

Knoxville Road, Kilbirnie: Archaeological Evaluation and Survey

Data Structure Report

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1 Overview

- 1.1 A programme of archaeological evaluation works was required by Kilbirnie Land Ltd in respect of their proposed residential development at Knoxville Road, Kilbirnie, North Ayrshire (NGR NS 3189 5377). Rathmell Archaeology Ltd has been appointed to act behalf of Kilbirnie Land Ltd. These archaeological investigative works were designed to inform the determination of the planning application and mitigate any adverse impact on the archaeological remains within their development area.
- 1.2 The area concerned is currently a mixture of open grassland, a disused rail line, and the upstanding remains of the Nether Mill (NMRS NS35SW43). The mill complex incorporates the mill, wheel, lade and mill pond, all of which are within the proposed development area (centred NGR: NS 3188 5383). Within the westernmost element of the ground there is also the recorded site of a long cist (NMRS NS35SW6) exposed in the late eighteenth century.
- 1.3 The survey and intrusive evaluation was recommended by the West of Scotland Archaeology Service (WoSAS) to assist in determining the application within the planning process. They approved the Method Statement for these works prior to their implementation. The concerns identified by the WoSAS case officer after a site visit covered the need to consider the potential of: (i) archaeology extending into the development area from concentrations from the east; (ii) archaeology associated with the previously removed long cist; and (iii) the significance and sequence of the mill complex.
- 1.4 While the whole application area extends to 3.37 ha, the available ground for intrusive investigation that has not been compromised by past landuse (railway, mill pond, severe landscaping) or is inaccessible at this time (dense tree and undergrowth) amounts to some 0.55ha.

2 Project Works

- 2.1 The programme of works agreed with the West of Scotland Archaeology Service commenced with the Level 1 building recording of Nether Mill and an archaeological evaluation of 8% of the available land take. These works were undertaken in keeping with the agreed Method Statement with the on-site works taking place from the 22nd to 23rd of May 2007.
- 2.2 The historic building recording was carried out to include aspects of Level 1 (as per RCHME). Emphasis is placed on the photographic record which covers the building in varying levels of detail; this also includes the remaining mill machinery. The recording was facilitated by the provision of existing detailed plans by Kilbirnie Land Ltd.

3 Findings: Desktop study

- 3.1 The desk-based assessment did not identify the presence of any sites protected for their archaeological or historical merit under the terms of the Ancient Monuments and Archaeological Areas Act 1979 or buildings protected under the Town and Country Planning Act 1997 (Historic Scotland 1998) within the proposed development area. The National Monuments Record of Scotland identified only the mill (NMRS NS34SW 43, WoSASPIN 42064) and the site of the long cist (NMRS NS34SW 43).
- 3.2 The Nether Mill was described by Hume as *“mid 19th century. The ruins of a rectangular rubble building, with the framework of a suspended iron mid-breast wheel, 3ft wide by 18ft diameter (0.91 by 5.49m). The buckets and sole plate, now missing, appear to have been sheet iron. Drive to the mill was by an internal gear ring. At the rear of the mill a large mill pond, now drained, still exists.”* (Hume 1976, 58).
- 3.3 The Royal Commission on Ancient and Historical Monuments of Scotland concur that the mill (see Fig 1c) dates mainly from the mid-19th century, although they consider this *“to have been a remodelling of an older corn mill. All that was left in 1967 was the skeleton of a*

suspended high-breast waterwheel, and the lower courses of the sandstone mill building. This shows the remains of the wheel, with the remains of the ashlar wheel gable beyond. The iron spokes and cross-braces of the wheel are clearly visible, as is the profile of the buckets on the rim. This was an unusual type of wheel for a corn mill. The wheel was 0.91m by 5.59m, and drove the mill from a gear ring bolted to the left-hand wheel rim. This type of wheel was developed in the 1820s, and was used mainly in textile mills. This one may have been second-hand from such a mill."

- 3.4 In contrast the long cist was discovered during the cutting of the road near the mill in 1792 by Mr G Dickie of Nether Mill (OS 1858). The cist was described as an empty stone coffin, 6½ feet long by 2½ feet wide. The cist fabric was subsequently used in the road construction. When noted in the NSA (Urquhart 1834-45, 704) it was associated with an artificial mound of irregular pyramid form some 18 yards in length, 9 in breadth and 5 to 6 in height. This feature has latterly been discounted as being anthropic in origin (NMRS).
- 3.5 The earliest source of sound cartographical evidence that illustrates detail of the area concerned dates to the eighteenth century with the pre-Ordnance Survey map by Roy (1747-1755) (Figure 1b). While earlier (Moll 1745; Figure 1a) and later (Armstrong 1775; Figure 1c) mapping is available the quality of information is lacking. Even John Thompson's map of 1832 (Figure 1d) which shows more detail leaves much unmapped. Therefore the level of detail provided by Roy is not matched at the county level until the 1st and 2nd Edition Ordnance Survey maps (1858 and 1897 respectively) that provide accurate detail of the area concerned.
- 3.6 Roy's map (1747-55) of the Nether Mill area (Figure 1b) shows the somewhat dispersed layout of farms and farmsteads spread throughout the immediate area. Amid the farms it can be seen that extensive areas are under tillage with tracts of land appearing uncultivated. It can clearly be seen in that there are two roofed structures, entitled "Neth Mill", sat to the east of a loop of the River Garnock. To the south is a farm titled Braehead and to the south-east Onthanc.
- 3.7 The location of Roy's mill sits uncomfortably with the nineteenth to modern location of the Nether Mill; the comparable location relative to the Garnock is Padvenholm (1st edition Ordnance Survey - where two structures are shown on the route of the lade). In contrast the modern Nether Mill is adjacent to Onthanc and abuts the Garnock which is more comparable with the location of Braehead. Roy's map while difficult to relate to more modern mapping is accurate, especially in the inter-relationship of settlements and the relative location to watercourses. Consequently it is credible that the settlement known as Nether Mill (and by inference containing the mill) may in the mid eighteenth century have been located significantly further north.
- 3.8 Thompson's 1832 map (Figure 1d) shows a structure marked as Nethermill, although this is at the junction of the road running south from Kilbirnie and a road crossing the Garnock from the west. This is a comparable mapped location for the name (and associated structure) to that depicted on Roy, but not that shown on the 1st edition Ordnance Survey (Figure 2); that is the location of structures latterly named Padvenholm. Another feature is indicated as a circular mark which is at the modern location of Nether Mill, this probably marks the mill pond.
- 3.9 The farm named as "Onthanc" on Roy's map (latterly Unthanc on 1st edition Ordnance Survey) has been highlighted by WoSAS as an early place name that may refer to ground which was held without consent with potential religious associations. With this in mind there is the potential for relatively early historic activity to the immediate east.
- 3.10 The 1st edition Ordnance Survey map (Figure 1e) denotes the site as a corn mill and illustrates it in much greater detail, revealing that the mill is composed an L-shaped building, located at the south-west tip of a rectangular mill pond. The lade is visible running in from the north and an outfall runs to the south into the River Garnock. The ground to the east of the Mill Pond is enclosed agricultural ground with no other identifiable activity.



