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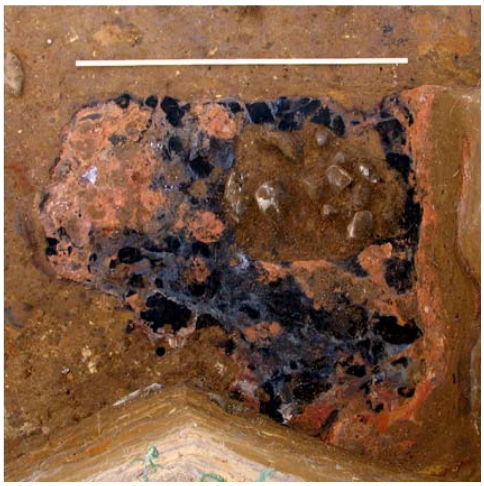
AKUREYRI MUSEUM

Excavations at Gásir 2005
An Interim Report / Framvinduskýrsla



Lilja Björk Pálsdóttir and Howell Roberts
With Ramona Harrison, Guðrún Alda Gísladóttir and Natascha Mehler

FORNLEIFASTOFNUN ÍSLANDS

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Excavations at Gásir 2005: An Interim Report

English Summary and Introduction – by H.M. Roberts

Fornleifastofnun Íslands, on behalf of Minjasafnið á Akureyri, carried out a research excavation at Gásir, Eyjafjörður, for 6 weeks between July 11th and August 19th 2005. The excavation team was led by Howell Roberts, and numbered between 10 and 12 staff, totalling 66 person weeks of excavation time.

Image 1 *– Excavation at Gásir, 2005. Bruno Berson excavates a new structure in the foreground.*

Staff: Anies Hassan, Águsta Edwald, Banu Aydinoglugil Bruno Berson, Freya Sadarangani, James Taylor, Lilja Björk Pálsdóttir, Louise Felding, Oddgeir Hansson, Marta Dulinicz, and Ramona Harrison.

Ten of the twelve team members were returning for their 2nd (1), 3rd (5), 4th (2) or 5th (2) excavation seasons at Gásir. The growing experience of the excavation team and their familiarity with the complex and difficult archaeology of Gásir has proved to be invaluable. Post excavation work including finds processing, data entry, digitising and stratigraphic analysis has been carried out by Lilja Björk Pálsdóttir, and

supervised by Howell Roberts. The finds assemblage has been studied by Guðrún Alda Gisladóttir, and the faunal assemblage has been analysed by Ramona Harrison.

Excavation in 2005 comprised the 5th season of a projected 6 year excavation project. Work this year focused on continued work within the main cluster of booths (Area A) – where an additional 75m² has been opened for excavation this year, encompassing the area of a supposed track or path along the centre of the site. In total circa 1100m² have now been excavated in part or in whole, in all areas since 2001.

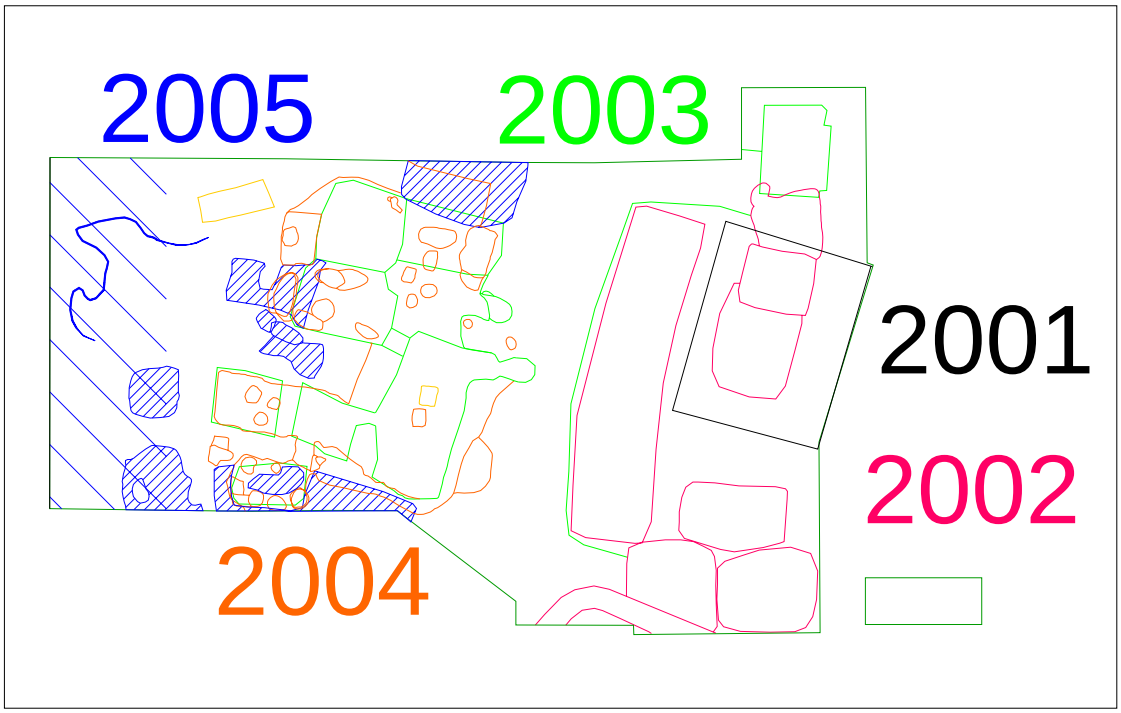


Image 2 *– Progress within Area A, 2001-2005*

2005 was a shorter but very successful season. Within Area A an additional 630 layers or features were fully recorded and excavated, contributing to a current total of circa 2390 excavated units. As in previous years all layers were recorded individually and excavated, in total, in strict stratigraphic sequence.

Area A

In 2005 work progressed well within the area begun in 2003 and continued in 2004. In addition a new area of 75m² was added at the western limit of the excavation. Work in 2005 continued the process of excavating a complex sequence of intercutting rooms and buildings, all dating to sometime shortly after 1300AD.

Image 3 *- New room at the southwest – scale 2m*

Several new rooms came to light, along with many new features such as floors, hearths, walls, pits and postholes. The original rooms or booths begun in 2003 have now been fully excavated, and continued work has now uncovered earlier rooms and structures both beneath and to the west. This observation is consistent with our best current understanding of site development – ie. that activity began somewhere toward the northwestern part of the site and has moved steadily eastwards over time. New excavation at the western limit of excavation produced some surprising evidence affecting the layout of the site as a whole. Previous analyses of the surface topography of Gásir and the layout of the ruins - by this author and others – had assumed a central north-south trackway between the clusters of ruins. Excavation across this area firmly contradicts that supposition. Whereas trampled, compacted surfaces have been identified previously (between the clusters of rooms dug in 2002 and 2003), no such layers were present where we had expected them to be. Rather,

we discovered relatively loose deposits infilling a further sequence of small sunken buildings or large pit features. In addition, sunken buildings adjoining the supposed "central trackway" show no evidence for any entrances oriented to the west, instead having vertical faces up to 1.6m in height. This new evidence forces us to reconsider our ideas about the orientation of the site, its paths of access, and thus the relationships between buildings and clusters of buildings.

Image 4 - *Complex occupation layers – this image shows c.17cm depth of horizontal layers*

Two of the most complex rooms produced exceptionally well preserved floor sequences, each containing upto 50 individual layers, mostly only a few millimetres in thickness. These sequences were carefully preserved during excavation to facilitate sampling for micromorphological study. Karen Milek of the University of Cambridge visited Gásir on the 8th-9th of August to record and sample these sequences. Sample preparation and analysis will be carried out over the next 18 months.

Image 5 - *Sampling for micromorphology.*

In addition to the usual quantities of mammal and fish bone found throughout the site, a single deposit extremely rich in fish bone was excavated from within a new structure at the southwestern corner of the site. This deposit alone contains thousands of fish bone fragments and will provide new evidence regarding the processing and/or consumption of this crucial Icelandic product at Gásir.

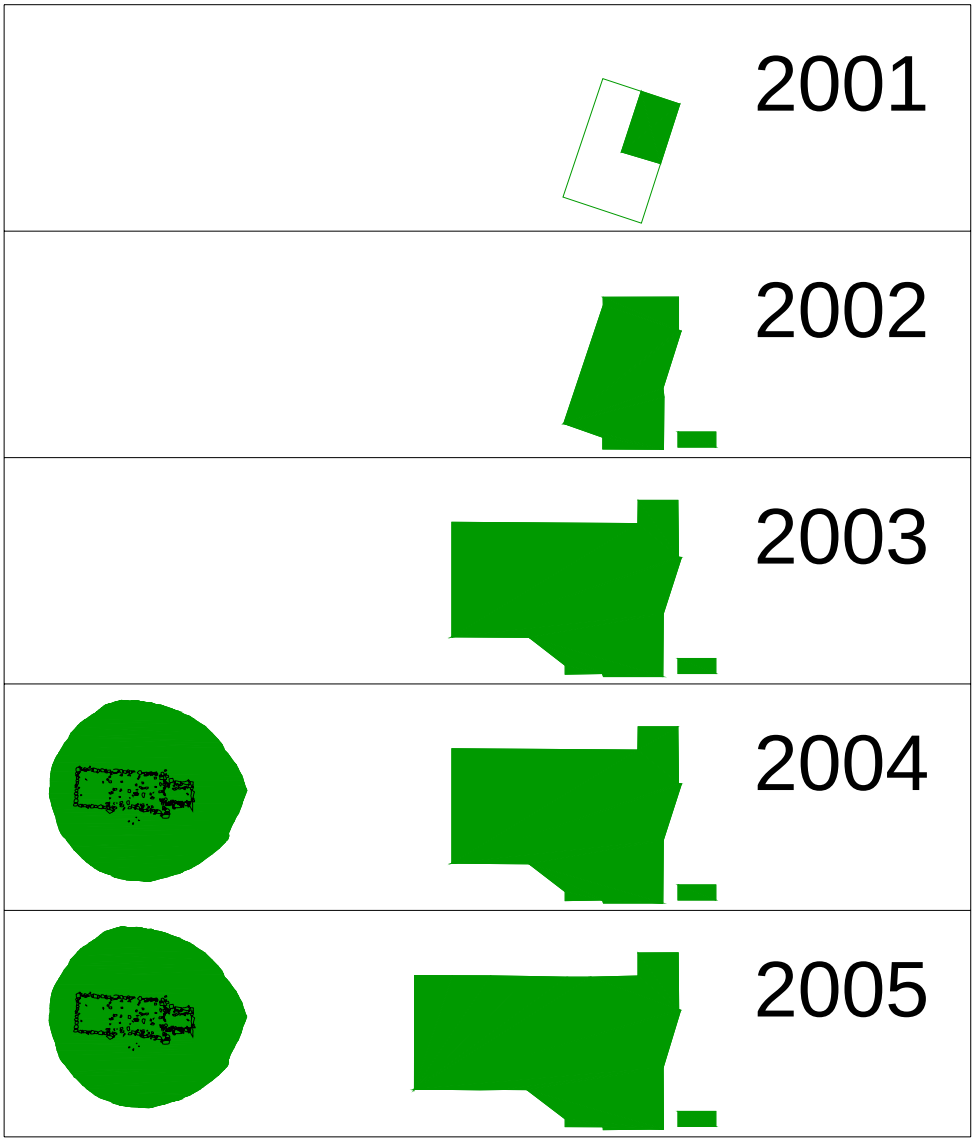


Image 6 *– Expansion of main excavation areas, 2001-2005.*

Gásir continues to produce significant quantities of medieval artefacts, (see finds report below) including exceptionally preserved organic items such as leather.

Image 7 *- Large fragment of baking plate*

In 2005 this included ;

- medieval ceramics from the Rhineland and Eastern England, including a small and rare unguent jar (for precious oils/balms etc)
- baking plates (from Norway)
- whetstones (likely to be from Eidsborg in Norway)
- bronze or copper alloy, including for the first time a possible coin, and a fragment of a bronze pot
- Iron objects, including a blade and boat nails
- worked bone, including a whalebone chopping block
- pieces of leather, including 2 shoe fragments
- small fragments of woollen cloth
-1 stone fish hammer

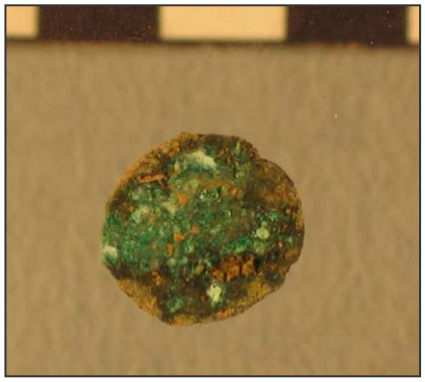


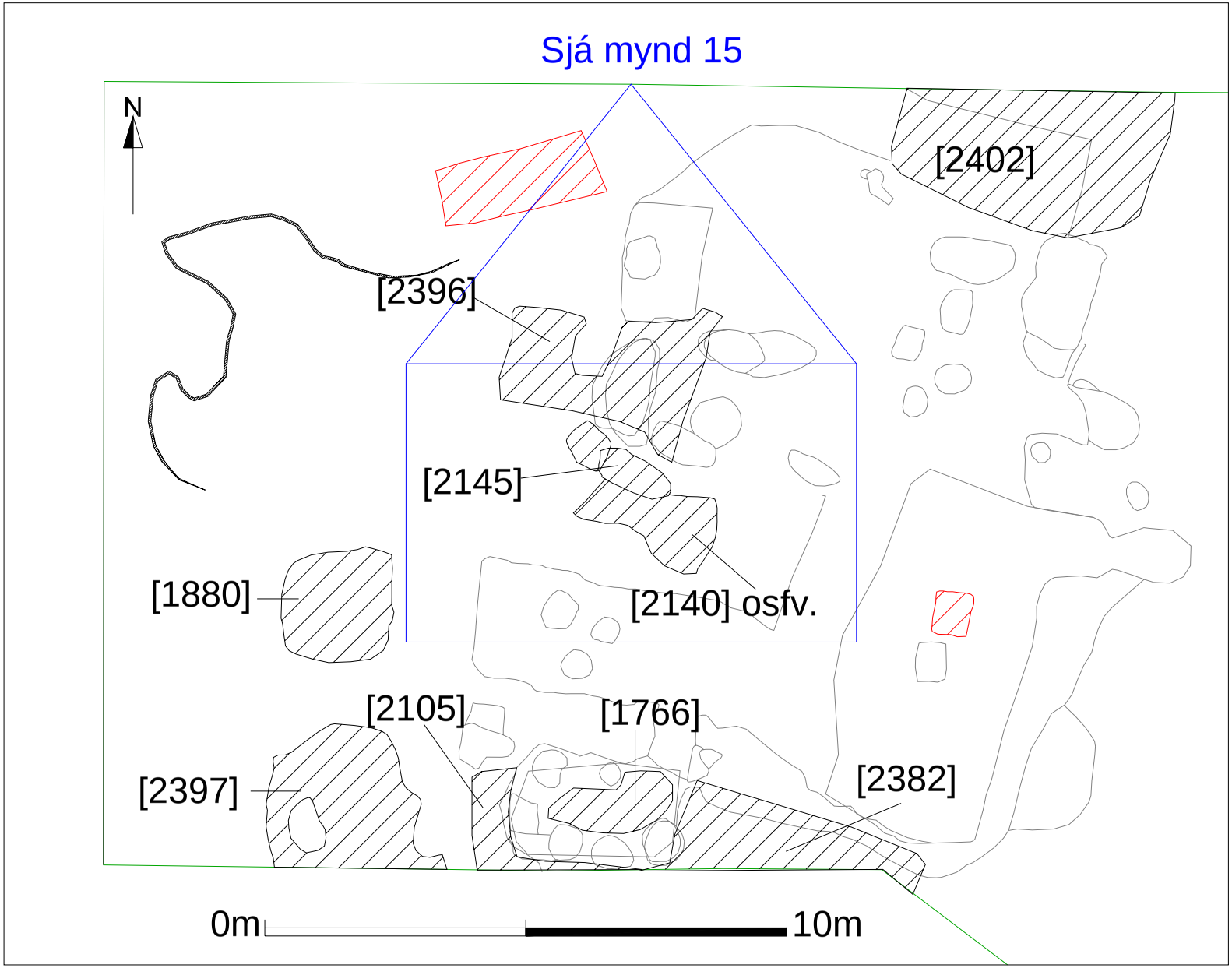
Image 8 *- Possible coin*

Image 9 *- Handle of jar*

Modified research agenda

Continued excavation within Area A has not as yet produced the earlier deposits that form one part of our excavation goals. The deposits excavated to date are all seen to be above a dark blue grey tephra layer dated to 1300ad. Documentary evidence suggests that activity at Gásir must have begun by around 1150 - if not earlier. We might suspect that activity commences at some point in the Viking period. Some concrete dating evidence for the earliest levels at Gásir continues to be of considerable value to an understanding of the site. To that end it is proposed that excavation at Gásir will additionally include a small area excavation (of perhaps 5m x 5m, or targeting a single booth) towards the northwestern limit of excavation, where the ruins appear most "overgrown" and unclear, and are furthest from the modern shore. Work will also continue within the main excavation area A. This work may need to be scaled down in the final projected year of excavation, such that individual structures are completed and left at appropriate junctures.

Furthermore, it is crucial that adequate funds are available for the satisfactory completion of post-excavation analysis. Specialist studies of the materials gathered from Gásir can only be conducted after the excavation is complete – and these will inevitably prove both time consuming and costly. Publication of the excavation will also require some significant expenditure, as will development of the site.



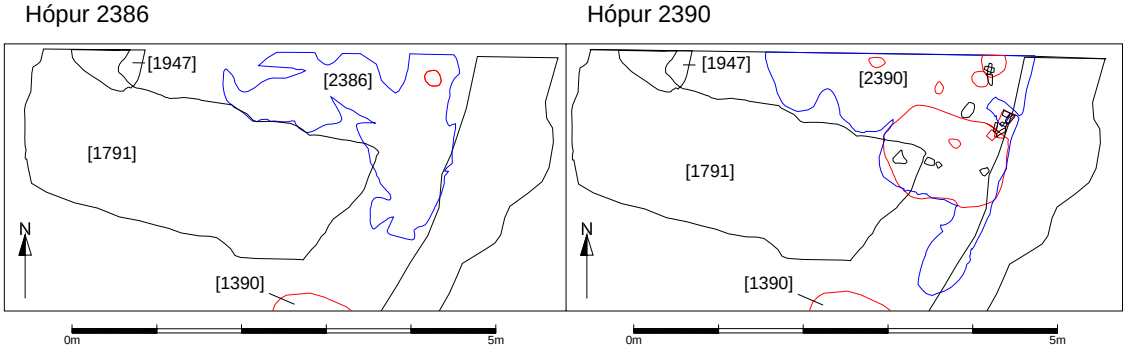
Yfirlitsmynd – Svæði A

Niðurstöður - eftir Lilju Björk Pálsdóttur

Hópur 2402

Í þessum hópi eru herbergi [1761] og [2400].

Herbergi 1761



Mynd 10: *Notkunarlög og skurðir í herbergi [1761]*

Byrjað var að vinna í þessu herbergi árið 2003 og hafa fram til þessa komið í ljós nokkur notkunarskeið. Herbergið afmarkast af torfvegg til suðurs [1791] og vesturs [1947], uppgraftarmörkum til norðurs en er niðurgrafið að vestan og austan. 2005 komu í ljós heilmikil umsvif í herberginu. Notkunarskeiði var skipt í tvennt [2386] og [2390], en í raun mætti segja að um eitt, samfellt skeið sé að ræða. Gólflögin eru þéttust í austurhluta herbergisins og í gangvegi sem tengdi saman herbergi [1761] og [1760]. Þó ber að athuga, að meirihluti herbergisins er utan uppgraftarmarka til norðurs svo að einungis lítill hluti þess hefur verið rannsakaður. Stoðarholur virðast takmarkast við austurhlutann, og þá sérstaklega við gangveginn til suðurs. Sá gangvegur mun þó varla hafa verið notaður lengi, þar sem hola [1390] takmarkar aðgengi þá leið[1]. Fjórar stoðarholur ([1985], [2030], [2056], [2009]) voru á þessum stað og hafa líkast til verið hluti af einhvers konar innréttingu eða húsgagni.

[1] Roberts, H.M.: *Excavation at Gásir 2004. An Interim Report*. Fornleifastofnun Íslands, Reykjavík 2005. bls 23.

Hópur 1791

Torfveggur; bygging og viðgerð. Grafið hefur verið niður í eldri leifar vestan megin fyrir veggnum. Til að jafna undirlag veggjarins hefur blandaður jarðvegur, sem í voru torfleifar, verið settur undir hann. Veggurinn [1791] hefur verið hlaðinn úr torfi að sunnan, aðallega úr streng, en norðurhliðin var mun verr farin og sá ekki í heilt torf nema í neðstu röðinni sem var gerð úr torfhnausum. Annars hefur veggurinn verið gerður úr tvöfaldri hleðslu af torfi (til norðurs og suðurs) en fyllt upp í miðjuna með lausari jarðvegi sem í voru leifar af torfi og mjög blönduðum jarðvegi. Viðgerð [1790] var á veggnum suð-vestanverðum, og var hún 1,18 m á lengd og 0,45 á breidd. Veggurinn hefur verið byggður upp að og að hluta til ofan á eldri vegg [2388] sem gekk út úr uppgraftarmörkum til norðurs.

