact including doors on the right. The Pit Wheel is visible inside. (WE Ltd image c.1990-91)*



*View of the gearing cupboard in 2023, note the restored Meal Sieve & Small Fanner back in place, however much of the timber walling which formed the gear cupboard has been lost.*



*View of the primary machinery before restoration (left; WE Ltd image c1990-91) and in 2023 with the new bridge tree in the foreground and steelwork added to support the gearing structure and floor joists above.*

When WE Ltd were commissioned to restore the operations of the water-powered mill, they considered it important to properly rebuild the primary machinery.

*“If this was not done then the mill would continue to suffer failures, breakdowns, etc. Worn bearing surfaces and misaligned shafts or gears cause significant losses of power. The available power from the water wheel is very limited and should not be squandered. A considerable amount of work was performed on the primary machinery and water supply for the following reasons:*

- *The mill could now operate continuously for 10 years or more with no maintenance requirements other than routine lubrication of gears and bearings.*
- *The would be sufficient power available from the wheel to operate the grindstones and auxiliary machinery during demonstrations*
- *The original bearing supports for the water wheel was inadequate and unsafe.”*

*The restoration project was intended to produce a fully operational mill with a full time miller to perform demonstrations of all the machinery. It was therefore important that this machinery would operate reliably and safely for many years, otherwise the miller would be spending all his time doing ‘running repairs’.”*

WE Ltd files, typed page, no date

Reviewing the project file provided by Whittaker, and in particular the two years of timesheets which record John Turner’s activities, it is clear that considerable efforts were put in firstly to reuse any parts of the Benholm machinery that could be repaired, and secondly to restore the machinery where possible using salvaged parts from other mills. Both Turner and Whittaker visited a number of other mills to study the set up and to salvage parts, which could either be restored for reuse, or repaired to

be used as models for casting or machining new parts. For example the ‘big gear’ [probably the pit wheel] was worn out completely and they planned to repair all teeth with a cataloy mould and get a price for recasting new teeth (WE Ltd, handwritten note, no date). Cowie Mill in particular was visited on several occasions during Spring and Summer 1991 and items were removed, some named such as the ‘wooden teeth level pinion’ [probably a Great Spur Wheel]. Salvage provided both models for operational gearing, and also saved on supplied material costs. A note in Whittaker’s files recorded that instead of buying three new bearings for £1800, they had salvaged two from Cowie and had the third cast from them for £100 (WE Ltd, handwritten note, no date). This also reflects the limits of the project budget they were working under.

The exact parts that were reused is difficult to ascertain, but further work on Turner’s timesheets could provide a clearer picture should that be required or of interest. Therefore it is very likely there are parts from Cowie Mill, and possibly Kirriemuir meal mill, reused or used to model parts now forming the milling machinery at Benholm. Cowie Mill was refitted by millwright Duncan Thompson in 1920, so reused parts could possibly date to that period (Canmore ID77785: [Stonehaven, Cowie Mill | Canmore](#)).

Much of the work of repair, restoration, model forming etc. was undertaken solely by John Turner at Whittaker’s workshop, and occasionally at home. Whittaker’s staff are often named when they assisted him, mainly when more hands were required. Where necessary, such as iron casting, the work was carried out by specialist suppliers such as Aberdeen Foundries for the ‘big pinion’ and waterwheel bushes (WE Ltd files, J Turner timesheets, 30<sup>th</sup> April 1991 & 13<sup>th</sup> June 1991).

### 7.11 The secondary machinery

Douglas (1983) described the internal machinery and its arrangement within the mill as ‘extremely basic’ (Canmore, MS/500/35/83). Dried oats have to be manhandled from the kiln chute outlet on the lower floor and lifted to the milling floor by a friction driven hoist. The bucket elevator at the Large Fanner takes oat groats to the upper floor for milling, but again they have to be manhandled from the bagging spout to the milling stones. However he was interested by the automation from the Meal Sieve and Smaller Fanner whereby a bucket elevator took unground groats back up and into the milling stones for a second time (he thought a later addition to the mill’s equipment). At the time of Douglas’s visit in July 1983, just 6 months after the last miller’s death, it appears all the machinery was still in place and thus his survey provides an important record (Appendix 1).

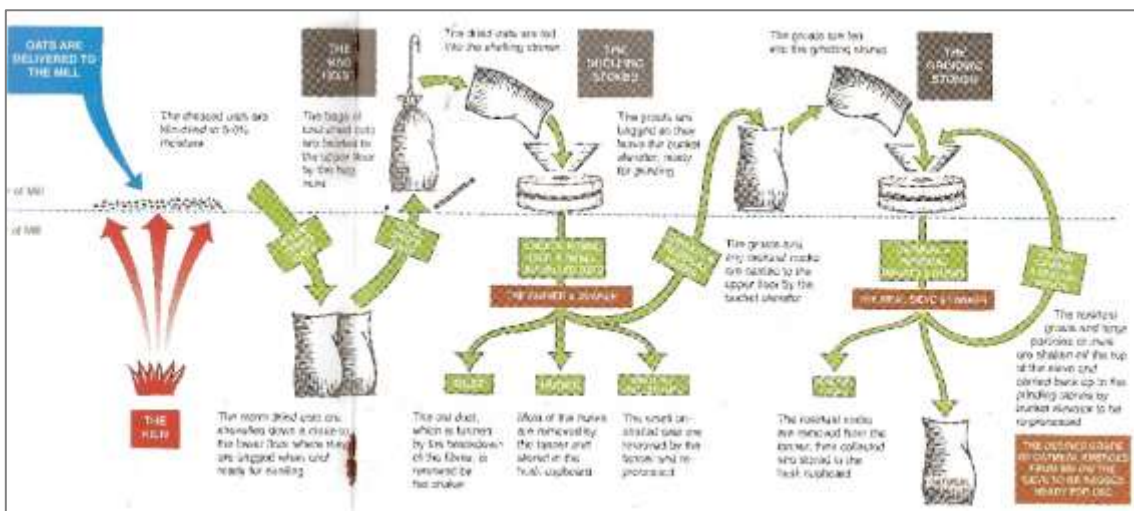


Diagram in Miller (1996, 17) on the various processes of shelling, separating and milling at Benholm. © Aberdeenshire Council.



A detailed description of the secondary machinery is provided in the Gazetteer: Part 2: Lower Mill Floor, and Miller (1996) provides further information on the various processes of shelling, separating and milling at Benholm. This includes the Shaker & Large Fanner, Meal Sieve & Small Fanner, the Grain Bruiser & Grister, two bucket elevators, the Husk Cupboard and the Kiln Chute all of which were present in Douglas's survey. The two free-standing fanners, were not mentioned in the survey, and may have been brought to Benholm as exhibits.

Whittakers were not involved in the restoration of the secondary machinery.

*“Restoration of the auxiliary machinery is not nearly as critical as these units are all virtually belt driven and can be disconnected from the power source. Worn bearings, shafts or gears on these secondary units can be tolerated and restored on a piecemeal basis after the mill is operational.”*

WE Ltd files, typed page, no date

In fact the repair of the secondary items was carried out by the Scottish Conservation Projects Trust volunteers Liz Wheatley (joiner) and Tony Janetta (engineer), who after initial volunteer work were commissioned as contractors by K&D DC to complete the work in late 1994 and 1995 (Scottish Conservation Projects Trust, Annual Review 1994/95; Aberdeen Evening Express, 4<sup>th</sup> July 1995).

Whilst the exact date of the items is unknown, the wooden items in particular appear to be of some age, with graffiti dating to the turn of the 20<sup>th</sup> century. The free-standing fanner on the lower floor was supplied by D. Irons & Sons, Agents, Forfar and a paper article about the fanner maker: J Baker, Falcon Works, Wizbech (Wisbech) Cambridgeshire, is pasted on its side. J Baker is mentioned in 1860s in relation to his agricultural inventions and it is very likely this item dates to around that period (Grace's Guide).

## 7.12: Understanding the Historic Asset: Summary

The following points summarise the physical asset:

- The Mill of Benholm is situated in the Den of Benholm on the north bank of the Burn of Benholm, opposite the Mill Brae Wood and close to the historic kirk town of Benholm in Kincardineshire.
- The asset comprises a number of Category A listed mill buildings: the meal mill, grain store, miller's house and byre, as well as the former mill lands and Category C listed Bridge of Benholm.
- The Mill of Benholm sits within a special environment recognised both for its built heritage and natural setting, protected by Conservation Area status and as a Local Conservation Nature Site.
- Close by the Mill Brae Wood is an Ancient Woodland, and further upstream the Burn of Benholm SSSI.
- The principal building in the complex is the stone built 2-storey L-plan water-powered meal mill, established as a barony mill which operated until 1982, after which it was adapted as a visitor centre opening in 1995.
- After a period of operation as a training facility for people with disabilities the mill complex was closed in 2014.
- Historic records suggest that there may have been a mill in the parish of Benholm from the late 12<sup>th</sup> century.

- We know from historic records with certainty that a mill was located in the parish by the late 15<sup>th</sup> century.
- We know from historic records with certainty that a mill was associated to the kirktoon of Benholm in the early 16<sup>th</sup> century. Due to the nature of the water courses in the parish, this mill would likely have been on or close to its current location.
- Development of mill types in Scotland could suggest that the earliest mill may have been a horizontal mill somewhere on the watercourse, but no evidence of this has yet been found or recorded.
- Research (Gauldie, 1981) suggests that there was a mill powered by an undershot wheel, the wheel located on the stream embankment upstream of the current tailrace. This would have required the mill building to be closer to the Burn of Benholm than the current meal mill.
- The meal mill's current earliest remains are thought to be from the early 18<sup>th</sup> century, with 19<sup>th</sup> century rebuilding and extension, including in 1817, at the time of agricultural improvements in Benholm parish.
- A miller's house could date to the establishment of the meal mill and the current earliest remains could be from the 18<sup>th</sup> century, with 19<sup>th</sup> century improvements including raising and reconstructing the roof.
- The byre and grain store date to the first half of the 19<sup>th</sup> century, the byre later extended.
- The meal mill was historically powered by the converging Burn of Benholm and Castle Burn with a dam at the head of the mill lade, later reconfigured as a weir around the end of the 19<sup>th</sup> century. The latter infrastructure remains, although the connecting feed from the Burn of Benholm is no longer functional.
- The waterwheel was fabricated and installed by Whittaker Engineering Limited, Stonehaven in 1992 to designs by millwright John Turner and based on salvaged cast iron wheel sections from Borlick Farm, Aberfeldy.
- The primary milling machinery was full restored from 1991-1993 and incorporates parts from the original mill, as well as Cowie Mill, Stonehaven and possibly Kirriemuir meal mill.
- The secondary mill machinery left by the last miller remains with parts likely date to at least Victorian times. It was restored to working order in 1993-1995.

## 8: Assessment of Significance

The first part of the plan provided a detailed description of the asset and its historic development. This section looks to assess the significance and heritage merit of both the asset's setting and its built heritage, and to place this in the context of comparative examples.

### 8.1 Significance of the setting

*"To come across a historic site where so much of the infrastructure of former communities can still be identified, nestling in the verdure of a picturesque valley comes as a pleasant surprise."*

Andrew Wright, report for Scottish Redundant Churches Trust

The historic mill site and adjoining kirktoon of Benholm are, as the above quote implies, a very special place, with an intimate atmosphere. The buildings of the traditional rural community: kirk, historic graveyard, manse, school and coaching inn, are set out organically close to the old road, with the mill on lower ground next the Burn of Benholm and connected by footpaths through the woodland. Its significance as a special historic area and natural environment is recognised by its designations as both a conservation area and a Local Conservation Nature Site (LCNS).

The LCNS is significant as one of the *"...best local biodiversity and geodiversity sites in Aberdeenshire"* and the mill complex contributes to this with its mill pond habitat and former croft lands with mature trees, an orchard, grassland and riverside environments.

The Mill Brae Wood across the burn from the mill is an Ancient Woodland of semi-natural origins.

The Nature Conservancy Council for Scotland visited with K&D DC in late 1991 and confirmed the wood's ancient origins using ground flora indicator species. They also noted that the wood had an unusually high proportion of wych elm and ash in its canopy compared to other deciduous woodland in Grampian. The high incidence of dog's mercury, primrose, moschatel, early purple orchid and gooseberry was also unusual for the region. At that time there was a lot of dead wood, both fallen and standing, which it was noted *"...is of great value for nature conservation as more invertebrates are associated with dead wood than any other habitat in a woodland."* (Dr Bale assistant regional officer response to K&D DC after site visit with David Hancock (K&D DC), Dec 1991). At that time it was suggested that the wood should be more carefully assessed in 1992 for potential notification as a SSSI, although it is unclear if this happened. Field notes and a species list prepared by David Hancock (K&D DC) in June 1992 and Scottish Natural Heritage c. 1998 are provided in Appendix 5.

### 8.2 Archaeological significance

The early date of settlement at the nearby village of Benholm, and early references to a mill, means that archaeology may be significant. Currently beyond the mill buildings, no archaeological remains have been recorded, other than Douglas' (1983) record of the remnants of the circular kiln. Unfortunately, it would appear that the kiln remains were rebuilt into the retaining wall next to the brye gable, losing what would have been a significant part of the mill's built heritage. Note, detailed inspection was not possible due to the heavily overgrown vegetation.

The early establishment of a mill on the site (late 15<sup>th</sup> or earlier 16<sup>th</sup> century) alongside Gauldie's (1981) suggestion that there was a mill powered by an undershot wheel, the wheel located upstream of the current tailrace, suggests there is a possibility of uncovering earlier remains. In addition, as described

below, the meal mill and miller's house could benefit from further archaeological assessment where opportunities arise.

### 8.3 Significance of the function: water-powered meal mill

Mill of Benholm is one of nine listed buildings in the Benholm Conservation Area, and one of two Category A listed buildings including the Benholm Kirk. This categorisation indicates that the mill is an outstanding example of its building type.

*"The Mill of Benholm is an exceptional and rare survival. Whilst hundreds have fallen out of use or been demolished, the mill has survived in full working order and is one of very few water powered meal mills in Scotland still in use in 2009."*

Historic Environment Scotland, LB2805, 2009

There are a number of different types of mill including flax, wool, flour etc., and also other industries driven by water-power. It is of particular significance that the Mill of Benholm is a surviving water-powered meal mill, one of very few which remain in Scotland, and therefore this section focuses on water-powered grain mills.

Grain mills have been described as:

*"Perhaps the most numerous of processing plants in Scotland - by far the greatest number were small water-powered units, and producing oatmeal for men and beasts."*

Hume, 1976, 14

Recognition of the special qualities and heritage of Scotland's mills appears to have started in the 1970s. This was a significant period in the development of heritage conservation with reaction across the UK and Europe as a result of the loss of historic buildings and areas during the later 1960s. The use of the Mill of Benholm in television and radio series suggest it was already recognised as a special place and articles that appeared at that time emphasised an appreciation for the working mill and also its vulnerability:

*"It must be fair to say there can be few meal mills using the water wheel left in Scotland."*

The People's Journal, 30<sup>th</sup> November 1968, 8

#### 8.3.1 Late 18<sup>th</sup> century water-powered meal mills

Once hundreds of mills would have been in operation throughout Scotland, many have now been lost. In the 18<sup>th</sup> century meal mills were very local, with commonly at least one mill per parish. Using Garden's 1774 map it is possible to locate 18<sup>th</sup> century mills in Kincardineshire. Those in parishes immediately adjoining Benholm are shown in the table below.

Parish on Garden's map (1774)	Remaining in 1970s (Hume survey)	Later information or current map.
<b>Benholm parish</b>		
Mill of Benholm	In Hume (1977) Canmore ID 36753: <a href="#">Mill Of Benholm   Canmore</a>	Mill with working machinery.
<b>St Cyrus parish</b>		
Mill at Morphie	In Hume (1977) and paddlewheel driving saw bench possibly. Canmore ID 87732: <a href="#">Mill Of Morphie   Canmore</a>	Buildings still standing 1996 survey. Mill of Morphie of current map.
Mill of Woodston	Photographed by Hume (not in publication). Roofless ruin in 1976. Canmore ID 167416: <a href="#">Mill Of Woodston, Mill   Canmore</a>	Mill of Woodston on current map.
Mill of Criggie	Not recorded	No Canmore entry. Mill of Criggie on current map.
<b>Bervie parish</b>		
Mill of Allardice	Not recorded	No Canmore entry. Mill of Allardyce on current map.
Mill of 'Patie' [Peattie]	Not recorded	No Canmore entry No site on current map
<b>Kinneff parish</b>		
Mill of Whistleberry	Not recorded	No Canmore entry. Not named on current map.
unnamed mill	Not recorded	No Canmore entry. Not named on current map.
unnamed mill	Not recorded	No Canmore entry. Not named on current map.
<b>Arbuthnott parish</b>		
Mill near Fides [Fiddes]	Not recorded	No Canmore entry. Not named on current map.
Mill of Pitcarry	Not recorded	No Canmore entry. Flax mill on 1 <sup>st</sup> OS. Not named on current map.
Not recorded	Not recorded	Mill of Arbuthnott not on Garden's map. Dates to 19C; Roofless ruin in 1999. Named on current map. Canmore ID 135482: <a href="#">Mill Of Arbuthnott   Canmore</a>
<b>Garvock parish</b>		
Mill of Garvock	Mill of Garvock categorised as farmhouse in 1975 record, not part of Hume; disused and store by then. Canmore ID 124011: <a href="#">Mill Of Garvock   Canmore</a>	Mill of Garvock named on current map.

In these six parishes there were 12 mills in total in the late 18<sup>th</sup> century. Only three were recorded by Hume’s survey of industrial buildings, and a further one separately, in the mid-1970s. This means that the other mills were either no longer present, or not of enough significance as industrial sites to be recorded. Therefore of the late 18<sup>th</sup> century mills, 25-30% remained as recognisable examples of water-powered grain mills in the mid-1970s.

A desktop search using current maps indicates that half of the 12 mill sites persist today at least in name, and very probably with mill buildings remaining or parts thereof. Nearly all were recorded as mills in the 1<sup>st</sup> Ed. Ordnance Survey in the later 1860s. This suggests that a consolidation of earlier mill sites had taken place during the 19<sup>th</sup> century which remains with us today. Some additional sites were founded during the 19<sup>th</sup> century, such as the Mill of Arbuthnott, where Alexander Carnegie, the great-grandfather of the last miller, worked in the mid-19<sup>th</sup> century (Gauldie, 1981, 190).

