

# Hegranesþing: Geophysical Prospection, Coring and Excavation Interim Report 2017



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*Photo on front page – Brian Damiata using the CMD Mini at Hegranesþing.*



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## SKAGAFJÖRÐUR HERITAGE MUSEUM

The Skagafjörður Heritage Museum is a center for research on local history and cultural heritage in the Skagafjörður region, North Iceland. It is affiliated with the National Museum of Iceland and its main exhibition at the old turf farm of Glaumbær is one of the most visited national heritage tourist attractions. The Archaeological Department of the museum was established in 2003 and engages in contract and research driven archaeology both within and outside the region. The core long-term research programs center on fundamental issues surrounding the settlement and early medieval church history of Skagafjörður and the North-Atlantic region with a focus on developing methodological and theoretical approaches to the geography of early Christian cemeteries. The department is involved in multifaceted interdisciplinary collaboration with Icelandic and international institutions and specialists. Its research portfolio includes bioarchaeology, early metal production, settlement studies, as well as the methodological aspects of archaeological surveying.

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## **FISKE CENTER FOR ARCHAEOLOGICAL RESEARCH**

The Andrew Fiske Memorial Center for Archaeological Research at the University of Massachusetts Boston was established in 1999 through the generosity of the late Alice Fiske and her family as a living memorial to her late husband Andrew. As an international leader in interdisciplinary research, the Fiske Center promotes a vision of archaeology as a multi-faceted, theoretically rigorous field that integrates a variety of analytical perspectives into its studies of the cultural and biological dimensions of colonization, urbanization, and industrialization that have occurred over the past one thousand years in the Americas and the Atlantic World. As part of a public university, the Fiske Center maintains a program of local archaeology with a special emphasis on research that meets the needs of cities, towns, and Tribal Nations in New England and the greater Northeast. The Fiske Center also seeks to understand the local as part of a broader Atlantic World.

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## **SKAGAFJÖRÐUR CHURCH AND SETTLEMENT SURVEY**

The Skagafjörður Church and Settlement Survey (SCASS) seeks to determine if the settlement pattern of the 9th-century colonization of Iceland affected the development of the religious and economic institutions that dominated the 14th century. The research builds on the combined methods and results of two projects. One has focused on Viking Age settlement patterns. The other has been investigating the changing geography of early Christian cemeteries. Together, the research seeks to understand the connections between the Viking settlement hierarchy and the Christian consolidation.

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## 1.0 ABSTRACT

This report outlines the 2017 work at Hegranesþing that built upon previous work at this complex and important site. The geophysical results, using the CMD Mini-Explorer, give a more detailed picture of the site than the 2016 Explorer results. The geophysical results suggest that there are substantial remains and important deposits that are not visible on the surface. The coring suggests these substantial and continuous remains are consistent with permanent continuously occupied Viking Age and pre-AD 1300 farmsteads. The first of the two 1x1m excavations suggest that the northern area was occupied during the settlement period and abandoned well before the AD 1104 volcanic tephra fell and is not associated with the visible churchyard. The second excavation suggests that the southern area, near the visible churchyard, was occupied after the settlement period and abandoned before the AD 1300 tephra fell and this occupation is likely associated with the churchyard. The combined results suggest that there may be a third area primarily occupied 1104-1300 northwest of the visible churchyard, but more work is necessary to confirm this third occupation.

## 2.0 ÚTDÁTTUR (ICELANDIC SUMMARY)

Hegranesþing

## 3.0 INTRODUCTION

Hegranesþing, a Viking and medieval assembly site (sometimes spelled Hegraneþing) is on the northern part of the island of Hegranes, in central Skagafjörður (Figure 1). The name of the island, and in turn the assembly site, is probably derived from the nickname of the supposed first settler of the region, Havardr hegri, translated into English as Havard the heron, (Pálsson and Edwards 1972:90). The Hegranesþing takes up part of the northern area of the farm of Garður, but its boundaries are unclear. Hegranesþing presents itself as a collection of booths, in the style typical of Icelandic assembly sites (Vésteinsson 2013; Vésteinsson, et al. 2004). Surrounding some of the southernmost booths is a tún boundary wall that encloses about 5550 m<sup>2</sup>. A circular church wall intercepts the southeastern portion of the tún wall and encloses an additional 550 m<sup>2</sup>. These walls appear to define the outer boundary of Hegranesþing, although many surface features, consistent with booths, can be identified well outside these walls.

The modern farm buildings of Garður are about 400 m to the south of the Hegranesþing's tún boundary wall. To the west of Hegranesþing is the delta of Austari-Héraðsvötn, that includes

Garðssandur & Flæðar. To the east is the farm of Keflavík, to the northeast is the farm of Utanverðunes, and to the north are the waters of Skagafjörður. The rivers that currently surround Hegranes, Austari-Héraðsvötn and Eystri Héraðsvötn are constantly shifting and Hegranes may have been connected to one side or another in the past, rather than being an island, as it is today (Zoëga 2015). Garður has been assigned number 444 based on its Jarðatal number (Johnsen 1847:277). The main farm area, where the modern buildings are located is place #1. Hegranesþing has been assigned place #2.

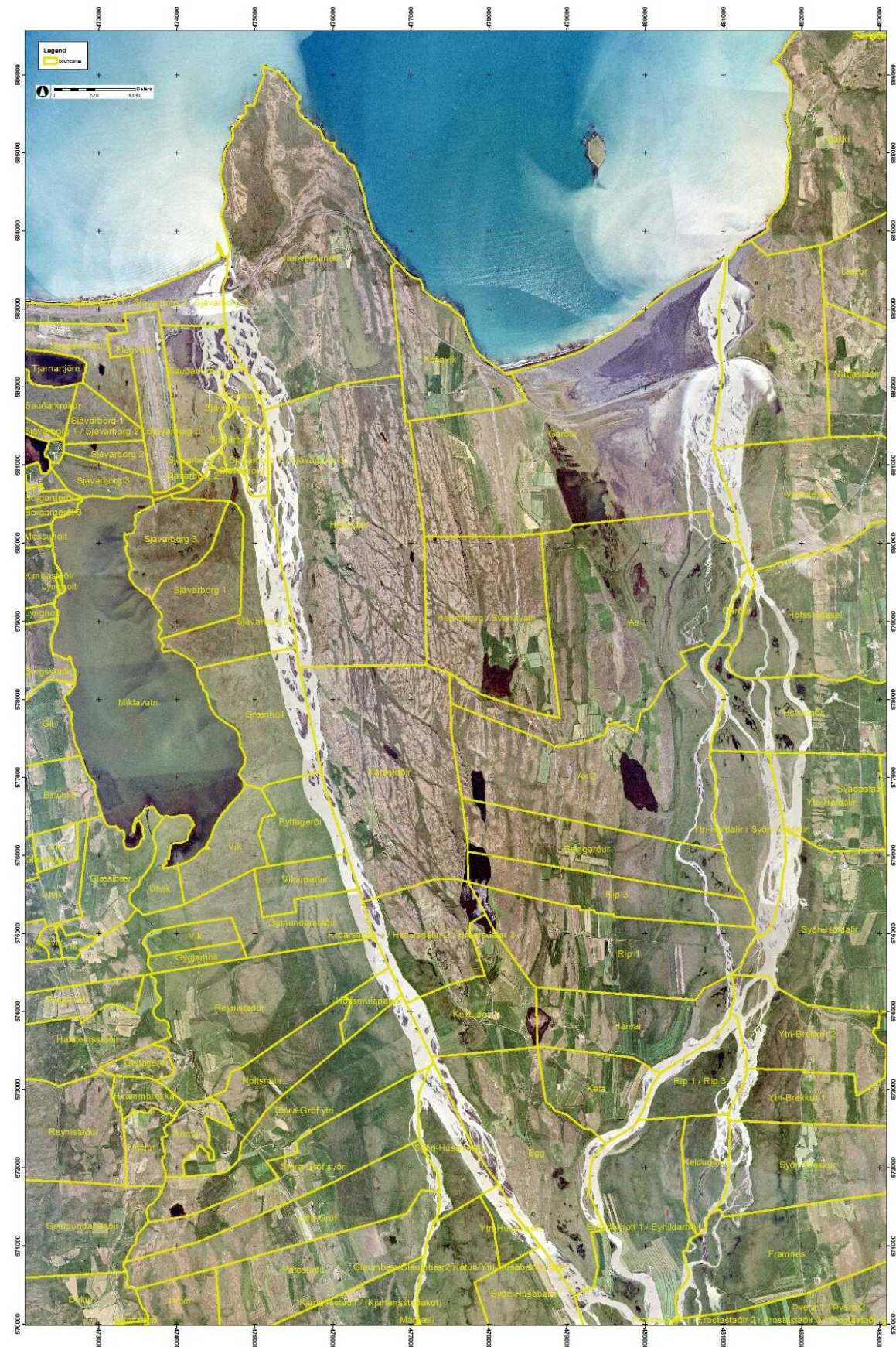


Figure 1. Air photo of Hegranes showing modern farm boundaries in yellow.

Figure 2. Kite photograph of Lower Keflavík with tun boundary wall from (Zoëga and Sigurðarson 2009) in yellow and defined Lower Keflavík area in black. The churchyard associated with the western farm mound (Keflavík 1) is also shown.

### **3.1 Geology and tephra**

The geology of the 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).

Hegranes is probably a large rock drumlin, flyggberg, or *rôche moutonnée* formation (e.g., Neil 2002), with a long gradual south-side slope and a more sudden fall off on the north with many areas of plucked bedrock on that side of the island. The natural stratigraphy of the near surface of the region consists of a rapidly formed sediment and soil with intermixed tephra layers, along with gravel layers and lenses of glacial origin. The soil 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).

The settlement and church survey 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 (Þórarinnsson 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; Þórarinnsson 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.
- The mid-10th century layer (~950). This blue-green layer that is sporadically found is currently an un-sourced and undated layer that lies between the LNL and Vj~1000. There are several potential candidates for this layer, including the large eruption of Eldgjá dated to A.D.  $934 \pm 2$  (Fei and Zhou 2006; Hammer, et al. 1980; Thordarson, et al. 2001) or perhaps a few years later (Oppenheimer, et al. 2018). It could also be an A.D.  $933 \pm 6$  green tephra layer identified in the Lake Mývatn area from Veiðivötn, termed V-Sv ~950 (Sigurgeirsson, et al. 2013). Preliminary analysis by SEM has identified shards primarily from the Grímsvötn source.
- “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.  $871 \pm 2$ , (Grönvold, et al. 1995), but could be dated to A.D.  $877 \pm 4$  (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 (K800). 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). It is usually labeled K800 in profiles.

❖ 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 farmstead sizes primarily relies 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 often the easiest to identify of the historical tephtras. H1 is presented twice as often as Hekla A.D. 1300. Using these tephra layers to date cultural deposits allows for the chronological phasing of farmstead sizes and for farmstead sizes to be compared across contemporary temporal horizons. Their presence also allows for the identification of changes in the size of individual farmsteads. Other tephra layers are used to help identify the overall stratigraphic sequence in the soil cores and to associate specific layers with historical periods. Deposits categorized by these temporal phases are based on whether or not they contained “farmstead” material. The resulting chronology allows for the estimation of farmstead size for three primary periods:

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

### **3.3 Farmstead deposits identified in coring**

To determine the location and area of farmstead deposits, the results of cores 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. These are good indicators that an activity area or domestic site may be nearby but we do not count infrequent inclusions as contributing to the areal extent of the farmstead. Higher concentrations of anthropogenic inclusions, midden deposits, turf, and floors are included in farm mound deposits.

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, farmstead or 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 inherently 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.

For a farmstead to be defined, at least one core had to have some evidence of human burning or other unambiguous evidence of human occupation that would be distinct from an animal only outbuilding. A farmstead’s perimeter for a given time period was determined by the results of the plotted cores taken around a farmstead site. The perimeter was plotted half way between a “yes” and “no” core, or on a “maybe” core between a “yes” and “no” core. The continuous area within the perimeter was calculated to produce the maximum possible area of a farmstead.

Most cores with farmstead deposits are clustered together allowing for the definition of a single contiguous farmstead area. However, isolated areas with multiple cores containing farmstead deposits that are some distance removed from the main farmstead area are often identified in the coring. A 30-meter, multiple core rule was applied to these areas to determine whether these islands should be included in the main farmstead boundary, generated an additional measured area of the same farmstead, or were ignored. First, islands were only identified based on multiple neighboring cores that had farmstead deposits. Single isolated cores with farmstead deposits were not considered islands. Second, islands had to have a midden deposit present in at least one of the cores. Isolated areas of turf or LCD, without nearby midden, floor, or distinct cultural deposits, were not defined as farmstead islands. If the islands had a sterile interstitial area that separated the island from the main farmstead area by less than 30 m, the main farmstead boundary was extended to include the island. Separate enclosing boundaries were generated for islands that had sterile interstitial areas of more than 30 m from the main farmstead area. The area of these isolated islands was then added to the area of the main farmstead. Isolated farmstead deposits beyond 100 meters from the main farmstead are counted as separate named farmstead areas.

### 3.4 Written sources

The Earliest mention of Hegranesþing is in The *Saga of Grettir the Strong* where it was described having booths separated from some of the more public areas:

. . . [T]he Hegranes Assembly came around in the spring. A great gathering from all the districts that the assembly covered attended. They spent much of the spring engaged in both legal cases and festivities, because at that time there were many men in the districts who liked celebrating.

[Grettir] arrived at the assembly as people were living the Law council on their way back to their booths...

Some young men said that the weather was fine and pleasant and that it would do them good to arrange wrestling matches and entertainment. Everyone agreed that this was a good idea and went to sit down near their booths. . . (Scudder 1997:160)

Hegranesþing is also mentioned in the *Saga of Hacon* where the attempted swearing of an oath seems to be adjourned from Hegranesþing to a later date at the Althing (Þórðarson 1894).

Between 1271 and 1281 law books divide the Hólar bishopric into four assembly regions, specifically specifying Hegranesþing as one of them (Sigurðsson 2012). Hegranesþing is also mentioned in the *Lárentíus Saga* (Haflíðason 1890), a saga written down about 1530 and describing the events of AD 1301. Hegranes “moot” is described as the location where Berg the Wren thought he killed Krók-Álfur, a Norwegian official, who was presenting writs from the King of Norway to the assembled people. According to the story, Krók-Álfur was appointed to two quarters of Iceland and at both Oddeyrir and Hegranes assemblies, the people accosted him.

At Hegranesþing:” he was so scared that he hardly knew where to turn for refuge: the vagabond beggars whooping and hollering, smote their shields against him; he was only saved from slaughter at their hands by Lord Thórd from Möðruvellir and other lords having him covered by their shields. (Haflíðason 1890:27)

In 1374 Garður is listed in the Hólar land inventory as belonging to that bishopric (Pálsson 2010:39) but Hegranesþing is not specifically mentioned in that document. Along the same lines, medieval documents from about that time mention churches and chapels on nearby farms (including Ás, Keflavík and Utanverðunes), but not at Garður (Sigurðardóttir 2012:31). In 1713 Garður was worth 20 hundreds (Magnússon and Vídalín 1930:64) and no sub-farms are mentioned in the listing. However, there is a reference to an abandoned weaning fold

(stekkur) with field walls around it. Magnússon and Vídalín (1930) suggest that it might have been a small subsidiary farm occupied by freed slaves (*þrælagerði*). Oddly enough, they are told that the site of the meeting place is lost, but that it might be north of “Garðar” (Friðriksson, et al. 2004:39). In the second decade of the 19th century, Finnur Magnússon mentions that ruins of the assembly site are visible on Hegranes but no specific location is given (Rafnsson 1983). According to the later *Jarðatal*, Garður was worth 20 hundreds (Johnsen 1847) and there is no mention of outbuildings or subfarms, let alone an assembly site.

### **3.5 Previous archaeological work**

The earliest known scientific investigations at Hegranesþing is that of the philologist and cultural historian Kristian Kålund between 1872 and 1874 (Kålund 1892:78) who identifies the spot on Garður as being the assembly place. In 1886 Sigurður Vigfússon describes 48 different structures at Hegranesþing (Vigfússon 1892). Of those structures, he associates 17 with the weaning fold, the specific location as that of the Hegranesþing of Grettir the Strong, and with the place name Litli-Garður. In 1896 Daniel Bruun noted even more structures (Bruun 1897:226) and he produced a map in 1898 (Bruun 1899). In 1974, the National Museum investigated a booth impacted by road construction (Ólafsson and Snæsdóttir 1975). The stone-footed building did not have a floor and only a few stains of charcoal, burnt bones, and peat ash in the deposit. Six postholes filled with sand in the center of the building were identified.

In 2003 as part of the Assembly Project, a surface survey and two test excavations were conducted at the site of Hegranesþing (Friðriksson, et al. 2004). Excavation 1 revealed the presence of a supposed early Christian cemetery from about the time of deposition of the 1104 (H1) tephra layer. In particular, the visible circular enclosure wall of the cemetery was mostly from the time after the H1 tephra fell. In addition, the cultural layers identified were not associated with the cemetery but from a much later smaller farmstead, that was abandoned well before the 1766 tephra fell. Excavation 2, into a booth, revealed turf foundation walls constructed between 1104 and 1766, but closer to 1104. Although there were animal bones and bits of charcoal, no cultural layer was encountered.

In 2009, three test trenches were dug as part of the Skagafjörður Church Project. Excavation 1 of the prior Assembly project was expanded and deepened, revealing four graves. The two

graves that had been identified in 2003 were fully excavated and the skeletons removed for further analysis. Another test trench was placed about 8 m to the south of test trench 1, just east of a presumed church ruin. The trench revealed the cut of a fifth grave (Zoëga 2009). While the two graves excavated were clearly dug through the 1104 tephra, two other burials were overlain by that tephra, suggesting that the cemetery was in use before and after the tephra layer fell. The third test trench confirmed that the cemetery's wall that is visible on the surface post-dates 1104 and most likely represents a 12th century enlargement of the cemetery. The cemetery had been landscaped and leveled with turf, both before and after the 1104 tephra fall, the later landscaping episode probably associated with the building of the cemetery wall. The cemetery remains are consistent with a large number of early Christian farmstead cemeteries that are found in the Skagafjörður region (Zoëga 2014, 2015). Thus, the functional, temporal, and spatial relationship between the cemetery and the assembly is unclear, but the cemetery is potentially associated with a nearby farmstead.



Figure 3. Bruun's 1898 map superimposed on landscape. Georeferencing is based on tún walls.

In 2013 and 2015, as part of this project, a series of geophysical surveys were conducted at Hegranesþing (Damiata, et al. 2016). The work in 2013 was a preliminary part of the SCASS project to investigate and analyze the use of geophysical methods to locate and image early Christian cemeteries in Iceland, while the work in 2015 was part of the basic SCASS work

described in the front matter. This work indicated that the northern part of the cemetery at least was densely packed with burials. High ground conductivity readings in the center of the visible tún enclosure (478610E 581500N) suggests the possible presence of a long-term domestic occupation (Damiata, et al. 2016). The broad anomaly of elevated readings is qualitatively different from the well-defined smaller “booth” anomalies as seen in other parts of the site. In 2016, a geophysical and coring survey took place, and two distinct areas of habitation, before and after 1104 were defined (Steinberg, et al. 2017). This work is a follow up on this earlier work.

#### **4.0 LAND SURVEYING AND ESTABLISHMENT OF GRIDS**

All land-survey data were collected based on the ISN93 coordinate system. Core locations were determined in several ways. For only a few cores that were taken well away from ruins, the internal GPS receiver in the iPhones or iPads that were used to record the coring data was used. Within Lower Keflavík, most cores were collected on 10 x 10 m grid that were located with the Topcon GPT 9005A total station. Judgmentally placed cores were originally located with an iPad and then refined by either a Topcon Hiper SR DGPS or a Trimble Geo XH which was equipped with a Zepher antenna in order to improve upon the accuracy of the locational data.

The geophysical grid was initially established using a Topcon Hiper SR DGPS using the ISMAR differential station at Stoð ehf in Sauðárkrókur, which yields about 1 cm horizontal accuracy and 2 cm vertical accuracy. The original GPS points were re-measured with the Topcon GPT 9005A auto tracking pulse total station to ensure consistency across different total-station set ups. The corner points of the survey area and internal grids at intervals of 50 × 50 meters were flagged using the total station. Additional flags were laid out at intervals of 10 × 10 m using fiberglass measuring tapes that were stretched between the stations established by the DGPS. The eastern and western baselines of the entire grid were flagged at 1-m intervals using alternating colors. Additional lines of alternating flags running east to west were laid out 10 m apart to help guide the surveying.

## **5.0 GEOPHYSICAL SURVEY**

The use of geophysical methods in support of archaeological investigations is widely established (e.g., Gaffney and Gater 2003; Linford 2006). For the 2017 study, frequency-domain electromagnetics (FDEM) was applied over substantial portions of the assembly site. Summarized below are the geophysical methodologies that were used. Appendix A provides a general overview of FDEM operations.

### **5.1 Site Conditions and Geophysical Targets**

The natural stratigraphy of the region consists of soil with intermixed tephra layers, along with gravel layers and lenses of glacial origin. At Hegranesþing, the ground surface is hummocky due to a combination of thufurs or frost heaves (e.g., Grab 2005) as well as the remnants of archaeological remains. A limited excavation within the cemetery proper yielded fill layers overlying a gravel deposit below which two well-preserved skeletons were revealed (Zoëga 2009).

There are several potential geophysical targets associated with the Viking Age archaeological remains at Hegranesþing. For this survey, the most important targets are usually found in a central farmstead. The most common include: longhouses, middens, barns, pit houses, outbuildings, and churches. Other features, that are not necessarily roofed buildings, include animal pens, seasonally occupied booths, and boundary walls - which can, less frequently, be identified using maps of geophysical readings. Geophysical techniques are most effective for predicting the location of buried archaeological structures and deposits without surface sign where the deposits are substantial and are of a single component. Furthermore, the archaeological remains must have physical properties that make them distinct from the surrounding environment. Finally, the geophysical techniques work best where the remains have a well-defined interface with an original surface. Generally, geophysical techniques are contraindicated when the remains are ephemeral, or in disturbed contexts, or part of a complex palimpsest-like deposit.

The two main targets for the geophysical survey are long houses and churchyards. Long houses are distinguishable by their geometry, with two slightly bowed 2 m thick turf walls that are between 4 and 8 m apart. Thus far, we have not identified a central fireplace or hearth with geophysical techniques, but these fire features are a key part of longhouse structures.

Other archaeological remains (e.g., booths, walls) are expected to consist of compacted turf blocks overlying a stone foundation. In some cases, the turf will be placed directly on the ground or on a prepared surface. From a geophysical perspective, measurable contrasts between stones and soil and between compacted turf and soil are anticipated (i.e., contrast in apparent ground conductivity and in-phase for FDEM).

In general, churchyards consist of a small central church that is surrounded by a cemetery, which is enclosed by a circular wall. The churches are often only  $3 \times 4$  m in size and constructed of wood with stone foundation. The wall is typically between 15 to 30 m in diameter and composed of compacted turf overlying a stone foundation or gravel base. Graves may be found throughout the enclosed cemetery including under the church.

Graves can be a difficult geophysical target to detect but differential fill, breaks in soil stratigraphy, and the interfaces along the sides and bottom of grave shafts might be detectable (Bevan 1991; Conyers 2005, 2006; Doolittle and Bellantoni 2010; Jones 2008; King, et al. 1993). In some instances, the direct detection of skeletal remains is possible (Damiata, et al. 2013; Damiata, et al. 2017; Schultz 2008; Schultz and Martin 2011).

## **5.2 Frequency-Domain Electromagnetic Surveying**

In 2013, an FDEM survey was conducted over a  $50 \times 50$  m grid, which was primarily intended to investigate the churchyard. In 2015, an expanded reconnaissance survey was conducted over areas to the south, north and west of the churchyard—including most of the homefield. One objective of this work was to directly compare geophysical results (Damiata, et al. 2016) to the exposed archaeological remains (e.g., Figure 3). In 2016, a third FDEM survey was conducted, which covered a portion directly to the north of the expanded reconnaissance survey that was conducted in the previous year (Steinberg, et al. 2017). Here we report on the results of the forth FDEM survey undertaken in 2017 with the CMD Mini-Explorer.

