Report on the Excavation of a Viking Period Boat Inhumation and a Pre-Roman Iron Age Settlement with Bronze Casting Debris.

Skamby in Kuddby Parish (Raä 158), Östergötland, Sweden, 2005.
By Martin Rundkvist & Howard Williams.
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1. Introduction: Setting and Aims

The Swedish province of Östergötland together with the Lake Mälaren provinces to the north forms one of the world's heaviest concentrations of visible ancient monuments. Most of these monuments are cremation cemeteries of the 1st Millennium AD. A belt of fertile plains stretches from Lake Vättern on the western border of the province to the middle of the Vikbolandet peninsula on the Baltic shore. On this peninsula, near the eastern end of the plains belt, is the parish of Kuddby, in which is found a little-known example of Sweden's famous boat inhumation cemeteries.

A number of such cemeteries have been excavated since the late 19th century in the provinces of Uppland and Västmanland north of Lake Mälaren, yielding splendid finds of the later 1st Millennium. Solitary and less impressive boat inhumations have also been found at otherwise normal cemeteries in the intervening province of Södermanland. The first boat inhumation cemetery in Östergötland was identified 60 years ago, and three are currently known from surface examination: Norra Berga in Mjölby parish, Malm in Styrstad parish and Skamby in Kuddby parish. Yet none of them has seen any excavations before 2005, nor are there any stray finds from these sites to provide any insight into them.

Near the hamlet of Skamby is a low rocky ridge (registered ancient monument Raä 158) surrounded by ploughland. Along the spine of the ridge are ten large oval stone settings with the diagnostic boat-shaped depressions at their centres. At the ridge's NW end is a cluster of small round stone settings of the kind that is commonly seen at normal cremation cemeteries. This site looks very much like Valsgärde in Uppland did before the first excavations. Yet it is located in the tribal area of the Götar, not in that of the Svear like the previously excavated boat inhumation cemeteries. We were interested in finding out whether Skamby might be a match in terms of burial investment for Vendel and Valsgärde, and more specifically whether or not burial at Skamby could be said to follow the same symbolic code as those cemeteries. Should Skamby be interpreted as a gesture of allegiance to the Svear, or as an appropriation and re-formulation of the boat inhumation custom among the Götar?

A metal detector survey of the ploughland around the Skamby cemetery in 2003 (reported separately) gave no finds from the earlier Vendel Period phase of the boat inhumation custom (late 6th through 8th centuries). It did, however, turn up a number of Viking Period finds of the 9th and 10th centuries along the edges of the cemetery. Fragments of bronze jewellery, a bronze caftan button and a silver-sheet pendant cross indicate that the cemetery was once larger and that its original periphery has been ploughed out. The dates of these finds correspond with the heyday of the boat inhumation custom.

Excavations under the auspices of the Östergötland County Museum took place at Skamby for seven weeks in July and August of 2005. Martin Rundkvist of Stockholm and Howard Williams of the University of Exeter directed the work. On any given day, our team consisted of six Exeter archaeology students plus one or two volunteers, the most tenacious of whom was archaeologist Peter Rydberg of Norrköping.

Our excavations uncovered three main phases of activity that will be described in the following from top to bottom.

3. A 9th century AD boat grave (Early Viking Period).
2. A culture layer covering sunken features of the 2nd century BC (Late Pre-Roman Iron Age).
1. A sunken feature radiocarbon-dated to the 13th century cal BC (Early Bronze Age) and a re-used cupmark stone.

2. Phase 3. A Viking Period boat grave

For excavation we selected the smallest stone setting with a boat depression, number 15, which would minimise the amount of work. Grave 15 was also one of only two boat graves on the site that were entirely covered with turf. We hoped that this might offer the possibility of better preservation conditions than most graves at the site, where conditions among the exposed stones in the central depressions are clearly extremely poor with continual passage of rainwater. Centred on this structure, we de-turfed 149 sqm.

In the turf and topsoil a few recent artefacts were found: a brass boss from a shotgun cartridge, a small bundle of steel wire, a piece of lead shot, an iron bolt and a 18/19th century brass button. Only the button was kept. Also, there was quite abundant residual material from the underlying settlement deposit. Note that no objects attributable to the Viking Period burial were found near the surface. This indicates that it had not been disturbed by looting.

2.1. The superstructure

The grave's central depression measured 5.0 by 1.5 m on the surface and was orientated NE-SW (42° E of compass N). Under turf and topsoil was an irregular oval pavement of stone blocks measuring 11,5 x 9 m. The stones were mostly local granite (pink, grey and white) with some sandstone, mostly in a single layer. Many were too large to carry. A few were too large for two people to even roll.

An orthostat had been standing at the NW side of the grave cut but had fallen into it. Three large stone blocks outside the edges of the stone pavement may also originally have been standing up. The edge stones of the pavement did not form a kerb contrasting against the interior.

2.2. The boat burial

The central depression had clearly come into being when a perishable roof over the grave cut containing the boat had collapsed. The grave cut was filled with stones from the superstructure, slumped inward. They showed no sign of any disturbance since the collapse.

To our disappointment, we found that preservation conditions in this grave cut were very poor too as the underlying moraine is clayey and nearly impermeable to water. Rainwater had accumulated here and evaporated time and time again as the seasons went by. No unburnt bone and little iron was preserved in the grave. Judging from rust stains, preserved clench nails and sections through the cut, however, the boat had been c. 5 m long and c. 1.7 m wide. We were unable to discern any detailed pattern to the rust stains and preserved clench nails. The upper part of the grave fill was indistinguishable from the surrounding culture layer, meaning that we could not document the upper edge of the grave cut, only its edge where it cut into the natural subsoil.

2.3. Finds

Just SW of the mid-ship was a cluster of 23 well-preserved amber gaming pieces, some located on top of collapsed stones. The gaming set had thus probably originally been placed on top of the grave's roof. Beneath the gaming piece cluster, a group of iron rivets and nails was found on the bottom of the cut. They may represent a box or a game board, although they formed no observable pattern and there was no sign of the L-shaped mounts typical for Viking Period game boards. Small curved fragments of iron rods here may be from rivets, nails or a simple strap buckle. A small spherical stone was also found here.

Other artefact finds attributable to the burial are few and modest, belonging to two functional spheres: personal items and horse gear.

Personal items are a red glass paste bead and a small slate pendant whetstone, both found beneath the gaming piece cluster. There is also part of a small iron knife, found in a superficial part of the grave fill mid-ship. This is possibly a residual piece re-deposited from the culture layer.

A highly incomplete set of horse gear was found in the SW half of the cut on its bottom. There is a very finely wrought hook from one of the shafts of a sleigh or small wagon, five frostnails used to keep the horse from slipping when you ride or drive a sleigh in wintertime, and two iron rings of identical and rather small size, one of them with a straight iron bar looped onto it. The rings look a bit like pieces of a bridle bit, but are far smaller than normal bridle rings of the time.

The surest indication of the grave's date is the design of the gaming pieces. Pre-Christian amber gaming pieces are only known from Viking Period contexts in Sweden. The only known grave find before Skamby was Birka 524, a Middle Viking Period (10th century) weapon inhumation with 15 amber gaming pieces. The pieces from the Björkö grave however have a narrowed base, unlike the ones from Skamby that are widest at the base. This trait along with their size connects them to Vendel Period gaming pieces. The likeliest date for the Skamby gaming pieces is thus the Early Viking Period (9th century).

In the fill of the grave cut were a small pieces of residual material (burnt daub, pottery, burnt bone, herbivore teeth, vitrified clay, knapped quartz, a single piece of burnt flint, rust-stained sandy lumps) from the underlying settlement deposit. Seven finds of tooth and bone were made in this context, none of which can be determined as human. No certain determinations of animal species have been possible. Cattle and/or horses are represented, as well as a doubtful pig.

3. Phase 2. A Late Pre-Roman Iron Age Settlement

A dark gravelly settlement deposit (cont. 4-5), c. 30 cm thick, stratigraphically pre-dating the boat grave, covered the de-turfed surface except for the grave cut and beneath the largest stones in its pavement. We excavated and sieved c. 43 sqm of this layer, finding a small decorated silver pin, small fragments of crucibles used for copper alloy casting, small fragments of casting moulds that do not permit identification of the objects produced, iron fragments, pottery, burnt daub, burnt bone, herbivore teeth, a piece of worked antler (?) and knapped quartz.

Thirteen finds of teeth and burnt bone were made in the settlement deposit (cont. 4-5). They include one certain and one doubtful fragment of human tibiae and three pieces of cattle teeth.

The date of this layer is not entirely clear. Stratigraphically, it post-dates sunken features of the 2nd century BC and pre-dates a boat burial of the 9th century AD. The pottery and the burnt daub recovered from the settlement layer fit well with a 2nd century BC date. But the crucibles are of the so-called Helgö type, lidless, with a little handle for the pliers, previously known only from mid-1st millennium AD contexts. Only two

bronze-casting sites of the Pre-Roman Iron Age are previously known in Scandinavia, both in eastern Jutland (Vitved and Egebjerg; Andersen & Madsen 1984; Kristiansen & Fristed Jensen 2005). So if the bronze casting is actually 2nd century BC, then it is a sensational find. Then there is the silver pin, to which we have found no good parallels. It was found near the surface of the culture layer and so may be an intrusive later object. Its line decoration has a vague mid-1st millennium AD feel. The main period for prehistoric silver importation in Sweden is the Viking Period.

Cut into the natural beneath the settlement layer were ten sunken features: two hearths (cont. 6 and 12), one post hole charred to the bottom (cont. 22) and six pits with dark fill (cont. 9, 10, 15, 17, 20, 23). One of the larger pits (cont. 23) was filled with burnt daub, and was thus probably the result of site cleaning efforts after a violent house fire. Of about 18.1 kg of burnt daub collected from the entire site, 13.5 kg were found in that pit, despite the fact that a quarter of its fill was left unexcavated.

Judging from the homogeneity of the finds and fills, most of the sunken features were dug and backfilled while the settlement layer was forming. Lime wood charcoal from pit 17 and young pine wood charcoal from hearth 12 gave closely similar radiocarbon dates that can be combined with great statistical confidence. If they represent the same event, then this event occurred in the interval 190-40 cal BC (95.4% probability).

4. Phase 1. Early Bronze Age Activity

Bronze Age activity had been documented at the site before the excavations.

The Ancient Monument Register notes two sets of cupmarks on rock outcrops at the W edge of the cemetery ridge. We were unable to locate them, but in the W quadrant of the grave's stone pavement we found a piece of sandstone with one certain and one possible cupmark. Most cupmarks date from the Bronze Age and are part of this period's rock carving custom. The cupmarks, on the stone and on the outcrops, probably date from the same Late Bronze Age activity phase as a bronze button found in the field W of the cemetery in 2003. When re-constructing the grave at the close of the excavations, we placed the cupmark stone on the edge of the stone pavement in the W quadrant.

The deepest of the sunken features uncovered in the 2005 trench was pit 17. Alder wood charcoal from pit 17 gave a radiocarbon date in the 13th century cal BC, the end of the Early Bronze Age. The pit also contained a cattle tooth, 31 g of burnt daub and a large potsherd. The pottery's date is hard to fix, but it would not look out of place in an Early Iron Age context (Thomas Eriksson, e-mail 26 January 2006). Summing up, the scanty Bronze Age evidence does not lend itself easily to interpretation.

5. Fieldwork methods

A local coordinate system was established with the Y axis aligned with the grave's central depression orientated 42° E of compass N. Point (x100, y100) was placed at the centre of the depression. The Y axis was named local north. We recorded level measurements every half metre over the surface we would excavate. Sections were drawn from turf surface to natural along both axes of the coordinate system.

At the close of the excavations, we discovered that we had incorrect level figures for the datum point used throughout the work. The ground surface near the grave was actually about 26 m a.s.l., not 30, as we had believed. This error is systematic and easily corrected. 3.98 m should be subtracted from any level figures above 29 m a.s.l. in the field documentation.

Harrisian stratigraphic excavation and recording was performed throughout. To keep the number of stratigraphic units down on this comparatively uncomplicated site, cuts were not given individual numbers. In the case of posthole 22, for instance, that number refers both to the hole and to its fill.

All spoil was sieved through a 4 mm mesh, including soil shaken and kneaded from

the turf. Small amounts of the grave cut's fill were wet-sieved through a 2 mm mesh. Finds were collected by stratigraphic context and either metre square or pinpointed to the nearest centimetre in the case of particularly interesting objects. Some finds in the grave cut were collected by half metre square.

