



TRH06 - 07


The Archaeology of Reykjavík Water Front

Framvinduskýrsla / Interim report



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Front cover (top to bottom): *photograph taken by Magnús Ólafsson (MAÓ 2479) c. 1920s of the water front area, with the site just visible in the background – looking south; the water front next to Kolasund and of building [45] – looking south east.*

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PROPOSED DEVELOPMENT AREA (PDA)

The impact zone of the proposed development area (after PDA) will in effect remove a minimum depth of 8m of overburden across the entire site. Therefore, with an archaeology which is relatively close to the surface, and with monument heights of 2-3m in some places, all archaeology within the PDA will be removed.

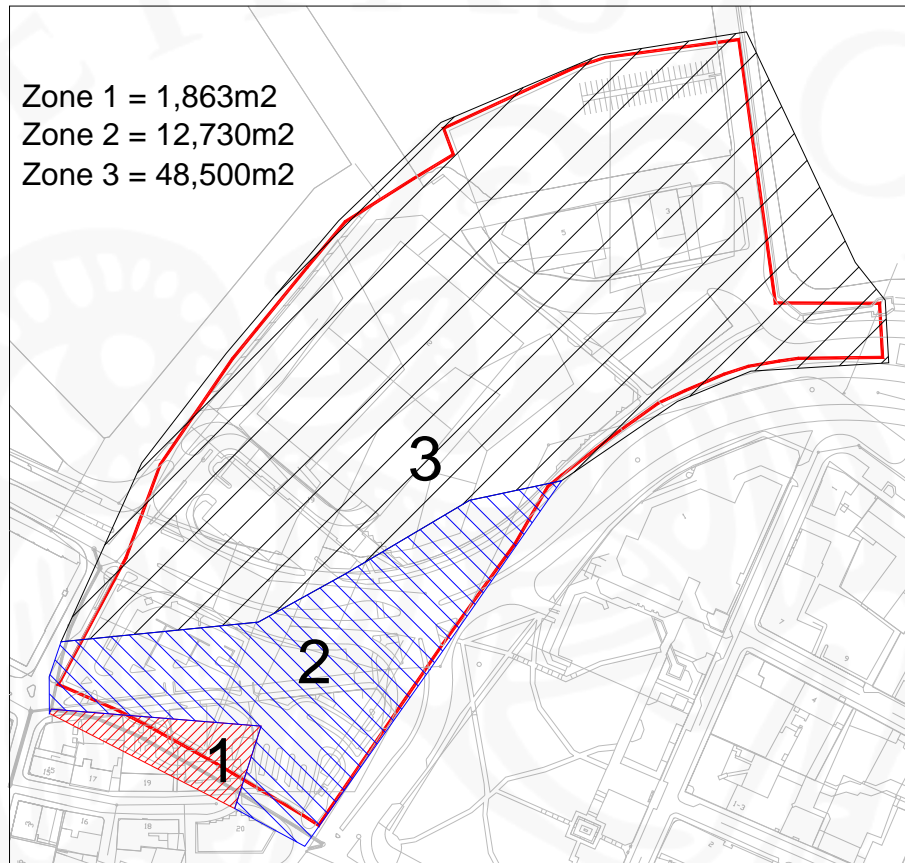


Figure 1. Proposed development area and the archaeological potential divided into zones.

It was suggested that the area be divided into 3 zones. Zone 3, the largest at 48.5 hectares according to map sources was recently reclaimed from the sea. Zone 2, has some potential, though it should be noted that the south-eastern portion of the zone is likely to contain well preserved features though perhaps with a greater level of truncation derived from later activities in the area, such as the garage seen on 1960-1970s photographs. Zone 1 is the area with the most potential for archaeological work. The excavations presented in this report lay within that zone.

The excavations that took place in winter cover approximately 1,405 m²; this includes a slight extension at the western end of the excavation area (area 5) taking in parts of Posthússtræti and the entirety of Hafnarstræti 21. However, substantial archaeological remains are left.

PREVIOUS EXCAVATIONS

Excavations took place around the harbour front and within the PDA in May/June 2006. A separate report summarised the findings which were then used as the basis for a proposal, the results of which are the excavations presented here¹.

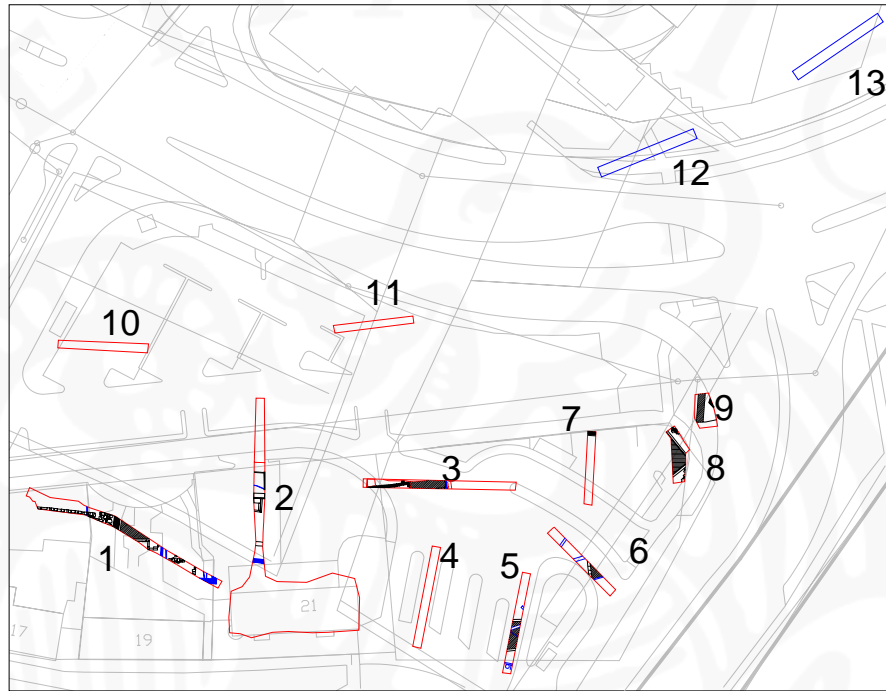


Figure 2. Trench plan from May/June 2006 excavations.

Between May-June 2006 the excavations were more extensive than the ones conducted in the winter, though they identified the areas that contained the highest density and greatest potential for further work. The excavations though were part of an evaluation of the PDA to determine the potential for further work and therefore its remit was quite different from the excavations presented in this report. Nonetheless, the identification of sites and archaeology of interest was established. In reflection as a result of further work it is likely that they will be much more preservation of late 19th century archaeology that was previously estimated, particularly the remains of buildings and the sea walls, in the areas of trenches 3-9 (see figure 2).

In total 13 trenches were proposed though only 11 of these were excavated. Trench 1 and 2 lay primarily within the current excavation area. Of further interest however will be the trenches 4 – 9 which identified cellars, sea walls as well as different episodes of landfilling connected with the 1912-1917 redevelopment of the water front.

¹ Howell Roberts and Gavin Lucas 2006 *The archaeology of Reykjavík harbour* FS330-06321. Fornleifastofnun Íslands.

RESEARCH PLAN

Aims and Objectives

Aims

The aims of the project were to investigate more extensively the archaeology within the PDA. However, because the types of remains present are variable in nature, a rational research design is required which maximizes the recoverable information for the intensive costs and time taken to conduct an archaeological project. Therefore to this end, it was proposed the area be divided into zones, primarily based on the evaluation:

Zone 1: This is the most sensitive and potentially productive part of the area and occupies a triangle in the southwest corner covering c. 1. In this zone lie the building foundations and associated artefact dumps and fishbone deposits which date to the late 19th and early 20th century.

Zone 2: This area is primarily land reclamation infill and for the most part, consists of sterile deposits with some structural features such as revetments and modern cellared buildings dating to the early- mid 20th century.

Zone 3: Modern land reclamation. Low potential for the recovery of archaeology

It is proposed that the different zones be treated in different ways in terms of the archaeology (see Methods below). The specific objectives would be as follows:

- Recover an accurate map of the building foundations, revetments and other features; the various historic maps are not very precise and this comparison may enhance any future use of historic maps, whether for development or research purposes
- Detailed recording of the construction of the buildings; significant information on early urban building technology, early uses of concrete as well as more traditional materials will improve knowledge of architecture and engineering history in Iceland; information on alterations to buildings will also be obtained, shedding light on the biography of individual structures which can link to the broader history of the neighbourhood.
- Recover artefact assemblages, especially those linked to buildings; these can show what kind of goods were being bought and used, and how this changed over time. It can provide invaluable information on the history of consumer practices and the changing nature of domestic life in the newly developing urban environment.

- Recover samples of fishbone assemblages; study of the bones can reveal species diversity, age at death and processing methods, and give insight into the early days of industrialized fishing.

As with all these objectives, there will be other non-archaeological sources to complement the archaeological data (photographs, documents, maps), but it is in the *comparison* and *combination* of the different sources, that new insight is gained

Methods

The methods of excavation will vary according to the zoning outlined in the section above:

- Zone 1: Machine stripping of the surface followed by hand excavation. It is proposed that all building foundations be recorded in detail and all associated deposits (floors, middens etc.) be totally excavated, with sub-sampling as necessary. For the open areas, machine stripping down to culturally significant deposits (e.g. peatash or fishbone dumps) followed by sample excavation of the deposits to recover sufficient material for statistical analysis.
- Zone 2: Machine stripping of the surface followed by total station survey of the building foundations, shoreline revetments and any other features.

The artefactual and environmental material recovered from the excavations (chiefly zone 1) will be studied by specialists; principally this includes: pottery, glass, other finds, fishbone, building material. There is no expectation for specialist services such as radiocarbon dating.

HISTORICAL DEVELOPMENT OF AREA

The description of the historical development of selected features from the excavations within the PDA rely mainly on the published architectural histories of Reykjavík derived from Kvosin². The maps appended to this volume provide a detailed account of the historical-spatial development of Reykjavík, time-sliced at the following dates: 1787, 1801, 1836, 1876, 1887, 1902 and 1917. These provide a useful measure of the development to the water front areas in which the archaeological material can be situated and compared against. However, with this in mind, it is important from the onset to mention that the Kvosin maps are interpretations of the original maps which are themselves abstract representations of Reykjavík at various dates. Therefore the accuracy and form of the features that are depicted must be questioned and considered carefully against the detailed archaeological information which provides a closer resolution on the duration and progress of buildings and other developments in the area.

Map Regression

These key events provide a control and framework in which the historical development of the excavation area is discussed. Analysis of the historical development through a process of map regression reveals distinctive patterns which are juxtaposed together with the archaeological data found during the course of the excavations. What follows is a discussion of specific map elements that lie within the excavation areas in isolation, though they are discussed together in a later section - buildings, sea fronts, piers, roads and the water conduit Lækurinn.

*Buildings*³

There are several buildings that lie within the excavation area depicted on the maps; see figure 3. These from east to west are: Hafnarstræti 21, north of Hafnarstræti 21 [Reykjavík 181285 5 – 98], Kolasund 1 (Hafnarstræti 19) [Reykjavík 181285 5 – 97], north of Kolasund 1 [Reykjavík 181285 5 – 96], west of Kolasund 1 [Reykjavík 181285 5 – 109].

<i>Archaeology no</i>	<i>Building name</i>	<i>Documented date</i>	<i>Type</i>
199	Hafnarstræti 21	1790	Shop
105	Reykjavík 181285 5 – 98	1887	Storehouse
46 / 47	Kolasund 1	1870	Shop
45	Reykjavík 181285 5 – 96	1860	Storehouse
139	Reykjavík 181285 5 – 109	1887	Storehouse

Table 1. Buildings in excavation area, documented date and type⁴

² Guðný Gerður Gunnarsdóttir and Hjörleifur Stefánsson 1987 *Kvosin – byggingarsaga miðbæjar Reykjavíkur*. Reykjavík: Oddi.

³ Where known the old names of the building are given along with the modern approximate location in () and the Minjasafn Reykjavíkur number in [].

⁴ Guðný Gerður Gunnarsdóttir and Hjörleifur Stefánsson 1987.

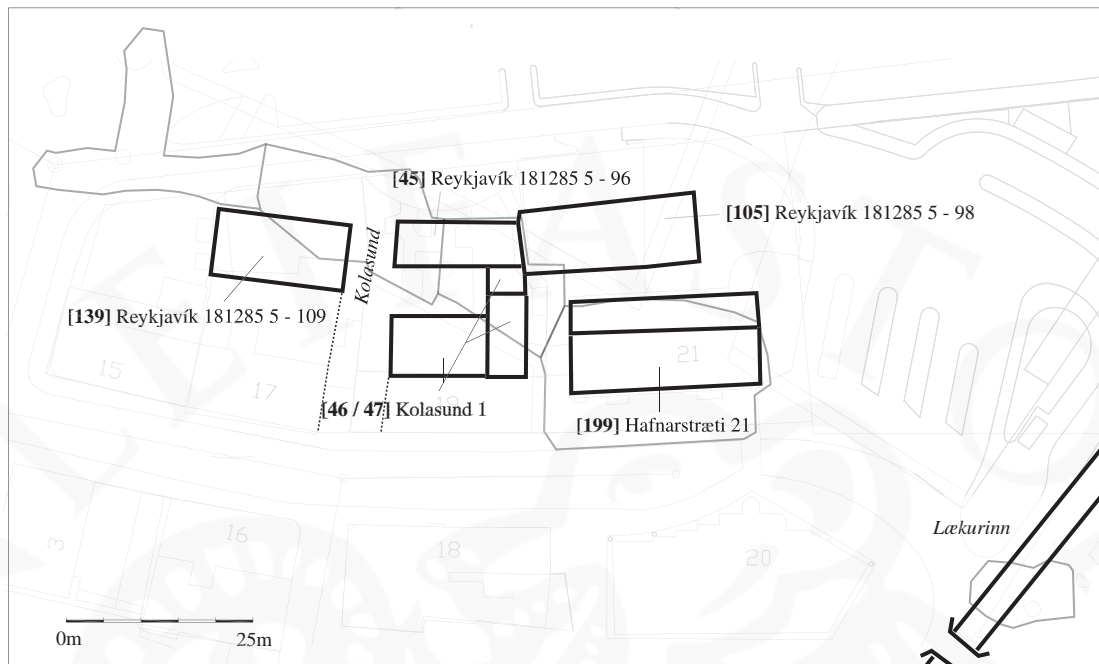


Figure 3. Overview of excavation area and the buildings / features discussed based on elements of the 1917 map. The excavation area is underneath as well as the Reykjavík modern base map.

Hafnarstræti 21 according to the documentary sources was built in 1790 though it is not depicted on the 1801 map. According to the sources and the map it changed forms several times between its first depiction in 1836 to 1917. According to the 1836 map, the building was smaller than its last size (c. 14m by 10m) and was located at the far eastern end of the most recent building. In 1876, according to the map it was a similar size but had moved westwards towards the west gable of the present building. In 1887, from this westward position it was enlarged to c. 20m with the same width. In 1902 it was enlarged again both eastwards and towards the north, with a small extension and ancillary building on its north-western corner. In 1917 the building was enlarged again, this time in all directions except southwards and formed a complex of 4 attached compartments with an overall dimension of c. 28m by 14m.

Reykjavík 181285 5 – 98, or the building north of Hafnarstræti 21, according to the sources was built between 1836 and 1876. It was first depicted on 1876 map as a building c. 14m by 10m. On the 1876 map it extends onto the shore front, either forming part of the sea fronts or just resting on the shore edge. According to Minjasafn Reykjavíkur records the building was built in 1887, though it is clearly depicted on the 1876 map. In 1887 it was located in the same position and had the same dimensions. In 1902 the building is shown to have expanded eastwards 3m and is shown to be c. 17m by 10m. In 1917 the building was enlarged westwards tapered inwards slightly towards the west, with a dimension of c. 28m by 8m. It is shown to have joined onto the northern most building of Kolasund 1.



Figure 4. Map regression based on maps between 1801 – 1917. Excavation area is shown on each figure. Based on Kvosin 1987.

Kolasund 1 is first shown on the 1876 map, and is suggested to have been built in 1870. It has dimensions of c. 14m by 10m and lay just south of Kolageymsla. In 1887 it remained in the same location and was the same

size. In 1902 it was joined onto Kolageymsla, and in 1917 had attached to its north-western corner a small annex c. 8m by 2m.

Reykjavík 181285 5 – 96 or Kolageymsla according to the documented date was built in 1860. It is first depicted on the 1876 map. It forms a complex of 2 buildings (the other Kolasund 1) that were later joined; the southern building appears to lie underneath the present day Hafnarstræti 19. The northern building had a dimension of c. 14m by 10m. In 1887 the building has changed becoming longer and thinner and located slightly towards the north; has a dimension of c. 20m by 7m. In 1902 it was attached to the southern building with a small structure on the eastern side making a small courtyard towards the west. The map in 1917 depicts several attached compartments. In 1925 a new house is built towards the south that is today Hafnarstræti 19.

Reykjavík 181285 5 – 109 or the building west of Kolasund first appears on the 1887 map. It is c. 20m by 10m and forms part of the sea front and wall. A similar structure is depicted on the 1902 map. In 1917 it appears to have been incorporated into an annex of Hafnarstræti 17.

Water fronts

There were 3 major water front changes between 1787 and 1917. In both 1787 and 1801 there are no features depicted, only a shore line, presumably one that was naturally formed. In 1801 however in the area further south from the shore, buildings are shown. In 1836 there appear to be no sea front development except for a pier in the locality of Kolasund. The first major developments take place in 1876. Several water front features are depicted: piers and what appear to be new shorelines, probably walls. In the area north of Kolageymsla there is a feature depicted which may be part of a harbour front; it projects northwards from the surrounding sea front. In 1887 and 1902 there are no sea fronts depicted though it is likely that the buildings provided this function, particularly Kolageymsla as well as Reykjavík 181285 5 – 109. The second major development is depicted on the 1917 map which incorporated the old piers into a new front, as well as building of a wider pier that ran north from Pósthússtræti. A new sea front line is shown further north than the one depicted in 1876, 1887 and 1902. The third changes occurred from 1920s onwards primarily till the early 1940s.

Piers

The piers were developed in 5 main stages according to the map sources. The first development occurred in before the 1836 map with a pier projecting northwards from Kolasund. At the same time there is another pier further west than the excavation area and Pósthússtræti. The second development occurs with the redevelopment of the water front. The pier projecting from Kolasund remains, as does the one further to the west, but another is depicted towards the east. In 1887 the third development is depicted with all piers as before except for a new one built in 1884 of wood projecting out from Pósthússtræti. In 1902 all the piers except the one furthest west are depicted, but the Pósthússtræti pier appears to be a

little wider; it was rebuilt a second time in 1892 of stone. The last development occurs when the sea front is redeveloped for the third time in 1917. The old piers were incorporated into the new front and Pósthússtræti pier is enlarged once again.

Roads and alleys

No roads and alleys, except for Hafnarstræti and, later, Pósthússtræti, are formally depicted on the maps. Several can be interpreted as lying between buildings however. In 1801, 1836 and 1876, just north of the line of buildings that lay behind Hafnarstræti a road is named, but called Strandgata. In 1887 and 1902 a similar road is depicted and called Hafnarstræti. Also included is the alley Kolasund as well as Pósthússtræti. In 1917 with the development of a new sea front all the streets named previously are depicted. However, there was space for a road between the buildings along the earlier 1902 front and the new one; this is shown on some photographs from this time and is later called Tryggvagata.

Lækurinn

As depicted on the maps, Lækurinn developed several times between 1787 and 1917; this includes bridges and realignments. In 1787 Lækurinn has only one bridge close to Bókhlöðustígur where as in 1801 and 1836 it had 4: the bridge located just north of Amtmannstígur in 1801 moves further north to Bankastræti. Between 1836 and 1887 major development takes place to Lækurinn. The stream is canalised and new bridges built. In 1902 new alignments are constructed at the north and south ends of Lækurinn, accommodating new building developments in those areas. In 1917 it is not depicted and had been embedded under a new road, perhaps c. 1911.



EXCAVATIONS – TRH 06 – 07

Excavation proceeded along the trench excavated for a new sewer main. The archaeological excavations therefore were restricted to this trench and to the area south that lay within the PDA⁵. As the excavations were development-led a staged approach took place: the area was divided into 5 arbitrary areas and was dependent on the machining and stripping process. For the purposes of the interim report each area is discussed separately, though the interpretive text that comes later explores some of the individual features framed within the distinctive phase events along with other source material.