Hann hafði einnig verið byggður ofan á eldri vegg [2399] að sunnan, en sá veggur tilheyrir herbergi [2400]. Gjóska frá Heklu 1300 var í torfinu sem var að mestu ljósgult að lit að sunnanverðu en meira fjólublátt og gult á norðurhlið.

Stærð: Lengd frá vestri til austurs: 4,14m en 1,43m á breidd.

Mynd 11: *Veggur [1791], sést í [1947]. Horft í vestur.*

Hópur 2386

Byrjað var að rannsaka þennan hóp 2004, en á þessu sumri komu í ljós alls um 9 gólflög. Flest eru þau við norðausturenda veggjarins [1791] *(sjá mynd 10)* fyrir utan tvö sem teygja sig lengra inn í herbergið til vesturs. Eina pinnaholu var að finna í þessum gólflögum en fylling hennar voru að mestu viðarkol.

Hópur 2390

Mörg gólflög sem hafa myndast við norður og norðausturenda torfveggjar [1791] sem afmarkar bygginguna til suðurs. Þau voru afar blönduð, sendin og mjög þétt. Austan megin við enda veggjarins var gangur til suðurs. Í þessum hópi voru 3 stoðarholur, 3 pinnaholur og ein stór hola [2089] *(Sjá mynd 10)*.

Mynd 12: *Geymsluhola [2089], horft til austurs. Mælistikan sýnir 1 m.*

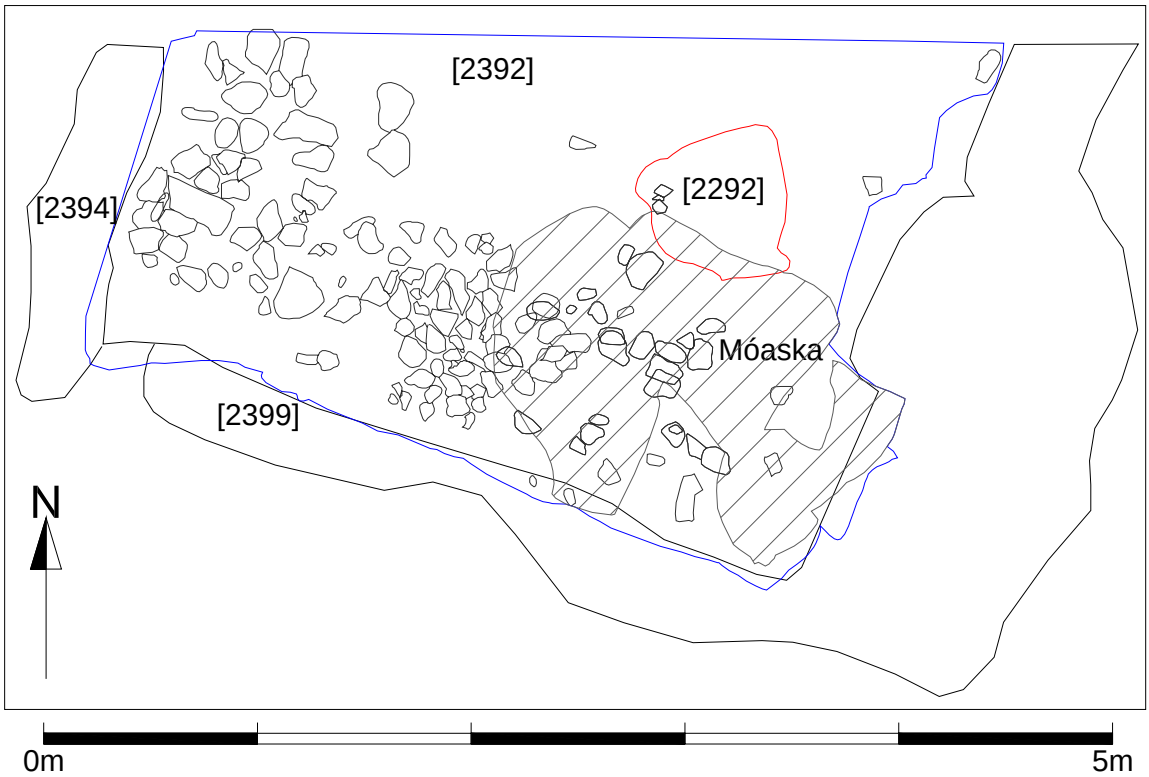
Holan skar fyrsta gólflag þessa notkunarhóps og hefur sennilega verið notuð sem geymsluhola. Í henni voru tvö fyllingarlög, og í norðurhlið hennar var pinnahola. Holan var flöt í botninn, en þó á tveimur "pöllum", dýpri til austurs. Yngri fyllingin var blanda af fjólubláum lífrænum leifum sem voru lausar í sér og torfleifum. Eldri fyllingin var sendnari, auk þess sem nokkrir steinar voru í henni. Þessi seinni fylling fyllti einnig pinnaholuna.

Stoðar- og pinnaholur eftir húsgagn eða innréttingu var að finna í þessu notkunarskeiði en auk þeirra eru þrjár aðrar stoðarholur; og hafa tvær þeirra steinafyllingar ([2017], [2044]). Þær eru báðar við austurenda herbergisins en sú þriðja [2099] er hinsvegar nærri fyrir miðju herbergisins. (*Sjá mynd 10*)

Hópur 2400

Eftir að mörg fok- og hrunlög (hópur [2391]) höfðu verið fjarlægð, var komið niður á nýtt herberg (*sjá mynd 14*). Í því eru torfveggir á þær þrjár hliðar sem sjást; vestur-, austur- og suðurhlið. Í ljós kom eldri veggur [2399], hlaðinn úr streng en hann hefur verið notaður síðar í herbergi [1761] til að mynda neðsta hluta [1791], sunnanmegin. Þetta nýja herbergi nær lengra til suðurs, en er þrengra til hliðanna en herbergi [1761]. Torfveggur er kominn í ljós austan megin, þó svo að notast sé við sama skurðinn [1931] á vesturhlið herbergisins. Í gólflögunum voru nokkur lög af steinum upp við suður- og vesturhliðarnar og hafa slík steinalög verið í fleiri herbergjum á Gásum s.s steinalög [486], [479] og [215] sem voru rannsökuð 2002. Einungis ein stoðarhola hefur komið í ljós enn sem komið er í herberginu. Á vesturveggnum innanverðum er steinahleðsla, en mikið er hrunið úr henni. Í sumarlok mátti sjá í einar 4 steinaraðir. Það er hugsanlegt að fleiri komi í ljós þegar haldið verður áfram á næsta sumri.

Mynd 13: *Veggur [2394], horft til vesturs*

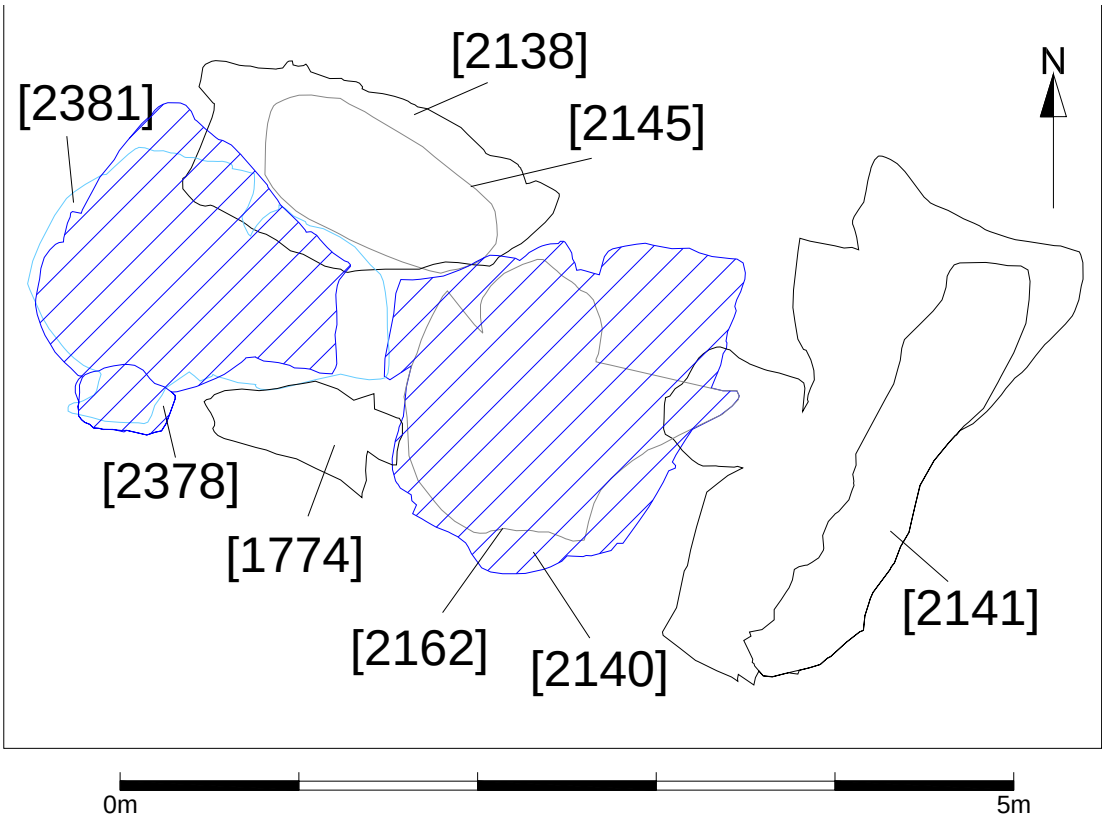


Mynd 14: *Herbergi [2400] auk gólflaga og móösku.*

Hópur 2392

Gólflög í herbergi [2400] sem ekki er fullgrafið. Þau voru mjög sendin og blönduð torfleifum. Stór stoðarhola er austanmegin í herberginu. Auk blönduðu gólflaganna voru í herberginu steinalög sem virtust takmarkast við svæðið upp við torfvegginn [2399] og eins vegginn vestan megin. Þessi steinalög lágu öll í mjög blönduðum torflögum sem hafa verið notuð sem undirlag fyrir steinana. Steinarnir voru fjörusteinar, bæði kantaðir og rúnnaðir og því hefur yfirborð steinalagsins ekki verið mjög slétt. Hugsanlegt er að þeir hafi verið notaðir sem upphækkun frá gólfi til að halda varningi þurrum. Nokkur blönduð móöskulög voru í suðaustur horni herbergisins og þar hefur eldstæði þegar verið grafið en öll móaska sem hingað til hefur verið komið niður á í þessu herbergi [2365] var í þeim hluta.

Hópur 2401



Mynd 15: *Hópur [2401]*

Þessi hópur samanstendur af jarðlögum sem hafa myndast við endurtekna notkun á svæðinu. Þessi mannvistarlög voru blanda af hruni og endurbyggingum, auk notkunar- og hrunskeiða en saman mynduðu þau nokkurs konar bálk sem skildi að herbergi [1079] og [1759]. Grafið hefur verið niður í óhreyfð jarðlög að vestan og efnið í bálknum hlaðist upp að skurðhlið. Síðar hefur svo verið grafið í bálkinn á suður-, austur-, og norðurhlið þegar síðari jarðhýsi hans voru grafin.

Hópur 2140

Skurður [2162] fyrir eldstæði en a.m.k átta eldstæði og móöskulög þeim tengd eru í þessum hópi. Elstu lögin í þessum hópi, [2051] og [2063], hafa verið skorin af [2162] en öll hin eru innan marka skurðarins. Tvö notkunarskeið eru í hópnum, en ekki hefur liðið langt á milli þeirra þar sem fok- og hrunlögin eru einungis þrjú og þykkt þeirra samanlögð er frá 4 sentimetrum til 20 sentimetra. Innihald móöskunnar er mismunandi eftir notkunarskeiðunum tveimur, en í því eldra er mun meira af

viðarkolum en síðara skeiðið inniheldur meira af gjalli. Brennd bein og hitasprungna steina var að finna í öllum hópnum, óháð notkunarskeiðum.

Mynd 16: *Eldstæði í [2140] horft til vesturs. Veggjarbútur [1774] sést í vinstra horni.*

Hópur 1774

Veggjarbútur sem hefur verið byggður ofan á náttúruleg jarðlög. Skorið hefur verið af honum á alla vegu (m.a. til austurs af [2162]) og því einungis smá stúfur sem stendur eftir *(Sjá mynd 15)*.

Hópur 2138

Torfveggur byggður ofan á fyllingu holu [2145] (*Sjá hóp 2234*). Hann tengdist öðrum torfvegg [1982] sem liggur þvert á hann, eða í N-S. Veggurinn var skorinn að vestan af prufuskurði frá 1907 (Bruun).

Mynd 17: *Veggur [2138] horft til suðurs. Mælistikan sýnir tvo metra.*

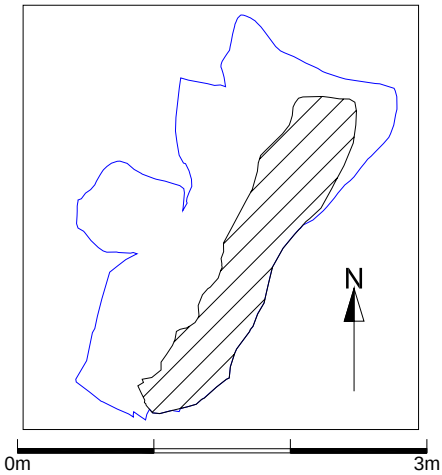
Hópur 2234

Hola [2145] (*Sjá mynd 15*) sem hefur verið grafin í gegnum mannvistarlög og niður í náttúruleg jarðlög. Til norðurs hefur hún skorið torfvegg [2158]. Í holunni voru þrjú fyllingarlög sem reyndust vera ýmist hrun úr [2158] eða torf- og móöskuleifar sem hefur verið fleygt ofan í hann. Holan hefur því sennilega verið notuð til geymslu.

Mynd 18: Holan [2234], horft til suðurs. Mælistikan er tveir metrar

Hópur 2141

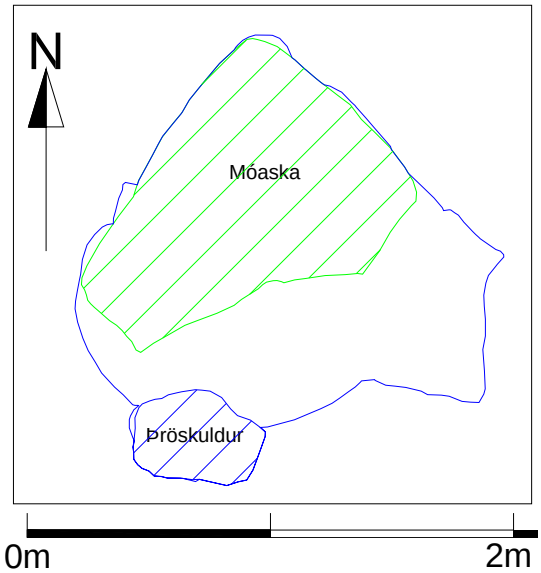
Austanmegin við [2140] *(sjá mynd 15)* var torfveggur sem hefur verið byggður ofan á gólflög í notkunarskeiði sem ekki var lokið við 2005. Hann var hlaðinn úr torfhnausum og sneri framhlið hans í austurs inn í herbergi [1054]. Veggurinn hefur verið endurbættur nokkrum sinnum og byggt ofan á hann.



Mynd 19: *Torfhrun og veggur, horft til norðurs.*

Hópur 2378

Niðurgrafið herbergi (*Sjá mynd 15*) þar sem hlutar af tveimur veggjum voru enn til staðar. Grafið hefur verið niður í náttúruleg jarðlög fyrir herberginu. Í því var að finna gólflög, eldstæði og þröskuld [2302] sem sneri til suðurs. Þessi hópur var a.m.k. annað notkunarskeið þessa herbergis þar sem [2381] liggur undir þessum gólflögum. Eldstæðin einskorðuðust við vesturhluta herbergisins.



Mynd 20: *Hópur [2378] horft til norðurs.*

Hópur 2381

Herbergi *(Sjá mynd 15*) en lítill hluti þess hefur varðveist. Í því var gólflag og þrjú eldstæði sem mynduðu fyrra notkunarskeiðið í þessu herbergi. Auk þess var í því ein stoðarhola. Fleiri gólflög eru í herberginu en þau tilheyra stærri hópi og voru því ekki grafin að sinni. Þau ná lengra til austurs og eru skorin til norðurs. Tvær hliðar eru eftir sem tilheyra þessu herbergi; veggur [1774] að sunnan og að vestan þar sem grafið var niður fyrir herberginu.

Mynd 21: *Hópur [2381], horft til vesturs. Mælistikan er tveir metrar*

Hópur 1880

Þetta herbergi er á nýopnuðu vestursvæði (*Sjá yfirlitsmynd*) og hefur verið grafið fyrir því í gegnum eldri mannvistarlög. Tveir skurðir tilheyra þessu herbergi; [1805] en innan hans voru tvö lítil eldstæði og gólflög þeim tengd og [1802] sem sker fyllingar [1805]. Þetta herbergi hefur verið notað í stuttan tíma en síðan hefur dældin verið fyllt af móösku og torfleifum.

Mynd 22: *Jarðhýsi [1880] horft til austurs.*

Hópur 2403

Torfveggur sem gengur inn í suður- og vestur uppgraftarmörk. Það sem af honum sést er um 4,4 m á lengd frá vestri til austurs og 0,9 m á breidd. Veggurinn var byggður ofan á fok- og hrunlög úr eldri vegg [2183]. Engin gólflög eða önnur merki um umsvif voru honum tengd.

Mynd 23: *Torfveggur [1900] í suðvestur horni, horft til austurs.*

Hópur 2397

Þetta er herbergi sem hefur verið grafið niður á þær þrjár hliðar sem sjást, en uppgraftarmörkin afmarka það til suðurs. Grafið hefur verið í gegnum eldri mannvistarleifar og niður í náttúruleg jarðlög. Eldstæði voru í herberginu: [2404], [2406] og stoðarhola [2405]. Geymsluhola [2326] er vestanmegin í herberginu. Torfveggur [2183] tilheyrir einnig þessu herbergi en hann hefur verið hlaðinn á barma herbergisskurðarins. Eftir jarðhýsið fór úr notkun hefur miklu magni af móösku og jarðvegi verið fleygt í það.

Mynd 24: *Jarðhýsi [2397] þegar móöskulög höfðu verið fjarlægð. Horft til suðurs.*

Mynd 25: *Við lok uppgraftartímabils 2005. Mælistika er 2 metrar og það er horft í norð-vestur.*

Hópur [2396]

Nýtt herbergi *(Sjá yfirlitsmynd)* sem hefur verið grafið niður í gegnum eldri mannvistarlög á þrjá vegu; til vesturs, norðurs og suðurs, en að austan er torfveggur sem afmarkar rýmið þeim megin og inngangur. Sennilegt er að það sé samtíða herbergi [1721] sem var kannað 2004 og eigi því heima í hópi [1762], en sá hópur var skorinn af seinni tíma umsvifum fyrir [1079] rétt eins og þetta herbergi. Herbergið hefur verið fyllt af móösku og torfblönduðum jarðvegi eftir að notkun var hætt. Komið var niður á gólflag [2408] og eitt eldstæði [2407] en þau voru ekki grafin að sinni.

Mynd 26, tv.: *Herbergi [2396] horft í vestur.*

Mynd 27, t.h.: *Eldstæði [2407] og gólflag [2408], horft í norður.*

Hópur [2410]

Torfveggur sem hefur verið byggður ofan á gólflögum [2409]. Hann var hlaðinn úr streng milli veggjanna [2138] og [2318] til að afmarka nýtt herbergi [1079] til suðurs og hefur þannig nýst sem hluti af vesturhlið þess.

