Glaumbær: Overview and assessment of the results of the 2001-2014 investigations

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Photo on front page – Excavating at the Upper Glaumbær ash midden.

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1.0 ABSTRACT

This report outlines the broad results of the 2001-2014 work at Glaumbær in Skagafjörður, North Iceland. The project was a collaborative effort between archeologists from United States and The Skagafjörður Heritage Museum. We describe the two habitation areas of Glaumbær: Upper Glaumbær and Lower Glaumbær which are spatially and temporally distinct. That these two areas are distinct in time and space imply that they are all part of a single unit that has relocated. The older Viking Age remains at Lower Glaumbær consist of a main long house, its associated midden, and an outbuilding, potentially a barn. The earliest AMS date was from a charred barley seed recovered from the limited excavations, which yielded a calibrated range of AD 890–982 (a midpoint of AD 936). The longhouse (Icel. skáli), midden, and outbuilding at Lower Glaumbær were abandoned well before the 1104 tephra layer fell as Lower Glaumbær was probably occupied for a little over 100 years. At Upper Glaumbær, sometime between AD 1000 and 1104, a midden began forming south of the churchyard and east of the standing turf house. Because no evidence for other structures was identified at Upper Glaumbær (e.g., floors, or walls) it is assumed that this earliest midden at Upper Glaumbær is associated with a structure in the same location as the standing turf structure. Midden deposition shifted to the location of the current visible ash pile soon after the 1104 tephra layer fell. Both of these midden deposits are consistent with long-term occupation in the location of the standing turf structure. However, only the area around the standing turf house south of the churchyard has been archaeologically investigated. Today, the visible structures at Upper Glaumbær consist of the modern church, its churchyard, the standing turf house, its associated ash pile to the southwest. Lower and Upper Glaumbær, attest to a relocation of farmstead activities sometime about 1050, and should be treated as the same archaeological site, representing a continuous occupation in two different discrete locations.

2.0 ÚTDÁTTUR (ICELANDIC ABSTRACT)

Í skýrslunni er gerð grein fyrir niðurstöðum fornleifarannsókna sem fram fóru í Glaumbæ í Skagafirði á árunum 2001-2014. Skýrslan fjallar um rannsóknir á tveimur búsetusvæðum í Glaumbæ, hér kölluð efri og neðri Glaumbær (Upper and Lower Glaumbær). Svæðin tvö eru frá mismunandi tímum og benda til að bærinn (bæjarhúsin) hafi snemma verið færður til og fluttur ofar í landið. Minjar frá Víkingaöld (10. – 11. -öld) eru í túni neðan núverandi bæjarhúsa, og þar hafa fundist leifar skála, öskuhaugs, jarðhýsis og einhverskonar útihúss. Kolefnisaldursgreiningar benda til búsetu þar a.m.k. frá 10. öld. Þessar byggingar voru aflagðar og bæjarhúsin flutt til áður en gjóska úr Heklu féll 1104. Bæjarhús á neðra svæðinu virðast hafa verið í notkun í um 100 ár, á milli 1000 og 1104. Á efra svæðinu er gamli torfbærinn enn uppistandandi svo ekki var hægt að leita eldri bæjarleifa þar, en ekki er óvarlegt að álykta að leifar 11. aldar ruslahaugs austan núverandi bæjarhúsa hafi tilheyrt eldri skálabyggingu. Haugurinn bendir til að frá 11. öld hafi bærinn staðið á sama stað og torfbærinn stendur í dag. Enn sem komið er hafa takmarkaðar rannsóknir farið fram á svæðinu umhverfis gamla torfbæinn og því er lítið vitað um eðli og gerð mannvirkja á bæjarstæðinu þar. Yngri öskuhaugur sunnan bæjar var kominn í notkun um 1104 sem bendir til samfelldrar byggðar. Varðveitt er yngsta gerð torfbæjarins í Glaumbæ. Norðan við um núverandi torfbæ eru kirkja og kirkjugarður.

Torfbæirnir tveir, sá sem enn stendur á efra svæðinu og jarðlægar leifar þess sem fannst á neðra svæðinu, bera langri búsetusögu í Glaumbæ gott vitni.

3.0 INTRODUCTION

Glaumbær was formerly a stately farm, a priest's residence, and the location of the parish church for the area of Langholt in Skagafjörður. Today, the still standing 19th century turf house and associated buildings are the main exhibition area of the Skagafjörður Heritage Museum. Archaeologically, Glaumbær is two distinct areas, Upper Glaumbær, where the main turf house museum and church are today, and Lower Glaumbær, 150 m east where a Viking Age long house has been identified (Figure 1). These two areas are separated by an undulating strip of land about 75 m wide where little cultural material has been recovered. In this strip, there is no evidence of any substantial activity from any time period. Including this interstitial strip and outlying areas, the maximum area of the combined farmstead of Glaumbær is about 40,000 m^2 or 40 ha (See Steinberg, et al. 2016 for a archaeological definition of farmstead). The concentrated site of Lower Glaumbær is about 6800 m^2 while the areas of archaeological importance, including the modern church and its graveyard, encompass about 7,800 m^2 at Upper Glaumbær.

While spatially distinct, these separate areas should be considered a single farmstead that has shifted or relocated (e.g., Bolender, et al. 2011; Zoëga 2014). Lower Glaumbær was occupied first, well before AD 1000. Upper Glaumbær was occupied after AD 1000 and has been occupied ever since. Lower Glaumbær seems to have been abandoned before the white Hekla tephra layer fell in AD 1104. While it is clear that the farmstead moved, the nature the relocation is still not well understood.

Archaeological work at Lower Glaumbær started in 2001 with a geophysical survey (conductivity), a series of widely spaced cores, and a few small test trenches placed based on the geophysical results. This early work identified the archaeological site at Lower Glaumbær. In 2002 additional geophysical survey was carried out and a series of trenches were excavated to understand the nature of the Viking Age long house that occupies the small knoll 150 m east of the turf house museum. Three of these trenches cut through portions of the main long house dwelling. An additional trench was excavated into the south end of the ash pile south of the turf house museum at Upper Glaumbær. In 2005 a 700 m^2 area over the Viking Age long house was cleared of grass overburden and a ground penetrating radar (GPR) survey was undertaken. This GPR survey was followed up with shallow excavations that exposed the top of various features of the long house. These identified features remain unexcavated. Part of the midden associated with the Viking Age Long house was also de-turfed and partially excavated. In 2009 a more detailed conductivity survey was carried out, an area of 1700 m^2 (that included the south portion of the long house) was de-turfed, a second GPR survey was conducted over that de-turfed area. This was followed up by additional coring, a 3x3 m excavation in the midden, and the re-excavation of the southern most of the 2001 trenches. The re-excavated trench (excavation D) encountered parts of an outbuilding, potentially a barn, southeast of the main long house and probably associated with the long house.

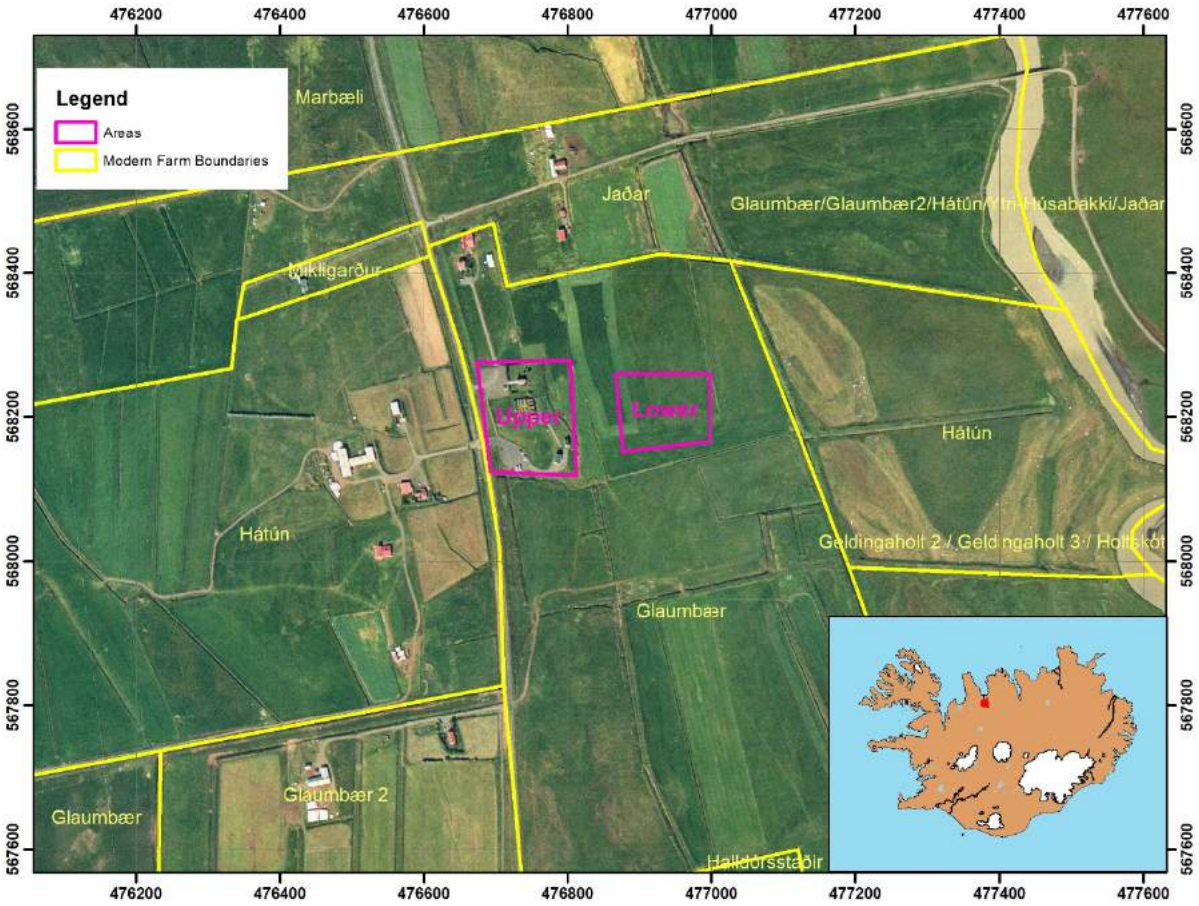

Figure 1. Overview of both upper (left and west) and lower (right and east) areas of Glaumbær marked in purple. Modern farm boundaries are marked in yellow

3.1 Geology and tephra

The geology of the Skagafjörður region is characterized by Upper Tertiary basic and intermediate extrusive basalts (Feuillet, et al. 2012) overlain by morainic glacial till (Decaulne, et al. 2016). The area was deglaciated by 6100 yr cal.BP and then subject to uplift (Cossart, et al. 2014). Glaumbær is in the middle of the Langholt region, which is probably the remnants of a medial moraine. The soil overlaying that glacial till of the moraine is a brown andosol that derives from aeolian sediments of volcanic origin, but is not the direct product of eruptions (Arnalds 2004, 2008; Arnalds, et al. 1995). The andosol is non-cohesive but has an extremely high water-retention capacity (Arnalds 2008).

Archaeological investigation of Glaumbær relies heavily on tephra layers preserved in the soil. Skagafjörður has an early tephra sequence that allows for a fine-grained chronology of the changes in early settlement patterns (Larsen, et al. 2002). While tephra deposition can vary over small distances (Davies, et al. 2010) the basic tephra sequence is found throughout Skagafjörður and allows for a common dating system among farms and farmsteads (Þórarinsson 1977).

- Historic:

  - Hekla A.D. 1766. A black tephra usually found in turf or in the upper 10 cm of the soil sequence (Kirkbride and Dugmore 2006; Thórarinsson 1967).

- Hekla A.D. 1300: A gray-blue to dark black tephra (Larsen 1984; Larsen, et al. 1999; Larsen, et al. 2002; Larsen, et al. 2001; Sveinbjarnardóttir 1992).
- Hekla A.D. 1104 (H1). This white or yellowish-white tephra is the most consistent in Skagafjörður (Eiriksson, et al. 2000) and is readily identifiable in both natural and cultural stratigraphic sequences.

❖ Landnám sequence (LNS):

- Vj~1000 tephra. A blue to bluish-black layer whose source has not been determined but is likely to be either from a Grímsvötn and/or Veiðivötn eruption dated to approximately A.D. 1000 (Sigurgeirsson 2001). The layer was first suggested in two undergraduate theses (Jónsson 2005; Ólafsson 1985) and it has been proposed that this layer may be found in other areas (Aldred and Sigurgeirsson 2005; Lárusdóttir, et al. 2012). Preliminary analysis of the composition of volcanic glass shards by scanning electron microprobe (SEM) has identified a mixture of shards from both volcanic sources.
- "Landnám" or "settlement" layer (LNL, LTL, also designated as 871). The layer is so-named for its association with the earliest settlements in Iceland (Dugmore and Newton 2012)) and is dated to A.D. 871 ±2, (Grönvold, et al. 1995), but could be dated to A.D. 877±4 (Schmid, et al. 2017; Zielinski, et al. 1997). The tephra originates from the Vatnaöldur fissure swarm associated with the Torfajökull and Bárðarbunga volcanos (Dugmore and Newton 2012; Larsen 1984). In general, this layer consists of two distinct tephras–an olive-green tephra overlying a white tephra. However, in Skagafjörður, only the green portion is present (cf. Hallsdóttir 1987). In many cases this layer and surrounding layers of the LNS are tightly spaced in a brown organic rich soil matrix associated with the environmental changes of colonization.
- Black tephra below the LNL (K600). The earliest tephra in this sequence is a dark black layer probably from the Katla volcano, but is not well dated (Wastegard, et al. 2003).

❖ Prehistoric:

- Hekla 3 (H3). A thick (generally 2-3 cm) white or whitish-yellow tephra dating to about 950 B.C. (Dugmore, et al. 1995).
- Hekla 4 (H4). A thick (generally 1-3 cm) white or yellowish-white tephra dating to about 2300 B.C. (Eiriksson, et al. 2000).

3.2 Farmstead stratigraphy

Chronological phasing of Glaumbær relies primarily on two tephra layers: the white Hekla A.D. 1104 (H1) and the dark Hekla A.D. 1300. These layers are the most commonly found in cores and the easiest to identify of the historical tephras. H1 is presented twice as often as Hekla A.D. 1300 (Table 7). Using these tephra layers to date cultural deposits allows for the chronological phasing of various parts of Glaumbær. Deposits categorized by these temporal phases are based on whether or not cultural material was found above, below, or in between these two layers. Thus, Glaumbær is divided into three main phases:

- Pre-A.D. 1104
- A.D. 1104-1300

- Post-A.D. 1300

Other tephra layers are used to help identify the overall stratigraphic sequence in the soil cores and to associate specific layers with historical periods.

3.3 Written sources

The name "Glaumbær" suggests a joyous noise, potentially a waterfall, the making of iron, or the ringing of chimes (Sigurðardóttir, 2011). The land of Glaumbær is probably a part of the original land claim of Úlfljot "who took possession of the whole of Langholt below Sæmundar Brook" (Pálsson and Edwards 1972, 89) but the farm itself was not specifically mentioned in the *Landnámabók* (Pálsson 2001, 262). The earliest farm established on Langholt proper is probably/might be Seyla , a little more than 4 km south of Glaumbær (Steinberg, et al. 2016).

The earliest mention of Glaumbær is most likely in The *Saga of the Greenlanders,* where it was described as the farm established by Karlsefni and Gudrid after they returned from Vínland (via Norway). While the saga was probably written down in the 13th century, it describes events around AD 1000, that are part of a long oral tradition (Kellogg and Smiley 2000, 626).

> Karlsefni then put to sea and made land in north Iceland in Skagafjord, where he had his ship drawn ashore for the winter. In the spring he purchased the land at Glaumbaer and established his farm there, where he lived for the remainder of his days. He was the most respected of men. He and his wife Gudrid had a great number of descendants and a fine clan they were.
> After Karlsefni's death Gudrid took over the running of the household, together with her son Snorri who and been born in Vinland.
> When Snorri married, Gudrid traveled abroad, made a pilgrimage south and returned to her son Snorri's farm. By then he had a church built at Glaumbær. Later Gudrid became a nun and anchoress, staying there for the remainder of her life. (Kunz, 2008)

This description is in partial contrast to the similar postscript at the end of the *Saga of Eric the Red* (Kunz, 2008) where they return to the farm of Karlsefni's family at Reynines (today Reynistaður), about 6 km north of Glaumbær.

> The following summer Karlsefni sailed for Iceland and Gudrid with him. He came home to his farm at Reynises.
> His mother thought his match hardly worthy and Gudrid did not stay there on the farm the first winter. But when she learned what an outstanding woman this was, Gudrid moved to the farm and the two women got along well.

The Glaumbær-Reynistaður discrepancy has been noted and Þorláksson (2001) suggests that the *Saga of Erik the Red* version is closer to the original oral tradition. Both stories suggest that Snorri had a younger brother (named Thorbjorn in *Eric the Red* and Bjorn in *Greenlanders*) that was born in Iceland. Both stories recount a series of bishops that are descendent from Karlsefni and Gudrid via the two brothers (Kellogg and Smiley 2000, 635).

Glaumbær is also mentioned in the *Saga of Grettir the Strong* where Grettir and his brother are traveling to the island of Drangey in the middle of Skagafjörður.

> Then they headed for Skagafjord, went northwards though Vatnsskard and on to the Reykjaskard then down the slope at Saemundarhlid and on to Langholt. They reached Glaumbær late in the day. Grettir kept his hood off, as he always did outdoors, whatever the weather.
> After they had moved on a short way from there, a man came up to them from the opposite direction. He had a large head and was tall, slim, and poorly dressed. He greeted them and asked them their names. They told him, and he said he was called Thorbjorn. He was a vagrant who could not be bothered to work, and very boastful: people made great fun of him

> and some even played tricks on him. He tried to impress them and told them many stories about the local people. Grettir found him highly amusing.
> He asked whether they did not think they needed someone to work for them.
> "I'd like to go with you" he said.
> Then he talked them into letting him go along with them. The snow was drifting heavily and the weather was cold. Because he was boisterous and a great joker, he was nicknamed Glaum (Merrymaker)
> "When you went around bareheaded in that storm," said Glaum. "The people at Glaumbaer were very curious about whether you are a strong as you are insensitive to the cold. There were two farmer's sons there, quite uncommonly strong and the shepherd called them out to tend the sheep with him, but they claimed they were so cold they could hardly dress.
> Grettir said, "I saw a young man in the doorway pulling on his gloves and another walking between the cattle shed and the compost heap. I could hardly be afraid of either of them.
> Then they went to Reynines and spent the night there. . . (Scudder 1997, 160)

This section of the *Saga of Grettir the Strong* and the post script of the *Saga of the Greenlanders* (above) seem to be generally contemporary—potentially within 15 years of each other (Sigurðardóttir, 2011) and It is possible that, for an educated audience, the two farmer's sons mentioned at Glaumbær may be a referent to Snorri and his younger brother, but it might just be a curious coincidence (Sigurðardóttir, 2012).

The earliest reliable written record about Glaumbær suggests a date of 1234 (Sigurðardóttir, 2011) when Sturla Þórðarson, the author of the *Sturlunga saga*, says that Hallur Þorsteinsson, a follower of the Ásbjörn clan, lived at Glaumbær (Jóhannesson *et al.* 1946, 367). Hallur Þorsteinsson was a descendent of the family who journeyed to Vínland (Sigurðardóttir, 2012) and it would appear that Hallur Þorsteinsson sold Glaumbær to Hrafn Oddsson, who is not any obvious relation to those that journeyed to Vínland. In that same *Sturlunga saga,* Glaumbær is mentioned serval times, specifically, that Hrafn's son Jón korpur and his grandson Glaumbæjar-Hrafn Jónsson (McGrew, 1970) also lived at Glaumbær. Glaumbæjar-Hrafn, who died in 1343, was one of the most powerful chieftains in North Iceland (Þorláksson, 2001) and is said to have invited 360 people to his daughter's wedding party in Glaumbær in 1342 (Sigurðardóttir, 2011).

In 1360 Glaumbær is mentioned in the Hólar church registry (Íslenzkt fornbréfasafn 1896, 174). In the earliest Icelandic census, in 1703, there were 11 people at Glaumbær with a few more folks in later iterations (National Archives of Iceland, 2019). In the massive 1714 *Járðabók*, it is said that the Glaumbær priest also administered to Víðimýri and Geldingaholt (Magnússon and Vídalín, 1930). At that time, the people at Glaumbær also seem to have had a right of way over the neighboring farm of Marbæli for cattle, and potentially iron making. Glaumbær had Mikligarður (113), Medalheimar (1006) (abandoned), and Jaðar (114) as associated share-cropper farms.

A 1917 túnakort map of Glaumbær and its associated fields (Þjóðskjalasafn Íslands) shows the arrangement of buildings and fields at that time (Figure 2). The depiction shows the current museum turf house being separated from a church by the road which runs between them. The churchyard is drawn as only being to the north of the church, and if this georeference is correct, it would encompass the southeast quarter of the modern churchyard. The túnakort map also indicates four sheep houses: the northeast sheep house, now covered by the older cement priestly residence; the southeast sheep house adjacent to the Ashus, that may have been disturbed when the Quonset hut was buried in the visible mound; the northern sheep house (investigated in 2001 with TT1 & TT2, page 27) and the southern sheep house that was potentially built on a the site of a Viking Age barn associated with Lower Glaumbær.

While the early written sources are ambiguous, there is a distinct possibility that Glaumbær is associated with the descendants of the Vínland voyages, and potentially some of the people who made the actual voyages. The relocation of the farmstead, and the dating of the area around the Upper Glaumbær church are consistent with the *Saga of the Greenlanders* sequence. Either way, it is clear that Glaumbær, from an early time, is potentially owned by powerful individuals.

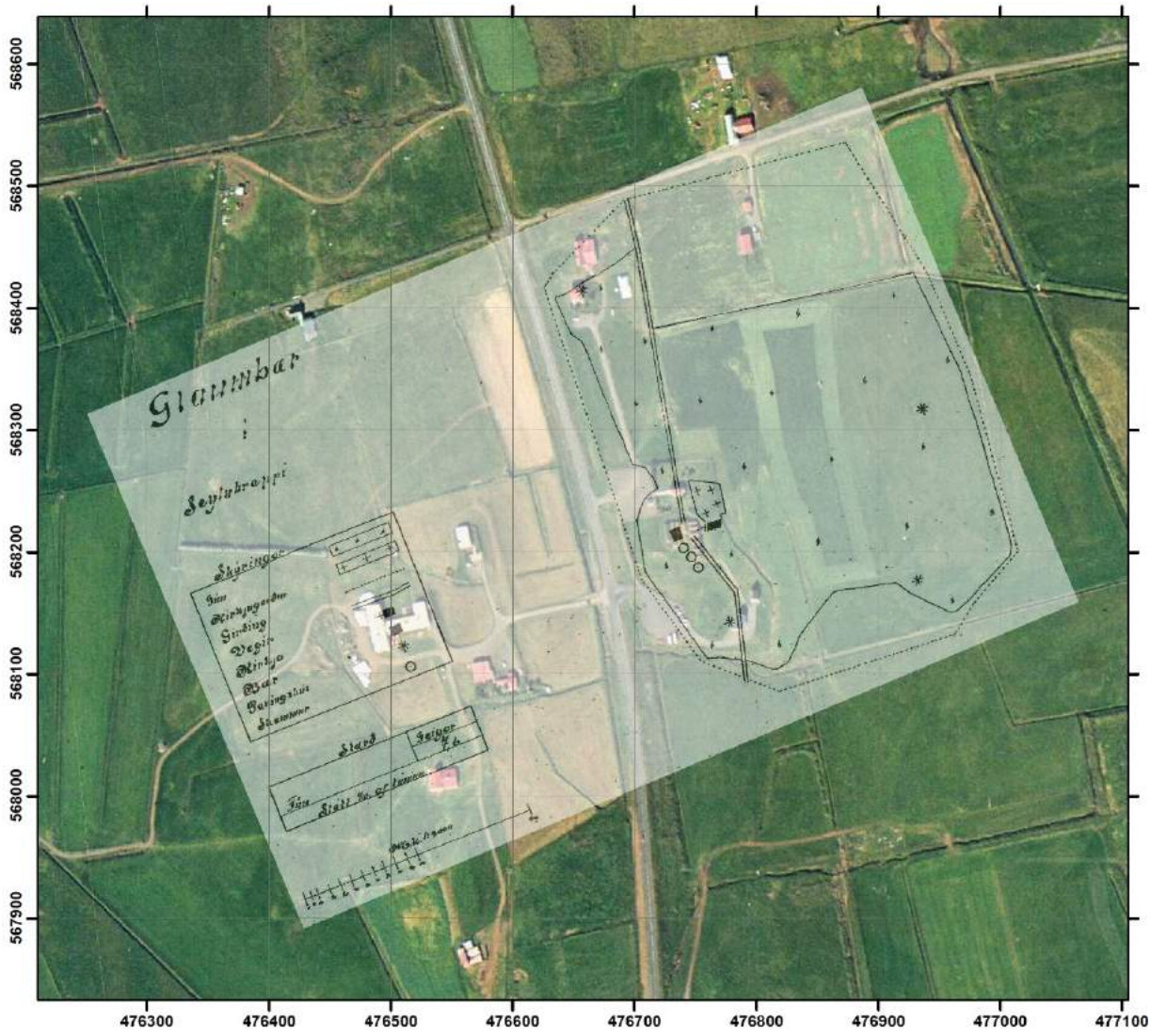

Figure 2.The 1917 Túnakort georeferenced and superimposed on air photograph of Glaumbær.

3.4 Previous archaeological work

Upper Glaumbær has had one previous archaeological examination, a cursory examination of a long shallow trench that was part of a water pipe installation. No archaeological work at the Glaumbær farm took place until the beginning of the Skagafjörður Archaeological Settlement Survey (SASS), partially described herein as well as in Steinberg (2003). The SASS work along Langholt (Bolender, et al. 2011; Steinberg, et al. 2016) does put the farm of Glaumbær in context.

4.0 LAND SURVEYING AND ESTABLISHMENT OF GRIDS

The original survey at Glaumbær (2001-2005) was collected in the Hjorsey1955 UTM grid (Bolender 2007; Steinberg 2003) using older corrected Garmin and Magellan units. Positions from these old GPS units were then shot in with a total station on a local grid. The original grid points used for the 2005 GPR survey were marked with steel pin flags that were identified in 2009 and resurveyed using the Topcon GPT-9005A total station by resectioning from several fixed points provided by Stoð ehf in the ISNET 93 grid. The Hjorsey1955 grid has a slightly different orientation than the ISN 93 and the Hjorsey1955 coordinates have all been converted, either directly by resurveying, or by calculation, to ISN 93 which was used for the 2009-2014 work.

5.0 CORING

The coring at Glaumbær was part of an archaeological survey of the Langholt region. First called the Skagafjörður Archaeological Settlement Survey (SASS) project that was then incorporated into the Skagafjörður Church and Settlement Survey (SCASS). During this program, over 3,200 cores were taken at 22 contagious farms (Steinberg, et al. 2016) along Langholt. The SCASS project continued the coring in the neighboring Hegranes region (Figure 3).

At Glaumbær About 257 cores were taken from 2009-2014. Over the years, various types of cores were used, including a power auger, Oakfield peat core Eijkelkamp bayonet auger, and JMC backsaver. The cores all operate in the same basic way: the operator pushes or hammers the hollow cylindrical metal core into the ground until refusal. The operator then pulls the core out of the ground retrieving a small section of soil. This retrieved soil core is then examined to assess the stratigraphic sequence. Tephra layers can also visible, often in the middle of natural and cultural layers. Thus, the stratigraphic sequence (Table 6) is recorded separately from the tephra sequence (Table 7) at the same location (Table 5) where a core is taken.

For broad analysis, the cores at Glaumbær were divided into three simple categories: “yes,” “no,” and “maybe” based on the presence of cultural material above or below specific tephra layers (Steinberg, et al. 2016). Small and infrequent anthropogenic inclusions in soils – such as ash, charcoal, and bone – are common near farmsteads and other activity areas.

For the “Pre-A.D. 1104” period a “Yes” cores presented cultural deposits below the H1 (or an earlier) tephra. “Maybe” cores indicated early cultural deposits, as determined by depth or association with another tephra such as the 1766 or 1300 tephra, but without the presence of a clearly defined H1 tephra layer. The absence of the H1 in a context of a cultural deposit is mostly because it was not preserved or the core did not penetrate deeply enough to encounter it (i.e., refusal within more recent deposits). A “no” core resulted when no cultural layers were present in the core or where there was no cultural layer below the H1. Almost all “no” cores had the H1, or some other tephra that allowed for the assessment of this important negative evidence. The same logic was used for the “A.D. 1104-1300” and the “Post-A.D. 1300” farmstead distributions based on coring.

For the purposes of the coring survey, Glaumbær farm mound deposits include:

- **Turf** deposits: any evidence for a turf structure, including collapsed or levelled turf, are considered evidence of farm buildings. The organic content and percentage of soil in turf deposits is variable. Sometimes tephra layers are present in turf, which can provide a terminus post quem (TPQ) date for the deposit. Dating turf deposits is not without difficulties. As a rule, a turf farmstead deposit containing a tephra layer is a positive farm mound location (yes) for the period(s) after the latest identified tephra.

In the absence of in situ tephra, the rest of the deposit is characterized as a potential farm mound (maybe). For example, in a core with turf including what was identified as the H 1300 tephra as the only "farmstead deposit" would be coded as "Yes" for post-1300 but also "Maybe" for the pre-1104 and 1104-1300 phases because of the inherent uncertainty of a field identification of a single dark tephra.

- **Low density cultural** layers (LDC): defined by anthropogenic inclusions amounting to 10-50% of the soil matrix. These are assumed to result from indistinct and extensive depositional events that suggest regular activity typical of farmsteads or other farm production areas. Sometimes this deposit has a "mixed" character.
- **Middens**: defined by anthropogenic inclusions amounting to more than 50% of the soil matrix that suggest the regular deposition of household or production area waste. Middens are the result of distinct and intensive depositional events associated with purposeful disposal. In both LDC and Midden layers that are punctuated by tephra layers, for purposes of farm mound dating, the deposits are assumed to be continuous, occurring immediately before and after the date of the tephra deposition. For example, in a midden deposit with only H1 present, surrounded on either side by midden, both "Pre 1104, and "1104-1300" would be positive ("yes") while "Post-A.D. 1300" would be "maybe."
- **Floor**: characterized by dense, compacted, and/or greasy cultural layers indicative of floors, extramural activity areas, or areas of intense deposition of organic materials. Sometimes floors are distinct fine-grained black ash. These floor deposits are often thin but are very distinct.

The cores that are positive for cultural remains from any time period are concentrated in relatively restricted areas (Figure 4). At Lower Glaumbær, 164 cores were taken and at Upper Glaumbær 82 were recorded. The arbitrary dividing line is a drainage ditch between the two areas. Cores were initially placed on a 25 m grid around lower Glaumbær with additional cores judgmentally placed. The core results suggest that almost all the cultural deposits at Lower Glaumbær are pre-AD 1104 and almost all of the cultural deposits in the Upper Glaumbær area are post AD 1104. That is there is generally a shift from the earlier Lower Glaumbær to the more recent Upper Glaumbær (e.g., Bolender, et al. 2011) There are a few very important exceptions to this general relocation of the Glaumbær farmstead.

The secure pre-AD 1104 cores (Figure 5) are concentrated around the lower long house area as well as a few distributed immediately in front of the current turf house museum. Potential (maybe) pre-1104 AD designations are widely distributed. Cores with secure cultural material dating from 1104-1300 (Figure 6) are primarily concentrated around Upper Glaumbær. Cores with secure post-1300 culture material are mostly found in Upper Glaumbær, especially west of the current turf house museum (Figure 7).

There are 4 cores at Lower Glaumbær that suggest a post 1104 occupation, two of them around the midden and barn areas (111-2009-20103, & 111-2001-25) which were not confirmed in any of the nearby excavation areas. Core 111-2001-1 (the first core placed in the site), due west of the longhouse, did yield a sequence with cultural layers above and below an H1. This may have been placed into the southern sheep house indicated on the túnakort (Figure 2). The other post H1 positive core (111-2001-3209) found turf above a H1 layer and again, it is probably in the northern sheep house indicated in the túnakort. Core 111-2001-3177 yielded turf immediately below an in situ 1766 tephra, suggesting that the northern sheep house has a fairly long, but not necessarily continuous, occupational history.

There are no cores with unambiguous post 1300 cultural deposits around Lower Glaumbær. More recent sheep houses tend not to be associated with enough peat ash and charcoal to register with the coarse and small core samples.

The results from the coring at Upper Glaumbær suggest a complex long-term occupation. Unfortunately, there is little excavation to complement the coring. The area immediately east of the turf house museum has a pre-AD 1104 (Figure 4) component. It is unknown if this pre-AD 1104 activity extends under the current turf house, but there is evidence of pre-AD 1104 activity just north of the turf house and between the turf house and the modern churchyard. The confirmed pre-1104 Upper Glaumbær area is limited, although there is a substantial "maybe" component. The one excavation in the area rejected this "maybe" pre-1104 component (see page 44) as the area west of the turf house museum seems to be entirely post 1104. The cores with cultural deposits indicated between AD 1104-1300 (Figure 6) suggest that there is no activity substantial enough to be reveled in a core at Lower Glaumbær during this time. All of the activity detectable in cores during AD 1104-1300 is found around the turf house museum. The post-AD1300 cores (Figure 7) suggest that one of the outbuildings marked in the túnakort is a post-1300 occupation and this suggestion was confirmed by the excavation there (page 27).

The cores taken all over Glaumbær bottom out at an average of 71.8 cm (SD=37.3) below the ground surface onto gravel but 19 of them reached the end of the core without refusal. For context, the overall average for cores for the following SCASS Hegranes survey is 62.6 cm (SD=94). Of these 257 cores taken at Glaumbær, 61 (24%) had cultural remains. Eleven cores had distinct floor deposits.

Of the 257cores, there were 8 instances of the 1766 tephra and 31 instances of the1300 tephra. Conversely, 120 cores presented the H1 (47%) and 135 (52%) presented the H3/H4 tephras. Ten cores encountered an in situ dark tephra from between the H1 and the time of settlement, all of them identified in the field as the "1000" layer. One core (20104) revealed a distinct LTL (directly under 55 cm of midden, and 8 others the LNS, which appeared as a dark distinct mixed layer.

At Glaumbær the cores from the same time period are generally adjacent to each other allowing for the definition and bounding of distinct temporal entities (Figure 8). At Lower Glaumbær, The cores that presented cultural material below the H1 tephra layer suggest a substantial pre-1104 site area that is about 120 m east to west and about 100 m north to south with the investigated longhouse close to the western edge of this boundary. About 90 m north of the excavations around the longhouse is a two-core, well bounded, and very small deposit of pre-1104 peat ash and charcoal that does not seem to overlap the adjacent small area of post-1300 activity at the same location as the northern sheep house indicated on the túnakort. The post-1300 20x20 m activity north of the longhouse does not seem to be associated with the later sheep house indicated on the túnakort.

For Upper Glaumbær, the farmstead areas overlap to a large extent, with the later periods having almost exactly the same footprint. The pre-1104 farmstead area at Upper Glaumbær is shifted to the north and west of the later areas and encompasses some of the area now in the churchyard. This Upper Glaumbær pre-1104 component is smaller than the 1104-1300 and post-1300 components (Table 1). If the pre-1104 areas of Upper and Lower Glaumbær were both occupied at the same time, the total farmstead area is substantial. More likely is that the site witnessed a relocation from Lower to Upper Glaumbær.

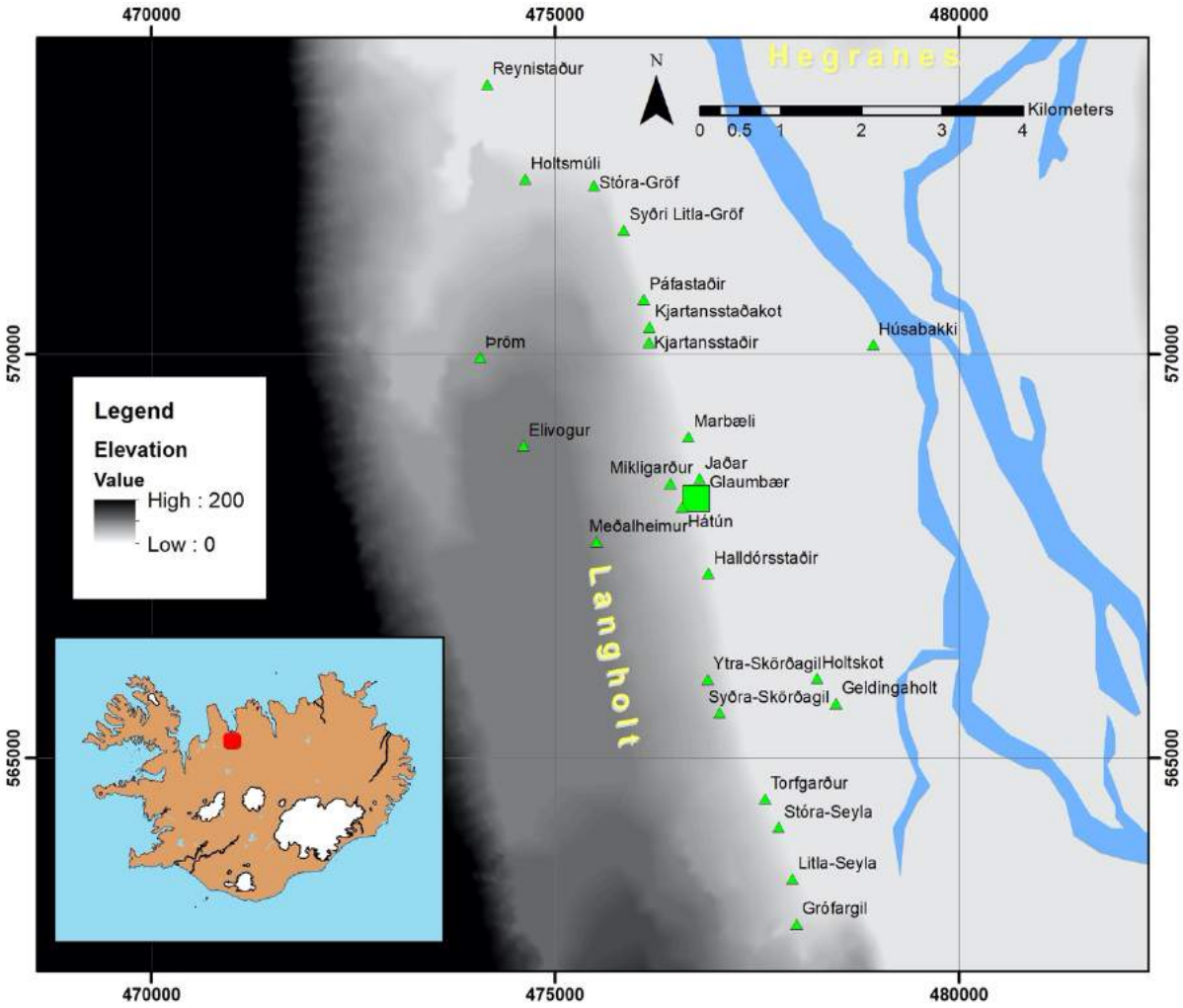

Figure 3. Map of the Langholt region. Glaumbær is indicated by a square and the surrounding farms indicated by triangles.

Table 1. Glaumbær Farm mound areas. Totals are of areas that could have been occupied contemporaneously.