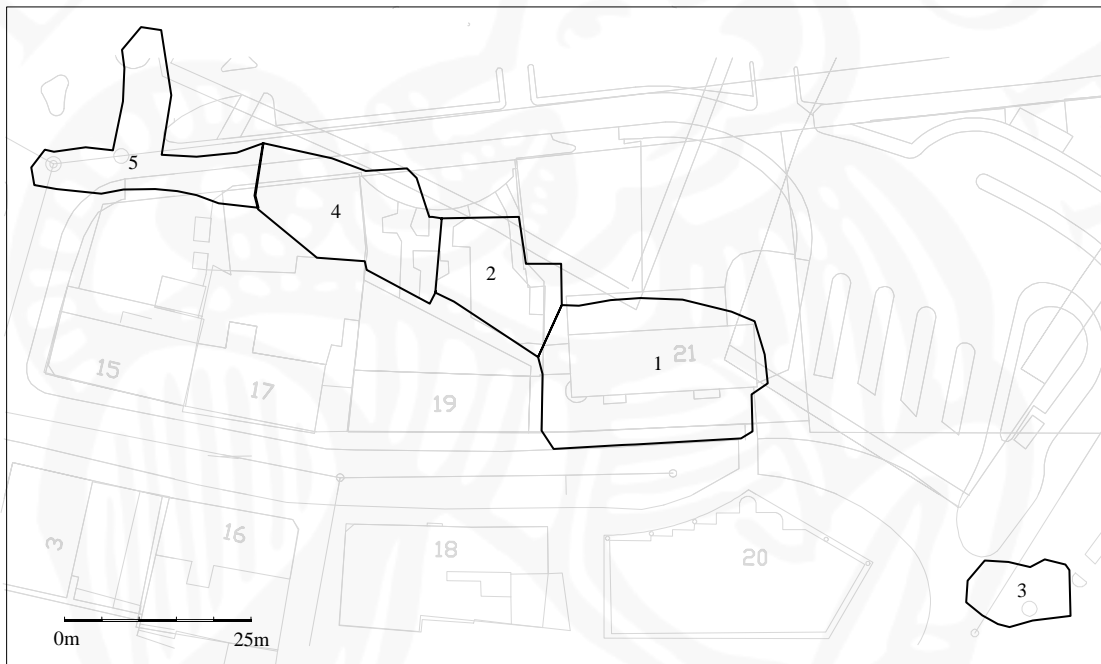


Figure 5. Excavation areas; areas 1 to 5 with Reykjavík base map and PDA outline (top).

Modern features have had a significant impact on the archaeological remains (see figure 6). These were both recent and earlier modern pipes laying, as well as excavation trenches for buildings. Also, the excavations that took place earlier in 2006 also had an impact. At times it was difficult to discern relationships between stratigraphic units because of the truncation, though this is invariably a archaeological norm. Nonetheless, having a close proximity to recent modern activities is not a normal environment for Icelandic archaeology except those in an urban context such as Hafnarstræti 21.

⁵ In the following text units / contexts are given in square brackets [], **bold** refers to groups or distinct archaeological features, arrow brackets < > are finds numbers, and rounded brackets () are samples.

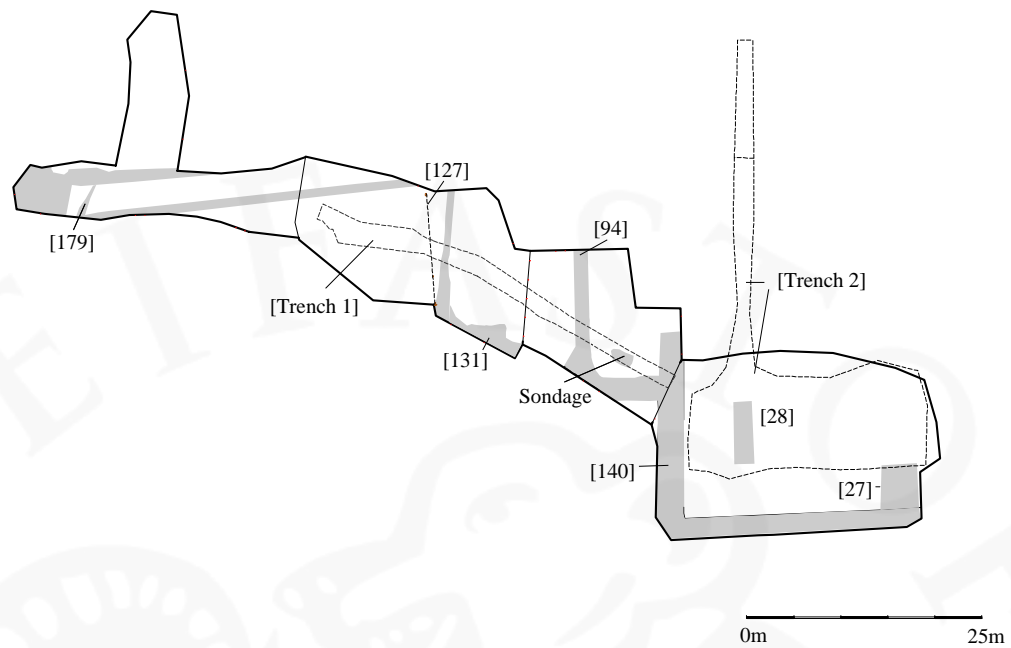


Figure 6. Modern truncations (pipes and sondages – grey, and trenches - dashed) (bottom).

Area 1

In the early part of 2006 the building located on the site of Hafnarstræti 21 was removed without archaeological supervision which has consequently meant that the preservation of the foundations and internal features were fragmentary at best.

Hafnarstræti 21 [199] (figures 7 & 8)

However, the excavations revealed stone foundations [9] which can be divided into 3 groups: a later foundation consisting of rough stones [4]; an earlier foundation of cut stone blocks [8, 15, 43] and foundation trenches [17, 29] of a building located at Hafnarstræti 21 [199].

In the eastern end there were partial remains of two ancillary building foundations [43] that were made of the same cut stone block as [8] that extended east and towards the north. Furthermore, 2 wooden beams [198] were observed in the north western corner of Hafnarstræti 21; these were recorded using a Total Station (TST).



Figure 7. Hafnarstræti 21 excavation – looking east.

One was aligned along the north – south axis of the western foundation and the other along the east – west axis of the southern foundation (the northern foundations did not survive the removal of the building located on the site of Hafnarstræti 21 earlier in 2006. In western end, further west than the stone foundations [6] was a row of stones [13] and a foundation cut [30], similar to the stone foundations [9], though these were set back from the alignments further south and north. The relationships between this stone wall and the foundations was not recorded as it had been damaged by modern pipes and the removal of the building without archaeological supervision.

Within the building there were several features of interest. Along the southern foundation in the western end there was a small recess or gap in the stone foundations [11, 18]. There was an internal wall [19; 31, 34, 32, 33] that divided the western end built of cut stone blocks, partially covered in concrete from the floor [1]. [1] covered the entire floor space of Hafnarstræti 21 though this was partially damaged by the evaluation and building removal. In the eastern end there was a series of 2 parallel post hole rows [44], which were in situ when the concrete floor was laid.

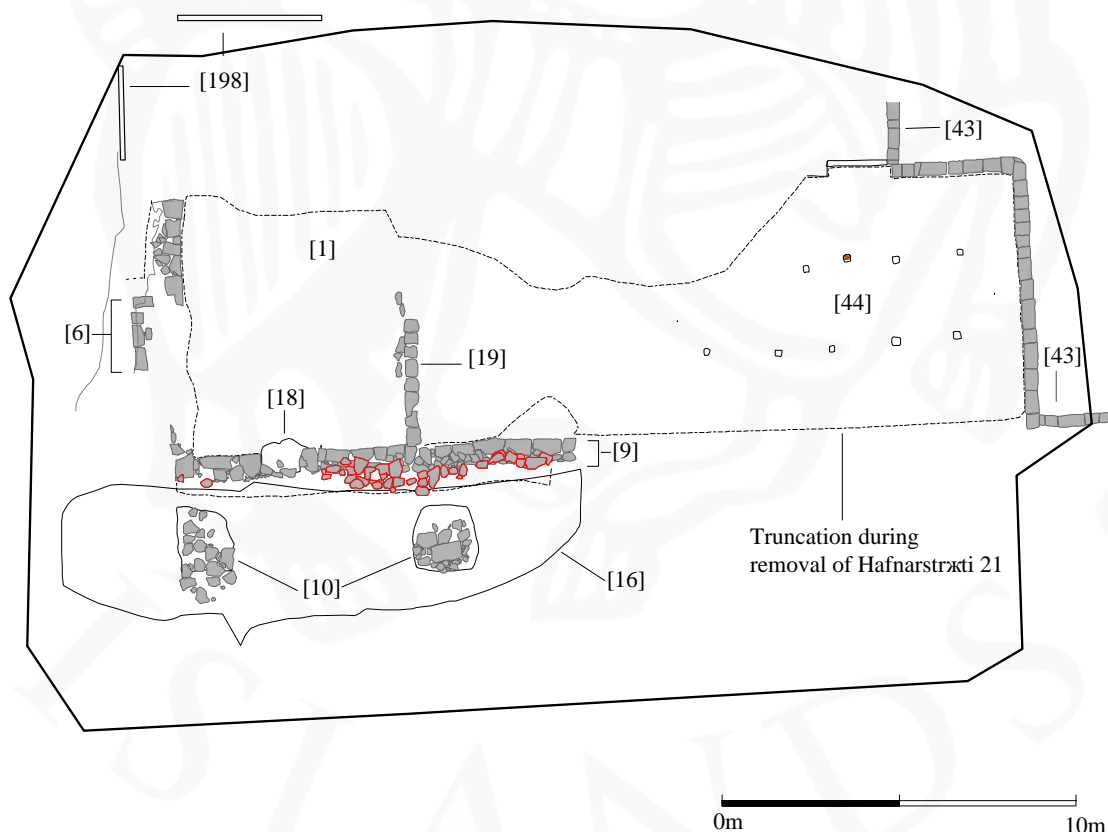


Figure 8. Area 1 (Hafnarstræti 21).

There two stone clusters [10] were located to the south of the stone foundations, on the outside of the building. From the surface these shared similar characteristics though on excavation the western cluster [3] was placed on a dark deposit [5], whereas the eastern cluster [2] was the upper most part of a stone fill set within a c.1.4m deep pit [7] (figure 9).

The foundations were placed on gravel and sand deposits [16, 12] which were trenched and recorded at two locations [27, 28]. These deposits covered the entire area, though they were undisturbed by modern and earlier truncations. However, much of this material was removed by during the machining but was selectively sampled. Two sondages were excavated revealing multiple layers of sand and gravel intermittently divided by peat-ash deposits. In many of these deposits anthropogenic material was present such as pottery, animal and fish bone. Therefore a systematic sampling strategy of these layers was employed which, after processing, will form the basis for an analysis of shore edge activities such as fish processing over time; based on the stratigraphic sequence and layering of deposits.



Figure 9. Feature [7] part of the group [10] – south side of Hafnarstræti 21.

Area 2 (figure 10)

Area 2 and area 4 are contiguous to one another and share the building [45] so discussion here is focused primarily on the archaeology south and east of [45]. This includes the building [105], the foundations associated with [46, 47] and the external areas, including [49]. Building [45] is discussed in the Area 4 section.



Figure 10. Area 2 (Bold are group numbers).



Figure 11. Area 2 looking east. Building [45] in foreground, with [46] and [47] to its right, and building [105] towards the back of the photo.

Building [105]

The building east of [45], [105], was only partially revealed and was not recorded fully; this still remains for the next phase of the work. At this stage several elements were observed: a window [48], cellar deposits [74] and a concrete and brick floor [120]. Also of interest observations concerning the wall construction in relation to the sea front building as seen from the cellar.

Attached to the south wall of [105] in south west corner were two concrete covered stone rectangular recesses [48]. The eastern recess was a window feature protruded c. 1m out from the south wall and was c. 1.2m wide. The 0.2m wide wooden window sill was c. 0.8m wide set into concrete covered stone. Several large fragments of window glass were recovered from the vicinity: mainly <28> but also <27>. In addition to these two other window features were observed further east along the southern wall. The western recess was 3.2m wide and protruded 1.3m out from the southern wall. It was stone built and covered in concrete [57], with a c. 0.2m wide. Inside the rectangular recess redeposited material was removed by hand and by machine, including three parts of a large and heavy iron chain <221>. [57] formed the northern limit of a yard area filled in with [59] which was truncated by pipes and mains taps [140; 64 and 115].

Like [45] the cellar was backfilled with redeposited material derived from the immediate and localised activities around the building. However, in the north west corner of the cellar, which was covered with the original concrete cellar floor cap (thus creating a void underneath) [143] there were several areas of in situ deposits [74] and presumably relating to the use of the cellar. [74] was excavated by 1m grid squares to give control over the spatial distribution of finds. Much of the material was wood planks as well as staves and iron objects associated with small barrels 0.4m in diameter. The deposit was sampled rather than kept entirely. Other objects included sheet iron strips, a spanner <163>, a pitch fork <179> as well as building debris <164>.

The base of the cellar [120] was made from concrete but partitioned by two parallel rows of yellow bricks (0.1m wide and 0.2 m long) as well as fragments of similar bricks running perpendicular to these towards the east. A depression was also placed between the bricks in the concrete floor which was c. 1.4m wide running between the yellow bricks north to south as well as perpendicular towards the east which was filled with a black greasy deposit [118] which was sampled (28).

Of particular interest was the stone wall development. It should be noted that only cursory observations were made in the field as it is expected to go back to this area to carry out more systematic recording. From these observations it appears that the walls were made from cut stone blocks similar to the ones found in Hafnarstræti 21 [8] but extensively clad in concrete; both as mortar and as wall covering. The mixing of concrete also took place on-site as often artefacts and bones were present in the

concrete matrix. From the cellar floor it was noted that they had been several episodes of blocking and new building adding onto earlier walls. The western wall was joined onto the northern wall of [45]. There also appeared to be a window which was blocked from the [45] side. The eastern wall of [105] was lime plastered or painted and had been damaged (or perhaps was an architectural feature) in its north eastern corner. Around the west and north walls a concrete ledge was observed – this contained a variety of objects such as paint cans as well as building debris.



Figure 12. Brick feature in base of [105]. Looking south west. Wall in background is part of [70] for building [45] and where objects were found on its ledge.

Area within the stone foundations [46 and 47]

Area [46] comprised of several phases of activity. The latest which disturbed earlier features and deposits, with a pipe and a mains tap [116, 114, 115] and wooden posts [72]. This feature truncated both the stone foundations as well as yard deposits [59]. The rectangular sill [57] attached to [105] probably truncated a stone foundation on its western side and incorporated some of these elements into its construction. The remains were a disturbed cut [55] full of loose gravel and stones [51, 52, 54, 60]. The foundations for the stone wall [70] along the south eastern of [45] formed the northern limit for the activity in [46]; the fill [69] of the foundation cut [97] for [70] contained small stones, coal and wood chipping <15>. The activities occurring in [46] produced various deposits, many of which were coal mixed with natural gravels containing shell [81, 85, 87, 90, 99 and 100]. Most of these deposits were localised in the eastern half of the area, though [100] extended over the entire area: c.4.4m by 2.3m.

Under [100] the deposits become more discrete and different from those above: interleaved layers of peat ash [101, 103] between gravel [102]. These deposits covered a pit feature [107] that lay perpendicular to the stone foundations [113]. [107] contained stones and a wooden post [72]. The earliest feature in this area was [113] - a stone corner foundation truncated by pipes [140] and foundation [47] that lay on the natural gravels.

Area [47] comprised a series of interleaved gravel and shell surfaces [56, 91, 112] and a stone wall and foundation cut [88, 62, 89]. A sondage from the spring 2006 excavations was placed through these deposits and recorded in section. A modern pipe and brick [64] in the external area [49] truncated the eastern wall of [47].



Figure 13. Areas [46], [47], [48] and [49] with [113] partially visible. Looking north.

External areas

These areas include [49], the area south of [47] and area [103] of west and south of [46] and [45] respectively.

[49] has already been discussed with [46] and [47]. The area was heavily disturbed by modern pipe truncations [140] and [64]. [59] was both machine excavated as well as by hand.

The area south of [47] was also heavily disturbed by modern pipes as well as recent construction activity connected with the extension built onto Hafnarstræti 19. [53] was redeposited material similar to [56], but [63]

was a backfill deposit for the foundation cut for the new building extension[86].

The area south of [45] and west of [46], [103] was also heavily truncated by pipes though many of these were immediately below the surface drainage pipes [94]. The area however contained coal rich deposits [73, 82, 83]. These lay over the foundation fill and cut for [45] and over the natural sea deposits [95].

Area 3

Area 3 was opened in the middle of Lækjargata where Lækurinn was exposed during the development. This was predominately a rapid recording project spread over one day.

Lækurinn was capped by concrete, though the cut stone build [65] was discernable on each side and in section [66]. The maximum width was c.3.5m and c.1m tall. The stone was roughly built and sloped outwards from top to bottom.

Up against the side of stone build was an infill deposit [68]. Either a cut or an interface between natural water borne deposits [67] coming from the east was seen. This deposit was only discernable on the eastern side of Lækurinn and contained glass, pottery, and bone which was selectively sampled <48, 51, 117>.



Figure 14. Lækurinn looking south east.

Area 4

The discussion on area 4 includes building [45] which also spans into area 2. Building [139] is also discussed as well as the activity north of the water front wall and in Kolasund.

Building [45] (figure 16)

Building [45] was located c. 15m north and east of Hafnarstæti 21. The walls [70] were preserved to a height of c. 1.6m and enclosed an area c. 16m by 6.8m.

The walls were built in several stages: the northern wall was built first, c. 1m thick wall made from two rows of cut stone; the southern wall was then built onto this, c. 0.4m thick; the eastern end of this wall appears to have been built in a lightly different way than the rest, with smaller cut stone. The western wall was made from a combination of the northern and southern walls. The eastern wall, however was made from the northern wall and a third part of the build, c. 0.8m thick wall; this appeared to be a later addition to the structure, perhaps blocking an earlier entrance or opening. It was noted that on the eastern side of the wall, from [105], a blocked window could be seen in the western wall.



Figure 15. Building [45], looking north.

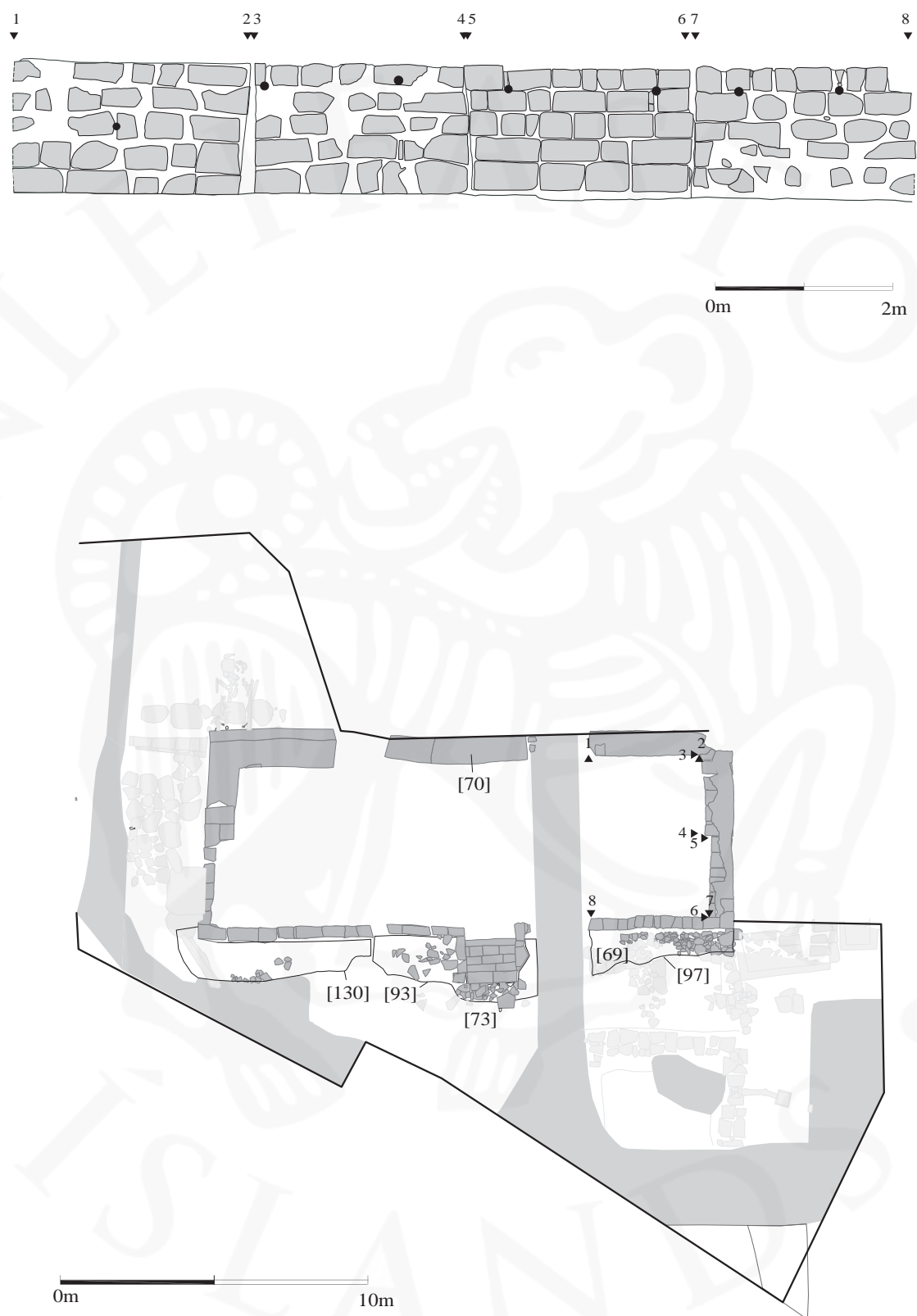


Figure 16. Building [45]: plan and wall elevations. For northern face of western end see later figure.