Figure 1a: Moll 1745



Figure 1b: Roy 1747-55



Figure 1c: Armstrong 1775



Figure 1d: Thomson 1832

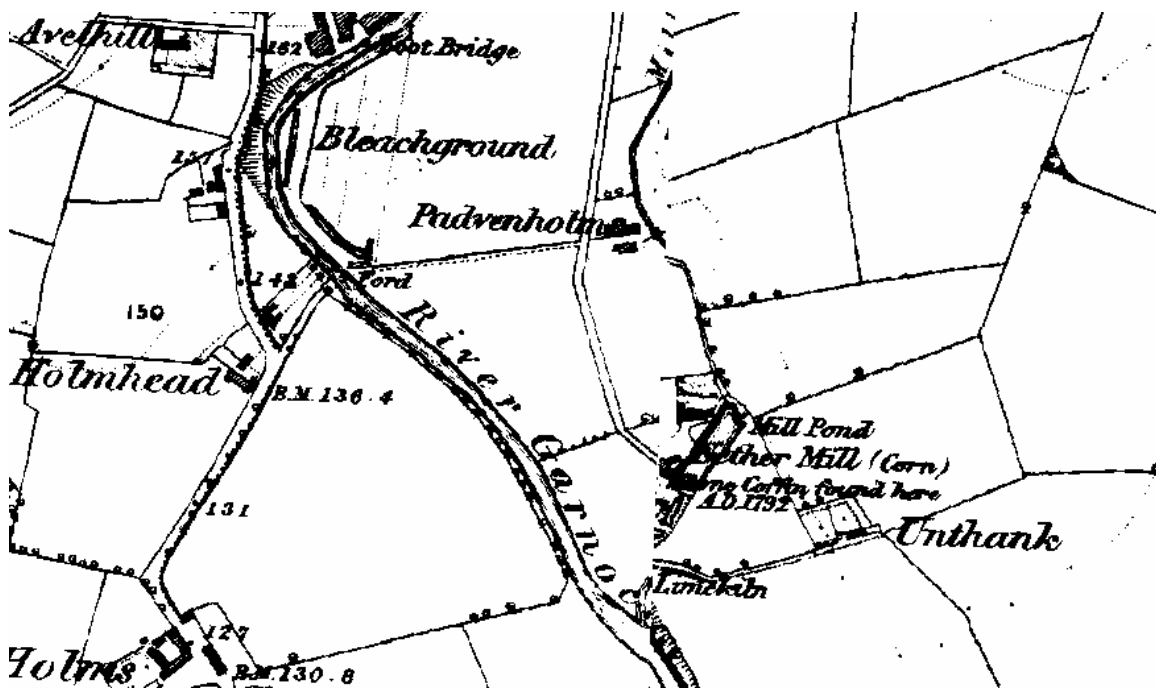


Figure 1e: 1st edition Ordnance Survey (1858)

- 3.11 Both the Old Statistical Accounts 1791-99 (OSA) and New Statistical Accounts 1834-45 (NSA) were consulted for Kilbirnie and it was noted that no specific reference was made in relation to the mill at Nether Mill; only passing comment was made regarding the number of corn/grain mills in the area. The comments within the NSA on the discovery of the long cist have been noted above (Section 3.4).
- 3.12 The eastern side of the development area is overlain by a freight spur into the Glengarnock Steelworks from the Kilbarchan Loop of the Glasgow and Southwestern Railway. The line was opened in June 1905 and closed to regular passenger traffic in June 1966. Subsequent freight use continued until this was progressively closed between 1971 and 1977. The trackbed from the Kilbarchan Loop and the freight spur are now predominantly in use as part of the National Cycle Network.



