Preliminary Report of Archaeological Fieldwork at Svalbard (Svalbardshreppur), 2008

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Introduction

This document is a preliminary report of archaeological fieldwork conducted at and around the farm of Svalbard, Svalbardshreppur, in June 2008. An initial evaluation of the archaeological potential of Svalbard was made by archaeologists of the Iceland Palaeoeconomy Project (IPP) in 1986, revealing the presence of deep midden deposits adjacent to the extant farm mound, on the bank of the bank of the Svalbarsa River. Test excavations and then large scale excavations of this midden were undertaken in successive projects in 1986 and 1988. The Svalbard project yielded one of the largest faunal collections yet recovered in Iceland, the initial analysis of which was instrumental in the development of methods and models of reconstructing palaeoeconomies, landscape history and human-environment interactions in the North Atlantic region. Since 1988, however, North Atlantic archaeology has benefited from ongoing developments in palaeoclimatology, palaeoenvironmental studies, tephrachronological dating, fieldwork methodologies and a tremendous number of new survey and site-oriented field projects which have brought new, data-rich regional perspectives on landscape change, subsistence and social movements. While north Iceland has seen particular emphasis in these new projects, the bulk of this work has been carried out in the Myvatn, Eyjafjordur and the Westfjords regions. Despite the ambitious start made by the IPP project, the north-easternmost extremities of Iceland (Thistilfjordur, Oxarfjordur and Melrakasletta) have seen little ongoing archaeological research and Svalbard remains the sole major site excavated the region.

Due to its greater exposure and vulnerability to arctic climatic influences (air masses, currents and sea ice, for example) relative to other parts of Iceland, the extreme northeast remains an ideal region in which to examine human-environment

interactions, such as Little Ice Age climatic impacts on subsistence economies. Furthermore, the diversity of economic activities based on the extraction or collection of local biological resources, ranging from stock raising and dairying, to cod fishing, to seal and sea bird harvesting practised at Svalbard possibly indicates an interesting capacity for diverse adaptations to environmental variations through employment of alternative economic strategies. With this in perspective, a new round of fieldwork was conducted at Svalbard in 2008, intending to refine the stratigraphy and dating of the midden excavated in 1987 and 1988, to gather new radiocarbon, geoarchaeological and ecofact samples to supplement landscape history and site formation reconstructions for the site and for the Svalbard region, and to identify potential locations for further archaeological archaeological research.

Site Description

Svalbard (N 66 12.429' W15 42.591') is one of the largest and economically most productive farms in the Thistilfjord region and it is the largest of Svalbardshreppur (see Figure 1). Since the 14th century, the farm has had a small church. Historically, the farm held (and still holds) extensive hayfields and grazing lands distributed along the banks and flood plains of the Svalbardsa river, had multiple *sels* (shielings) upriver on the Svalbardsa and one particularly productive coastal *sel* (Hjalmarsvik) with rich grass growth and plentiful and predictable access to seaweed as a supplementary winter sheep fodder. The farm consists of the traces of a farm mound beside the modern farm houses with the church and churchyard nearby. Arrayed along a raised terrace on the south bank of a meander in the Svalbarsa (about 11m above the riverbed) are home fields, the mounded farm midden and a series of barns, sheds and outbuildings. The midden mound is highly

conspicuous, being one of the highest points in the vicinity, and refuse and animal bones are readily visible in slump zones on its steep riverside incline.

The midden saw four zones of archaeological excavation during the IPP projects of 1987 and 1988, including the following (Figure 2): a) the original 2m by 2m test pit, termed the Old Unit; b) the Main Unit, a 8m by 3m trench opened in 1988; c) the Extension Unit, a 3m by 3m trench; and d) the Central Erosion Face, a 3m by 1m trench in the active (and very nearly vertical) slumping northern edge of the midden deposit (see Amorosi 1992).