Area	Site	Date	Area (sq m)	Centroid IS93 East	Centroid IS93 North
Lower	Longhouse	Pre-1104	5677	476931	568205
	Small north area	Pre-1104	77	476893	568314
	Sheep house area	Post-1300	916	476915	568321
Upper	Front of Museum	Pre-1104	3616	476758	568222
	Turf Museum	1104-1300	5262	476746	568201
	Turf Museum	Post-1300	5436	476743	568201
Total	Upper, Lower, small north area	Pre-1104	9370		
	Turf house Museum	1104-1300	5262		
	Turf house Museum & sheep house	Post-1300	6352		

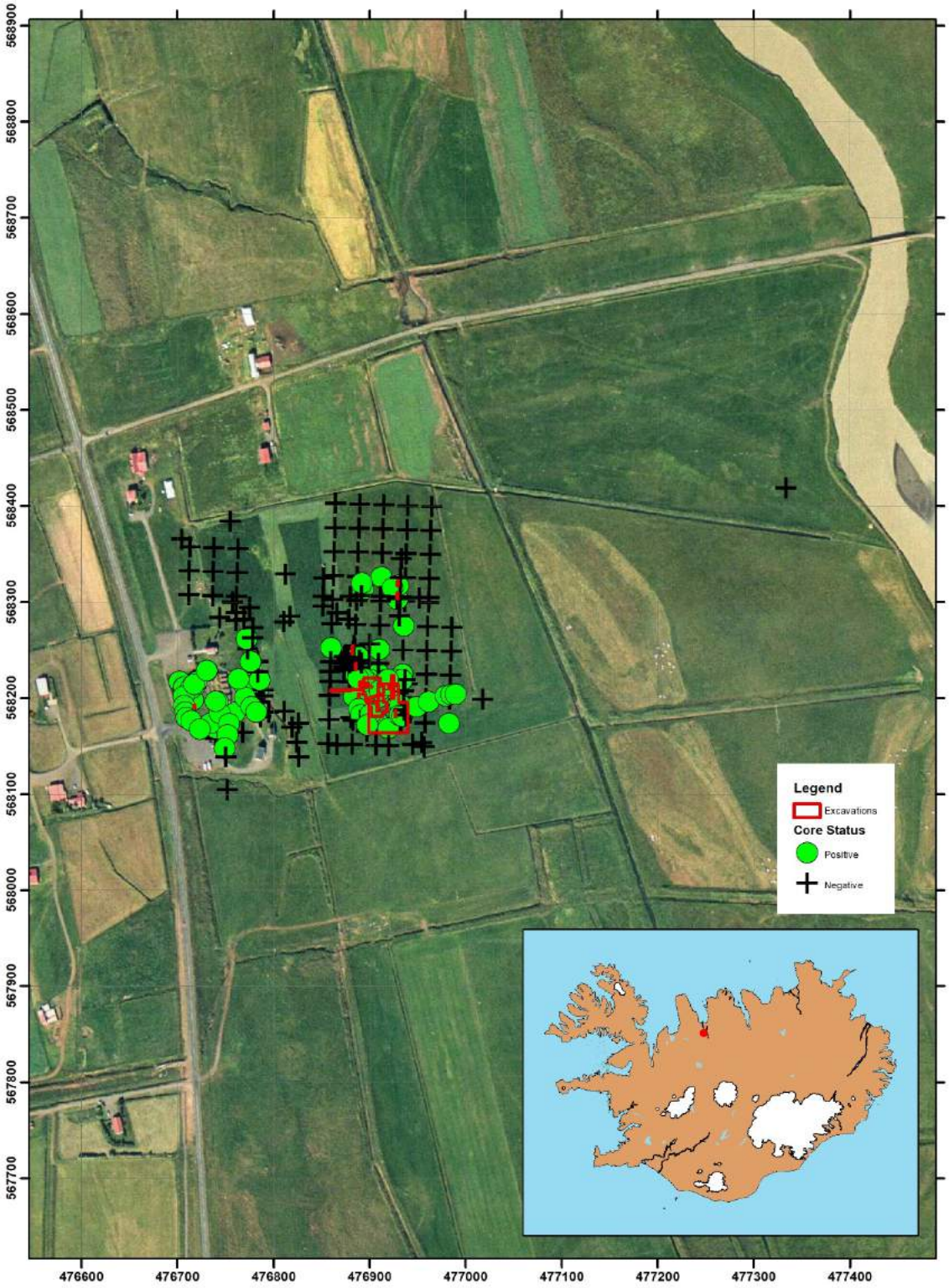

Figure 4. Overview of both upper (left and west) and lower (right and east) areas of Glaumbær. Excavations are indicated in red, cores with cultural material (from anytime period) are indicated by green circles, cores with no cultural material by "+".

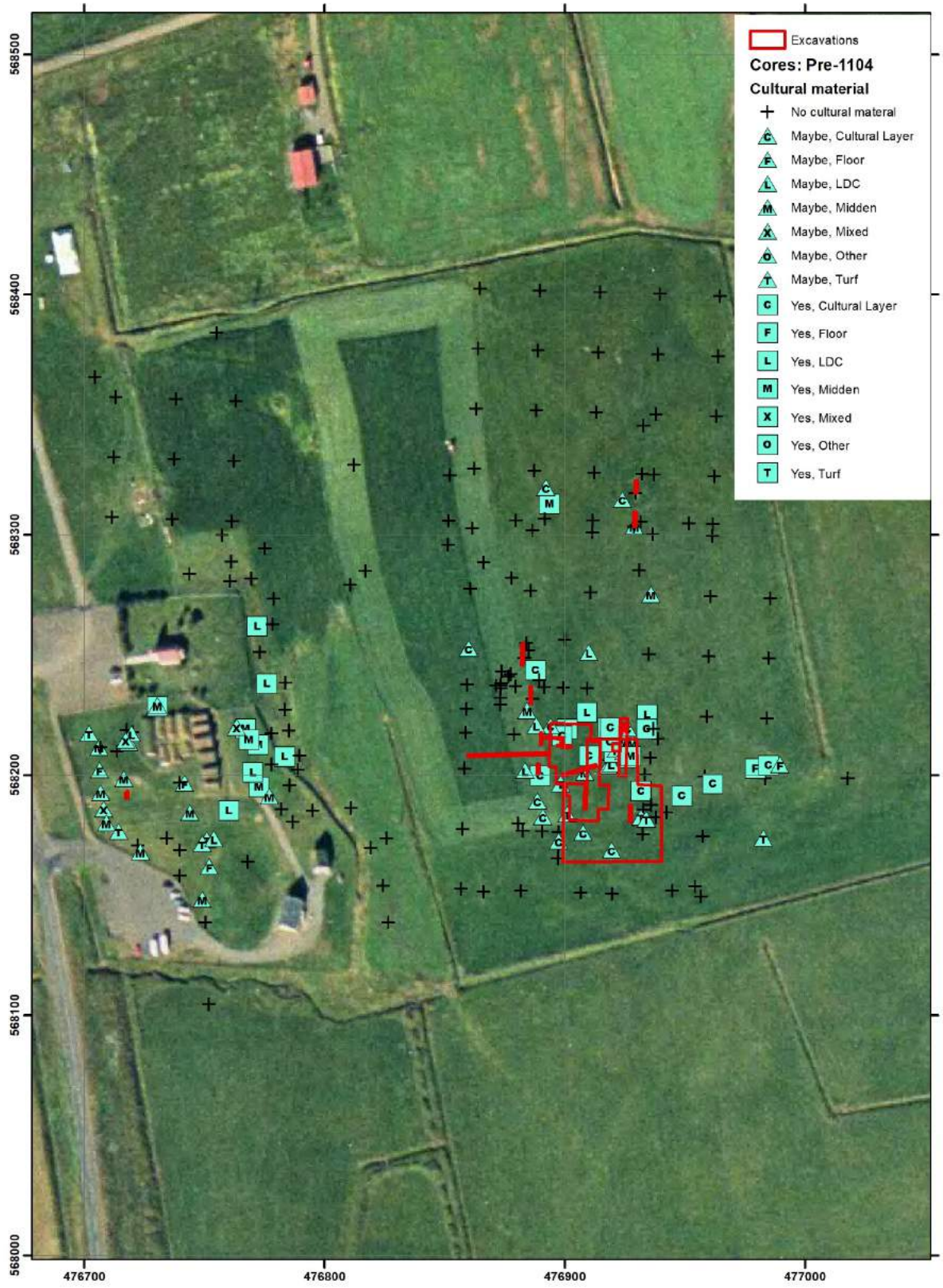

Figure 5. Overview of both upper (left and west) and lower (right and east) areas of Glaumbær. Excavations are indicated in red, cores with Pre 1104- material indicated by blue, cores with no pre - 1104 material by "+".

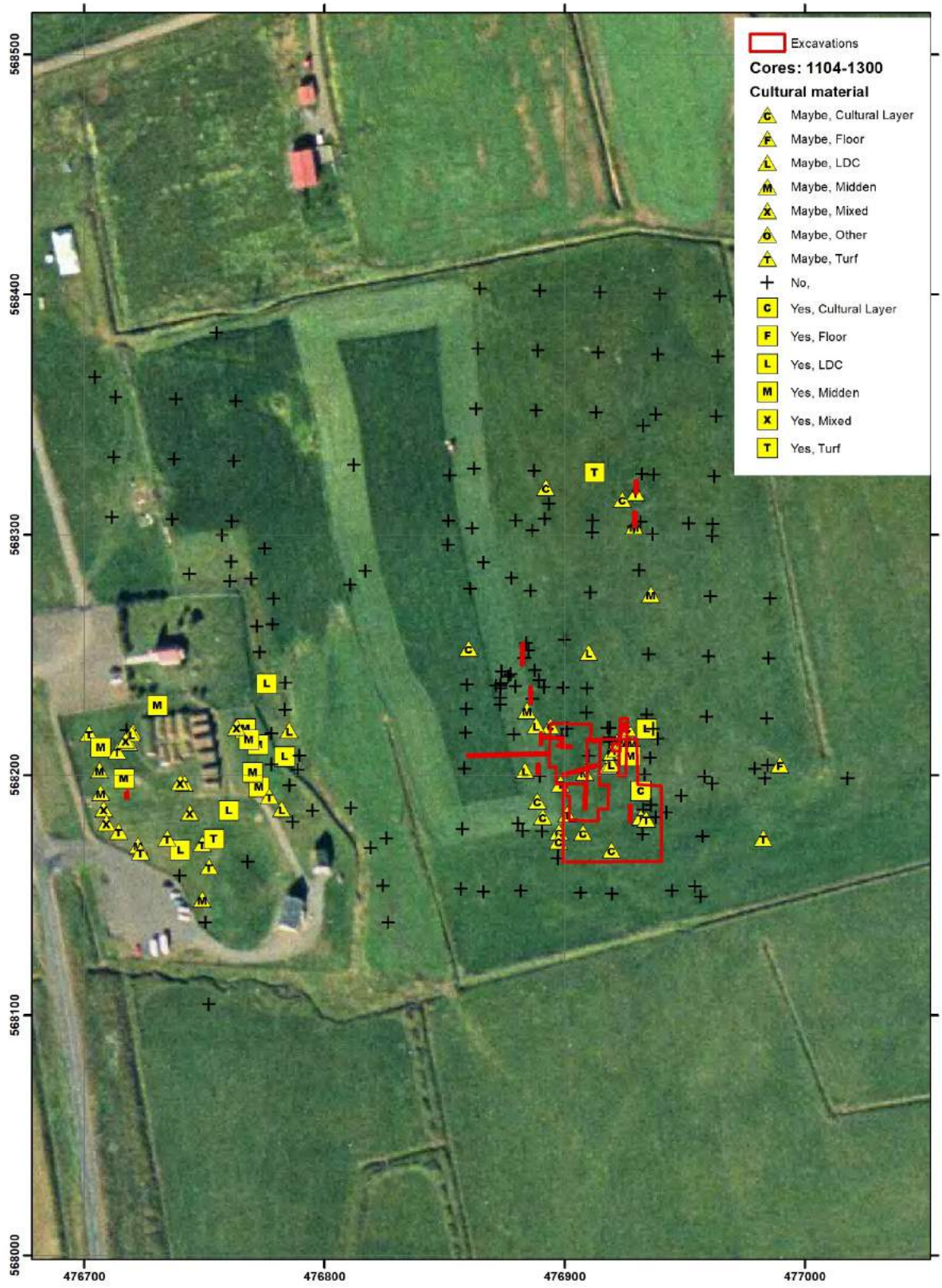

Figure 6. Overview of both upper (left and west) and lower (right and east) areas of Glaumbær. Excavations are indicated in red, cores with 1104-1300- material indicated by yellow, cores with no 1104-1300 material by "+".

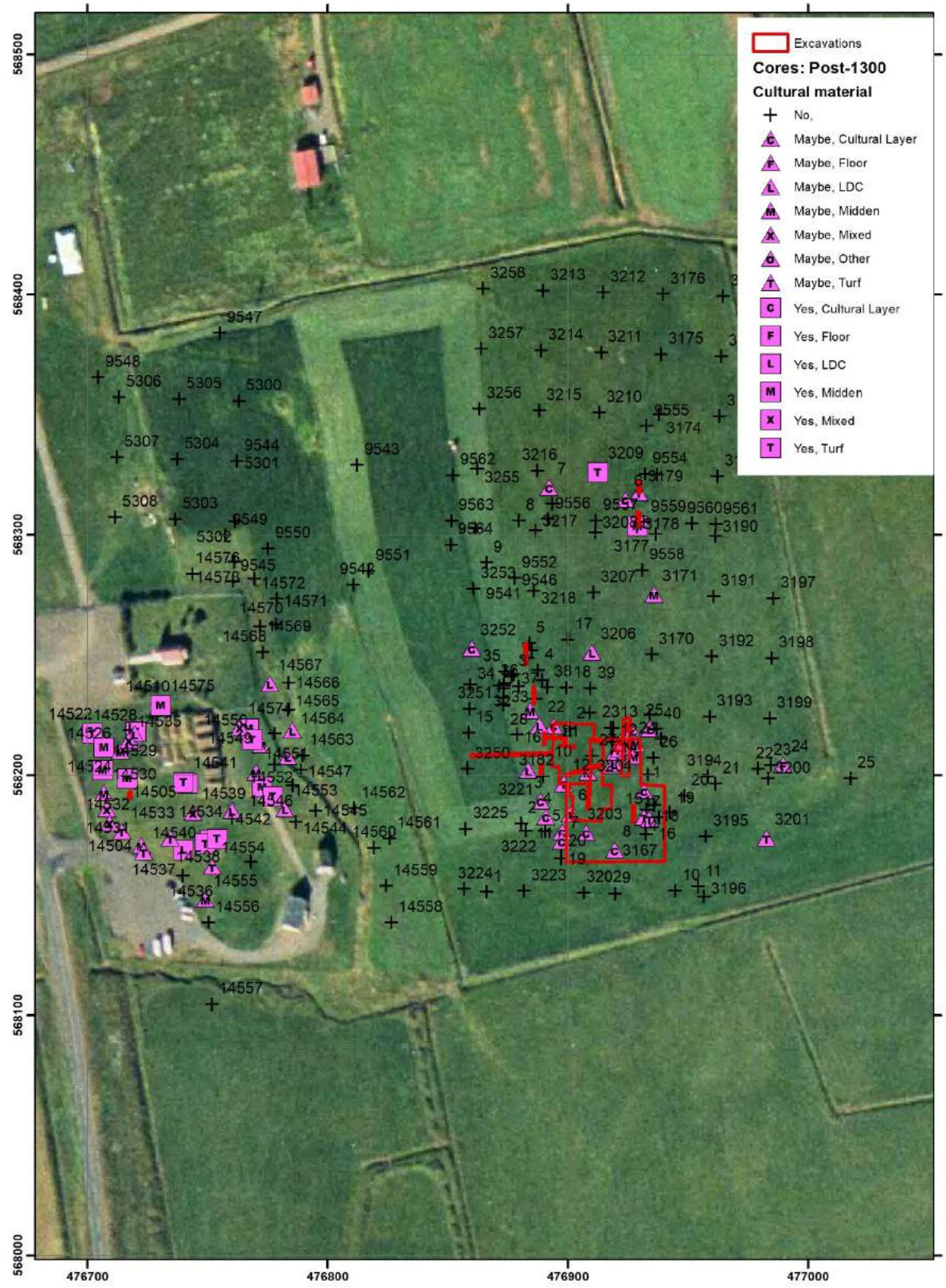

Figure 7. Overview of both upper (left and west) and lower (right and east) areas of Glaumbær. Excavations are indicated in red, cores with post-1300 material indicated by purple, cores with no post-1300 material by "+"..

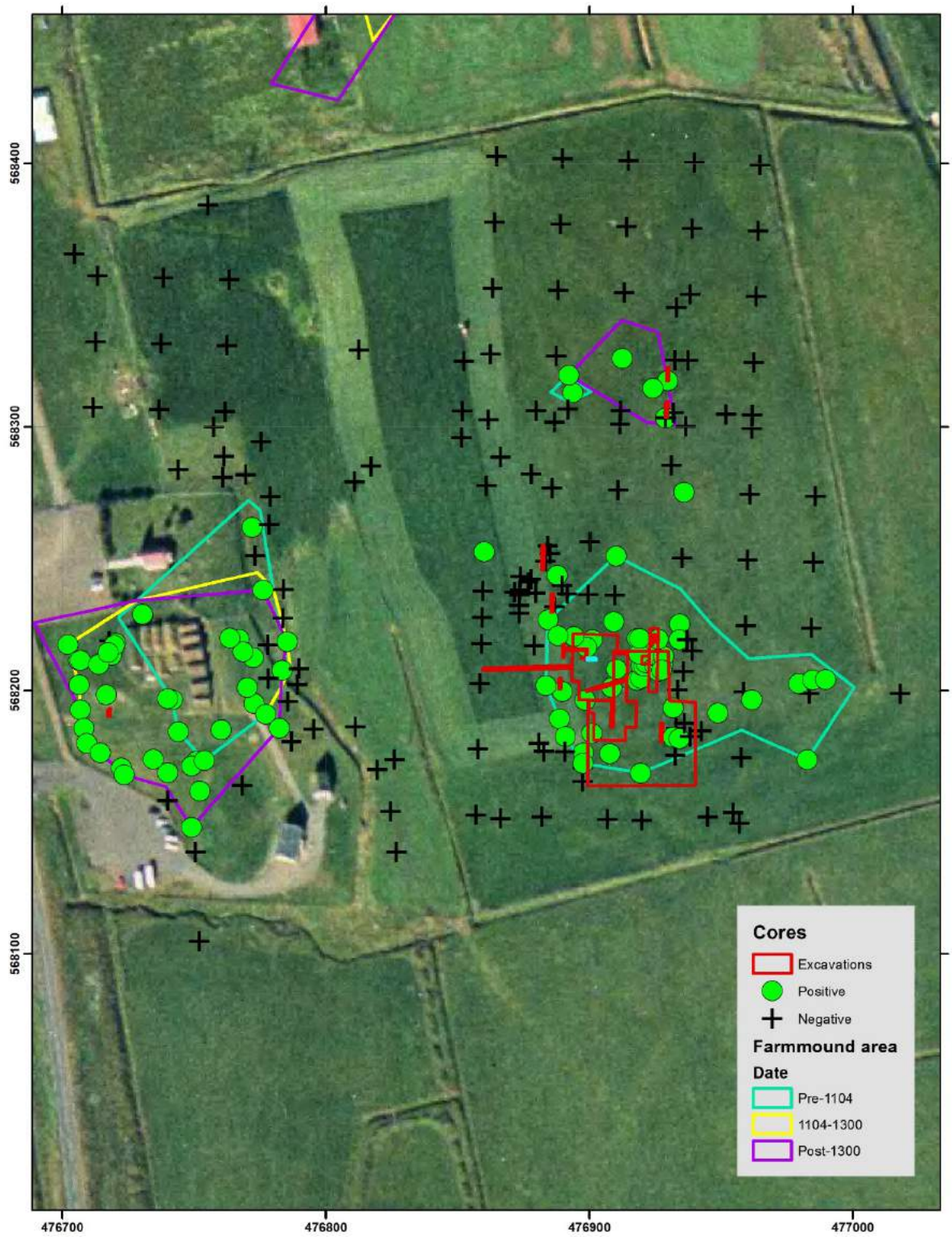

Figure 8. Core results with farm mound areas

6.0 GEOPHYSICS & EXCAVATION

The combination of geophysics and excavation (along with the coring discussed above) allows for a basic spatial and chronological understanding of the entities at Lower Glaumbær, where all of the geophysical surveys were preformed, and all but one of the excavations took place. At Upper Glaumbær, cores and the one excavation are used to provide a very rudimentary outline of the areas and time periods of activity.

Geophysical surveys were performed from 2001 through 2009 with an Geonics EM-31, an IRIS Syscal Kid, a GSSI GPR unit with a 400 MHz Antenna, and a Mala GPR unit with a 500 MHz antenna. Surveying with conductivity and resistivity took place on the grass surface. Only the first GPR survey took place on the grass surface. Subsequent GPR surveys took place with the grass surface removed. For the archaeological remains to be detected with geophysical techniques, they must have physical properties that make them distinct from the surrounding environment. Furthermore, geophysical techniques work best where the remains have a will-defined interface with an original surface where there is a contrast in geophysical properties such as iron content or moisture. For both conductivity and GPR, image maps are used to analyze the results, generally with blue to red scale. Colors simply correspond to a given range of readings for a particular technique. In limited contexts an anomaly, indicated by a distinct and restricted color, can be associated with a buried cultural feature (e.g., wall, floor, or midden). When that range of readings, indicated by the same color, appears in another area, it does not mean that the same buried cultural feature is to be found at that spot, or even any cultural feature at all. Natural processes can yield geophysical readings that have similar ranges and geometries. Each anomaly should be tested and ground truthed, before making interpretations.

Three types of excavation were completed at Glaumbær (Table 8, Figure 9, & Figure 10): mechanical test trenches (TT#), hand excavated test pits (TP#), a single context excavation with extensive sample recovery (C), and area excavations (Area A & Area E). There are also shovel excavated extensions to test pits (Gud & TP5, T_N-S, & T_E-W). Test Trench D was mechanically excavated in 2001 and then reevaluated in 2009 and floatation sample taken from the side wall.

For the area excavations (Area A & E), the topsoil was removed to create a better geophysical prospection environment to identify sub-surface features. The area excavations did not dig into or through the underlying archaeology, but often removed some of the 1104 tephra layer in the area. In the area excavations, some of the archaeological surfaces were exposed. Most of the mechanical excavations were excavated down to sterile soil. Many of the hand and shovel investigations were excavated through turf fall and turf walls but terminated on top of floor layers or other preserved archaeology.

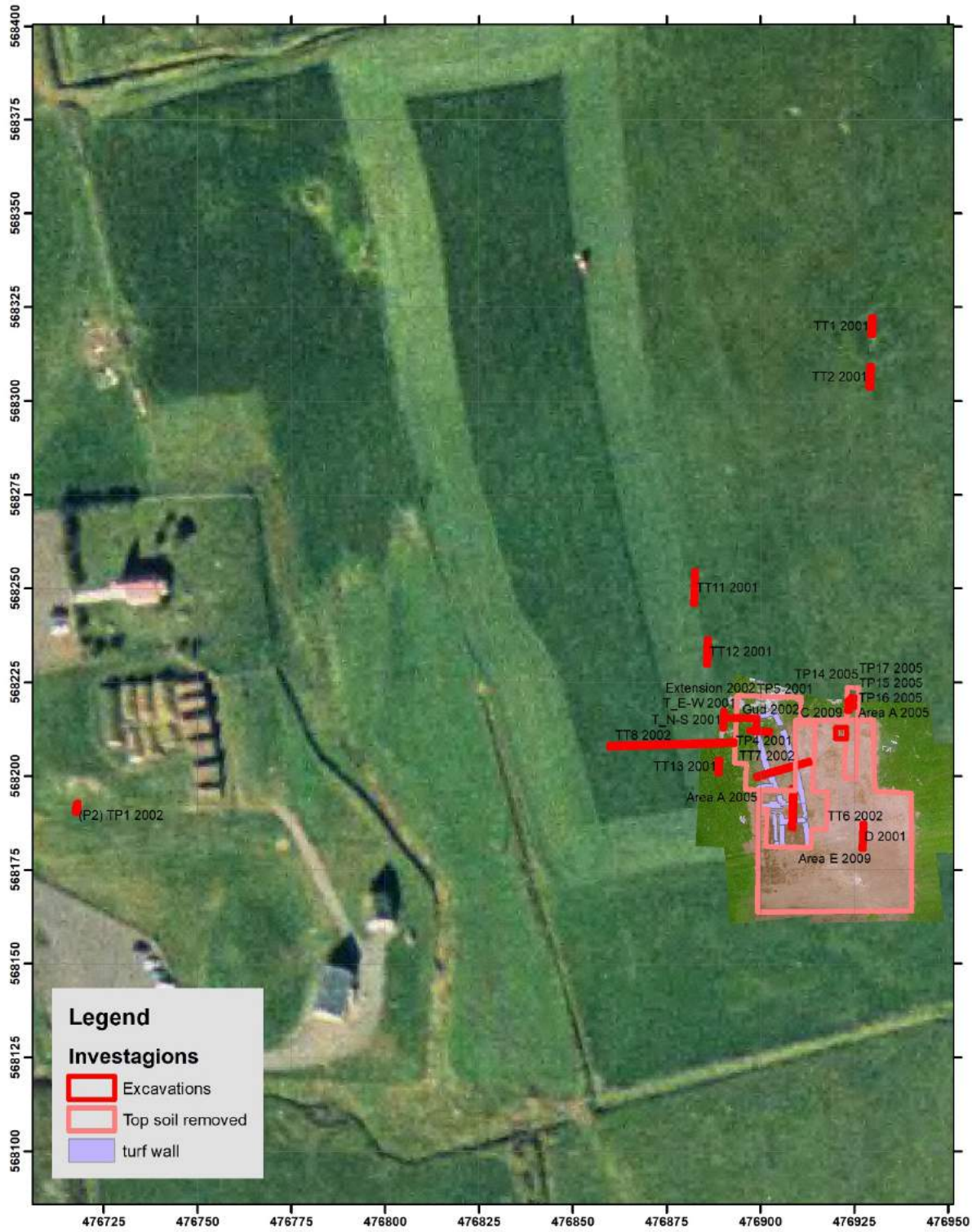

Figure 9.Overview air photo map of Glaumbær interventions

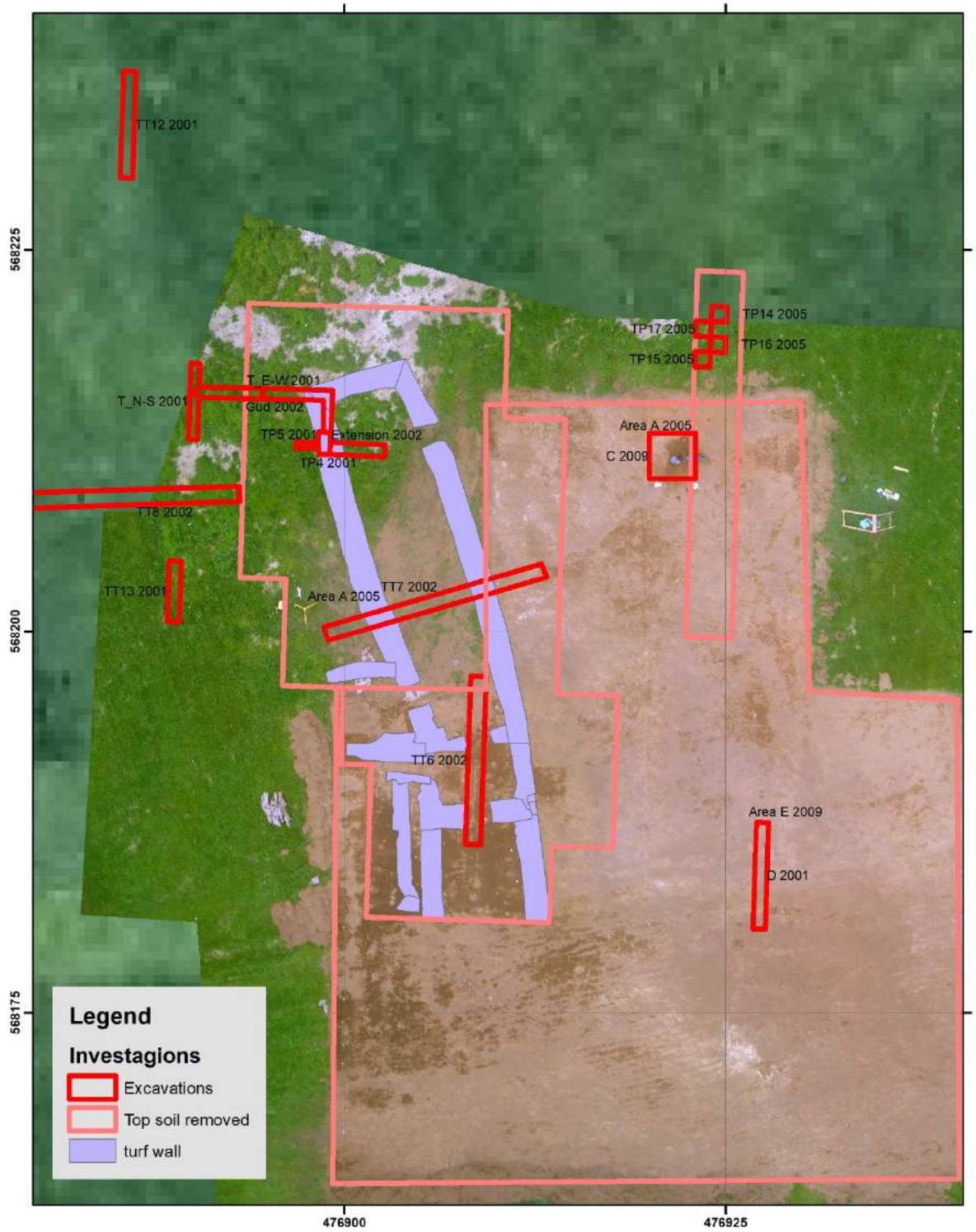

Figure 10.Close up air photo map of Lower Glaumbær interventions

6.1 Lower Glaumbær

Lower Glaumbær is a complex subsurface Viking Age site with dispersed features that was occupied for about a century starting sometime around the mid-10th century (Table 4). As currently understood, the site has three components, the main long house, the eastern midden, and the southwestern outbuilding (Figure 26). The structure and its associated midden and

outbuilding were placed on a small rise and the cultural activities that took place there increased the size and height of the already elevated area.

Dates from these three site areas suggest that they are all broadly contemporary (Table 4). The earliest deposits are from samples obtained in the midden (C) and suggest pre-AD1000 activity. The AMS midpoints of the dates suggest active occupation from at least AD 936-1007. One constrainable date from the outbuilding also suggests broad contemporaneity. Dated material from the top layers of the floor of the long house reasonably outline activity at about AD 1000-1050. There are no substantial cultural deposits at Lower Glaumbær above the white tephra layer from the AD 1104 eruption of Mt. Hekla, thus the area was certainly abandoned by then – at least as a settlement. Because culturally sterile deposits immediately below the AD 1104 tephra and above the Glaumbær features (walls, floors, middens, etc.) were often several centimeters thick, it would appear that the area was abandoned before the AD 1104 tephra fell. That is, there is some aeolian deposition between the top of the archaeological features and the H1 tephra layer at Lower Glaumbær, implying that the area was abandoned well before AD 1104.

The early extensive 2001 conductivity survey, using the EM-31 (Figure 11) with 2 m transect spacing and with 1 m station spacing, produced course data (Figure 12, right). The conductivity readings indicate how well electricity travels within the soil. Thus, the conductivity readings highlighted the substantial iron pan to the west of the longhouse (ground truthed with TT8). The area of occupation is on a slight rise while the iron pan mirrors a very slight depression. The 2001 EM-31 results were so course that it was necessary to look at conductive differences between adjacent readings (Figure 12, left) to identify the longhouse at Lower Glaumbær (Steinberg 2002). The main anomaly identified was the northwest corner of the longhouse. From this early work, it was concluded that turf walls had reduced conductivity, relative to the surrounding areas.

In 2009 the area was surveyed again, with an updated data collector that allowed for better resolution. In this survey, the in-phase (IP) component produced results that were easier to interpret. The in-phase component is similar to magnetic susceptibility (a dimensionless measurement of how strongly the subsurface would become magnetized if it was exposed to a magnetic field). Given the distribution of readings, it appears that substantial deposits of burnt material, especially burnt turf, can have high in-phase readings. The 2009 EM-31 bulk conductivity in-phase map (Figure 13) suggests that the midden, the center part of the bowed-walled dwelling floor, and the smithy south of the dwelling hall all have substantial deposits that are consistent with the results of substantial deposits of peat ash that resulted from burning turf. If the dark blue north-south thin area in the middle of the longhouse is the center hearth, then the off-grid Test Trench 7 is just south of the central hearth. There is also a hint of an outer wall just south-southeast of the longhouse, that parallels the farmstead boundary established by the coring program. Similar parallel yellow-blue anomalies have been ground truthed at Hegranesþing (Damiata, et al. 2018) and Lower Keflavík:(Damiata, et al. 2017; Steinberg, et al. 2017) as sod walls where, in this case, the sod has been removed from the yellow strip and piled on the blue strip.

In 2005, Area A (northeast) was surveyed with a 400 MHz GSSI GPR unit. In 2009, Area E was surveyed with a 500 MHz Mala GPR unit. In the GPR images (Figure 14-Figure 17) the two surveys have been combined with matching depth slices from the two different units, to give an overall image of the subsurface of Lower Glaumbær.

The top GPR slices (Figure 14) suggest a hard reflector just southeast of test trench D but little other surface changes. The hard reflector may be associated with the southern sheep house (Figure 20) and the stripes may be due to recent agricultural activity. The 30 cm bgs (below ground surface) slices (Figure 15) clearly shows the turf walls of the bowed

longhouse as hard reflectors. The results from the 2009 Area E suggests that the southern part of the long house, that is probably a smithy, continues for another 5 m south of the 2005 cleared Area A. The 40 cm bgs slices (Figure 16) shows the parallel lines of substantial stones, consistent with a smithy, as a line of red hard reflectors in Area E. This slice also exhibits a line of reflectors that bisects the 7 m long Excavation D trench about 2 m from the south end. This interface is consistent with the turf wall [351] seen in the profile (Figure 32, Figure 33, and Figure 34). In the 65 cm bgs slice most of the hard reflectors are probably due to natural geology. However, there is a north-south line of hard reflectors intersecting the east side of the bowed wall dwelling hall. This deep line may be what is seen under the upper turf walls in the Area D excavation (Figure 24). If this anomaly is associated with this potentially pre-1000 wall, it could give some idea of the geometry of an ephemeral earlier structure at the location.

There is a suggestion of an early church at Glaumbær (Kunz 2008) and in all likelihood, Lower Glaumbær is the referent for the farm mentioned at the end of the *Saga of the Greenlanders*. However, we have been unable to identify features consistent with a church at Lower Glaumbær.

Figure 11. Using the EM-31 at Lower Glaumbær.

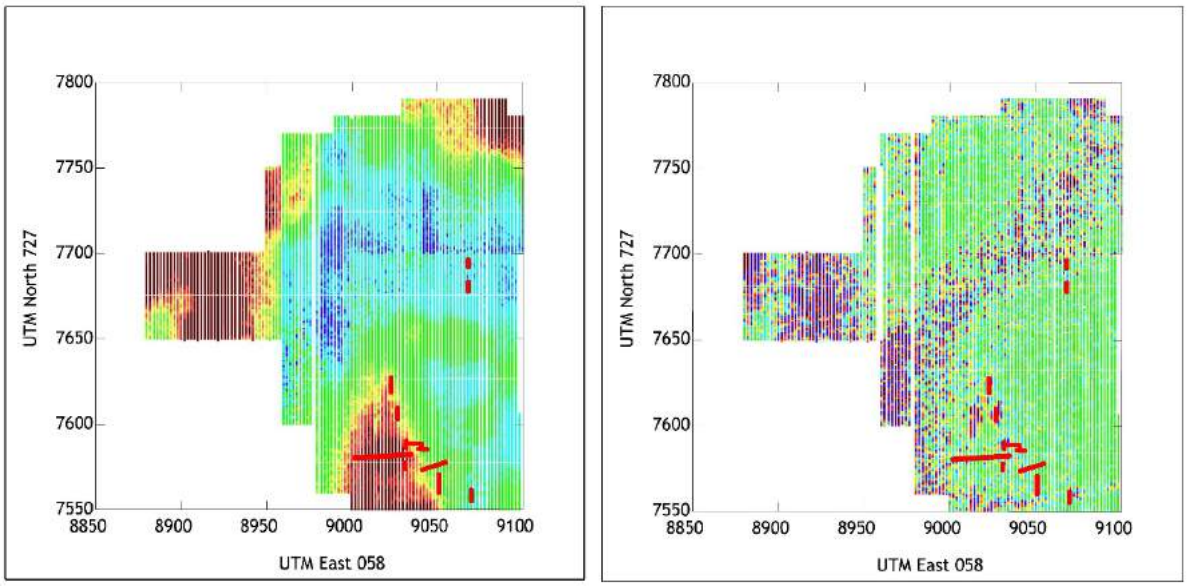

Figure 12. Left 2001 EM-31 conductivity map (red = high, blue =low). Right, 2001 Conductivity contrast (red = high, blue =low). In the right image, the northeast running line of higher conductivity contrast is caused by a now removed power line.

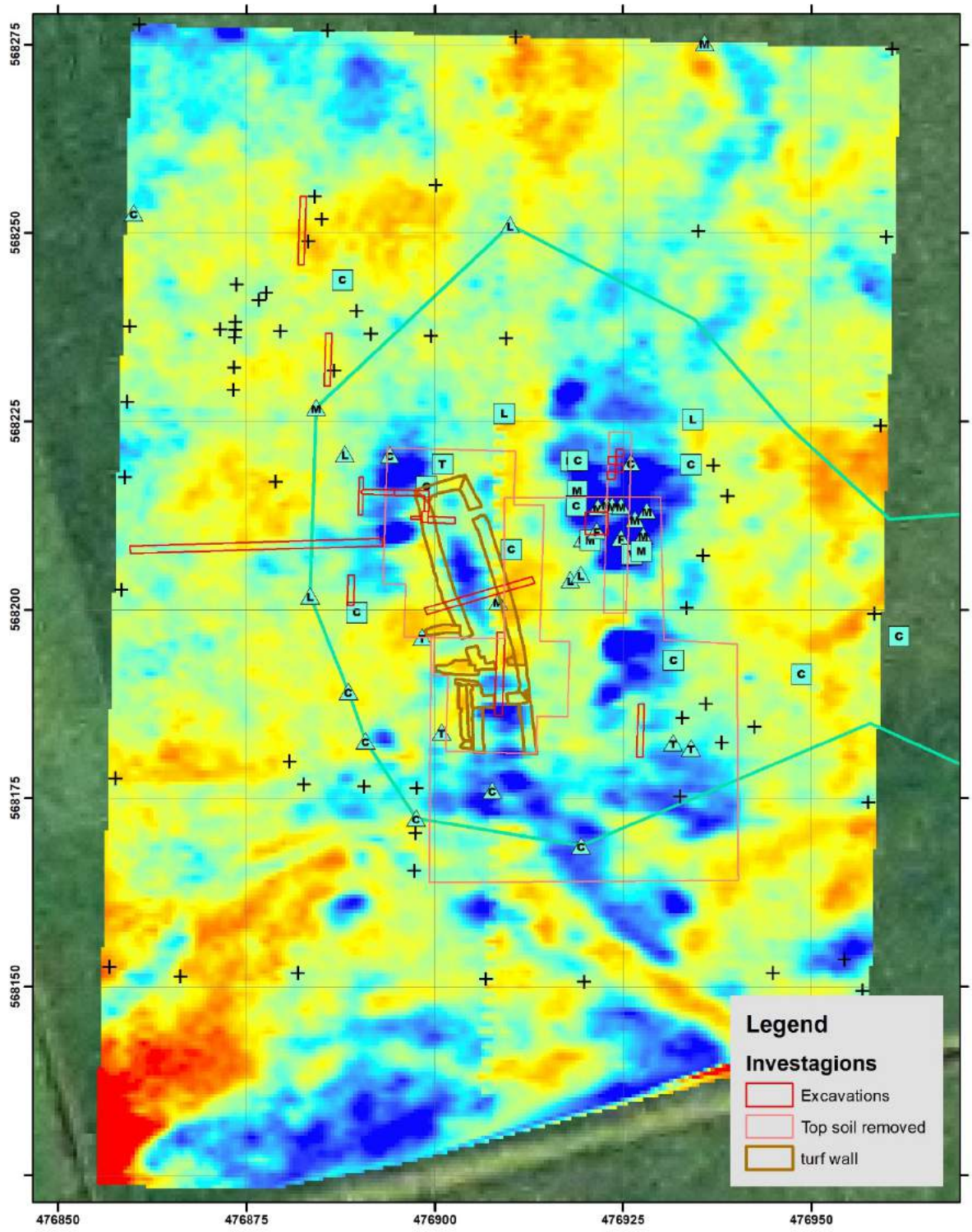

Figure 13. 2005 EM-31 conductivity In Phase map of Lower Glaumbær. Blue indicates areas of high in-phase readings (ppt) and red low.