Figure 2: General view of mill (RCAHMS 1967)

4 Findings: Survey

- 4.1 The main elements of the Mill complex were identified and confirmed on the available detailed mapping provided by the client (see Figure 3). Measurements were taken at intervals to check this survey and to augment it where appropriate (predominantly for the mill buildings).
- 4.2 *Water system*
- 4.2.1 The defunct Lade enters the development area at its northern edge (Fig 5b) running south into the drained Mill Pond. Immediately prior to the likely northernmost tip of the Mill Pond it is crossed by a minor footbridge (Fig 5a). A surveyed channel (Fig 3) runs through the bed of the Mill Pond to the breached Mill Dam at the south-eastern end of the Mill Pond (Fig 6a). This suggests that the Lade continued to run for a period after the breaching of the dam, although this Lade is now dry.
- 4.2.2 Some 70m of the Lade survives within the development area. The Mill Pond, from survey

evidence, would when full have had a surface dimension of 70m by 20m and have been rectangular in plan. While the depth of the Mill Pond cannot be determined at this point precisely, given the Mill Dam appears, on the downslope side, to rise some 2.5m this is likely to be comparable to the maximum depth of the Mill Pond at its southernmost point.

- 4.2.3 A Sluice (Fig 6c) is evident at the south-western end of the Mill Pond from where a short Mill Race is discernible running to the Wheel Pit (see Mill Structure below). To the southwest of the mill structure the Tail Race is culverted beneath the modern track before falling south to the Garnock (Fig. 6b). The Tail Race and subsequent ditch does appear to still carry some water, although this is probably runoff from surrounding surfaces.

4.3 *Mill Structure*

- 4.3.1 The Mill Structure visibly has three identifiable elements: a north-eastern chamber, a south-western chamber and the wheel pit containing the remnants of a wheel. The complex is wholly under the cover of mature deciduous woodland and associated undergrowth including ferns. A number of the trees are growing through the fabric of the buildings, suggesting abandonment at least 40 years previously. There is no machinery present on site other than the wheel nor any walls higher than first storey.
- 4.3.2 The two chambers of the structure are set perpendicular to one another forming an L form. The north-eastern chamber (Figs. 4c & 5d) is internally 10.4m by 5m with the long axis aligned north-east to southwest. Slightly south of the midpoint in the north-west wall is a filled 0.9m broad opening, presumably a door. The walls are some 0.6m broad of sandstone quarried stone which have been badly denuded and now stand at most some 0.7m high.
- 4.3.3 The character of the interior of the north-eastern chamber could not be determined as there was a rubble fill that was roughly of common height with the bounding walls. Wall heights were not sufficient to identify the presence or absence of opening such as windows, nor was there any evidence for the overall height of the structure or the roofing design. There was no evidence for any thickening of gable walls to suggest that the gable had integral flues.
- 4.3.4 The south-western chamber (Figs. 4a-d) is internally 11.3m by 8.9m with the long axis aligned north-west to south-east. Slightly north of the midpoint in the north-west wall is a filled 2.5m broad opening, presumably a door. The north-western and north-eastern walls are some 0.7m broad of sandstone quarried stone which have been badly denuded and now stand at most some 0.7m high. In contrast the south-eastern and south-western walls are only 0.4m thick of ashlar blocks, some with masons drag visible. The south-western wall is also capped with sandstone flags at 2.2m.
- 4.3.5 The interior of the chamber is filled with rubble and overgrown with no visible architectural features other than the aforementioned blocked door and features on the south-eastern wall. This wall incorporated the stub of a wall running into the chamber, a drilled hole and openings to both the axle for the main wheel and the small gear/drive wheel (Figs. 4b & 6d). Another opening through the wall lay on the Mill Race side of the Wheel.
- 4.3.6 The Wheel Pit was some 1.5m broad, 7m long and at least 1.2m deep, although it was at least partly filled. The support for the external end of the axle for the main wheel was formed of ashlar blocks, this support turning into a low wall running north-east bounding the Mill Race. The south-western limit of the Wheel Pit was bounded by a low (eight course) brick wall.
- 4.3.7 The high breast Wheel survived as a single iron rim, spokes, central axle and both hubs mounted in the correct location. The character of the buckets was visible in the form of the surviving rim. The wheel, based on axle measurement, was 1m broad and 5.6m in diameter with a gear ring around the inner edge of the rim which meshes with a smaller gear wheel whose axle runs through the wall into the Mill.