Project Narrative

The 2008 Svalbard project comprised an archaeological excavation component and a geomorphology survey component. The archaeological excavations were organized by Dr. Jim Woollett (Université Laval) and Uggi Aevarsson (Fornleifastofnun Islands), with the aid of a field team including Véronique Forbes (MA student, U. Laval), Sophie Limoges (MA, Musée Point à Calliers, Montréal), Michelle Mundee and Beth Upex (PhD students, U. Durham). Geomorphological and tephrochonological surveys were conducted by Dr. Andrew Dugmore (U. Edinburgh) and Dr. Andrew Casely (Post-Doc., U. Edinburgh). Uggi Aevarsson contacted the landowner, Sigtryggur Thorlaksson, to request permission for access to the site and, with Jim Woollett, prepared research permit applications. The field work team was assembled in Reykjavik, travelled by truck to Svalbard on June 6 and then returned to Reykjavik June 13, having spent 7 days working on-site.

Re-excavation of the Svalbard Middens

When the project crew began work on the morning of June 8, the 1988 midden trenches were readily identified with the aid of Sigtryggur Thorlaksson and with reference to the 1988 site map. The boundaries of the excavated areas were outlined by several stakes marking the edges of the trenches remaining from 1988 and by subsidence of the in-filled trench. The old midden trenches were reopened immediately with the use of a light front-end loader driven by Jon Runar Jonsson, a heavy equipment contractor based in Thorshavn (Fig. 3). Backfill was stacked adjacent to the trench so as to limit damage to the farm's infield.

In preparation for backfilling in 1988, the excavated floor and portions of the walls of the midden trenches were protected with woven polyethylene and plastic tarpaulins and thick plastic fertilizer bags. These coverings were readily spotted by the heavy machine operator and allowed him to stop excavation before intact archaeological and geological sediments were disturbed. Woven polyethylene bags filled with sediment were also placed at the foot of trench walls in order to prevent slumping. Much as reported during the 1988 project (Amorosi 1988: field notes), a layer of frozen ground about to about 20cm thick was encountered at a depth of about 30cm below surface. Care was taken to not disturb the trench walls while removing this layer, leaving a toe of frozen soil in the section to melt gradually as thereby conserve the section. Nevertheless, in some locations, the front end loader extracted large blocks of frozen soil which extended over 15cm into the section and, in so doing, considerably weakened, or collapsed portions of it (notably the western wall of Extension unit and the eastern wall of the 1986 Old test pit. As well, upon melting, the frozen soil layer collapsed in several locations, even where left to melt

gradually, resulting in a slight undermining and destabilization of the walls, a phenomenon to remember when planning future work at the site.

With the use of mechanised equipment, the trenches were rapidly emptied of fill and the field crew began to work on securing access to the interior of the trench and on cleaning the section and floors with spades and buckets (Figures 5, 6). The Old and Extension unit trenches were completely emptied of fill. The western half of the Main unit trench was also re-excavated, comprising a space measuring approximately 3m east to west and 3m north to south including squares G20 to 22, H20 to 22, and I 20 to 22. Work continued on cleaning sections until June 10.

The project goals did not include the undertaking of new excavations. Rather, the sections walls were cleaned of backfill and straightened by scraping with trowels, removing as little intact soil as possible. Nevertheless, in order to stabilize a section damaged during the initial mechanized fill removal, the northeast corner of the Extension unit was excavated back in two steps (representing square F20 following the 1988 grid system) (Fig. 7). As well, thin layers (approximately 10cm thick) of sediment from the floor along the foot of the northern wall of the Extension and Main units were noted and excavated, in order to reveal sterile gravel substrates throughout the trenches. All intact deposits (floor and section walls) were excavated according to natural stratigraphy and dry-sieved through 6mm mesh. The sediment infilling the 1988 excavations was not sieved, though some animal bone was visible in it.

Excavation, section cleaning, sampling and documentation continued until June 12. Plastic sheets and soil bags were replaced in the trenches and then the trenches were re-filled on June 13 with the use of mechanized equipment.

Stratigraphy

The major goal of the 2008 field season was to refine the chronology of the Svalbard middens; accordingly the project concentrated on re-examining and re-documenting midden stratigraphy. Most sections were mapped at 1/10 scale during the 1988 field season (including the south, west and east sections of the Extension unit, all sections of the Old unit, and the north, south and western sections of the Main unit). Nevertheless, some sections were re-drawn in 2008 in order to better demonstrate the stratigraphic relationship of two tephra deposits and surrounding layers, and to clarify the configuration of a pair of erosional cuts running east-west across the length of the Old and Extension units.