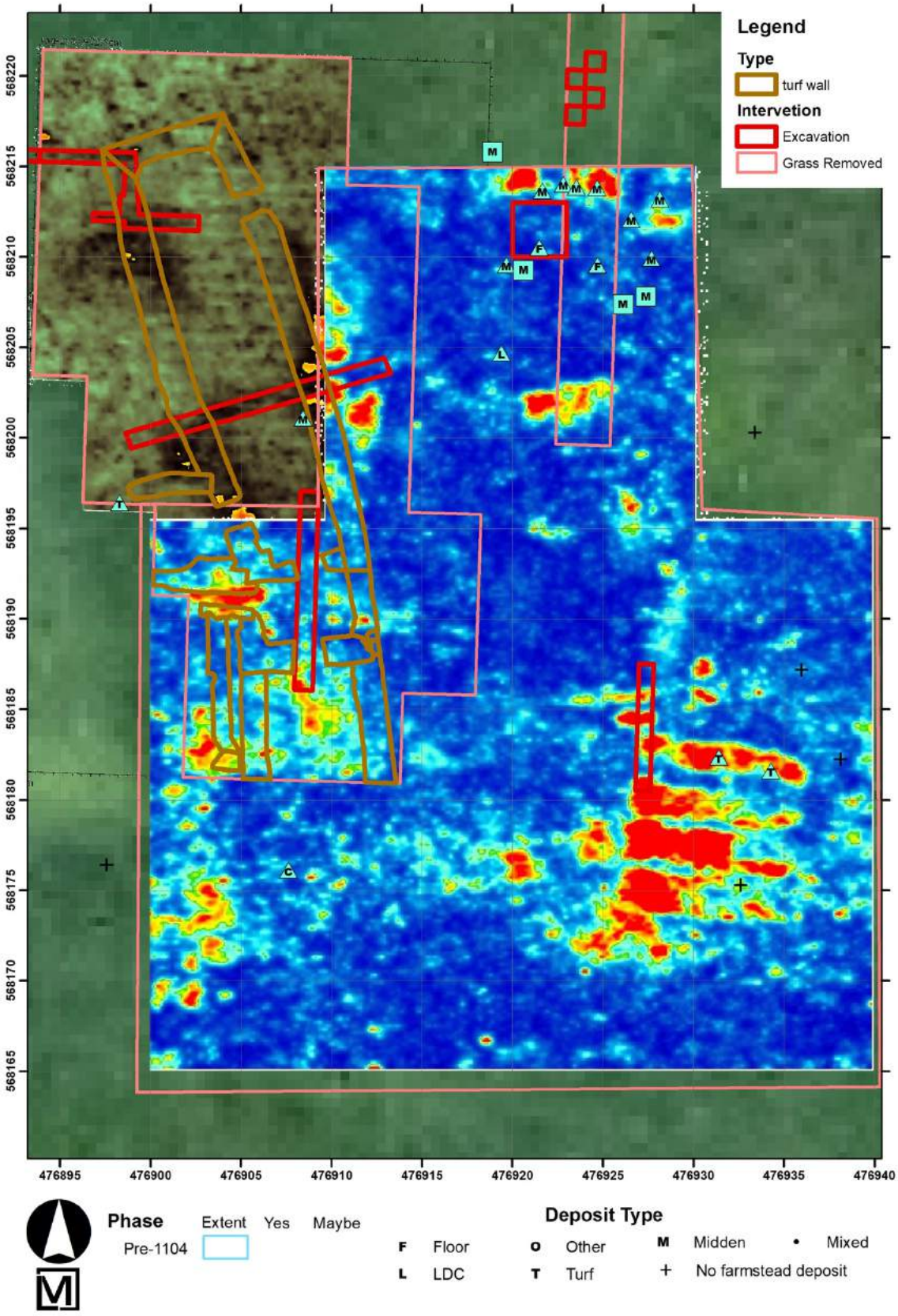

Figure 14. GPR slices at about 10 cm bgs from 2002 (northwest, gray green) and 2009 (red-blue) with excavations and long-house outline superimposed.

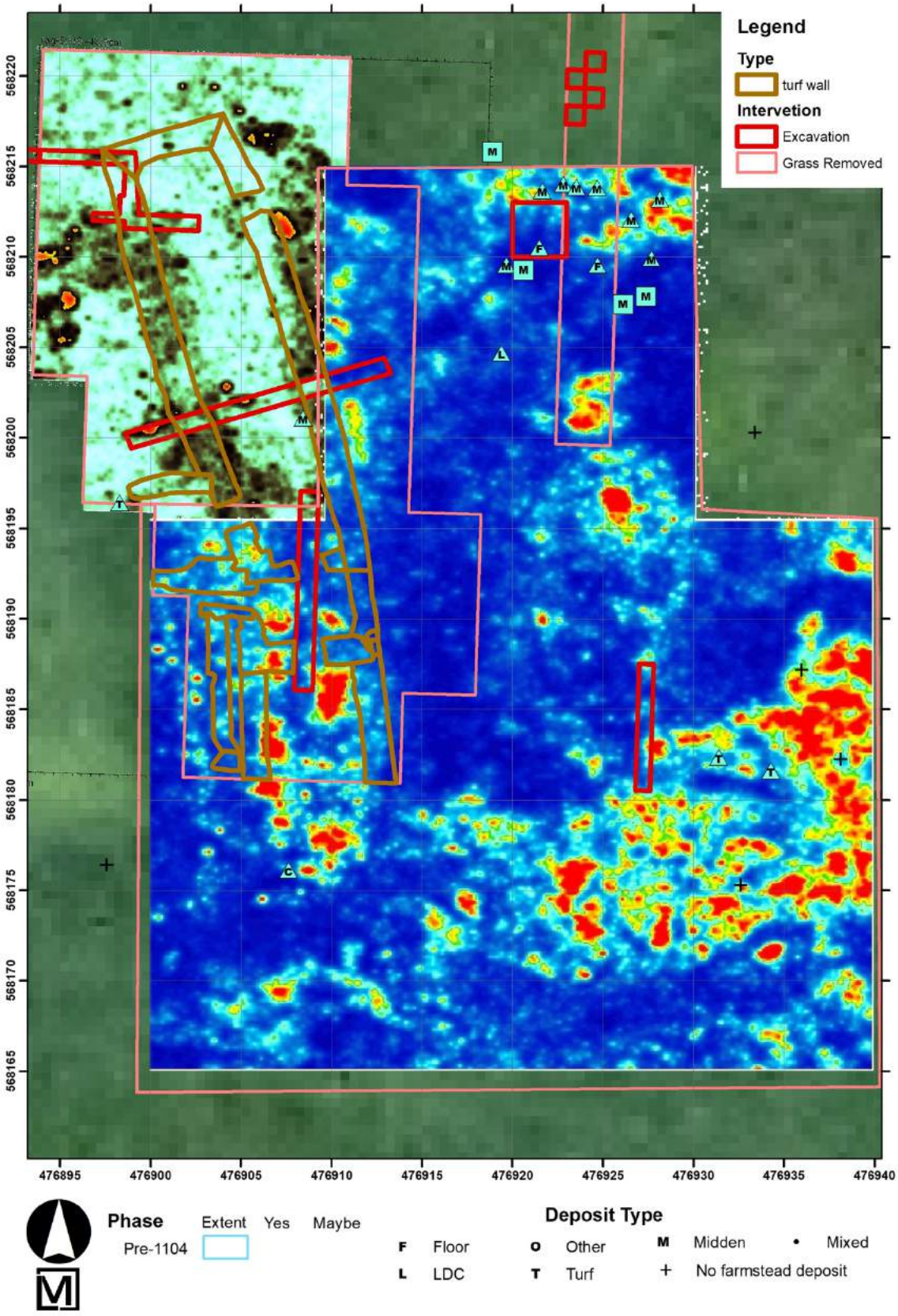

Figure 15. GPR slices at about 30 cm bgs from 2002 (northwest, gray green) and 2009 (red-blue) with excavations and long-house outline superimposed.

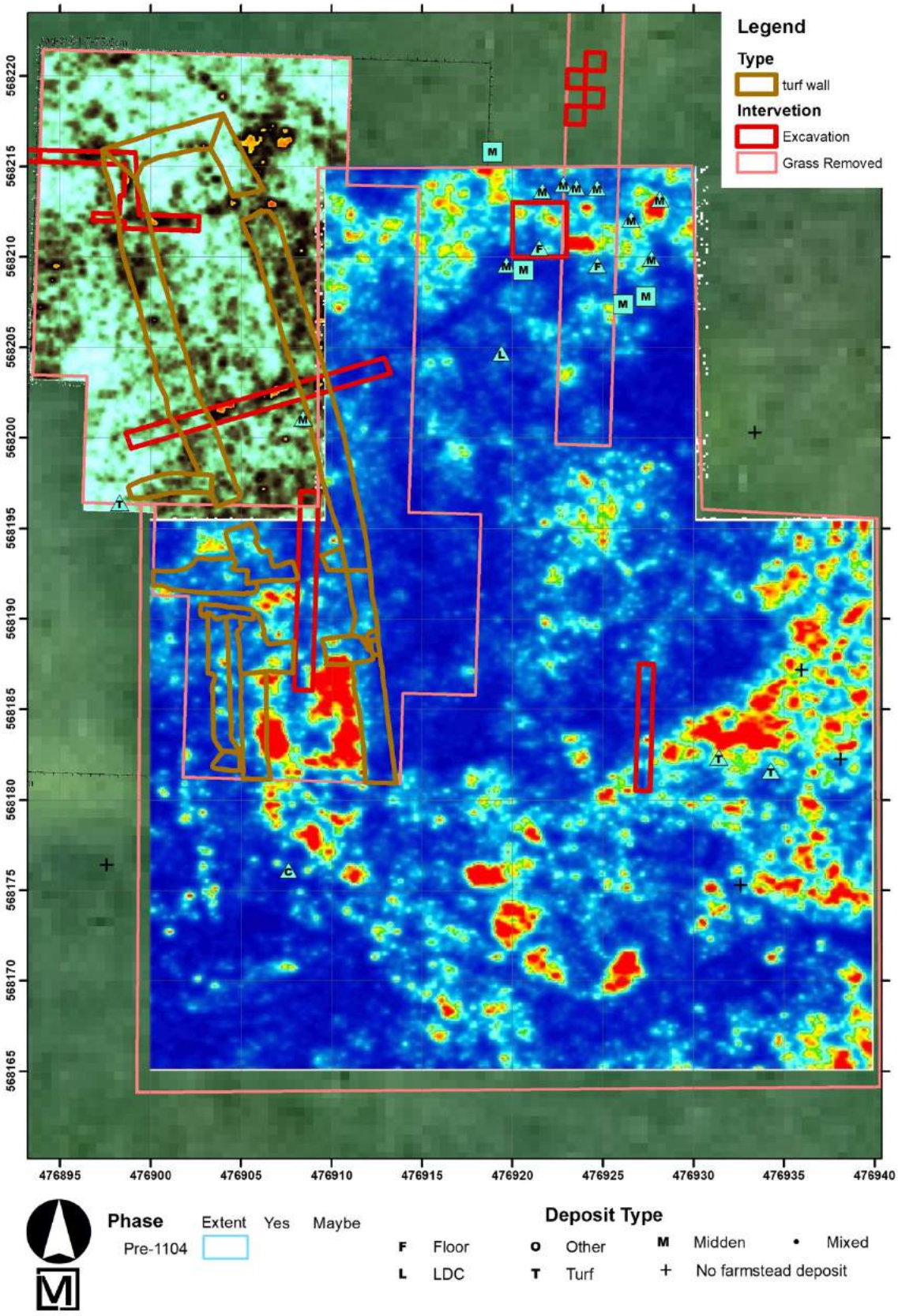

Figure 16. GPR slices at about 40 cm bgs from 2002 (northwest, gray green) and 2009 (red-blue) with excavations and long-house outline superimposed.

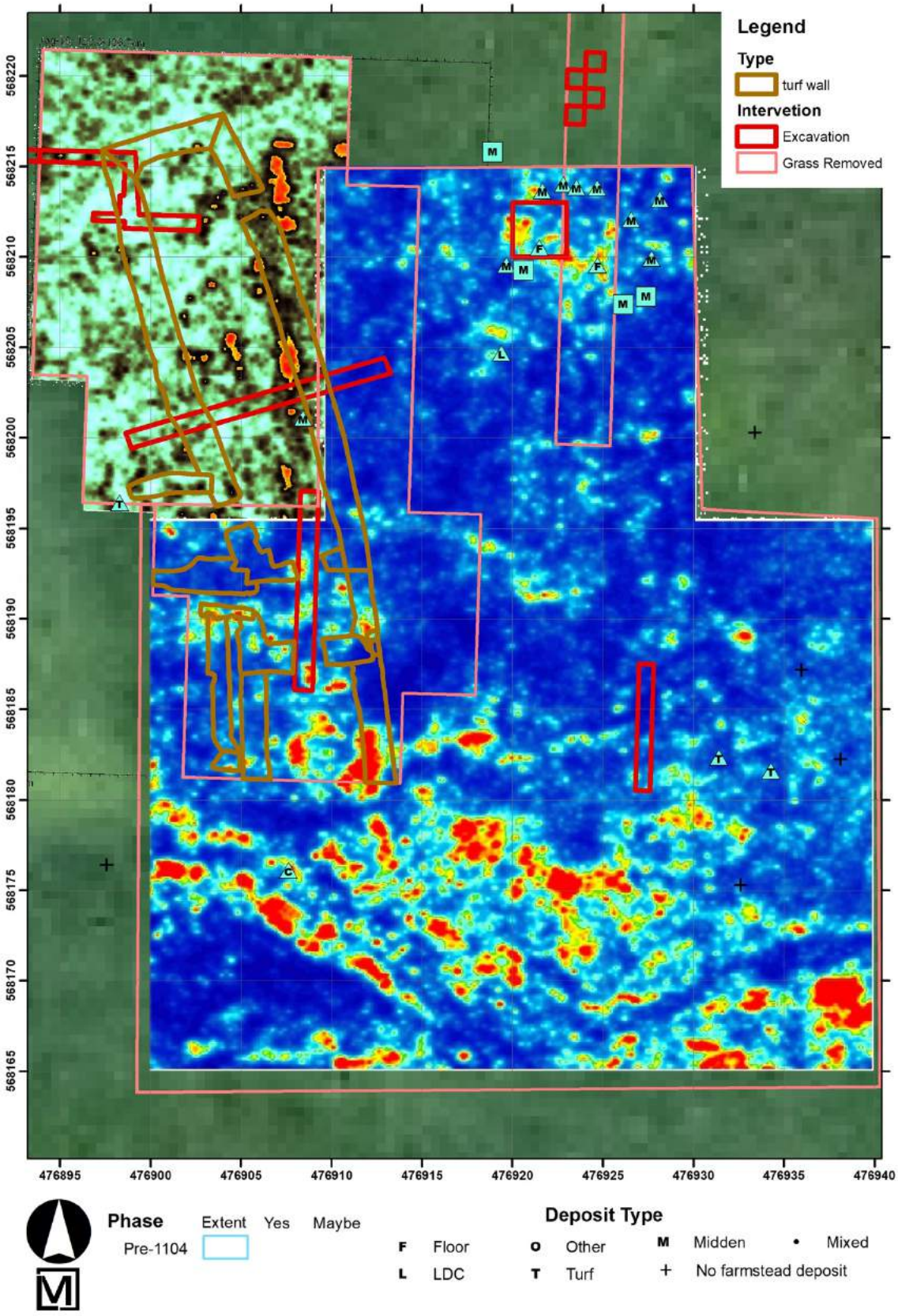

Figure 17. GPR slices at about 65cm bgs from 2002 (northwest, gray green) and 2009 (red-blue) with excavations and long-house outline superimposed.

6.1.1 Excavations away from Upper and Lower Glaumbær.

Most of the early excavations (Test Trenches 1, 2, 8, 11, 12, & 13) were excavated with a small backhoe based on geophysical anomalies. Test trenches 1 and 2 encountered a recent animal barn. Test Trenches 8, 11, and 12 primarily showed natural sequences and were not profiled. Test Trench 8 revealed a substantial and thick natural iron pan west of the long house. Test trenches 11 & 12 both exhibited good preservation of the H1 tephra layer in natural sequences with flecks of peat ash, charcoal, and bone in the aeolian soil below H1.

Test trenches 1 & 2 bisected a more recent turf structure, almost surely associated with the northern of the two animal barns indicated on the túnakort (Figure 2). Test trench 1 shows a turf structure clearly cut through an in situ H1 deposit (Figure 18). Several pieces of metal were identified in the trench profile. Underneath a turf wall [634], was a thin peat ash layer [367], just above a sterile H3/H4 deposit. The center portion of the structure seems to have a floor that presents as a dark brown organic layer with lots of pebbles [367]. Immediately above the floor was a turf layer, probably roof and wall fall, with the 1766 tephra present [365]. Test Trench 2 suggests a similar sequence (Figure 19) with the main cultural layers cutting external in situ H1 tephra. In this excavation, a turfy layer [300] with 1766 tephra caps an in situ 1766 layer that overlies a semi-subterranean thick layer of organic material with flecks of charcoal and peat ash [301].

Neither of these two test trench sequences suggest any pre-1104 activity at their locations. No obvious midden deposit or pea ash or charcoal deposits were identified, although there was charcoal and peat ash flecks in some of the deposits. Both test pits are consistent with a post 1766 occupation, and Test Trench 2 suggests pre 1766 activity as well. This would suggest that both of these excavations encountered the same fairly recent occupational area consistent with an animal barn as indicated on the túnakort (Figure 20). This northern animal barn does not appear to be associated with the identified long house.

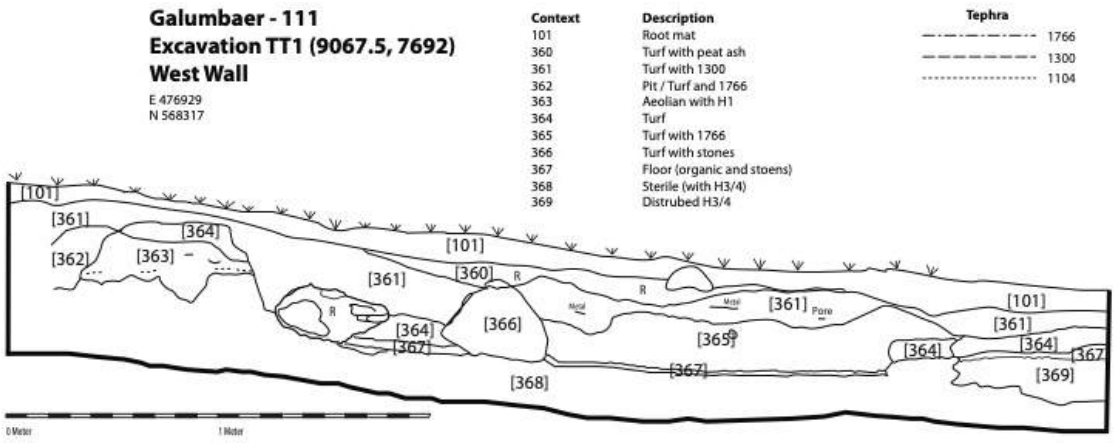

Figure 18. Test Trench 1 west wall profile.

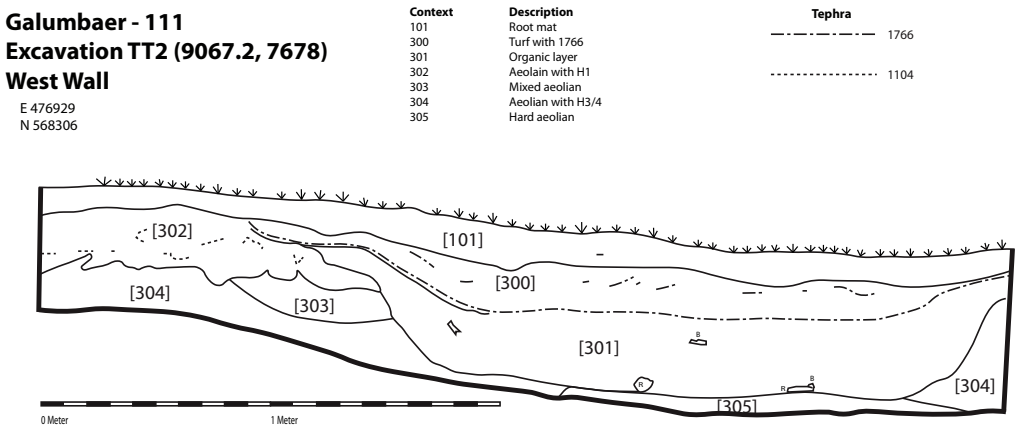

Figure 19. Test Trench 2 west wall profile.

6.1.2 Long house

The long house is perhaps the best understood building at Lower Glaumbær (Bolender 2005; Steinberg 2003). This description will be a short summery of these longer reports. The northern end of the structure seems to be a classic Viking Age bowed wall dwelling hall (Figure 21 & Figure 22). These walls are well preserved, with substantial integrity. Where cut through, probably just south of the hearth, the bottom of the wall is almost always over 60 cm bgs (Figure 23 and Figure 24). Most of the turf walls seem to be about 1.7 m thick. The southern portion is much more complicated (Figure 26) with potentially several small, specialized rooms.

As ground-truthed, the long house, from outside to outside, is 37 m, with an interior long dimension of 35 m, making it one of the longer dwelling structures in Iceland. If the southern smithy extension estimate is accurate (Figure 16) that would put the total length at about 42.5 m and the interior length at 38.1 m. At the dwelling hall's widest point, it is 9 m wide, with an interior width of about 5.3 m. Abutting the interior of the bowed walls, there appears to be a bench, about 1.5 m wide with rock footings marking the end of the benches (Figure 25) and the beginning of the 20 cm thick peat ash floor. Radiocarbon dates from the floor (Table 4) hint at an occupation of at least 50 years, and potentially much longer. However, some slag was found in the top collapse layers, but below the H1 teprha, and some of the peat ash deposits run over the turf walls, suggesting that there was some activity after the dwelling was abandoned, but before H1. Because of the slag and peat ash, it has been suggested that iron smithing continued at the location after the dwelling was abandoned (Bolender 2007).

Figure 24 shows a wall, not associated with any floor or structure, running almost exactly north-south. There are several small deposits of the 1000 tephra on top of the wall. This wall may correspond to the north-south anomaly in the GPR (Figure 17) in the 65 cm bgs slice. This feature could be part of an earlier structure, with a slightly different orientation, or may be a wall associated with the floor identified at the bottom of the midden (Figure 29), which would be roughly contemporaneous.

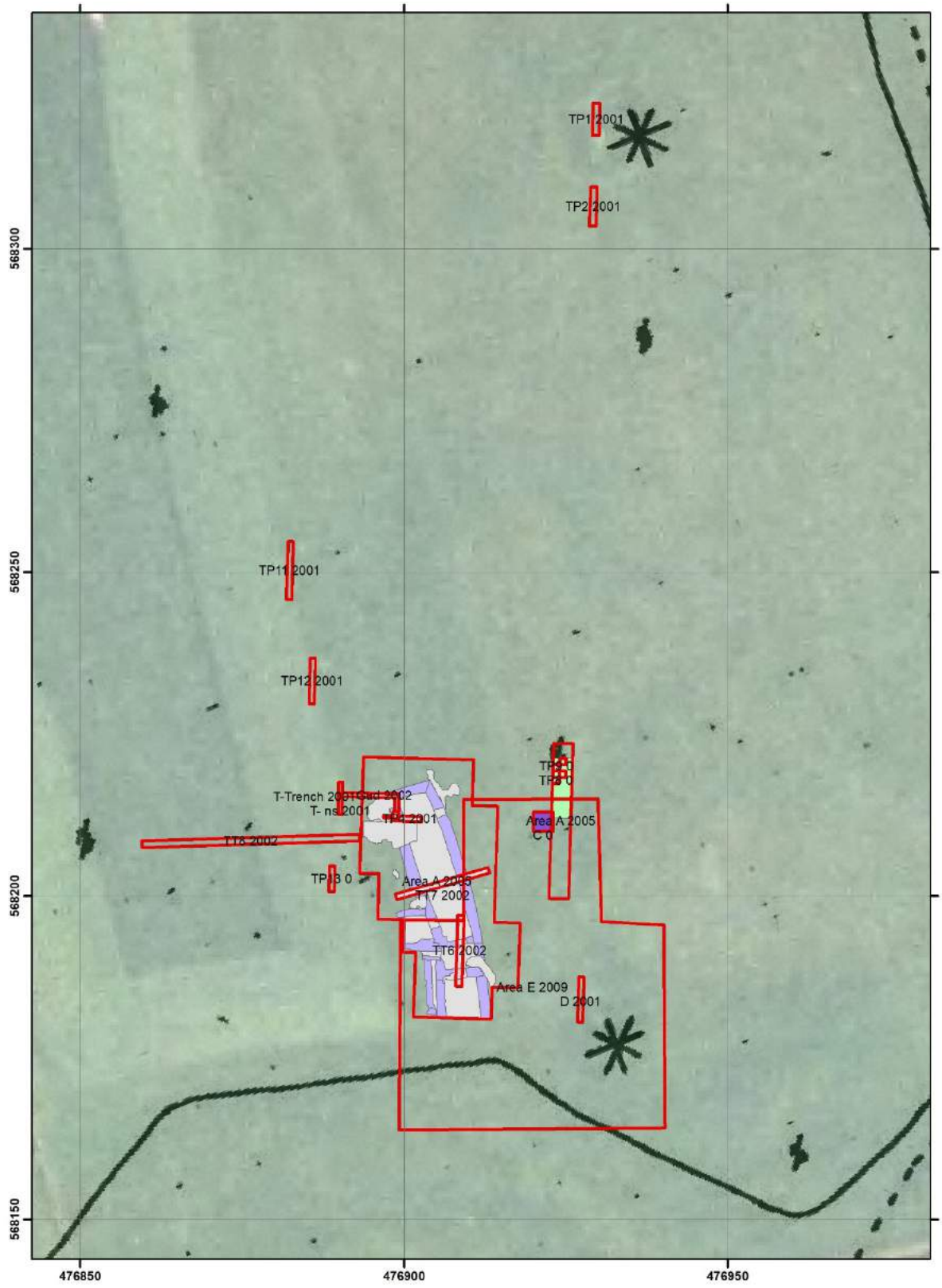

Figure 20.Excavations and long house features superimposed on túnakort showing the georeferenced locations of two of Glaumbaer animal barns indicated by *.

Figure 21. Looking west, the outline of the outer turf wall in yellow, the inner turf wall in white.

Figure 22. Looking north, over the 2005 de-turfed area. The outline of the outer turf wall in yellow flags, the inner turf wall in white.

Figure 23. Excavated cut through eastern wall of dwelling hall.

Figure 24. East wall of the bowed dwelling hall. Note turf wall with north-south orientation at the bottom of the sequence.

Figure 25. Long house main cross cutting excavation showing 20 cm thick floor with rocks marking the start of the benches on either side

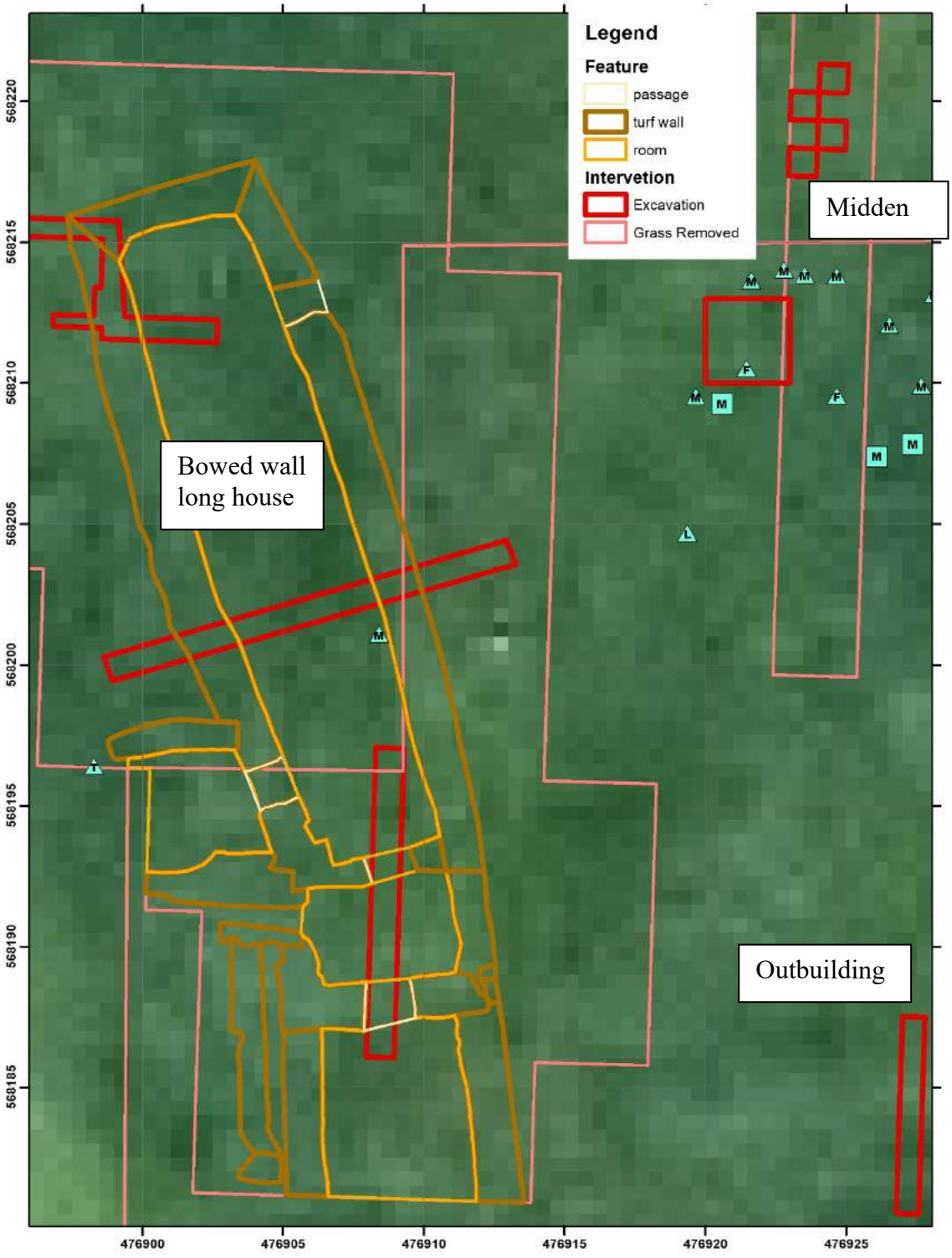

Figure 26. Outline of dwelling hall

6.1.3 Midden

At Lower Glaumbær there is a substantial sheet midden and the beginnings of a midden mound. The midden is only partially mapped, and its contents archaeologically sampled. The location, distribution, dates, and contents suggest that it is associated with the long house

dwelling structure. The excavated midden may be filling in a structure that is early than the uncovered longhouse.

A midden is a restricted dumping area for domestic waste. The term is often used for the substantial shell mounds found in many coastal areas and the concept is useful for roughly characterizing the analogous concentrations of peat ash, charcoal, animal bones, old turf, and other detritus associated with the daily lives of the folks who lived in these Icelandic households. Often, Icelandic farm mounds consist of two components that may or may not be distinct—the ash pile and the dwelling pile—and both of these, along with the broad and extensive sheet midden, make up the archaeologically measurable settlement or farmstead.

At Lower Glaumbær, there is a scatter of bits of peat ash and charcoal under the 1104 tephra all over the broad area. This broad area, that extends from 10-30 m in any direction from the dwelling house, has been identified and outlined using the results of cores and excavations. This defined area, created using the procedure detailed in Steinberg, et al. (2016), is the farmstead area. Within this broad temporally defined archaeological farmstead some parts have rather low concentrations of ash and a majority of the deposit is mixed sediment and aeolian soil. Often, in specific locations, deposits of peat ash, charcoal, and such are the dominant component and form a distinct concentrated layer that stretches over 10's of meters. When this layer is extensive and rather thin, (5-20 cm) is termed a sheet midden, following the shell midden typology (Thompson, et al. 2020). There is a sheet midden at Lower Glaumbær in several places, but the areas, thickness, and nature of the sheet midden has not been well mapped. The dark blue areas around the structure in Figure 13 suggest possible areas of midden concentration. The midden is at least 3700 m^2 and potentially larger, depending on how the midden is defined.

The earlier 2005 work at the edge of the midden, with the 4 checkerboard excavations (TP14-17), yielded broad thin (15 cm) peat and wood ash deposits under H1. This deposit is largely consistent with the 15-20 cm thick midden deposits identified in the "T" trench, test trench 13, and the eastern 6 meters of Test Trench 8. None of these trenches presented any structural remains but demonstrate the extent of the sheet midden around the longhouse.

While the sheet midden is extensive, there is at least one area that should be characterized as an ash midden heap. The heap is about 15 m east of the northeast entrance to the dwelling hall. Resembling Upper Glaumbær, where the historic peat and wood ash midden pile is just 15 m from the back door (Figure 9) this peat ash midden is just outside what appears to be the back door of the bowed wall building. Had the dwelling site been occupied for longer, this area probably would have developed into a topographically distinct midden heap, as happened at Upper Glaumbær.

The 2009 midden excavation has been well documented (Shepard, et al. 2009) and therefore will only be summarized. The 2009 3x3 excavation C (Figure 27,) was placed in the area with the good tephra preservation, at least based on the cores, and a deep stratigraphic sequence. Specifically Core 20103 was one of the few with a well preserved Vj-1000 at 38 cm bgs with peat ash deposit that extended down to 90 cm bgs (Figure 28). The sequence reveals a series of midden layers (Figure 29), and a potential floor [112] in the southeast corner (Shepard, et al. 2009). A float sample (#169) taken from the layer [111] immediately above that floor produced a barley seed that that has the earliest constrainable AMS date at the site (1115±20 radiocarbon years BP - 2σ = 890 AD – 982 AD, 95.4% - Table 4). The floor may be related to the very strong anomaly seen in the 40 cm bgs slice (Figure 16), both of which are consistent with the remnants of a pit house that was later filled with ash and became a dumping ground.

The 2005 work at the edge of the midden, with the 4 checkerboard 1x1 m excavations, has not been analyzed. This marginal midden had little obvious stratigraphy but because the top of the deposit was visible upon deturfing it was sampled. The de-turfed N-S strip was removed as part of the 2005 geophysical investigations. In this strip, the deturfing partly removed a well preserved H1 tephra over most of the surface. As it turns out this elevated area of visible midden (upon deturfing) was at the northern edge of the midden area and the deposits were very shallow. The excavations were screened, animal bone recovery was good, and the unanalyzed animal bone samples are currently stored at UMass Boston. Flotation samples were not taken.

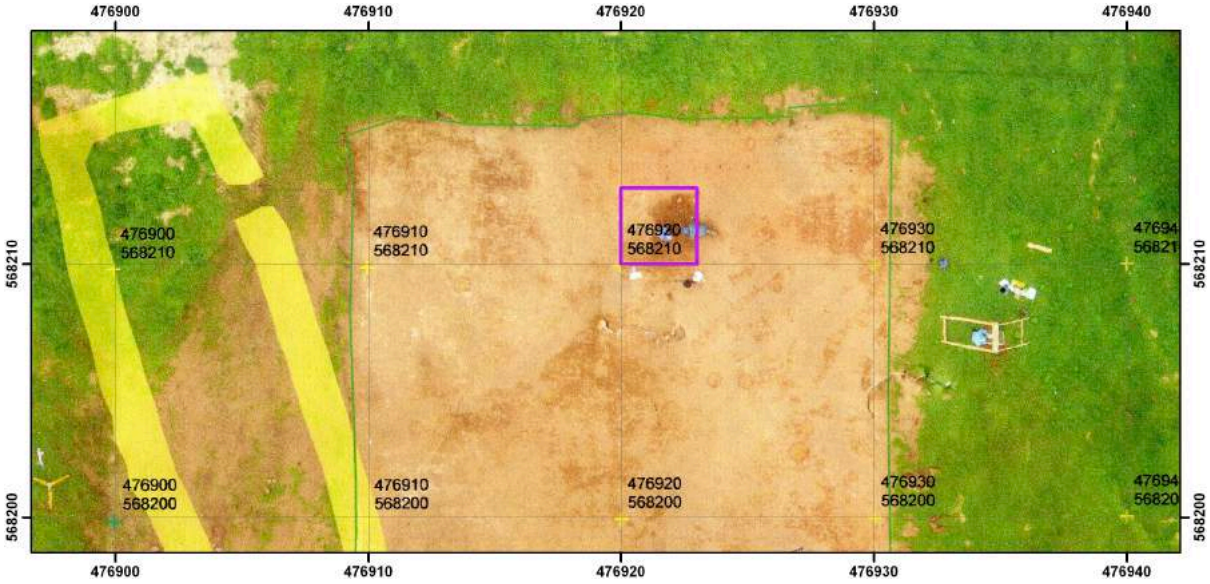

Figure 27. Location of Test Excavation C relative to long-house.

Figure 28. Map of midden area with core sequence indicated and labeled with number.

Figure 29. West wall of 3x3 m test pit, showing striated midden deposit.

6.1.4 Outbuilding

Test trench D, into the area southeast of the longhouse, was part of the original 2001 Glaumbær work. Reexamined in 2009 (Figure 30), the trench's significance to the overall interpretation of the site was realized. Trench D probably cut through the recent southern sheep house (Figure 20 and Figure 36) and into an earlier, pre-1104 deposit with peat ash, wood ash, burnt dung and hay floors above an apparent leveling layer and below what looks like roof collapse. From the limited available evidence, it is difficult to determine the nature of this early deposit. If the leveling layer and roof collapse are good interpretations of the deposits, then these early layers might be the remains of an outbuilding (e.g., dwelling, barn, or pit house) that was potentially purposefully taken down. On the other hand, if the aeolian deposits and black tephra layers above these ash rich deposits are in situ, then trench D encountered an extramural sheet midden deposit that has taken on floor-like characteristics.

