



Highland Archaeology Services Ltd

Bringing the Past and Future Together

Kirkmichael, Balblair, Black Isle



Excavation and Watching Brief Report

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Kirkmichael, Balblair, Black Isle Excavation and Watching Brief Report Vs2

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Summary

Excavations and a watching brief were conducted by Highland Archaeology Services Ltd as part of the redevelopment of Kirkmichael Kirk, Resolis in order to satisfy Scheduled Monument consent. A watching brief was conducted throughout ground-breaking works from August 2016 to August 2017 to enable installation of drains, paths, services and signage. An excavation to lower the floor levels of the Kirk was undertaken in October and November 2016.

Excavations within the Kirk revealed an earlier phase of wall and some material that may be related to a building or renovation phase. There was also a considerable depth of modern material, including wooden box-like structures and excess soil from grave digging. Many modern artefacts were recovered including bottles and vases. A scatter of 17th and 18th century coins are thought to have been imported with grave digging material, along with many disarticulated and fragmentary human remains. The human remains have undergone basic analysis and have been reinterred within the graveyard.

Twenty monumental grave ledger slabs were recorded during the watching brief of works for the installation of new paths and drains. All the slabs were able to be preserved in-situ. No other artefacts of interest were recovered during the watching brief. Fragmentary disarticulated human remains were recovered, assessed, and reinterred within the graveyard.

This report sets out the findings and includes basic analysis of the artefacts and human remains recovered. No further work is recommended.

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The Kirkmichael Project represents a huge community effort which has seen many years of blood, sweat and tears from a whole host of local and not so local members of the community. Jim Mackay as Chairman of the Kirkmichael Trust has shouldered more than his fair share of the burden, many thanks to him and to all the other members of the Trust for their time and energies in making this project happen.

Many volunteers have been involved in the archaeological works, taking part in the excavations within the kirk and providing labour for the earth-moving required outside it. Without exception they have been excellent to work with and were of huge value to the project as a whole.

Special thanks are due to Libby Powers-Jones for her many hours of voluntary effort in cleaning and caring for the human remains recovered during the project before their reburial. Her dedication and enthusiasm are an inspiration.

This document was written by Lynne McKeggie and edited by Andrew Young. Osteological assessments were undertaken by Sue Higgins. Background mapping has been reproduced by permission of the Ordnance Survey under Licence 100043217. Historic mapping is courtesy of the National Library of Scotland.

Location

The kirk is located on the North West side of Udale Bay, between Balblair and Jemimaville on the Black Isle. Centred at grid reference NH 70590 65855, at about 5.6m above sea level. It now lies within the parish of Resolis.



Figure 1: Site Location

From OS mapping, reproduced under Licence. Not to original scale

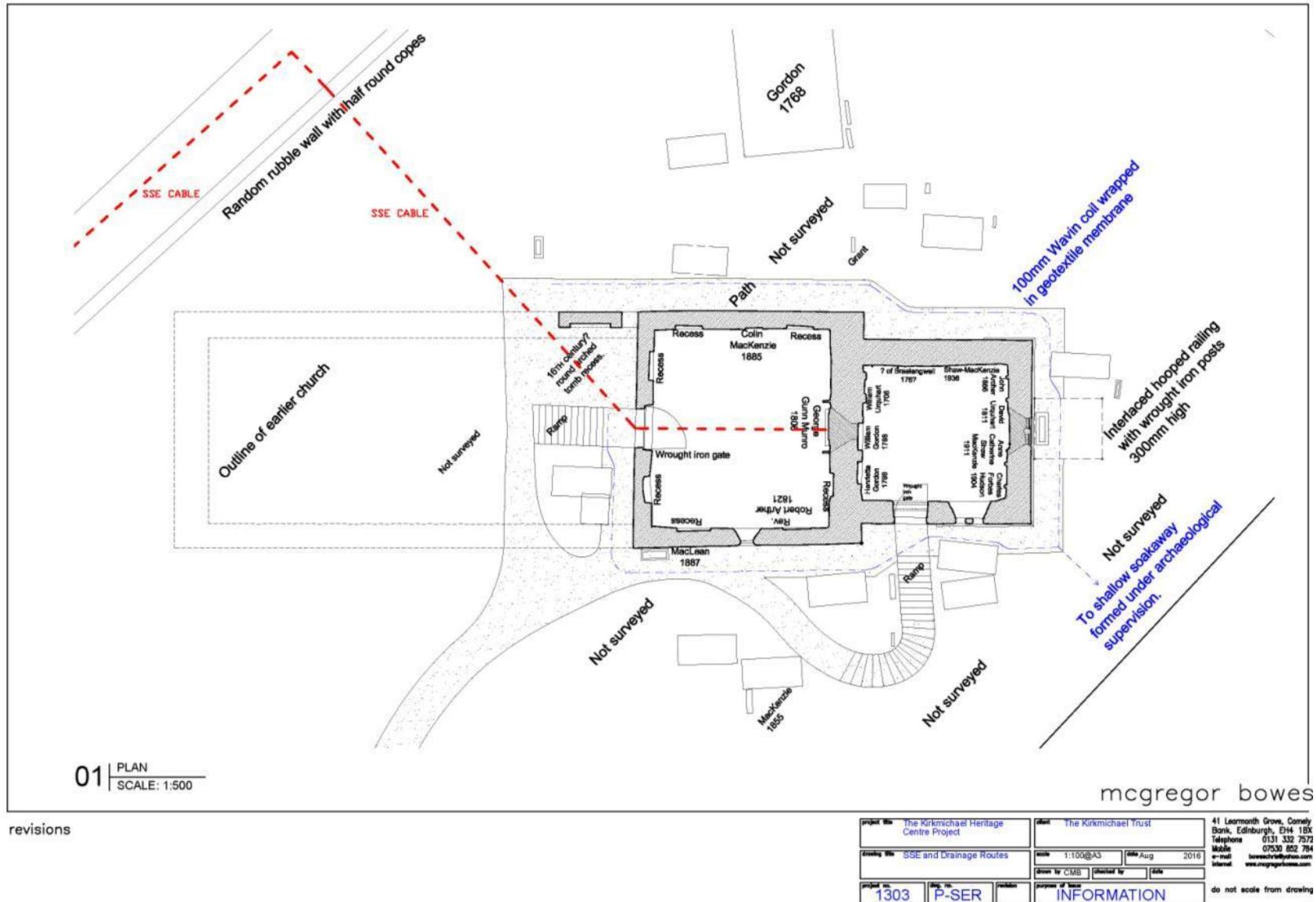


Figure 2: Site Plan (courtesy of Architect) with initial proposals

Legislation and Policy

The common principles underlying international conventions, national legislation and local authority planning policies are that cultural heritage assets should be identified in advance of development and safeguarded where practicable; if disturbance is unavoidable appropriate recording of features and recovery of portable artefacts should take place. These have been set out in international and European Union agreements, and UK and Scottish legislation, as well as national and local planning policies¹.

Professional standards during the present project will be secured by adherence to the Codes of Conduct and Approved Practice and Standards of the Chartered Institute for Archaeologists and the Highland Council.

This document relates to the application to Historic Environment Scotland (HES) for Scheduled Monument Consent to restore Kirkmichael kirk *Case ID 201600640 (Works for restoration of Kirkmichael, including relocation of 2 stones)*. This report sets out the results of works agreed in the approved Written Scheme of Investigation² and also the approved Post-Excavation Research Design³.

Background

Kirkmichael, also known as St Michael's chapel, is a pre-reformation parish church which has been altered for use as a protestant kirk, and then finally reused as a mausoleum. The building is a Scheduled Ancient Monument (SAM No. 5419) as well as a Listed Building (No.14940). The graveyard wall also has Listed Building status (No.14941).

The Kirkmichael Trust (KMT) has secured funding to repair the kirk and create a display of local medieval grave slabs. KMT has undertaken considerable historical research which enriches our understanding of the site. An extract of a previous report which reviews the documentary evidence has been included as Appendix 2 (p.40) Highland Archaeology Services carried out test-pitting in 2013 in order to investigate the structure of the kirk and inform the work programme.⁴ The results of this are set out below.

Archaeological excavation of the internal areas of the building was undertaken in October 2016 in order to install flooring. A watching brief was also conducted throughout works associated with the development of the Kirk for all ground-breaking work. This included installation of drains, electricity cables, paths and signage. All fieldwork associated with the project is now complete and this report sets out the findings. A Post Excavation Research Design is included within this report, which sets out a proposal for the processing and analysis of the material recovered during the excavation and watching brief.

Test Pitting

In 2013 a programme of test-pitting was carried out by Highland Archaeology Services. It aimed to establish the nature of any wall footings or foundations and adjoining surfaces, in order to inform conservation and reconstruction work. Test pits measuring 0.6 x 0.6 metres were excavated in opposing corners of the two parts of the building. The larger part of the building is referred to as the Nave, and the smaller part at the eastern end of the building is referred to as the Chancel.

The four test pits produced a variety of results. All were excavated by hand to a depth of at least 0.45m but up to 0.9m. Test pits 1 and 2 in the Nave revealed sandy mixed deposits containing fragments of shell and disarticulated human remains. In Test Pit 1 an organic layer interpreted as a heather floor was uncovered

¹ A summary of relevant international, EU, UK and Scottish legislation and policies is available from the HAS office on request.

² McKeeggie, L. 2016 *Kirkmichael PD + RAMS Vs3*, Highland Archaeology Services document no. HAS160904, Tain

³ McKeeggie, L. 2017 *Kirkmichael PERD Vs2*, Highland Archaeology Services document no. HAS170701, Tain

⁴ McKeeggie, L. And Wood, J., 2013 *Kirkmichael: Report on Test Pitting*, Highland Archaeology Services report no. HAS130709, Cromarty

around 0.15m below the modern surface (see plate 1). This was the only floor layer uncovered and it was not found in Test Pit 2. This suggests that this floor layer has been disturbed in at least the north east end of the Nave.



Plate 1: Organic floor layer in Test Pit 1 (2013) (50cm scale)

Test Pit 1 also revealed foundations approximately 0.45m below the modern surface. The foundation consisted of large roughly dressed and undressed stones which underlay the existing wall and extended 0.3m into the building. These features were not revealed in Test Pit 2, but it is possible that the equivalent depth was not reached due to in-situ remains of what appeared to be a small coffin, which were not disturbed during the test-pitting programme.

These findings suggest that in the nave area an organic floor may survive across some of the space, along with thick mixed layers of light soil containing many disarticulated human remains, presumably disturbed by previous cuts.

In the chancel area Test Pits 3 and 4 revealed light sandy soils which appeared to represent various layers of mixed disturbed material. The lower layers of these appeared to represent construction or destruction debris with more lime-rich and subsoil-rich material. These suggest that the chancel area has been heavily disturbed and no floor layers were present in the two corners explored.

Excavation

The principle archaeological works on the site involved lowering the internal deposits within both parts of the Kirkmichael building; the larger area known as the 'nave' (hereafter referred to as **Trench 1**), and the smaller room on the east known as the 'chancel' (referred to as **Trench 2**). In both areas the deposits needed to be reduced to 300mm below the threshold levels in order to allow flooring to be installed.

Methodology

All deposits were excavated by hand under supervision of qualified archaeologists and to archaeological standards as specified within the HAS handbook. Volunteers from the local community and the North of Scotland Archaeology Society (NoSAS) were invited to participate in the excavation and were provided with training in excavation and recording techniques, artefact identification and human remains identification, including ethical considerations for appropriate handling techniques. All volunteers were given a full induction and safety briefing.

All deposits were recorded and removed stratigraphically up to the pre-agreed depth of 300mm below the threshold levels. Archaeological layers, cuts and artefacts were excavated archaeologically according to the Chartered Institute for Archaeologists' published standards.

All deposits were sieved on site using a 10mm sieve in order to ensure recovery of artefacts and fragmentary human remains. Quantities of human remains have been described by the number of bags, a bag being approximately 300 x 200 x 150mm.

A specific part of the thresholds of the nave and chancel were defined and used as Temporary Bench Marks (TBMs) for the recording of depth. These were also used to calculate the desired depth of the trenches. The height above sea level has been calculated using a local benchmark of known height from the north west corner of the modern burial ground. Plans were drawn at 1:20 scale in order to record the location of layers and features. Profiles or sections of cut features were drawn at 1:10 scale. Photographs were taken using a digital SLR camera.

Results

Trench 1

Excavation in the 'Nave' part of the Kirk started on 17th October 2016 and continued until 7th November 2016. The trench encompasses the whole of this 'room' and is 6.2x5.5m. The soil levels had built up to considerably higher than the threshold level in places (around 2-300mm) and there was a significant amount of recent debris from the roof collapse, as well as organic material and lime etc. from the building works.

The findings of the excavation can be summarised into 5 phases and one sub-phase of activity. A total of 41 contexts were recorded within Trench 1, all dating from the post-medieval period and largely appearing to relate to 19th and 20th century activity.

Phase 1

The earliest phase of activity identified was represented by a section of wall (015) underlying the current building. This ran for the entire length of the southern and western walls. At the southern wall the feature was therefore 5.5m long with 0.35m of width exposed. On the western side the feature was 6.2m long and 0.2m of width exposed, except in the entrance where 0.6m was exposed (see Figure 3).

Context **015** comprised stonework underlying the south and west walls, but on a slightly different alignment. The wall was made up of many large undressed stones with smaller stones in between, and areas of clay-rich soil, suggesting that this wall may have been clay-bonded. The masonry was left in situ and was low enough to be preserved beneath the new floor with a protective membrane.

Phase 2

This phase reflects the construction of the current walls of the chancel, which are here described as context **055**. The walls are built of random rubble with lime mortar bonding. The outer skin of the south and west walls are of ashlar. All other activity within Trench 1 post-dates this event.

Phase 2b

This phase appeared to relate to a construction or renovation event and was represented by layers of material around the entrance. No dating evidence was recovered but it is likely that this relates to the current building walls. Layers **033**, **040** and **041** consisted of dark organic soil layers and a spread of stones concentrated around an area just to the south of the entrance and in its vicinity. These layers appeared to represent trampling of soil in the process of working on the building and a dump of stones, possibly to infill an area which became boggy. Context 040 was cut by **030**, which belongs to phase 4.

Overlying these was **029**, a sandy reddish-pink deposit, which was compacted and scattered with pieces of plaster. Plaster **016** was also found immediately on top of wall **015** along both the southern and eastern parts.

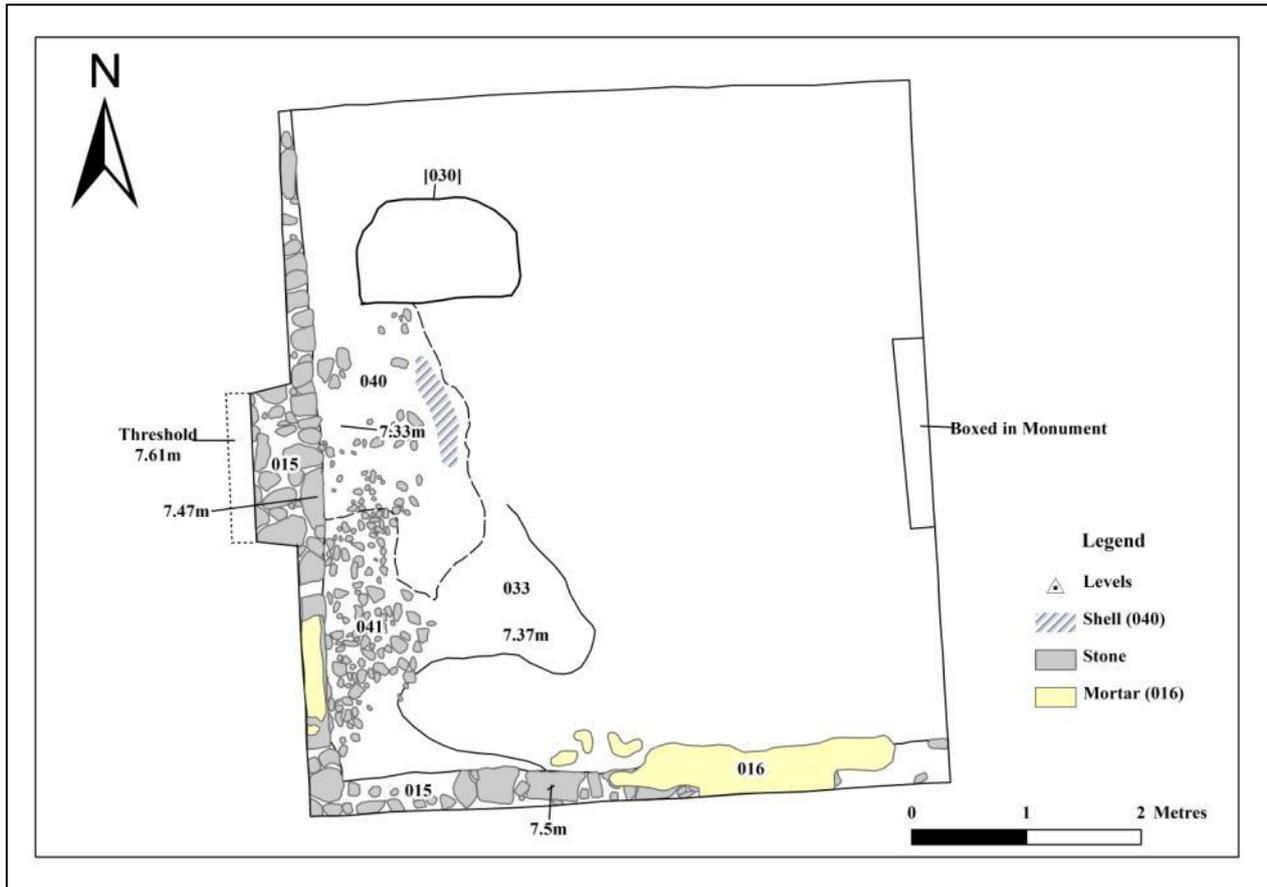


Figure 3: Trench 1 with phases 1 and 2b

Artefacts were limited to context **040** and included 22 iron nails, mostly 4-6cm in length. There were also many rodent bones including a rabbit. A concentration of shell was also found in this layer, which were frequently associated with rodent burrowing.

Some human remains were found in layer **040** amounting to 2 bags of fragments and 1 small bag of complete but disarticulated human bone.

Phase 3

This phase was represented by the placing or construction of wooden structures in the form of rectangular boxes similar to raised planting beds. The boxes consisted of circular-saw cut planks which were nailed to wooden stakes that had been driven into the ground to provide support (structures **020**, **023** and **024**).

Structure **020** was in the centre of the trench and had two modern white ceramic vases placed within the centre of the structure and a setting of stones and was around 2.3m long by 0.85m wide. The wooden boards were found to have plant roots tacked on to them with U-shaped tacks (see Plate 3).



Plate 2: Wooden structures from phase 3 (2m & 1m scales)

Structure **023** was located in the north of the trench and was around 1.8m long. The width of the structure was unclear as the wooden boards only extended 0.5m, but a board against the north wall (if it belonged to this structure) would have made it 1.2m wide. It had stones propping up the boards at its southern corners.

Structure **024** was 2m long but just 0.4m wide. The structure contained a mound of dark earth sterile of finds, shell or human bone reminiscent of gardening compost (layer **019**).



Plate 3: Roots tacked to structure 020 (40cm & 20cm scales)

The material within these structures were given separate contexts but, with the exception of **019**, were found to be part of phase 4. All wooden structures were removed in order to achieve the required ground level.

Phase 4

This phase makes up the majority of the material excavated from the trench and represents dumping of soil and other material from the graveyard, possibly for the excavation of graves, which has disturbed previous burials. Caches of disarticulated bones were also deposited in various places before the rising ground level enveloped them.

One of the earliest actions that we have evidence for in this phase was a sub-rectangular cut **[030]** 1.4m by 0.9m which contains a homogenous dark brown-grey loam which was notably soft (**031**). This surrounded two straight wooden planks **032** that were parallel to each other and were aligned along the feature (see Figure 4). This feature cut **040** and so post-dates the construction phase, but was underneath around 0.4m of **005** deposits. This was interpreted as a possible grave cut due to the size of the feature and the fact that it appeared to contain a wooden structure of some kind. However, only the top 20mm of the feature was excavated as this reached our excavation limit, so the character and depth of the feature was not established and nor was the nature of its contents. This feature and the revealed wooden object was preserved in situ.

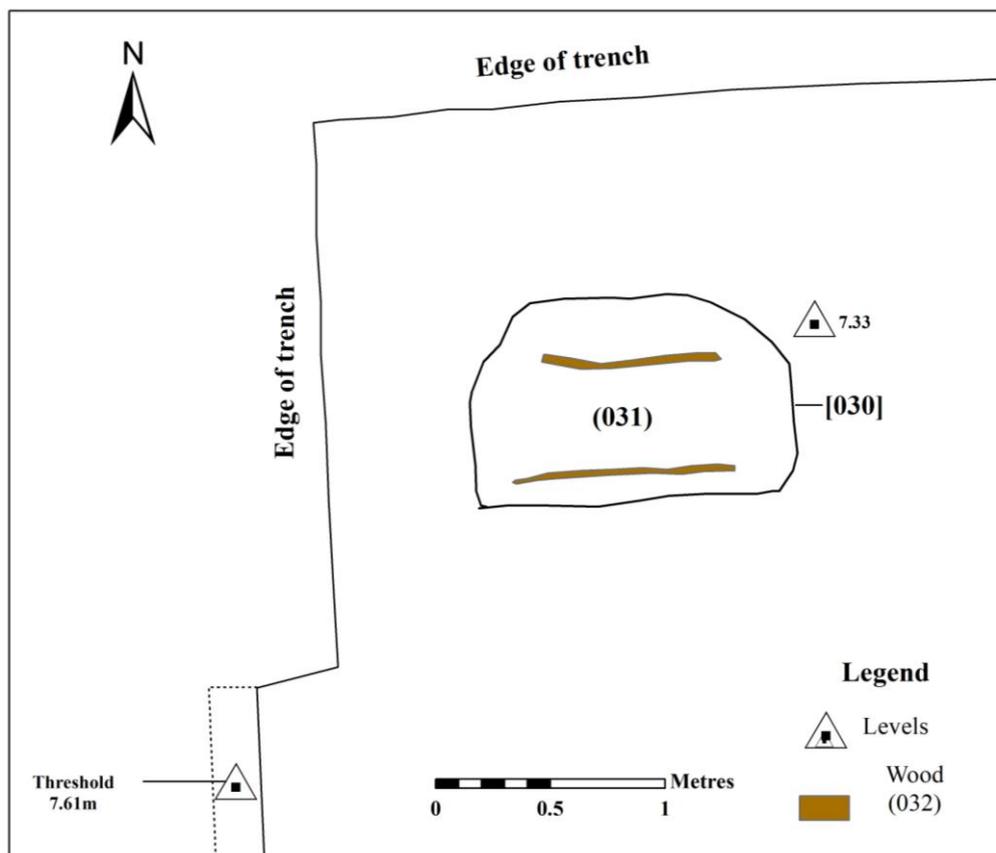


Figure 4: Cut [030] with wooden object

The principle context in this phase was **005**, a grey-brown soil of a silty-sand type with concentrations of shell. This layer represents the dumping of grave-digging soil as described above. It was mostly loose with patches of both more compact and very soft soil. Many areas had been disturbed by burrows and roots. The varying nature of the compaction and shell density is likely to represent different ‘dumping’ events, but these were not distinct enough to unpick them as separate layers. Some additional numbers were given to patches that were later interpreted as variations within 005.