Turf was removed with spades, at first leaving the central depression untouched. Then the topsoil was cleaned with trowels from the stone pavement and it was photographed from a ladder, with coordinate crosses to enable rectification. Recording top and bottom levels for many stones, we then removed the pavement (the largest stones with the aid of a tractor and timber claw), leaving the outermost stones in place to allow us to reconstruct the grave on its original spot.

Various portions of the settlement layer and underlying sunken features were excavated, least intensively in the NW quadrant. Very little of the settlement layer was touched outside the edge of the stone pavement.

The central depression was excavated separately: turf removed, stones cleaned, perpendicular photography, level measurements recorded. We then excavated the grave cut from both ends at the same time, drawing perpendicular sections across it every half metre. This work was complicated by drainage problems.

6. Post-Excavation Reconstruction

Having emptied the grave cut and excavated the settlement layer around its edges, we reconstructed the stone setting using a tractor and timber claw for the largest stones, replacing all smaller ones by hand. Soil and turf were back-filled using shovels and wheel barrows. In its reconstructed state, the grave has the same edge outline and general profile as before and the central depression has the same orientation. However, the depression is longer, wider and deeper than before.

7. Conclusions

Despite the fragmentary settlement remains of Bronze Age and Early Iron Age dates, the primary discoveries related to the boat grave. With such a poorly-preserved grave, conclusions concerning its precise date and the identity and affinities of its occupant(s) must remain somewhat vague. By analogy with other Late First Millennium AD sites, the standing stone and the single bead mark the grave as male-gendered and the amber gaming-pieces denote high status. However, the Skamby boat grave did not follow the same symbolic rules as contemporaneous boat inhumations in the Lake Mälaren area, the land of the Svear. At Skamby we see a large stone setting with at least one standing stone. There are no weapons or feasting gear, the horse gear is minimal, and then somewhat incongruously there are rare and exclusive amber gaming pieces. Vikbolandet is a rich agricultural district with excellent seaborne communications. The grave's unusual design is thus unlikely to have been due either to poverty or to ignorance of customs in for instance Uppland. Instead, it was probably an intentional statement: the people of Skamby adapted the prestigious boat grave symbolism in their own way and for their own purposes.

8. References

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Kristiansen, Anne Mette & Fristed Jensen, Trine. 2005. Kronehalsring. *Skalk* 2005. Højbjerg.

Lindahl, A. et al. (eds). 2002. *Keramik i Sydsverige. En handbok för arkeologer.* Report series 81. Department of Archaeology, University of Lund.

Appendix 1. Technical & Administrative data

Administrativia
County council permit number: 431-4978-06, invested in the Östergötland County Museum.

Location
Östergötland, Kuddby parish, Skamby, Raä Kuddby 158
Economic Map sheet: 8G7i
Coordinates of excavated grave's centre, identical to the origin in the local coordinate system used during the excavation: X 1 541 820,75 – Y6 488 176,11 – Z 26,02

Fieldwork
Time: 5 July through 19 August 2005. That is, 7 weeks work with a team of 8.5 people, or roughly 300 person-days all together.
De-turfed area: 149 sqm.

Staff
Directors: Dr Martin Rundkvist & Dr Howard Williams
Fieldworkers: Andrea Borgius, Rebecca Burlingham, Joe Etheridge, Wendy Howard, Edward Johnstone-Burt, Brynmor Morris, Richard O'Neill, Adèle Pimley, Peter Rydberg, Kelsey Tarver, Elizabeth Williams.

Post-excavation specialists
Osteology: Susanne Svensson and Dr Berit Sigvallius, Raä UV Mitt, Stockholm.
Wood species determinations: Ulf Strucke, Raä UV Mitt, Stockholm.
Radiocarbon: Poznań Radiocarbon Laboratory.
Vitrified material: Dr Ole Stilborg, Ceramological Research Laboratory, Lund.
Finds conservation: Stiftelsen Föremålsvård, Kiruna, and Antikvarisk-Tekniska avdelningen, Riksantikvarieämbetet, Stockholm.
Digitisation of field documentation: Markus Andersson, SAU, Uppsala.

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Appendix 2. Context List

No	Type	Description	Location
1	Turf	Turf	-
2	Topsoil	Soil under turf on stone pavement	-
3	Stone pavement	Stone pavement	-
4	Pavement fill	Fill between and immediately beneath stones	-
5	Settlement lay-er	Black gravelly soil beneath 4	-
6	Hearth	Hearth beneath 5	NW quad
7	-	Pale natural feature at base of stone	SE quad
8	Charcoal conc	Charcoal conc beneath 5	NW quad
9	Sooty patch	Sooty patch beneath 5	NE quad
10	Dark patch	Dark patch beneath 5	NE quad
11	Disturbed natural	Disturbed natural beneath 5	-
12	Hearth	Hearth at S end of grave cut	S of grave cut
13	Equal to 12		
14	Boat grave cut	Boat grave cut	Centre
15	Sooty patch	Sooty patch adjoining grave cut	N of grave cut
16	Hearth fill	Termination fill on hearth 12	S of grave cut
17	Pit	Pit beneath 5	NW quad
18	Sooty layer	Sooty layer beneath 5, covering 22	SE quad
19	Equal to 14		
20	Pit	Shallow pit adjoining grave cut	S of grave cut
21	Pit	Lower fill of 17	NW quad
22	Posthole	Posthole beneath 18	SE quad
23	Pit	Pit beneath 5 with much burnt daub	SW quad
24	Sooty fill	Sooty fill beneath 23	SW quad
25	Grave fill	Upper layers of grave fill, uncertain delimitation against L4-5	Above grave cut

Appendix 3. Sunken Feature Descriptions

6: hearth. Pear-shaped, 130 x 100 x 21 cm. Fill coarse gravelly soil, sooty black, brown toward the edges, including fire-cracked stones. Brown edge material probably represents the termination of the hearth's use. Base of cut trough-shaped, irregular, with humps and cavities. Finds: burnt clay, charcoal.

8: charcoal concentration. Pear-shaped, 35 x 25 x 7 cm. Fill coarse gravelly sand, dark grey, mixed with charcoal. Surrounded to W and N by stones. Finds: charcoal.

9: pit. Pear-shaped, 17 x 8 x 5 cm. Fill clayey sand with gravel and soot, mottled black and grey. No finds.

10: pit. Round, 15 x 15 x 3 cm. Fill humic slightly gravelly clay, dark brown. Finds: charcoal.

12+16: hearth. Oval, 120 x 90 x 20 cm. Upper fill 16 silty sand with small stones, yellowish, probably representing the termination of the hearth's use. Lower fill 12 dark grey-brown soil with large amounts of charcoal. Finds: 2 formless iron fragments, 1 piece of vitrified clay, 1 potsherd, burnt clay, charcoal.

15: pit. Trapezoid, 27 x 19 x 4 cm. Fill clayey sand with soot and gravel, brown/black with greyish swirls. Adjoined N end of grave cut. No finds.

17+21: pit. Only partly exposed, 70 cm wide, 30 cm deep. Upper fill 17 silt with stones, dark brown/grey. Lower fill 21 silty sand with stones, black/brown and very wet. Finds: 1 potsherd, 1 cattle tooth, burnt clay, charcoal.

18: sooty layer. Irregular, 150 x 150 x 6 cm. Sooty silt. Covered posthole 22. Finds: 3 formless iron fragments, 1 piece of burnt animal bone, burnt clay, charcoal.

20: pit. Oval, 40 x 35 x 5 cm. Fill dark. Adjoined S edge of grave cut. No finds.

22: posthole. Round, 30 x 30 x 20 cm. Fill black silt, no stones. Covered by 18. Finds: 1 formless iron fragment, burnt clay, charcoal.

23+24: daub-filled pit. Round, 105 x 95 x 15 cm. 75% excavated. Upper fill 23 sandy silt with much burnt daub, dark brown. Lower fill 24 sooty silt without much daub. Cut's sides sloping, base flat. Finds: Fragments of crucible and casting mould, vitrified clay, 13.5 kg of burnt daub.

Appendix 4. Finds List

Find no	Material	Type	Con-text	Co-ords	Weight clean dry (g)	Comments
382	Amber	Gaming piece	14	x100.67 y099.50 z29.76		
389	Amber	Gaming piece	14	x100.33 y099.50 z29.74		
434	Amber	Gaming piece	14	x100.35 y099.16 z29.72		
435	Amber	Gaming piece	14	x100.23 y099.14 z29.70		
436	Amber	Gaming piece	14	x100.13 y099.21 z29.65		
456	Amber	Gaming piece	14	x100.56 y098.75 z29.74		
458	Amber	Gaming piece	14	x100.50 y099.12 z29.63		
461	Amber	Gaming piece	14	x100.32 y098.61 z29.62		
462	Amber	Gaming piece	14	x100.39 y098.75 z29.67		
463	Amber	Gaming piece	14	x100.29 y098.74 z29.64		
468	Amber	Gaming piece	14	x100.25 y099.03 z29.68		
471	Amber	Gaming piece	14	x100.29 y098.93 z29.67		
472	Amber	Gaming piece	14	x100.24 y098.91 z29.66		
473	Amber	Gaming piece	14	x100.22 y098.94 z29.67		
474	Amber	Gaming piece	14	x100.16 y098.88 z29.67		
476	Amber	Gaming piece	14	x100.14 y098.92 z29.68		
479	Amber	Gaming piece	14	x099.90 y099.03 z29.67		
480	Amber	Gaming piece	14	x099.87 y099.05 z29.67		
482	Amber	Gaming piece	14	x099.90 y099.00 z29.66		
489	Amber	Frag	14	x099 y099		
490	Amber	Gaming piece	14	x100.09 y099.00 z29.66		
493	Amber	Gaming piece	14	x099.5-099.7 y099.0 z29.60-29.65		
396	Amber	Gaming piece	19	x100.28 y098.54 z29.67		
401	Amber	Gaming piece	19	x100.33 y098.46 z29.57		
11	Bone	Burnt	2	x103 y102		
12	Bone	Burnt	2	x104 y100		
45	Bone	Burnt	2	x099 y103		
48	Bone	Tooth	2	x098 y104		
52	Bone	Burnt	2	x097 y104		
59	Bone	Burnt	2	x103 y099		
65	Bone	Burnt	2	x103 y099		
74	Bone	Tooth	2	x097 y096		
80	Bone	Burnt	2	x100 y095		
94	Bone	Burnt	2	x104 y097		
95	Bone	Burnt	2	x101 y098		
136	Bone	Burnt	4	x101 y098		
177	Bone	Burnt	4	x099 y094		
117	Bone	Burnt	5	x096 y103		

168	Bone	Burnt	5	x100 y103		
187	Bone	Burnt	5	x102 y100		
421	Bone	Burnt	5	x100.0 y099.5		
448	Bone	Burnt	5	x099 y095		
460	Bone	Burnt	5	x101 y096		
503	Bone	Tooth	5	x096 y096		
508	Bone	Tooth	5	x096 y097		
518	Bone	Tooth	5	x096 y097		
469	Bone	Burnt	14	x100 y098.5		
304	Bone	Tooth	17	x098.06 y100.28 z29.64		
529	Bone	Burnt	18	x101 y094		Originally mis-labeled F470
385	Bone	Tooth	19	x100.36 y098.02 z29.60		
403	Bone	Tooth	19	x100.42 y098.50 z29.60		
404	Bone	Tooth	19	x100 y098.5		
431	Bone	Unburnt	19	x100 y098.5		
439	Bone	Tooth	19	x100 y098.5		
440	Bone	Burnt	19	x100 y098.5		
318	Bone	Burnt	25	x100 y097.5		
377	Bone	Burnt	25	x100 y098.0		
63	Brass	Button	2	x096 y100		
14	Charcoal		2	x103 y102		Looked like a tooth
106	Charcoal		5	x096 y100		
118	Charcoal		5	x096 y103		
119	Charcoal		5	x097 y104		
121	Charcoal		5	x099 y103		
123	Charcoal		5	x098 y103		
156	Charcoal		5	x100 y105		
166	Charcoal		5	x100 y105		
190	Charcoal		5	x101 y105		
201	Charcoal		5	x101 y104		
209	Charcoal		5	x102 y104		
231	Charcoal		5	x100 y096		
239	Charcoal		5	x099 y103		
242	Charcoal	Soil sample	5	x099 y096		
127	Charcoal	Soil sample	6			
186	Charcoal		6	x102 y100		To wood analysis
170	Charcoal		8	x099 y105		
249	Charcoal		10			
256	Charcoal	Soil sample	12	x099 y096		
293	Charcoal		12	x100.50 y097.00		To wood analysis
306	Charcoal		17	x098 y101		To wood analysis