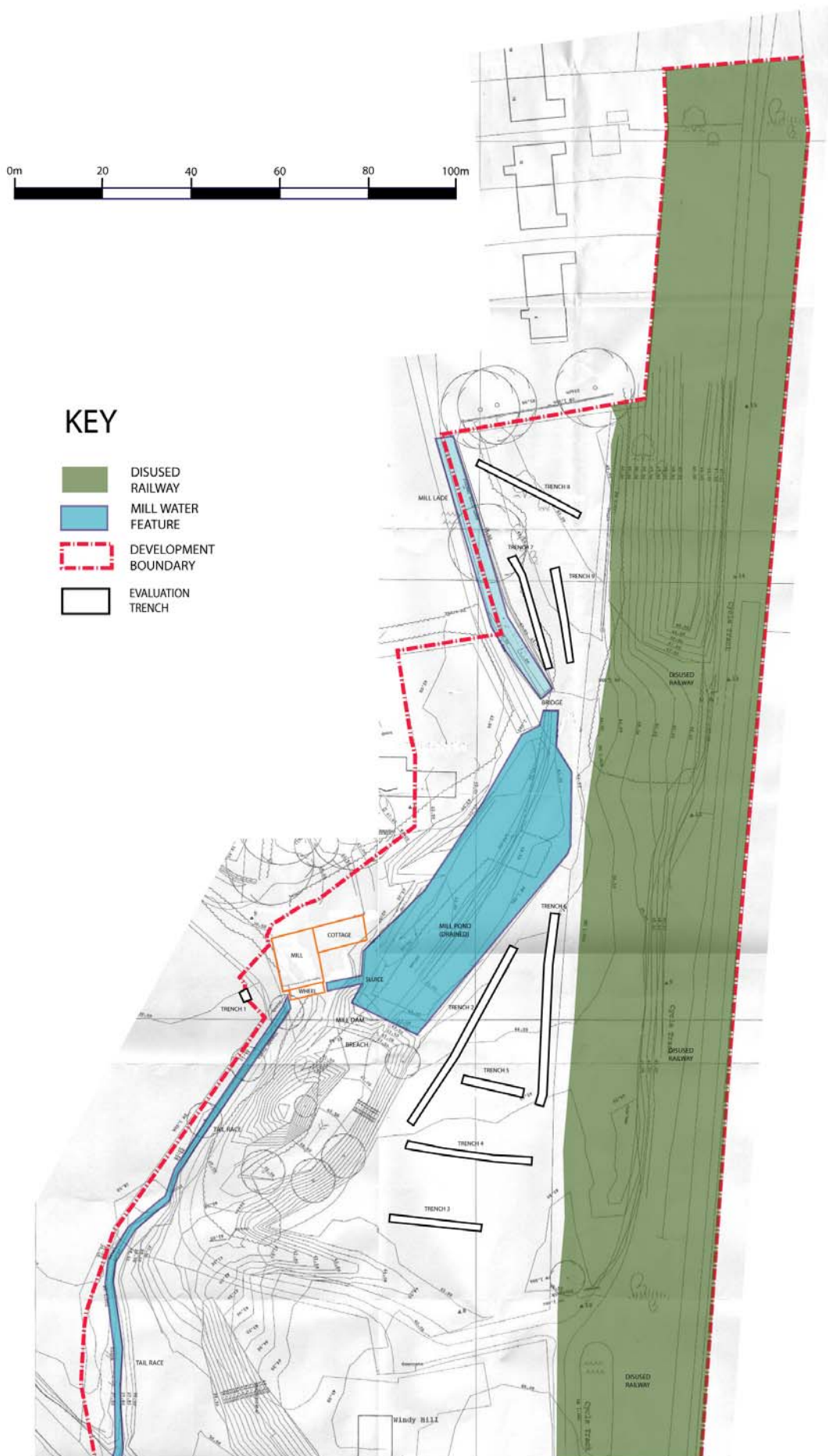


Figure 3: Detail Survey of Mill Complex



Figure 4a: North-east Mill wall; internal



Figure 4b: South-east Mill wall; internal



Figure 4c: North-west Mill wall; external



Figure 4d: South-west Mill wall; external



Figure 5a: Bridge over Lade



Figure 5b: Lade, looking north



Figure 5c: Wheel, looking west



Figure 5d: Mill, north-western wall



Figure 6a: Mill Dam, looking south-east



Figure 6b: Outfall from mill, south of road



Figure 6c: Outfall from Mill Pond



Figure 6d: Internal gear on Wheel

5 Findings: Evaluation

- 5.1 All nine trenches (see Fig 3) exhibited a fairly common stratigraphic sequence with a dark brown compact clayey silt topsoil up to 450mm deep, overlaying either a orange/brown clay. There were however, some variations within the trenches: grey brown silty sandy gravel was noted in Trench 4 and reddish brown silty clay in Trench 1.
- 5.2 Most of the trenches (2, 3, 4, 6 and 9) contained at least one (but usually several) rubble field drains [204]. Typically these drains were sunk into the subsoil as slots some 0.3m broad and filled with sub-rounded stones \leq 200mm. The alignment of these drains varied between trenches. A number of red tile field drains were also noted [206] in Trenches 6 and 7 indicating a later stage of drainage.
- 5.3 No significant features or artefacts were recovered from any of the nine trenches; although a linear anomaly was investigated in Trench 3. This irregular linear feature was later interpreted as a truncated furrow and is considered with the rig and furrow complex below.
- 5.4 *Rig and Furrow*
- 5.4.1 An area of rig and furrow was located within the southern of the eastern fields being evaluated. Its presence was discernible as a topographic feature being described as a broad rig and furrow system, orientated broadly north-west to south-east although the rig breadths could not be confidently identified from the surface.
- 5.4.2 Some five trenches (2, 3, 4, 5 and 6) cut through this block of rig and furrow and showed the rig breadths to be between 3m to 4.5m and the furrow breadth of typically between 1.1m to 2.5m. The form of the rig did not vary significantly between the trenches. Variation in furrow breadth appeared to predominantly be a product of a degree of subsequent truncation.

6 Discussion

- 6.1 The evaluation trenches in the eastern ground sought to identify the potential for archaeological features, possibly associated with the potential for early activity around Onthanc. However, none of the trenches identified any significant features nor were any artefacts recovered. A rig and furrow complex was identified and characterised on the southern portion of the eastern fields, this is probably 19th century in origin and relates to the enclosure and improvement of this ground in the early part of that century (esp with the clay subsoil and the rubble field drains being inserted). It is reasonable to assume that this is a general reflection on the lack of substantive archaeology to the east of the Mill Pond within the development area.
- 6.2 Trench 1, in the vicinity of the long cist exposed in 1798, failed to identify additional funerary features. However, the location of the original cist is not well mapped and there must remain the potential for additional funerary features. The trench does offer some guidance that this potential, if realised, is unlikely to be extensive or highly significant within this portion of the development area.
- 6.3 The mill complex has been surveyed and characterised to be a coherent suite of typical mill features with the defunct remnant of the mill lade running from the Garnock in the north to feed the now breached Mill Pond in the centre of the development area. A sluice released the head of water into a Mill Race which drove the mid-breast Wheel set against the south-eastern wall of the mill. The Tail Race then carried the spent water, under the road, back to the Garnock, to the south. The Mill itself has a damaged portion of the wheel surviving (it was whole and intact in 1967) within the part filled wheel pit and two substantive ashlar walls of the main structure extant.