This thick deposit contained quantities of disarticulated human remains as well as artefacts including 17th century coins and modern pottery dating to the late 20th century. These artefacts and human remains are

discussed in more detail below, but it is thought that the soil has been excavated from the kirkyard during the excavation of graves in the mid-20th century. This disturbed earlier burials including some from the 17th century. The excess soil was then deposited within the kirk, along with bones, grave goods and coffin furniture – sealing modern artefacts such as vases and bottles beneath. As this layer represents a single activity that has been undertaken over a prolonged period it is impossible break down the individual dumping events. Therefore **005** surrounds various other contexts, including the turf strips described on page14.

More than 40 bags of human remains were recovered from **005** and contexts that were recorded under separate numbers but represent the same activity. These remains were all disarticulated and mostly fragmentary with some complete individual bones. Many of the complete bones scattered within this context were small in size, such as toe and finger bones, which are more likely to have been accidentally included with the excavated soil when digging graves in the kirkyard.

Six caches of human bone were deposited within Trench 1, mostly near the edges of the room to the north and east (see Figure 5). The caches occur at various levels, suggesting that they were deposited at different times as the soil steadily built up within the kirk. These concentrated areas of bone contained an average of 3-4 bags of bones each. The caches represented the largest and most obvious bones from the human body including long bones and skull fragments, suggesting that these were selected following disturbance and that smaller less prominent bones may have been missed. None of the caches represent the remains of a single individual. In some instances the remains had been carefully grouped and stacked, in others they were more jumbled (see Plate 4). The act of placing each cache of human remains was recorded as an individual context (**013, 014, 021, 025, 038**) except in one instance where the remains were deposited within a cut [**007**]. This cut contained a dark lower fill (**012**) which included the human remains, and a homogenous upper fill sterile of finds or inclusions (**008**) which appears to be clean topsoil that was used to infill the cut. There were no artefacts directly associated with the bone caches.



Plate 4: Bone cache (context 021) (40cm scales)

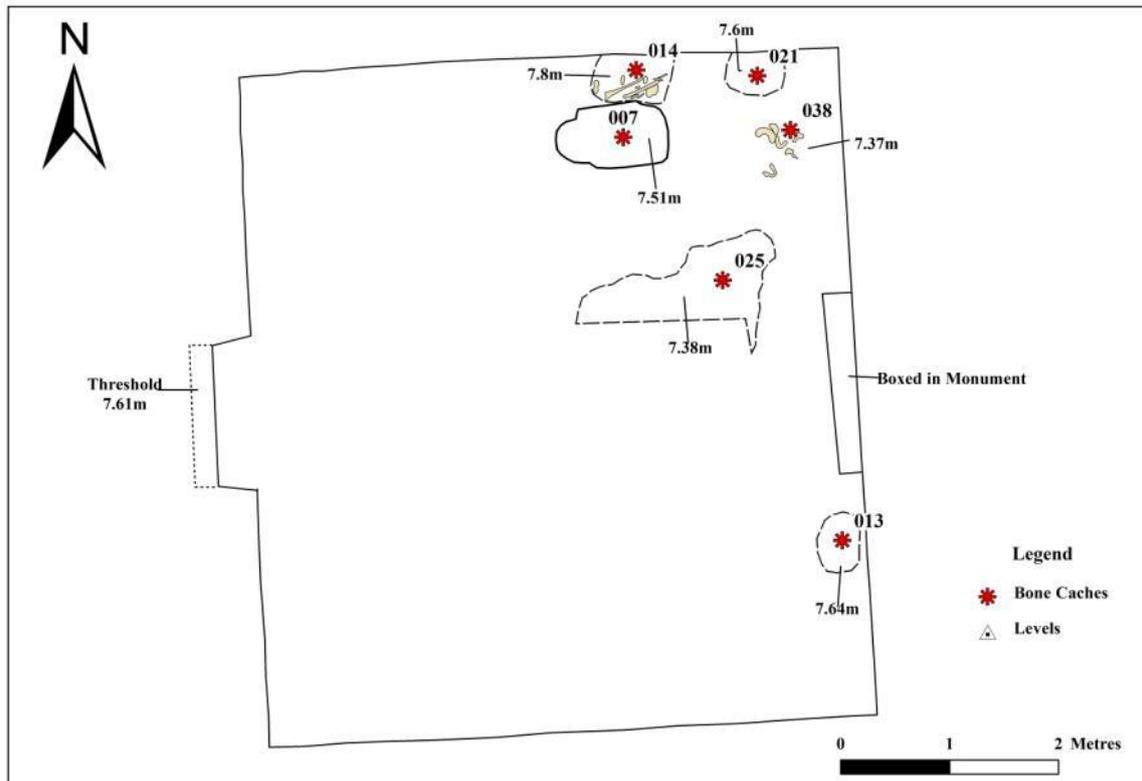


Figure 5: Bone caches, phase 4

As well as grave soil and human remains, strips of turf also seem to have been deposited within the kirk during this phase. This dense, burgundy coloured organic material was initially thought to represent a floor layer when excavated during test-pitting, but its occurrence was patchy, largely limited to the south side of trench 1 and in places the material was folded over itself, suggesting that it had been dumped as a carpet-like mass rather than laid and compressed in situ (contexts **017**, **034**, **035** and **036**). A sample of **017** was analysed under magnification with no prior processing, and found to comprise largely monocotyledonous roots, suggestive of grass, with some woody dicotyledonous roots also present. This has led to the interpretation of this material as root matting, possibly caused by turf growing over stone slabs which has been cleared and deposited within the kirk.

The artefacts that have been recovered from this phase include the most interesting finds and almost all of the Small Finds are from the 'grave deposit' layers. Most relevant to this interpretation is the coffin furniture (including coffin handles, nails, and copper alloy tacks) and shroud pins, of which there are many examples (SFs 3, 6, 7, 11, 13, 14, 17, 22 and 28).

A total of 14 copper alloy coins were also recovered from these layers (SFs 1, 2, 5, 8, 15, 16, 18, 20, 21, 23-27). All of the coins that could be identified date to the reigns of Charles I and II and were in circulation in the 17th and early 18th century. Given the nature of the other artefacts from this phase it is likely that these were present as grave goods in the graves that had been disturbed. It is not known whether there was a tradition of including coins in burials in the local area during the 17th and 18th centuries, but the fact that so many coins from this specific period have been found to the exclusion of any others suggests that it may have been so.



Plate 5: Shroud pins

Two yellow metal rings that appear to be earrings were also recovered separately, but in the same area of the trench (SF9). The lack of corrosion and colour of the metal suggests that these are low-quality gold, but X-ray

fluorescence has not been undertaken to confirm this. There are some manufacturing seams and a tiny corroded copper-alloy pin in each ring which may be a hinge to allow fitting.⁵ The rings are incredibly similar in form, although their size does vary slightly with one being of marginally greater diameter than the other. However the overall similarity of the rings suggests that they form a pair, and this reinforces the interpretation of them as earrings. (See Plate 6)

An unexpected find was a flint arrowhead, honey coloured with barbs and tang, although the tang has broken (SF4, see Plate 6). It was found within **005** and is likely to have come in with excess material from grave-digging. It is possible that this artefact has been imported from almost anywhere as a personal item which has become lost, potentially even buried as a talisman. It is also possible that prehistoric remains have been disturbed in the kirkyard whilst digging graves. Two fragments of flint debitage were also found in this trench, but in deposits belonging to different phases (SF 32 and 33).



Plate 6: Flint arrowhead (SF4) and 'gold earrings' (SF9)

There were many modern finds throughout the layers in this phase, including bottles, window glass, modern glazed ceramic vases and sherds. There were also remnants of artificial flower petals, although these were associated with areas of burrowing and were likely deposited by rodents. There were high concentrations of rodent remains in areas of burrowing as well as instances of rabbit and bird remains.

The presence of modern material throughout the layers of this phase and the style of bottles and vases recovered suggest that the material was accumulating in the mid to late 20th century. The artefacts that were carried in with the disturbed grave deposits suggest that some of the disturbed graves may have dated to the 17th or 18th centuries. The area of the kirkyard to the west of the building contains burials of both eras, and it seems likely that the kirk was being used as a convenient location for the disposal of excess soil from grave-digging in this area during the mid 20th century.

Phase 5

Overlying the redeposited excess grave deposits were several layers of modern debris and organic material relating to the most recent period of degradation and collapse.

A dark brown organic layer had accumulated within the central 4mx5m of Trench 1 as a result of damage to the roof and the subsequent infiltration of plant material and guano (**004**). Five bags of human remains were also found in this layer, but they are likely to result from disturbance to lower layers and the continued deposition of remains into the kirk as they became unearthened from across the kirkyard.⁶ A railing from the kirkyard had also been deposited within the kirk and was recovered from this context (see Figure 5).

⁵ Portable Antiquities scheme – parallel earring (Warwickshire) <https://finds.org.uk/database/artefacts/record/id/577654>

⁶ *Pers comm.* Jim Mackay, Kirkmichael Trust 2014

A scatter of slates and timbers from the disintegrating roof and collapsed timbers which had been placed in an attempt to hold it up comprise context **054**, overlying **004**. The main portion of these timbers were on the southern side of the trench where beams had been installed in an attempt to prop up the sagging roof. These supporting timbers are visible in action in photographs taken on the site for a schedule of works proposal almost 20 years ago.⁷ Roof slates were found scattered throughout this horizon across the entire trench, sandwiched between organic accumulation layers **004** and **003**.

A dark organic layer (**003**) similar to **004** was found to overlie **054**. This also contained disturbed material as some scattered and disarticulated human remains were found in this layer, amounting to 3 bags.

The uppermost and most recent deposit of Trench 1 was **002**, consisting of lime mortar, rubble, fallen slates and wood from the roof, as well as modern rubbish from renovation works. This was removed and bagged for disposal. Occasional human remains were recovered – these were pieces that had been disturbed and were apparent on the surface, having been deposited within the kirk by visitors or locals upon discovery elsewhere on the site.⁸



Plate 7: Modern material from phase 5 (2m & 1m scales)

Trench 2

Trench 2 (the ‘chancel’ at the eastern end of the kirk) was 4.4m by 4.1m. The existing deposits were already well below the threshold level at the start of excavation. There were far fewer human remains recovered from this part of the building. The principle context in this trench was **040**, a dark brown organic-rich soil containing silt and sand which was fairly compact. The upper levels contained many nails, bolts and modern

⁷ Geddes, F., 2000, *Consolidation of Kirkmichael 1662 - Schedule of Works*

⁸ *Pers comm.* Jim Mackay, Kirkmichael Trust 2014

material. Lower levels were fairly sterile. Two bags of human remains were recovered from this layer, mostly fragmentary with only a few examples of small complete bones.

A dark yellow loose sand (042) was also uncovered in the western part of the trench. This was thought to relate to a phase of re-rendering the building.

An earlier threshold was uncovered at the limits of the excavation (0.3m below the current threshold). This was a sandstone slab with little sign of erosion or wear set into the lower wall that is likely to relate to an earlier phase of doorway (see Plate 8). This was covered by geotextile and preserved in situ beneath the present floor.



Plate 8: Lower threshold in Trench 2 (40cm & 20cm Scales)

Watching Brief

A watching brief was in progress at Kirkmichael during the entire redevelopment project in order to monitor and record any disturbance to the ground as there was such a high probability of disturbing human remains and the potential to uncover sensitive archaeology.

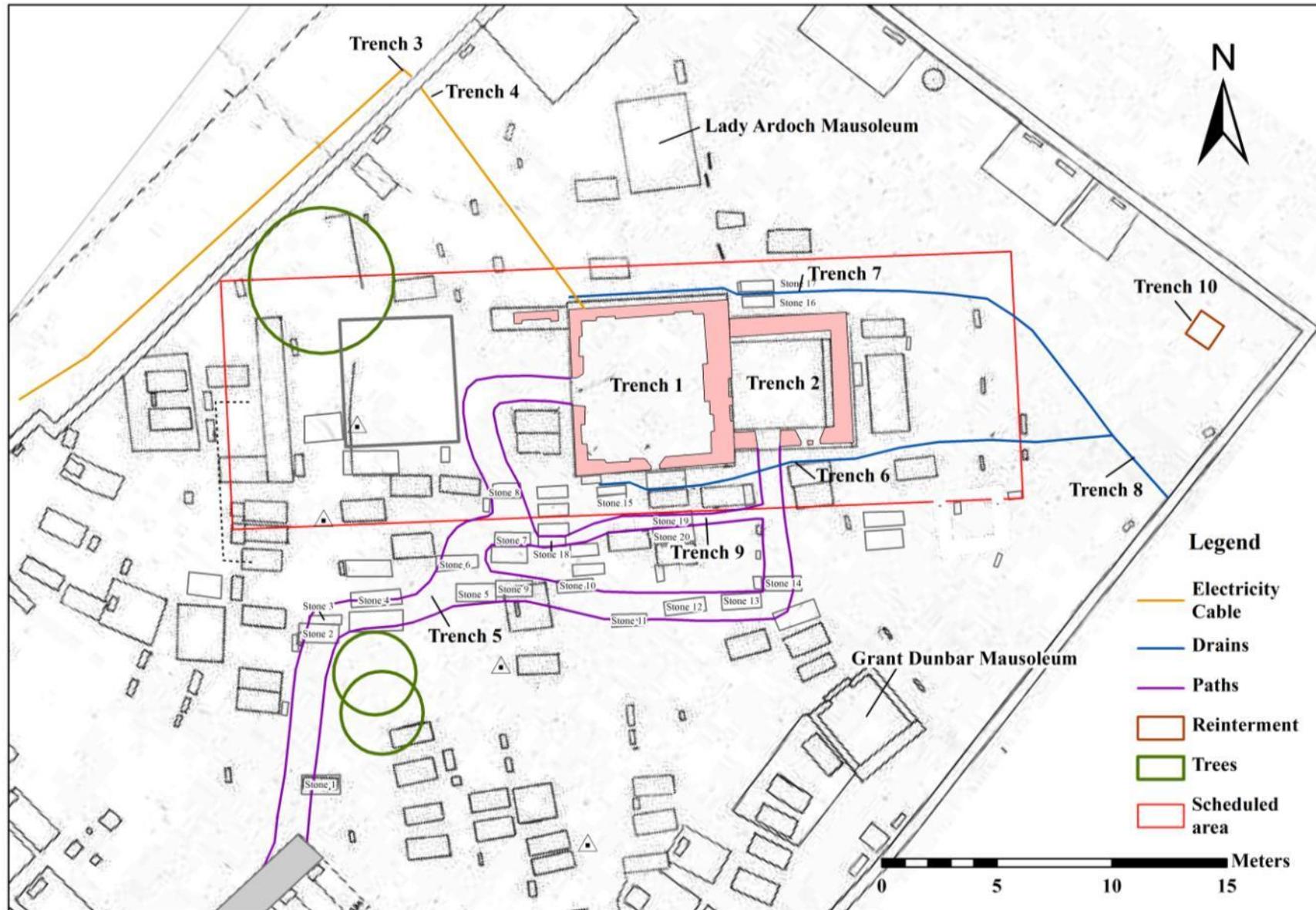


Figure 6: Trench layout

Electricity Cable

An underground electric cable was installed from a connection point between the site and Gordons Mill (to the south west of Kirkmichael). **Trench 3** was machine excavated from the connection point along the road-side to outside the kirkyard wall. This was monitored by a qualified archaeologist. The cable was then taken through the kirkyard wall. Within the cartilage of the kirkyard the cable was laid 600mm below current ground level (**Trench 4**). This would take the cable directly from the kirkyard wall through the northern wall of the kirk itself. This varied from the original proposal (see Figure 2) in order to avoid disturbance of the threshold and earlier wall remains to the west of the Kirk. This route contained no visible monuments on the surface.

Drainage

Drainage ditches were excavated along the north and south sides of the kirk approximately 1m from the walls, 0.5m in depth and 0.35m wide (**Trench 7** to the north of the kirk, **Trench 6** to the south). A slope was then cut between the kirk wall and the drain in order to carry water away from the walls towards the drain. These drainage channels continued to the east of the church, utilising the natural slope of the site and merged (**Trench 8**) to be taken through the kirkyard wall in the south east of the kirkyard. Monuments visible on the surface were avoided.

Paths

Paths have been included in the project design from the outset as an essential means of improving the accessibility of the kirk for visitors and to cater for the projected increase in visitor numbers following the development. The main path required a trench to be excavated 1.5m wide (**Trench 5**), except in areas where monument locations or terrain necessitated a slightly narrower path. A narrow 'desire line' path approximately 0.8m wide was installed to the south of the kirk (**Trench 9**) in order to formalise a route which is used as a short cut between the two entrances. All path trenches were just 100mm deep in order to allow a hardcore base and gravel to be installed.

A route was chosen which avoided monuments that were visible at ground level. Monuments that were uncovered were given a number, measured, and scaled photographs were taken. Those that had visible carvings were drawn at 1:20 scale. In some instances the depth of the trench was increased to reveal the whole of a stone in order to ensure that it was fully recorded before being covered by the path.

Monuments to be covered by the path were protected with a layer of Bentonite matting and geotextile.

Mausolea

During repair of the Lady Ardoch and Grant Dunbar Mausolea site visits were undertaken and the process was recorded photographically. Brief excavations in order to remove a tree-stump from the upper deposits of the Grant Dunbar Mausoleum were supervised by an archaeologist.

Results

Trench 3

This trench was located against the outside of the kirkyard wall to the north west of the kirk in order to accommodate the electricity cable and the post to support an electrical box. Most of the trench was excavated by machine in mid-January 2017 and visited by an archaeologist to monitor. The area immediately adjacent to the graveyard wall, however, was excavated by hand and an archaeologist was called to record and remove a layer of stones that was uncovered. This took place on 10th and 11th January 2017. The portion hand excavated was 0.8m x 0.3m and was excavated to a depth of 0.4m.

043 = medium and large stones (100-200mm) tumbled against the graveyard wall. Various shapes and stone types. Rubble from wall which has collapsed but not been re-incorporated into the structure. Extended across the entire area opened, approximately 0.75m x 0.5m.

044 = medium sized stones (approx 100mm) underlying (43), densely packed. Likely to also be wall infill or possibly a rough surface. Patches of lime mortar amongst and on top of stones. Pieces of modern glazed pottery, wire and glass found around the stones. Extended approximately 0.3m from the wall for the width of the area opened (0.75m).

045 = dark brown homogenous organic rich soil outside graveyard wall. Surrounds 043 and 044.

Finds consisted of 3 earthenware jars, one fragmentary and 2 complete with slight damage (see Plate 9). These were found amongst the stones forming context 044. They appear to have been cleared from the graveyard and placed against the kirkyard wall (see Plate 9).



Plate 9: Earthenware from layer 44 (20cm scale)

Trench 4

This trench was located from a point on the inside of the kirkyard wall to the north west of the kirk in order to accommodate the electricity cable. It was 11.8m long by 0.3m wide and 0.6m deep, and was excavated by hand by volunteers and a professional archaeologist. The majority of the trench was excavated on 23rd January 2017, but the portion of the trench within the Scheduled Monument Area was excavated on 21st February 2017 with no further discoveries.

046 = mid-grey/brown homogenous sandy topsoil within cable trench in graveyard. This was present for the full depth of the trench (0.6m). Some disarticulated human remains were recovered from this layer.

047 = single layer of rounded stones in dense concentration possibly aligned parallel to kirk, 0.2m below surface level. Initially thought to be a path but a cache of human remains found immediately underneath suggest that this in fact represents redeposited material from a disturbed grave. Human remains were left in situ as they were held securely within the edge of the trench.

048 = tumble of medium and large stones (100-200mm) immediately against kirkyard wall and extending around 0.6m, 0.4m below surface level. Very loose with voids between stones. This probably relates to 043 above, representing rubble from the wall which has collapsed but not been re-incorporated into the structure (see Plate 10).



Plate 10: tumble of stones 048 on inside of kirkyard wall (40cm scale)

Trench 5

This shallow trench for laying the broad path was located to the south and south west of the kirk. In total it was approximately 50m in length and between 1-1.5m wide. Most of the trench was outside the scheduled area but the portions approaching the entrances of the Kirk were. Fourteen stone burial monuments were uncovered within the topsoil, which was the only context. Photographs of all of the stones can be seen in the appendices. All stones found were oriented east-west.

049 = mid-grey/brown homogenous sandy topsoil within main path trench in graveyard. This is the same as layer 046 but the relationship was not stratigraphically proven.

Stone 1 = Uncovered corner of square sandstone monumental slab with inscription. Only a small part of the stone was revealed within the trench and the turf was temporarily pulled back to reveal the rest of the inscription. This read 'I.D. I.F. T.D. 1728'. The eastern end of the stone is 0.82m wide, 0.64m of the length of the stone was revealed for recording and only around 200mm is underneath the new path.