Beginning on June 11, the field crew began documenting stratigraphy of all exposed sections. In 2008, particular attention was paid to the cleaning and documentation of the northern section of the Extension unit which, because of the clear presence of tephras and of stratigraphic cuts separating phases of deposition and soil development, now appears to be essential for understanding the history of formation of the Svalbard midden.

Stratigraphic description: Main Unit

Midden deposits lens out quickly toward the east in the Main unit, indicating that this trench was placed in the eastern slope of the midden mound. The deepest layers in the Main unit comprise very fine, silty, friable, grey, pink to orangey grey ashy deposits with charcoal lenses, fine to coarse fragmentary charcoal and quantities of wood and well-preserved animal bone. These refuse layers, likely representing a mix of combustion refuse, household food waste and butchery, are most substantial (a little over 1m thick) in the northern edge of the unit, where the

underlying sterile gravel depots dip to the north, over the Svalbardsa river bank. A stratigraphic unconformity was noted in the north wall of the Main unit, in units G20 and G21 (Figure 8). This cut comprises an erosional surface dipping towards the north and west, representing a sort of swale or slump channel active at the edge of the midden, above the Svalbardsa river bank.

Overlying the lower ashy midden deposits was a set of dense, turfy soil layers, about 15 to 25cm thick, with relatively little animal bone or charcoal detritus, suggesting a hiatus of active deposition in the immediate area. Within this complex of turfy soil layers was a relatively thin but dense and uniform deposit of very rich charcoal-rich deposit (SU8) and two very thin layers of grey-green volcanic tephra, one overlying and one underlying SU8. As was noted during the 1988 project, the SU8 and the tephra layers are very clearly contorted by cryoturbation features related to the formation of hummocks, indicating the presence of frozen ground deep into the soil profile (extending to about 30 to 40cm below the current soil surface) (Figure 9). The ashy midden layers underlying the lower tephra layer are not, however, distorted by frost wedges, indicating that freezing occurred after the deposition of almost all midden materials and after the most recent ash fall recorded at in this stratigraphic sequence. Substantial midden deposits above SU8 were observed only in the northern half of the Main unit, suggesting a progressive drift of the zone of active deposition to the north as the midden mound was built up. These midden deposits filled the gully in units G20 and 21 noted above. Artifacts dating the mid 11th century to the 15th century were associated with these strata.

The uppermost 20 to 30 cm of the Main unit sections is composed of a massive, dark red-brown homogenous and friable silty organic-enriched soil with

sparse animal bone, artefacts, charcoal or other inclusions. This is the modern soil A horizon and appears to represent the deposition of wind-blown silt over a stable and vegetated ground surface after the cessation of active midden deposition. Post-medieval artefacts were recovered in the layers above SU8.

Stratigraphic Description : Old and Extension Units

The Old and Extension units are considered together here as they share several section walls as a result of the removal of baulks in the 1988 field season. The midden deposits observed in these trenches reflect the general pattern of deposition observed in the Main unit; the stratigraphic column was much deeper however (up to 2m).

As in the Main unit, the midden in the Old and Extension units was deposited over a deposit of very red-brown poorly sorted silt, gravel and cobbles whose upper surface dips sharply to the north, toward the Svalbardsa. The break of slope of this original depositional surface is located approximately in the middle of the north-south axis of the Extension unit trench. The lowest midden layers are a complex group of light to dark grey, pink and orange-grey very friable ash lenses and layers with charcoal, wood and very common bone inclusions. The deepest 10 to 15cm of these midden deposits are very compressed and dense and appear to contain more organic matter or organic silt. This lower group of midden deposits is approximately 110cm deep in the southern (uphill) portion of the Old and Extension units; it thins rapidly however in the northern half of the trenches, where only 30cm of deposits are present in the northern section (see Fig. 10, 11, 12). Running approximately east-west through the middle of the unit was a very clear erosional cut where the bulk of

midden deposits were truncated by slumping or by another agent. Artifacts associated with these layers were dated to between the 11th to the 15th century.