Mynd 28: *Veggur [2409], séð til vesturs.*

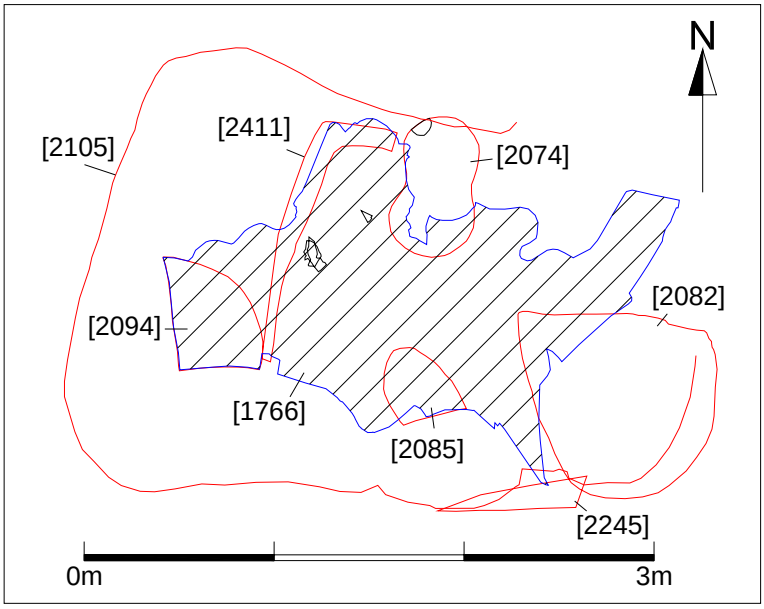
Hópur 2409

Nokkur notkunarskeið með mörgum eldstæðum auk stoðar- og pinnahola. Þau er samtíða herbergi [2396] en skorið hefur verið af þeim að norðanverðu þegar torfveggur [2410] var byggður. Gólflögin eru örþunn og þau hafa sum verið skorin af holum [1189], [1154] og [1133] auk stoðarholanna. *(Sjá [2396] á yfirlitsmynd)*

Mynd 29 t.v.: *Stoða- og pinnaholur í [2409]*
Mynd 30, t.h.: *Tekin voru sýni fyrir örformgerðarrannsóknir úr gólflögunum.*

Hópur [1766]

Gólflög í herbergi [1765] sem byrjað var að rannsaka 2004. Í ár bættust nokkur notkunarskeið við hópinn með gríðarmörgum þunnum móöskublönduðum gólflögum og nokkrar stoðarholur og aðrar holur sem höfðu verið stækkaðar eða endurgrafnar á meðan á notkun herbergisins stóð. Þegar öll jarðlög sem tilheyrðu þessum hópi höfðu verið fjarlægð var komið niður á annað herbergi. Einungis smáræmu af þessu nýja herbergi var að sjá upp við uppgraftarmörkin til suðurs en búið var að fjarlægja ýmis fok- og hrunlög í því herbergi þegar uppgraftartímabili lauk.



Mynd 31: *Herbergi [1765]*

Hópur [2382]

Torfveggur sem liggur vestur-austur við uppgraftarmörk að sunnan. Vestasti hluti hans nær upp að herbergi [1765] og hefur sennilega verið skorinn við byggingu þess. Veggurinn hefur verið lagfærður nokkrum sinnum og notaður fyrir a.m.k. tvö herbergi. Norðan megin hefur hann markað suðurhlið herbergis [1054] en eldra herbergi [2314] kom í ljós í ár sem hefur einnig notast við vegginn (*Sjá mynd 29*).

Hópur [2413]

Nýtt herbergi sem hefur verið skorið af [1054] að norðan en lítinn hluta af því herbergi má sjá við vegg [2382]. Lögin sem tilheyrðu þessu nýja herbergi voru gólflög, með greinilegum eldstæðum og steinum sem hafa verið settir í gólf til að halda varningi eða öðru sem ekki mátti blotna frá rakri jörðinni. Þetta herbergi hefur verið þrengra en [1054] en óvíst er hversu langt það hefur náð til norðurs.

Mynd 32: *Herbergi [2413] horft til suðurs. Einungis örlítil skák hefur varðveist af herberginu, en sjá má torfvegginn fyrir aftan steinalögin. Sjá yfirlitsmynd fyrir staðsetningu herbergisins á uppgraftarsvæði.*

Samantekt

Á þessu sumri lauk rannsókn á þeim herbergjum sem byrjað var að kanna 2003. Í ljós komu ný herbergi bæði undir þeim yngri og til hliðar við þau. Öll eru þessi herbergi sundurgrafin og greinilegt er að sömu byggingarnar eru notaðar ítrekað og sömu byggingarefni og tækni notuð. Endurbætur hafa átt sér stað þar sem herbergin hafa verið lengd, breikkuð eða stytt, allt eftir þörfum hvers tíma. Byggingarnar hafa verið að færast austar á svæðinu í gegnum tíðina sem er í samræmi við það sem áður hefur verið talið um þróun staðarins. Það sem kannski mætti segja að væri markverðast á þessu sumri var á nýju svæði til vesturs en hingað til var talið að þar væri gangvegur í gegnum svæðið. Svo reyndist hinsvegar ekki vera miðað við niðurstöður sumarsins en þar komu í ljós tvö jarðhýsi og torfveggir. Í öðru jarðhýsinu [2397] var gríðarlegt magn fiskibeina sem mun án efa auka við þekkingu á neyslu og vinnslu sjávarafurða á Gásum.

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Finds summary

Guðrún Alda Gísladóttir – with ceramic discussion by Natascha Mehler

The excavation season of 2005 at Gásir recovered a total of 156 objects, recorded under 124 finds units (see finds register). All finds were cleaned, dried, repacked and registered in the excavation database. Conservation work will be carried out by the National Museum.

If it was not possible to identify the object type the form of the artefact determines the type, for example: plate, pin, object etc.

Find categories, sorted by material:

Material	**Sum**	**%**	**Find categories**
Bone, worked	3	2	Worked bone.
Ceramic	11	7	Vessels
Composite	1	1	Mount
Copper alloy	8	5	Coin? (1), fitting (1), fragment (1), nail (1), rivet/rove (2), sheet (1)
Hair	1	1	Cord
Iron	32	21	Fish hook (1), knife (1), lump (2), nail (11), object (11), pin (3), rivet/rove (3)
Slag	30	19	1,8 kg of slag
Leather	4	3	Offcut (2), shoe/shoe? (2)
Stone	40	25	Baking plate (11), fish hammer (1), fragment (6), pebble (10), whetstone (7), indeterminate (5)
Sulphur	9	6	0,44 kg.
Wood	13	8	Worked wood
Textile	2	1	Woven cloths
Shell	2	1	
Total	**122**	**100**	

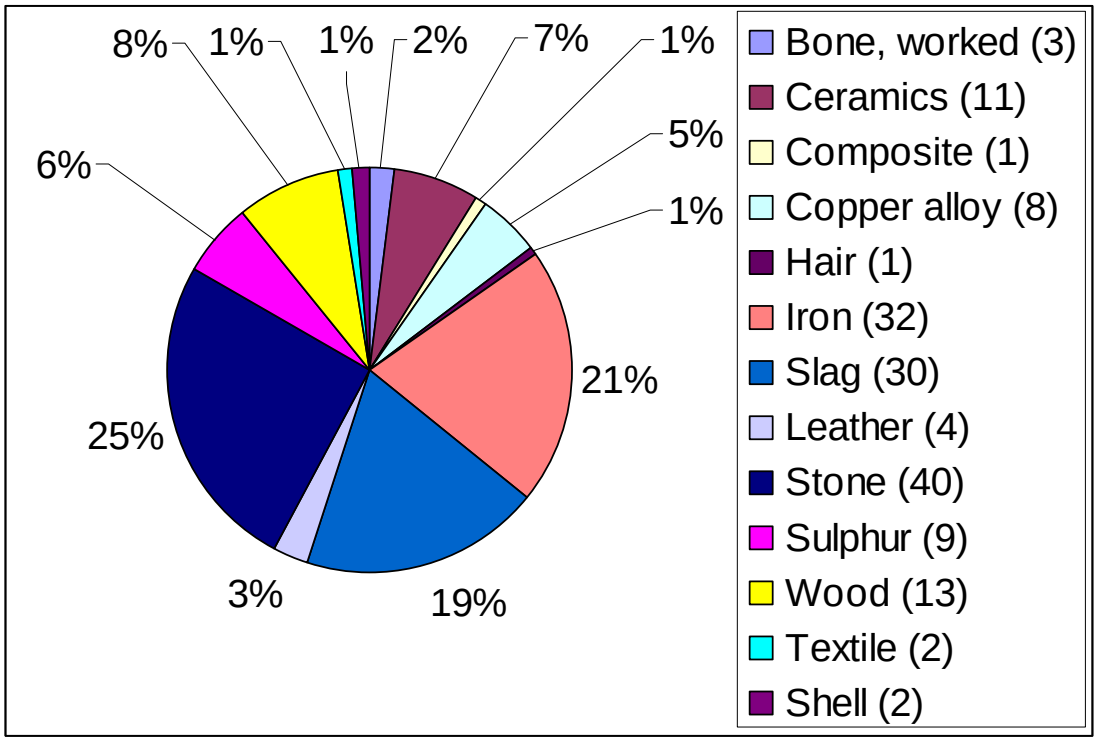

Fig. 1: Percentage by material group.

ORGANIC MATERIAL

As in previous years a good quantity of organic material was retrieved at Gásir. The preservation of organic material is very good at the site. The organic material categories from this years excavation are: Bone, hair, leather, textile and wood.

There are three pieces of Worked animal bone. Find *(05-052)* is a block of whalebone with butchery marks upon it, and find *(05-064)* is a small cut fragment of burnt bone. Find (*05-091*) has cross shaped scraping marks.
A cord of twisted animal hair was found, but has not been worked further: The hair type is not coarse enough to be horsehair but could possibly be cows' tail hair? The cord is in total ca. 360 mm long, but is now in two similar long pieces. The hair awaits further identification (find no. *05-088*).
Four leather fragments were retrieved. Two are most likely parts of medieval shoes, and characteristic stitching along the edge may be seen on find no. (*05-086*). All the leather fragments are most probably imported leather for shoemaking. In 2004 two well preserved shoes were found in Gásir, finds nos. (*04-011*) and (*04-012*).
Two woven pieces of woollen cloth (*05-014*) and (*05-085*) are likely to be of local manufacture.
A number of wooden objects come from finds rich context (1978). These are mostly fragments of small boards or planks, but from other contexts there are more carefully worked pieces like (*05-085)* and a small oval sectioned stick, grooved near one end (*05-082*), function undetermined.

METAL

The metal objects are typically very corroded and many are misshapen - due to salty conditions at Gásir.

Fig. 1. Composite find of wood and copper no. 05-023

Eight copper alloy objects were retrieved. Nails, rivets, roves and fittings are amongst the assemblage but also a probable coin (*05-016*), although this object awaits conservation and x-ray. Interesting also is sheet (*05-054*). It comprises a few thin sheets fastened together by copper nails and is likely to be from the repair of a cauldron. A mount piece (*05-023*) fastened to a wood fragment with copper nails, may have been a part of larger object, the function of which is yet unknown.

The iron assemblage is the largest material group, 31%. The majority of the iron finds are nails, rivets (boat nails) and pins (most likely nail shanks). Many of the iron finds need conservation and x-ray before further discussion. These are iron lumps and finds with some specific shape but are too deformed to make a note of what their type or function could have been. One rather large knife (*05-022*) was retrieved and one small fish hook (*05-031*), most likely with a flattened head but the point is missing. In total 1.8 kg of slag/clinker was found (24 finds numbers). These are likely to indicate some degree of ironworking at the site.

STONE

The stones found at the site are of both foreign and local origins and for diverse uses. The local porous basalt was used for making a fish hammer (*05-059*), but other finds are made of imported stone. The schist material is the largest group in the stone assemblage. There are 11 fragments of baking plates, under ten finds nos.: (*05-003, -005, -011, -012, -020, -027, -028, -033, -049, and -061*). Baking plates have been a common find at Gásir in previous years and evidence cooking/baking activity at the site. Most of the fragments found at Gásir indicate circular or sub-rectangular shaped plates with rounded corners. All have the distinguishing grooves scored into the plate for even distribution of heat at the heating surface.[2] Baking plates are not known in Viking age contexts in Iceland but are a common find in medieval assemblages. The baking plates are made of a schist variety that is usually considered to be an import from Norway. The earliest baking stone finds from Norway are from excavations in Gamlebyen in Oslo, and were found in

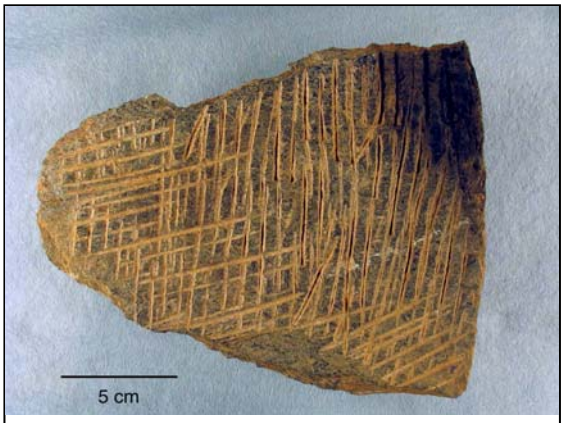

Fig 2. Baking plate no 05-012

[2] Batey, Colleen. „Gásir 2003. Preliminary Finds Assessment.“, 52.

mid 11th century contexts.[3] At the Biggings site in Papa Stour in Shetland the baking plates start to appear in 12th century contexts.[4] Seven schist whetstones (*05-010, -021, -055, 060, -069, 269*), are also probably of Norwegian origin. Present also are several schist flakes and fragments with frequent micaceous inclusions, finds (*05-067, -068, -070, -071*). These are unlike the whetstones or baking plates, and their function is undetermined at this stage. Another large finds group is small white rounded pebbles - manuports at the site.

SULPHUR

As in previous years some sulphur was recovered. The quantity is less than in some previous years - only 44 g. As discussed in previous preliminary reports from Gásir, the presence of slag and sulphur both suggest industrial activity at the site on a considerable scale.

CERAMICS – Natacha Mehler.

Eleven ceramic fragments were found. There are seven pieces of earthenware and four pieces of stoneware. All are of medieval date, 13th – to early 15th century.

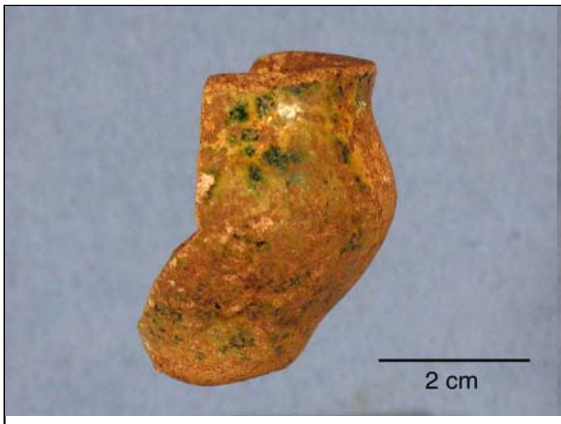

Fig 3. . Miniature vessel no. 05-002.

Fig. 4. Siegburg stoneware joined 05-001 and 004.

Earthenware:

Find no. *05-002* is part of miniature vessel, light red/buff fabric with a greenish yellowish lead glaze on the outside. The vessel is bellied with an upright rim which is slightly everted; and the base is very small and pointy. From South Scandinavia, Northern Germany or Netherlands. This find is unique in Iceland and will require further attention.

Fragments *05-013* and *05-029* are probably from one jug. They are both base sherds and one – *029* – has a thumbed base and is partly green glazed on the outside. The vessel is oxidised (light red) on the outside and reduced (grey coloured) on the inside. Origin probably Eastern England, 13th – 14th century.

Finds nos. *05-008*, *-009* and *-050*, are three small wall fragments of red earthenware. *008* and *009* are possibly from the same vessel and they have green glaze on the

[3] Weber, Birthe. „Bakestones.“, 138.
[4] Weber, Birthe. „Bakestones.“, 137.

outside. The vessel form can not be distinguished because of the size of the fragments. Northern European 13th – 14th century.
No. *05-050* is similar, with a reddish glaze on the outside. Find no. *05-051* is a rim of a jug or a jar. It is of a red fabric with no glaze, from Northern Europe. There are seven fragments of earthenware from a minimum of five vessels.

Stoneware: Neck and part of shoulder fragment *05-004* and handle fragment *05-002* are joining parts of the same jar or jug from Siegburg. The jar fragments are not glazed, and are of older Siegburg type dating to late 13th -14th century. Fragment *05-018* is a Siegburg wall fragment from a jug or a jar, possibly the same as *05-004* and *05-001,* and is of the same date. *05-025* is a handle fragment and upright rim of Lower Saxony stoneware, with a dark grey fabric and purple slip – from a small jar or jug, dated to the 14th century. The four stoneware fragments are from a minimum of three vessels.

DISCUSSION

Much of the material needs further specialist analysis, for example find no (*05-16*), a probable coin – the first from Gásir. Each context has produced only a very few finds, with the exception of find rich dump layer [1978]. From that single context there are seventeen finds of various materials (see finds nos. *05-012, -013, -018, -020, -037, -049, -064, -083, -084* and *-089*). Peat ash context [2076] is also rich in term of finds (see finds nos. *05-025, -045, -046, -068, and -085).*
The whole find assemblage reflects a trading site in Iceland and the material is of both local and foreign origins. As in previous years the pottery assemblage is relatively rich for this period in Iceland, and adds a lot of information to this finds group in an Icelandic context. Most of the pottery is German or English stoneware, dated from the 13th to 14th (or possibly early 15th) century. Most of the stone material is likely to be of Norwegian origin. The finds are not many but this also gives an idea about the site and its function. They indicate what was brought to a seasonal trading site like Gásir. Interesting artefacts have been found in previous years excavations and the field season of 2005 is no exception.

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Interim Report of faunal analysis from the 2005 Excavations at Gásir, Eyjafjörður, N Iceland

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Summary

Archaeological excavations at the site of Gásir near the modern city of Akureyri were started in 2002 and directed by Howell Roberts of *Fornleifastofnun Íslan*ds (Archaeological Institute Iceland, FSÍ) for *Minjasafnið á Akureyri* (Akureyri Museum). The ongoing project has produced a substantial amount of animal bones, which have been continuously analyzed at the CUNY Northern Science & Education Center laboratories as part of the North Atlantic Biocultural Organization cooperative effort, with funding provided by the UK Leverhulme Trust. Analysis of the 2005 zooarchaeological remains was carried out by Ramona Harrison. The 2005 excavations were part of a larger scale, long term project which aims to investigate the remains of the early trading center at Gásir, and to place the site in a regional and historical context. Excavation work at Gásir is to be continued and this report is thus only a working paper to be updated and replaced as more material becomes available for study. The 2005 archaeofauna continues patterns in mammal bone distribution observed in previous years, and the addition of a context bearing large amounts of marine fish bone allows an expansion of our understanding of provisioning and possible fishing activities at Gásir. Radiocarbon dates and associated Carbon and Nitrogen isotopic assays carried out on mammal bone and marine shell by Dr. Gordon Cook (Scottish Universities Reactor Center) provide both chronology and some indication of differential grazing patterns in stock brought to Gásir.

Zoo-archaeological data from the years 2002 through 2005 have been used for this report, offering a total NISP (Number of Identified Species) of **8,484** out of a TNF (Total Number of Fragments) of **16,292.** The species present include domestic cattle, sheep, goat, horse, and pig as well as seal, whale, bird and fish remains. The 2003 collection contained a walrus tooth (context 101), dog bones (contexts 655, 617, 684,730,756), and one gyrfalcon bone (context 756). The array of "unusual" bone has been increased with **2004**'s **gyrfalcon** femur (context 1632) and a very small and extremely curved tibia (1551) most likely belonging to a dog of **lap dog size**. Dog gnawing is visible on bones, and the 2004 excavation added 4 more dog elements (total of 7) as further evidence for the presence of the species (additional 2004 dog elements were found in contexts 1573 and 1476).

Cattle bone is very abundant, with a caprine/cattle ratio of about 1.97 (2) caprine bone for every cattle bone (vs. ca 20 caprine per cattle bone in contemporary small rural sites). The high percentage of cattle bone is similar to very high status late medieval sites in S Iceland (Viðey and Bessastaðir being most similar), with a majority of the faunal remains butchered at an age suggesting consumption of high quality "prime age" meat. The presence of pig remains should be mentioned, since by late medieval times, Icelandic pigs are in general no longer present in the faunal assemblages. In 2005, a particularly large amount of fish remains were analyzed, and as Fig. 1 demonstrates, account for more than 70 % of the total archaeofauna. While more analysis is required and likely to increase the number of identified fish species in relationship to domesticates, the analyzed fish elements are of a large enough number to indicate a certain form of gadid management.

