

Lady Kirk Shapinsay Orkney



Excavation Data Structure Report

October 2012



Lady Kirk, Shapinsay, Orkney

Excavation

Data Structure Report

Project No: 354

ORCA

Orkney College
East Road
Kirkwall
Orkney
KW15 1LX

Project Manager:

Nick Card MA MIFA FSA Scot

Report:

Dave Reay

Figures:

Patricia Edwards

Funded by:

Scottish Water Ltd.

October 2012

© ORCA 2012

This documents has been prepared in accordance with ORCA standard operating procedures and IFA standards	
Authorised for distribution by: Nick Card	Date: 05 th October 2012

Contents

Figures	4
Plates	4
Executive Summary	5
Acknowledgements	6
1.0 Introduction	7
2.0 Site Location, Topography and Geology	8
3.0 Archaeological Background	8
4.0 Fieldwork Aims and Objectives	10
5.0 Fieldwork Methodology	10
6.0 Fieldwork Results	14
6.1 Introduction.....	14
6.2 Geological Deposits.....	14
6.3 Phase 1: (pre cemetery) features	14
6.4 Phase 2: Buried soil horizon	15
6.5 Phase 3: Cemetery.....	15
6.5.1 <i>Enclosure ditch</i>	15
6.5.2 <i>Burials and cut features</i>	17
6.5.3 <i>West Extension</i>	17
6.5.4 <i>North Extension</i>	20
6.5.5 <i>East Extension</i>	23
6.5.6 <i>Graveyard surface</i>	24
6.6 Phase 4: Modern features and deposits	25
6.7 Phase 5: 21 st Century disturbance contexts	25
7.0 Discussion	26
7.1 Summary of the fieldwork results.....	26
7.2 Phasing	28
7.3 Interpretive issues	29
8.0 Conclusions and Recommendations	30
9.0 References	32
9.1 Policy and Advisory Documents	32
9.2 Bibliographic References.....	32
9.3 Cartographic References.....	33
Appendix 1: Skeleton Index	34
Appendix 2: Contexts Register	35
Appendix 3: Drawing Register	37
Appendix 4: Samples Register	38

Appendix 5: Small Finds Register	39
Appendix 6: Photographic Register	39

Figures

1. Site location
2. Geophysical survey results and site location
3. Composite plan of site
4. Enclosure ditch
5. West extension
6. North extension
7. East extension

Plates

1. Ditch **805**, buried soil **809** and gulley **810** looking WSW
2. **SK1** showing displaced headbox structure, looking NNE
3. Detail of neonate burial **SK2** in chest area of **SK1**, looking W
4. **SK1** fully exposed, looking N
5. **SK3** looking SSW
6. **SK6** looking SSW
7. **SK7** looking SSW
8. Location of **SK8** in relation to grave **719**, **SK7**, looking SSW
9. Detail of **SK8** looking WNW
10. **SK9** looking SSW
11. **SK11** looking SSW
12. Unexcavated burial **SK14** looking SSW
13. Heavily truncated burial **SK16**, looking NNE
14. Machine disturbed burial **SK20**, looking WNW

Executive Summary

Scottish Water Ltd. commissioned ORCA (Orkney Research Centre for Archaeology) to undertake an excavation in Shapinsay, following the discovery of human remains and associated archaeological features on a watching brief. The works being monitored consisted of using a horizontal directional drill (HDD) to install a conduit pipe from Orkney Mainland to Shapinsay Island. The site was located in the south west of the island of Shapinsay, Orkney, and is centred on NGR HY47025 16421 (hereafter 'the site').

The excavation revealed what is likely to be the graveyard and boundary ditch of Lady's Kirk Chapel, which was known to be present in the vicinity. No structural remains were encountered of the chapel, but it is likely to be in close proximity perhaps to the north of the excavation area.

The only pre-cemetery feature on the site, was an undated, north to south aligned gully **810**. It was stratigraphically sealed by a buried soil horizon, which is likely to be a deposit of buried topsoil, which was overlain by the pebble surface of the cemetery. The buried soil horizon seems to immediately pre-date the medieval use of the site as a cemetery and probably represents a former land surface, as the graves and enclosure ditch were cut through this deposit.

The cemetery was bounded to the south by a WNW to ESE orientated ditch, which is likely to extend around the circumference of the graveyard, forming an enclosure. This boundary ditch probably delineates the extent of the consecrated ground associated with the chapel. No archaeological remains were present to the south of this feature.

A total of 10 machine truncated burials were excavated on the site, including a skull which was present in a slumped block of soil. Two of the graves probably represent multiple inhumations, both of which contained an adult and a neonatal / infant burial interred together. Three further machine truncated burials were left in situ as they were overlain by undisturbed inhumations. Seven burials were identified which had not been affected by the development, and a further six probable grave cuts were identified.

All of the burials (except one neonatal individual) were aligned WNW to ESE, or broadly west to east, with the head at the west end of the grave, and were supine. The burials on the site were intercut and densely packed, which suggests that the burial ground was in use for a reasonable duration. The bone preservation was relatively good on the site, and none of the burials had grave goods present. There was no evidence of coffins within the graves, but a significant proportion of the inhumations had associated structural features.

The alignment of the skeletons, lack of grave goods, typological dating and archaeological evidence for the site strongly suggests that these inhumations are Christian, and date to the medieval period.

The excavations on this site have provided a rare opportunity to investigate a medieval cemetery site. Few excavations have been carried out on sites of this type and period in Scotland, and the material generated has outstanding potential to further research into this area. A programme of further field work, specialist post-excavation analysis, and the publication of the results of the site is recommended.

Acknowledgements

This report was commissioned by Scottish Water Ltd. Orkney Research Centre for Archaeology would like to thank Kirsty Windle of Scottish Water, Sam Pollock and Paul Gallagher of George Leslie Civil Engineering Contractors. Dr Sarah-Jane Gibbon and Sheila Garson (Orkney Museums) provided valuable on site consultation, and Nick Thake, Estates Factor, Balfour Estate is greatly acknowledged for his support and assistance throughout the project. The work was monitored and approved by Julie Gibson, OIC County Archaeologist.

The excavation was directed by Dave Reay, with assistance from Patricia Edwards, Linda Somerville, Gavin Lindsay and Dave McNicol.

This report was compiled by Dave Reay, the illustrations by Patricia Edwards, and the appendices by Linda Somerville. The project was managed on behalf of ORCA by Nick Card.

1.0 Introduction

Scottish Water Ltd commissioned ORCA (Orkney Research Centre for Archaeology) to undertake an excavation in Shapinsay, following the discovery of human remains and associated archaeological features during a watching brief (Figure 1). The works being monitored consisted of using a horizontal directional drill (HDD) to install a 180mm diameter HDPE conduit pipe from Orkney Mainland to Shapinsay Island where it would be connected up to an existing water pipe network. These works formed part of the Shapinsay Potable Water Scheme, undertaken by Scottish Water Ltd.

ORCA previously undertook a geophysical survey of the area (Figure 2) where the pipe would exit the ground at Shapinsay, and along the route proposed to connect up to the existing pipe work (ORCA 2011).

This survey work located anomalies, likely to be archaeological features associated with Lady's Kirk Chapel – a Medieval chapel of which no above-ground remains are present (though the site is marked on the 1882 OS map for the area).

A mitigation strategy of avoidance was agreed with the Local Authority Planning Archaeologist and Scottish Water Ltd.

However, during drilling for the pipe across from the Mainland Orkney to Shapinsay, due to the underlying geology of the area the drill was pushed to the west. The exit point on Shapinsay was closer to the area where the Chapel was thought to be. On machining the pipe trench the burials and potential burial ground boundary were disturbed.

Following the discovery, work ceased on the affected area and the local Police (Kirkwall Police) and Local Authority Planning Archaeologist (Julie Gibson) were informed. It was agreed that construction work could continue under archaeological supervision, provided that there was no further disturbance to the area.

The purpose of this excavation was limited to the excavation of any burials and associated archaeological features which had been truncated by the works. This report details the results of the excavation, which was undertaken between the 4th and the 22nd June 2012.

2.0 Site Location, Topography and Geology

The site was located in the south west of the island of Shapinsay, Orkney, and is centred on NGR HY47025 16421 (Figure 1). It was situated in a large 16.7 hectare field, which is currently under pasture, located above a bay to the north west of Doocot Point, and to the north east of Twi Ness. The site lies 20m to the north of the cliff edge, in the area known as Kirk Banks. The site lies within the Balfour Castle Estate, with the castle situated 460m to the east.

The site lies at 6.5m OD and occupies a fairly flat plateau in the topography, with the ground level sloping gently down to the south towards the cliff edge, and rising to higher ground in the north.

The solid geology of the area consists of Rousay Flags, which form part of the Caithness Flagstone group (BGS 1999) (Mykura 1976: 71ff). The solid geology is overlain by Pleistocene deposits of glacial till (Mykura 1976: 105ff).

The soils are part of the Canisbay association – non-calcareous gleys and peaty podzols (Soil Survey of Scotland, 1982).

3.0 Archaeological Background

The pasture field is the indicated site of Lady's Kirk (NMRS Number HY41NE 5, RCAHMS 2012). The site record states that although there is no visible sign of what was thought to be a chapel, a roughly circular dry stone-lined well, covered with a slab was identified. This may have been the chapel well. In the 1st edition, (1882), Ordnance survey map of the field there is a "pump" which might correspond to the same location as the well. The location of Lady's Kirk Chapel is shown on the 1st Edition Ordnance Survey map (1882), 55m to the ENE of the site (Figure 2). The location of the chapel on this map has to be an approximation of its original location, given the discrepancy with the archaeological evidence.

Also within the area is Doocot Point, (NMRS Number HY41NE 18, RCAHMS 2012), a suspected dovecot identified in the NMRS report as a square building which was shown on the estate map of 1819.

To the south east of Doocot Point, a probable Iron Age settlement site has been identified at Setter Noust (NMRS Number HY41NE 13 RCAHMS 2012, Simpson 1998). This site consisted of a substantial drystone structure visible for 17m, with associated midden deposits visible for 40m exposed in an actively eroding cliff section. Undulations in the topography above the shoreline suggest that this site was a large settlement, covering an area 40m by 40m.

Approximately 300m to the west of the site is Twi Ness (NMRS Number HY41NE 19, RCAHMS 2012), described in the NMRS report as “a circular cairn measuring 7m in diameter, 0.6m in height, and slightly hollowed in the centre. On the N side, an upright slab placed radially to the centre of the mound, may indicate the presence of a cist.” This is likely to be a prehistoric burial monument.

A geophysical magnetometer survey of the site (Figure 2) was undertaken by ORCA (2011) in order to confirm the location of Lady Kirk Chapel, and identify any other potential archaeological remains that might be impacted on by the Shapinsay Potable Water Scheme works. An area measuring 100m by 100m centred on the proposed exit point for the drill was surveyed. An additional 40m wide by 100m long corridor, extending to the east for the pipe trench was also surveyed.

The only significant geophysical anomaly which was present in the immediate vicinity of the exit point was Anomaly I. This feature consisted of two strong parallel responses, approximately 11m apart, located 15m west of the proposed exit point. Between the two linear features additional geophysical responses were revealed, of unclear origin. It was classified as potential archaeology, possibly the site of the chapel, but the evidence was inconclusive (ORCA 2011). It was recommended that the exit point be moved to the east, by 10 – 20m in order to avoid impacting on this potential archaeological feature.

A watching brief was undertaken by ORCA for the directional drilling landfall and associated pipe trench works, in order to identify and record any archaeological features, deposits or structures which may have been uncovered. It was during these works that the cemetery site was identified on the 29th May 2012. The results of the watching brief are contained in a separate report (ORCA 2012).

4.0 Fieldwork Aims and Objectives

This project was carried out in accordance with the relevant Historic Scotland (2006) and Institute for Archaeologists (Brickley and McInley 2004) guidance for the treatment of human remains in archaeology.

The principle aims of the excavation were to:

- Excavate, record and exhume burials where the majority of the individual was disturbed by the trenching works.
- Protect individual burials which were visible, but undisturbed by the development with a suitable geo-textile membrane.
- Collect disarticulated human remains, to ensure that no skeletal material was present on the surface when the trench was reinstated, and to allow the analysis of this material.

The principle objectives of the excavation were to:

- Establish the presence, condition and preservation of potential human remains and undertake full excavation where necessary (see above)
- Establish the suitability for the remains to yield non-contaminated DNA samples (cf. Yang and Watt 2004) and to sample for isotope analysis and DNA as / if appropriate
- Retrieve all disarticulated human remains remaining in spoil, and re-inter on site after inspection by Human Osteology Consultant Dave Lawrence.
- Determine the stratigraphic sequence on site, in particular the relationship / association of human remains and the possible burial ground boundary to the south.

5.0 Fieldwork Methodology

The overall methodology was undertaken in line with Objective 3, Policy 3.6 of the Treatment of Human Remains in Archaeology (Historic Scotland 2006).

'Where human remains are discovered truncated by excavation i.e. where part of the remains lie outside the excavation trench, in cases where a significant proportion of the remains lie within the trench or the site is threatened with destruction ... we would normally expect that the trench would be extended so that the remains can be fully excavated and completely removed. In cases where only a small proportion of the remains projects into the trench or the site is not threatened with destruction, the buried remains should not be disturbed and any associated remains removed during excavation of the trench should, at the end of the excavation, be reinterred where they were found.'