### 8.3.2 Former regional context

To place Benholm in its more recent historical context, and establish its regional significance, a review of Hume’s industrial survey entries for Kincardineshire, Aberdeenshire and Angus has been carried out.

Former county	No. of mills in Hume (1977) thought to be water-powered grain mills	Presumed working or workable in Hume (1977)	Unclear if working or workable in Hume (1977)	Scottish Industrial Archaeological Survey
Kincardineshire	15 <sup>(1)</sup>	1	1 <sup>(2)</sup>	2
Aberdeenshire	60	8	4	13
Angus	20	1	3	7
<b>Total</b>	<b>95</b>	<b>10</b>	<b>8</b>	<b>22</b>

#### Footnotes

(1) Three of these mills not found in the Canmore record.

(2) Mill of Morphie at St Cyrus may have been using a paddle wheel to operate a saw bench at the former grain mill.

Identifying grain mills in Hume (1977) is not entirely clear in all cases. Hume did not list this in every case, and it seems his practice was to mention by name other types of mills such as a ‘jute mill’ or ‘woollen mill’ etc., and where this isn’t identified it has been presumed they were grain mills. Similarly categorisation in Canmore can include ‘Grain Mill’ ‘Watermill’ ‘Mill’ and on occasion ‘Farmstead’ where the mill is effectively now part of a farm, usually as storage.

Descriptions in Hume (1977) do not necessarily confirm if a mill is working or not; although those which are disused or “gutted” or in other uses tend to be identified, the presumption is that the others are working, or at least of a condition and content that they could be considered workable.

Some entries in Hume’s publication could not be found in Canmore directory online. Similarly, research has highlighted other mills which were not recorded by Hume, perhaps as they had already been converted to other uses for some time with no machinery / waterwheel, or had degraded sufficiently to no longer merit an entry. This confirms the fact that we know there were more mill sites than those remaining in the 20<sup>th</sup> century.

In Aberdeenshire, Hume (1977) recorded eight mills with some level of use, and another four where their use cannot be determined. The working mills varied from the larger operations at Montgarrie Mill, near Alford and at the Upper Mill of Kennerty, Peterculter, to those working occasionally, or with

electric power (instead of water), or not using the grinding stones; others appeared workable and well preserved but it isn't clear if they were operating.

In the former county of Angus, of the 20 grain mills recorded, the use of three is unclear, and only one was operational and producing oatmeal, the Upper Barry Mill, now owned by the National Trust for Scotland (NTS) and open as a visitor attraction (Canmore ID 34603: [Barry Mill | Canmore](#)).

This review confirms the statement made about the Mill of Benholm in 1970 which noted it was the last remaining water-powered meal mill in the county of Kincardine (Weekend Review, Aberdeen Press & Journal 10th October 1970 article by Cuthbert Graham). Gauldie's research for her 1981 book similarly acknowledges the then rarity of the Mill of Benholm, more than 40 years ago. Gauldie (1981) mentions that Benholm was one of very few independently owned water-powered meal mills remaining in Scotland alongside the mill at Peterculter.

*"...cherished now but perhaps unlikely long to outlive their present owners."*

Gauldie, 1981, 232

Gauldie's prediction came true in respect of the mill's traditional function. When miller Lindsay C Watson died in 1982 there was no miller planning to take on the meal mill at Benholm. Likewise the Upper Kennerty Mill at Peterculter closed around the same time; it was severely damaged by fire in 2006 with much of its 1940s machinery in the oatmeal mill was destroyed. The owner was planning to convert the mill to a dwelling in 2018 (Canmore ID 19429: [Peterculter, Kennerty Mills Road, Upper Kennerty Mill | Canmore](#) )

Reflective of the growing risk of losing our knowledge of Scotland's traditional industries, more detailed survey work followed Hume. The Scottish Industrial Archaeology Survey (SIAS) recorded some of the most significant remaining examples. A total of 22 of the 95 mills identified in the three historic counties by Hume feature in the SIAS, including two in Kincardineshire: the Mill of Benholm (Canmore, 1983, MS/500/35/83) and Cowie Mill, Stonehaven (Canmore, 1989, MS 762/192).



*The Mill of Glenbuchat is an example of a small former estate mill built in 1829 already disused when Hume visited in 1976 but which still survives, now a garage and store and in need of repair, currently on the BARR.*

### 8.3.3 Current national context

When the Mill of Benholm ceased commercial operations in 1982 it was said to have been “*one of Scotland’s last operational watermills*” (Murton, 1983). Was that true? Certainly of the mills in the regional sample described above, only Montgarrie Mill, near Alford is thought to have been fully operational at that time. Three others may have been working, but the early 1980s certainly witnessed a number of closures.

In historic county of Aberdeenshire, of the eight mills operating in some capacity at the time of Hume’s survey, none are operating as grain mills today. Five have been converted to new uses, including three as residential, one for farming, and the Sandhaven Mill is a visitor centre, without water power, and currently closed. The Mill of Mundurno, which now falls within the City of Aberdeen, was nominated for the Building at Risk Register in 2020 and the Mill of Auchreddie’s use or survival is unclear. The only mill which had been operational was Montgarrie Mill run by the company *The Oatmeal of Alford* (Canmore ID 94482: [Montgarrie Mills | Canmore](#)). Sadly the mill suffered a devastating fire in 2020 which raised the mill buildings to the ground except for the kiln. However the company still farms oats in Aberdeenshire and kiln dries them at the Montgarrie Mill.

So of the 95 regional grain mills recorded in the mid-1970s, only about 10% were known to be in use at that time, and by 2020 only one was operating as a commercial water-powered grain mill. Two mills retain a working waterwheel with primary and secondary milling machinery, which whilst not functioning to grind meal, can be used to fully demonstrate the traditional milling process; these are the Mill of Benholm and the Barry Mill in Angus. NTS research for Barry Mill backs up this statistic, stating that of the 141 meal mills mapped in Angus in 1794 only the Barry Mill remains workable.

This regional assessment of remaining water-powered grain mills reflects the national context with only a small number of mills surviving with differing levels of authenticity and operational capacity. The following table summarises these mills.



<b>Operational mills (or recently ceased trading)</b>				
<b>Mill</b>	<b>Owned by</b>	<b>Listed?</b>	<b>Use</b>	<b>Notes</b>
Blair Atholl Mill, Perth & Kinross	Private ownership	B	Working mill; grinding only; water-powered only. Stone ground wheat, oats, rye and spelt. Tearoom (former grain store) and artisan bakery using ground products. Free to view the mill machinery.	Closed in 1929. Restored as commercial mill by millwright John Ridley and reopened in 1977.
Barony Mills, Birsay, Orkney	Charity Birsay Heritage Trust	B	Grinding done in winter; during summer open to public and run machinery as demonstration by the miller. Beremeal is available for sale for home use and commercially. Fee for guided tours.	
Montgarrie Mill near Alford	The Oatmeal of Alford company	A	Full operational milling business until 2020. Kiln drying oats only following 2020 fire which destroyed mill building.	
Golspie Mill, Sutherland	Unknown	B	Working mill producing stone ground meal and flours until October 2022 when current management ceased.	Mill was fully restored in 1992.
<b>Non-operational mills with fully workable waterwheel and machinery</b>				
<b>Mill</b>	<b>Owned by</b>	<b>Listed?</b>	<b>Use</b>	<b>Notes</b>
Mill of Benholm, Aberdeenshire	Aberdeenshire Council	A	Visitor's centre, tearoom and community training facility, currently closed.	Restored in late 1980s-early 1990s, opening in 1995; closed 2014.
Barry Mill, Carnoustie, Angus	NTS	A	Visitor centre. No milling demonstrations or actual milling of grain.	Commercial operations until 1984. Purchased by 1988 by NTS; restored in late 1980s included building fabric, re-roofing with Angus stone slate; new kiln floor and wheel housing, and restored the machinery.
Preston Watermill, East Lothian	NTS (donated in 1950)	A	Visitor centre. Don't grind oatmeal but working	Used commercially until c. 1948 and was the Lothians

			machinery and waterwheel; used as film set.	last working watermill. Conserved by NTS 1950s.
New Abbey Corn Mill, Dumfriesshire	Historic Environment Scotland	A	Visitor centre. Working machinery and waterwheel; demonstrations April to September subject to conditions.	Used commercially until 1948.
<b>Non-operational mills retaining waterwheel and some machinery</b>				
<b>Mill</b>	<b>Owned by</b>	<b>Listed?</b>	<b>Use</b>	<b>Notes</b>
Tormiston Mill, Orkney	Historic Environment Scotland	B	Former visitor centre and ticket point for Maeshowe (now sited elsewhere). The watershed and most of the machinery has been retained. Current use unclear.	Taken into state care in 1989.
Dalgarven Watermill, Kilwinning	Charity, The Dalgarven Mill Trust	B	Museum of country life. Exhibits machinery rescued from a mill in the Scottish Borders; waterwheel turns when water supplies and personnel are available.	Charitable Trust acquired with grant assistance from last owners in 1994.
Quendale Watermill, Shetland	The South Mainland Community History Group	A	Visitor's centre. (Presume no operational machinery).	Used commercially until 1948.
<b>Mills under restoration</b>				
<b>Mill</b>	<b>Owned by</b>	<b>Listed?</b>	<b>Use</b>	<b>Notes</b>
Lower City Mills, Perth	Perth Common Good Fund	A	Current project seeking funding to conserve the mill and mill machinery, and reopen as visitor centre, community resource and cafe.	Ceased to mill oatmeal in 1953 and closed in 1966. From 1982 to 1988 converted as a visitor centre by Perth District Council.
John o' Groats Mill, Caithness	Not for profit Trust	B	Current project to restore the mill as heritage visitor attraction and community venue and small scale milling operation.	Closed as commercial mill in 2001.
<b>Examples of mills in other uses which retain some machinery</b>				
<b>Mill</b>	<b>Owned by</b>	<b>Listed?</b>	<b>Use</b>	<b>Notes</b>
St Fillan's (Old) Mill, Killin	Stirling Council /Community Asset Transfer	B	Creative makers' market space and heritage exhibit; working waterwheel for demonstration only.	Converted to visitor centre in 1994 by Stirling District Council,

			Internally only pit wheel and wallower remain.	closed 2011. Waterwheel reconstructed in 1994 by John Ridley (see Blair Atholl above); reinstated in 2008.
Aberfeldy Watermill	Private ownership	A	Bookshop, gallery space and café. Machinery and waterwheel retained as part of the adaptation but not operational.	Closed in 1983 and restored / reopened in 1988 as a working mill which closed in 2000. In 2005 the building was converted to a bookshop, gallery and café.
Sandhaven Meal Mill	Aberdeenshire Council	B	Visitor Centre with working machinery in 2007 when noted as closed and its future under consideration. No water infrastructure used, run by an electric motor.	Closed commercially in 1981. Used motor since mid-1930s.

The table above indicates that there were, until very recently, four operational mills producing meal commercially, of which two are currently closed or damaged. The Mill of Benholm, and three others owned by national heritage organisations, retain significant function and machinery and operable as visitor attractions. Therefore, Benholm is one of only seven water-powered grain mills known to be operable, or have the potential to demonstrate the milling process, in Scotland.

A further three, also visitor attractions, are partly complete. There may then be a number of converted mill buildings which retain elements of the machinery, or the waterwheel as a feature, of which examples are given. Interestingly, there are two mills, Perth City Mills and John o' Groats Mill, that are currently under restoration or seeking funding to restore.

Blair Atholl and Aberfeldy provide examples of mills that were restored to operate as grain mills in the late 1970s and 1980s. Blair Atholl Mill was disused at the time of Hume's survey and had been since 1929 (Canmore ID 25797: [Blair Atholl Mill | Canmore](#)). It represents an example of conservation inspired restoration. During the 1975 Architectural Heritage Year, local youth groups undertook a project to clean up the mill. Subsequently, millwright John Ridley restored the mill with the help of a retired miller who had served his apprenticeship there 50 years before; it reopened in 1977 and has remained operational since. Aberfeldy Mill closed in 1983 and was restored by Tom Rodger, a retired miller from Cupar, who reopened it as a working mill in 1988. The mill closed in 2000 and fell into a state of disrepair. The building was subsequently converted as a book shop, gallery and café opening in 2005. The building retains significant machinery on display within its premises and the waterwheel although water no longer runs through the lade (HES, LB20859, 2019; Canmore ID 159441: [Aberfeldy, Mill Street, Mill | Canmore](#)).



*Blair Atholl Mill with lade, and below one of the pars of grinding stones with the tum removed for dressing.*

Barry Mill (Canmore ID 34603: [Barry Mill | Canmore](#)) with an 18<sup>th</sup> century foundation and rebuild in 1815 following a fire, provides a very similar timeline to Benholm, also with historic records of a mill dating to the 12<sup>th</sup> century and on that site since at least 1539. The mill also closed in the early 1980s, when the National Trust for Scotland purchased the mill, restoring it and opening in 1992. Whilst described as a ‘working museum’ complete with machinery and waterwheel in full working order, it is understood that working demonstrations no longer take place.

## 8.4 Significance: an operable water-powered meal mill

### 8.4.1 Significance of the water infrastructure

Also refer to section 7.7 and Gazetteer: Part 4

Water infrastructure is unique to each mill, engineered by its millwrights over centuries. Without the water infrastructure of lade, mill pond and sluices, the waterwheel could not turn. Many mills have lost their water infrastructure in later conversion. It is highly significant that Mill of Benholm retains its water infrastructure which in its current design dates to sometime between 1864 and 1901 and was restored from 1988-1994.

### 8.4.2 Significance of the waterwheel

Also refer to section 7.8 and Gazetteer: Part 4

The waterwheel was fabricated in 1991-92 and installed in April 1992. Its design, by millwright John Turner and Whittaker Engineering Ltd, was based on partial surviving evidence on site and rim castings from a waterwheel at Borlick Farm, near Aberfeldy, Perthshire. It is significant as an interpretation of a traditional waterwheel produced at a time when surviving evidence and traditional material resources for the design and fabrication of this type of machinery were already diminished.

### 8.4.3 Significance of the milling stones

Also refer to section 7.9 and Gazetteer Part 3

Two pairs of millstones remain in-situ in the meal mill and there are a further four stones externally and two in the exhibition area. It is thought that the one in the mill exhibit, and three immediately outside the mill, form two pairs of stones. These are all smaller than the stones recorded in-situ at Benholm, which would suggest they were from elsewhere. Millstones were salvaged from the Cowie Mill, Stonehaven, and it is probable that at least one pair are from there. Refer to Gazetteer: Part 3: Meal Mill Upper Floor & External Items.

The 23-piece burr stone, now hanging on the external sign at the head of the road, is unusual for its large number of burr segments (the other stones having a maximum of 14 segments). This stone was located outside the mill at Benholm before its closure (BBC, 1971) and so its provenance for Benholm is important and it is likely an earlier grinding stone moved outside at the end of its useful life.

The inscription on the underside of the in-situ grinding bed stone "*City Mills Perth 1906*" tells us that this stone (and presumably the pair of stones) came from either the Lower or Upper City Mills in Perth sometime after that date, and that the stone is over 100 years old. The inscription and known provenance adds significance to this stone. In addition, surviving burr-stones such as these are of high significance as this French quarry is no longer producing stone. With French burr stone imported from the early 1800s, it is possible the individual burr segments in these stones, and the others at Benholm, may date as far back at this period.

The monolithic shelling stones, one pair in-situ and a single stone in the exhibit area, are likely of local stone origin. The shelling stone in the exhibit area is thought to belong to Benholm, also appearing in the BBC footage in 1971 outside the mill. These stones have significance for their historic association to the mill and likely age.

### 8.4.4 Significance of the mill gearing

Also refer to section 7.10 and Gazetteer: Part 2

The mill's primary machinery is a combination of restored gearing, drive shafts, belts etc. which were already in the mill building and other elements salvaged from Cowie Mill, Stonehaven and possibly Kirriemuir. Wooden teeth were renewed on the Great Spur Wheel and Auxiliary Spur Wheel and some new castings in iron and brass made where parts were beyond repair. This machinery has high significance both as workable machinery and due to the rarity of such items now. Great care was taken by the millwright to restore the primary machinery and thus it also embodies the knowledge and expertise of a traditional craft skill which is now extremely rare in Scotland.

#### 8.4.5 Significance of the secondary machinery

HES (LB2805) describes the interior of the mill being "in full working order" in 2009 after which the building's listing status was upgraded from Category B to A.

When Douglas (1983) surveyed the mill he described it as follows:

*"The internal machinery and its arrangement within the mill is extremely basic. There is, for example, no elevator from the kiln outlet on the ground floor to the upper floor level where the shelling and grinding operations occurred."*

*"Similarly, although an elevator was installed to carry the shelled grain back to the upper floor, it then had to be rebagged and manually transferred to the grinding (meal) stones"*

*"There was, however, an interesting and more automated arrangement associated with the oatmeal sieve on the lower floor. [...] "This was a later addition to the mill's equipment"*

*"Much of the machinery already mentioned, including the bucket elevators, friction winch, fanners and oatmeal sieve, is still on site, and indeed remains in position."*

Douglas, 1983, MS/500/35/83

Douglas had spent several years recording mills and was able to set Benholm in its industrial context. It was the case that Benholm was very much a small rural mill, and the demand for additional or more complex machinery was presumably not required to meet the local community's needs. Whilst it's diminutive scale and simple operations may have been considered then to be less sophisticated to other mills,

*"When the district council bought the mill it discovered most of the machinery was intact and an outside expert declared the mill well worth saving"*

WE Ltd file, c.1987 newspaper article

That 'outside expert' was likely to have been James Reid, a millwright from Dingwall who wrote in early 1987 to Douglas about his "most interesting" visit to the Mill of Benholm in late 1986 (Canmore, 1983, MS/500/35/83). He had prepared a detailed report and costing for repair of the machinery for the architect's department of Grampian Regional Council (report not found).