Stone 2 = Stone very close to the surface set at an angle with one long edge above turf level. This stone is very roughly carved with letters and a date (probably 1781) which are not level, and the surface of the stone is very irregular. It is possible that this is the underside of the stone and it has been used for practicing carving. Some linear scratches on the lower part of the stone may be sharpening marks. The stone is 1.7m long and 0.82m wide. Partially overlies stone 3 (See Figure 7).

Stone 3 = This is also lying at an angle so that it dives underneath Stone 2. The only visible inscription is the date '1760'. 1.2m of the length of the stone and 0.4m of the width was revealed, the rest underlying stone 2 to the south and the turf to the west.

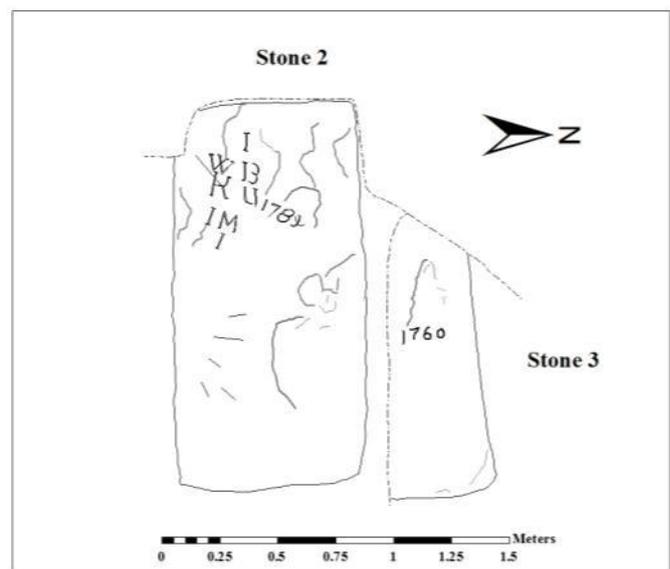


Figure 7: Stones 2 and 3

Stone 4 = lying directly to the north of the Kirkmichael Cross slab is this stone, which appears to be of similar proportions. Approximately 1.8m long. Only a 200mm wide strip of its southern edge was revealed. No carving or inscription was visible.

Stone 5 = To the east of the Kirkmichael Cross approximately 4-5m away lies this stone, inscribed with text dedicated to 3 individuals. The inscription reads “Here lys the body of Donal Aird who die[d] [F]ebry the 5th 1781, Allso his spouse Isobel Inness, Alexr Aird”. There is a chamfered border around the edge of this stone and the letters occasionally encroach upon it. The stone is 1.7m long and 0.7m wide.



Plate 11: Stone 5 (1m & 40cm scales)

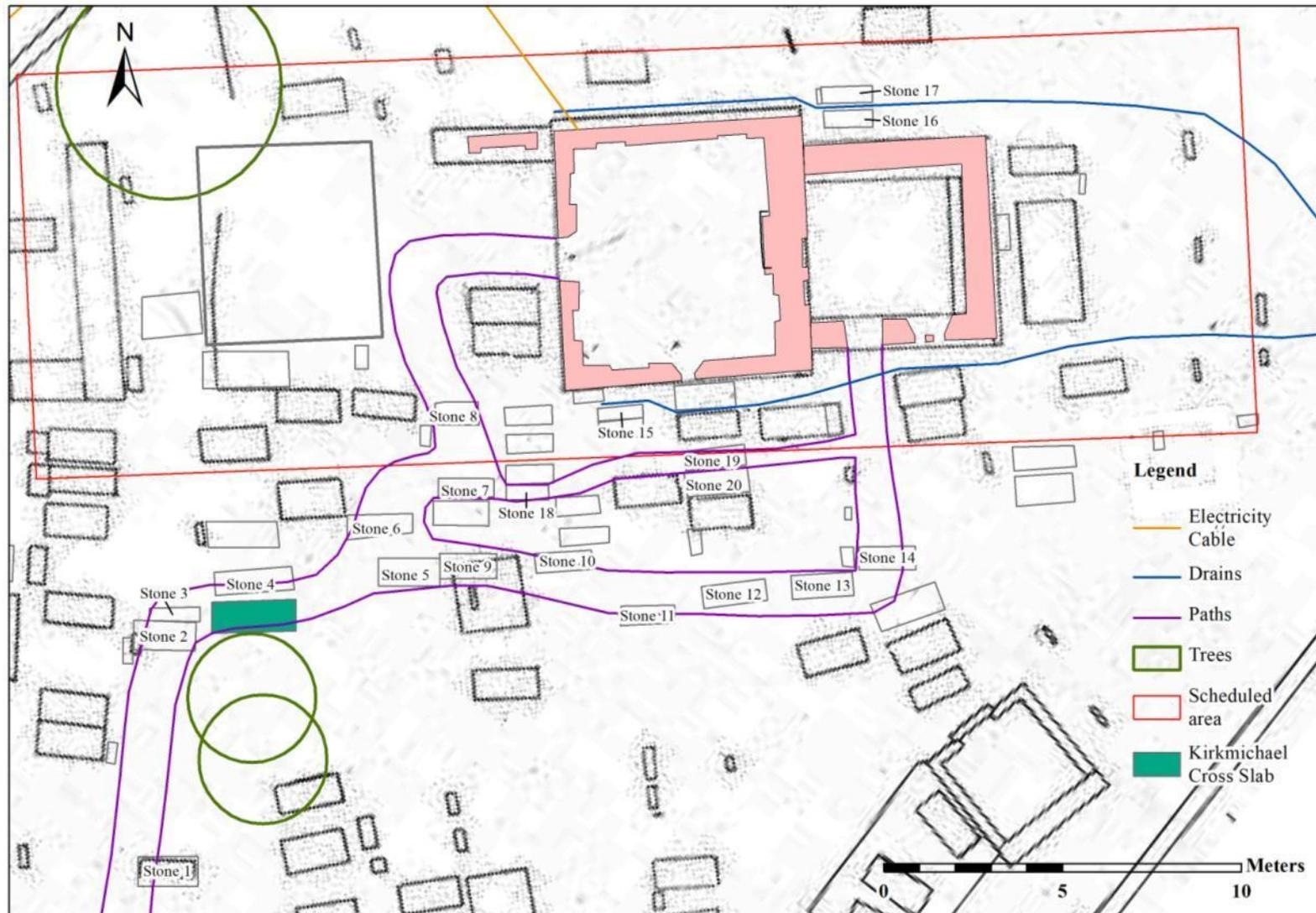


Figure 8: Plan of kirkyard showing stone slabs uncovered during watching brief

Stone 6 = To the north of Stone 5 lies this magnificent stone inscribed with a claymore type sword and with a surrounding inscription reading “10 Aprilis 1600 Ihone Hosok in Kirkmichael hes preparid this sepulture for himself & his posteritie, and Marion Patirson his spous”. It also bears the initials ‘W. H.’. This stone was seen by John Borland of Historic Environment Scotland who confirmed that the early 17th century date was consistent with the sword inscription, although this is an example of a pre-reformation fashion which was retained for some time in the local area. The spouse inscription seems to have been added later and the initials may also be a later addition. The stone is 1.83m long and has a maximum width of 0.77m at the eastern end tapering to 0.65m at the western end. (Figure 9)

Stone 7 = This stone is carved with the initials ‘T.F.’ and ‘I.F.’ in an elaborate box with a wigged skull and crossed bones below. This sandstone slab is remarkably curved, bowing upwards in the middle. This is likely to have been the case when the slab was taken from the quarry, reflecting the grain of the sandstone rather than as a result of any deliberate shaping or warping. The dimensions of the stone are 1.7m by 0.62m.

Stone 8 = A short stone that has suffered considerable damage and may have lost a good portion of its lower end, it is nevertheless oriented east-west just south of the foundations of the earlier kirk wall. It bears the initials ‘I.F.’ and ‘M. F.’ and a simple linear border. The stone survives to 1.25 long and 0.7m wide with very battered edges and corners.

Stone 9 = This stone lies to the immediate east of Stone 5 and at a lower level so that it is partially overlaid by it. It bears a simple border decoration and the initials ‘DT’ and ‘KMC’, but no date or further decoration. The stone is 1.8m long by 0.7m wide.

Stone 10 = This remarkably long stone (around 2.15m long) only had a thin strip max. 200mm wide to be covered by the path, but the turf overlying the stone was temporarily lifted to check for surviving inscriptions. It was found that there were no surviving details as the face of the stone has suffered from lamination, apparently historically as no laminated parts were present in the lifted turf.

Stone 11 = The edge of another long stone around 2.05m long with a double line border. No further turf was removed so no inscription was seen or recorded.

Stone 12 = This stone has a linear border and worn inscription, which reads “David Grant, Mary (Wil?)son, 1717”. There is no other decoration. The stone is 1.84m long by 0.72m wide. There is a stone immediately to the south of this but only the very edge was revealed.

Stone 13 = An elaborately carved stone which has a deeply recessed box at the head containing a relief stags head, which appears to be the emblem of the clan MacKenzie. Beneath this are the initial ‘HG’ to one side and a space on the other, possibly awaiting initials. The date 1710 or

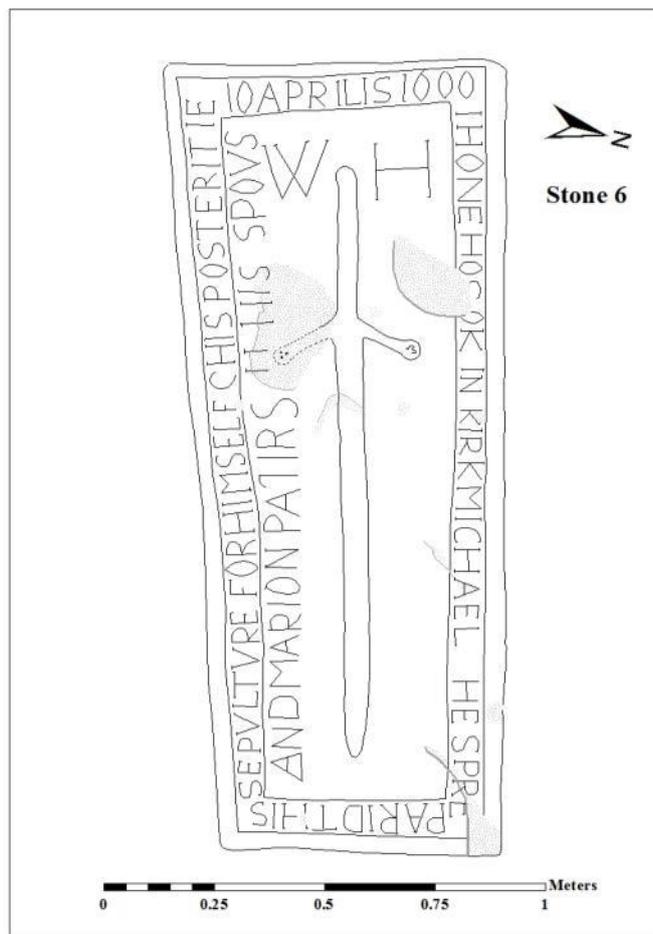


Figure 9: Stone 6 - sword stone with inscription

possibly 1760 is beneath the initials. In the lower half of the stone are various symbols of mortality carved in relief, including a coffin and hourglass, but they are very heavily worn and the others could not be made out. A narrow channel at the bottom of the stone allows water to run out of the deeply carved areas. The stone is approximately 1.78m long by 0.6m at the widest end, which is to the west, and around 0.56m wide at the eastern end.

Stone 14 = A blank slab which lies to the south of the Chancel entrance. At the time of the watching brief this was underlying a fallen headstone dedicated to Robert MacKenzie and Christina Holn in the mid-19th century. It was found that the lower parts of this headstone were still present at the head of the blank slab, so they may be associated. The slab is 1.7m long by 0.7m wide at the west end and 0.6m wide at the western end.

Trench 6

This Trench was positioned immediately south of the southern Kirk wall. Excavation started on 21st February and was completed on 23rd February. It was around 100mm deep against the wall sloping down and away from the kirk to around 200mm deep, and with a channel 0.5m deep and 300mm wide around 1m away from the kirk. This trench ran along the south Kirkyard wall until it joined Trench 8 and was around 22m long. The position of the channel was adjusted in order to skirt around various slabs hugging this side of the kirk, including stone 15 and a pair of stones immediately adjacent to the wall (see Plate 12). These two stones are raised above the surface and had been boxed in to protect them during development. They have not been recorded as they are surface monuments that are well understood and recorded by the Trust already.

050 = mid grey brown homogenous sandy topsoil within drainage trench against south kirk wall. Some shell inclusions and fragmentary human remains.

Stone 15 = Stone partially uncovered during turf removal, only 200mm width revealed and 1.6m in length. A simple liner border has been carved around the edge of the stone but no further inscription revealed. The channel ditch ran along north side of the monument.



Plate 12: Trench 6 with monuments (Stone 15 in foreground)

Trench 7

Trench 7 had the same dimensions as Trench 6 but was located to the north of the kirk and was 26m in length. Excavation of this trench started on 21st February and was completed on 23rd February. The majority of this trench was within the Scheduled area. The deeper channel was positioned between stones 16 and 17 which were revealed when excavating the trench.

051 = mid grey brown homogenous sandy topsoil within drainage trench against the north Kirk wall. A cache of human bone was discovered close to the Kirk's north wall approximately 3m from the north west corner of the Kirk 100mm below the surface. This contained several skull fragments and long bone fragments. The pieces of skull appeared to represent more than one individual. The bones were photographed in situ and the upper bones were removed, revealing more bones underneath approximately 20mm below the surface. These were also photographed but covered in geo-textile and left in situ following advice from HES as they did not need to be disturbed for the development.

Two small stone slabs were uncovered to the north of the chancel (at the east end of the Kirk):

Stone 16 = This short slab is oriented east-west respecting the line of the Kirk, but slopes downwards slightly to the north east. The highest part of the slab (the south west corner) was around 40mm below the surface but the lowest corner (the north east) is around 200mm below surface level. The stone was around 200-300mm away from the north wall of the chancel. It is 1.45m in length by 0.5m wide at the west end and 0.4m at the eastern end. The slab has sharp corners showing little sign of damage or degradation but no apparent inscriptions or markings.

Stone 17 = To the immediate north of Stone 16 lies this stone, partially uncovered by the trench and approximately 200mm below the surface. It is oriented east-west and slopes down to the north. It is 1.45m in length but the full width was not established, a maximum of 0.5m was revealed. This stone also has sharp corners and edges with no damage, but no inscription apparent. A small headstone is present against its western edge and leaning over the stone, standing 200mm taller than the slab, 180mm of its width was revealed and it was around 50mm thick. This also appeared to bear no inscription.

The deeper drainage channel was excavated between these slabs and the ground around them sloped to ensure that water could be carried away from the slabs and the Kirk.



Plate 13: Stones 16 and 17 north of the chancel in Trench 7 (1m scale)

Trench 8

This trench formed the final 3.5m of the drainage trench after Trenches 6 and 7 merged and carrying the water through the kirkyard up to the kirkyard wall. A hole was later cut through the kirkyard wall so that the water could join a drainage ditch in adjacent farmland. The entirety of this trench was outside the Scheduled area and was excavated on 24th February 2017. It was 0.3m wide and 0.6m deep.

052 = mid grey brown homogenous sandy topsoil within drainage ditch trench in east of kirkyard.

053 = large tumbled stones (mostly 10-20cm) with some patches of mortar, located near (but not up against) the kirkyard wall extending 1.5m, slopes downwards so southern part is close to the surface but towards the north the stones are 250mm below the surface. Surrounded by topsoil (052). This appears to represent tumble from a previous phase of wall, but it abruptly stops around 0.5m away from the present wall. This suggests that it may have been cleared when the wall was constructed.



Plate 14: Tumble of stones in Trench 8 (1m scale)

Trench 9

This shallow trench formalises a ‘desire line’ path between the two entrances to the Kirk. It was around 0.6m wide and 10m long, running along the southern edge of the Scheduled Area. Three monumental stone slabs were uncovered in this area:

Stone 18 = Stone slab 1.5m long and 0.5m wide, oriented east-west and with inscriptions on the western end. Parts of the stone are worn and so the initials cannot be made out in all areas, but it appears to read “W ?, H ?, 1726, A U, 1805, ♥, H S”. The eastern end of the slab is irregular and may be incomplete.

Stone 19 = Stone slab 1.8m long not fully exposed but 0.65m width revealed. Inscribed with a name ‘John Urquhart’ with some suggestions of decorative carving including boxes and a possible hourglass. There is a deep circular hole approximately 40mm wide and 30-40mm deep just below the carved name. The stone surface is irregular and damaged in many places.

Stone 20 = A slab immediately to the south of Stone 19, 2.1m long and just over 0.6m wide. It is inscribed with an outline of a claymore-like sword in the centre with a lettered border around the edge of the stone reading “?NE WRQWHART ◊ INS?RIS ◊ HES PREPARIT ◊ TIS ◊ SEPWLTUR FOR ◊ HIM ◊ SELF ◊ ANNAS ◊ WRQWHART ◊ OF HAIR ◊ POSTERITI ◊ 1630”. Within the border and overlying the sword carving is also the inscription “1739 JOHN URQUHART, EUPHIEM PATERSON, THOMAS URQUHART”.



Plate 15: Stone 20 (foreground) with Stone 19 before cleaning, Trench 9 (1m scale)

Trench 10

A trench was excavated in order to reinter the human remains that had been recovered throughout the development works from both the excavation and watching brief phases. The location was selected for its lack of monuments and because this area of the kirkyard was thought to be free of burials. The trench was 1.2m square and around 1m deep in order to allow a specially constructed box containing the human remains to be buried. The excavations took place on 4th August with a

team of volunteers supervised by a professional Archaeologist. No archaeological deposits, cuts or artefacts were found.

056 = Mid grey brown homogenous sandy topsoil within reinterment trench in east corner of kirkyard. Some stones of various sizes throughout soil.

Mausolea

During repair of the Lady Ardoch and Grant Dunbar Mausolea site visits were undertaken. Brief excavations in order to remove a tree-stump from the upper deposits of the **Grant Dunbar Mausoleum** were supervised by an archaeologist on 8th September 2016. Some disarticulated human remains were recovered, but no artefacts or ecofacts were encountered. Only the area immediately surrounding the tree stump in the north corner of the mausoleum was excavated to around 150mm deep.

001 – Mid-brown loam within Grant Dunbar Mausoleum. Very homogenous, rich with organic material. Disturbed by burrowing and roots. Some rodent bones encountered but not kept. A few fragments of human bones were recovered including part of a small mandible.

Site visits were regularly undertaken during deconstruction of the **Lady Ardoch mausoleum** in August and September 2016. Stones were numbered and their positions recorded by the stonemason team at Laing Traditional Masonry in order to facilitate reconstruction. The site visits were conducted in order to monitor disturbance to the monument, ensuring that the central material was preserved in situ if possible and checking stones for signs of re-use. All the capping stone slabs around the top of the monument were checked for previous inscriptions or decoration, but none was found. However, two of the stone blocks were found to have evidence of previous working for architectural use rather than monumental (see Plate 16). The shaped surfaces were placed facing the inside of the monument, and whereas the other blocks were of pink sandstone these two pieces are yellow, suggesting that they have been found and utilised rather than imported specifically for use. They may be residual stones from previous phases of the kirk.



Plate 16: Worked stones from Lady Ardoch Mausoleum (1m scales)

A watching brief was conducted a year later on 4th August 2017 to supervise excavations for installation of the new interpretation board posts for both mausoleums. No artefacts or human remains were found during these works.

Post-excavation Analysis

A significant quantity of previously disturbed and disarticulated human remains were recovered during the project, as well as artefacts and animal bone. The post-excavation research design objective was to form an adequate record of the archaeological remains that have been recovered during the development and provide a basic narrative of the recovered material, in line with professional guidance. The rationalisation of recovered artefacts has been included in the main body of the report.

Human Remains

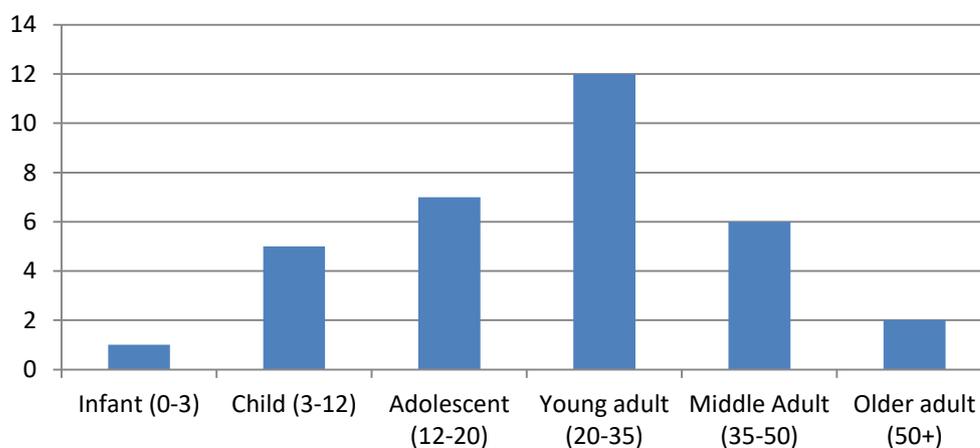
As expected a large number of disturbed and disarticulated human remains were uncovered, with a total of 94 bags recovered. Many of these were excavated directly from each context, smaller fragments were recovered from the sieve and bagged according to context. No articulated remains were encountered. Where remains were removed from the final formation level these were recorded as 'unstratified' as the specific context could not be confirmed.

After cleaning and drying the human remains were assessed for potential analytical value. Mandibles and near-complete skulls were used to provide a minimum individual count and the approximate age range was assessed for each example. Complete bones with little or no abrasion were selected for further pathological analysis so that the surfaces could be accurately studied. 29 bags of human remains were set aside for analysis. A rapid visual assessment was made by a professional archaeologist⁹ to identify obvious evidence of pathologies which have had a significant effect upon bones, such as arthritis, rickets and dental abscesses. As this was a rapid assessment subtle pathologies were under-represented in the final analysis

Minimum Individuals and Age Range

Twenty six complete and partial mandibles were analysed, and as these were the most prevalent bone type represent the minimum individual count. It is probable that the actual number of individuals represented was far higher than this, but due to the disarticulated and fragmentary nature of the remains a more accurate number cannot be gleaned without significant forensic analysis. Nevertheless, it can be demonstrated that a reasonably high number of burials have been disturbed by historic grave-digging practices, leading to a quantity of human remains being redeposited.