A variety of stone was used in the construction of the walls. These generally built of cut stone basalt: c.0.8m by 0.3m by c.0.4m – for 4 courses and then below this for one course of coarser but squarer stones c. 0.7m on top of a course of rough cut irregular stones c. 0.6m. These lay on a foundation course of sub-rounded stones that protruded from the wall slightly. In area 2 the north facing part of the wall was not exposed. In area 4 however, the north side of the water front wall [70] was exposed, which doubled up as the foundation for [45] and the water front. It sloped at an angle of approximately 80 degrees, c. 1m at the top and c.1.5m thick at the base, standing to a height of c.1.7m but built on top of a roughly built stone foundation c. 1m tall; from the base of the foundation surface the walls stood to a height of c. 2.7m. The northern face of [70] was also constructed from cut stone using a regular Flemish bond. The walls appear to be free standing on the north but trench built on the south; this may partly account for the variability in the thickness and construction form between them and to accommodate the original sloping shore surface. Cement mortar was used as the bonding material, and it was pointed on the sea ward northern face and unpointed on the inside face. The concrete was sampled from both the northern wall (31) and the eastern wall (32) but awaits further analysis. The walls lay on a foundation of flat stones

On the southern side concreted steps led down into the cellar area which protruded c. 1.5m from the southern wall. The cellar floor was made from concrete and parts of the wall were clad in concrete and a low-lying ledge was observed running around the western and south-western and north-western walls only. White paint was seen on the northern, western and southern walls up to the eastern extent of the ledge. The cellar area of [45] was backfilled with debris that surrounded the site as well as from the house itself; though it is difficult to provenance the material precisely. The material was probably derived from the surrounding neighbourhood.

Building [139] (Rvk number 109) (figure 18)

Building [139] was located 6.5m towards the west from building [45]; between them lay Kolasund. The walls survived to a similar height as [45]. The northern part of the wall [139] (the part which was exposed to the sea) was 1.5m whereas the southern part, on the east side, tapered to a thickness of 1m. The northern part of the wall, like [70], also extended a further 0.4m north as it sloped at an angle of 80 degrees; making a total base width of 1.9m. The alignment of [45] and [139] was slightly different (see figure 17). The walls of [139] continued beyond the excavation limit and under the present house towards the south and were not recorded in elevation.

The wall construction was similar to [70] though there were a few variations. There were a total of eight courses though this varies over the 12m exposed. The upper most course was made from varied stones with the long axis showing; between c. 0.4m to 0.6m. The subsequent three lower courses were built from regular courses using the Flemish bond. Though towards the west there was an adjustment on the fourth course, perhaps compensating for an unevenness in the shore /ground surface. The

fourth and fifth courses were built in a similar fashion as the three above. Below these there were a course of coarser, more square stones and then one to two courses of irregular stones bonded by smaller stones between them. The build of [139] was not as good as [70]: the bonding was less fine and more concrete was exposed on the northern face, though the inner face was similar to [70].

The internal area of [139] was back filled with material [142] derived from the immediate vicinity, including two buoys <180, 341>. In the north eastern corner of the inner face of [139], at the level four courses down or c.1.5m from the top of wall, the concrete was rough and protruded out from wall. During machining some flat timber was exposed suggesting that unlike [45] the floors in [139] were not concreted. There was much disturbance during machining and the recording of a possible wooden floor took place only arbitrarily with the TST. Underneath the wooden floor sand and sea deposits were observed similar to the material on the northern side of the wall but considerably cleaner.



Figure 17. Water front walls; [45] left and [139] right. Looking east.

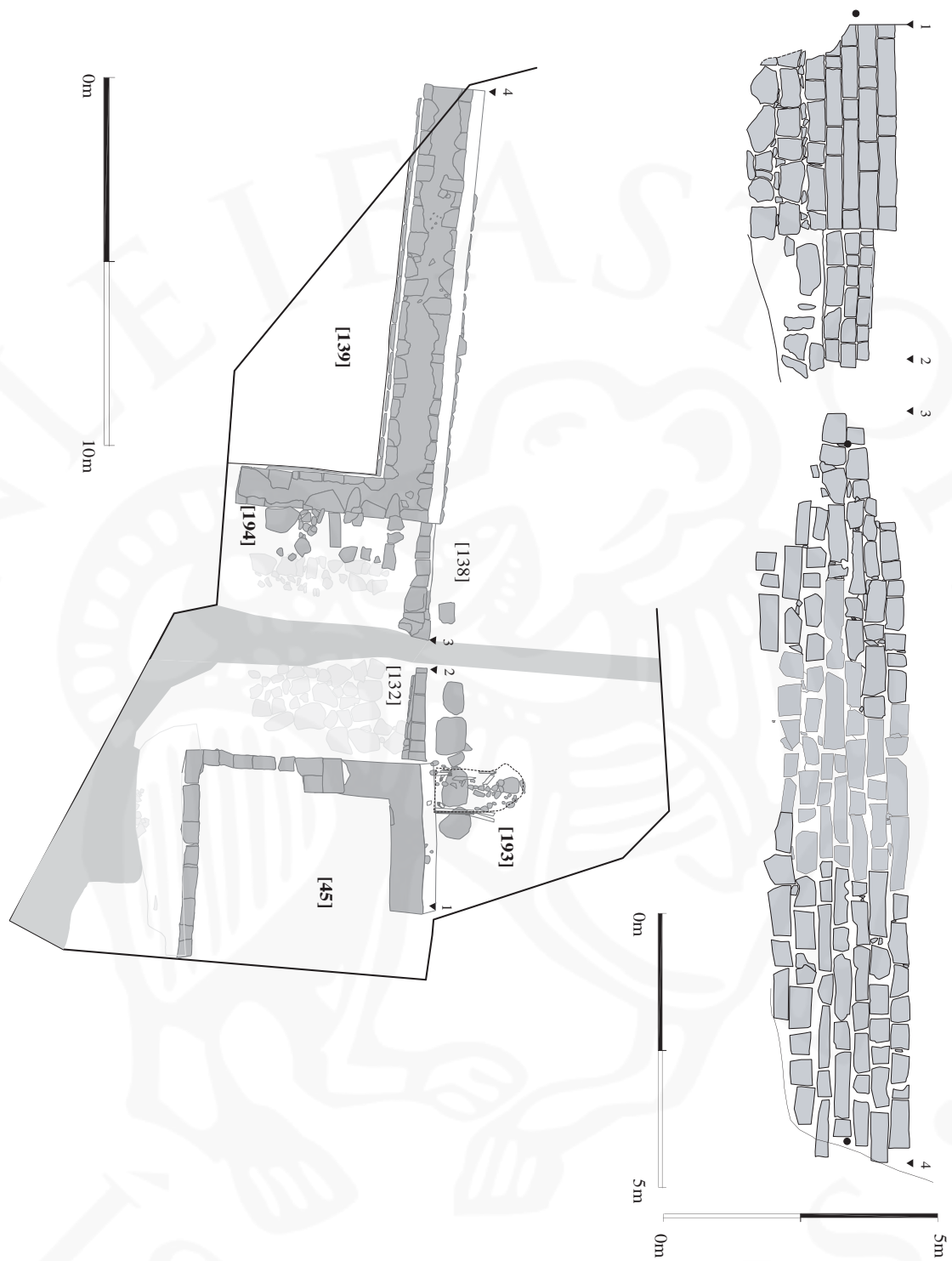


Figure 18. Water front: buildings [139] and [45] and their northern walls in plan and elevation.

Kolasund

Much of the Kolasund area was disturbed by the new harbour construction after 1902 and by more recent modern activity. The main features of activity were the foundations for Hafnarstræti 19 [131], which truncated the southern limit of Kolasund. Modern pipes [140] truncated much of the earliest deposits and features in Kolasund. A modern fence line consisting of three wooden posts [127] was also seen which ran along the current property boundary between Hafnarstræti 19 and the buildings behind Hafnarstræti 17. Surfaces consisting of consecutive bands of yellow sand and black ?coal [110, 117, 122, 157, 158, 159] were mainly located in the north eastern limit of area 4. They were over the new harbour front which was created by a land filling event; consisting of large rounded boulders [160, 190] placed in front of the earlier water front. Underneath the boulder land fill sand and gravel deposits with anthropogenic material [161] and a cleaner black sand and sea pebbles [162] were seen.

A number of features were recorded and excavated that related to activities in Kolasund. A paved area [104] lay immediately below the topsoil. This was made from roughly cut flat stones approximately 0.12 to 0.17m thick and were located immediately west of [45]. The feature was truncated by the evaluation in the spring 2006 to the north as well as by the pipe [140]. Below this lay a compacted coal surface [109] which contained a number of artefacts including a tobacco pipe hardened rubber mouth piece <262>. It is likely that was an entrance feature [196] into [45].



Figure 19. Infilling and raising phase of Kolasund. Looking north.



Figure 20. Kolasund development: infilling and raising phase (top); primary use (bottom).



Figure 21. Stone ramp / platform [119]. Looking north.

On the western side of Kolasund, east of [139] were several features including wood beams, gravel dumps and stone arrangements which suggested a step and decking entrance [194] into [139]. This defined an area of c. 3m by 1.4m.

Between the walls that defined the edge [139] and [45] two new walls were built. First built was a stone wall [138] onto [139]. The stones at the end of [139] were incorporated into the build below the top two courses. [138] comprised two parts, the eastern most was added onto the western half. It was truncated by the pipe [140]. Attached onto [45] was [132] which was an entirely different build to [138]. The foundation for both of these additions were higher than [45] and [139] but built of similar rough cut stones.

Underneath the features associated with [45] and [139] and in the southern area behind [45] and within the area closed off by the additions to the walls [138 and 132] a sea bourn gravel deposits rich in artefacts filled the entire Kolasund area [119, 161]. The deposit was approximately 0.8m thick but thinned out towards the south. The deposits were hand sampled during the machining process but the total assemblage contained large quantities of ceramics and glass.



Figure 22. Wooden pier base [141] (left); brick lined pit with wood covering [144] (right).

Attached onto the northern face of [45] was a wooden pier base [141] which had survived underneath the boulder land filling [190]. It survived to a height of c. 0.8m and c. 1.2m wide by 2.5m long. It was constructed in the form of a wooden box, with four steadfast posts (spaced 1.5m apart) and three side panels supported. Underneath four panels made a wooden base with a wooden end. Into the wooden box an infill of rounded stones were placed [124]. Within the infilling a number of artefacts were found, including three bottles <101>, ceramics, iron and bone – it is likely than many of these were redeposited. Under the wooden frame part of a stone foundation was seen which extended c. 3m towards the west up to the pipe [140].

Perhaps contemporary with the pier [141] a paved surface under [119, 161] was seen either side of the pipe [140] that divided Kolasund into two parts. The paved area [135, 168] was made from large smooth and rounded stones deliberately placed. It is possible that the foundation [136] that lay under [124] was a surviving remnant of this feature. The paved area was only one layer of stones under which lay the natural sea deposits.

Contemporary with the paved area [135] was a rectangular pit feature [144] c. 1.5m by 1.25m [151], immediately outside the south west corner of the [45]. The pit was covered by a several layers of wooden planks and corrugated iron [125]. The pit was filled with finely sorted silty clay though no artefacts were found during excavation but it was sampled (30). Lining three sides of the pit were red and yellow bricks and stones; the bricks were sampled <346 – 352>. The cut of the brick lined pit [151] truncated an earlier feature [155] which was a shallow pit [155] (c. 1m by 0.8m) filled with stone [154] and with a wood-lined drain [153] attached

to the southern edge attached; it was c. 0.3m wide and surviving to 2m towards the south.

Area 5

Area 5 lay west of Kolasund and beyond the visible limit of [139]. Like the other areas in the excavation it had been severely truncated by pipe laying. The old main sewer pipe [180] that ran east to west and up against the harbour front truncated features that lay at the west end of the trench. In addition there were several pipes that had truncated the features on the south side of the trench such as an east to west series of pipes [178] and a north to south cable [179 = 186].



Figure 23. Iron tracks [183] (2m scales). Looking west.

At the western end of the trench there were 3 pairs of parallel iron tracks [183, 184, 185] all of which were truncated by [180]. It is likely that these were part of a parallel set of plateway tracks rather than train tracks, supporting manually pushed / pulled cart or one drawn by horses. The two sets were 1.9m apart (based on their outer edges). The eastern section was located immediately west and on a stone built pillar [187 = 189]. The pillars were truncated by a pipe [180]; the northern pillar was constructed from rough cut stone c. 1.2m tall by c. 1m wide, and the edges towards the east were straight and well pointed; the southern pillar was the corner between the pillar construction and the water front wall that ran east to west [175]. The relationship between the wall [175] and [187] was a little ambiguous though it appeared that the wall was attached to the pillar, though it is likely that the construction events were contemporary. Underneath the tracks, and the concrete plate and stone sleepers lay an infill deposit consisting of rough stone rubble and gravel. The concrete plate on which the tracks were placed lay immediately over the infill.

There were no signs of a second pillar on the western side, though this area had been severely truncated by a pipe junction point. In the western most section of area 5 a row of stones was seen, though it seemed to be damaged and truncated by later pipe placement.

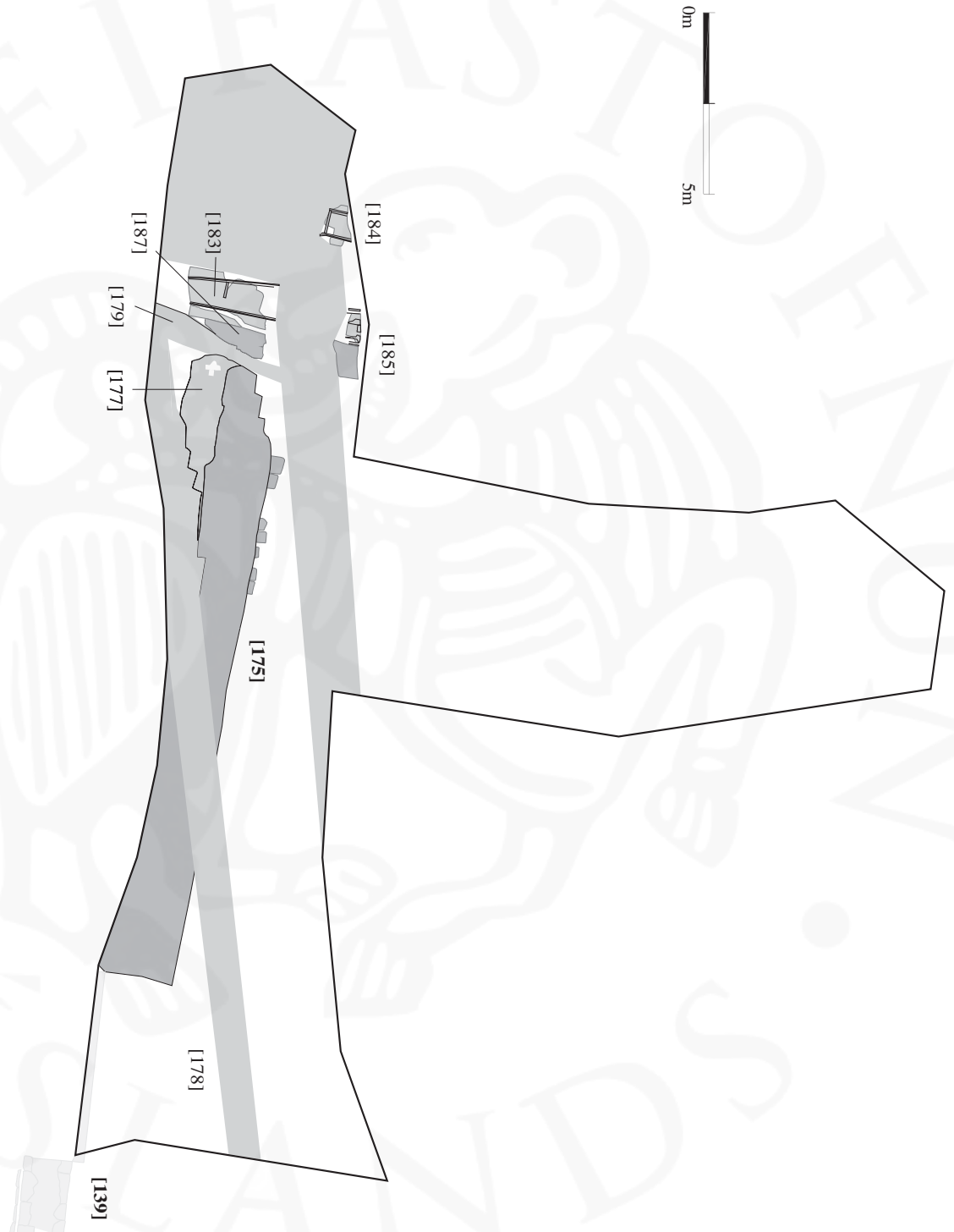


Figure 24. Area 5.

The wall [175] was covered by a concrete surface [177] into which a cross-shaped post setting [188] was placed. The wall had been truncated by pipes [179 = 186] and [178] but its total width at the top was 1.2m. The wall was constructed at a 40 degree angle and its total width was approximately 2.7m; it stood from the base to the top c. 1.55m. The foundations of the wall were partially exposed when the wall was cut for the new pipe. The wall infill consisted of large rough cut stones, bonded by concrete, placed on top of rounded stones as well as a row of larger stones [176]. The exposed face of the wall was laid in regular courses, six to seven, and in a stretcher fashion; the stones were squared cut and bonded with concrete. The wall was attached onto the wall further to the east [174 = 139] though the limit of excavation was confined to the corner point between these two walls.



Figure 25. The water front [175] in area 5 with iron tracks (2m scale). Looking east.



SPECIALIST REPORTS

Finds

Over 184kg of material was retrieved from the excavations. The material was processed by Vala Björg Garðarsdóttir, though the text presented below is largely derived from a summary evaluation of the material based on rapid scanning by Gavin Lucas. In addition a summary of Rúnar Leifsson's bone report is also included, though the full report is in the appendix. The finds are discussed by broad category. Numbers in arrow brackets (< >) refer to the find catalogue, while those in square brackets ([]) to contexts.