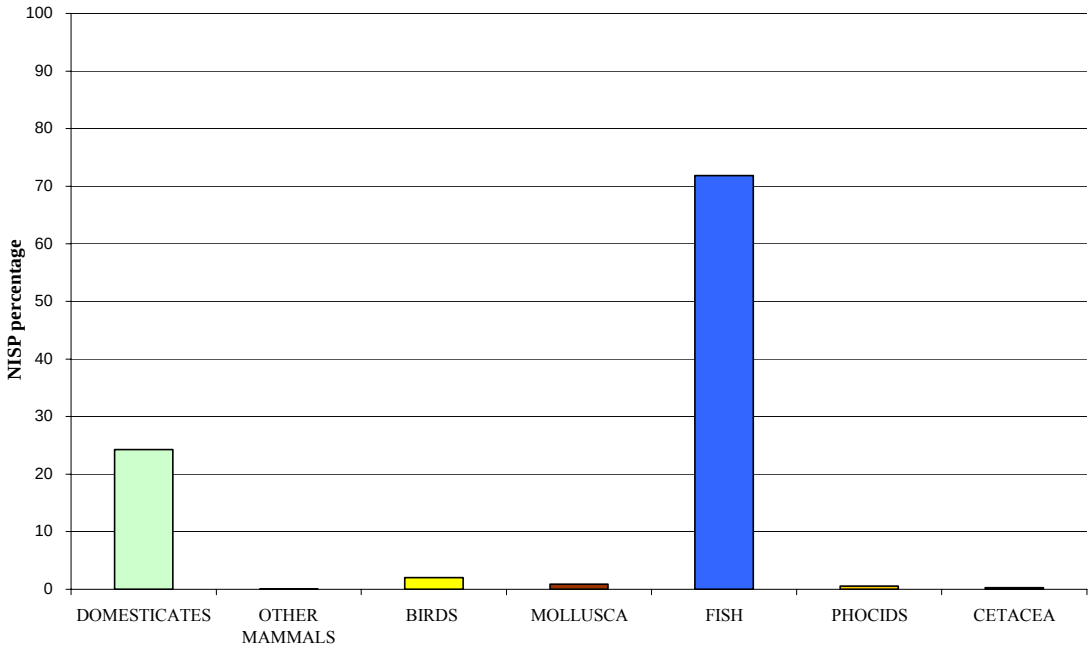
The **fish remains** analyzed in 2003 were almost completely postcranial, with hardly any thoracic vertebrae present. In 2004, the number of skull and thoracic fragments was somewhat increased, but not enough to indicate definite procurement of fresh fish at the site. The pattern of predominantly postcranial minus thoracic elements suggested that the occupants were consuming some form of preserved fish rather than whole fresh fish. Marine fishbone analysis from 2005 deposits (especially context 2076) shows a different pattern: a large proportion of cranial elements vs. axial elements, thus indicating a consumption of fresh marine fish on site. The dense fishbone deposit (2076) may be an area of preparation of freshly caught fish for preservation (Fig 14).

Salmonids, most determined to be Trout, were found in a number of contexts (1142, 1188, 1948), excavated in 2004 (Floatation results) and 2005. There is at least one river close to the trading station that is currently used for trout fishing (Gásir is located at the southern edge of the Hörgá River Delta), and the presence of these species is not a great surprise (Roberts, 2002 & (a). The Salmonids account for only .25 % of the total NISP, and consist of only vertebrae.

Butchery patterns include typical late medieval Icelandic patterns, except for a puzzling shortage of characteristic bi-perforated sheep metapodials, which may indicate the presence of non-Icelandic consumers. Further research questions center on the nature of provisioning of the site, context-specific bone associations and activity areas, bone and horn craft working, possible indicators of multiethnic

foodways, and indicators of social status system. Four large cattle horn cores from very large were found in 2005, and may indicate horn craft working (McGovern, personal communication, May 2006).

Fig 1- NISP Categories



Overview of Species Present

Table 1 presents the 2002-2005 Gásir archaeofauna as a Total Count. **NISP** (number of identified specimens) refers to all fragments that could be identified to a useful level. **TNF** is a count of all bone fragments (identifiable or not), **MTM** is "medium terrestrial mammal" (sheep-dog-pig sized), **LTM** is "large terrestrial mammal" (cattle-horse sized), **UNIM** or unidentified mammal are small fragments that cannot be identified beyond this broad category. As opposed to the 2002 and 2005 yield, dog bones are present in the 2003 and 2004 collection, coinciding with characteristic canine tooth marks that are present on a number of bone fragments in the collection.

Table 1 Gásir 2002-2004	Aggregated Fragment Count				
Taxon	2002	2003	2004	2005	total
Domestic Mammals					
Cattle (*Bos taurus dom L*)	255	296	66	61	678
Horse (*Equus cab. dom L.*)	5	5	2	1	13
Pig (*Sus scrofa dom L.*)	2	12	8	2	24
Dog (*Canis fam. L*)	present	3	4	no evid.	7
Goat (*Capra hircus dom* L)	2	9	1	1	13
Sheep (*Ovis aries dom* L)	45	166	13	14	238
Caprine	296	487	163	141	1088
total Caprine	343	662	177	156	1338
total Domestic	605	978	257	220	2061
Wild Mammals					
Harp Seal (*Pagophilus groenl.*)	0	4	1	0	5
Small seal	4	6	0	1	11
Seal species	5	2	8	16	31
total Seal	9	12	9	17	47
Small Cetacean	1	7	2	0	10
Large Cetacean	1	1	1	0	3
Whale species	0	8	4	1	13
total Whale	2	16	7	1	26
Arctic fox (*Alopex lagopus*)	0	4	0	1	5
Walrus (*Odobenus rosmarus*)	0	1	0	0	1
Birds					
Gyrfalcon (*Falco rusticolus*)	0	1	1	0	2
Mallard (*Anas platyr.*)	0	1	0	0	1
Eider duck (*Somateria moll.*)	0	26	3	3	32
Guillemot family (*Uria* sp.)	1	8	5	0	14
Puffin (*Fratercula arctica*)	0	2	3	0	5
Fulmar (*F. glacialis*)	0	0	0	0	0

Gull species (*Larus* sp.)	0	1	0	3	4
Razorbill *(Alca torda*)	0	2	1	2	5
Swan (*Cygnus olor*)	0	1	0	0	1
Bird species indeterminate	23	41	7	36	107
total Bird species	24	83	20	44	171
Fish					
Cod (*Gadus morhua*)	9	2	75	341	427
Haddock (*Melanogr. aeglef.*)	10	30	36	138	214
Pollack *(Pollachius virens*)	0	2	0	9	11
Atl. Halibut (*Hippoglossus. hipp*)	0	3	0	0	3
Gadid sp	14	8	250	792	1064
Trout (*Salmo trutta*)	0	0	3	16	19
Pleuronectiformes	0	0	0	1	1
Salmonid species	0	0	2	0	2
total Fish species identified	33	45	366	1297	1741
Fish species indeterminate	278	1010	804	2262	4354
Total Fish species	311	1055	1170	3559	6095
Mollusca					
Periwinkle (*Litt*. l.)	0	1	1	0	2
Clam (*Mya* sp.)	0	36	3	0	39
Moll. Species	0	0	28	9	37
total Moll. Species	0	37	32	9	78
total NISP	951	2186	1495	3852	8484
Large Terrestr. Mammal	188	354	108	82	732
Medium Terrestr. Mammal	493	592	353	282	1720
Small Terrestr. Mammal	0	8	4	1	13
Unidentified Mammal Frag.	580	185	2199	2379	5343
total TNF	2212	3325	4159	6596	16292

Domestic Mammals

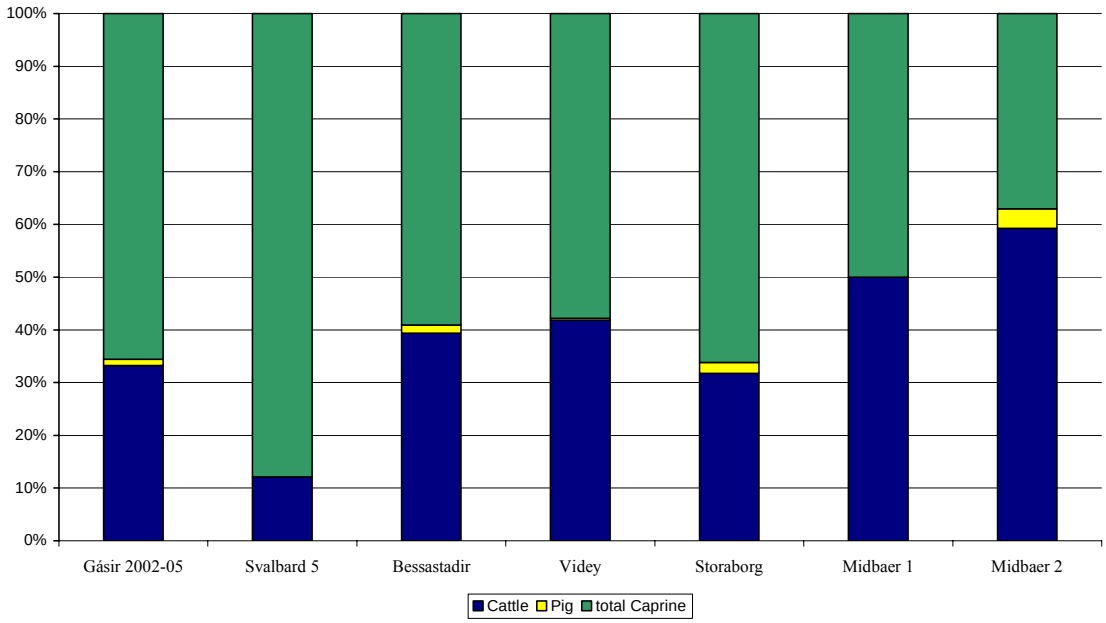
Table 2 presents the relative Percentage of the domestic mammals for 2002-2005 contexts. There is an overall decrease in cattle bone vs. caprine bone. The total ratio emerging from four years of excavation: caprine/cattle = 1.97 (1.82 in 2003) which can be reasonably rounded to a ca. 2:1 ratio of caprine to cattle. The latest sheep/goat ratio is now 18.31, consistently indicating that goats were a minor portion of the collective caprine category.

Table 2 Gásir 2002 - 2005 Relative %

Taxon	2002	2003	2004	2005	2002-2005
Bos taurus	42,15	30,27	25,68	32,91	32,91
Equus caballus	0,83	0,51	0,78	0,63	0,63
Canis familiaris	0,00	0,31	1,56	0,34	0,34
Sus scrofa	0,33	1,23	3,11	1,17	1,17
Ovis aries	7,44	16,97	5,06	11,55	11,55
Capra hircus	0,33	0,92	0,39	0,63	0,63
Ovis/Capra sp.	48,93	49,80	63,42	52,77	52,77

The high ratio of cattle to caprines (1:2) can be compared to other late medieval (14th – early 16th Century (Icelandic archaeofauna (Figure 3).

Fig. 3 - Late Medieval Iceland Major Domesticates (%)



In figure 3, Gásir is compared to roughly contemporary collections from Svalbarð in the NE (SVB5, medium-high status farm with church), the elite manor at Bessastaðir

(BES L) near Reykjavik, the monastery on Víðey in Reykjavík (VID LM), a middle ranking S coastal farm Storaborg (STB E) and two phases of a midden deposit associated with the small farm Miðbaer on the island of Flatey in Breidafjorð in the NW (Amundsen in press). The high cattle percentages for this small farm on Flatey are somewhat deceptive, as they reflect the extremely limited pasturage available on the island and a clear decision to use most available pasture for cattle raising (thus the graph actually reflects fewer sheep rather than more cattle). In general, higher percentages of cattle on most late medieval sites reflect availability of high quality pasture, high social status, or both. The closest matches with the Gásir domestic mammal pattern are in fact with the very high status manor of Bessastaðir in the SW, and the middle ranking S coastal farm Storaborg (STB E).

Figure 4 - Late Medieval Major Taxa NISP (%)

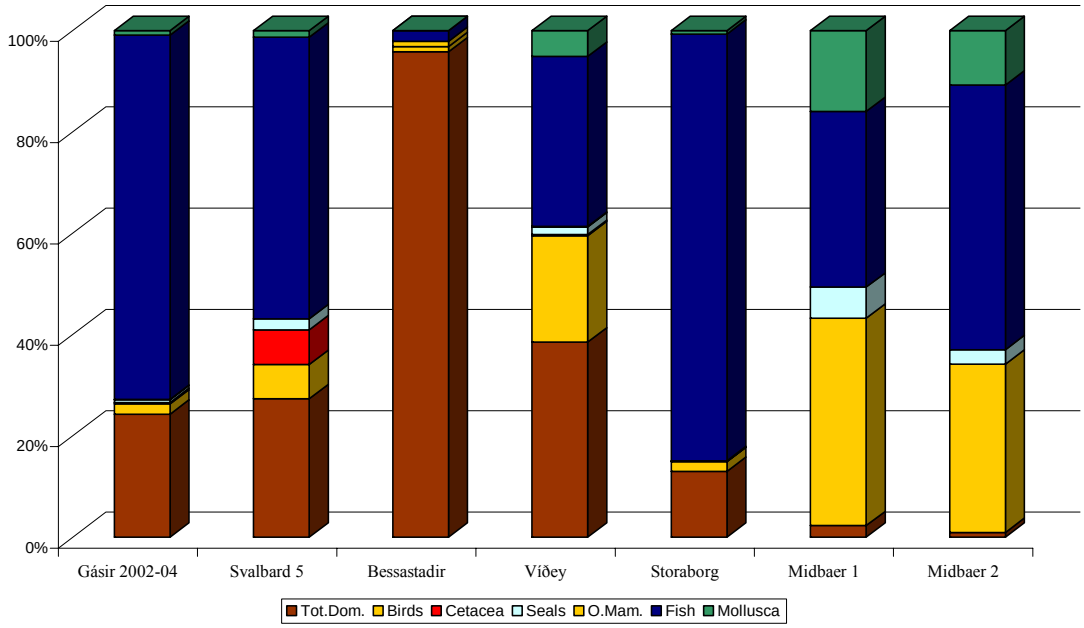


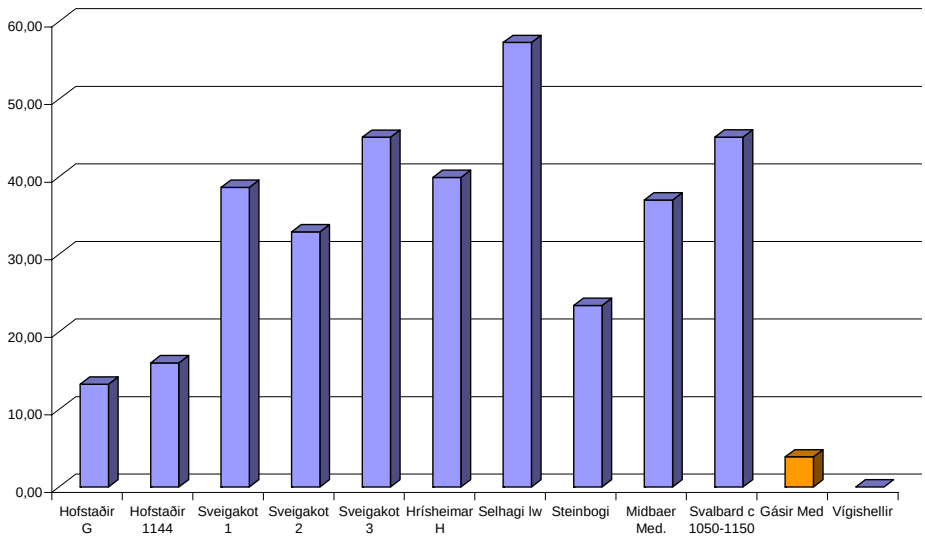
Figure 4 makes use of the same comparative archaeofauna to present the larger picture of the whole collection, regionally comparing wild species and domesticates. From the complete NISP collection, it seems that the middle ranking S coastal farm Storaborg (STB E) offers the most resemblance in total distribution of faunal remains recovered. The total archaeofauna in 2004 was more likened to the monastery on Víðey in Reykjavík (VID LM), which in 2005 still shows similarities, but not to the same extent as STB E.

Reconstructing Domesticate Mortality Patterns

Cattle

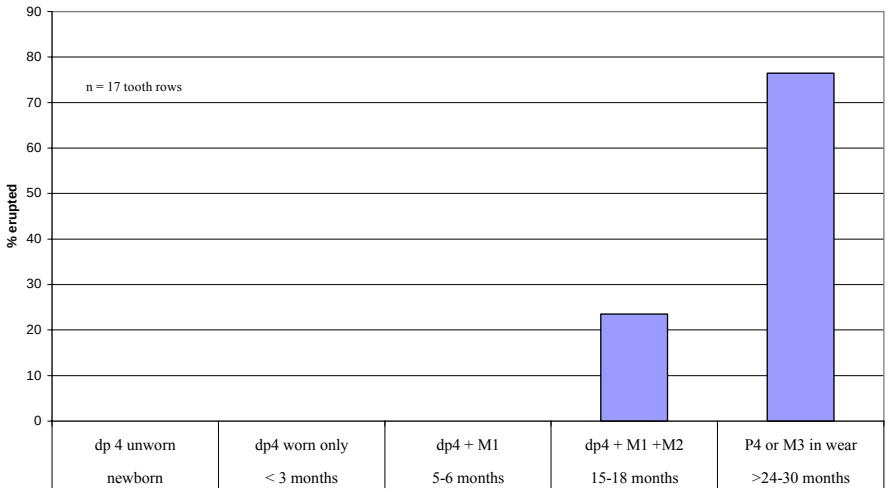
Figure 5 illustrates the relative percentage of neonatal (newborn) calf bones in a range of Viking-Medieval Icelandic sites, illustrating the normal range of variation from ca 15-50% of the total cattle bone count. This is generally interpreted as evidence of dairy herd management, with most milk being reserved for humans (Halstead 1998). The very low percentage of neonatal cattle bones at Gásir is thus very uncharacteristic of most Icelandic cattle collections, suggesting a different pattern of management or consumption.

Figure 5 - Medieval Iceland - NN comparison (%)



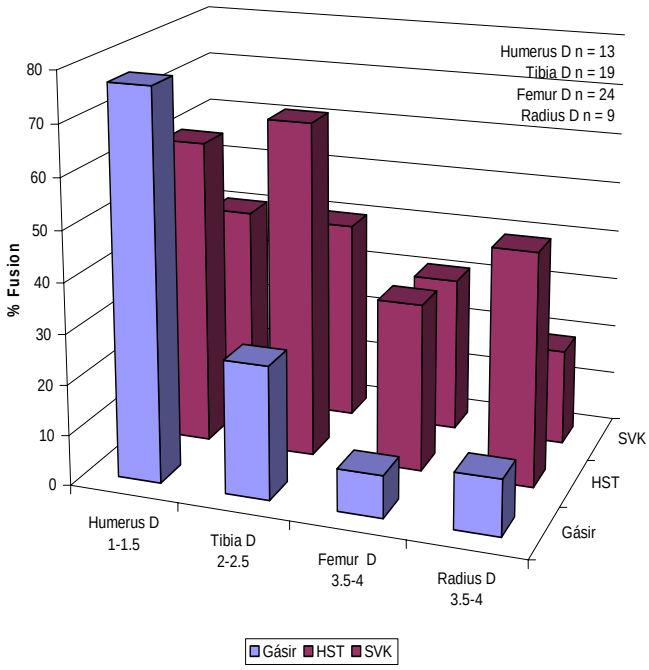
The Gásir excavation has produced a total of 17 cattle tooth rows that offer some insight into the site's food provisioning strategy. As can be seen in Figure 6, in the majority of the excavated cattle tooth remains, the animals' death occurred either in the second year of life or as an adult. The shortage of jaws of usually common newborn or less than 3 month old calves is notable, and supports the impression provided by the overall low percentage of neonatal or very young juvenile cattle bones. If these old juvenile or young adult cattle are males, they have been raised at considerable expense in fodder (esp. winter feeding). If they are females, they also have lived long enough to consume much fodder, but are only beginning their potential service as dairy cattle. In either case, in the context of a diary herd, these are very expensive animals to raise and slaughter at this stage in their lives.

Fig 6. Gásir Cattle Tooth eruption (%)



The cattle long bone fusion proportions (figure 7) indicates that at late medieval Gásir, most of the young cattle survived the stage of distal epiphysis fusion of the humerus, which occurs at around 1-1.5 years of age. There would appear to be considerable cattle mortality between 1-1.5 years and 2.5-3 yrs at Gásir, again suggesting kill off of large but not fully mature juvenile cattle as well as the presence of adults (note the different fall-off of survivorship at Hofstaðir and Sveigakot).