### **5.2.1 Equipment and Field Procedures**

The FDEM surveys were conducted using a GF Instruments' CMD Mini-Explorer (Figure 4). The CMD Mini, like the larger CMD explorer operates at 30 kHz over three separate dipole lengths. By increasing dipole length, a greater volume and depth of soil can be sensed. The CMD mini Explorer has a single TX located at one end of the unit and three separate RX

located at dipole lengths of 0.32, 0.71 and 1.18 m which provide depths of interrogation of approximately 0.5, 1.0 and 1.8 m, respectively, relative to the level of the sensors (Bonsall, et al. 2013). For the 2017 CMD Mini survey, the unit was operated in the vertical dipole mode with the boom carried at foot level oriented parallel to the direction of the east-west transects that were walked unidirectinally from west to east along contiguous transects that were separated by 0.25 m. The sampling rate was set to 10 Hz (i.e., 10 samples per second), which yielded a spacing between measurements of ~0.06 m while walking at a normal pace. The surveying was guided by color-coded PVC flags that were placed every 10 meters along transects separated by 1 m. The survey took place over four days and no appreciable rain fell between surveys.

Both quadrature phase (bulk ground conductivity - C) and in-phase (related to bulk ground magnetic susceptibility - IP) components were recorded for each of the three dipole lengths (i.e., six simultaneous readings were recorded for each “measurement”). Maps and figures of FDEM readings are labeled with the component and dipole length. Thus, C1 and IP1 present quadrature phase and in-phase data from the shortest dipole length, and shallowest depth of interrogation while C3 and IP3 present quadrature phase and in-phase data from the longest dipole length, and greatest depth of interrogation.



Figure 4. Using the CMD Mini Explorer with the boom oriented parallel to the direction of transects.

### 5.2.2 Data Processing

The raw data were initially corrected to properly adjust for the starting and ending locations of each transect. As a check on quality control, the average spacing of measurements for each fiducial segment along a given transect (i.e., every 10 m) was calculated to ensure the spacing between measurements was approximately 0.07 m or less. The data were then processed using Oasis Montaj mapping software to produce color-contoured maps. The four days of survey were processed individually and three of them were later combined into a single dataset. The merging of these data sets required slight color adjustments to create single images with minimal mismatch at the seams. The CMD Mini-Explore data set over the visible circular churchyard was not combined, but still has a similar color range. The processed data were also archived into a database for future use.

### 5.2.3 Results

Figure 5 and Figure 6 present the composite results for apparent ground conductivity and in-phase component, respectively. The FDEM data provide detailed maps that reflect changes in both surficial topography and subsurface material properties. The results for C1 and IP1 provide the best correspondence to the partially visible remains, which include enclosure wall of the churchyard, boundary wall of the homefield, and booths within and outside of the homefield.

With respect to apparent ground conductivity and sensor 3 (Figure 5 left), archaeological features that have relatively pronounced topographic variations (e.g., tún wall) present themselves as a high-low-high (i.e., red-blue-red) responses. This is attributed to elevational variations of the RX and TX as the feature is approached and crossed over, and to a lesser extent to the distances to buried stone or bedrock. However, features with little or no topographic expression (e.g., many of the booths) have responses that are more influenced by buried rock and appear as mainly low apparent ground conductivity (i.e., blue). This is the case for some of the booths to the northeast in the vicinity of the earliest excavations at Hegranesþing. All of those excavations suggest that the structures and walls have a substantial stone component that is consistent with the limited archaeological work that has taken place (Friðriksson, et al. 2004; Ólafsson and Snæsdóttir 1975; Zoëga 2009). As often the case, several of the blue lines in C3 are associated with turf walls. For the CMD Mini-explorer surveys that were conducted, combined with the results of the coring at this site, the pink in the IP3 component is sometimes associated with dense and thick areas of peat ash, charcoal and floors. That being said, high IP 3 values are also associated with the presence of rocks (Damiata, et al. 2016).

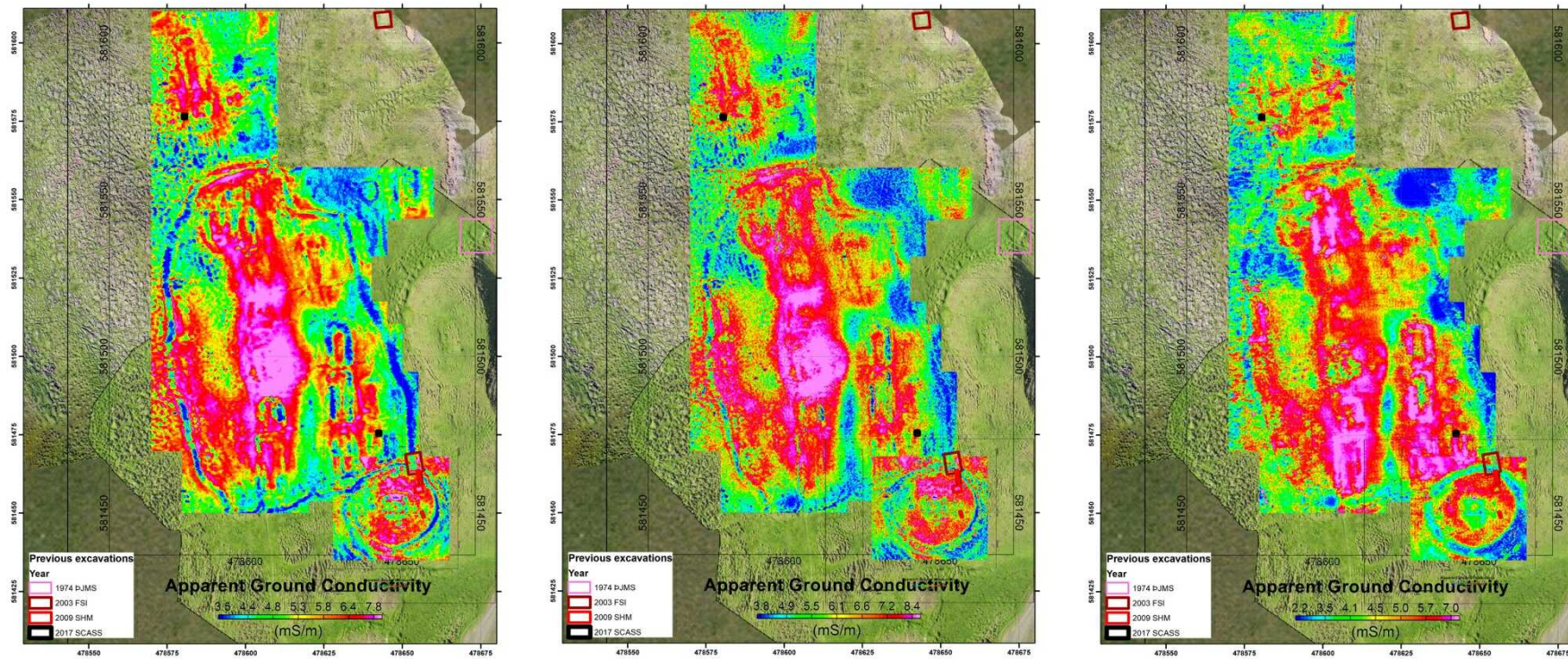


Figure 5. CMD Mini Apparent ground conductivity maps (mS/m) u. Left: C3 composite image. Middle: C2 composite image. Right: C1 composite image3.

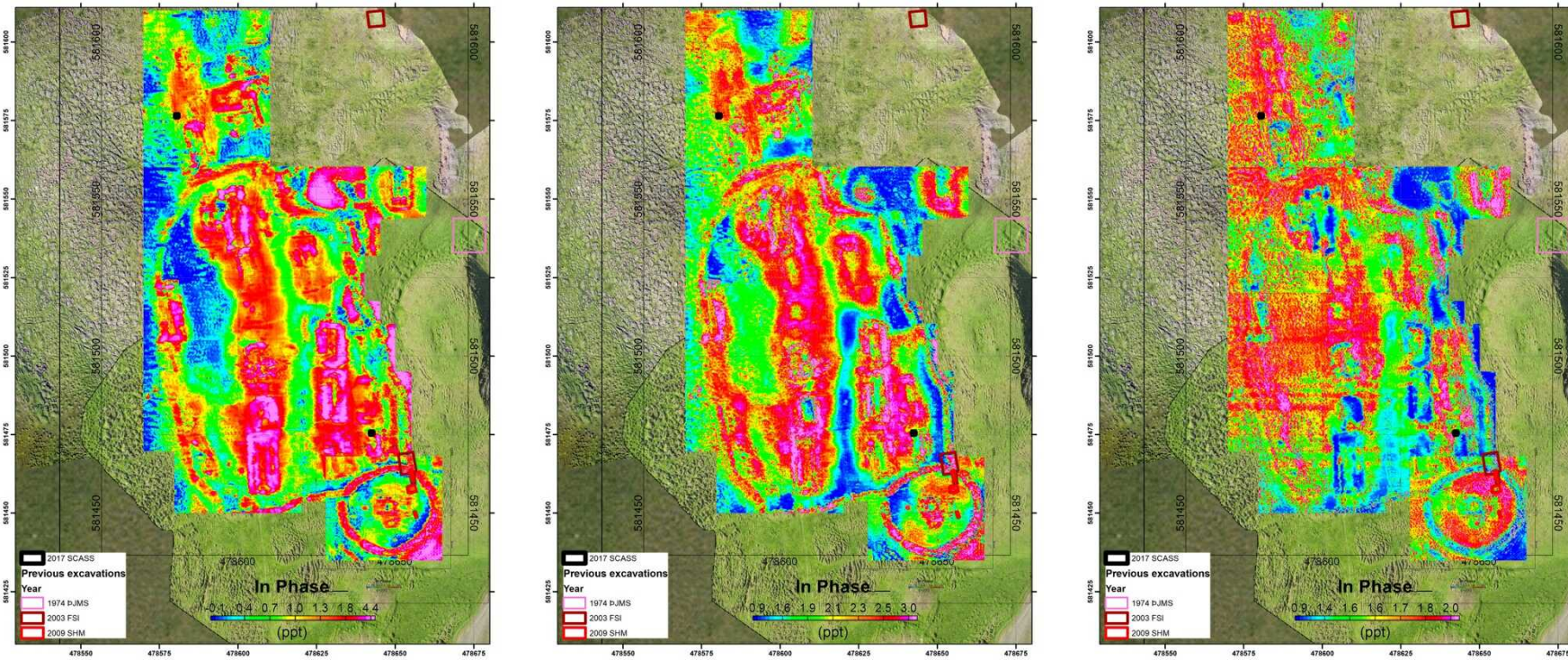


Figure 6. In-phase component maps (ppt). Left: IP3 composite image. Middle: IP2 composite image. Right: IP1 composite image.

## 6.0 CORING

174 cores were taken at Hegranesþing during the 2017 season. Those cores encountered 177 tephra layers (about 1.0 tephra layer per core) and 795 specific stratigraphic layers (about 4.6 layers per core). The 2017 cores taken in Hegranesþing bottom out at an average of 74.8 cm (SD=25.9) below the ground surface onto gravel (Table 1). For context, the overall average for cores for the SCASS survey is 62.6 cm (SD=94). Of these 174 cores, 32 did not have any cultural remains at all (Table 3). Fourteen cores had distinct floor deposits while 36 had distinct midden deposits, but, unusually, only one core (172779) had both floor and midden deposits. Almost 72.4% of the cores had turf deposits, and those turf layers had an average thickness of 37.7 cm.

Of these 174 new 2017 cores, there were 2 instances of the 1766 (both of which had the 1300 tephra) and 12 instances where the 1300 tephra was presented. Conversely, 45 presented the H1 (25.9%) and 71 (40.8%) presented the H3/H4 tephra (Table 2). Eight cores encountered an in situ dark tephra from between the H1 and the time of settlement, four of them identified in the field as the “1000” layer, while four of the black layers were identified as the ~950 tephra. In no 2017 Hegranesþing core were two dark tephra from between the H1 and the time of settlement identified. Thirty-two of the 2017 cores indicated pre-1104 occupation, and only 2 indicated 1104-1300 occupation. There were no 2017 cores that suggested a post 1300 occupation.

Many of the cores showed thick floor deposits (e.g., Figure 9, Figure 10, Figure 11, Figure 12, Figure 15, and Figure 16) substantial midden deposits (e.g., Figure 7, Figure 8, and Figure 14) and profiles consistent with burnt turf (e.g., Figure 10, Figure 13, and Figure 14). These specific deposits are entirely consistent with typical farmstead deposits seen elsewhere in Hegranes. Interestingly, there were no sequences of thin layers of ash, interspersed with aeolian deposits encountered in any of the cores, which is strange since clearly a substantial portion of the archaeology is entirely consistent with temporary booth structures seen at other assembly sites (Sanmark 2017; Vésteinsson 2013; Vésteinsson, et al. 2004). These thin alternating layers are clear in some of the Gásir deposits (Roberts 2006:13). While strange, this missing evidence of abandonment and reoccupation in the cores is consistent with the earlier excavations of temporary structures at Hegranesþing which suggest that trampled earthen floors are common (Friðriksson, et al. 2004; Ólafsson and Snæsdóttir 1975) and these deposits would probably not be identified in the standard JMC backsaver cores.

The deposits, when explored using coring transects (Figure 17, Figure 18, and Figure 19), appear to be substantial and consistent over 10's of meters, rather than associated with various and sundry refuse pits and pit-hearths associated with outdoor cooking seen at other seasonal sites such as Gásir (Harrison, et al. 2008; Roberts 2003, 2004, 2006; Vésteinsson 2008). That being said, it is possible that the deposits cored are not sheet middens and other continuous deposits but associated with a series of pits and specialized temporary industrial structures that appear to be continuous in cores, or that the pits are so numerous and so substantial that the deposits appear contentious. The general character of the cores does not suggest that an unusual number of pits were dug past the H3 tephra later and then filled with refuse. Of the 320 cores taken in 2016 and 2017 at Hegranesþing, 57 were considered to have midden deposits and 20 were interpreted as having floor deposits. Of the cores with midden 35% also had an intact H3 deposits below it (n=20), and 50% of the cores with floor had intact H3 deposits below them (n=10). The midden percentage at Hegranesþing is lower than the SCASS average of 41% of cores with midden that have a preserved H3 below but the percentage of cores with floor and an intact H3 at Hegranesþing is higher than the 41% of total SCASS cores with floor and an intact H3. (Of the 7484 cores taken since 2013, 1142 cores had midden and 470 of those cores with midden had an intact H3 while 121 cores had floor and of those 50 cores presented both floor and an intact H3.) These numbers suggest that the midden and floor deposits at Hegranesþing are largely consistent with other farmstead deposits, in terms of being placed in pits or other environments where the subsoil is disturbed.



Figure 7. Core 172761 First 40 cm showing midden starting at 30 cm bgs



Figure 8. Core 172761 showing the second barrel 40-80 cm presenting midden down to 60 cm



Figure 9. Core 172812 with floor from 28 to 43 (3 cm into next barrel)



Figure 10. Core 172918 presenting burnt turf from 10-37 and dark ash layer (labeled floor) from 37 to the end of the 40 cm barrel



Figure 11. second barrel of 173051 showing a thin peat ash floor burnt turf from at 54.5 cm.



Figure 12. second barrel of core 173648 showing a thin black ash floor with potential 950 tephra layer just above it at 50 cm bgs.



Figure 13. core 73649 showing burnt turf from 20-45 (5 cm into next barrel)



Figure 14. core 173666 with thin midden from 34 to 36 with H1 underneath at 38 showing burnt turf from 20-45 (5 cm into next barrel)



Figure 15. core 173759 first barrel showing floor starting at 28 cm bgs and continues into the next core (Figure 16)



Figure 16. Second barrel of core 173759 showing floor that began at 28 (Figure 15) going down to 51 and another thin floor from 66 to 69.

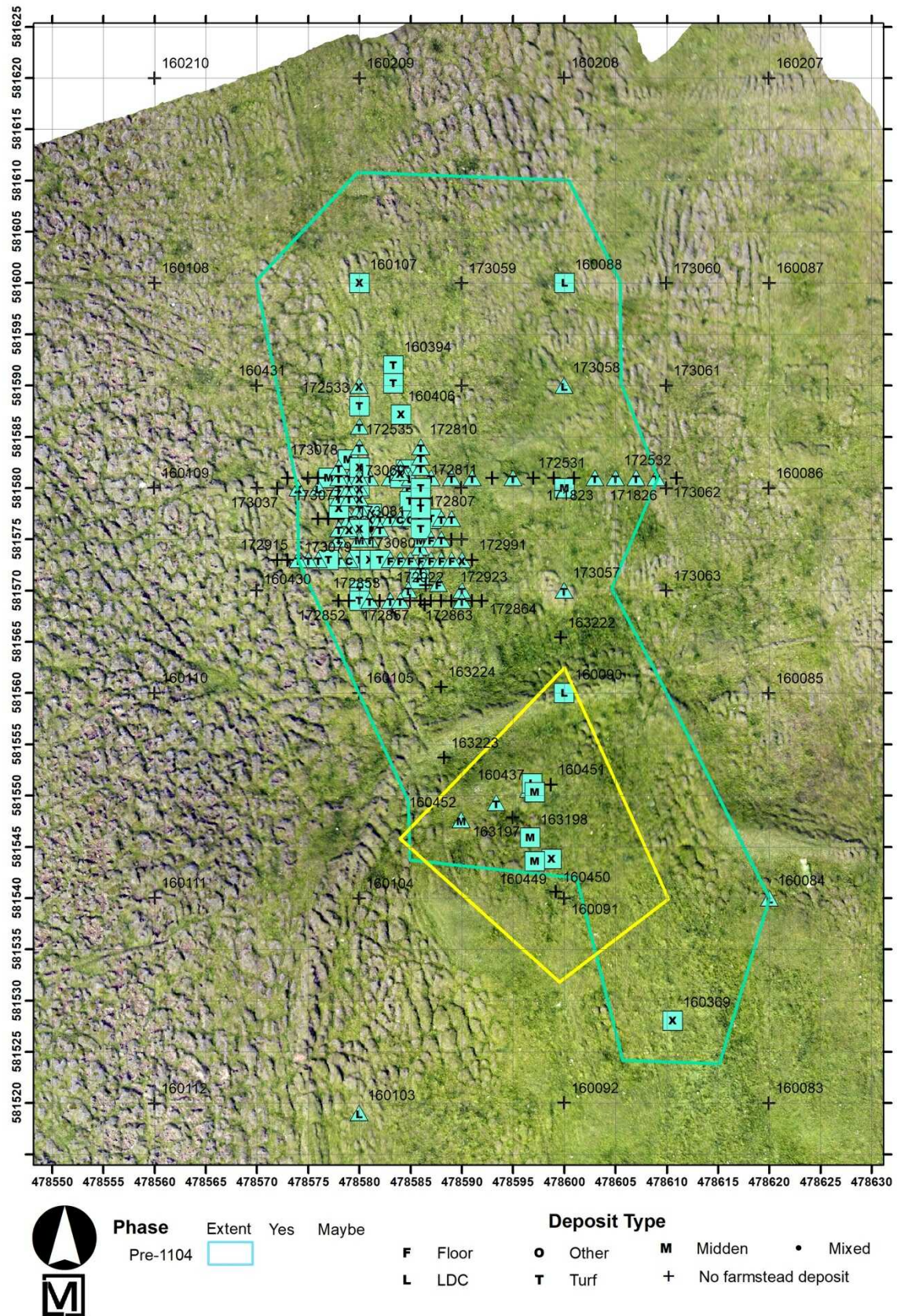


Figure 17. Northern pre-1104 farmstead area in blue, with coring results superimposed on orthophoto.

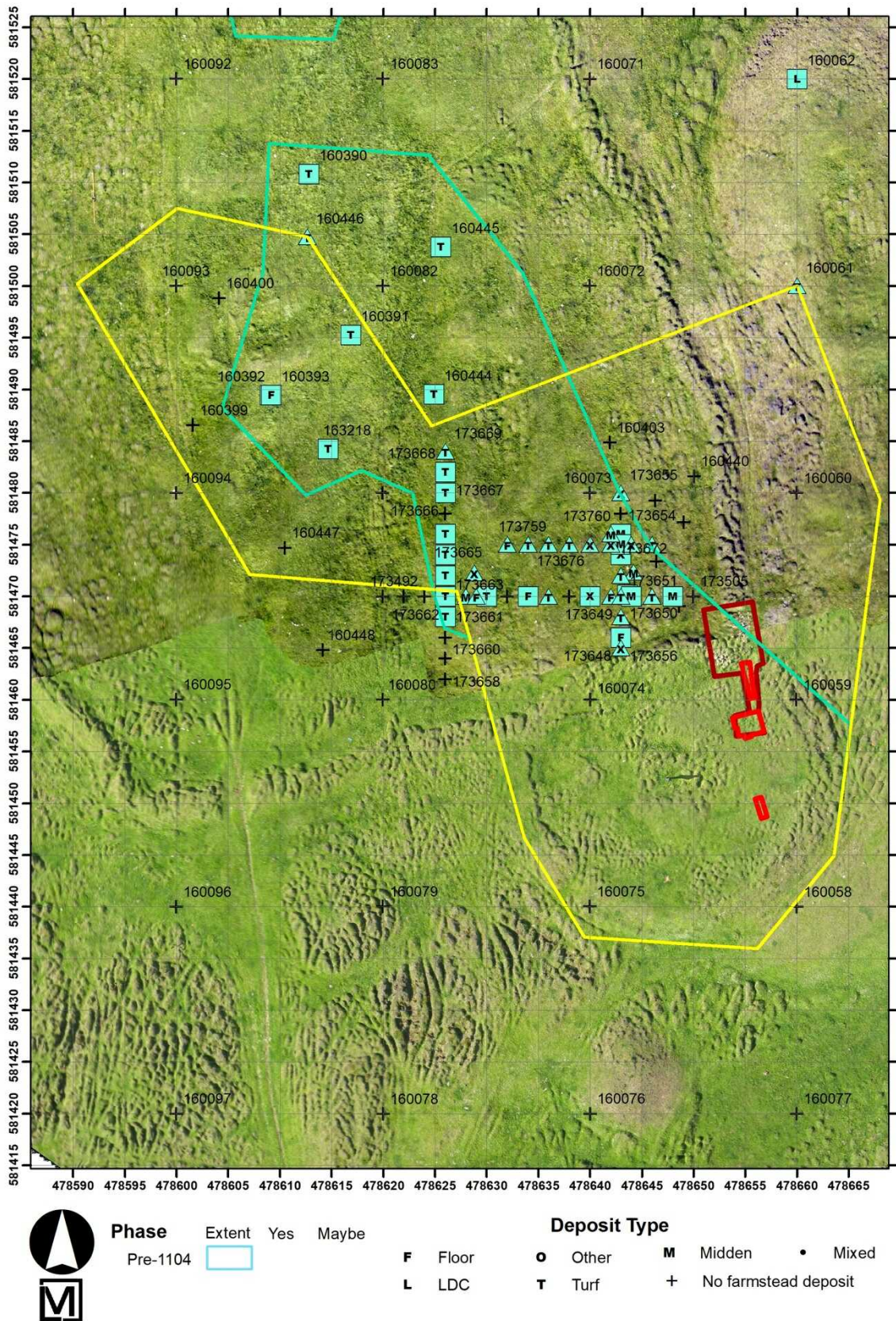


Figure 18. Southern pre-1104 farmstead area in blue, with coring results superimposed on orthophoto.



## 7.0 EXCAVATIONS

Two test pits were excavated at Hegranesþing during the 2017 field season. The idea was to place the excavations in middens that appeared to be associated with nearby structures, although the complex nature of the site makes the identification of structures difficult.

### 7.1 Test Pit 1

Test pit 1 (TP1) was placed based on a combination of visible surface remains, geophysical results, and coring. The coring in this northern area suggested a complex distribution of features with turf, midden, floor, and LDC with relatively clear edges defined by cores without any cultural material (Figure 20). The conductivity readings suggested two north-south parallel lines of turf (pink in Figure 21) while the IP readings suggested a broad smear of cultural activity with a substantial floor (pink in Figure 22). In order to attempt to avoid the internal parts of a poorly preserved, but perhaps very early structure, the pit was placed at the western edge of the potential smear of cultural material where tephra preservation seemed to be very good.