Age ranges of examined Human Remains



⁹ This archaeologist was Sue Higgins BA ACIFA FSA Scot, who has 30 years of experience identifying and interpreting artefactual, ecofactual and human remains for commercial archaeological projects, including the human bone assessment for Cromarty East Church 2010.

The mandibles, maxilla and near-complete skulls were also assessed for likely age ranges, based upon tooth eruptions and dental wear. It was found that of the 42 remains examined the most commonly represented age range was young adult (20-35 years) with 12 examples (see chart p.29). Whilst this was a random sample which cannot be taken as a representative figure of the mortality rates of the parish it is striking that 28% of the remains analysed fell into this age range, which would usually be assumed have the lowest mortality rate.

The least commonly represented age range was infant (0-3 years) with just one example. Whilst it can be expected that infant mortality rates were higher than this example suggests the fragile nature of infant bone will lead this age range to be under-represented. An approximate age could not be established for 9 of the remains.

Pathologies

Many of the human remains set aside for analysis had no notable pathologies or trauma. However, one commonly noted ailment was osteoarthritis, present as bony extrusions on many of the bones, and ankylosis, present in two instances - **005** number 26, and **039** number 4 – with the former being most extreme (see Plate 17). In this instance it indicates prolonged activity causing strain to the lower back. The vertebrae have fused along one side in this instance, which would limit movement and may have been very painful as the discs collapsed. The prevalence of arthritis, still common today, suggests frequent physical activity or advanced age.



Plate 17: Ossified vertebrae (**005** number 26) (7.5cm & 4.5cm scales)

There are also frequent instances of teeth caries, abscesses and calculus deposits, implying poor diet and dental hygiene. Many of these symptoms are often associated with older adults.

Poor health indicators include teeth with hypoplasia (**003** number 1; **038** number 4 and **Tr.6 U/S** number 2) which are formed as the teeth develop and indicate dietary or disease stress during childhood. Skull 012 has pitting in the orbitals, indicating anaemia, or iron deficiency. Several bones exhibit evidence of osteomyelitis (**005** numbers 23, 24, 32 and 33; **021** number 1 and **025** number 2) and periostitis (**039** numbers 3 and 5); these are both symptoms of an infection in the bone or periosteum caused by infection, trauma or disease such as tuberculosis. The bone pathologies suggest a population engaged in physical activity causing wear and tear to the bones, but also poor diet causing decay to teeth and some indications of dietary deficiency.

Two ribs present signs of trauma (**003** number 3, and **005** number 27); both have cut marks which are indicative of a violent action – maybe an assault. There is no sign of healing in **005** number 27, and it is possible that this was a cause of death (see Plate 18).



Plate 18: Rib with cuts, 005 number 27

Discussion

The works at Kirkmichael have highlighted the intensive use of the site as a burial ground over the last 400 years. Many monuments dating to the 17th and 18th centuries were uncovered and recorded during the watching brief, and 12 coins dating to this period found within the kirk suggest that other graves dating to this time have been disturbed elsewhere on the site. This disturbance of graves was prevalent, and fragmentary human remains were discovered in almost all trenches in the immediate vicinity of the kirk. Within the kirk itself (Trench 1) a great depth of material containing human remains had accumulated, nearly half a metre of which was removed during the excavation to bring the ground level down to 300mm below the threshold for installation of flooring. The modern ceramics and glass found throughout these deposits attest to its recent nature.

Although the human remains were clearly deposited in recent times (as demonstrated by the recovery of modern ceramics and glass in the soil surrounding them) the human remains themselves may be much earlier, and indeed from a range of periods. This is suggested by the recovery of 14 coins dating to the 17th and 18th centuries. The caches of bones and varied nature of the soil suggests a series of small scale disturbance events rather than a single large scale disturbance event. This is consistent with earlier graves being disturbed during excavation of more recent burials. The remains of at least 26 individuals had been disturbed in this way, but probably many more. Approximate age ranges were established for 42 bones and all age groups were represented, but the most frequent was the young adult age group (20-35 years). Pathologies suggested a much more aged demographic with frequent occurrences of osteoarthritis and tooth decay, although these may be caused by manual labour and poor diet. There was some evidence of dietary deficiency and disease. These conclusions can not be attributed to a particular period or population demographic, but does give a general impression of the health of the local historical population and the data can be accessed for future studies.

Within the kirk also was evidence of other activity, which could not be characterised. Three modern wooden structures within the west of the kirk were uncovered during the excavation, one with roots stapled to the side and one containing compost-like material. This suggests that they may have had a horticultural use, but this interpretation is far from certain. The footings of a previous wall were also uncovered, which is only slightly misaligned to the current wall, suggesting an earlier phase of the mausoleum rather than the foundations of the medieval kirk. Layers of sandy material, lime and small stones appear to attest to a renovation phase which may relate to the construction of the current walls or with them being refaced with the ashlar blockwork visible today, which has been restored to its former glory as part of this redevelopment project.

Appendices

Appendix 1 – Human Remains Report

Assessment report on the Human Remains recovered from fieldwork on the graveyard around Kirkmichael old Kirk – by Sue Higgins

Introduction

The Centre for Archaeology Guidelines for producing assessment documents and analytical reports (English Heritage 2004) states that '*Cemetery excavations generally produce significant quantities of disturbed, disarticulated skeletal material. Such material is of limited scientific value*'; as this material is not dateable or attributable to a particular individual it is not possible to compare related individual data, such as bone size and age at death.

The assemblage considered here resulted from fieldwork at Kirkmichael, comprising hand-excavation of a level reduction within the church buildings, and service runs in the church yard. All spoil was dry sieved on site, and recognisable human bone recovered.

All human remains were washed and an agreement reached with Historic Environment Scotland for analysis to be limited to a brief visual examination to be conducted on those bones identified as having potential for age/sex to be determined, and/or pathologies to be recognised. Given the nature of the deposits from which the assemblage was recovered contextual dating is difficult.

Assemblage

38 fragments of skull/maxilla and mandibles were examined for signs of pathology and to determine age. The fragments were labelled with their context number and individual numbering with that context.

Age at death was estimated using dental wear criteria described in White and Folkens (2005); specifically, p369 Figure 19.3 based on Lovejoy (1985), dental development (p 366 Figure 19.1 adapted from Ubelaker (1989), and cranial suture closure (p370 Figure 19.4 based on Meindl and Lovejoy (1985).

Key to Table 1

L or R = left or right

I = incisor; C – Canine; P= premolar; M = molar

¹, ², ³, ⁴ = position of tooth i.e. LM² = second left molar in maxilla; LM₂ = second left molar in mandible

Capital letter C = adult, permanent; lower case letter dc = deciduous, milk teeth

Table 1

Context	Individual no.	Description	Estimated Age
MANDIBLE/MAXILLA			
002 <i>No photo</i>	1	Left mandible, good condition, some calculus on remaining teeth - L1 ₂ (broken); LP ₃ ; LM ₁ ; LM ₂	15 years (+/- 3 years)
003 <i>Photo x 2</i>	1	Complete mandible, thin bone density, deciduous teeth, in good condition, some signs of hypoplasia Ldm ₂ ; Ldm ₁ ; Ldc ₁ ; LI ₁ (in jaw); Rdc ₁ ; Rdm ₁ ; Rdm ₂	5 years (+/- 1.5 years)
<i>Photo</i>	2	Mandible with condyles missing, deciduous teeth Ldm ₂ ; Ldm ₁ ; Rdm ₁ ; Rdm ₂	4 years (+/- 1 year)
004 <i>Photo</i>	1	Left part mandible, teeth with abscess LM ₁ , slight calculus on teeth. LP ₄ , LM ₁ , LM ₂ ,	15 years (+/- 3 years)
<i>Photo</i>	2	Mesial section mandible, all teeth very worn LC ₁ ; RC ₁ ; RP ₃ ; RP ₄ (missing, jaw healed over); RM ₁	21 years
<i>Photo x 3</i>	3	Mandible with right condyle missing. Remaining teeth are worn with calculus LC ₁ ; LI ₂ ; LI ₁ ; RI ₁ ; RI ₂ ; RP ₃ ; RP ₄	21 years
<i>No photo</i>	4	Partial maxilla with 2 remaining teeth in good condition – RM ¹ ; RM ²	18-22 years
<i>No photo</i>	5	Partial maxilla with 3 remaining deciduous teeth Rdm ² ; Rdc ¹ (erupting); Rdi ¹ (visible in jaw)	18 months – 2 years (+/- 8 months)
005 <i>No photo</i>	1	Broken mandible RP ₄ (visible in jaw); Rdm ₁ ; RC ₁ (visible in jaw)	3 or 4 years (+/- 1 year)
<i>No photo</i>	2	Partial right mandible, only RM ₂ remaining with little wear and some calculus	?
<i>No photo</i>	3	Partial left mandible with LM ₂ ; LM ₁ both with cracked enamel	?
<i>No photo</i>	4	Partial right mandible, heavy wear on remaining teeth and all have large caries RM ₁ ; RM ₂ ; RM ₃	40- 45 years
<i>No photo</i>	5	Partial left mandible, heavy wear on remaining teeth with enamel on occlusal surface worn away. Calculus on all a caries between LM ₁ and LM ₂ LP ₃ ; LP ₄ ; LM ₁ ; LM ₂ ; LM ₃	45 – 55 years
<i>No photo</i>	6	Partial right mandible, some wear and calculus RI ₂ ; RC ₁ ; RP ₄ ; RM ₁ ; RM ₂	30 – 35 years
<i>No photo</i>	7	Partial left mandible, some wear, calculus and bone degradation RI ₂ ; LI ₁ ; LI ₂ ; LC ₁ ; LP ₃ ; (LP ₄ is absent, jaw healed); LM ₁ ; LM ₂ ; LM ₃	20-30 years
<i>No photo</i>	8	Partial right maxilla, calculus present RI ² (worn); RP ³ ; RP ⁴ ; RM ¹ (heavily worn); RM ²	20-24 years

Context	Individual no.	Description	Estimated Age
005 cont <i>No photo</i>	9	Partial right maxilla, calculus present RP ⁴ ; RM ¹ – both worn	35 – 40 years
<i>No photo</i>	10	Partial left maxilla, premolars worn at an acute angle sloping lingually and stained brown. Calculus present LP ³ ; LP ⁴ ; LM ¹ (all 3 heavily worn); LM ² (less wear) ; LM ³	?
<i>No photo</i>	11	Partial right maxilla, teeth worn with calculus RP ⁴ ; RM ¹ (caries & abscess); (RM ² absent, jaw partially healed)	40 – 45 years
<i>No photo</i>	12	Partial left maxilla, LP ³ remaining with some wear	?
<i>No photo</i>	13	Partial left maxilla, LC ¹ remaining, badly worn	?
<i>No photo</i>	14	Partial left mandible, LP ₄ (cavity); LM ₁	?
<i>No photo</i>	15	Virtually complete mandible – RM ₂ just erupting. Only molars worn. Calculus LM ₁ ; LP ₄ ; LP ₃ ; RC ₁ ; RP ₃ ; RP ₄ ; RM ₁	15 years (+/- 3 years)
<i>No photo</i>	16	Mandible missing both condyles. LP ₄ ; LP ₃ ; RM ₁ (large cavity lingually); RM ₂ ; RM ₃ (erupting)	15 years (+/- 3 years)
<i>No photo</i>	17	Complete mandible – bony nodules around LP ₃ and site of absent RC ₁ and RP ₃ . Some wear and heavy calculus LM ₃ ; LM ₁ ; LP ₄ ; LP ₃ ; RP ₄ ; RM ₁ ; RM ₂ ; RM ₃	20 -30 years
<i>No photo</i>	18	Fragment of mandible with RM ₁ remaining, good condition	?
021 <i>No photo</i>	1	Partial skull fragment with broken maxilla – one tooth remaining RM ¹ which is worn with heavy calculus. Pathology- abscess above site of LP ³ and LP ⁴ jaw healed. RP ³ and RP ⁴ both missing and jaw healed. Small palate and skull size.	40- 50 years
025 <i>No photo</i>	1	Broken mandible. RM ₂ remaining, slight wear	16 – 20 years
028 <i>No photo</i>	1	Broken toothless mandible – both LM ₃ and RM ₃ present within jaw; RC ₁ erupting	10 years (+/- 2.5 years)
<i>No photo</i>	2	Mandible with both condyles missing – teeth worn and with severe caries. LM ₁ ; LP ₄ ; LP ₃ (all with caries on buccal faces near root; heavy wear on LM ₁); RP ₄ ; RM ₁ (caries buccal face and heavy wear); RM ₃ (caries on buccal and occlusal faces)	?Older adult
038 <i>No photo</i>	1	Broken mandible - LM ₃ ; LM ₂ ; LM ₁ ; RP ₄ ; RM ₁ ; RM ₂ ; RM ₃ Slight wear on both LM ₁ and RM ₁ + some calculus	20 -24 years
<i>No photo</i>	2	Virtually complete mandible – slight wear on all molars LM ₃ ; LM ₂ ; LM ₁ ; LP ₄ ; RM ₁ ; RM ₂ ; RM ₃	35 – 40 years

Context	Individual no.	Description	Estimated Age
038 cont <i>No photo</i>	3	Partial mandible – some tooth wear LI ₁ (heavy wear); RC ₁ ; RP ₄ ; RM ₂ absent jaw healed	?20-24 years
<i>No photo</i>	4	1 loose molar with hypoplasia	?
Tr 6 U/S <i>No photo</i>	1	Anterior section of mandible – remaining teeth LI ₂ ; LI ₁ – slight wear	?12 -18 years
<i>No photo</i>	2	Left section of maxilla LM ¹ (worn); LM ² (hypoplasia)	?16 – 20 years
Tr 7 U/S <i>No photo</i>	1	Frontal skull/maxilla fragment, badly damaged, some tooth wear LM ¹ ; LP ⁴ ; LP ³ ; LC ¹ (caries); LI ² ; RC ¹ ; RP ³ ; RP ⁴ ; RM ¹ ; RM ²	?20-35 year
<i>No photo</i>	2	Partial mandible, little tooth wear RM ₁ ; RM ₂ (heavy calculus)	?18-22 years
<i>No photo</i>	3	Partial maxilla, broken along the midline suture – RC ¹ worn	?24 – 30 years
SKULL			
012 <i>Photos x 2</i>	1	Skull fragment, PM ³ not yet erupted; pitting both orbitals, and nodules = cribra orbitalia (anaemia)	?
021 <i>No photo</i>	2	Skull fragment with copper alloy staining on frontal left of supraorbital notch. Temporal sutures closure indicated older adult	Older adult
038 <i>No photo</i>	4	Skull fragment, suture fusing indicates young child	? 6 years

Table 2 - Miscellaneous other bones

Sex was determined using dimorphic aspects of the pelvis (p393 Figure 19.13 - sex differences in the greater sciatic notch based on Buikstra and Ubelaker (1994)); aging from pubic symphyseal surfaces (p376-377 Figure 19.7 from Todd (1920)) and pathological indices were identified using various criteria described in White and Folkens (2005).

Key to Table 2

Vertebrae – C = cervical; T = thoracic; L = lumbar; S = sacrum with number representing individual vertebra i.e. T10

Table 2

Context	Individual no.	Description – sexing; aging and pathologies
003 <i>Photos x 6</i>	3	Rib with definite cut mark and part of surface sliced off showing some healing
<i>Photos x 4</i>	4	Calcaneus with ?possible crushing trauma – maybe from post burial activity
<i>Photos x 3</i>	5	Cervical vertebra –pitting on superior vertebral body, maybe indicative of tuberculosis
005 <i>No photo</i>	19	Complete pelvis – male aged 18-19 years
<i>Photo x 2</i>	20	T10 vertebra – lipping/bony growth on lamina, osteoarthritis

Context	Individual no.	Description – sexing; aging and pathologies
<i>No photo</i>	21	Astragalus – some bony growth along sulcus tali, osteoarthritis
<i>Photos x 4</i>	22 (bag 1)	Sacrum – young male adult estimated age 18 – 21 years - unfused S1 – S2 and S2 – S3; partially fused S3 – S5 age (which occurs between ages 17 -23 years)
<i>Photos x 4</i>	23 (bag 2)	Rib with pyogenic osteomyelitis with cloacae (fistulae) at medial end
<i>Photos x 6</i>	24	Foot phalange – intermediate proximal end shows signs of pyogenic osteomyelitis with small cloacae – mislabelled in photos
<i>Photos x 3</i>	25 (bag 3)	Sacrum, slightly twisted on left anterioinferior – age, from fusing, estimated at ?18-21 years
<i>Photos x 16</i>	26 (bag 4)	Ossified lumbar vertebrae with large osteoarthritic spur and fused bony growth on right side causing complete immobility. Area of eburnation visible. Ankylosing spondylitis
<i>Photos x 9</i>	27 (bag 5)	Rib with several cut marks, one removed a section of bone
<i>Photos x 7</i>	28 (bag 6)	Sternum manubrium with osteoarthritic signs
<i>Photos x 5</i>	29	Distal foot phalange 1 (hallux) with osteoarthritic ridges
<i>Photos of both x 4</i>	30 (bag 7)	Proximal metacarpal 1 with osteoarthritis and slight ‘twist’ along shaft
	31	Proximal metatarsal 1 with osteoarthritic spur and eburnation on distal surface articulate
<i>Photos x 3</i>	32 (bag 8)	Right patella with spongy pitting in articulating anterior surface and bony spur on apex - osteomyelitis.
<i>Photos x 5</i>	33	C3 vertebra with possible osteomyelitis or septic arthritis, maybe associated with tuberculosis
<i>Photos x 5</i>	34	T10 with large osteoarthritic spur on remaining rim of body, pitting in top and base = schmorls nodes. (5 other vertebrae in same bag exhibited schmorls nodes)
<i>Photos x 15 – number 35 x 3; number 36 x 6; number 37 x 5; all x 1</i>	35 (bag 9)	C6 with osteoarthritis both sides vertebral body – build up superior side along edge and pitted spurs along anterior surface – misshapen
	36	T8 with osteoarthritic spur along superior rim and schmorls nodes
	37	Foot phalange, intermediate 1 with bony pitted ridging and growth on most surfaces - osteomyelitis
021 <i>photos x 2</i>	3	Right radius with osteomyelitis and cloacae on shaft
025 <i>photos x 2</i>	2	Proximal left fibula with bony extension – osteomyelitis and cloacae
039 <i>photo x 4</i>	1	Clavicle aged ?4 to 5 year + os coxae (ilium) of same age (mislabelled in photos)
<i>No photo</i>	2	Scapula – young adult
<i>Photos x 6</i>	3	Radius with periostitis on both extremities
<i>Photos x 8</i>	4	3 ossified lumbar vertebrae – ankylosing spondylitis
<i>Photos x 12</i>	5	Metatarsal 1 and 5, calcaneus and astragalus - all have signs of periostitis
<i>Photos x 3</i>	6	Left patella with osteoarthritic spur (posterior, superior edge) some eburnation (parch centre posterior lateral articular facet)

Context	Individual no.	Description – sexing; aging and pathologies
3003 <i>Photos x 5</i>	Item 57	Around one-year old child - 1 metapodial, 2 vertebrae (1 body; 1 body with both side sections – cervical); 1 ulna; 1 radius and 1 rib. There are 3 small mammal bones included in photo.
3004 <i>Photo x 10</i>	Item 63	Maxilla with LC ¹ remaining with heavy wear
<i>Photos x 3</i>	Item 63	Around one-year old child – 1 vertebra (body with both side sections – cervical); 1 clavicle; 1 metapodial. There are 2 small mammal bones included in photo.
4004/1003 <i>photos x 5</i>	Item 61	Right patella with osteoarthritic ridge/spur
Tr 1 U/S <i>No photo</i>	1	Pelvis – male
<i>Photos x 2</i>	2	Right femur – lipping along intertrochanteric line (photo (1) (anchor of iliofemoral ligament) indicating osteoarthritic – post burial damage to lesser trochanter (photo (2))
<i>Photos x 2</i>	3	Right femur – lipping on lesser trochanter where muscles are the major flexors of the thigh at hip - osteoarthritis

Photos – see Plates 16 (p.30) and 17 (p.31).

Photos are labelled with context number, individual number and bag number.

Discussion

Due to the lack of dateable contextual information few conclusions can be drawn.

However, focussing on bones which would give some indication of ages, sex and pathology does provide some data which might be useful for future study of human remains in this location.

Ages range from around one-year to older adults, approximately 50 years old; few of the bones examined could provide sexing information, although **Tr. 1 U/S** and **005** number 19 are both male.

Pathologies include commonly noted ailments such as osteoarthritis, present as bony extrusions on many of the bones, and ankylosis, present in two instances (**005** number 26, and **039** number 4). The frequent teeth caries, abscesses and calculus deposits imply poor diet. Many of these symptoms are often associated with older adults.

Poor health indicators include teeth with hypoplasia (**003** number 1; **038** number 4 and **Tr.6 U/S** number 2) and Skull 012 has pitting in the orbitals, indicating anaemia. Several bones exhibit evidence of osteomyelitis (**005** numbers 23, 24, 32 and 33; **021** number 1 and **025** number 2) and periostitis (**039** numbers 3 and 5); these are both symptoms of an infection in the bone or periosteum caused by infection, trauma or disease such as tuberculosis.

Two ribs present signs of trauma (**003** number 3, and **005** number 27); both have cut marks which are indicative of a violent action – maybe an assault. Other pathologies recorded include curvature to bones such as **005** numbers 12, 31 and 39 which could be an indication of repetitive actions or diet/metabolic imbalances.