Following consultation with Julie Gibson, (OIC Regional Planning Archaeologist), it was considered in the instance where the human remains were partially removed during the machine excavation of the pipe and associated sump, the disturbed burials were fully excavated. Where truncated burials were overlain by *in situ* burials, these were not excavated. Where undisturbed inhumations were seen either in section or during the excavation of the burials mentioned above, the remains were left *in situ*. Disarticulated human remains were collected from surrounding spoil.

Initially, the sections were cleaned to identify where truncated burials were present on the site. The excavation area was extended to the east, west, and north in order to excavate the truncated burials identified in section. The turf and topsoil was removed using a tracked 360⁰ mechanical excavator, fitted with a toothless grading bucket, under archaeological supervision. Below this level, all archaeological deposits and features were excavated by hand.

The removal of human remains was done with police approval and in accordance with Historic Scotland's Operational Policy Paper 5 *The Treatment of Human Remains in Archaeology* and IFA guidelines. The human remains were covered each night to prevent damage from the weather and to deter intruders.

The excavation and recording of human remains was undertaken with advice from an osteoarchaeologist (Dave Lawrence). Skeletal material was cleaned, photographed (including geo-rectified photography), surveyed and recorded before removal. Skeletons were allocated individual skeleton numbers in post excavation, for ease of reference. These numbers were

allocated in the order they are written up in this report (see Appendix 1).

All archaeological features, deposits, structures and skeletons were recorded using ORCA's *pro-forma* recording system, and in accordance with IFA standards, under the ORCA Project Code 354. Archaeological deposits, features and structures were planned at an appropriate scale of 1:20, and sections were recorded at 1:10 on drawing film. A 'daybook' was kept which outlined the progress of the excavation.

A photographic record of the site was created using high resolution digital images (including appropriate scales). A number of general site photographs were also taken to give an overview of the site and the progress of the excavation. Skeletons were recorded in plan using geo-rectified photography. Surveyed marker points were included in vertically orientated digital photographs, which will be used to produce digital plans of the burials in AutoCAD. Detailed measured sketches and field notes were used to ensure the accuracy and quality of this process. Digitised scaled plans will then be produced for the publication of the site.

The excavation area, archaeological features, levels, geo-reference points, skeletons, plans and sections were located using a Leica Viva Series GNSS in order to provide an accurate plan record of the excavation. All excavation survey data was recorded using the OSGB36 British National Grid coordinate system. During fieldwork, digital plans were produced using AutoCAD.

Standard bulk soil samples were taken as appropriate, for the retrieval of carbonised plant remains and human skeletal material. Samples of skeletal remains for ancient DNA analysis were taken on site, under biologically controlled conditions in order to minimise modern contamination. Once the upper portion of the burial horizon in each grave was reached, excavation continued under strict protocol: Forensic suits, face masks, gloves and hair nets were worn, and hand tools were sterilised using a 10% bleach solution. The DNA samples were lightly wrapped in tin foil, and placed in a clean paper bag. These samples are currently stored in a refrigerator. This methodology followed best practice for retrieval of ancient DNA samples outlined by Yang and Watt (2004). Isotope and radiocarbon samples will be taken from the recovered skeletal material if this is deemed necessary.

All small finds and samples were given unique numbers, were bagged, labelled and catalogued, in conjunction with being recorded on pro-forma record sheets. Small finds were plotted in 3D where appropriate.

Recovered materials

Any artefacts retrieved during the investigation will be subject to the standard disposal procedures operated under the Treasure Trove laws by the Finds Disposal Panel or the Queens and Lord Treasurer's Remembrancer as appropriate. Finds will be treated in accordance with Scottish Museum Guidelines (Scottish Museum Archaeologists 2000).

Finds, including human remains, are temporarily stored in a suitable and secure environment at Orkney College whilst awaiting further analysis. Following recognised archaeological and museum practice, the human remains will be stored separately from other excavated finds. All bones from individual skeletons (when apparent from excavation) will be kept together either in a single box, or in a series of boxes clearly labelled as being associated. Human remains specialist Dave Lawrence will act as consultant for the post-excavation process.

Within six months of the completion of the assessment report, a formal decision on the final disposition of the remains will be made, carried through and recorded in the appropriate archive.

Reinstatement

Following the completion of the fieldwork, the site was covered with geotextile membrane, with individual *in situ* burials covered with a double layer of geotextile, separated by a layer of fine soil. The site was backfilled using a tracked 360° excavator. Prior to backfilling, a square, open topped plywood box structure was inserted into the excavation area (Figure 3), then fitted with a plywood lid. This subsurface structure was left securely fenced off with metal barrier fencing. This was undertaken for the reburial of the recovered human remains within the cemetery in the future, should this be deemed appropriate.

6.0 Fieldwork Results

6.1 Introduction

The results of the excavation are presented below by phase, from earliest to latest. The burials and other archaeological features are discussed by area within the excavation, as there were four discreet areas of investigation (Figure 3). All of the burials were aligned WNW to ESE, or broadly west to east, with the head at the west end of the grave, and were supine. Only one neonatal burial was aligned NNE – SSW interred either crouched or flexed, and this difference in burial probably relates to its association with another inhumation. The bone preservation was relatively good on the site. None of the burials had grave goods present. There was no evidence of coffins within the graves, but a significant proportion of the inhumations had structural features associated. These were generally headboxes (orthostats flanking the sides of the skull, with a capstone over the top), with one example of a partial cist-like structure lining the grave cut.

The alignment of the skeletons, lack of grave goods, dating and archaeological evidence for the site suggest that these inhumations are Christian, and date to the medieval period.

6.2 Geological Deposits

The underlying geological deposits on the site consisted of two layers of glacial till **703** and **702**. Context **703** was a very mixed deposit of mid brownish red firm clay, with frequent flagstone and sandstone inclusions. This context was over 0.6m thick, and was overlain by **702**, which was a light brownish orange firm silty clay, with occasional flagstone inclusions, and was between 0.15m and 0.28m thick.

6.3 Phase 1: (pre cemetery) features

A single, small, truncated gully **810** (Figure 4, Plate 1) was the only archaeological feature that pre-dates the use of the site as a Medieval cemetery.

Gully **810** was linear in plan, aligned north to south, and was 0.7m long by 0.3m wide, and was a maximum of 0.3m deep. It had moderately steep concave sides and a concave base, which sloped down to the south. Gully

810 was truncated by enclosure ditch **805** to the south and by machine cut **705** to the north. It contained a single fill **811**, which was a mid orange brown silty clay, derived from the weathering of the sides of the cut, and natural silting of the feature. Fill **811** was sealed by buried soil **809**.

6.4 Phase 2: Buried soil horizon

A buried soil horizon was encountered across the site, (except in the north extension area) which was cut by the burials and the enclosure ditch relating to the medieval use of the site. This buried soil horizon was represented by contexts **809** and **814** (cut by the enclosure ditch), **800** in the East Extension area, **796**, **804** and **809** in the West Extension area. These deposits were all very similar in character, and consisted of a well sorted homogenous mid brownish grey silty clay, which was between 0.2 – 0.07m thick. These deposits overlay glacial till **702**, and were overlain by the gravel surface of the cemetery. It is likely that this horizon was a buried soil, either a buried subsoil or topsoil horizon; the latter interpretation appears most likely given its character. This horizon seems to pre-date the Medieval use of the site as a cemetery and probably represents a former land surface, as the graves and enclosure ditch were cut through this deposit. No disarticulated human bone was recovered from this deposit, which suggests that where encountered, it had not been redeposited. The buried soil horizon was not present in the North Extension, possibly due to the density of burials in this area.

6.5 Phase 3: Cemetery

6.5.1 Enclosure ditch

A linear feature(**805/812**) visible as a spread of large flagstone was revealed during the machine excavation of the two sump areas during the watching brief (Figures 3 and 4, Plate 1). This feature was left on a baulk and separated the northern and southern sumps; it was partially truncated to the west, when the pipe trench was excavated. This feature was originally thought to be a poorly preserved wall foundation, but excavation revealed that it was a ditch (Figures 3 and 4, Plate 1). Two sections were dug through this feature, in order to ascertain its character, date, and relationship to the medieval cemetery. This feature was aligned WNW – ESE and was exposed for 4.22m within the excavation area.

A section was excavated through the truncated WNW portion of the ditch, up against the western limit of excavation, in order to reveal the full stratigraphic sequence of this feature. Ditch **805** was 1.85m wide and 0.63m deep, and had moderately sloping concave sides and a concave base, a 1.2m wide slot was excavated through this feature, but the ESE side of the slot was heavily truncated by modern machine cut **705**. This feature stratigraphically cut buried soil horizon **809** to the NNE (Figure 4, Plate 1).

Ditch **805** contained three fills, **806**, **807** and **808**. Primary fill **808** was a deposit of mid orange brown silty clay, with moderate sub-angular flagstone inclusions, and was derived from the weathering of the sides of the cut. This fill appears to have slumped in from the SSW side of the feature, and was 0.1m thick. Context **808** was sealed by fill **807**, a deposit of soft mid brownish grey silty clay with 30% randomly orientated sub-angular to sub-rounded large flagstone, between 0.1 and 0.3m in size, with moderate well rounded flagstone beach pebbles, between 10 – 50mm. This fill had disarticulated human remains present, and was derived from the gradual silting of this feature under stable waterlogged conditions. The large flagstone inclusions within **807** may have been deposited after this context had formed, perhaps during the deposition of **806** and subsequently settled down into the matrix of **807**. The boundary of **806** and **807** was very diffuse, suggesting a degree of mixing between the two deposits. Fill **806** was a soft dark greyish brown silty clay with 40% sub-angular to rounded flagstone inclusions, between 30 – 400mm (predominantly 200 – 400mm in size), with human bone and animal bone present. This deposit appears to be a backfilling event, possibly of demolition rubble, with the matrix derived from topsoil.

To the ESE, a further one metre slot was excavated through this feature, ditch **812** (Figure 4) that revealed it was 1.58m wide and 0.65m deep. The profile of ditch **805** was different to **812**, which had moderate to steep convex sides and a flat base. Ditch **812** stratigraphically cut buried soil horizon **814** to the NNE. It contained two fills, **704** and **813**. Fill **813** was a firm dark greyish brown clay, 0.33m thick, with small rounded beach pebbles and frequent sub-angular flagstone, up to 270mm. This fill derived from the gradual silting of the feature, and weathering of the sides of the cut, and was sealed by **704**. Context **704** was a friable mid greyish brown silty clay, with 50% sub-angular to sub-rounded flagstone, between 100 and 600mm in

size. This fill was 0.28m thick, and was probably a backfilling event, derived from demolition rubble within a topsoil matrix.

The large flagstone inclusions within **704** and **806** (also possibly **807** and **813**) may have derived from a structure which was dismantled in the vicinity, and were dumped in the partially filled ditch. It is possible that these fills may have been deposited when the chapel was demolished, although they may have been derived from a different structural feature. There was no evidence of mortar present associated with the flagstone rubble. This suggests that the structure that the rubble derived from was drystone in construction. The flagstone rubble was not very consolidated, and generally randomly orientated, or was tipping into the feature, which supports the interpretation of this feature as a ditch rather than a wall foundation. The nature of the fills also supports the interpretation of this feature as a ditch. No burials were evident in the sections of the sump to the south of ditch **805** / **812**, which implies that this ditch formed the southern boundary of the cemetery. This suggests that the chapel site and associated cemetery was bounded by an enclosure ditch.

6.5.2 Burials and cut features

6.5.3 West Extension

An area measuring 3.2m WNW to ESE by 2m wide (Figures 3 and 5) was machine stripped of turf and topsoil **700** in order to excavate two truncated inhumations which were visible in the machine section.

Grave **759** (Figure 5, Plates 2 - 4) was aligned broadly east – west, and measured 0.8m east – west, by 0.4m wide, by 0.21m deep. It was heavily truncated to the east by machine cut **705**, and to the south by field drain **713**. Stratigraphically, grave **759** cut buried soil horizon **796**. Grave **759** contained an adult, supine inhumation **SK1** (context **763**, Plates 2 - 4), which had a headbox structure around its skull and upper torso, formed of two orthostats and a capstone. This inhumation was associated with a partially preserved or disturbed neonatal or infant burial **SK2** (context **770**, Plate 3) which was present over the chest area of **SK1**. The skull, upper torso, left arm, proximal right humerus, left pelvis, and proximal left femur were represented in **SK1**, with other elements truncated away. The skull rested on its left side, and the left arm was straight, positioned to the left side of the

body. Neonatal / infant inhumation **SK2** was semi articulated, but the majority of the skeletal elements were not in the correct anatomical position (Plate 2). This individual may have been disturbed by the displacement the headbox structure (see below), and was poorly preserved. Alternatively it may have been disturbed when grave **759** was dug, with the semi articulated remains of **SK2** being reinterred over **SK1**.