The sequence at TP1 (Figure 32) consisted of an aeolian deposit [101-102] over construction turf [103-108] that ended on a stone foundation [109] that was on top of a pink peat ash midden [110-114] that rested on a second lower deposit of turf [115-117] that rested on aeolian deposits (Figure 27). The actual sequence is only complicated by a turf wall and foundation (Figure 29). Context [101] was a standard root mat and aeolian soil with both the AD 1300 and 1104 tephtras close together. The root mat rested on a typical sterile aeolian deposit [102] suggesting that the lower cultural deposits were abandoned well before the 1104 tephra fell. In sterile cores at Hegranesþing where both the 1104 and 1300 tephtras were present, 18-15 cm separated the two tephra layers, but in this location, the separation was even less. Context [103] was primarily turf collapse which was on top of [104] which contained streaks of H3 mixed in. The turf was taken off in fairly fine layers so the turf deposits [104, 105, 106, and 107] are all similar and should be examined as a unit together, which might include the firmer [108] and the stone foundation of the turf wall [109], which was not excavated. Contexts [106 & 107] contained several pieces of metal (Table 4). The turf collapse bottomed out on a midden deposit (Figure 31). While [109] was not excavated, the sidewall below 109 made it clear that the wall was constructed on top of an early midden

deposit. The first excavated midden deposit [110] was taken as a thin slice because it bottomed out on a dark green tephra that was interpreted as the ~950. The rest of the excavated midden deposit was also taken in relatively thin slices that included [111, 112, 113, and 114]. The midden seemed to be composed primarily of pink peat ash and contained a remarkable amount of well-preserved animal bones. Context [111] contained several pieces of worked bone, including pieces of a comb (Table 4). A second lower turf deposit, below the midden was also excavated in thin slices [115, 116 & 117] and was resting on a very thin aeolian deposit [118] which capped a distinct LNS. The LNS rested on another aeolian deposit [119] which was on another aeolian deposit [120] which contained a substantial but partially truncated in situ H3 tephra layer.

The sequence of TP1 suggests that the lower turf deposit may be collapse from a very early structure, so the main midden deposit in this sequence is later but potentially mostly before the ~950 tephra fell. The turf wall and stone foundation must have been constructed after ~950 and well before 1104. The sequence from this potentially very early farmstead does not show any signs of abandonment during its limited occupation. We assume that the midden profiled in TP1 is related to the substantial floor 4 m to the southeast (Figure 22). We suppose that the rest of a structure, with a long axis that runs north northwest, was disturbed by the construction of the tún wall. This farmstead may continue on the south southeast side of the tún wall, where it is overlain by a small distinct post 1104, pre 1300 occupation (Figure 38).

## **7.2 Test Pit 2**

Test Pit 2 (TP2) was placed based on a combination of visible surface remains, geophysical results, and coring. Core 173657 presented a 12 cm thick midden with 10 cm of aeolian deposit between it and a 7 mm thick H1. The geophysics from this location suggested a structure with a south southeast running long access that apparently ended just a few meters north of the visible churchyard (Figure 24). The well-defined structures with probable stone walls to the west of TP2 (pink in Figure 25) are probably booths with almost perfect north-south orientations. While most of the deposits are pre-1104, there are some midden and turf deposits that are clearly 1104-1300 (Figure 26) in this area.

The sequence is straightforward, other than a post or stake hole [131] with a series of turf deposits that overlie an aeolian deposit mixed substantial bone inclusions (Figure 28)—

entirely consistent with seasonal feasting. Below a dark patchy charcoal midden is a patchy line LNS in an aeolian deposit that is on top of glacial gravel. The root mat [101] was on top of a patchy 1300 tephra layer (Figure 30) that was on top of a relatively sterile aeolian layer [121]. The next three contexts [122, 123, & 123] Is a mixed turf, charcoal and bone deposit (Figure 35 & Figure 36) that rests on a patchy H1 that below a more sterile aeolian deposit [125]. While there are only patches of H1 visible in the sidewall, during excavation, the layer, while uneven, was clearly visible in several locations at the [125]-[126] interface.

The aeolian deposit and H1 is on top of the beginning a substantial midden. The top midden layer has more peat ash [126] and the next four midden layers [127, 128, 129, & 130] are mostly dark black with large mottled patches (Figure 34). Context [129] was a ridge of midden deposits, perhaps a single depositional event of ash, and does not appear in any of the side walls. Appearing just below the beginning of the midden [126] was a small stake hole [131] that extend through the four midden layers [127, 128, 129, & 130] filled with peat and charcoal midden and small unburnt wood deposits. The midden deposit was on top of a aeolian deposit with noticeable gravel [132] that contained a dark tephra interpreted in the field as the ~950 but could also be the 1000 tephra. Below this aeolian deposit was a glacial sand and gravel deposit [133].

On a methodological note, cores into the aeolian bone rich deposits of TP2 [122-124] missed their nature (e.g., cores 173760, 173653 in Table 3), completely. Those deposits were characterized as sterile aeolian deposits. This error suggests that many seasonal occupation deposits will not be identified in coring, at least with the JMC backsaver. Conversely, cores are an excellent tool for roughly characterizing substantial permanent, long-term farmstead occupations

This upper low density 1104-1300 midden [122-124] is consistent with both temporary occupations, such as the visible booths, or potentially with permanent but less intense and sporadic refuse disposal that takes place at the far edges of middens. Thus, it is critical to investigate other midden deposits to the east that are consistent with later (1104-1300 domestic occupations - Figure 37 & Figure 38). Test pit 2 suggests the pre-1104 midden [127, 128, 129, & 130] almost certainly associated with a domestic occupation immediately to the west of the test pit. Which, structure or structures, if any, visible on the CMD are associated with this midden is difficult to postulate. That being said, Test pit 2 is consistent with a domestic occupational sheet midden, and is in a typical location with regards to the

visible churchyard and structures identified in the CMD readings, that the domestic occupation is associated with the church. The upper deposits, suggest either a distant edge or a seasonal occupation, consistent with later (post 1104) visible booths nearby, including in the churchyard itself.

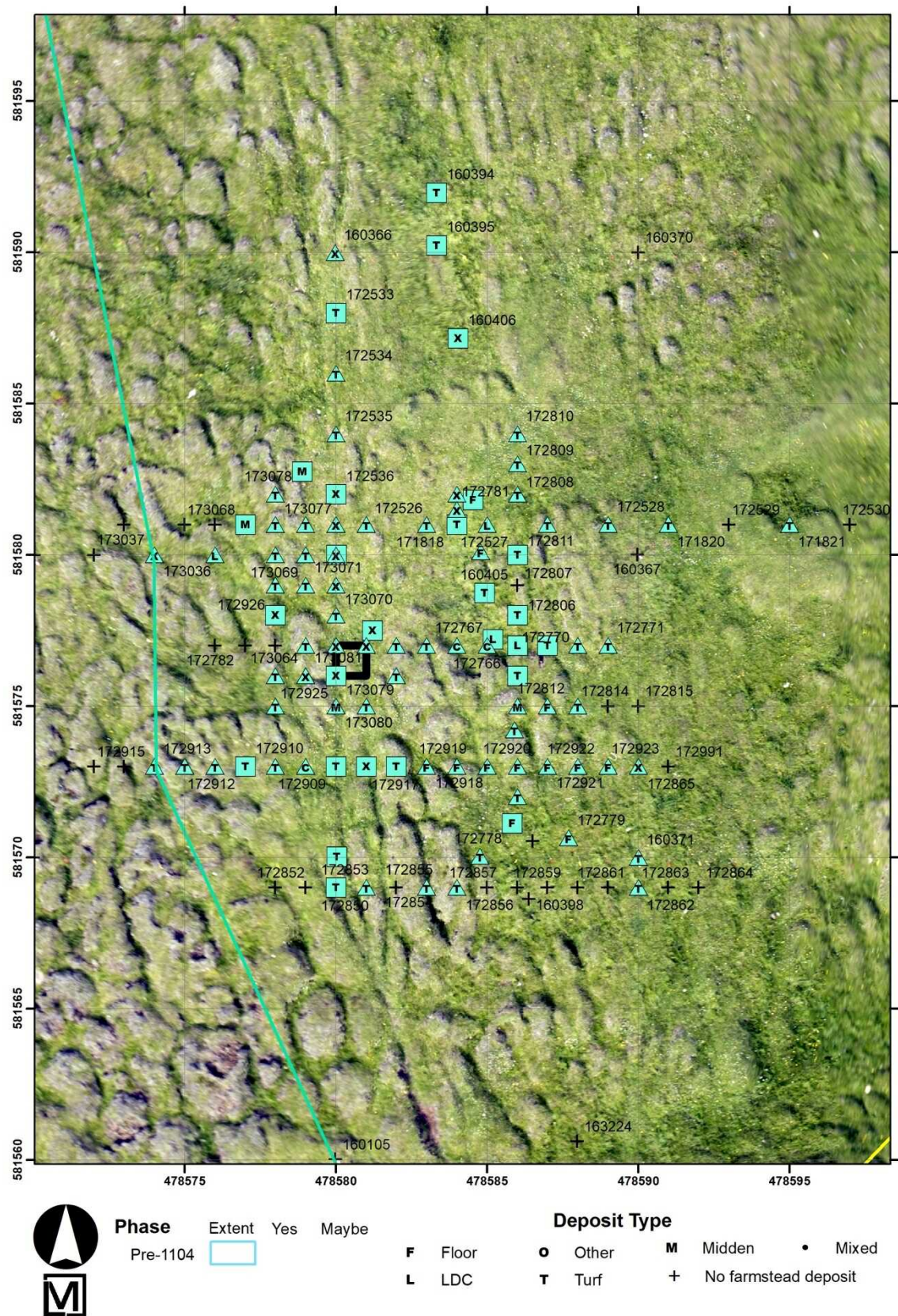


Figure 20. Location of test pit 1 with cores underlain by orthophoto

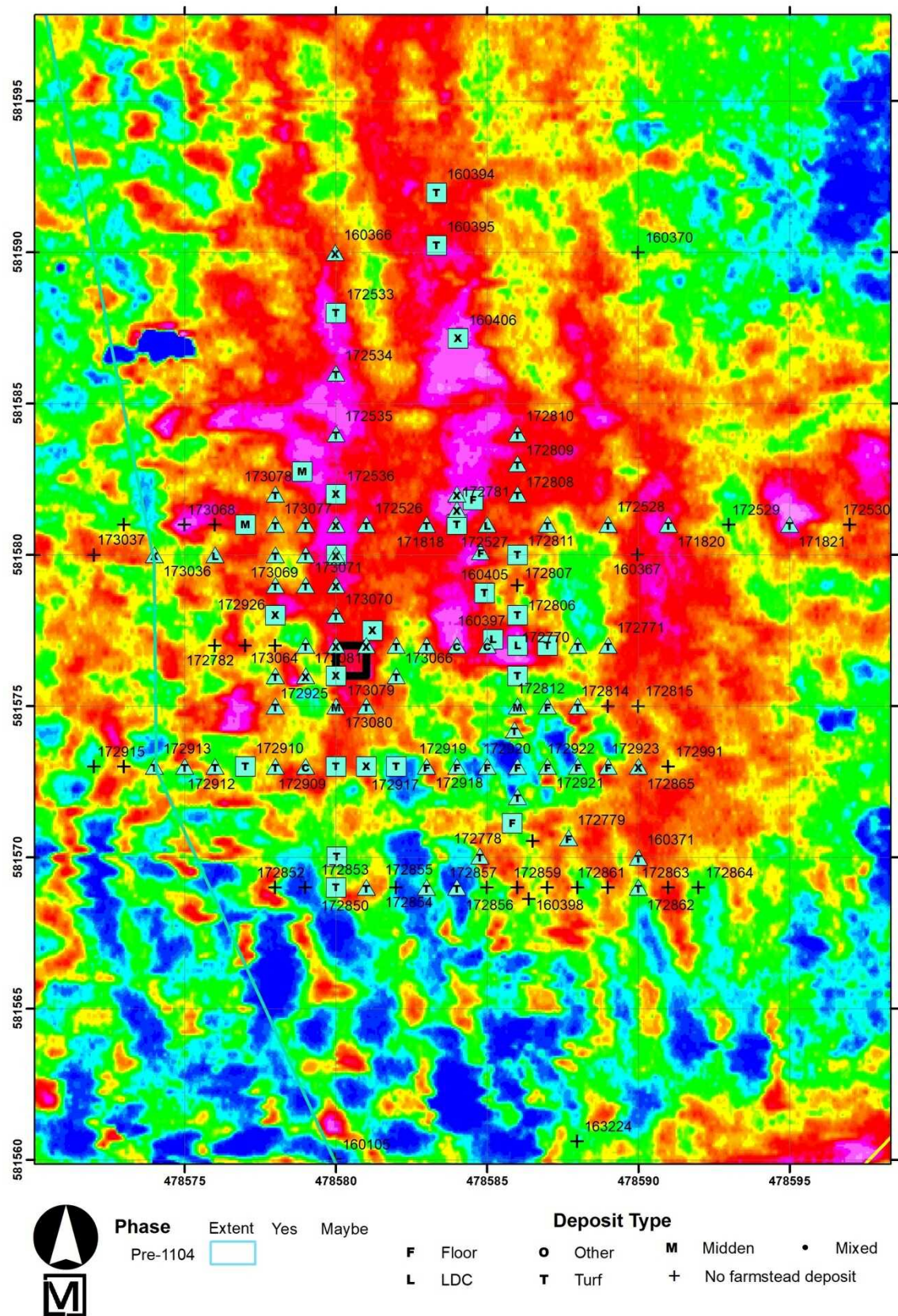


Figure 21. Location of test pit 1 with cores and CMD Mini Explorer C3 results (C3 color scale can be found in Figure 5 left).

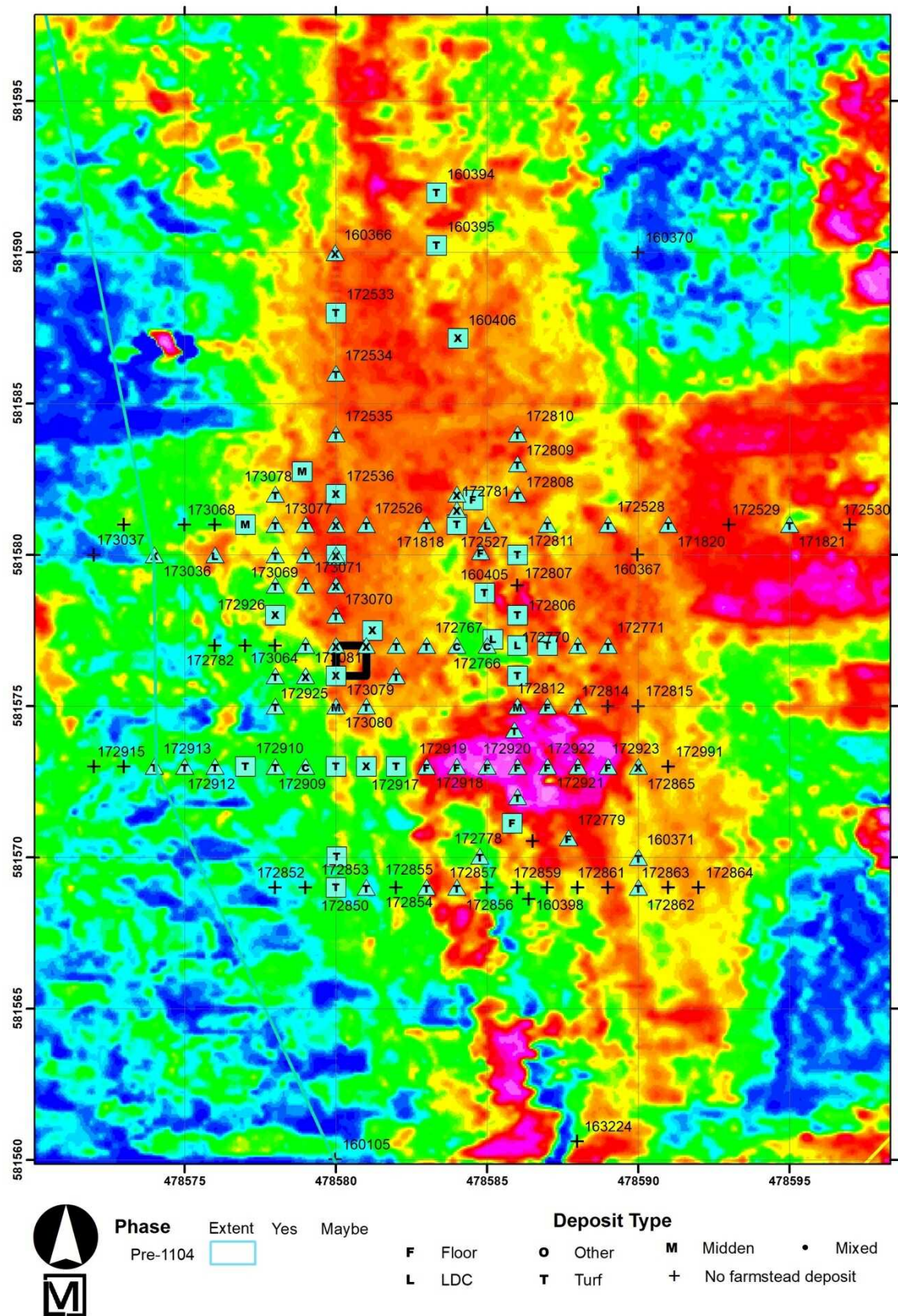


Figure 22. Location of test pit 1 with cores and CMD Mini Explorer IP3 results (IP3 color scale can be found in Figure 6 left).

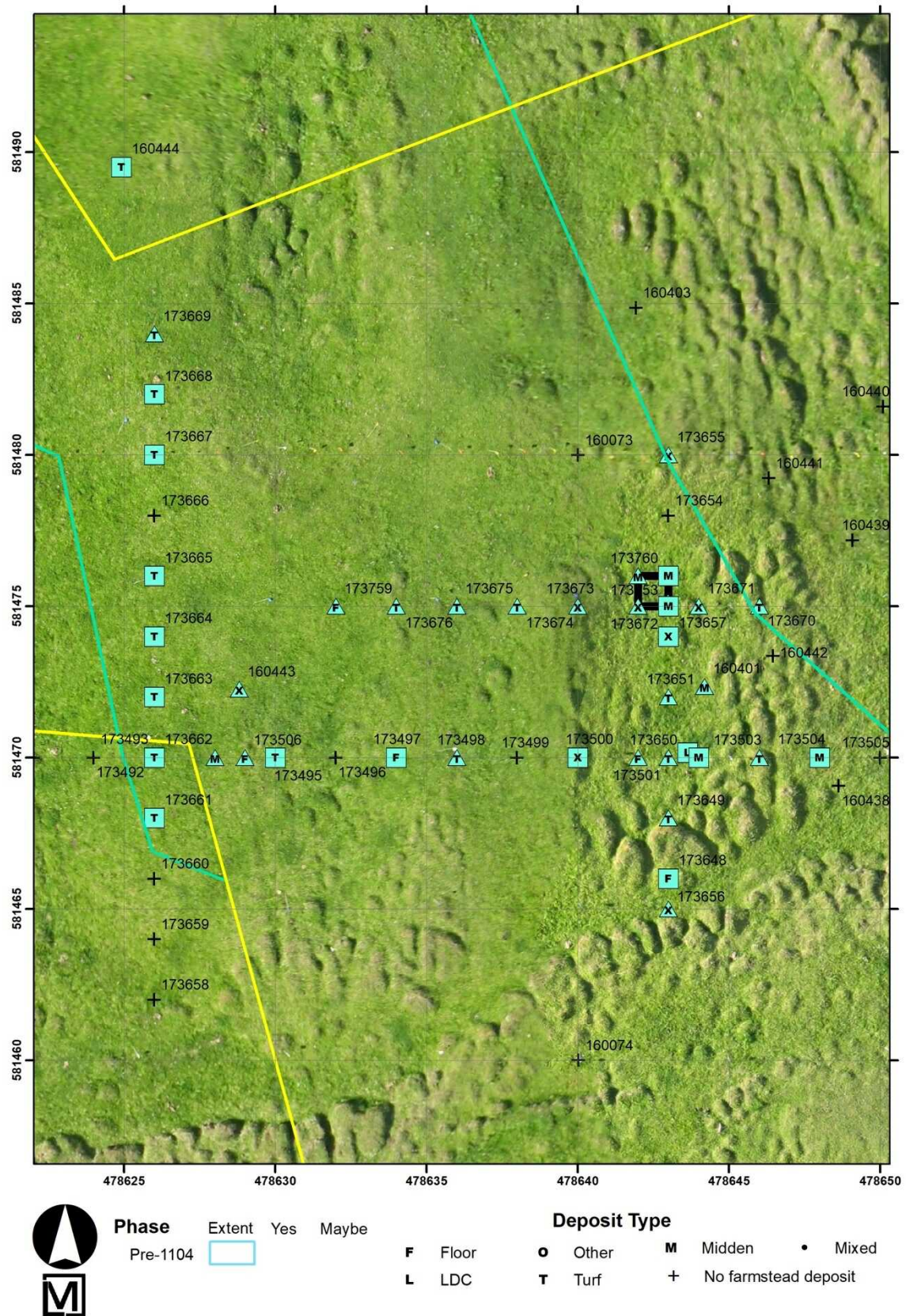


Figure 23. Location of test pit 2 with cores underlain by orthophoto

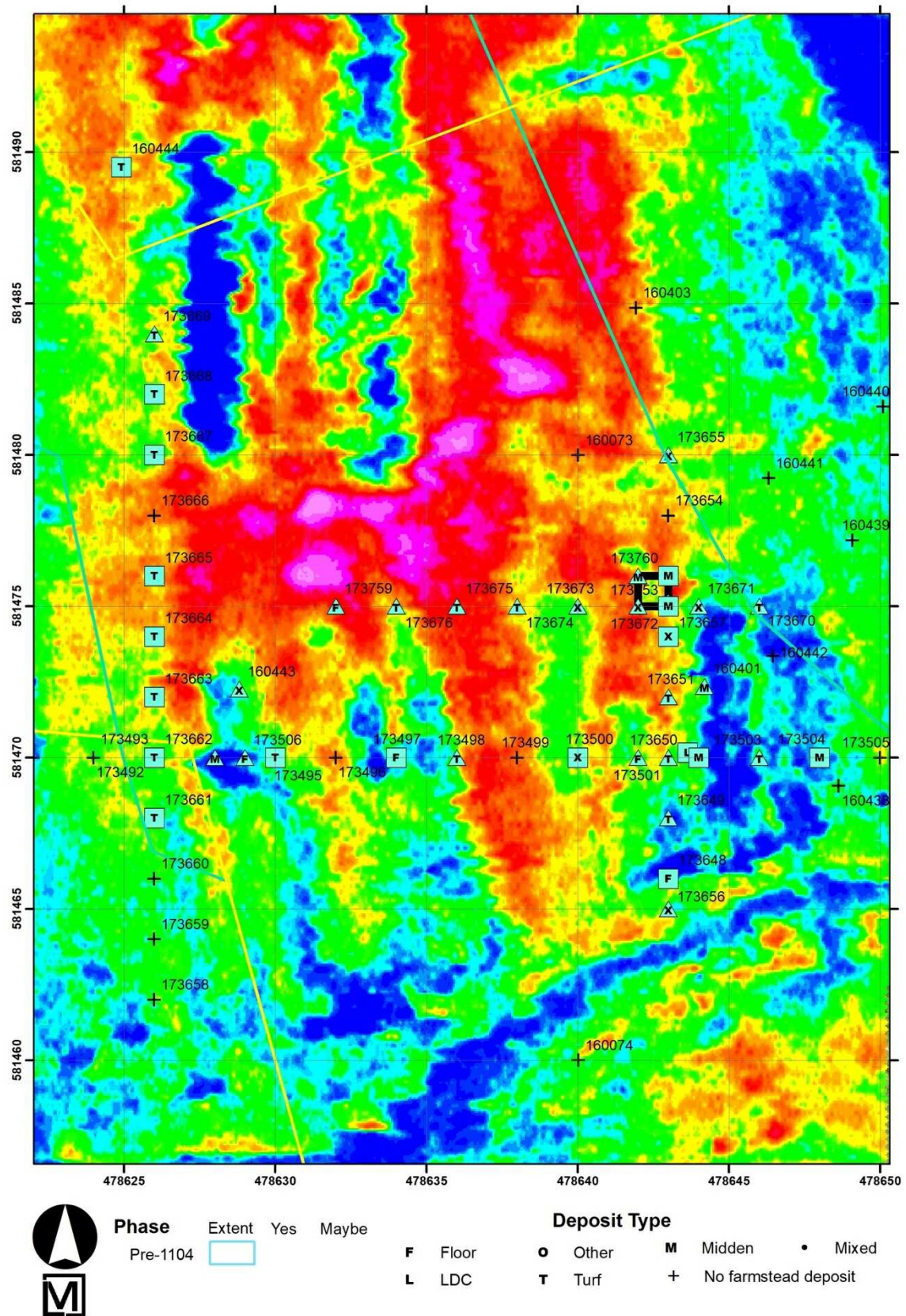


Figure 24. Location of test pit 2 with cores and CMD Mini Explorer C3 results (C3 color scale can be found in Figure 5 left).