Figure 7a: Trench 9



Figure 7b: Trench 6



Figure 7c: Trench 4



Figure 7d: Trench 1

- 6.4 The mill is clearly referred to in this location in 1798, but its earlier mid 18th century location is inferred from cartographic evidence to lie further north in the vicinity of Padvenholm. Thus the Nether Mill is probably late eighteenth century in construction. This period saw extensive agricultural improvements in the parish (NSA) with the increase in drainage, enclosure and other improvements. The relocation, and rebuild, of the mill further down an extant lade may also have facilitated the forming of a larger millpond (and hence more powerful head of water) and releasing ground for the bleachfields closer to Kilbirnie.
- 6.5 The mill has two chambers. The north-eastern chamber, set back from the Mill Race with an entrance to the north-west, is probably the Millers Cottage. This may have only been a single storey structure in keeping with comparable cottages. The larger chamber with a broad (2m) entrance and the Wheel mounted on the south-eastern wall probably housed the mill machinery (all removed). Consequently this would have been at least a two storey structure to have sufficient height, with the millstones on the upper floor (as with Ferguson 2005, 10).
- 6.6 By its form and design the Wheel is post-1820 so cannot have been the original Wheel, indeed it has been suggested that this is a re-used wheel from textile mill. It is of note that such a textile mill was burnt down in 1834 in Kilbirnie (Urquhart 1834-45, 715) before being rebuilt. One highly speculative possibility was that the Wheel was from the rebuild of this destroyed textile mill, although a much later sourcing of such a wheel is possible. Certainly the layout of the chambers and the location of the Wheel Pit are unlikely to have been altered even with the introduction of the new form of Wheel. That this wheel is inserted within a pre-existing structure is evidenced partly by the use of brick to form the cavity for the spindle of the drive/gear wheel in the gable wall of the mill.
- 6.7 However, the Wheel is mounted against an ashlar wall, in common with the wall to the south-west, which is in contrast with the broader rough sandstone walls used elsewhere within the structure. The suggestion is that this L shaped wall was rebuilt probably at a time when the other walls were defunct, perhaps specifically to mount the post-1820 wheel (although the brick noted above may suggest a more complex sequence).
- 6.7 The differential survival of the structure of the mill is highly suggestive of the mill having a prolonged period of decline through use. The north-eastern chamber is the most denuded, suggesting that the use of the small adjacent residential structure halted use first with the chamber falling into disrepair and being demolished. The north-east and north-west walls of the main machinery chamber are also in a poor state of repair while the south-west wall has a deliberate wallhead cap. This suggests that the main machinery chamber had been reduced or had collapsed (it would normally be a two storey structure) prior to the wall rebuilds on the southwest and south-east with capped ashlar walls at single storey height.
- 6.8 Such a major change would have made the mill open-air, a state recalled by local persons (Dickson *pers comm.*). This would not be suitable for a conventional corn mill, suggesting that this degenerating mill was used for coarser, agricultural feeds. Given the 1st edition Ordnance Survey identification of the mill as a corn mill it is likely that this degeneration occurred after 1860.
- 6.9 At an even later date all internal mill machinery was removed, the Mill Lade isolated from the Garnock and the Mill Pond breached. The mill in 1967 seems to have been as now except both hubs of the skeleton Wheel survived, the outer hub having now been removed.

7 Recommendations

- 7.1 Presented below are our provisional recommendations for archaeological mitigation in the event of the development preceding. These recommendations are framed with reference to the issued planning guidance. The appropriateness and acceptability of our recommendations rest with North Ayrshire Council and the West of Scotland Archaeology Service, their advisors. Confirmation that the below recommendations are acceptable should be confirmed with these bodies prior to the implementation of any development works whose appropriateness may rely on these recommendations.

- 7.2 The intrusive investigative works have failed to identify any significant archaeology in the ground available for evaluation. It appears reasonable that the eastern evaluated ground does not contain, nor have the potential to contain, significant archaeological features. To this ground can be added the line of the former railway and the ground around Windy Hill which have been badly affected by past development. In combination this majority part of the development area should be considered free of archaeology and no further archaeological mitigation is recommended for this area should the development proceed.
- 7.3 The site of the original discovery of a long cist was evaluated, but failed to reveal any significant archaeological features. The potential for additional funerary remains in this vicinity remain, although it is unlikely that these are extensive given the evaluation. The appropriate response to address this potential, in the event of the development being approved and proceeding, is for an archaeological watching brief to be conducted on all ground breaking works within 20m of the recorded location of the long cist.
- 7.4 The nature and evolution of the mill complex as extant has been explored above. The complex appears to have been purpose built in the late eighteenth century and, while the function and use of the elements may have changed, there appears to have been no substantive expansion although elements have been rebuilt in differing style. It is a minor mill with few limited character, a poor history and, though many of the elements of the complex remain, it should be considered of local importance. Consequently we recommend that the loss of this complex to a development would not be unreasonable. No further works are appropriate with regard to the Mill Lade, Mill Pond and Mill Races. The removal of the Mill Buildings (inc Wheel Pit) should be archaeologically monitored to ensure that any additional elements or details regarding the structure are noted.