The south portion of test trench D, is slightly lower and contains the remains of a more modern building, probably associated with the modern sheep house/Peningshus (Figure 20 and Figure 32). The Peningshus wall itself is quite substantial (Figure 33). There is also a post hole [354], which may be even more recent and associated with fencing, or may be associated with the sheep house. Just below the surface is a thin small peat ash deposit [355] which seems to overlay the AD 1300 tephra. The 1300 tephra and the thin peat ash deposit seem to overly a deposit of loose turf [356] which seems to be pre-1300 but post 1104. All of these more recent contexts are the most substantial deposits of post-AD 1104 cultural material identified in Lower Glaumbær. These later cultural deposits [355 & 356] all pinch out and are responsible for some of the steeper topography of the test pit and sit on an aeolian deposit that are above H1 [357 & 358]. The interface between these two aeolian deposits is a distinct frost-altered surface.

The H1 tephra seems to have fallen on semi-structured turf fall. If that interpretation is correct, the turf fall is probably the remains of roof collapse [115], which is consistent with the sequence in the longhouse (e.g., Figure 25), suggesting broad contemporaneity of abandonment. A lower similar thin deposit of roof fall [118] is below an ephemeral AD 1000

layer. If this layer is in situ, it would imply an abandonment earlier than 1000, predating much of the neighboring longhouse activity. The 1000 tephra may not be in situ but rather fell on the structure roof or was incorporated into the roofing material before the turf was cut from the bog for use in the building. If that were true, the structure would be contemporary with the longhouse. Additional work would be necessary to determine the nature of the 1000 tephra deposition, but if successful, would allow fine grain understanding of the chronology for the outbuilding structure and its relationship to other structures.

Under this later activity and roof collapse is a series of red and white floors, which extend all the way to the north end of the trench (Figure 31). These floors cannot be followed for more than a few meters before one color pinches out and another fills in. In general, the white floors are above the red floors. While the floors were sampled separately, they are often drawn in the profiles as a single unit (e.g., Figure 33) The floors [116,117,119,120,121,122] do not directly contact the sterile soil below (Figure 34). Rather there is a layer of irregular turf fill [123] or leveling layer that separates the floors from the obvious sterile soil below [125].

The white floors seem to be some sort of hay or straw or other organic matter (although there is some wood ash, especially seen in the west wall [121]). The white floors suggests that this outbuilding is some kind of animal house—perhaps a barn. The adjacent and intertwined red floors (probably peat ash) suggest burning and human occupation, contradicting the animal barn hypothesis. The building may have alternated between animal and domestic occupation, or the peat ash may be coming from the adjacent midden.

The turf wall [351] is likely more recent than the succession of red and white floors. This conclusion is based on the sequence in the east wall profile (Figure 33). The turf roof fall layer [115] seems to be cut by the turf wall [351] thus, the floors and wall are probably not part of the same structure. No dates have been processed from the [351] wall so this sequence is entirely based on stratigraphy. The supposition that the walls encountered in trench D are later than the floors must also be confirmed by dating. The wall [351] may share some basic orientations with the floor (Figure 36). If the [351] turf wall is unrelated to the floors, the wall is probably associated with the east-west running anomalies seen in the upper GPR slices (Figure 14 and Figure 36). If the wall and floors are related, the wall and floor interface might be the red-blue line through the C trench in the 40 cm bgs image (Figure 35). Either way, this structure would appear to abut the northeast extension of the broad site cultural layer, where cores produced evidence of floors and cultural layers below the H1 tephra over 25 m away (Figure 35) from the potential outbuilding. This eastern cultural layer extension has not been explored but may be broadly related to the floors identified in Test trench D.

About 67 liters of soil was floated from the various outbuilding D contexts (Table 9). Because the deposit was not excavated, Animal bone samples were not recovered, but floatation samples were taken from various sidewall contexts and over 650 seeds were recovered (Table 2). When compared to the midden, where 235 liters were floated, the outbuilding area D has a much lower density of seeds (5.8 seeds/l in the household midden vs 2.3 seeds/l in the outbuilding). Most of the seed density reduction was a result of a substantial drop in grass seeds recovered from the outbuilding contexts. At the household midden (C), there were 3.0 grass seeds/l while the outbuilding (D) contexts had only 0.68 grass seeds/l (45 grass seeds total). While grassland seeds make up a slim majority of seeds from the midden, wetland seeds make up over 70% of the assemblage in the outbuilding. Finally, the Outbuilding assemblage contains a greater proportion of charred seeds (51%) than does the household midden assemblage (23%, Table 3). This high percentage of charred seeds suggests a floor from human occupation.

No barley was recovered from the outbuilding so the date for the potential structure was taken from a floatation sample from the top red floor layer [116] on a crowberry seed (1045±20 Radiocarbon years BP, Table 4) with a calibrated midpoint of AD 965. This date suggests that the intertwined floors are from the same time period as the long house and associated midden. A date was taken from a lower floor [117] but it is on hardwood and is outside the constraints.

The D trench is in an area of lower IP conductivity (Figure 13). High IP readings are associated with middens and floors. The low IP in the area may be due to the presence of the later animal barn/Peningshus (Figure 20) increasing the soil depth over what would otherwise been a sheet midden, and thus reducing the conductivity.

While the outbuilding is in an area, relative to the longhouse, common for barns and structures for animals, the nature of the floors suggests that, at the very least, there was some human activity that included substantial burning. These extramural or floor deposits seem to be broadly contemporary with other activities, both in the uncovered longhouse and the excavated midden and therefore are part of the interpreted Pre-1104 structural constellation at Lower Glaumbær (Figure 37).

Figure 30. 2001 Test trench (D) re-excavated in 2009 showing west wall

Figure 31. Profile along east wall of test trench D at 3.6 m south of the north end of the trench. Showing the [116,117,119,120,121,122] floor sequence.

Figure 32. photo of East wall (with part of the south end) showing Turf wall [351] at south end of trench D.

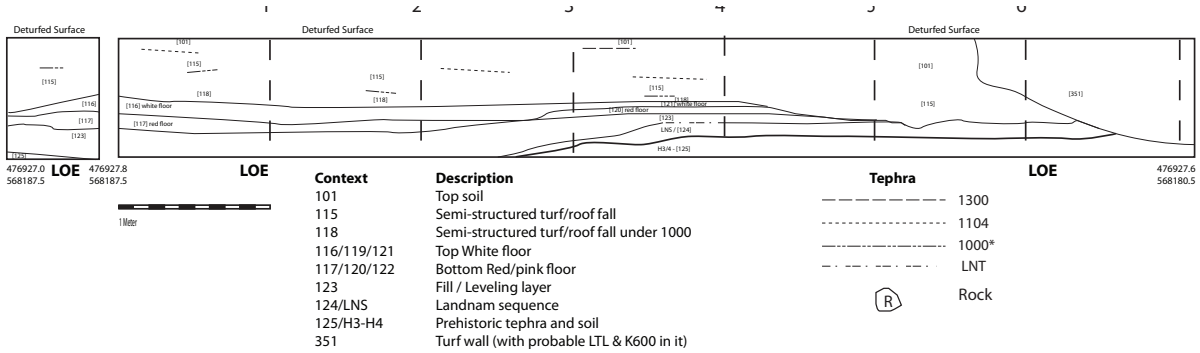

Figure 33. Profile of North and East walls of test trench D drawn in 2009 after machine stripping.

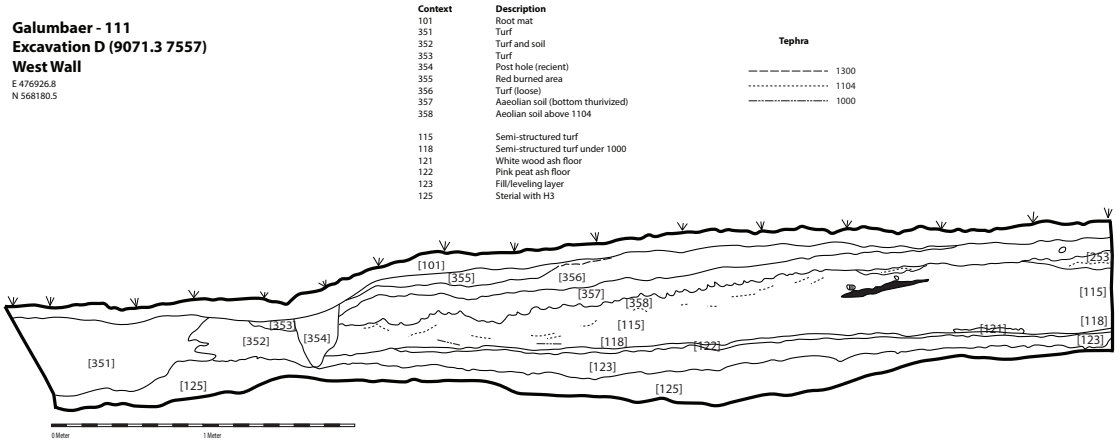

Figure 34. Trench D, west wall as drawn in 2002 with updated context information.

Table 2. Summary of floatation samples (Table 10) with environment assigned based on family midden (C) and outbuilding (C) contexts.

Excavation	Grassland	Weeds	Heathland	Wetland	Other	Total	Sum GHW*	% Grass	% Heath	% Wetland
C	715	19,165	32	583	45	20,540	1,330	54%	2%	44%
D	47	501	-	116	2	666	163	29%	0%	71%
Grand Total	762	19,666	32	699	47	21,206	1,493			
* Sum GHW is the total of Grassland, Heathland and Wetland seeds (without weeds or other)										

Table 3. Charred and uncharred seeds from midden (C) and outbuilding (C) contexts.

	Count				Percentage	
Excavation	Uncharred	Charred	Grand Total		Uncharred	Charred
C	15,741	4,799	20,540		77%	23%
D	325	341	666		49%	51%
Grand Total	16,066	5,140	21,206			

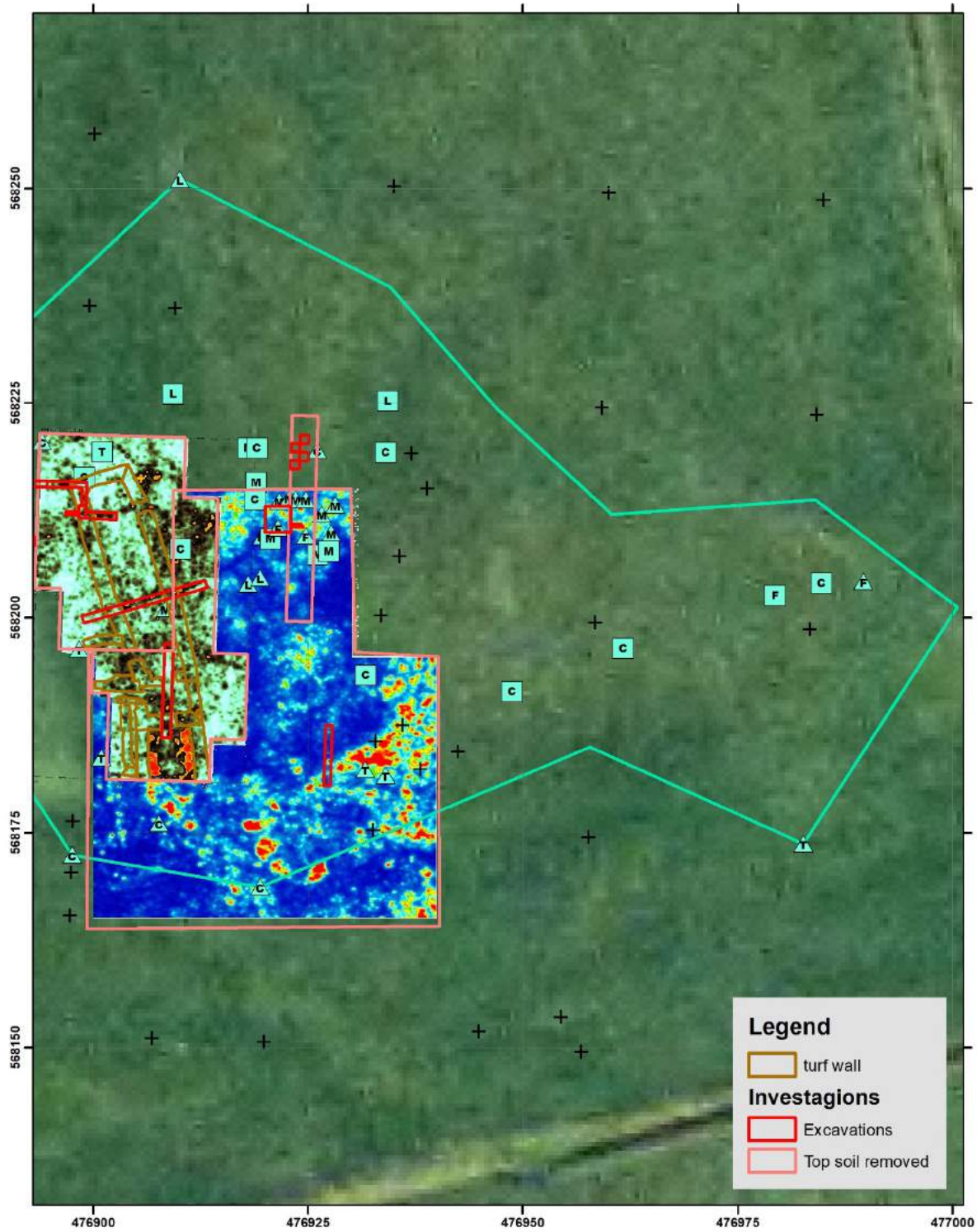

Figure 35. Outline of Lower Glaumbær area, with extension to the east. With GPR slices from about 40 cm bgs

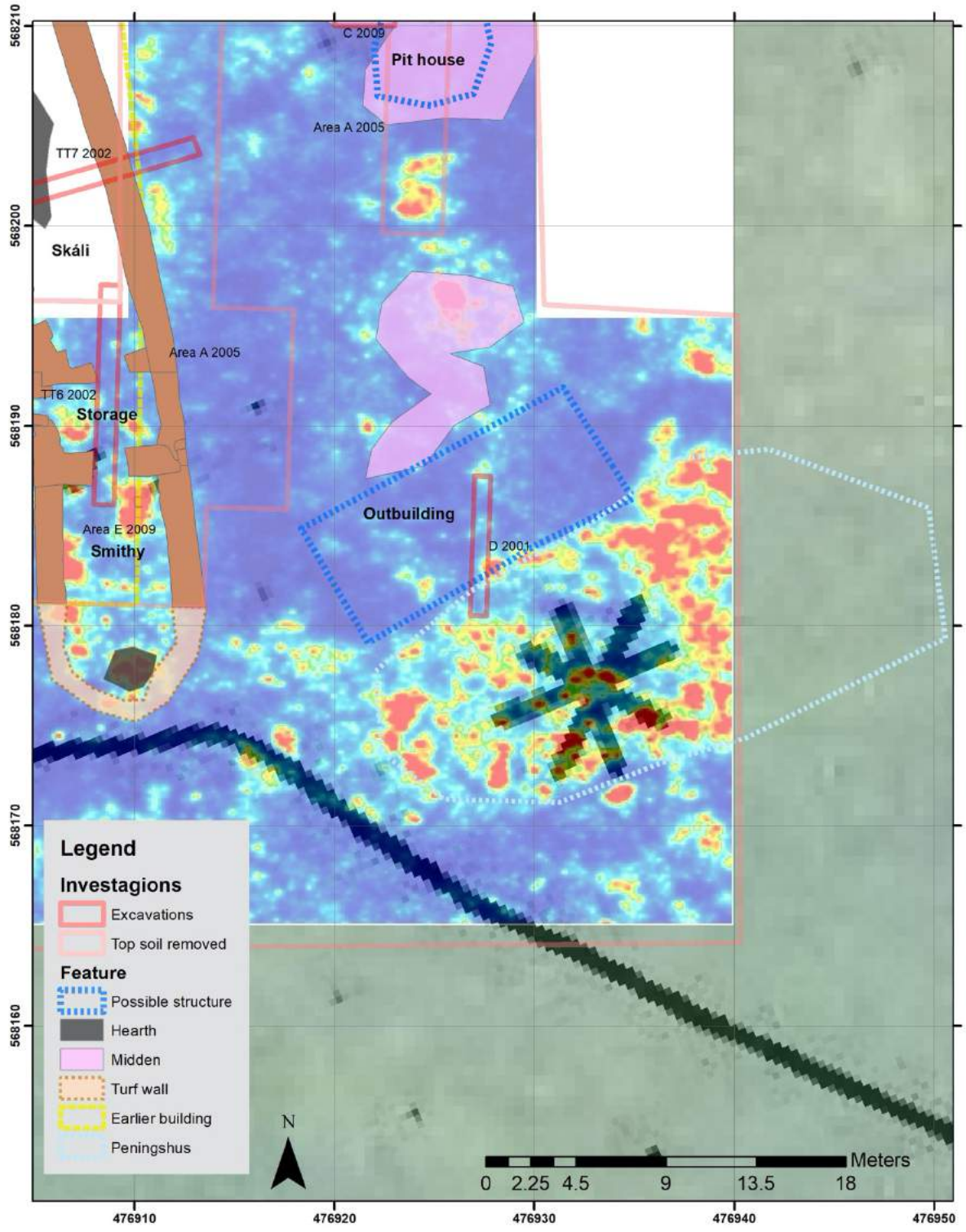

Figure 36. Interpretation of Lower Glaumbaer with Peningshus outline based on 17-20 GRP slice and Túnakort.

6.1.5 Overview of Lower Glaumbær

Only a small proportion of the potential area of pre-1104 Lower Glaumbær has been explored with surface deturfing and an even smaller proportion with excavation trenches. Away from the central longhouse, the northern and western areas of the pre-1104 cultural area have had little exploration and could still yield significant cultural deposits. The areas west and south

of the central longhouse have been explored to a slightly greater degree and the available evidence suggests that those site boundaries are well defined (Figure 8).

The northeast part of the central longhouse (Figure 37) and the northwest midden area cut by the series of "T" trenches (e.g., T E-W, T N-S, Gud, & TT8) indicate a limited, buried pre-1104 extramural sheet midden deposit abutting the longhouse turf walls. This sheet midden-turf wall interface is also exhibited in the IP readings (Figure 13). The more substantial northwest sheet midden extent is estimated from surface exposure, geophysics, coring, and several excavations. Within this northeast sheet midden deposit is a potential pit house. The location of the pit house is extrapolated based on a very small floor exposure in the Area C excavation. The evidence for midden deposits north of the potential outbuilding is from the very high IP readings and one core which presented with a cultural layer. The outbuilding, east of the longhouse and evidenced in Trench D, may simply be a continuation of these extramural deposits or be a more substantial structure.

Only 3 areas of the central turf longhouse have been investigated with excavation trenches (TP4, TT7, & TT6). The rest of the interpretation of the structure is from surface clearing, geophysics, and cores. The western portion of TP4 encountered a turf wall, and the eastern 4/5 of the trench was excavated to the top of a well defined purple floor. The main test trench bisecting the longhouse (TT7) produced turf walls with interior benches and a 2m wide floor that was 20 cm thick. The hearth, just to the north of TT7, is placed based on IP readings (Figure 13). These attributes are consistent with a skáli as the northern part of the longhouse and largest room (Figure 37). The TT6 encountered 1 round sand pit, consistent with a barrel, and thus the small central room is interpreted as a storage room. At the southern end of TT6, there was substantial burnt deposits and the GPR shows very strong reflectors abutting the interior turf walls, suggesting a smithy. The southern wall of the longhouse was not identified on the deturfed surface and may have been severely damaged from plowing. The plowed area starts just south of the smithy at the southern limit of the 2005 cleared area. The GPR results (Figure 15 & Figure 16) suggest a rounded turf wall south end, and the IP (Figure 13) along with a core that encountered a cultural layer, suggest an internal hearth at the edge of the rounded turf wall.

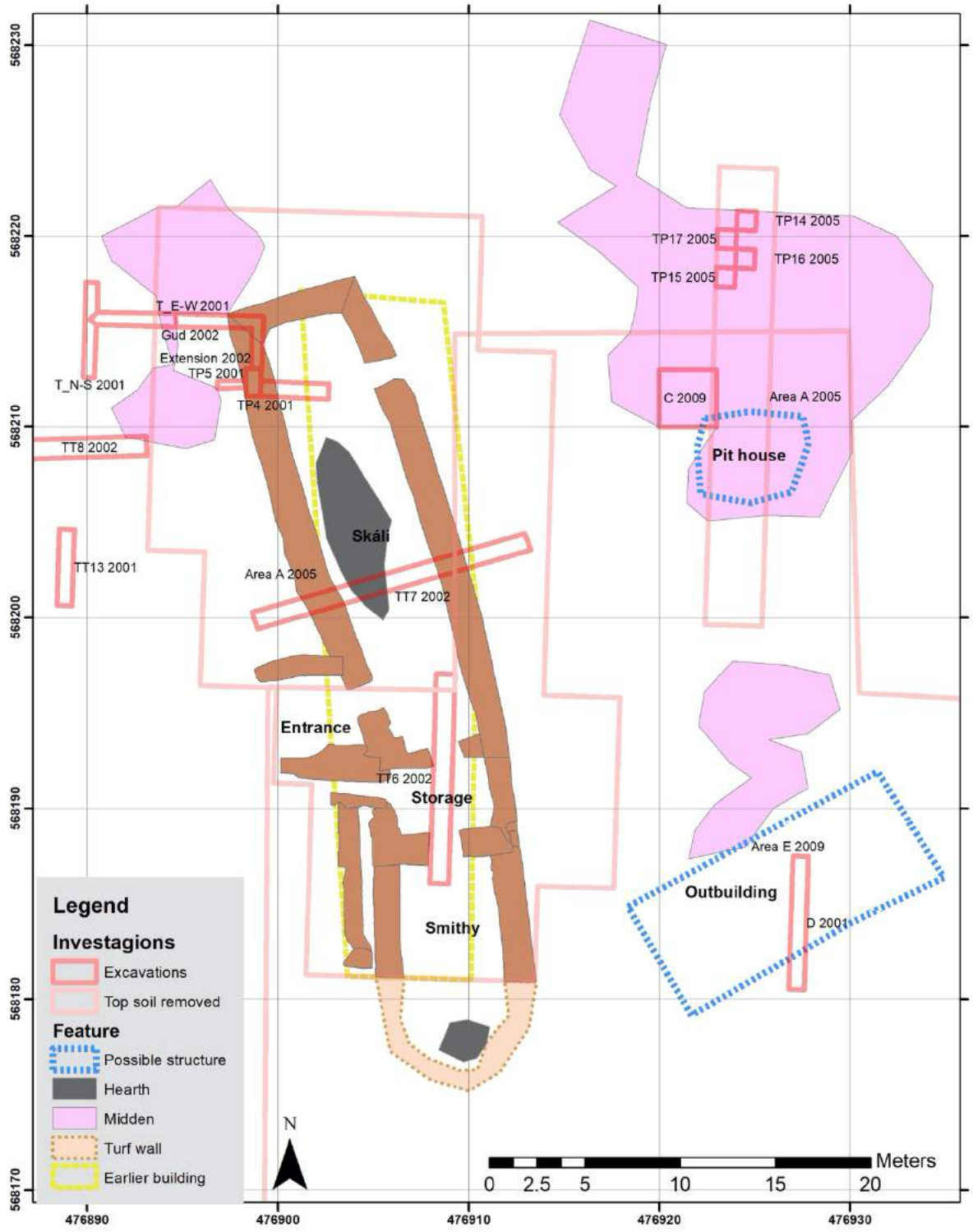

Figure 37. Interpretation of Viking Age Lower Glaumbær.

6.2 Upper Glaumbær

On the surface, the Upper Glaumbær site consists of the turf house museum, the church and its associated churchyard, and the southwest ash pile. Other visible features are not part of the archaeological site of Upper Glaumbær but are recent additions (in the last 100 years), including the wood walled houses (Gilsstofa & Áshús/Ás Café); the current turf wall

sounding the museum grounds; and the southern earthen rise near the As Café which is hiding the remnants of a Quonset hut that was used as a barn immediately after WWII—which was common in Iceland (Malmstrom 1958). The Quonset hut mound is also in the same location as the southwestern sheep house (Figure 2).

Upper Glaumbær has had one archaeological excavation in the southwest ash pile, a cursory examination of a long shallow trench as part of a water pipe installation, and a series of cores. These interventions suggest that all of the area that make up upper Glaumbær has been utilized after the AD 1104 Hekla layer fell. A small portion of the site, east of the turf house museum, and potentially under the turf house museum itself, looks to have been occupied soon after the Vj~1000 tephra fell. There is no evidence of pre-1000 occupation at Upper Glaumbær in any of the cores.

The oldest area of Upper Glaumbær (Figure 38) has only been archaeologically investigated by cores (Johnson 2015). Of those positive cores, no core had a cultural deposit under the Vj-1000 tephra layer. At Upper Glaumbær, 4 cores contained the Vj~1000. These four cores provide the slim evidence for the absence of a pre-1000 occupation at Upper Glaumbær. Core 14537, close to the parking lot, had both the H1 and the Vj~1000 below the end of the LCD, suggesting a post 1104 occupation in that southerly area. Core 14567, just 2 m east of the churchyard, as depicted on the túnakort, and outside the current church turf boundary wall (Figure 39), has LDC, just on top of the 1000 tephra layer at about 67 cm bgs. Similarly, core 14508, 15 m due east of the turf house smithy, has a very complete tephra sequence which includes a dense midden down to 170 cm bgs, where it ends on top of what was identified in the field as the Vj~1000. Core 14521, 25m due east of the museum turf house presents with a rather thin LCD layer from 22 cm bgs to 37 cm bgs. At 31 cm bgs, the H1 was clearly identified. At 38 cm bgs, 1 cm below the end of the LDC, the Vj~1000 was identified. These three cores, that ring the eastern side of the turf house suggest that this area is potentially the oldest area of Upper Glaumbær.

The cores directly under the area of the church, as depicted in the túnakort, suggest that there is a substantial pre 1104 midden in this location. Core 14509 presents midden under turf starting at 61 cm bgs. Within the midden, which is 105 cm thick, at 125 cm bgs is a well-defined H1 teprha. This leaves about 41 cm of midden deposit below the H1 under the church area. The other core in the church area, 14574, did not have an H1, but had alternating midden and turf down to 120 cm bgs (the maximum depth of that core). Core 14550 is just south of the church area (Figure 39) and has a well-defined H1 at 100 cm bgs and midden down to 117 cm bgs where the core experienced refusal, so the actual depth of the midden deposit is probably greater. Just a few meters southeast, core 14549 has only 12 cm of midden below the H1 suggesting that the deposit is pinching out to the south. The 1300 tephra was not recovered in any of the cores around the area of the church as depicted in the túnakort. Thus, with the available information, we can say that this area east of the standing turf house was used continuously as an ash pile both before and after H1 fell.

At Upper Glaumbær, there is no positive evidence for pre- AD 1000 occupation. The 10 cores with secure pre-1104 cultural deposits make up a 65 x 100 m area, primarily in front of the turf house museum (Figure 40). While there are many “maybe” pre-1104 cores, and thus a substantial area of potential pre-1104 occupation southwest of the turf house, these cores were disregarded when creating the pre-1104 boundaries (Figure 38). They were disregarded because the H1 tephra was absent and all the cores in that area. Where the H1 tephra was present, and in the ash pile excavation (P2 TP1), there were no cultural deposits below H1. There is good evidence for occupation of the area south and west of the turf house between 1104-1300 (Figure 41) and conclusive evidence for its use after 1300 (Figure 42).

The pre 1104 occupation area, while overlapping to a large extent, is not the same footprint as later occupations. The pre-1104 footprint is shifted to the north (and probably east) and in all likelihood is incorporated into the modern churchyard. The footprints of the 1104-1300 and post-1300 farmstead areas are largely the same except for the separate post-1300 area 100 m north of Lower Glaumbær (Figure 43). The 1104-1300 footprint is larger and shifted south and east. The post 1300 footprint is largely consistent with the modern turf house and environs.

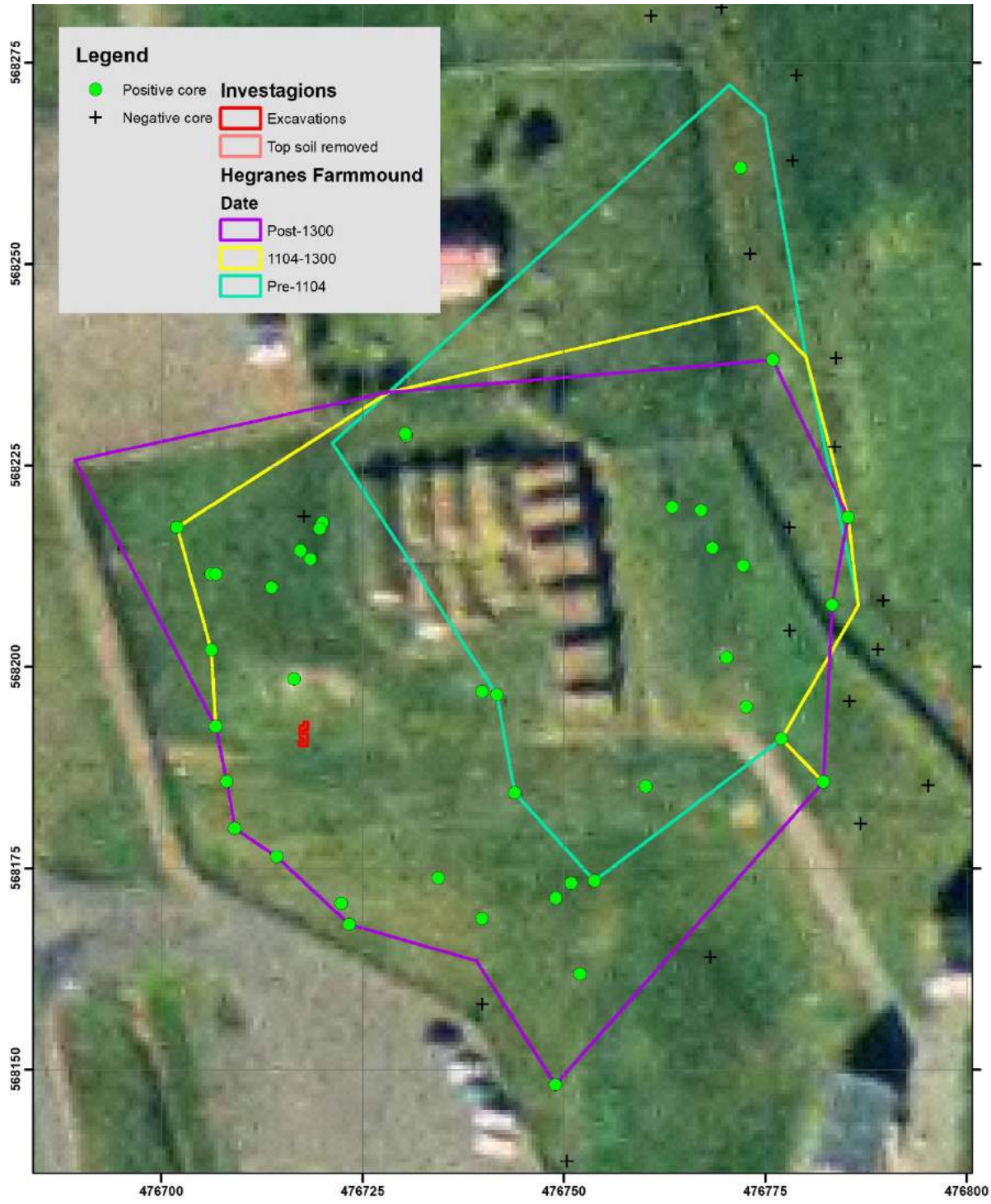

Figure 38. Map of upper Glaumbær farm mound with cores labeled.

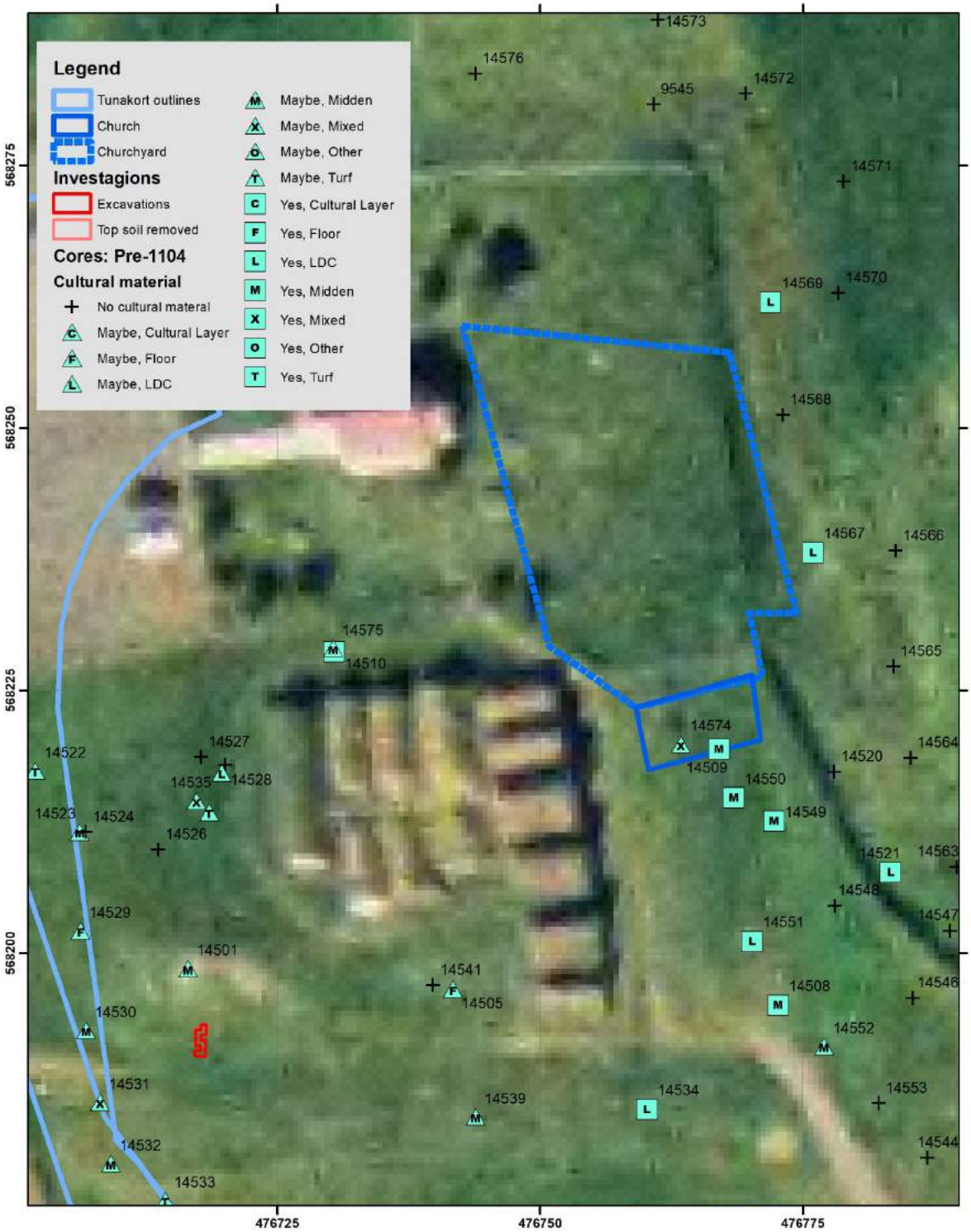

Figure 39. Map of Upper Glaumbær with outline of churchyard from the georeferenced túnakort and core locations and their numbers.