The SIAS survey, just 6 months after the last miller's death, and interior photographs taken in 1983 (Canmore; Mills Archive Trust) provides an important record with which the existing secondary machinery can be assessed. The setup of the secondary machinery remains largely the same, save for some minor losses including the removal of the hopper over the Bruiser and timber steps next to the grinding stones. Inspection of the mill confirms that the lower floor timber machinery, i.e. Shaker & Large Fanner, Meal Sieve & Small Fanner, two bucket elevators, the Husk Cupboard and the Kiln Chute

have been repaired and restored to working order, retaining much of the pre-existing fabric. Whilst the exact date of the items is unknown, the wooden items in particular appear to be of some age, with graffiti dating to the turn of the 20<sup>th</sup> century. This pre-existing secondary machinery is highly significant as surviving examples of traditional timber milling equipment much of which has been removed in surviving mills, and all of which is specifically designed for each mill.

The two free-standing fanners were not mentioned in Douglas' survey, and may have been brought here as exhibits. The free-standing fanner on the lower floor was made by J Baker, Falcon Works, Wizbech (Wisbech) Cambridgeshire, and supplied by D. Irons & Sons, Agents, Forfar and it is very likely this item dates to the late 19<sup>th</sup> century. Blair Atholl Mill has the same fanner originally supplied by an agent in Errol, salvaged by John Ridley and fitted into the mill when he restored it in 1977. It is described as a fanner used to 'clean' oats before drying. So it is not a unique item but has heritage value as a piece of purpose made milling equipment, and it is likely only a small number of examples survive. There is a second fanner on the upper floor in the position where the bruiser hopper was fitted (now removed). This fanner has the name "Shearer Brothers Engineers, Makers & Patentees, Turriff Scotland".

Like the mill gearing, the repair of the secondary machinery has social significance. It was carried out by Scottish Conservation Projects Trust volunteers Liz Wheatley (joiner) and Tony Janetta (engineer).

## 8.5 Significance of later function

The importance of saving water-powered milling heritage must have been felt across Scotland. In addition to the survey and recording work by Hume and Douglas, a number of local authorities were purchasing and 'restoring' mills as visitor centres, including Perth Lower City Mills and St Fillan's Mill, Killin as well as Benholm. In the same period the Barry Mill was restored by the National Trust for Scotland. Blair Atholl, Golspie and Aberfeldy were all restored as commercial mills during this period by individuals motivated to save these special local rural industries and their historic buildings and infrastructure.

The mill is of course more than its built heritage; it is the people that took their grain there and the miller and his family. When the Mill of Benholm ceased to operate after Lindsay C Watson's death, there was strong local support for the mill to be saved, and recognition that the mill was an important part of the heritage of the local community and Kincardineshire.

*"The restoration of Benholm Mill will offer a living account of the lives of our forebears and a major tribute to them."*

Aberdeen Press & Journal, 22<sup>nd</sup> April 1988

The foresight and determination of Benholm & Johnshaven Community Council in promoting the mill as an essential case for restoration is quoted by Nicol (1988). Credit must also be given to Mrs Helen Watson, the widow of the last miller, who offered the mill complex to the local authority for the purposes of conserving it for the future. Research for this report has confirmed the depth of interest, still felt today, for the work undertaken to restore the mill in the late 1980s until its opening as a visitor centre in 1995. This was a long process, it appears mainly due to a lack of funds, and a considerable amount of work was carried out by volunteers or those on government work programmes.

Over time the mill's principal function as a visitor centre under local authority management waned (refer section 6.3) but it found a new focus as a base for training and work experience for people with disabilities, the main focus being the tearoom and garden allotments.

Despite the reduction in the mill's use as a heritage attraction, when the mill closed in 2014, the community again reacted to save the asset for the local community and the existing Friends of Benholm Mill, already supporting the mill prior to its closure, commenced the process now in hand to seek a viable future for the Mill of Benholm.

## 8.6 The Form: significance of the buildings

### 8.6.1 Introduction

Section 7 described the form of the mill complex and its buildings in detail. The mill complex comprises the meal mill, the miller's house, byre and grain store set out irregularly on a track descending into the mill courtyard. This organic grouping, reflective of its historic development and site conditions is a highly significant aspect of the character and ambience of the site. It is fairly unusual to find an example with all these buildings present and surviving along with the original mill lands.

### 8.6.2 The meal mill

Meal mills vary quite considerably in their design depending on the period of their construction and location. Reflective of construction methods, early mills were commonly single storey perhaps with a semi-basement or an attic to accommodate milling machinery. By the early 19<sup>th</sup> century 2-storey mills were common and those, like Benholm, which may have started as single storey constructions were extended upward or rebuilt. During the 19<sup>th</sup> century, 3-storey mills became common, often squarer on plan as additional floor space was provided vertically. Many examples of this type were recorded in Aberdeenshire by Hume (1977). In the later 19<sup>th</sup> century large regularly planned mills were constructed where site conditions allowed. This design is very different from that of mills like Benholm which has a much more vernacular appearance. Benholm is unique in that its design is not replicated and it developed organically as the mill's function changed, such as the addition of a larger kiln to increased grain drying capacity. Every part is functional, each window opening had a purpose, and the design is not part of an architectural style but entirely reflective of the buildings use.

Hume's (1977) view was that few, if any, remaining mill buildings were constructed much earlier than the mid to late 18<sup>th</sup> century, and many were of 19<sup>th</sup> century construction. As has been suggested for the site of the Mill of Benholm, mills were often rebuilt on the site of earlier mill buildings. Mill sites thus persisted over centuries, although the mill buildings may only have survived for a century or so.

The meal mill design at Benholm in this context is rarer, in that it has an early foundation, possibly 1711, and of which surviving parts likely include the lower rubble wall construction and lower doorway (now forming the entrance to the kiln fire pit). Benholm's extension and adaptation dates to the early 19<sup>th</sup> century (1817). Benholm is therefore significant as a mill of early construction date. Other than removal of the late 19<sup>th</sup> century extension to the south, and 20<sup>th</sup> century extrusions, the meal mill is in the same form as it was in the mid-19<sup>th</sup> century.

The surviving kiln is highly significant as many, including within the small number of surviving working and restored mills do not retain kilns, often adapted for access stairs or lifts.

As described in Section 7.3.2 the mill is built from local stone, initially 'found stone' such as nearby rounded field stones used in the earliest construction, and later dressed sandstone blocks from local quarries, possibly including the one at Knox of Benholm used for mill stones in the 17<sup>th</sup> century (refer section 7.9.1). In this respect the construction of the building is significant as an example of traditional Scottish construction skills and materials prior to the introduction of mechanised production and modern transportation of materials. The pinning detail on a large part of the meal mill (possibly the earlier 19<sup>th</sup> century work) is a traditional technique and very attractive feature.



Materially the stone masonry is highly significant in providing the chronology of the building development. It remained fairly untouched during its adaptation as a visitor centre (and patch repairs are clearly identified). As such it has potential for further analysis of the material sources and archaeological building recording. The other significant element is the rear timber door which has early 20<sup>th</sup> century graffiti.

In sum, the historic building fabric is over 300 years old, with potential for earlier remains or reuse of masonry from the earlier circular kiln, or other structures within the original mill complex.

### 8.6.3 The miller's house

Like the meal mill, there are some sections of masonry constructed using rounded field stones suggesting an early date and possibly the remains of an earlier house. If we consider the mill dates back to at least the early 18<sup>th</sup> century, then a miller's house would very likely also have been here. Unfortunately, the change of use in the late 19<sup>th</sup> century of the house to a barn, and then adaptation as a tearoom in the 1990s, has removed any internal structure, and the internal masonry is currently obscured by a thick layer of paint.

However, as with the meal mill, the nature of the stone masonry is significant in providing the chronology of the building development. Materially the external stone masonry underwent some repair during the adaptation (and repairs are clearly identified). As such it has potential for further analysis of the material sources and archaeological building recording. This could provide evidence of earlier forms of the miller's house and add to the social and historic significance of the mill complex.

### 8.6.4 The byre

This building developed over time with the eastern section constructed by 1864. The western section took various temporary forms before the building plan evident today was constructed sometime between 1901 and 1923.

The earlier byre section was converted to toilet facilities as part of the visitor centre project and has removed any internal structure or byre fixtures. Most of the walls internally have been obscured by new painted plaster finishes.

The byre has most significance as part of the mill grouping and its position forming a loose courtyard with the miller's house. Its design significance is in the agricultural character of its frontage with a large sliding boarded timber door and the large door to the east with original cast iron hinges. It also reflects the crofting use of the mill lands by the miller and his family.

Whilst there are heavy lime based mortar repairs on the main elevation, there remains evidence of the original pointing style on the east elevation known as 'lining out', a technique used to score pointing for aesthetic reasons. This would be the appropriate technique to use on this building in any future repair work.

### 8.6.5 The grain store

The grain store was constructed by 1864, and it is likely it was built around the same time as the kiln was added to the meal mill. Whilst the masonry is thought to date from a single construction phase, it is possible material was reused from the earlier circular kiln. The building experienced the most extensive intervention of all the buildings at the mill complex, having the roof finish altered to slate, window openings inserted in the front elevation, and a concrete floor installed. The internal walls are

lined in insulated plasterboard and externally have been heavily repointed with inappropriate cement mortar.

As with the byre, the grain store's significance is as a traditional building forming part of the mill grouping and its historic function, marking agricultural development and increased grain processing. Its design significance is in its modest character.

## 8.7 Summary of significance

In 1970 the mill was described as a 'ferly', the Scots word for a wonder; something strange or marvellous (Weekend Review, Aberdeen Press & Journal 10th October 1970 article by Cuthbert Graham). Fifty years later, this term is as true as it was then. The survival of such a modest mill, in a quiet rural district is a credit to those individuals and members of the local community which kept it alive over the 20<sup>th</sup> century, when so many closed or were lost entirely. With so few operational mills today, those like Benholm which retain all the machinery to demonstrate this traditional industry, are highly significant and an exceptional part of our everyday social history.

The asset's heritage significance can be measured as the sum of the following inter-related factors:

### Historic context

- Established as a barony mill from at least the start of the 16<sup>th</sup> century the mill adapted to agricultural improvements and societal changes over five centuries.
- The millers at Benholm can be traced back to 1696.
- The earliest mill may have been a horizontal mill somewhere on the watercourse, or a small mill with an undershot wheel located upstream of the current tailrace.

### Setting

- Benholm is a distinctive historic kirkton; a conservation area has been designated in recognition of the importance of its traditional core.
- The mill buildings sit within their original mill lands, used as a croft to support the miller's family.
- The Den of Benholm and Mill Brae Wood, an Ancient Woodland, provide the scenic natural setting for the mill, and are recognised as a Local Conservation Nature Site.
- The site contains a range of habitats including aquatic, woodland, and grassland, and is valued as an environmental and educational resource.

### Function

- The Mill of Benholm is a surviving water-powered meal mill, thought to be one of only seven operational or potentially workable mills (for demonstration purposes) in Scotland.
- The Mill of Benholm was the last remaining water-powered meal mill in the historic county of Kincardine by 1970, and today the only water-powered meal mill in the modern local authority area of Aberdeenshire.
- Mill of Benholm's water infrastructure is likely at least 300 years old and in its current form dates to the later 19<sup>th</sup> century.
- The waterwheel, installed in 1992, was designed by millwright John Turner and Whittaker Engineering Ltd and based on surviving evidence on site and rim castings from Borlick Farm, Perthshire.
- The fully workable primary milling machinery, including pre-existing gearing dating to the closure of the commercial mill in 1982, was restored by millwright John Turner with Whittaker Engineering Ltd and remains in good condition.

- There are a number of significant historic segmented French burr milling stones on site thought to be associated with the Mill of Benholm and the now converted Cowie Mill, Stonehaven. At least one milling stone originated from Perth City Mills dated 1906.
- Early surviving secondary milling machinery, in-situ when the mill closed in 1982 and restored in the 1990s, including the Shaker & Large Fanner and Meal Sieve & Small Fanner, alongside two bucket elevators, the Husk Cupboard and the Kiln Chute. This pre-existing secondary machinery is highly significant as surviving examples of traditional timber milling equipment much of which has been removed in surviving mills, and all of which was specifically designed for each mill.
- The two free-standing fanners, one made by J Baker, Falcon Works, Wisbech (Wisbech) Cambridgeshire, and supplied by D. Irons & Sons, Agents, Forfar and likely dating to the late 19<sup>th</sup> century.

### **The mill complex**

- A complete mill complex comprising the meal mill, the miller's house, byre and grain store, set within the original mill lands and croft is a rare asset.
- A unique purpose-built water-powered meal mill recognised to be an outstanding example through its Category A listing building status.
- The mill buildings are an important component in the picturesque setting of the site.
- The meal mill has an early foundation, possibly 1711, with extension and adaptation in the early 19<sup>th</sup> century date (1817). Benholm is therefore significant as a mill of early construction date.
- The surviving kiln is highly significant as many, including within surviving working and restored mills, are not retained in their original form.
- The stone masonry construction is significant as an example of traditional Scottish construction skills and materials prior to the introduction of mechanised production and modern transportation of materials, and is highly significant in providing the chronology of the building development.
- The foundation of the miller's house likely dates back to at least the early 18<sup>th</sup> century, and the building construction indicates adaptation of the domestic accommodation over time and into the 20<sup>th</sup> century.

### **Local community**

- An important cultural asset for the community and visitor attraction.
- The mill pond and mill lands with the adjoining Mill Brae Wood are important to the local community for well-being and potential for educational benefits.

## 9: Risks and opportunities: Condition

It is important to identify risks which may affect the significance of the heritage asset. This section considers concerns under the heading of form (physical condition) of the asset. This section also identifies opportunities for improving the condition of the mill complex. The category of actions on the defects is described at the end of this section alongside a summary of actions.

*“Lack of active use of the site continues to lead to its deterioration, while lack of maintenance means that minor defects are progressively becoming more significant.”*

*“If the current status remains the same for another 6 years, then the site will suffer significant loss of historic fabric and heritage significance.”*

Arc Architects Ltd., 2022, 5

### 9.1 Introduction

A detailed Condition Report was undertaken by Arc Architects Ltd. in 2016, with a review and site inspection in March 2022. Arc sought expert advice in the form of a Structural Condition Report from David Narro Associates, structural engineers (April 2022), and a mill infrastructure inspection by Jolyon Havinden, Mill Engineer (March & June 2022). Reference should be made to Arc Architects Ltd. Condition Report v4 (Jan. 2023) for further detail.

Note that non-heritage elements such as modern fencing, paths, railings and external furniture etc. around the site have not been included as part of the conservation plan but further detail is provided in Arc’s condition report.

The following section summarises key points from the Arc report amended by site observations during May-July 2023.

### 9.2 General condition

The buildings underwent a variety of repairs and rebuilding as part of the mill’s adaptation to a visitor attraction from 1987 to 1995. No formal records have been found of repair work, so works can only be identified where evident today and from a small number of photographs taken at that time. It is thought that general maintenance was undertaken since that time, although this was more difficult in recent years during the Covid-19 pandemic. Some previous repair works have been undertaken in materials which are inappropriate for use on traditional buildings in particular the use of cement based mortars for pointing the masonry walls. Changes, including repairs, that alter the character and appearance of any of the mill buildings and mill infrastructure, boundary walls etc. may require listed building consent and / or planning permission and the local planning authority should be consulted in the first instance prior to any works taking place.

It should be noted that works undertaken for the adaptation are now thirty years old. Elements of this repair work, such as replacement of the slate roofs, appear to be sound, notwithstanding some maintenance issues, however in other areas this work is beginning to fail.

Other areas appear to have had little or no previous repair, in particular the meal mill masonry walling. In many respects this is fortunate, as it now offers the opportunity for recording, analysis and conservation repair with improved knowledge of these matters and on the significance of the asset. However, it does mean that considered repairs are now required to secure the significance and conserve the authenticity of the asset.

### 9.3 Structural condition

Arc's condition report in 2016 picked up a number of potential structural issues which were inspected by David Narro Associates, structural engineers in April 2022. Their report is appended in Arc Architects Ltd. Condition Report v4 (Jan. 2023). Defects are summarised below with site observations in 2023.

#### Meal mill: south extension

- Crack internally at the wallhead of the southern extension and diagonal separation cracking where the walls meet. Patch mortar repair externally at internal corner. The stonework does not appear to be tied (the upper floor having been constructed at a later date) and the location of the door opening at the lower floor has weakened the construction. The earlier foundations would not have designed for a 2-storey construction. Dispersal of rainwater at the SW corner could be contributing.  
**Necessary action:** A trial pit to check the ground conditions; monitor to check if the crack is progressive; possible tying of masonry walls and pointing repair.
- Rotten timber lintol (external door, south elevation) and vertical crack running to the wall head, presumably caused by the decay of the timber lintol. Loose masonry locally.  
**Necessary action:** replace lintol (this doorway was a later intervention and therefore detailing of a new stone lintel will be required unless timber can be used), stitch masonry crack and repoint.
- West elevation: quoins at high level showing signs of movement, possibly due to outward thrust from hipped roof.  
**Necessary action:** The thrust should be restrained by increasing ties, masonry consolidation at high level.
- Stone door lintol is significantly off level, indicating historic settlement of the extension.  
**Necessary action:** consolidate lintol bedding.



*Meal mill: diagonal separation cracking where the earlier mill building wall meets the southern extension walls*



*Meal mill: decayed timber lintol over later internal doorway now forming part of the external wall of the extension*



*Meal mill: west elevation of the southern extension showing mortar repair patching at internal corner, open joints to the quoins, and settlement of the stone door lintol.*



*Meal mill: historic timber lintol over the 12-pane window on south elevation.*



*Meal mill: kiln south elevation showing poorly patched diagonal cracks, possibly as a result of movement*

### Meal mill: south elevation

- Timber lintols over the 12-pane fixed light window are showing signs for deterioration.  
**Necessary action:** drill tested to see if lintols require replacement or additional support.

### Meal mill interior

- The historic timberwork associated with the mill machinery shows fairly significant signs of woodworm.  
**Urgent action:** assessment by a rot company and a general fog treatment was undertaken subsequently in 2022, however additional investigations are recommended to determine the extent of any structural decay. Formulate a repair strategy retaining as much of the original fabric as possible.