The skull and upper torso of **SK1** was flanked by two orthostats, **762** to the north, and **772** to the south, the former had slumped from its original position and overlay the skull (Plate 2). The very close proximity of these orthostats to the skull of **SK1** implies that the headbox structure was constructed after the individual was interred within the grave. Orthostats **762** and **772** were overlain by capstone **761**. This capstone appears to have been displaced from its original position when field drain **713** was excavated, as it protrudes beyond the field drain cut, and slopes down 30⁰ towards this feature. The grave contained fill **760** = **771**, a mixed deposit of mid yellow brown silty clay, with 20% well rounded water worn flagstone pebbles.

Immediately to the north of grave **759** was grave **721** (Figure 5, Plate 5). This cut contained a truncated infant burial with a headbox structure over the skull and upper torso. Grave **721** was aligned WNW – ESE, and measured 0.86m long, by 0.5m wide, and was 0.22m deep. The cut was sub-rectangular in plan, with rounded corners, straight, steep sides with a flat base, and was truncated to the ESE by machine cut **705**. Grave **721** cut fill **751** of earlier grave **750** (see below) to the WNW stratigraphically, and buried soil **796**. Child burial **SK3** (context **723**, Plate 5) was supine, with the head to the west, the lower legs and feet had been truncated away below the proximal tibia. Both arms were positioned straight, parallel to the torso. Two orthostats **742** with associated packing stones flanked the sides of the skull and upper torso, and formed the sides of a headbox structure. The close proximity of the orthostats to the skull and torso suggest that this structure was constructed after the interment of **SK3**. The headbox was capped with a large flagstone **728**, which sealed orthostats **742**. The headbox structure preserved the integrity of the skull and upper torso very well for such a young individual, with the cranial vault surviving intact. Overlying inhumation **SK3** and the headbox structure was grave fill **722**, a mixed deposit of mid orange brown silty clay, with 20% well rounded flagstone pebbles, 10 – 50mm in size.

Grave **721** truncated an earlier burial within grave **750** (Figure 5) to the WNW, as this had not been affected by the development, it was recorded but not excavated. The grave cut **750** was partially visible in the sides of grave cut **721**, which appears to have almost completely truncated away this earlier burial. Just the base of the skull was visible of **SK4** (context **752**) within grave **750**, the skull appeared quite thin, which suggests that it was a juvenile individual. Grave fill **751** was a mid yellowish brown silty clay with 15% rounded flagstone beach pebbles.

To the west of grave **750**, was grave **792** (Figure 5), which was not affected by the development, and consequentially it was not excavated, but recorded and left *in situ*. Grave **792** was difficult to identify in plan, but appeared sub-rectangular, and measured 1m(+) WNW – ESE, by 0.37m wide. A few degraded, thin skull fragments were present in the west, associated with a probable headbox structure **794**. To the ESE a corresponding, fairly gracile unfused left and right proximal tibias, and distal femurs (pair of knees) were present. These skeletal remains were recorded as **SK5** (context **795**) which are likely to be the remains of a child burial. Inhumation **SK5** was overlain by grave fill **793** which was a mid orange brown silty clay with 30% rounded flagstone beach pebbles. It is possible that this grave was cut by grave **750** to the ESE.

To the NNE of the West Extension area, a single cut feature **797** (Figure 5) was investigated, which had been partially truncated by machine cut **705**. Cut **797** measured 1.8m NNE – SSW, and was measured 0.3m wide within the truncated area of the trench, and was 0.15m deep. It had steep, straight sides and a flat base, and cut glacial till **702** and had an unclear relationship with buried soil **804**. Cut **797** contained a series of four small orthostats, **799** which were present against the side of the cut, and fill **798**, which was a deposit of firm mottled greyish / reddish brown clay, with 10% rounded flagstone beach pebbles, which was sealed by pebble surface **711**. The function of this feature is uncertain, as it was only partially exposed within the trench, but it may have delineated an area within the graveyard, possibly a path, or potentially a structure. No burials were evident in this area of machine section, which was surprising, given the concentration of burials within the North Extension area, 1m to the east. Cut **797** is likely to be contemporary with the use of the graveyard, given its stratigraphic position, and the presence of beach pebbles within its fill (see section 7.0 discussion).

6.5.4 North Extension

An area measuring 2.66m WNW to ESE by 1.66m wide was machine stripped of turf and topsoil **700** in order to excavate six truncated inhumations which were visible in the machine section (Figures 3 and 6). Five truncated burials were excavated in this area; the sixth was left *in situ* as it was overlain by an undisturbed burial. Four undisturbed burials were identified, recorded and left *in situ*, and a further three probable grave cuts were revealed in this area. The buried soil horizon identified elsewhere on the site was not present in the North Extension, possibly due to the density of burials in this area.

Grave **801** (Figure 6, Plate 6) was sub-rectangular in plan, was aligned WNW – ESE, and measured 0.9m long, 0.28m wide, and was 0.2m deep. It was truncated to the WNW by machine cut **705**. Grave **801** was difficult to identify, but had vertical, straight sides, a flat base, the corners were sub-rounded, and it cut glacial till **702**. It contained the remains of a probable adolescent supine burial **SK6** (context **803**) and fill **802**. The feet, legs, partially preserved hands and possibly pelvis were present of **SK6** (Plate 6), with the rest of the skeleton truncated away. The legs were positioned parallel and straight, and the hands rested in the pelvic area. Grave fill **802** was a mixed, firm, mid orange brown silty clay, with occasional small flagstone inclusions. This fill was cut by the overlying grave **719**.

Grave **719** (Figure 6, Plates 7 and 8) was sub-rectangular in plan, aligned WNW to ESE, and measured 1.4m long, 0.4m wide, and was a maximum of 0.3m deep. It was heavily truncated on the WNW and SSW sides by machine cut **705**. The sides and base of grave **719** were difficult to distinguish, especially to the ESE, but generally the sides were straight and steep, the base was flat and sloped down to the WNW. Grave **719** contained an adult, supine inhumation **SK7** (context **724**) and fill **720**. Burial **SK7** (Plate 7) consisted of most of the left arm and left upper torso, left pelvis, both legs (except the right femur) and feet. The left arm was straight and parallel with the body, with the left hand positioned next to the upper thigh. The legs were parallel, with the feet together in an elevated position relative to the legs.

Once **SK7** was lifted, a neonatal burial **SK8** (context **749**) was revealed beneath the feet of **SK7**. Neonatal inhumation **SK8** (Plates 8 and 9) was unusual, in that it was aligned NNE – SSW, with its head to the NNE. This

burial was positioned on its left side, with its head facing WNW, and was either crouched or flexed. The skull, upper torso and right humerus were present, with the lower torso and legs truncated away by machine cut **705** to the SSW. Inhumation **SK8** was lifted in a block of soil, for detailed excavation in our laboratory. Grave cut **753** (Figure 6) was allocated for **SK8**, but this was not discernible during excavation. It seems most likely, given the positioning of these two burials that **SK7** and **SK8** were buried together within the same grave, and may perhaps be a mother and baby which died in childbirth. The grave fills, **720** overlying **SK7** and **754** over **SK8** were very similar, and were deposits of mid brownish orange firm silty clay, with rounded flagstone beach pebbles. However, grave fill **754** had slightly less pebble inclusions present.

Immediately to the east of graves **719** and **801** was grave **777** (Figure 6, Plate 10), which was orientated WNW to ESE, was sub-rectangular in plan, with vertical straight sides and a flat base. The ESE limit of grave **777** was not fully exposed, as it was intercut by a later, *in situ* grave **788**. A large flagstone slab was present protruding out of the SSW side of the grave cut, which appears to relate to a different burial in this area. Grave **777** measured >0.98m long, 0.41m wide and 0.22m deep, and was truncated to the WNW. It contained inhumation **SK9** (context **779**) and grave fill **778**. Burial **SK9** (Plate 10) was probably an adolescent individual, was positioned supine, and the lower torso, lower arms, hands and legs were present. The hands were positioned in the pelvic area, and the feet of this individual were not revealed due to grave **778**. Grave fill **778** was a firm, mixed deposit of mid orange brown silty clay with 5% rounded flagstone pebbles, which was cut by graves **745** and **788**.

Grave **788** was only partially visible (Figure 6), but contained **SK10** (context **791**), a probable adolescent or child burial represented by a fairly small skull. Around the skull was a flagstone headbox structure, **790** formed of two flanking orthostats and a capstone. This grave was not excavated and was left *in situ*, and contained fill **789**.

Grave **745** (Figure 6, Plate 11) cut grave fill **778** within **777** to the SSW, and fill **775** of grave **773** to the NNE. Cut **745** was aligned WNW to ESE, was sub-rectangular in plan, with steep straight sides and a flat base. It contained burial **SK11** (context **748**) and grave fills **746** and **747**. Burial

SK11 (Plate 11) was an adult supine inhumation, with lower arms, hands, lower torso, legs and feet present. The body was positioned slightly unusually, as the left arm was located away from the lower torso, and the left hand rested almost mid-way down the left femur. In contrast, the right arm and hand was located in the pelvic area, considerably higher up than the left arm. The positioning of the arms suggest that the upper body was contorted to the left hand side. The feet were positioned together in the NE corner of the grave cut, and the right pelvis also rested against the side of the cut. The slightly contorted positioning of this skeleton within grave **745** suggests that this individual was interred within a grave that was too small to accommodate it in a fully supine, extended position. Overlying **SK11** was grave fill **746**, a mixed deposit of firm light orange silty clay with red mottles and rounded flagstone pebbles. Fill **746** was sealed by **747**, a mid to dark brown clay silt with frequent angular to rounded small flagstone inclusions.

Truncated by grave **745** was grave **773**, which was visible in the machine section (see Figure 6 section) and contained **SK12** (context **774**), a headbox structure formed of orthostat **776** and capstone **780** and grave fill **775**. Just the top of the skull (probably of an adult) of **SK12** was visible in section, with the rest of the skeleton undisturbed to the ESE. This burial was left unexcavated as it was not disturbed by the development.

To the NNE of grave **773** was truncated grave **781**, which contained **SK13** (context **783**) and grave fill **782**. The grave cut was 0.47m wide, and 0.33m deep, and had straight vertical sides and a flat base. Not much of **SK13** was visible in section (see Figure 6 section), just a single long bone, possibly a humerus. This burial was left *in situ* as it was overlain by an undisturbed child burial **SK14** (context **787**) within grave **784**.

Grave **784** was aligned WNW to ESE (Figure 6, Plate 12), and measured 0.91m long, by 0.28m wide, and was visible to a depth of 0.1m where it was truncated at the WNW end by machine cut **705**. This grave was sub-rectangular in plan, with rounded corners at the ESE end, and contained child burial **SK14** and an orthostatic structure **786**. Only the front of skull was exposed of **SK14**, and from the thickness of the skull, and small size of the grave, it appeared to be a child burial. Orthostatic structure **786** consisted of four small orthostats which appeared to line the sides of the grave cut. Three orthostats were present on the SSW side, and one on the NNE side, and

they measured between 0.19m and 0.24m in size. This structure appears to have formed a partial cist-like structure, which lined the sides of the grave cut, which is different from the other headbox arrangements seen elsewhere on the site. Grave fill **785** consisted of a mid yellow brown firm clay, with frequent rounded flagstone pebbles.

Four further probable grave cuts **755**, **764**, **766** and **768** (Figure 6) were identified in the ESE portion of the North Extension area, and formed a row of spatially separated graves. These graves were undisturbed by the development, so were not excavated and remain *in situ*. Only grave **755** can be conclusively identified as a burial, as it had human remains visible. Grave **755** contained **SK15** (context **757**), an apparently adult individual, where just the frontal portion of the skull was visible. A partially disturbed headbox structure **758** was present around the skull, which was formed of two parallel orthostats either side of the skull, and a displaced capstone.

6.5.5 *East Extension*

An area measuring 2.96m NNE to SSW by 2.29m wide (Figures 3 and 7) was machine stripped of turf and topsoil **700** in order to investigate three truncated inhumations which were visible in the machine section. Only one burial was excavated in this area, the other two were left *in situ* as they were overlain by an undisturbed burial.

Grave **725** (Figure 7, Plate 13) had been heavily truncated by machine cut **705** to the WNW, but measured 0.33m long, by 0.28m wide and was 0.42m deep. Cut **725** had steep straight sides, a flat base, rounded corners and was probably originally sub-rectangular in plan. It cut buried soil **800** and contained grave fill **726** and **SK16** (context **727**), which had only the distal left tibia and fibula, some foot bones, a fibula and femur fragment present. It appeared that **SK16** (Plate 13) may have been truncated in antiquity due to the positioning of the skeletal remains, but no evidence for this was conclusively identified. Grave fill **726** was a mottled, firm orange brown silty clay, with occasional small rounded flagstone pebbles and small angular flagstone inclusions.

To the SSW of grave **725**, were graves **729**, **732** and **735** (Figure 7), the

latter two were truncated by machine cut **705** and field drain **716**; the former contained an undisturbed inhumation. Grave **735** was visible in section only, but measured 0.43m wide and 0.14m deep, had a flat base and the SSW side was steep and straight. It contained **SK17** (context **737**), represented by left and right tibia and fibula visible in section, the majority of the body having been truncated away, and grave fill **736**.

Context **736** was stratigraphically cut by grave **732** which had a rounded profile, and measured 0.25m wide, by 0.25m deep. Grave **732** contained fill **733** and **SK18** (context **734**), of which a vertebrae, some ribs, and portions of the left humerus, scapula and clavicle were visible in section.