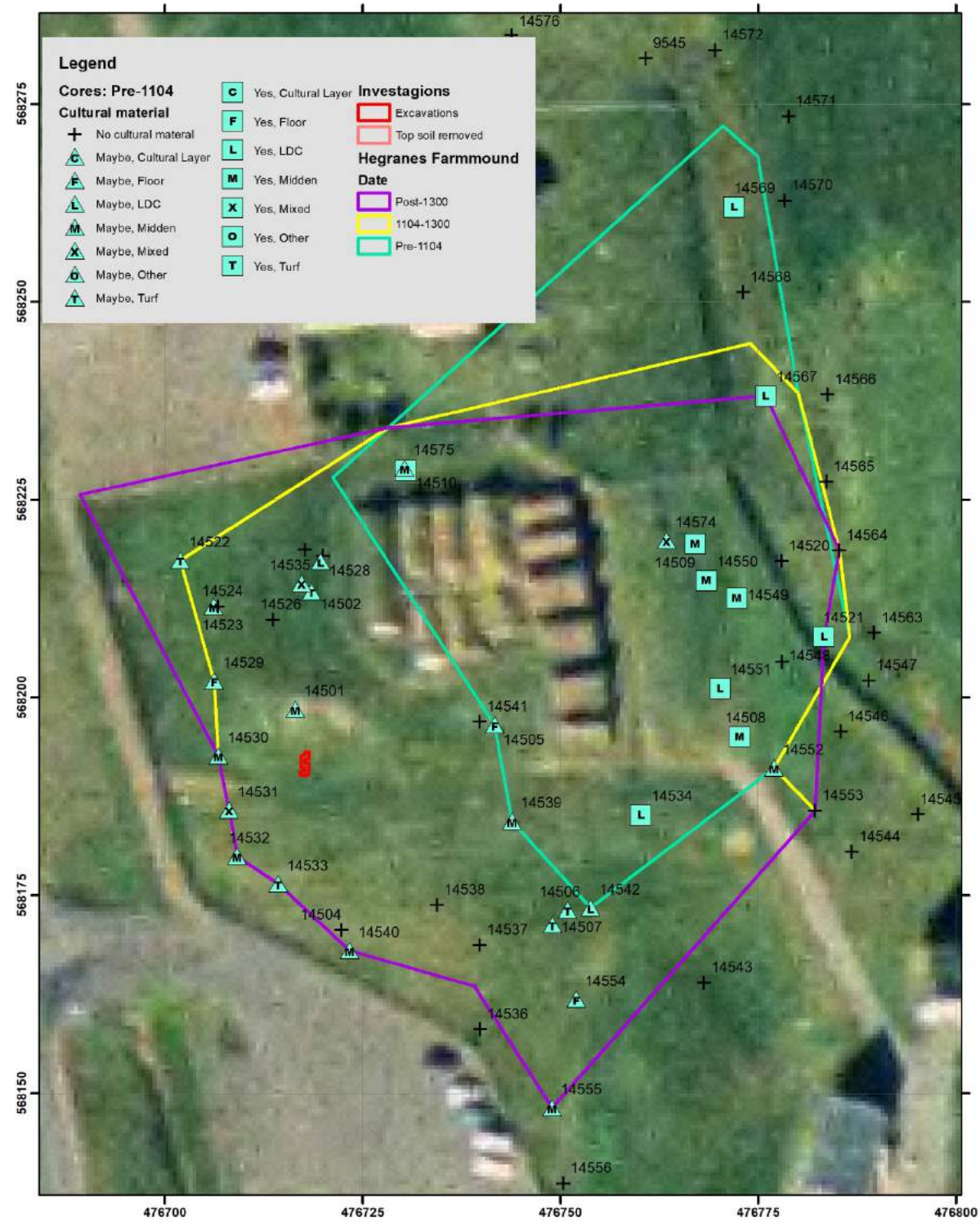

Figure 40. Air photo of Upper Glaumbær with Pre-1104 Coring Results superimposed

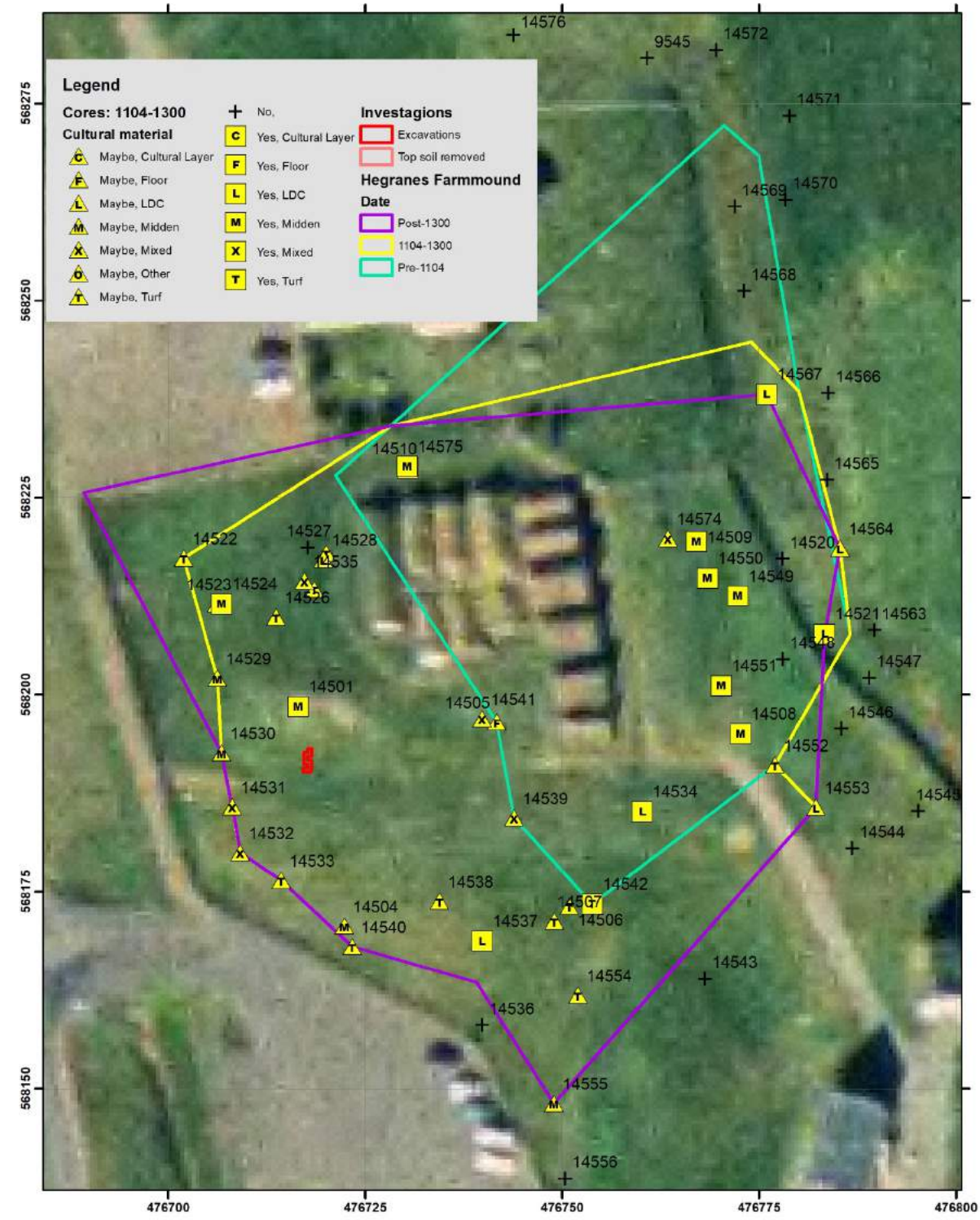

Figure 41. Air photo of Upper Glaumbær with 1104-1300 Coring Results superimposed

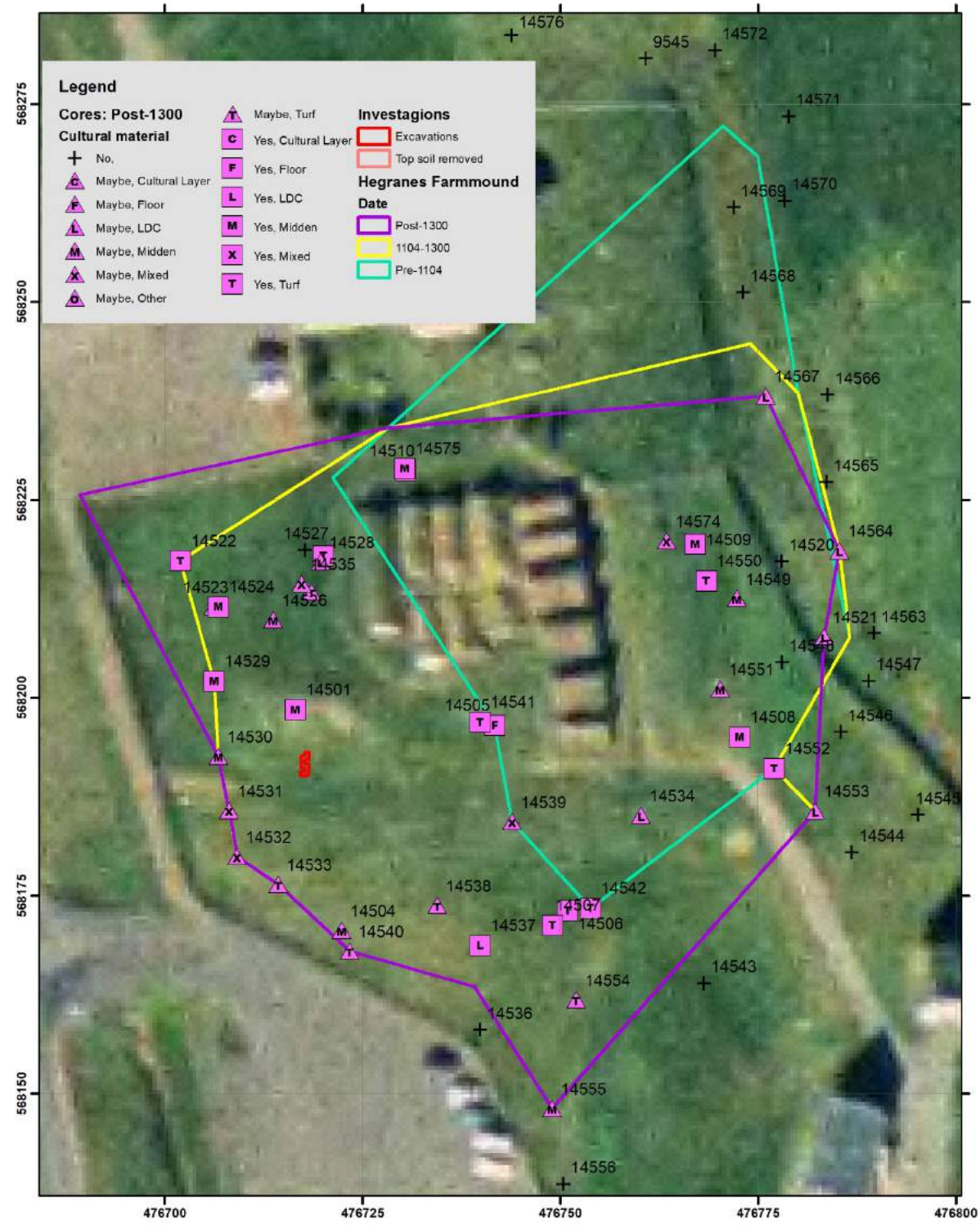

Figure 42. Air photo of Upper Glaumbær with post-1300 Coring Results superimposed

7.0 CONCLUSIONS

Glaumbær has two spatially and temporally distinct habitation areas: Upper Glaumbær and Lower Glaumbær. The farm of Glaumbær would seem to relocate sometime before 1104, moving up the hill. This relocation (Bolender, et al. 2011) may have been gradual. There is very slight evidence for a few decades overlap where both Upper and Lower Glaumbær were occupied at the same time. The general trend however, is a full-scale relocation.

The older remains at Lower Glaumbær consist of a main long house, its associated midden, and an outbuilding (potentially a barn). There are still areas to the west that are part of the farmstead that have not been explored. No evidence for a church or graveyard has been located at lower Glaumbær. The main longhouse at Lower Glaumbær seems to be occupied at least from AD 1000. While there was activity earlier than AD 1000, its area and scope are not well understood. There could have been just a pit house or a full substantial structure that predated the main one outlined at Lower Glaumbær. The lower farmstead was abandoned well before the 1104 tephra layer fell.

At Upper Glaumbær, sometime between AD 1000 and 1104, a midden began forming south of the current churchyard and east of the standing turf house. This is the same location as the early modern church and graveyard as depicted in the túnakort. The earliest occupation may, at least partially, be obscured by the standing turf buildings and modern graveyard. About AD 1300, the site extends further south, to occupy the museum's current grounds, south of the turf buildings.

The first few hundred years of occupation at Glaumbær sees significant changes: pit house, construction of substantial longhouse, the creation of an extensive sheet midden, as well as the construction of one or more outbuildings. Not long after the construction, the entire farm seems to move uphill and re-established there.

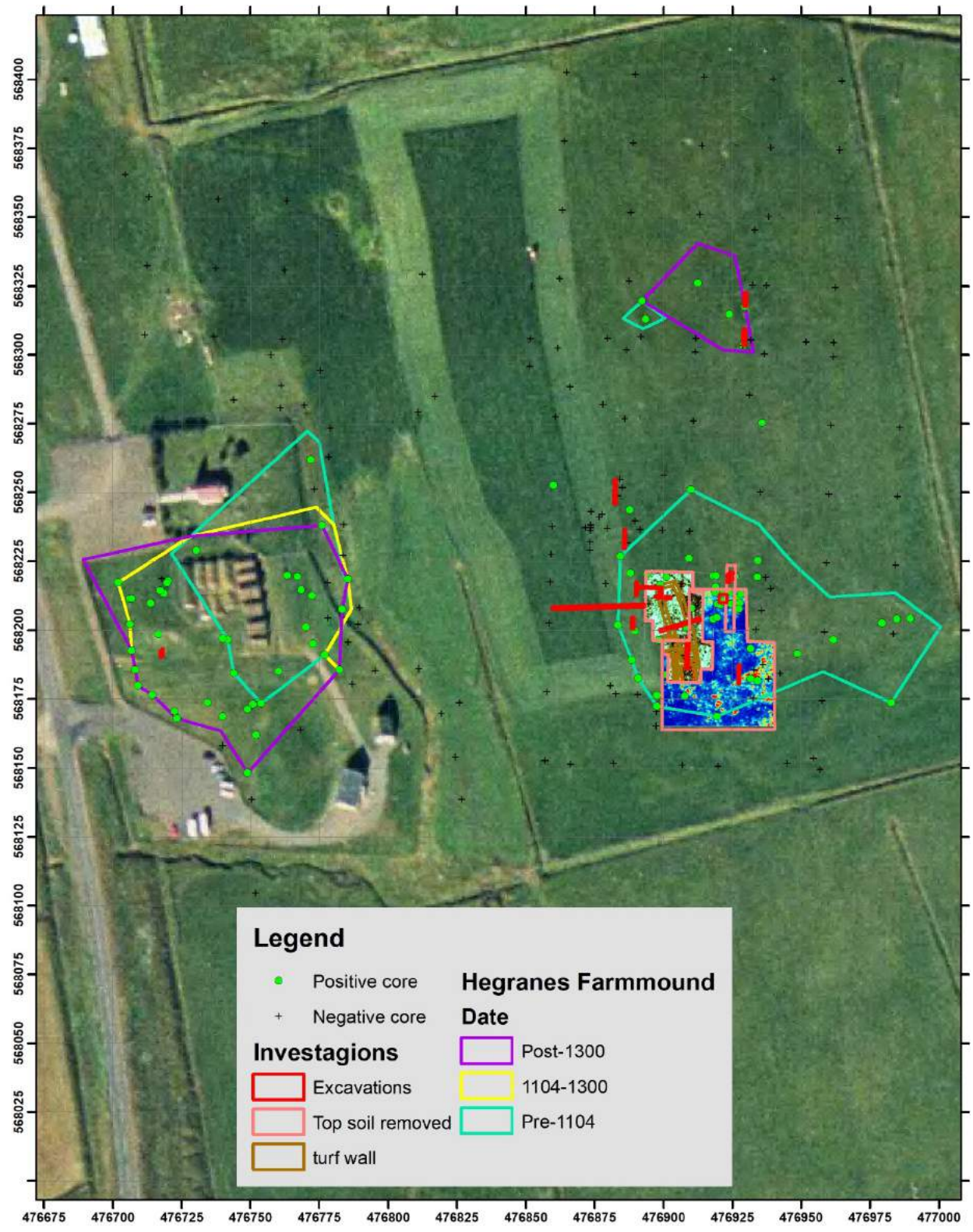

Figure 43. Overview of Glaumbær Farmstead areas

Table 4. Radiocarbon dates from the three areas of Lower Glaumbær.

Area	Ex Area	Context #	Sample #	^{14}C Age (Years PB)	^{14}C SD	Type	2σ Calabrated Dates (IntCal13)	Sample Context	Lower Tephra	Upper Tephra	Constrained Midpoint (AD)	
Midden	C	109	115	1025	20	Bone	984 – 1029 AD (95.4%)	midden, 2009 excavation		1104	1007	
Midden	C	104	130	1105	20	Charred seed (Hordeum)	893 – 986 AD (95.4%)	midden above pit house		1104	938	
Midden	C	111	169	1115	20	Charred seed (Hordeum)	890 – 982 AD (95.4%)	peat ash, outside pit house	872	1104	936	
Outbuilding	D	116	176	1045	20	Charred fruit stem (Vaccinum)	972 – 1025 AD (93.8%)	test trench, floor layer		1104	965	
Outbuilding	D	117	173	1340	15	Charcoal (Hardwood)	651-687 AD (95.4%)	test trench, floor layer		1000	Outside	
Longhouse	A	16	201	969	43	Bone (Ovis)	990 - 1164 AD (95.4%)	2002 skáli Clearing Excavation		1104	1050	
Longhouse	TP5	54	3	990	46	Charred wood (Betula pubescens)	972-1162 AD (99.8%)	floor from skáli, 2001 test pit		1104	1039	
Longhouse	TP5	54	3	1017	56	Bone (Bos taurus)	895-926 AD (8.1%); 936-1157 AD (91.9%)	floor from skáli, 2001 test pit		1104	1000	

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APPENDIX A: CORE DATA

Table 5. Core Locations

Core Number	Year	ISN93 East	ISN93 North	End Depth (cm)	End Reason	UTM East	UTM North
1	2001	476931.672	568193.354	73	Full Core	569072	7277567
2	2001	476900.997	568219.336	40	Full Core	569042	7277593
3	2001	476876.669	568241.125	90	Full Core	569017	7277614
4	2001	476887.76	568243.775	89	Full Core	569028	7277617
5	2001	476884.112	568254.9	90	Full Core	569024	7277628
6	2001	476924	568314.7	50	Full Core	569062	7277689
7	2001	476892.176	568319.695	89	Full Core	569030	7277693
8	2001	476879.733	568306.079	75	Rock	569018	7277679
9	2001	476866.164	568288.496	41	H3/4	569005	7277661
10	2001	476898.902	568216.4	81	H3/4	569040	7277590
11	2001	476897.6	568176.4	40	Rock	569040	7277550
12	2001	476898.3	568196.4	95	Full Core	569040	7277570
13	2001	476938.9	568215.1	86	H3/4	569080	7277590
14	2001	476918.9	568215.8	94	Full Core	569060	7277590
15	2001	476858.91	568217.67	92	H3/4	569000	7277590
16	2001	476878.906	568217.035	95	H3/4	569020	7277590
17	2001	476900.172	568256.391	88	H3/4	569040	7277630
18	2001	476899.537	568236.395	97	H3/4	569040	7277610
19	2001	476897.282	568165.411	95	H3/4	569040	7277539
20	2001	476897.441	568170.41	74	Iron Pan	569040	7277544
21	2001	476894.031	568220.558	96	Clay	569035	7277594
22	2001	476888.031	568220.748	99	H3/4	569029	7277594
23	2001	476918.025	568219.796	90	Full Core	569059	7277594
24	2001	476926.023	568219.542	90	Full Core	569067	7277594
25	2001	476934.021	568219.287	53	Full Core	569075	7277594
26	2001	476935.639	568207.227	50	H3/4	569077	7277582
27	2001	476910.145	568208.036	66	H3/4	569051.5	7277582
28	2001	476873.288	568229.223	57	H3/4	569014	7277602
29	2001	476873.384	568232.222	68	H3/4	569014	7277605
30	2001	476873.511	568236.221	45	Rock	569014	7277609
31	2001	476873.543	568237.221	65	H3/4	569014	7277610
32	2001	476871.543	568237.285	66	H3/4	569012	7277610
33	2001	476873.574	568238.221	63	H3/4	569014	7277611
34	2001	476859.545	568237.665	57	H3/4	569000	7277610
35	2001	476873.733	568243.219	50	H3/4	569014	7277616
36	2001	476879.542	568237.03	54	H3/4	569020	7277610
37	2001	476877.7	568242.093	51	H3/4	569018	7277615
38	2001	476891.538	568236.649	51	H3/4	569032	7277610
39	2001	476909.534	568236.077	62	H3/4	569050	7277610
40	2001	476937.02	568219.192	84	H3/4	569078	7277594
3167	2001	476932.624	568175.297	55	H3/4	569075	7277550
3168	2001	476933.5	568200.291	65	H3/4	569075	7277575
3169	2001	476934.211	568225.286	84	H3/4	569075	7277600
3170	2001	476935.005	568250.28	75	H3/4	569075	7277625
3171	2001	476935.799	568275.275	80	Full Core	569075	7277650

Core Number	Year	ISN93 East	ISN93 North	End Depth (cm)	End Reason	UTM East	UTM North
3172	2001	476936.593	568300.269	67	Full Core	569075	7277675
3173	2001	476937.387	568325.264	75	H3/4	569075	7277700
3174	2001	476938.181	568350.258	81	H3/4	569075	7277725
3175	2001	476938.975	568375.253	85	H3/4	569075	7277750
3176	2001	476939.769	568400.247	85	H3/4	569075	7277775
3177	2001	476928.89	568303.516	77	Rock	569067.2	7277678
3178	2001	476928.89	568303.516	63	H3/4	569067.2	7277678
3179	2001	476929.635	568317.504	70	H3/4	569067.5	7277692
3180	2001	476883.221	568248.923	80	H3/4	569023.3	7277622
3181	2001	476886.681	568231.799	80	H3/4	569027.3	7277605
3182	2001	476889.664	568199.679	62	Full Core	569031.3	7277573
3183	2001	476893.565	568313.045	79	H3/4	569031.6	7277686.4
3186	2001	476964.764	568399.453	88	H3/4	569100	7277775
3187	2001	476963.97	568374.459	86	Clay	569100	7277750
3188	2001	476963.176	568349.464	84	H3/4	569100	7277725
3189	2001	476962.382	568324.47	80	H3/4	569100	7277700
3190	2001	476961.588	568299.475	40	Full Core	569100	7277675
3191	2001	476960.794	568274.481	50	H3/4	569100	7277650
3192	2001	476960	568249.486	50	H3/4	569100	7277625
3193	2001	476959.206	568224.492	65	H3/4	569100	7277600
3194	2001	476958.412	568199.497	50	Full Core	569100	7277575
3195	2001	476957.618	568174.503	50	H3/4	569100	7277550
3196	2001	476956.824	568149.508	45	Full Core	569100	7277525
3197	2001	476985.788	568273.687	86	H3/4	569125	7277650
3198	2001	476984.994	568248.692	50	H3/4	569125	7277625
3199	2001	476984.2	568223.698	72	Full Core	569125	7277600
3200	2001	476983.406	568198.703	76	H3/4	569125	7277575
3201	2001	476982.613	568173.709	55	Full Core	569125	7277550
3202	2001	476906.835	568151.096	58	Full Core	569050	7277525
3203	2001	476907.629	568176.091	60	Full Core	569050	7277550
3204	2001	476908.423	568201.085	74	Full Core	569050	7277575
3205	2001	476909.217	568226.08	77	H3/4	569050	7277600
3206	2001	476910.011	568251.074	60	H3/4	569050	7277625
3207	2001	476910.805	568276.069	55	H3/4	569050	7277650
3208	2001	476911.599	568301.063	60	H3/4	569050	7277675
3209	2001	476912.393	568326.058	65	Full Core	569050	7277700
3210	2001	476913.187	568351.052	60	H3/4	569050	7277725
3211	2001	476913.981	568376.047	60	H3/4	569050	7277750
3212	2001	476914.774	568401.041	45.04	H3/4	569050	7277775
3213	2001	476889.78	568401.835	50	H3/4	569025	7277775
3214	2001	476888.986	568376.841	50	H3/4	569025	7277750
3215	2001	476888.192	568351.846	65	H3/4	569025	7277725
3216	2001	476887.398	568326.852	50	H3/4	569025	7277700
3217	2001	476886.604	568301.857	69	H3/4	569025	7277675
3218	2001	476885.81	568276.863	70	H3/4	569025	7277650
3219	2001	476885.016	568251.868	60	Full Core	569025	7277625
3220	2001	476884.222	568226.874	70	Full Core	569025	7277600
3221	2001	476883.428	568201.879	70	H3/4	569025	7277575

Core Number	Year	ISN93 East	ISN93 North	End Depth (cm)	End Reason	UTM East	UTM North
3222	2001	476882.634	568176.884	50	Full Core	569025	7277550
3223	2001	476881.841	568151.89	50	H3/4	569025	7277525
3224	2001	476856.846	568152.684	83	Full Core	569000	7277525
3225	2001	476857.64	568177.678	80	H3/4	569000	7277550
3250	2001	476858.434	568202.673	60	Clay	569000	7277575
3251	2001	476859.228	568227.667	74	H3/4	569000	7277600
3252	2001	476860.022	568252.662	66	H3/4	569000	7277625
3253	2001	476860.816	568277.657	65	H3/4	569000	7277650
3254	2001	476861.61	568302.651	35	H3/4	569000	7277675
3255	2001	476862.404	568327.646	47	H3/4	569000	7277700
3256	2001	476863.198	568352.64	65	Full Core	569000	7277725
3257	2001	476863.991	568377.635	70	H3/4	569000	7277750
3258	2001	476864.785	568402.629	50	H3/4	569000	7277775
9541	2001	476877.971	568282.116	18	Full Core	569017	7277655
9542	2001	476810.827	568279.244	44	H3/4	568950	7277650
9543	2001	476812.414	568329.233	12	Full Core	568950	7277700
9544	2001	476762.425	568330.821	35	H3/4	568900	7277700
9545	2001	476760.838	568280.832	53	H3/4	568900	7277650
9546	2001	476877.971	568282.116	40	H3/4	569017	7277655
9547	2001	476755.111	568384.096	40	Full Core	568891	7277753
9548	2001	476704.486	568365.688	40	Full Core	568841	7277733
9549	2001	476757.442	568299.955	40	Full Core	568896	7277669
9550	2001	476775.279	568294.385	40	Full Core	568914	7277664
9551	2001	476817.016	568285.053	40	Full Core	568956	7277656
9552	2001	476877.971	568282.116	18	Full Core	569017	7277655
9553	2001	476889.634	568239.712	39	H3/4	569030	7277613
9554	2001	476932.388	568325.423	42	H3/4	569070	7277700
9555	2001	476933.023	568345.418	42	H3/4	569070	7277720
9556	2001	476891.762	568306.697	52	H3/4	569030	7277680
9557	2001	476911.757	568306.062	52	H3/4	569050	7277680
9558	2001	476931.118	568285.431	42	H3/4	569070	7277660
9559	2001	476931.753	568305.427	40	Full Core	569070	7277680
9560	2001	476951.749	568304.792	42	H3/4	569090	7277680
9561	2001	476961.747	568304.474	46	H3/4	569100	7277680
9562	2001	476852.31	568324.964	48	H3/4	568990	7277697
9563	2001	476851.707	568305.968	44	H3/4	568990	7277678
9564	2001	476851.39	568295.97	42	H3/4	568990	7277668
1	2002	476866.288	568151.395	58	Full Core	569008	7277523
2	2002	476880.731	568179.948	60	H3/4	569023	7277553
3	2002	476888.531	568189.208	88	Clay	569030.5	7277562.5
4	2002	476890.824	568182.63	82	Clay	569033	7277556
5	2002	476890.633	568176.631	67	H3/4	569033	7277550
6	2002	476900.9	568183.8	84	Iron Pan	569043	7277557.5
7	2002	476897.505	568172.409	76	Full Core	569040	7277546
8	2002	476919.405	568168.712	50	Full Core	569062	7277543
9	2002	476919.833	568150.684	81	H3/4	569063	7277525
10	2002	476944.891	568151.889	45	Iron Pan	569088	7277527
11	2002	476954.429	568153.6	65	Sand	569096	7277528

Core Number	Year	ISN93 East	ISN93 North	End Depth (cm)	End Reason	UTM East	UTM North
12	2002	476918.8	568213.8	82	Full Core	569060	7277588
13	2002	476919	568219.8	81	Full Core	569060	7277594
5300	2002	476763.219	568355.816	47	Full Core	568900	7277725
5301	2002	476762.425	568330.821	50	H3/4	568900	7277700
5302	2002	476761.631	568305.827	50	Full Core	568900	7277675
5303	2002	476736.637	568306.621	40	Full Core	568875	7277675
5304	2002	476737.431	568331.615	50	H3/4	568875	7277700
5305	2002	476738.225	568356.61	70	H3/4	568875	7277725
5306	2002	476713.23	568357.404	50	Clay	568850	7277725
5307	2002	476712.436	568332.409	40	Full Core	568850	7277700
5308	2002	476711.642	568307.415	50	H3/4	568850	7277675
1	2009	477333.578	568418.743	40	H3/4		
2	2009	476931.402	568182.327	80	Full Core		
3	2009	476934.2748	568181.593	50	Rock		
4	2009	476938.149	568182.239	40	H3/4		
5	2009	476935.994	568187.166	70	H3/4		
6	2009	476942.2	568184.5	40	H3/4		
7	2009	476948.48	568191.278	40	H3/4		
8	2009	476961.404	568196.265	40	H3/4		
9	2009	476979.269	568202.349	80	H3/4		
10	2009	476984.477	568203.909	80	H3/4		
11	2009	476989.4	568204.2	80	H3/4		
12	2009	477017.2	568198.8	40	Sand		
14	2009	476932.9	568185.7	40	H3/4		
15	2009	476931.624	568182.385	65	Full Core		
16	2009	476934.005	568181.669	45	Rock		
17	2009	476938.115	568182.43	40	H3/4		
18	2009	476936.013	568187.549	60	H3/4		
19	2009	476942.458	568184.505	40	H3/4		
20	2009	476948.682	568191.467	40	H3/4		
21	2009	476961.634	568196.502	40	H3/4		
22	2009	476979.332	568202.634	60	H3/4		
23	2009	476984.72	568204.078	55	H3/4		
24	2009	476989.604	568204.258	50	H3/4		
25	2009	477017.814	568198.718	40	Sand		
20101	2009	476928.154	568213.17	80	H3/4		
20102	2009	476927.69	568209.896	80	H3/4		
20103	2009	476927.38	568207.811	95	H3/4		
20104	2009	476926.55	568212.061	80	H3/4		
20105	2009	476926.107	568207.379	90	Rock		
20106	2009	476924.686	568213.819	65	H3/4		
20107	2009	476924.688	568209.549	60	Rock		
20108	2009	476923.539	568213.844	80	H3/4		
20109	2009	476922.8	568214.01	60	Rock		
20110	2009	476921.64	568213.63	80	H3/4		
20111	2009	476921.47	568210.51	80	H3/4		
20112	2009	476920.613	568209.255	80	H3/4		
20113	2009	476919.378	568204.679	30	Rock		

Core Number	Year	ISN93 East	ISN93 North	End Depth (cm)	End Reason	UTM East	UTM North
20114	2009	476919.67	568209.531	80	Full Core		
20115	2009	476918	568204	40	Rock		
14501	2014	476716.466	568198.525	400			
14502	2014	476718.509	568213.415	162			
14503	2014	476720.041	568217.974	185			
14504	2014	476722.33	568170.657	180			
14505	2014	476741.674	568196.577	170			
14506	2014	476750.882	568173.17	110			
14507	2014	476749.001	568171.332	164			
14508	2014	476772.641	568195.069	200			
14509	2014	476767.009	568219.471	200			
14510	2014	476730.389	568228.704	172			
14520	2014	476778.003	568217.29	35			
14521	2014	476783.331	568207.712	50			
14522	2014	476701.951	568217.354	120			
14523	2014	476706.148	568211.532	27			
14524	2014	476706.755	568211.564	120			
14526	2014	476713.677	568209.878	120			
14527	2014	476717.733	568218.709	30			
14528	2014	476719.671	568217.179	122			
14529	2014	476706.217	568202.135	120			
14530	2014	476706.772	568192.641	120			
14531	2014	476708.11	568185.792	120			
14532	2014	476709.128	568179.966	120			
14533	2014	476714.292	568176.446	120			
14534	2014	476760.157	568185.162	110			
14535	2014	476717.266	568214.466	120			
14536	2014	476739.848	568158.123	80			
14537	2014	476739.836	568168.77	120			
14538	2014	476734.407	568173.817	120			
14539	2014	476743.868	568184.408	86			
14540	2014	476723.315	568168.037	120			
14541	2014	476739.82	568196.969	120			
14542	2014	476753.799	568173.467	90			
14543	2014	476768.179	568163.998	80			
14544	2014	476786.878	568180.54	80			
14545	2014	476795.242	568185.282	80			
14546	2014	476785.458	568195.751	80			
14547	2014	476789.022	568202.179	60			
14548	2014	476778.033	568204.532	120			
14549	2014	476772.269	568212.598	120			
14550	2014	476768.416	568214.804	120			
14551	2014	476770.167	568201.15	120			
14552	2014	476777.003	568191.111	120			
14553	2014	476782.231	568185.753	80			
14554	2014	476751.988	568161.878	82			
14555	2014	476748.955	568148.163	90			
14556	2014	476750.405	568138.652	66			

Core Number	Year	ISN93 East	ISN93 North	End Depth (cm)	End Reason	UTM East	UTM North
14557	2014	476751.891	568104.689	67			
14558	2014	476826.7	568138.66	60			
14559	2014	476824.474	568153.969	30			
14560	2014	476819.371	568169.805	20			
14561	2014	476825.91	568173.714	60			
14562	2014	476811.109	568186.233	40			
14563	2014	476789.672	568208.221	30			
14564	2014	476785.272	568218.631	60			
14565	2014	476783.639	568227.319	60			
14566	2014	476783.832	568238.336	40			
14567	2014	476775.955	568238.16	80			
14568	2014	476773.121	568251.253	80			
14569	2014	476771.935	568261.976	63			
14570	2014	476778.391	568262.873	38			
14571	2014	476778.886	568273.474	60			
14572	2014	476769.583	568281.844	65			
14573	2014	476761.207	568288.854	30			
14574	2014	476763.406	568219.876	120			
14575	2014	476730.309	568228.996	120			
14576	2014	476743.842	568283.761	30			

Table 6. Core stratigraphy.

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
1	2001	0	73	73	Cultural Layer		None	None	Charcoal Bone	
2	2001	0	21	21	Aeolian Deposit		None	None	None	
2	2001	21	40	19	Turf		None	None	Turf	
3	2001	0	90	90	Aeolian Deposit		None	None	None	
4	2001	0	21	21	Aeolian Deposit		None	None	None	
4	2001	21	89	68	Cultural Layer		None	None	Charcoal Bone	
5	2001	0	90	90	Aeolian Deposit		None	None	Charcoal Bone	
6	2001	0	50	50	Cultural Layer		None	None	Charcoal Turf	
7	2001	0	30	30	Cultural Layer		None	None	Ash (Peat) Charcoal Bone	
7	2001	30	89	59	Aeolian Deposit		None	None	None	
8	2001	0	75	75	Aeolian Deposit		None	None	Charcoal	
8	2001	75	75	0	Rock		None	None	None	
9	2001	0	15	15	Top Soil		None	None	None	
9	2001	15	88	73	Aeolian Deposit		None	None	None	
10	2001	0	53	53	Top Soil		None	None	None	
10	2001	53	68	15	Cultural Layer		None	Tephra	Yes Turf Charcoal	
10	2001	68	81	13	Silt		None	Tephra	None	
11	2001	0	20	20	Top Soil		None	None	None	
11	2001	20	31	11	Aeolian Deposit		None	None	None	
11	2001	31	36	5	Cultural Layer		None	None	Ash (Peat) Charcoal	
11	2001	36	40	4	Aeolian Deposit		None	None	None	
11	2001	40	40	0	Rock		None	None	None	
12	2001	0	20	20	Top Soil		None	None	None	
12	2001	20	95	75	Turf		None	None	Turf	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
13	2001	0	20	20	Top Soil		None	None	None	
13	2001	20	53	33	Aeolian Deposit		None	Tephra	None	
13	2001	53	86	33	Bog (Organic)		None	None	None	
13	2001	86	86	0	Rock		None	Tephra	None	
14	2001	1	20	19	Top Soil		None	None	None	
14	2001	20	24	4	Aeolian Deposit		None	None	None	
14	2001	24	94	70	Midden		None	None	Bone Ash (Peat) Charcoal	
15	2001	0	92	92	Aeolian Deposit		None	None	None	
16	2001	1	7	6	Top Soil		Washed	None		
16	2001	7	36	29	Aeolian Deposit		Washed	None		
16	2001	36	48	12	Aeolian Deposit		None	None	None	
16	2001	48	63	15	Bog (Organic)		None	None	None	
16	2001	63	85	22	Aeolian Deposit		Upcast	Tephra		
16	2001	85	95	10	Bog (Organic)		None	None	None	
17	2001	1	15	14	Top Soil		None	None	None	
17	2001	15	35	20	Aeolian Deposit		Cryoturbated	Tephra		
17	2001	35	42	7	Aeolian Deposit		None	Tephra	Yes	
17	2001	42	48	6	Tephra		None	Tephra	None	
17	2001	48	88	40	Aeolian Deposit		None	None	None	
18	2001	0	14	14	Top Soil		Washed	None		
18	2001	14	40	26	Aeolian Deposit	Boggy	Washed	None		
18	2001	40	50	10	Tephra		None	Tephra	None	
18	2001	50	60	10	Aeolian Deposit		None	None	None	
18	2001	60	67	7	Bog (Organic)		None	None	None	
18	2001	67	97	30	Bog (Organic)		None	None	None	
18	2001	97	97	0	Rock		None	None	None	
19	2001	0	45	45	Iron Pan	Boggy	Washed	None		
19	2001	36	48	12	Aeolian Deposit		None	None	None	
19	2001	48	63	15	Bog (Organic)		None	None	None	
19	2001	63	85	22	Aeolian Deposit		Washed	Tephra		

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
19	2001	85	95	10	Bog (Organic)		None	None	None	
20	2001	0	24	24	Bog (Organic)		Washed	None		
20	2001	24	59	35	Clay	Irony	None	Iron	None	
20	2001	59	74	15	Iron Pan		None	Iron	None	
21	2001	0	17	17	Top Soil		None	None	None	
21	2001	17	42	25	Aeolian Deposit		Removed	None		
21	2001	42	54	12	Cultural Layer		None	None	None	
21	2001	54	96	42	Clay	Irony	None	Iron	Yes	
22	2001	0	21	21	Top Soil		None	None	None	
22	2001	21	56	35	Low Density Cultural		None	Iron	Charcoal Bone	
22	2001	56	68	12	Aeolian Deposit	Boggy	None	Tephra	None	
22	2001	68	99	31	Clay		None	None	None	
23	2001	0	11	11	Top Soil		None	None	None	
23	2001	11	26	15	Aeolian Deposit	Silty	None	None	None	
23	2001	26	90	64	Midden		None	None	Ash (Peat) Bone Charcoal	
24	2001	0	14	14	Top Soil		None	None	None	
24	2001	14	90	76	Cultural Layer		None	None	Bone Ash (Peat) Turf Charcoal	
25	2001	0	20	20	Top Soil		None	None	None	
25	2001	20	33	13	Low Density Cultural		Cryoturbated		Bone Charcoal	
25	2001	33	53	20	Cultural Layer					
26	2001	0	18	18	Top Soil		None	None	None	
26	2001	18	30	12	Silt		None	None	None	
26	2001	30	50	20	Tephra		None	Tephra	None	
27	2001	0	10	10	Top Soil		None	None	None	
27	2001	10	24	14	Aeolian Deposit		None	None	None	
27	2001	24	55	31	Cultural Layer		None	Tephra	Ash (Peat) Bone	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
									Charcoal Turf	
27	2001	55	66	11	Aeolian Deposit		None	Tephra Pebbles	None	
28	2001	0	23	23	Top Soil		None	None	None	
28	2001	23	41	18	Aeolian Deposit		Washed	None		
28	2001	41	57	16	Bog (Organic)		None	Iron	None	
29	2001	0	20	20	Top Soil		None	None	None	
29	2001	20	51	31	Aeolian Deposit		Washed	None		
29	2001	51	61	10	Bog (Organic)		None	None	None	
30	2001	0	5	5	Top Soil		None	None	None	
30	2001	5	33	28	Aeolian Deposit		Washed	None		
30	2001	33	45	12	Bog (Organic)		None	None	None	
30	2001	45	45	0	Rock		None	None	None	
31	2001	0	14	14	Top Soil		None	None	None	
31	2001	14	51	37	Aeolian Deposit		Washed	None		
31	2001	51	61	10	Bog (Organic)		None	None	None	
31	2001	61	65	4	Tephra		None	Tephra	None	
32	2001	0	16	16	Aeolian Deposit		Washed	None		
32	2001	16	18	2	Top Soil		Plowed	None		
32	2001	18	47	29	Aeolian Deposit		Washed	None		
32	2001	47	52	5	Bog (Organic)	Irony	None	Iron	None	
32	2001	52	66	14	Aeolian Deposit		None	None	None	
33	2001	0	15	15	Top Soil		None	None	None	
33	2001	15	43	28	Aeolian Deposit		Disturbed		Charcoal Ash (Peat)	
33	2001	43	52	9	Bog (Organic)		None	None	None	
33	2001	52	63	11	Aeolian Deposit		None	None	None	
34	2001	0	20	20	Top Soil		Plowed	None		
34	2001	20	35	15	Aeolian Deposit		Washed	None		
34	2001	35	45	10	Bog (Organic)		Washed	None		
34	2001	45	57	12	Aeolian Deposit		None	None	None	
35	2001	0	10	10	Top Soil		Plowed	Pebbles		