310	Charcoal		18	x100 y095		
415	Charcoal	Soil sample	18	x101.00 y095.54		
394	Charcoal	Soil sample	22	x100 y095 z29.78		
397	Charcoal		22	x100 y095 z29.58		To wood analysis
4	Clay burnt		1	NW Quadrant	1	
27	Clay burnt		1	SW Quadrant	1	
32	Clay burnt		1	E Quadrant	1	
1	Clay burnt		2	x101 y101	2	
2	Clay burnt		2	x102 y102	2	
3	Clay burnt		2	x100 y103	3	
5	Clay burnt		2	x103 y102	4	
8	Clay burnt		2	x103 y102	4	
17	Clay burnt		2	x102 y103	<1	
18	Clay burnt		2	x102 y106	2	
19	Clay burnt		2	x102 y103	Where is?	
20	Clay burnt		2	x101 y104	18	
21	Clay burnt		2	x101 y105	1	
22	Clay burnt		2	x102 y101	2	
23	Clay burnt		2	x100 y104	2	
24	Clay burnt		2	x100 y105	<1	
25	Clay burnt		2	x101 y099	1	
26	Clay burnt		2	x102 y099	2	
28	Clay burnt		2	x100 y103	2	
34	Clay burnt		2	x099 y109	<1	
35	Clay burnt		2	x100 y102	<1	
37	Clay burnt		2	x099 y107	<1	
38	Clay burnt		2	x099 y104	<1	
39	Clay burnt		2	x098 y106	<1	
40	Clay burnt		2	x101 y102	2	
43	Clay burnt		2	x098 y105	2	
44	Clay burnt		2	x099 y103	1	
46	Clay burnt		2	x096 y106	1	
49	Clay burnt		2	x097 y104	2	
53	Clay burnt		2	x098 y101	<1	
54	Clay burnt		2	x097 y099	<1	
55	Clay burnt		2	x096 y099	<1	
58	Clay burnt		2	x097 y103	<1	
60	Clay burnt		2	x103 y099	<1	
64	Clay burnt		2	x095 y103	1	
66	Clay burnt		2	x098 y099	<1	
68	Clay burnt		2	x102 y098	1	

69	Clay burnt		2	x103 y098	<1	
70	Clay burnt		2	x096 y095	37	
71	Clay burnt		2	x099 y094	<1	
72	Clay burnt		2	x098 y094	<1	
73	Clay burnt		2	x099 y093	2	
75	Clay burnt		2	x096 y094	3	
76	Clay burnt		2	x098 y094	<1	
77	Clay burnt		2	x097 y096	2	
78	Clay burnt		2	x098 y093	6	
79	Clay burnt		2	x098 y093	Where is?	
81	Clay burnt		2	x097 y095	3	
83	Clay burnt		2	x102 y 096	<1	
84	Clay burnt		2	SE Quadrant	1	
85	Clay burnt		2	x102 y094	<1	
86	Clay burnt		2	x100 y096	2	
87	Clay burnt		2	x104 y098	<1	
88	Clay burnt		2	x103 y096	<1	
90	Clay burnt		2	x104 y101	<1	Originally mis-labeled quartz
91	Clay burnt		2	x104 y096	1	
92	Clay burnt		2	x101 y093	2	
93	Clay burnt		2	x104 y095	2	
97	Clay burnt		2	x105 y097	<1	
98	Clay burnt		2	x105 y096	<1	
191	Clay burnt		2	x099 y097	1	
194	Clay burnt		2	x100 y097	3	
195	Clay burnt		2	x099 y097	1	
200	Clay burnt		2	x100 y099	1	
208	Clay burnt		2	x100 y100	<1	
213	Clay burnt		2	x099 y099	<1	
218	Clay burnt		2	x100 y100	<1	
223	Clay burnt		2	x098 y099	2	
225	Clay burnt		2	x098 y098	5	
530	Clay burnt		2	x101 y100	1	Originally mis-labeled F070
101	Clay burnt		4	x096 y102	2	
103	Clay burnt		4	x099 y104	<1	
126	Clay burnt		4	x100 y096	2	
128	Clay burnt		4	x103 y098	<1	
129	Clay burnt		4	x101 y103	<1	
130	Clay burnt		4	x103 y097	7	
132	Clay burnt		4	x102 y099	2	

133	Clay burnt		4	x103 y096	2	
134	Clay burnt		4	x101 y099	<1	
138	Clay burnt		4	x103 y097	1	
139	Clay burnt		4	x100 y094	9	
140	Clay burnt		4	x099 y095	<1	
141	Clay burnt		4	x098 y096	<1	
142	Clay burnt		4	x098 y100	1	
144	Clay burnt		4	x096 y095	17	
159	Clay burnt		4	x101 y099	3	
185	Clay burnt		4	x100 y103	4	
313	Clay burnt		4	x098 y097	2	
105	Clay burnt		5	x097 y101	2	
108	Clay burnt		5	x096 y100	10	
110	Clay burnt		5	x096 y101	2	
112	Clay burnt		5	x096 y102	<1	
114	Clay burnt		5	x096 y103	5	
116	Clay burnt		5	x097 y104	22	
120	Clay burnt		5	x099 y103	1	
124	Clay burnt		5	x096 y104	1	
148	Clay burnt		5	x101 y104	2	
150	Clay burnt		5	x099 y105	10	
151	Clay burnt		5	x102 y100	2	
152	Clay burnt		5	x102 y101	1	
154	Clay burnt		5	x098 y105	11	
157	Clay burnt		5	x098 y104	1	
158	Clay burnt		5	x101 y102	2	
162	Clay burnt		5	x100 y105	2	
163	Clay burnt		5	x101 y103	1	
164	Clay burnt		5	x103 y104	2	
165	Clay burnt		5	x099 y103	1	
167	Clay burnt		5	x100 y103	2	
169	Clay burnt		5	x103 y100	1	
171	Clay burnt		5	x101 y103	2	
172	Clay burnt		5	x104 y101	4	
173	Clay burnt		5	x102 y103	1	
176	Clay burnt		5	x103 y101	12	
180	Clay burnt		5	x103 y103	4	
181	Clay burnt		5	x096 y101	<1	
182	Clay burnt		5	x102 y100	21	
184	Clay burnt		5	x103 y102	28	
188	Clay burnt		5	x102 y101	3	
189	Clay burnt		5	x101 y105	11	

192	Clay burnt		5	x101 y100	22	
196	Clay burnt		5	x102 y102	2	
199	Clay burnt		5	x101 y101	4	
202	Clay burnt		5	x101 y104	8	
205	Clay burnt		5	x102 y103	5	
207	Clay burnt		5	x101 y102	4	
210	Clay burnt		5	x102 y100	2	
212	Clay burnt		5	x100 y103	7	
214	Clay burnt		5	x102 y100	5	
216	Clay burnt		5	x103 y100	1	
217	Clay burnt		5	x104 y100	1	
219	Clay burnt		5	x101 y102	12	
221	Clay burnt		5	x101 y103	3	
226	Clay burnt		5	x100 y104	6	
227	Clay burnt		5	x100 y105	57	
228	Clay burnt		5	x102 y104	2	
229	Clay burnt		5	Photo cleaning	<1	
230	Clay burnt		5	x100 y096	17	
233	Clay burnt		5	x102 y102	<1	
236	Clay burnt		5	x103 y102	1	
237	Clay burnt		5	x099 y096	6	
240	Clay burnt		5	x104 y103	<1	
244	Clay burnt		5	x099 y103	2	
245	Clay burnt		5	x102 y102	<1	
246	Clay burnt		5	x100 y105	13	
247	Clay burnt		5	x099 y096	15	
248	Clay burnt		5	x100 y096	29	
269	Clay burnt		5	x100 y102	8	
270	Clay burnt		5	x098 y100	66	
271	Clay burnt		5	x097 y100	31	
275	Clay burnt		5	x100 y096	6	
278	Clay burnt		5	x097 y100	27	
280	Clay burnt		5	x098 y100	1	
281	Clay burnt		5	x100 y095	48	
286	Clay burnt		5	x096 y100	5	
294	Clay burnt		5	x096 y100	5	
298	Clay burnt		5	x100 y094	9	
324	Clay burnt		5	x101 y100.5	2	
329	Clay burnt		5	x105 y097	8	
342	Clay burnt		5	x104 y097	9	
346	Clay burnt		5	x104 y096	7	
373	Clay burnt		5	x105 y096	2	

375	Clay burnt		5	x104 y098	18	
379	Clay burnt		5	x101 y094	16	
386	Clay burnt		5	x101 y095	4	
406	Clay burnt		5	x098 y095	14	
407	Clay burnt		5	x099 y095	1	
408	Clay burnt		5	x099 y094	1	
446	Clay burnt		5	x099 y094	25	
447	Clay burnt		5	x099 y095	35	
449	Clay burnt		5	x097 y095	44	
451	Clay burnt		5	x101 y095	29	
455	Clay burnt		5	x097 y094	2	
466	Clay burnt		5	x101.67 y096.71 z30.85	1	
485	Clay burnt		5	x097 y096	2325	1 large bag
486	Clay burnt		5	x097 y097	502	
487	Clay burnt		5	x098 y094	16	
495	Clay burnt		5	x098 y095	6	
500	Clay burnt		5	x097.5 y095	1	
501	Clay burnt		5	x097 y096	8	
504	Clay burnt		5	x097.5 y094	16	
505	Clay burnt		5	x096 y096	104	
506	Clay burnt		5	x097 y097	13	
507	Clay burnt		5	x097 y095	41	
509	Clay burnt		5	x096 y097	21	
510	Clay burnt		5	x101 y099	5	
513	Clay burnt		5	x101 y098	25	
514	Clay burnt		5	x101 y097	38	
516	Clay burnt		5	x098 y099	18	
517	Clay burnt		5	x096 y097	17	
519	Clay burnt		5	x098.5 y098	15	
522	Clay burnt		5	x098.5 y097	19	
524	Clay burnt		5	x098.5 y096	36	
111	Clay burnt		6	x096 y100	3	
147	Clay burnt		6		4	
183	Clay burnt		6		4	
250	Clay burnt		11	x103 y099	<1	
251	Clay burnt		11	x103 y100	5	
252	Clay burnt		11	x101 y100	<1	
257	Clay burnt		11	x101 y101	<1	
258	Clay burnt		11	x103 y101	2	
259	Clay burnt		11	x103 y102	2	
265	Clay burnt		11	x100.00 y105.00	43	
276	Clay burnt		11	x100 y096	<1	

417	Clay burnt		11	x101 y095	16	
444	Clay burnt		11	x100 y095	<1	
253	Clay burnt		12	x099 y096	9	
254	Clay burnt		12	x101 y101	3	
266	Clay burnt		12	x100 y096	4	
475	Clay burnt		13	x099 y095	2	
262	Clay burnt		14	x99.73 y102.38 z30.12	4	
264	Clay burnt		14	x099 y102.0	22	
398	Clay burnt		14	x100 y099.50	12	
414	Clay burnt		14	x099 y099.5	3	
430	Clay burnt		14	x100 y099.0	3	
454	Clay burnt		14	x100 y098.5	19	
292	Clay burnt		17	x097 y100	5	
297	Clay burnt		17	x098 y100	21	
320	Clay burnt		17	x097 y100	5	
307	Clay burnt		18	x100 y095	11	
450	Clay burnt		18	x101 y095	5	
327	Clay burnt		19	x100 y097.5	5	
419	Clay burnt		19	x099 y098.0	<1	
496	Clay burnt		19	x099 y098.5	5	
328	Clay burnt		22	x100 y095	10	
523	Clay burnt		23	x097 y096	7987	2 large bags
525	Clay burnt		23	x096 y096	3541	1 large bag
526	Clay burnt		23	x097 y097	1893	1 large bag
527	Clay burnt		24	x097 y096	102	
107	Clay burnt		25	x099 y100	<1	
137	Clay burnt		25	x100 y097	5	
153	Clay burnt		25	x100 y101	21	
178	Clay burnt		25	x099 y097	<1	
206	Clay burnt		25	x100 y102	1	
232	Clay burnt		25	x099 y102	11	
235	Clay burnt		25	x099 y102	4	
274	Clay burnt		25	x099 y101	2	
282	Clay burnt		25	x099 y101.5	5	
287	Clay burnt		25	x100 y097.0	5	
288	Clay burnt		25	x099 y097.0	4	
300	Clay burnt		25	x099 y101	3	
308	Clay burnt		25	x099 y097.50	22	
311	Clay burnt		25	x100 y097.5	19	
326	Clay burnt		25	x100 y100.5	7	
354	Clay burnt		25	x100 y100.0	1	
368	Clay burnt		25	x099 y100.0	1	