Summary

To conclude, whilst the assemblage could not be dated contextually nor the bones connected to any particular individual, hints of the lives of those buried at Kirkmichael are shown with pathologies relating to poor diet, disease, infections and a prevalence of arthritic symptoms – some of which would have left the individuals concerned with severe limitation of movement and in pain. Two ribs clearly showing evidence of violence is an unexpected discovery in a rural Kirkyard.

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Appendix 2 - Review of Previous Documentary Research

Extracted from HAS Report HAS130709 Kirkmichael Test Pitting – J. Wood

Extensive research has been carried out by the Kirkmichael Trust over several years, covering the building, gravestones and documentary sources¹⁰. We do not intend to duplicate any of this work, and have not checked or re-checked its original sources apart from the old maps. However any conclusions are those of the present authors.

The earliest documentary reference to Kirkmichael is in 1429, as a church that supported a canon of Fortrose Cathedral. This does not mean it necessarily had ‘parish church’ status, or that it had its own burial ground at that time. Sir Thomas Urquhart in the mid 17th c. insists that his predecessors founded it as a chapel of ease, but such chapels, although consecrated, would not usually have been allowed to bury the dead. Nevertheless there seem to be pre-Reformation gravestones at Kirkmichael.

None of the sources identified so far help us determine for certain when the first church was built here, but the fact that ‘Kirkmichael’ was clearly already well established and worth disputing in 1429 suggests that an endowed church *estate* with this name had been in existence for some time before that. Richard Oram (2003) examines this in some detail.

Within the later parish of Resolis there is evidence of four possible medieval church sites: Kirkmichael, Cullicudden, Newhall Point, and St Martin’s. All these seem to be associated with graveyards, which would normally suggest a parish church status.

A variety of possible interpretations is possible, but there is as yet little documentary evidence to confirm any of them. It is possible for example that each of these churches at one time served its own small parish associated with a particular estate, and a process of rationalisation by Fortrose Cathedral reduced this to one or two later medieval parishes. Alternatively a large, single initial parish was subdivided by the cathedral into two or more parts. It is also possible to consider St Martin’s as a possible predecessor to Cullicudden and Newhall Point as being succeeded by Kirkmichael in the later 13th century.

More than one place of worship might well have co-existed in a parish in the 15th and early 16th centuries. One would be designated the parish church, while the others would be chapels of ease. Some of these came into existence before the establishment of the parochial system in the 12th c., while others were of later foundation. Many smaller medieval churches and chapels did not survive the Reformation, and have vanished without trace, but sometimes their locations are suggested by place-names.

The earliest records seem to refer to Cullicudden. Kirkmichael is also mentioned from the 15th c., but as an already established and desirable property. It is therefore unclear whether or not Kirkmichael parish was formed by subdivision of Cullicudden as Sir Thomas Urquhart seems to claim in the mid 17th c. As Hooper points out (following Watson and others), St. Martin’s seems to be an alternative name for Cullicudden parish, so if that is correct, its parish church site might have been transferred from St Martins in the late medieval period.

Unfortunately no historical records have so far been found that refer to the church at Newhall Point, so if there was once another separate parish there it has disappeared without trace. The extensive archaeological fieldwork undertaken there has not been repeated at Kirkmichael, so it is impossible to establish in the absence of evidence whether one simply superseded the other. It seems possible that the two churches could have co-existed for a time. If both belong to the same medieval parish, as seems to be the case, parochial status might have transferred between the two sites at some point.

¹⁰ See Bibliography, where all sources are identified. Individual footnote references have been omitted here.

Hooper notes the suggestion by Meldrum and Reed (noted by Hooper) that the Newhall Point church served ferry passengers, and points out that this seems unlikely. A chapel serving a ferry would be highly unlikely to develop a graveyard – especially one in use over several centuries, with such a range of burials. The rounded graveyard, the nature of the burials there, and the presence of a Chapel Well there all suggest a relatively early date and as the Highland Historic Environment Record (HHER) quotes the Ordnance Survey Name Book (1875), as saying:

‘Unless this chapel pre-dates former parish church St. Michael’s, its presence, only three-quarters of a mile from that church, is not easily explained.’¹¹

Before the reorganisation of the Church in the 12th and 13th centuries, most medieval churches were built and maintained by lords for the use of themselves and their tenants, and served by priests appointed by the lord as patron. There were therefore large numbers of small churches serving the estates of the various local lords, who appointed their own priests (who might be members of their own family) and provided an income for them through a grant of glebe-lands. In addition, priests would have a right to tithes and fees, which together could provide a good income.

The church reforms included establishing a strong, centralised organisation, increasingly independent of lay control. Lords were persuaded to grant away their churches to cathedrals and monasteries, while the growing church bureaucracy offered secure employment to the younger sons of the aristocracy and gentry. With the churches went all the tithes, glebelands and other resources. They became sought-after properties, as Oram has shown.

The 12th c. reforms defined larger parishes that might cover more than one secular estate, and established one church in each as the ‘mother’ church, with the exclusive right to conduct baptisms, marriages, funerals and burials. The fees for these were themselves a lucrative source of income, so it would be easy to imagine either Fortrose Cathedral itself, or the particular canon supported by income from Kirkmichael seeking to establish or maintain ‘parish’ status to claim this extra income, or transferring the parish focus from one existing church to another if this suited them.

In the 13th – 15th centuries lords started to establish new chapels of ease on their estates for the convenience of themselves or their tenants who lived at a distance from the parish church, especially in large, extensive parishes like many in the highlands. These would be places where Mass could be said, confessions heard and so on, so parishioners only would need to visit the parish church on special occasions and at the big life events. The rise of a more prosperous gentry class in the later medieval period also meant that these too emulated the aristocrats in establishing such chapels as a mark of status and piety. Bishops and monasteries might also reorganise their estates, and this might include the building of new churches.

So far, no evidence has been found at Kirkmichael of a church earlier than the 15th c., so the church here could have been built anew at that time. Janet Hooper notes (following Geoffrey Stell) the structural evidence for late medieval work in the fabric of the church, including the round-arched tomb recess in the former ‘nave’ which, though probably reconstructed, appears to be in a 15th c. style. However, evidence of earlier activity may still await discovery.

Without extensive excavation it is therefore not possible to state with any certainty whether Kirkmichael church itself dates from before the development of parishes in the 12th-13th c., or as a foundation by Fortrose Cathedral to replace another, or whether it began, as Sir Thomas Urquhart asserted in 1652, as a chapel of ease set up by his ancestors. The dedication to Michael the Archangel is, as Hooper says, likely to be a late introduction. Cullicudden’s dedication to St Martin is probably much earlier and more likely to be the Celtic saint, as at Kilmartin in Argyll, Isle Martin, and other highland dedications, rather than St Martin of Tours. However, Hooper has noted a reference (from Arthur, 1792) to Kill a’ Mhichail, and (if the use is more than a literary conceit) the *Cille* element does suggest a possible early origin. If so, the dedication is likely to have been

¹¹ HHER EHG3209; MHG40739

transferred to St. Michael in the later medieval period. Assuming the name Kill a' Mhichail refers to the present Kirkmichael site, the location on the sheltered and favourable spot on Udale Bay, by the mouth of the New Hall burn, might possibly be significant.

Despite the work by Oram, Hooper and Geddes, the development of the building at Kirkmichael has not yet been fully clarified. Sir Thomas Urquhart states in 1652,

'Cullicudden is built after the fashion of a church, but that other, now called Kirkmichael, is in its edifice like but to a chapel'.

This is an interesting comment, and it strongly suggests the absence of a separate chancel. Hooper points out, citing several authorities, that in the late 15th or early 16th c., 'it would have been unusual to build a church of nave and chancel design; a long narrow rectangle, with some form of internal division, would be more typical of parish churches at this period'. She then dismisses this, saying 'it is possible that - if Kirkmichael had originated as chapel serving the bishop's mensal lands - this may account for its design.'

According to Hooper, Stell also considers the 'chancel' to date from about 1500, though Hugh Miller writing in 1835 believed it to be an addition. A mausoleum (Hugh Anderson's burial aisle, later a vestry) was added to the east end of Cromarty East Church about 1704, providing a parallel, and the assertion might seem supported by Sir Thomas Urquhart's claim, in the mid 17th century, that Kirkmichael was the shortest church in the area, and too short for a parish church.

However, Urquhart also claims the combined Cullicudden and Kirkmichael parish to be only three miles long, whereas it is in fact eight, so his measurements are suspect. If Miller is correct, the medieval east window in the east wall must have been reused from elsewhere, and the presence of a relatively small doorway and no east window in the dividing wall must surely suggest that this did not form the medieval east wall of the church but is a re-build. It seems much more likely that the present east wall is indeed the medieval east wall and that the 'chancel' or Urquhart mausoleum has been constructed within the line of the medieval church rather than outside it.

The first edition OS 1:2500 map (Ross and Cromarty Cromartyshire Sheet LXVI.13 (Combined)) shows the outline of a long narrow rectangle overlaid by a wider, roofed mausoleum (see Figure 3 above). The western gable, still supporting a belfry in an early 20th c. photograph, is of a similar width to the 'chancel', while the north wall line apparently continues the north 'chancel' wall. The south wall of the 'nave' is missing. The surveyors for these maps were generally extremely careful and accurate. However, on the 2nd edition 1:10560 map (1906) the church has been redrawn. A south wall is shown for the 'nave' and the width has been adjusted to that of the mausoleum. Rather than rectifying a mistake in the 1st edition, this seems more likely to represent a new, realigned wall.

After 1587, chancels were no longer needed and they became the property of the lay superiors who had acquired the church rights. Many of them became converted into mausoleums. In 1607, Thomas Urquhart of Cromarty was granted the hereditary patronage of the rectory and vicarage of Kirkmichael, which the rector, Thomas Majoribanks had previously made over to the Urquhart family (Hooper 2005 after *RMS* (1593-1608), no. 1922; Oram 2003). The eastern end of the church became the burial lair of the Urquharts and later the Gordons of Braelangwell.

At present it is not clear when, or how much remodelling was undertaken to convert this part into a burial area - Gifford dates it to the later 17th c. but it could be earlier. Nor is there any record of when the roof of this part was lost. George Geddes notes that no roof line could be seen in the wall between 'nave' and 'chancel', although this might be obscured by harling. The 'chancel' roof was clearly already gone when the wall was harled, but the date of harling seems unclear, and the 1906 postcard shows a remarkably clear wall-head on the east wall, with provision for a roof still very visible.

It may be that the wall between ‘chancel’ and ‘nave’ was in fact inserted in the early 17th c., when the east end was converted to a mausoleum. At that time, the nave would still have been roofed and in use, so unless there was an existing wall dividing nave and chancel, a new one to divide it from the former chancel would be necessary. This would be all the more important after burial inside a church was banned at the Reformation.

The blocked, arched doorway through to the ‘nave’ seems pretty small and insignificant to have ever served as a chancel arch as usually understood. It seems more likely to be a doorway re-used from elsewhere, perhaps a priest’s door from the south wall, where the present doorway is apparently a later insertion. If this interpretation is correct, the east end was extensively remodelled in the early 17th c., reusing medieval material, but the east wall, with its medieval window, could well be largely original. It is interesting to note that the wall thickness is fairly uniform in all four walls of the Urquhart mausoleum or ‘chancel’.

The ‘nave’ then continued to be used for worship through the 17th c. In 1662, when Sir John Urquhart was confirmed in his estate after the Restoration and the parishes of Kirkmichael and Cullicudden were united, there was a stipulation that the parishioners should worship at Cullicudden until a new replacement church was built at Resolis. However Cullicudden and Kirkmichael churches both continued in use. Presbytery minutes from 1741 refer to Kirkmichael as in ‘good repair’ and proposed to enlarge it to ‘accommodate the whole united parish’ (quoted by Hooper 2005).

Curiously, there is no mention of constructing a new belfry. A belfry is shown in the 1906 postcard, which looks remarkably similar to other local examples dating from the 18th century, including Cromarty East Church (dated 1798-9). The Cromarty date may however commemorate a re-setting of an earlier structure after alterations to the supporting wall¹².

The present Resolis church was built between 1767 and 1769. When it was finished, worship transferred there, and Kirkmichael deteriorated.

A new mausoleum was then built adjoining the Urquhart one to its west. This seems to have been done by George Gun Munro for his uncle, George Gun Munro of Poyntzfield who died in 1785 (J Mackay, pers. comm). He was himself buried in it in 1806. According to the 1st edition OS map, if correct, this did not follow the existing wall line but was made wider. The same map also seems to show the former south nave wall as missing – perhaps this was taken down to re-use the stones in the mausoleum or elsewhere.

¹² Alston 2005

Appendix 3 – Context Register

Context No.	Phase	Trench	Description	Interpretation
1		GDM	Mid-brown loam, very homogenous rich with organic material. Disturbed by burrowing and roots	Topsoil build up within Grant Dunbar Mausoleum
2	5	1	Deposit of lime mortar, rubble, fallen slates and wood from recent roof collapse and modern rubbish. Heavily mixed, some human remains	Modern layer of debris, following clearance of recent roof collapse, churned up with older deposits
3	5	1	Very dark brown loose silty sandy soil with inclusions of bone, shell and building debris	Accumulation of organic material and soil, with some bone deposits. Includes material that has built up inside test pits
4	5	1	Sandy silty dark brown soil with fragments of shell, similar to 003 but underlying 054	Accumulation of organic material and soil, with some bone deposits
5	4	1	Sandy silty grey-brown soil with shell fragments, rather loose and soft, disturbed by burrows and roots. Some areas have greater concentration of shell and these seem to be where burrows have been (rodent bones are found in these areas). Lots of disarticulated human remains scattered throughout. Contains lenses of turf and lime	Series of deposits including surplus soil from grave digging which has disturbed previous burials.
6	5	1	Sandy grey mixed layer with stone, slate and wood occurring in a seemingly random patch close to east wall centrally in the nave	Area of lime plaster brought down with roof?
7	4	1	Irregular oval in plan, although with two flat sides. Straight to vertical sides, flat base	'Grave' cut for redeposited disarticulated bones including almost intact skull and larger long bones.
8	4	1	Very dark brown silty sandy soil. Soft, no inclusions, very homogenous	Clean' topsoil used to backfill cut
9	4	1	Initially thought to be cut - actually just part of variation in deposits of (005) possibly caused by root action	n/a
10	4	1	Dark homogenous silty patch, more compact than 005. appears in small patches throughout.	Patches of rooting throughout 005
11	4	1	Darker patch of (005) initially thought to be fill of pit - actually just loose patch possibly caused by root action	Area of (005) mixed within (010)
12	4	1	Very dark brown/black sandy silt. Soft although more compact than (005).	Initial fill of [007]

			Human remains in base of fill	
13	4	1	Deposit of bones in a specific location. By east wall south of the monument. Surrounded by (005). Mostly skull pieces (some stacked) and long bones. One piece of rotted wood within the bone stack	Redeposited disarticulated human remains. Not within cut.
14	4	1	Deposit of bones in a specific location, by north wall just north of [007]. No clear cut, surrounded by (005) but a clear collection of bones placed together. Mostly skull fragments and long bones	Redeposited disarticulated human remains. Not within cut.
15	1	1	Stonework running underneath south and east walls, although on a slightly different alignment. Some large slabs but also smaller cobbles and areas of clay-rich material	Previous wall or foundation deposit. Underlies current wall.
16	2b	1	Deposit of pink-white granular material mixed with stone. Appears to be rendering material that has come away from the wall, possibly excess during application	Slumped previous wall covering
17	4	1	Dark area of organic material within general (005) surface. Almost burgundy in colour. Fine texture. Excavation revealed two layers of this sandwiching fine layer of grit or sand	Possibly former organic layer, although it appears to have been cut, folded and much disturbed.
18	4	1	Further patch of dark red-brown firm organic-rich material. Also scattered in small fragments around the building at various deposits	Disturbed layers of possible organic deposit
19	3	1	Dark brown firm sandy silty soil with less shell than surrounding area within confines of long narrow timber structure. Originally thought to be within cut but appears rather to be heaped material set within wooden box (024)	Heaped topsoil within wooden structure (024)
20	3	1	Wooden-lined rectangular box with square cut posts at corners and centre of long sides holding up wooden planks. The planks are on the outside of the posts and indeed seem to have slumped and bent inwards by pressure from the outside. Located to immediate north of (024) roughly in the centre of trench 1	Wooden structure. Reminiscent of a raised bed
21	4	1	Deposit of bones in a specific location, to immediate west of test pit 2. Contains skulls and long bones. Remains were surrounded by 005.	Redeposit of disarticulated human remains. Not within cut.
22	3	1	Originally thought to be a cut containing (019) but found to be a mounded deposit rather than the fill of a cut	Uncertain
23	3	1	Rectangular board-lined box on north side of Trench 1 up against north wall. Well rotted and crumbly. May have had posts but these seem to have mainly	Wooden structure. Reminiscent of a raised bed

			disappeared with only one post in its southeast corner. A pair of stones appear to be supporting the south west corner. Filled with deposit that looks like (005) as well as surrounded by it	
24	3	1	Wooden framing surrounding deposit (019), upstanding on 3 sides. Wooden boards are decayed and crumbling. On north east and south west corners the pegs are still present. There are also pegs along the south side where the boards are no longer present. The board on the north side is slumped inwards. (005) is present between the board and (019) suggesting that the latter was heaped inside but did not fill the structure entirely before dumps of (005) buried the structure	Wooden structure. Reminiscent of a raised bed
25	4	1	Deposit of bones in a specific location. A jumble of bone and wood in a concentration between boxes (020) and (023). Surrounding soil seems to be (005). No cut visible.	Redeposited disarticulated human remains and coffin. Not within cut
26	4	1	Sandy brown with many small fragments and darker patches as well as human remains. A few larger stones in centre. Appears the same as (005) but within box (020)	Fill of wooden structure (020), possibly the same as (005)
27	4	1	Sandy brown soil with many shell fragments and human remains. Seems the same as (005) but within box (023). Contained two unbroken modern vases.	Fill of wooden structure (023), possibly the same as (005)
28	4	1	Deposits underlying (017) organic floor deposit. Dry, gritty, large quantity of broken sea shell. Significant quantity of disarticulated human remains Loose to dig, dark brown.	Continued dumped material from grave-cutting as (005) but underlying portion of organic floor
29	2b	1	Predominantly pink/red mixed deposit. More compact than surrounding deposits with some scattered white plaster fragments which are more prominent in the lower levels. Excavation showed this is mainly small well broken pink sandstone unevenly spread, sloping down in some places with mortar at lower levels	Old construction layer dominated by degraded sandstone and plaster.
30	4	1	Distinctive cut, in plan quite straight on east and south sides, more curved and difficult to trace on north and west sides. In section steep sided. This feature was not fully excavated	Possibly a child's grave cut
31	4	1	Fill of [030], dark brown grey loam, fairly homogenous with less shell inclusions. Very soft. Contains wooden structure (032). Not fully excavated	Possibly the fill of a child's grave
32	4	1	Visible parts of wooden structure from [30], not fully excavated. Narrow	Possibly a coffin or box

			wooden planks standing upright and parallel within (30)	
33	2b	1	Dark deposit to south of Trench 1 flecked with some shell fragments and stone at south west end. Similar to (005) but darker, more dense and organic. Underlies (029). Some human remains. Surrounds cobbles	Organic-rich material surrounding cobbles
34	4	1	Dark band of dense soil sitting on pink sandstone deposit (029). No stones, no bone, very organic. Similar to (035)	Strips of degraded turf?
35	4	1	Strip of dark soil sitting on (029) very shallow but clear with no shell or bone. Similar to (034)	Strips of degraded turf?
36	4	1	Dark springy organic rich deposit in a circular shape. Similar to (017). Just east of doorway and cut by box (020)	Old floor deposits same as (017)
37	2b	1	Pale white sandy gravel, lime mortar. Very loose, some shell, a few large stone and brick pieces within fill. Immediately beneath monument on eastern wall	Layer of building debris, plaster/mortar in one small strip
38	4	1	Small area of stones in north east corner of trench 1. Mostly rounded stones. Associated with deposit of human remains including a skull and long bones	Possibly dump of excess material from grave-cutting that is rich in stones
39		2	Dark brown sandy silty soil, organic, rooty throughout, quite firm. Considerably less shell than Trench 1	Upper deposit of trench 2, accumulated organic material and soil
40	2b	1	Dark brown soil, some shell patches and some stone. Underlies (029) in front of threshold	Possibly more compacted version of (005) dumped material around doorway
41	2b	1	An area of cobbles or tumbled stone south of doorway into trench 1. Area of fairly dense stones, varying in size from 12x20cm to 4x4cm. Some gaps and inconsistent density. Surface is not flat but bows upwards in the middle and against the wall, sloping down and petering out in all directions. More than one stone thick in places although there are many fewer stones at lower level	Dump of stones, possibly to infill wet or muddy patch
42		2	Dark yellow loose sand with few inclusions. Some shell and lime mortar. Located on west edge of trench 2	Sandy or lime deposit
43		3	Medium and large stones (10-20cm) tumbled against the graveyard wall. Various shapes and stone types.	Possibly originally rubble from wall which has collapsed but not reincorporated
44		3	Medium sized stones (approx 10cm) underlying (43), densely packed. Possibly also wall infill or possibly a rough surface. Patches of lime mortar	Possible wall infill or rough surface outside graveyard

			amongst and on top of stones. Pieces of modern glazed pottery, wire and glass found around the stones.	
45		3	Dark brown homogenous organic rich soil outside graveyard wall. Surrounds 43 and 44.	Topsoil accumulation
46		4	Mid grey brown homogenous sandy topsoil within cable trench in graveyard	Disturbed topsoil within graveyard
47		4	Single layer of rounded stones in dense concentration possibly aligned parallel to kirk. Human remains found immediately underneath.	Dump of material from disturbed grave
48		4	Tumble of stones immediately against kirkyard wall, very loose with voids	Tumble from previous collapse or repair of wall
49		5	Mid grey brown homogenous sandy topsoil within main path trench in graveyard	Disturbed topsoil within graveyard
50		6	Mid grey brown homogenous sandy topsoil within drainage trench against south kirk wall	Disturbed topsoil within graveyard
51		7	Mid grey brown homogenous sandy topsoil within drainage trench against north kirk wall	Disturbed topsoil within graveyard
52		8	Mid grey brown homogenous sandy topsoil within drainage ditch trench south east of kirkyard	Disturbed topsoil within graveyard
53		9	Mid grey brown homogenous sandy topsoil within narrow path trench south of kirk	Disturbed topsoil within graveyard
54	5	1	Slates scattered across trench and sawn timbers in southern side of trench, appear to be fallen roof timbers or part of structure to prop up roof	Roof material from modern event, occurs between 003 and 004
55	2	1	Current walls of kirk mausoleum. Random rubble with ashlar facing	Current walls
56		10	Mid grey brown homogenous sandy topsoil within reinterment trench in east corner of kirkyard. Some stones of various sizes throughout soil	Topsoil within graveyard