Above the lower group of midden deposits was a thick set of very dense, turfy, organic silty soils 35 to 50cm thick (thickest in the northern portion of the trench). The turfy soils were very homogenous in the southern section, while they were much more heterogeneous in the northern sections. The lower layer of turfy soil in the northern section of the extension unit was very heterogeneous, having many turf block fragments visible as small and large mottles with varying soil textures, interdigitating with lenses of ashy midden deposit, suggesting that this deposit was highly mixed, disturbed or redeposited (Figure 12).

A thick and heterogeneous charcoal-rich deposit (SU8) was observed amidst the upper portion of the mixed turfy soil. While SU8 is a relatively thin and highly homogeneous layer with sharp contacts throughout the southern and eastern portions of the Extension and Old units, it is much thicker, more diffuse and heterogenous in the southwest and northeast Extension units, where it includes substantial lenses of red and salmon-coloured turf ash (Figure 13). It is also more diffuse in the northwestern corner of the extension unit.

As was seen in the Main unit, SU8 is located between two thin deposits of volcanic tephra. The upper layer was continuous and strongly expressed while the lower layer was weakly and intermittently expressed. The turf soil layer above SU8 was very homogenous and dense and had few internal inclusions, suggesting that it represents a hiatus of midden deposition and a period of uninterrupted soil development.

Above the turfy soil layers was a group of ashy midden deposits containing bone interspersed with layers of turfy soil. These layers were present in the western

and northern portions of the Extension and Old trenches and varied in thickness between 35cm to over 1m. These layers dipped toward the north and the west, indicating a series of dumping events trending toward the northwest. Artifacts dated to the 17th to the 19th century were recovered in these contexts.

Two erosional cuts were observed in the north wall of the Extension unit, both indicating erosion or gully-like depressions with wind, water or slumping and their subsequent infilling with combustion and food wastes and possibly turf related to decaying turf walls or buildings. A third, very clear, cut runs through the middle of the Extension and Old units and cuts nearly all strata, from the most recent midden deposits to those underlying SU8. This cut is obvious in the west section of the Extension unit, as seen in Figure 11. The cut is filled with more recent ashy midden and disturbed turf deposits.

Sampling

Artifacts and Faunal Remains

Small numbers of artifacts and a modest quantity of faunal remains (approximately 50/) were recovered during the cleaning of floors and sections. These were bagged by stratigraphic context , with artifacts having 3-dimensional spatial coordinates. Less than two dozen artifacts were recovered, the bulk being iron objects which were recovered throughout the stratigraphic column and ceramic (stoneware and red earthenware) vessel and pipe fragments recovered from the upper midden deposits. A discoid gaming piece approx. 3cm in diameter was recovered from SU 28, one of the lowest midden layers, in square G20 of the Main unit. This object bore five small ring and dot patterns arranged in a cross pattern; the ring and dot motif is frequently observed on Norse objects dating tot the 11th century,

a date which agrees well with other artefact and 14C dates for the lowest midden layers (Amorosi 1991). Artifact collections were shipped to the Fornleifastofnun Islands for cataloguing and conservation, while faunal collections were shipped to the Université Laval Zooarchaeology laboratory.

Archaeoentomological Sampling

Véronique Forbes collected 2 litre bulk samples in 10cm sampling units from two columns in the extension unit for recovery of insect remains. One sampling column was located in the middle of the Extension unit's southern section, immediately east of Cynthia Zutter's 1988 archaeobotanical sampling column (Fig. 15). A second sampling column was placed in the north wall of the extension unit. Duplicate 2*l* samples were collected from these contexts fro undetermined future analyses. After separating the organic fraction of these samples through kerosene floatation in Iceland, Ms. Forbes shipped these samples to the Université Laval Environmental Archaeology Laboratory for analyses.

Geoarchaeological Sampling

Dr. A. J. Dugmore collected 10ml sediment samples of volcanic tephras above and below SU8 in square F17 in the Extension unit. These samples were transported to the University of Edinburgh for geochemical laboratory analyses.

Bulk sediment samples were also collected from the south Extension unit section in order to recover charcoal for AMS dating.

One whole soil column sample was recovered using two overlapping 12cm wide drain pipe sections as a sampling box, from the western section of square H18, spanning the entire midden stratigraphic column.