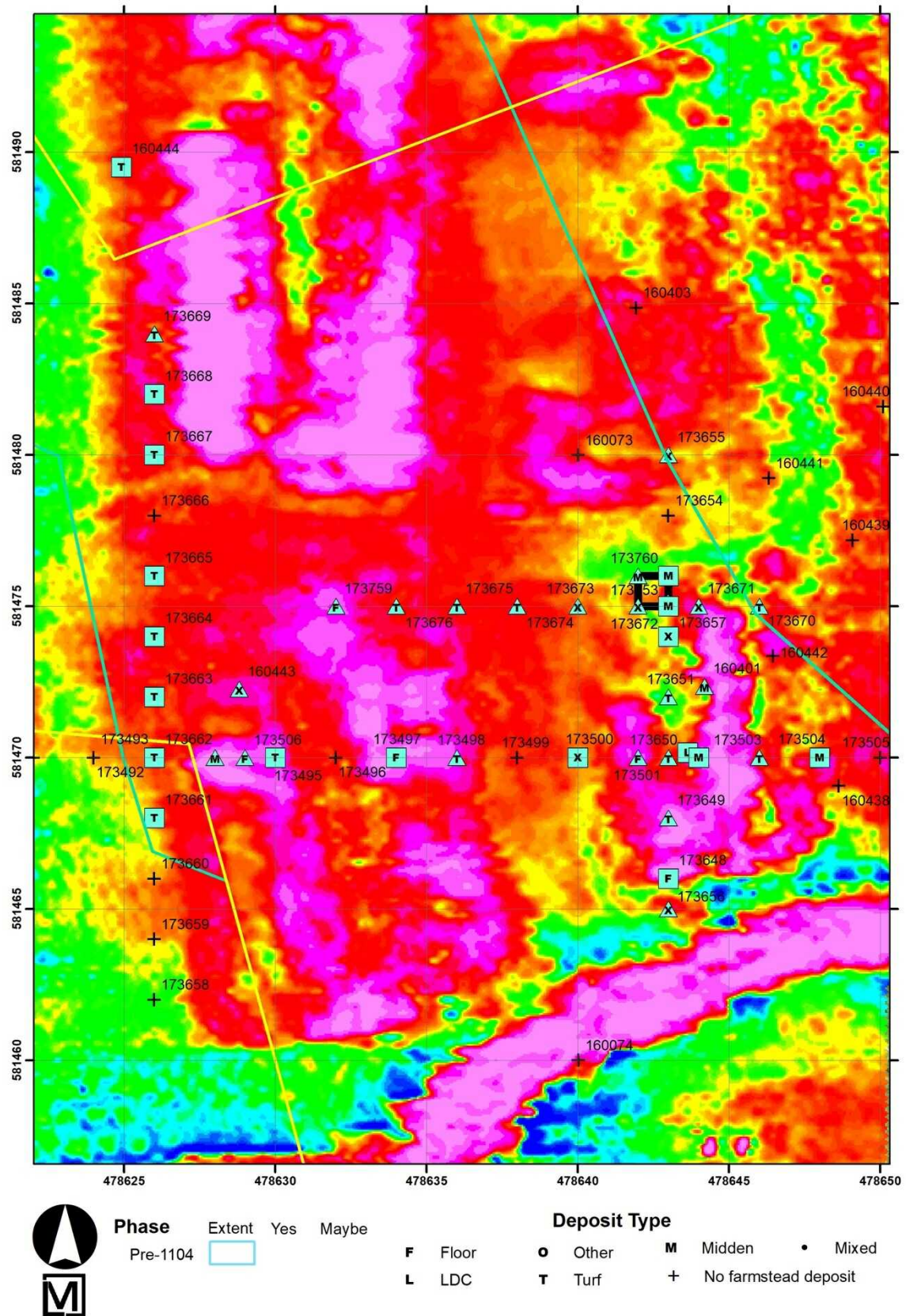


Figure 25. Location of test pit 2 with cores and CMD Mini Explorer IP1 results (IP3 color scale can be found in Figure 6 left).

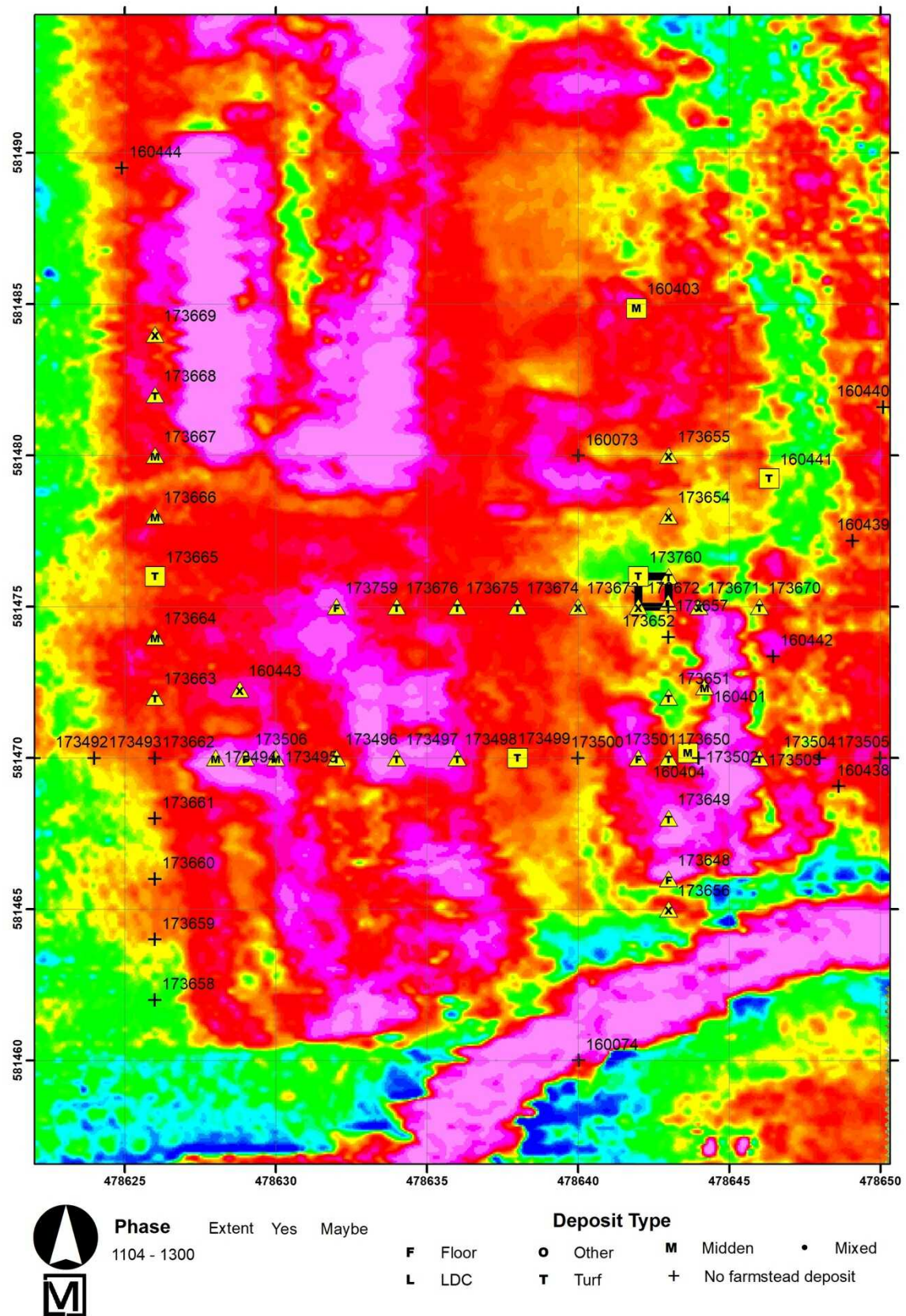


Figure 26. Location of test pit 2 with 1104-1300 cores and CMD Mini Explorer IP1 results (IP3 color scale can be found in Figure 6 left).

**Garður/Hegranesping - 444-1****TP 1**

E: 478580.00  
N: 581575.00  
Z: 17.80

**Context**

101  
102  
103  
104  
105  
106  
107  
108  
109  
110

**Description**

Root mat.  
Compact mid brown aeolian under root mat.  
Turf collapse; soft, mid yellowish-brown.  
Soft, mottled turf; mid brown with 1104 and H3.  
Soft, turf; mid yellowish-brown.  
Mottled turf collapse getting firmer; mid yellowish-brown.  
Firm turf collapse; mid yellowish-brown.  
Firm, mottled turf collapse; mid orangish-brown.  
Rocks in base of turf wall and surrounding turf.  
Mottled peat ash midden; mid pinkish-brown.

111 Soft, light pinkish-brown midden.  
112 Dense, mid pinkish-brown midden.  
113 Soft, mid pinkish-brown midden.  
114 Midden.  
115 Soft, mid greyish-brown mixed turf.  
116 Firm, dark brown.  
117 Firm, brown mottled turf.  
118 Thin, soft, brown aeolian deposit; ends on LNL.  
119 Cryoturbated aeolian deposit; mid reddish-brown; some iron precipitates.  
120 Aeolian with H3; mid reddish-brown; some iron throughout.

**Tephra**

----- 1300?  
----- 1104  
----- 934  
----- 871

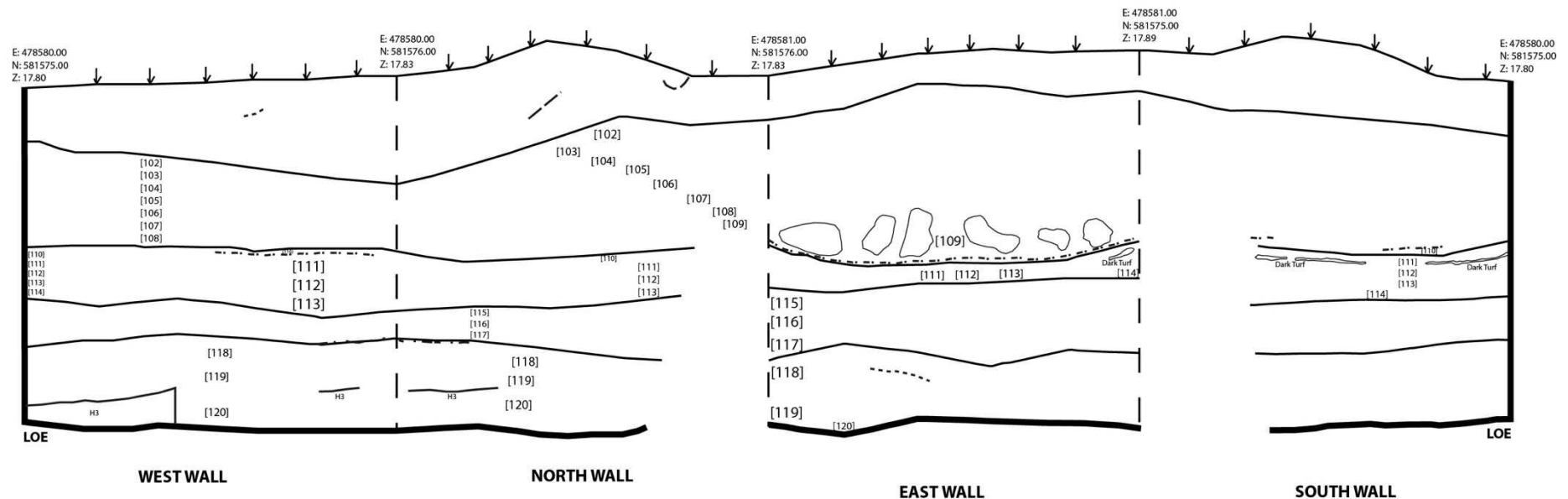


Figure 27. Drawn profiles of test pit 1.

**Garður/Hegranesþing - 444-1****TP 2**

E: 478642.00

N: 581475.00

Z: 17.61

**Context****Description**

|     |                                                                                                                     |
|-----|---------------------------------------------------------------------------------------------------------------------|
| 101 | Top Soil                                                                                                            |
| 121 | Aeolian deposit                                                                                                     |
| 122 | Turf with faint red (possible peat ash) north-south running stripes and gravel inclusions                           |
| 123 | Mixed turf with peat ash strips and burned bone and charcoal inclusions                                             |
| 124 | Mixed turf with charcoal bone and gravel inclusions                                                                 |
| 125 | Aeolian deposit with bone inclusions. Large stone/cobble located in center south half of unit                       |
| 126 | Brown aeolian and peat ash layer with bone, gravel, pebble, and cobble inclusions. Two large rocks in south of unit |

|     |                                                                                                                                                                  |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 127 | Midden                                                                                                                                                           |
| 128 | Black ash midden with bone inclusions                                                                                                                            |
| 130 | Mottled pink, gray, white and black peat and wood ash with charcoal, diatom and bone (including butter bone) inclusions                                          |
| 131 | Mottled colors in what could be a stake hole. Has wood and peat ash and charcoal inclusions                                                                      |
| 132 | Yellowish-Brown aeolian deposit, with greenish glacial sand mixed in. Gravel, pebble, and cobble inclusions. Dark tephra, possibly 934 or LNL found in NE corner |
| 133 | Greenish-Brown glacial sand with gravel, pebble and cobble inclusions                                                                                            |

**Tephra**

|       |          |
|-------|----------|
| ----- | 1300     |
| ----- | 1104     |
| ----- | 934/LNL? |

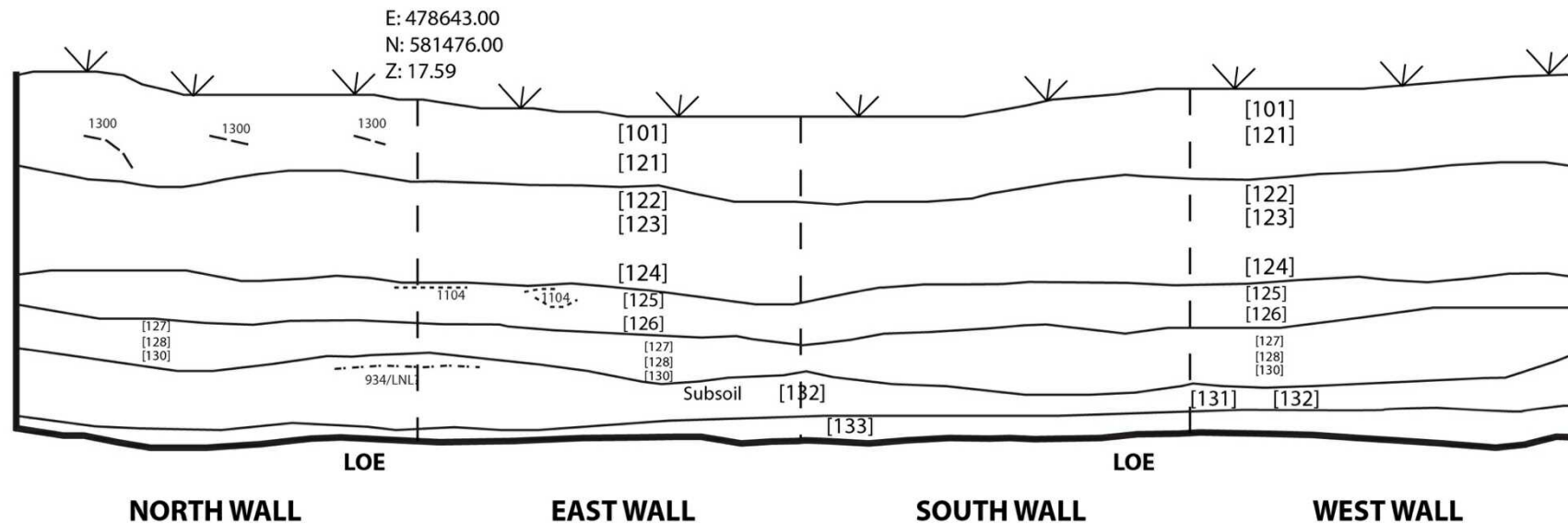


Figure 28. Drawn profiles of test pit 2.

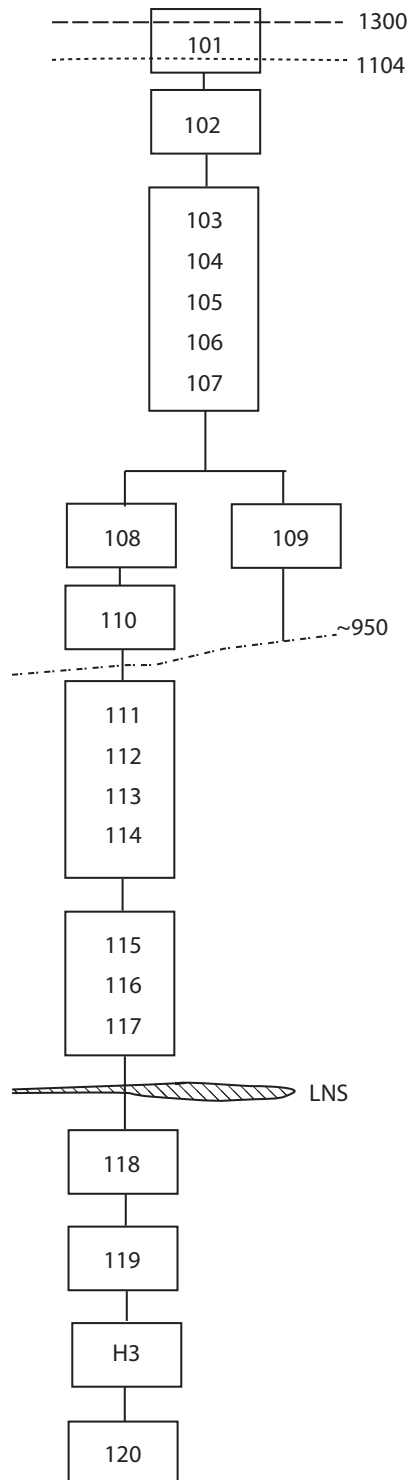


Figure 29. Harris matrix of test pit 1.

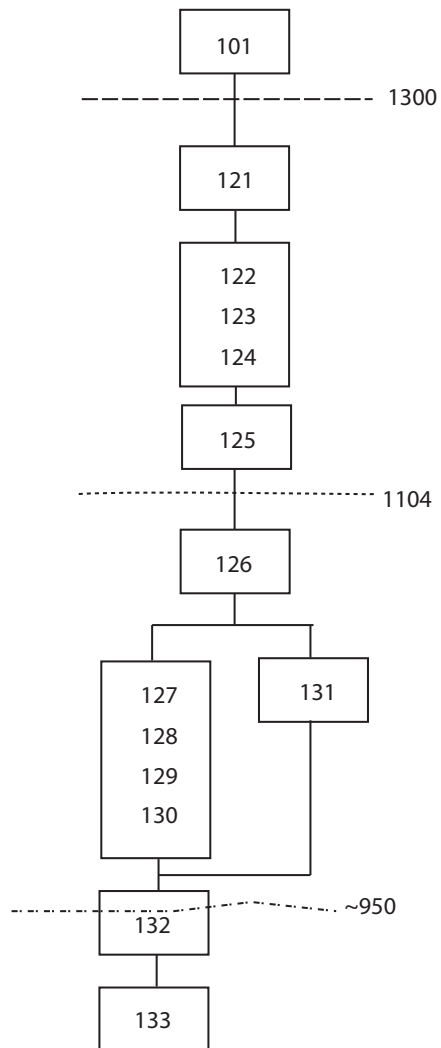


Figure 30. Harris Matrix of test pit 2.



Figure 31. Photo from the south of the excavation of TP 1, showing bottom of 108 and top of the probable wall [109]



Figure 32. plan photo of excavation of TP 1, showing bottom of [111] midden and top of the probable wall [109]



Figure 33. photo of west wall of the completed excavation of TP 1. A patch of H1 can be seen in the center, just above the leveling string (marked with white).

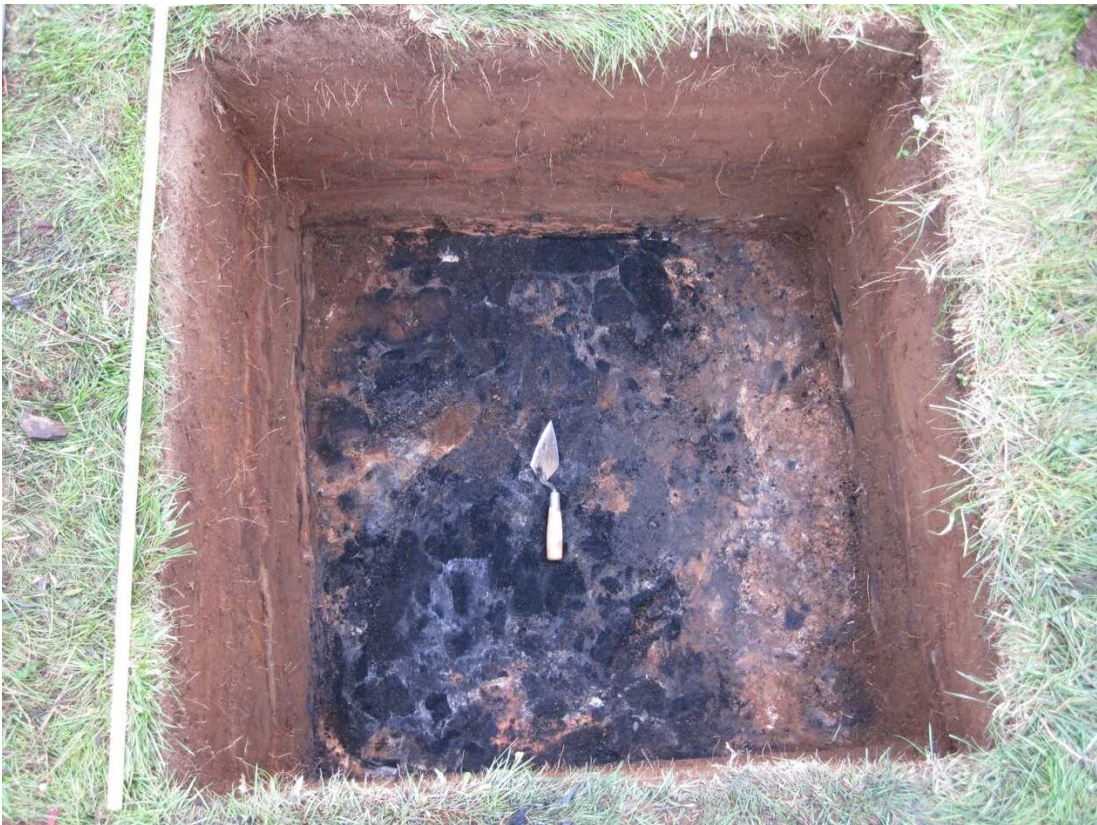


Figure 34. Photo from the south of the excavation of TP2, showing bottom of [128].



Figure 35. photo of east wall of the completed excavation of TP2. A patch of H1 can be seen in the northeast.



Figure 36. Photo of north wall of the completed excavation of TP2. A small patch of H1 can be seen in the northeast above the aeolian deposit mixed with bone [127-130].