372	Clay burnt		25	x099 y098.0	<1	
380	Clay burnt		25	x100 y098.0	1	
99	Clay vitrified	Crucible	2	x105 y098	2	
179	Clay vitrified		5	x103 y103	<1	
531	Clay vitrified	Crucible	5	x097 y096	13	
534	Clay vitrified	Crucible	5	x097 y097	3	
535	Clay vitrified		16	x099 y096		Not sent to Stilborg
532	Clay vitrified		23	x097 y096	<1	
533	Clay vitrified	Crucible + mould	23	x096 y096	9	
61	Flint	Burnt, modified	2	x095 y103		Burning has obliterated any traces of retouching
383	Glass	Frag	5	x105 y098		
416	Glass	Bead	14	x100.0 y099.5		From sieving
215	Iron	Riv/nail	2	x100 y100		
135	Iron	Unident	4	x100.94 y099		
363	Iron	Unident	4	x100.47 y098.15 z30.03		
203	Iron	Unident	5	x102 y103		
234	Iron	Nail	5	x099.5 y103.5		Bent
238	Iron	Unident	5	x103 y102		
261	Iron	Knife	5	x101.2 y102.5		Tang
277	Iron	Unident	5	x097 y100		
290	Iron	Unident	5	x100.36 y097.10		
301	Iron	Unident	5	x100.13 y097.41		
302	Iron	Unident	5	x100 y094		
332	Iron	Unident	5	x105.20 y097.20		
339	Iron	Unident	5	x104 y096		
361	Iron	Unident	5	x104.81 y096.09 z29.78		
366	Iron	Unident	5	x105.20 y097.12 z29.72		
371	Iron	Unident	5	x104 y096		From beneath rock
378	Iron	Unident	5	x104.60 y098.25 z29.94		
465	Iron	Unident	5	x101.20 y096.85 z30.90		
497	Iron	Unident	5	x098 y094		
520	Iron	Unident	5	x098.5 y098		
521	Iron	Unident	5	x098.5 y097		
255	Iron	Unident	11	x102 y101		
267	Iron	Unident	11	x100 y105		
268	Iron	Unident	11	x100.30 y105.70		

295	Iron	Unident	11	x096 y100		
347	Iron	Unident	11	x100 y094		
425	Iron	Unident	11	x101y095		
427	Iron	Unident	11	x101.60 y095.55 z29.74		
477	Iron	Unident	11	x099 y095		
263	Iron	Unident	12	x100 y096		
285	Iron	Unident	14	x100.05 y101.90		Flake from north-ernmost rivet stains at N end of boat.
345	Iron	Riv/nail	14	x100 y100.5		
348	Iron	Unident	14	x099.98 y100.89 z29.54		
352	Iron	Riv/nail	14	x100 y100.0		
353	Iron	Rivet	14	x099.49 y10.42 z29.79		Span 20 mm
365	Iron	Riv/nail	14	x100.66 y100.38 z29.75		
395	Iron	Riv/nail	14	x100.91 y099.54 z29.78		
410	Iron	Unident	14	x099.70 y100.25 z29.59		
411	Iron	Unident	14	x099 y100.0		From sieving
413	Iron	Unident	14	x099 y100.0		From sieving
420	Iron	Unident	14	x100.60 y099.76 z29.55		
429	Iron	Riv/nail	14	x100.0 y099.0		
433	Iron	Unident	14	x100 y099.0		
441	Iron	Riv/nails	14	x100.30 y099.11 z29.60		3 stem of which 1 bent, 1 bent nail
457	Iron	Riv/nail	14	x100 y099		
459	Iron	Riv/nail	14	x100 y099		
464	Iron	Riv/nail	14	x100.65 y099.00 z29.65		
484	Iron	Rivet	14	x099.72 y098.81 z29.68		Span 23 mm
488	Iron	Unident	14	x099 y099		
491	Iron	Riv/nails	14	x100.30 y098.90		Many, some bent, possibly some buckle frags
492	Iron	Riv/nail	14	x100.30 y098.90		
494	Iron	Riv/nail	14	x099 y098.5		Associated with F491 & F492
260	Iron	Unident	16	x099 y096		
452	Iron	Unident	18	x101.59 y095.08 z29.81		
453	Iron	Unident	18	x101 50 y095.28 z29.74		
528	Iron	Unident	18	x101 y094		Originally mis-labeled F469
303	Iron	Ring	19	x099.69 y097.48 z29.88		
309	Iron	Ring	19	x099.80 y097.50 z29.74		With cross bar
340	Iron	Riv/nail	19	x100.02 y097.60 z29.74		
341	Iron	Nail	19	x099.75 y097.50 z29.70		
343	Iron	Hook	19	x099.40 y097.59 z29.76		With 2 rivets & 1 frag

351	Iron	Riv/nail	19	x099.78 y097.73 z29.64		
355	Iron	Riv/nail	19	x099.61 y097.87 z29.66		Bent
356	Iron	Riv/nail	19	x099.79 y097.82 z29.64		
357	Iron	Riv/nail	19	x099.70 y097.81 z29.61		Thin, but too long for a comb.
359	Iron	Riv/nail	19	x099.83 y097.98 z29.60		
387	Iron	Riv/nail	19	x099.60 y098.08 z29.59		
390	Iron	Riv/nail	19	x100.54 y098.29 z29.57		
391	Iron	Riv/nail	19	x099 y098.0		
399	Iron	Unident	19	x100 y098.0		
400	Iron	Unident	19	x099.84 y098.37 z29.55		
402	Iron	Rivet	19	x100.44 y098.47 z29.55		
412	Iron	Frostnail	19	x100.15 y09.27 z29.53		
418	Iron	Riv/nail	19	x099.78 y98.61 z29.61		Bent, span 32 mm
422	Iron	Riv/nail	19	x100.80 y098.23 z29.76		Head diam 23 mm
423	Iron	Frostnail	19	x100 y098.0		Associated with find no 426
426	Iron	Frostnail	19	x100.05 y098.25 z29.48		Associated with find no 423
432	Iron	Nail	19	x099 y098.5		
437	Iron	Frostnail	19	x099 y098.5		
438	Iron	Unident	19	x099 y098.5		
442	Iron	Frostnail	19	x100.0 y098.65 z29.57		
443	Iron	Riv/nail	19	x099.64 y098.68 z29.64		
445	Iron	Riv/nail	19	x099 y098.5		
319	Iron	Unident	22	x100 y095.0		
279	Iron	Unident	25	x100 y097		
291	Iron	Unident	25	x099 y097.0		
322	Iron	Unident	25	x100 y097.5		
334	Iron	Riv/nail	25	x100 y097.5		
360	Iron	Knife	25	x100 y100.0		Blade frag
333	Ore?		5	x105.67 y097.19		
388	Ore?		5	x105 y098		
392	Ore?		5	x104.54 y098.83 z29.82		
6	Pottery	Red-brown	2	x103 y104		bottom flat
7	Pottery	Red-brown	2	x103 y102		rim
10	Pottery	Red-brown	2	x105 y104		
67	Pottery	Black-glossy	2	x102 y094		
115	Pottery	Black-glossy	5	x096 y103		rim
149	Pottery	Red-brown	5	x099 y105		rim
155	Pottery	Red-brown	5	x102 y101		
160	Pottery	Red-brown	5	x100 y105		
174	Pottery	Red-brown	5	x096 y101		

193	Pottery	Red-brown	5	x102 y101		striated ext surface
197	Pottery	Fine-brown	5	x100 y104		rim
198	Pottery	Red-brown	5	x101 y101		
241	Pottery	Brick-red	5	x099 y096		
283	Pottery	Red-brown	5	x100.55 y097.10		
284	Pottery	Red-brown	5	x100.64 y097.17		
289	Pottery	Red-brown	5	x100.20 y097.15		Roughly accurate location from sieved material
312	Pottery	Black-glossy	5	x100.81 y097.87 z30.00		
315	Pottery	Red-brown	5	x100.73 y097.43 z29.91		
175a	Pottery	Red-brown	5	x103 y101		
175 b	Pottery	Black-glossy	5			rim
273a	Pottery	Red-brown	5	x100.44 y096.14		
273 b	Pottery	Red-brown	5			
273c	Pottery	Red-brown	5			incised line
273 d	Pottery	Red-brown	5			
272	Pottery	Red-brown	12	x099 y096		sooty ext surface
305	Pottery	Black-glossy	17	x097.63 y100.65 z29.69		rim, diam c 27 cm
57	Quartz	Modified, waste	2	x098 y100		
109	Quartz	Modified, waste	4	x102.7 y102.5		
122	Quartz	Modified, waste	5	x097 y104		
362	Quartz	Modified, waste	25	x100 y100.0		
100	Silver	Pin	2	x105 y098		
330	Slate	Modified?	5	x105 y096		
470	Slate	Whetstone	14	x100.33 y098.70 z-bottom 29.62, top 29.67		
481	Stone	Gaming piece?	14	x099.80-90 y099.00-10		
29	Discarded		1	x096 y107		Natural stone
36	Discarded		1	SE Quadrant		Modern glazed pottery
9	Discarded		2	x103 y102		Natural stone
13	Discarded		2	x103 y102		Natural stone
15	Discarded		2	x103 y102		Charcoal
16	Discarded		2	x102 y102		Natural stone
30	Discarded		2	x100 y108		Natural stone
31	Discarded		2	x099 y108		Natural stone
33	Discarded		2	x098 y108		Natural stone

41	Discarded		2	x101 y102		Natural stone
42	Discarded		2	x098 y105		Charcoal
47	Discarded		2	x098 y104		Natural stone
50	Discarded		2	x098 y102		Plant
51	Discarded		2	x097 y104		Charcoal
56	Discarded		2	x096 y099		Natural stone
62	Discarded		2	x095 y103		Charcoal
82	Discarded		2	x097 y095		Natural stone
89	Discarded		2	SE Quadrant		Natural stone
96	Discarded		2	x105 y096		Earth
204	Discarded		2	x100 y099		Natural stone
102	Discarded		4	x096 y104		Charcoal
104	Discarded		4	x098 y104		Charcoal
125	Discarded		4	x100 y103		Charcoal
131	Discarded		4	x103 y097		Charcoal
143	Discarded		4	x098 y100		Charcoal
145	Discarded		4	x098 y095		Charcoal
146	Discarded		4	x098 y105		Earth
113	Discarded		5	x096 y103		Natural stone
161	Discarded		5	x103 y102		Natural stone
211	Discarded		5	x101.2 y102.05		
220	Discarded		5	x101 y101		Natural stone
222	Discarded		5	x103 y103		Natural stone
224	Discarded		5	x102 y104		Natural stone
296	Discarded		5	x100 y095		Modern bone
314	Discarded		5	x099.88 y097.88 z29.90		
317	Discarded		5	x09.75 y097.90 z29.74		Natural stone
321	Discarded		5	x105 y097		Natural stone
325	Discarded		5	x105 y097		Natural stone
331	Discarded		5	x105 y096		Natural stone
335	Discarded		5	x105.72 y097.5		Natural stone
336	Discarded		5	x105.53 y097.38		Natural stone
344	Discarded		5	x104 y097		Natural stone
364	Discarded		5	x104.35 y097.77 z29.84		Natural stone
367	Discarded		5	x104 y096		Natural stone
369	Discarded		5	x105.52 y096.12 z29.76		Natural stone
376	Discarded		5	x105 y098		
381	Discarded		5	x104 y098		Natural stone
384	Discarded		5	x105 y098		Natural stone
393	Discarded		5	x104.57 y098.40 z29.82		Natural stone
405	Discarded		5	x099.86 y094.36 z29.90		
409	Discarded		5	x099.67 y094.99 z29.95		Natural stone

467	Discarded		5	x101.73 y096.71 z30.85		Natural stone
483	Discarded		5	x099 y094		
498	Discarded		5	x098 y095		Natural stone
502	Discarded		5	x097.03 y096.30 z29.91		Natural stone
511	Discarded		5	x097 y095		
512	Discarded		5	x101 y099		Natural stone
515	Discarded		5	x101 y097		
478	Discarded		11	x099.37 y095.72 z29.77		Natural stone
350	Discarded		14	x100.06 y100.64 z29.49		Natural stone
299	Discarded		17	x098 y100		Natural stone
338	Discarded		19	x099 y097.5		
349	Discarded		19	x099.76 y097.50 z29.65		Natural stone
358	Discarded		19	x099.75 y097.77 z29.62		
424	Discarded		19	x100 y098.0		
428	Discarded		19	x100.62 y098.23 z29.65		Natural stone
499	Discarded		19	x099 y098.5		Natural stone
316	Discarded		22	x100.79 y095.67 z29.72		Natural stone
337	Discarded		22	x100 y095		Natural stone
323	Discarded		25	x099 y097.5		
370	Discarded		25	x099 y100.0		Natural stone
374	Discarded		25	x099 y098.0		Natural stone

Appendix 5. Pottery

26 low-tech potsherds were found, 20 of them in the settlement layer (cont. 5) and 4 in the topsoil where they are likely to have been re-deposited at the construction of the stone setting. They may be divided into four different wares, all of which may be contemporaneous with the two radiocarbon dates in the 2nd century cal BC, the Late Pre-Roman Iron Age.