Initial Results of Geochemical Tephra analyses

Initial geochemical characterisations of the two volcanic tephras were conducted by Dr. Anthony Newton, University of Edinburgh. While this analysis is yet at a preliminary stage and requires verification, initial results identify the more recent tephra observed at Svalbard as that of the eruption of Hekla in 1300 and the upper tephra as that of Veidavotn in 1477. This differs significantly from the earlier tentative dates attributed to the tephras (H1693 and V1717; see Amorosi 1992, 1996) and suggest that SU8 is a marker for the late Middle Ages rather than the Early Modern period. As well, it seems accordingly that the bulk of the midden may have been deposited rather rapidly, in a period of about 250 years, assuming that the mid-11th century date for the initial site occupation is correct.

Site Mapping

Dr. Andrew Casely gathered coordinate data with a differential GPS for the compilation of a new digital site map. This map is currently being compiled with the aid of Oscar Aldred, Fornleifastofnun Islands.

Figure __: Map of the Thistilfjordur region, northeast Iceland.

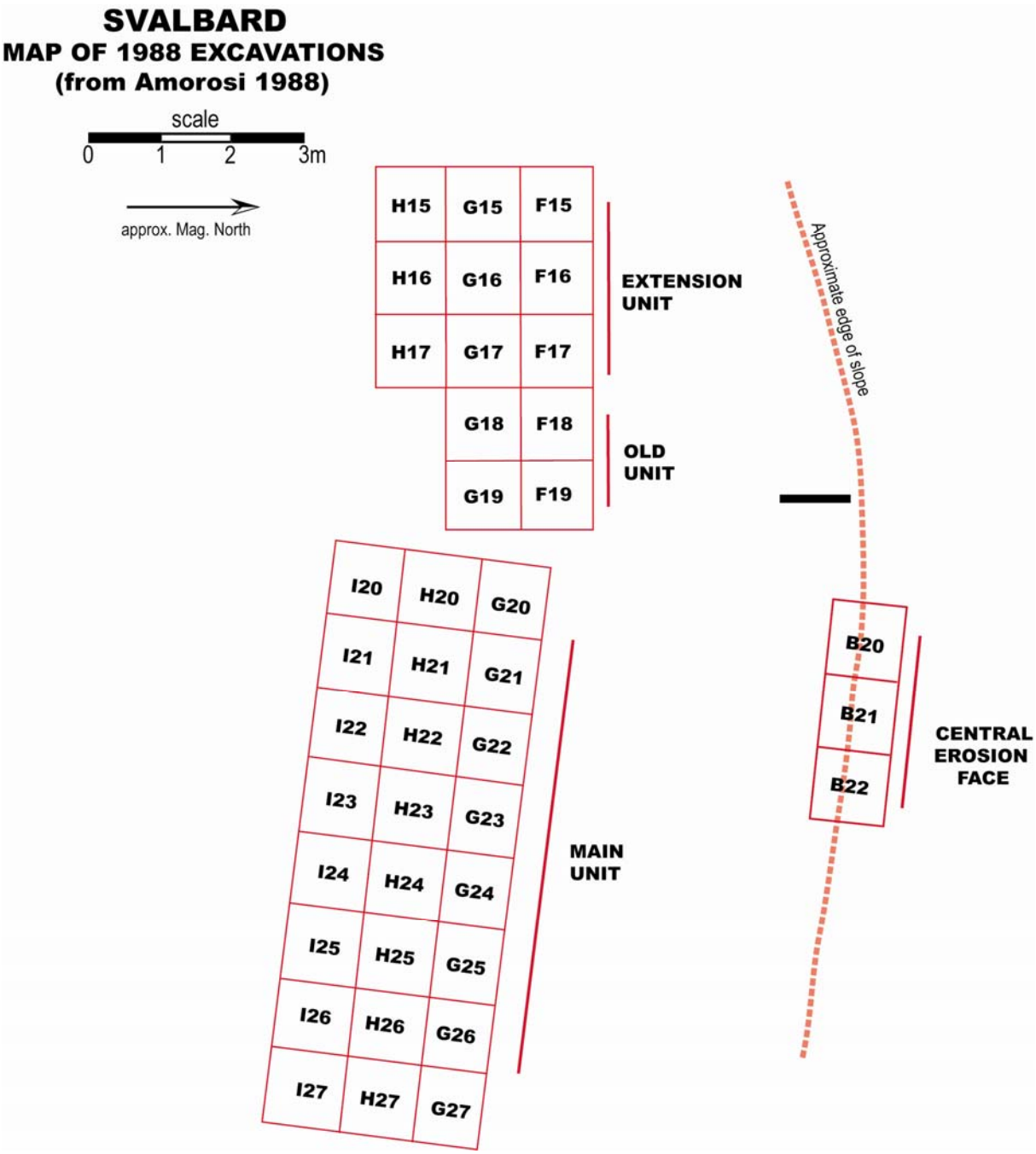

Figure 2: Schematic Plan of 1988 Excavations

Figure 3: Re-opening of the midden excavation with bobcat

Figure 5 and 6: Cleaning of 1988 excavations

Figure 7: Uggi Aevarsson excavating in the Old/Extension unit. SU8 is clearly visible as a thick black band in the middle of the section, with post-medieval ash and turf soil layers deposited on a slant above, and turf and midden layers below.

Figure 8: North Section of Main unit squares G20, G21, G22, showing step excavated into the west wall of G20 and erosional cut in upper half of the section.

Figure 9: South Section of the Main unit, squares I20 and I21. Note the presence of cryoturbation features in AU8 and surrounding tephras while the basal midden layers are undisturbed

Figure 10: Photo mosaic of south section of Extension unit (H15 to H17) showing SU8 located very high in the section wall, overtop of a thick deposit of ash lenses. The 1988 archaeobotanical sampling column is seen at centre.

Figure 11: West section (centre) and South section (left) of the Extension unit (H15, H16, G15, H15), showing the sharply defined erosion cut in the midst of the midden deposit, running parallel to the break of slope. Note also the height of the SU 8 in the southern section at left as compared to the north (right)