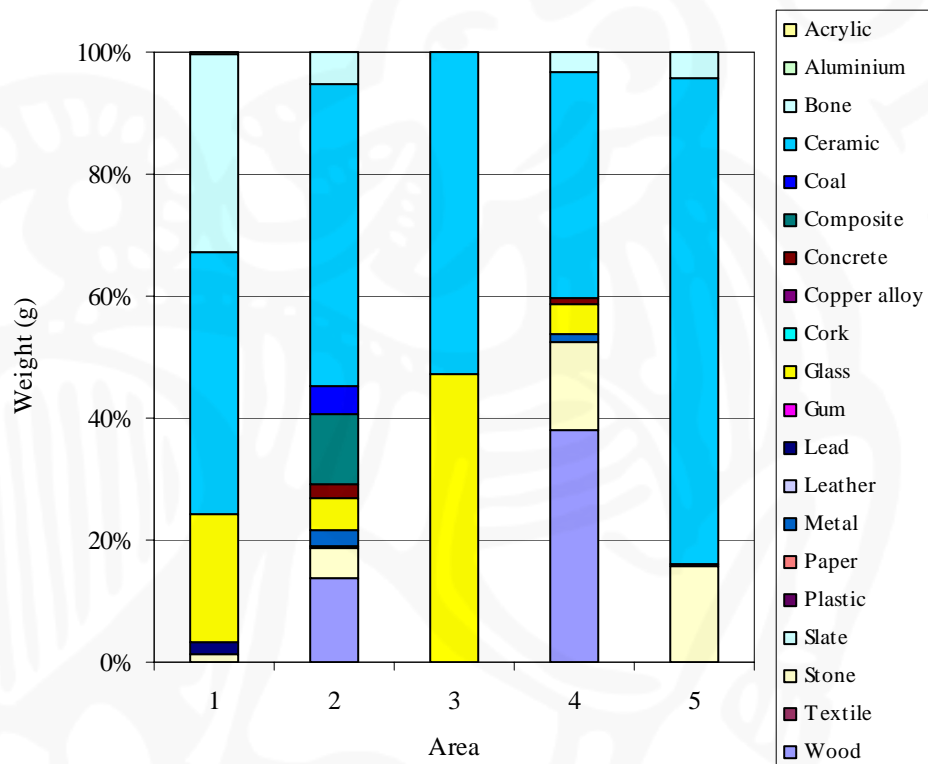


Figure 26. Percentage finds (excl iron) in each excavation area

The artifact collection represents a significant assemblage of material culture from the late 19th to mid 20th century, with some material from the earlier 19th century. Although much of the material is clearly not in any kind of primary context, and a large portion of the material – especially glass and ceramics - is water-rolled which is unsurprising given the context of deposition, analysis at the household level may prove impossible. Nonetheless the assemblage still offers valuable potential for analysis at the neighbourhood scale. As such, it will give extremely useful information on the patterns of consumption of mass produced goods during the early period of Reykjavik's linked urban expansion and industrialization process. Marked items will be useful for exploring origin of imported goods while comparison with other sites of similar date may provide some context of interpretation (e.g. Kuvikur and Aðalstræti). It will also be worthwhile studying the material against the chronological

development of the site, both to understand better the mechanics of redeposition as well as determine temporal trends. It is therefore recommended that a more detailed analysis of the material is conducted, particularly quantified identification of ceramic and glass vessels, which are present in enough numbers for statistical analysis and this study integrated with the stratigraphic information.

The animal bone assemblage has been greatly effected by the taphonomic processes, significantly biasing the zooarchaeological analysis (i.e. both the deposition of the bone and its recovery by archaeologists); very few primary contexts had bone in them (i.e. those in which bone was deposited rather than redeposited). Many due to this, as well as its size which impoverished by a lack of statistical analysis, it was recommended that the assemblage as it is would not merit more detailed analysis. But with an increased assemblage size from other phases of work, perhaps, it would.

Ceramic

18.4kg or 530 fragments of ceramics were identified, including within this, ceramic building material and clay tobacco pipes as well as pottery vessels. The majority of the pottery appeared to be industrial whitewares, with blue edge banded wares being very common. Other whiteware types include transfer-printed wares and some cut-sponge wares, as well as some coloured-glaze whitewares (majolica). Most of this material can be dated to the late 19th – early/mid 20th century; an unusual group however came from context [69] (<48>) which included engine-turned slipware bowl in a creamware and early transfer-printed vessel. There were a few other early 19th century vessels, including creamwares (<22>) early transfer-printed wares (<34>) and slipwares (<61>). Also present in relatively large quantities were fragments of internally white-slipped glazed red earthenwares, probably from kitchen wares such as mixing bowls. Porcelain was not common, and a fragment of fluted blue Copenhagen was noted in <82>. Stonewares were equally rare, and included a few examples, including a piece of Westerwald <44>, dip-glazed preserve jars <82/83> and a brown salt-glazed vessel <73>.

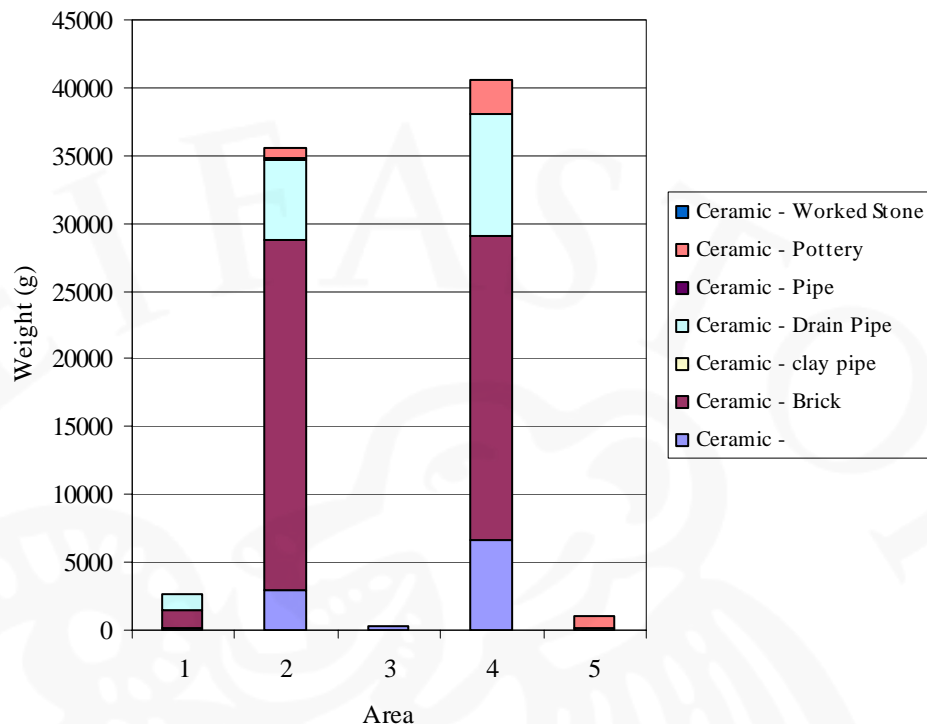


Figure 27. Ceramics by object type in each excavation area

Clay tobacco pipes were present in very small numbers, mostly undiagnostic stems, but a stamped IN GOUDA stem was noted <289> as well as large 19th c, bowl marked DUBLIN POLKA <43>. Fragments of porcelain bisque dolls were also identified <84/85>. Ceramic building material was plentiful and included glazed wall tiles, bricks and drain pipes and caps. There were several brick types observed, the majority being thin yellow and red solid bricks, but also some thicker white/pink bricks.

Glass

There was 9.7kg or 405 fragments of both vessel and window glass. Most of the window glass appeared to be machine-rolled and dating firmly to the 20th century; also included were some fragments of mirrored glass (e.g. <32>, <299>). The majority of glass was from vessels however, chiefly bottles. Green beer/soda and wine bottles were present as were pharmaceutical bottles. Those of particular interest include: a near complete wine bottle <53> (20th century), the bottom half of a small beer/soda bottle embossed GLASGOW GLOBE COMPANY (late 19th century) <305>, the large part of a soda bottle embossed SANITAS (Icelandic soft drinks company 1905-1978), and three medium sized case bottles (1 green, 2 clear glass) embossed with BARNANGENS TEKN. FABRIK, STOCKHOLM and PRONNING'S BLAK and PRONNING & GIERLOFF, KØBENHAVN (late 19th c.) <101>. These latter seem to refer to both a late 19th c. perfumery in Stockholm (which perhaps also made bottles) and a Danish manufacturer, perhaps of bleach (?). Fragments of similar vessels also occurred in <100>. Other vessels

include a mid-late 20th century top of a spirits bottle with an ATVR cap <301> and a beer bottle with ACL (applied colour label, TPQ 1934) <303>. Apart from bottles, the stem of a goblet <60> and base of a tumbler <46> were the only glass tableware noted.

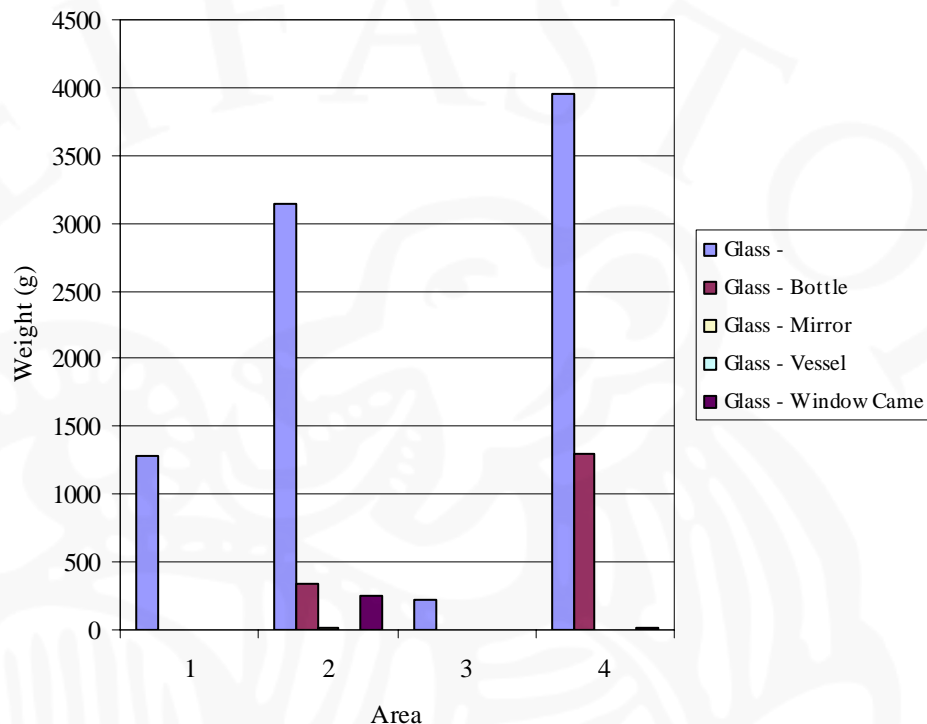


Figure 28. Glass by object type in each excavation area.

Metal

The majority of metalwork consisted of iron pieces (51.7kg, 172 items); these were largely structural ironwork in the form of nails, bolts, wire, trusses, straps, chain rings (esp. <221>), corrugated sheet, etc. Other items include a spanner <163>, buckle <176> and possible fire hydrant cap <142>. Most of the ironwork is heavily corroded. Other metal items include various copper alloy finds; of particular note is a button cap <1>, pieces from a kerosene lamp (<263>, <360>), a decorative spandrel (from a book or clock) <266> and thimble <271>. The only other metal items of note include an aluminium pepsi can <311> (TPQ 1957), a handled fork <179> and a plastic-coated paper-clip <267>.

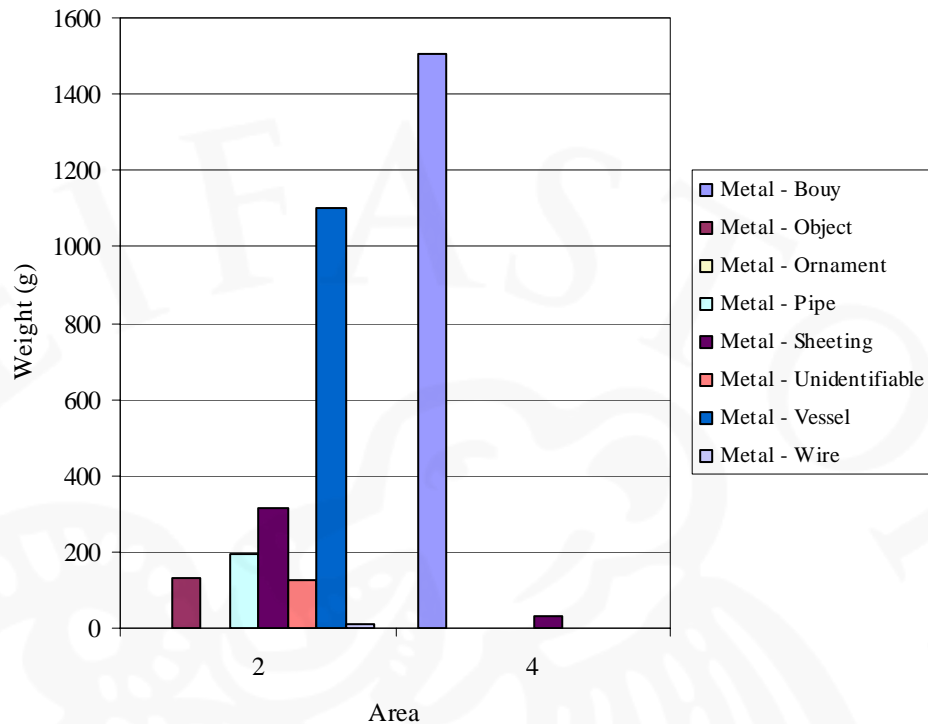


Figure 29. Metal by object types in each excavation area.

The wagonway tracks are all flat-bottomed flanged T rails built of cast iron 0.08m tall, 0.07m wide at the base and 0.04m at the top. The tracks have a gauge of 0.9m and lie on alternate concrete and flat stone sleepers (0.35m and 0.25m respectively, c. 0.25m thick). The sleepers are attached to the tracks by iron brackets (c. 0.06m wide) concreted and bolted along the underlying base of the T rail; spaced 1.2m apart. A second sheet of iron was placed on the inner edge of the tracks and is attached to the T rail with a nut and bolt spaced 1m apart. The total length of an individual is c.2.9m though the exposed length of the tracks was not revealed in excavation so this figure is an estimate based on a retrieved but damaged track. The ends of the track have 2 holes in the central plate of the T rail, used to connect to another section of track with a fishplate, though these were not seen during the excavation.

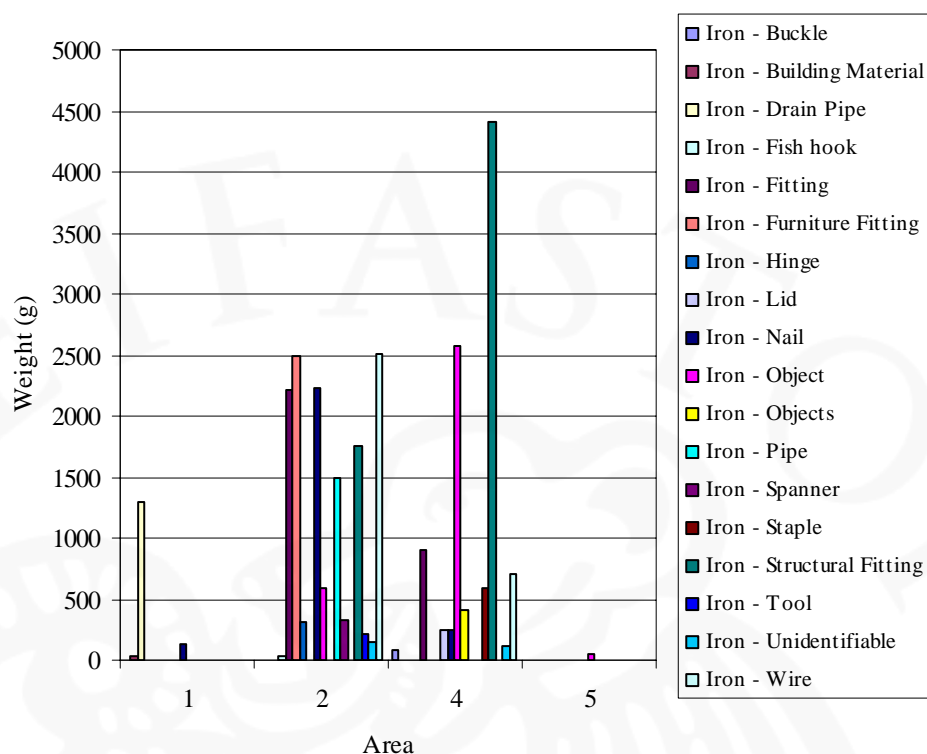


Figure 30. Iron by object types in each excavation area.

Stone

Almost all the stone consisted of slate roofing tiles, many of the pieces with peg holes. There were also a few examples of schist roofing tiles. There was also a large stone with carved lettering: 21H <219>, and part of a possible rotary quern <353>. Otherwise there are a few concrete lozenge-frogged bricks including one which had been re-worked to form possibly an oil lamp <218>. Concrete bricks were first made in 1882, automated production starting in 1900. Several samples of different types of concrete were also collected, which when analysed in detail, might provide useful information on the development of concrete mixing.

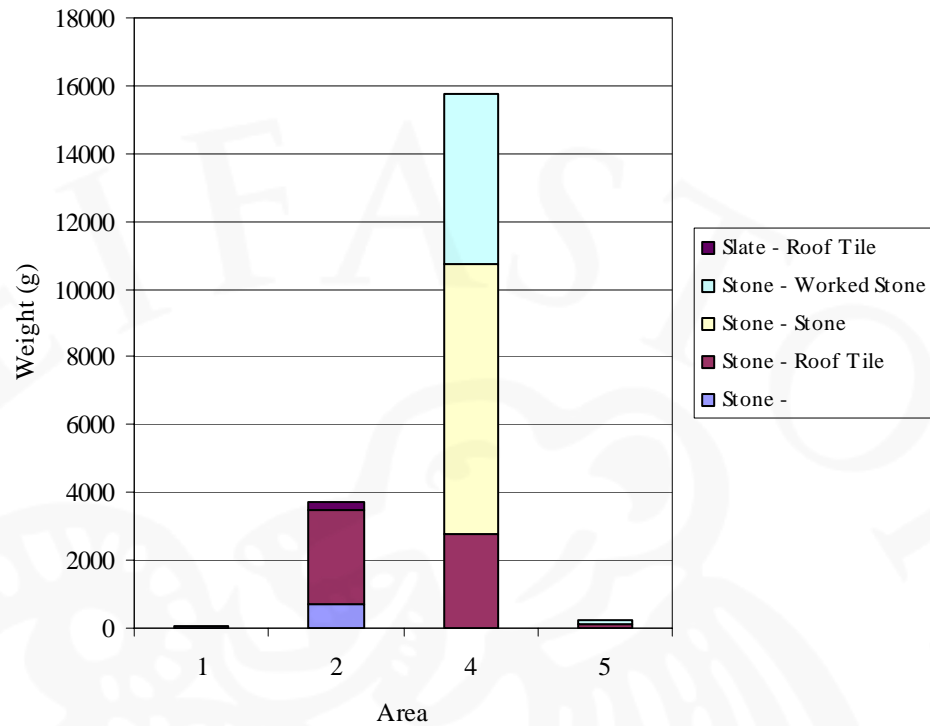


Figure 31. Stone and slate by object type in each excavation area (excl concrete).

Synthetic

There were a few items of plastic including a comb <261>, screw caps from soda bottles and a bottle itself (TPQ 1970) etc. Also there were hardened rubber mouthpieces from tobacco pipes <262>, and fragments of floor carpet <23>. Finally, starter plug for a fluorescent lamp <317> was marked with THORN, the first company in Europe to manufacture fluorescent lights in 1948.

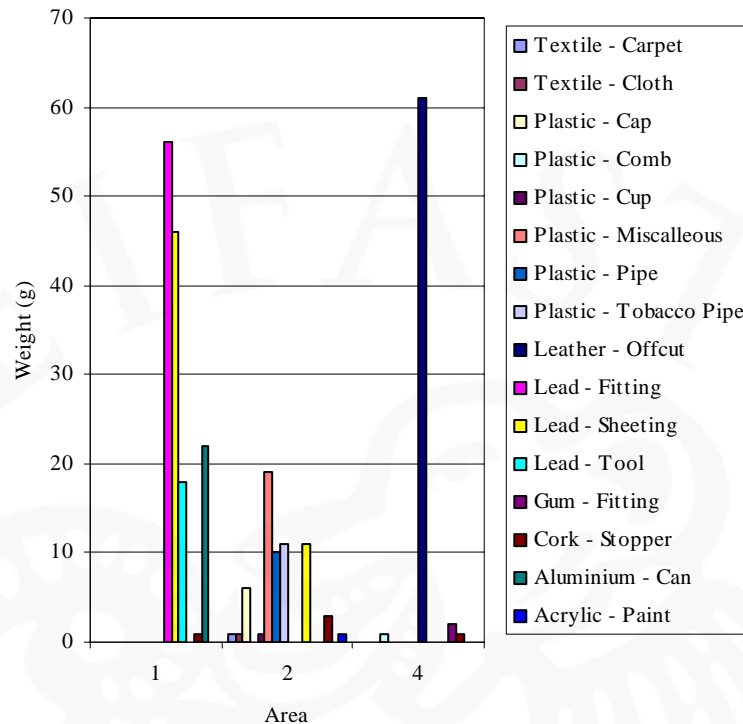


Figure 32. Miscellaneous materials by object types in each excavation area.

Organics

There was little organic material, but they include: cork stoppers from glass bottles, leather scraps and structural wood fragments.