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
35	2001	10	35	25	Aeolian Deposit		Washed	Pebbles		
35	2001	35	50	15	Bog (Organic)	Irony	None	Iron Pebbles	None	
36	2001	0	13	13	Top Soil		Plowed		Bone Charcoal	
36	2001	13	43	30	Aeolian Deposit		Washed		Bone Charcoal	
36	2001	43	54	11	Bog (Organic)	Irony	None	None	None	
37	2001	0	19	19	Top Soil		Plowed	None		
37	2001	19	44	25	Aeolian Deposit		Washed	None		
37	2001	44	51	7	Bog (Organic)		None	None	None	
38	2001	0	26	26	Top Soil		Plowed	None		
38	2001	26	36	10	Aeolian Deposit		Washed	Tephra		
38	2001	36	51	15	Clay		None	None	None	
39	2001	0	14	14	Top Soil		None	None	None	
39	2001	14	19	5	Silt		None	None	None	
39	2001	19	41	22	Aeolian Deposit		Removed	None		
39	2001	41	47	6	Aeolian Deposit		Washed	None		
39	2001	47	55	8	Bog (Organic)		None	None	None	
39	2001	55	62	7	Aeolian Deposit		None	None	None	
40	2001	0	16	16	Top Soil		None	None	None	
40	2001	16	84	68	Aeolian Deposit		None	None	None	
3167	2001	0	10	10	Top Soil	Soil	None	None	None	
3167	2001	10	17	7	Aeolian Deposit	Soil	None	Tephra	None	
3167	2001	17	17.3	0.3	Tephra		None	Tephra	None	
3167	2001	17.3	24	6.7	Aeolian Deposit	Soil	None	None	None	
3167	2001	24	32	8	Aeolian Deposit	Burnt	None	None	None	
3167	2001	32	34	2	Tephra		None	None	None	
3167	2001	34	34.5	0.5	Sand		None	None	None	
3167	2001	34.5	43	8.5	Aeolian Deposit	Soil	None	Tephra	None	
3167	2001	43	50	7	Tephra		None	Tephra	None	
3167	2001	50	55	5	Aeolian Deposit	Soil	None	None	None	
3168	2001	0	20	20	Top Soil	Soil	Disturbed	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3168	2001	20	42	22	Aeolian Deposit	Soil	None	None	None	
3168	2001	42	44	2	Aeolian Deposit	Soil	None	Tephra	Charcoal	
3168	2001	44	47	3	Tephra		None	Tephra	None	
3168	2001	47	65	18	Aeolian Deposit	Soil	None	None	None	
3169	2001	0	10	10	Top Soil	Soil	None	None	None	
3169	2001	10	26	16	Aeolian Deposit	Soil	None	Tephra	None	
3169	2001	26	35	9	Aeolian Deposit	Soil	None	Tephra	None	
3169	2001	35	41	6	Low Density Cultural	Soil	None	None	Ash (Peat) Charcoal	
3169	2001	41	51	10	Aeolian Deposit	Boggy	None	Tephra	None	
3169	2001	51	55	4	Tephra		None	Tephra	None	
3169	2001	55	84	29	Aeolian Deposit	Soil	None	None	None	
3170	2001	0	10	10	Top Soil	Soil	None	None	None	
3170	2001	10	23	13	Aeolian Deposit	Soil	None	Tephra	None	
3170	2001	23	24	1	Tephra		None	Tephra	None	
3170	2001	24	35	11	Aeolian Deposit	Soil	None	None	Yes	
3170	2001	35	45	10	Aeolian Deposit	Boggy	None	Tephra	None	
3170	2001	45	47	2	Tephra		None	Tephra	None	
3170	2001	47	53	6	Aeolian Deposit	Soil	None	Tephra	None	
3170	2001	53	57	4	Tephra		None	Tephra	None	
3170	2001	57	75	18	Aeolian Deposit	Soil	None	Iron	None	
3171	2001	0	20	20	Top Soil	Soil	None	None	None	
3171	2001	20	33	13	Aeolian Deposit	Soil	None	None	Charcoal	
3171	2001	33	41	8	Aeolian Deposit	Soil	None	Iron	None	
3171	2001	41	58	17	Aeolian Deposit		None	None	Ash (Wood)	
3171	2001	58	68	10	Midden		None	None	Charcoal Ash (Wood)	
3171	2001	68	80	12	Aeolian Deposit	Soil	None	None	None	
3172	2001	0	15	15	Top Soil	Soil	None	None	None	
3172	2001	15	35	20	Aeolian Deposit	Soil	None	Gravel Pebbles	None	
3172	2001	35	44	9	Bog (Organic)		None	None	None	
3172	2001	44	67	23	Aeolian Deposit	Soil	None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3173	2001	0	20	20	Top Soil	Soil	None	None	None	
3173	2001	20	35	15	Aeolian Deposit	Soil	None	None	None	
3173	2001	35	46	11	Aeolian Deposit	Soil	None	Tephra	None	
3173	2001	46	55	9	Tephra		None	Tephra	None	
3173	2001	55	75	20	Aeolian Deposit	Soil	None	None	None	
3174	2001	0	15	15	Top Soil	Soil	None	None	None	
3174	2001	15	37	22	Aeolian Deposit	Burnt	None	None	Bone	
3174	2001	37	51	14	Bog (Organic)		None	Tephra	None	
3174	2001	51	54	3	Tephra		None	Tephra	None	
3174	2001	54	66	12	Aeolian Deposit	Boggy	None	Iron	None	
3174	2001	66	81	15	Aeolian Deposit	Soil	None	Gravel	None	
3175	2001	0	21	21	Top Soil	Soil	None	Tephra	None	
3175	2001	21	21.3	0.3	Tephra		None	Tephra	None	
3175	2001	21.3	36	14.7	Aeolian Deposit	Boggy	None	None	Charcoal	
3175	2001	36	52	16	Bog (Organic)		None	Tephra	None	
3175	2001	52	55	3	Silt		None	Tephra	None	
3175	2001	55	63	8	Bog (Organic)		None	Tephra	None	
3175	2001	63	65	2	Tephra		None	Tephra	None	
3175	2001	65	85	20	Sand	Clayey	None	None	None	
3176	2001	0	10	10	Top Soil	Soil	None	None	None	
3176	2001	10	42	32	Bog (Organic)	Wet	None	Tephra Iron	None	
3176	2001	42	44	2	Tephra		None	Tephra	None	
3176	2001	44	51	7	Aeolian Deposit	Boggy	None	Tephra Iron	None	
3176	2001	51	54	3	Tephra		None	Tephra	None	
3176	2001	54	85	31	Bog (Organic)		None	None	None	
3177	2001	0	20	20	Top Soil	Soil	None	None	None	
3177	2001	20	35	15	Turf		Fill	Tephra	Turf	
3177	2001	35	36	1	Tephra		None	Tephra	None	
3177	2001	36	50	14	Top Soil		Fill	None	Turf	
3177	2001	40	53	13	Midden		None	None	Turf Ash (Peat)	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3177	2001	53	70	17	Turf		Fill	None	Turf	
3177	2001	70	77	7	Rock		None	None	None	
3178	2001	0	15	15	Top Soil	Soil	None	Tephra	None	
3178	2001	15	16	1	Tephra		None	Tephra	None	
3178	2001	16	21	5	Aeolian Deposit	Soil	None	Tephra	None	
3178	2001	21	22	1	Tephra		None	Tephra	None	
3178	2001	22	31	9	Aeolian Deposit	Soil	None	None	None	
3178	2001	31	35	4	Bog (Organic)		None	Tephra	None	
3178	2001	35	38	3	Tephra		None	Tephra	None	
3178	2001	38	63	25	Aeolian Deposit	Soil	None	None	None	
3179	2001	0	10	10	Top Soil	Soil	None	None	None	
3179	2001	10	19	9	Turf		None	None	Turf	
3179	2001	10	25	15	Aeolian Deposit	Soil	None	None	Turf Yes	
3179	2001	25	36	11	Aeolian Deposit	Soil	None	Tephra	None	
3179	2001	36	37	1	Tephra		None	Tephra	None	
3179	2001	37	55	18	Aeolian Deposit	Soil	None	Tephra	None	
3179	2001	55	58	3	Tephra		None	Tephra	None	
3179	2001	58	70	12	Aeolian Deposit	Soil	None	None	None	
3180	2001	0	10	10	Top Soil	Soil	None	None	None	
3180	2001	10	26	16	Aeolian Deposit	Soil	None	Tephra	Charcoal	
3180	2001	26	27	1	Tephra		None	Tephra	None	
3180	2001	27	44	17	Aeolian Deposit	Soil	None	Tephra	None	
3180	2001	44	44	0	Tephra		None	Tephra	None	
3180	2001	44	56	12	Bog (Organic)		None	Tephra	None	
3180	2001	56	62	6	Tephra		None	Tephra	None	
3180	2001	62	80	18	Aeolian Deposit		None	Gravel	None	
3181	2001	0	15	15	Top Soil	Soil	None	None	None	
3181	2001	15	32	17	Aeolian Deposit	Soil	None	Tephra	None	
3181	2001	32	34	2	Tephra		None	Tephra	None	
3181	2001	34	47	13	Bog (Organic)		None	None	None	
3181	2001	47	55	8	Bog (Organic)		None	Tephra Iron	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3181	2001	55	59	4	Tephra		None	Tephra	None	
3181	2001	59	80	21	Clay		None	Iron Gravel	None	
3182	2001	0	12	12	Top Soil	Soil	None	None	None	
3182	2001	12	20	8	Aeolian Deposit	Boggy	None	Tephra	None	
3182	2001	20	20.5	0.5	Tephra		None	Tephra	None	
3182	2001	20.5	36	15.5	Aeolian Deposit	Soil	None	None	None	
3182	2001	36	41	5	Cultural Layer		None	None	Ash (Peat) Bone	
3182	2001	41	57	16	Bog (Organic)		None	None	None	
3182	2001	57	62	5	Diatoms		None	None	None	
3183	2001	0	19	19	Top Soil	Soil	None	None	None	
3183	2001	19	27	8	Aeolian Deposit	Soil	None	Tephra	None	
3183	2001	27	28	1	Tephra		None	Tephra	None	
3183	2001	28	42	14	Aeolian Deposit	Soil	None	None	None	
3183	2001	42	51	9	Aeolian Deposit	Soil	Blown	None	None	
3183	2001	51	58	7	Midden		None	None	Ash (Peat) Charcoal	
3183	2001	58	67	9	Bog (Organic)		None	Tephra Iron	None	
3183	2001	67	69	2	Tephra		None	Tephra	None	
3183	2001	69	79	10	Clay		None	Iron Gravel	None	
3186	2001	1	6	5	Top Soil	Soil	None	None	None	
3186	2001	6	30	24	Bog (Organic)		None	None	None	
3186	2001	30	55	25	Aeolian Deposit	Boggy	None	Tephra	None	
3186	2001	55	56	1	Tephra		None	Tephra	None	
3186	2001	56	66	10	Bog (Organic)		None	Tephra	None	
3186	2001	66	74	8	Tephra		None	Tephra	None	
3186	2001	74	81	7	Bog (Organic)		None	None	None	
3186	2001	81	88	7	Cultural Layer		None	None	Wood	
3187	2001	0	15	15	Bog (Organic)		None	None	None	
3187	2001	15	25	10	Bog (Organic)		None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3187	2001	25	37	12	Bog (Organic)		None	Tephra	None	
3187	2001	37	38	1	Tephra		None	Tephra	None	
3187	2001	38	41	3	Bog (Organic)		None	None	None	
3187	2001	41	68	27	Bog (Organic)		None	None	None	
3187	2001	68	86	18	Clay		None	None	None	
3188	2001	0	8	8	Top Soil	Soil	None	None	None	
3188	2001	8	16	8	Aeolian Deposit	Soil	None	None	None	
3188	2001	16	24	8	Aeolian Deposit	Soil	None	Tephra Iron	None	
3188	2001	24	26	2	Tephra		None	Tephra	None	
3188	2001	26	38	12	Bog (Organic)		None	None	None	
3188	2001	38	40	2	Sand		None	None	None	
3188	2001	40	48	8	Bog (Organic)		None	Tephra	None	
3188	2001	48	53	5	Tephra		None	Tephra	None	
3188	2001	53	69	16	Bog (Organic)		None	None	None	
3188	2001	69	84	15	Clay	Silty	None	None	None	
3189	2001	0	10	10	Top Soil	Soil	None	None	None	
3189	2001	10	38	28	Aeolian Deposit	Soil	None	None	None	
3189	2001	38	50	12	Aeolian Deposit	Soil	None	Tephra	None	
3189	2001	50	53	3	Tephra		None	Tephra	None	
3189	2001	53	56	3	Bog (Organic)		None	None	None	
3189	2001	56	80	24	Aeolian Deposit	Soil	None	None	None	
3190	2001	0	10	10	Top Soil	Soil	None	None	None	
3190	2001	10	24	14	Aeolian Deposit	Soil	None	Tephra	None	
3190	2001	24	25	1	Tephra		None	Tephra	None	
3190	2001	25	31	6	Aeolian Deposit	Soil	None	None	None	
3190	2001	31	40	9	Aeolian Deposit	Soil	None	None	None	
3191	2001	0	14	14	Top Soil	Soil	None	None	None	
3191	2001	14	42	28	Aeolian Deposit	Soil	None	Tephra	None	
3191	2001	42	44	2	Tephra		None	Tephra	None	
3191	2001	44	50	6	Aeolian Deposit	Soil	None	None	None	
3192	2001	0	21	21	Top Soil	Soil	None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3192	2001	21	40	19	Aeolian Deposit	Soil	None	Tephra	None	
3192	2001	40	44	4	Aeolian Deposit	Soil	None	Tephra	None	
3192	2001	44	50	6	Aeolian Deposit	Soil	None	None	None	
3193	2001	0	10	10	Top Soil	Soil	None	None	None	
3193	2001	10	23	13	Aeolian Deposit	Soil	None	None	Charcoal	
3193	2001	23	37	14	Aeolian Deposit	Soil	None	Tephra	None	
3193	2001	37	39	2	Tephra		None	Tephra	None	
3193	2001	39	45	6	Aeolian Deposit	Soil	None	Tephra	None	
3193	2001	45	48	3	Tephra		None	Tephra	None	
3193	2001	48	65	17	Aeolian Deposit	Soil	None	None	None	
3194	2001	0	16	16	Top Soil	Soil	None	None	None	
3194	2001	16	45	29	Aeolian Deposit	Soil	None	Tephra Iron	None	
3194	2001	45	50	5	Aeolian Deposit	Soil	None	None	None	
3195	2001	0	10	10	Top Soil	Soil	None	None	None	
3195	2001	10	24	14	Aeolian Deposit	Soil	None	Tephra	None	
3195	2001	24	25	1	Tephra		None	Tephra	None	
3195	2001	25	31	6	Aeolian Deposit	Soil	None	None	None	
3195	2001	31	37	6	Bog (Organic)		None	Tephra Iron	None	
3195	2001	37	40	3	Tephra		None	Tephra	None	
3195	2001	40	50	10	Bog (Organic)		None	None	None	
3196	2001	0	10	10	Top Soil	Soil	None	None	None	
3196	2001	10	45	35	Aeolian Deposit	Soil	None	Iron	None	
3197	2001	0	10	10	Top Soil	Soil	None	None	None	
3197	2001	10	23	13	Aeolian Deposit	Soil	None	Tephra	None	
3197	2001	23	24	1	Tephra		None	Tephra	None	
3197	2001	24	53	29	Aeolian Deposit	Boggy	None	Tephra	None	
3197	2001	53	57	4	Tephra		None	Tephra	None	
3197	2001	57	62	5	Aeolian Deposit	Soil	None	Tephra	None	
3197	2001	62	67	5	Tephra		None	Tephra	None	
3197	2001	67	86	19	Aeolian Deposit	Soil	None	None	None	
3198	2001	0	10	10	Top Soil	Soil	None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3198	2001	10	22	12	Aeolian Deposit	Soil	None	None	None	
3198	2001	22	31	9	Aeolian Deposit	Soil	None	Tephra	None	
3198	2001	31	35	4	Tephra		None	Tephra	None	
3198	2001	35	50	15	Aeolian Deposit	Boggy	None	None	None	
3199	2001	0	16	16	Top Soil	Soil	None	Tephra	None	
3199	2001	16	23	7	Aeolian Deposit	Silty	None	Tephra	None	
3199	2001	23	53	30	Aeolian Deposit	Soil	None	None	Yes Charcoal Turf	
3199	2001	53	72	19	Aeolian Deposit	Soil	None	None	None	
3200	2001	0	10	10	Top Soil	Soil	None	None	None	
3200	2001	10	27	17	Aeolian Deposit	Soil	None	None	None	
3200	2001	27	44	17	Aeolian Deposit	Soil	None	Tephra	Charcoal	
3200	2001	44	49	5	Tephra		None	Tephra	None	
3200	2001	49	63	14	Aeolian Deposit	Soil	None	Iron	None	
3200	2001	63	69	6	Aeolian Deposit	Soil	None	Iron	None	
3200	2001	69	76	7	Aeolian Deposit	Soil	None	Iron	None	
3201	2001	0	10	10	Top Soil	Soil	None	None	Charcoal	
3201	2001	10	55	45	Turf		None	None	Turf	
3202	2001	0	10	10	Top Soil	Soil	None	None	None	
3202	2001	10	21	11	Bog (Organic)		None	None	None	
3202	2001	21	40	19	Aeolian Deposit	Soil	None	Iron	None	
3202	2001	40	58	18	Silt		None	Iron	None	
3203	2001	0	10	10	Top Soil	Soil	None	None	None	
3203	2001	10	28	18	Aeolian Deposit	Soil	None	None	None	
3203	2001	28	41	13	Aeolian Deposit	Soil	None	None	Charcoal	
3203	2001	41	44	3	Cultural Layer		None	None	Charcoal	
3203	2001	44	60	16	Aeolian Deposit	Boggy	None	Iron	Yes	
3204	2001	0	10	10	Top Soil	Soil	None	None	None	
3204	2001	10	25	15	Aeolian Deposit	Soil	None	Tephra	None	
3204	2001	25	28	3	Aeolian Deposit	Soil	None	Tephra	None	
3204	2001	28	39	11	Aeolian Deposit	Soil	None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3204	2001	39	63	24	Aeolian Deposit	Soil	None	None	Turf Charcoal	
3204	2001	63	74	11	Midden		None	None	Ash (Wood) Ash (Peat) Charcoal	
3205	2001	0	15	15	Top Soil	Soil	None	None	None	
3205	2001	15	35	20	Aeolian Deposit	Soil	None	Tephra	None	
3205	2001	35	37	2	Tephra		None	Tephra	None	
3205	2001	37	55	18	Low Density Cultural	Soil	None	Tephra	Ash (Peat) Charcoal	
3205	2001	55	56	1	Tephra		None	Tephra	None	
3205	2001	56	59	3	Aeolian Deposit	Soil	None	Tephra	None	
3205	2001	59	63	4	Tephra		None	Tephra	None	
3205	2001	63	77	14	Aeolian Deposit	Soil	None	None	None	
3206	2001	0	10	10	Top Soil	Soil	None	None	None	
3206	2001	10	33	23	Aeolian Deposit	Soil	None	None	None	
3206	2001	33	38	5	Low Density Cultural	Soil	None	None	Charcoal Ash (Peat)	
3206	2001	38	44	6	Aeolian Deposit	Soil	None	Tephra	None	
3206	2001	44	47	3	Tephra		None	Tephra	None	
3206	2001	47	60	13	Aeolian Deposit	Soil	None	None	None	
3207	2001	0	10	10	Top Soil	Soil	None	None	None	
3207	2001	10	25	15	Aeolian Deposit	Soil	None	Tephra	None	
3207	2001	25	29	4	Tephra		None	Tephra	None	
3207	2001	29	40	11	Aeolian Deposit	Soil	None	Tephra	None	
3207	2001	40	55	15	Aeolian Deposit	Soil	None	None	None	
3208	2001	0	10	10	Top Soil	Soil	None	None	None	
3208	2001	10	28	18	Aeolian Deposit	Soil	None	Tephra	None	
3208	2001	28	32	4	Tephra		None	Tephra	None	
3208	2001	32	60	28	Aeolian Deposit	Soil	None	None	None	
3209	2001	0	10	10	Top Soil	Soil	None	None	None	
3209	2001	10	25	15	Aeolian Deposit	Soil	None	None	None	
3209	2001	25	35	10	Turf		None	Tephra	Turf	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3209	2001	35	37	2	Tephra		None	Tephra	None	
3209	2001	37	55	18	Bog (Organic)		None	None	None	
3209	2001	55	65	10	Aeolian Deposit	Silty	None	None	None	
3210	2001	0	10	10	Top Soil	Soil	None	None	None	
3210	2001	10	22	12	Aeolian Deposit	Soil	None	Tephra	None	
3210	2001	22	22.3	0.3	Tephra		None	Tephra	None	
3210	2001	22.3	32	9.7	Aeolian Deposit	Soil	None	None	None	
3210	2001	32	42	10	Bog (Organic)		None	Tephra	None	
3210	2001	42	43	1	Tephra		None	Tephra	None	
3210	2001	43	49	6	Bog (Organic)		None	Tephra	None	
3210	2001	49	51	2	Tephra		None	Tephra	None	
3210	2001	51	60	9	Aeolian Deposit	Boggy	None	Iron	None	
3211	2001	0	10	10	Top Soil	Soil	None	None	None	
3211	2001	10	25	15	Aeolian Deposit	Soil	None	None	None	
3211	2001	25	29	4	Bog (Organic)		None	None	None	
3211	2001	29	34	5	Aeolian Deposit	Soil	None	None	None	
3211	2001	34	50	16	Bog (Organic)		None	Tephra	None	
3211	2001	50	53	3	Tephra		None	Tephra	None	
3211	2001	53	60	7	Bog (Organic)		None	None	None	
3212	2001	0	10	10	Top Soil	Soil	None	None	None	
3212	2001	10	15	5	Aeolian Deposit	Soil	None	Iron	None	
3212	2001	15	22	7	Bog (Organic)		None	Iron	None	
3212	2001	22	30	8	Aeolian Deposit	Soil	None	Iron	None	
3212	2001	30	39	9	Bog (Organic)		None	Iron	None	
3212	2001	39	40	1	Tephra		None	Tephra	None	
3212	2001	40	45	5	Bog (Organic)		None	None	None	
3212	2001	45	49	4	Tephra		None	Tephra	None	
3212	2001	49	60	11	Bog (Organic)		None	None	None	
3213	2001	0	10	10	Top Soil	Soil	None	None	None	
3213	2001	10	30	20	Aeolian Deposit	Soil	None	None	None	
3213	2001	30	38	8	Bog (Organic)		None	Tephra	None	
3213	2001	38	43	5	Tephra		None	Tephra	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3213	2001	43	50	7	Bog (Organic)		None	None	None	
3214	2001	0	10	10	Top Soil	Soil	None	Tephra	None	
3214	2001	10	27	17	Aeolian Deposit	Boggy	None	Tephra	None	
3214	2001	27	27.5	0.5	Tephra		None	Tephra	None	
3214	2001	27.5	39	11.5	Bog (Organic)		None	Tephra	None	
3214	2001	39	41	2	Tephra		None	Tephra	None	
3214	2001	41	50	9	Bog (Organic)		None	None	None	
3215	2001	0	10	10	Top Soil	Soil	None	None	None	
3215	2001	10	35	25	Aeolian Deposit	Soil	None	None	None	
3215	2001	35	43	8	Bog (Organic)		None	Tephra	None	
3215	2001	43	45	2	Tephra		None	Tephra	None	
3215	2001	45	48	3	Bog (Organic)		None	Tephra	None	
3215	2001	48	50	2	Tephra		None	Tephra	None	
3215	2001	50	65	15	Aeolian Deposit	Soil	None	None	None	
3216	2001	0	10	10	Top Soil	Soil	None	None	None	
3216	2001	10	21	11	Aeolian Deposit	Soil	None	Tephra	None	
3216	2001	21	22	1	Tephra		None	Tephra	None	
3216	2001	22	33	11	Aeolian Deposit	Soil	None	Tephra	Yes	
3216	2001	33	42	9	Tephra		None	Tephra	None	
3216	2001	42	50	8	Aeolian Deposit	Soil	None	None	None	
3217	2001	0	10	10	Top Soil	Soil	None	None	None	
3217	2001	10	19	9	Aeolian Deposit	Soil	None	Tephra	None	
3217	2001	19	20	1	Tephra		None	Tephra	None	
3217	2001	20	30	10	Aeolian Deposit	Soil	None	Tephra	None	
3217	2001	30	31	1	Tephra		None	Tephra	None	
3217	2001	31	41	10	Aeolian Deposit	Soil	None	Tephra	None	
3217	2001	41	44	3	Aeolian Deposit	Soil	None	Tephra	None	
3217	2001	44	53	9	Bog (Organic)		None	Tephra	None	
3217	2001	53	62	9	Aeolian Deposit	Soil	None	Tephra	None	
3217	2001	62	69	7	Aeolian Deposit	Soil	None	None	None	
3218	2001	0	10	10	Top Soil	Soil	None	None	None	
3218	2001	10	18	8	Aeolian Deposit	Soil	None	Tephra	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3218	2001	18	19	1	Tephra		None	Tephra	None	
3218	2001	19	27	8	Aeolian Deposit	Soil	None	Tephra	None	
3218	2001	27	29	2	Tephra		None	Tephra	None	
3218	2001	29	41	12	Bog (Organic)		None	Tephra	None	
3218	2001	41	44	3	Tephra		None	Tephra	None	
3218	2001	44	50	6	Aeolian Deposit		None	None	None	
3218	2001	50	70	20	Aeolian Deposit	Soil	None	None	None	
3219	2001	0	10	10	Top Soil	Soil	None	None	None	
3219	2001	10	37	27	Aeolian Deposit	Soil	None	None	Yes	
3219	2001	37	60	23	Silt		None	Gravel Pebbles	None	
3220	2001	0	10	10	Top Soil	Soil	None	None	None	
3220	2001	10	32	22	Aeolian Deposit	Boggy	Washed	None	None	
3220	2001	32	34	2	Midden		None	None	Ash (Peat)	
3220	2001	34	40	6	Bog (Organic)		None	Tephra	None	
3220	2001	40	50	10	Bog (Organic)		Washed	Tephra	None	
3220	2001	50	70	20	Aeolian Deposit		None	Iron	None	
3221	2001	0	10	10	Top Soil	Soil	None	None	None	
3221	2001	10	21	11	Aeolian Deposit	Soil	None	None	None	
3221	2001	21	55	34	Low Density Cultural	Burnt	None	Tephra	Ash (Peat) Charcoal	
3221	2001	55	58	3	Tephra		None	Tephra	None	
3221	2001	58	63	5	Aeolian Deposit	Soil	None	Tephra Iron	None	
3221	2001	63	66	3	Tephra		None	Tephra	None	
3221	2001	66	70	4	Aeolian Deposit	Soil	None	Iron	None	
3222	2001	0	10	10	Top Soil	Soil	None	None	None	
3222	2001	10	23	13	Aeolian Deposit	Boggy	None	Iron	None	
3222	2001	23	36	13	Aeolian Deposit	Soil	None	Iron Gravel	Yes	
3222	2001	36	46	10	Iron Pan		None	Iron	None	
3222	2001	46	50	4	Silt	Glacial	None	None	None	
3223	2001	0	12	12	Top Soil	Soil	None	Iron	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3223	2001	12	19	7	Bog (Organic)		None	Iron	None	
3223	2001	19	40	21	Aeolian Deposit	Soil	None	Tephra Iron	None	
3223	2001	40	44	4	Tephra		None	Tephra Iron	None	
3223	2001	44	50	6	Aeolian Deposit	Soil	None	Iron	None	
3224	2001	0	10	10	Top Soil	Soil	None	Iron	None	
3224	2001	10	21	11	Aeolian Deposit	Soil	None	Iron	None	
3224	2001	21	65	44	Aeolian Deposit	Silty	None	Tephra Iron	None	
3224	2001	65	78	13	Clay	Silty	None	Tephra Iron	None	
3224	2001	78	83	5	Silt	Glacial	None	None	None	
3225	2001	0	10	10	Top Soil	Soil	None	None	None	
3225	2001	10	17	7	Aeolian Deposit	Soil	None	None	None	
3225	2001	17	30	13	Silt		None	Iron	None	
3225	2001	30	43	13	Aeolian Deposit	Soil	None	Tephra Iron	None	
3225	2001	43	44	1	Tephra		None	Tephra	None	
3225	2001	44	65	21	Aeolian Deposit	Clayey	None	Tephra Iron	None	
3225	2001	65	68	3	Tephra		None	Tephra	None	
3225	2001	68	80	12	Aeolian Deposit	Soil	None	Iron	None	
3250	2001	0	20	20	Top Soil	Soil	Disturbed	None	None	
3250	2001	20	49	29	Aeolian Deposit	Silty	None	Iron	None	
3250	2001	49	60	11	Clay	Silty	None	None	None	
3251	2001	0	17	17	Top Soil	Boggy	None	None	None	
3251	2001	17	36	19	Aeolian Deposit	Soil	None	Tephra	Yes	
3251	2001	36	37	1	Tephra		None	Tephra	None	
3251	2001	37	42	5	Aeolian Deposit	Soil	None	None	Yes	
3251	2001	42	48	6	Aeolian Deposit	Soil	None	Tephra Iron	None	
3251	2001	48	54	6	Tephra		None	Tephra	None	
3251	2001	54	74	20	Silt		None	Iron	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3252	2001	0	10	10	Top Soil	Soil	None	None	None	
3252	2001	10	22	12	Aeolian Deposit	Soil	None	None	None	
3252	2001	22	34	12	Cultural Layer		None	Tephra	Ash (Peat) Charcoal	
3252	2001	34	38	4	Aeolian Deposit	Soil	None	Tephra	Yes	
3252	2001	38	44	6	Silt	Boggy	None	Tephra	None	
3252	2001	44	66	22	Aeolian Deposit	Soil	None	None	None	
3253	2001	0	15	15	Top Soil	Soil	Disturbed	None	None	
3253	2001	15	25	10	Aeolian Deposit	Soil	None	Tephra	None	
3253	2001	25	30	5	Aeolian Deposit	Boggy	None	Tephra	None	
3253	2001	30	35	5	Tephra		None	Tephra	None	
3253	2001	50	65	15	Aeolian Deposit	Soil	None	None	None	
3254	2001	0	10	10	Top Soil	Soil	None	None	None	
3254	2001	10	15	5	Aeolian Deposit	Burnt	None	Tephra	Charcoal Bone	
3254	2001	15	20	5	Aeolian Deposit	Soil	Cryoturbated	Tephra	None	
3254	2001	20	25	5	Aeolian Deposit	Soil	None	Tephra	None	
3254	2001	25	29	4	Tephra		None	Tephra	None	
3254	2001	29	35	6	Aeolian Deposit	Soil	None	None	None	
3255	2001	0	10	10	Top Soil	Soil	Disturbed	None	None	
3255	2001	10	24	14	Bog (Organic)		None	Tephra	None	
3255	2001	24	25	1	Tephra		None	Tephra	None	
3255	2001	25	35	10	Bog (Organic)		None	Tephra	None	
3255	2001	35	37	2	Tephra		None	Tephra	None	
3255	2001	37	47	10	Aeolian Deposit	Soil	None	None	None	
3256	2001	0	10	10	Top Soil	Soil	None	None	None	
3256	2001	10	28	18	Aeolian Deposit	Soil	None	Tephra	None	
3256	2001	28	28.5	0.5	Tephra		None	Tephra	None	
3256	2001	28.5	37	8.5	Aeolian Deposit	Soil	None	Tephra	Charcoal	
3256	2001	37	42	5	Bog (Organic)		None	Tephra	None	
3256	2001	42	50	8	Silt		None	None	None	
3256	2001	50	65	15	Aeolian Deposit	Soil	None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
3257	2001	0	10	10	Top Soil	Soil	None	None	None	
3257	2001	10	22	12	Aeolian Deposit	Soil	None	None	None	
3257	2001	22	22.4	0.4	Tephra		None	Tephra	None	
3257	2001	22.4	30	7.6	Aeolian Deposit	Soil	None	Tephra	None	
3257	2001	30	31	1	Tephra		None	Tephra	None	
3257	2001	31	35	4	Aeolian Deposit	Soil	None	Tephra	None	
3257	2001	35	36	1	Tephra		None	Tephra	None	
3257	2001	36	40	4	Aeolian Deposit	Boggy	None	Tephra	None	
3257	2001	40	42	2	Tephra		None	Tephra	None	
3257	2001	42	45	3	Bog (Organic)		None	Tephra	None	
3257	2001	45	48	3	Tephra		None	Tephra	None	
3257	2001	48	52	4	Bog (Organic)		None	None	None	
3257	2001	52	70	18	Aeolian Deposit	Soil	None	None	None	
3258	2001	0	10	10	Top Soil	Soil	None	None	None	
3258	2001	10	24	14	Bog (Organic)		None	None	None	
3258	2001	24	24.5	0.5	Tephra		None	Tephra	None	
3258	2001	24.5	32	7.5	Bog (Organic)		None	Tephra	None	
3258	2001	32	33	1	Tephra		None	Tephra	None	
3258	2001	33	35	2	Aeolian Deposit	Soil	None	Tephra	None	
3258	2001	35	40	5	Tephra		None	Tephra	None	
3258	2001	40	50	10	Aeolian Deposit	Soil	None	None	None	
9541	2001	0	18	18	Top Soil		None	None	None	
9542	2001	0	10	10	Top Soil		None	None	None	
9542	2001	10	44	34	Aeolian Deposit					
9543	2001	0	12	12	Top Soil		None	None	None	
9544	2001	0	10	10	Top Soil		None	None	None	
9544	2001	10	35	25	Aeolian Deposit					
9545	2001	0	15	15	Top Soil		None	None	None	
9545	2001	15	53	38	Aeolian Deposit					
9546	2001	0	10	10	Top Soil		None	None	None	
9546	2001	10	40	30	Aeolian Deposit					
9547	2001	0	40	40	Aeolian Deposit					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
9548	2001	0	40	40	Aeolian Deposit					
9549	2001	0	40	40	Aeolian Deposit					
9550	2001	0	40	40	Aeolian Deposit					
9551	2001	0	40	40	Aeolian Deposit					
9552	2001	0	12	12	Top Soil		None	None	None	
9552	2001	12	30	18	Aeolian Deposit					
9553	2001	0	40	40	Aeolian Deposit					
9554	2001	0	42	42	Aeolian Deposit					
9555	2001	0	42	42	Aeolian Deposit					
9556	2001	0	10	10	Top Soil		None	None	None	
9556	2001	10	52	42	Aeolian Deposit					
9557	2001	0	12	12	Top Soil		None	None	None	
9557	2001	12	52	40	Aeolian Deposit					
9558	2001	0	10	10	Top Soil		None	None	None	
9558	2001	10	42	32	Aeolian Deposit					
9559	2001	0	40	40	Aeolian Deposit					
9560	2001	0	13	13	Top Soil		None	None	None	
9560	2001	13	42	29	Aeolian Deposit					
9561	2001	0	46	46	Aeolian Deposit					
9562	2001	0	18	18	Top Soil		None	None	None	
9562	2001	0	48	48	Aeolian Deposit					
9563	2001	0	16	16	Top Soil		None	None	None	
9563	2001	16	44	28	Aeolian Deposit					
9564	2001	0	18	18	Top Soil		None	None	None	
9564	2001	18	42	24	Aeolian Deposit					
1	2002	0	16	16	Top Soil		None	None	None	
1	2002	16	28	12	Aeolian Deposit		None	Tephra	None	
1	2002	28	58	30	Bog (Organic)		None	Gravel	None	
2	2002	0	18	18	Top Soil		None	None	None	
2	2002	18	41	23	Silt		None	None	None	
2	2002	41	45	4	Iron Pan		None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
2	2002	45	60	15	Clay		None	Tephra Iron	None	
3	2002	0	20	20	Top Soil		None	None	None	
3	2002	20	35	15	Aeolian Deposit		None	None	Charcoal	
3	2002	35	50	15	Cultural Layer		None	None	Ash (Peat) Charcoal	
3	2002	50	68	18	Aeolian Deposit		None	None	None	
3	2002	68	88	20	Clay	Irony	Washed	Tephra		
4	2002	0	18	18	Top Soil		None	None	None	
4	2002	18	40	22	Cultural Layer		None	None	None	
4	2002	40	62	22	Silt	Irony	Washed	Tephra		
4	2002	62	82	20	Clay	Irony	Washed	Tephra		
5	2002	0	11	11	Top Soil		None	None	None	
5	2002	11	32	21	Silt		None	None	None	
5	2002	32	38	6	Iron Pan		None	None	None	
5	2002	38	67	29	Bog (Organic)		None	Pebbles Gravel	None	
6	2002	0	18	18	Top Soil		None	None	None	
6	2002	18	45	27	Aeolian Deposit		None	None	Charcoal	
6	2002	45	69	24	Turf		None	None	Bone Charcoal Turf	
6	2002	69	84	15	Iron Pan		None	Tephra Iron	None	
7	2002	1	18	17	Top Soil		None	None	None	
7	2002	18	76	58	Cultural Layer		None	None	None	
8	2002	1	15	14	Top Soil		None	None	None	
8	2002	15	30	15	Aeolian Deposit		None	None	None	
8	2002	30	50	20	Cultural Layer		None	Gravel	Ash (Peat) Charcoal	
9	2002	0	12	12	Top Soil		None	None	None	
9	2002	12	55	43	Silt	Irony	None	Iron	None	
9	2002	55	81	26	Iron Pan		None	Tephra Pebbles	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
10	2002	0	15	15	Top Soil		None	None	None	
10	2002	15	38	23	Aeolian Deposit		Disturbed	Tephra	Charcoal	
10	2002	38	45	7	Iron Pan		None	Pebbles	None	
11	2002	0	15	15	Top Soil		None	None	None	
11	2002	15	35	20	Aeolian Deposit		Washed	Tephra		
11	2002	35	57	22	Aeolian Deposit		Disturbed	None		
11	2002	57	60	3	Iron Pan		None	Iron	None	
11	2002	60	65	5	Sand		None	None	None	
12	2002	0	15	15	Top Soil		None	None	None	
12	2002	15	73	58	Cultural Layer		None	None	Ash (Peat) Charcoal	
12	2002	73	82	9	Aeolian Deposit		None	None	None	
13	2002	0	11	11	Top Soil		None	None	None	
13	2002	11	23	12	Aeolian Deposit		None	None	None	
13	2002	23	72	49	Cultural Layer		None	None	Ash (Peat) Charcoal	
13	2002	72	79	7	Turf		None	None	Turf	
13	2002	79	81	2	Aeolian Deposit		None	None	None	
5300	2002	0	20	20	Top Soil	Soil	Plowed	None	None	
5300	2002	20	40	20	Aeolian Deposit	Soil	None	Tephra	Charcoal	
5300	2002	40	41	1	Tephra		None	Tephra	None	
5300	2002	41	47	6	Aeolian Deposit	Silty	None	None	None	
5301	2002	0	28	28	Top Soil	Soil	Plowed	None	Charcoal	
5301	2002	28	32	4	Aeolian Deposit	Sandy	None	Tephra	None	
5301	2002	32	33	1	Tephra		None	Tephra	None	
5301	2002	33	50	17	Aeolian Deposit	Soil	Washed	Tephra	None	
5302	2002	0	22	22	Top Soil	Soil	Plowed	None	None	
5302	2002	22	36	14	Aeolian Deposit	Silty	None	Tephra	Bone Charcoal	
5302	2002	36	37	1	Tephra		None	Tephra	None	
5302	2002	37	50	13	Aeolian Deposit	Silty	None	None	None	
5303	2002	0	10	10	Top Soil	Soil	None	None	None	
5303	2002	10	31	21	Aeolian Deposit	Sandy	None	None	Charcoal	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
5303	2002	31	40	9	Aeolian Deposit	Silty	None	None	Ash (Peat) Charcoal	
5304	2002	0	17	17	Top Soil	Soil	Plowed	None	None	
5304	2002	17	30	13	Aeolian Deposit	Silty	Washed	Tephra	Yes	
5304	2002	30	39	9	Tephra		None	Tephra	None	
5304	2002	39	40	1	Aeolian Deposit	Sandy	None	Tephra Iron	None	
5304	2002	40	50	10	Tephra		None	Tephra	None	
5305	2002	0	20	20	Top Soil	Soil	Plowed	None	None	
5305	2002	20	44	24	Aeolian Deposit	Silty	None	Tephra	Bone Ash (Peat) Charcoal	
5305	2002	44	60	16	Tephra		None	Tephra Iron	None	
5305	2002	60	70	10	Clay	Sandy	None	None	None	
5306	2002	0	10	10	Top Soil	Soil	None	None	None	
5306	2002	10	33	23	Aeolian Deposit	Silty	None	None	None	
5306	2002	33	39	6	Clay	Silty	None	Iron	None	
5306	2002	39	50	11	Clay	Sandy	None	None	None	
5307	2002	0	11	11	Top Soil	Soil	None	Tephra	None	
5307	2002	11	11	0	Tephra		None	Tephra	None	
5307	2002	11	29	18	Aeolian Deposit	Silty	None	Tephra	Charcoal Ash (Peat)	
5307	2002	29	29	0	Tephra		None	Tephra	None	
5307	2002	29	40	11	Aeolian Deposit	Clayey	None	Tephra	None	
5308	2002	0	10	10	Top Soil	Burnt	None	None	Bone	
5308	2002	10	15	5	Aeolian Deposit	Silty	None	Tephra	Ash (Peat) Charcoal	
5308	2002	15	15	0	Tephra		None	Tephra	None	
5308	2002	15	24	9	Aeolian Deposit	Silty	None	Tephra	None	
5308	2002	24	25	1	Tephra		None	Tephra	None	
5308	2002	25	30	5	Aeolian Deposit	Silty	None	Tephra	None	
5308	2002	30	31	1	Tephra		None	Tephra	None	
5308	2002	31	35	4	Bog (Organic)		None	Tephra	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
5308	2002	35	40	5	Tephra		None	Tephra	None	
5308	2002	40	50	10	Aeolian Deposit	Soil	None	None	Yes	
1	2009	0	40	40	Aeolian Deposit		None	None	None	
2	2009	0	30	30	Aeolian Deposit		None	None	None	
2	2009	30	50	20	Turf		None	None	Turf	
2	2009	50	80	30	Aeolian Deposit		None	None	None	
3	2009	0	20	20	Aeolian Deposit		None	None	None	
3	2009	20	45	25	Turf		None	None	Turf	
3	2009	45	50	5	Aeolian Deposit		None	None	None	
3	2009	50	50	0	Rock		None	None	None	
4	2009	0	40	40	Aeolian Deposit		None	None	None	
5	2009	0	70	70	Aeolian Deposit		None	None	None	
6	2009	0	40	40	Aeolian Deposit		None	None	None	
7	2009	0	20	20	Aeolian Deposit		None	None	None	
7	2009	20	25	5	Cultural Layer		None	None	None	
7	2009	25	40	15	Aeolian Deposit		None	None	None	
8	2009	0	20	20	Aeolian Deposit		None	None	None	
8	2009	20	25	5	Cultural Layer		None	None	None	
8	2009	25	40	15	Aeolian Deposit		None	None	None	
9	2009	0	20	20	Aeolian Deposit		None	None	None	
9	2009	20	35	15	Floor		None	None	None	
9	2009	35	80	45	Aeolian Deposit		None	None	None	
10	2009	0	35	35	Aeolian Deposit		None	None	None	
10	2009	35	40	5	Cultural Layer		None	None	None	
10	2009	40	80	40	Aeolian Deposit		None	None	None	
11	2009	0	35	35	Turf		None	None	Turf	
11	2009	35	39	4	Aeolian Deposit		None	None	None	
11	2009	39	40	1	Floor		None	None	None	
11	2009	40	80	40	Aeolian Deposit		None	None	None	
12	2009	0	40	40	Sand	River	None	None	None	
14	2009	0	40	40	Aeolian Deposit			None	None	
15	2009	0	30	30	Aeolian Deposit			None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
15	2009	30	50	20	Turf			None	Turf	
15	2009	50	65	15	Aeolian Deposit					
16	2009	0	20	20	Aeolian Deposit			None	None	
16	2009	20	45	25	Turf			None	Turf	
16	2009	45	45	0	Rock			None	None	
17	2009	0	40	40	Aeolian Deposit			None	None	
18	2009	0	60	60	Aeolian Deposit			None	None	
19	2009	0	40	40	Aeolian Deposit			None	None	
20	2009	0	20	20	Aeolian Deposit			None	None	
20	2009	20	25	5	Cultural Layer			None	None	
20	2009	25	40	15	Aeolian Deposit					
21	2009	0	20	20	Aeolian Deposit			None	None	
21	2009	20	25	5	Cultural Layer			None	None	
21	2009	25	40	15	Aeolian Deposit					
22	2009	0	20	20	Aeolian Deposit			None	None	
22	2009	20	35	15	Floor			None	None	
22	2009	35	60	25	Aeolian Deposit					
23	2009	0	35	35	Aeolian Deposit			None	None	
23	2009	35	40	5	Cultural Layer			None	None	
23	2009	40	55	15	Aeolian Deposit					
24	2009	0	35	35	Turf			Tephra	Turf	
24	2009	35	40	5	Floor			None	None	
24	2009	40	50	10	Aeolian Deposit					
25	2009	0	40	40	Sand	River		None	None	
20101	2009	0	30	30	Midden		None	None	Yes	
20101	2009	30	80	50	Aeolian Deposit		None	Tephra	None	
20102	2009	0	50	50	Midden		None	None	None	
20102	2009	50	80	30	Aeolian Deposit		None	Tephra	None	
20103	2009	0	18	18	Aeolian Deposit		None	None	None	
20103	2009	18	50	32	Midden		None	None	None	
20103	2009	50	85	35	Aeolian Deposit		None	None	None	
20103	2009	85	90	5	Midden		None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
20103	2009	90	95	5	Aeolian Deposit		None	None	None	
20103	2009	95	95	0	Rock		None	None	None	
20104	2009	0	55	55	Midden		None	Tephra	None	
20104	2009	55	80	25	Aeolian Deposit		None	Tephra	None	
20105	2009	0	25	25	Aeolian Deposit		None	Tephra	None	
20105	2009	25	62	37	Midden		None	None	None	
20105	2009	62	80	18	Aeolian Deposit		None	None	None	
20105	2009	80	90	10	Midden		None	None	None	
20105	2009	90	90	0	Rock		None	None	None	
20106	2009	0	50	50	Midden		None	None	None	
20106	2009	50	65	15	Low Density Cultural		None	Tephra	None	
20107	2009	0	30	30	Low Density Cultural		None	None	None	
20107	2009	30	40	10	Midden		None	None	None	
20107	2009	40	44	4	Floor		None	None	None	
20107	2009	44	60	16	Midden		None	None	None	
20107	2009	60	60	0	Rock		None	None	None	
20108	2009	0	75	75	Midden		None	None	None	
20108	2009	75	80	5	Aeolian Deposit		None	Tephra	None	
20109	2009	0	60	60	Midden		None	None	None	
20109	2009	60	60	0	Rock		None	None	None	
20109	2009								Ash (Peat)	
20110	2009	0	60	60	Midden		None	None	None	
20110	2009	60	80	20	Aeolian Deposit		None	Tephra	None	
20111	2009	0	35	35	Midden		None	None	None	
20111	2009	35	55	20	Floor		None	None	None	
20111	2009	55	80	25	Aeolian Deposit		None	Tephra	None	
20112	2009	0	20	20	Aeolian Deposit		None	Tephra	None	
20112	2009	20	60	40	Midden		None	Tephra	None	
20112	2009	60	80	20	Aeolian Deposit		None	Tephra	None	
20113	2009	0	30	30	Low Density Cultural		None	None	None	
20113	2009	30	30	0	Rock		None	None	None	
20114	2009	0	60	60	Midden		None	None	None	