- Red-brown: 19 sherds have a matte, reddish pale brown exterior surface, a black core, a glossy black interior surface or, near the rim, the same colour as the exterior. Tempered with coarse granite grains. The median vessel wall thickness at each sherd's thinnest spot, excepting bottom and rim sherds, is 8 mm (n=13). No sherd is large enough to tell us much about vessel shape, but rims are simple and at least one bottom flat. One sherd has an incised straight line.
- Black-glossy: 5 sherds have a glossy black surface, interior as well as exterior, and a black core. Tempered with coarse granite grains. Median vessel wall thickness at each sherd's thinnest spot is 9 mm (n=5). The largest of these sherds, indeed of all sherds, was found in a deep pit (cont 17) along with alder charcoal that has given an Early Bronze Age radiocarbon date. This sherd represents a biconic vessel with a carefully moulded rim and a rim diameter of c. 27 cm.
- Brick-red: 1 sherd, brick-red throughout. Tempered with coarse granite grains. 8 mm thick.
- Fine-brown: 1 rim sherd, matte pale reddish brown throughout. Tempered with fine granite grains. 4 mm thick. Rim turned out.

Appendix 6. Osteological analysis

By Susanne Svensson, Raä UV Mitt, and Berit Sigvallius

Fno	Burnt?	Bone	Species	Cont.	Coords	Note	Weight (g)
11	1	?	Animal	2	x103 y102	Gnawed	0,2
12	1	?	Animal	2	x104 y100		0,2
45	1	?	Animal	2	x099 y103		0,1
48	1	Tooth, molar	Cattle	2	x098 y104		0,4
52	1	?	Animal	2	x097 y104		0,1
59	1	?	Animal	2	x103 y099		0,6
65	1	?	Animal	2	x103 y099		0,4
74	0	Tooth, molar, from mandible	Cattle	2	x097 y096		8
80	1	Costa	Animal	2	x100 y095		0,4
94	1	?	Animal	2	x104 y097		0,2
95	1	?	Animal	2	x101 y098		0,3
117	1	?	Animal	5	x096 y103		0,7
136	1	Tibia sin	Human?	4	x101 y098		2,3
136	1	?	Animal	4	x101 y098		0,5
168	1	?	Animal	5	x100 y103		0,2
177	1	Antler?	Animal	4	x099 y094	Worked	0,3
187	1	Tibia	Human	5	x102 y100		1,2
304	0	Tooth, molar	Cattle	17	x098,06 y100,28		13,6
318	1	?	Animal	5	x100 y097,5		0,1
377	1	?	Animal	4	x100 y098		0,4
385	0	Tooth	Pig?	19	x100,36 y098,02		0,3
403	0	Tooth	Cattle/horse	19	x100,42 y098,5		0,5
404	0	Tooth	Cattle/horse	19	x100 y098,5		1,8
421	1	?	Animal	5	x100 y099,5		0,1
431	0	Tooth?	Animal	19	x100 y098,5		0,1
439	0	Tooth	Cattle/horse	19	x100 y098,5		0,9
440	1	?	Animal	19	x100 y098,5		0,5
448	1	?	Animal	5	x099 y095		0,1
460	1	?	Animal	5	x101 y096		0,4
469	1	?	Animal	14	x100 y098,5		0,1
503	0	Tooth, molar + part of jaw	Cattle	5	x096 y096		26,3
508	0	Tooth	Cattle/horse	5	x096 y097		0,2
518	0	Tooth, molar	Cattle	5	x096 y097		9,7
529	1	Radius?	Animal	18	x101 y094		0,3

Appendix 7. Radiocarbon analyses

Pit cont 17	F306	charcoal	Alder / Al	decomposed wood	Poz-13534	3000 ± 40 BP	1320-1190 cal BC (60%)
Posthole cont 22	F397	charcoal	Lime / Lind	decomposed wood	Poz-13535	2110 ± 40 BP	210-30 cal BC (89%)
Hearth cont 12	F293	charcoal	Scotch pine / Tall	younger tree trunk	Poz-13532	2075 ± 35 BP	160-40 cal BC (68%)

Wood species determinations by Ulf Strucke.

INFORM : References - Atmospheric data from Reimer et al (2004);OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]

Skamby F306 : 3000±40BP
68.2% probability
1370BC (1.5%) 1360BC
1320BC (60.1%) 1190BC
1180BC (2.6%) 1160BC
1150BC (4.0%) 1130BC
95.4% probability
1390BC (95.4%) 1120BC
Skamby F397 : 2110±40BP
68.2% probability
190BC (68.2%) 50BC
95.4% probability
350BC (6.8%) 300BC
210BC (88.6%) 30BC
Skamby F293 : 2075±35BP
68.2% probability
160BC (17.3%) 130BC
120BC (50.9%) 40BC
95.4% probability
200BC (95.4%) 10AD

Appendix 8. Metalworking debris
By Ole Stilborg

Fyndnr	Beskrivning	Gjut-form	In-lopp	De-gel	Degel-knopp	Vikt g
99	1 glasat, rödfärgat frgm.			X	X?	1,6
179	2 sintrade frgm.	X?				0,4
531	1 sintrat, reducerat bränt frgm.				X	9,1
	1 sintrat, reducerat bränt frgm.			X?		4,9
532/23	1 sintrat frgm.	X?				0,3
533	1 högbränt frgm.		X			0,8
	1 högbränt frgm.		X			0,9
	1 högbränt frgm.		X			2,4
	1 delvis sintrat frgm.				X	4,5
534	1 delvis sintrat frgm.				X	1,4

Skamby 2005, Kuddby sn. Östergötland

Kommentarer till materialet.
De tre säkra degelknopparna, varav två större och en mindre, motsvarar i form samt med hänsyn till placeringen av spåren efter den kraftigaste värmepåverkningen och tångmärken de slutna/lockförsedda vendeltida deglarna, som har påträffats på bland annat Helgö.
Det ovan beskrivna materialet har utskilts på grund av sin sintrade och/eller förglasade tillstånd. Det är således inte förvånande att just degelknoppar, som på de jämförbara Helgö-deglarna har befunnit sig närmast blästret, och inlopp, som är den del av gjutformen som utsätts för den högsta värmen vid gjutningen, dominerar. Därför är det också rimligt att förvänta sig, att det kan finnas flera icke-sintrade fragment av samma objekt – främst från gjutformarna – bland det övriga fyndmaterialet från anläggningen.

Lund 20060316

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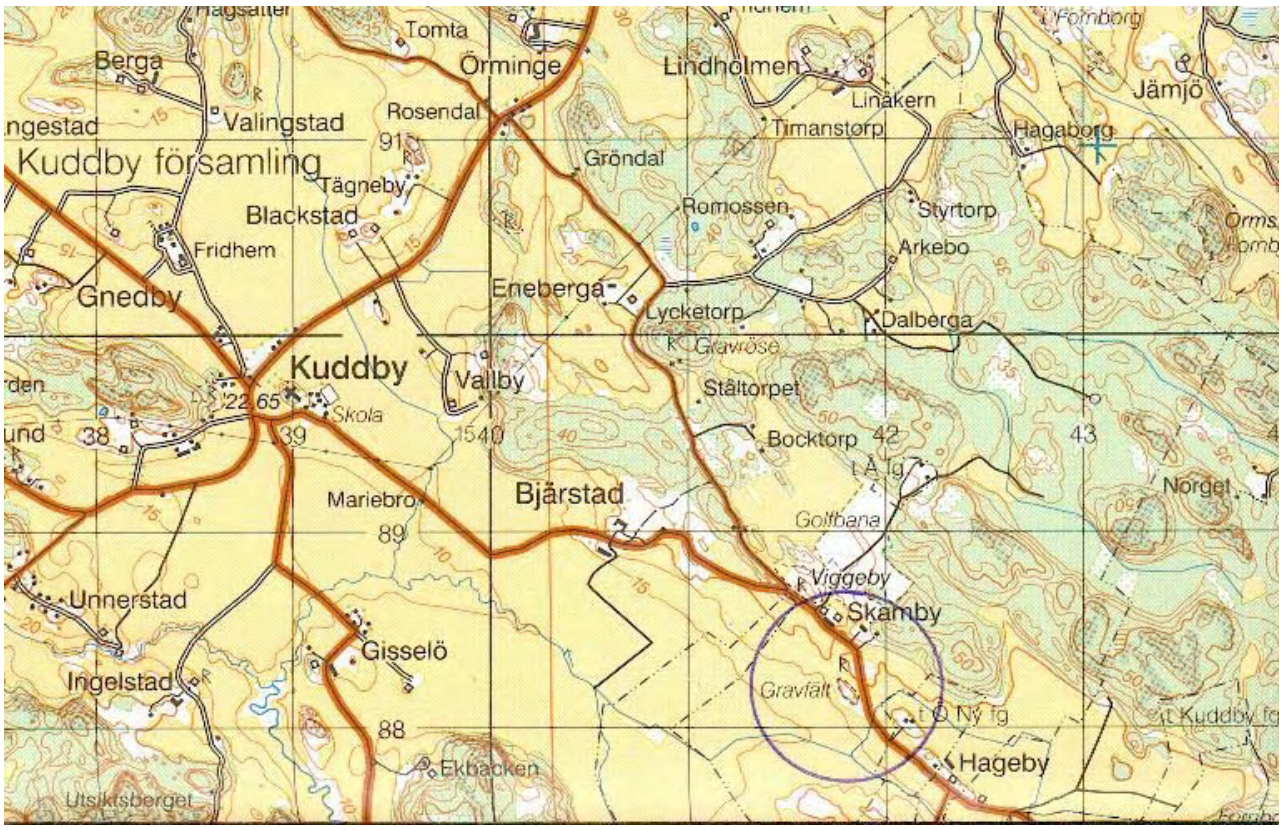
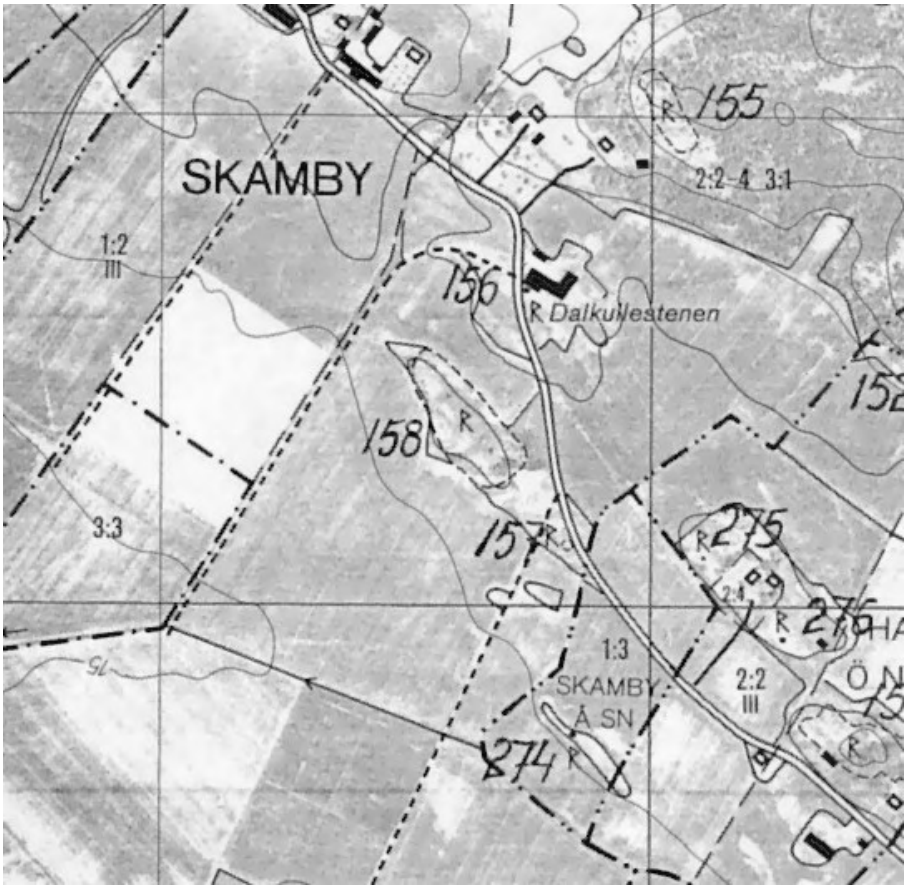
Geologiska Institutionen
Geocentrum
Lunds Universitet