Figure 7 - Cattle Long Bone Fusion comparison

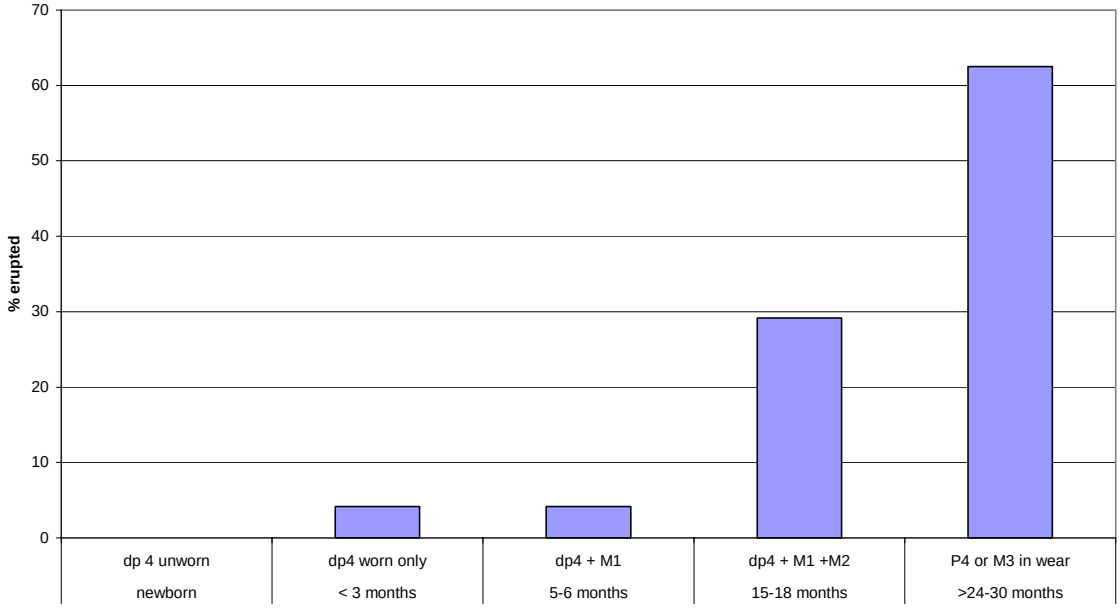


These mortality patterns indicate not only that Gásir was not itself a dairy farm, but that it was not being provisioned with the most readily available surplus age classes generated by a normal Icelandic dairying economy: very young calves and elderly worn out milk cows. The Gásir cattle bone collection indicates that the site was instead provisioned with high quality young adult cattle meat by nearby farms. Since the farms were not sending their cast-offs to Gásir, but instead made major adjustments to their cattle herding strategy necessary to raise surplus animals to adult or near adult meat weight, it seems likely that the market at Gásir had a significant impact on agricultural practice in the surrounding district. The nature of this impact and the linkage of Gásir with its sustaining rural hinterland are potential research questions for wider investigation.

Caprines

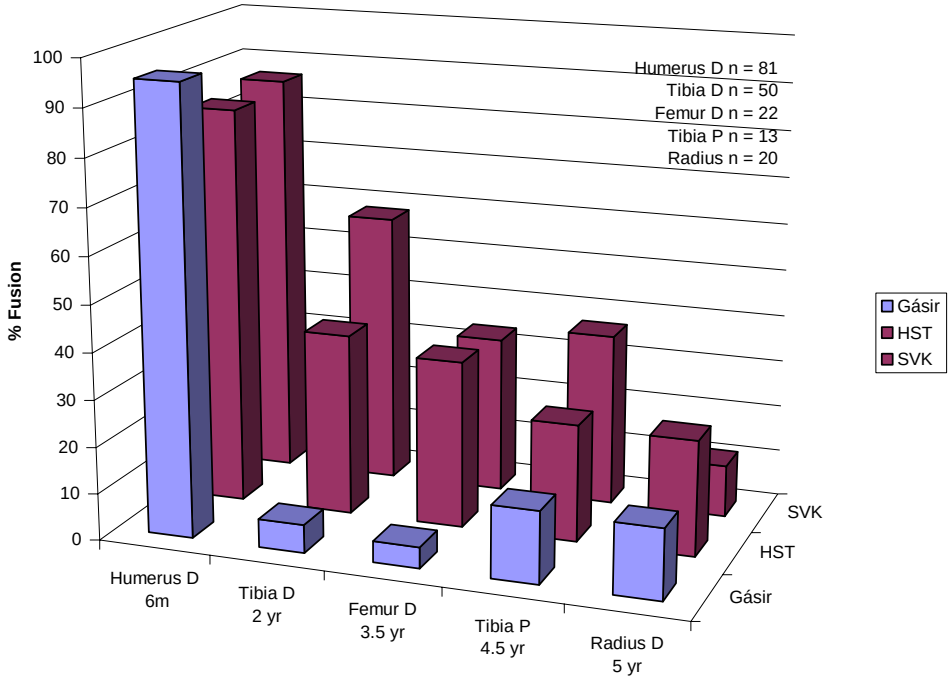
Figure 8 shows the pattern of tooth eruption in the caprine tooth rows (mandible and maxilla) from the Gásir excavation. Almost 60 % of the caprines were killed at an age of > 34 months, with full adult dentition in wear. Wear rates on caprine third molars suggest that few of these adult sheep were in fact old adults. The current tooth eruption and wear data for the Gásir caprines suggests provisioning with animals ranging from older adolescents to younger adults. Mandibular wear patterns thus far indicate the presence of substantial numbers of young to middle aged adults, without the higher proportion of highly worn teeth characteristic of old ewes or wethers (probably maintained primarily for wool production) characteristic of most larger Icelandic sheep mandible collections. Further analysis of caprine tooth eruption and wear will be carried out as sample size increases. Currently, there are 24 maxillae/mandibles available for study.

Fig. 8 - Gásir Caprine Tooth Eruption



The caprine (sheep/goat) long bone fusion comparison (figure 9) shows that the majority of caprines at Gásir were killed between 4.5 and 5 years of age, placing them into a fully adult stage. In comparison, caprines at HST (Hofstaðir) and SVK (Sveigakot) saw a slightly different mortality pattern, with higher culling in the first year and a generally higher proportion of older adults. Tooth eruption and wear and long bone fusion patterns suggest that most animals died as younger adults or mature adults. Gásir was not being provisioned with worn out milking ewes or tough old wethers, but with sheep in their prime. Again, the implications for animal production strategies in nearby farms suggest some sort of specialized production.

Figure 9 - Caprine Long Bone Fusion Comparison



Pigs

A considerable number of pig remains are present in the 2002-05 faunal collection. This is very atypical of late medieval Icelandic sites. By the 14th Century, the pigs had either disappeared from the Icelandic landscape or become very rare. Some of the bone fragments present could have formed portions of smoked or salted pork shoulder or hams, but some cranial fragments suggest that live pigs (native or imported) were present at Gásir. A collaborative pig DNA project now underway with the University Museum, U. of Pennsylvania Ancient Biomolecules laboratory, comparing ancient DNA from pigs across the N. Atlantic may help determine the origins of the Gásir medieval pigs.

Dogs

As already mentioned in the summary, there are a total of 7 dog elements present in the Gásir faunal remains. Context 1551 offered a canine tibia most likely belonging to an individual of **lap dog size**. Size reconstruction according to van den Dreisch (GL * a factor of 2.92) the dog's shoulder height should be at around 262.8 mm or 26.3 cm. The presence of this very small dog at Gásir is subject to further investigation, but such small "lap" dogs were status items in high medieval Europe and have been found elsewhere in late medieval Icelandic archaeofauna (Pálsdóttir, 2005). The Gásir 2005

archaeofauna has not yielded any canine elements or canine-chewed elements. One reason could be that the excavated areas were not accessed by dogs.

Fig.10 Lap dog size Tibia found in 2004

Wild Species

Walrus

Fig. 11 Walrus tusk fragment

The walrus canine (tusk) fragment found in context 101 was most likely brought onto the site as an extracted but unworked tusk, as there is no evidence of butchered walrus post cranial remains or of the characteristic maxillary fragments remaining from tusk extraction so prevalent in Greenlandic collections (McGovern 1985). After the tusk was expertly extracted from the animal's jaw at some distant kill site (Greenland, arctic Norway, or just possibly on the drift ice north of Iceland) the tusk was brought to Gásir and the hollow end of the tusk root was cut off with a saw (probably a typical medieval shallow bladed backed bone working saw, as the cuts come from at least two sides rather than straight across). The solid tusk ivory was then either transferred elsewhere whole or further cut up for on site craft working. The tusk came from a medium sized adult walrus.

Whales

Whale bone fragments at Gásir fall into two somewhat overlapping categories- those showing signs of working as raw material for artifacts, and those suggesting provisioning with whale meat. Most fragments are the sort of small chips and cut offs indicative of craft work, but several rib fragments from small whales (pilot whale, narwhal, beluga) or porpoise are also interpretable as food debris (contexts 101, 223, 528, 547, 577, 1694, 1284, 1856). Three of these rib bones come from immature individuals (two from context 101, one from context 571). Other whale species elements consist largely of vertebrae. The large cetacean vertebra found in context 1714 represents potential use as a butchery block, as it shows multiple chopping marks on its surface (fig 12). Late medieval cook books include many receipts for young porpoise to be served as high-status dishes, but porpoise and small whales have been consumed in most parts of the N Atlantic since prehistory.

Fig.12. Large whale vertebra – context 1714
possibly used as butchery block

Seals

Seal bones found at Gásir include both adults and newborn young (context 282). Five of the six bones that could be identified to species level (contexts 617, 684, 730, 756, 1622 - mandible) came not from the local harbor seals (*P vitulina*) still plentiful in Eyjafjord but from the ice-riding harp seal (*Pag. groenl.*). Harp seals are common in Icelandic waters only during periods of heavy drift ice, and have been associated with “little ice age” conditions in the NE (Amorosi 1992, Woollett 2004, Oglivie 1991). While widely consumed in most coastal communities in the N Atlantic, by late medieval times seal meat was usually distained in court cook books as “fit only for

sailors". It is possible that the distribution of seal bones at Gásir may provide some hints at class and ethnicity. The one other element analyzed was part of the auditory system (Petrous Bulla) of an indigenous Harbor seal (context 2187). Various young seal elements were found in context 1948, while 1978 contained the arthritic phalanges of an older individual (figure 13). This condition is fairly common in seal species.

Fig. 13 – Phalanges 1-3 (r. to l.) with signs of arthritis

Birds

Table 3 presents the 2003 birds identified to species, grouped by family. The majority of bones come from eider ducks, common along the shore of Eyjafjord today. Guillemot and Puffin were regularly eaten in Iceland and much of Atlantic Europe. One swan element (Cygnus olor) was analyzed, found in context 674.

Table 3: Identified Bird Species	Absolute #	%
Raptor	2	3
Gyrfalcon (*Falco rusticolus*)		
Migratory Waterfowl		
Mallard Duck (*Anas platyrh.*)	1	2
Eider Duck (*Somateria mollissima*)	32	49
Mute Swan (*Cygnus olor*)	1	2
Sea birds		
Murre species (*Uria* species)	15	23
Atlantic puffin (*Fratercula arctica*)	5	8
Razorbill (*Alca torda*)	5	8
Gull species (*Larus* species)	4	6
Total	65	100

The exceptional find of a gyrfalcon leg bone (756) in 2003 serves to confirm documentary accounts of the export of falcon via Gásir (figure 11). A second

gyrfalcon element analyzed from the 2004 faunal collection (context 1632) is even further proof for such activities.

Fig. 14 Gyrfalcon (*Falco rusticolus*)

Fish

As mentioned earlier in this report, a large amount of fish elements is fragmented beyond speciation. One possible explanation could be application of stone cod hammers used to tenderize dried fish in medieval times. The coastal Gásir gadid distribution no longer demonstrates a pure "consumer" profile (see Harrison in Roberts, 2005). The total Gásir element distribution and especially the premax vs. cleithra ratio better reflect the site's location within a coastal inlet and indicate that at least a part of the fish remains stem from locally caught gadids.

Fig. 15 - Premaxilla & Cleithrum comparison

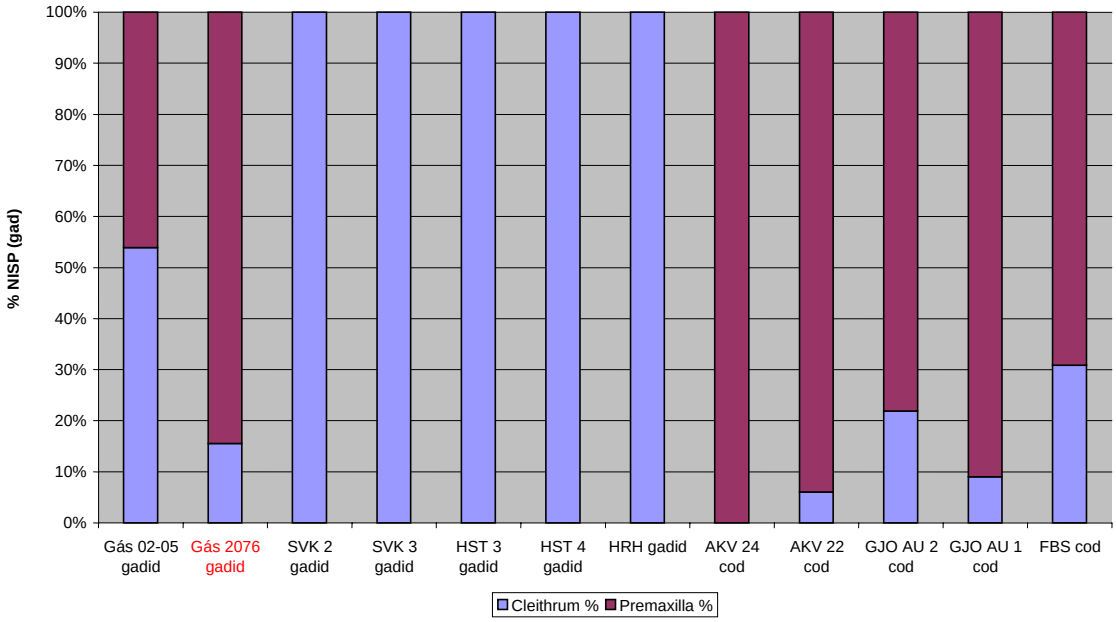


Figure 15 displays the percentages of Premaxillae vs. Cleithra ratios when related to the total amount of analyzed gadid elements. When compared with gadid elements from a typical fishing booth profile at Akurvík or that of a fishing farm at Gjögur,

context 2076[5]1 can be understood as fish-processing deposit. A typical fish processing signature displays the presence of a large amount of skull and cranial fragments including the premaxilla, while the axial part of the body, including the cleithrum (pectoral region), is absent. The cleithrum travels with the preserved fish and is found at consumer sites, such as HST, HRH and SVK in the Mývatn region (Perdikaris & McGovern, 2003).

The proportion of Premaxiallae vs. Cleithra for the total Gásir site (2002-05 data compiled) reflects the presence of whole gadid skeletons on site and indicates that fish may have been caught locally and used for consumption.

A Haddock/Cod comparison of elements as well as a size/age reconstruction are planned and will refine the pattern. The archaeofauna analyzed yielded a good number of gadid elements that can be measured, as well as atlas vertebrae (fig. 16) that allow for incremental analysis.

Fig. 16 Context 2184 – Haddock Atlas

Craft working

The horse remains are mostly comprised of loose teeth and foot/lower leg fragments. It should be noted that context 220 and context 101 yielded 70% (7/10) of the horse bone assemblage present at the site. The nature of preserved horse bone fragments indicates craft working activities rather than horse meat consumption, since the elements found were mandibular, maxillary, or lower limbs. Whale bone: except for the porpoise-size whales, the majority of whale bones found at Gásir bear marks that derive from bone working. The one large whale element collected in 2003 represents a particularly good example for craft working, since it has been drilled. In

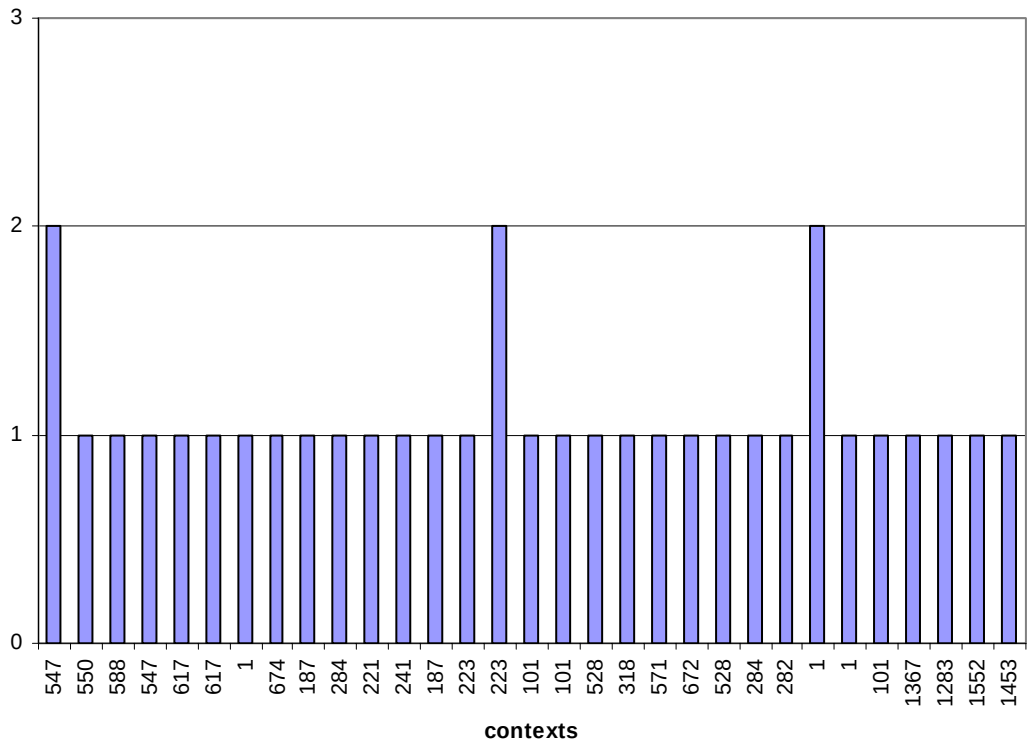
[5] As mentioned in the Summary, context 2076 yielded a large amount of fish remains, with 25 % analyzed by the time of this report. Even though more analysis is to take place, it is already clearly visible that this context indicates a specialized area where marine fish may be cured and even traded in form of stock fish or klipp fisk (see Perdikaris, 1999).

2005, four large Cattle Horn cores (1916, 1808, 2076) were found, bringing the total number of cattle Horn cores to 22 and are possible indication for horn working on site.

Gnawing

Tooth marks of carnivores (almost certainly dogs in the Icelandic context), rodents, and occasionally humans are regularly found on bones in North Atlantic archaeofauna. Archaeofauna from Norse Greenland are by far the most gnawed, with up to 30 % of bones on some sites showing carnivore tooth marks (McGovern 1985). Icelandic bone collections are far less heavily marked by gnawing, though some bones from urbanizing Reykjavik show dog and rodent gnawing on the same bones (suggesting a multi-tiered scavenging hierarchy, Perdikaris et al 2001).

Fig 17 - Dog gnawing



The Gásir 2002-05 collection does show carnivore (presumably dog) gnawing, and the distribution by context is shown in figure 17. As mentioned above, there is no evidence for canine gnawing on bone in the 2005 archaeofauna.

Note that while a low number out of the total bone assemblage are gnawed, there are a good amount of contexts that show gnawing. Questions that arise are: dogs have access to some areas but not others? Are some species' bones (and some skeletal elements) more likely than others to show gnaw marks?

Foodways and Ethnicity

Beginning around AD 1150-1200, a technique for extracting the marrow from the metapodials (lower leg bones) of sheep and goats spread into several N Atlantic communities, including the Shetlands, Faroes and Iceland (but not Greenland). The bi-perforation technique involves opening two circular holes at each end of the long bone and sucking out the rich marrow (Bigelow 1984). This marrow extraction technique avoids bone splinters in the marrow produced by the earlier Viking age pattern of longitudinal splitting, and has the advantage of retaining a very usefully shaped bone nearly intact for tool use. By the later medieval period, nearly all sheep metapodials in all Icelandic archaeofauna were bi-perforated, and split metapodials are exceedingly rare (by early modern times a folk belief held that splitting metapodials at meals would cause live sheep to break legs in the same place). In England and Continental Europe, this technique remained unknown, and late medieval diners continued to split sheep and goat metapodials in the old fashion. Table 4 presents the proportions of split vs. bi-perforated caprine metapodials from the Gásir collection (including drilling to err on the safe side), documenting the overwhelming use of splitting rather than bi-perforation in marrow extraction. In an Icelandic farm site of the 14th-15th century one would expect to see these proportions reversed. Does this low frequency of bi-perforation reflect non-Icelandic ethnic origins of the residents of Gásir?

Table 4: Caprine Metapodials				
	Bi-perforated	Split	Other	total
count	8	35	3	46
%	17,39	76,09	6,52	

Radiocarbon Dates and Isotopic Analysis

The Gásir project has collaborated with a large scale international geophysical/archaeological project (Ascough et al 2006) aimed at better understanding variations in Marine Reservoir Effect (MRE) which affect age estimates based on organisms wholly or partly within the marine food web (shellfish, sea weed, marine mammals, sea birds, fish). This large scale project is based at the Scottish Universities Reactor Center in East Kilbride Scotland, and is directed by Dr. Gordon Cook, who kindly provided the data and analysis. The MRE project provided 8 radiocarbon assays on cattle bone, seal bone, and clam shell (Mya sp) from a single context [528]. C13/C14 assays were also carried out at the same time (delta C13%) and N15 assay was carried out on the mammal bone.

Table 5 (overleaf) presents these data, presenting the laboratory code, source material, radiocarbon years BP, one standard deviation, and the Carbon and Nitrogen isotopic assay results.