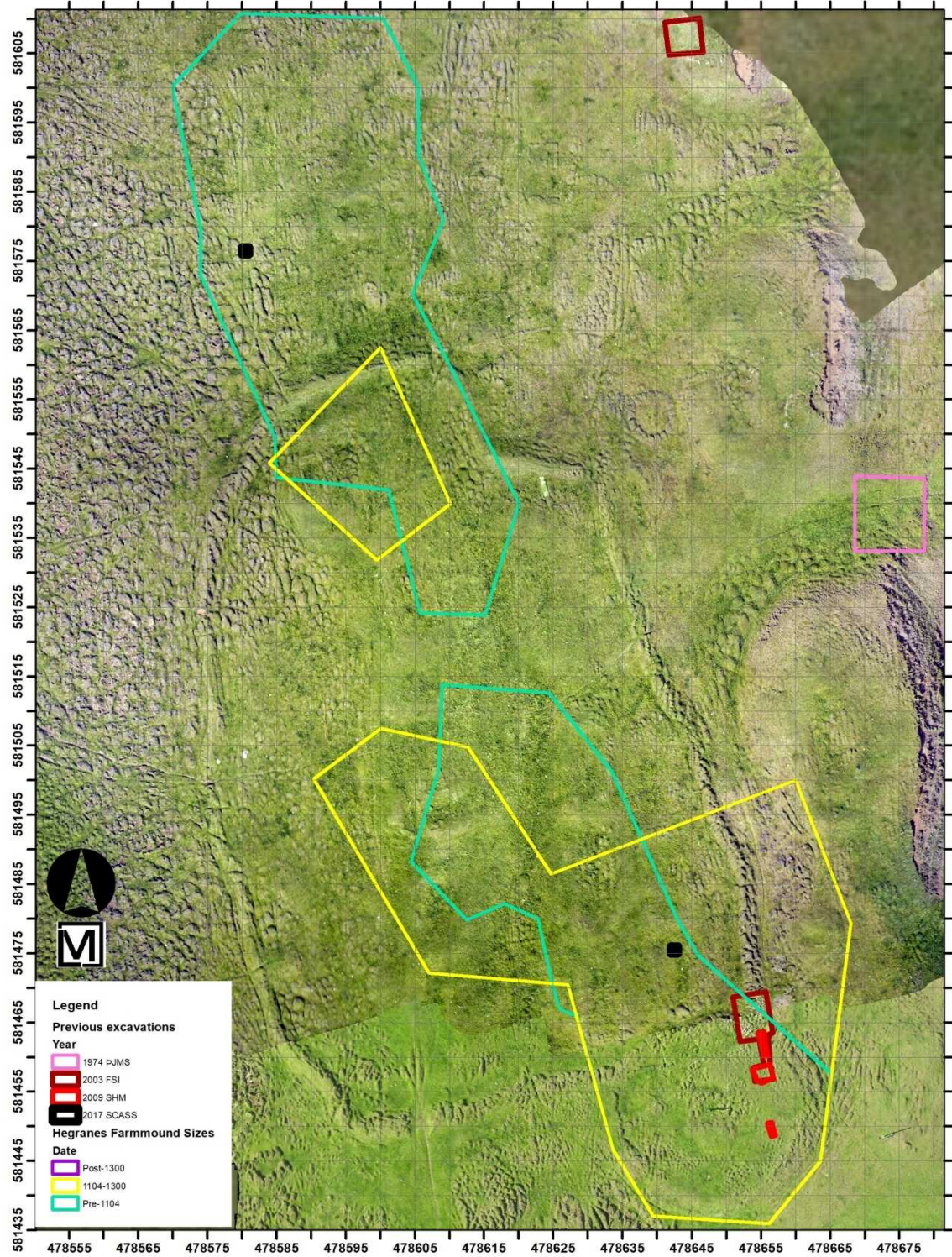


Figure 37. Farm mound areas with excavations superimposed on orthophoto.

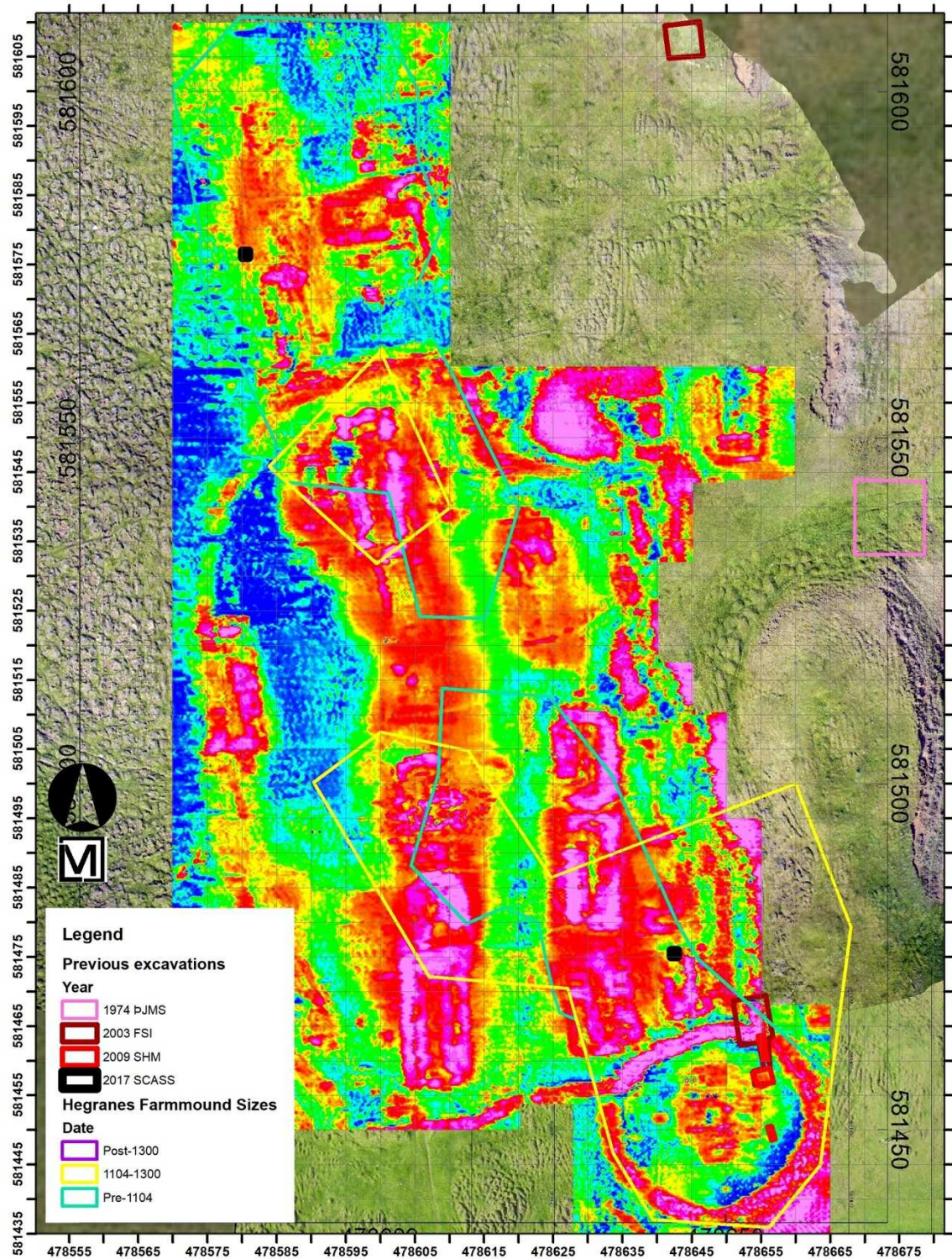


Figure 38. Farm mound areas with excavations superimposed on CMD Min-Explorer IP3 results.

## CONCLUSIONS

Much of the archaeology at Hegranesþing is associated with an assembly place and its temporary nature, the upper cultural deposit in TP2 [122-124] is entirely consistent with

temporary seasonal occupation. . The geophysics, coring and test pits suggest deep and potentially old deposits that seem to be best interpreted as typical farmstead deposits.

Thus, these farmsteads have been measured and dated based on the cores and test pits. The northern pre-1104 tephra (blue in Figure 39) is about 2,410 m<sup>2</sup> and is termed Hegranesþing 1 (Figure 39). The farmstead area of Hegranesþing 1 extends south through the tún wall.

Hegranesþing 1 is the earliest farmstead identified at the site and seems to be primary before ~950. Hegranesþing 2 (Figure 40), the southern farm mound is about 2080 m<sup>2</sup> and contains the churchyard. Even with the churchyard, Hegranesþing 2 is the smallest farmstead yet identified at the site. Hegranesþing 2 seems to primary occupied from ~950 to AD 1104.

Hegranesþing 3 is the AD 1104-1300 farmstead and has not been investigated with a test pit. Hegranesþing 3 is broken into two areas (Figure 41) with a sum total of 3230 m<sup>2</sup>.

Hegranesþing 3 is probably also associated with the churchyard. There seem to be no substantial post 1300 permanent occupation at the site.

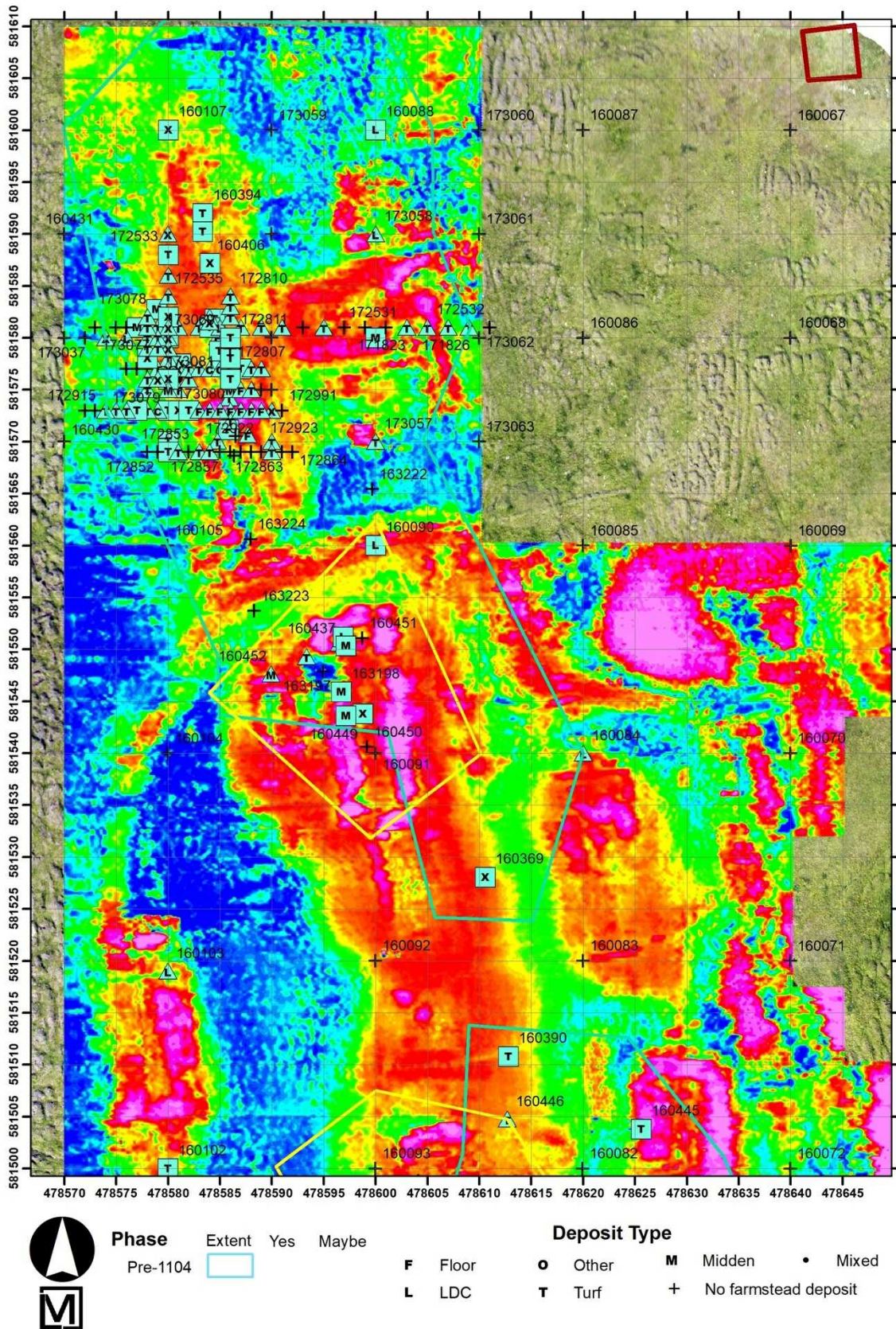


Figure 39. Northern pre-1104 Farmstead (Hegranesþing 1) area in blue with cores on CMD Min-Explorer IP3 results.

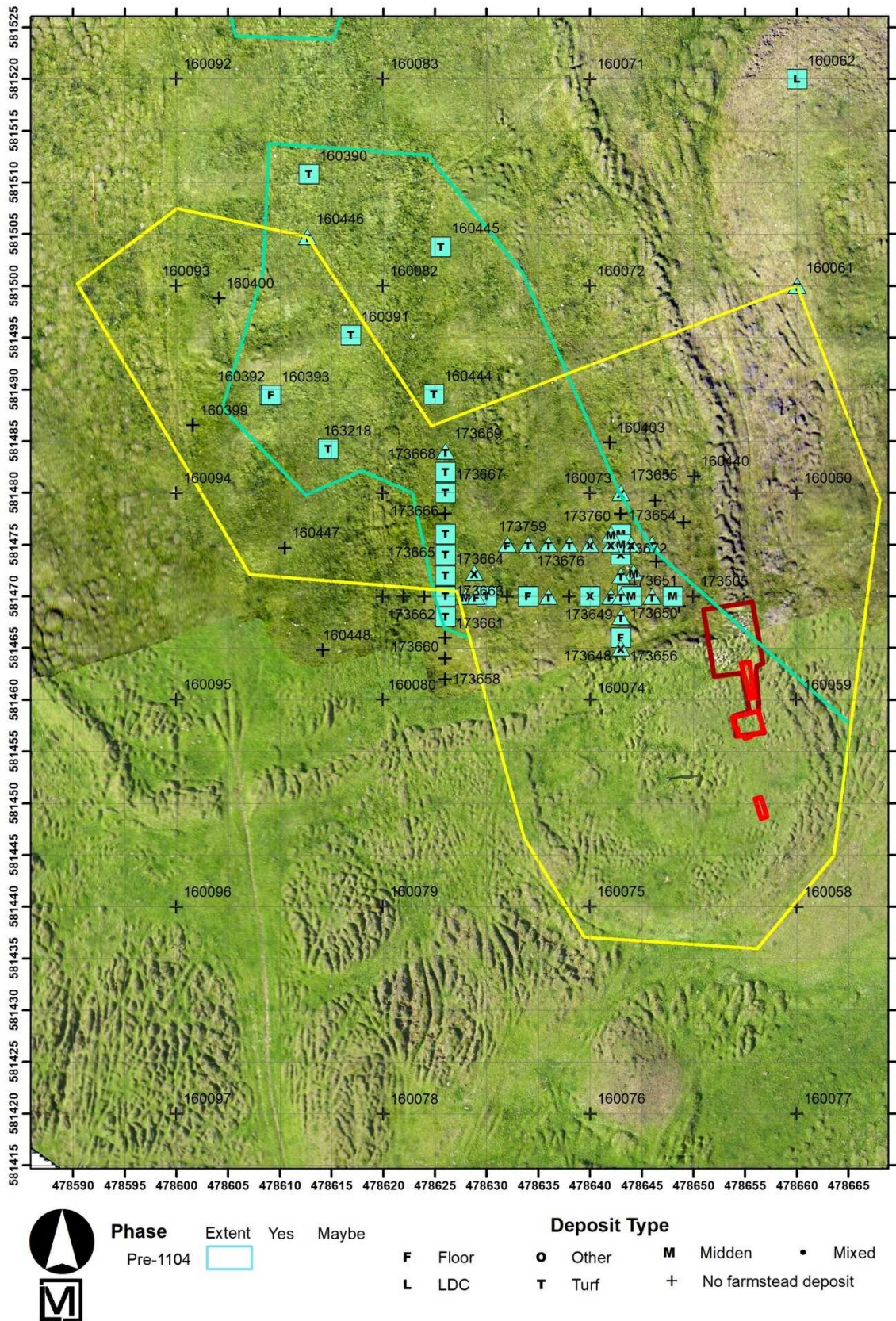


Figure 40. Southern pre-1104 Farmstead (Hegranesping 2) mound area in blue with cores on orthophoto.'

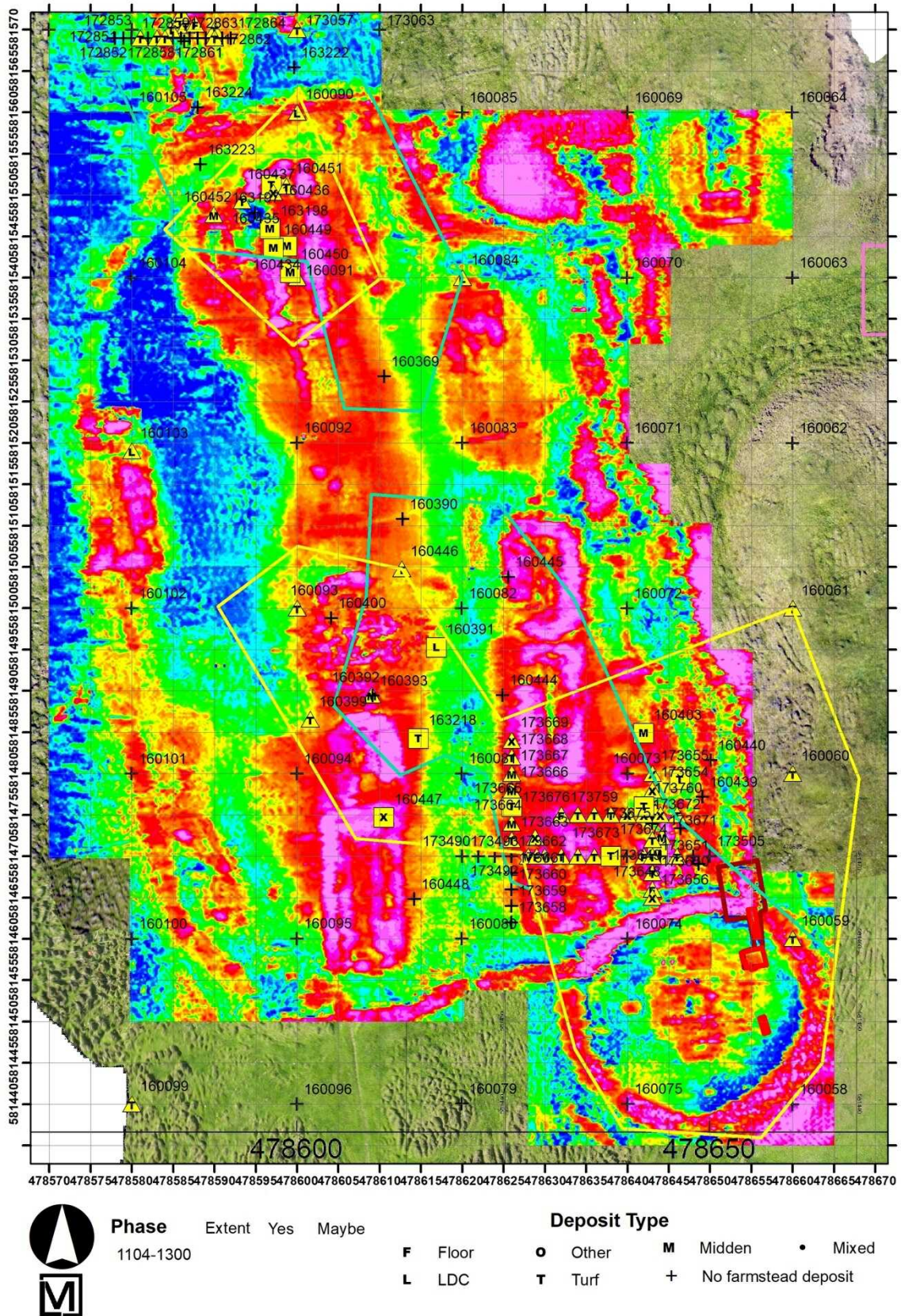


Figure 41. Southern 1104-1300 Farmstead (Hegranesþing 2) mound area in yellow on CMD Min-Explorer IP3 results.

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## **APPENDIX A – BASIC PRINCIPLES OF FREQUENCY-DOMAIN ELECTROMAGNETICS**

The frequency-domain electromagnetic (FDEM) method is an active non-destructive geophysical method that is used to obtain shallow subsurface information. In the EM method, a time-varying magnetic field is generated by driving an alternating current through either a loop of wire or a straight wire that is grounded at both ends. Induced or eddy currents with flow within any conductive solid or fluid material that is present beneath the area of investigation. The eddy currents, in turn, generate their own magnetic fields such that at any point in space, the total magnetic field is the superposition of the primary field due to the source current and secondary fields due to the eddy currents, as schematically illustrated in Figure B1. By discriminating between primary and secondary fields, variations in the EM properties of the ground can be discerned.

EM instruments measure both out-of-phase (quadrature) and in-phase components of the induced magnetic fields. The former is a measure of the bulk apparent ground conductivity; the latter is related to magnetic susceptibility and is particularly sensitive to the presence of metallic objects. Bulk apparent ground conductivity reflects true conductivity when the subsurface is homogeneous and isotropic, which is rarely the case in practice. For heterogeneous conditions, it represents an integrated effect of all the conductivity within the volume of ground being sensed. It does not, however, represent an average conductivity and in fact can be lower or higher than the lowest or highest subsurface conductivities, respectively. A lateral variation in the components is indicative of lateral changes in properties. The conductivity is particularly sensitive to fluid content and dissolved salts or ions. Accordingly, wet sands, clays and materials with high ion content generally have high bulk apparent ground conductivity; dry sands and crystalline rocks have low bulk apparent ground conductivity.

Ideally, EM surveys are conducted in archaeological investigations to find conductive targets in resistive environments such as middens and rammed-earth walls. Although more subtle and difficult to detect, resistive targets such as buried stone walls and foundations can also be detected through EM surveying.

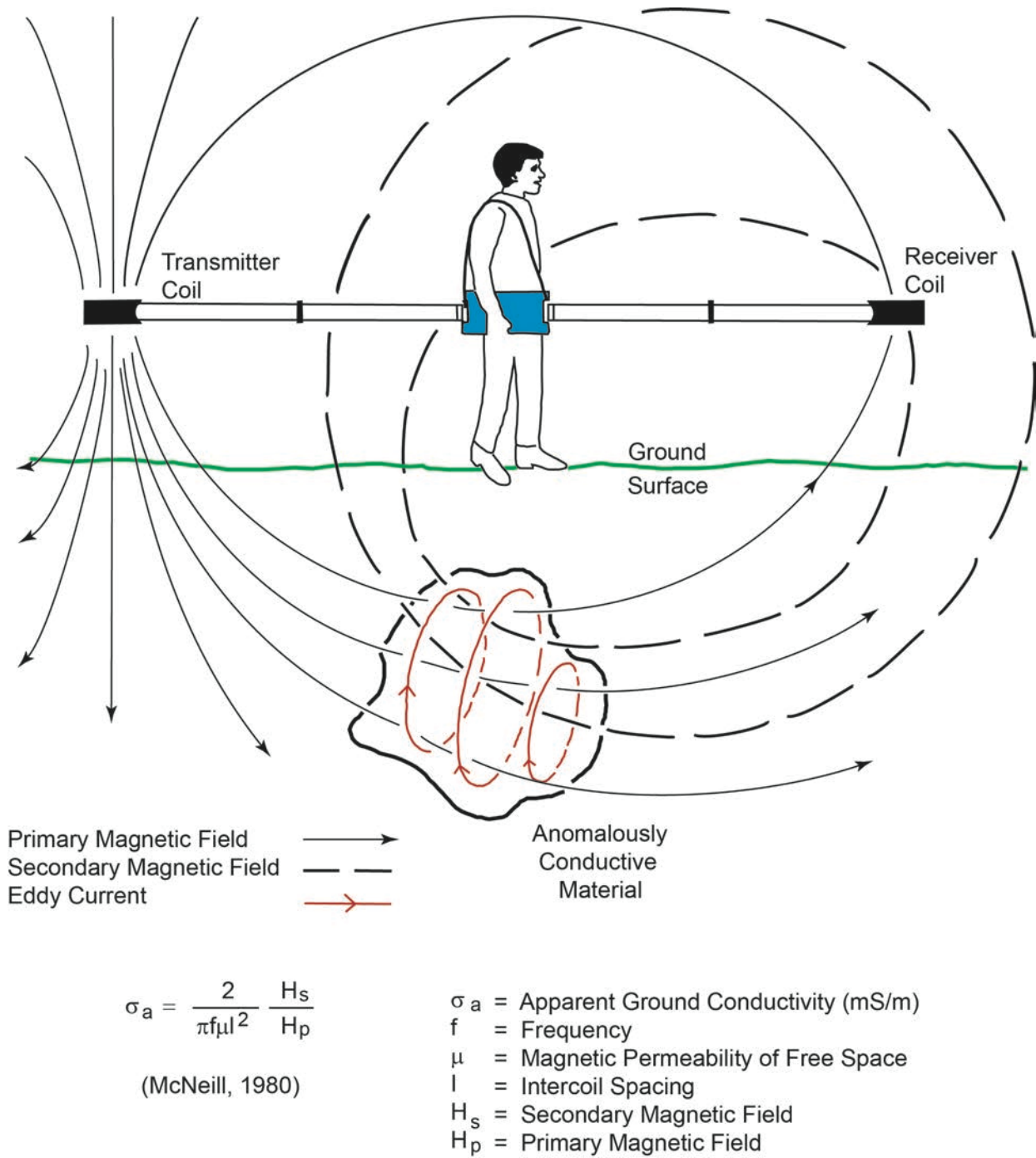


Figure A1. Schematic diagram illustrating the principles of FDEM.