Animal bone

A separate bone report by Rúnar Leifsson is appended at the back from which this text derived. A total of 9.3 kg of animal bone was recovered, from 39 contexts. However, due to the nature of these deposits and the ways in which the material was recovered only 2.7 kg of bone was hand collected, though this biased larger bone recovery and not smaller fish bone, for example. Mammal bones were the predominant species present, followed by fish and then bird: 135 sheep or goats (caprine), 25 cattle, 4 horses, 1 dog, 1 seal and small numbers of fish including cod, haddock and ling, and 5 unidentified birds. Much of the material was not identified to specific animals but to species groups: 58% are mammal.

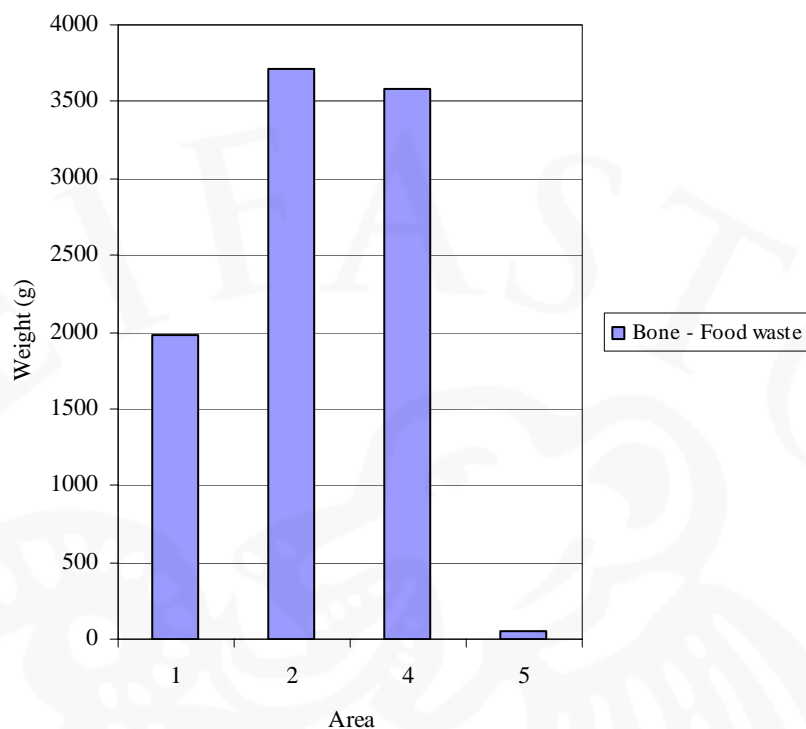


Figure 33. Bone material group by excavation area.

26 specimens show clear signs of butchery. 19 of these had been chopped or sawn in the process of modern carcass reduction, which included drilled marrow extraction, split and chopped bone. 2% of the assemblage had been burnt.

The age at death distribution of caprine suggests a pattern in which breeding was taking place in close-by neighbouring farms and consumption was taking place in Reykjavík. This is indicated by the presence of 2 neonatal elements and medium sized juveniles and sub-adults assemblage.

The age at death distribution of cattle suggests a pattern of beef consumption which is typical of urban assemblages i.e. the import of sub-adult animals for slaughter.

The distribution of the caprine bone elements suggests that the majority of bone is from low-meat bearing parts of the body. The meatiest parts, such as the thighs were scarce.

No pig remains were found which is significant as it suggests that a predominant diet was of sheep and cattle by the neighbourhood. That the sheep and cattle may have been bred specifically for local consumption, and that the carcass reduction and primary butchering may have been taking place not far from the harbour. The assemblage represents therefore an interesting mix of localised butchering and household refuse. Fish bone

presence will be better assessed once the environmental samples from the excavation have been processed and sorted.

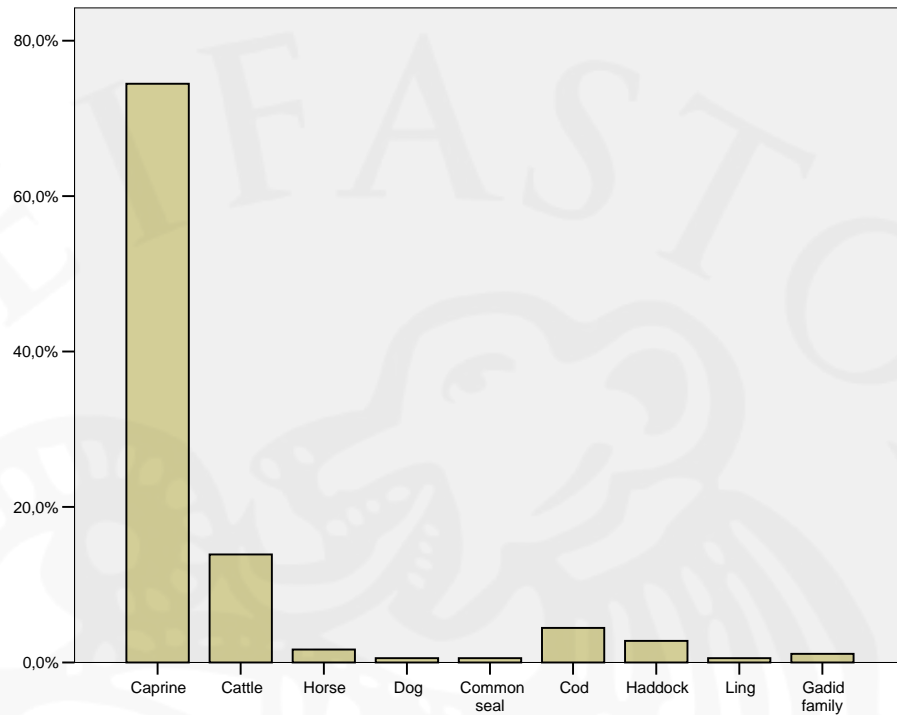


Figure 34. Percentage ratio of taxa (NISP/POSAC).

Environmental samples

There were 40 samples collected on site, though 8 of these were concrete samples. The samples recovered from site are likely to give more of an indication of the presence of fish bone, and other small macro remains. It is likely that the samples will also add finds to the totals.

INTERPRETIVE TEXTS

The archaeology that was excavated is on the cusp of the legal definition of archaeology - lying between the 100 year rule. This presented several challenges to the archaeologists and the cultural heritage monitors, as well towards the valorization of the archaeology by the public, and in particular the media.

The archaeology that we were dealing with was qualitatively different from other archaeologies excavated by most of the team. As a result this challenged many of their preconceptions of the excavation process. For example, in essence what we were doing was bringing forward or re-materialising that which had been excessive, forgotten or concealed⁶. The value of the site as archaeology, particularly the finds, were perceived by many within a context which did not have material authenticity like, for example, a steatite vessel fragment or an ordinary object from the Viking period. As archaeologists we had to bring into focus and re-materialise again that which had been forgotten, if only for a short time. All archaeology is like this but the excavation of a site and its remains which were temporally close meant that we had challenge and confront many of our own notions about archaeology, by bringing it closer towards an archaeology of life, rather than that purely of the past.

The suggestion that what we have dealt with is an archaeology of life positions archaeology as a nuclei for other particles of the past. Namely, photographs, documented accounts and personal histories. The text here does not draw extensively on these sources, but where it does it acknowledges their important role in creating a discourse on the water front, building and other activities between the mid-19th to early 20th century. The account that follows draws primarily on the archaeological material, the cartographic map sources and photographs. The photographs, in particular, aim to provide a more realistic and personalised account of the excavation area - in a sense bringing it back to life.

The texts are not intended to provide a comprehensive interpretation of the excavation (this will take place in the main report of the excavations) but instead presents several interesting vignettes that connect the different sources: the archaeological features, the finds, maps and photographs. It is argued that the result is a more *vital* representation of the recent past. Themes chosen for discussion include the spatial development of the water front area, with a view on the neighbourhood activities and chronology, set within a commentary on the wider national and global perspectives. Several avenues for further research are also suggested.

⁶ Buchli, V and Lucas, G 2001 *Archaeologies of the contemporary past*. London: Routledge.

Spatial development of the water front

The small temporal duration of the archaeology - i.e. between 1860 to the present day - presented a challenge in being able to establish a chronological framework to understand the spatial development of the water front area. As the period in question was and is materially rich the material culture from the site provides a window into understanding the chronological development. On the other hand the resolution of the material culture and its ability to tighten and specify the chronological framework was, for the purposes of this report, limited. Not only because of the difficulties in determining the provenance of the material much of it was from abroad (as expected) but also because it was retrieved from non-primary contexts i.e. ones in which the actual activities and practices of site formation processes resulted in the production of a specific context. The features and deposits on the site had relatively complex site formation processes resulting from movement of material across the site produced from a variety of actions and events. This created a non-homogenous and mixed material culture contexts. Much of this contamination occurred *in antiquity* as a result of the sea deposition, but was especially prevalent in area 4 and in particular Kolasund. Therefore, the usually material culture analysis, whilst having potential for further analysis are limited in terms of providing good resolutions for site phasing.

The cartographic, the documentary and photographic records, as well as providing a rich source for the historical development of the site, taking into account their credibility and realistic portrayal of the excavation area, provide a rich vein of comparative and contextual sources for the archaeology when examined through a dialectic process of integration. The archaeology, as a discipline of detail, in terms of materials and space, from this site therefore relies heavily on these sources in providing a comparative material for understanding, amongst other things, the phasing and spatial development of the water front area.

It is clear both from the cartographic sources and the water front did not develop until after 1801, and not fully until after 1836. There was very little archaeological evidence to suggest otherwise, though there may have been some activity in the vicinity during this earlier phase (between 1801 and 1836) as some early 19th century ceramics were recovered from area 2, in the foundation trench for [45] [69] and from [192] under the adjoining structures or rooms [46] and [47]. The features associated with [192] included a stone foundation [113], though this was only partial and had been truncated by both the modern pipes [94] and by the later foundation that lay between [46] and [47]. On the 1836 map a pier front had developed which had no associated buildings or features (at least apparent on the map). [192] therefore may have been associated with this early development of the area, perhaps an ephemeral structure on a stone foundation. The water front had essentially not been developed: the shore was not improved except with the addition of a pier extending from Kolasund. In its conception and its continued reiteration Kolasund has an early history in the development of the water front though no archaeological evidence supports this – as yet.



Figure 35. 1836 development

Between 1836 to 1876 there is considerably more activity on the site. This includes 2 buildings which have different dimensions and alignments to the structures seen during the excavation and from the 1887 map. As [45] is supposedly built in 1860 it is possible that parts of [45] are incorporated into this earlier structure or, perhaps more likely, that the 1876 map actually depicts [45] in a wrong position and with non-accurate dimensions.

Hafnarstræti 21 on the 1876 map was a much smaller structure than it is today; almost half its size. The postholes seen during the excavation that were located in the eastern end of the building relate probably to the extension between 1876 and 1887 rather than the building seen on the 1836 map; though it is possible that they are a remnant of this earlier activity. There is little variation in the building's foundations, except in the western end (though was probably part of a later development). The eastern pit feature [10] could conceivably be part of this early building as it appears to have been centrally placed outside the southern wall; perhaps a remains of a support and load bearing feature, though there is little archaeological material to support this.

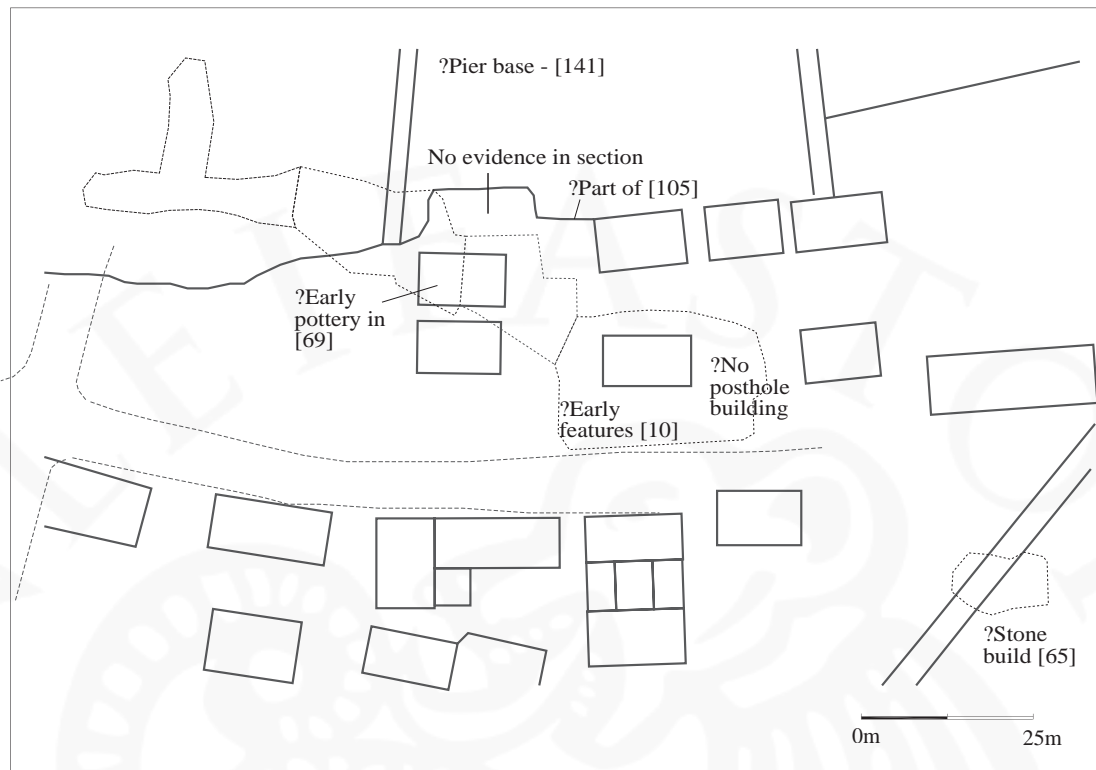


Figure 36. 1876 development

In 1876 there was a considerably more development around the water front, for example with the building [105] (parts of at least). There were some construction differences in the elevations of the walls in [105] though as this area lay outside the excavation area it was only partially observed. The most interesting feature in this period is the water front area which extends out from [45]. The area was not in the excavation area relating to this report, though it is likely to be in the next phase of work. It could be a fish drying place that predates the one located west of Kolasund (seen from photographs). The subsequent development of the seas walls was associated with the construction of the building [139] west of Kolasund, which was different from [70]. Another wall [175] was built west of [139] which did not appear until 1902 and again different. An earlier wall is seen on the 1887 map is set back c. 4m south than the one depicted on the 1902 map (probably [175]). This wall was not within the excavation area so was not recorded.

The majority of the archaeology found during the excavations probably dates to between 1876 and 1902. Most of the features can be seen on the two maps from this period, one in 1887 and one in 1902: Kolasund, the pier [141], the buildings [45], [139] as well as [46] and [47] and the Hafnarstræti 21 [199]. A few photographs also depict the area, though it is never the centre of the shot and details are periphery, cursory and often in the background. However, on some photographs from the 1876 – 1902 period it is possible to see the wooden pier and the gap into Kolasund, as well as the buildings [45] and [139] that form part of the water front wall. In the photograph which is taken from the pier at the end of Lækurinn,

Kolasund and the buildings which are located the third pier along (figure 38). From the photograph it is clear that the buildings front onto the sea, though it is hard to see how wide the wooden pier would have been and how it would have been joined onto the land in Kolasund.

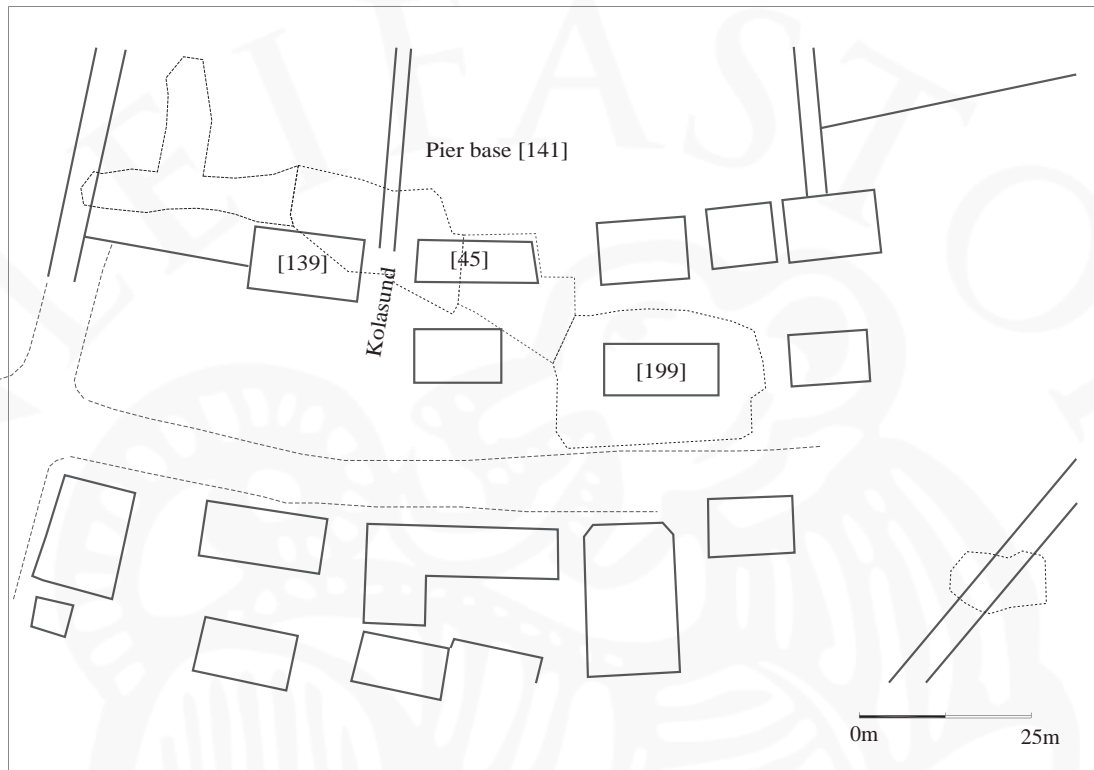


Figure 37. 1887 development

Although the archaeology can not fully answer these questions, features such as the stone ramp [135] and the remnant of the pier [141] adds knowledge about the construction and use of the area. For example, the pier bases were made from wooden boxes filled with stone. Within them there were finds, which included 3 complete bottles, one of which came from Sweden via Denmark to Iceland. The pier base was found up against the northern wall of [45], though it is possible that this had been moved from its original position after the pier had gone out of use. Perhaps, instead of being moved, there was a gangway which extended eastwards in front of [45]; a similar feature can be seen on a photograph taken in 1914 but further west along the water front near to Grofín (1914).

The building [139] seen in figure 38 was constructed differently from [45]. The water front wall part, which was seen in the excavation, was angled at approximately 80 degrees, though the building above the sea wall was at 90 degrees. The wall of [45], as it appears in the photograph did not have this feature and was seems to at an angle all of the way to the roof. The two buildings were architecturally different and were built at different times. Both seem to have had low angled sloping roofs; this is also seen on a photograph from 1905 (figure 39).

Kolasund had several phases of development. The most interesting phase relates to a flat stone ramp [135] and a brick lined pit feature [144] which were constructed after [45] was built, therefore dates to after 1860. The features were built before the redevelopment of the water front in 1912 – 1917⁷. It is clear by the persistent use of Kolasund until after the water front's redevelopment that it was a major access point to and from the sea. It is also clear from photographs that this part of the water front was owned and used by the Thomsens magasin / stores / verslun, who amongst other goods imported coal. On the photograph from 1909 advertising had become important; compare figures 38 and 40: *Thomsen store – The very best coals*. Coal was found on site and sampled, and many of the deposits had been contaminated with coal dust. Later advertising placed on [139] was connected with Mory and Co.



Figure 38. Cropped image from a photograph taken in 1899 looking west (1-187_1899_sigfeym 1).

The period between 1902 and 1917 shows new development along the water front area that combined both the new building and the water front walls. It was perhaps the requirements of the predominately foreign merchants that drove the economics behind the redevelopment of the water front between 1912 to 1917. Most of the major works lay outside the excavation area however, though it is possible to make some comments. Several photographs exist from this period, until the water front was again redeveloped in c. 1940s. The building activity associated with [199], [45], [139] and [105] expanded and the area became denser in building, particularly with lean-to structures and extensions to existing buildings; modifications and changes to buildings shown on the 1902 and 1917 maps suggests that this was a common practice. The cluttering of the area added greater complexity to the building sequences, though due to truncations

⁷ Th. Krabbe 1946 *Island og dets tekniske udvikling gennem tiderne*. Copenhagen. Pp. 164-5.

and their ephemeral character, the archaeology has tracked very little of this.