### Other buildings

- Kiln: possible movement outward of the kiln west gable; crack running across south elevation poorly repaired in cement; could also be historic due to fire in kiln in 1971.  
**Necessary action:** repair and consolidate masonry, seeking structural engineer's advice on any requirement for masonry ties, and monitor during maintenance inspections.
- Byre: minor vertical cracking in the middle of the east wall.  
**Necessary action:** not considered a structural issue; repair and consolidate masonry and monitor during maintenance inspections.
- Grain store: cracking on west elevation appears to be 'historic'.  
**Necessary action:** monitor and check below ground drainage at the downpipe.

## 9.4 Current condition: roofs

*"The roof is in fair condition, but it would be desirable to reinstate a more authentic finish."*

Arc Architects Ltd., 2022, 17

All roofs were replaced during the adaptation in a phased approach, starting with the meal mill. In this process it is presumed that all roof timbers were also renewed (although attic spaces in the ancillary buildings have not been inspected). The new roof finishes are uniformly Welsh slate. This is a change from the original local stone slate used on the older sections of the meal mill (refer section 7.3.1) and the corrugated iron, possibly original pantile roof, on the grain store.

At the time of any future replacement of the roof finishes, consideration should be given to reinstating a stone slate finish, if available, on the earliest parts of the meal mill, which would greatly benefit the character of the building. On the grain store, the original roof finish may have been pantile. Further consideration of the most appropriate finish should be made with evidence available at that time.

It should also be noted, that whilst Arc's condition report suggests replacement of the kiln roof in corrugated iron, research for this report found that prior to the asbestos sheets (installed in 1971) there was a hipped end slated roof. It is therefore appropriate to retain the current roof design and a slated roof finish.

In general, the roofs appear to be in a fair condition, however the maintenance and repair items listed below will require to be attended to:

- **Urgent action:** investigate and repair roof leak (slate missing or possibly defective chimney flashing / chimney not capped) over kitchen in miller's house; inspect roof void for damage / rot and cut out/treat as required.
- **Urgent action:** repair a small number of slipped and missing slates across all buildings.
- **Urgent action:** clear any debris from all gutters and ensure rainwater drainage is free flowing.
- **Urgent & necessary action:** a number of rainwater pipes discharge onto the ground/ building footings not directly into the below ground drainage. These outlets should be reviewed with the aim of connecting them directly to the drainage system.
- **Necessary action:** remove moss build up on slates, particularly heavy on the north facing slope of the meal mill.
- **Necessary action:** repair damage to fireclay / cement hips and ridges, and loss of cement pointing to same; some replacement tiles maybe required.
- **Necessary action:** prepare and paint where there is failure of paint finishes on cast iron rainwater goods.
- **Necessary action:** prepare and paint cast iron rooflights on miller's house and byre and check integrity of lead flashings.
- **Desirable action:** replace non-defective plastic sections of rainwater goods in cast iron to ensure longevity and robust drainage appropriate to the listed building. Review capacity of rainwater goods when replacing to account for increased rainfall intensity.
- **Desirable action:** consider reinstating a stone slate finish on the earliest parts of the meal mill.



*Miller's house: water ingress at roof level causing damage and fungal growth*



*Meal mill: north roof pitch has a heavy moss build up. Note the inappropriate design of the current ventilator.*



## 9.5 Current condition: chimneys and roof elements

The small number of chimneys and other roof elements appear to be in fair condition from ground level.

The meal mill has a timber ventilator with flat bitumen felt roof which was, until 2022, a slated pyramid roof. It should be noted that changes such as this require Listed Building Consent and Aberdeenshire planning authority should have been consulted. The current roof over the ventilator is not appropriate in design or materials. In the longer term, a more appropriate and distinctive ventilator could be designed as described in section 7.3.1. An earlier ventilator was also much taller suggesting this was required for adequate draw on the flue. The byre also has a timber ventilator which appears in fair condition.

Only the miller's house has chimneys, constructed in brick. Both chimneys are thought to have contained a single flue, although the fireplace and flue in the north gable are now obscured by the fitted kitchen. The flues have clay pots. It is not clear if the northern chimney flue is open as there is no cap evident from ground level. The junction of the brick chimney base to the roof slate has a shallow cement fillet. It is not clear if there is any further weather protection below the slate; if not this is an insufficient weather-proofing detail and a lead flashing or soaker should be installed.

- **Necessary action:** full inspection of chimneys and ventilators by a building professional or experienced contractor at the next opportunity, for example when safe access is available for roof maintenance. Undertake any necessary repairs which are identified.
- **Desirable action:** redesign and replace the ventilator on the meal mill.

## 9.6 Current condition: external walls

The external rubble masonry walls were constructed with local stone bound in lime (or possibly clay mortar within the wall). The walls have been repaired in varying degrees and with an assortment of new lime and cement mortar mixes, and this is described in more detail in section 7.3.2. In general there are areas that would benefit from repointing, removal of cement mortars and pointing of minor cracks. There are also masonry repairs highlighted in section 9.3. Arc's condition report makes detailed recommendations for percentages/areas of repointing of all the buildings.

The original lime pointing remains in a number of areas including traditional details such as lining out on the byre, cherry caulking on the meal mill and miller's house, and evidence of 'slaister' pointing. These historic details should be maintained as part of the character and heritage of the buildings.

Modern cement is not a traditional material for masonry construction and is inappropriate for a number of reasons, including its impermeability (preventing the movement of water vapour in the mass masonry wall); lack of flexibility often leading to cracking; and the hardness of the material leading to sacrificial erosion of surrounding masonry.

The sandstone is in general friable and losing surface patination. This is not unexpected with the age of the building and the type of stone, but will be exacerbated when adjacent to impermeable cement finishes, or where defective rainwater and inadequate external drainage accelerate erosion by water run off or damp conditions.

- **Necessary action:** prior to any works a detailed assessment should be made of the masonry including recording, lime mortar and stone analysis, and preparation of a conservation repair strategy, mortar and stone specifications. Areas of repointing and stone repairs can then be undertaken on a priority / phased basis as required.

Other individual defects are noted below:

- Meal mill: south elevation: base section, thought to be of earlier construction, has defective mortar and deep voids into the wall construction.  
**Necessary action:** requires consolidation as a priority.
- Meal mill kiln: algae growth on previously damp stonework on south elevation from blocked gutter; impact damage on north-west corner.  
**Necessary action:** inspect to ensure rainwater defect is resolved; brush off any loose vegetation and friable stone.
- Meal mill south elevation: 4-pane fixed light window between doors has a cracked stone cill owing to a ferrous fixings.  
**Necessary action:** assess if the iron fixings are causing active stone damage and repair as required.
- Meal mill north elevation: cracked concrete work around the raised entrance door.  
**Necessary action:** assessment and appropriate repair strategy required and possibly replace ferrous door pintols in stainless steel.
- Byre: east elevation: defective pointing with voids at low level; one defective quoin on SE corner due to corroding iron fixing.  
**Necessary action:** record, and remove rusting fixing and repair or replace quoin as required.
- Grain Store: cement pointed.  
**Necessary action:** assessment required, with possible sample pointing removal, to determine if full removal of impervious pointing is required to improve the building condition and internal environment. To be done in parallel with removal of current wall insulation. Form repair strategy with possible lime-based mortar replacement and suitable breathable insulation if building is to be heated and in frequent use.

## 9.7 Current condition: doors and windows

The timber windows all date to the adaptation of the buildings in the late 1980s and early 1990s. They are generally in a fair condition although there is maintenance required to address weathering to both timber paint finishes and iron elements, and putty and external mastic loss. Some may require localised timber repair. It should be noted that none of the windows are openable, which means there is no natural ventilation in these spaces. The window design for any new windows should be considered as part of a ventilation strategy and replacements designed appropriately. Note standard 'trickle vents' would not be appropriate for these listed buildings, but there are discrete ways to introduce trickle ventilation should that be required. A conservation professional or Historic Environment Scotland should be consulted for further information.

The timber boarded doors also date to the adaptation excepting the door on the south elevation of the meal mill, which is damaged. This door is significant for its historic graffiti and the current boarding over the damage is inadequate. Like the windows, general maintenance of the doors is required.

- **Urgent action:** localised pieced-in timber repair of damage to double door on meal mill. If full conservation repair is not possible in next 6 months, then carefully board over damage to protect doors from further damage and decay.
- **Necessary action:** Undertake general repair and maintenance of the windows and doors on all buildings. Rub down, prepare and paint cast iron bar lintol on meal mill south elevation.
- **Necessary action:** form a ventilation strategy for all the mill buildings; undertake necessary improvements. Miller's house extract: modern plastic extract grille is unsightly; consider

replacement in more suitable terminal or investigate extract using former chimney in north gable.

- **Desirable action:** consider window design and replacements in conjunction with ventilation strategy.

## 9.8 Current condition: external ground levels

There are raised ground levels, and therefore retaining building fabric, to the meal mill, byre and grain store. Where moisture in the ground is not adequately managed, and the buildings not sufficiently heated and ventilated, then raised ground levels can have an impact on the relative humidity (RH) of interiors, and risk condensation and dampness.

A summary of works undertaken from 2008-2012 notes that the camber of the road next to the meal mill was altered to direct water away from the base of the north wall; and that a sump and drains were constructed to lower the water table at the rear of the tearoom (MoB company files).

Specific issues on the meal mill are described below, with other buildings described within section 9.9.

### Meal mill lower floor

Standing water was observed in the ash pit in front of the kiln fire pit entrance. This appears to be leaching in through stonework joints around the ash pit on the north side and is presumed to be ground water from the retaining ground on this side. Arc reported that this seems to have reduced since 2016 as a result of external drainage work. However, the problem persists and introduces unacceptable humidity into the lower floor considering the high significance of the timber construction of the secondary mill machinery.

*“In 2022, there is less water internally, thought to be due to works to divert ground/surface water to the north. There was 50mm of water standing in the kiln base. This still needs to be eradicated to arrest decay as it is leading to spalling of masonry and decay of internal finishes. Damp conditions are also a factor in internal timber decay, with active woodwork noted in some of the structural timbers supporting the first floor and mill machinery.”*

Arc Architects Ltd., 2022

There also appears from Arc’s condition report to be a general issue with ingress of water at the base of the north wall which cannot be seen clearly owing to the timber milling fixtures. Where the north wall can be seen, there are some cement pointing repairs that should be raked out and redone in lime. There appears to be a shallow channel in the cement floor to track water to the cog pit. In the ash pit, there is a small deeper cut out in the concrete that suggests a possible drainage outlet which is clogged.

- **Necessary action:** further investigation is required to confirm:
  1. If the ash pit does/did have a drainage outlet; or if fitting one is possible.
  2. Clarification and review of the external drainage design; it may be that a lower perforated drain is required externally at an appropriate level to capture deeper ground water, not just rainwater runoff at ground level (note such deep drainage must be carefully considered in relation to its proximity to the existing building and other structures and potential for archaeological remains).

3. Full inspection of the north retaining wall once the lower mill floor is clear of modern items and careful inspection can be made around the timber fittings; repointing and lime washing the wall could help in its moisture management (with external masonry strategy section 9.6).
4. Remove modern paint finishes on other walls and lime wash.
5. Improved ventilation should also be considered (with ventilation strategy).



*Ash pit in front of the kiln fire box showing silt build up from repeated water ingress and water sitting in a lowered area, possibly a blocked drain.*

#### Meal mill upper floor

There is a rise in the ground level at the eastern end of the north elevation and evidence of timber deterioration to the ends of timber flooring next to the external walls. Timber boards near the milling stones have a high moisture content making them susceptible to timber rot and infestation.

- **Necessary action:** survey timber flooring and joists adjacent to the retaining north wall and repair as required. Carry out in parallel with the external drainage investigation and consider if ground levels can be lowered locally or timbers isolated from the masonry.

## 9.9 Current condition: interiors

### Meal mill

The kiln door opening has very charred timber lintols and door framing. This historic fire damage does not need to be replaced and in fact forms part of the mill's story. The metal kiln door and framing is slightly rusted, again this does not require repair but in both cases the condition should be monitored for any signs of change.

### Ancillary mill buildings

All the ancillary mill buildings had their interiors removed and fitted out in standard low cost finishes during the adaptation. This included painted concrete floors and painted wall finishes either directly onto the masonry or applied to plaster / plasterboard finishes. Some of these require general maintenance for wear and tear, such as the concrete floor paint finishes. Of more fundamental concern is the level of moisture in the buildings which are causing condensation and mould growth.

Some of this may be caused of the long-term disuse and resultant lack of heating and ventilation. Actions are described below.

#### Miller's house

Condensation staining was noted in a condition report by Shepherds Surveyors in 2005 in the tearoom, with the use of the stove (without adequate ventilation) and lack of loft insulation cited as probable causes. The impermeable synthetic paint finishes will exasperate this situation as the walls cannot 'breathe' to allow excess moisture to pass into the fabric of the masonry and be dissipated externally.

- **Necessary action:** inspect concealed loft space and insulation / ventilation therein; undertake necessary improvements.
- **Necessary/desirable action** (pending investigation): removal of the wall paint finishes, and replacement in lime or clay plaster (possibly a lime-hemp insulating plaster) with lime wash or clay paint finishes to improve breathability.
- **Necessary/desirable action** (pending project development): consider replacement of concrete floor with insulated and breathable limecrete floor. Prepare and paint existing floor during interim period if required.

#### Byre: toilet area

The byre rear elevation retains ground to a high level with overgrown vegetation shading the masonry, and creating further damp conditions. Internally dampness is evident in patches across this wall. Arc's initial assessment thought this was not the result of the retained ground, as the wall must either have modern tanking or a traditional clay layer. However, with dampness and surface spalling present in 2022, Arc suggested that external ground works, as well as poor heating, ventilation and wall finishes may be contributing. The concrete floor is also spalling with badly deteriorated paint finishes.

- **Urgent action:** Vegetation to the rear of the byre should be cut back.
- **Necessary action:** consider if ground drainage could be installed at the rear of the building. The integrity of the mill pond retaining walls should also be checked prior to any ground works in this area, and in case defects are increasing the damp ground conditions.
- **Necessary action:** Investigation is required to establish if the byre north wall has any waterproofing, which may had been breached. Form a suitable repair or intervention depending on the findings. Prepare and paint existing floor during interim period if required.
- **Necessary action:** inspect concealed loft space and insulation / ventilation therein; undertake necessary improvements.
- **Necessary / desirable action:** toilet fit out is fairly basic and could be improved during refurbishment with consideration of current requirement on accessibility and occupant capacity.

#### Byre: store/shop

This space was converted sometime between 2008 and 2012 from a tractor shed to a shop (MoB company files). Detailed inspection of this room was restricted by storage and levels of mould, as a result of dampness and a lack of ventilation. Dampness is likely caused by both the rear retaining wall and defects in the abutting lean-to kitchen extension, exasperated by the synthetic paint finishes.

The room has paper and fabric items which are infested with mould and are a health hazard.

- **Urgent action:** remove mould infested items with suitable health and safety precautions and PPE. Items should not be restored here until dampness has been addressed.

- **Necessary action:** assessment of the interior once items removed; make repair recommendations. Note any fabric works would need to be carried out in conjunction with recommendations in section 9.10.

#### Grain store

The grain store had no evidence of condensation or mould however it has a very unpleasant odour which may be a combination of stale air, concealed dampness and /or rodent infestation. Insulated plasterboard has rodent damage. The breathability of the external fabric is hindered by the presence of cement pointing throughout externally, and the synthetic insulation applied to the internal walls. Again, the windows are not openable and there appears to be no alternate form of ventilation. The building is slightly retaining to the rear which could cause dampness at low level, obscured by the wall finishes, or there may be condensation within the walls.

The concrete floor is cracked in places.

- **Urgent / necessary action:** remove the synthetic insulated plasterboard applied to the internal walls. Consider if temporary ventilation could be created. Removal of rodent infestation (which may also necessitate removal of the wall plasterboard).
- **Necessary action** (pending investigation): replacement of wall finishes in lime or clay plaster (possibly a lime-hemp insulating plaster) with lime wash or clay paint finishes to improve breathability. Repair strategy to be determined in conjunction with section 9.6 removal of external cement pointing.
- **Necessary action:** inspect concealed loft space and insulation / ventilation therein; undertake necessary improvements.

#### 9.10 Kitchen extension

In the corner between the miller's house and byre is a small lean-to building constructed of exposed concrete block with a shallow corrugated roof. The design, quality and condition of this building is very poor. The failure of its junctions to the abutting masonry walls is causing water ingress and damp conditions and mould internally to both the kitchen extension and the shop/store. Damp conditions are present next to the electrical distribution box. The interior has no windows, and lacks ventilation.

- **Urgent action:** Investigate roof/wall flashings on the kitchen extension and make temporary repair.
- **Urgent action:** Undertake a structural assessment of the retaining rear wall and banking to facilitate removal of the extension and any retaining works required to maintain the mill pond embankment.
- **Necessary action:** Modern kitchen extension should be removed, following structural ground inspection, and the original masonry external walls assessed for repair and removal of any modern paint finishes.
- **Necessary / desirable action:** consider if the extension is required, and if so, design a more suitable one.



*View of the kitchen extension abutting the miller's house and byre.*



*Detail of the defective junction of the kitchen extension roof and the shop wall; the gutter is blocked and a temporary section of gutter appears to have been placed below the existing gutter.*



*Below this gutter in the kitchen extension this wall is damp and covered in mould, including adjacent to the electrical distribution board.*

### 9.11 Storage of miscellaneous items

The meal mill and shop /store area of the byre are currently being used to store modern items of furniture, and other miscellaneous items used for the training centre. There is also a considerable amount of DIY type items in the lower floor of the mill. Whilst some of these may have a practical use

they should not be stored in the meal mill due to the potential for accidental damage that may result to the historic fabric, and encouraging casual use of the space for activities to which it is not suited. Items should not be stored in the kiln. Files in grain store should be reviewed and archived as appropriate.

- **Urgent action:** removal of miscellaneous storage items to allow inspection of areas restricted in 2023 and deep cleaning (refer section 9.14). This should be done under supervision by a heritage professional to ensure any significant items are not damaged or lost, and with suitable health and safety protocols and PPE.