Table 5 Gásir Radiocarbon Results March 7 2006 (courtesy Gordon Cook)						
SUERC #	Context	material	Radiocarbon years BP	sd	delta C13	delta N15
8635	Context 528	cattle bone	795	35	-22,5	2,8
8634	Context 528	cattle bone	595	35	-22,1	2,2
8629	Context 528	cattle bone	645	40	-21,8	7,3
8633	Context 528	seal bone	1145	35	-12,7	14,4
8638	Context 528	clam shell	1165	35	0,5	
8639	Context 528	clam shell	1305	35	1,9	
8637	Context 528	clam shell	1175	35	2,5	
8636	Context 528	clam shell	1200	35	2,8	

As expected the marine shell fish and the seal bone show high delta C13 values (values above -15/-16% indicate marine food web participation) and radiocarbon dates far too old for the medieval site. The three cattle bones (SUERC 8635, 8634, and 8629) produce fully terrestrial delta C13 values, and radiocarbon dates that are plausible given the documentary and artefactual dating evidence. Figure 18 graphs the calibration curves for these three cattle bone samples (OxCal v. 3.9).

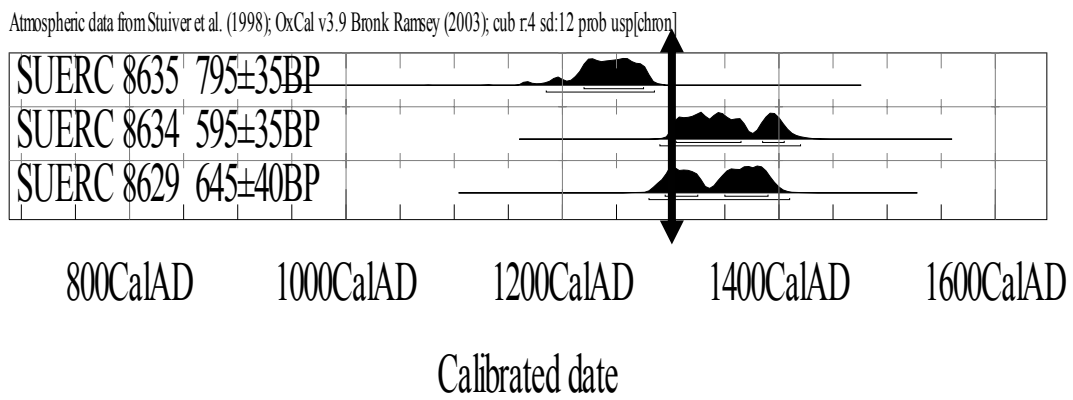


Figure18. Radiocarbon calibration

Two dates (SUERC 8634 and 8629) group nicely within the 14th c, which probably accurately reflects the period of deposition of the [528] context and agrees with the current tephra evidence (AD 1300 tephra indicated by arrow). The outlier (SUERC 8635) appears to be a residual bone fragment probably re-deposited in later layers from an earlier context. This earlier 13th c date does provide some confirmation of an earlier occupation at Gásir below the 1300 tephra horizon suggested by some of the documentary sources.

The N15 values for the three cattle bones indicate the animals had somewhat different grazing histories in the years prior to their slaughter and consumption. The very low N15 values are similar to the values produced from nearby Mývatnssveit sites with highland low-arctic grazing, while the higher N15 value suggests habitual grazing on richer lowland vegetation. While more assays are clearly desirable, these diverse values suggest that Gásir may have drawn upon a wide catchment area for its provisions.

Fig. 19 - Delta C13

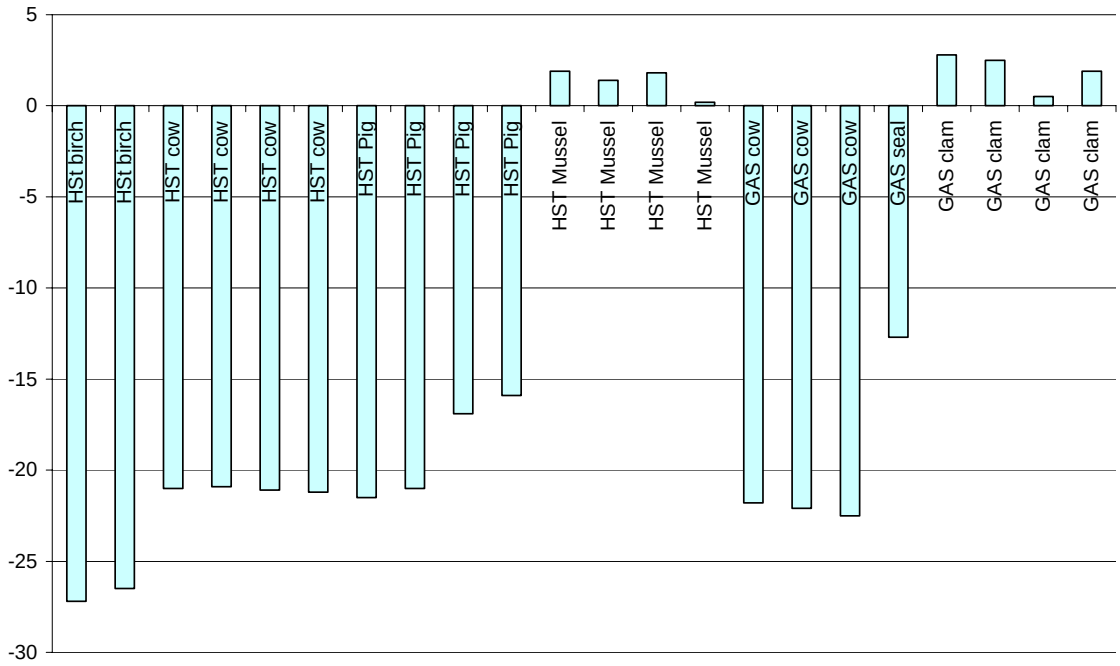


Figure 19 graphs the Gásir Delta C13 values and provides a comparison to a similar set of isotopic assays from Hofstaðir in Mývatnssveit. Note the strongest terrestrial signal (lowest delta C13values) from birch twigs, with cattle and most (but not all) pig bones showing a terrestrial herbivore signature. The higher values for two of the

Hofstaðir pigs may reflect their consumption of some marine carbon, or possibly large amounts of freshwater fish offal. The Gásir seal falls predictably within the marine food web values.

Conclusions and Further Work

The 2002-05 archaeofauna from Gásir serves to demonstrate its considerable potential for zooarchaeological research in Iceland, and suggests a number of areas where zooarchaeology may usefully contribute to a better understanding of this complex site. While the current sample is but a beginning, we are already able to lay out some areas for productive further collaboration and to propose some broader questions for general consideration.

As noted above, close integration of the animal bone data (element representation, species present, taphonomic signatures) with the excavation program can aid in the interpretation of specific features and in some cases may aid in establishing sequences of use and abandonment. Fortunately modern software makes such contextual integration straightforward, and this will certainly increase as the project moves ahead.

Beyond the basic archaeological issues associated with individual contexts and phases, zooarchaeology can contribute to some of the larger questions concerning the role of Gásir in Iceland's history.

- **Provisioning**: How was the settlement at Gásir provided with food? As the site was definitely not primarily a farm or fishing station, it needed to be supplied from outside sources. From historical data we can hypothesize many sources of supply, but the current bone sample suggests that dried fish, cattle and sheep meat played a major role in provisioning the settlement. While it is unclear at the moment if cuts of meat were imported to Gásir, it is now certain that at least some animals were brought to the site whole and probably slaughtered nearby. The current lack of calf and lamb bones suggests that the settlement did not in fact constitute a normal dairy-oriented, wool producing late medieval Icelandic farm.

- **Integration with Rural Economy**: What impact did the specialized settlement at Gásir have on the rural economy of the surrounding area? How did the presence of relatively wealthy consumers affect the economic decision making of local farmers of different wealth and rank? Thus far the archaeofauna does not suggest that the site was being entirely provisioned with cast off by-products of the normal farming economy (very young animals and very old ones) but with older juvenile and young adult cattle and sheep. Further investigation of age profiles of animals brought to Gásir will be important, and the sampling of a contemporary farm midden in the same district would provide important comparative information. The isotope data mentioned above (figures 18, 19, Table 5) confirm the fact that a region wide survey of midden materials may be needed to trace origins of domesticates consumed at the trading site.
- **Ethnicity and Foodways**: In many respects the Gásir archaeofauna is very atypical for late medieval Iceland: cattle consumption comparable to rich manors in the SW but without the clear dairying profile characteristic of these elite farms. In the details of butchery and consumption of animals there are messages about foodways and ethnicity: does the butchery pattern of sheep at Gásir reflect the dining habits of native Icelandic or foreign consumers?
- **Seasonality**: If enough different seasonal indicators can be collected, it should be possible to contribute to discussions of seasonal vs. year round occupation. While the current sample is small, we may wonder if the shortage of new born calves and lambs (almost exclusively born in May) reflects an arrival of most of the occupants later in the summer?
- **Fish processing & Fish Consumption**:
- **Status**: Hopefully, future excavation work will produce more indicators of status and hierarchy systems present at the site. The gyrfalcon and seals provide an initial idea of the socially diversified group of people present at late medieval Gásir.

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Appendix 1 – Context list

No	Type	Group No	Description
1767	Deposit		Very mixed light brown silt
1768	Deposit		Turf collapse
1769	Deposit		Layer of very mixed light brown
1770	Deposit	1791	Mixed turf debris
1771	Deposit	1774	Turf block- wall?
1772	Deposit		Mixed turf debris
1773	Deposit		Possible floor deposit
1774	Deposit	1774	Series of deposits, possibly a wall
1775	Deposit	1774	Peat ash deposit
1776	Deposit		Fill of cut
1777	Deposit		Mixed turf debris and aeolian
1778	Deposit	1774	Mixed deposit, sand /silt
1779	Deposit		Pinkish peatash Rich spread silt
1780	Deposit		Brown mixed spread silt
1781	Deposit		Yellow turf spread
1782	Deposit		Turf debris
1783	Deposit	1880	Mixed sandy silt light brown
1784	Deposit		Purple-ish turf debris
1785	Deposit		Mixed deposit
1786	Deposit		A blob of peatash
1787	Deposit		Mid brown sandy silt, mixed with turf debris
1788	Deposit	1828	Turf block-wall
1789	Deposit		Dark brown mixed debris
1790	Deposit		Repair to wall- (gr. 1791) Dividing gr. 1760 and 1761
1791	Group		Group nr. For wall dividing gr. 1760 and 1761
1792	Deposit		Dark brown mixed sandy silt
1793	Deposit		Mixed turf layer, yellow/blue-ish
1794	Deposit	2154	Mixed turf debris
1795	Deposit		Mixed patchy turf debris.
1796	Deposit		Mixed turf deposit
1797	Deposit		Layer of yellow silt-sand upcast
1798	Deposit		Mixed turf debris
1799	Deposit		A mid brown layer of sandy silt (mixed)
1800	Deposit		Mixed T/C
1801	Deposit	2139	Turf mix-wall repair
1802	Cut	1880	Cut
1803	Deposit		Mixed turf debris and aeolian
1804	Deposit		Mixed Y/Br debris
1805	Cut	1880	Cut
1806	Deposit	1880	Fill of (1805)
1807	Deposit	1880	Fill of (1805)
1808	Deposit		Mixed turf collapse/dump?
1809	Deposit		Compacted turf collapse?!

No	Type	Group No	Description
1810	Deposit	2139	Mixed turf debris
1811	Deposit		Peat ash deposit
1812	Deposit		Mixed deposit
1813	Deposit		Layer of mixed turf debris
1814	Deposit	1828	Mixed turf debris
1815	Deposit		Mixed brown turf layer
1816	Deposit		Yellowish turf layer
1817	Deposit	1880	Third fill of cut 1805
1818	Deposit		Brown mixed turf layer
1819	Deposit		Brown mottled silt, patch
1820	Deposit		Pinkish mottled peat-ashy silt
1821	Deposit		Mixed silt
1822	Deposit	1828	Turf debris
1823	Deposit		Mixed turf debris
1824	Deposit		A brown, mostly uniform windblown deposit
1825	Deposit		Orange brown silt patch
1826	Deposit		Mixed turf debris
1827	Deposit		Possible floor layer
1828	Group		Series of wall deposits
1829	Deposit		Peat ash rich dump layer
1830	Deposit		A mixed thin layer of peat ash and silt
1831	Deposit	2139	Turf collapse
1832	Deposit		Mixed turf and aeolian debris
1833	Fill	1880	Light brown dump
1834	Fill	1880	Peat ash
1835	Deposit		Turf collapse
1836	Deposit	2139	Fill of cut
1837	Deposit		Aeolian + T/C mixed silt
1838	Deposit		Yellow turf-upcast?
1839	Deposit		Peat ash layer- mixed
1840	Deposit		Turf collapse fragments mixed w.silt
1841	Deposit	2139	Fill -turf debris
1842	Deposit		Mixed, compacted turf debris
1843	Deposit	1880	Fire place -peat ash
1844	Deposit		Mid brown uniform sandy silt
1845	Deposit		Pink+black peat ash dump
1846	Deposit		Turf collapse
1847	Deposit	1880	Peat ash
1848	Deposit		Mixed dump layer
1849	Deposit	2139	Turf collapse
1850	Deposit		Mixed aeolian and turf debris
1851	Deposit		Light yellowish brown silt w. charcoal flecks
1852	Deposit	1880	Very compacted trampled layer. Sandy silt light brown.
1853	Deposit		A multy coloured mix of turf deb. and silt
1854	Deposit	2378	Fill

No	Type	Group No	Description
1855	Deposit	1791	Yellow turf debris
1856	Deposit		A multy coloured turf layer
1857	Deposit		Layer of sandy silt w. turf lump
1858	Deposit	2139	Yellow silt blob
1859	Deposit		Mixed peat ash rich lens
1860	Deposit		Peat ash dump layer
1861	Deposit	1880	Light yellowish fill+silt
1862	Deposit		Yellowish brown silt
1863	Deposit		Mixed deposit
1864	Deposit	2139	Turf tumble
1865	Deposit		Mixed T/C
1866	Deposit	1880	Trumpled peat ash
1867	Deposit	1791	Turf wall
1868	Deposit		Gravel lens
1869	Deposit	2154	Mixed turf layer
1870	Deposit		Turf collapse
1871	Deposit		Mixed yellow accumultion
1872	Deposit		Mixed turf deposit
1873	Deposit	2154	Compact mix of silt and turf debris
1874	Deposit		Mixed turf collapse
1875	Deposit		Heavily truncated band of T/C
1876	Deposit		Dump/Layer
1877	Deposit	2154	Turf debris
1878	Deposit		Mixed Y/br accum.
1879	Deposit		Mottled turf lump -debris
1880	Group		Group for cuts 1802 and 1805
1881	Deposit		Bland lens of sandy silt
1882	Deposit		Pile of turfy yellowish crap
1883	Deposit	2154	Turf collapse
1884	Deposit		Compacted Y/br deposit
1885	Deposit		Peat ash in situ burning
1886	Deposit	2154	Turf -very collapsed
1887	Deposit		Mixed of windblown and turf collapse
1888	Deposit	2154	Turf collapse
1889	Deposit		A mixed layer of turf, sandy silt, peat ash.
1890	Deposit		Gravely silt layer
1891	Deposit		Hard brown "floorlike" layer
1892	Deposit		Mixed Y/br +T/C
1893	Deposit	2154	Mixed turf
1894	Deposit		Silty deposit
1895	Deposit		Turf collapse
1896	Deposit	2154	Block of turf
1897	Deposit		Mixed turf collapse
1898	Deposit		Mixed turf debris -firm
1899	Deposit	2154	Layer of mixed turf debris

No	Type	Group No	Description
1900	Deposit		Turf wall
1901	Deposit		Turf deposit
1902	Deposit		Part of turf wall
1903	Deposit	2154	Collapsed turf blocks
1904	Deposit		Soft turf debris
1905	Deposit		Mixed brown silt
1906	Deposit		Peat ash rich deposit
1907	Deposit	2154	Collapsed turf blocks
1908	Deposit		Mixed aeol in fill
1909	Deposit		Turf collapse
1910	Deposit		Gravel lens
1911	Deposit		Gravel lens
1912	Deposit	2154	Turf collapse
1913	Deposit		Mixed turf deposit w. peat ash
1914	Deposit		Turf debris, upcast, levelling
1915	Cut		Small sub-rectangular cut
1916	Deposit		Turf collapse
1917	Deposit	2154	Remains of turf wall
1918	Deposit		Remains of turf wall (badly trunc.)
1919	Deposit		Remains of turf wall
1920	Deposit	2139	Remains of turf wall
1921	Deposit	2154	Turf debris very mixed
1922	Deposit	2154	Turf block
1923	Deposit	2154	Turf debris
1924	Deposit	2382	Turf wall -upper build
1925	Deposit	2154	Turf collapse
1926	Deposit	2382	Mixed fine silt (aeolian?) + T/C
1927	Deposit		Mixed turf deposit
1928	Deposit		Top part of turf wall
1929	Deposit		Top part of turf wall
1930	Deposit		Mixed /mottled turf debris
1931	Cut	1791	Cut for wall (1791) group
1932	Deposit		Mixed deposit
1933	Deposit	2154	Turf debris
1934	Deposit		Mixed accumulation against wall
1935	Deposit		Turf
1936	Deposit	2382	Turf
1937	Deposit		Mixed turf layer
1938	Deposit		Turf wal N-S
1939	Deposit	2382	Eroded turf wall E-W
1940	Deposit	2139	Turf block
1941	Deposit		Mixed levelling
1942	Deposit		Part of turf wall N-S
1943	Deposit		Mixed +mottled silt
1944	Deposit		Aeolian deposit

No	Type	Group No	Description
1945	Deposit		Windblown deposit
1946	Deposit	2141	Turf wall
1947	Deposit		Part of wall sticking out of section
1948	Deposit		A large thick dump of peat ash
1949	Deposit	1791	Mixed turf layer, possibly levelling under wall (1791)
1950	Deposit	2141	Silty deposit under a wall
1951	Deposit		Part of turf wall
1952	Deposit		Part of turf wall
1953	Deposit		Mixed turf debris
1954	Deposit		Pile of rocks
1955	Deposit		N-S turf wall
1956	Deposit		Mixed sandy silt w/turf debris
1957	Deposit	2141	Turf debris
1958	Deposit		Part of turf wall
1959	Deposit		Mixed turf debris
1960	Deposit		Mixed turf debris
1961	Deposit	2382	Remnant turf wall
1962	Deposit		Mixed silt aeolian
1963	Deposit		Degraded turf wall?
1964	Deposit		Compacted layer of sandy silt
1965	Deposit		Mixed turf debris + sandy silt
1966	Deposit	2139	Fill,mixed
1967	Deposit		Turf collapse
1968	Deposit		Yellow dump
1969			VOID
1970	Deposit		Yellow sandy silt
1971	Deposit	2141	Turf debris
1972	Deposit		Peat ash
1973	Deposit		Turf
1974	Deposit		Mixed turf layer -collapse
1975	Deposit		Compacted layer of mixed
1976	Deposit	2139	Turf blocks
1977	Deposit		Turf collapse
1978	Deposit		Very mixed dump
1979	Deposit		A pile of rocks
1980	Deposit		A mixed layer of turf debris
1981	Deposit	2138	Turf wall
1982	Deposit		W.S. Wall
1983	Deposit		Mixed sandy sit w/ stone
1984	Deposit		Fill of cut (1958) - charcoal
1985	Cut		Stake hole cut
1986	Deposit		Compacted sandy silt
1987	Deposit	2138	Layer of brown turf
1988	Deposit		Compacted sandy silt with patches of turf debris
1989	Deposit		A mixed layer of turf. Peat ash and aeolian m.