## APPENDIX B– 2017 CORING DATA

Table 1. Coring locations.

| Core Number | End Depth | East       | North      |
|-------------|-----------|------------|------------|
| 171815      | 65        | 478573     | 581581     |
| 171816      | 57        | 478575     | 581581     |
| 171817      | 110       | 478579     | 581581     |
| 171818      | 105       | 478583     | 581581     |
| 171819      | 40        | 478587     | 581581     |
| 171820      | 95        | 478591     | 581581     |
| 171821      | 95        | 478595     | 581581     |
| 171822      | 85        | 478599     | 581581     |
| 171823      | 57        | 478603     | 581581     |
| 171824      | 70        | 478607     | 581581     |
| 171825      | 64        | 478611     | 581581     |
| 171826      | 85        | 478609     | 581581     |
| 171827      | 115       | 478584     | 581581     |
| 171828      | 48        |            |            |
| 172525      | 110       | 478577     | 581581     |
| 172526      | 115       | 478581     | 581581     |
| 172527      | 104       | 478585     | 581581     |
| 172528      | 75        | 478589     | 581581     |
| 172529      | 115       | 478593     | 581581     |
| 172530      | 115       | 478597     | 581581     |
| 172531      | 50        | 478601     | 581581     |
| 172532      | 50        | 478605     | 581581     |
| 172533      | 120       | 478580     | 581588     |
| 172534      | 120       | 478580     | 581586     |
| 172535      | 120       | 478580     | 581584     |
| 172536      |           | 478580     | 581582     |
| 172537      |           | 478580     | 581580     |
| 172538      | 130       | 478580     | 581578     |
| 172757      | 40        | 478586.512 | 581570.541 |
| 172758      | 80        | 478585.908 | 581574.208 |
| 172759      | 70        | 478586     | 581573     |
| 172760      | 80        | 478586     | 581572     |
| 172761      | 65        | 478586     | 581575     |
| 172762      |           | 478580     | 581577     |
| 172763      | 55        | 478581     | 581577     |
| 172764      | 98        | 478582     | 581577     |
| 172765      | 110       | 478583     | 581577     |
| 172766      | 102       | 478584     | 581577     |
| 172767      | 120       | 478585     | 581577     |
| 172768      | 102       | 478586     | 581577     |
| 172769      | 62        | 478587     | 581577     |
| 172770      | 95        | 478588     | 581577     |
| 172771      | 50        | 478589     | 581577     |
| 172778      | 59        | 478584.759 | 581570.035 |
| 172779      | 110       | 478587.697 | 581570.645 |
| 172780      | 80        | 478584     | 581582     |
| 172781      | 70        | 478584     | 581581.5   |
| 172782      | 62        | 478576     | 581577     |
| 172783      | 15        | 478577     | 581577     |

| Core Number | End Depth | East   | North  |
|-------------|-----------|--------|--------|
| 172784      | 68        | 478578 | 581577 |
| 172785      | 110       | 478579 | 581577 |
| 172805      | 64        | 478586 | 581576 |
| 172806      | 80        | 478586 | 581578 |
| 172807      | 47        | 478586 | 581579 |
| 172808      | 40        | 478586 | 581582 |
| 172809      | 94        | 478586 | 581583 |
| 172810      | 75        | 478586 | 581584 |
| 172811      | 68        | 478586 | 581580 |
| 172812      | 120       | 478587 | 581575 |
| 172813      | 120       | 478588 | 581575 |
| 172814      | 50        | 478589 | 581575 |
| 172815      | 110       | 478590 | 581575 |
| 172850      | 63        | 478580 | 581569 |
| 172851      | 90        | 478579 | 581569 |
| 172852      | 18        | 478578 | 581569 |
| 172853      | 61        | 478581 | 581569 |
| 172854      | 56        | 478582 | 581569 |
| 172855      | 36        | 478583 | 581569 |
| 172856      | 62        | 478584 | 581569 |
| 172857      | 63        | 478585 | 581569 |
| 172858      | 37        | 478586 | 581569 |
| 172859      | 54        | 478587 | 581569 |
| 172860      | 62        | 478588 | 581569 |
| 172861      | 25        | 478589 | 581569 |
| 172862      | 69        | 478590 | 581569 |
| 172863      | 67        | 478591 | 581569 |
| 172864      |           | 478592 | 581569 |
| 172865      | 120       | 478590 | 581573 |
| 172907      | 80        | 478580 | 581573 |
| 172908      | 78        | 478579 | 581573 |
| 172909      | 80        | 478578 | 581573 |
| 172910      | 80        | 478577 | 581573 |
| 172911      | 80        | 478576 | 581573 |
| 172912      | 80        | 478575 | 581573 |
| 172913      | 75        | 478574 | 581573 |
| 172914      | 78        | 478573 | 581573 |
| 172915      | 87        | 478572 | 581573 |
| 172916      | 80        | 478581 | 581573 |
| 172917      | 120       | 478582 | 581573 |
| 172918      | 78        | 478583 | 581573 |
| 172919      |           | 478584 | 581573 |
| 172920      |           | 478585 | 581573 |
| 172921      | 120       | 478587 | 581573 |
| 172922      | 73        | 478588 | 581573 |
| 172923      | 69        | 478589 | 581573 |
| 172924      | 80        | 478578 | 581575 |
| 172925      | 79        | 478578 | 581576 |
| 172926      | 75        | 478578 | 581578 |
| 172927      | 78        | 478578 | 581579 |
| 172991      | 64        | 478591 | 581573 |
| 173034      | 120       | 478578 | 581580 |
| 173035      | 60        | 478576 | 581580 |
| 173036      | 67        | 478574 | 581580 |
| 173037      | 68        | 478572 | 581580 |

| Core Number | End Depth | East        | North       |
|-------------|-----------|-------------|-------------|
| 173057      | 76        | 478600      | 581570      |
| 173058      | 52        | 478600      | 581590      |
| 173059      | 40        | 478590      | 581600      |
| 173060      | 45        | 478610      | 581600      |
| 173061      | 40        | 478610      | 581590      |
| 173062      | 85        | 478610      | 581580      |
| 173063      | 57        | 478610      | 581570      |
| 173064      | 66        | 478579      | 581576      |
| 173065      | 46        | 478581      | 581575      |
| 173066      | 120       | 478582      | 581576      |
| 173067      | 120       | 478580      | 581581      |
| 173068      | 65        | 478576      | 581581      |
| 173069      | 108       | 478579      | 581580      |
| 173070      | 110       | 478580      | 581579      |
| 173071      | 120       | 478579      | 581579      |
| 173077      | 110       | 478578      | 581581      |
| 173078      | 120       | 478578      | 581582      |
| 173079      | 81        | 478580      | 581576      |
| 173080      | 90        | 478580      | 581575      |
| 173081      | 83        | 478579      | 581576      |
| 173490      | 40        | 478620      | 581470      |
| 173491      | 45        | 478622      | 581470      |
| 173492      | 55        | 478624      | 581470      |
| 173493      | 70        | 478626      | 581470      |
| 173494      | 40        | 478628      | 581470      |
| 173495      | 83        | 478630      | 581470      |
| 173496      | 80        | 478632      | 581470      |
| 173497      | 90        | 478634      | 581470      |
| 173498      | 40        | 478636      | 581470      |
| 173499      |           | 478638      | 581470      |
| 173500      | 120       | 478640      | 581470      |
| 173501      | 74        | 478642      | 581470      |
| 173502      | 40        | 478644      | 581470      |
| 173503      | 52        | 478646      | 581470      |
| 173504      | 48        | 478648      | 581470      |
| 173505      | 28        | 478650      | 581470      |
| 173506      | 65        | 478629      | 581470      |
| 173627      | 68        | 478539.2852 | 581457.3939 |
| 173628      | 40        | 478530.8568 | 581459.4188 |
| 173648      | 65        | 478643      | 581466      |
| 173649      | 45        | 478643      | 581468      |
| 173650      | 45        | 478643      | 581470      |
| 173651      | 41        | 478643      | 581472      |
| 173652      | 53        | 478643      | 581474      |
| 173653      | 62        | 478643      | 581476      |
| 173654      | 71        | 478643      | 581478      |
| 173655      | 60        | 478643      | 581480      |
| 173656      | 71        | 478643      | 581465      |
| 173657      | 56        | 478643      | 581475      |
| 173658      | 52        | 478626      | 581462      |
| 173659      | 58        | 478626      | 581464      |
| 173660      | 56        | 478626      | 581466      |
| 173661      | 62        | 478626      | 581468      |
| 173662      |           | 478626      | 581470      |
| 173663      | 72        | 478626      | 581472      |

| <b>Core Number</b> | <b>End Depth</b> | <b>East</b> | <b>North</b> |
|--------------------|------------------|-------------|--------------|
| 173664             | 67               | 478626      | 581474       |
| 173665             | 95               | 478626      | 581476       |
| 173666             | 60               | 478626      | 581478       |
| 173667             | 75               | 478626      | 581480       |
| 173668             | 65               | 478626      | 581482       |
| 173669             | 71               | 478626      | 581484       |
| 173670             | 60               | 478646      | 581475       |
| 173671             | 44               | 478644      | 581475       |
| 173672             | 73               | 478642      | 581475       |
| 173673             | 112              | 478640      | 581475       |
| 173674             | 91               | 478638      | 581475       |
| 173675             | 86               | 478636      | 581475       |
| 173676             | 43               | 478634      | 581475       |
| 173759             | 110              | 478632      | 581475       |
| 173760             | 70               | 478642      | 581476       |

Table 2. Tephra layers in cores

| Core Number | Depth | Tephra    | Description                           |
|-------------|-------|-----------|---------------------------------------|
| 171815      | 25    | 1300      |                                       |
| 171815      | 50    | H3        |                                       |
| 171815      | 55    | H4        |                                       |
| 171816      | 46    | H3        |                                       |
| 171817      | 107   | H3        |                                       |
| 171818      | 92    | H3        |                                       |
| 171820      | 73    | H3        |                                       |
| 171822      | 59    | H1        |                                       |
| 171822      | 66    | H3        |                                       |
| 171827      | 29    | H1        |                                       |
| 171827      | 79    | H3        |                                       |
| 171828      | 18    | H3        | Appears to have been truncated at too |
| 172525      | 30    | H1        |                                       |
| 172525      | 103   | H3        |                                       |
| 172525      | 105   | H4        |                                       |
| 172530      | 100   | H3        |                                       |
| 172530      | 105   | H4        |                                       |
| 172532      | 38    | H3        |                                       |
| 172532      | 40    | H4        |                                       |
| 172536      | 62    | 950       |                                       |
| 172537      | 89    | LNS       |                                       |
| 172537      | 97    | H3        |                                       |
| 172538      | 105   | H3        |                                       |
| 172758      | 50    | LNL       |                                       |
| 172758      | 70    | H3        |                                       |
| 172758      | 75    | H4        |                                       |
| 172759      | 62    | H3        |                                       |
| 172760      | 57    | H3        |                                       |
| 172760      | 65    | H4        |                                       |
| 172764      | 88    | LNS       |                                       |
| 172767      | 81    | H3        |                                       |
| 172768      | 11    | H1        |                                       |
| 172768      | 51    | H3        |                                       |
| 172769      | 18    | H1        | Cryoturbated                          |
| 172778      | 48    | Katla 850 |                                       |
| 172778      | 56    | H3        |                                       |
| 172782      | 26    | LNL       |                                       |
| 172784      | 28    | LNL       |                                       |
| 172785      | 80    | H3        |                                       |
| 172805      | 31    | H1        |                                       |
| 172806      | 22    | H1        |                                       |
| 172806      | 74    | H3        |                                       |
| 172807      | 6     | H1        |                                       |
| 172809      | 72    | H3        |                                       |
| 172811      | 21    | H1        |                                       |
| 172811      | 66    | H3        |                                       |
| 172813      | 93    | H3        |                                       |

| Core Number | Depth | Tephra    | Description      |
|-------------|-------|-----------|------------------|
| 172813      | 104   | H4        |                  |
| 172814      | 28    | H1        |                  |
| 172815      | 58    | LNS       |                  |
| 172815      | 70    | H3        |                  |
| 172815      | 72    | H4        |                  |
| 172850      | 20    | H1        |                  |
| 172851      | 20    | 1300      |                  |
| 172851      | 32    | H1        |                  |
| 172851      | 51    | LNS       |                  |
| 172851      | 60    | H3        |                  |
| 172853      | 49    | 1000      | Possibly in turf |
| 172856      | 60    | H3        |                  |
| 172859      | 31    | H1        |                  |
| 172860      | 60    | H3        |                  |
| 172862      | 67    | H3        |                  |
| 172863      | 31    | H1        |                  |
| 172864      | 36    | H1        |                  |
| 172864      | 62    | LNL       |                  |
| 172864      | 78    | H3        |                  |
| 172865      | 88    | H3        |                  |
| 172907      | 16    | H1        |                  |
| 172908      | 76    | H3        |                  |
| 172910      | 12    | H1        |                  |
| 172910      | 63    | H3        |                  |
| 172910      | 70    | H4        |                  |
| 172911      | 56    | H3        |                  |
| 172911      | 60    | H4        |                  |
| 172912      | 60    | H3        |                  |
| 172912      | 65    | H4        |                  |
| 172913      | 60    | H3        |                  |
| 172913      | 64    | H4        |                  |
| 172914      | 22    | H1        |                  |
| 172914      | 40    | LNS       |                  |
| 172914      | 41    | H3        |                  |
| 172914      | 50    | H4        |                  |
| 172915      | 15    | H1        |                  |
| 172915      | 60    | LNS       |                  |
| 172915      | 70    | H3        |                  |
| 172915      | 75    | H4        |                  |
| 172916      | 19    | H1        |                  |
| 172917      | 25    | H1        |                  |
| 172918      | 45    | LNL       |                  |
| 172918      | 47    | Katla 850 |                  |
| 172918      | 55    | H3        |                  |
| 172918      | 61    | H4        |                  |
| 172919      | 75    | H3        |                  |
| 172919      | 80    | H4        |                  |
| 172920      | 69    | H3        |                  |
| 172920      | 73    | H4        |                  |

| Core Number | Depth | Tephra | Description          |
|-------------|-------|--------|----------------------|
| 172921      | 99    | H3     |                      |
| 172921      | 105   | H4     |                      |
| 172923      | 66    | H3     |                      |
| 172924      | 65    | H3     |                      |
| 172924      | 75    | H4     |                      |
| 172925      | 68    | H3     |                      |
| 172926      | 35    | H1     |                      |
| 172927      | 65    | H3     |                      |
| 172991      | 63    | H3     |                      |
| 173034      | 96    | H3     |                      |
| 173036      | 41    | 1000   | Little greenish gray |
| 173036      | 47    | H3     |                      |
| 173036      | 57    | H4     |                      |
| 173037      | 42    | H3     |                      |
| 173037      | 48    | H4     |                      |
| 173057      | 58    | H3     |                      |
| 173059      | 29    | H3     |                      |
| 173060      | 27    | H3     |                      |
| 173061      | 32    | H3     |                      |
| 173063      | 17    | 1000   |                      |
| 173063      | 29    | LNL    |                      |
| 173063      | 35    | H3     |                      |
| 173064      | 64    | H3     |                      |
| 173068      | 64    | H3     |                      |
| 173069      | 96    | H3     |                      |
| 173070      | 78    | H3     |                      |
| 173071      | 105   | H3     |                      |
| 173078      | 105   | H3     |                      |
| 173079      | 31    | H1     |                      |
| 173079      | 76    | LNL    |                      |
| 173079      | 78    | H3     |                      |
| 173080      | 80    | H3     |                      |
| 173490      | 20    | 1300   |                      |
| 173490      | 32    | H1     |                      |
| 173491      | 9     | 1766   |                      |
| 173491      | 18    | 1300   |                      |
| 173491      | 32    | H1     |                      |
| 173492      | 30    | H1     |                      |
| 173493      | 31.5  | H1     |                      |
| 173495      | 39    | H1     |                      |
| 173497      | 37    | H1     |                      |
| 173497      | 73    | H3     |                      |
| 173499      | 18    | 1300   |                      |
| 173499      | 70    | H3     |                      |
| 173499      | 78    | H4     |                      |
| 173500      | 21    | H1     |                      |
| 173502      | 19    | H1     |                      |
| 173503      | 56    | 1000   |                      |
| 173504      | 32.5  | H1     |                      |

| Core Number | Depth | Tephra | Description |
|-------------|-------|--------|-------------|
| 173504      | 44    | LNS    |             |
| 173627      | 14.5  | 1766   |             |
| 173627      | 39    | 1300   |             |
| 173628      | 33.5  | 1300   |             |
| 173648      | 50    | 950    |             |
| 173652      | 15    | 1300   |             |
| 173652      | 23    | H1     |             |
| 173653      | 35    | H1     |             |
| 173653      | 52    | 950    |             |
| 173654      | 40    | H1     |             |
| 173654      | 41    | LNS    |             |
| 173654      | 42    | H3     |             |
| 173655      | 55    | H3     |             |
| 173657      | 34    | H1     |             |
| 173658      | 13    | 1300   |             |
| 173659      | 28    | H1     |             |
| 173661      | 19    | 1300   |             |
| 173661      | 27    | H1     |             |
| 173662      | 28    | H1     |             |
| 173663      | 33    | H1     |             |
| 173664      | 39    | H1     |             |
| 173664      | 66    | H3     |             |
| 173665      | 27    | 1300   |             |
| 173665      | 46    | H1     |             |
| 173665      | 86    | H3     |             |
| 173666      | 38    | H1     |             |
| 173667      | 42    | H1     |             |
| 173668      | 38    | H1     |             |
| 173673      | 104   | 950    |             |
| 173674      | 72    | H3     |             |
| 173675      | 77    | H3     |             |
| 173760      | 13    | 1300   |             |

Table 3. Stratigraphic layers in cores.