8 Conclusion

- 8.1 A programme of archaeological evaluation and survey works was undertaken in respect of the proposed residential development at Nether Mill, Kilbirnie, North Ayrshire (NGR 3189 5377). The archaeological works was carried out over a two day period from the the 22nd to 23rd of May 2007.
- 8.2 The evaluation opened nine trenches covering the available open ground to the east of the mill complex and over the site of a long cist exposed in 1798. A representative sample, as agreed with the West of Scotland Archaeology Service, of all of the uncovered features with archaeological potential was investigated. The trenches exhibited a common stratigraphic sequence with topsoil up to 450mm in depth overlying variable subsoil. Occasional rubble field drains indicating an attempt at improvement were apparent throughout the eastern fields and an area of broad rig was recorded in the southern field.
- 8.3 The elements of the Mill Complex were recorded; a denuded late 18th century mill with adjoined cottage survives with fragments of an internal geared 19th century wheel extant. The lade, mill pond and races are still identifiable but no longer hold water. No mill machinery, other than the fragmentary wheel, remains on-site and the structure stands no more than one storey high. The mill is a minor structure and in a poor condition; it should be considered to be of local importance.

9 References

Documentary

- | | | |
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Cartographic

- | | | |
|---------|---|-----------------------------------|
| 1745 | Moll, H | The North Part of ye Shire of Air |
| 1747-55 | Roy | Area around Kilbirnie, Ayrshire |
| 1775 | Armstrong, A | A new map of Ayrshire |
| 1828 | Thompson, J | Northern Part of Ayrshire |
| 1858 | 1 st Edition Ordnance Survey | Ayrshire, 1:10560 |

Appendix 1: Trench Details

Within this appendix a standardised set of data pertaining to the evaluation trenches is presented.

All measurement distances quoted along the trench measure based on the quoted orientation of the trench. See Figure 7 for trench locations.

Trench 1

| | |
|-----------------------|---|
| Orientation: | North-north-west to south-south-east |
| Size: | 2m by 5m (10m ²) |
| Topsoil depth: | 200mm |
| Subsoil character | Subsoil (102), a very dark brown, moderately compact slightly clayey silt with frequent small stone inclusions, is present along whole of trench. |
| Modern features: | None |
| Rig & Furrow | None |
| Significant features: | None |
| Artefacts: | None |

Trench 2

| | |
|-----------------------|---|
| Orientation: | North-north-east to south-south-west |
| Size: | 2m by 45m (90m ²). |
| Topsoil depth: | 300mm to 450mm |
| Subsoil character: | Subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions, is present along whole of trench. |
| Modern features: | Stone rubble field drain (204) runs NE-SW across trench at 16m until 18m and runs NW-SE across trench at 35m. Measures 0.3m wide with sub-rounded stones ≤ 200mm. |
| Rig & Furrow: | Linear feature (203) interpreted as a furrow aligned E-W. The furrow is 3m wide starting at 34m. |
| Significant features: | None |
| Artefacts: | None |

Trench 3

| | |
|--------------------|---|
| Orientation: | West to east |
| Size: | 2m by 23.3m (46.6m ²). |
| Topsoil depth | 310mm to 350mm |
| Subsoil character: | Subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions, is present along whole of trench. |
| Modern features: | Stone rubble field drain (204) runs N-S across trench at 11.5m. Measures 0.3m wide with sub-rounded stones ≤ 200mm. |

Rig & Furrow: Linear feature (203) interpreted as a furrow aligned NNW-SSE. The furrow is 2m to 2.7m wide starting at 5.2m.

Significant features: None

Artefacts: None.

Trench 4

Orientation: East to West

Size: 2m by 30.2m (60.4m²).

Topsoil depth: 400mm to 450mm

Subsoil character: Subsoil (207), a mottled grey/brown silty sandy gravel, is present in trench until 5.5m before being replaced by subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions.

Modern features: Stone rubble field drain (204) runs SE-NW across trench at 5.7m and at 17.5m. Measures 0.3m wide with sub-rounded stones ≤ 200mm.

Rig & Furrow: Some 3 linear features (203) interpreted as furrows commonly aligned northwest to southeast. The furrows are 1.1m to 2.8m wide. The furrows are generally commonly spaced at 4.5m apart (centre furrow to centre) and appear in the trench between 5.5m and 17m.

Significant features: None

Artefacts: None

Trench 5

Orientation: West-north-west to east-south-east

Size: 2m by 15.1m (30.2m²).

Topsoil depth: 400mm

Subsoil character: Subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions, is present along whole of trench.

Modern features: None

Rig & Furrow: Some 2 linear features (203) interpreted as furrows commonly aligned NW-SE. The furrows are 1.2m to 2.4m wide. The furrows are spaced at 6m apart (centre furrow to centre) and appear throughout the trench.

Significant features: None

Artefacts: None.

Trench 6

Orientation: South to north

Size: 2m by 44.1m (88.2m²).