Appendix 4 – Small Finds

Find No.	Context	Field Description	Full description
1	003	copper alloy coin	Copper Alloy coin 20mm across some corrosion spots slightly misshapen. No discernible markings survive but likely to be a Turner or Bodle (Charles I/II) twopence.
2	004	copper alloy coin	Copper Alloy coin 20mm across some corrosion spots Lettering discernible on one side D.G. SCO with thistle on reverse. Turner or Bodle, Charles I twopence.
3	005	copper alloy pin	Copper alloy shroud pin with rounded head slightly bent 35mm long
4	005	flint arrowhead	Honey coloured flint barbed and tanged arrow head Tang and one barb broken. Some wear evident with blunt edges 20mm x 19mm
5	005	copper alloy coin	3-headed thistle or 'Hard Head', James I or Charles I coin, early-mid 17th century
6	005	copper alloy pin	Copper alloy pin, likely to be a shroud pin
7	005	copper alloy pin	Copper alloy pin fragment, likely to be a shroud pin
8	005	copper alloy coin	Earl of Stirling coin, Charles I, 1632-9
9	005	yellow metal ring	A pair of gold earrings with small corroded copper alloy pin. There are seams just visible in the metal either from production or as breaks in the ring to allow opening. Both of similar thickness but one of marginally greater diameter (around 12mm)
10	005	copper alloy thimble	Copper alloy thimble 20mm high by 180mm wide, the lower half is plain while the upper section has depressions for gripping a needle. The very top of the thimble is flattened and has some iron rust adhering. The lower edge is slightly buckled and bent in places
11	005	copper alloy pin	Copper alloy pin, likely to be a shroud pin
12	005	part of monument	Small piece of marble monument, apparently head of grain or similar
13	005	copper alloy pin	Copper alloy pin, likely to be a shroud pin
14	005	copper alloy pin	Copper alloy pin, likely to be a shroud pin
15	005	copper alloy coin	Earl of Stirling coin, Charles I, 1632-9
16	005 sieving	copper alloy coin	French turnois, milled not struck, 17th century
17	005 sieving	copper alloy pin	Copper alloy pin, likely to be a shroud pin
18	005 sieving	copper alloy coin	Earl of Stirling coin, Charles I, 1632-9
19	005	metal fitting	Decorative fitting which seems to be an ornate handle with pronounced boss and trefoils. There is tabby-

			woven fabric adhering to the corroded surface of the boss with a thread count of approximately 12-15 threads per cm
20	025	copper alloy coin	Unknown coin. Appears to be struck rather than milled. Possibly 17th century
21	005	copper alloy coin	Turner or Bodle coin, possibly Charles II. Twopence. Milled, no struck. Mid-17th to early-18th century
22	027	copper alloy pin	Copper alloy pin, likely to be a shroud pin
23	026	copper alloy coin	Unknown coin
24	027	copper alloy coin	Bodle coin, crossed sceptre and sword with crown, Charles II, late 17th century
25	033	copper alloy coin	Turner coin, Charles I, mid-late 17th century
26	005	copper alloy coin	Turner coin, Charles I, mid-late 17th century
27	005	copper alloy coin/button	Copper alloy disk of similar dimensions to coins, but with only faint traces of markings and slightly heavier. Could be worn coin or button with missing lug
28	005	shroud pin	Copper alloy pin, likely to be a shroud pin
29	039	bone button	Bone button with 4 holes, slightly irregular, 18mm diameter
30	039	metal buckle	Small square buckle 13mm by 14mm with loose pin which would have been held in place by leather. Likely to be for narrow belt or shoe
31	unstrat	painted pebble	Small granite pebble which has been painted in blue and yellow with a circle containing dots, a fish, small symbols including a star and 'AMEN'
32	040	flint debitage	Small piece of honey coloured flint debitage, triangular shape, clear bulb of percussion
33	004	flint debitage	Square-ish piece of grey flint, possibly an abandoned attempt at a gun flint

Appendix 5 – Bulk finds

Context	Material	Number count	Description
2	iron	11	5 straight nails 5cm long with large round flat heads, 1 with head missing. 2 straight nails 6cm long. 1 heavily corroded, around 4cm long. 1 long curved nail, probably from removal, 7.5cm long. 1 nail straight to 4cm then clenched at the end. 1 coffin handle, incomplete, curved, 11cm.
	ceramic	5	2 sherds of stoneware jar, beige glaze. One piece rim sherd, larger base sherd. 1 piece of vase almost half surviving, duck-egg blue slip with umbré to dark blue on top side towards rim, pale fabric visible over much of it, appears to be refined stoneware. Sherd of similar refined stoneware, pale fabric with duck-egg blue slip, curved. 1 piece of coarse yellow with large inclusions, possibly moulded plant pot.
	animal bone	c.40	many animal bones, mostly long bones from large rodent such as a rabbit. Also fragment of skull and rabbit mandible. Smaller rodent mandible and small long bones. One piece of pelvis from bird, approximately pigeon-sized.
3	iron	23	1 large square nail with thick square head, straight but with lightly clenched end, 14cm long, widest part of shank 1cm wide, head 1.5cm wide. 1 long bent nail, round section, 13cm total but bent 90 degrees after 4cm. 3 straight square section nails over 7cm. 5 straight nails, 6cm long. 8 straight nails, 5cm long with large round heads. 2 6cm nails curved from removal. 1 nail surrounded by wood, possibly 8cm in length. 1 short straight nail, heavily corroded, appears straight, 4cm. 1 thin plate, curled on one side.
	copper alloy	1	small round-headed tack, domed, still in wood.
	glass	28	9 flat, clear sherds of glass, possibly window glass, some corroded. 2 sherds of bottle base, textured on underside with S in square embossed in a centre. 4 body sherds of clear bottle with dimpled embossing on outside. 6 sherds of clear curved glass vase with ridged decoration, appears to match sherd from (005). 7 sherds clear, curved glass, one a rim sherd from wide container such as a bowl, one hipped from the base of a bottle neck.
	ceramic	22	10 sherds of stoneware jar similar to those found in (002), possibly from same vessel, mostly curved body sherds, one rim sherd. 3 curved fragments of fine stoneware with pale fabric and duck-egg blue slip, the same as fragment from (002). 6 sherds of cream glazed pottery, one rim sherd from wide vessel such as a bowl, some reddish material adhering to parts, one piece notably thickens. 1 sherd white glazed pottery. 1 sherd redware, unglazed. 1 clay pipe stem with black core.
	animal bone	100+	many animal bones, many long bones from large rodent such as a rabbit. Also fragments of skull, 3 left mandibles and several vertebrae from rabbit. Smaller rodent mandible and small long bones also in evidence.

			Three pieces of sternum from a bird, approximately pidgeon-sized.
4	iron	26	2 coffin handles, square, one slightly larger although both measure 17cm in length due to elongated pivot on smaller handle - possibly due to corrosion. 1 short curved piece of iron possibly part of coffin handle, 8cm in length. 1 fitting, looks like a window latch but probably not, 2 screw holes for fixing one end, the other is thicker and wedge shaped. 5 plates of flat metal, bent, twisted and ripped. 6 straight nails, 5cm long. 3 nails curved from removal, one missing head. 1 modern nail 4.5cm, round section. 2 long straight nails, 7.5cm long, small heads. 1 short nail, just under 4cm long, with adhering wood. 1 long bolt with washer, large square head, 9cm long. 2 sections of round section wire, one straight with 90 degree bend at one end 16cm long, the other more sinuous, slightly narrower and somewhat twisted, 12.5cm. 1 circular fitting with triangular teeth bent to protrude from both sides 1 central hole and two further holes for fixing in place.
	ceramic	34	9 sherds of beige glazed pottery, likely to be from a jam jar, three sherds make up a large portion of the base and some of the side - measures 9.5cm across the base, three sherds of rim showing longish neck 2cm high with slight ribbing on outside. 1 sherd of white glazed vessel, base sherd, appears to be shallow bowl or plate. 5 sherds of unglazed redware, three large chunky pieces probably from plant pots, one thin rim sherd with shallow curve, probably also part of plant container, one thicker rim sherd with wider edge, probably also plant pot. 19 sherds of decorated vase with duck egg blue outer slip and painted flowers, white fabric, from the same vessel as other sherds in (003) and (002).
	glass	83	40 sherds of thin flat clear glass, probably window glass. 6 sherds of clear curved glass vase with ridged decoration, appears to match sherd from (005). 2 rim sherds of a clear glass jar. 1 large base likely belongs to the jar, 8cm across. 1 smaller clear base sherd, probably from a bottle, 6cm across. 29 sherds of clear curved glass, likely to be from bottles and vases. 2 sherds clear glass with dimpled embossing on outside. 1 small pale blue sherd. 1 small dark green sherd.
	animal bone	50+	Many rodent bones, mostly large long bones from a rabbit or similar. One almost complete skull, 3 mandibles, parts of 5 pelvises. Also smaller mandibles and long bones from small rodents.
4 (seived)	iron	8	6 pieces of thin metal plate, misshapen. 2 square section nails which are curled, one in an almost complete circle.
	ceramic	13	6 sherds of vase with duck eg. blue slip and painted flowers including one rim sherd. 4 sherds of beige stoneware likely to be part of a jam jar, one rim sherd. 2 sherds of white glazed pottery. 1 sherd of fine white semi-translucent material.
	stone	1	one piece of grey flint, approximately square but probably naturally fractured.
	glass	44	13 small sherds clear flat glass, possibly window glass. 15 sherds clear curved glass, probably from bottles or jars. 2 clear base sherds, probably from a bottle, one embossed with "UK.REGD9...". 1 clear rim sherd, very

			simple rim, no lid fixings, possibly from vase. 7 body sherds of clear bottle with dimpled embossing on outside. 4 sherds of clear curved glass vase with ridged decoration, appears to match sherd from (005). 1 small pale blue sherd. 1 small dark green sherd.
	animal bone	100+	Many small bones, mostly rodents including many long bones and skull fragments. Also bird including pelvis, sternum and long bones. 3 small bird skulls, 1 large bird skull, 1 portion of skull from small rodent.
5	iron	64	long straight iron nails, many appear to be complete but some fragments. Over 5cm in length
	"	16	bent nails. 6 nails bent after 3.5cm, 4 crimped after 3.5cm. 1 long nail bent after 2cm. 8 nails curved as if removed from wood. 1 short nail bent at right angle still in wood.
	"	110	short straight iron nails, up to 5cm in length.
	"	36	tacks, broad round heads with short pins where they survive. 6 very small tacks less than 1 cm broad.
	"	10	coffin handles. 7 D shaped, up to 13cm in length, mostly complete. 1 large heavy square handle 15cmx7cm. 1 small coffin handle, 10cm long although incomplete, pronounced curve. 1 part handle, D shaped, 9cm.
	"	28	1 small basic hinge or curled metal, 2x2cm. 1 rectangular fitting that tapers slightly at the top with 2 screws (still present) and hole 12mm in diameter, 3cm wide, 9cm long. 7 thin sheets of iron or other ferrous metal. 9 irregular fragments. 1 short nail with U shaped staple. 2 U staple. 8 short straight fragments of nail, up to 2cm. 4 pieces of mineralised wood with rusted iron within.
	copper alloy	17	12 decorative tacks, round domed heads, around 1.5cm in length. 1 decorative mount 7.5x3.5cm probably to surround handle. 1 decorative handle, possibly associated with mount, circular with urn shape. 1 button, possibly plated as some silvery finish still visible, 2cm diameter, missing loop at the back. 2 small fragments around 1cm. 1 pin or hinge 16cm in length, circular in diameter 0.4cm across.
	lead	1	piece of lead which appears to have been wrapped around a square section bar.
	animal bone	100+	many tiny bones, mostly rodent but also some bird. Long bones, skull and jaw fragments. 4 teeth from large mammal such as a cow.
	glass	124	1 clear bottle with embossed 'North of Scotland Milk Marketing Board' in script font, base is embossed with 'V739A, A, AOW'. 1 green bottle, complete. 1 piece of window glass, broken but two edges and corner show slight discolouration from fitting within frame - now opaque. 23 sherds of very thin flat glass, somewhat corroded. 8 additional sherds of flat glass slightly thicker and with darker corrosion. 6 sherds of thick flat clear glass, probably window glass. 28 clear curved sherds. 23 small sherds mostly clear, some slightly green. 8 brown sherds, 1 with adhering plaster. 1 sherd clear glass with decorative ridging. 5 sherds clear curved glass with slight dimpling decoration. 18 sherds green curved glass. 1 small pale blue sherd.
	plastic	3	5 pieces of fabric flower, 2 red petals, one purple, one white, one green.
	leather	10+	fragments of leather, various sizes but up to 10cm approx. Appeared to be associated with fragments of skull.

	slag	2	slag or vitreous material. One piece red/purple 1.5x2x1cm, fairly square. One piece smaller, rounded, very pale and light with a glassy surface, 1.5x1.5x0.5cm.
	ceramic	64	5 sherds white glazed vessel. 20 unglazed redware, modern, some possibly from plant pots, some rim fragments. 10 sherds also unglazed red ware but possibly from brick or building material. 1 large piece of moulded brick, red fabric, poorly constructed with clear lamination, adhering lime mortar. 1 smaller piece of brick that has laminated, orange fabric. 1 sherd beige glazed, with linear incision decoration, possibly from a vase. 2 sherds white fabric with pale green and dark green glaze decoration on the exterior. 3 sherds grey glazed, one a rim sherd. 7 sherds white glaze with pinkish residue adhering to inside surfaces. 1 brown curved sherd probably from the neck of a bottle. 1 small curved sherd with split red and brown glaze. 1 sherd yellow fabric, unglazed. 1 large sherd unglazed redware with rough rim, clear turning ridges. 1 sherd redware with traces of ephemeral yellow or green glaze, possibly medieval. 2 pieces of clay pipe-stem, white, both 4.5cm long. 10 fragments of red ware, probably from plant pots, one very coarse with large inclusions.
6	ceramic	1	large fragment of vase with pale fabric light blue-green glaze or slip with painted flowers and a dark green stripe
6 sieved	ceramic	3	1 larger fragment of pottery, 3x3.5cm white glaze on external and internal surface, some reddish residue on inside surface, white fabric, 0.8cm thick. 1 small sherd white fabric with duck-egg blue slip or glaze, 2x1cm. 1 small thin sherd white fabric, all surfaces heavily abraded, 1x1cm
	glass	7	1 sherd clear glass curved, 2.5x2cm. 1 large flat pane of window glass 8.5x6.5cm. 2 sherds of curved clear glass from a bottle, 1 with hipping, and the other with dimpling. 2 small sherds of curved clear glass with dimples. 1 curved piece with some deep decorative ridging.
	animal bone	26	15 rodent long bones, fragmentary. 4 fragments of rodent mandible. 7 fragments of skull and pelvis.
8 sieved	glass	7	2 sherds dark green glass, curved, probably from a bottle. 3 small sherds pale blue thin curved glass. 2 small sherds clear, curved glass, one very thin.
	ceramic	1	1 small piece of irregularly shaped ceramic, pyramid shaped with one curved side, 2x2x2cm
	coal	1	piece of coal, 4x4x3cm,
10 sieved	ceramic	2	pieces of fired clay, some sort of building material, probably brick. Fairly soft.
12 sieved	animal bone	3	1 large mammal tooth (sheep, cattle or horse) very little wear. One rodent skull incomplete, and one rodent long-bone.
	glass	4	1 sherd clear curved glass. 1 small sherd light blue. 2 sherds dark green curved.
13	iron	1	nail, cm, wide head, straight with adhering wood.
19	animal bone	20	around 20 rodent skulls, mandibles, and other small bones

	glass	9	4 sherds curved clear glass. 1 small sherd flat glass, slightly opaque, probably window glass. 2 sherds light blue, curved. 2 sherds dark green curved.
	ceramic	2	1 piece redware rim sherd with stamp, possibly reads 'SONI...'. 1 small rim sherd white glazed pottery with burgundy edge.
	iron	3	1 coffin handle, D shape, complete although corroded, 14cm in length. 1 nail with large head, 4cm. 1 nail small head crimped after 3.5cm.
21	animal bone	4	fragments of animal bone, rodent, 2 long bones.
	iron	6	5 nails, 2 with large heads, all between 4 and 5cm in length, all straight. 1 short nail fragment, 1.5cm.
	glass	1	1 small sherd, dark green or brown.
	plastic	6	several pieces of fabric flower, red, white, green and pink. Found underneath bones (021)
25	ceramic	4	2 vessels - 1 complete vase, cream in colour with brown flower decoration, 70's or 80's in style. 1 light green jug with handle broken off, probably used as a vase. 1 fragment with pale green glaze. 1 small fragment white glaze. All modern.
	Iron	8	1 coffin handle, 14cm in length, D shape, quite heavily corroded. 7 nails mostly straight and some in wood, 2 bent after 2-3cm
	animal bone	20	rodents, mostly long bones but also fragments of skull. All less than 5cm.
26	iron	1	coffin handle, some corrosion but shape still discernible
	animal bone	2	long bones, complete
26 sieved	glass	3	2 sherds of modern green bottle glass, 1 sherd of lighter green thinner glass
	plastic	1	blue plastic, opaque, brittle
	animal bone	35	small mammal/rodent including pelvis, mandible and long bones
	copper alloy	2	round headed tacks. Head 1cm broad, surviving pin is curved and 1.5cm long
	iron	17	11 nails 2 of which are complete with heads (6cm long), all straight-ish. 4 small nails, square headed (2.5cm long). 2 U shaped pins (2cm long). Many with adhering mineralised wood.
27	iron	15	nails of various lengths ranging from 2cm to 8cm. One curved, one bent at 45 degree angle after 5cm.
			one piece of coffin furniture with large round head, bent at 90 degrees 2cm along shank. 3 nails bent at 90 degrees 2-2.5cm along shank. 5 nails or parts of nails straight. One nail straight for 3cm then clenched in a curl at the end. 2 nail heads or tacks.
27 sieved	iron	12	
	plastic	2	one larger sherd of blue plastic, opaque, brittle. Petal from plastic flower.
	ceramic	1	very small sherd of pottery, white fabric with vivid yellowy-green glaze.