Grave fill **733** was cut by grave **729** which was sub-rectangular in plan, aligned east – west, and measured 1.37m long, by 0.4m wide, and was 0.2m deep. In section, the cut had steep, concave sides, and a slightly concave base, and contained a probable juvenile inhumation **SK19** (context **731**) and fill **730**. Burial **SK19** was represented by the upper portion of the skull of what appeared to be a juvenile inhumation. Two orthostats were present in the vicinity of the skull, which were probably the remains of a headbox structure. All three of these burials were left *in situ*, as it would have been necessary to exhume undisturbed burial **SK19** in order to excavate burials **SK17** and **SK18**.

Three further possible grave cuts **738**, **740** and **743** (Figure 7) were identified in the East Extension area, which had not been disturbed by the development. These were all aligned WNW – ESE, and graves **738** and **740** had larger flagstone present within their fills, which may have been headbox or cist-like structures associated with the burials. These possible graves were not investigated further.

6.5.6 Graveyard surface

A pebble surface was present across all of the areas of the site where burials were present, which was recorded as **711** in the West Extension, **712** in the East Extension, and **710** in the North Extension. This surface comprised 40% rounded flagstone beach pebbles, within a firm mid brownish grey silty clay matrix. This deposit was between 0.05m and 0.10m thick. The grave cuts were not identifiable until this surface was removed, and grave fills were recorded as being overlain by this surface. This surface

was contemporary with the use of the cemetery, and was probably periodically resurfaced, although individual resurfacing events were not identified. The grave and ditch fills on the site all seemed to contain rounded flagstone beach pebbles, in varying proportions, suggesting that this surface was present throughout the use of the cemetery. The pebbles for this surface would have been readily available, and imported onto the site from the beach, which is currently located approximately 28m to the south. This surface was not present to the south of the enclosure ditch, and thinned out towards this feature.

6.6 Phase 4: Modern features and deposits

The graveyard surface was cut by a modern field drain **713 / 716** (Figures 5 and 7) which was present in the West and East Extension areas respectively. This cut was aligned west to east and was 0.3m wide by 0.51m deep. It contained two fills, the lower (**715 / 717**), consisted of rounded flagstone beach pebbles, the upper (**714 / 718**) was derived from redeposited glacial till.

The upper fill of the field drain was sealed by context **701**, a layer of loose dark brown silty clay, with 40% well rounded flagstone beach pebbles, and 10% sub-angular flagstone, between 10 – 100mm in size. This layer overlay the gravel surface of the cemetery, and was probably derived from plough disturbed elements of this surface, interspersed within a topsoil-derived matrix. Layer **701** was between 0.1 and 0.14m thick, and sealed the upper fill of the enclosure ditch, and thinned out immediately to the south of this feature, and did not extend into the southern sump area.

Layer **701** was overlain by turf and topsoil **700**, which was between 0.1 and 0.14m thick, and was a dark brown silty clay with 2% rounded flagstone beach pebbles.

6.7 Phase 5: 21st Century disturbance contexts

For stratigraphic purposes, the modern machine cut excavated during the recent works was allocated cut **705** and fill **706**. Initially, the water pipe and directional drill was excavated around, which caused a linear truncation at the north end of the site. The northern sump was machine excavated to a

maximum depth of 1.2m, and measured 4.19m WNW to ESE by 3.37m wide. This sump was not utilised, due to the identification of human skeletal remains in this area.

An area to the south was machine stripped of overburden, under archaeological supervision, which uncovered the enclosure ditch. The area to the south of the ditch was devoid of archaeological features, so the southern sump was excavated in this area. This sump measured 4.22m NNE – SSW by 4.15m wide, and was 1.2m deep. The trench for the water pipe was then excavated to the ESE of the southern sump.

The linear truncation in the north of the site, and the northern sump contained a significant amount of machine disturbed deposits. These were hand excavated to retrieve disarticulated human remains, and to fully expose the site. All of the disarticulated remains from this area, and the corresponding spoil heaps were allocated to fill **706**.

During the removal of **706**, a skull and a few cervical vertebrae (**SK20**, context **709**) were present within a block of soil that had slumped down into the base of the machine cut. The skull rested on its left side, and a large flagstone was present towards the back of the skull, which may have been associated with this burial. Inhumation **SK20** (Plate 14) appears to have been an adolescent individual, given the thickness of the skull. A fairly arbitrary cut number **707** was issued for the grave, the base of which was evident, and cut glacial till **702**. Overlying the **SK20** was **708**, a deposit of mid grey brown silty clay with 10% rounded flagstone pebbles, which was consistent with being a grave fill for this burial.

7.0 Discussion

7.1 Summary of the fieldwork results

The excavation revealed what is likely to be part of the graveyard and boundary ditch of Lady's Kirk Chapel, which was known to be present in the vicinity. No structural remains were encountered of the chapel, but it is likely to be in close proximity perhaps to the north of the excavation area.

The only pre-cemetery feature on the site, was an undated, north - south

aligned gully **810**. This feature was heavily truncated, so its function is difficult to determine. It was stratigraphically sealed by a buried soil horizon, which is likely to be a buried topsoil, which was overlain by the pebble surface of the cemetery. The buried soil horizon seems to immediately pre-date the medieval use of the site as a cemetery and probably represents a former land surface, as the graves and enclosure ditch were cut through this deposit.

The cemetery was bounded to the south by a WNW to ESE orientated ditch, which is likely to extend around the circumference of the graveyard, forming an enclosure. This boundary ditch probably delineates the extent of the consecrated ground associated with the chapel. No archaeological remains were present to the south of this feature.

A total of 10 machine truncated burials were excavated on the site, including a skull which was present in a slumped block of soil. Two of the graves probably represent multiple inhumations, both of which contained an adult and a neonatal / infant burial interred together. Three further machine truncated burials were left *in situ* as they were overlain by undisturbed inhumations. Seven burials were identified which had not been affected by the development, and a further six probable grave cuts were identified.

All of the burials were aligned WNW to ESE, or broadly west to east, with the head at the west end of the grave, and were supine. Only one neonatal burial was aligned NNE – SSW interred either crouched or flexed on the left side. This individual was probably buried beneath the feet of an adult, within the same grave and may be a mother and baby which died in childbirth. The bone preservation was relatively good on the site, and none of the burials had grave goods present.

The burials on the site were very intercut and densely packed, which suggests that the burial ground was in use for a reasonable duration. A trend within medieval cemeteries has been identified whereby a large proportion of the burials are concentrated to the south of the church (Stevens, Melikian and Grieve 2005: 380). This may explain the density of the burials on the site, as they are probably located to the south of the chapel, and bounded by the enclosure ditch to the south.

There was no evidence of coffins within the graves, but a significant

proportion of the inhumations had structural features associated. These were generally headboxes (orthostats flanking the sides of the skull, with a capstone over the top), with one partial cist-like structure lining the grave cut. Of the twenty burials identified, 8, possibly 10 had structures associated with them, seven of which had headboxes. Of the burials encountered, eight had lost the skull and upper torso, so the frequency of headboxes is likely to have been a lot higher. The high frequency of grave structures contrasts with the medieval cemetery site excavated at the Bu of Cairston, near Stromness, which dates to the 13th to 14th centuries. At this site, out of 109 burials excavated, only sixteen burials definitely had associated stone structures within the graves (Stevens, Melikian and Grieve 2005: 382). There was no evidence for grave markers at the Bu of Cairston, or Lady Kirk, Shapinsay.

The alignment of the skeletons, lack of grave goods, dating and archaeological evidence for the site strongly suggests that these inhumations are Christian, and date to the medieval period.

The graves were overlain by a pebble surface, formed of rounded flagstone beach pebbles. This surface was contemporary with the use of the cemetery, and was probably periodically resurfaced, although individual resurfacing events were not identified. The grave and ditch fills on the site all seemed to contain rounded flagstone beach pebbles, in varying proportions, suggesting that this surface was present throughout the use of the cemetery. The presence of such a surface over the burial ground may have served to further demarcate the cemetery, both visually and physically.

Two other medieval chapel and associated burial grounds have had beach shingle deposits present, St Thomas' Kirk, Hall of Rendall (Toolis 2008), and St Ola's Chapel, Kirkhouse, South Ronaldsay (Cook 2006). The origin of the shingle deposits on these sites was not thought to be contemporary with the cemeteries, but potentially they may be similar graveyard surfaces. At the Bu of Cairston, some of the grave fills contained rounded beach pebbles (Gibbon *pers comms*) which suggests the presence of a similar graveyard surface that has been truncated away.

7.2 Phasing

The stratigraphic sequence of the site was very well defined, and five

phases of activity were identified. The main phase of activity was Phase 3, the medieval use of the site as a cemetery, which probably dates to 10th 12th centuries AD, before the establishment of the parish church of Shapinsay as the principle burial ground (Gibbon *pers comm*).

7.3 Interpretive issues

The geophysical magnetometer survey of the area failed to conclusively identify the location of the chapel and associated features. However, Anomaly I (see Figure 2) was thought to be a possible candidate. This anomaly consisted of two strong linear responses, 5m long by 11m apart, with other additional responses between them. It was classified as potential archaeology, possibly a structure. The northern linear response does appear to correlate with the alignment of the enclosure ditch of the cemetery, located 10m to the WNW.

It is not surprising, given the nature of the archaeological deposits encountered on the excavation that the magnetometer survey failed to conclusively identify the site of the chapel. For magnetometry to detect archaeological features, there needs to be sufficient magnetically enhanced particles within the soil, and all of the deposits on the site were sterile of occupation derived material. It is possible that the strong, northern linear response identified in Anomaly I is the boundary ditch of the cemetery, perhaps filled with a different material to elsewhere.

In magnetometry, structural remains are normally identified as a negative response within the surrounding matrix. With the associated cemetery (and potentially the chapel) having a pebble surface, there would not have been enough contrast between the masonry and this surface for the building to show up in the survey. It is also probable that the chapel was comprehensively dismantled in antiquity as there are no distinguishable earthworks visible in the topography.

The location of Lady's Kirk Chapel is shown on the 1st Edition Ordnance Survey map (1882), 55m to the ENE of the site. The position of the chapel on this map has to be an approximation of its original location, given the discrepancy with the archaeological evidence. However the general location of the chapel in this area is further supported by the place name, Kirk Banks, for the cliffs immediately to the south of the site

8.0 Conclusions and Recommendations

The excavations on this site have provided a rare opportunity to investigate a medieval cemetery site. Few excavations have been carried out on sites of this type and period in Orkney, the few skeletons excavated (and many disturbed) can only contribute to further research in this area.

Orkney Islands Council Planning Archaeologist, Julie Gibson has stated that it is necessary to place these excavations within their broader context. As such, she stipulates that further work is necessary to locate the structural remains of the chapel, extent of the boundary ditch and define the cemetery. A combination of high resolution geophysical resistivity survey, with targeted trial trenching is likely to produce the best results to achieve this aim. Geophysical surveys of this type have successfully been used to locate chapel sites previously, for example at Marwick Bay (OCGU 2009), but the success of this technique is dependent on numerous factors.

The recovered skeletal remains, although a relatively small assemblage, have the potential to reveal information regarding the cemetery population. As a minimum, specialist analysis by an osteoarchaeologist (Dave Lawrence) is necessary in order to fulfil the requirements outlined by Historic Scotland (2006) and the IFA (Brickley and McInley 2004) for the recovery of human remains. This will be undertaken to investigate the age, sex, stature, preservation, completeness, pathology and possibly cause of death for the individuals recovered, with the disarticulated remains included in this analysis.

The analysis of the skeletal remains, by scientific methods has the potential to yield further insights into the population. Isotope analysis of carbon and nitrogen taken from bone collagen can be used to reconstruct the sources of dietary protein consumed by humans over their lifespans. This can be useful for investigating the balance of marine and terrestrial resources, and if this varies within the population. Recent isotope studies from medieval populations from Orkney have demonstrated a large peak in the exploitation of marine protein (caused by the consumption of fish) between the eleventh to fourteenth Centuries AD, which was more pronounced in males (Barratt

and Richards 2004, Richards, Fuller and Molleson 2006). This increase in fish consumption has been linked to 'a complex relationship between ethnicity, gender, Christian fasting practices, population growth, long range fish trade and environmental change' (Barratt and Richards 2004: 249) in Orkney during this period.

Oxygen and strontium isotope analysis of tooth enamel can be used to investigate where the population originated from, and can shed light on whether individuals are local or not (Montgomery, Evans and Neighbour 2003, Toolis 2008: 252ff). If isotope analysis of carbon, nitrogen, oxygen and strontium are required, samples can be taken in post-excavation. Isotopic analysis has been widely applied to skeletal populations, and has become best practice when investigating cemetery sites.

Nine of the ten individuals were sampled for ancient DNA analysis (a total of 17 samples), which can be used to explore issues of kinship within the population, population affinities, population movement, diagnosis of genetic and infectious diseases, dietary diversity and sex determination (Kaestle and Horsburgh 2002, Yang and Watt 2004: 331). The strict contamination controls followed during the excavation of the skeletons makes the recovered samples very suitable for ancient DNA analysis. This kind of analysis has never been applied to medieval populations from Orkney, and would yield very interesting results. This is highly desirable to contribute to a database of DNA from prehistoric to modern times

The scientific analysis of the population using isotopes and DNA techniques is therefore highly desirable for research into Orkney populations. However, establishing an absolute chronology for the site using AMS radiocarbon dating is essential to gain a full understanding of the site and its development. Due to the variable influence of marine protein in this period, it may be necessary to undertake isotope analysis of the skeletal material. This would be used to determine the marine reservoir correction needed for the accurate calibration of the radiocarbon dates (Barrett and Richards 2004).