Topsoil depth: 370mm

| | |
|-----------------------|--|
| Subsoil character: | Subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions, is present along whole of trench. |
| Modern features: | Rd tile field drain (206) runs SE-NW across trench at 4.7m until 6.7m. Measures 0.1m wide. Stone rubble field drain (204) runs SE-NW across trench at 13.5m, 23.5m and 26.5m and runs SW-NE across trench at 31.2m. Measures 0.3m wide with sub-rounded stones $\leq 200\text{mm}$. |
| Rig & Furrow: | Some 2 linear features (203) interpreted as furrows commonly aligned northwest to southeast. The furrows are 2.5m to 3.2m wide. The furrows are spaced at 6m apart (centre furrow to centre) and appear in the trench between 8m and 20m. |
| Significant features: | None. |
| Artefacts: | None. |

Trench 7

| | |
|-----------------------|---|
| Orientation: | South to north |
| Size: | 2m by 26.8m (53.6m ²). |
| Topsoil depth: | 150mm to 400mm |
| Subsoil character: | Subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions, is present along whole of trench. |
| Modern features: | End of red tile field drain (206) running NW-SE is present on E side of trench at 3m. Measures 0.1m wide. |
| Rig & Furrow | None |
| Significant features: | None |
| Artefacts: | None |

Trench 8

| | |
|-----------------------|---|
| Orientation: | North-west to south-east |
| Size: | 2m by 27.3m (54.6m ²). |
| Topsoil depth: | 320mm to 350mm |
| Subsoil character: | Subsoil (208), a mottled dark grey and orange silty clay with frequent sub-angular and sub-rounded stones $\leq 180\text{mm}$, is present along whole of trench. |
| Modern features: | None |
| Rig & Furrow | None |
| Significant features: | None |
| Artefacts: | None |

Trench 9

| | |
|--------------|------------------------------------|
| Orientation: | North to south |
| Size: | 2m by 22.9m (45.8m ²). |

| | |
|-----------------------|---|
| Topsoil depth: | 300mm |
| Subsoil character: | Subsoil (202), a quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions, is present along whole of trench. |
| Modern features: | Stone rubble field drain (204) runs NE-SW across trench at 16m. Measures 0.3m wide with sub-rounded stones \leq 200mm. |
| Rig & Furrow | None |
| Significant features: | None |
| Artefacts: | None |

Appendix 2: Registers

Context Register

| No. | Trench | Interpretation | Description |
|-----|---------|---|--|
| 101 | 1 | Topsoil | Very dark brown, moderately compact slightly clayey silt with frequent small stone inclusions. Up to 200mm in depth. Occasional finds of modern white glaze pottery. |
| 102 | 1 | Subsoil | Quite compact mid reddish brown silty clay with frequent small to medium sized stone inclusions. |
| 201 | 2-9 | Topsoil | Moderately compact dark brown clayey silt with frequent small stone inclusions. Between 150mm and 450mm in depth. Occasional finds of modern white glaze pottery and glass. |
| 202 | 2-7,9 | Subsoil | Quite compact pale orange/brown silty clay with frequent small to medium sized stone inclusions. |
| 203 | 2-6 | Furrow | Linear furrow measuring up to 3m wide. Filled by (201). |
| 204 | 2-4,6,9 | Field drain | Stone rubble drain consisting of sub rounded stones \leq 200mm. Measures 0.3m wide. |
| 205 | 3 | Linear feature, probably truncated furrow | Linear feature filled with compact grey brown silty clay with grey sub-angular and sub-rounded stone inclusions \leq 30mm. Cut has uneven bottom and sides. Measures 0.51m wide and 50mm deep. |
| 206 | 6,7 | Field drain | Red tiled field drain measures 0.1m wide. In Trench 7, red bricks measuring 220mm x 80mm x 90mm present around end of drain giving total width of feature 0.4m. |
| 207 | 4 | Subsoil | Mottled grey/brown silty sandy gravel. |

| | | | |
|-----|---|---------|--|
| 208 | 8 | Subsoil | Mottled dark grey and orange silty clay with frequent sub-angular and sub-rounded stone inclusions \leq 180mm. |
|-----|---|---------|--|

Photographic Register

| Image | Description | From | Date |
|-------|--|------|---------|
| 1 | Shot along lade | S | 22/5/07 |
| 2 | Shot of bridge | N | 22/5/07 |
| 3 | Shot of bridge | N | 22/5/07 |
| 4 | Shot of bank of possible big mill pond | NW | 22/5/07 |
| 5 | Shot of mill lade from bridge | NE | 22/5/07 |
| 6 | Shot of area of possible big mill pond | W | 22/5/07 |
| 7 | Shot of area of possible big mill pond | SW | 22/5/07 |
| 8 | Shot of western bank of possible big mill pond | NE | 22/5/07 |
| 9 | Shot of western bank of possible big mill pond | E | 22/5/07 |
| 10 | Shot along lade in area of possible big mill pond | NE | 22/5/07 |
| 11 | Shot along middle section of lade | NE | 22/5/07 |
| 12 | Shot of area of possible big mill pond | E | 22/5/07 |
| 13 | Shot of mill lade sluice | SE | 22/5/07 |
| 14 | Shot of mill pond wall | E | 22/5/07 |
| 15 | General shot of mill showing outer N wall | NE | 22/5/07 |
| 16 | General shot of mill | N | 22/5/07 |
| 17 | Shot of outer N wall of mill | NW | 22/5/07 |
| 18 | Shot of outer W wall of mill | NW | 22/5/07 |
| 19 | Shot of wheel pit with wheel at S wall showing gears | SE | 22/5/07 |
| 20 | Shot of outer S wall showing gear mechanism and undefined hole | S | 22/5/07 |
| 21 | Shot of interior S wall and wheel and mechanism hole | N | 22/5/07 |
| 22 | General shot of interior of mill showing S wall | N | 22/5/07 |
| 23 | General shot of interior of mill showing E wall | NW | 22/5/07 |
| 24 | General shot of interior of mill showing W wall | NE | 22/5/07 |
| 25 | Shot along top of N wall | W | 22/5/07 |
| 26 | General shot of eastern section of mill | W | 22/5/07 |
| 27 | General shot of eastern section of mill | W | 22/5/07 |
| 28 | Detail of possible doorway in N wall with iron | NW | 22/5/07 |