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 171815      | 0         | 5            | Root Mat        |             |                |
| 171815      | 5         | 50           | Aeolian Deposit |             |                |
| 171815      | 50        | 65           | Subsoil         |             |                |
| 171816      | 0         | 40           | Aeolian Deposit |             |                |
| 171816      | 0         | 40           | Aeolian Deposit |             |                |
| 171816      | 40        | 45           | Iron Pan        |             |                |
| 171816      | 45        | 57           | Aeolian Deposit |             |                |
| 171816      | 57        | 57           | Rock            |             |                |
| 171817      | 0         | 4            | Root Mat        |             |                |
| 171817      | 4         | 18           | Aeolian Deposit |             |                |
| 171817      | 18        | 107          | Turf            |             | LNL/LNS        |
| 171817      | 107       | 110          | Aeolian Deposit |             |                |
| 171817      | 110       | 110          | Rock            |             |                |
| 171818      | 0         | 4            | Root Mat        |             |                |
| 171818      | 4         | 12           | Aeolian Deposit |             |                |
| 171818      | 12        | 87           | Turf            |             | H3/H4          |
| 171818      | 87        | 105          | Aeolian Deposit |             |                |
| 171819      | 0         | 5            | Root Mat        |             |                |
| 171819      | 5         | 12           | Aeolian Deposit |             |                |
| 171819      | 12        | 40           | Turf            |             |                |
| 171819      | 40        | 40           | Rock            |             |                |
| 171820      | 0         | 5            | Root Mat        |             |                |
| 171820      | 5         | 70           | Turf            |             | unknown        |
| 171820      | 70        | 78           | Aeolian Deposit |             |                |
| 171820      | 78        | 95           | Subsoil         |             |                |
| 171820      | 95        | 95           | Rock            |             |                |
| 171821      | 0         | 5            | Root Mat        |             |                |
| 171821      | 5         | 95           | Turf            |             |                |
| 171821      | 95        | 95           | Rock            |             |                |
| 171822      | 0         | 6            | Root Mat        |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 171822      | 6         | 59           | Turf            |             |                |
| 171822      | 59        | 85           | Aeolian Deposit |             |                |
| 171822      | 85        | 85           | Rock            |             |                |
| 171823      | 0         | 8            | Root Mat        |             |                |
| 171823      | 8         | 42           | Turf            |             |                |
| 171823      | 42        | 57           | Aeolian Deposit |             |                |
| 171823      | 57        | 57           | Gravel          |             |                |
| 171824      | 0         | 7            | Root Mat        |             |                |
| 171824      | 7         | 43           | Turf            |             |                |
| 171824      | 43        | 70           | Subsoil         |             |                |
| 171824      | 70        | 70           | Gravel          |             |                |
| 171825      | 0         | 7            | Root Mat        |             |                |
| 171825      | 7         | 64           | Turf            |             | H1             |
| 171825      | 64        | 64           | Rock            |             |                |
| 171826      | 0         | 7            | Root Mat        |             |                |
| 171826      | 7         | 70           | Turf            |             |                |
| 171826      | 70        | 85           | Aeolian Deposit |             |                |
| 171827      | 0         | 6            | Root Mat        |             |                |
| 171827      | 6         | 35           | Aeolian Deposit |             |                |
| 171827      | 35        | 79           | Turf            |             |                |
| 171827      | 79        | 102          | Aeolian Deposit |             |                |
| 171827      | 102       | 104          | Iron Pan        |             |                |
| 171827      | 104       | 115          | Aeolian Deposit |             |                |
| 171828      | 0         | 7            | Root Mat        |             |                |
| 171828      | 7         | 18           | Aeolian Deposit |             |                |
| 171828      | 18        | 48           | Aeolian Deposit |             |                |
| 171828      | 48        | 48           | Gravel          |             |                |
| 172525      | 0         | 5            | Root Mat        |             |                |
| 172525      | 5         | 40           | Aeolian Deposit |             |                |
| 172525      | 40        | 50           | Low Density     |             |                |
| 172525      | 50        | 75           | Midden          |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 172525      | 75        | 110          | Aeolian Deposit |             |                |
| 172525      | 110       | 110          | Rock            |             |                |
| 172526      | 0         | 10           | Root Mat        |             |                |
| 172526      | 10        | 115          | Turf            |             |                |
| 172526      | 115       | 115          | Iron Pan        |             |                |
| 172527      | 0         | 10           | Root Mat        |             |                |
| 172527      | 10        | 30           | Aeolian Deposit |             |                |
| 172527      | 30        | 35           | Low Density     |             |                |
| 172527      | 35        | 50           | Aeolian Deposit |             |                |
| 172527      | 50        | 55           | Gravel          |             |                |
| 172527      | 55        | 60           | Aeolian Deposit |             |                |
| 172527      | 60        | 63           | Gravel          |             |                |
| 172527      | 63        | 70           | Aeolian Deposit |             |                |
| 172527      | 70        | 87           | Cultural Layer  |             |                |
| 172527      | 87        | 104          | Subsoil         |             |                |
| 172527      | 104       | 104          | Gravel          |             |                |
| 172528      | 0         | 10           | Top Soil        |             |                |
| 172528      | 10        | 75           | Turf            |             | LNL/LNS        |
| 172528      | 75        | 75           | Iron Pan        |             |                |
| 172529      | 0         | 8            | Root Mat        |             |                |
| 172529      | 8         | 65           | Turf            |             | H1             |
| 172529      | 65        | 115          | Turf            |             | LNL/LNS        |
| 172529      | 115       | 115          | Iron Pan        |             |                |
| 172530      | 0         | 10           | Root Mat        |             |                |
| 172530      | 10        | 72           | Turf            |             | H1             |
| 172530      | 72        | 115          | Aeolian Deposit |             |                |
| 172530      | 115       | 115          | Iron Pan        |             |                |
| 172531      | 0         | 10           | Top Soil        |             |                |
| 172531      | 10        | 50           | Turf            |             | H1             |
| 172531      | 50        | 50           | Rock            |             |                |
| 172532      | 0         | 12           | Top Soil        |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 172532      | 12        | 35           | Turf            |             |                |
| 172532      | 35        | 50           | Aeolian Deposit |             |                |
| 172532      | 50        | 50           | Rock            |             |                |
| 172533      | 0         | 6            | Root Mat        |             |                |
| 172533      | 6         | 120          | Turf            |             | 1000           |
| 172534      | 0         | 5            | Root Mat        |             |                |
| 172534      | 5         | 110          | Turf            |             | LNL/LNS        |
| 172534      | 110       | 115          | Iron Pan        |             |                |
| 172534      | 115       | 120          | Turf            |             |                |
| 172535      | 0         | 5            | Root Mat        |             |                |
| 172535      | 5         | 120          | Turf            |             |                |
| 172536      | 0         | 5            | Root Mat        |             |                |
| 172536      | 5         | 60           | Turf            |             |                |
| 172536      | 60        | 81           | Midden          |             |                |
| 172536      | 81        | 105          | Turf            |             |                |
| 172536      | 105       | 105          | Iron Pan        |             |                |
| 172537      | 0         | 6            | Root Mat        |             |                |
| 172537      | 6         | 62           | Turf            |             |                |
| 172537      | 62        | 70           | Midden          |             |                |
| 172537      | 70        | 120          | Aeolian Deposit |             |                |
| 172538      | 0         | 5            | Root Mat        |             |                |
| 172538      | 5         | 91           | Turf            |             |                |
| 172538      | 91        | 95           | Aeolian Deposit |             |                |
| 172538      | 95        | 97           | Iron Pan        |             |                |
| 172538      | 97        | 130          | Aeolian Deposit |             |                |
| 172757      | 0         | 4            | Root Mat        |             |                |
| 172757      | 4         | 19           | Aeolian Deposit |             |                |
| 172757      | 19        | 40           | Turf            |             | H1             |
| 172757      | 40        | 40           | Rock            |             |                |
| 172758      | 0         | 12           | Root Mat        |             |                |
| 172758      | 12        | 44           | Turf            |             | 934            |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 172758      | 44        | 59           | Aeolian Deposit |             |                |
| 172758      | 59        | 62           | Iron Pan        |             |                |
| 172758      | 62        | 72           | Aeolian Deposit |             |                |
| 172758      | 72        | 80           | Iron Pan        |             |                |
| 172758      | 80        | 80           | Iron Pan        |             |                |
| 172759      | 0         | 8            | Root Mat        |             |                |
| 172759      | 8         | 47           | Turf            |             |                |
| 172759      | 47        | 55           | Low Density     |             |                |
| 172759      | 55        | 62           | Floor           |             |                |
| 172759      | 62        | 70           | Aeolian Deposit |             |                |
| 172759      | 70        | 70           | Iron Pan        |             |                |
| 172760      | 0         | 8            | Root Mat        |             |                |
| 172760      | 8         | 20           | Aeolian Deposit |             |                |
| 172760      | 20        | 30           | Gravel          |             |                |
| 172760      | 30        | 52           | Turf            |             | 934            |
| 172760      | 52        | 57           | Iron Pan        |             |                |
| 172760      | 57        | 80           | Aeolian Deposit |             |                |
| 172761      | 0         | 8            | Root Mat        |             |                |
| 172761      | 8         | 30           | Aeolian Deposit |             |                |
| 172761      | 30        | 60           | Midden          |             |                |
| 172761      | 60        | 65           | Aeolian Deposit |             |                |
| 172761      | 65        | 65           | Iron Pan        |             |                |
| 172762      | 0         | 12           | Root Mat        |             |                |
| 172762      | 12        | 44           | Turf            |             |                |
| 172762      | 44        | 48           | Midden          |             |                |
| 172762      | 48        | 48           | Aeolian Deposit |             |                |
| 172763      | 0         | 6            | Root Mat        |             |                |
| 172763      | 6         | 48           | Turf            |             | LNL/LNS        |
| 172763      | 48        | 55           | Midden          |             |                |
| 172763      | 55        | 55           | Rock            |             |                |
| 172764      | 0         | 8            | Root Mat        |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description                                 | Tephra in Turf |
|-------------|-----------|--------------|-----------------|---------------------------------------------|----------------|
| 172764      | 8         | 78           | Turf            |                                             | LNL/LNS        |
| 172764      | 78        | 98           | Aeolian Deposit |                                             |                |
| 172764      | 98        | 98           | Rock            |                                             |                |
| 172765      | 0         | 9            | Root Mat        |                                             |                |
| 172765      | 9         | 80           | Turf            |                                             | LNL/LNS        |
| 172765      | 80        | 95           | Aeolian Deposit |                                             |                |
| 172765      | 95        | 100          | Iron Pan        |                                             |                |
| 172765      | 100       | 110          | Aeolian Deposit |                                             |                |
| 172766      | 0         | 7            | Root Mat        |                                             |                |
| 172766      | 7         | 35           | Turf            | Collapse?                                   |                |
| 172766      | 35        | 36           | Cultural Layer  | Thin, soft                                  |                |
| 172766      | 36        | 102          | Aeolian Deposit |                                             |                |
| 172766      | 102       | 102          | Iron Pan        |                                             |                |
| 172767      | 0         | 9            | Root Mat        |                                             |                |
| 172767      | 9         | 42           | Turf            |                                             |                |
| 172767      | 42        | 45           | Cultural Layer  | Floorish lens of charcoal (4mm) on ldc      |                |
| 172767      | 45        | 56           | Turf            |                                             | LNL/LNS        |
| 172767      | 56        | 120          | Aeolian Deposit |                                             |                |
| 172768      | 0         | 8            | Root Mat        |                                             |                |
| 172768      | 8         | 30           | Aeolian Deposit | Mottled, turfy, mixed aeolian and collapse? |                |
| 172768      | 30        | 32           | Low Density     |                                             |                |
| 172768      | 32        | 102          | Aeolian Deposit |                                             |                |
| 172768      | 102       | 102          | Gravel          |                                             |                |
| 172769      | 0         | 7            | Root Mat        |                                             |                |
| 172769      | 7         | 30           | Aeolian Deposit |                                             |                |
| 172769      | 30        | 51           | Turf            |                                             |                |
| 172769      | 51        | 62           | Aeolian Deposit |                                             |                |
| 172769      | 62        | 62           | Gravel          |                                             |                |
| 172770      | 0         | 10           | Root Mat        |                                             |                |
| 172770      | 10        | 95           | Turf            |                                             | LNL/LNS        |
| 172770      | 95        | 95           | Rock            |                                             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description   | Tephra in Turf |
|-------------|-----------|--------------|-----------------|---------------|----------------|
| 172771      | 0         | 8            | Root Mat        |               |                |
| 172771      | 8         | 50           | Turf            |               | LNL/LNS        |
| 172771      | 50        | 50           | Rock            |               |                |
| 172778      | 0         | 6            | Root Mat        |               |                |
| 172778      | 6         | 40           | Turf            |               |                |
| 172778      | 40        | 59           | Aeolian Deposit |               |                |
| 172778      | 59        | 59           | Iron Pan        |               |                |
| 172779      | 0         | 7            | Root Mat        |               |                |
| 172779      | 7         | 20           | Turf            |               |                |
| 172779      | 20        | 30           | Low Density     |               |                |
| 172779      | 30        | 50           | Turf            |               |                |
| 172779      | 50        | 59           | Midden          |               |                |
| 172779      | 59        | 61           | Floor           |               |                |
| 172779      | 61        | 80           | Aeolian Deposit |               |                |
| 172779      | 80        | 85           | Iron Pan        |               |                |
| 172779      | 85        | 110          | Aeolian Deposit |               |                |
| 172779      | 110       | 110          | Iron Pan        |               |                |
| 172780      | 0         | 6            | Root Mat        |               |                |
| 172780      | 6         | 65           | Turf            |               | H3/H4          |
| 172780      | 65        | 66           | Midden          |               |                |
| 172780      | 66        | 80           | Low Density     |               |                |
| 172780      | 80        | 80           | Iron Pan        |               |                |
| 172781      | 0         | 6            | Root Mat        |               |                |
| 172781      | 6         | 49           | Turf            |               |                |
| 172781      | 49        | 50           | Midden          |               |                |
| 172781      | 50        | 70           | Aeolian Deposit |               |                |
| 172781      | 70        | 70           | Gravel          |               |                |
| 172782      | 0         | 6            | Root Mat        |               |                |
| 172782      | 6         | 40           | Aeolian Deposit |               | LNL/LNS        |
| 172782      | 40        | 62           | Aeolian Deposit | Mottled,irony |                |
| 172782      | 62        | 62           | Rock            |               |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description          | Tephra in Turf |
|-------------|-----------|--------------|-----------------|----------------------|----------------|
| 172783      | 0         | 5            | Root Mat        |                      |                |
| 172783      | 5         | 15           | Aeolian Deposit |                      |                |
| 172783      | 15        | 15           | Rock            |                      |                |
| 172784      | 0         | 10           | Root Mat        |                      |                |
| 172784      | 10        | 68           | Aeolian Deposit |                      |                |
| 172784      | 68        | 68           | Iron Pan        |                      |                |
| 172785      | 0         | 7            | Root Mat        |                      |                |
| 172785      | 7         | 40           | Aeolian Deposit |                      |                |
| 172785      | 40        | 80           | Turf            | Black tephra, Katla? | unknown        |
| 172785      | 80        | 110          | Aeolian Deposit |                      |                |
| 172805      | 0         | 10           | Root Mat        |                      |                |
| 172805      | 10        | 33           | Aeolian Deposit |                      |                |
| 172805      | 33        | 64           | Turf            |                      | H3/H4          |
| 172805      | 64        | 64           | Rock            |                      |                |
| 172806      | 0         | 2            | Root Mat        |                      |                |
| 172806      | 12        | 29           | Aeolian Deposit |                      |                |
| 172806      | 29        | 60           | Turf            |                      |                |
| 172806      | 60        | 80           | Iron Pan        |                      |                |
| 172807      | 0         | 6            | Root Mat        |                      |                |
| 172807      | 6         | 47           | Aeolian Deposit |                      |                |
| 172807      | 47        | 47           | Rock            |                      |                |
| 172808      | 0         | 12           | Root Mat        |                      |                |
| 172808      | 12        | 40           | Turf            |                      | None           |
| 172808      | 40        | 40           | Rock            |                      |                |
| 172809      | 0         | 6            | Root Mat        |                      |                |
| 172809      | 6         | 72           | Turf            |                      |                |
| 172809      | 72        | 94           | Aeolian Deposit |                      |                |
| 172810      | 0         | 10           | Root Mat        |                      |                |
| 172810      | 10        | 49           | Aeolian Deposit |                      |                |
| 172810      | 49        | 75           | Turf            |                      |                |
| 172810      | 75        | 75           | Iron Pan        |                      |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description      | Tephra in Turf |
|-------------|-----------|--------------|-----------------|------------------|----------------|
| 172811      | 0         | 12           | Root Mat        |                  |                |
| 172811      | 12        | 36           | Aeolian Deposit |                  |                |
| 172811      | 36        | 49           | Turf            |                  |                |
| 172811      | 49        | 59           | Aeolian Deposit |                  |                |
| 172811      | 59        | 66           | Iron Pan        |                  |                |
| 172811      | 66        | 68           | Aeolian Deposit |                  |                |
| 172812      | 0         | 12           | Root Mat        |                  |                |
| 172812      | 12        | 28           | Aeolian Deposit |                  |                |
| 172812      | 28        | 43           | Floor           |                  |                |
| 172812      | 43        | 110          | Turf            |                  |                |
| 172812      | 110       | 120          | Aeolian Deposit |                  |                |
| 172813      | 0         | 12           | Root Mat        |                  |                |
| 172813      | 12        | 30           | Aeolian Deposit |                  |                |
| 172813      | 30        | 92           | Turf            |                  |                |
| 172813      | 92        | 115          | Aeolian Deposit |                  |                |
| 172813      | 115       | 120          | Iron Pan        |                  |                |
| 172814      | 0         | 12           | Root Mat        |                  |                |
| 172814      | 12        | 50           | Aeolian Deposit |                  |                |
| 172814      | 50        | 50           | Rock            |                  |                |
| 172815      | 0         | 12           | Root Mat        |                  |                |
| 172815      | 12        | 110          | Aeolian Deposit |                  |                |
| 172815      | 110       | 110          | Gravel          |                  |                |
| 172850      | 0         | 5            | Root Mat        |                  |                |
| 172850      | 5         | 28           | Aeolian Deposit |                  |                |
| 172850      | 28        | 63           | Turf            |                  | LNL/LNS        |
| 172850      | 63        | 63           | Rock            |                  |                |
| 172851      | 0         | 6            | Root Mat        |                  |                |
| 172851      | 6         | 90           | Aeolian Deposit | Mottled below 40 |                |
| 172851      | 90        | 90           | Rock            |                  |                |
| 172852      | 0         | 6            | Root Mat        |                  |                |
| 172852      | 6         | 18           | Aeolian Deposit |                  |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description      | Tephra in Turf |
|-------------|-----------|--------------|-----------------|------------------|----------------|
| 172852      | 18        | 18           | Rock            |                  |                |
| 172853      | 0         | 6            | Root Mat        |                  |                |
| 172853      | 6         | 30           | Aeolian Deposit |                  |                |
| 172853      | 30        | 47           | Turf            |                  |                |
| 172853      | 47        | 61           | Aeolian Deposit |                  |                |
| 172853      | 61        | 61           | Rock            |                  |                |
| 172854      | 0         | 5            | Root Mat        |                  |                |
| 172854      | 5         | 56           | Aeolian Deposit | Turfy            |                |
| 172854      | 56        | 56           | Rock            |                  |                |
| 172855      | 0         | 5            | Root Mat        |                  |                |
| 172855      | 5         | 10           | Aeolian Deposit |                  |                |
| 172855      | 10        | 20           | Turf            | Burnt            |                |
| 172855      | 20        | 36           | Aeolian Deposit |                  |                |
| 172855      | 36        | 36           | Rock            |                  |                |
| 172856      | 0         | 5            | Root Mat        |                  |                |
| 172856      | 5         | 60           | Turf            |                  | H3/H4          |
| 172856      | 60        | 62           | Aeolian Deposit |                  |                |
| 172856      | 62        | 62           | Rock            |                  |                |
| 172857      | 0         | 6            | Root Mat        |                  |                |
| 172857      | 6         | 14           | Aeolian Deposit |                  |                |
| 172857      | 14        | 63           | Aeolian Deposit |                  |                |
| 172857      | 63        | 63           | Iron Pan        |                  |                |
| 172858      | 0         | 6            | Root Mat        |                  |                |
| 172858      | 6         | 37           | Aeolian Deposit |                  |                |
| 172858      | 37        | 37           | Rock            |                  |                |
| 172859      | 0         | 6            | Root Mat        |                  |                |
| 172859      | 6         | 54           | Aeolian Deposit | Sheep bone at 43 |                |
| 172859      | 54        | 54           | Rock            |                  |                |
| 172860      | 0         | 7            | Root Mat        |                  |                |
| 172860      | 7         | 62           | Aeolian Deposit |                  |                |
| 172860      | 62        | 62           | Rock            |                  |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description                                         | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-----------------------------------------------------|----------------|
| 172861      | 0         | 7            | Root Mat        |                                                     |                |
| 172861      | 7         | 25           | Aeolian Deposit |                                                     |                |
| 172861      | 25        | 25           | Rock            |                                                     |                |
| 172862      | 0         | 5            | Root Mat        |                                                     |                |
| 172862      | 5         | 18           | Aeolian Deposit |                                                     |                |
| 172862      | 18        | 61           | Turf            |                                                     | LNL/LNS        |
| 172862      | 61        | 69           | Aeolian Deposit |                                                     |                |
| 172862      | 69        | 69           | Iron Pan        |                                                     |                |
| 172863      | 0         | 8            | Root Mat        |                                                     |                |
| 172863      | 8         | 28           | Aeolian Deposit | Turfy                                               |                |
| 172863      | 28        | 67           | Aeolian Deposit |                                                     |                |
| 172863      | 67        | 67           | Iron Pan        |                                                     |                |
| 172864      | 0         | 7            | Root Mat        |                                                     |                |
| 172864      | 7         | 69           | Aeolian Deposit |                                                     |                |
| 172864      | 69        | 78           | Iron Pan        |                                                     |                |
| 172865      | 0         | 6            | Root Mat        |                                                     |                |
| 172865      | 6         | 35           | Aeolian Deposit |                                                     |                |
| 172865      | 35        | 67           | Turf            |                                                     | LNL/LNS        |
| 172865      | 67        | 69           | Midden          | Thin lens of white sand like burnt bone in charcoal |                |
| 172865      | 69        | 120          | Aeolian Deposit |                                                     |                |
| 172907      | 0         | 10           | Root Mat        |                                                     |                |
| 172907      | 10        | 42           | Aeolian Deposit |                                                     |                |
| 172907      | 42        | 65           | Turf            |                                                     | LNL/LNS        |
| 172907      | 65        | 80           | Aeolian Deposit |                                                     |                |
| 172907      | 80        | 80           | Rock            |                                                     |                |
| 172908      | 0         | 10           | Root Mat        |                                                     |                |
| 172908      | 10        | 36           | Aeolian Deposit |                                                     |                |
| 172908      | 36        | 38           | Cultural Layer  |                                                     |                |
| 172908      | 38        | 45           | Aeolian Deposit |                                                     |                |
| 172908      | 45        | 60           | Turf            |                                                     |                |
| 172908      | 60        | 78           | Aeolian Deposit |                                                     |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 172908      | 78        | 78           | Gravel          |             |                |
| 172909      | 0         | 10           | Root Mat        |             |                |
| 172909      | 10        | 40           | Aeolian Deposit |             |                |
| 172909      | 40        | 61           | Turf            |             | 934            |
| 172909      | 61        | 80           | Aeolian Deposit |             |                |
| 172909      | 80        | 80           | Gravel          |             |                |
| 172910      | 0         | 12           | Root Mat        |             |                |
| 172910      | 12        | 63           | Turf            |             |                |
| 172910      | 63        | 80           | Aeolian Deposit |             |                |
| 172910      | 80        | 80           | Gravel          |             |                |
| 172911      | 0         | 10           | Root Mat        |             |                |
| 172911      | 10        | 50           | Turf            |             | 934            |
| 172911      | 50        | 53           | Iron Pan        |             |                |
| 172911      | 53        | 80           | Aeolian Deposit |             |                |
| 172911      | 80        | 80           | Gravel          |             |                |
| 172912      | 0         | 15           | Root Mat        |             |                |
| 172912      | 15        | 30           | Disturbed       |             |                |
| 172912      | 30        | 55           | Turf            |             |                |
| 172912      | 55        | 59           | Iron Pan        |             |                |
| 172912      | 59        | 80           | Aeolian Deposit |             |                |
| 172912      | 80        | 80           | Gravel          |             |                |
| 172913      | 0         | 10           | Root Mat        |             |                |
| 172913      | 10        | 37           | Turf            |             | 934            |
| 172913      | 37        | 75           | Aeolian Deposit |             |                |
| 172913      | 75        | 75           | Gravel          |             |                |
| 172914      | 0         | 10           | Root Mat        |             |                |
| 172914      | 10        | 78           | Aeolian Deposit |             |                |
| 172914      | 78        | 78           | Gravel          |             |                |
| 172915      | 0         | 5            | Root Mat        |             |                |
| 172915      | 5         | 87           | Aeolian Deposit |             |                |
| 172915      | 87        | 87           | Gravel          |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 172916      | 0         | 12           | Root Mat        |             |                |
| 172916      | 12        | 47           | Aeolian Deposit |             |                |
| 172916      | 47        | 55           | Midden          |             |                |
| 172916      | 55        | 80           | Turf            |             | 934            |
| 172916      | 80        | 80           | Iron Pan        |             |                |
| 172917      | 0         | 10           | Root Mat        |             |                |
| 172917      | 10        | 45           | Aeolian Deposit |             |                |
| 172917      | 45        | 120          | Turf            |             | 934            |
| 172918      | 0         | 10           | Root Mat        |             |                |
| 172918      | 10        | 37           | Turf            | Burnt       |                |
| 172918      | 37        | 42           | Floor           |             |                |
| 172918      | 42        | 43           | Diatoms         |             |                |
| 172918      | 43        | 71           | Aeolian Deposit |             |                |
| 172918      | 71        | 72           | Iron Pan        |             |                |
| 172918      | 72        | 78           | Aeolian Deposit |             |                |
| 172918      | 78        | 78           | Gravel          |             |                |
| 172919      | 0         | 10           | Root Mat        |             |                |
| 172919      | 10        | 40           | Aeolian Deposit |             |                |
| 172919      | 40        | 63           | Turf            | Burnt       |                |
| 172919      | 63        | 67           | Floor           |             |                |
| 172919      | 67        | 120          | Aeolian Deposit |             |                |
| 172920      | 0         | 12           | Root Mat        |             |                |
| 172920      | 12        | 46           | Turf            | Burnt       |                |
| 172920      | 46        | 49           | Floor           |             |                |
| 172920      | 49        | 120          | Aeolian Deposit |             |                |
| 172921      | 0         | 10           | Root Mat        |             |                |
| 172921      | 10        | 27           | Aeolian Deposit |             |                |
| 172921      | 27        | 46           | Turf            | Burnt       |                |
| 172921      | 46        | 48           | Floor           |             |                |
| 172921      | 48        | 67           | Low Density     |             |                |
| 172921      | 67        | 120          | Aeolian Deposit |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 172922      | 0         | 12           | Root Mat        |             |                |
| 172922      | 12        | 20           | Aeolian Deposit |             |                |
| 172922      | 20        | 51           | Turf            | Burnt       |                |
| 172922      | 51        | 52           | Floor           |             |                |
| 172922      | 52        | 70           | Disturbed       |             |                |
| 172922      | 70        | 71           | Iron Pan        |             |                |
| 172922      | 71        | 73           | Aeolian Deposit |             |                |
| 172922      | 73        | 73           | Iron Pan        |             |                |
| 172923      | 0         | 12           | Root Mat        |             |                |
| 172923      | 12        | 35           | Turf            | Burnt       |                |
| 172923      | 35        | 36           | Floor           |             |                |
| 172923      | 36        | 60           | Disturbed       |             |                |
| 172923      | 60        | 69           | Aeolian Deposit |             |                |
| 172923      | 69        | 69           | Iron Pan        |             |                |
| 172924      | 0         | 10           | Root Mat        |             |                |
| 172924      | 10        | 65           | Turf            |             |                |
| 172924      | 65        | 80           | Aeolian Deposit |             |                |
| 172924      | 80        | 80           | Gravel          |             |                |
| 172925      | 0         | 10           | Root Mat        |             |                |
| 172925      | 10        | 30           | Aeolian Deposit |             |                |
| 172925      | 30        | 68           | Turf            |             |                |
| 172925      | 68        | 79           | Aeolian Deposit |             |                |
| 172925      | 79        | 79           | Gravel          |             |                |
| 172926      | 0         | 10           | Root Mat        |             |                |
| 172926      | 10        | 40           | Aeolian Deposit |             |                |
| 172926      | 40        | 55           | Turf            |             |                |
| 172926      | 55        | 56           | Midden          |             |                |
| 172926      | 56        | 75           | Aeolian Deposit |             |                |
| 172926      | 75        | 75           | Iron Pan        |             |                |
| 172927      | 0         | 10           | Root Mat        |             |                |
| 172927      | 10        | 65           | Turf            |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description                                                | Tephra in Turf |
|-------------|-----------|--------------|-----------------|------------------------------------------------------------|----------------|
| 172927      | 65        | 78           | Aeolian Deposit |                                                            |                |
| 172927      | 78        | 78           | Iron Pan        |                                                            |                |
| 172991      | 0         | 5            | Root Mat        |                                                            |                |
| 172991      | 5         | 64           | Aeolian Deposit | Burnt bone at 51                                           |                |
| 172991      | 64        | 64           | Rock            |                                                            |                |
| 173034      | 0         | 3            | Root Mat        |                                                            |                |
| 173034      | 3         | 90           | Turf            | 1000 kind of green, could be LNL, but not as green as we'd | 1000           |
| 173034      | 90        | 120          | Aeolian Deposit |                                                            |                |
| 173035      | 0         | 10           | Root Mat        |                                                            |                |
| 173035      | 10        | 18           | Aeolian Deposit |                                                            |                |
| 173035      | 18        | 30           | Turf            | Burnt                                                      | H1             |
| 173035      | 30        | 46           | Aeolian Deposit |                                                            |                |
| 173035      | 46        | 48           | Low Density     |                                                            |                |
| 173035      | 48        | 60           | Aeolian Deposit |                                                            |                |
| 173035      | 60        | 60           | Rock            |                                                            |                |
| 173036      | 0         | 9            | Root Mat        |                                                            |                |
| 173036      | 9         | 39           | Turf            |                                                            | LNL/LNS        |
| 173036      | 39        | 40           | Midden          |                                                            |                |
| 173036      | 40        | 67           | Aeolian Deposit |                                                            |                |
| 173036      | 67        | 67           | Rock            |                                                            |                |
| 173037      | 0         | 5            | Root Mat        |                                                            |                |
| 173037      | 5         | 68           | Aeolian Deposit | Mottled                                                    |                |
| 173037      | 68        | 68           | Gravel          |                                                            |                |
| 173057      | 0         | 5            | Root Mat        |                                                            |                |
| 173057      | 5         | 48           | Turf            | Burnt                                                      | LNL/LNS        |
| 173057      | 48        | 76           | Aeolian Deposit |                                                            |                |
| 173057      | 76        | 76           | Rock            |                                                            |                |
| 173058      | 0         | 7            | Root Mat        |                                                            |                |
| 173058      | 7         | 29           | Aeolian Deposit |                                                            |                |
| 173058      | 29        | 31           | Low Density     |                                                            |                |
| 173058      | 31        | 52           | Aeolian Deposit |                                                            |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description                 | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-----------------------------|----------------|
| 173058      | 52        | 52           | Rock            |                             |                |
| 173059      | 0         | 6            | Root Mat        |                             |                |
| 173059      | 6         | 30           | Aeolian Deposit |                             |                |
| 173059      | 30        | 40           | Subsoil         |                             |                |
| 173059      | 40        | 40           | Rock            |                             |                |
| 173060      | 0         | 4            | Root Mat        |                             |                |
| 173060      | 4         | 25           | Aeolian Deposit |                             |                |
| 173060      | 25        | 45           | Subsoil         |                             |                |
| 173060      | 45        | 45           | Rock            |                             |                |
| 173061      | 0         | 5            | Root Mat        |                             |                |
| 173061      | 5         | 33           | Aeolian Deposit | Turfy                       |                |
| 173061      | 33        | 40           | Subsoil         |                             |                |
| 173061      | 40        | 40           | Rock            |                             |                |
| 173062      | 0         | 2            | Root Mat        |                             |                |
| 173062      | 2         | 85           | Turf            |                             | H1             |
| 173062      | 85        | 85           | Rock            |                             |                |
| 173063      | 0         | 6            | Root Mat        |                             |                |
| 173063      | 6         | 40           | Aeolian Deposit |                             |                |
| 173063      | 40        | 57           | Subsoil         |                             |                |
| 173063      | 57        | 57           | Gravel          |                             |                |
| 173064      | 0         | 6            | Root Mat        |                             |                |
| 173064      | 6         | 64           | Turf            | Tephra gray green thin line | unknown        |
| 173064      | 64        | 66           | Aeolian Deposit |                             |                |
| 173064      | 66        | 66           | Rock            |                             |                |
| 173065      | 0         | 6            | Root Mat        |                             |                |
| 173065      | 6         | 46           | Turf            |                             | LNL/LNS        |
| 173065      | 46        | 46           | Rock            |                             |                |
| 173066      | 0         | 4            | Root Mat        |                             |                |
| 173066      | 4         | 120          | Turf            |                             | LNL/LNS        |
| 173067      | 0         | 6            | Root Mat        |                             |                |
| 173067      | 6         | 68           | Turf            |                             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173067      | 68        | 78           | Midden          |             |                |
| 173067      | 78        | 120          | Aeolian Deposit | Mottled     |                |
| 173068      | 0         | 65           | Aeolian Deposit |             |                |
| 173068      | 65        | 65           | Rock            |             |                |
| 173069      | 0         | 5            | Root Mat        |             |                |
| 173069      | 5         | 90           | Turf            |             | LNL/LNS        |
| 173069      | 90        | 108          | Aeolian Deposit |             |                |
| 173070      | 0         | 5            | Root Mat        |             |                |
| 173070      | 5         | 52           | Turf            | Collapsy    | LNL/LNS        |
| 173070      | 52        | 55           | Midden          |             |                |
| 173070      | 55        | 76           | Low Density     | Turfy mix   |                |
| 173070      | 76        | 110          | Aeolian Deposit |             |                |
| 173071      | 0         | 5            | Root Mat        |             |                |
| 173071      | 5         | 81           | Turf            |             | LNL/LNS        |
| 173071      | 81        | 120          | Aeolian Deposit |             |                |
| 173077      | 0         | 10           | Root Mat        |             |                |
| 173077      | 10        | 110          | Turf            |             |                |
| 173077      | 110       | 110          | Iron Pan        |             |                |
| 173078      | 0         | 10           | Root Mat        |             |                |
| 173078      | 10        | 105          | Turf            |             |                |
| 173078      | 105       | 120          | Aeolian Deposit |             |                |
| 173079      | 0         | 12           | Root Mat        |             |                |
| 173079      | 12        | 35           | Aeolian Deposit |             |                |
| 173079      | 35        | 52           | Turf            |             |                |
| 173079      | 52        | 65           | Midden          |             |                |
| 173079      | 65        | 70           | Turf            |             |                |
| 173079      | 70        | 81           | Aeolian Deposit |             |                |
| 173079      | 81        | 81           | Iron Pan        |             |                |
| 173080      | 0         | 12           | Root Mat        |             |                |
| 173080      | 12        | 52           | Aeolian Deposit |             |                |
| 173080      | 52        | 60           | Midden          |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173080      | 60        | 90           | Aeolian Deposit |             |                |
| 173080      | 90        | 90           | Iron Pan        |             |                |
| 173081      | 0         | 12           | Root Mat        |             |                |
| 173081      | 12        | 47           | Turf            |             |                |
| 173081      | 47        | 56           | Midden          |             |                |
| 173081      | 56        | 83           | Turf            |             | LNL/LNS        |
| 173081      | 83        | 83           | Iron Pan        |             |                |
| 173490      | 0         | 5            | Root Mat        |             |                |
| 173490      | 5         | 42           | Aeolian Deposit |             |                |
| 173490      | 42        | 42           | Rock            |             |                |
| 173491      | 0         | 5            | Root Mat        |             |                |
| 173491      | 5         | 45           | Aeolian Deposit |             |                |
| 173491      | 45        | 45           | Gravel          |             |                |
| 173492      | 0         | 10           | Root Mat        |             |                |
| 173492      | 10        | 55           | Aeolian Deposit |             |                |
| 173493      | 0         | 7            | Root Mat        |             |                |
| 173493      | 7         | 35           | Aeolian Deposit |             |                |
| 173493      | 35        | 70           | Turf            |             | H3/H4          |
| 173493      | 70        | 70           | Rock            |             |                |
| 173494      | 0         | 6            | Root Mat        |             |                |
| 173494      | 6         | 28           | Aeolian Deposit |             |                |
| 173494      | 28        | 34           | Midden          |             |                |
| 173494      | 34        | 40           | Low Density     |             |                |
| 173494      | 40        | 40           | Rock            |             |                |
| 173495      | 0         | 5            | Root Mat        |             |                |
| 173495      | 5         | 25           | Aeolian Deposit |             |                |
| 173495      | 25        | 39           | Midden          |             |                |
| 173495      | 39        | 45           | Aeolian Deposit |             |                |
| 173495      | 45        | 65           | Turf            |             |                |
| 173495      | 65        | 83           | Aeolian Deposit |             |                |
| 173495      | 83        | 83           | Rock            |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173496      | 0         | 7            | Root Mat        |             |                |
| 173496      | 7         | 29           | Aeolian Deposit |             |                |
| 173496      | 29        | 70           | Turf            |             | H1             |
| 173496      | 70        | 80           | Subsoil         |             |                |
| 173496      | 80        | 80           | Gravel          |             |                |
| 173497      | 0         | 6            | Root Mat        |             |                |
| 173497      | 6         | 25           | Aeolian Deposit |             |                |
| 173497      | 25        | 35           | Turf            | Burnt       |                |
| 173497      | 35        | 41           | Floor           |             |                |
| 173497      | 41        | 45           | Aeolian Deposit |             |                |
| 173497      | 45        | 60           | Turf            |             | H3/H4          |
| 173497      | 60        | 73           | Aeolian Deposit |             |                |
| 173497      | 73        | 90           | Subsoil         |             |                |
| 173498      | 0         | 8            | Root Mat        |             |                |
| 173498      | 8         | 25           | Aeolian Deposit |             |                |
| 173498      | 25        | 40           | Turf            |             |                |
| 173499      | 0         | 5            | Root Mat        |             |                |
| 173499      | 5         | 22           | Aeolian Deposit |             |                |
| 173499      | 22        | 68           | Turf            |             | H1             |
| 173499      | 68        | 81           | Aeolian Deposit |             |                |
| 173499      | 81        | 97           | Subsoil         |             |                |
| 173500      | 0         | 10           | Root Mat        |             |                |
| 173500      | 10        | 40           | Aeolian Deposit |             |                |
| 173500      | 40        | 75           | Turf            |             |                |
| 173500      | 65        | 66           | Midden          |             |                |
| 173500      | 66        | 68           | Aeolian Deposit |             |                |
| 173500      | 68        | 70           | Iron Pan        |             |                |
| 173500      | 70        | 120          | Aeolian Deposit |             |                |
| 173501      | 0         | 6            | Root Mat        |             |                |
| 173501      | 6         | 30           | Aeolian Deposit |             |                |
| 173501      | 30        | 40           | Turf            | Burnt       |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173501      | 40        | 54           | Turf            |             |                |
| 173501      | 54        | 55           | Floor           |             |                |
| 173501      | 55        | 74           | Aeolian Deposit |             |                |
| 173501      | 74        | 74           | Gravel          |             |                |
| 173502      | 0         | 10           | Root Mat        |             |                |
| 173502      | 10        | 29           | Aeolian Deposit |             |                |
| 173502      | 29        | 31           | Midden          |             |                |
| 173502      | 31        | 40           | Aeolian Deposit |             |                |
| 173503      | 0         | 9            | Root Mat        |             |                |
| 173503      | 9         | 20           | Aeolian Deposit |             |                |
| 173503      | 20        | 35           | Turf            | Burnt       |                |
| 173503      | 35        | 42           | Turf            |             |                |
| 173503      | 42        | 52           | Aeolian Deposit |             |                |
| 173503      | 52        | 52           | Rock            |             |                |
| 173504      | 0         | 5            | Root Mat        |             |                |
| 173504      | 5         | 20           | Aeolian Deposit |             |                |
| 173504      | 20        | 26           | Midden          |             |                |
| 173504      | 26        | 48           | Aeolian Deposit |             |                |
| 173505      | 0         | 12           | Root Mat        |             |                |
| 173505      | 12        | 28           | Aeolian Deposit |             |                |
| 173505      | 28        | 28           | Rock            |             |                |
| 173506      | 0         | 8            | Root Mat        |             |                |
| 173506      | 8         | 25           | Aeolian Deposit |             |                |
| 173506      | 25        | 48           | Turf            | Burnt       |                |
| 173506      | 48        | 53           | Floor           |             |                |
| 173506      | 53        | 65           | Aeolian Deposit |             |                |
| 173506      | 65        | 65           | Rock            |             |                |
| 173627      | 0         | 9            | Root Mat        |             |                |
| 173627      | 9         | 68           | Bog             |             |                |
| 173627      | 68        | 68           | Rock            |             |                |
| 173628      | 0         | 8            | Root Mat        |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173628      | 8         | 40           | Bog             |             |                |
| 173648      | 0         | 6            | Root Mat        |             |                |
| 173648      | 6         | 20           | Aeolian Deposit |             |                |
| 173648      | 20        | 37           | Turf            | Burnt       | H3/H4          |
| 173648      | 37        | 44           | Floor           |             |                |
| 173648      | 44        | 50           | Aeolian Deposit |             |                |
| 173648      | 50        | 51.5         | Floor           |             |                |
| 173648      | 51.5      | 65           | Aeolian Deposit |             |                |
| 173648      | 65        | 65           | Rock            |             |                |
| 173649      | 0         | 5            | Root Mat        |             |                |
| 173649      | 5         | 20           | Aeolian Deposit |             |                |
| 173649      | 20        | 45           | Turf            | Burnt       |                |
| 173649      | 45        | 45           | Rock            |             |                |
| 173650      | 0         | 7            | Root Mat        |             |                |
| 173650      | 7         | 35           | Aeolian Deposit |             |                |
| 173650      | 35        | 40           | Turf            |             |                |
| 173650      | 40        | 45           | Aeolian Deposit |             |                |
| 173650      | 45        | 45           | Rock            |             |                |
| 173651      | 0         | 6            | Root Mat        |             |                |
| 173651      | 6         | 28           | Aeolian Deposit |             |                |
| 173651      | 28        | 32           | Turf            |             |                |
| 173651      | 32        | 41           | Aeolian Deposit |             |                |
| 173651      | 41        | 41           | Rock            |             |                |
| 173652      | 0         | 10           | Root Mat        |             |                |
| 173652      | 10        | 15           | Aeolian Deposit |             |                |
| 173652      | 15        | 25           | Aeolian Deposit |             |                |
| 173652      | 25        | 45           | Turf            |             |                |
| 173652      | 45        | 49           | Aeolian Deposit |             |                |
| 173652      | 49        | 53           | Midden          |             |                |
| 173653      | 0         | 7            | Root Mat        |             |                |
| 173653      | 7         | 29           | Aeolian Deposit |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173653      | 29        | 35           | Turf            |             |                |
| 173653      | 35        | 40           | Aeolian Deposit |             |                |
| 173653      | 40        | 52           | Midden          | Dark        |                |
| 173653      | 52        | 62           | Aeolian Deposit |             |                |
| 173654      | 0         | 7            | Root Mat        |             |                |
| 173654      | 7         | 22           | Aeolian Deposit |             |                |
| 173654      | 22        | 27           | Low Density     |             |                |
| 173654      | 27        | 35           | Turf            |             |                |
| 173654      | 35        | 53           | Aeolian Deposit |             |                |
| 173654      | 53        | 71           | Subsoil         |             |                |
| 173654      | 71        | 71           | Gravel          |             |                |
| 173655      | 0         | 6            | Root Mat        |             |                |
| 173655      | 6         | 35           | Aeolian Deposit |             |                |
| 173655      | 35        | 38           | Turf            |             |                |
| 173655      | 38        | 40           | Midden          |             |                |
| 173655      | 40        | 45           | Low Density     |             |                |
| 173655      | 45        | 60           | Aeolian Deposit |             |                |
| 173656      | 0         | 8            | Root Mat        |             |                |
| 173656      | 8         | 19           | Aeolian Deposit |             |                |
| 173656      | 19        | 26           | Midden          |             |                |
| 173656      | 26        | 35           | Turf            |             |                |
| 173656      | 35        | 45           | Aeolian Deposit | Boggy       |                |
| 173656      | 45        | 71           | Aeolian Deposit |             |                |
| 173657      | 0         | 6            | Root Mat        |             |                |
| 173657      | 6         | 43           | Aeolian Deposit |             |                |
| 173657      | 43        | 55           | Midden          |             |                |
| 173657      | 55        | 56           | Aeolian Deposit |             |                |
| 173657      | 56        | 56           | Rock            |             |                |
| 173658      | 0         | 5            | Root Mat        |             |                |
| 173658      | 5         | 52           | Aeolian Deposit |             |                |
| 173658      | 52        | 52           | Rock            |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173659      | 0         | 5            | Root Mat        |             |                |
| 173659      | 5         | 58           | Aeolian Deposit |             |                |
| 173659      | 58        | 58           | Rock            |             |                |
| 173660      | 0         | 5            | Root Mat        |             |                |
| 173660      | 5         | 56           | Aeolian Deposit |             |                |
| 173660      | 56        | 56           | Rock            |             |                |
| 173661      | 0         | 7            | Root Mat        |             |                |
| 173661      | 7         | 40           | Aeolian Deposit |             |                |
| 173661      | 40        | 50           | Turf            |             |                |
| 173661      | 50        | 60           | Aeolian Deposit |             |                |
| 173661      | 60        | 62           | Subsoil         |             |                |
| 173661      | 62        | 62           | Rock            |             |                |
| 173662      | 0         | 7            | Root Mat        |             |                |
| 173662      | 7         | 38           | Aeolian Deposit |             |                |
| 173662      | 38        | 68           | Turf            |             |                |
| 173662      | 68        | 68           | Rock            |             |                |
| 173663      | 0         | 8            | Root Mat        |             |                |
| 173663      | 8         | 30           | Aeolian Deposit |             |                |
| 173663      | 30        | 34           | Turf            |             |                |
| 173663      | 34        | 40           | Aeolian Deposit |             |                |
| 173663      | 40        | 59           | Turf            |             |                |
| 173663      | 59        | 70           | Aeolian Deposit |             |                |
| 173663      | 70        | 72           | Subsoil         |             |                |
| 173664      | 0         | 7            | Root Mat        |             |                |
| 173664      | 7         | 30           | Aeolian Deposit |             |                |
| 173664      | 30        | 37           | Midden          |             |                |
| 173664      | 37        | 44           | Aeolian Deposit |             |                |
| 173664      | 44        | 60           | Turf            |             |                |
| 173664      | 60        | 66           | Aeolian Deposit |             |                |
| 173664      | 66        | 67           | Subsoil         |             |                |
| 173664      | 67        | 67           | Rock            |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173665      | 0         | 7            | Root Mat        |             |                |
| 173665      | 7         | 29           | Aeolian Deposit |             |                |
| 173665      | 29        | 43           | Turf            |             |                |
| 173665      | 43        | 50           | Aeolian Deposit |             |                |
| 173665      | 50        | 56           | Turf            |             |                |
| 173665      | 56        | 87           | Aeolian Deposit |             |                |
| 173665      | 87        | 95           | Subsoil         |             |                |
| 173666      | 0         | 8            | Root Mat        |             |                |
| 173666      | 8         | 34           | Aeolian Deposit |             |                |
| 173666      | 34        | 36           | Midden          |             |                |
| 173666      | 36        | 60           | Aeolian Deposit |             |                |
| 173666      | 60        | 60           | Rock            |             |                |
| 173667      | 0         | 8            | Root Mat        |             |                |
| 173667      | 8         | 36           | Aeolian Deposit |             |                |
| 173667      | 36        | 40           | Midden          |             |                |
| 173667      | 40        | 46           | Aeolian Deposit |             |                |
| 173667      | 46        | 60           | Turf            |             |                |
| 173667      | 60        | 75           | Aeolian Deposit |             |                |
| 173667      | 75        | 75           | Rock            |             |                |
| 173668      | 0         | 8            | Root Mat        |             |                |
| 173668      | 8         | 24           | Aeolian Deposit |             |                |
| 173668      | 24        | 32           | Turf            |             | H1             |
| 173668      | 32        | 40           | Aeolian Deposit |             |                |
| 173668      | 40        | 59           | Turf            |             |                |
| 173668      | 59        | 65           | Aeolian Deposit |             |                |
| 173668      | 65        | 65           | Rock            |             |                |
| 173669      | 0         | 7            | Root Mat        |             |                |
| 173669      | 7         | 25           | Aeolian Deposit |             |                |
| 173669      | 25        | 28           | Midden          |             |                |
| 173669      | 28        | 40           | Turf            |             | H1             |
| 173669      | 40        | 46           | Aeolian Deposit |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173669      | 46        | 67           | Turf            |             |                |
| 173669      | 67        | 71           | Aeolian Deposit |             |                |
| 173669      | 71        | 71           | Rock            |             |                |
| 173670      | 0         | 8            | Root Mat        |             |                |
| 173670      | 8         | 19           | Aeolian Deposit |             |                |
| 173670      | 19        | 60           | Turf            | Burnt       |                |
| 173670      | 60        | 60           | Rock            |             |                |
| 173671      | 0         | 6            | Root Mat        |             |                |
| 173671      | 6         | 23           | Aeolian Deposit |             |                |
| 173671      | 23        | 31           | Midden          |             |                |
| 173671      | 31        | 37           | Aeolian Deposit |             |                |
| 173671      | 37        | 44           | Turf            |             |                |
| 173671      | 44        | 44           | Gravel          |             |                |
| 173672      | 0         | 6            | Root Mat        |             |                |
| 173672      | 6         | 26           | Aeolian Deposit |             |                |
| 173672      | 26        | 40           | Turf            | Burnt       |                |
| 173672      | 40        | 47           | Turf            |             |                |
| 173672      | 47        | 65           | Midden          |             |                |
| 173672      | 65        | 73           | Aeolian Deposit |             |                |
| 173673      | 0         | 5            | Root Mat        |             |                |
| 173673      | 5         | 34           | Aeolian Deposit |             |                |
| 173673      | 34        | 94           | Turf            |             | 934            |
| 173673      | 94        | 104          | Midden          |             |                |
| 173673      | 104       | 112          | Aeolian Deposit |             |                |
| 173674      | 0         | 6            | Root Mat        |             |                |
| 173674      | 6         | 35           | Aeolian Deposit |             |                |
| 173674      | 35        | 59           | Turf            |             |                |
| 173674      | 59        | 72           | Aeolian Deposit |             |                |
| 173674      | 72        | 91           | Subsoil         |             |                |
| 173675      | 0         | 7            | Root Mat        |             |                |
| 173675      | 7         | 19           | Aeolian Deposit |             |                |