Figure 39. 1902 development



Figure 40. The water front in c. 1909 from a boat looking south (Friis No 47).

The redevelopment of the water front was seen most clearly in the area in front of the buildings in area 4 and in area 5, close to Posthússtræti. The boulder infill for example [190] was used to infill the land reclaimed from the sea. According to sources a total of 120,000m³ of stone was used to complete a new water front that was 863m long⁸. After 1917 buildings were added in front of [45] and [139] though this can not be seen on the 1917 map therefore it is likely that these came after. On another photograph it is clear that there were lean-to buildings which may have been insubstantial.



Figure 41. The redevelopment of the water front between 1912-1917 (above); and the completed water front just north of the excavated area (middle) [ADF 2004-24-2 nr 18]; Steinbryggðin and metal tracks, looking north east [MAÓ 2521] (below).

Several photographs show area 5 from the west looking east. In these photographs it is possible to see track embedded in Steinbryggja which were sat on a concreted plate into which stone sleepers had been set. Photographs taken in c. 1905 - 1906 in Hafnarfjörður show that wagons were used to haul fish to and from drying places and this was probably

⁸ Krabbe 1946, 164-5

similar here⁹. A fish drying place was located between [139] and Steinbryggja. The area was an open space for several years, and therefore the redevelopment of moving the water front wall further north allowed this space to be utilised for fish drying and as a storage place (ÓSG GLE 132).



Figure 42. 1917 development.

Discussion

The main results of the excavations have substantiated a greater detail on the water front development between the early 19th and early 20th centuries. This has included a greater understanding of the spatial and temporal development of the area, with detailed mapping and finds retrieval. Limited and very little comparative work has taken place in producing this picture, besides consulting maps and some photographs. No documents, such as insurance records or inventories were consulted and this awaits further analysis.

In terms of understanding the technologies involved in creating buildings, both in terms of materials and architectural features, the excavations have proven exceptional in this respect. Again, further analysis needs to be made regarding the concrete mixing but the architectural styles and construction types have developed over a relatively short period. With the opening of larger and more buildings it will be possible to build on this

⁹ The Visitor's eye. Ljósmyndir Hans Wiingaard Friis. Þjóminjasafn Íslands.

knowledge. The biographies from construction are better understood, but as outlined above, there are some problems with the material culture – both in the forms of retrieval and the types of the contexts that they come from. The resolutions at best are neighbourhood ie within the vicinity of the excavation, though one or two examples of primary and discrete contexts were recorded and excavated.

Further work needs to be done on the material culture assemblages and the environmental samples before substantive interpretations are made. The focus for this report has been very much a description of what was encountered. It is intended that a greater understanding will be placed in any subsequent reports on the types of processes involved in archaeologists own experience in excavating recent archaeology. An attempt was made to widen the debate on the character of contemporary archaeology, and whilst to some extent this was successful it failed to generate sufficient interest (or rather responses) to value it as truly useful exercise. To address this it is intended to circulate this document to the excavators of the site to review and assess their comments on my interpretation of their excavation. In a sense by conducting such as survey a better understanding of the archaeological process and the excavated material in approaching a more vital archaeology, one which focuses on the communities who interacted, lived and worked in the area during the late 19th and early 20th centuries. This report however, indicates the potential for this amongst an interpretation of the spatial development of within the excavation area.

Future work

The next phase of work to take place in the PDA and will encounter a similar archaeology: one which will have been severely truncated resulting in a fragmentary picture of the past. However, the photographic and documentary sources will provide a greater resolution for understanding the archaeology better. As archaeology is a discipline of detail it will therefore be necessary to ensure that time is spent recording the significant architectural features as part of the excavation: these alone tell so much about the chronological and spatial development of the water front.

It is expected that the buildings east of [45], which include the partially investigated [105], will have similar water front wall remains, as well as features relating to lean-to buildings and storage plots. The PDA archaeological zones were divided into 1, 2 and 3, and whilst the majority of 1 has already been excavated (this report) 3 buildings remain, as well as the areas south between them and Hafnarstræti 21. The area east of this, in zone 2, if the archaeology is similarly truncated, will therefore need to be considered carefully. This applies in particular to the water front area and the pier of which there is particularly good photographic evidence from the late 19th century and early 20th century. It seem necessary therefore, as a precaution, that the area defined by the water front on the 1902 map and the southern part of the PDA should be carried out as part of the zone 1 excavation.

APPENDICES

Appendix 1 Site archive

Units

<i>Unit</i>	<i>Type</i>	<i>Area</i>	<i>Description</i>
1	Deposit	1	Concrete base of Hafnarstræti 21
2	Deposit	1	Step threshold Hafnarstræti 21 (east side)
3	Deposit	1	Step threshold (west side)
4	Deposit	1	Stone wall (Hafnarstræti 21 - upper foundation)
5	Deposit	1	Surface under W. Threshold [3]
6	Group	1	Group - stone wall for Hafnarstræti 21
7	Cut	1	Cut for [2]
8	Deposit	1	Lower stone wall foundation (Hafnarstræti 21)
9	Group	1	Group for foundations of Hafnarstræti 21
10	Group	1	Step thresholds [2, 7] and [3, 5]
11	Deposit	1	Deposit in gap in foundations [8]
12	Deposit	1	Gravel behind sidestones cut by foundation trench
13	Deposit	1	Stones foundation; similar to [8]
14	Deposit	1	Smaller stones inner line
15	Deposit	1	Large stones with concrete (lowest most)
16	Deposit	1	Gravel surfaces
17	Cut	1	Foundation cut for Hafnarstræti 21
18	Cut	1	Possible cut - gap left between [8] bottom row of foundation
19	Deposit	1	Stone foundation for dividing wall
20	Deposit	1	Sandy gravel layer
21	Deposit	1	Sandy gravel layer
22	Deposit	1	Sandy gravel layer
23	Deposit	1	Sandy gravel layer
24	Deposit	1	Sandy gravel layer
25	Deposit	1	Sandy gravel layer
26	Deposit	1	Sandy gravel layer
27	Group	1	[20-26] section; south east of Hafnarstræti 21
28	Group	1	Section facing west units [31-42]
29	Cut	1	Foundation trench
30	Cut	1	Foundation trench
31	Deposit	1	Mortar under [019]
32	Deposit	1	Coarse gravel, mixed with sand
33	Deposit	1	A row of stones possibly part of [019]
34	Deposit	1	Coarse gravel, mixed with sand
35	Deposit	1	Coarse gravel
36	Deposit	1	Sand, mixed with coarse gravel
37	Deposit	1	Sand containing
38	Deposit	1	Medium brown organic layer
39	Deposit	1	Sand, mixed with small pebbles
40	Deposit	1	Sand with occ lenses of organic material
41	Deposit	1	Medium brown organic layer
42	Deposit	1	Sand mixed with coarse gravel
43	Deposit	1	Foundations for Hafnarstræti 21, east (same as 8)
44	Cut	1	Post-holes in concrete floor
45	Group	1	Building [45] - ?Kolasund 1
46	Group	2	Area south of [45]
47	Group	2	Area south of [46]

48	Group	2	Area east of [45]
49	Group	2	Area south of [48] & east of [46, 47]
50	Deposit	2	Backfill deposits in [45]
51	Deposit	2	Gravel and sand deposit
52	Deposit	2	Stone blocking
53	Deposit	2	Redeposited gravel and sand over later foundations
54	Deposit	2	Fill of cut [55]
55	Cut	2	Cut fot fill [54]
56	Deposit	2	Gravel deposit with shell (similar to [53])
57	Deposit	2	Rectangular feature out from [105] - backfilled
58	Deposit	2	Row of stones; ?redeposited foundations
59	Deposit	2	Gravel deposit spread over [49]
60	Deposit	2	Stones in fill [54]
61	Group	2	Group for cut [55] and fill [54, 60]
62	Deposit	2	Foundation walls surrounding group [47]
63	Deposit	2	Disturbed deposit under [53]
64	Deposit	2	Modern pipes (water?)
65	Group	3	Trench in Lækjargata
66	Group	3	Section (N-facing) in Lækjargata
67	Deposit	3	River deposits - cut or interface by conduit only on east side
68	Deposit	3	Infill deposit for cut of conduit
69	Deposit	3	Stones piled up against [45]
70	Deposit	2	Walls of [45]
71	Group	2	Group for fills in [61]: [54, 60, 69]
72	Deposit	2	Posts (wood) in cut [55]
73	Deposit	2	Charcoal and sand mix south of [45]; west area
74	Group	2	Deposit in cellar of building [105] (NW corner)
75	Deposit	2	Grid sq. 1
76	Deposit	2	Grid sq. 2
77	Deposit	2	Grid sq. 3
78	Deposit	2	Grid sq. 4
79	Deposit	2	Grid sq. 5
80	Deposit	2	Grid sq. 6
81	Deposit	2	Sandy gravel deposit
82	Deposit	2	Blackish charcoal dump mixed with sand
83	Deposit	2	Charcoal dump - very blackish mixed w/sand
84	Deposit	2	Backfill in foundation for steps to [45]
85	Deposit	2	Gravelly deposit w/charcoal
86	Deposit	2	Foundation trench cut for Hafnarstræti 19
87	Deposit	2	Stones blocking set in [90]
88	Deposit	2	Fill of cut [89] (foundation cut for [62])
89	Cut	2	Foundation trench for [62]
90	Deposit	2	Gravelly and sand deposit
91	Deposit	2	Black coal rich surface
92	Deposit	2	Stones deposit outside southwest corner of cellar [45]
93	Cut	2	Fioundation cut for [45]; sw area
94	Group	2	Group of pipes sw of room [45]
95	Deposit	2	Natural gravels
96			VOID
97	Cut	2	Foundation cut for [45]
98			VOID
99	Deposit	2	Charcoal deposit
100	Deposit	2	Mixed layer of clay and gravel
101	Deposit	2	Peat ash (dump)
102	Deposit	2	Gravelly deposit
103	Deposit	2	Peat ash
104	Deposit	4	Stone paved area west of [45]

105	Group	2	Building north of Hafnarstræti 21
106	Deposit	2	Fill
107	Cut	2	Cut for stones?
108	Deposit	2	Stones in entrance?
109	Deposit	4	Black layer underneath pavement [104]
110	Deposit	4	Compacted charcoal layer
111	Group	2	Group for cut [107] and fill [106, 108]
112	Deposit	2	Brownish gravel deposit (sea gravel) rich in shells
113	Deposit	2	Steinlögn - corner - remains of earlier building foundation
114	Deposit	2	Wooden frame around mains tap
115	Cut	2	Cut for [114]
116	Deposit	2	Fill in [115]
117	Deposit	4	Dump layer
118	Deposit	2	Brick feature in basement [105]
119	Deposit	4	Pebble layer under [109] west of cellar [045]
120	Group	2	Cellar east of [45]
121	Deposit	2	Pile of stones - possibly part of old sea front
122	Deposit	4	Charcoal layer - compact
123	Deposit	4	Wooden outline of pier
124	Deposit	4	Fill of pier - gravel and rocks
125	Deposit	4	Wooden planks under [119]; right next to building, w of cellar [45]
126	Deposit	4	Dump layer below [122]
127	Deposit	4	Wood posts on w side of Kolasund
128	Deposit	4	Stone wall
129	Deposit	4	Layer with charcoal in it, black.
130	Deposit	4	Fill in cut for cellar
131	Deposit	4	Modern fill in cut for addition to Rammagerðin
132	Deposit	4	Wall between two cellars /foundations
133	Deposit	4	Fill of cellar made of brick; w of cellar [45]
134	Deposit	4	Brick construction in which [133] is placed
135	Deposit	4	Stone paving / stone ramp in Kolasund
136	Deposit	4	Stone foundation for stone pier; probably with [141]
137	Group	4	Wall [132] rebuild-addition between [138, 70 - 45]
138	Group	4	Wall w of [132]
139	Group	4	Building, west of [45] and Kolasund
140	Group	4	Pipes
141	Group	4	Pier groups [136, 124, 125]
142	Deposit	4	Wooden floor and backfill in [139]
143	Deposit	2	Concrete cellar cap
144	Group	4	Group and mc plan pit [134], bottom, wall of cellar [45]
145	Deposit	4	Charcoal deposit partially compacted
146	Deposit	4	Sand deposit with gravel and coal mix
147	Deposit	4	Sand
148			VOID
149	Deposit	4	Gravel mixed with sand and wood
150	Deposit	4	Coal deposit
151	Cut	4	Cut for brick structure [134]
152	Deposit	4	Wood sitting in a cut (drain?) [153]
153	Cut	4	Drain trench leading to [155]
154	Deposit	4	Stone structure sitting in cut [155] earlier phase of [134]
155	Cut	4	Cut for stone structure [154]
156	Deposit	4	Topsoil
157	Deposit	4	Black lens
158	Deposit	4	Sand lens
159	Deposit	4	Black lens-thin
160	Deposit	4	Grús
161	Deposit	4	Gravel

162	Deposit	4	Natural sand and pebbles
163	Deposit	4	Grey gravel layer; west of pipe and east of [139]
164	Deposit	4	Gravel; west of pipe and east of [139]
165	Deposit	4	Stone dump; west of pipe and east of [139]
166	Deposit	4	Grey black sand + gravel; west of pipe and east of [139]
167	Group	4	Stone ramp; west of pipe and east of [139]; same as [172]
168	Deposit	4	Stone wall (s-n) w side of Kolasund
169	Deposit	4	North facing section of [167] area
170	Cut	4	Cut for stone wall [168]
171	Deposit	4	Fill of cut [170]
172	Group	4	Group for stone wall: cut and fill [168, 170, 171]
173	Group	5	Trench in area 5
174	Group	5	Stone wall for [139]
175	Group	5	Stone wall west of [174] at a 45 degree slope
176	Deposit	5	Stone base foundation for [175]
177	Deposit	5	Concrete capping for [175]
178	Cut	5	Cut for pipe trench
179	Cut	5	Cut for electric cable (runs n-s) = [186]
180	Cut	5	Cut for water pipe at base of [175]
181	Deposit	5	Cleaning layer in trench [173]
182	Deposit	5	Cleaning layer on top of concrete and wall [175]
183	Group	5	Metal tracks - south (west side)
184	Group	5	Metal tracks - north (west side)
185	Group	5	Metal tracks - north (east side)
186	Cut	5	Pipe cut or gap between [185] and [175] = 179
187	Group	5	Pier foundation (south)
188	Cut	5	Post depression in concrete [177] on top of [175]
189	Group	5	Pier foundation (north)
190	Deposit	5	Boulder infill (1902 - 1917) in front of harbour front
191	Group	5	Post 1917 activity in area 4 (north of harbour front)
192	Group	5	Foundations for earlier phase under [46]
193	Group	5	External activity south of [45]
194	Group	5	Entrance / platform to [139]
195	Group	5	Infilling event for new harbour front
196	Group	5	West entrance to [70]
197	Group	5	Levelling layer; east of [139]
198	Deposit	5	Wood beams - north of Hafnarstræti 21
199	Group	1	Hafnarstræti 21

Finds

<i>FindsNo</i>	<i>Unit</i>	<i>Area</i>	<i>Object_Keyword</i>	<i>Material_Keyword</i>	<i>Weight</i>	<i>Count</i>
1	1	1	Button	Copper alloy	1	1
2	1	1		Glass	11	2
3	2	1		Ceramic	60	13
4	75	2	Roof Tile	Stone	256	1
5	2	1		Glass	85	12
6	3	1		Glass	337	18
7	3	1		Ceramic	25	8
8	3	1		Ceramic	2	1
9	5	1		Ceramic	22	8
10	5	1		Glass	49	5
11	5	1		Ceramic	5	2
12	8	1	Stopper	Cork	1	1
13	119	4	Pipe	Ceramic	103	1
14	11	1		Ceramic	21	6
15	13	1		Ceramic	2	1
16	14	1	clay pipe	Ceramic	4	1
17	45	2		Ceramic	9	1
18	45	2		Glass	10	2
19	45	2	Worked wood	Wood	43	2
20	46	2		Glass	26	3
21	46	2		Ceramic	43	5
22	47	2		Ceramic	8	3
23	47	2	Carpet	Textile	1	1
25	48	2		Ceramic	430	2
26	48	2		Ceramic	436	20
27	48	2		Glass	328	13
28	48	2	Window Came	Glass	235	9
29	48	2		Glass	44	3
30	48	2	Wire	Copper alloy	10	1
31	50	2		Ceramic	21	4
32	50	2	Mirror	Glass	8	1
33	51	2		Glass	9	3
34	51	2		Ceramic	41	7
35	54	2	Clay pipe	Ceramic	2	1
36	54	2		Ceramic	386	22
37	54	2		Glass	67	5
38	54	2		Glass	77	7
39	47	2	Pipe	Plastic	10	1
40	59	2	Cloth	Textile	1	1
41	59	2		Glass	190	9
42	59	2		Ceramic	7	1
43	59	2	Clay pipe	Ceramic	16	1
44	59	2		Ceramic	330	21
45	63	2		Glass	16	3
46	68	3		Glass	222	4
47	69	2		Glass	10	2
48	69	2		Ceramic	60	6
49	69	2		Ceramic	31	5
50	69	2		Ceramic	32	5
51	68	3		Ceramic	248	11
52	69	2	Sheet	Copper alloy	4	1
53	74	2		Glass	790	8
54	77	2		Glass	16	1
55	74	2	Roof Tile	Stone	385	2

56	84	2		Glass	14	1
57	88	2		Ceramic	43	3
58	90	2	Clay pipe	Ceramic	3	1
59	90	2		Ceramic	144	8
60	90	2		Glass	50	4
61	100	2		Ceramic	205	12
62	100	2		Ceramic	173	7
63	100	2	Roof Tile	Stone	168	3
64	100	2		Stone	542	2
65	103	2		Stone	26	8
66	103	2	Roof Tile	Stone	66	1
67	106	2	Pipe	Ceramic	53	1
68	109	2		Ceramic	168	10
69	106	2		Ceramic	172	13
70	117	2		Ceramic	173	3
71	119	4		Ceramic	2000	60
72	119	4		Ceramic	412	11
73	119	4		Ceramic	314	14
74	122	4		Ceramic	85	1
75	119	4		Ceramic	343	14
76	122	4		Ceramic	487	10
77	124	4		Ceramic	23	1
78	124	4		Ceramic	156	9
79	130	4	Clay pipe	Ceramic	3	1
80	130	4		Ceramic	10	2
81	147	4		Ceramic	240	15
82	161	4		Ceramic	1500	60
83	161	4		Ceramic	1000	21
84	161	4	Worked Stone	Ceramic	20	3
85	161	4	Worked Stone	Ceramic	8	1
86	147	4	Roof Tile	Stone	24	1
87	147	4	Stopper	Cork	1	1
88	161	4	Roof Tile	Stone	221	8
89	100	2		Glass	175	4
90	102	2		Glass	37	2
91	102	2		Glass	242	1
92	106	2		Glass	61	5
93	109	2		Glass	25	4
94	110	2	Vessel	Glass	3	1
95	117	2		Glass	74	4
96	119	4		Glass	32	1
97	119	4		Glass	159	2
98	122	4		Glass	14	2
99	124	4		Glass	2000	140
100	124	4		Glass	1000	20
101	124	4	Bottle	Glass	1300	3
102	147	4		Glass	7	1
103	161	4		Glass	740	58
104	1	1	Food waste	Bone	25	3
105	1	1	Food waste	Bone	77	17
106	2	1	Food waste	Bone	105	25
107	3	1	Food waste	Bone	85	4
108	5	1	Food waste	Bone	108	21
109	11	1	Food waste	Bone	7	3
110	28	1	Food waste	Bone	86	4
111	45	2	Food waste	Bone	40	1
112	47	2	Food waste	Bone	52	6