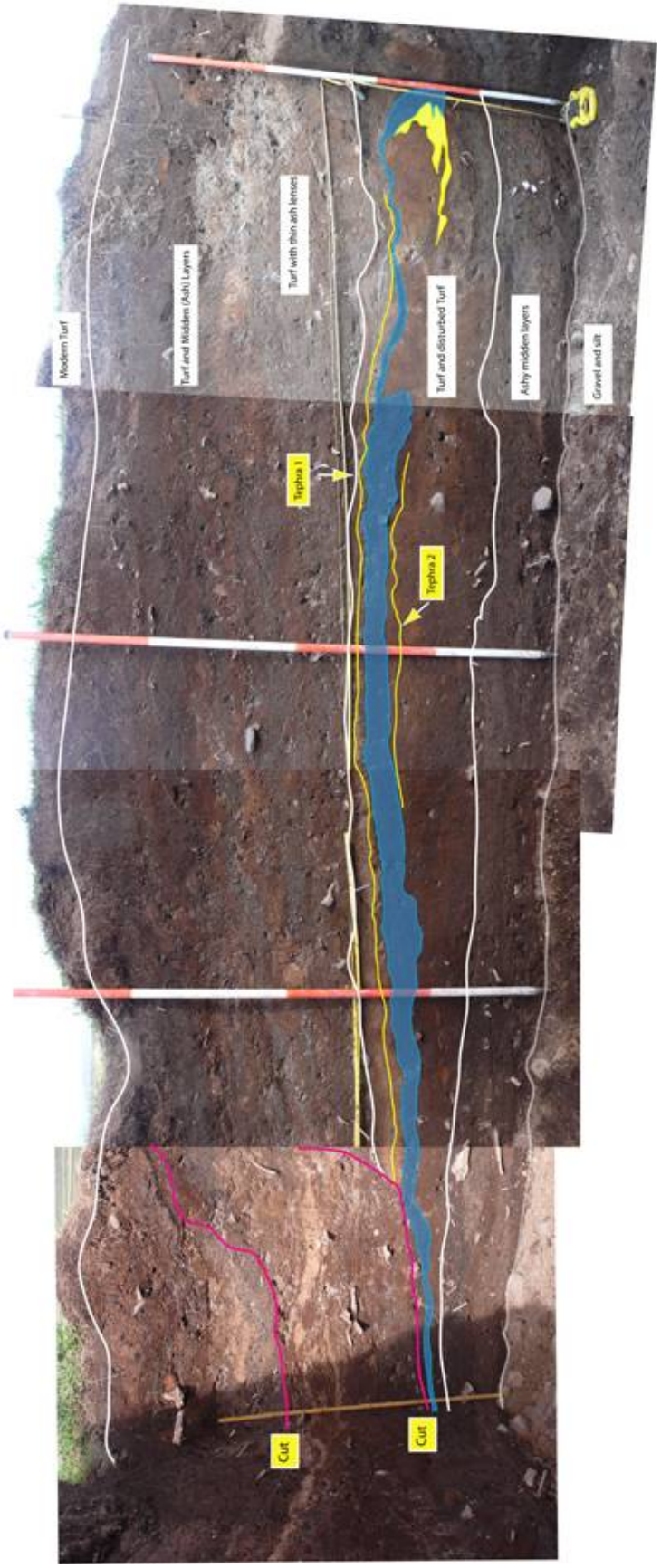

Figure 12 : Photo Mosaic of the north section of the Extension – Old units (F15 to F19). Blue indicates SU8.

Figure 13: South section of square H15, the south-western corner of the Extension unit, showing the thickness and heterogeneity of SU8, including dense charcoal deposits mixed with red turf ash lenses.

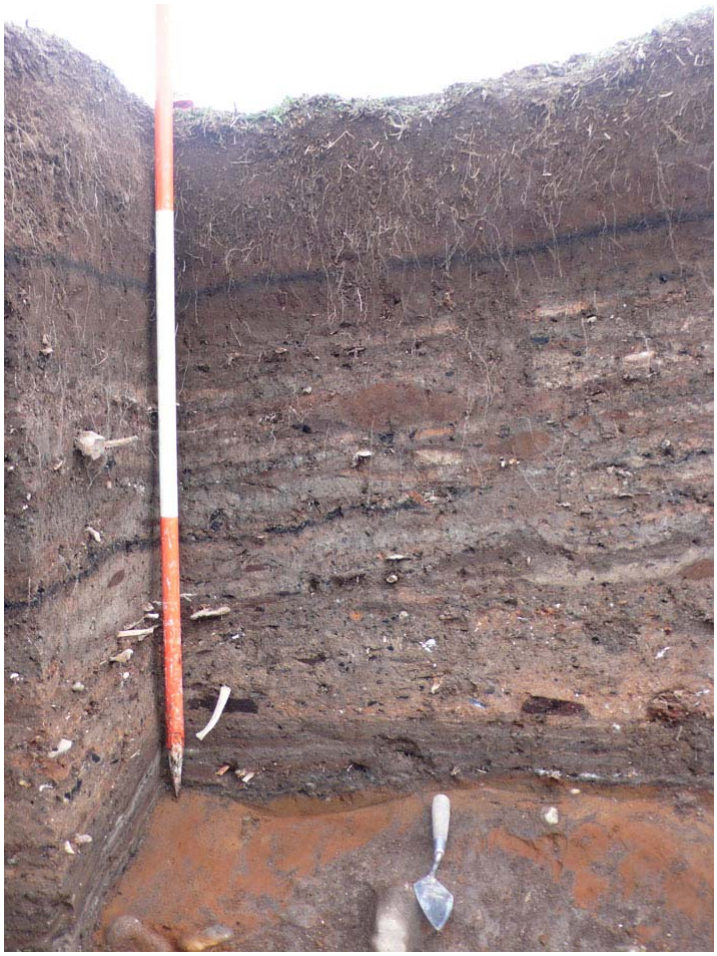

Figure 14: Southeast corner of Extension Unit (Unit H17) showing depth of midden accumulation and sharp contacts of peat ash layers, demarcated by thin lenses of darker organic rich soil horizons.

Figure 15: Véronique Forbes and sampling column in the south section of the Extension unit

Figure 16: Sigtryggur Thorlaksson and family at the midden excavation site, June 13 2008.

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