No	Type	Group No	Description
1990	Deposit		Compacted sandy silt with patch of turf and peat ash
1991	Deposit	2382	a turf wall
1992	Deposit	2138	Second phase of wall (1981)
1993	Deposit		Brown sandy silt
1994	Deposit		Peat ash dump
1995	Deposit		Mixed turf debris and silt
1996	Deposit	2138	Mixed turf debris- maybe fill?
1997	Deposit		Second build of N-S turf wall
1998	Deposit		Charcoal rich deposit
1999	Deposit		Mixed sandy silt +turf debris
2000	Deposit	2382	Mottled grey brown over hearth + T/C
2001	Deposit		Dumped turf
2002	Deposit	2139	Deposit- mix of turf + silt
2003	Deposit		Brown sandy silt w. Traces of possible floor dep.
2004	Deposit		Phase of wall
2005	Deposit		Peat ash deposit
2006	Deposit		Yellow turf block
2007	Deposit	2140	Fire place
2008	Deposit		Mixed sandy silt +turf debris
2009	Cut	2014	Cut for fill (2010)
2010	Deposit	2014	Fill of cut (2009)
2011	Deposit		Part of turf wall
2012	Deposit		Bottom part of wall
2013	Deposit		Purple-ish sandy layer, possible surface
2014	Group		Group nr. For cut and fill (2009) + (2010)
2015	Deposit		Fill in cut (2017)
2016	Deposit		Packing for post in cut (2017)
2017	Cut		Cut- posthole
2018	Group		Groupnr. For posthole
2019	Deposit	2140	Mixed turf+ silt layer
2020	Group		Groupnr. For (1984)+(1985), fill+cut
2021	Deposit		A mixed layer of turf
2022	Deposit		A mix of sandy silt and turf debris
2023	Deposit	2140	Peat ash deposit under (2019)
2024	Deposit		Dark sandy silt w. traces of peat ash
2025	Deposit		Peat ash poss. Contemp. W. (2024)
2026	Deposit		Yellow mixed sandy silt
2027	Deposit		Mixed mottled layer w. Turf lumps
2028	Deposit		Stone rich fill/backfill
2029	Deposit		Fill of cut (2030)
2030	Cut		Cut for fill (2029)
2031	Group		Groupnr. For (2030) and (2029)
2032	Deposit		Mixed sandy silt and turf debris
2033	Deposit	2140	Bottom layer of fire place
2034	Deposit	2138	Earliest phase of wall (1981)

No	Type	Group No	Description
2035	Deposit		Ash fill
2036	Cut		Cut for ash pit
2037	Group		Group-(2028), (2035), (2036) ETC.
2038	Deposit		Mixed brown silt
2039	Deposit		Collapsed wall
2040	Deposit		Mixed sandy silt
2041	Group		Groupnr. For cut and fill of posthole
2042	Deposit		Turf collapse
2043	Deposit		Fill of cut (2044)
2044	Cut		Cut for fill (2043)
2045	Deposit	2140	Mixed turf and silt
2046	Deposit		Sandy silt w. Mixed turf debris
2047	Deposit		Mixed turf debris
2048	Deposit		Uniform sandy silt
2049	Deposit		Brown mixed sandy layer
2050	Deposit		Mixed crap, dump
2051	Deposit	2140	Mixed sandy silt and turf debris
2052	Deposit		Sandy silt + mixed turf debris
2053	Deposit		Uniform sandy silt + peat ash lense
2054	Deposit		Peat ash, dump
2055	Deposit	2057	Fill of cut (2056)
2056	Cut	2057	Cut for possibl. Stakehole?
2057	Group		Groupnr. For cont. (2055)+(2056)
2058	Deposit		Compacted silt layer
2059	Deposit		Uniform sandy silt
2060	Deposit		Mixed turf collapse/dumping
2061	Deposit	2140	Silt +deposit mixed w. Peat ash
2062	Deposit		Sandy silt w. Turf debris
2063	Deposit	2140	Sandy silt deposit
2064	Deposit		Mixed mottled yellow/brown
2065	Deposit	2140	Silty turf debris
2066	Deposit		Mixed turf debris and sandy silt
2067	Deposit		A small blob of peat ash
2068	Deposit		Sandy silt w. Fleck of turf debris
2069	Deposit		A big yellow mix of turf debr. And sandy silt
2070	Deposit	2141	One tiny little turf block
2071	Deposit	2141	Mixed turf debris
2072	Deposit	2075	Secondary fill of post-hole
2073	Deposit	2075	Primary fill of post-hole
2074	Cut	2075	Recut post-hole
2075	Group		Group for post-hole
2076	Deposit		Peat-ash
2077	Deposit	2141	Turf blocks
2078	Deposit		Peat ash
2079	Deposit	2141	Mixed turf debris

No	Type	Group No	Description
2080	Deposit	2081	Fill of (2081)
2081	Cut	2081	Pit
2082	Group	2081	Group of (2080) +(2081)
2083	Deposit	2085	Fill of (2084)
2084	Cut	2085	Cut
2085	Group		Group of (2083) +(2084)
2086	Deposit		Sandy silt w. Turf debris
2087	Deposit		Primary fill of cut
2088	Cut		Cut-pit cont. Fills (2068) +(2087)
2089	Group		Group for pit (2088) (2086) (2087)
2090	Deposit		Floor- occupation surface
2091	Deposit	2141	Turf collapse
2092	Deposit	2094	Fill of (2093)
2093	Cut	2094	Cut
2094	Group	2094	Group of (2092) +(2093)
2095	Deposit		Fill of (2096), post-hole
2096	Cut		A post-hole
2097	Deposit		Occupational deposit
2098	Deposit	2141	Turf collapse
2099	Cut		Cut (possible post-hole)
2100	Deposit		Occupation deposit
2101	Deposit		Occupation surface
2102	Deposit		Peat ash- occupation dep.
2103	Deposit		Peat ash- occupation dep.
2104	Deposit	2141	Turf block
2105	Cut		Primary cut for building
2106	Cut		Shallow cut in base of building
2107	Deposit		Peat ash
2108	Deposit		Mixed T/C sealing "doorway"
2109	Deposit	2140	Fire place
2110	Cut		Cut- stakehole in pit (2087)
2111	Deposit		Occupation surface
2112	Deposit	2140	Fireplace- layer of peat ash
2113	Deposit	2140	Layer of peat ash
2114	Deposit		Peat ash- occupation dep.
2115	Deposit		upcast etc.
2116	Deposit		Peat ash (dump ?)
2117	Deposit	2140	Pear ash deposit
2118	Deposit		Occupational deposit
2119	Deposit		Yellow layer (Shark)
2120	Deposit	2140	peat ash
2121	Deposit		Occupation surface
2122	Deposit		Occupation deposit
2123	Deposit		A mixed layer of sand and turf debris
2124	Deposit	2140	Peat ash

No	Type	Group No	Description
2125	Deposit		Peat ash
2126	Deposit	2192	Turf blocks
2127	Deposit	2140	Fire place
2128	Deposit		Mixed layer of yellow mottling
2129	Deposit	2192	Aeolian mix
2130	Deposit		Wind blown? Light brown
2131	Deposit		Mixed turf debris and sandy silt
2132	Deposit		Sandy silt w. Small patches of turf debris
2133	Deposit		Small patch of greasy charcoal
2134	Deposit	2234	Wall
2135	Deposit		Mixed sandy silt turf debris
2136	Deposit		Brown sandy ilt
2137	Deposit		Yellow sandy silt
2138	Group		Turf wall E-W
2139	Group		Turf collapse on top of (2140)
2140	Group		Fire places and peat ash deposits
2141	Group		Turf wall N-S
2142	Deposit		Mixed turf debris, sandy silt
2143	Deposit		Yellow aeolian silt
2144	Deposit	2234	Fill of cut (2145)
2145	Cut	2234	Pit
2146	Deposit		Trampled mixed sandy silt
2147	Deposit		Turf collapse
2148	Deposit		Peat ash deposit
2149	Deposit	2234	2 fill of cut (2145)
2150	Deposit		sand deposit
2151	Deposit	2192	Mixed aeol./sand/ TC etc.
2152	Deposit	2192	Peat ash
2153	Cut	2192	Cut Inc. (2151)+(2152) etc.
2154	Group		Series of layers on top of peatash (2140)
2155	Deposit		Light brown sandy silt
2156	Deposit		A uniform layer of mid-brown sandy silt
2157	Deposit		Mixed turf debris.
2158	Deposit		Wall
2159	Deposit		Peat ash dump
2160	Deposit		
2161	Deposit		Mixed sandy silt+ turf debris
2162	Cut		Cut for fireplaces- group nr. (2140)
2163	Deposit		Turf layer
2164	Deposit	2231	Occupation deposit
2165	Deposit		Mixed deposit
2166	Deposit		Turf collapse
2167	Deposit		Mixed turf layer
2168	Cut	2231	Posthole
2169	Deposit		Uniform sandy silt w. Traces of green tephra (?)

No	Type	Group No	Description
2170	Deposit		Mixed turf debris
2171	Deposit		Mixed turf debris and silt
2172	Deposit		Mixed turf dep
2173	Deposit		Sandy silt deposit mixed with peat ash
2174	Deposit		Mixed sandy silt w turf debris
2175	Deposit		Floor (occupation surface)
2176	Deposit		Floor (occupation surface)
2177	Deposit		Uniform silt w. Turf debris+ tephra, green?
2178	Deposit		Sandy aeolian mixed dump
2179	Deposit		Mixed sandy silt w. Turf debris
2180	Deposit		Occupational layer
2181	Deposit		Turf collapse
2182	Deposit		Sandy silt/possible occupation
2183	Deposit		Turf wall
2184	Deposit		Peat ash
2185	Deposit		Turf collapse
2186	Deposit		Turf debris, silt
2187	Deposit		A thin peat ash dump
2188	Deposit		Dark brown silt +green tephra
2189	Deposit		Peat ash
2190	Deposit		Turf collapse
2191	Deposit	2192	Mixed aeolian w turf collapse - fill
2192	Group		Cut+fills (SFB?) inc. (2126)(2129) (2151)(2191)
2193	Deposit		Occupational surface
2194	Deposit		Sandy silt deposit
2195	Deposit		Mixed deposit-sandy silt, turf debris
2196	Deposit		Charcol rich peat ash
2197	Deposit		Mixed peat ash dep.
2198	Deposit		Mixed turf debris w. Silt
2199	Deposit		Mixed sandy silt
2200	Deposit		hearth, small
2201	Deposit		hearth, small
2202	Deposit		Mixed peat ash in "doorway"
2203	Deposit		Mixed silt w. Yellow tephra patches
2204	Deposit		Mixed deposit
2205	Deposit		A uniform yellow layer of turfy material
2206	Deposit		Mixed turf
2207	Deposit		Mixed mottled turf debris
2208	Deposit		Yellow turf mixed blob
2209	Deposit		Mixed turf debris
2210	Deposit		Yellowish upcast, levelling
2211	Deposit		Mixed silt w. Turf debris+greenish tephra
2212	Deposit	2378	Sandy silt deposit abutting a cut
2213	Deposit		Peat ash
2214	Deposit		Mixed turf debris

No	Type	Group No	Description
2215	Cut		SFB cut
2216	Deposit		Turf debris
2217	Deposit		a blob of sandy and rooty turf
2218	Deposit		Turf deposit
2219	Deposit		Peat ash (dump)
2220	Deposit		Mixed sandy silt w. Greenish grey tephra (?)
2221	Deposit		Sandy silt w. Mod. Flecks of turf debris
2222	Deposit		Peat ash
2223	Deposit		T/C Dump w. Sandy lenses
2224	Deposit		Mixed layer of turf debris and silt
2225	Deposit		Hearth deposit
2226	Deposit		Turf deposit
2227	Deposit		Mixed aeol. Etc.
2228	Deposit		Mixed silt w. Turf deposit
2229	Deposit		Turf fragments
2230	Deposit	2231	2. fill of cut (2168)
2231	Group		Group for (2168) (2164)(2230)
2232	Deposit		Mixed turf debris
2233	Deposit		Sandy silt
2234	Group		Pit-Group
2235	Deposit		Sandy silt w. Mod. Flecks of turf debris
2236	Deposit		A mixed deposit of sandy silt
2237	Deposit		Turf- silt mix
2238	Deposit		Peat ash
2239	Deposit		Mixed sandy silt
2240	Deposit		Floor like sandy
2241	Deposit		Occupation surface
2242	Deposit		Occupation surface
2243	Deposit		Peat ash - fill of (2244)
2244	Cut		Cut in S. LOE.
2245	Group		Incl. (2243)(2244)
2246	Deposit		Mixed turf debris
2247	Deposit		Sandy silt
2248	Deposit		Occupation deposit
2249	Deposit		Turf debris
2250	Deposit		Mixed collapse/disuse
2251	Deposit		Uniform sandy silt
2252	Deposit		Occupation surface
2253	Deposit		Dumpmixed sandy silt
2254	Deposit		Depsits of turf mixed w. Silt
2255	Deposit		Small turf dump
2256	Deposit		Mixed sandy silt w. Turf debris
2257	Deposit		Very mixed turf debris
2258	Deposit		Tiny turf block
2259	Deposit		Occupation surface

No	Type	Group No	Description
2260	Deposit		A big mid-dark brown rooty layer
2261	Deposit		Occupation surface
2262	Deposit		Turf deposit
2263	Deposit		Mixed turf layer
2264	Deposit		Sandy silt
2265	Deposit	2378	Occupation layer
2266	Deposit		Mixed trampled
2267	Deposit		Fill for (2268)+(2273)
2268	Cut		Cut- posthole
2269	Deposit		Peat ash
2270	Deposit		Peat ash
2271	Deposit		Mixed sandy silt+ turf debris
2272	Deposit		Block of turf
2273	Cut		Stakehole
2274	Deposit	2376	Occupational layer
2275	Deposit		Mottled turf debris+ peat ash
2276	Deposit		Trumpled mixed deposit
2277	Deposit		Bxxx silt
2278	Deposit		Bxxx silt
2279	Deposit		Mixed turf w. H-tephra
2280	Deposit		Turf collapse
2281	Deposit	2378	Peat ash deposit
2282	Deposit		Scorched area
2283	Deposit		Sandy silt w. Turf debris
2284	Deposit		Sandy silt (greenish. Possible surface)
2285	Deposit		Very mixed deposit
2286	Deposit		T/C + Aeol disuse
2287	Deposit		Sandy silt w turf debris
2288	Deposit		Turf blob
2289	Deposit		Occupation deposit
2290	Deposit		Peat ash fire place
2291	Deposit		Turf block horizon
2292	Cut		Post setting?
2293	Group		Cut (2292)+ fill (2283)
2294	Deposit		Peat ash, blob
2295	Deposit	2378	Occupational mix
2296	Deposit		Occupational deposit
2297	Deposit		Mostly uniform layer of aeolian mat.
2298	Deposit	2378	A piece of turf forming a down step
2299	Deposit		Mixed turf debris
2300	Deposit		Dark silt w. Charcoal
2301	Deposit		Cut for fireplace
2302	Deposit	2378	Threshold
2303	Deposit		Mixed sandy silt+ turf debris
2304	Deposit		Mixed sandy silt+ peat ash

No	Type	Group No	Description
2305	Deposit	2378	In situ burning
2306	Deposit		Big mixed deposit
2307	Deposit	2378	Occupational layer-floor
2308	Deposit		Occupation deposit
2309	Deposit		Peat ash
2310	Deposit	2378	Peat ash deposit
2311	Deposit		Peat ash
2312	Deposit		Floor w. Peat ash trample
2313	Deposit	2378	Floor layer
2314	Deposit		Fill of (2315)
2315	Cut		Stakehole
2316	Deposit		Mixed turf debris
2317	Deposit		Stone floor
2318	Deposit		Turf wall E-W
2319	Deposit		Floor
2320	Deposit		Peat ash
2321	Deposit	2378	Floor layer
2322	Deposit		Uniform sandy silt
2323	Deposit		Fill of (2324)
2324	Cut		Small post-hole cut(?)
2325	Deposit	2378	Floor
2326	Cut		Cut
2327	Fill		Fill of cut (2320)
2328	Deposit		Mixed sandy silt
2329	Deposit		Mixed deposit in wall
2330			VOID
2331			VOID
2332			VOID
2333			VOID
2334			VOID
2335			VOID
2336			VOID
2337			VOID
2338			VOID
2339			VOID
2340	Deposit	2378	Floor
2341	Deposit		Turf wall
2342	Deposit		Brown silt
2343	Deposit		Peat ash deposit
2344	Deposit	2378	Floor layer
2345	Deposit		Occupation surface
2346	Deposit	2381	Mixed turf layer
2347	Deposit		Turf levelling for stone surface (2317)
2348	Group		Group for (2347)-levelling+(2317) st. Surface
2349	Deposit	2381	Mixed turf layer

No	Type	Group No	Description
2350	Cut		Cut for a posthole
2351	Deposit		Fill of (2352)
2352	Cut		Stakehole
2353	Deposit		Occupation surface
2354	Deposit		Mixed turf debris+ stones possibly same as (2348)
2355	Deposit		Sandy silt
2356	Deposit		Mixed aeolian+T/C
2357	Deposit	2381	Fireplace
2358	Deposit		Occupation deposit
2359	Deposit		Poss. Floor
2360	Deposit		Occupation surface
2361	Deposit		Occupationdeposit (xxxxx)
2362	Deposit		Mixed compacted turf debris
2363	Deposit	2381	Fireplace
2364	Deposit		Occupation deposit
2365	Deposit		Turf mixed
2366	Deposit	2381	Floor
2367	Deposit		Mixed turf, yellow
2368	Deposit		Peat ash
2369	Deposit	2381	Fireplace
2370	Deposit		Mixed turf debris+ stones
2371	Deposit		Mixed turf w. Stones
2372	Deposit		Mixed layer of turfy rooty mat.
2373	Deposit		Mottled turf debris+ stones
2374	Deposit		Brown silt
2375	Deposit		Brown sandy silt
2376	Deposit		Mixed turf
2377	Deposit		Mixed turf, yellow
2378	Group		Fireplaces+occupation layers
2379	Cut	2382	Primary cut of room
2380	Deposit		Turf layer
2381	Group		Group of occupational deposits
2382	Group		Cut+fills of truncated SFB
2383	Group		End of season multicontext
2384	Deposit		Sandy silt +turf debris
2385	Deposit		Mixed turf debris
2386	Group		Occupation phase associated w/wall (1791)
2387	Group		Gr. For layers outside room sealing wall (1791)
2388	Group		Gr for wall (1947)
2389	Group		Gr. For post abandonment of room (2386)
2390	Group		Gr.occupationdeposits currently not associated w/any walls
2391	Group		Post abandonment layers of room that is not fully exc.
2392	Group		Gr. for occupation phase of room that is not fully exc.
2393	Deposit		N-S turf wall (rebuild)

Appendix 2 – Finds list

Find No	Cont.	Object	Material	g	Count	Notes
05-001	1783	Vessel	Ceramic	21.5	1	A handle and rim of Siegburg jug or jar . From older Siegburg type late 13th -14th century. Same as 004
05-002	1829	Vessel	Ceramic	22	1	Part of miniature vessel, light red/buff fabric with a greenish yellowish lead glaze on the outside. Earthenware. Height 41 mm. Diameter of the body, 37 mm, diameter of rim, 30 mm.
05-003	1829	Baking Plate	Stone	110.5	1	Baking plate fragment with grooves at top and bottom side. This fragment has a round courner and indicates rectangular shape. Thickness 12 mm.
05-004	1841	Vessel	Ceramic	29.6	1	Fragment of jug with half handle. Beige to light grey fabric. Same as 001
05-005	1878	Baking Plate	Stone	65.7	1	Baking plate rim fragment. Grooves on top side. Thickness: 10 mm. The round edge indicates diameter at ca.280 mm.
05-006	1867	Rivet/Rove	Copper alloy	0.8	1	Small square plate (15x11 mm), cut at one side. Most likely a rove with corroded copper nail.T: 1 mm.
05-007	1896	Shoe?	Leather	4.3	1	Leather fragment with stitch marks along one edge. Part of a shoe? Needs cleaning.
05-008	1867	Vessel	Ceramic	0.4	1	Geen glaze on the outside. Northern Europe 13th – 14th century.
05-009	1867	Vessel	Ceramic	0.6	1	Green glaze on the outside. Northern Europe 13th – 14th century.
05-010	1924	Whetstone	Stone	19.3	1	Whetstone with smooth rectangular section (round edges), all surfaces worn and rounded. Broken at one end. The whetstone is tapering towards the unbroken end. The colour is light grey green. Dimensions: 13x12mm. Length 71 mm.
05-011	1948	Baking Plate	Stone	101	2	Two baking plates, fragments that do not fit together. Grooves mainly at top side but also few lines at bottom. Thickness 9 mm.
05-012	1978	Baking Plate	Stone	281.5	1	Large baking plate rim fragment. The edge is slightly curved. Groove marks on both top and bottom side. Thickness: 8 mm.
05-013	1978	Vessel	Ceramic	24.3	1	Jug, base fragment. Probably Eastern England, 13th – 14th century. Probably part of same as 05-029.
05-014	1981	Textile	Wool	5.4	1	Woven cloth.
05-015	1905	Slag	Iron	1.9	7	Small slag pieces. Industrial waste.
05-016	2000	Coin?	Copper alloy	0.2	1	Small circular flat object with tool marks. Coin? Diam:15 mm. T:1mm. Needs X-ray
05-017	2005	Nail	Copper alloy	3.5	1	Nail with circular raised head and broken iron shank (rectangular section). L:27 mm.
05-018	1978	Vessel	Ceramic	11.4	1	Wall fragment form a jug or a jar. Siegburg, Germany 14th - early 15th century. Possibly same as 004.
05-019	2008	Pebble	Stone	0.5	1	Small polished pebble. Manuport at site.
05-020	1978	Baking Plate	Stone	0	1	Baking plate
05-021	2011	Whetstone	Stone	0	1	whetstone fragment (schist)
05-022	2068	Knife	Iron	15.3	1	Knife blade broken in two parts. Very corroded but the pointed end is prop. still in place but part of the tang is broken off. Total L: 110 mm.
05-023	2123	Mount	Composite	4	1	Copper mount with two copper nails. Wrapped around an edge on a wood plate and fastened to it.
05-024	2123	Worked wood	Wood	143	3	Piece of wooden board/plank
05-025	2076	Vessel	Ceramic	13.1	1	A handle fragment and upright rim from Lower Saxony stoneware, dark grey fabric with purple slip. Small jar or jug dated to 14th century.