*(right) Miscellaneous items in the lower floor of the meal mill, some may have significance as mill items, others useful for future owners but modern items should be stored elsewhere. (left) Inappropriate storage of items on the kiln metal floor.*

## 9.12 Current condition: services

### Heating

Heating provision is limited, with only the miller's house having electric heating and a wood-burning stove. There have been comments that the stove flue may not draw well, and in 2005 there was a redundant electric extractor on the chimney (cabling still evident). Use of a stove requires adequate ventilation of the space.

- **Necessary action:** the stove use should be checked by a qualified contractor prior to reuse, and the chimney flue swept and checked for smoke integrity. Ensure that carbon monoxide detection is installed correctly and within expiry date.
- **Necessary action:** review space ventilation as part of the ventilation strategy.
- **Necessary action:** prepare a heating strategy for all buildings with a focus on carbon neutral and renewable heating sources.

### Ventilation

Ventilation in the meal mill is provided via the kiln extract ventilator, however there is no cross ventilation as all the windows have fixed glazing with no trickle ventilation. There may be some trickle ventilation provided by door thresholds. Air movement is particularly important in maintaining low



levels of relative humidity to prevent both condensation in the fabric and on surfaces, and deterring a climate which is suited to timber attack from fungi and insects. The toilets and kitchen have basic Xpelair type mechanical fans. It is unclear if there is any ventilation in the grain store.

- **Necessary action:** prepare a ventilation strategy for all buildings.

#### Water services

There are no water services in the meal mill.

The hot water tank in the byre which serviced the wash hand basins in the toilets has been removed.

There may be cold water tanks in the roof spaces of the miller's house, byre and grain store.

- **Necessary action:** a water assessment will be required prior to reuse of the facilities including legionella testing and any other statutory requirements. New hot water requirements will be required for the toilets.

#### Electrical services

Checking of electrical installations did not form part of this report. Electricians were not operational at the time of the inspections and should be fully tested and certified prior to reuse of the buildings.

Arc's condition report noted that the lighting in all buildings is crude and could be replaced with in more sympathetic and less obtrusive arrangements, and presumably more energy efficient fittings. Any new fittings, in the meal mill particularly, should be sympathetic to its industrial character and their installation should not damage any historic fabric.

- **Necessary action:** reconnection and assessment by a qualified electrician will be required prior to reuse of the facilities and any repairs/upgrades to meet statutory requirements.
- **Desirable action:** review lighting arrangements in all buildings and make improvements in suitable design with improved energy efficiency.

#### Foul drainage

The foul waste system includes a septic tank, with overflow outflow via a pump to reed beds. The design is thought to meet current standards.

- **Necessary action:** Arc's condition report recommended specialist inspection including of the reed bed and septic tank clearance.

### 9.12 Asbestos

A previous asbestos survey for Aberdeenshire Council indicated there was no asbestos found within the buildings (MoB company files). However it is recommended that prior to any repair or refurbishment within the buildings that a new R&D asbestos survey be undertaken as the date of the alterations predates the exclusion of asbestos from construction practice. It should also be noted that the kiln had an asbestos roof, now removed, however there could be a risk of debris from this process in the kiln fire pit and any disturbance in that area should be preceded by a survey and sampling as required.

- **Necessary action:** commission asbestos R&D surveys by a qualified professional prior to any repair or dismantling works.

### 9.13 Burn of Benholm retaining wall

Against the Burn of Benholm's north side, there is a stone wall retaining the ground forming the mill complex. The wall is subject to a continued process of wetting by the burn. Erosion around the tailrace area some years ago, and a lack of timely repair, resulted in the large section of the tailrace being washed away and a more substantial repair required. This also suggests that any archaeological evidence of the earlier undershot wheel (Gauldie, 1981; section 6.2.3) could have been lost. Arc's condition report noted that to the west of the footbridge there is a section that is decayed at its base and requires consolidation, and the structural engineer noted some bowing sections east of this. Vegetation makes assessment difficult and requires to be stripped back to allow a full inspection. Areas of local consolidation and pointing will be required and assessment will allow prioritisation of this work.

- **Urgent action:** cut back vegetation and assess the condition of the Burn of Benholm masonry retaining wall and form a phased prioritised repair programme.



*The Burn of Benholm at the high of summer with vegetation almost completely obscuring the burn retaining wall; inspection and grounds maintenance required during winter session to form repair strategy.*

### 9.14 Mill infrastructure and machinery

The condition of the base and sides of the mill pond is unclear. The pond water level had fallen significantly in June 2023 during dry weather conditions. A summary of works undertaken from 2008-2012 notes implementing specialist advice in the repair of cracks in the mill pond wall; as well as renovation of some elements of the machinery by specialist engineers GSK (MoB company files).

With reference to site observations in 2023, and a specialist report by Joylon Havinden in 2022, the following defects and actions are summarised:

### Water Intake and mill pond

- The water intake from the Castle Burn is partially blocked by a fallen tree and other obstructions.  
**Necessary action:** remove blockages and assess water intake for any remedial works.
- The lade and pond sluices are rusted and seized.  
**Necessary action:** freed seized parts, prepare and repaint as required and lubricate.
- The lade is restricted by vegetation and tree debris. Lade timber boards have rotted and some disintegrated; some bowing, more significantly as the pond is approached.  
**Necessary action:** The structural engineer recommends that the timber work to lade is renewed in full. It is thought the lade is possibly formed using puddled clay, which would require careful treatment during any clearing and remedial work to avoid breaching the surface. An alternative option may be to reline the lade in timber (rather than replace) if its water capacity would not be unduly affected.
- The mill pond is fairly heavily infested with vegetation; detaching vegetation would drift to the sluice guard risking blockage in the flow onto the wheel.  
**Urgent action:** clear the pond taking account of biodiversity sensitivities and unknown condition of the pond retaining walls and base. Make an assessment of the retaining walls internally if safe access is available and water levels remain low. Potentially damaging vegetation close to the pond retaining walls should be removed.
- The culvert under the road is almost certainly restricted by vegetation.  
**Necessary action:** clear culvert, intercepting loose vegetation at the trowse.



*View of the mill pond in early summer 2023, note the low water level exposing the concrete retaining wall and rusting sluice. The pond is heavily overgrown with vegetation.*

### Trowse & waterwheel

- Area around the trowse/laundry and wheel is very overgrown; the wheelpit and tailrace is silted up and providing a rich medium for vegetation growth. Arc's condition report noted that the stone walls forming the tailrace and wheel pit appear in reasonable condition.  
**Necessary action:** cut back and clear vegetation from the area and remove silt. Inspect stone walls once vegetation and silt is cleared and prior to operating the waterwheel.
- The trowse regulator mechanism is rusted and semi-seized; the trowse paint finish has failed and the metal is corroding. It will require repair or replacement in the future.  
**Necessary action:** free seized parts and lubricate, assess trowse condition, prepare and repaint or repair/ replace as required.
- The wheel itself is in fair condition. Some buckets, those which have been sitting at the top of the wheel whilst idle, have dried and shrunk, passing water through the joints. This is a common problem with waterwheels, and usually cures once all the buckets are re-soaked in operation.  
**Necessary repair:** set wheel turning to re-wet all areas as soon as it is possible in relation to the repairs to the water infrastructure. Selected wheel buckets may require replacement if they do not swell sufficiently once soaked, and there may be some which have been on the underside and have rot and corrosion at the fixings.
- There is a slight imbalance in the wheel rotation, once again caused by some buckets being wetter and heavier than others, but this should correct after a while.
- The wheel bearings appear in good condition, having been well greased.  
**Necessary action:** the grease cups could be cleared of any hardened grease and re-packing with fresh.
- The waterwheel does not have a locking mechanism for safety purposes when idle.  
**Necessary action:** Fit locking mechanism.

### Internal machinery

The main concern is the condition of some of the cross trees and supporting timbering. Havinden thought there was:

*“A heavy infestation with woodworm, to the extent that some of the structural integrity of the members has been compromised, and once everything was operating in earnest, vibration would likely show up any weaknesses. There has also been some rodent damage, despite poison traps, and there were indications that they are still active. Repairs to timbers could be effected, either by the addition of reinforcement plates in steel where there is good substrate to fix to, or by the selective replacement of timbers, which would be a major task.”*

Arc Architects Ltd., 2022

His recommendation for an urgent and comprehensive programme of pest control spraying by timber preservation specialists was followed up by Aberdeenshire Council, and Rentokil undertook a fogging spray treatment in 2022.

The internal machinery has been well lubricated, both in the bearings, pinions, teeth and other components. There do not appear to be any damaged or broken teeth, neither the cast nor the sacrificial wooden ones. There is some backlash in the gear train, which is adjustable if required. The milling stones and secondary machinery were not engaged but visual inspection of the drive train suggests that everything is generally in order, just requiring some maintenance.

- **Urgent action:** detailed systematic survey of the historic timbers that comprise the milling stone casings, millstone and gearing support, and those of the historic secondary machinery by a timber preservation specialist with conservation experience in historic buildings with recommendations for repair. This should take place alongside recommendations for reduction of the damp / high moisture levels in the lower floor and improved ventilation.
- **Urgent action:** comprehensive deep cleaning of the mill interior is required after miscellaneous items are cleared (refer section 9.11), including elimination of rodents and woodworm dust and any residues of pest control chemical treatments. This should be done under supervision by a heritage professional to ensure any significant items are not damaged or lost, and with suitable health and safety protocols and PPE.
- The condition and dressing of the millstones is unknown and would require inspection by a person with expert knowledge. The shelling stones appear to be cracked.  
**Necessary action:** inspection of millstones by an experienced miller is required with recommendation for redressing or replacement.
- Some of the drive belting may be damaged or hardened.  
**Necessary action:** all belts should be cleaned, checked and dressed during recommissioning, and replaced as necessary.

### 9.15 Mills lands

With no regular maintenance since 2020, the grounds of the mill complex are overgrown and now require considerable maintenance. This includes the road and pathway into the site and also the pathways around the grounds, and along the lade to the riverside sluice. A number of old temporary sheds and poly tunnels etc. are also present in the former allotment area and at the northern boundary of the site. The footbridges to the Mill Brae Wood, including the listed old Benholm Bridge, are closed for safety reasons and their condition has not been assessed. As noted above, in some places the overgrown vegetation is impacting on the condition on the mill buildings and waterwheel area. A phased approach to remedial action, as well as regular maintenance, will be required to bring the grounds back into good order.

- **Urgent action:** clear principal footpaths and ensure the bridges are fit for purpose including the connections via the Category C listed historic Benholm Bridge from the car park and the footbridge at the mill.
- **Urgent action:** cut back vegetation behind the byre / kitchen extension to allow assessment.
- **Urgent action:** potentially damaging vegetation close to the pond retaining walls should be removed.
- **Necessary action:** upgrade the roads and paths, in an appropriate surface material in keeping with the character of the historic mill complex. In conjunction with any external drainage requirements.
- **Necessary action:** cut back and clear vegetation from the waterwheel area and along the lade.
- **Necessary action:** cut back and clear vegetation from other areas on a priority phased basis.

### 9.16 Mill Brae Wood

The woodland is linked to the mill complex by two principal footbridges (currently locked) and in general the woodland walks are in need of maintenance. There are some interpretative signs explaining the natural heritage, which are in poor condition. The network of footpaths, bridges and ditches require maintenance and localised reconstruction.

There has been considerable loss and damage to the wood by wych elm disease and ash die back. Significant storm damage also occurred in 2021. MoBE obtained a felling license to remove 90 dead, diseased or dangerous trees, but there remains a considerable amount of work to do before replanting can be considered (a requirement of the felling license). All work in Mill Brae Wood must be carefully considered and low impact.

On securing a lease on the Mill Brae Wood from the Brotherton Estates, the following is required:

- **Urgent action:** clear principal footpaths and ensure any bridges across ditches are fit for purpose.
- **Necessary action:** upgrade paths, in an appropriate surface material in keeping with the woodland character and biodiversity.
- **Necessary action:** tree replanting and maintenance under appropriate license and consents on a priority phased basis and in line with an adopted *Mill Brae Wood Management Plan*.

Further information on the strategy for Mill Brae Wood can be found in MoBE report *Mill Brae Wood Management Plan*.



*View to the Mill Brae Wood from the mill courtyard with interpretation board; the footbridge to the woodland paths is currently locked for safety reasons.*

## 9.17 Condition summary

The category for action on the defects is identified as follows:

Category	Work required
Urgent	Repair or investigations required as soon as possible and within the next 12 months (by summer 2024). A temporary repair may be required, or further work following assessment.
Necessary	Repair or investigations as soon as funds are available and within 3-4 years. Further prioritisation of necessary works should be undertaken as some will be more essential than others.
Desirable	Works that will enhance the buildings and site.

Note that items in the above categories may vary as the project develops and their prioritisation may change. With the 'necessary' category it may be required to prioritise those items which require to be undertaken more quickly, or prior to other work being identified or confirmed.

### 9.17.1 Urgent actions

1. Seek records of existing external drainage design around the mill buildings to facilitate review of the current design for improvement of damp / water ingress in the kiln pit and other rainwater discharge onto building foundations.
2. Ensure all rainwater goods and external drains are clear and flowing freely.
3. Undertake any urgent roof maintenance such as slipped slates / missing ridges to ensure there is no water ingress; inspect the byre roof leak and repair (temporarily if funds are limited) and inspect the roof void for signs of rot.
4. Repair the damaged double door on the meal mill with localised pieced-in timber repair as the door is significant. If full conservation repair not possible (if funds limited), then carefully board over damage to protect the doors.
5. Cut back vegetation behind the byre / kitchen extension.
6. Investigate roof/wall flashings on the kitchen extension and make temporary repair (pending confirmation that extension can be safely removed).
7. Remove mould infested items from shop /store.
8. Remove the synthetic insulation applied to the internal walls of the grain store and consider temporary ventilation.
9. Removal of miscellaneous storage items to allow inspection of areas restricted in 2023.
10. Undertake a comprehensive deep clean of the mill building interiors after miscellaneous items are cleared and measures to eradicate / control the rodent infestation generally but in particular in the grain store and meal mill where this is damaging the fabric and machinery.
11. Commission a detailed survey by a timber conservation specialist of the timber structure supporting the primary milling machinery and gearing, and the timber secondary machinery.
12. Cut back vegetation and assess the condition of the Burn of Benholm masonry retaining wall and form a phased repair programme.

13. Clear the mill pond; assess the pond walls internally if safe access available and water remains low and remove any potentially damaging vegetation close to the pond walls.
14. Clear principle footpaths in the mill grounds and Mill Brae Wood, and ensure the bridges are fit for purpose including the connections via the Category C listed historic Benholm Bridge from the car park and the footbridge at the mill.

#### 9.17.2 Necessary actions

1. Undertake minor structural works as described in section 9.3
2. Undertake necessary roof repairs as described in section 9.4
3. Complete investigation on external drainage design described in sections 9.4, 9.8 and 9.9 and undertake any repair or improvements identified. Carry out any recommendations of the external drainage review.
4. Fully inspect the chimneys and ventilators and undertake any necessary repairs which are identified.
5. Further assessment of the masonry in detail including recording, lime mortar analysis, and preparation of a conservation repair strategy. Prioritise / phase repair strategy, if required, to undertake repointing and stone repairs.
6. In addition to above undertake individual necessary masonry repairs as described in section 9.6
7. Assessment required of grain store masonry, with possible sample pointing removal, to determine if full removal of impervious pointing is required to improve the building condition and internal environment. To be done in parallel with removal of current wall insulation. Form repair strategy with possible lime-based mortar replacement and suitable breathable insulation if building is to be heated and in frequent use.
8. Undertake general repair and maintenance of the windows and doors on all buildings as described in section 9.7. Conservation repair of double doors on meal mill south elevation if not completed under urgent works.
9. Form a ventilation strategy for all the mill buildings; undertake necessary improvements.
10. Survey timber flooring and joists adjacent to the retaining north wall and repair as required.
11. Inspect concealed loft spaces and insulation / ventilation in miller's house, byre and grain store; undertake necessary improvements.
12. Investigate to establish if the byre north wall has waterproofing (and its condition) and assess if any ground drainage could be installed at the rear of the building. The integrity of the mill pond retaining walls should also be checked prior to any ground works in this area, and in case defects are increasing the damp ground conditions. Form suitable repair or intervention strategy based on findings.
13. Make assessment of the interior of the shop/store once items removed; make repair recommendations.
14. Modern kitchen extension should be removed, following structural ground inspection, and the original masonry external walls assessed for repair and removal of any modern paint finishes.
15. Stove use in the miller's house to be checked by a qualified contractor prior to reuse, and the chimney flue swept and checked for smoke integrity. Ensure that carbon monoxide detection is installed correctly and within expiry date. Review space ventilation as part of the ventilation strategy.
16. Undertake water infrastructure repairs as described in section 9.14
17. Review water, electrical and foul drainage services and bring back into certified working order.



18. Prepare a heating strategy for all buildings with a focus on carbon neutral and renewable heating sources.
19. Review the existing fire management plan for the buildings and site. Investigate procedures or upgrades to protect the significance of the meal mill.
20. Upgrade roads and paths in an appropriate surface material in keeping with the character of the historic mill complex.

#### 9.17.3 Necessary/desirable (pending investigation / project development)

1. Remove paint finishes in miller's house, and replace in lime or clay plaster (possibly insulating) with lime wash or clay paint finishes.
2. Consider replacement of concrete floors in the miller's house, byre and grain store with insulated and breathable limecrete floors. Prepare and paint existing floors during interim period if required.
3. The toilet fit out is fairly basic and could be improved during refurbishment with consideration of any new requirements on accessibility and occupant capacity.

#### 9.17.4 Desirable works

1. Replace non-defective plastic sections of rainwater goods in cast iron.
2. Consider reinstating a traditional stone slate finish on the earliest parts of the meal mill.
3. Redesign and replace the ventilator on the meal mill with a traditional and distinctive design as described in sections 7.3.1 and 9.5.
4. Consider window design and replacements in conjunction with ventilation strategy.
5. Review lighting arrangements in all buildings and make improvements in suitable design with improved energy efficiency.

## 10: Risks and opportunities: The Function

This section describes how the asset might be vulnerable and what the potential threats are to its long term survival. Actions that are required to look after the heritage and site can also potentially put the asset at risk. This section also identifies opportunities for improving the function of the mill complex and the benefits it could provide for people in the local community and beyond.

Vulnerability has resulted in the mill buildings being added to the national Buildings at Risk Register in 2023.