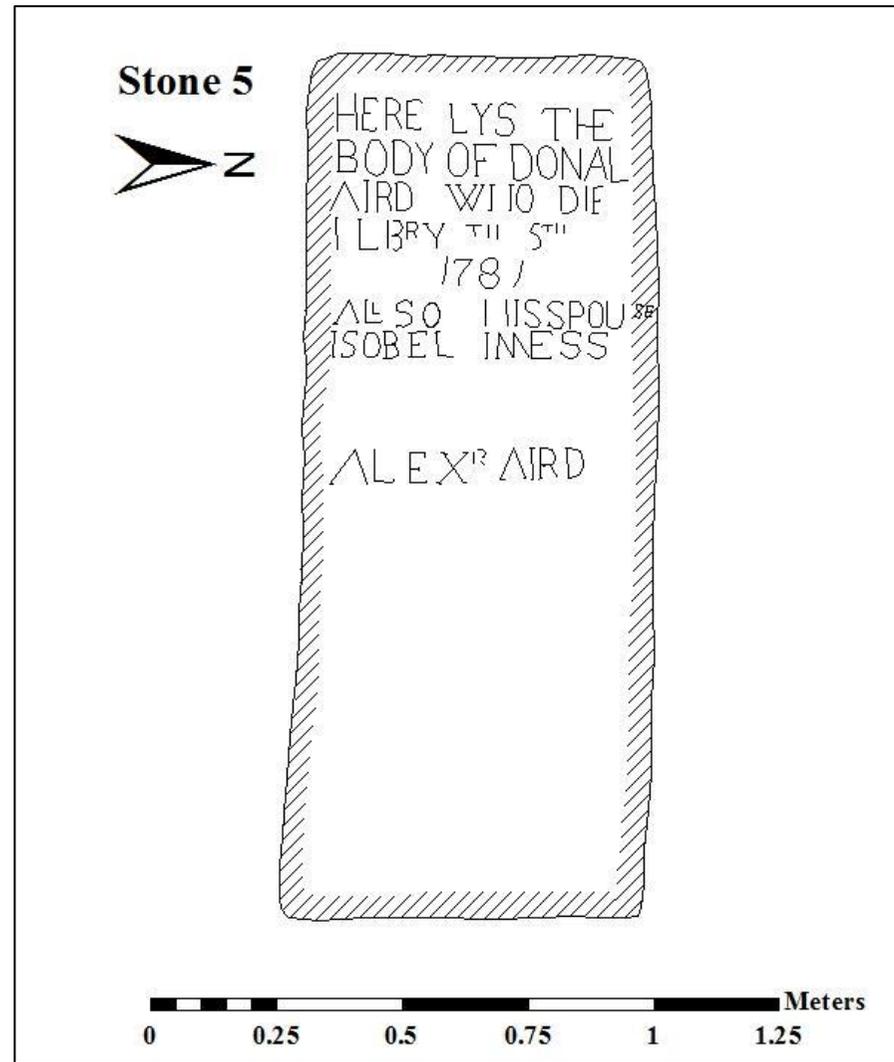
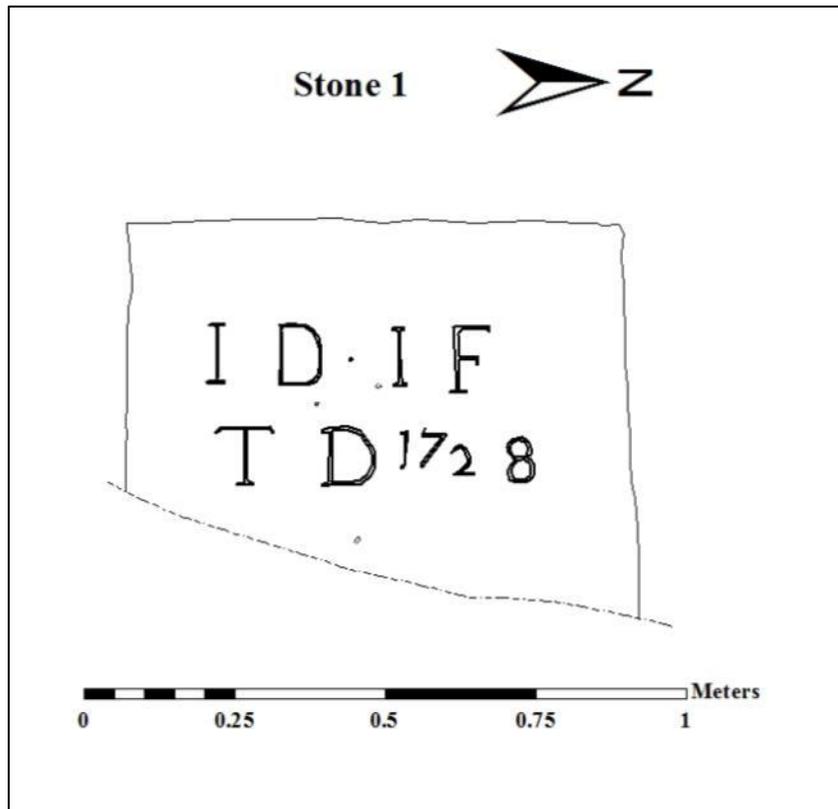
29 sieved	iron	8	nails, 6 straight and up to 6cm long. Two bent at 90 degrees after 3cm
	lead	1	square sectioned piece of lead with flattened head and tapering to thin straight edge. 4x2x1.5cm
	ceramic	1	sherd of white glazed pottery, white fabric, no decoration
	animal bone	2	2 small pieces of long bone, small mammal. Heavily abraded and broken.
31	iron	1	large iron nail bent at 90 degrees after 4.5cm
	animal bone	2	long bones, 5cm in length. Small mammal
31 sieved	iron	14	9 nails up to 6cm long, straight. Also 3 nails that bend after 3 and 4 cm. 2 round headed tacks.
	ceramic	1	sherd of curved vessel with part of lip, possibly a vase, mottled grey-beige glaze, white fabric.
	glass	1	curved clear glass sherd with textured dotted exterior
	animal bone	2	long bone and joint bone, complete. Small mammal/rodent
38 sieved	iron	3	nails, one 5cm slightly curved, one with head 2.5cm one without head 3cm.
39	iron	112	mostly nails or nail fragments. Mostly straight, a couple slightly curved, one bent 90 degrees after 5cm. 3 handles, one a classic coffin handle heavily corroded, one circular 7cm diameter, one C shape 9cm long. 2 decorative coffin fittings with chromed heads. 3 short pieces of square section bar. 1 flattened piece of square section bar.
	lead	15	pieces of lead including window fittings. 6 square section nails with lead tag on head labelled 'francis'
	animal bone	100+	many bones, including rabbit and other small rodents. Many long bones, some mandibles, vertebrae etc. Some may be from birds. Also one very worn tooth from a large mammal such as a sheep.
	glass	74	sherds of glass, mostly modern green bottle glass from bottles marked 'Alloa' at the base. 13 clear thin pieces, some slightly curved. 5 pieces of heavily corroded now brown in appearance but possibly originally window glass, thin and flat. One neck of a vessel, 5.5cm across opening clear with some corrosion to the surface.
	ceramic	4	one piece of brick, two pieces of redware one with brown glaze on one side and white on the other, the larger sherd has clear striations and possibly residual glaze, may be late medieval. One small sherd of white glazed pottery with white fabric.
	plaster	3	fragments of white and grey plaster, one with adhering stone
	vitrified material	1	small piece of vitrified material, looks like white plaster with smooth, grey bubbly vitrified area.
	plastic		green plastic leaves
40	iron	18	17 nails or fragments of nails, straight, up to 6cm long. One bent at 45 degree angle after 2cm. One clenched after 3cm
	animal bone	40+	many bones, including most of a rabbit and the mandibles of a shrew
40 sieving	iron	4	nails 4-6cm in length, straight.

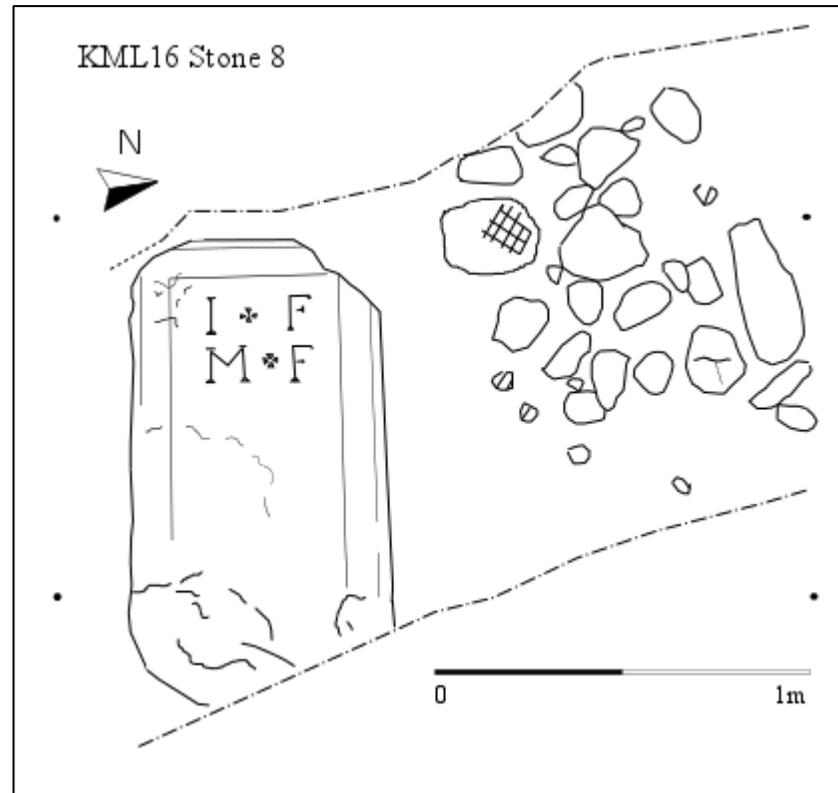
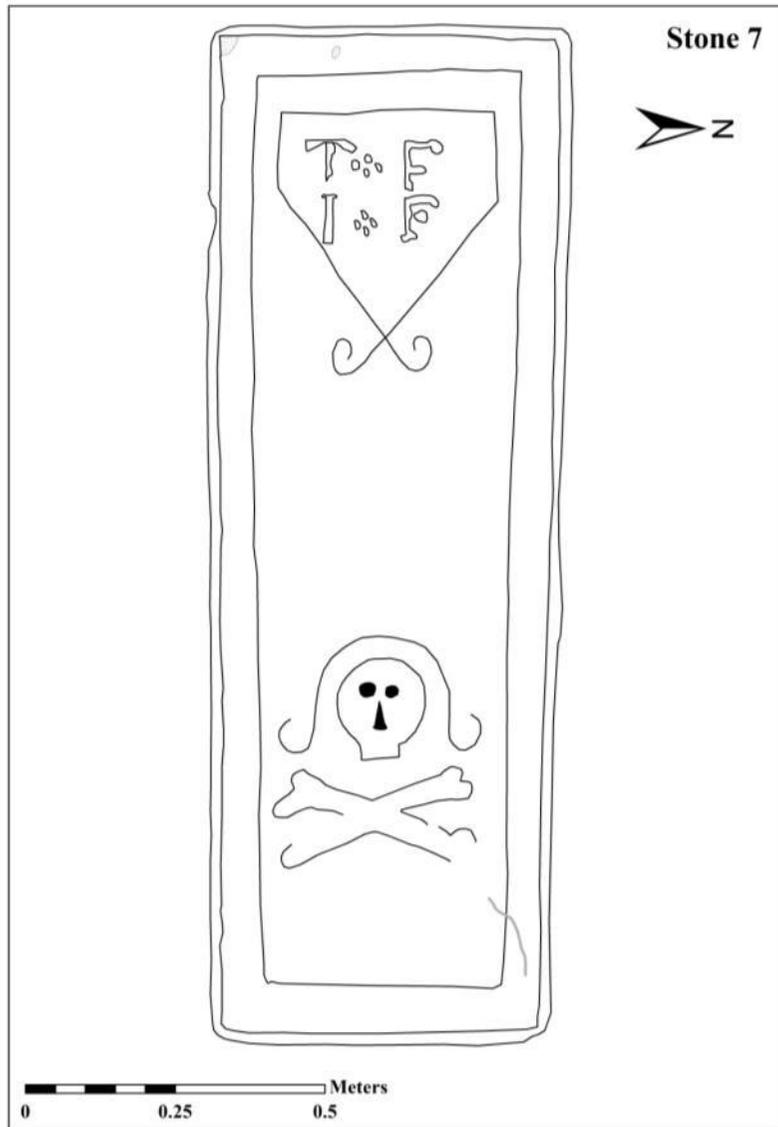
42	iron	5	coffin handle, heavily corroded. 2 nails 4cm length. 2 fragments
51	glass	1	sherd of green glass, 3x2.5cm
	iron	2	long straight nails, 7cm and 5cm
	slag	1	one piece of slag 4x4x2.5cm
Unstratified	iron	1	coffin handle, 12cm in length, corroded but appears to be complete.
	"	1	window latch with holes for adjusting opening, 10.5cm
	"	9	4 straight nails 6cm long. 1 nail similar length but curved as if removed from wood. 3 short fragments of nail shank. 1 tack or nail head, circular, slightly domed.
	animal bone	29	small animal bones, rodent, including skulls, long bones and a vertebra
	copper alloy	2	decorative copper alloy tacks with adhering wood. Probably coffin furnishings.
	leather	1	semi-circular piece of leather, 6x3.5cm, likely to be from the sole of a shoe.
	glass	2	flat thin sherds, originally clear but now very corroded, likely to be window glass.

Appendix 6 – Drawing Register

Drg No.	Trench	Features	Scale	Description
1	1	[007]	1:20	plan showing cut and human remains
2	1	[009]	1:20	plan showing cut and mandible
3	1	[007]	1:10	section of cut [007] showing (008) and (012)
4	1	[007]	1:20	post-ex plan
5	1	(019)/(020)	1:20	plan of south of church
6	1	[022]	1:10	section through [022]
7	1	(023)	1:50	sketch plan of north of church
8	1		1:20	whole trench plan of trench 1 (sheets D, E, F & G)
9	1	(041)	1:20	plan showing cobbles by entrance
10	5		1:20	Stone 1 (extent uncovered)
11	5		1:20	Stones 2 and 3 (extents uncovered)
12	5		1:10	Stone 5
13	5		1:10	Stone 6
14	5		1:20	Stone 7
15	5		1:20	Stone 9
16	5		1:20	Stone 8 and wall footings
17	5		1:20	Stone 12
18	5		1:20	Stone 13
19	5		1:20	Stone 14
20	7		1:20	Stones 16 & 17
21	9		1:20	Stone 18
22	9		1:10	Stones 19 & 20

Appendix 7 – Selected drawings





Appendix 8 – Watching Brief Photo Register

Photo # [KML16_]	frame no	Facing	Showing
001		W	Monuments removed in chancel west wall
002		W	Monuments removed in chancel west wall
003		W	Monuments removed in chancel west wall
004		E	Monuments removed in chancel east wall
005		E	Monuments removed in chancel east wall
006		N	Small monument removed in chancel north wall
007		N	Small monument removed in chancel north wall
008		N	Monuments removed in nave north wall
009		N	Detail central monument removed in nave north wall
010		E	Monument removed in nave east wall
011		S	Monument removed in nave, south wall
012		S	Detail of monument removed in nave, south wall
Site visit 19th Aug 2016			
013		S	Grant mausoleum turf removed
014		S	Grant mausoleum turf removed
015		N	South wall of Chancel after top course rebuild
016		N	Lancet window in chancel after top course rebuild
017		N	Door of chancel after top course rebuild
018		N	Door of chancel after top course rebuild
019		N	Ashlar removed from South face of nave
020		N	Detail of ashlar removed from south face of nave
021		S	Render removed from North wall of chancel
022		S	Render removed from North wall of chancel
023		S	Render removed from North wall of chancel
024		S	Render removed from North wall of chancel
025		SW	Detail of join between chancel or nave
026		SW	Detail of join between chancel or nave
027		SW	Detail of join between chancel or nave
028		S	Detail of top courses of chancel rebuild
029		N	Monument removed from Lady Ardoch mausoleum
030		S	Top of Lady Ardoch mausoleum following removal of turf
031		S	North wall of nave following top courses rebuild
032		S	Stitch of photo 22&23 showing chancel after render removal
Site visit 23rd Aug 2016 watching Lady Ardoch lair			
033	2821	NE	Lady Ardoch Lair Cap Stones removed
034	2822	SE	Lady Ardoch Lair Cap Stones removed
035	2823	SW	Lady Ardoch Lair Cap Stones removed

036	2824	SW	Lady Ardoch Lair Cap Stones removed
037	2825	W	Lady Ardoch Lair Cap Stones removed
038	2826	N	Lady Ardoch Lair Cap Stones removed
039	2827	N	Lady Ardoch Lair Cap Stones removed from above
040	2828	N	Lady Ardoch Lair Cap Stones removed from above
041	2829	S	Kirk main mausoleum wallheads exposed
042	2830	S	Kirk main mausoleum wallheads exposed
043	2831	W	Lady Ardoch top course carving detail close to SW corner
044	2832	-	Slab cap stones removed from Lady Ardoch lair with no sign of reused grave slabs
045	2833	-	Slab cap stones removed from Lady Ardoch lair with no sign of reused grave slabs
046	2834	-	Slab cap stones removed from Lady Ardoch lair with no sign of reused grave slabs
047	2835	N	Main kirk mausoleum with further Ashlar removed
048	2836	N	Main kirk mausoleum with further Ashlar removed
049	2837	N	Main kirk mausoleum with further Ashlar removed
23rd PM visit			
050	2838	-	Stone 1/9 from top Ashlar course of Lady Ardoch lair. Showing this re used window sill with render to conceal couler
051	2839	-	Stone 1/9 from top Ashlar course of Lady Ardoch lair. Showing this re-used window sill with render to conceal colour
052	2840	-	Stone 1/9 from top Ashlar course of Lady Ardoch lair. Showing this re used window sill with render to conceal colour
053	2841	-	Stone 1/9 from top Ashlar course of Lady Ardoch lair. Showing this re used window sill with render to conceal colour
054	2842	-	Sketch elevations of Lady Ardoch lair showing stone locations 1/9 and 1/18
055	2843	-	Scetch elevations of Lady Ardoc lair showing stone locations 1/9 and 1/19
056	2844	E	West side of Lady Ardoch top ashlar course removed
057	2845	E	West side of Lady Ardoch top ashlar course removed
058	2846	E	West side of Lady Ardoch top ashlar course removed
059	2847	E	West side of Lady Ardoch top ashlar course removed
060	2848	S	North side of Lady ardoch memorial with top course of ashlar removed
061	2849	-	Stone 1/18 re used worked stone with render
062	2850	-	Stone 1/18 re used worked stone with render

063	2851	-	Stone 1/18 re used worked stone with render
064	2852	-	Stone 1/18 re used worked stone with render
065	2853	-	Stone 1/18 re used worked stone with render
066	2854	S	Lady Ardoch N wall with top course removed
067	2855	W	East wall of Lady Ardoch with most of top course removed
068	2856	W	East wall of Lady Ardoch with most of top course removed
24th Aug 2016			
069	2857	N	Lady Ardoch monument south side with ashlar top corse removed
070	2858	W	East fisard with top course removed
071	2859	W	East fisard with top course removed
072	2860	E	General working shot
073	2861	E	West facing ficard of Lady Ardoch monument 2nd ashlar course removed
074	2862	E	West facing ficard of Lady Ardoch monument 2nd ashlar course removed
25th Aug 2016			
075	2863	E	West facing ficard of Lady Ardoch monument 3rd ashlar course removed
076	2864	E	West facing ficard of Lady Ardoch monument 3rd ashlar course removed
077	2865	NE	Lady Ardoch monument SE corner showing reused stone
078	2866	NE	Lady Ardoch monument SE corner showing reused stone
079	2867	NW	Lady Ardoch monument SE corner showing stones removed
080	2868	Down	Lady Ardoch monument SE corner showing reused stone
081	2869	-	Stone 2/22 removed from Lady Ardoch monument
082	2870	-	Stone 2/22 removed from Lady Ardoch monument
083	2871	-	Stone 2/22 removed from Lady Ardoch monument
5th Sept 2016			
084	2872	N	Lady Ardoch monument South ficard rebuilt
085	2873	W	Lady Ardoch monument East facade rebuilt
086	2874	W	Lady Ardoch monument East facade rebuilt
087	2875	-	Stone 2/22 removed from Lady Ardoch monument
088	2876	-	Stone 2/22 removed from Lady Ardoch monument
089	2877	-	Stone 2/22 removed from Lady Ardoch monument
090	2878	S	Lady Ardoch monument North facade dismantled
091	2879	S	Lady Ardoch monument North facade dismantled
092	2880	E	Lady Ardoch monument West facade rebuilt
093	2881	down	Lady Ardoch monument SE corner rebuilt
094	2882	SW	Grant Dunbar mausoleum partly dismantled
095	2883	S	Grant Dunbar mausoleum partly dismantled detail
096	2884	S	Grant Dunbar mausoleum partly dismantled
097	2885	-	Grant Dunbar mausoleum cap stone detail
098	2886	-	Grant Dunbar mausoleum cap stone detail
099	2887	-	Grant Dunbar mausoleum cap stone detail
100	2888	-	Grant Dunbar mausoleum cap stone detail

8th Sept 2016			
101		NE	Grant Dunbar excavation around tree stump
102		N	Grant Dunbar excavation around tree stump
103		NW	Grant Dunbar excavation around tree stump
104		-	Grant Dunbar excavation around tree stump
105		NE	Grant Dunbar excavation around tree stump
106		NE	Grant Dunbar excavation around tree stump
107		NE	Grant Dunbar excavation around tree stump
108		NE	Grant Dunbar excavation around tree stump
6th Dec 2016			
109	718	NE	Entrance showing slope
110	719	E	Entrance showing slope
111	720	N	Entrance showing slope
112	721	N	Entrance showing slope
113	722	N	Entrance showing slope
114	723	E	Entrance with corner of stone
115	724	N	Wall footing to north of entrance
116	725	N	Wall footing to north of entrance
117	726	N	Stone slab SW of kirk
118	727	W	Stone slab SW of kirk and potential path route
119	728	E	Stone slab SW of kirk and potential path route
120	729	N	Slabs against south wall
121	730	NE	Slabs against south wall
122	731	E	Slabs against south wall
123	732	N	Boulders at base of wall
124	733	N	Boulders at base of wall
125	734	N	Chancel entrance
126	735	N	Chancel entrance
127	736	N	Chancel entrance
128	737	E	Chancel entrance with slabs to east
129	738	NW	Soakaway route
130	739	NW	Building progress
131	740	NW	Building progress
132	741	W	Path route south of trees
133	742	W	Path route south of trees
134	743	N	Path route north of trees
135	744	N	Slab on path route north of trees
136	745	E	Slab on path route north of trees
10th Jan			
137	811	NE	SSE trench along roadside
138	812	SE	Section of SSE trench along roadside
139	813	SW	SSE trench from field entrance
140	814	SW	SSE trench from field entrance
141	816	S	Trench 3 after initial clean

142	817	S	Trench 3 after initial clean
143	819	S	Trench 3 tumble of stones
144	820	S	Trench 3 tumble of stones
145	821	S	Trench 3 tumble of stones
11th Jan			
146	825	S	Trench 3 smaller irregular stones
147	826	S	Trench 3 showing graveyard wall
148	827	SE	Trench 3 pottery in situ
149	831	SE	Trench 3 pottery in situ
150	833	SE	Trench 3 pottery in situ
151	834	SE	Trench 3 pottery in situ
152	835	SE	Trench 3 pottery in situ
153	838	SE	Trench 3 pottery in situ
154	839	S	SSE trench outside burial ground
155	840	W	SSE trench outside burial ground
156	841	W	SSE trench outside burial ground
12th Jan			
157	IMG_1957	W	SSE excavations outside burial ground after backfill
158	1958	E	SSE excavation end of current trench with cable
159	1959	S	SSE excavation end of current trench with cable
160	1960	S	SSE excavation end of current trench with cable
161	1961	E	SSE excavations outside burial ground after backfill
162	1962	N	Pipe crossed by SSE trench by transformer on north side of road
163	1963	N	Pipe crossed by SSE trench by transformer on north side of road
164	1964	N	South elevation of Kirk with roof, render and scaffold
165	1965	N	South elevation of chancel with render
166	1966	NE	Chancel doorway with render
17th Jan			
167	IMGP_0843	E	Small corner of stone outside kirk door
168	844	E	Small corner of stone outside kirk door
169	845	E	Small corner of stone outside kirk door
170	846	N	Approach to kirk door with erosion
18th Jan			
171	IMG_1980	S	Small corner of stone outside kirk door
172	1981	S	Small corner of stone outside kirk door
173	1982	N	slab under turf exposed from erosion
174	1983	N	slab under turf exposed from erosion
175	1984	N	Second slab under turf exposed from erosion
176	1985	N	Third slab under turf exposed from erosion
177	1986	NW	Slabs exposed from erosion
178	1987	S	Slate in area next to Grant Dunbar mausoleum
179	1988	SW	Slate in area next to Grant Dunbar mausoleum