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
20114	2009	60	80	20	Turf		None	None	Turf	
20115	2009	0	40	40	Low Density Cultural		None	None	None	
20115	2009	40	40	0	Rock		None	None	None	
14501	2014	0	10	10	Top Soil					
14501	2014	10	40	30	Turf					1766
14501	2014	40	50	10	Midden					
14501	2014	50	58	8	Turf					
14501	2014	58	94	36	Midden					
14501	2014	94	140	46	Turf					1300
14501	2014	140	184	44	Midden					
14501	2014	184	186	2	Turf					
14501	2014	186	187	1	Floor					
14501	2014	187	221	34	Midden					
14501	2014	221	227	6	Turf					
14501	2014	227	253	26	Midden					
14501	2014	253	275	22	Turf					H1
14501	2014	275	320	45	Midden					
14501	2014	320	383	63	Turf					H1
14501	2014	383	390	7	Aeolian Deposit				Charcoal	
14501	2014	390	400	10	Gley					
14502	2014	0	20	20	Aeolian Deposit		Disturbed			
14502	2014	20	162	142	Turf					1766
14502	2014	162	162	0	Rock					
14503	2014	0	50	50	Aeolian Deposit		Disturbed			
14503	2014	50	100	50	Turf					1300
14503	2014	100	120	20	Aeolian Deposit					
14503	2014	120	138	18	Turf					
14503	2014	138	145	7	Aeolian Deposit					
14503	2014	145	150	5	Iron Pan					
14503	2014	150	185	35	Rock					
14504	2014	0	10	10	Top Soil					
14504	2014	10	42	32	Turf		Disturbed			

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14504	2014	42	70	28	Turf					
14504	2014	70	113	43	Midden					
14504	2014	113	165	52	Turf					1300
14504	2014	165	167	2	Aeolian Deposit					
14504	2014	167	180	13	Sand					
14505	2014	0	10	10	Top Soil					
14505	2014	10	132	122	Turf					1766
14505	2014	132	138	6	Floor					
14505	2014	138	150	12	Turf					
14505	2014	150	170	20	Unknown					
14505	2014	170	170	0	Gley					
14506	2014	0	50	50	Aeolian Deposit		Disturbed			
14506	2014	50	95	45	Turf					1300
14506	2014	95	110	15	Turf	Sandy				
14506	2014	110	110	0	Rock					
14507	2014	0	40	40	Aeolian Deposit		Disturbed			
14507	2014	40	93	53	Turf					
14507	2014	93	102	9	Aeolian Deposit					
14507	2014	102	150	48	Turf					
14507	2014	150	164	14	Gravel					
14507	2014	164	164	0	Sand					
14508	2014	0	10	10	Top Soil					
14508	2014	10	57	47	Turf					
14508	2014	57	170	113	Midden					
14508	2014	170	200	30	Aeolian Deposit					
14509	2014	0	50	50	Aeolian Deposit		Disturbed			
14509	2014	50	61	11	Turf					
14509	2014	61	165	104	Midden					
14509	2014	165	200	35	Aeolian Deposit					
14510	2014	0	53	53	Aeolian Deposit		Disturbed			
14510	2014	53	62	9	Midden					
14510	2014	62	69	7	Turf					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14510	2014	69	75	6	Floor					
14510	2014	75	82	7	Turf					
14510	2014	82	90	8	Floor					
14510	2014	90	138	48	Midden					
14510	2014	138	145	7	Turf					
14510	2014	145	172	27	Aeolian Deposit					
14510	2014	172	172	0	Gravel					
14520	2014	0	20	20	Top Soil					
14520	2014	20	35	15	Aeolian Deposit					
14520	2014	35	35	0	Rock					
14521	2014	0	22	22	Top Soil				Charcoal Bone	
14521	2014	22	37	15	Low Density Cultural				Ash (Peat) Charcoal	
14521	2014	37	50	13	Aeolian Deposit					
14521	2014	50	50	0	Rock					
14522	2014	0	40	40	Turf					1766
14522	2014	40	67	27	Turf					
14522	2014	67	81	14	Aeolian Deposit					
14522	2014	81	120	39	Aeolian Deposit	Wet				
14523	2014	0	10	10	Top Soil					
14523	2014	10	22	12	Low Density Cultural				Ash (Peat) Charcoal	
14523	2014	22	27	5	Midden					
14523	2014	27	27	0	Rock					
14524	2014	0	10	10	Top Soil					
14524	2014	10	78	68	Midden					
14524	2014	78	120	42	Aeolian Deposit					
14524	2014	120	120	0	Iron Pan					
14526	2014	0	10	10	Top Soil					
14526	2014	10	15	5	Turf					
14526	2014	15	95	80	Midden				Charcoal	
14526	2014	95	120	25	Turf					H1

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14527	2014	0	30	30	Aeolian Deposit		Disturbed			
14527	2014	30	30	0	Rock					
14528	2014	0	5	5	Top Soil					
14528	2014	5	35	30	Low Density Cultural					
14528	2014	35	65	30	Turf					
14528	2014	65	70	5	Low Density Cultural					
14528	2014	70	122	52	Low Density Cultural					
14529	2014	0	10	10	Top Soil					
14529	2014	10	30	20	Midden				Turf	
14529	2014	30	110	80	Turf					1300
14529	2014	110	112	2	Floor					
14529	2014	112	120	8	Midden					
14530	2014	0	34	34	Aeolian Deposit				Ash (Peat) Charcoal	
14530	2014	34	109	75	Midden					
14530	2014	109	120	11	Gley				Charcoal Ash (Peat)	
14531	2014	0	45	45	Midden					
14531	2014	45	100	55	Turf					
14531	2014	100	120	20	Midden					
14532	2014	0	80	80	Midden					
14532	2014	80	115	35	Turf					
14532	2014	115	120	5	Midden					
14533	2014	0	50	50	Midden					
14533	2014	50	117	67	Turf					
14533	2014	117	120	3	Midden					
14534	2014	0	38	38	Aeolian Deposit			Gravel		
14534	2014	38	100	62	Low Density Cultural					
14534	2014	100	110	10	Aeolian Deposit					
14535	2014	0	25	25	Aeolian Deposit		Disturbed			
14535	2014	25	37	12	Low Density Cultural					
14535	2014	37	40	3	Midden					
14535	2014	40	55	15	Low Density Cultural					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14535	2014	55	100	45	Turf					
14535	2014	100	120	20	Midden					
14536	2014	0	25	25	Aeolian Deposit				Charcoal	
14536	2014	25	41	16	Aeolian Deposit				Bone	
14536	2014	41	57	16	Aeolian Deposit					
14536	2014	57	80	23	Aeolian Deposit			Iron		
14537	2014	0	15	15	Aeolian Deposit		Disturbed			
14537	2014	15	28	13	Turf					
14537	2014	28	47	19	Aeolian Deposit					
14537	2014	47	50	3	Low Density Cultural					
14537	2014	50	65	15	Aeolian Deposit					
14537	2014	65	110	45	Aeolian Deposit	Mottled				
14537	2014	110	120	10	Iron Pan					
14538	2014	0	22	22	Aeolian Deposit				Charcoal	
14538	2014	22	60	38	Turf					
14538	2014	60	92	32	Aeolian Deposit				Charcoal Ash (Peat)	
14538	2014	92	120	28	Aeolian Deposit	Mottled				
14539	2014	0	30	30	Aeolian Deposit		Disturbed			
14539	2014	30	40	10	Turf		Disturbed			
14539	2014	40	72	32	Midden					
14539	2014	72	78	6	Low Density Cultural					
14539	2014	78	86	8	Aeolian Deposit					
14539	2014	86	86	0	Rock					
14540	2014	0	15	15	Turf					H1
14540	2014	15	65	50	Midden					
14540	2014	65	78	13	Turf					
14540	2014	78	81	3	Midden					
14540	2014	81	120	39	Turf			Iron		H1
14541	2014	0	30	30	Midden		Disturbed			
14541	2014	30	40	10	Turf					1300
14541	2014	40	77	37	Midden					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14541	2014	77	120	43	Turf					H1
14542	2014	0	10	10	Top Soil					
14542	2014	10	25	15	Aeolian Deposit		Disturbed			
14542	2014	25	32	7	Aeolian Deposit					
14542	2014	32	38	6	Turf					
14542	2014	38	60	22	Aeolian Deposit					
14542	2014	60	90	30	Low Density Cultural					
14542	2014	90	90	0	Rock					
14543	2014	0	27	27	Aeolian Deposit		Disturbed			
14543	2014	27	58	31	Aeolian Deposit				Ash (Peat)	
14543	2014	58	80	22	Aeolian Deposit					
14544	2014	0	20	20	Aeolian Deposit		Disturbed			
14544	2014	20	80	60	Aeolian Deposit					
14545	2014	0	38	38	Aeolian Deposit					
14545	2014	38	80	42	Aeolian Deposit					
14546	2014	0	40	40	Aeolian Deposit				Ash (Peat) Charcoal	
14546	2014	40	80	40	Aeolian Deposit					
14547	2014	0	20	20	Aeolian Deposit		Disturbed			
14547	2014	20	30	10	Aeolian Deposit				Ash (Peat) Charcoal	
14547	2014	30	60	30	Aeolian Deposit					
14548	2014	0	50	50	Aeolian Deposit		Disturbed			
14548	2014	50	120	70	Aeolian Deposit					
14549	2014	0	38	38	Aeolian Deposit					
14549	2014	38	65	27	Low Density Cultural					
14549	2014	65	115	50	Midden					
14549	2014	115	120	5	Aeolian Deposit					
14550	2014	0	20	20	Aeolian Deposit					
14550	2014	20	82	62	Turf					1300
14550	2014	82	117	35	Midden					
14550	2014	117	120	3	Rock					
14551	2014	0	18	18	Aeolian Deposit					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14551	2014	18	100	82	Midden					
14551	2014	100	120	20	Low Density Cultural					
14552	2014	0	21	21	Aeolian Deposit		Disturbed			
14552	2014	21	38	17	Turf					1766
14552	2014	38	78	40	Aeolian Deposit		Disturbed			
14552	2014	78	99	21	Low Density Cultural					
14552	2014	99	101	2	Midden					
14552	2014	101	118	17	Low Density Cultural					
14552	2014	118	120	2	Midden					
14553	2014	0	30	30	Aeolian Deposit		Disturbed			
14553	2014	30	38	8	Low Density Cultural					
14553	2014	38	80	42	Aeolian Deposit					
14554	2014	0	21	21	Aeolian Deposit					
14554	2014	21	28	7	Turf					H1
14554	2014	28	63	35	Floor					
14554	2014	63	82	19	Turf					
14554	2014	82	82	0	Rock					
14555	2014	0	10	10	Top Soil					
14555	2014	10	32	22	Aeolian Deposit		Fill			
14555	2014	32	40	8	Turf					
14555	2014	40	45	5	Midden					
14555	2014	45	70	25	Turf					
14555	2014	70	85	15	Iron Pan					
14555	2014	85	90	5	Gley					
14555	2014	90	90	0	Rock					
14556	2014	0	20	20	Aeolian Deposit		Disturbed			
14556	2014	20	63	43	Aeolian Deposit	Mottled				
14556	2014	63	66	3	Gley	Sandy				
14557	2014	0	30	30	Aeolian Deposit					
14557	2014	30	45	15	Bog (Organic)					
14557	2014	45	65	20	Gley					
14557	2014	65	67	2	Iron Pan					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14557	2014	67	67	0	Gravel					
14558	2014	0	40	40	Aeolian Deposit				Ash (Peat) Charcoal	
14558	2014	40	52	12	Aeolian Deposit	Mottled			Bone	
14558	2014	52	60	8	Aeolian Deposit					
14558	2014	60	60	0	Rock					
14559	2014	0	30	30	Aeolian Deposit		Disturbed			
14559	2014	30	30	0	Rock					
14560	2014	0	20	20	Aeolian Deposit		Disturbed			
14560	2014	20	20	0	Rock					
14561	2014	0	28	28	Aeolian Deposit		Disturbed			
14561	2014	28	40	12	Aeolian Deposit	Mottled				
14561	2014	40	60	20	Aeolian Deposit					
14561	2014	60	60	0	Rock					
14562	2014	0	12	12	Top Soil					
14562	2014	12	40	28	Aeolian Deposit					
14563	2014	0	15	15	Aeolian Deposit		Disturbed			
14563	2014	15	30	15	Aeolian Deposit					
14563	2014	30	30	0	Rock					
14564	2014	0	37	37	Aeolian Deposit				Ash (Peat) Charcoal	
14564	2014	37	40	3	Low Density Cultural					
14564	2014	40	60	20	Aeolian Deposit	Mottled				
14565	2014	0	25	25	Aeolian Deposit		Disturbed			
14565	2014	25	45	20	Aeolian Deposit				Bone Charcoal Ash (Peat)	
14565	2014	45	60	15	Aeolian Deposit					
14566	2014	0	30	30	Aeolian Deposit		Disturbed		Ash (Peat)	
14566	2014	30	40	10	Aeolian Deposit				Ash (Peat)	
14567	2014	0	38	38	Turf		Disturbed			
14567	2014	38	40	2	Low Density Cultural					
14567	2014	40	43	3	Aeolian Deposit					

Core Number	Year	Top depth	Bottom depth	Thick	Category	Description	Disturbed	Inorganic	Organic	Tephra in Turf
14567	2014	43	67	24	Low Density Cultural					
14567	2014	67	80	13	Aeolian Deposit					
14568	2014	0	40	40	Aeolian Deposit		Disturbed			
14568	2014	40	80	40	Aeolian Deposit					
14569	2014	0	30	30	Aeolian Deposit		Disturbed			
14569	2014	30	40	10	Aeolian Deposit					
14569	2014	40	43	3	Low Density Cultural					
14569	2014	43	63	20	Aeolian Deposit					
14569	2014	63	63	0	Rock					
14570	2014	0	27	27	Aeolian Deposit	Loose	Bulldozed			
14570	2014	27	38	11	Aeolian Deposit					
14570	2014	38	38	0	Rock					
14571	2014	0	15	15	Aeolian Deposit		Bulldozed			
14571	2014	15	30	15	Aeolian Deposit	Striated				
14571	2014	30	60	30	Aeolian Deposit					
14571	2014	60	60	0	Iron Pan					
14572	2014	0	30	30	Aeolian Deposit				Ash (Peat) Charcoal	
14572	2014	30	65	35	Aeolian Deposit					
14573	2014	0	30	30	Aeolian Deposit					
14573	2014	30	30	0	Rock					
14574	2014	0	78	78	Turf		Disturbed			
14574	2014	78	95	17	Midden					
14574	2014	95	105	10	Turf					
14574	2014	105	115	10	Midden					
14574	2014	115	120	5	Turf					
14575	2014	0	20	20	Aeolian Deposit					
14575	2014	20	40	20	Low Density Cultural					
14575	2014	40	120	80	Midden					
14576	2014	0	10	10	Aeolian Deposit		Bulldozed			
14576	2014	10	30	20	Aeolian Deposit					
14576	2014	30	30	0	Gravel					

Table 7. Core Tephra Layers

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
1	2001	H1	39			
2	2001	H1	21		21-22	
4	2001	H1	21			
8	2001	H1	25			
9	2001	H1	19			
9	2001	H3	41			
10	2001	H1	43		from old excel file	
10	2001	H3	80		at 91 in old excel file	
11	2001	H1	36		36-40	
13	2001	H1	30		to 38; patchy	
13	2001	H3	58		to 66	
13	2001	H4	76		to 81	
14	2001	H1	20			
15	2001	H1	29			
15	2001	H3	64		from old excel file	
16	2001	H1	36			
16	2001	H3	85		10 cm; mixed w/h4	
17	2001	H1	15		patchy	
17	2001	H3	42		to 48	
18	2001	H3	40		to 50	
18	2001	H4	67			
19	2001	H1	36			
19	2001	H3	63		to 85; blended w/h4	
22	2001	H3	56		to 68; mixed	
23	2001	H1	27			
25	2001	H1	33		to 33; thuverized	
26	2001	H3	30		to 50	
27	2001	H1	24			
27	2001	H3	66			
28	2001	H3	57			
29	2001	H3	61			
29	2001	H4	68			
31	2001	H3	61		to 65	
32	2001	H3	52		to 56	
32	2001	H4	62		to 66	
33	2001	H3	57		to 63	
34	2001	H1	35			
34	2001	H3	45			
34	2001	H4	57			
35	2001	H3	50		& h4	
36	2001	H3	54		& h4	
37	2001	H3	51		& h4	
38	2001	H1	36			
38	2001	H3	51		from old excel file	
39	2001	H3	55			
39	2001	H4	62			

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
40	2001	H1	25		from old excel file	
40	2001	H3	54		from old excel file	
3167	2001	1300	17	0.3	black band	
3167	2001	H3	43	7	mix yellow tephra; H3?	
3168	2001	H3	44	3	yellow tephra	
3169	2001	H1	26	9	mix H1 + brown soil	
3169	2001	H3	51	4	H3	
3170	2001	H1	23	1	wisp of H1	
3170	2001	H3	45	2		
3170	2001	H4	53	4		
3173	2001	H3	46	9		
3174	2001	H3	51	3		
3175	2001	1300	21	0.3	grey-black tephra	
3175	2001	H3	52	3		
3175	2001	H4	63	2		
3176	2001	H3	42	2	yellow tephra	
3176	2001	H4	51	3		
3177	2001	1766	35	1	in situ 1766	
3178	2001	1300	15	1	black tephra (1766/1300)	
3178	2001	H1	21	1	white tephra	
3178	2001	H3	35	3	yellow tephra	
3179	2001	H1	36	1	intermidiant H1 tephra, patchy	
3179	2001	H3	55	3	yellow tephra	
3180	2001	H1	26	1	patchy H1	
3180	2001	unknown	44	0	possible tephra interface	
3180	2001	H3	56	6	mixed yellow tephra, H3?	
3181	2001	H1	32	2	broken H1	
3181	2001	H3	55	4	mixed H3	
3182	2001	H1	20	0.5	white tephra	
3183	2001	H1	27	1		
3183	2001	H3	67	2		
3186	2001	H1	55	1		
3186	2001	H3	66	8		
3187	2001	H1	37	1		
3188	2001	H1	24	2	wisps of H1	
3188	2001	H3	48	5		
3189	2001	H3	50	3		
3190	2001	H1	24	1		
3191	2001	H1	17		from old excel file	
3191	2001	H3	42	2	old excel file shows this at 32	
3192	2001	H3	40	4	mixed brown and yellow soil; H3 remnant?	
3193	2001	H1	29		from old excel file	
3193	2001	H3	37	2	yellow tephra; H1 tainted by H3? (H3 in old excel file)	
3193	2001	H4	45	3	yellow tephra; H3 or H4?	
3195	2001	H1	24	1	beautiful line	
3195	2001	H3	37	3		
3197	2001	H1	23	1		
3197	2001	H3	53	4		

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
3197	2001	H4	62	5		
3198	2001	H3	31	4		
3199	2001	H1	16	7	mixed orange-brown soil; 3 mm = H1??	
3200	2001	H3	44	5		
3204	2001	unknown	25	3	mixed yellow soil; possibly some tephra	
3205	2001	1300	27	2	wispy H1, in situ?	
3205	2001	H1	35	5		
3205	2001	H3	55	10		
3205	2001	H4	59	30		
3206	2001	H3	44	3	light tephra	
3207	2001	H3	25	4	yellowish tephra, H3??	
3207	2001	H4	29	11	brown soil mixed with yellow tephra	
3208	2001	H3	28	4	yellow tephra, unknown	
3209	2001	H1	35	2	whitish tephra, unknown	
3210	2001	1300	22	0.3	black tephra 1766/1300	
3210	2001	H3	42	1	light tephra	
3210	2001	H4	49	2	light tephra	
3211	2001	1300	23		black -from old excel file	
3211	2001	H1	30		from old excel file	
3211	2001	H3	50	3	light tephra	
3212	2001	H3	39	1	light tephra	
3212	2001	H4	45	4	light tephra	
3213	2001	H3	38	5	light tephra	
3214	2001	H1	10	17	mixed brown soil with organic; possible faint H1 at 20 cm	
3214	2001	1000	27	0.5	blue-black tephra	
3214	2001	H3	39	2		
3215	2001	H3	43	2		
3215	2001	H4	48	2		
3216	2001	H1	21	1		
3216	2001	H3	33	9	light tephra, composite H3/H4	
3217	2001	1300	19	1	faint grey-black tephra 1766/1300	
3217	2001	H1	30	1	faint mixed tephra, possibly H1	
3217	2001	H3	41	3	mixed brown soil and yellow tephra	
3217	2001	H4	53	9	mixed brown soil with yellow tephra	
3218	2001	1300	18	1	bit of dark tephra, V. 1320???	
3218	2001	H1	27	2	wisp of H1	
3218	2001	H3	41	3		
3220	2001	unknown	40	10	mixed tephra and organic	
3221	2001	H3	55	3		
3221	2001	H4	63	3		
3223	2001	H3	40	4	mixed H3 with rust	
3224	2001	unknown	65	13	mixed grey clay and silt with rust and tephra	
3225	2001	H1	43	1		
3225	2001	H3	65	3		
3251	2001	H1	36	1	light tephra wisp, in situ H1??	
3251	2001	H3	48	6	yellow tephra, H3??	

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
3252	2001	H3	38	6	grey silt and organic bands; yellow tephra H3??	
3253	2001	H1	25	5	mixed brown and organic soil; wisp of H1 at 25	
3253	2001	H3	30	5	mixed yellow tephra, H3	
3254	2001	H1	15	5	mixed brown soil with vertical loop of H1, probably in situ due to frost action	
3254	2001	H3	25	4		
3255	2001	H1	24	1		
3255	2001	H3	35	2		
3256	2001	H1	28	0.5	H1 wisp	
3256	2001	1000	37	5	dark organic layer with blue-black tephra v. 1000?	
3257	2001	H1	30	1		
3257	2001	1000	35	1	blue-black tephra, v. 1000	
3257	2001	H3	40	2		
3257	2001	H4	45	3		
3258	2001	H1	32	1	H1 or H3?	
3258	2001	H3	35	5	light tephra, H3 or H4?	
9541	2001	1300	18		black unknown	
9542	2001	H1	23			
9542	2001	H3	44			
9544	2001	H1	22			
9544	2001	H3	35			
9545	2001	1300	30		black unknown	
9545	2001	H1	35			
9545	2001	H3	53			
9546	2001	1300	15		black unknown	
9546	2001	H3	40			
9547	2001	H1	34			
9548	2001	H1	21			
9549	2001	H1	40			
9550	2001	H1	16			
9551	2001	H1	26			
9552	2001	1300	18		black unknown	
9553	2001	H1	29			
9553	2001	H3	39			
9554	2001	H1	35			
9554	2001	H3	42			
9555	2001	H1	22			
9555	2001	H3	42			
9556	2001	H1	24			
9556	2001	H3	52			
9557	2001	H1	24			
9557	2001	H3	52			
9558	2001	H1	20			
9558	2001	H3	42			
9559	2001	H1	22			
9560	2001	H1	23			
9560	2001	H3	42			

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
9561	2001	H1	31			
9561	2001	H3	46			
9562	2001	H1	35			
9562	2001	H3	48			
9563	2001	H1	23			
9563	2001	H3	44		on sheet as H1, but this makes more sense	
9564	2001	H1	25			
9564	2001	H3	42			
1	2002	1300	25		black unknown	
2	2002	H3	50			
5	2002	H3	38		to 42	
9	2002	H3	61		to 81	
12	2002	H1	15			
13	2002	H1	23		to 24	
5300	2002	H1	40	1	faint white tephra band, H1?	
5301	2002	LNS	32	1	blue-grey tephra, LNS	
5301	2002	H3	33	17	mixed brown soil with yellow tephra wash, H3/H4	
5302	2002	H1	36	1	white tephra, H1	
5304	2002	H3	30	9	H3	
5304	2002	H4	40	10	H4	
5305	2002	H3	44	16	mixed H3 with iron nodules	
5307	2002	1766	11	0	traces of dark tephra	
5307	2002	1300	29	0	traces of dark tephra	
5308	2002	1300	15	0	traces of dark tephra 1766/1300	
5308	2002	H1	24	1	H1	
5308	2002	LNS	30	1	LNS tephra	
5308	2002	H3	35	5	H3	
1	2009	H1	28			
1	2009	H3	35			
2	2009	1000	60			
4	2009	H1	25			
4	2009	H3	35			
5	2009	1300	30			
5	2009	H1	40			
5	2009	H3	60			
6	2009	H3	30			
7	2009	H1	20			
7	2009	H3	35			
8	2009	H1	20			
8	2009	H3	35			
9	2009	H1	18			
9	2009	H3	60			
10	2009	1300	18			
10	2009	H1	23			
10	2009	H3	55			
11	2009	H3	50			
14	2009	H1	28			
14	2009	H3	35			

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
15	2009	1000	60			
17	2009	H1	25			
17	2009	H3	35			
18	2009	1300	30			
18	2009	H1	40			
18	2009	H3	60			
19	2009	H3	30			
20	2009	H1	20			
20	2009	H3	35			
21	2009	H1	20			
21	2009	H3	35			
22	2009	H1	18			
22	2009	H3	60			
23	2009	1300	18			
23	2009	H1	23			
23	2009	H3	55			
24	2009	H3	50			
20102	2009	H3	70			
20103	2009	H1	15		111-2009-928e208n	
20103	2009	1000	38		111-2009-928e208n	
20103	2009	H3	60		111-2009-928e208n	
20104	2009	LNL	55			
20104	2009	H3	70			
20105	2009	H1	19			
20106	2009	H3	65			
20108	2009	H3	76			
20110	2009	H3	62			
20111	2009	H3	60			
20112	2009	H1	20			
20112	2009	H3	70			
14501	2014	1300	278			
14503	2014	H1	138			
14504	2014	H1	167			
14507	2014	1300	93			
14508	2014	1300	67			
14508	2014	H1	161			
14508	2014	1000	170			
14508	2014	950	173			
14508	2014	H3	174			
14508	2014	H4	181			
14509	2014	1766	62			
14509	2014	H1	125			
14509	2014	H4	175			
14510	2014	1766	93			
14510	2014	1300	125			
14510	2014	H1	135			
14510	2014	LNS	147			
14510	2014	H3	152			

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
14510	2014	H4	155			
14520	2014	1300	30			
14521	2014	H1	31			
14521	2014	1000	38			
14522	2014	H3	67			
14522	2014	H4	78			
14524	2014	1300	37			
14524	2014	H1	80			
14524	2014	H3	102			
14524	2014	H4	116			
14528	2014	1766	3			
14534	2014	H1	75			
14534	2014	H3	100			
14534	2014	H4	105			
14536	2014	H3	57			
14536	2014	H4	65			
14537	2014	1300	45			
14537	2014	H1	52			
14537	2014	1000	58			
14538	2014	H1	85			
14542	2014	1300	73			
14543	2014	H1	60			
14544	2014	H1	35			
14544	2014	H3	40			
14545	2014	H3	35			
14546	2014	1300	35			
14546	2014	LNS	58			
14546	2014	H3	60			
14546	2014	H4	67			
14547	2014	H1	31			
14548	2014	H1	79			
14549	2014	H1	103			
14549	2014	H3	115			
14550	2014	H1	100			
14551	2014	H1	110			
14553	2014	H1	40			
14553	2014	H3	60			
14557	2014	1766	18			
14558	2014	1300	50			
14562	2014	H3	17			
14563	2014	H1	17			
14564	2014	H1	40			
14564	2014	LNS	60			
14565	2014	H3	59			
14566	2014	H3	40			
14567	2014	H1	43			
14567	2014	1000	67			
14567	2014	LNS	73			

Core Number	Year	Tephra Layer	Depth	Thickness	Description	In Turf
14568	2014	H1	38			
14568	2014	H3	60			
14569	2014	1300	35			
14569	2014	H1	37			
14569	2014	LNS	43			
14570	2014	H1	28			
14571	2014	1300	23			
14571	2014	H1	30			
14572	2014	H1	30			
14572	2014	H3	58			
14573	2014	H1	20			
14573	2014	H3	27			
14575	2014	1766	95			
14575	2014	1300	110			
14576	2014	H3	20			

APPENDIX B: EXCAVATION DATA

Table 8. Excavations.