It is recommended that the charred plant remains recovered from the environmental samples are examined by an appropriate specialist (Dr Diane Alldritt). A very small assemblage of finds was recovered from the site, an iron object, a small amount of pottery and a possible stone weight. These

will be examined by suitable specialists and consolidated for long term storage.

Given the importance of the site and the material recovered, it is recommended that the results of the excavation and subsequent analysis are published in a suitable peer reviewed journal, and perhaps in a more popularist format too. This will be beneficial to disseminate the results of the excavation to the wider community.

9.0 References

9.1 Policy and Advisory Documents

Brickley, M. and McKinley, J.I. (eds) 2004, *IFA Guidelines to the Standards for Recording Human Remains*. IFA Paper NO 7

Historic Scotland 2006, *The Treatment of Human Remains in Archaeology Historic Scotland Operational Policy Paper 5*

Scottish Museum Archaeologists 2000 *Minimum standards for the transfer of archaeological assemblages to museums in Scotland*.

9.2 Bibliographic References

Barrett, J.H. and Richards, M.P. 2004. Identity, Gender, Religion and Economy: New Isotope and Radiocarbon Evidence for Marine Resource Intensification in Early Historic Orkney, Scotland, UK. *European Journal of Archaeology* Vol. 7(3): 249–271.

Cook, M. 2006, *Historic Scotland Human Remains Call-Off Contract, St Ola's Chapel, Kirkhouse, South Ronaldsay: Archaeological Recording and Repair Data Structure Report*. AOC Archaeology Group unpublished client report, Project Number 4077/20.

Kaestle, F.A. and Horsburgh, A.H. 2002, Ancient DNA in Anthropology: Methods, Applications and Ethics. *Yearbook of Physical Anthropology* 45, 92-130.

Montgomery, J. and Evans, J.A. and Neighbour, T. (2003) Sr isotope evidence for population movement within the Hebridean Norse community of NW Scotland. *Journal of the Geological Society*, 160 (5) 649-653.

Mykura, W. 1976 *British Regional Geology: Orkney and Shetland* Edinburgh, HMSO

OCGU (Orkney College Geophysics Unit) 2009, *Geophysical Survey Report: Marwick, Orkney* Unpublished research report, reference 0902.

ORCA 2011, *Shapinsay Potable Water Scheme: Geophysical Survey Report* Unpublished client report, ORCA Geophysics Project 1110.

ORCA 2012, *Shapinsay Potable Water Scheme: Watching Brief Data Structure Report*. Unpublished client report, ORCA Project 355.

RCAHMS 2012. NMRS - National Monuments Record of Scotland, CANMORE database. Accessed September 2012.

Richards, M.P., Fuller, B.T. and Molleson, T.I. 2006. Stable isotope palaeodietary study of humans and fauna from the multi-period (Iron Age, Viking and Late Medieval) site of Newark Bay, Orkney. *Journal of Archaeological Science* **33** (2006) 122-131.

Simpson, B. 1998 'Setter Noust (Shapinsay parish), prehistoric midden', *Discovery and Excavation in Scotland*. Council for Scottish Archaeology, Edinburgh.

Stevens, T. Melikian, M. and Grieve, S.J. 2005, Excavations at an early medieval cemetery at Stromness, Orkney. *Proceedings of the Society of Antiquaries of Scotland* **135** 371 – 393.

Toolis, R. 2008, Excavation of medieval graves at St Thomas' Kirk, Hall of Rendall, Orkney. *Proceedings of the Society of Antiquaries of Scotland* **138** 239 – 266.

Yang, D.Y. and Watt, K. 2004, Contamination Controls when preparing archaeological remains for ancient DNA analysis. In *Journal of Archaeological Science* Vol **32** (2005) 331-336

9.3 Cartographic References

BGS 1999. Orkney Islands, Scotland. Solid and Drift Geology 1:1000000 Map.

Ordnance Survey Map; six inch 1st Edition (1882) Orkney, Sheet CII

Soil Survey of Scotland 1982. Orkney & Shetland – Sheet 1. 1:250000, The Macaulay Institute of Soil Research, Aberdeen.

Appendix 1: Skeleton Index

Skeleton No	Context	Grave cut	Site Subdivision	Condition of bone	Truncated?	Lifted?	Grave structure	Approx. Age	Skull present?
1	763	759	W. Ext.	Good	Yes	Yes	Headbox	Adult	Yes
2	770	759	W. Ext.	Poor, possibly disturbed	Yes	Yes		Neonate / infant	No
3	723	721	W. Ext.	Poor to good	Yes	Yes	Headbox	Child	Yes
4	752	750	W. Ext.	Moderate	Yes, by 721	No	Possible orthostat	Juvenile?	Partial
5	795	792	W. Ext.	Poor	No	No	Headbox	Child	Partial
6	803	801	N. Ext.	Moderate	Yes	Yes		Adolescent	No
7	724	719	N. Ext.	Good	Yes	Yes		Adult	No
8	749	719 / 753	N. Ext.	Poor	Yes	Yes (block)		Neonate	Yes
9	779	777	N. Ext.	Moderate	Yes	Yes		Adolescent	No
10	791	788	N. Ext.	Moderate	No	No	Headbox	Adolescent	Yes
11	748	745	N. Ext.	Good	Yes	Yes		Adult	No
12	774	773	N. Ext.	Good	No	No	Headbox	Adult	Yes
13	783	781	N. Ext.	Good?	Yes	No		?	No
14	787	784	N. Ext.	Poor	No	No	Cist-like	Child	Yes
15	757	755	N. Ext.	Good	No	No	Headbox	Adult?	Yes
16	727	725	E. Ext.	Good	Yes	Yes		Adult	No
17	737	735	E. Ext.	Good	Yes	No		Adult?	No
18	734	732	E. Ext.	Good	Yes	No		Adult?	No
19	731	729	E. Ext.	Good	No	No	Headbox	Juvenile?	Yes
20	709	707	Truncation	Good	Yes	Yes	Possible	Adolescent	Yes

Appendix 2: Contexts Register

Context	Site Subdivision	Type	Description
700	Excavation	Layer	Topsoil
701	Excavation	Layer	Gravel layer beneath 700
702	Excavation	Layer	Orange clay glacial till
703	Excavation	Layer	Red clay glacial till
704	Excavation	Fill	Upper fill of 812
705	Excavation	Cut	Machine cut (21st century)
706	Excavation	Fill	Fill of 705
707	Excavation	Cut	Cut for grave of skeleton 709
708	Excavation	Fill	Fill of 707
709	Excavation	Skeleton	Skull of child in 707 (SK20)
710	E extension	Layer	Clay gravel layer beneath 701
711	W extension	Layer	Clay and gravel (w extension area)
712	N extension	Layer	Gravel horizon beneath 701
713	W extension	Cut	Cut of field drain (W extension)
714	W extension	714	Fill of 713
715	W extension	Fill	Fill of 713
716	E extension	Cut	Cut of field drain
717	E extension	Fill	Fill of 716
718	E extension	Fill	Fill of 716
719	N extension	Cut	Cut of grave
720	N extension	Fill	Fill of 719
721	W extension	Cut	Grave cut containing skeleton 723
722	W extension	Fill	Grave fill
723	W extension	Skeleton	Skeleton within 721 (SK3)
724	N extension	Skeleton	Skeleton within 719 (SK7)
725	E extension	Cut	Grave cut containing skeleton 727
726	E extension	Fill	Fill of 725
727	E extension	Skeleton	Skeleton within 725 (SK16)
728	W extension	Structure	Structure around and over skeleton 723
729	E extension	Cut	Grave cut containing 730 and 731
730	E extension	Fill	Fill of 729
731	E extension	Skeleton	Skeleton within 729 (SK19)
732	E extension	Cut	Grave cut containing 733 and 734
733	E extension	Fill	Fill of 732
734	E extension	Skeleton	Skeleton within 732 (SK18)
735	E extension	Cut	Grave containing 737 and 736
736	E extension	Fill	Fill of 735
737	E extension	Skeleton	Skeleton within 735 (SK17)
738	E extension	Cut	Grave containing fill 739
739	E extension	Fill	Fill of 738
740	E extension	Cut	Grave containing fill 741
741	E extension	Fill	Fill of 740
742	W extension	Structure	Uprights for head box around skeleton 723
743	E extension	Cut	Possible grave cut containing 744
744	E extension	Fill	Fill of 743
745	N extension	Cut	Grave cut containing 746 , 747 and 748
746	N extension	Fill	Primary fill of 745
747	N extension	Fill	Secondary fill of 745

Context	Site Subdivision	Type	Description
748	N extension	Skeleton	Skeleton in 745 (SK11)
749	N extension	Skeleton	Neonate beneath feet of skeleton 724 (SK8)
750	N extension	Cut	Grave cut containing skeleton 752
751	N extension	Fill	Fill of 750 cut by 721
752	N extension	Skeleton	Truncated skull cut by 721 (SK4)
753	N extension	Cut	Grave cut
754	N extension	Fill	Fill of grave cut 753
755	N extension	Cut	Grave cut for skeleton 757
756	N extension	Fill	Fill of 755
757	N extension	Skeleton	Skeleton in 755 (SK15)
758	N extension	Structure	Structure around 757
759	W extension	Cut	Grave cut containing skeleton 763
760	W extension	Fill	Grave fill
761	W extension	Structure	Capstone
762	W extension	Structure	Orthostat
763	W extension	Skeleton	Burial within 759 (SK1)
764	N extension	Cut	Grave cut
765	N extension	Fill	Fill of 764
766	N extension	Cut	Grave cut
767	N extension	Fill	Fill of 766
768	N extension	Cut	Grave cut
769	N extension	Fill	Fill of 768
770	W extension	Skeleton	Possible part of child skeleton within 759 (SK2)
771	W extension	Fill	Grave fill around sk 770
772	W extension	Structure	Orthostat
773	N extension	Cut	Grave cut
774	N extension	Skeleton	Skeleton within 773 (SK12)
775	N extension	Fill	Fill of cut 773
776	N extension	Structure	Possible head box in grave cut 773
777	N extension	Cut	Grave cut
778	N extension	Fill	Fill of cut 777
779	N extension	Skeleton	Skeleton within 777 (SK9)
780	N extension	Structure	Capstone of head box 776
781	N extension	Cut	Cut containing skeleton 783 and fill 782
782	N extension	Fill	Fill of 781
783	N extension	Skeleton	Skeleton within 781 (SK13)
784	N extension	Cut	Grave cut
785	N extension	Fill	Fill of 784
786	N extension	Structure	Ortho stones lining 784
787	N extension	Skeleton	Skeleton exposed within 784 (SK14)
788	N extension	Cut	Grave cut
789	N extension	Fill	Fill of 788
790	N extension	Structure	Head box associated with 788
791	N extension	Skeleton	Skelton within 788 (SK10)
792	W extension	Cut	Grave cut containing skeleton 795
793	W extension	Fill	Fill of 792
794	W extension	Structure	Possible head box around 795
795	W extension	Skeleton	Unexcavated E-W burial (SK5)
796	W extension	Layer	Possible buried soil/ graveyard soil
797	W extension	Cut	Cut of linear on inside of N extension
798	W extension	Fill	Fill of 797
799	W extension	Structure	Orthostats in 797
800	E extension	Layer	Possible buried soil/ graveyard soil

Context	Site Subdivision	Type	Description
801	N extension	Cut	Grave cut
802	N extension	Fill	Fill of 801
803	N extension	Skeleton	Skeleton within 801 (SK6)
804	N extension	Layer	Possible buried soil/ graveyard soil
805	S area	Cut	Cut of possible enclosure ditch
806	S area	Fill	Fill of 805 - upper
807	S area	Fill	Fill of 805 - middle
808	S area	Fill	Fill of 805 - primary
809	S area	Layer	Buried soil
810	S area	Cut	Cut of gully
811	S area	Fill	Fill of 810
812	S area	Cut	Cut of ditch
813	S area	Fill	Lower fill of 812
814	S area	Layer	Possible buried soil/ graveyard soil

Appendix 3: Drawing Register

Drawing No.	Type	Site Subdivision	Description	Scale
1	Plan	Watching Brief	Plan of pipe joint area	1:20
2	Section	Watching Brief	Section of N face	1:10
3	Section	N extension	S facing section of N extension	1:10
4	Section	E extension	W facing section of E extension	1:10
5	Section	W extension	E facing section of W extension	1:10
6	Section	N extension	W facing section of N extension	1:10
7	Plan	W extension	Plan of 728 and 721	1:20
8	Plan	E extension	Plan of 725 and 716	1:20
9	Plan	W extension	Plan of grave cut 721	1:20
10	Plan	N extension	Plan of N extension after removal of 719 , 753 and 745	1:20
11	Plan	N extension	Plan N extension	1:20
12	Plan	N extension	Plan W extension	1:20
13	Plan	S area	Plan of ditch	1:20
14	Plan	S area	Plan of ditch 805 and 811	1:20
15	Section	S area	Section of 805 and 811	1:10
16	Section	S area	Section of 812	1:10
17	Plan	S area	Post-ex plan of 812	1:20