Find No	Cont.	Object	Material	g	Count	Notes
05-026	2147	Pebble	Stone	0.5	1	Small waterworn pebble. Brown-violet colour, transparent. Similiar to find no. 72.
05-027	2177	Baking Plate	Stone	4.4	1	Small fragment of baking plate. Grooves at top. Thickness: 4mm.
05-028	2183	Baking Plate	Stone	26.5	1	Baking plate rim fragment. Grooves on top and bottom side. Thickness: 8 mm. The round edge indicates diameter at ca.280 mm.
05-029	2210	Vessel	Ceramic	30.8	1	Jug base sherd, thumbed based. Green glaze on the outside.Probably Eastern England, 13th – 14th century. Proabably part of same as 05-013.
05-030	2226	Rivet/Rove	Iron	20.1	1	Deformed rivet. L:5 mm.
05-031	2187	Fish hook	Iron	1.5	1	Small fish hook. Both head and point are broken off and the object is deformed by corrotion. L:25 mm. Width across the hook is 14 mm.
05-032	2187	Nail	Iron	0	1	Nail
05-033	2187	Baking Plate	Stone	0	1	Baking plate
05-034	1948	Object	Iron	2.6	1	A small blade or a plate sandwiched between corroded iron lumps. Knife blade? Rove?
05-035	1972	Nail	Iron	10.9	1	A nail with circular shaped flat head and broken shank. Very corroded. L: 27 mm.
05-036	1848	Nail	Iron	5.7	1	Nail shank broken in both ends, tapering towards the other (rectangular section). A sulphur lump is attached to the object. Very corroded. L: 40 mm.
05-037	1978	Nail	Iron	17	2	A) A nail prop. with raised, circular head and broken shank (rectangular sectioned). L: 34 mm. Very corroded. B) A nail shank with hammered head broken in both ends (rectangular section). L: 37 mm.
05-038	1948	Nail	Iron	0.9	1	Nail shank broken in one end but tapering towards the other. Very corroded.
05-039	1932	Nail	Iron	3.1	1	Nail shank, broken in both ends. Rectangular section. Very corroded.
05-040	2066	Nail	Iron	30.5	1	Large iron nail with broken shank (section rectangular). Small piece broken off. L:75 mm.
05-041	2133	Lump	Iron	11.1	1	Corroded iron lump.
05-042	2207	Rivet/Rove	Iron	21.3	1	Deformed rivet. L: 33 mm.
05-043	1927	Pin	Iron	2.3	1	Short iron pin broken in both ends. Tapering toward one end (circular section). The other has rectangular section. Very corroded.
05-044	1823	Pin	Iron	18	2	Two pieces of iron, nail? shank. The section is square.The surface is heavely corroded with inclusions in f.ex. sulphur.
05-045	2076	Rivet/Rove	Iron	14.2	1	Very corroded rivet with small subrectangular head and square rove. L: 32 mm.
05-046	2076	Nail	Iron	20.9	1	Nail with circular raised head and broken shank (rectangular section). Very corroded. Wood reimans are under the head. L:49 mm.
05-047	1837	Rivet/Rove	Copper alloy	0.4	1	Small square rove with nail fragments in the hole in the middle. L-B:11mm. T:3mm.
05-048	1784	Fragment	Copper alloy	0.6	1	Small unidentifiable fragment.
05-049	1978	Baking Plate	Stone	18	1	Baking plate fragment. Grooves at top side. Thickness 8 mm.
05-050	1772	Vessel	Ceramic	0.9	1	Green glaze on the outside. Northern Europe 13th – 14th century.
05-051	1867	Vessel	Ceramic	3.6	1	Rim of a jug or a jar. Probably Northern Europe. Earthenware. Original diameter ca. 60 mm.
05-052	2256	Worked bone	Bone	235.3	1	Butcher marks visible.
05-053	2263	Nail	Iron	12.8	1	Nail with broken shank (rectangular section). Deformed by corrotion.

Find No	Cont.	Object	Material	g	Count	Notes
05-054	2270	Sheet	Copper alloy	13.5	1	Fragments of sheet nailed together with copper alloy nails. T: 1 mm.
05-055	2108	Whetstone	Stone	79.9	1	Whetstone chunk with rectangular section.Three sides are sawed and one is split longways. Probably broken at both ends but two deep holes are at one end and possibly iron fragments along the edges, fastening remains? Dimensions: 32x26 mm and 51 mm long.
05-056	2284	Object	Iron	46.9	7	Very corroded and deformed iron lumps. Of different sizes but could be a part of the same object. Need x-ray.
05-057	2283	Object	Iron	44.2	1	Corroded iron lump with specific rectangular shape. Needs x-ray.
05-058	2342	Fitting	Copper alloy	12.4	1	Unpierced strip, possibly a fitting. The strip is ticker along one longedge (3mm) than the other (1 mm). L: 96 mm
05-059	2354	Fish hammer	Stone	240.1	1	Half fish hammer. Diameter ca. 135 mm. Thickness ca. 62 mm.
05-060	2264	Whetstone	Stone	8.5	2	Small fragments of same schist type (light greenish grey), but the fragments do not fit together. They are 32 and 26 mm long and broken at both ends. Section is irregularly triangular and sides are coarsely split and broken.
05-061	1948	Baking Plate	Stone	17.7	1	Baking plate rim fragment. Grooves on top side. Small flake broken off. Thickness: 6 mm. Original diameter: ca.280 mm.
05-062	2347	Pebble	Stone	0.6	1	Small green jaspis pebble. Manuport at site.
05-063	2375	Pebble	Stone	7.9	1	Smooth green-grey and white flint fragment. Manuport at site.
05-064	1978	Fragment	Bone	2.9	1	Burnt bone.
05-065	2373	Pebble	Stone	31	4	Waterworn small pebbles. Three are manuports at site, the fourth is of common type (local basalt). Manuport at site.
05-066	2363	Pebble	Stone	37.2	1	Fire-cracked pebble. Split in 7 pieces. Manuport at site.
05-067	1876	Fragment	Stone	0.8	1	Small schist fragment with high mica inclusions. Unworked.
05-068	2076	Fragment	Stone	49.7	3	Flat schist fragment. Unworked.
05-069	1807	Whetstone	Stone	14	1	Whetstone fragment. Both ends and surfaces broken away. Pale green colour. Dimensions: 7x24mm. Length 57 mm.
05-070	767	Fragment	Stone	13.7	1	Unworked schist fragment. Pale green colour with high mica inclutions. Industrial waste?
05-071	2050	Fragment	Stone	25.2	1	Flat schist fragment with mica. Unworked. Industrial waste?
05-072	2256	Pebble	Stone	0.7	1	Small waterworn pebble. Brown-violet colour, transparrent. Similiar to find no. 26.
05-073	1886	Fragment	Sulphur	2.4	1	
05-074	1989	Sulphur	Sulphur	33.5	2	
05-075	2151	Sulphur	Sulphur	1.2	2	
05-076	2220	Sulphur	Sulphur	0.7	1	
05-077	2237	Sulphur	Sulphur	4.5	1	
05-078	1817	Sulphur	Sulphur	1.8	1	
05-079	2347	Lump	Iron	14.5	1	Very corroded iron lump. Needs x-ray.
05-080	2228	Nail	Iron	5.1	1	A nail with flat circular shaped head an broken shank. Very corroded.
05-081	2249	Object	Iron	4.6	1	Flat iron fragment with triangular section. Knifeblade?
05-082	2021	Worked wood	Wood	1.5	1	Small wood pin with oval section. Sawed at one end but broken at the other. A groove is 20 mm from the

Find No	Cont.	Object	Material	g	Count	Notes
						broken end. L-B: 10x8 mm. L:52 mm
05-083	1978	Worked wood	Wood	124.8	7	Wood fragments. Two biggest fragments are worked, sawed at the end. Fragile.
05-084	1978	Worked wood	Wood	27.8	1	Subrectangular wood piece (now broken in two parts). The object is sawed on top, one edge is cut straight but the other angled. Sooty.
05-085	2076	Textile	Wool	1.2	1	Woven cloth.
05-086	1854	Shoe	Leather	10.7	1	Part of a shoe. Seam is visible at the edges.
05-087	1832	Offcut	Leather	12.3	1	Leather offcut. No stitch marks.
05-088	1783	Cord	Hair	10	1	Turned animal hairs. Not worked further. The cord is now in two parts.
05-089	1978	Worked wood	Wood	8.2	1	Worked wood. Sawed at both ends.
05-090	2060	Offcut	Leather	4.5	1	Leather offcut. No stitch marks.
05-091	1832	Worked bone	Bone	14.7	1	With crossmark on the outside and worn edges.
05-092	0001	Animal Bone	Bone	262	3	From cleaning
05-093	1831	Animal Bone	Bone	62	1	
05-094	1848	Animal Bone	Bone	387	1	
05-095	1853	Animal Bone	Bone	43	1	
05-096	1873	Animal Bone	Bone	4	1	
05-097	1863	Animal Bone	Bone	68	1	
05-098	1864	Animal Bone	Bone	81	1	
05-099	1867	Animal Bone	Bone	72	1	
05-100	1882	Animal Bone	Bone	954	1	
05-101	1889	Animal Bone	Bone	107	1	
05-102	1900	Animal Bone	Bone	174	1	
05-103	1907	Animal Bone	Bone	98	1	
05-104	1914	Animal Bone	Bone	523	1	
05-105	1916	Animal Bone	Bone	505	1	
05-106	1921	Animal Bone	Bone	3	1	
05-107	1925	Animal Bone	Bone	34	1	
05-108	1932	Animal Bone	Bone	319	1	
05-109	1933	Animal Bone	Bone	67	1	
05-110	1937	Animal Bone	Bone	136	1	
05-111	1945	Animal Bone	Bone	49	1	
05-112	1948	Animal Bone	Bone	1234	1	Sieved
05-113	1950	Animal Bone	Bone	9	1	
05-114	1966	Animal Bone	Bone	45	1	
05-115	1968	Animal Bone	Bone	298	1	
05-116	1972	Animal Bone	Bone	72	1	
05-117	1977	Animal Bone	Bone	36	1	
05-118	1978	Animal Bone	Bone	1377	1	
05-119	1989	Animal Bone	Bone	258	1	
05-120	2021	Animal Bone	Bone	130	1	
05-121	2068	Animal Bone	Bone	11	1	
05-122	2069	Animal Bone	Bone	222	1	
05-123	2072	Animal Bone	Bone	38	1	
05-124	2077	Animal Bone	Bone	11	1	
05-125	2078	Animal Bone	Bone	81	1	Burnt bone

Find No	Cont.	Object	Material	g	Count	Notes
05-126	2078	Animal Bone	Bone	216	1	
05-127	2087	Animal Bone	Bone	49	1	
05-128	2123	Animal Bone	Bone	114	1	
05-129	2127	Animal Bone	Bone	32	1	burnt bone
05-130	2144	Animal Bone	Bone	19	1	
05-131	2149	Animal Bone	Bone	115	1	
05-132	2149	Animal Bone	Bone	30	1	Fishbone
05-133	2151	Animal Bone	Bone	177	1	
05-134	2157	Animal Bone	Bone	15	1	
05-135	2165	Animal Bone	Bone	217	1	
05-136	2107	Animal Bone	Bone	18	1	
05-137	2166	Animal Bone	Bone	9	1	
05-138	2184	Animal Bone	Bone	115	1	
05-139	2186	Animal Bone	Bone	5	1	
05-140	2188	Animal Bone	Bone	41	1	
05-141	2189	Animal Bone	Bone	4	1	
05-142	2201	Animal Bone	Bone	28	1	
05-143	2208	Animal Bone	Bone	3	1	
05-144	2217	Animal Bone	Bone	5	1	
05-145	2228	Animal Bone	Bone	134	1	
05-146	2237	Animal Bone	Bone	160	1	
05-147	2243	Animal Bone	Bone	100	1	
05-148	2249	Animal Bone	Bone	5	1	
05-149	2249		Shell	9	1	
05-150	2254	Animal Bone	Bone	5	1	
05-151	2265	Animal Bone	Bone	5	1	
05-152	2275	Animal Bone	Bone	6	1	
05-153	2283	Animal Bone	Bone	10	1	
05-154	2300	Animal Bone	Bone	19	1	
05-155	2357	Animal Bone	Bone	35	1	
05-156	2383	Animal Bone	Bone	4	1	
05-157	2372	Animal Bone	Bone	150	1	
05-158	2374	Animal Bone	Bone	17	1	
05-159	2375	Animal Bone	Bone	47	1	
05-160	2376	Animal Bone	Bone	5	1	
05-161	2005	Animal Bone	Bone	3	1	
05-162	2007	Animal Bone	Bone	19	1	
05-163	2012	Animal Bone	Bone	27	1	
05-164	2023	Animal Bone	Bone	8	1	
05-165	2045	Animal Bone	Bone	15	1	
05-166	2050	Animal Bone	Bone	156	1	
05-167	2050	Animal Bone	Bone	112	1	Fish bones
05-168	2060	Animal Bone	Bone	98	1	
05-169	2061	Animal Bone	Bone	19	1	
05-170	2076	Animal Bone	Bone	11790	8	Sieved
05-171	2270	Animal Bone	Bone	100	1	

Find No	Cont.	Object	Material	g	Count	Notes
05-172	1776	Slag	Slag	5	1	
05-173	1783	Slag	Slag	171	1	
05-174	1794	Slag	Slag	30	1	
05-175	1795	Slag	Slag	5	1	
05-176	1851	Slag	Slag	30	1	
05-177	1873	Slag	Slag	4	1	
05-178	1893	Slag	Slag	5	1	
05-179	1916	Slag	Slag	6	1	
05-180	1937	Slag	Slag	3	1	
05-181	2002	Slag	Slag	70	1	
05-182	2007	Slag	Slag	680	1	Sieved
05-183	2023	Slag	Slag	365	1	
05-184	2045	Slag	Slag	65	1	
05-185	2058	Slag	Slag	10	1	
05-186	2060	Slag	Slag	10	1	
05-187	2066	Slag	Slag	43	1	
05-188	2076	Slag	Slag	70	1	
05-189	2123	Slag	Slag	17	1	
05-190	2269	Slag	Slag	160	1	
05-191	2284	Slag	Slag	2	1	
05-192	1870	Animal Bone	Bone	2	1	
05-193	2049	Animal Bone	Bone	5	1	
05-194	1996	Animal Bone	Bone	19	1	
05-195	2128	Slag	Slag	5	1	
05-196	1848	Slag	Slag	9	1	
05-197	1	Slag	Slag	10	1	U/S
05-198	1795	Sulphur	Sulphur	1	1	
05-199	2087	Object	Stone	4	1	Schist
05-200	1	Object	Iron	2	1	Fe
05-201	1911	Stone	Stone	3	1	Quartz, round, possible drillmarks
05-202	2059	Stone	Stone	2	1	Quartz, worked, flat on one side.
05-203	2237	Stone	Stone	8	2	Quartz.
05-204	1769	Animal Bone	Bone	496	1	
05-205	1771	Animal Bone	Bone	15	1	
05-206	1776	Animal Bone	Bone	85	1	
05-207	1782	Animal Bone	Bone	9	1	
05-208	1783	Animal Bone	Bone	44	1	
05-209	1789	Animal Bone	Bone	107	1	
05-210	1795	Animal Bone	Bone	31	1	
05-211	1796	Animal Bone	Bone	165	1	
05-212	1798	Animal Bone	Bone	79	1	
05-213	1801	Animal Bone	Bone	35	1	
05-214	1806	Animal Bone	Bone	97	1	
05-215	1807	Animal Bone	Bone	182	1	
05-216	1808	Animal Bone	Bone	1410	1	
05-217	1810	Animal Bone	Bone	100	1	

Find No	Cont.	Object	Material	g	Count	Notes
05-218	1817	Animal Bone	Bone	339	1	
05-219	1823	Shell	Shell	20	1	
05-220	1823	Animal Bone	Bone	15	1	
05-221	1832	Animal Bone	Bone	99	1	
05-222	1835	Animal Bone	Bone	386	1	
05-223	1837	Animal Bone	Bone	40	1	
05-224	1853	Animal Bone	Bone	44	1	
05-225	1854	Animal Bone	Bone	19	1	
05-226	1767	Animal Bone	Bone	255	1	
05-227	1778	Animal Bone	Bone	13	1	
05-228	1811	Animal Bone	Bone	178	1	
05-229	1813	Animal Bone	Bone	396	1	
05-230	1814	Animal Bone	Bone	141	1	
05-231	1815	Animal Bone	Bone	40	1	
05-232	1818	Animal Bone	Bone	24	1	
05-233	1839	Animal Bone	Bone	117	1	
05-234	1842	Animal Bone	Bone	132	1	
05-235	1847	Animal Bone	Bone	142	1	
05-236	1854	Animal Bone	Bone	4	1	
05-237	1855	Animal Bone	Bone	135	1	
05-238	1856	Animal Bone	Bone	1910	1	
05-239	1857	Animal Bone	Bone	67	1	
05-240	1867	Animal Bone	Bone	158	1	
05-241	1877	Animal Bone	Bone	25	1	
05-242	1878	Animal Bone	Bone	24	1	
05-243	1883	Animal Bone	Bone	3	1	
05-244	1886	Animal Bone	Bone	34	1	
05-245	1895	Animal Bone	Bone	70	1	
05-246	1890	Animal Bone	Bone	21	1	
05-247	1893	Animal Bone	Bone	18	1	
05-248	2187	Animal Bone	Bone	590	1	
05-249	2222	Animal Bone	Bone	314	1	
05-250	2241	Animal Bone	Bone	7	1	
05-251	2248	Animal Bone	Bone	31	1	
05-252	2255	Animal Bone	Bone	232	1	
05-253	2276	Animal Bone	Bone	37	1	
05-254	2316	Animal Bone	Bone	51	1	
05-255	2320	Animal Bone	Bone	75	1	
05-256	2321	Animal Bone	Bone	10	1	
05-257	2328	Animal Bone	Bone	10	1	
05-258	2349	Animal Bone	Bone	30	1	
05-259	2222	Animal Bone	Bone	103	1	From Floating
05-260	2076	Animal Bone	Bone	112	1	From Floating
05-261	2159	Animal Bone	Bone	31	1	From Floating
05-262	2187	Animal Bone	Bone	10	1	From Floating
05-263	1948	Animal Bone	Bone	3	1	From Floating

Find No	Cont.	Object	Material	g	Count	Notes
05-264	2124	Animal Bone	Bone	6	1	From Floating
05-265	2357	Animal Bone	Bone	17	1	From Floating
05-266	2225	Animal Bone	Bone	4	1	From Floating
05-267	2290	Animal Bone	Bone	6	1	From Floating
05-268	1947	Animal Bone	Bone	0	1	From Floating
05-269	2159	Whetstone	Stone	2.5	1	Schist whetstone. From Floating
05-270	2078	Sheet	Copper alloy	1.97	1	From Floating

Appendix 3 – Sample list

Sample No	No	Vol_est	Description
05_01	1775	10	Peat ash deposit
05_02	1834	10	Peat ash
05_03	1843	10	Fire place -peat ash
05_04	1885	10	Peat ash in situ burning
05_05	1948	20	A large thick dump of peat ash
05_06	1766	0	Micromorphology sample
05_07	1766	0	Micromorphology sample
05_08	1766	0	Micromorphology sample
05_09	1972	10	Peat ash
05_10	1766	0	Micromorphology sample
05_11	1766	0	Micromorphology sample
05_12	2007	30	Fire place
05_13	2033	8	Bottom layer of fire place
05_14	2035	10	Ash fill
05_16	1994	10	Peat ash dump
05_17	2076	30	Peat-ash
05_18	2109	8	Fire place
05_19	2112	10	Fireplace- layer of peat ash
05_20	2111	5	Occupation surface
05_21	2116	4	Peat ash (dump ?)
05_22	2124	1	Peat ash
05_23	2125	1	Peat ash
05_24	2133	1	Small patch of greasy charcoal
05_25	2152	10	Peat ash
05_26	2159	10	Peat ash dump
05_27	2078	20	Peat ash
05_28	2177	1	Uniform silt w. Turf debris+ tephra, green?
05_29	2222	20	Peat ash
05_30	2225	10	Hearth deposit
05_31	2201	10	hearth, small
05_32	2187	10	A thin peat ash dump
05_33	2269	10	Peat ash
05_34	2290	20	Peat ash fire place
05_35	2319	4	Floor
05_36	2320	10	Peat ash
05_37	2357	10	Fireplace
05_38	2365	10	Turf mixed
05_39	Multi	0	Micromorphology sample
05_40	Multi	0	Micromorphology sample