113	48	2	Food waste	Bone	36	2
114	53	2	Food waste	Bone	30	6
115	54	2	Food waste	Bone	512	38
116	59	2	Food waste	Bone	305	26
117	68	2	Food waste	Bone	71	1
118	69	2	Food waste	Bone	187	6
119	74	2	Food waste	Bone	22	1
120	90	2	Food waste	Bone	70	7
121	88	2	Food waste	Bone	15	2
122	100	2	Food waste	Bone	213	12
123	100	2	Food waste	Bone	217	11
124	101	2	Food waste	Bone	63	2
125	102	2	Food waste	Bone	16	3
126	103	2	Food waste	Bone	129	10
127	106	2	Food waste	Bone	149	16
128	109	2	Food waste	Bone	123	13
129	112	2	Food waste	Bone	270	9
130	119	4	Food waste	Bone	400	20
131	119	4	Food waste	Bone	1400	44
132	122	4	Food waste	Bone	222	5
133	124	4	Food waste	Bone	53	2
134	161	4	Food waste	Bone	1400	70
135	75	2	Structural Fitting	Iron	617	5
136	119	4	Structural Fitting	Iron	252	3
137	122	4	Structural Fitting	Iron	151	1
138	122	4	Structural Fitting	Iron	1100	8
139	147	4	Structural Fitting	Iron	1700	6
140	45	2	Furniture Fitting	Iron	2500	10
141	74	2	Vessel	Metal	1100	1
142	1	1	Drain Pipe	Iron	1300	1
143	2	1	Building Material	Iron	34	3
144	2	1	Nail	Iron	47	5
145	3	1	Nail	Iron	41	3
146	5	1	Nail	Iron	23	3
147	8	1	Tool	Lead	18	1
148	11	1	Nail	Iron	9	1
149	13	1	Nail	Iron	6	1
150	47	2	Nail	Iron	22	2
151	48	2	Nail	Iron	1543	15
152	54	2	Nail	Iron	59	5
153	59	2	Nail	Iron	36	2
154	63	2	Nail	Iron	9	1
155	5	1	Unidentifiable	Iron	8	1
156	46	2	Fitting	Iron	98	1
157	48	2	Pipe	Metal	196	1
158	51	2	Nail	Iron	35	4
159	63	2	Tool	Iron	210	1
160	54	2	Structural Fitting	Iron	132	2
161	59	2	Sheeting	Metal	300	3
162	74	2	Unidentifiable	Iron	81	2
163	78	2	Spanner	Iron	330	1
164	78	2	Roof Tile	Stone	434	3
165	77	2	Wire	Iron	6	1
166	84	2	Nail	Iron	9	1
167	100	2	Fitting	Iron	60	1
168	106	2	Nail	Iron	67	4
169	109	2	Unidentifiable	Metal	72	1

170	117	2	Nail	Iron	70	1
171	119	4	Objects	Iron	412	3
172	119	4	Nail	Iron	240	3
173	122	4	Lid	Iron	240	1
174	122	4	Structural Fitting	Iron	1200	2
175	124	4	Unidentifiable	Iron	118	4
176	122	4	Buckle	Iron	76	1
177	103	2	Nail	Iron	11	1
178	103	2	Structural Fitting	Iron	1000	3
179	78	2	Fork	Composite	2000	1
180	142	4	Bouy	Metal	1000	1
181	122	4	Object	Iron	2000	1
182	122	4	Wire	Iron	700	1
183	122	4	Fitting	Iron	900	1
184	48	2	Fitting	Iron	1800	1
185	45	2	Nail	Iron	27	4
186	49	2	Nail	Iron	31	1
187	45	2	Sheeting	Metal	16	1
188	45	2	Nail	Iron	160	8
189	0	4	Object	Iron	580	1
190	49	2	Pipe	Iron	1500	2
191	48	2	Unidentifiable	Metal	53	1
192	0	2	Fish hook	Iron	26	1
193	0	2	Nail	Iron	24	2
194	49	2	Nail	Iron	14	1
195	48	2	Nail	Iron	19	2
196	49	2	Unidentifiable	Iron	54	1
197	48	2	Nail	Iron	22	3
198	49	2	Nail	Iron	56	6
199	49	2	Object	Metal	133	1
200	5	1	Brick	Ceramic	1300	2
201	49	2	Brick	Ceramic	3000	1
202	48	2	Brick	Ceramic	3000	3
203	48	2	Brick	Ceramic	4000	1
204	0	2	Brick	Ceramic	292	1
205	0	2	Roof Tile	Stone	87	4
206	13	1	Roof Tile	Stone	13	2
207	5	1	Roof Tile	Stone	14	1
208	49	2	Roof Tile	Stone	145	3
209	2	1	Roof Tile	Stone	2	1
210	3	1		Stone	50	1
211	0	2		Stone	16	1
212	49	2	Brick	Ceramic	24	1
213	5	1	Brick	Ceramic	3	1
214	0	1	Drain Pipe	Ceramic	1154	6
215	0	2	Drain Pipe	Ceramic	365	3
216	0	4	Brick	Ceramic	1000	1
217	122	4	Brick	Ceramic	2856	2
218	161	4		Concrete	1037	1
219	128	4	Worked Stone	Stone	5000	1
220	64	2	Brick	Ceramic	7000	1
221	48	2	Chain	Iron	1000000	3
222	100	2	Brick	Ceramic	49	1
223	106	2	Brick	Ceramic	90	2
224	0	4	Brick	Ceramic	170	1
225	119	4	Roof Tile	Stone	700	12
226	119	4	Brick	Ceramic	1000	1

227	124	4	Brick	Ceramic	88	1
228	100	2		Stone	130	1
229	119	4	Brick	Ceramic	129	1
230	74	2	Brick	Ceramic	2500	1
231	119	4	Roof Tile	Stone	360	8
232	109	2	Brick	Ceramic	531	3
233	122	4	Brick	Ceramic	417	1
234	124	4	Roof Tile	Stone	180	6
235	46	2	Roof Tile	Stone	586	6
236	100	2	Roof Tile	Stone	65	2
237	90	2	Roof Tile	Stone	268	8
238	119	4	Roof Tile	Stone	1200	2
239	109	2	Roof Tile	Stone	233	6
240	122	4	Roof Tile	Stone	83	2
241	50	2	Roof Tile	Stone	10	1
242	54	2	Roof Tile	Stone	60	2
243	63	2	Brick	Ceramic	255	3
244	11	1	Brick	Ceramic	25	2
245	28	1	Brick	Ceramic	7	1
246	49	2	Brick	Ceramic	29	1
247	54	2	Brick	Ceramic	58	4
248	0	2	Brick	Ceramic	4	1
249	54	2	Brick	Ceramic	27	1
250	54	2	Brick	Ceramic	3000	1
251	48	2	Brick	Ceramic	2000	4
252	59	2	Drain Pipe	Ceramic	1129	1
253	59	2	Drain Pipe	Ceramic	4000	7
254	54	2	Drain Pipe	Ceramic	431	1
255	63	2	Fragment	Concrete	51	1
256	63	2	Fragment	Concrete	103	1
257	48	2		Concrete	1500	1
258	11	1		Glass	19	7
259	119	4	Fitting	Gum	2	1
260	54	2	Wire	Metal	11	20
261	161	4	Comb	Plastic	1	1
262	109	2	Tobacco Pipe	Plastic	11	2
263	150	4	Lamp	Copper alloy	54	1
264	5	1	Fitting	Lead	56	1
265	5	1	Sheeting	Lead	46	1
266	50	2	Ornament	Metal	1	1
267	0	1	Paper clip	Composite	1	1
268	161	4	Sheet	Copper alloy	1	1
269	161	4	Sheeting	Metal	30	1
270	106	2	Sheeting	Lead	11	1
271	130	4	Thimble	Copper alloy	2	1
272	69	2	Stopper	Cork	3	1
273	78	2	Worked wood	Wood	69	1
274	122	4	Offcut	Leather	40	4
275	119	4	Offcut	Leather	8	1
276	161	4	Offcut	Leather	13	3
277	0	1	Food waste	Bone	388	18
278	0	4	Food waste	Bone	105	1
279	0	2	Food waste	Bone	480	15
280	49	2	Food waste	Bone	575	23
281	48	2	Food waste	Bone	135	8
282	49	2	Pottery	Ceramic	566	25
283	0	4	Pottery	Ceramic	223	8

284	49	2	Pottery	Ceramic	46	3
285	0	2	Pottery	Ceramic	119	10
286	0	4	Pottery	Ceramic	42	9
287	0	4	Pottery	Ceramic	106	14
288	0	2	Pottery	Ceramic	26	4
289	49	2	Pottery	Ceramic	6	1
290	0	2	Pottery	Ceramic	11	3
291	0	4	Pottery	Ceramic	29	4
292	0	2		Glass	49	4
293	0	2	Bottle	Glass	338	1
294	0	2		Glass	8	3
295	0	2	Window Came	Glass	12	1
296	49	2		Glass	10	2
297	46	2		Glass	132	5
298	0	2		Glass	193	3
299	0	2		Glass	197	3
300	0	2		Glass	10	3
301	0	2		Glass	75	1
302	0	2		Glass	6	1
303	0	2		Glass	19	6
304	0	4	Window Came	Glass	16	1
305	0	2		Glass	178	1
306	0	2	Pottery	Ceramic	11	2
307	45	2	Fragment	Concrete	20	1
308	0	2	Cap	Composite	3	1
309	0	2	Connection	Composite	22	1
310	63	2	Paint	Acrylic	1	1
311	0	1	Can	Aluminium	22	1
312	48	2	Miscellaneous	Plastic	19	5
313	45	2	Comb	Composite	38	2
314	0	1	Carton	Paper	5	1
315	47	2	Cap	Plastic	6	2
316	0	2	Cup	Plastic	1	1
317	48	2	Fuse	Composite	7	1
318	100	2		Coal	1200	1
319	63	2		Coal	481	6
320	53	2		Coal	8	2
321	74	2		Coal	514	2
322	90	2		Coal	461	11
323	47	2		Coal	417	9
324	63	2		Coal	43	2
325	47	2		Coal	38	2
326	59	2	Worked wood	Wood	800	1
327	78	2	Object	Composite	900	3
328	74	2	Worked Wood	Wood	1000	3
329	64	2	Door	Composite	2230	
330	74	2		Wood	2000	4
331	48	2	Wire	Iron	2500	1
332	45	2	Building Material	Composite	3000	1
333	72	2	Structural Fitting	Wood	6000	1
334	124	4	Structural Fitting	Wood	14000	1
335	124	4	Structural Fitting	Wood	7000	1
336	124	4	Structural Fitting	Wood	6500	1
337	48	2	Hinge	Iron	312	1
338	48	2	Object	Iron	259	3
339	74	2	Roof Tile	Slate	264	4
340	77	2	unidentifiable	Iron	19	1

341	142	4	Bouy	Metal	503	1
342	0	4	Staple	Iron	591	1
343	48	2	Object	Iron	332	1
344	74	2	Fitting	Iron	261	1
345	0	2	Nail	Iron	11	1
346	134	4	Brick	Ceramic	1200	1
347	134	4	Brick	Ceramic	1100	1
348	134	4	Brick	Ceramic	3000	1
349	134	4	Brick	Ceramic	2500	1
350	134	4	Brick	Ceramic	5000	1
351	134	4	Brick	Ceramic	3000	1
352	134	4	Brick	Ceramic	1000	1
353	124	4	Stone	Stone	8000	1
354	161	4	Fitting	Copper alloy	4	3
355	74	4	Drain Pipe	Ceramic	9000	2
356	124	4	Structural Fitting	Wood	14000	1
357	161	1	Food waste	Bone	1100	41
358	161	4	Pottery	Ceramic	2007	61
359	161	1		Glass	782	17
360	0	4	Lamp	Copper alloy	6	1
361	181	5	Vessel	Ceramic	383	33
362	181	5	Object	Iron	48	1
363	181	5	Roof Tile	Stone	58	3
364	181	5	Worked Stone	Stone	72	2
365	181	5	Food waste	Bone	18	3
366	182	5	Pottery	Ceramic	511	14
367	182	5	Drain Pipe	Ceramic	198	1
368	182	5	Roof Tile	Stone	87	2
369	182	5	Object	Copper alloy	1	1
370	182	5	Food waste	Bone	39	3
371	163	0	Vessel	Ceramic	41	6
372	163	0	Food waste	Bone	2	1
373	163	0	Nail	Iron	6	2
374	163	0	Object	Iron	16	1
375	165	0	Bottle	Glass	307	7
376	165	0	Vessel	Ceramic	186	23
377	165	0	Roof Tile	Stone	48	3
378	165	0	Food waste	Bone	90	24
379	165	0	Worked Stone	Stone	392	1
380	165	0	Brick	Ceramic	65	1
381	165	0	Nail	Iron	30	1
382	165	0	Object	Iron	121	4
383	163	0	Bottle	Glass	0	5

Samples

<i>Sample No</i>	<i>Unit</i>	<i>Vol (litres)</i>
1	20	10
2	22	10
3	24	10
4	25	10
5	32	10
6	34	10
7	35	10
8	36	10
9	37 / 28	10
10	39	10
11	40 / 41	10
12	42	10
13	67	20
14	68	5
15	69	20
16	83	10
17	82	10
18	76	10
19	78	10
20	80	10
21	85	1
22	88	1
23	101	1
24	103	1
25	99	10
26	109	20
27	110	20
28	118	5
29	122	20
30	133	60
31	70	1
32	70	1
33	143	1
34	70	1
35	137	1
36	138	1
37	139	1
38	1	1
39	145	10
40	150	10

*NB Shaded samples are concrete

Appendix 2 Report of animal bones from Reykjavíkurhöfn

Rúnar Leifsson

A rescue excavation by FSÍ in Reykjavík harbour in 2006 produced roughly 9,3 kg of animal bone, deriving from contexts dating from ca. 1880s well into the 1900s. The site is under construction so parts of it were excavated by a mechanical digger, whilst other parts were meticulously excavated by archaeologists. Thirty nine contexts contained bone, there of nineteen were at least partly excavated by mechanical diggers. In total context disturbed by machining yielded 6,6 kg of bone, but contexts solely excavated by archaeologist 2,7 kg. This does represent problems concerning unsystematic bone recovery and biased sampling. The entire collection was hand collected, thus probably disfavours fish and bird bone and smaller mammalian elements.

Recording methodology

The Reykjavík harbour project requires a fast and efficient method of analysis that outlines the nature of the assemblage and assesses the need for a more detailed analysis. The method chosen is described by Davis (1992) and is called *POSAC* (Part Of Skeleton Always Counted) and maximises the information output from a minimalist recording approach. Recording is restricted to a defined suite of parts of bones that are easily recognised to species but to varying degree still yield the most valuable information, e.g. relative age. In this project a modified version of the *POSAC* method is used, incorporating a few more elements. Davis' *POSAC* list includes the following parts of bones (adapted from Davis 1992, with changes concerning mandibles and crania):

1. Mandibles, if at least half is present, or one or more countable teeth.
2. Crania, if at least half is present.
3. Scapulæ, if more than half the glenoid articulation is present.
4. Distal humeri, if the medial half of the trochlea is present, including enough bone adjacent to the shaft to identify the state of fusion of the distal epiphysis.
5. Distal humeri metaphyses, if at least half of the epiphysial-diaphysial junction surface of the distal part of the shaft is present.
6. Distal radii, if the medial half of the articular surface is present, including enough bone adjacent to the shaft to identify the state of fusion of the distal epiphysis.
7. Distal radii metaphyses, if at least half of the epiphysial-diaphysial junction surface of the distal part of the shaft is present.
8. Radialia, if more than half is present.
9. Second and third carpals, if more than half is present.
10. Distal metacarpals, if the condyles are present, plus at least enough of the bone to identify the state of epiphyseal fusion. A single artiodactyl condyle is recorded as a '1/2' (if at least half of the single condyle is present). Each of the pig third and fourth metacarpals are recorded as a '1/2' and carnivore metacarpals are recorded as a '1/5'.

11. Distal metacarpal metaphyses, if at least half of the epiphysial-diaphysial junction surface of the distal part of the shaft is present. A single artiodactyl metaphysis is counted as a '1/2'.
12. Ischium, if at least half of the rim of the acetabulum that is formed by the ischium is present.
13. Distal femora, if more than half of the lateral condyle is present, including enough bone adjacent to the shaft to identify the state of fusion of the distal epiphysis.
14. Distal femoral metaphyses, if at least half of the epiphysial-diaphysial junction surface of the distal part of the shaft is present.
15. Distal tibiæ, if the medial part of the articulation is present, and provided this consists of half or more of the total articular surface and includes enough bone adjacent to the shaft to identify the state of epiphysial fusion.
16. Distal tibiæ metaphyses, if at least half of the epiphysial-diaphysial junction surface of the distal part of the shaft is present.
17. Astragali, if half or more of the lateral surface is present.
18. Calcanea, if all of the sustentaculum plus half or more of the adjacent surface which articulates with the astragalus is present.
19. Distal metatarsals, if the condyles are present, plus at least enough of the bone to identify the state of epiphysial fusion. A single artiodactyl condyle is recorded as a '1/2' (if at least half of the single condyle is present). Each of the pig third and fourth metatarsals are recorded as a '1/2' and carnivore metatarsals are recorded as a '1/5'.
20. Distal metatarsal metaphyses, if at least half of the epiphysial-diaphysial junction surface of the distal part of the shaft is present. A single artiodactyl metaphysis is counted as a '1/2'.
21. Proximal first phalanges, if half or more of the articular surface is present, including enough bone adjacent to the shaft to identify the state of fusion of the epiphysis.
22. Proximal first phalanx metaphyses, if at least half the epiphysial-diaphysial junction surface is present.
23. Third phalanges, if half or more of the articular surface is present.

Davis' method of recording obviously deflates *NISP* (Number of Identifiable Specimens) significantly. Although only the 23 parts of bones seen above are systematically recorded, every single fragment in the assemblage is carefully examined. Specimens that are not POSAC will only be recorded if they show signs of taphonomic processes relevant to the research, such as signs of butchery, trauma, burning, or pathology. The element distribution obtained with POSAC, although lacking elements, of otherwise low information value, that might give an indication of different skeletal parts present, does nonetheless represent most regions of the mammalian skeleton (Davis 1992). As in Davis' method, species whose surviving specimens are not represented by any of the POSACs, will be accounted for in the results but not included in the summary of total counts. Davis' POSAC method does not include fish bone. Relatively little fish bone is present in the assemblage and the small sample size prohibits meaningful element distribution analysis, so the main object of recording is to identify fish species present. In spirit of

Davis' POSAC method a set of elements is chosen which give the best chance of being identified to the lowest taxonomic level and are easy to quantify. The elements selected are all anterior of the vertebral column: Articular, Basioccipital, Ceratohyal, Cleithrum, Dentary, Hyomandibular, Infrapharyngeal, Maxilla, Opercular, Palatine, Parasphenoid, Posttemporal, Premaxilla, Preopercular, Quadrate, Scapula, Supracleithrum and Vomer. Due to the unfortunate lack of a bird bone reference collection in Iceland, the five bird elements are only recorded as "unidentified bird".

Taphonomy

The Reykjavík harbour assemblage is affected and shaped by many complicated factors. The bone assemblage does not derive from a midden, but was scattered over a substantial area and a large part of it has probably been relocated and sorted after its original dump, both by natural forces (e.g. hydrodynamic and erosional) and by cultural forces (e.g. construction work). The assemblage shows evidence of having been abraded and polished by sea water and numerous specimens even have the texture of beach pebbles. A common feature on the bones is iron corrosion, or rust. Quite a lot of iron debris seems to have been located at the site, and corrosion has probably leached on to a large part of the assemblage via water percolation or in a waterlogged environment. Most of the specimens are well preserved, which does discredit percolation in permeable soil, but might indicate that the bones were waterlogged in an iron rich environment.

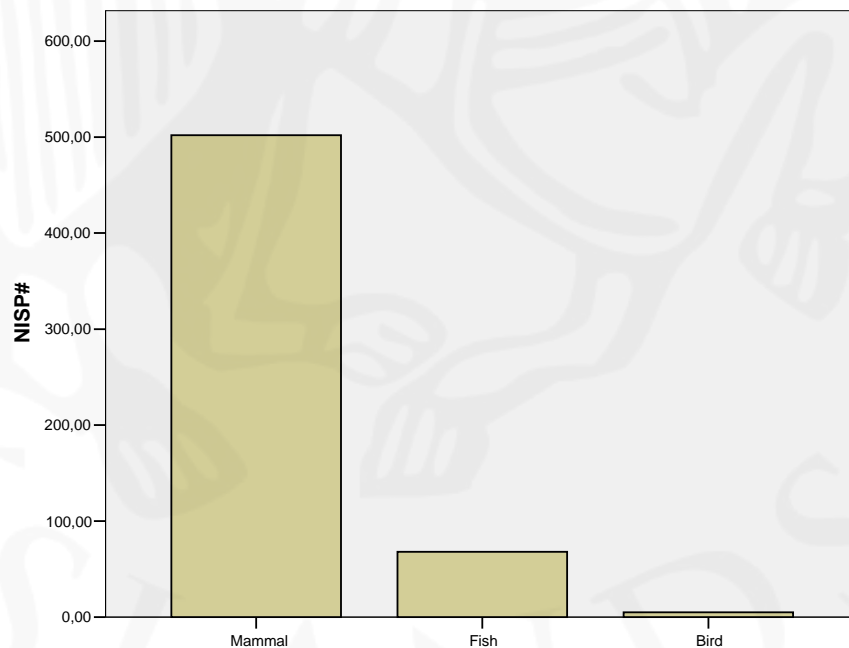


Figure 1. A graph illustrating the high ratio of mammal bones to fish and bird bones.