### 10.1 Current ownership

The Mill of Benholm has been in public ownership since 1984 initially by Kincardineshire & Deeside District Council, and now Aberdeenshire Council. Local authority operations reduced in 2005 when the Mill of Benholm (limited company) took on a lease to deliver training for people with special needs, and the mill subsequently closed in 2014.

Aberdeenshire Council wishes to dispose of the property which is surplus to its requirements, and out with the local authority's resources to undertake the necessary repair and improvement the asset now requires. Since 2016, there have been extended investigations, interrupted by the Covid-19 pandemic, into community use and ownership of the mill, driven firstly by The Friends of Mill of Benholm and North East Scotland Preservation Trust (NESPT), and latterly by the Mill of Benholm Enterprise (MoBE). Securing an appropriate new owner, and bringing the buildings and site back into use, is crucial to the survival of the Mill of Benholm. Its current vulnerability, including uncertainty over the future ownership of the complex, is causing community concern.

### 10.2 Mill of Benholm Enterprise

Mill of Benholm Enterprise (MoBE) is a registered SCIO (SC 047943) established with the specific purpose to secure the future of the Mill of Benholm, in its entirety, for the benefit of the local community. The organisation's main charitable objectives are:

1. To advance heritage by preserving and developing the historic Mill of Benholm within the local unique environment;
2. To enhance the enjoyment of art and culture on site and in the environs of the Mill;
3. To promote and protect the natural heritage;
4. To promote citizenship, community development, and to create volunteering opportunities for the benefit of the community of Benholm, the surrounding area and beyond by delivering a diverse variety of services and initiatives;
5. To provide leisure and recreation facilities within the Mill, the surrounding woods, and the wider environment, with the object of improving the health and well-being of the people of Benholm and the surrounding area;
6. To advance education and learning by providing workshops, training sessions and courses on the site and in the surrounding woodland.

### 10.3 MoBE vision for the asset

MoBE has submitted its Business Plan to Aberdeenshire Council for a Community Asset Transfer of the Mill of Benholm buildings and lands in line with the Community Empowerment (Scotland) Act 2015. The following summarises the organisation's vision from its MoBE Business Plan (August 2023).

*The Mill of Benholm will be a well maintained traditional meal mill complex set within this special local landscape and the historic kirk town. This rare historic asset of national importance will be open to*

*everyone who lives there (regardless of age, ability, income, and circumstances) and provide a heritage based visitor attraction for the public from the Mearns, Aberdeenshire, and further afield.*

*All necessary repairs to buildings will be carried out to halt further deterioration and conserve the buildings for the future. The water infrastructure and milling machinery will be restored to create a mill which can be used for tours, learning and milling demonstrations as well as an atmospheric setting for a variety of events.*

*MoBE envisions a busy complex with a popular community café, events and activities attracting visitors from the local area and beyond. The site would provide training and learning opportunities, particularly in the open environment, to support mental and physical well-being. This reinvigorated recreational area in south Aberdeenshire would enable charities, youth groups, local primary schools and other organisations to access a safe outdoor space with supporting facilities (accessible café and toilets). MoBE would provide nature areas and an outdoor classroom to teach about natural heritage, biodiversity, and local history. The Mill of Benholm would function as a hub for walkers and cyclists being located between the Coastal Path and the historic Old Coach Road.*

*The core target area for the proposal is the area in and around the Mill of Benholm although it is expected that other people would travel to the mill benefiting a wider audience. The reuse of the Mill of Benholm would therefore aim to create local impact, as well as provide a tourism focus in support of the area's network of visitor attractions and sector businesses.*

## 10.4 Mill Brae Wood

The Mill Brae Wood has been a fundamental companion of the mill site for many years and in particular for recreational and educational purposes during the mill's use as a visitor attraction. In its Business Plan, MoBE has proposed of a long-term lease of the Mill Brae Wood from its owner the Brotherton Estate Ltd. The poor condition of the path infrastructure does present a potential risk to the area's use, however MoBE have already instigated tree felling under licence and have produced a Woodland Management Plan. An agreement in principle has been reached with the estate to lease the Mill Brae Wood so opportunities are created to enhance the Mill of Benholm offer and experience. The policies set out in Section 11 should be followed.

## 10.5 Considerations for future use

### 10.5.1 Introduction

While the buildings and wider site are not in use they are at risk for a number of reasons:

- Deterioration of the building fabric, water infrastructure, path network, landscape grounds and trees due to a lack of proactive repair and preventative maintenance;
- Deterioration of building fabric and interiors due to a lack of heating and ventilation;
- Vulnerable to vandalism.

Securing a viable and appropriate use is essential to the asset's future. This should be based on full retention, repair and, over time, enhancement of the existing buildings. There is no case to be made for demolition and should this question be raised then Conservation Area and Listed Building Consents would be required. Such consents would be highly unlikely to be granted by the statutory authorities based on the significance of the asset.

The asset's last function was as a visitor centre, cafe and community training facility with access to the natural landscape of Mill Brae Wood and connections from Johnshaven to the kirkton of Benholm. A number of factors have contributed to its closure. The period since its closure in 2014 has witnessed

a noteworthy change in public habits and needs. Socialising over a coffee, and appreciating the well-being benefits of the outdoors and physical activity have both increased. Connecting with local places and their heritage has become more important in a period when travel abroad was limited. These factors suggest that the last use of the mill complex remains viable in principle.

The suitability of the uses for the historic asset must also be considered. The meal mill itself is highly significant and of national importance, and as such would not be suitable for conversion to other uses, and it is vital that the primary and secondary milling machinery are retained in situ, ideally operational for demonstration purposes as an educational resource. With this in mind, the current meal mill offers little opportunity for, nor does it require, any adaptation. The character and atmosphere of the lower and upper floors should be maintained and enhanced with considered conservation works.

Consideration could be given to making the meal mill fully operational to produce oatmeal products, however there are two significant considerations. Firstly commercial, including Health & Safety, food safety, and market demand. This raises questions over the suitability of the secondary machinery which is constructed of timber and of some age in most cases. This may no longer be acceptable to environment health licensing for manufacturing of products for public food consumption. Secondly heritage considerations, including preserving the secondary machinery. If this were not reusable in an operational mill, then would it be retained in the building as an exhibit with new machinery introduced based on these designs, as has been achieved at Blair Atholl Mill? The high significance and heritage importance of the meal mill as a whole, may now override the benefit of making alternations to its machinery in order to manufacture oatmeal. This is not to exclude this option, however further investigation and enquires would be required. Blair Atholl chose to reduce its overall processing of oats, so that it focuses on the stone milling only. A similar model could be considered but the market for oatmeal products and resourcing skilled staff would require further investigation.

Other appropriate use of the space can be considered, such as for small low-impact events, exhibitions, etc. as these activities could benefit from the atmospheric backdrop of the mill without putting its authenticity at risk.

### 10.5.2 Adaptation considerations

#### Requirement for change of use

A further consideration in the future use of the mill buildings, is the potential impacts that any proposed change of use may have on the historic buildings. Any change of use may require Planning Permission from the local authority, who would consult with other departments such as Roads and Environmental Health as required. Any proposals for a change of use must be in accordance with the Local Development Plan.

Within the current MoBE proposals for the site, it is thought a change of use would not be required, as effectively no significant changes are proposed. However the planning authority should be consulted if individual buildings are proposed to change, for example if the grain store, currently office /training accommodation, was to be used as a café.

#### Requirements for conversion

The mill buildings were of course built before formal legislation on construction came into place, which started with the Dean of Guild Court requirements in 19<sup>th</sup> century. As such there will be a number of aspects of the current buildings which would not comply with the Technical Standards of the current building regulations. These will not impact the buildings if no 'conversion' occurs. Conversion comes into force if the building takes on a new use, is divided into different occupancies, or there is a change in the level of occupancy (usually 25%).

If new uses are proposed, or existing uses are significantly extended, a Building Warrant for conversion may be required. For example, if a café was proposed in the grain store, at this point the whole building will be measured against the current Building Standards (not just work specific of the conversion). Some aspects of the building may not meet current regulations and would have to be examined in more detail. This may include toilet provision (staff and public); kitchen provision; fire safety; accessibility (raised ground floor); heating and ventilation, and energy performance.

It is worth noting that Building Standards do require to take into account the age and status of the building (i.e. Category A listed) and regulations may be eased if an alternative provision is agreed to satisfy Building Standards.

### Energy efficiency and retrofit

The meal mill is not insulated (roof, walls, ground floor) and the windows are single glazed. If the building was to be considered as a conversion, measures to improve the energy performance of the building may be required, but would be difficult to achieve in a manner appropriate to the design of this listed building. With the authenticity of the meal mill, it is not recommended for energy improvements and as an unheated space energy loss is minimal.

However, the other buildings on the site: miller's house, byre and grain store, could be considered for appropriate energy improvements whilst maintaining the character and appearance of these buildings and ensuring a 'breathable' building envelope. Examples could include replacement of the uninsulated concrete floors with insulated limecrete floors; possibly insulating lime/hemp wall plasters on removal of existing modern paint and plaster wall finishes; or natural insulating products such as wood wool. Much of the internal character of the grain store and byre was lost in their previous adaptation and there are current issues with dampness and breathability of the fabric. There are therefore opportunities to explore improved energy performance as part of enhancement and repair works. The miller's house retains more character internally, with exposed walling (although painted) and early window openings. Improvements to this interior should consider opportunities to enhance and reinstate its original character.

The important principle in any retrofit is that a 'fabric first' approach is taken to ensure the building's external envelope is in good repair prior to energy assessment and intervention with retrofit works. Without this retrofit installation will have a reduced impact and possibly lead to detrimental damage to the new materials and original fabric.

### Toilet provision

Toilet provision for staff, volunteers and visitors is dependent on the uses and occupancies of the buildings. The current arrangement requires all building users to use the set of toilets in the former byre. If there were a requirement to expand the number of toilets then the current shop/store area could potentially be utilised and/or replacement of the inadequate modern kitchen extension. It would not be appropriate to introduce toilets within the meal mill and there is no water or foul drainage installed.

### Ventilation

Ventilation has been highlighted in the section 10, and it is recommended that a review of ventilation is carried out to put forward a strategy to reduce the risk of high RH impacts on the timber elements of the building fabric and the secondary milling machinery. Condensation and mould are a health hazard to vulnerable individuals, and detrimental to the traditional building fabric. Additional

mechanical ventilation may be required by Building Standards depending on use and occupancy; however where possible natural and passive ventilation solutions should be pursued. Where required the location, design and materials of any external extract flues should be carefully considered.

### Fire safety and prevention

Notwithstanding any fire prevention and safety requirements triggered by a change of use or conversion, any new owner should review the existing fire management plan for the buildings and site. Procedures and/or upgrades to protect the significance of the meal mill should be investigated.

### Accessibility

The Mill of Benholm benefits from level access to most of the buildings excluding the grain store which is slightly raised off ground level with three steps. There is also an accessible toilet in the byre. Each floor of the meal mill can be accessed independently which removes the requirement for internal public access between the floors. Note the timber steps in the meal mill are historic and should not be removed or adapted. Further investigation is required to check compliance with door opening widths and also routes through the site, however it is known that wheelchair users did access the complex in the past and vehicles can enter the mill courtyard if necessary to drop off those with physical disabilities. However, some of the natural gradients of the brae path may be steeper than recommended for independent wheelchair users. A full Access Audit should be prepared by any new owner proposing to open to the public, and reference may be made the local authority operating documents if these are available in the first instance.

## 10.6 Climate change and effects on the environment

### 10.6.1 Heating and lighting

At present the mill buildings are considered to have a low carbon footprint as they use little heating (heating provided is electric excluding one wood burning stove). The water power to drive the mill machinery, when that comes back into use, will be carbon neutral. However, there is an opportunity to review the existing lighting throughout the mill buildings and introduce more suitably designed and lower energy fittings. Any requirement for external lighting could be solar powered. From the point of view of future running costs, as well as the environment, MoBE will be seeking energy efficient service solutions and would look at options for renewable heating sources.

### 10.6.2 Carbon-free travel

The ethos of MoBE is to provide a beautiful place to walk and explore. As the mill is on an existing walking route from Johnshaven, and within easy reach of Benholm village, walking opportunities will be encouraged including advertising these carbon-free connections. Reinstatement of the off-road path across the Castle Burn to Benholm Kirk and the village is part of MoBE's longer term plans, as is the installation of electric charging points in the car park. The mill is close to current service bus routes.

### 10.6.3 Minimising waste

Minimisation of waste should be supported across all operations of the mill site. For the built fabric, the first principle is to conserve authenticity by planned maintenance, which will reduce need for repair and associated risk of losing (wasting) original materials. Repairs when required should remove and replace as little fabric as is possible. Salvaged or other reclaimed material, such as slate and stone, should be considered in the first instance when suitable for the works. Where possible materials

removed during repair should be recycled or disposed of responsibly in support of the circular economy model.

#### 10.6.4 Embodied carbon

Saving and reusing these buildings is an environment benefit, minimising loss of the embodied energy in their construction and contributing to the Scottish Government's zero waste agenda.

#### 10.6.5 Extreme weather events

Climate change could pose a risk to the mill complex, in terms of increased extreme weather events. This could impact the buildings for example: inadequate rainwater and external drainage capacity; insufficient cover to weatherings at rooflights and chimneys; and accelerated stone erosion, in particular next to defective or cement pointing, or where other defects such as blocked gutters occur. It could also affect the milling water infrastructure, i.e. too little water in the water course, lade, pond, or too much during flash floods. The mill infrastructure's capacity to absorb such events, and the organisation's ability to manage operations on site will be critical. The burn retaining wall has been identified for repair and should be a priority to ensure the stability of the banking in situations with heavy river flow.

### 10.7 New development

With almost 5 acres of mill lands, the question of potential for new buildings or other structures on the site is likely to be raised. However new buildings around the site could have a negative impact on its character and appearance and the policies set out in section 11 should be followed.

In relation to MoBE proposals, there is adequate space within the existing buildings to be explored before consideration of any new structures or extension of those existing. MoBE has concluded that all core activity can be delivered within the existing buildings and on the open site (with marquees and temporary structures as required).

Whilst in the past a number of temporary constructions extended the mill buildings, including the meal mill and miller's house, these represented highly functional needs of a industrial complex and would not necessarily be appropriate for current presentation of the mill asset.

### 10.8 Lack of traditional skills

The asset is at risk from inexperienced operatives, both in its management and repair. A lack of understanding of the significance of the asset and how best to care for it can lead to poor decision making, damage or loss. This conservation plan should be shared widely with all stakeholders and a heritage induction provided to those working on, or managing the asset.

There is also vulnerability due to a lack, or limited number, of people with specific skills needed to care for the heritage, for example experienced stonemasons, and in particular those with milling knowledge and millwright experience, which is now very rare in Scotland. There is therefore a need and opportunity to seek partnerships with other specialist organisations working in this field in Scotland, the UK and beyond. MoBE has already established a partnership with SPAB Mills, and other opportunities may occur with Perth & Kinross Heritage Trust and the John o' Groats Mill, both of which are currently restoring historic mills for their communities. Other operational mills are listed in section 8.3.3 and may be useful contacts.

## 10.9 Local community involvement and volunteers

The local community is encouraged to become a member of MoBE and there are currently 89 local members with voting rights in the SCIO, and a smaller number of associate members from further afield with an interest in the mill.

Almost in parallel with the historic model of operating mills whereby the community was called upon to assist the miller to maintain the mill, MoBE propose to use volunteers to undertake works to the mill, including building and water infrastructure maintenance, and running a temporary pop-up café.

Volunteering should be considered a two-way relationship. The volunteer providing their time freely for the benefit of this local (and national) heritage asset. In return they find enjoyment in meeting new people, engaging with the public and having the opportunity themselves to learn more about the asset and make a community contribution.

Opportunities to develop volunteers' skills and areas of interest should be considered and should help to retain experienced volunteers which will assist in promotion of the asset. Volunteers need training to gain knowledge of the asset around both its specialist areas of milling and its general care. Volunteers should feel confident to impart their knowledge to visitors and each other.

## 10.10 Partnerships

MoBE has engaged with a wide range of potential local stakeholders which have expressed a need for facilities in south Aberdeenshire and have indicated their strong interest in using the grounds and the buildings at the Mill of Benholm. MoBE has also engaged with national organisations. The partners MoBE is, or could potentially work with, include the following:

### Local organisations

- Aberdeenshire Community Health Team
- Arbuthnot and Kinneff Churches
- Bervie Guides
- Brighter Bervie (community group)
- Milltown Community
- Embark Forest School
- Grassic Gibbon Centre
- Johnshaven Heritage Hub
- Johnshaven Primary School
- Kincardineshire District Scout Council
- Mearns and Coastal Healthy Living Network
- Pillar Kincardine (mental health charity)
- Stick and Stone Forest School
- Visit Aberdeenshire
- Wyldecrest Holiday Parks

### National organisations

- Historic Churches Scotland
- NatureScot
- SCOTO (Scottish Community Tourism Organisation)
- SPAB (Society for the Protection of Ancient Building)
- Visit Scotland.



## Section 11: Policies

The policies are written as a series of aims and objectives specific to the Mill of Benholm, and a set of guiding principles for looking after the asset, informed by the previous sections of the plan. There is a clear link between significance, risks and opportunities, in these policies.

### 11.1 Aims & objectives

MoBE's Business Plan sets out its strategy to achieve a sustainable solution for the organisation and the Mill of Benholm. As part of that, if successful asset transfer is completed, a phased approach will be taken to the asset as described below.

#### Objective 1: Preliminary Work Phase

**Early 'light-touch' intervention to halt deterioration of the mill asset and facilitate safe public access to the grounds and Mill Brae Wood**

Mill lands and Mill Brae Wood: re-establish public access to the site. This will include securing a lease on the Mill Brae Wood from Brotherton Estates; clearing footpaths; and ensuring bridges are fit for purpose including the connections via the Category C listed historic Benholm Bridge from the car park and the footbridge at the mill.

Mill buildings: undertake investigations, enabling work and urgent repair and maintenance as identified in the conservation plan. Reinstall plumbing and electrical services to the byre to bring the toilet facilities back to working order. Clear stored items in the meal mill to allow full assessment. Project development by suitably experienced and accredited professionals for application to fund the Phase 1 works.