Appendix 4: Samples Register

Sample No.	Type	Context	Reason for sampling
1	Bulk	708	GBA, bone and finds retrieval
2	Bulk	701	GBA, bone and finds retrieval
3	Bulk	712	GBA, bone and finds retrieval
4	VOID		
5	Bulk	710	GBA, bone and finds retrieval
6	Bulk	720	GBA, bone and finds retrieval
7	Bulk	722	GBA, bone and finds retrieval
8	Spot	722	GBA, bone and finds retrieval
9	Spot	720	GBA, bone and finds retrieval
10	Spot	720	GBA, bone and finds retrieval
11	Bone	724	DNA analysis
12	Bone	724	DNA analysis
13	Bone	723	DNA analysis
14	Bone	723	DNA analysis
15	Spot	720	GBA, bone and finds retrieval
16	Bulk	726	GBA, bone and finds retrieval
17	Spot	720	GBA, bone and finds retrieval
18	Spot	754	GBA, bone and finds retrieval
19	Spot	722	GBA, bone and finds retrieval
20	Bulk	722	GBA, bone and finds retrieval
21	Bone	749	DNA analysis
22	Bone	749	DNA analysis
23	Bone	748	DNA analysis
24	Bone	748	DNA analysis
25	Spot	746	GBA, bone and finds retrieval
26	Spot	746	DNA analysis
27	Spot	763	DNA analysis
28	Spot	763	DNA analysis
29	Bulk	760	GBA, bone and finds retrieval
30	Spot	760	GBA, bone and finds retrieval
31	Spot	760	GBA, bone and finds retrieval
32	Spot	746	GBA, bone and finds retrieval
33	Spot	770	DNA analysis
34	Bulk	771	GBA, bone and finds retrieval
35	Bulk	746	GBA, bone and finds retrieval
36	Bone	779	DNA analysis
37	Bone	779	DNA analysis
38	Bulk	778	GBA, bone and finds retrieval
39	Spot	778	GBA, bone and finds retrieval
40	Spot	778	GBA, bone and finds retrieval
41	Bulk	760	GBA, bone and finds retrieval
42	Bone	803	DNA analysis
43	Bone	803	DNA analysis
44	Bulk	802	GBA, bone and finds retrieval
45	Spot	802	GBA, bone and finds retrieval
46	Spot	802	GBA, bone and finds retrieval
47	Bulk	806	GBA, bone and finds retrieval
48	Bulk	807	GBA, bone and finds retrieval
49	Bulk	808	GBA, bone and finds retrieval
50	Bulk	809	GBA, bone and finds retrieval
51	Bulk	811	GBA, bone and finds retrieval

Appendix 5: Small Finds Register

SF	Context	Material	Description	Date
1	719	Stone	Possible weight	09/06/12
2	722	Ceramic	Pot fragment	12/06/12
3	712	FE	Nail	14/06/12
4	813	Ceramic	Burnt pot	22/06/12

Appendix 6: Photographic Register

Photographic Batch 3 (note – Batches 1 and 2 relate to the watching brief)

Frame	Site Subdivision	Description	Direction of shot
1		Excavation area	N
2		Excavation area	N
3		Excavation area	N
4		Excavation area	N
5		W facing machine section	E
6		W facing machine section	E
7		W facing machine section	E
8		E facing machine section	N
9		E facing machine section	W
10		W facing machine section	NE
11		W facing machine section	E
12		S facing machine section	N
13		W facing machine section	E
14		General view	S
15	WB	603 , possible remains of wall	N
16	WB	603 , possible remains of wall	N
17	WB	603 , possible remains of wall	N
18	WB	603 , possible remains of wall	N
19	WB	604 , rubble feature	N
20	WB	604 , rubble feature	N
21	WB	604 , rubble feature	N
22	WB	604 and 603	N
23	WB	Section, drawing 2, north face	N
24	WB	Section, drawing 2, north face	N
25	WB	Section, drawing 2, north face	N
26	WB	Section, drawing 2, north face	N
27	WB	Digger trench of area (destroyed 604)	E
28	WB	Digger trench of area (destroyed 604)	N
29	WB	Digger trench of area (destroyed 604)	N

Frame	Site Subdivision	Description	Direction of shot
30	E extension	W facing section of trench	E
31	E extension	W facing section of trench	E
32	N extension	S facing section of trench	N
33	N extension	S facing section of trench	N
34	N extension	S facing section of trench	N
35	W extension	E facing section of trench	N
36	W extension	E facing section of trench	W
37	W extension	E facing section of trench	W
38	W extension	E facing section of trench (N portion)	W
39	W extension	E facing section of trench (N portion)	W
40	E extension	W facing section of trench	E
41	E extension	W facing section of trench	E
42	E extension	W facing section of trench	E
43	E extension	W facing section of trench	E
44	Excavation area	Working shots	N
45	Excavation area	Working shots	N
46	Excavation area	Trisha excavating slumped skeleton 709	N
47	Excavation area	Trisha excavating slumped skeleton 710	N
48	Excavation area	Trisha excavating slumped skeleton 711	N
49	Excavation area	Trisha excavating slumped skeleton 712	N
50	Excavation area	Skull 709 in slumped material with 0.4m scale	S
51	Excavation area	Skull 709 in slumped material with 0.4m scale	S
52	Excavation area	Skull 709 in slumped material with 0.2m scale	N
53	Excavation area	Skull 709 in slumped material with 0.2m scale, close-up	N
54	Excavation area	Skull 709 in slumped material with 0.2m scale, close-up	S
55	Excavation area	Skull 709 showing possible vertebrae	S
56	Excavation area	Skull 709 showing possible vertebrae	S
57	Excavation area	Skull 709 showing section and cut of grave through natural	W
58	Excavation area	Skull 709 showing section and cut of grave through natural with 0/4m scale	W
59	Excavation area	Skull 709 showing section and cut of grave through natural with 0/4m scale	W
60	Excavation area	East facing section showing slumped material and skull 709	W
61	Excavation area	East facing section showing slumped material and skull 709 with 2m scale	W

Frame	Site Subdivision	Description	Direction of shot
62	Excavation area	Section looking N showing location of 709	N
63	Excavation area	Section looking N showing location of 709	N
64	Excavation area	Skull 709 , with geo-reference points	N
65	Excavation area	Skull 709 , with geo-reference points	N
66	E extension	Gravel layer 701 , pre-ex	W
67	E extension	Gravel layer 701 , pre-ex	W
68	N extension	Gravel layer 701	S
69	E extension	Post-ex of 701 and pre-ex of 710	W
70	E extension	Post-ex of 701 and pre-ex of 711	W
71	W extension	Layer 711	N
72	W extension	Layer 712	N
73	N extension	Gravel layer 701 removed showing 712 and grave cuts	S
74	N extension	Gravel layer 701 removed showing 712 and grave cuts	S
75	W extension	Field drain 713	N
76	W extension	Field drain 713 E facing section	W
77	E extension	Field drain 716 , W facing section, post-ex	E
78	E extension	Field drain 716 , W facing section, post-ex	E
79	N extension	712 removed showing grave cuts	S
80	N extension	712 removed showing grave cuts	S
81	W extension	Gravel layer 711 removed	N
82	W extension	Gravel layer 711 removed	N
83	E extension	Gravel layer 710 removed	W
84	E extension	Gravel layer 710 removed	W
85	E extension	Gravel layer 710 removed	W
86	W extension	Working shot, Dave excavating skeleton	NE
87	W extension	Working shot, Dave excavating skeleton	E
88	N extension	Skeleton 724 , feet, DNA11	N
89	N extension	Skeleton 724 , feet, DNA11	N
90	N extension	Skeleton 724 , left hand, DNA12	N
91	N extension	Skeleton 724 , left hand, DNA12	N
92	E extension	Skeleton 727 and cut 725 , post-ex with 0.4m scale	E
93	E extension	Skeleton 727 and cut 725 , post-ex with 0.4m scale	E
94	E extension	Skeleton 727 and cut 725 , post-ex with 0.4m scale	E
95	E extension	Skeleton 727 and cut 725 , post-ex with 0.4m scale, showing drain 716	E
96	E extension	Skeleton 727 and cut 725 , post-ex with 0.4m scale, vertical	E
97	E extension	Skeleton 727 , geo-reference	W
98	E extension	Skeleton 727 , geo-reference	W
99	E extension	Skeleton 723 and structure 728 within 721	S
100	E extension	Skeleton 723 and structure 728 within 722	S
101	E extension	Skeleton 723 and structure 728 within 723	W

Frame	Site Subdivision	Description	Direction of shot
102	E extension	Skeleton 723 and structure 728 within 724	W
103	E extension	Skeleton 723 and structure 728 within 724 , detail of 729	W
104	E extension	Skeleton 723 and structure 728 within 724 , detail of 730 , geo-reference	W
105	E extension	Skeleton 723 and structure 728 within 724 , detail of 731	N
106	E extension	Skeleton 723 and structure 728 within 724 , detail of 732	N
107	E extension	Skeleton 723 and structure 728 within 724 , detail of 733	N
108	E extension	Skeleton 723 and structure 728 within 724 , detail of 734	N
109	E extension	Skeleton 723 after removal of capstone of 728	N
110	E extension	Skeleton 723 after removal of capstone of 728	N
111	E extension	Skeleton 723 after removal of capstone of 728	N
112	E extension	Skeleton 723 after removal of capstone of 728	N
113	E extension	Skeleton 723 after removal of capstone of 728	N
114	E extension	Skeleton 723 after removal of capstone of 728	N
115	E extension	Sk 727 after removal of tibia and foot bones	E
116	E extension	Sk 727 after removal of tibia and foot bones	E
117	E extension	Sk 727 after removal of tibia and foot bones, close-up	E
118	E extension	Skeleton 727 , geo-reference shots of toe bones	W
119	E extension	Skeleton 727 , geo-reference shots of toe bones	W
120	N extension	Skeleton 724 , exposed	S
121	N extension	Skeleton 724 , exposed	S
122	N extension	Skeleton 724 , georeference	S
123	N extension	Skeleton 724 , georeference	S
124	N extension	Skeleton 724 , georeference	S
125	N extension	Skeleton 724 , georeference	S
126	N extension	Skeleton 724 , georeference	S
127	N extension	Skeleton 724 , georeference	S
128	N extension	Skeleton 724 , georeference	S
129	N extension	Skeleton 724 , georeference	S

Photographic Batch 4

Frame	Site Subdivision	Description	Direction of shot
1	N extension	Skeleton 724 and 719 after removal of 720 with neonate burial to E end	N
2	W extension	Skeleton 723 and head box	N
3	W extension	Skeleton 723 and head box	N
4	W extension	Skeleton 723 and head box	S
5	W extension	Skeleton 723 and head box	S
6	W extension	Skeleton 723 and head box	W
7	W extension	Skeleton 723 and head box, detail of skull	W
8	W extension	Skeleton 723 and head box, detail of skull	W
9	W extension	Skeleton 723 , geo-reference	N
10	W extension	Skeleton 723 , geo-reference	N
11	W extension	Skeleton 723 , geo-reference	N
12	E extension	Close-up of skeleton 731 , W facing section	E
13	E extension	Close-up of skeleton 731 , W facing section	E
14	E extension	Close-up of skeleton 734 , W facing section	E
15	E extension	Close-up of skeleton 734 , W facing section	E
16	E extension	Close-up of skeleton 734 , W facing section	E
17	E extension	Close-up of skeleton 737 , W facing section	E
18	E extension	Close-up of skeleton 737 , W facing section	E
19	E extension	Close-up of skeleton 737 , W facing section	E
20	N extension	Working shot, Linda taking DNA samples	N
21	N extension	Working shot, Linda taking DNA samples	E
22	N extension	Working shot, Linda taking DNA samples	NW
23	W extension	Working shot, Dave lifting skeleton 723	W
24	W extension	Working shot, Dave lifting skeleton 723	W
25	N extension	Working shot, Linda taking DNA samples	N
26	W extension	Grave cut 721	N
27	W extension	Grave cut 721	N
28	N extension	Working shot, Linda and Trisha	N
29	N extension	Working shot, Trisha	N
30	N extension	Working shot, Trisha	N
31	N extension	Working shot, Linda	E
32	N extension	Working shot, Linda and Trisha	W
33	N extension	Skeleton 749 , geo-reference shots	S
34	N extension	Skeleton 749 , geo-reference shots	S
35	N extension	Skeleton 749 , geo-reference shots	S
36	N extension	Skeleton 749 , exposed	S
37	N extension	Skeleton 749 , exposed	S
38	N extension	Skeleton 749 , exposed	S
39	N extension	Skeleton 749 and cut 719	N
40	N extension	Skeleton 749 and cut 719	S
41	N extension	Skeleton 748 , right hand finger, DNA23	E
42	N extension	Skeleton 748 , right hand finger, DNA23	E
43	N extension	Skeleton 748 , right hand finger, DNA23	E
44	N extension	Skeleton 748 , left hand finger, DNA24	N
45	N extension	Skeleton 748 , left hand finger, DNA24	N
46	N extension	Skeleton 748 , left hand finger, DNA24	E
47	N extension	755 , 756 and 758 with skull of 757 exposed	W