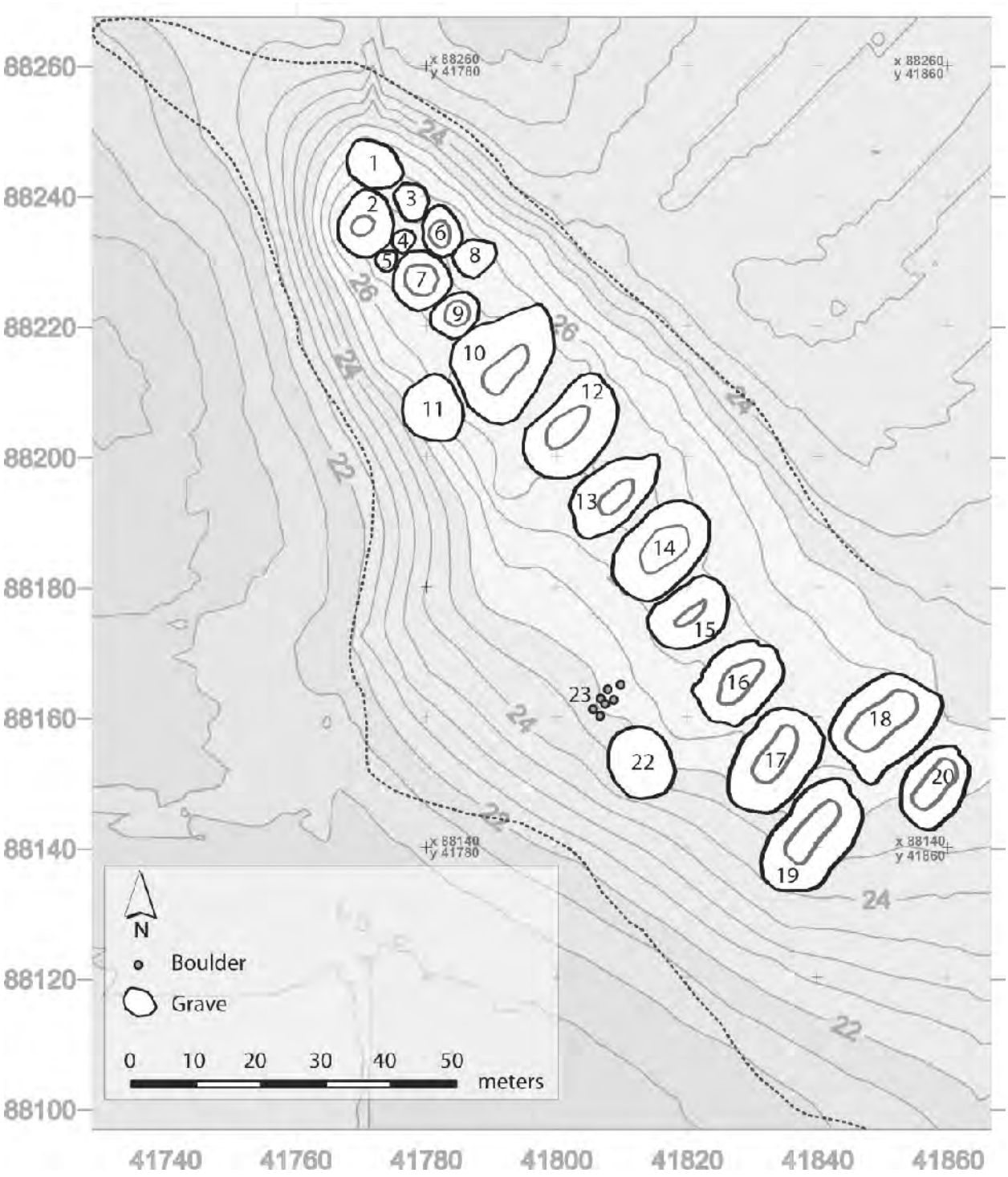


Excerpt from *Gröna Kartan*, sheet 8G NO Norrköping. 1 km grid. The circle marks the location of the boat grave cemetery at Skamby.

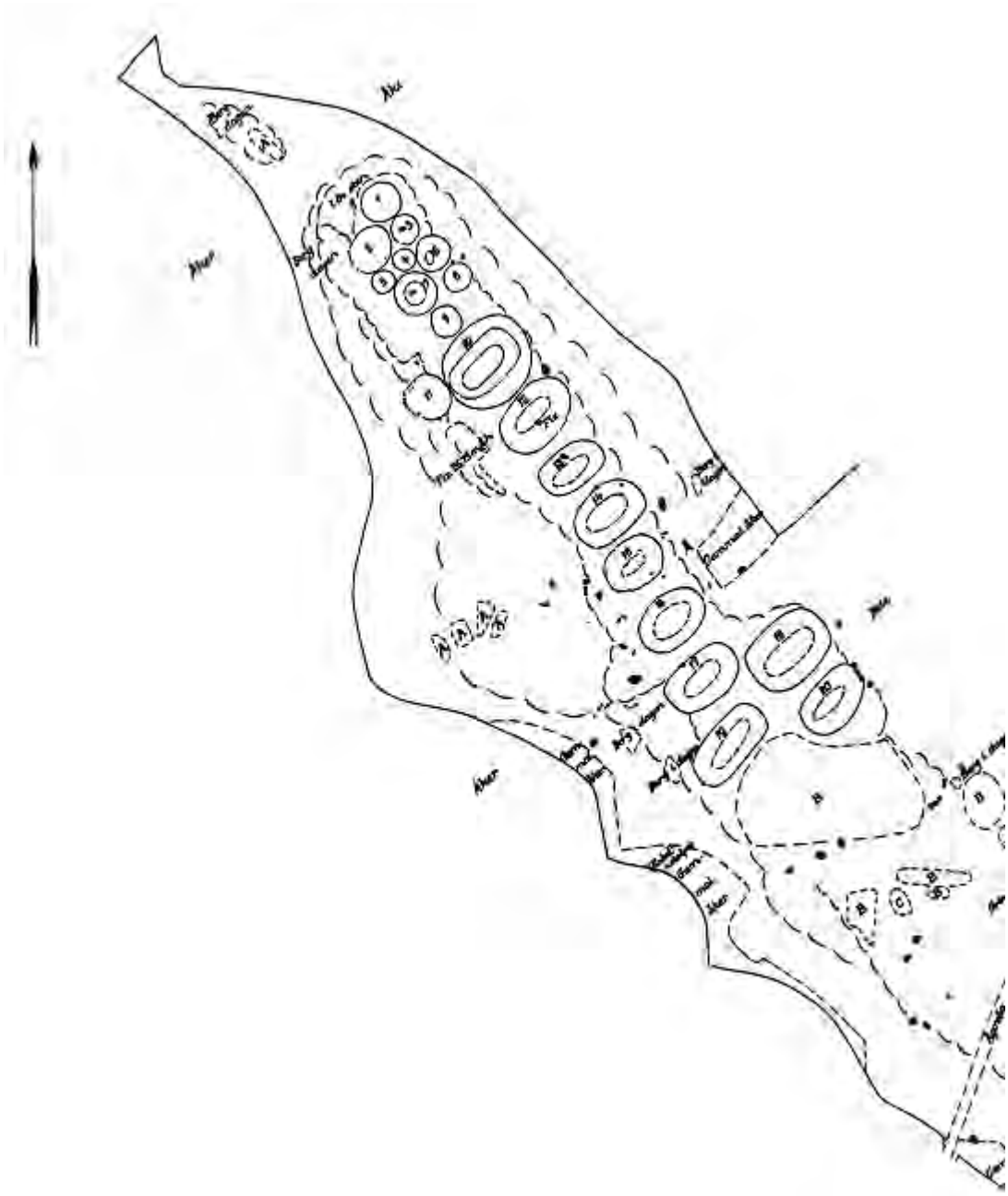


Excerpt from *Ekonomiska Kartan*, sheet 8G 7i Östra Ny. 500 m grid.
The boat grave cemetery is marked ”158”.

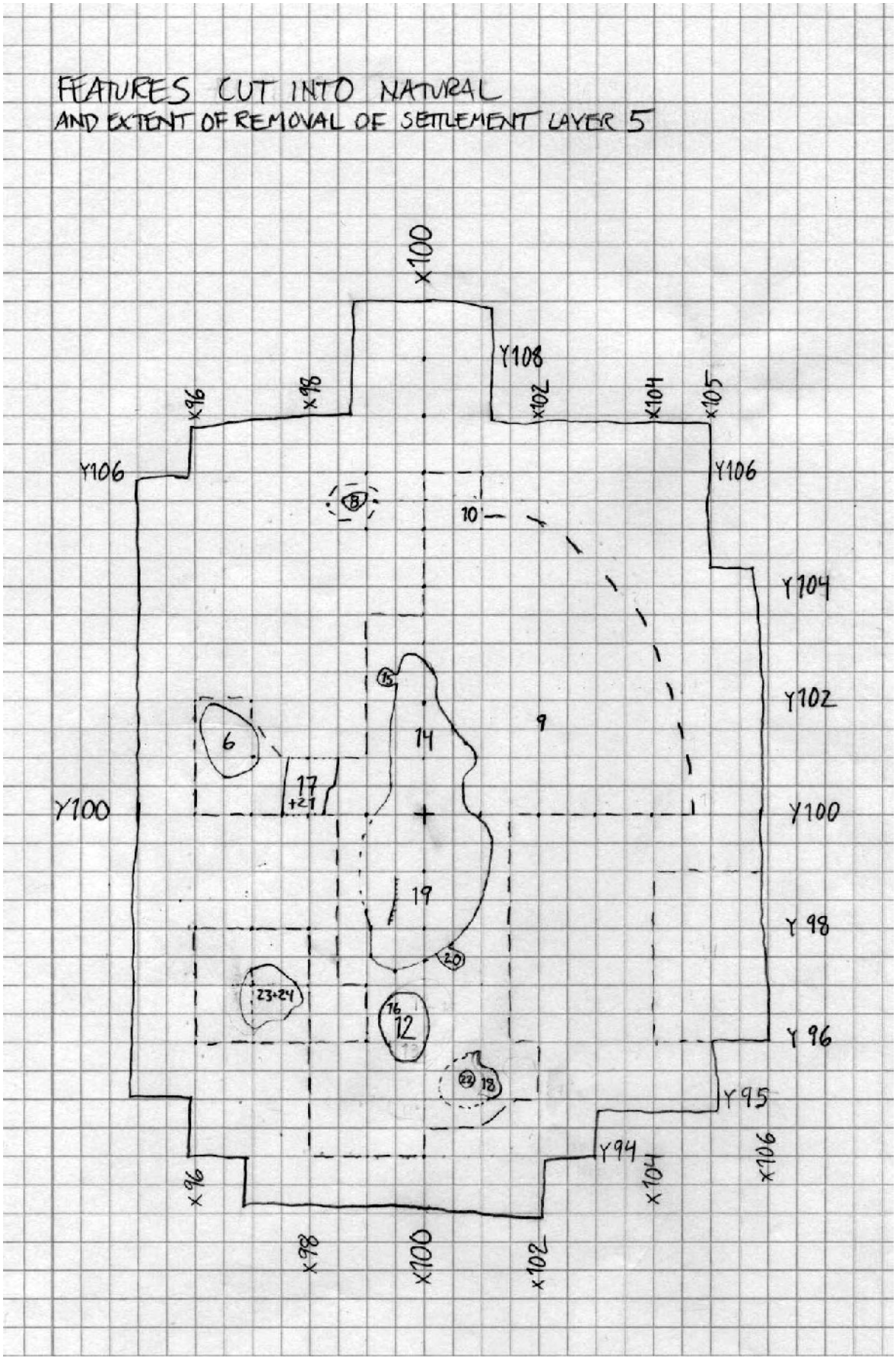
The boat grave cemetery. Aerial photograph from the NW by Pål-Nils Nilsson.



The boat grave cemetery mapped and level-surveyed with a total station in 2005. Grave 15 was excavated. Map designed by Markus Andersson.