Excavation Name	Type of intervention	Year	Area (sq m)	Centroid	
				ISNet East	ISNet North
TT1	Mechanical Excavation	2001	5.00	476929.7	568320.0
TT2	Mechanical Excavation	2001	6.00	476929.3	568306.6
D	Mechanical Excavation	2001	5.60	476927.3	568184.0
TP4	Excavation	2001	2.85	476900.9	568211.9
TP5	Auger/Excavation	2001	1.16	476898.7	568212.4
T_E-W	Excavation	2001	2.87	476892.5	568215.6
T_N-S	Excavation	2001	2.92	476890.2	568215.1
TT11	Mechanical Excavation	2001	7.20	476882.4	568250.3
TT12	Mechanical Excavation	2001	5.60	476885.8	568233.2
TT13	Mechanical Excavation	2001	3.20	476888.9	568202.6
TP1 (Upper Glaumbær)	Excavation	2002	2.25	476717.7	568191.6
Extension (TP5)	Excavation	2002	0.57	476897.5	568212.2
Gud	Excavation	2002	4.22	476897.5	568215.1
TT6	Mechanical Excavation	2002	11.00	476908.6	568191.6
TT7	Mechanical Excavation	2002	13.55	476906.0	568201.9
TT8	Mechanical Excavation	2002	33.70	476876.3	568208.5
Area A	Grass Removed	2005	705.96	476905.4	568202.3
Area A	Grass Removed	2005	71.99	476924.3	568211.6
TP14	Excavation	2005	1.00	476924.6	568220.8
TP15	Excavation	2005	1.00	476923.5	568217.8
TP16	Excavation	2005	1.00	476924.5	568218.8
TP17	Excavation	2005	1.00	476923.5	568219.8
Area E	Grass Removed	2009	1,706.38	476919.7	568185.9
C	Excavation	2009	9.00	476921.5	568211.5

Table 9. Samples from excavations

Excavation	Context	Sample	Sample Type	Date	Description	Volume Floated (l)	Context type	Heavy (g)	Light (g)
TT6	403	305	Bone, Animal	07/24/2002	SQ 050/563				
TT6	403	306	Bone, Animal	07/24/2002	SQ 050/563				
TT6	403	310	Bone, Animal	07/24/2002	SQ 050/563				
TT6	403	311	Bone, Animal	07/24/2002	SQ 050/563				
TT6	405	313	Bone, Animal	07/24/2002	SQ 050/565				
TT6	406	314	Bone, Animal	07/24/2002	SQ 050/566				
TT6	407	315	Bone, Animal	07/24/2002	SQ 050/567				
TT6	409	326	Bone, Animal	07/24/2002					
TT7	47	328	Bone, Animal	07/25/2002					
TT7	50	333	Bone, Animal	07/25/2002					
TT7	102	330	Bone, Animal	07/25/2002	bone from midden layer under turf associated with house				
TT7	413	327	Bone, Animal	07/25/2002					
TT7	50	331	Bone, Animal	07/26/2002					
TT7	50	332	Bone, Animal	07/26/2002					
A	7	202	Bone, Animal	08/01/2005					
A	7	203	Bone, Animal	08/01/2005					
TT7	100	329	Bone, Animal		Bird bones				
TP1	151	341	Bone, Animal						
TP1	163	338	Bone, Animal						
TP1	182	336	Bone, Animal						
TP1	205	339	Bone, Animal						
TP2	301	201	Bone, Animal		from test pit				
TT6	400	301	Bone, Animal						
TT6	403	303	Bone, Animal		SQ 050/563				
TT6	403	304	Bone, Animal						
TT6	403	307	Bone, Animal						
TT6	403	308	Bone, Animal						
TT6	403	309	Bone, Animal						

Excavation	Context	Sample	Sample Type	Date	Description	Volume Floated (l)	Context type	Heavy (g)	Light (g)
TT6	404	312	Bone, Animal						
TT6	409	322	Bone, Animal						
TT6	409	325	Bone, Animal		teeth				
TT7	412	334	Bone, Animal						
A	7	204	Charcoal	08/01/2005					
TT6	409	324	Charcoal		charcoal deposit heavy fraction				
TT6	61	191	Flotation	08/20/2002	GB trench 050/560 At floor - charcoal 050.9056-051.00	4	Floor	52.32	3.64
C	104	1	Flotation	07/19/2008		4			
C	101	101	Flotation	07/30/2009	Deturfed area just above H1 and containing H1	4	Topsoil	34.3	4.76
C	102	109	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	71.79	12.21
C	102	110	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	35.96	9.8
C	102	111	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	25.28	14.66
C	102	112	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	15.93	1.95
C	102	113	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	13.14	2.25
C	102	114	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	49.67	4.66
C	102	115	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	57.06	3.55
C	102	116	Flotation	07/31/2009	0-5 cm of [102]	4	Midden	32.39	3.04
C	103	117	Flotation	07/31/2009	Peat ash midden	4	Midden	19.74	7.83
C	103	118	Flotation	07/31/2009	Peat ash midden	4	Midden	27.99	7.14
C	110	102	Flotation	07/31/2009	H1 with topsoil and plowzone	4	Midden	21.13	11.621
C	110	103	Flotation	07/31/2009	H1 with topsoil and plowzone	4	Midden	20.78	12.7
C	110	104	Flotation	07/31/2009	H1 with topsoil and plowzone	4	Midden	29.34	12.62
C	110	105	Flotation	07/31/2009	H1 with topsoil and plowzone 5cm below the deposit	4	Midden	23.18	5.18
C	110	106	Flotation	07/31/2009	H1 with topsoil and plowzone 5cm below the deposit	4	Midden	24.47	3.4
C	110	107	Flotation	07/31/2009	H1 with topsoil and plowzone 5cm below the deposit	4	Midden	47.6	7.25
C	110	108	Flotation	07/31/2009	H1 with topsoil and plowzone 5cm below the deposit	4	Midden	28.23	10.81
C	102	123	Flotation	08/01/2009	Low density midden below H1/1104	4	Midden	14.89	7.79
C	102	124	Flotation	08/01/2009	Low density midden below H1/1104	4	Midden	59.13	4.63
C	102	125	Flotation	08/01/2009	Low density midden below H1/1104	4	Midden	20.9	4.06

Excavation	Context	Sample	Sample Type	Date	Description	Volume Floated (l)	Context type	Heavy (g)	Light (g)
C	103	119	Flotation	08/01/2009	Peat ash midden	4	Midden	38	
C	103	120	Flotation	08/01/2009	Peat ash midden	4	Midden	11.02	4.6
C	103	121	Flotation	08/01/2009	Peat ash midden	4	Midden	32.21	3.88
C	103	122	Flotation	08/01/2009	Peat ash midden	4	Midden	42.57	5.03
C	103	126	Flotation	08/01/2009	Peat ash midden	4	Midden	17.84	5.23
C	103	127	Flotation	08/01/2009	Peat ash midden	4	Midden	17.76	7.96
C	103	128	Flotation	08/01/2009	Peat ash midden	4	Midden	10.61	5.09
C	104	129	Flotation	08/04/2009	Bright/lensed midden	4	Midden	23.52	3.39
C	104	130	Flotation	08/04/2009	Bright/lensed midden	4	Midden	52.41	5.85
C	104	131	Flotation	08/04/2009	Bright/lensed midden	4	Midden	8.38	5.58
C	104	132	Flotation	08/04/2009	Bright/lensed midden	4	Midden	21.99	7.12
C	104	133	Flotation	08/04/2009	Bright/lensed midden	4	Midden	10.16	6.08
C	104	134	Flotation	08/04/2009	Bright/lensed midden	4	Midden	5.93	6.85
C	104	135	Flotation	08/04/2009	Bright/lensed midden	4	Midden	8.6	4.68
C	104	136	Flotation	08/04/2009	Bright/lensed midden	4	Midden	10.31	6
C	104	137	Flotation	08/06/2009	dung?	4	Midden	10.48	6.59
C	105	138	Flotation	08/06/2009	turf in midden	4	Midden	15.96	15.49
C	105	139	Flotation	08/06/2009	turf in midden	4	Midden	31.32	11.47
C	105	140	Flotation	08/06/2009	turf in midden	4	Midden	36.11	9.31
C	106	144	Flotation	08/07/2009	burnt turfy stuff	4	Mixed Turf	47.35	1.83
C	106	145	Flotation	08/07/2009	burnt turfy stuff	4	Mixed Turf	15.68	1.07
C	107	141	Flotation	08/07/2009	burned peaty midden	4	Midden	121	23.52
C	107	142	Flotation	08/07/2009	burned peaty midden	4	Midden	23.93	10.14
C	107	143	Flotation	08/07/2009	burned peaty midden	4	Midden	13.53	5.99
C	107	159	Flotation	08/10/2009	burned peaty midden	4	Midden	30.39	0.92
C	107	160	Flotation	08/10/2009	burned peaty midden	4	Midden	60.88	1.04
C	108	161	Flotation	08/10/2009	charcoal	4	Midden	33.8	12.48
C	108	162	Flotation	08/10/2009	charcoal	4	Midden	32.78	5.07
C	109	163	Flotation	08/11/2009	turfy midden	4	Midden	28.33	6.19
C	109	164	Flotation	08/11/2009	turfy midden	4	Midden	8.7	2.28

Excavation	Context	Sample	Sample Type	Date	Description	Volume Floated (l)	Context type	Heavy (g)	Light (g)
C	109	165	Flotation	08/11/2009	turfy midden	4	Midden	44.66	1.82
C	109	166	Flotation	08/11/2009	turfy midden	4	Midden	87.85	1.79
C	109	167	Flotation	08/11/2009	turfy midden	4	Midden	24	3.42
C	109	168	Flotation	08/11/2009	turfy midden	4	Midden	41.38	67.24
C	111	169	Flotation	08/13/2009	ash lense from north sidewall	3.3	Midden	41.02	12.45
C	112	170	Flotation	08/13/2009	white floor from sidewall	4	Floor	11.48	0.54
C	113	171	Flotation	08/13/2009	h3/natural from under the floor [112]	4	Aeolian Deposit	4.46	0.23
C	114	172	Flotation	08/13/2009	ash lense from west sidewall	4	Midden	11.14	6.4
D	115	174	Flotation	08/13/2009		4	Mixed Turf	37.5	2.91
D	115	179	Flotation	08/13/2009		4	Mixed Turf	56.69	0.93
D	115	189	Flotation	08/13/2009		4	Mixed Turf	5.83	1.13
D	116	176	Flotation	08/13/2009		4	Floor	14.4	6.12
D	117	173	Flotation	08/13/2009		4	Floor	9.71	27.76
D	118	180	Flotation	08/13/2009		4	Collapse		
D	118	187	Flotation	08/13/2009		4	Collapse	28	
D	119	186	Flotation	08/13/2009		4	Floor	3.5	1.52
D	120	183	Flotation	08/13/2009		4	Floor	5	1.74
D	121	178	Flotation	08/13/2009		4		14.62	2.33
D	122	181	Flotation	08/13/2009		4		7	
D	123	175	Flotation	08/13/2009		4	Fill		
D	123	177	Flotation	08/13/2009		4	Fill	20.31	15.06
D	123	185	Flotation	08/13/2009		4	Fill	12	
D	124	188	Flotation	08/13/2009	LNS	3	Tephra	0.86	0.63
D	125	182	Flotation	08/13/2009		4	Aeolian Deposit	8.79	0.83
D	125	184	Flotation	08/13/2009		4	Aeolian Deposit	0.02	0.86
Gud	60	190	Flotation		post hole, gudmundur trench 039.90, 572.85	4	Post Hole	0.63	4.11
C	106	146	Micromorph	08/07/2009	82-87 cm (4m 74cm E, 31 cm N)		Mixed Turf		

Excavation	Context	Sample	Sample Type	Date	Description	Volume Floated (l)	Context type	Heavy (g)	Light (g)
C	106	147	Micromorph	08/07/2009			Mixed Turf		
C	106	148	Micromorph	08/07/2009			Mixed Turf		
A	16	201	Radiocarbon						
A	54	3	Radiocarbon		bone (torus)				
C	109	115	Radiocarbon				Midden		
TT6	409	321	Rocks		Silicate rock?				
TT6	400	302	Slag	07/24/2002					
TP1	182	337	Slag						
TP1	205	340	Slag						
TT6	408	316	Slag		heavy fraction V=7.1L				
TT6	408	317	Slag		heavy fraction V=1.6L				
TT6	408	318	Slag		iron frag				
TT6	409	319	Slag						
TT6	409	320	Slag		heavy fraction V=1.6L				
TT6	409	323	Slag						
TT7	412	335	Slag						

Table 10. Seeds recovered from excavation floatation samples

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2002	Gud	60	190	NO SEEDS			0			
2002	TT6	61	191	NO SEEDS			0			
2009	C	101	101	Caryophyllaceae			1			Whole
2009	C	102	109	Poaceae	Wild		6		Yes	Whole
2009	C	102	109	Caryophyllaceae			19		Yes	Whole
2009	C	102	109	Caryophyllaceae			9		Yes	Whole
2009	C	102	109	Cyperaceae			1		Yes	Whole
2009	C	102	109	Potamogetonaceae	Potamogeton		1		Yes	Whole
2009	C	102	110	Poaceae	Wild		14		Yes	Whole
2009	C	102	110	Caryophyllaceae			8		Yes	Whole
2009	C	102	110	Caryophyllaceae	Silene		5		Yes	Whole
2009	C	102	110	Unidentified			1		Yes	Whole
2009	C	102	110	Ericaceae	Empetrum		1		Yes	Whole
2009	C	102	110	Cyperaceae			2		Yes	Whole
2009	C	102	111	Caryophyllaceae			8		Yes	Whole
2009	C	102	111	Poaceae	Wild		6		Yes	Whole
2009	C	102	112	Caryophyllaceae			90		Yes	Whole
2009	C	102	112	Caryophyllaceae			73		Yes	Whole
2009	C	102	112	Caryophyllaceae			7		Yes	partial
2009	C	102	112	Caryophyllaceae	Stellaria		10		Yes	Whole
2009	C	102	112	Caryophyllaceae			116		Yes	Whole
2009	C	102	112	Poaceae	Wild		24		Yes	Whole
2009	C	102	112	Ericaceae	Vaccinium		2	Fruit	Yes	Whole
2009	C	102	112	Brassicaceae	Capsella		2		Yes	Whole
2009	C	102	112	Caryophyllaceae			18		Yes	Whole
2009	C	102	113	Poaceae	Wild		8		Yes	Whole
2009	C	102	113	Caryophyllaceae			2		Yes	Whole
2009	C	102	113	Caryophyllaceae			26		Yes	Whole
2009	C	102	113	Caryophyllaceae			32		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	102	113	Cyperaceae			2		Yes	Whole
2009	C	102	113	Cyperaceae			2		Yes	Whole
2009	C	102	113	Caryophyllaceae			20		Yes	Whole
2009	C	102	113	Caryophyllaceae			3		Yes	Whole
2009	C	102	114	Cyperaceae			8		Yes	Whole
2009	C	102	114	Poaceae	Wild		6		Yes	Whole
2009	C	102	114	Caryophyllaceae			12		Yes	Whole
2009	C	102	114	Caryophyllaceae			5		Yes	Whole
2009	C	102	114	Caryophyllaceae			3			Whole
2009	C	102	114	Caryophyllaceae			5		Yes	Whole
2009	C	102	115	Cyperaceae			1		Yes	Whole
2009	C	102	115	Cyperaceae			5		Yes	Whole
2009	C	102	115	Poaceae	Wild		6		Yes	Whole
2009	C	102	115	Caryophyllaceae			4		Yes	Whole
2009	C	102	115	Caryophyllaceae			9		Yes	Whole
2009	C	102	115	Caryophyllaceae			11		Yes	Whole
2009	C	102	115	Rosaceae			1			Whole
2009	C	102	116	Poaceae	Wild		8		Yes	Whole
2009	C	102	116	Caryophyllaceae			5		Yes	Whole
2009	C	102	116	Caryophyllaceae			6		Yes	Whole
2009	C	102	116	Caryophyllaceae			6		Yes	Whole
2009	C	102	116	Cyperaceae			2		Yes	Whole
2009	C	102	116	Cyperaceae			1		Yes	Whole
2009	C	102	123	Poaceae	Wild		7		Yes	Whole
2009	C	102	123	Caryophyllaceae			3		Yes	Whole
2009	C	102	123	Caryophyllaceae			4		Yes	Whole
2009	C	102	123	Caryophyllaceae			1		Yes	Whole
2009	C	102	124	Caryophyllaceae			8		Yes	Whole
2009	C	102	124	Caryophyllaceae			3			Whole
2009	C	102	124	Caryophyllaceae			9		Yes	Whole
2009	C	102	124	Poaceae	Wild		10		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	102	124	Caryophyllaceae			6		Yes	Whole
2009	C	102	124	Caryophyllaceae			5		Yes	Whole
2009	C	102	124	Brassicaceae	Capsella		1		Yes	Whole
2009	C	102	124	Cyperaceae			3		Yes	Whole
2009	C	102	125	Ericaceae	Empetrum		1		Yes	Whole
2009	C	102	125	Cyperaceae			10		Yes	Whole
2009	C	102	125	Cyperaceae			2		Yes	Whole
2009	C	102	125	Poaceae	Wild		24		Yes	Whole
2009	C	102	125	Caryophyllaceae			3		Yes	Whole
2009	C	102	125	Caryophyllaceae			1			Whole
2009	C	102	125	Caryophyllaceae			2		Yes	Whole
2009	C	102	125	Caryophyllaceae			5		Yes	Whole
2009	C	102	125	Caryophyllaceae			1			Whole
2009	C	103	117	Poaceae	Wild		10		Yes	Whole
2009	C	103	117	Caryophyllaceae			2		Yes	Whole
2009	C	103	117	Caryophyllaceae			8		Yes	Whole
2009	C	103	117	Caryophyllaceae			20		Yes	Whole
2009	C	103	117	Menyanthaceae	Menyanthes	trifoliata	5		Yes	Whole
2009	C	103	117	Brassicaceae	Capsella		2		Yes	Whole
2009	C	103	117	Cyperaceae			2		Yes	Whole
2009	C	103	117	Unidentified			1		Yes	Whole
2009	C	103	118	Poaceae	Wild		14		Yes	Whole
2009	C	103	118	Caryophyllaceae			7		Yes	Whole
2009	C	103	118	Caryophyllaceae			7		Yes	Whole
2009	C	103	118	Caryophyllaceae			7		Yes	Whole
2009	C	103	118	Cyperaceae			3		Yes	Whole
2009	C	103	118	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	103	120	Caryophyllaceae			7		Yes	Whole
2009	C	103	120	Caryophyllaceae			9		Yes	Whole
2009	C	103	120	Caryophyllaceae			11		Yes	Whole
2009	C	103	120	Caryophyllaceae			6			Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	103	120	Poaceae	Wild		14		Yes	Whole
2009	C	103	120	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	103	120	Cyperaceae			4		Yes	Whole
2009	C	103	120	Polygonaceae	Polygonum	aviculare	1		Yes	Whole
2009	C	103	120	Caryophyllaceae			7		Yes	Whole
2009	C	103	121	Caryophyllaceae			128		Yes	Whole
2009	C	103	121	Caryophyllaceae			1			Whole
2009	C	103	121	Caryophyllaceae			57		Yes	Whole
2009	C	103	121	Caryophyllaceae			131		Yes	Whole
2009	C	103	121	Poaceae	Wild		17		Yes	Whole
2009	C	103	121	Cyperaceae			10		Yes	Whole
2009	C	103	121	Rosaceae			4		Yes	Whole
2009	C	103	121	Rosaceae			1		Yes	Whole
2009	C	103	121	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	103	121	Caryophyllaceae			71		Yes	Whole
2009	C	103	121	Caryophyllaceae			67		Yes	Whole
2009	C	103	121	Brassicaceae	Capsella		1		Yes	Whole
2009	C	103	121	Cyperaceae			1		Yes	Whole
2009	C	103	122	Poaceae	Wild		3		Yes	Whole
2009	C	103	122	Cyperaceae			13		Yes	Whole
2009	C	103	122	Caryophyllaceae			1		Yes	Whole
2009	C	103	122	Caryophyllaceae			7		Yes	Whole
2009	C	103	122	Caryophyllaceae			24		Yes	Whole
2009	C	103	122	Caryophyllaceae			51			Whole
2009	C	103	122	Caryophyllaceae			10		Yes	Whole
2009	C	103	122	Caryophyllaceae			2		Yes	Whole
2009	C	103	126	Ericaceae	Empetrum		2		Yes	Whole
2009	C	103	126	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	103	126	Poaceae	Wild		9		Yes	Whole
2009	C	103	126	Caryophyllaceae			5		Yes	Whole
2009	C	103	126	Caryophyllaceae			2		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	103	126	Caryophyllaceae			13			Whole
2009	C	103	126	Caryophyllaceae			10		Yes	Whole
2009	C	103	126	Caryophyllaceae			9		Yes	Whole
2009	C	103	126	Cyperaceae			3		Yes	Whole
2009	C	103	127	Poaceae	Wild		18		Yes	Whole
2009	C	103	127	Caryophyllaceae			12		Yes	Whole
2009	C	103	127	Caryophyllaceae			1			Whole
2009	C	103	127	Caryophyllaceae			5		Yes	Whole
2009	C	103	127	Caryophyllaceae			11		Yes	Whole
2009	C	103	127	Cyperaceae			2		Yes	Whole
2009	C	103	127	Cyperaceae			1		Yes	Whole
2009	C	103	128	Poaceae	Wild		9		Yes	Whole
2009	C	103	128	Ericaceae	Empetrum		1		Yes	Whole
2009	C	103	128	Cyperaceae			2		Yes	Whole
2009	C	103	128	Caryophyllaceae			3		Yes	Whole
2009	C	103	128	Caryophyllaceae			2			Whole
2009	C	103	128	Caryophyllaceae			1		Yes	Whole
2009	C	103	128	Caryophyllaceae			7		Yes	Whole
2009	C	104	129	Poaceae	Wild		16		Yes	Whole
2009	C	104	129	Caryophyllaceae			16		Yes	Whole
2009	C	104	129	Caryophyllaceae			22			Whole
2009	C	104	129	Caryophyllaceae			1		Yes	Whole
2009	C	104	129	Caryophyllaceae			6		Yes	Whole
2009	C	104	129	Caryophyllaceae			7		Yes	Whole
2009	C	104	129	Cyperaceae			3		Yes	Whole
2009	C	104	129	Cyperaceae			2		Yes	Whole
2009	C	104	130	Portulacaceae	Montia	fontana	2		Yes	Whole
2009	C	104	130	Cyperaceae			3		Yes	Whole
2009	C	104	130	Cyperaceae			2			Whole
2009	C	104	130	Cyperaceae			1		Yes	Whole
2009	C	104	130	Poaceae	Wild		18		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	104	130	Caryophyllaceae			6		Yes	Whole
2009	C	104	130	Caryophyllaceae			16			Whole
2009	C	104	130	Caryophyllaceae			3		Yes	Whole
2009	C	104	130	Caryophyllaceae			8		Yes	Whole
2009	C	104	130	Caryophyllaceae			14		Yes	Whole
2009	C	104	130	Poaceae	Hordeum		1		Yes	Whole
2009	C	104	130	Menyanthaceae	Menyanthes	trifoliata	15			partial and whole
2009	C	104	131	Poaceae	Wild		14		Yes	Whole
2009	C	104	131	Menyanthaceae	Menyanthes	trifoliata	8			Whole
2009	C	104	131	Menyanthaceae	Menyanthes	trifoliata	7			Whole
2009	C	104	131	Caryophyllaceae			12		Yes	Whole
2009	C	104	131	Caryophyllaceae			30			Whole
2009	C	104	131	Caryophyllaceae			9		Yes	Whole
2009	C	104	131	Caryophyllaceae			13		Yes	Whole
2009	C	104	131	Caryophyllaceae			1			Whole
2009	C	104	131	Caryophyllaceae			17		Yes	Whole
2009	C	104	131	Menyanthaceae	Menyanthes	trifoliata	2		Yes	Whole
2009	C	104	131	Cyperaceae			1		Yes	Whole
2009	C	104	131	Cyperaceae			2		Yes	Whole
2009	C	104	131	Cyperaceae			1			Whole
2009	C	104	131	Fabaceae	Trifolium		3			Whole
2009	C	104	131	Brassicaceae	Capsella		1		Yes	Whole
2009	C	104	132	Menyanthaceae	Menyanthes	trifoliata	3			Whole
2009	C	104	132	Menyanthaceae	Menyanthes	trifoliata	1			Whole
2009	C	104	132	Cyperaceae			4		Yes	Whole
2009	C	104	132	Cyperaceae			20		Yes	Whole
2009	C	104	132	Poaceae	Wild		7		Yes	Whole
2009	C	104	132	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	104	132	Caryophyllaceae			6		Yes	Whole
2009	C	104	132	Caryophyllaceae			3		Yes	Whole
2009	C	104	132	Caryophyllaceae			2		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	104	132	Caryophyllaceae			5		Yes	Whole
2009	C	104	132	Caryophyllaceae			33			Whole
2009	C	104	133	Poaceae	Wild		3		Yes	Whole
2009	C	104	133	Cyperaceae			1		Yes	Whole
2009	C	104	133	Cyperaceae			3		Yes	Whole
2009	C	104	133	Caryophyllaceae			9		Yes	Whole
2009	C	104	133	Caryophyllaceae			5		Yes	Whole
2009	C	104	133	Caryophyllaceae			9		Yes	Whole
2009	C	104	133	Caryophyllaceae			2		Yes	Whole
2009	C	104	133	Caryophyllaceae			11			Whole
2009	C	104	133	Unidentified			6		Yes	Whole
2009	C	104	133	Unidentified			2			Whole
2009	C	104	133	Menyanthaceae	Menyanthes	trifoliata	2		Yes	Whole
2009	C	104	133	Menyanthaceae	Menyanthes	trifoliata	10			Whole
2009	C	104	134	Caryophyllaceae			5		Yes	Whole
2009	C	104	134	Caryophyllaceae			30			Whole
2009	C	104	134	Menyanthaceae	Menyanthes	trifoliata	2			Whole
2009	C	104	134	Menyanthaceae	Menyanthes	trifoliata	2			Whole
2009	C	104	134	Cyperaceae			2		Yes	Whole
2009	C	104	134	Cyperaceae			3		Yes	Whole
2009	C	104	134	Poaceae	Wild		6		Yes	Whole
2009	C	104	134	Caryophyllaceae			5		Yes	Whole
2009	C	104	135	Cyperaceae			4		Yes	Whole
2009	C	104	135	Poaceae	Wild		10		Yes	Whole
2009	C	104	135	Cyperaceae			5		Yes	Whole
2009	C	104	135	Cyperaceae			1			Whole
2009	C	104	135	Menyanthaceae	Menyanthes	trifoliata	3			Whole
2009	C	104	135	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	104	135	Menyanthaceae	Menyanthes	trifoliata	2			Whole
2009	C	104	135	Caryophyllaceae			9		Yes	Whole
2009	C	104	135	Caryophyllaceae			21		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	104	135	Caryophyllaceae			8		Yes	Whole
2009	C	104	135	Caryophyllaceae			13		Yes	Whole
2009	C	104	135	Caryophyllaceae			2			Whole
2009	C	104	136	Poaceae	Wild		18		Yes	Whole
2009	C	104	136	Cyperaceae			8		Yes	Whole
2009	C	104	136	Cyperaceae			3		Yes	Whole
2009	C	104	136	Caryophyllaceae	Silene		19		Yes	Whole
2009	C	104	136	Caryophyllaceae			10		Yes	Whole
2009	C	104	136	Caryophyllaceae			8		Yes	Whole
2009	C	104	136	Caryophyllaceae			47		Yes	Whole
2009	C	104	136	Caryophyllaceae			3			Whole
2009	C	104	137	Poaceae	Wild		7		Yes	Whole
2009	C	104	137	Ericaceae	Vaccinium		1	Fruit	Yes	Whole
2009	C	104	137	Portulacaceae	Montia	fontana	1		Yes	Whole
2009	C	104	137	Cyperaceae			4		Yes	Whole
2009	C	104	137	Polygonaceae			2		Yes	Whole
2009	C	104	137	Caryophyllaceae			7		Yes	Whole
2009	C	104	137	Caryophyllaceae	Stellaria		2		Yes	Whole
2009	C	104	137	Caryophyllaceae			2		Yes	Whole
2009	C	104	137	Caryophyllaceae			3		Yes	Whole
2009	C	105	138	Ericaceae	Empetrum		1		Yes	Whole
2009	C	105	138	Caryophyllaceae			16		Yes	Whole
2009	C	105	138	Cyperaceae			4		Yes	Whole
2009	C	105	138	Poaceae	Wild		146		Yes	Whole
2009	C	105	138	Caryophyllaceae			1079		Yes	Whole
2009	C	105	139	Cyperaceae			5		Yes	Whole
2009	C	105	139	Cyperaceae			1		Yes	Whole
2009	C	105	139	Poaceae	Wild		5		Yes	Whole
2009	C	105	139	Caryophyllaceae			84		Yes	Whole
2009	C	105	139	Caryophyllaceae			52		Yes	Whole
2009	C	105	139	Caryophyllaceae			72		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	105	139	Caryophyllaceae			54		Yes	Whole
2009	C	105	140	Poaceae	Wild		13		Yes	Whole
2009	C	105	140	Cyperaceae			5		Yes	Whole
2009	C	105	140	Ericaceae	Empetrum		1		Yes	Whole
2009	C	105	140	Caryophyllaceae			57		Yes	Whole
2009	C	105	140	Caryophyllaceae			11		Yes	Whole
2009	C	105	140	Caryophyllaceae			33		Yes	Whole
2009	C	105	140	Caryophyllaceae			27		Yes	Whole
2009	C	106	144	Poaceae	Wild		5		Yes	Whole
2009	C	106	144	Cyperaceae			6		Yes	Whole
2009	C	106	144	Caryophyllaceae			3		Yes	Whole
2009	C	106	144	Caryophyllaceae			1		Yes	Whole
2009	C	106	145	Caryophyllaceae			2		Yes	Whole
2009	C	106	145	Poaceae	Wild		1		Yes	Whole
2009	C	106	145	Cyperaceae			1		Yes	Whole
2009	C	107	141	Cyperaceae			8		Yes	partial and whole
2009	C	107	141	Caryophyllaceae			99		Yes	partial and whole
2009	C	107	141	Caryophyllaceae			15			partial and whole
2009	C	107	141	Poaceae	Wild		10		Yes	partial and whole
2009	C	107	141	Menyanthaceae	Menyanthes	trifoliata	1			Whole
2009	C	107	141	Poaceae	cereal		1		Yes	Whole
2009	C	107	142	Caryophyllaceae			3			partial and whole
2009	C	107	142	Caryophyllaceae			5		Yes	partial and whole
2009	C	107	142	Poaceae	Wild		4		Yes	Whole
2009	C	107	142	Cyperaceae			2		Yes	Whole
2009	C	107	143	Cyperaceae			6		Yes	partial and whole
2009	C	107	143	Caryophyllaceae	Stellaria		53		Yes	partial and whole
2009	C	107	143	Caryophyllaceae	Stellaria		7			partial and whole
2009	C	107	143	Poaceae	Wild		22		Yes	partial and whole
2009	C	107	143	Ericaceae	Empetrum		2		Yes	Whole
2009	C	107	143	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	107	159	Cyperaceae			1		Yes	Whole
2009	C	107	159	Caryophyllaceae	Stellaria		3		Yes	partial and whole
2009	C	107	159	Caryophyllaceae	Stellaria		7			partial and whole
2009	C	107	159	Unidentified			1			Whole
2009	C	107	160	Cyperaceae			8		Yes	Whole
2009	C	107	160	Caryophyllaceae	Stellaria		11		Yes	partial and whole
2009	C	107	160	Poaceae	Wild		20		Yes	Whole
2009	C	107	160	Menyanthaceae	Menyanthes	trifoliata	1		Yes	Whole
2009	C	108	161	Caryophyllaceae	Stellaria		105		Yes	partial and whole
2009	C	108	161	Caryophyllaceae	Stellaria		8			partial and whole
2009	C	108	161	Portulacaceae	Montia	fontana	11			partial
2009	C	108	161	Cyperaceae			100		Yes	partial and whole
2009	C	108	161	Poaceae	Wild		39		Yes	Whole
2009	C	108	161	Ericaceae	Empetrum		2		Yes	Whole
2009	C	108	161	Menyanthaceae	Menyanthes	trifoliata	2		Yes	Whole
2009	C	108	161	Ericaceae	Vaccinium		3		Yes	Whole
2009	C	108	162	Caryophyllaceae	Stellaria		77		Yes	partial
2009	C	108	162	Caryophyllaceae	Stellaria		6			partial
2009	C	108	162	Cyperaceae			67		Yes	partial and whole
2009	C	108	162	Poaceae	Wild		40		Yes	Whole
2009	C	108	162	Poaceae	Wild		5			Whole
2009	C	108	162	Portulacaceae	Montia	fontana	2			Whole
2009	C	108	162	Ericaceae	Empetrum		4		Yes	Whole
2009	C	108	162	Ericaceae	Empetrum		1			Whole
2009	C	109	163	Poaceae	Wild		4		Yes	Whole
2009	C	109	163	Portulacaceae	Montia	fontana	2			partial
2009	C	109	163	Caryophyllaceae	Stellaria		54		Yes	partial and whole
2009	C	109	163	Caryophyllaceae	Stellaria		103			partial and whole
2009	C	109	163	Menyanthaceae	Menyanthes	trifoliata	1		Yes	partial
2009	C	109	164	Caryophyllaceae	Stellaria		11		Yes	Whole
2009	C	109	164	Caryophyllaceae	Stellaria		1			Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	109	164	Poaceae	Wild		1		Yes	Whole
2009	C	109	165	Caryophyllaceae	Stellaria		5		Yes	Whole
2009	C	109	165	Caryophyllaceae	Stellaria		1			Whole
2009	C	109	165	Poaceae	Wild		1		Yes	Whole
2009	C	109	166	Caryophyllaceae	Stellaria		29		Yes	Whole
2009	C	109	166	Cyperaceae			5		Yes	Whole
2009	C	109	166	Poaceae	Wild		2		Yes	Whole
2009	C	109	167	Caryophyllaceae	Stellaria		4		Yes	Whole
2009	C	109	167	Poaceae	Wild		1		Yes	Whole
2009	C	109	168	Caryophyllaceae	Stellaria		89		Yes	partial and whole
2009	C	109	168	Caryophyllaceae	Stellaria		15040			partial and whole
2009	C	109	168	Portulacaceae	Montia	fontana	7			partial and whole
2009	C	109	168	Cyperaceae			30		Yes	partial and whole
2009	C	109	168	Cyperaceae			35			partial and whole
2009	C	109	168	Poaceae	Wild		21		Yes	Whole
2009	C	109	168	Poaceae	Wild		3			Whole
2009	C	109	168	Ericaceae	Empetrum		10			Whole
2009	C	109	168	Asteraceae	Taraxacum	officinale	1			Whole
2009	C	109	168	Ranunculaceae	Ranunculus		12			Whole
2009	C	109	168	Rosaceae			1		Yes	Whole
2009	C	109	168	Rosaceae			13			Whole
2009	C	109	168	Menyanthaceae	Menyanthes	trifoliata	5		Yes	partial and whole
2009	C	109	168	Menyanthaceae	Menyanthes	trifoliata	27			partial and whole
2009	C	109	168	Unidentified			6			Whole
2009	C	110	102	Portulacaceae	Montia	fontana	1		Yes	
2009	C	110	102	Caryophyllaceae			4		Yes	
2009	C	110	102	Caryophyllaceae			6			
2009	C	110	102	Cyperaceae			1		Yes	
2009	C	110	103	Caryophyllaceae			2		Yes	
2009	C	110	104	Caryophyllaceae			1			Whole
2009	C	110	104	Poaceae	Wild		2		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	110	104	Cyperaceae			1			Whole
2009	C	110	105	Caryophyllaceae			1		Yes	Whole
2009	C	110	105	Caryophyllaceae			1		Yes	Whole
2009	C	110	105	Cyperaceae			1		Yes	Whole
2009	C	110	106	Caryophyllaceae			1		Yes	Whole
2009	C	110	106	Caryophyllaceae			1			Whole
2009	C	110	106	Caryophyllaceae			5		Yes	Whole
2009	C	110	106	Poaceae	Wild		8		Yes	Whole
2009	C	110	106	Cyperaceae			1		Yes	Whole
2009	C	110	106	Cyperaceae			1			Whole
2009	C	110	106	Cyperaceae			1		Yes	Whole
2009	C	110	106	Caryophyllaceae			7		Yes	Whole
2009	C	110	107	Caryophyllaceae	Stellaria		2		Yes	Whole
2009	C	110	107	Caryophyllaceae			1		Yes	Whole
2009	C	110	107	Poaceae	Wild		2		Yes	Whole
2009	C	110	108	Caryophyllaceae			6		Yes	Whole
2009	C	110	108	Poaceae	Wild		18		Yes	Whole
2009	C	111	169	Cyperaceae			3		Yes	Whole
2009	C	111	169	Cyperaceae			1		Yes	Whole
2009	C	111	169	Caryophyllaceae			25		Yes	partial and whole
2009	C	111	169	Caryophyllaceae			88			partial and whole
2009	C	111	169	Caryophyllaceae	Stellaria		1		Yes	Whole
2009	C	111	169	Poaceae	Hordeum		9		Yes	Whole
2009	C	111	169	Poaceae	cereal		1		Yes	partial
2009	C	111	169							
2009	C	112	170	Cyperaceae			1		Yes	Whole
2009	C	112	170	Poaceae	Wild		1		Yes	Whole
2009	C	112	170	Caryophyllaceae			2		Yes	Whole
2009	C	113	171	NO SEEDS			0			
2009	C	114	172	Caryophyllaceae			20			partial and whole
2009	C	114	172	Caryophyllaceae			2		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	C	114	172	Unidentified			1		Yes	partial
2009	C	114	172	Cyperaceae			1			Whole
2009	C	114	172	Cyperaceae			1		Yes	Whole
2009	C	114	172	Poaceae	Wild		14		Yes	Whole
2009	D	115	174	Cyperaceae			1		Yes	Whole
2009	D	115	174	Caryophyllaceae			7		Yes	Whole
2009	D	115	174	Poaceae	Wild		1		Yes	Whole
2009	D	115	174	Portulacaceae	Montia	fontana	1		Yes	Whole
2009	D	115	174	Brassicaceae	Capsella		1		Yes	Whole
2009	D	115	174	Cyperaceae			2		Yes	Whole
2009	D	115	174	Chenopodiaceae	Chenopodium		1		Yes	Whole
2009	D	115	179	Poaceae	Wild		8		Yes	Whole
2009	D	115	179	Cyperaceae			5		Yes	Whole
2009	D	115	179	Cyperaceae			1		Yes	Whole
2009	D	115	179	Unidentified			1		Yes	Whole
2009	D	115	179	Caryophyllaceae	Stellaria		5		Yes	Whole
2009	D	115	179	Caryophyllaceae			7		Yes	Whole
2009	D	115	189	Caryophyllaceae			3		Yes	Whole
2009	D	116	176	Poaceae	Wild		12		Yes	Whole
2009	D	116	176	Cyperaceae			5		Yes	Whole
2009	D	116	176	Cyperaceae			15		Yes	Whole
2009	D	116	176	Cyperaceae			7		Yes	Whole
2009	D	116	176	Caryophyllaceae			12		Yes	Whole
2009	D	116	176	Caryophyllaceae			8		Yes	Whole
2009	D	116	176	Caryophyllaceae			1		Yes	Whole
2009	D	116	176	Caryophyllaceae	Stellaria		3		Yes	Whole
2009	D	117	173	Caryophyllaceae			226			
2009	D	117	173	Caryophyllaceae			16		Yes	
2009	D	117	173	Caryophyllaceae	Stellaria		5		Yes	
2009	D	117	173	Poaceae	Wild		5		Yes	
2009	D	117	173	Cyperaceae			13		Yes	

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	D	117	173	Cyperaceae			1			
2009	D	118	180	Cyperaceae			1		Yes	Whole
2009	D	118	180	Caryophyllaceae			6			Whole
2009	D	118	180	Caryophyllaceae			5		Yes	Whole
2009	D	118	187	Caryophyllaceae	Stellaria		5		Yes	
2009	D	118	187	Caryophyllaceae	Stellaria		2			
2009	D	118	187	Caryophyllaceae	Silene		4		Yes	
2009	D	118	187	Cyperaceae			4		Yes	
2009	D	119	186	Poaceae	Wild		4		Yes	Whole
2009	D	119	186	Cyperaceae			1		Yes	Whole
2009	D	119	186	Cyperaceae			1			Whole
2009	D	119	186	Portulacaceae	Montia	fontana	1		Yes	Whole
2009	D	119	186	Caryophyllaceae			3		Yes	Whole
2009	D	119	186	Caryophyllaceae			43			Whole
2009	D	119	186	Caryophyllaceae	Stellaria		4		Yes	Whole
2009	D	120	183	Poaceae	Wild		4		Yes	Whole
2009	D	120	183	Cyperaceae			10		Yes	Whole
2009	D	120	183	Cyperaceae			2		Yes	Whole
2009	D	120	183	Caryophyllaceae			3		Yes	Whole
2009	D	120	183	Caryophyllaceae			19			Whole
2009	D	120	183	Portulacaceae	Montia	fontana	3		Yes	Whole
2009	D	120	183	Caryophyllaceae			2		Yes	Whole
2009	D	120	183	Caryophyllaceae	Stellaria		1		Yes	Whole
2009	D	121	178	Caryophyllaceae			7		Yes	Whole
2009	D	121	178	Caryophyllaceae			15			Whole
2009	D	121	178	Poaceae	Wild		4		Yes	Whole
2009	D	121	178	Cyperaceae			13		Yes	Whole
2009	D	121	178	Caryophyllaceae			13		Yes	Whole
2009	D	121	178	Caryophyllaceae			10		Yes	Whole
2009	D	121	178	Caryophyllaceae			1			Whole
2009	D	121	178	Caryophyllaceae	Stellaria		15		Yes	Whole

Year	Excavation	Context	Sample	Family	Genus	Species	Count	Part	Charred	Portion
2009	D	121	178	Caryophyllaceae	Stellaria		1			Whole
2009	D	122	181	Cyperaceae			1		Yes	Whole
2009	D	122	181	Caryophyllaceae			13		Yes	Whole
2009	D	122	181	Caryophyllaceae			1			Whole
2009	D	123	175	Portulacaceae	Montia	fontana	2		Yes	
2009	D	123	175	Portulacaceae	Montia	fontana	1			
2009	D	123	175	Caryophyllaceae	Silene		8		Yes	
2009	D	123	175	Cyperaceae			6		Yes	
2009	D	123	175	Cyperaceae			2		Yes	
2009	D	123	177	Cyperaceae			4		Yes	Whole
2009	D	123	177	Polygonaceae	Rumex	acetosella	1		Yes	Whole
2009	D	123	177	Caryophyllaceae			4		Yes	Whole
2009	D	123	177	Caryophyllaceae			6			Whole
2009	D	123	185	Ranunculaceae	Ranunculus		1		Yes	Whole
2009	D	123	185	Poaceae	Wild		8		Yes	Whole
2009	D	123	185	Cyperaceae			7		Yes	Whole
2009	D	123	185	Caryophyllaceae			13		Yes	Whole
2009	D	123	185	Portulacaceae	Montia	fontana	5		Yes	Whole
2009	D	123	185	Caryophyllaceae	Stellaria		2			Whole
2009	D	124	188	NO SEEDS			0			
2009	D	125	182	NO SEEDS			0			
2009	D	125	184	Cyperaceae			1		Yes	Whole

Table 11. Animal bones from excavations (no fish, bird, or shell recovered)

			Count				
Excavation	Context	Sample Number	Caprine (dom.)	Bos taurus (domestic)	Equus (domestic)	Medium Terrestrial Mammal	Sus scrofa
Area A	51	1	37	1		12	
Area A	51	3	109	9		5	
Area A	51	5	64	9		11	
Area A	51	7	65	24		20	
C	101	101	2	1		1	
C	1104	102	2	3			
C	102	103	3	9			
C	102	104	2				
C	102	105	1				
C	103	106	13	5			
C	104	107	23	18		3	
C	107	108	34	14	1		
C	105	110	27	5		3	1
C	109	115	1				
C	104	137					