Mill water infrastructure: clear the mill pond of congested vegetation, taking existing wildlife and biodiversity into account with advice from the local Ranger as required. If possible undertake a condition assessment of the mill pond retaining walls.

Mill machinery: undertake a full timber assessment to inform conservation proposals.

Education: continue promotion of the heritage via MoBE social media, website and newsletter, and explore opportunities to share the findings of the conservation plan with the local community and stakeholders.

Timescale: with next 12 months.

#### Objective 2: Phase 1 Works

**Enable wider safe access to the site, undertake necessary building and infrastructure repairs and re-open the meal mill**

Mill lands and Mill Brae Wood: upgrade the roads and paths making the whole site safe and accessible. Utilise the car park, mill courtyard and grounds for events and commercial facilities including a pop-up café. The grounds will be maintained during this phase by MoBE volunteers.

Mill buildings: undertake investigations, enabling work and necessary repair as identified in the conservation plan lead by suitably accredited conservation professionals. Aim to reopen the meal mill as a heritage attraction. Develop proposals to appropriately adapt and restore the other mill

buildings with the professional team. The buildings will be maintained during this phase by MoBE volunteers, and contractors as required, following an adopted Maintenance Plan.

Mill water infrastructure: undertake necessary repairs including to the lade, sluice gates and waterwheel to prevent the risk of loss and restore the water infrastructure.

Mill machinery: restore the mill mechanism to working order, enabling it to be used for demonstrations, skills teaching, and education. Investigate options for future oatmeal production.

Education: partners will offer activities for young people and adults in the Mill Brae Wood and the mill site, organise talks about milling, conservation, farming, and historic baking. SPAB would host workshops with their volunteers. The interpretation and signage would be cleaned and replaced where needed.

Timescale: three years from the completion of the preliminary phase.

### Objective 3: Phase 2 Works

**Enhance the Mill of Benholm, attract more visitors, increase the benefits for well-being, and continue to strengthen community focus.**

Mill lands and Mill Brae Wood: Upgrading to the road and path network and continue management plans for the wood and mill grounds.

The grounds will be maintained during this phase by MoBE volunteers. Opportunities to enhance the outdoor spaces will be developed. The pond, orchard and gardening space will be used to encourage informal community growing with on-site produce used in the café. The natural arena next to the mill pond will be used as an event and performance arena.

Wider path network: reinstate the former path from the Mill of Benholm to Benholm Kirk to connect the two sites.

Mill buildings: undertake desirable repairs as identified in the conservation plan, restore the indoor spaces of the byre, miller's house and grain store for supporting facilities and apply suitable retrofit measures during interior refurbishments. Install renewable energy sources where identified. Open a permanent café, shop and refurbished toilets to enhance the site's offer. The grain store will provide a utility space, available to groups, schools and organisations visiting the site.

The buildings will be maintained during this phase by MoBE volunteers, staff and contractors as required, following an adopted Maintenance Plan.

Mill water infrastructure and machinery: maintain in working order during this phase by MoBE volunteers, staff and specialist contractors as required, following an adopted Maintenance Plan.

Education: workshops and skills training offer will be well established delivered by partner organisations. Tours, events, learning activities and milling demonstrations will be developed further. The mill will be part of the SPAB National Mill Week and local Doors Open Days. The existing booklet will be revised to guide visitors together with the interpretations through the site. Host exhibitions in conjunction with local artists, the Johnshaven Heritage Hub and the Benholm Kirk.

Timescale: approximately 2 years. This desirable objective will only commence after successful completion of Phase 1 and continuing viability of the proposed business model.

## 11.2 Guiding principles

This section sets out the guiding principles for looking after the asset, informed by the previous sections of the plan. The principles can be summarised as:

1. Preserve this rare Category A listed historic milling complex
  - Conserve the built heritage
  - Consider requirements for any adaptation or new development carefully
  - Conserve the green heritage to contribute to well-being and enhance local biodiversity
2. Safeguard the asset's significance
3. Enable access regardless of age, ability and circumstances
4. Protect the environment
5. Support the wider heritage

### 1. Preserve this rare Category A listed historic milling complex

All work of maintenance, repair, adaptation (new work) and enhancement of the built heritage will be guided by the statutory requirements and research of Historic Environment Scotland, the local planning authority, in particular in accordance with policies on the historic environment, and the Benholm Conservation Area Appraisal and Management Plan, as well as the findings of this conservation plan.

#### A: Conserve the built heritage

- All works will be informed by the necessary levels for prior research and recording, material analysis and project development.
- All work will be carried out by suitably skilled operatives, be that trained volunteers, skilled contractors or conservation accredited professionals.
- All volunteers and operatives on site should be inducted into the significance of the asset. This would be in addition to meeting statutory requirements on health and safety and construction risks. Inexperienced volunteers, contractors or professionals without relevant skills should not work on the asset, unless under supervision of a suitably skilled person. This will reduce the risk of inappropriate work, damage and loss of historic fabric or character which has occurred in the past.
- This approach should be employed for both the external and internal building fabric as well as significant fixtures including the secondary milling machinery, and the water infrastructure.
- A ventilation strategy should be produced to reduce the risk of high RH and condensation impacts on the building fabric and vulnerable individuals. Where possible natural and passive ventilation solutions should be pursued. Where required the location, design and materials of any external extract flues should be carefully considered.
- The Mill of Benholm Gazetteer can be used as an informative guide, alongside this plan.
- Conversion could have potential negative impacts on the character, appearance and integrity of the historic buildings. Consider options carefully, working with the significance of the buildings and their site context.
- Consider opportunities for appropriate restoration and the reinstatement of lost features, based on sound research and evidence.
- Remember archaeological remains could be present on site, and take measures to mitigate risk and explore opportunities when planning any works, including allowance for archaeological building recording and watching briefs. This could include when lifting any

floors or exposing masonry construction internally, as well as site excavation or works to the Burn of Benholm retaining wall and tailrace.

#### B: Consider requirements for any adaptation and new development carefully

- New development should not be pursued where an existing building could be used without detriment to its character and appearance.
- New development should not be used to replace existing buildings, both due to the significance of the buildings, and in support of the zero waste strategy and the hierarchy of reuse before all other options.
- New development should not impact the character and appearance of the conservation area or the unique spatial arrangements of the mill complex i.e. setting out of the buildings and water infrastructure.
- New structures should be of a scale and height that are in proportion to the existing low mill buildings and do not exceed current roof lines or appear prominent in key views of the site and to the Benholm Kirk beyond.
- New building services would need careful consideration and may not be financially viable.
- New development should not incur requirements to modify the existing buildings, for example due to increased pressure on services to the overall mill complex.
- Loss of greenspace and/or trees is discouraged.

#### C. Conserve the green heritage to contribute to well-being and enhance local biodiversity

All external works of grounds maintenance, tree surgery, infrastructure repair and enhancement (paths, fences, bridges etc.) of the green heritage will be guided by the statutory requirements and research of NatureScot, the local authority. In particular in accordance with policies on the historic and natural environment, and the Benholm Conservation Area Appraisal and Management Plan, as well as the findings of this conservation plan.

- All works will be informed by the necessary levels for prior research and recording, biodiversity surveys, species protection and project development.
- All work will be carried out by suitably skilled operatives, be that trained volunteers, skilled contractors or professionals.
- Volunteers and other operatives on site should be inducted into the significance of the Mill Brae Wood, and biodiversity of the mill pond, water courses and surrounding grounds. Health and safety risks around the water and woodland should be highlighted.
- Inexperienced volunteers, contractors or professionals without relevant skills should not work on the natural environment, unless under supervision of a suitably skilled person. This will reduce the risk of inappropriate work, damage and loss of the green heritage and biodiversity.
- The Mill Brae Woodland Management Plan will be updated and followed in collaboration with the Grampian Conservancy Woodland Officer.

#### 2. Safeguard the asset's significance

- Ensure research and information about the asset is shared with all those working with it.
- Share information and raise awareness of the significance of the asset with the local community, stakeholders, decision-makers and the wider public.
- Ensure decisions are based on sound evidence and that those making proposals are suitably experienced and those making decisions are competent in understanding the asset.

- Form a Mill of Benholm archive, and/or entrust information with local or national facilities as appropriate to its significance. This may include the Johnshaven Heritage Hub, Aberdeenshire Council archives, Canmore or the national Mills Archive.

### 3. Enable access regardless of age, ability and circumstances

- A full Access Audit should be prepared by any new owner proposing to open to the public.
- Where new access arrangements are required, for example possibly to provide public access to the grain store, then interventions should be sensitive to the historic buildings in their design, use suitable traditional materials in their construction and surfaces, and be visually unobtrusive.
- Interventions should not damage the heritage.
- Where introduction of access cannot meet the above requirements, alternative solutions such as using digital technology to provide virtual access should be considered.
- Improving access for people with sensory impairments, such as improving lighting or colour/textural contrasts for people should be considered alongside any improvement of these elements.
- Standard design solutions are unlike to be appropriate for the historic mill setting and creative solutions should be sought.

### 4. Protect the environment

- Seek energy efficient service solutions and explore options for renewable heating sources.
- Minimise waste across all operations of the mill site.
- Adopt as a first principle planned maintenance to reduce the need for repair and associated risk of losing (wasting) original materials.
- Repairs when required should remove and replace as little fabric as is possible.
- Use of appropriate materials, locally sourced, and salvaged or reclaimed, such as slate and stone, when suitable for the works.
- Where possible materials removed during repair should be recycled or disposed of responsibly in support of the circular economy model.
- Ensure the mill infrastructure can absorb extreme weather events, and the organisation has the ability to manage the site in such conditions.
- Adopt a 'fabric first' approach before retrofit and ensure the buildings are resilient to climate change.

### 5. Support the wider heritage

- Consider the wider conservation area's character and appearance when making decisions on development at the mill.
- Work with others including Historic Churches Scotland, owner of Benholm Kirk, and the Johnshaven Heritage Hub to encourage a heritage network for the community and visitors around Benholm.
- Work with wider partners to encourage and support the tourism offer in Aberdeenshire.

## 12: Review

This conservation plan will contribute to future consultations which may affect the heritage asset. The plan is a tool in measuring the impact of future proposals for the asset and can be instrumental in stimulating proactive conservation. The plan should be reviewed and updated as required to provide a working tool in the management of the asset.

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[Mill of Benholm, Grain Store, Johnshaven | Buildings at Risk Register](#)

[Mill of Benholm, Pond, Lade and Sluices, Johnshaven | Buildings at Risk Register](#)

Mill of Glenbuchat <https://www.buildingsatrisk.org.uk/details/893497>

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Mills Archive: [Images and documents \(millsarchive.org\)](http://millsarchive.org)

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JHH notes from Johnshaven Heritage Hub to MoBE, June 2023. Copies held by MoBE.

MoB company files: Loose files from Mill of Benholm (company) located (summer 2023) in the Grain Store, Mill of Benholm.

MoBE Business Plan (August 2023).

Notes received by email dated 16<sup>th</sup> June 2023 to Sonya Linskaill from Helen Young, Countryside Ranger (Kincardine & Mearns), Aberdeenshire Council on the Mill Brae Wood.

Pers. comm. W. Scott, 2023: meeting with Wilma Scott, Sonya Linskaill and Henning Wagner (MoBE) 21<sup>st</sup> July 2023.

Postcard (c. 1986) *Mill of Benholm by Johnshaven, The old miller's house, now the café, prior to restoration*, published by K&D DC.

Postcard, no date, reproduced courtesy of Brian H. Watt on Benholm Conservation Area Appraisal cover (original not located).

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- Letter from NTS Barry Mill from a Peter Ellis / Ellon? 8<sup>th</sup> November 1992 to John Turner.
- K&D DC, confirmation memo, 30<sup>th</sup> November 1990.
- Letter WE Ltd to W&D DC, 29<sup>th</sup> May 1990.
- Kirstie Dickens, in letter from Tony H Dickens, office & workshops, Mill House, Keltneyburn, Aberfeldy, 4<sup>th</sup> April 1991.
- John Turner timesheets for work on the Mill of Benholm from 20<sup>th</sup> December 1990 to 19<sup>th</sup> February 1993.



- Whittaker Engineering Ltd images before and during their work between c. 1991 and 1993. Copies held by MoBE.

#### Newspaper articles / images in date order

Caledonian Mercury 7<sup>th</sup> June 1800

Aberdeen Press & Journal, 15<sup>th</sup> October 1806

Montrose Standard, 1<sup>st</sup> March 1895

Aberdeen Press & Journal 20<sup>th</sup> May 1912

Aberdeen Press & Journal, 15<sup>th</sup> October 1929

The People's Journal 10<sup>th</sup> November 1934

Dundee Courier, 16<sup>th</sup> September 1940

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Aberdeen Weekly Journal, 29<sup>th</sup> April 1943

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Graham C (1970): "This is my Country. Land and Sea in Benholm", Weekend Review, Aberdeen Press & Journal, 10<sup>th</sup> October 1970; images by Ian Hardie

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Murton P (1983): Aberdeen Evening Express, 23<sup>rd</sup> April 1983

Aberdeen Press & Journal, 12<sup>th</sup> December 1986

Nicol A (1988): article in Aberdeen Press & Journal, 22<sup>nd</sup> April 1988,

Aberdeen Evening Express, 4<sup>th</sup> July 1995

Dundee Courier 16<sup>th</sup> June 1995

Dundee Courier 13<sup>th</sup> July 1995

Scottish Conservation Projects Trust, Annual Review 1994/95

#### Canmore references

##### Mill of Benholm records

A full list of records and images held at Canmore for the Mill of Benholm Canmore ID 36753 can be accessed online at:

<https://canmore.org.uk/site/36753/mill-of-benholm>

Please note not all records or images were digitised when accessed May-Sept 2023; further images may be digitised over time. In addition to older images listed below, digitised images from 2002 as part of the RCAHMS Industrial Survey Programme are also available.

Douglas, G J (1983): *Scottish Industrial Archaeological Survey* ref: MS/500/35/83, including notes, drawings and photographs from 11<sup>th</sup> July 1983.

Hume J R (1974): Industrial/CBA card ref: MS 749/740 and images listed below.

KCD 15/1 (1899): Plan and section of proposed additions to mill by Walker & Duncan, Aberdeen

##### Historic images online:

Hume (1974): SC 444639: *Mill of Benholm Landscape view of mill and millpond from E*

<https://canmore.org.uk/collection/444639>

Hume (1974): SC 444641: *Mill of Benholm Detail of mill and millpond from SE, wheel in foreground*

<https://canmore.org.uk/collection/444641>

Hume (1974): SC 444642 *Mill of Benholm View of kiln-house from W, note mill-wheel in foreground:*

<https://canmore.org.uk/collection/444642>:

Hume (1974): SC 444643: *Mill of Benholm Detail of millwheel and sluice, from E*

<https://canmore.org.uk/collection/444643>

Canmore: site photographs, December 1982

Canmore (1982): Image B 68972/ SC2550725: *General view from South-West*

<https://canmore.org.uk/collection/2550725>

Canmore (1982): Image B 68973/ SC2550726: *General view from South-East*

<https://canmore.org.uk/collection/2550726>

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<https://canmore.org.uk/collection/2550727>

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Canmore ID 135482: Mill of Arbuthnott, accessed online at:

<https://canmore.org.uk/site/135482/mill-of-arbuthnott>

Canmore ID 124011: Mill of Garvock, accessed online at:

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Canmore ID 120000: Mill Of Glenbuchat, accessed online at:

<https://canmore.org.uk/site/120000/glen-buchat-mill-of-glenbuchat>

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<https://canmore.org.uk/site/87732/mill-of-morphie>

Canmore ID 167416: Mill of Woodston, accessed online at:

<https://canmore.org.uk/site/167416/mill-of-woodston-mill>

Canmore ID 94482 Montgarrie Mills, near Alford, accessed online at:

<https://canmore.org.uk/site/94482/montgarrie-mills>

Canmore (1963): Perth City Mills, Image PT1266 accessed online at:

<https://canmore.org.uk/collection/745605>

Canmore ID 34603: Upper Barry Mill, accessed online at:

<https://canmore.org.uk/site/34603/barry-mill>

Canmore ID 19429: Upper Kennerty Mill, Peterculter, accessed online at:

<https://canmore.org.uk/site/19429/peterculter-kennerty-mills-road-upper-kennerty-mill>

#### **Canmore image used in report**

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### HES Listed Building Descriptions

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HES (1980): LB6418, Benholm Bridge over Benholm Burn, accessed online at:

<https://portal.historicenvironment.scot/designation/LB6418>

HES (2019): LB20859, Aberfeldy Water, Mill accessed online at:

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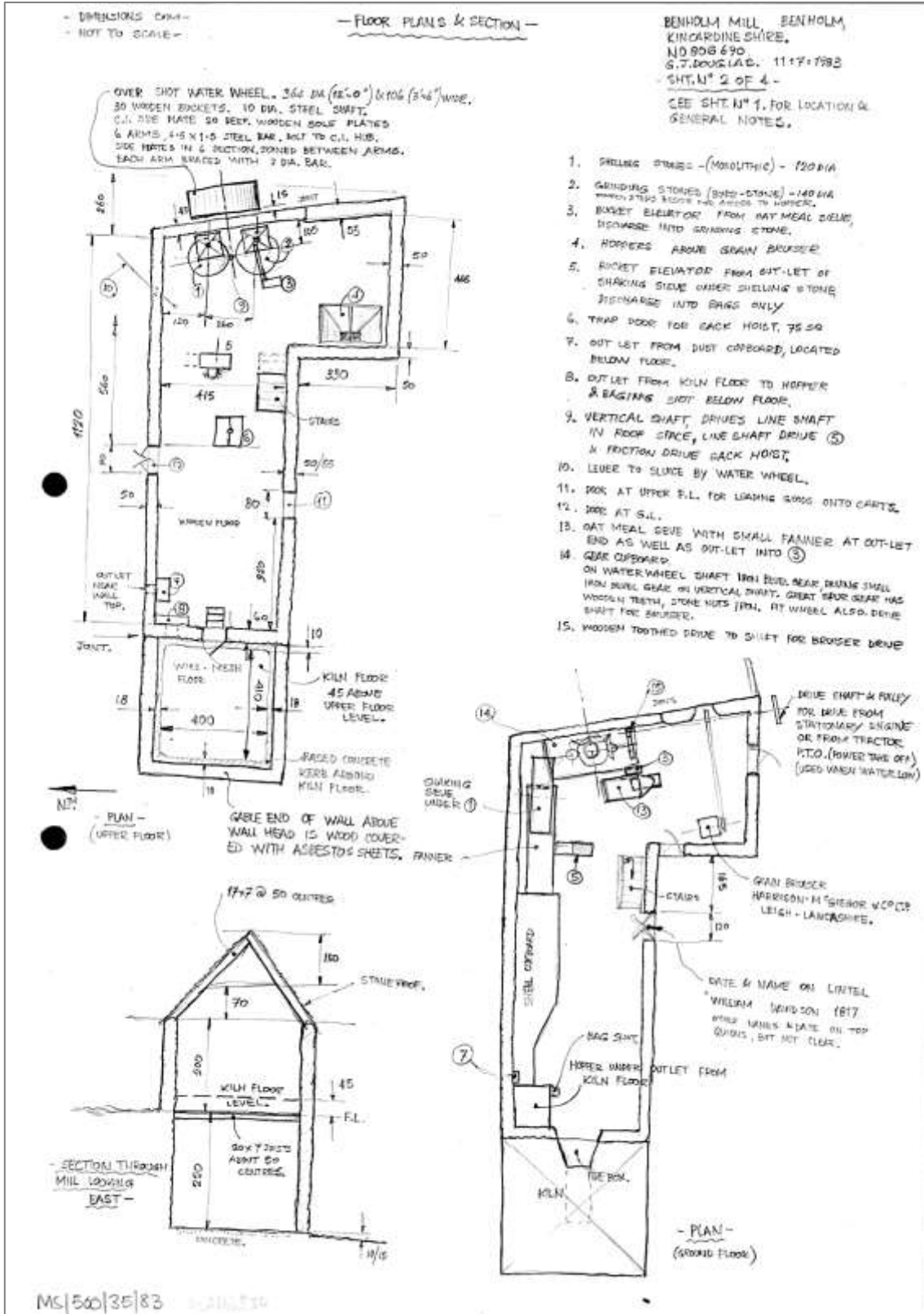
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Appendix 1: 1983 mill survey



Douglas, G J (1983): *Scottish Industrial Archaeological Survey* ref: MS/500/35/83, Sheet 2 of 4 recording the meal mill and machinery, 11<sup>th</sup> July 1983. © HES under license.