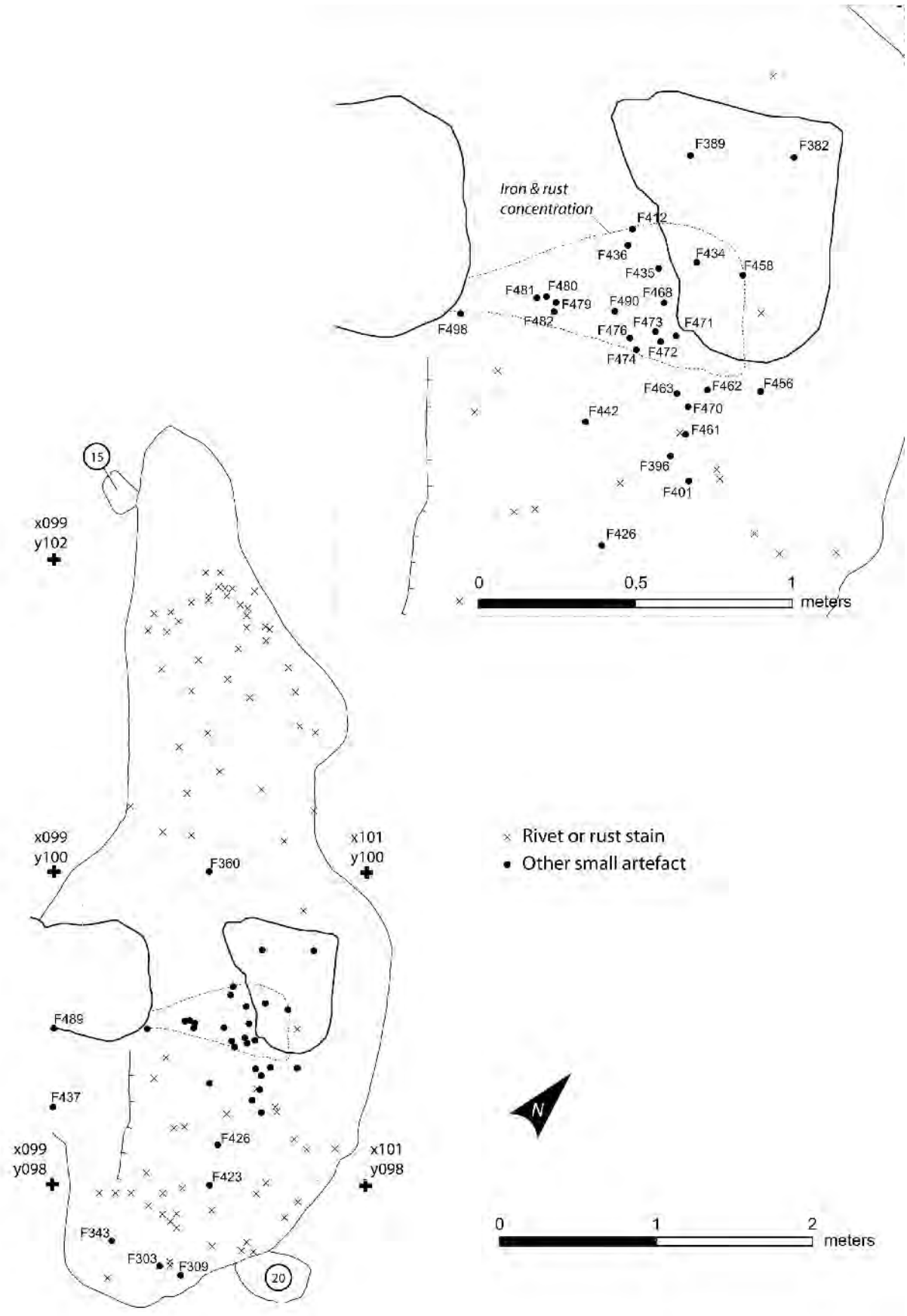
Excerpt from map of the boat grave cemetery by G.A. Hellman and G. Ekelund 1947.



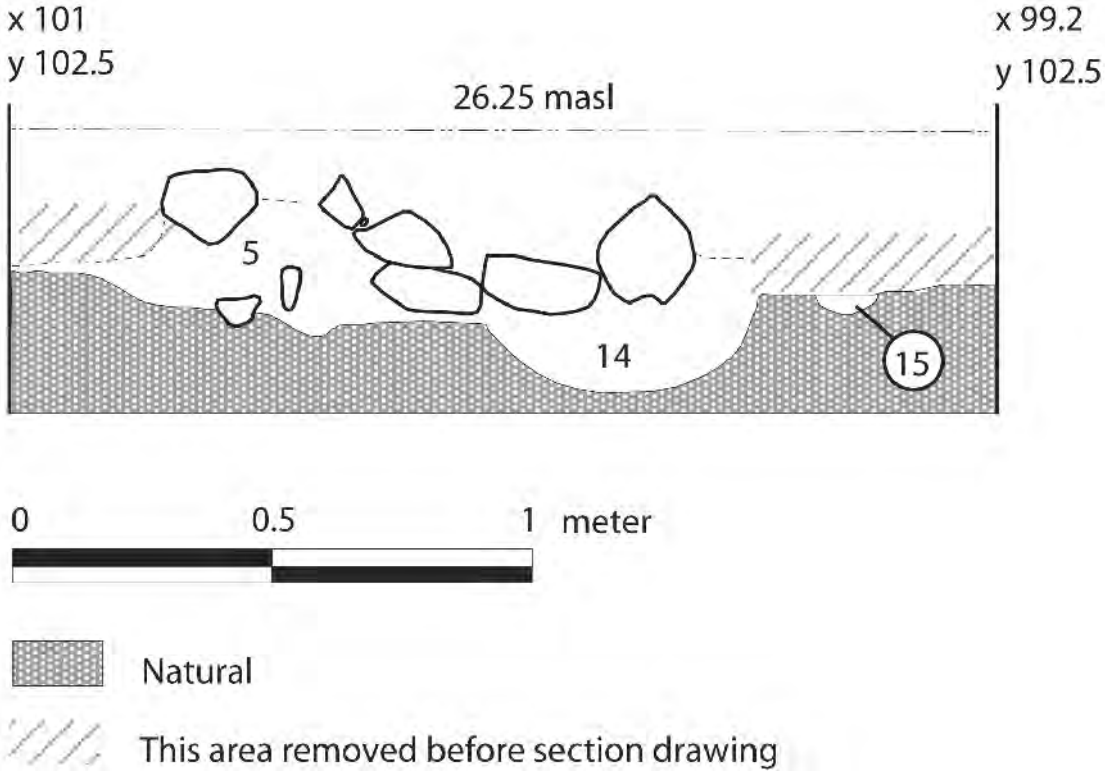
Trench plan of grave 15 with the extent of removal of settlement layer 5 and features cut into the natural beneath it. The vertical axis in the plan's coordinate system is orientated NE-SW (42° E of compass N).

Photo collage of the grave's superstructure after de-turfing and cleaning. Photographs by HW. Rectification and assembly by MR.

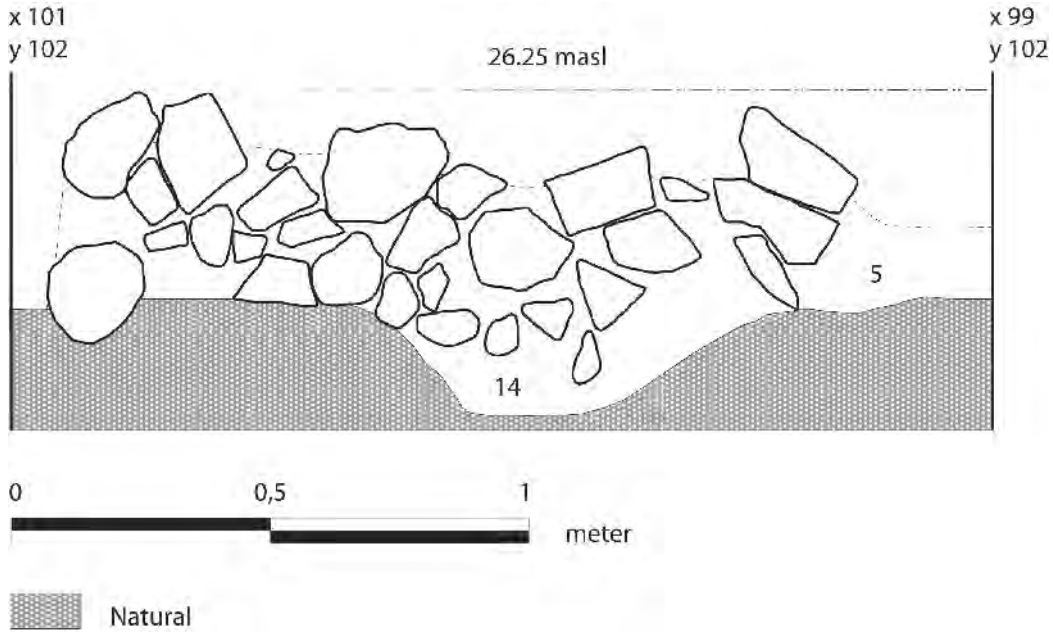
Long sections through the grave structure along the boat depression's centre line and across it at its midpoint. Digitised and designed by Markus Andersson. The filled-in stone in the cross-section was a fallen orthostat.



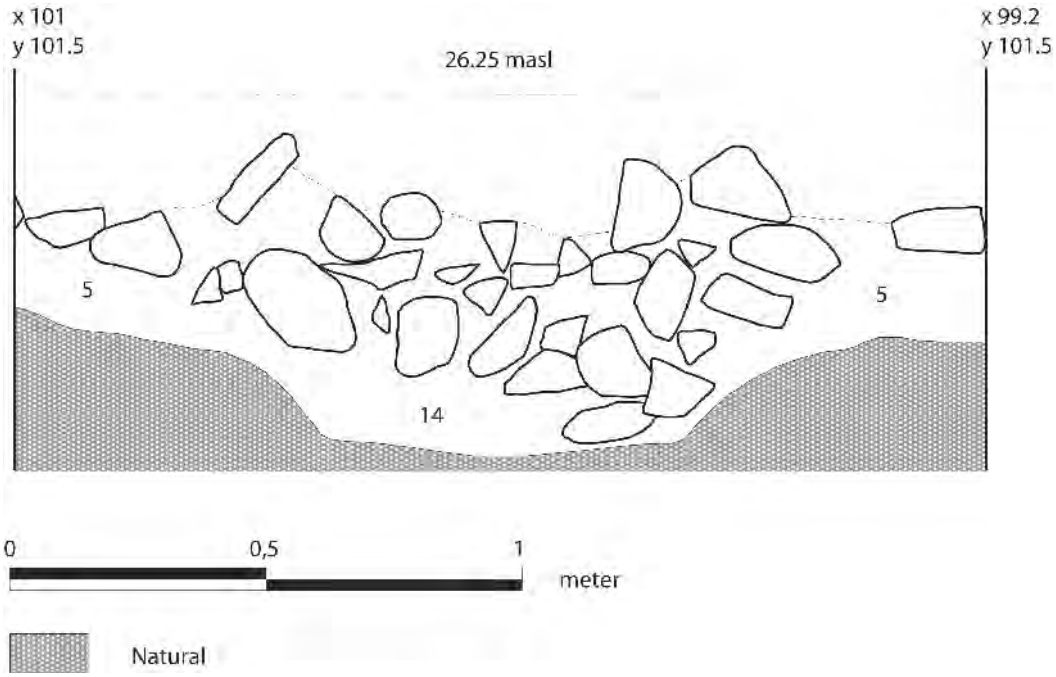
Plan of the boat grave cut. Note that the edge line represents where the grave was cut into the natural subsoil, not the Viking Period ground surface. This is because the grave's fill was indistinguishable from the culture layer through which it had been cut. Its original surface dimensions must have been somewhat greater.