Mammals are by far the most abundant class of animals present in the Reykjavík harbour collection. The relatively few fish bones are most likely due to recovery methods, i.e. hand collection, which often discriminates fish bone, but might also be due to environmental factors.

I.e. the often lighter fish bone might be more *allochthonous* (more easily relocated and sorted in hydrodynamic environments) than the bulkier mammal bone. All in all, the taphonomy of the assemblage undermines results from standard zooarchaeological analyses, such as element distribution.

Twenty six specimens show clear signs of butchery. Nineteen of those have been chopped or sawn in the process of modern carcass reduction, e.g. vertebrae that have been split in half and chopped scapulas and pelvises. Three caprine metapodials are drilled in the traditional Icelandic way to obtain marrow. The Reykjavík harbour collection spans an era estimated from the 1880s till the 20. century, and the butchered elements are quite evenly distributed over the contexts spanning the timeframe. A small proportion of the assemblage shows evidence of burning, about 2 percent is partly blackened or charred white from being exposed to high temperatures, like the burning of refuse.

Species present

As can be seen from table 1 and figure 2, caprine (sheep/goat) is by far the most abundant taxon present in the harbour collection. Because of similarity between sheep and goat bone and the lack of a goat's skeleton in the FSÍ comparative collection all sheep/goat bones are recorded as caprine. Although, there is a strong probability that most, if not all, caprine bone in the collection is sheep bone. Sheep have always been much more numerous than goats in Iceland and in the Tjarnargata 3c collection which was excavated very close by in down town Reykjavík and dates from the 18th and 19th centuries not a single goat bone was recorded (Perdikaris *et.al.* 2002). Just under 14% of the POSACs is cattle, but other mammals (horse, dog and seal) only have trace presence. As noted above, the somewhat surprising lack of fish remains in the harbour collection is probably due to taphonomy and recovery methods. Although it is interesting to note that all the fish bone identified is of the gadid family. Five bird bones are recorded in the assemblage, but are not identified to taxon because of a limited comparative collection. Over 58% of the entire collection are “mammal non-POSACs”, a category which includes ribs, vertebrae, proximal ends of long bones, fragments etc. The fish non-POSAC group mostly comprises of vertebrae and unrecognisable fragments.

Taxon	NISP/POSAC	% of POSAC	% of Total
Ovis/Capra sp. (Caprine)	135	74,18	23,48
Bos taurus (Cattle)	25	13,74	4,35
Equus caballus (Horse)	4	2,2	0,7
Canis familiaris	1	0,55	0,17

(Dog)			
Phoca vitulina (Common seal)	1	0,55	0,17
Gadus morhua (Atlantic Cod)	8	4,39	1,39
Melanogrammus aeglefinus (Haddock)	5	2,75	0,87
Molva molva (Ling)	1	0,55	0,17
Gadidae (Gadid family)	2	1,1	0,35
Total POSAC	182	100	-
Mammal non- POSAC	336		58,43
Fish non- POSAC	52		9,04
Unidentified bird	5		0,87
Total non- POSAC/Unident ified	393		
Total	575		100

Table 1. Species distribution at Reykjavík harbour

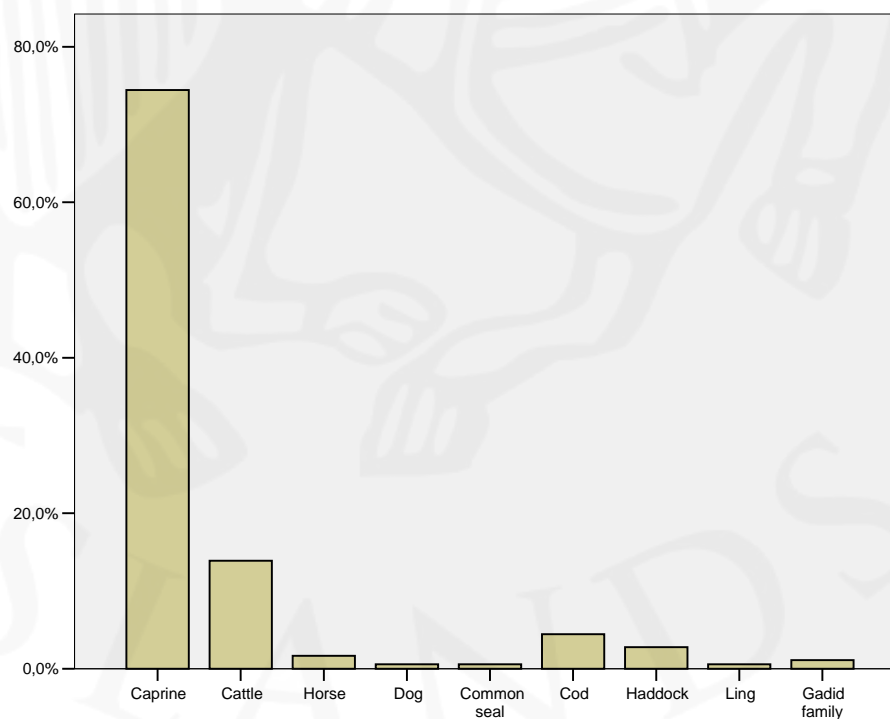


Figure 2. Ratio of taxa (NISP/POSAC) at Reykjavík harbour

Age at death

The POSACs are divided into four age categories, neonatal, juvenile, sub-adult and adult. Neonates are newborn individuals that are

characterised by small elements, often with a coarse texture. Juvenile mandibles are characterised by unworn (or only slightly worn) first molar (m1). Other juvenile POSACs are unfused elements, such as unfused distal humeri, which fuses in most species at a relatively young age. Sub-adult mandibles have the second molar (m2) in wear, whilst other POSACs are generally larger than juvenile elements and are further ahead in the fusing process. For example, a humerus which is completely fused distally, but shows no sign of proximal fusion would be labelled sub-adult. Adult mandibles have the third molar (m3) in wear and other specimens are fully fused.

Results from age analysis in faunal collections are always closely correlated with the size of the sample and the recovery method used in the excavation. Only two cattle mandibles and eighteen caprine mandibles could be used for the analysis of dental eruption and wear (Payne 1973,1984). The mandibles are too few to attempt a reconstruction of mortality profiles. It may though be noted that one cattle mandible is juvenile and the other adult. Of the caprine mandibles, nine are adult, seven are sub-adult and two are juvenile. Because of the low number of mandibles epiphyseal fusion data is also tentatively used to reconstruct the age at death in the assemblage. Different epiphyses fuse at different ages, so the study of epiphyseal fusion is more useful and more accurate when articulated skeletons are examined than when applied on isolated bones (O'Connor 2003:168). Early fusing elements have a tendency to be recorded as adult, even if they derive from sub-adult individuals, so there will always be a certain amount of error when this method is used on disarticulated assemblages.

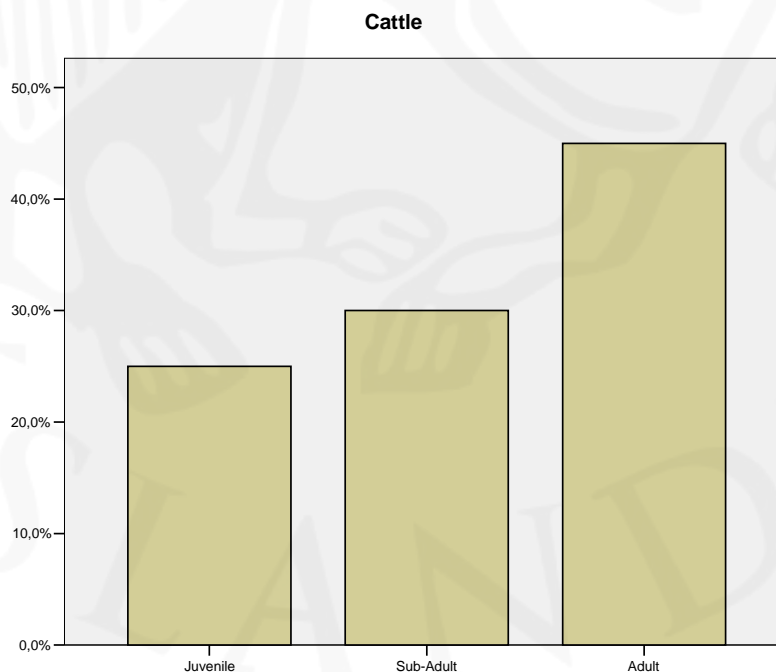


Figure 3. The ratio of relative age based on the epiphyseal fusion stage of 20 cattle bones.

Only 20 elements are used to infer the age ratio of cattle in figure 3 (above) and are too few to be statistically valid, also of the 9 adult elements, 6 are early fusing (phalanges and scapulæ) and might overlap with the sub-adult group. No neonatal elements are in the assemblage which, as stated above, might be due to taphonomy and recovery methods. Nonetheless it may be tentatively noted that the age distribution possibly points towards an age pattern of beef consumption, i.e. the import of sub-adult animals for slaughter, typical of urban assemblages.

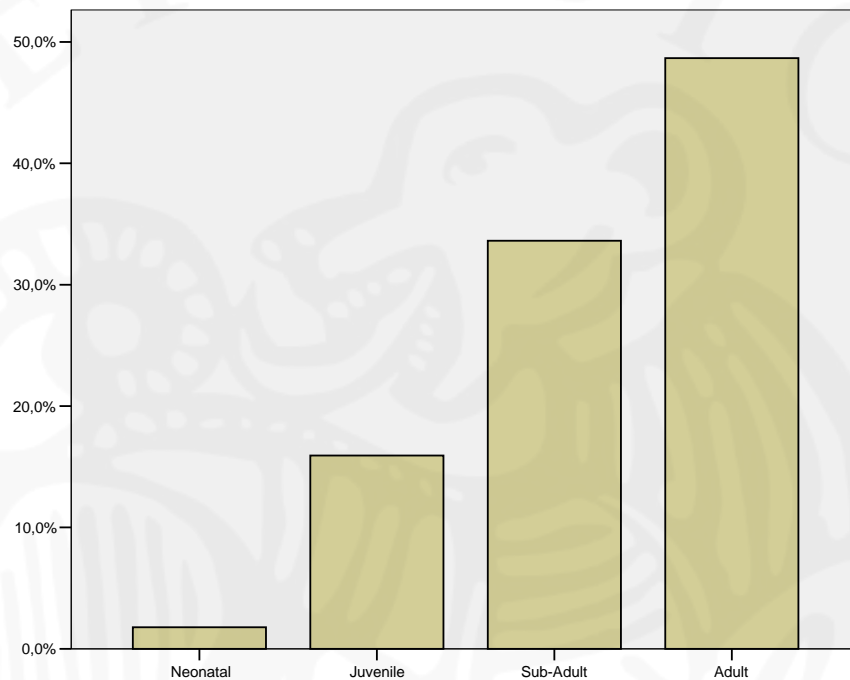


Figure 4. The ratio of relative age based on the epiphysial fusion stage of 113 caprine bones.

Two neonatal caprine elements are present in the assemblage. The presence of neonatal elements is usually interpreted as an indicator that the animals were bred on site or close by. It is likely that the neonatal elements derive from a neighbouring farm. However, the large juvenile and sub-adult groups might indicate that the caprines found in the assemblage were specifically bred (in neighbouring farms) for consumption in Reykjavík.

Element distribution

Due to taphonomy and recovery methods element distribution analysis must be touched upon with precaution. Figure 5 (below) illustrates the distribution of elements lumped into major skeletal categories. The categories are called fore-and hindquarters, which have high meat yield, forefoot, hindfoot and foot which have low meat yield and mandibles, which might either indicate the presence of *svið* or be butchery waste. Forequarter includes the scapula, humerus and radius. The hindquarter category includes the innominate, femur and tibia. Carpal and metacarpal specimens are presented in the forefoot category. The hindfoot category

includes the tarsal and metatarsal specimens. Phalanges are assigned to the foot category.

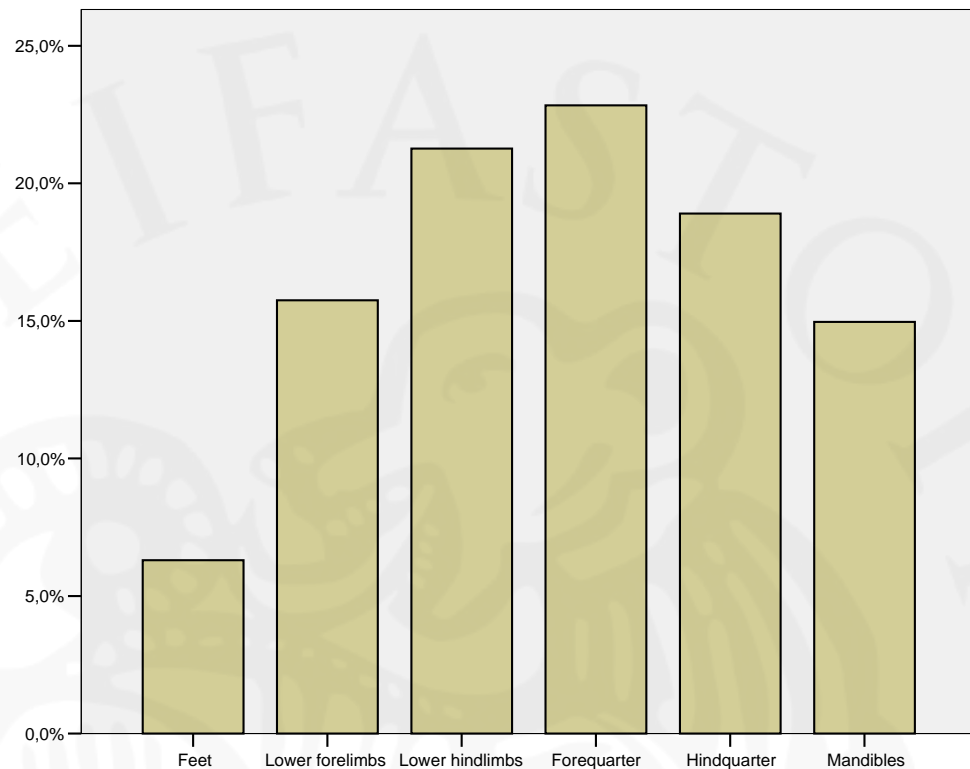


Figure 5. Distribution of caprine elements in major skeletal categories. Based on 127 POSACs.

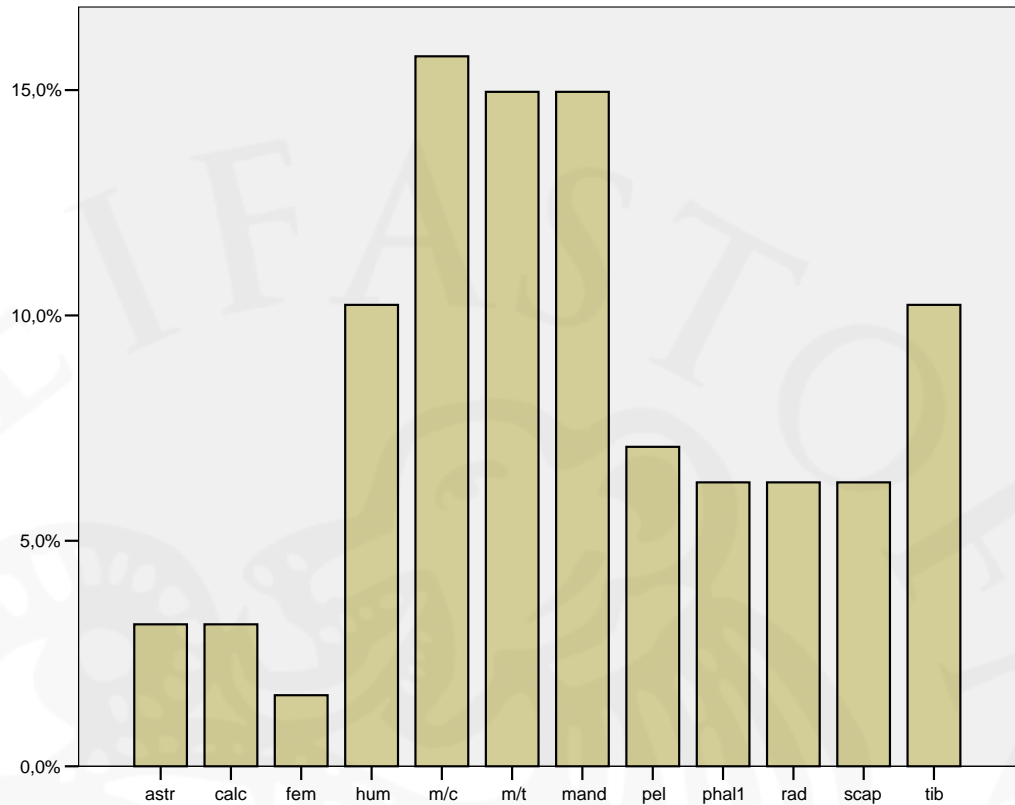


Figure 6. Caprine element distribution. Based on 127 POSACs.

The caprine elements are rather evenly distributed between the major skeletal categories, illustrating a balance between fore-and hindquarters and fore-and hindlimbs. As can be seen in figure 6, the most numerous elements are metacarpals, metatarsals and mandibles, each ranging about 15% of the total caprine POSACs. Three metapodials out of thirty nine have been drilled for marrow, so it is not unlikely that a majority of the metapodials is primary butchery waste. The hindquarters category is boosted by pelvises and tibiae, whilst there are only two femora. The relatively high ratio of pelvic bone compared to femur could indicate that the assemblage is dominated by primary butchery waste. The largest skeletal category is forequarter, which is mainly due to the high frequency of humeri in the assemblage, just over 10% of the total caprine POSACs. It is evident that the collection is the offspring of a complex depositional history and represents a mix of primary and secondary butchery waste. It is important to note that whilst the fore-and hindquarters are each represented by three elements in the Reykjavík harbour assemblage, the low meat bearing forefoot category is only represented by metacarpals. Also, that the most common elements are of relatively low meat yield (metapodials and mandibles) and there is an obvious scarcity of femora, which represent the meatiest part of the caprine. Thus, it may be tentatively suggested that the Reykjavík harbour collection could to some extent represent primary butchery waste, blurred by household refuse from nearby homes. To resolve this, further excavations need to be

performed at, or near, the harbour utilising a more disciplined bone recovery strategy to obtain a less biased sample.

Discussion

The taphonomy of the Reykjavík harbour assemblage is complex and has undoubtedly had a great impact on its composition, biasing zooarchaeological analysis. It does convey a diet of sheep and some cattle among the inhabitants of Reykjavík in the late 1800s and into the 1900s. No pig remains were recorded which could possibly be explained by the location of the refuse, i.e. butchery waste of local species was dumped in or near the harbour while the bones of imported ham might have ended up elsewhere (e.g. near the homes of the higher members of society). It is possible that sheep were bred close to the harbour, as is implied by the presence of neonatal specimens in the assemblage. However, no neonatal cattle specimens are present. As is discussed above, the element distribution could be indicative of a predominance of primary butchery waste, which in conjunction with the age at death data and the butchery marks present on some elements, also discussed above, might give a hint to the nature of the assemblage. It may be suggested that the sheep and cattle present in the assemblage were bred specifically for meat at nearby farms and imported to Reykjavík at a prime age for slaughter and were then butchered in quite modern ways (e.g. sawn or chopped vertebrae to make lamb chops) to feed the growing urban population. If that is the case, the carcass reduction and primary butchery must have taken place not far from the harbour.

It could be expected that a harbour assemblage would contain more fish, but as stated above, the lack of fish remains might be due to a mixture of issues relating to taphonomy and recovery methods. All the fish bone recorded is of the gadid family, e.g. cod, haddock and ling. Members of the gadid family have probably always been the most economically important fish species in Iceland, both for domestic subsistence and for export. Way too little fish bone was recovered however as to indicate industrial scale fishing for export.

The Reykjavík harbour assemblage was recorded in a fast manner, focusing on selected elements, to outline the nature of the assemblage and to assess the need for a more detailed and costly examination. The conclusion is that it is not likely that a more thorough analysis of the assemblage will add much further information, at least not on a scale that would justify the cost and time spent on a full-scale analysis. However, the Reykjavík harbour assemblage dates from important formational years in Reykjavík's history, when the city was transforming from a rural village to the urbanised capital of Iceland. So further research into the subsistence strategies of that era in Reykjavík could prove to be very rewarding, given that less disturbed contexts are excavated, recovery methods include sieving as a standard and the use of a mechanical digger in bone rich contexts is precluded.

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