## Appendix 2: Timeline

Date	Records
12 <sup>th</sup> century	Royal charters record that William (the Lion) King of the Scots, granted the lands of Benne [Benholm] to Hugo, brother of Helias the clerk, Benne, sometime between 1189 and 1196, and shortly after in 1201 to Hugo's son, now Hugo de Benne (SRO/GD4/1 & 2); it mentions "stanks [pools/weirs] and mills" although this may have been a general provision rather than a specific reference.
1242	Benholm parish church is consecrated (Geddes, 2001) dedicated to the Celtic Saint Marnoch.
13 <sup>th</sup> and 14 <sup>th</sup> centuries	The Lundins [Lundies] acquired Benholm by the marriage of Walter de Lundin with Christian, daughter and heiress of Hugo de Benne [Benham], in the first half of the thirteenth century. But the Benholm charter chest contains no Lundin charters earlier than 1445 (footnote in GD4/2 online catalogue).
	The first definite evidence of its existence comes in the fifteenth century when the lands and barony of Benhame, with the mill thereof, were granted to John Lundy, to be held of the King. It was not then a new mill and may have dated back to the twelfth century when the family de Benhame were first granted their charter of the lands (Gauldie, 1981, 36)
15 <sup>th</sup> century	
c. 1475	The tower house at Benholm was constructed in around 1475 by Sir John Lundie and his wife Isabel Forrester (HES, 2017, LB2807).
1491/2	First definite record of a mill at Benholm in the charter by John Lundy & his spouse Isabel (ne Forrester) to their son, Robert, granting the lands and barony of Benhame "with the mill" (Gauldie, 1981, 120; GD4/10)
16 <sup>th</sup> century	
1523, 1548	Mill passes as part of barony inheritance to Andrew Lundy, then William Lundy. Mill is described more specifically now as 'part thereof' of the "Kirktoon of Benholme" (GD4/24 & 27).
1566	Mill passes through marriage from Lundy family to family of Keith, Earls Marischal (SRO/GD4/61-63): <i>"In 1566 Elizabeth Lundy, wife of Robert Keith, son of William, Earl Marischal, resigned the lands and mill of Benholm 'into the hands of Queen Mary in favour of her spouse and herself'. But in the same year a charter by Henry and Mary, King and Queen of Scots, granted Robert Keith and Elizabeth Lundy the same lands and mill and erected Benholm into a free barony."</i> (Gauldie, 1981, 24)
17 <sup>th</sup> century	
1605	Charter of sale by Robert Keith to John Gordoun [Gordon] of Carneburrow [Cairnborough], and Helen Carnegie, his spouse, the lands and barony of Benholm, including the mill (GD4/96). The estate appears to return to the Keith family in 1620, James Keith, the eldest son of George Earl Marischal (GD4/122,123,126,128, 132, 136)
1617/8	An historic record records an armed dispute at Knox of Beholm quarry when the tenants of the Earl Marischal and those of Sir Alexander Falconer of Halkerton, clashed over " <i>ane mylne stone standing won and dressed for proper use of the Earl's own mylns</i> " (Gauldie, 1981, 90).
1621	Keith Monument erected in Benholm Church dated 1621 by George Keith, Earl Marischal and Dame Margaret Ogilvie in memory of their daughter.

1621 (cont)	George Keith was founder of Marischal College in Aberdeen (1593), and his coat of arms on the monument is an early example bearing the portcullis (a badge of King James VI and I after 1603) which probably signifies his appointment as Lord High Commissioner to the Scottish Parliament in 1609, i.e. his position as royal representative in Scotland when James took up residence in England. (HES, 1972, LB2813).
1637	First mention of “mill lands” when the four heirs of Alexander Keith agreed to divide his estate (GD4/176 & 183) by casting of lots. The mill and mill lands are halved between Alexander Wood and Elizabeth Keith. (SRO/GD4/169 & 172)
1670	Robert Scott (son of late James Scott of Logie, merchant and burghess of Montrose) buys Benholm estate (GD4/190 & GD70/93; could be half of mill).
1684	Parish records started from 7 <sup>th</sup> August 1684.
1690	Scott Monument in Benholm parish church dedicated to Robert Scott of Benholm.
1696	Earliest record (from Benholm Parish Records) of the miller at Benholm, Archibald Brown. (Miller, 1996, 4).
18 <sup>th</sup> century	During the 18 <sup>th</sup> century the lands were divided between the sons of the Scott family (Gauldie, 1981, 36; no ref in SRO; possibly in Sasines).
1774	Garden’s map of Kincardineshire is surveyed with estate boundaries and landowners indicated.
1795	First Statistical Account published. Four landholding persists from earlier division: Benholme, Brotherton, Nether Benholme and Knox. (OSA, 1795, 223).
19 <sup>th</sup> century	
1800	Sale of Nether Benholm estate by public roup at Montrose on 1 <sup>st</sup> August 1800, including half of the Mill of Benholm on the death of David Scott. (Caledonian Mercury 7 <sup>th</sup> June 1800).
1803	David Scott of Nether Benholm farm owned half the mill and John Scott of Brotherton farm owned the other half (Gauldie, 1981, 36; no ref in SRO; possibly in Sasines).
1806	Lands of the Haughs of Nether-Benholm with mill and mill Lands of Benholm advertised for let (from Whitsun 1807) by James Scott of Brotherton. “The Mill is well supplied with water, and is in the midst of a fine corn country” “The Lands of Haughs [...] produce very abundant and early crops of Grain” (Aberdeen Press & Journal, 15 <sup>th</sup> October 1806)
1817	Lintel inscribed ‘William Davidson 1817’ on mill south elevation.
1832	Gothic church at Benholm is demolished and new church built over the original ground floor arches / graves and incorporating two 17 <sup>th</sup> century monuments and earlier sacrament house.
1845	New Statistical Account published (written in 1837). Landowners listed as James Scott of Brotherton, Mrs R Scott of Benholme and James Fitzmaurice Scott of Knox.
1864- 1866	Plans and construction of Brotherton House (now Lathallan School (Geddes, 2001).
1874-6	New mill house built by Hercules Scott of Brotherton (notes from Johnshaven Heritage Hub – no reference).
1879	William Smith of Stone of Morphie, buys the Benholm Estate (“improved and enlarged the house and estate”, Gauldie, 1981, 36; no ref in SRO, possibly in Sasines).

1899	Plans for mill extension for the Brotherton Estate by Walker & Duncan, Aberdeen (Canmore KCD15/1)
1905	Benholm Estate broken up and purchased by tenant farmers; mill sold to neighbouring farm of Brotherton (Gauldie, 1981, 36; GD4/410 particulars of sale).
1929	Advert for lease of Mill of Benholm by Brotherton Estate (Aberdeen Press & Journal, 15 <sup>th</sup> October 1929); leased by Lindsay Watson family.
1951	Lindsay C Watson (son) buys the mill. First time miller has been the owner. (Title Disposition by Brotherton Estates Limited to Lindsay Carnegie Watson)
1971	Mill appears in BBC drama Sunset Song in 1971 and Yenuhi Menuin programme in 1974 and receives press coverage.
1982	Miller, Lindsay C Watson, dies and mill closes. His widow Helen Watson remains living at the miller's cottage at the head of the brae.
1984	Site, excluding the miller's cottage is purchased by Kincardine & Deeside District Council.
1986	Grampian Regional Council architectural services make photographic record and site survey drawings of the mill [not found] and receive approval from council committee to further investigate proposals for its restoration and reuse. (Aberdeen Press & Journal, 12 <sup>th</sup> December 1986).
1987	Scottish Conservation Projects repair breach in dam, clear lade and free the obstructed wheel (Aberdeen Press & Journal 22 <sup>nd</sup> April 1988).
1989	Mill building reroofed and grain store partially rebuilt (Miller, 1996).
1991-1994	Miller's house and byre works to convert to café and toilets. Whittaker Engineering Limited design and manufacture new waterwheel, restore primary machinery and water infrastructure.
1994	Scottish Conservation Projects Trust start work in February (Aberdeen Evening Express, 4 <sup>th</sup> July 1995); three volunteers offered paid subcontract work in December to complete the restoration.
1995	Works completed. Mill opens as heritage visitor centre; position of Custodian Miller and Miller's Assistant advertised by Kincardine & Deeside District Council (Dundee Courier 16 <sup>th</sup> June 1995). Mill of Benholm Visitor Centre opens in July with 'working water mill, woodland walk, farm animals and café' (Dundee Courier 13 <sup>th</sup> July 1995).
2005	Mill of Benholm, a company limited by guarantee, is established to operate the site on lease from the local council as a training facility for persons with disabilities.
2014	Site closed.
2016	Options appraisal and condition report commissioned by North East Scotland Preservation Trust with funding from Aberdeenshire Council and the Heritage Lottery Fund.
2017 - current	Mill of Benholm Enterprise established as a SCIO to take community based project forward including community asset transfer of the Mill of Benholm from Aberdeenshire Council.

### Appendix 3: Millers at the Mill of Benholm

The following list originates in Miller (1996) derived from Benholm Parish Records and therefore will relate to births, marriages and deaths and not necessarily the full period of tenure as miller. Dates have been amended with additional information during this research and with notes provided by the Johnshaven Heritage Hub.

<b>Dates</b>	<b>Miller at Benholm</b>
1696	Archibald Brown
1706-1718	Robert Mollison
1720-1738	Alexander Steil
1742	William Glen
1753-1754	George Smith
1760	Richard Dorrel
1769-1771	David Milne
1782-1783	David Coullie
1784-1793	John Kelmo
1801-1805	James Mill or Milne
1811-1834	James Davidson
1836-1851	William Clark
153-1878	James Dallas
1878-1895	James Dallas and David S Dallas
1895-1908	David S Dallas
1911	Margaret Dallas (David's widow), son James Dallas and William Fairweather 'Apprentice Meal Miller'
1912-1929	William Greig
1929-1951	Lindsay Watson
1951-1982	Lindsay Carnegie Watson possibly with Lindsay Watson until 1967.
1995- c. 2007	Pete Babs, Custodian Miller for Visitor Centre employed by local authority



## Appendix 4: Letter on waterwheel

The current waterwheel rims were cast from a waterwheel at Borlick Farm, Aberfeldy, WE Ltd paying £200 for the 16 section waterwheel rims in 1991.

Installations  
Constructions  
Restorations

Tony H Dickens  
office & workshops  
MILL HOUSE  
KELTNEYBURN  
ABERFELDY  
PERTHSHIRE  
TEL: 01795 431

Installations  
Constructions  
Restorations

Tony H Dickens  
office & workshops  
MILL HOUSE  
KELTNEYBURN  
ABERFELDY  
PERTHSHIRE  
TEL: 01795 431

4 April 1991

Dear Mr Whittaker,  
Thank you very much  
for your £200 cheque for the  
16 sections of waterwheel for  
Benholm Mill.

I look forward to visiting  
this interesting project - eventually!

Yours sincerely,  
Kirstie Dickens

This 16 section mill-wheel  
was formerly used on a local farm  
('BORLICK' beside Dewar's Distillery at  
Aberfeldy) to drive a wee conveyor  
to carry sheaves of corn up to a  
threshing mill.

This information was provided  
by a previous farmer - I hope  
it is some help -  
K.D.

## Appendix 5: Notes of the Mill Brae Wood

Notes received by email dated 16<sup>th</sup> June 2023 to Sonya Linskaill from Helen Young, Countryside Ranger (Kincardine & Mearns), Aberdeenshire Council on the Mill Brae Wood.

### Mill Brae Wood

Species from lists below that are ancient woodland indicators plants in Scotland (Crawford): moschatel, ramsons, pignut, dog's mercury, wild and barren strawberries, woodruff, primrose, opposite leaved golden saxifrage, bluebell.

### Nature Conservancy Council for Scotland letter Dec 1991 Dr Bale assistant regional officer response to KDDC after site visit with David Hancock (KDDC):

The wood is shown on Ancient Woodland Inventory as 'Long Established of semi-Natural Origin', although judging from ground flora the wood is almost certainly an ancient woodland. The topographical situation would also support this view.

The wood has unusually high proportion of wych elm and ash in the canopy compared to other deciduous woodland in Grampian. The high incidence of dog's mercury, primrose, moschatel, early purple orchid and gooseberry is also unusual for the region.

These features suggest that the wood should be more carefully assessed for potential notification as a SSSI. This will be undertaken during 1992 [H Young notes no indication this happened no further letter/notes and wood is not SSSI].

The pathways should avoid features sensitive to damage e.g. the flushes and also keep away from features of particular interest. [H Young notes not sure this has been the case].

There is a lot of dead wood, both fallen and standing. This is of great value for nature conservation as more invertebrates are associated with dead wood than any other habitat in a woodland. I would accept broken or hanging branches be removed when over paths for safety reasons, but I ask that most dead timber be left in situ. I would point out that there are important differences between the invertebrate fauna in standing timber and that of fallen wood. Both types of wood should be retained.

### Mill Brae Wood by Benholm Mill, David Hancock (KDDC) June 1992

Field notes & species list:

Steep sided, streambank area, somewhat a gorge. Wet flushes common.

Top of woodland well drained - predominantly woodrush herb layer under beech planted around periphery. 100+ years.

Mid woodland - damp wych elm/ash with ferns, dog mercury, nettles etc. Nettles due to nitrogen enrichment of soil through droppings under rookery?

Bottom woodland by burn - saturated soil with die back of many trees. Butterbur/lords and ladies/ lesser celandine predominating.

#### Species list:

Predominantly wych elm/ash woodland with nitrogen enrichment under the rookery. Honey fungus is rampant - forming symbiotic association with early purple orchid.

#### Trees & shrubs:

Beech, sycamore, scots pine, larch, ash, gean, elder, wych elm, goat willow, hazel.

Flowering plants:

lesser celandine, pink purslane, wavy bittercress, ground ivy, ivy, ribwort plantain, common cleavers, marsh bedstraw, dandelion, primrose/oxlip, woodrush, red campion, cleavers, nettles, hogweed, ground elder, wood spurge, woodruff, butterbur, lords and ladies, bluebell, rosebay willowherb, marsh marigold, early purple orchid, garlic mustard, common dock, creeping buttercup, Japanese knotweed, dogs mercury, primrose, moschatel, gooseberry.

**Sue Parsons Scottish Natural Heritage handwritten notes -species lists**

[H Young notes that there is no date but with letter from SNH to SWT dated March 1998 referring to search for information so before 1998]:

Ground ivy, opposite leaved golden saxifrage, cleavers, red campion, lesser celandine, spear thistle, hogweed, nettles, moschatel, primrose, cuckooflower, hedge woundwort, common dog violet, meadow saxifrage, lords and ladies, pink purslane, dog's mercury, butterbur, wood avens, creeping buttercup, pignut, germander speedwell, bush vetch, herb robert, daffodil, bellflower, raspberry, annual meadow grass, greater woodrush, male fern, broad buckler fern, lady fern, swan's neck thyme moss, common feather moss, river feather moss, fox tail feather moss, common smoothcap moss.

Ash, wych elm, beech, gooseberry, red current, gean, dog rose, larch, sycamore, ivy, flowering current, scots pine, oak, sycamore seedlings.

Wych elm/ ash woodland planted beech ground flora dominated by dog,s mercury, lesser celandine and meadow grass with opposite leaved golden saxifrage in wetter areas.

Below beech trees red campion, primula, cleavers, meadow saxifrage, early purple orchid, hogweed, dog violet, germander speedwell, annual meadow grass.

Greater woodrush common and abundant dominating other species along upper edge of wood, drier and no golden saxifrage.

Bird species:

Blue tit, starling, willow warbler, chaffinch, rookery, dipper calling/singing, wren pheasant, blackbird, treecreeper, blackcap.

[H Young notes to have twice seen kingfisher at mill in 2022 and heron in the past].

18 hoverfly species recorded - no date or by who – H Young has full list available on request.

Moth species list 2011 from Helen Rowe provided [passed to MoBE].