180	1989	S	Boarding protecting monument in Grant Dunbar mausoleum from slate
181	1990	N	Fourth slab under turf exposed from erosion
182	1991	N	Fourth slab under turf exposed from erosion
183	1992	W	End of SSE cable trench - next to kirkyard wall
184	1993	W	End of SSE cable trench - next to kirkyard wall
185	1994	S	End of SSE cable trench - next to kirkyard wall
23rd Jan			
186	IMGP_0848	W	Stones in south end of Trench 4
187	849	W	Stones in south end of Trench 4
188	850	W	Stones in south end of Trench 4
189	851	W	Stones against kirkyard wall Trench 4
190	852	N	Stones against kirkyard wall Trench 4
191	853	W	Stones with cache of bones
192	854	E	Stones with cache of bones
193	855	E	Stones with cache of bones
194	856	E	Stones with cache of bones
195	857	W	Stones with cache of bones
196	858	W	Stones with cache of bones
197	859	W	Stones with cache of bones
198	860	N	Trench 4 after excavation
199	861	N	Trench 4 after excavation
200	862	N	Verity taking pictures
201	863	N	Trench 4 after excavation
202	864	N	Bones with cable re-routing
8th Feb			
203	IMPG_0876	NNE	Start of path excavations
204	877	NNE	Start of path excavations
205	878	NE	Volunteers excavating path
206	879	NNE	First section of path
207	882	W	Stone 1 with extra turfs uncovered to reveal inscription
208	883	W	Stone 1 with extra turfs uncovered to reveal inscription
209	884	NNE	Corner of Stone 1 to be covered
210	885	NNE	Corner of Stone 1 to be covered
211	886	W	Stone 1 with extra turfs uncovered to reveal inscription in sunlight
212	887	W	Stone 1 with extra turfs uncovered to reveal inscription in sunlight
213	888	N	Stone 2 across path
214	889	W	Stone 2 with Stone 3 underneath
215	890	W	Top part of Stone 2
216	891	W	Top part of Stone 2
217	892	W	Lower part of Stone 2
218	893	W	Lower part of Stone 2
219	894	W	Stone 3
220	895	W	Stone 3

221	896	S	Stone 3 and Stone 2 from north
222	897	S	Inscription on Stone 3
223	898	E	Stone 4
224	899	E	Stone 4
225	900	W	Working shot of Stone 5 just after uncovering
226	901	NE	Working shot of Stone 6 Hosack stone after uncovering
227	902	NE	Working shot of Stone 6 Hosack stone after uncovering
228	903	W	Stone 5
229	904	W	Stone 5
230	905	W	Stone 5
231	906	W	Stone 5
232	907	N	Stone 6
233	908	N	Stone 6
234	909	W	Stone 6
235	910	W	Lower part of Stone 6
236	911	W	Lower part of Stone 6
237	912	W	Upper part of Stone 6
238	913	W	Upper part of Stone 6
239	914	W	Upper part of Stone 6
240	915	W	Lower part of Stone 6
241	916	W	Lower part of Stone 6
9th Feb			
242-260	917 - 935		360 degree photos of Stone 6 for 3D model
20th Feb			
261	IMPG_0939	W	Stone 9
262	942	W	Upper part of Stone 9
263	943	N	Small section of Stone 10 to be covered by path
264	944	WNW	Small section of Stone 10 to be covered by path
265	945	W	Relationship between Stone 5 and Stone 9
266	946	W	Relationship between Stone 5 and Stone 9
267	947	W	Upper part of Stone 9
268	948	W	Upper part of Stone 9
269	949	W	Edge of Stone 11 to be covered by path
270	950	W	Stone 12
271	952	W	Stone 12
272	953	W	Stone 12
273	954	W	Upper part of Stone 12
274	955	W	Upper part of Stone 12
275	956	W	Upper part of Stone 12
276	959	W	Stone 7
277	960	W	Lower part of Stone 7
278	963	W	Upper part of Stone 7
279	966	S	Bend of Stone 7
280	967	NW	Stone 8
281	968	W	Foundations of SE kirk wall

282	969	NW	Foundations of SE kirk wall
283	970	NW	Upper part of Stone 8
284	971	N	Stone 8 and foundations
285	972	N	Foundations of SE kirk wall
286	973	E	Approach to eastern entrance
287	974	E	Approach to eastern entrance
288	975	S	part of stripped path, turning south after eastern entrance
21st Feb			
289	976	N	Stone 10 uncovered
290	977	W	Stone 10 uncovered
291	978	W	Upper part of stone 10
292	979	W	Stone 14 under McKenzie headstone
293	980	W	Stone 14 under McKenzie headstone
294	981	N	Stone 14
295	982	W	McKenzie headstone
296	983	NNW	Relationship between Stone 14 and McKenzie stone
297	984	NNW	Relationship between Stone 14 and McKenzie stone
298	985	W	Stone 13
299	986	W	Stone 13
300	987	W	Stone 13
301	988	W	Lower part of Stone 13
302	989	W	Lower part of Stone 13
303	990	W	Central part of Stone 13
304	991	W	Upper part of Stone 13
305	992	W	Upper part of Stone 13
306	993	E	Initial deturfing of Trench 6
307	994	N	Initial deturfing of Trench 6
308	995	N	Initial deturfing of Trench 6
309	996	N	Stone 15
310	998	E	Working shot of Trench 6
311	999	SW	Cache of human remains in Trench 7
312	1000	SW	Cache of human remains in Trench 7
313	1001	W	Cache of human remains in Trench 7
314	1003	S	Cache of human remains in Trench 7
315	1004	SW	Cache of human remains in Trench 7
316	1005	SW	Cache of human remains in Trench 7
317	1006	S	Lower bones in cache of human remains in Trench 7
318	1007	S	Lower bones in cache of human remains in Trench 7
22nd Feb			
319	1008	SSE	Completed Trench 4
320	1010	SSE	Completed Trench 4
321	1011	E	Deturfed Trench 7
322	1012	S	Stones 16 and 17
323	1013	S	Stones 16 and 17
324	1014	W	Stones 16 and 17

325	1015	W	Stones 16 and 17 in Trench 7
326	1016	E	Drainage channel Trench 7
327	1017	E	Drainage channel Trench 7
328	1018	-	Dressed rail stone
329	1019	-	Dressed rail stone
330	1020	-	Dressed rail stone
331	1021	W	Unexcavated rail stone in situ
332	1022	W	rail stones and associated head stone
333	1023	-	Stone recovered from west of doorway - dressed corner stone
334	1024	-	Stone recovered from west of doorway - dressed corner stone
335	1025	-	Stone recovered from west of doorway - dressed corner stone
336	1026	-	Stone recovered from west of doorway - dressed corner stone
337	1027	-	Stone recovered from west of doorway - dressed corner stone
338	1028	E	Trench 6 deturfed
339	1029	E	Trench 6 deturfed
340	1030	E	Stones south of nave wall
341	1031	N	Stones south of nave wall
342	1032	W	Stones south of nave wall
343	1033	W	Stone immediately south of nave wall
344	1034	W	Central part of stone immediately south of nave wall
345	1035	W	Upper part of stone immediately south of nave wall
346	1036	W	Stones south of chancel wall
347	1037	W	Squint stone south of chancel wall
348	1038	W	Squint stone south of chancel wall
349	1039	W	Squint stone south of chancel wall
350	1040	E	Relationship of stone with its footing
351	1041	E	Relationship of stone with its footing
352	1042	E	Relationship of stone with its footing
353	1043	E	Drainage channel between stones south of nave wall
354	1044	E	Drainage channel between stones south of nave wall
23rd Feb			
355	1045	E	Post-ex of trench 7
356	1046	W	Post-ex of trench 7
357	1047	W	McKenzie headstone
358	1048	W	Stone 14 and McKenzie headstone
359	1049	SE	Post-ex of trench 7
360	1050	NW	Post-ex of trench 7 and trench 6
361	1051	W	Post-ex of trench 6
362	1052	W	Detail of trench 6 under squint stone
363	1053	E	Post-ex of trench 6

24th Feb			
364	1054	S	Volunteers
365	1055	S	Volunteers
366	1056	S	Stones near kirkyard wall
367	1057	W	Stones near kirkyard wall
368	1058	W	Stones near kirkyard wall
369	1059	N	Stones near kirkyard wall
370	1060	E	Stones near kirkyard wall
371	1061	E	Stones near kirkyard wall
372	1062	S	Stone 20
373	1063	S	Stone 20
374	1073	W	Stone 20
375	1077	NE	Stone 20
376	1083	W	Stone 20
377	1086	N	Stone 20
378	1089	W	Stone 18
379	1090	W	Stone 18
380	1091	S	Stone 18
381	1094	W	Stone 19
382	1095	W	Stone 19
383	1096	S	Stone 19
384	1097	E	Stone 19
385	1098	S	Post-ex trench 8
386	1099	SE	Post-ex trench 8
387	1100	S	Post-ex trench 6
388	1101	S	Post-ex trench 8
1st March			
389	1102	E	Post-ex trench 9
390	1103	E	Post-ex trench 9
391	1104	E	Post-ex trench 9
392	1105	W	Post-ex trench 9
393	1106	W	Post-ex trench 9
394	1107	W	Post-ex trench 9
395	1108	W	Post-ex trench 9
4th August			
396	IMGP_1965	E	Deturfing, trench 10 attempt 1
397	1966	E	Deturfing, trench 10 attempt 1
398	1967	S	Deturfing, trench 10 attempt 2
399	1968	E	Deturfing, trench 10 attempt 2
400	1969	W	Deturfing, trench 10 attempt 2
401	1970	E	Attempt 2 with stones
402	1971	NW	Attempt 2 with stones
403	1972	SE	Grant Dunbar sign board location pre-ex
404	1973	E	Trench 10 attempt 3 pre-ex
405	1974	S	Trench 10 attempt 3 pre-ex

406	1975	SE	Grant Dunbar sign board post-ex
407	1976	SE	Grant Dunbar sign board post-ex
408	1977	SE	Grant Dunbar sign board post-ex
409	1978	SW	Bottom of Trench 10 attempt 3
410	1979	NW	Bottom of Trench 10 attempt 3
411	1980	WSW	Lady Ardoch sign board post-ex
412	1981	WSW	Lady Ardoch sign board post-ex
413	1982	WSW	Lady Ardoch sign board post-ex
414	1983		Reinterment box put in place
415	1984		Reinterment box put in place
416	1985		Reinterment box put in place
417	1986		Reinterment box put in place
418	1987		Reinterment box with some human remains

Appendix 9 – Excavation Photo Register

Photo No.	From	Facing	Showing
17th October 2016			
501	Entrance	E	Nave (Tr. 1) before start of work
502	Entrance	E	Nave (Tr. 1) before start of work
503	Entrance	E	Nave (Tr. 1) before start of work
504	SE corner	W	Tr.1 before work
505	SE corner	NW	Tr.1 before work
506	SE corner	N	Tr.1 before work
507	Above	S	South side of Tr.1 showing clolapsed roof (004)
508	Above	S	South side of Tr.1 showing clolapsed roof (004)
509	Above	S	South side of Tr.1 showing clolapsed roof (004)
510	Above	S	South side of Tr.1 showing clolapsed roof (004)
511	Above	S	South side of Tr.1 showing clolapsed roof (004)
512	Above	S	South side of Tr.1 showing clolapsed roof (004)
513	Above	S	South side of Tr.1 showing clolapsed roof (004)
514	W. wall S. of door	E	South side of Tr.1 showing clolapsed roof (004)
515	E. wall S. side	W	South side of Tr.1 showing clolapsed roof (004)
18th October 2016			
516	-	-	using the sieve
517	-	-	using the sieve
518	-	E	Trowling line
519	-	E	Trowling line
520	SW corner	N	(003) removed showing (004) and (005)
521	SW corner	NE	(003) removed showing (004) and (005)
522	SW corner	E	(003) removed showing (004) and (005)
523	SE corner	W	(003) removed showing (004) and (005)
524	SE corner	NW	(003) removed showing (004) and (005)
525	SE corner	N	(003) removed showing (004) and (005)
526	NE corner	S	(003) removed showing (004) and (005)
527	NE corner	SW	(003) removed showing (004) and (005)
528	NE corner	W	(003) removed showing (004) and (005)
529	NW corner	E	(003) removed showing (004) and (005)
530	NW corner	NE	(003) removed showing (004) and (005)
533	Doorway	E	(003) removed showing (004) and (005)
534	Doorway	SE	(003) removed showing (004) and (005)
535	Doorway	SSE	(003) removed showing (004) and (005)
19th October 2016			
536	Middle	S	(004) roof timbers
537	Middle	S	(004) roof timbers
538	SE corner	W	(004) roof timbers

539	SE corner	W	(004) roof timbers
540	SW corner	E	(004) roof timbers
541	Middle	S	(004) roof timbers
542	Middle	S	(004) roof timbers with range pole
543	Middle	S	(004) roof timbers with range pole
544	E wall	W	Railing in Situ
545	Middle	N	Railing in Situ
546	N of door	W	Railing in Situ
547	Doorway	N	Railing peaces
548	Doorway	E	(006) light sandy deposit
549	N. wall	S	(006) light sandy deposit
20th October 2016			
550	Doorway	E	(005) after removal of (004)
551	N wall	S	(005) after removal of (004) SW wall
552	Middle	NE	Working shot showing bone within (004)
553	Middle	NE	Working shot showing bone within (004)
21st October 2016			
554	S. of door	NE	(005) on N. side (no scale)
555	S. of door	NE	(005) on N. side (with scale)
556	Middle	N	[007] possible grave
557	NE corner	W	[007] possible grave
558	Middle E. wall	W	Removal of (004) onto (005) on N edge
559	Middle E. wall	NW	Removal of (004) onto (005) on N edge
560	Middle E. wall	NW	Removal of (004) onto (005) on N edge
561	Middle N. Wall	E	Detail of [007] possible grave
562	Middle N. Wall	E	Detail of [007] possible grave
563	Middle N. Wall	E	Detail of [007] possible grave
564	SW corner	W	Possible feature [009]
565	SW corner	W	Possible feature [009]
566	Middle S. wall	W	detail around alcove S. of door on W. Wall
567	Middle S. wall	W	detail around alcove S. of door on W. Wall
568	Middle S. wall	W	detail around alcove S. of door on W. Wall
569	Middle S. wall	W	detail around alcove S. of door on W. Wall
25th of October 2016			
571	-	-	Nice View
572	Middle N. Wall	E	[007] mid ex with (012)
573	Middle N.	E	[007] mid ex with (012)

	Wall		
575	see day book	E	(013) bone cluster
576	SW corner	E	[009] with (010) removed
577	Middle	S	[009] with (010) removed
578	Middle N. Wall	E	[007] mid-ex with bone
579	Middle N. Wall	E	[007] mid-ex with bone
582	Middle	E	(013) bone cluster
583	Middle room	E	[007] bones
584	Middle N. Wall	E	[007] post-ex
585	Middle	N	[007] post-ex
586	NE corner	SW	Working shot
587	NE corner	SW	Working shot
588	NW corner	SE	Working shot
589	NW corner	SE	Working shot
590	Entrance	SE	Removal of (005) onto (017), (016), (015) and (019)
591	Entrance	SE	Removal of (005) onto (017), (016), (015) and (019)
592	Entrance	E	Working shot (019)
593	Entrance	E	Working shot (019)
594	Entrance	SE	Removal of (005) onto (017), (016), (015), (019) and (020)
595	Entrance	SE	Removal of (005) onto (017), (016), (015), (019) and (020)
596	Mid-E Wall	SW	Stonework in SW corner
597	Mid-E Wall	SW	Stonework in SW corner
598	SW corner	NE	Detail of removal of (005)
599	SW corner	NE	Removal of (005) in north half
600	E wall N of monument	N	Detail of human remains (021)
601	E wall N of monument	N	Detail of human remains (021)
602	E wall N of monument	N	Detail of human remains (021)
603	N wall E of centre	E	Detail of human remains (021)
604	Monument W wall	NW	Removal Of (005)
605	Middle	NE	[022] showing relationship to plank
606	Middle	NE	[022] showing relationship to plank
607	Middle	E	[022] showing relationship to plank
608	Middle	E	Working shot, organic floor and 'wall'
609	Middle	E	Working shot, organic floor and 'wall'
610	Middle	S	Working shot, organic floor and 'wall'
611	Middle	S	Working shot, organic floor and 'wall'
612	1m E of	E	[022] working shot

	entrance		
613	1m E of entrance	E	[022] working shot
614	NW corner	E	(023) Box at north of kirk
615	NW corner	E	(023) Box at north of kirk
616	Middle	N	(023) Box at north of kirk
617	N wall of kirk	SE	(025) bone and wood
618	NE corner	SW	(025) bone and wood
619	NE corner	SW	(025) bone and wood
29th of October 2016			
620	Entrance	E	Boxes and (017) exposed
621	Entrance	E	Boxes and (017) exposed
622	Entrance	E	Boxes and (017) exposed
623	Entrance	E	Boxes and (017) exposed
624	Entrance	E	Boxes and (017) exposed
625	Entrance	E	Boxes and (017) exposed
626	SW corner	E	Area of (017) to south of nave
627	SW corner	E	Area of (017) to south of nave
628	SW corner	E	Area of (017) to south of nave
31st October 2016			
630	South window	N	(017) showing 2 layers
631	South window	N	(017) showing 2 layers
632	SW corner	E	(017) showing 2 layers
633	E of entrance	N	(030)
634	E of entrance	N	(030)
635	NW corner	S	(030)
636	E of entrance	N	(030)
637	N of centre	W	(030)
638	E of entrance	N	(030)
639	Entrance	E	Removal of (005) onto (029) and dark strips
640	1m N of entrance	S	Removal of (005) onto (029) and dark strips
2nd November 2016			
641	Entrance	S	SW corner showing (033) and (029)
642	Entrance	S	SW corner showing (033) and (029)
643	South window	W	SW corner showing (033), (029) and (015)
644	E of entrance	E	Box (020) post-ex
645	Middle	E	Box (020) showing circular saw marks
646	NW corner	E	Box 23 post-ex

648	E of entrance	N	Box (030) post-ex
649	Middle of N wall	W	Box (030) post-ex
650	South window	W	Box (030) post-ex
651	-	W	Box (030) post-ex
652	-	N	Detail of Box (020) repair at SW corner
653	-		Wood from inside Box (020) with plant stapled to inside
654	-	E	Box (020)
655	-	E	Box (020)
656	N wall	E	(038) cobbles in NE Trench 1
657	N wall	E	(038) cobbles in NE Trench 2
658	Tr 2 Entrance	N	Cleaning up of lime mortar
659	Tr 2 Entrance	N	Cleaning up of lime mortar
660	Middle	E	Baulk below monument
661	Middle	E	Baulk below monument
662	Tr 2 N wall	S	(039) cleaning
663	Tr 2 N wall	S	(039) cleaning
664	Middle	W	(041) cobbles in SE of Tr.1
665	Middle	W	detail of 'doorway' S of entrance
666	Middle	W	detail of 'doorway' S of entrance
667	Middle	W	Walling under entrance
668	NW corner	S	Walling under west wall
669	Tr 2 W wall	E	post-ex Tr 2 showing (039)
670	Tr 2 W wall	E	post-ex Tr 2 showing (039)
671	Tr 2 W wall	E	post-ex Tr 2 showing (039)
672	Tr 2 W wall	E	post-ex Tr 2 showing (039)
673	1m N of entrance T2	S	threshold of Tr 2
674	1m N of entrance T2	S	threshold of Tr 2

Appendix 10 – DES entry

LOCAL AUTHORITY:	Highland Council
PROJECT TITLE/SITE NAME:	Kirkmichael
PROJECT CODE:	KML16
PARISH:	Resolis
NAME OF CONTRIBUTOR:	Lynne McKeeggie
NAME OF ORGANISATION:	Highland Archaeology Services
TYPE(S) OF PROJECT:	Watching Brief and Excavation
NMRS NO(S):	<i>Canmore ID</i> 14486
SITE/MONUMENT TYPE(S):	Church
SIGNIFICANT FINDS:	Flint arrowhead
NGR (2 letters, 8 or 10 figures)	NH 70590 65855
START DATE (this season)	August 2016
END DATE (this season)	August 2017
PREVIOUS WORK (incl. <i>DES</i> ref.)	DES 2013, vol. 14, p.116
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p>Excavations and a watching brief were conducted by Highland Archaeology Services Ltd as part of the redevelopment of Kirkmichael Kirk, Resolis in order to satisfy Scheduled Monument consent. A watching brief was conducted throughout ground-breaking works from August 2016 to August 2017 to enable installation of drains, paths, services and signage. An excavation to lower the floor levels of the Kirk was undertaken in October and November 2016.</p> <p>Excavations within the Kirk revealed an earlier phase of wall and some material that may be related to a building or renovation phase. There was also a considerable depth of modern material, including wooden box-like structures and excess soil from grave digging. Many modern artefacts were recovered including bottles and vases. A scatter of 17th and 18th century coins are thought to have been imported with grave digging material, along with many disarticulated and fragmentary human remains. An unexpected find was a flint arrowhead, which may have also been imported with grave-digging spoil. The human remains have undergone basic analysis and have been reinterred within the graveyard.</p> <p>Twenty monumental grave ledger slabs were recorded during the watching brief of works for the installation of new paths and drains. The majority of these were inscribed and dated from the 17th and 18th century. Three 17th century slabs featured an inscribed claymore sword, which appears to be part of a local tradition during the post-reformation period to include a known but suitably secular motif on monumental grave slabs. All the slabs were able to be preserved in-situ. No other artefacts of interest were recovered during the watching brief. Fragmentary disarticulated human remains were recovered, assessed, and reinterred within the graveyard.</p>
PROPOSED FUTURE WORK:	No future work proposed

CAPTION(S) FOR ILLUSTRS:	A sword-inscribed monumental grave slab at Kirkmichael dating to 1600
SPONSOR OR FUNDING BODY:	The Kirkmichael Trust, with funding from Historic Environment Scotland, HLF, The Highland Council, The Monument Trust, The Robertson Trust and many others
ADDRESS OF MAIN CONTRIBUTOR:	2 Ross Lane, Tain, Ross-shire, IV19 1GA
EMAIL ADDRESS:	info@hi-arch.co.uk
ARCHIVE LOCATION (intended/deposited)	Report: Highland HER Records: HES