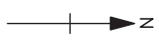
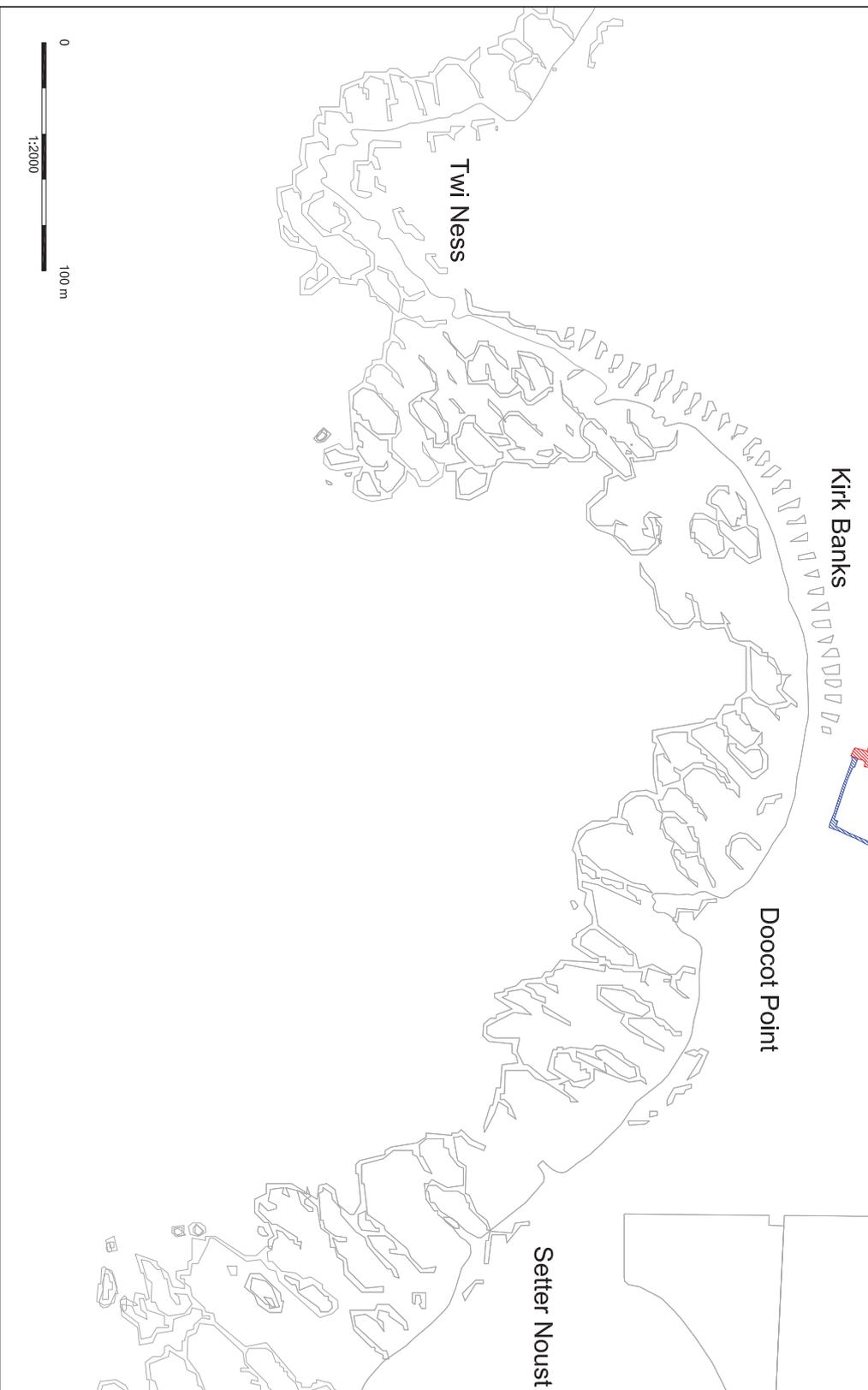
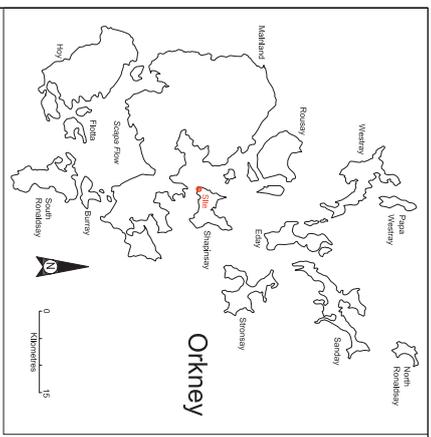
Frame	Site Subdivision	Description	Direction of shot
48	N extension	755, 756 and 758 with skull of 757 exposed, close-up of skull and head box	S
49	N extension	755, 756 and 758 with skull of 757 exposed, close-up of skull and head box	N
50	W extension	Skeleton 763 , head box 761, 762 in 759	N
51	W extension	Skeleton 763 , head box 761, 762 in 760	N
52	W extension	Skeleton 763 , geo-reference	N
53	W extension	Skeleton 763 , geo-reference	N
54	W extension	Skeleton 763 , geo-reference	N
55	W extension	Skeleton 763 , DNA 27, metacarpal on pelvis	N
56	W extension	Sk 763 , DNA 28, L ulna fragment	N
57	W extension	764 and 765 , grave cut and fill	W
58	W extension	766 and 767 , grave cut and fill	W
59	W extension	767 and 767 , grave cut and fill	W
60	W extension	768 and 769 , grave cut and fill	W
61	W extension	769 and 769 , grave cut and fill	W
62	N extension	Skeleton 748 after removal of grave fill 746 with 1m and 0.5m scale	N
63	N extension	Skeleton 748 after removal of grave fill 746 with 1m and 0.5m scale	N
64	N extension	Skeleton 748 after removal of grave fill 746 with 1m and 0.5m scale	S
65	N extension	Skeleton 748 after removal of grave fill 746 with 1m and 0.5m scale	S
66	N extension	Skeleton 748 after removal of grave fill 746 with 1m and 0.5m scale	E
67	N extension	Skeleton 748 after removal of grave fill 746 with 1m and 0.5m scale	E
68	N extension	Skeleton 748 , close-up of left hand, 0.2m scale	E
69	N extension	Skeleton 748 , zoomed out of left hand on left leg	E
70	N extension	Skeleton 748 , zoomed out of left hand on left leg	E
71	N extension	Skeleton 748 , right hand on pelvis, zoomed out, 0.2m scale	E
72	N extension	Skeleton 748 , right hand on pelvis, zoomed out, 0.2m scale	E
73	N extension	Skeleton 748 , right hand on pelvis, close-up, 0.2m scale	E
74	N extension	Skeleton 748 , close-up of feet, 0.2m scale	W
75	N extension	Skeleton 748 , feet, zoomed out, 0.2m scale	W
76	N extension	Skeleton 748 , geo-reference, geo-reference points 29-32	S
77	N extension	Skeleton 748 , geo-reference, geo-reference points 29-32	S
78	N extension	Skeleton 748 , geo-reference, geo-reference points 29-33, blurred shot	S
79	N extension	Skeleton 748 , geo-reference, geo-reference points 29-34, blurred shot	S
80	N extension	Unexcavated graves 755, 764, 766, 768	N

Frame	Site Subdivision	Description	Direction of shot
81	N extension	Unexcavated graves 755, 764, 766, 769	N
82	W extension	Skeleton 770 , geo-reference, points 33-36	
83	W extension	Skeleton 770 , geo-reference, points 33-37	
84	W extension	Close-up of skeleton 770 within 763	W
85	W extension	Skeleton 770 on 763	W
86	W extension	Skeleton 763	W
87	N extension	Grave cut 745 , post-ex of skeleton 748 , 1m and 0.5m scale	S
88	N extension	Grave cut 745 , post-ex of skeleton 748 , 1m and 0.5m scale	E
89	N extension	Grave cut 745 , post-ex of skeleton 748 , 1m and 0.5m scale	E
90	N extension	Grave cut 745 , post-ex of skeleton 748 , 1m and 0.5m scale	S
91	N extension	Grave cut 745 , post-ex of skeleton 748 , 1m and 0.5m scale	E
92	N extension	Grave cut 745 , post-ex of skeleton 748 , 1m and 0.5m scale	W
93	W extension	Skeleton 763 , overall	N
94	W extension	Skeleton 763 , overall	N
95	W extension	Skeleton 763 , overall	N
96	W extension	Skeleton 763 , overall	S
97	W extension	Skeleton 763 , overall	S
98	W extension	Skeleton 763 , geo-reference	N
99	W extension	Skeleton 763 , geo-reference	N
100	W extension	Skeleton 763 , geo-reference	N

Photographic Batch 5

Frame	Site Subdivision	Description	Direction of shot
1		Grave cut 759	N
2		Grave cut 759	N
3		Grave cut 784	S
4		Grave cut 784 , wider view	S
5		Grave cut 784 , detail of skull	S
6		Skeleton 779 , right hand, DNA36 and 37	N
7		Skeleton 779 , exposed	S
8		Skeleton 779 , exposed	S
9		Skeleton 779 , geo-reference shot	S
10		Skeleton 779 , geo-reference shot	S
11		VOID	
12		Linear cut feature 797	S
13		Linear cut feature 797	N
14		Linear cut feature 797	W
15		VOID	
16		Linear cut feature 797 , baulk, bright	W
17		Linear cut feature 797 , baulk, shade	W
18		Linear cut feature 797 , baulk, shade	W
19		Grave 788 with head box 790	S
20		E facing section of wall, record shot	W
21		E facing section of wall, record shot	W
22		E facing section of wall, record shot	W
23		Working shots	W
24		Working shots	W
25		Working shots	W
26		Working shots	W
27		Working shots	W
28		Working shots	W
29		Working shots	W
30		Working shots	W
31		Working shots	W
32		Working shots	W
33		Ditch 812	W
34		Ditch 812	N
35		Ditch 812	N
36		Ditch 812	E
37		Ditch 812	E
38		Skeleton 803 , exposed	S
39		Skeleton 803 , exposed	S
40		Skeleton 803 , exposed	N
41		Skeleton 803 , geo-reference shots	N
42		Skeleton 803 , geo-reference shots	N
43		Skeleton 803 , geo-reference shots	S
44		Skeleton 803 , hand, DNA42	N
45		Skeleton 803 , foot, DNA43	N
46		E facing section of ditch 805	W

Frame	Site Subdivision	Description	Direction of shot
47		E facing section of ditch 805	W
48		E facing section of ditch 805	W
49		E facing section of ditch 805	W
50		E facing section of ditch 805 and soil 809	N
51		E facing section of ditch 805 and soil 810	N
52		E facing section of ditch 805 and soil 811	N
53		E facing section of ditch 805 and soil 812	N
54		S facing section of gully 810 and soil 809	N
55		S facing section of gully 810 and soil 809	N
56		S facing section of gully 810 and soil 809	N
57		W facing section of ditch 812 and fills 704 and 813	E
58		W facing section of ditch 812 and fills 704 and 814	E
59		E facing section of ditch 812 and fills 704 and 813	W
60		E facing section of ditch 812 and fills 704 and 814	W
61		End of dig shots showing terram and reburial box	SW
62		End of dig shots showing terram and reburial box	S
63		End of dig shots showing terram and reburial box	NE
64		Reburial box, open, close-up	W
65		Reburial box, closed close-up	NW
67		Reburial box, fenced off	NW
68		Site backfilled	SW