| Core Number | Top Depth | Bottom Depth | Category        | Description | Tephra in Turf |
|-------------|-----------|--------------|-----------------|-------------|----------------|
| 173675      | 19        | 57           | Turf            |             |                |
| 173675      | 57        | 80           | Aeolian Deposit |             |                |
| 173675      | 80        | 86           | Subsoil         |             |                |
| 173676      | 0         | 6            | Root Mat        |             |                |
| 173676      | 6         | 26           | Aeolian Deposit |             |                |
| 173676      | 26        | 43           | Turf            |             |                |
| 173676      | 43        | 43           | Rock            |             |                |
| 173759      | 0         | 7            | Root Mat        |             |                |
| 173759      | 7         | 28           | Aeolian Deposit |             |                |
| 173759      | 28        | 51           | Floor           |             |                |
| 173759      | 51        | 66           | Turf            |             |                |
| 173759      | 66        | 69           | Floor           |             |                |
| 173759      | 69        | 71           | Aeolian Deposit |             |                |
| 173759      | 71        | 73           | Floor           |             |                |
| 173759      | 73        | 110          | Aeolian Deposit |             |                |
| 173760      | 0         | 10           | Root Mat        |             |                |
| 173760      | 10        | 30           | Aeolian Deposit |             |                |
| 173760      | 30        | 50           | Turf            |             | H1             |
| 173760      | 50        | 57           | Aeolian Deposit |             |                |
| 173760      | 57        | 69           | Midden          |             |                |
| 173760      | 69        | 70           | Aeolian Deposit |             |                |
| 173760      | 70        | 70           | Rock            |             |                |

Table 4. Finds list

| Farm   | Place        | Artifact Number | DESCRIPTION                                                                          | CONTEXT | ID  | DATE       |
|--------|--------------|-----------------|--------------------------------------------------------------------------------------|---------|-----|------------|
| Garður | Hegranesþing | 2017-12-1       | Worked iron - nail?                                                                  | 106     | RSS | 08/02/2017 |
| Garður | Hegranesþing | 2017-12-2       | 4 metal pieces in screen, 1 by hand                                                  | 106     | KWS | 08/02/2017 |
| Garður | Hegranesþing | 2017-12-3       | Possible rivet                                                                       | 107     | TLP | 08/02/2017 |
| Garður | Hegranesþing | 2017-12-5       | Fragment                                                                             | 111     | GMC | 08/03/2017 |
| Garður | Hegranesþing | 2017-12-6       | Worked bone                                                                          | 111     | TLP | 08/03/2017 |
| Garður | Hegranesþing | 2017-12-7       | Worked bone, similar to find 6 and possibly from the same object maybe a comb sheath | 111     | RSS | 08/03/2017 |
| Garður | Hegranesþing | 2017-12-9       | In screen - comb fragment in screen                                                  | 112     | RSS | 08/03/2017 |
| Garður | Hegranesþing | 2017-12-11      | In screen - comb fragment in screen                                                  | 111     | RSS | 08/03/2017 |