| | | | |
|----|---|-----|---------|
| | hinge | | |
| 29 | Detail of possible large doorway in N wall | N | 22/5/07 |
| 30 | Close up detail of W side of large doorway in N wall | E | 22/5/07 |
| 31 | Close up of breastwork aligned N-S from S wall | N | 22/5/07 |
| 32 | Close up detail of stone with hole in interior S wall | N | 22/5/07 |
| 33 | Shot of lade carrying on on other side of road | E | 22/5/07 |
| 34 | General shot of trench 1 | NW | 23/5/07 |
| 35 | General shot of trench 2 | NNE | 23/5/07 |
| 36 | General shot of trench 3 | W | 23/5/07 |
| 37 | Shot of feature (207) | WSW | 23/5/07 |
| 38 | General shot of trench 4 | E | 23/5/07 |
| 39 | General shot of trench 5 | E | 23/5/07 |
| 40 | General shot of trench 6 | S | 23/5/07 |
| 41 | General shot of trench 7 | N | 23/5/07 |
| 42 | General shot of trench 8 | NW | 23/5/07 |
| 43 | General shot of trench 9 | N | 23/5/07 |

Drawing Register

| Sheet | No. | Trench | Title | Scale | Date | Author |
|-------|-----|--------|------------------------------|-------|---------|--------|
| 1 | 1 | Mill | Measured sketch plan of Mill | 1:100 | 22/5/07 | DG+CW |
| 2 | 2 | 2 | Plan of trench 2 | 1:100 | 23/5/07 | DG+CW |
| 2 | 3 | 3 | Plan of trench 3 | 1:100 | 23/5/07 | DG |
| 2 | 4 | 1 | Plan of trench 1 | 1:100 | 23/5/07 | CW |
| 2 | 5 | 5 | Plan of trench 5 | 1:100 | 23/5/07 | DG |
| 2 | 6 | 6 | Plan of trench 6 | 1:100 | 23/5/07 | DG |
| 2 | 7 | 7 | Plan of trench 7 | 1:100 | 23/5/07 | CW |
| 2 | 8 | 9 | Plan of trench 8 | 1:100 | 23/5/07 | CW |
| 2 | 9 | 4 | Plan of trench 9 | 1:100 | 23/5/07 | DG |
| 2 | 10 | 8 | Plan of trench 10 | 1:100 | 23/5/07 | CW |

Artefact Register

No artefacts were recovered.

Appendix 3: Discovery & Excavation in Scotland

| | |
|---------------------------|------------------------|
| LOCAL AUTHORITY: | North Ayrshire |
| PROJECT TITLE/SITE | Nether Mill, Kilbirnie |

| | |
|--|--|
| NAME: | |
| PARISH: | Kilbirnie |
| NAME OF CONTRIBUTOR: | Douglas Gordon |
| NAME OF ORGANISATION: | Rathmell Archaeology Limited |
| TYPE(S) OF PROJECT: | Evaluation and Survey |
| NMRS NO(S): | NS35SW43; NS35SW6 |
| SITE/MONUMENT TYPE(S): | Mill, Lade, Millpond, Waterwheel |
| SIGNIFICANT FINDS: | None |
| NGR (2 letters, 6 figures) | NS 318 537 |
| START DATE (this season) | 22 May 2007 |
| END DATE (this season) | 23 May 2007 |
| PREVIOUS WORK (incl. DES ref.) | None |
| PROPOSED FUTURE WORK: | Uncertain |
| MAIN (NARRATIVE) DESCRIPTION: (may include information from other fields) | <p>A programme of archaeological evaluation and survey works was undertaken in respect of the proposed residential development at Nether Mill, Kilbirnie, North Ayrshire (NGR 3189 5377). The archaeological works was carried out over a two day period from the the 22nd to 23rd of May 2007.</p> <p>The evaluation opened nine trenches covering the available open ground to the east of the mill complex and over the site of a long cist exposed in 1798. A representative sample, as agreed with the West of Scotland Archaeology Service, of all of the uncovered features with archaeological potential was investigated. The trenches exhibited a common stratigraphic sequence with topsoil up to 450mm in depth overlying variable subsoil. Occasional rubble field drains indicating an attempt at improvement were apparent throughout the eastern fields and an area of broad rig was recorded in the southern field.</p> <p>The elements of the Mill Complex were recorded; a denuded late 18th century mill with adjoined cottage survives with fragments of an internal geared 19th century wheel extant. The lade, mill pond and races are still identifiable but no longer hold water. No mill machinery, other than the fragmentary wheel, remains on-site and the structure stands no more than one storey high. The mill is a minor structure and in a poor condition; it should be considered to be of local importance.</p> |
| PROJECT CODE: | 07034 |
| SPONSOR OR FUNDING BODY: | Kilbirnie Land Ltd |
| ADDRESS OF MAIN CONTRIBUTOR: | 10 Ashgrove Workshops, Kilwinning, Ayrshire KA13 6PU |
| E MAIL: | contact@rathmell-arch.co.uk |
| ARCHIVE LOCATION (intended/deposited) | Report to West of Scotland Archaeology Service and archive to National Monuments Record of Scotland. |

Contact Details

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