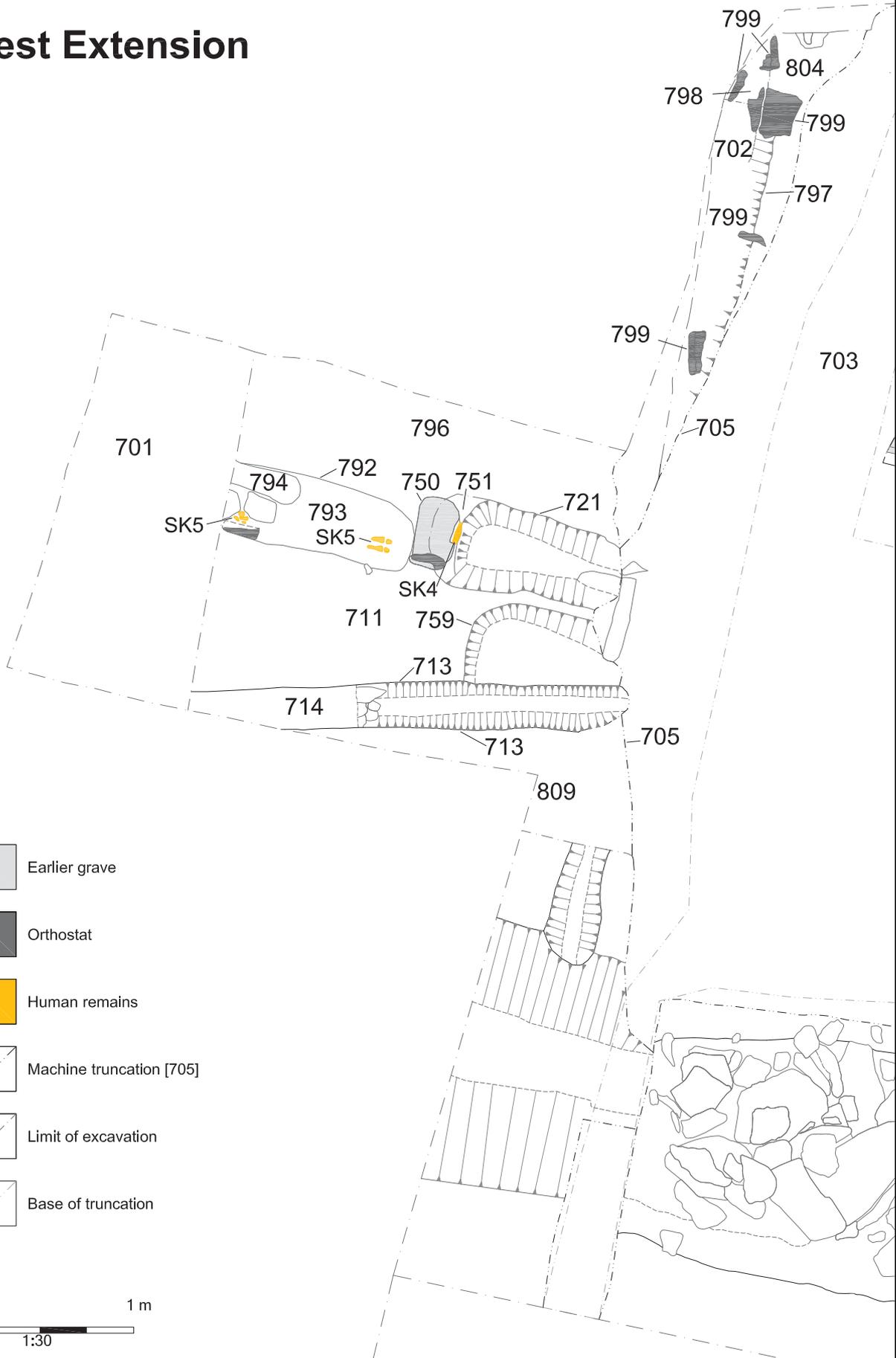
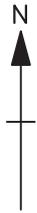
-  Site location
-  Watching brief area
-  OS basemap

Figure 1. Site location

Project Name	Lady Kirk Shapinsay
Project No.	354
Date	September 2012
Creator	PE
Scale	1:2000 @ A3
Revision No.	1
ORCA, Orkney College, East Road, Kirkwall, KW15 1LX	

This map contains OS OpenData map data © Crown Copyright/database right 2012.

West Extension



-  Earlier grave
-  Orthostat
-  Human remains
-  Machine truncation [705]
-  Limit of excavation
-  Base of truncation



Orkney College, East Road, Kirkwall, KW15 1LX

Figure 5. West extension

Project Name:	Lady Kirk Shapinsay
Project No:	354
Scale:	1:30 @ A4
September 2012 PE	Rev. No. 1

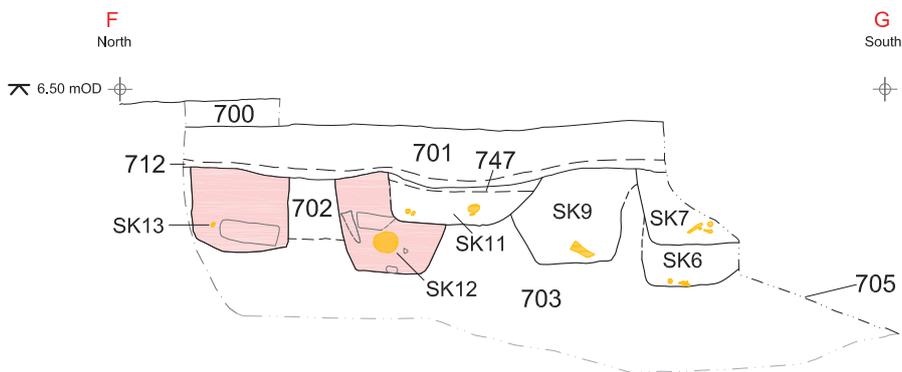
This illustration contains original survey data produced by ORCA © 2012.

X:\Archaeology\ORCA\ORCA Projects\354_Lady Kirk Excavation Shapinsay\Geomatics\CAD\Current\354_Lady_Kirk_Illustrations_240912.dwg(ORCA FIG 5 A4)***** 05 Oct 2012

North extension



West facing section



-  Human remains
-  Machine truncation [705]
-  Limit of excavation
-  Base of truncation
-  Earlier graves
-  Orthostat
-  Unexcavated graves



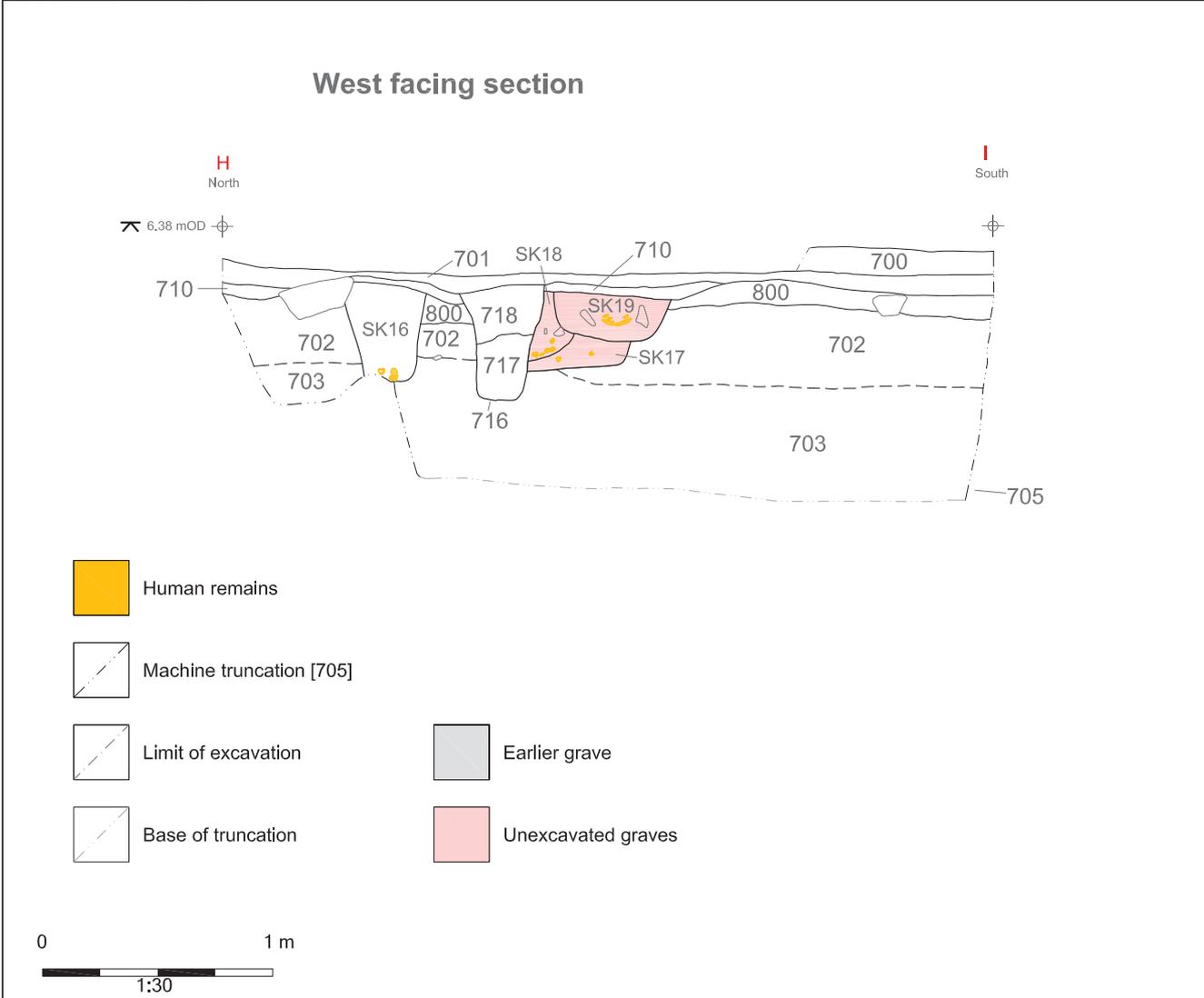
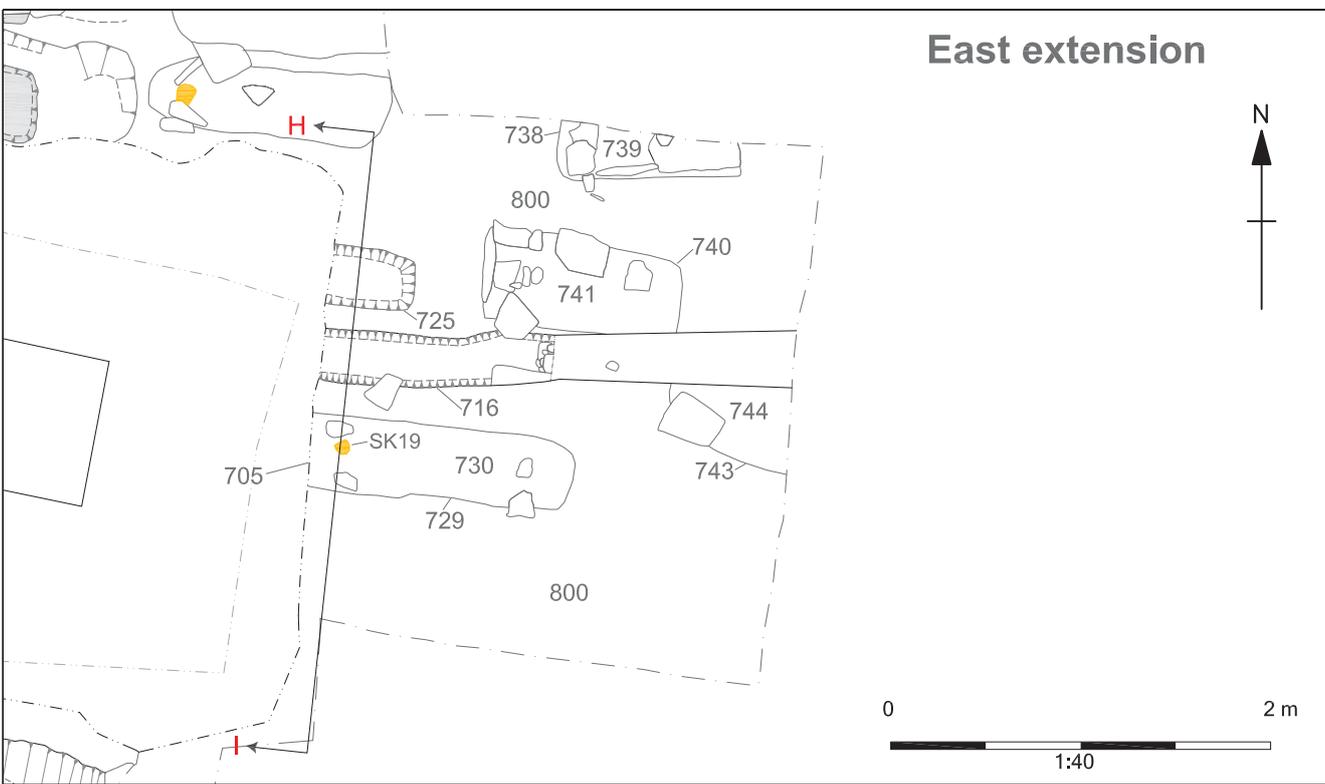
Orkney College, East Road, Kirkwall, KW15 1LX

Figure 6. North extension

Project Name: Lady Kirk Shapinsay
 Project No: 354 Scale: 1:30/40 @ A4
 September 2012 PE Rev. No. 1

This illustration contains original survey data produced by ORCA © 2012.

X:\Archaeology\ORCA\ORCA Projects\354_Lady Kirk Excavation\Shapinsay\Geomatics\CAD\Current\354_Lady_Kirk_Illustrations_240912.dwg(ORCA FIG 7 A4)***** 05 Oct 2012



Orkney College, East Road, Kirkwall, KW15 1LX

Figure 7. East extension

Project Name: Lady Kirk Shapinsay	
Project No: 354	Scale: 1:30/40 @ A4
September 2012 PE	Rev. No. 1

This illustration contains original survey data produced by ORCA © 2012.



Plate 1: Ditch 805, buried soil 809 and gully 810 looking WSW



Plate 2: SK1 showing displaced headbox structure, looking NNE



Plate 3: Detail of neonate burial SK2 in chest area of SK1, looking W



Plate 4: SK1 fully exposed, looking N



Plate 5: SK3 looking SSW



Plate 6: SK6 looking SSW



Plate 7: SK7 looking SSW



Plate 8: Location of SK8 in relation to grave 719, SK7, looking SSW



Plate 9: Detail of SK8 looking WNW



Plate 10: SK9 looking SSW



Plate 11: SK11 looking SSW



Plate 12: Unexcavated burial SK14 looking SSW



Plate 13: Heavily truncated burial SK16, looking NNE



Plate 14: Machine disturbed burial SK20, looking WNW