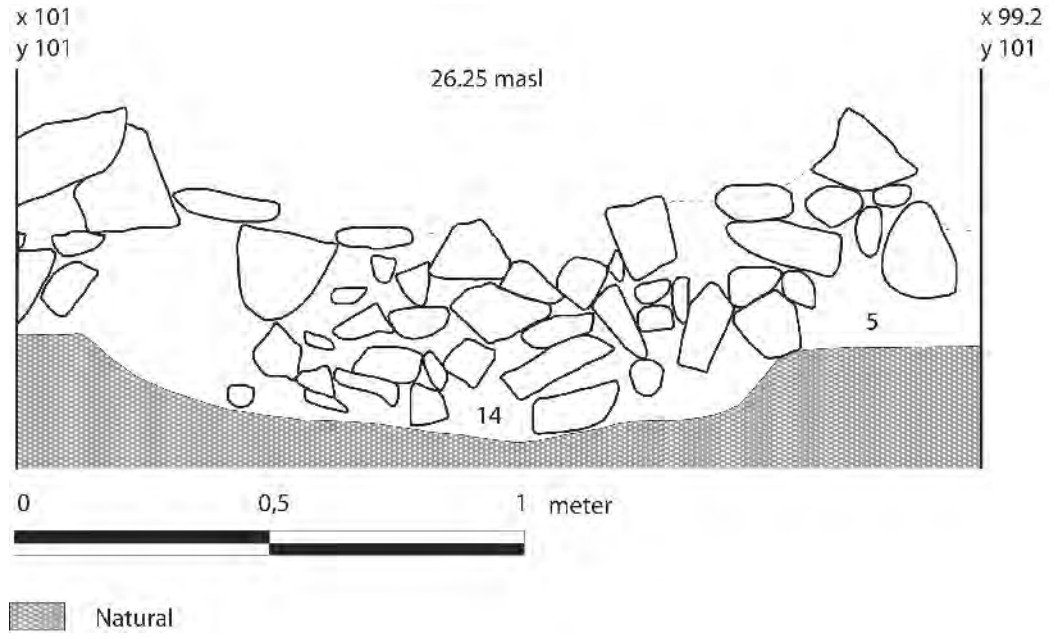
Section 1 through the boat grave cut, NE end, seen from the NE.
All sections digitised and designed by Markus Andersson.



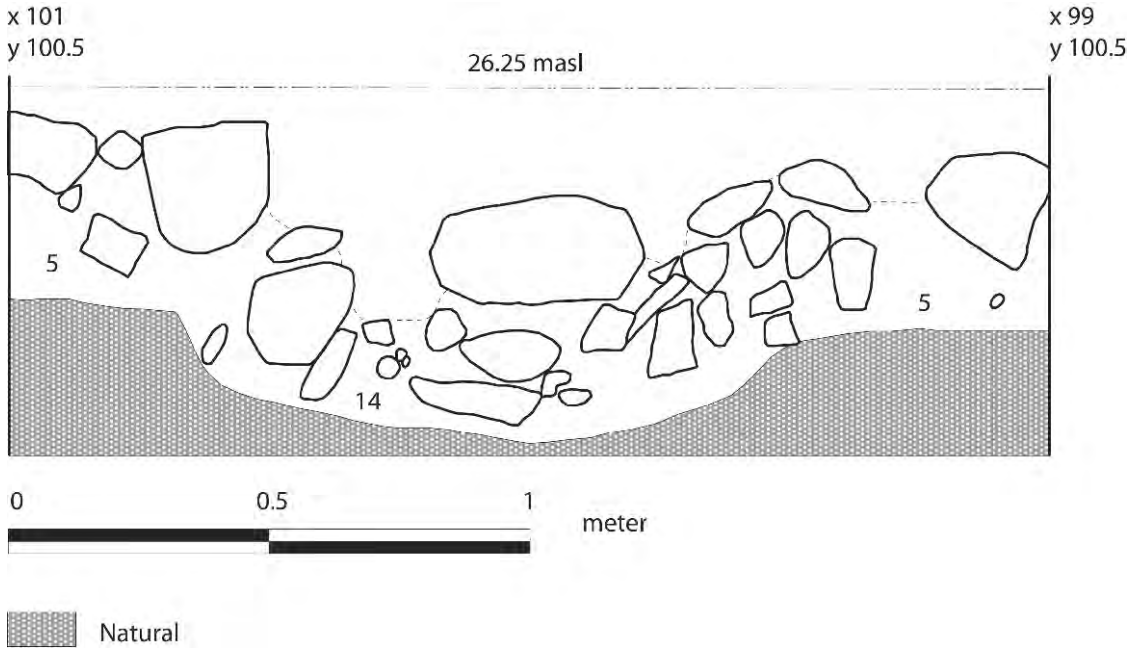
Section 2 through the boat grave cut seen from the NE.



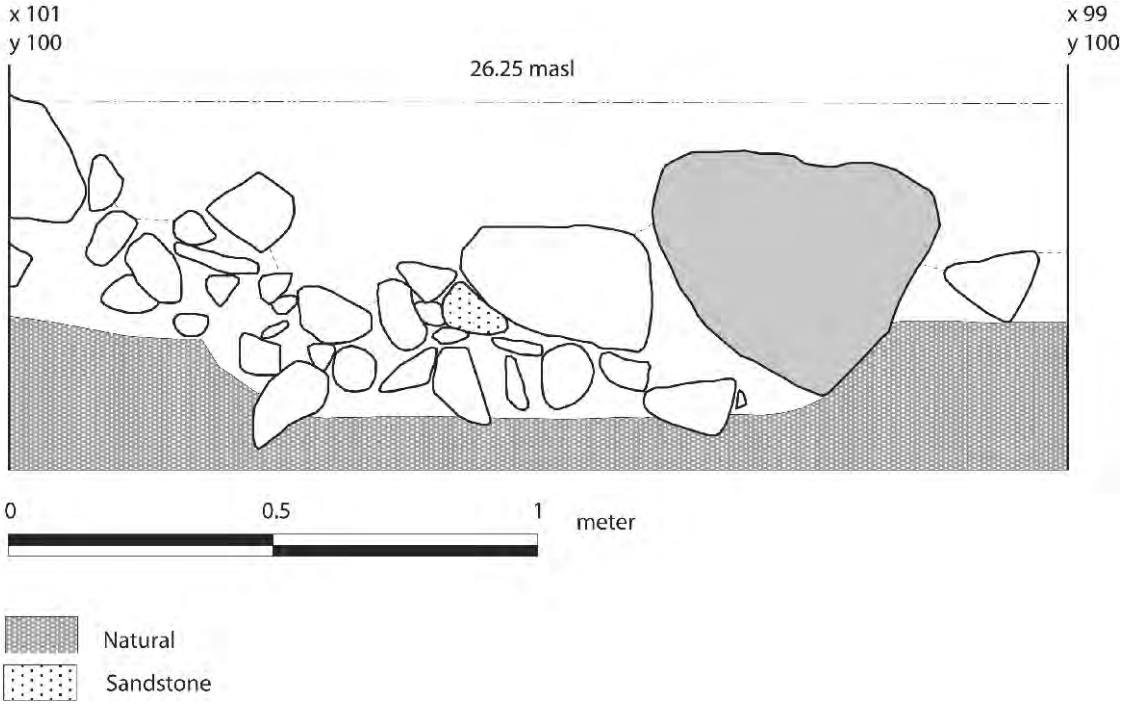
Section 3 through the boat grave cut seen from the NE.



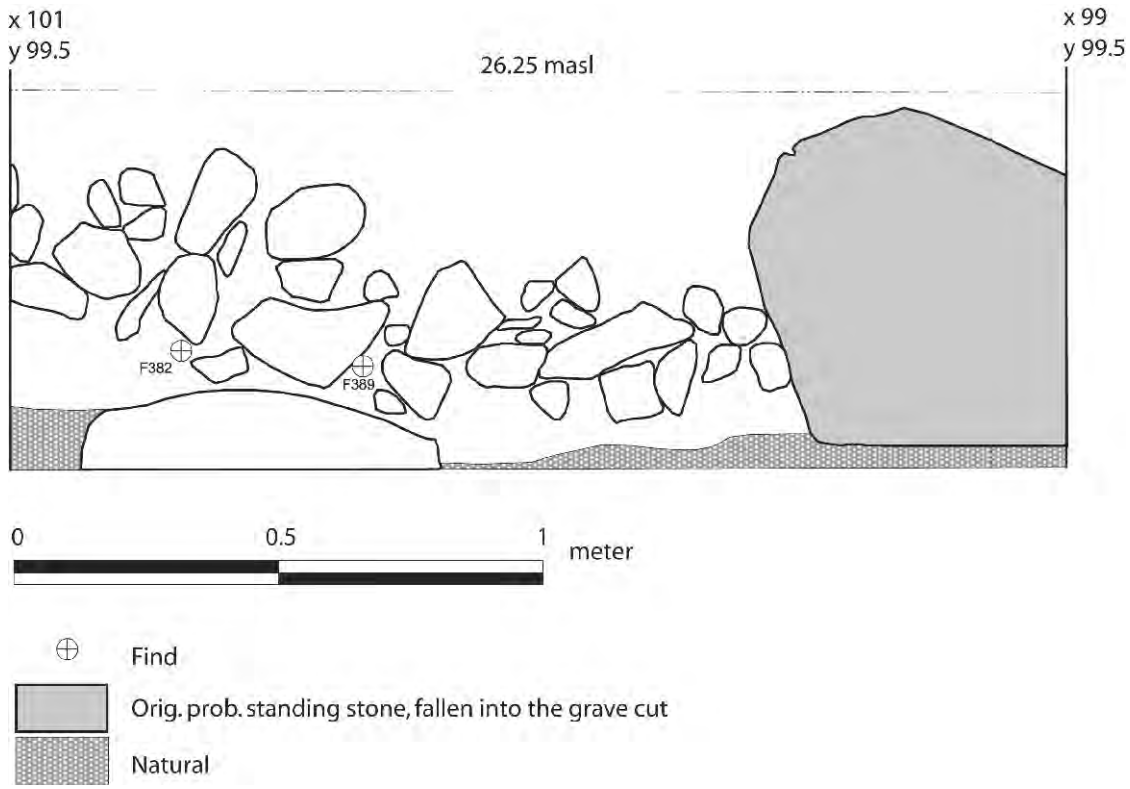
Section 4 through the boat grave cut seen from the NE.



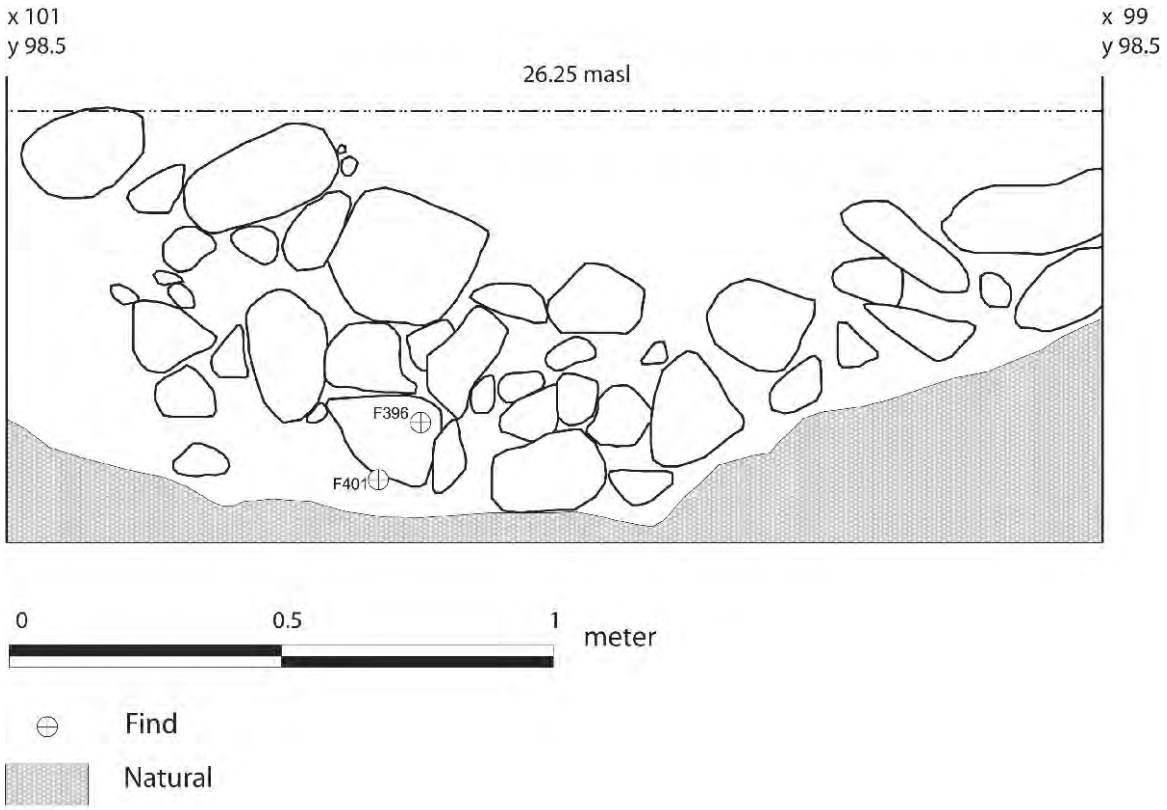
Section 5 through the boat grave cut seen from the NE.



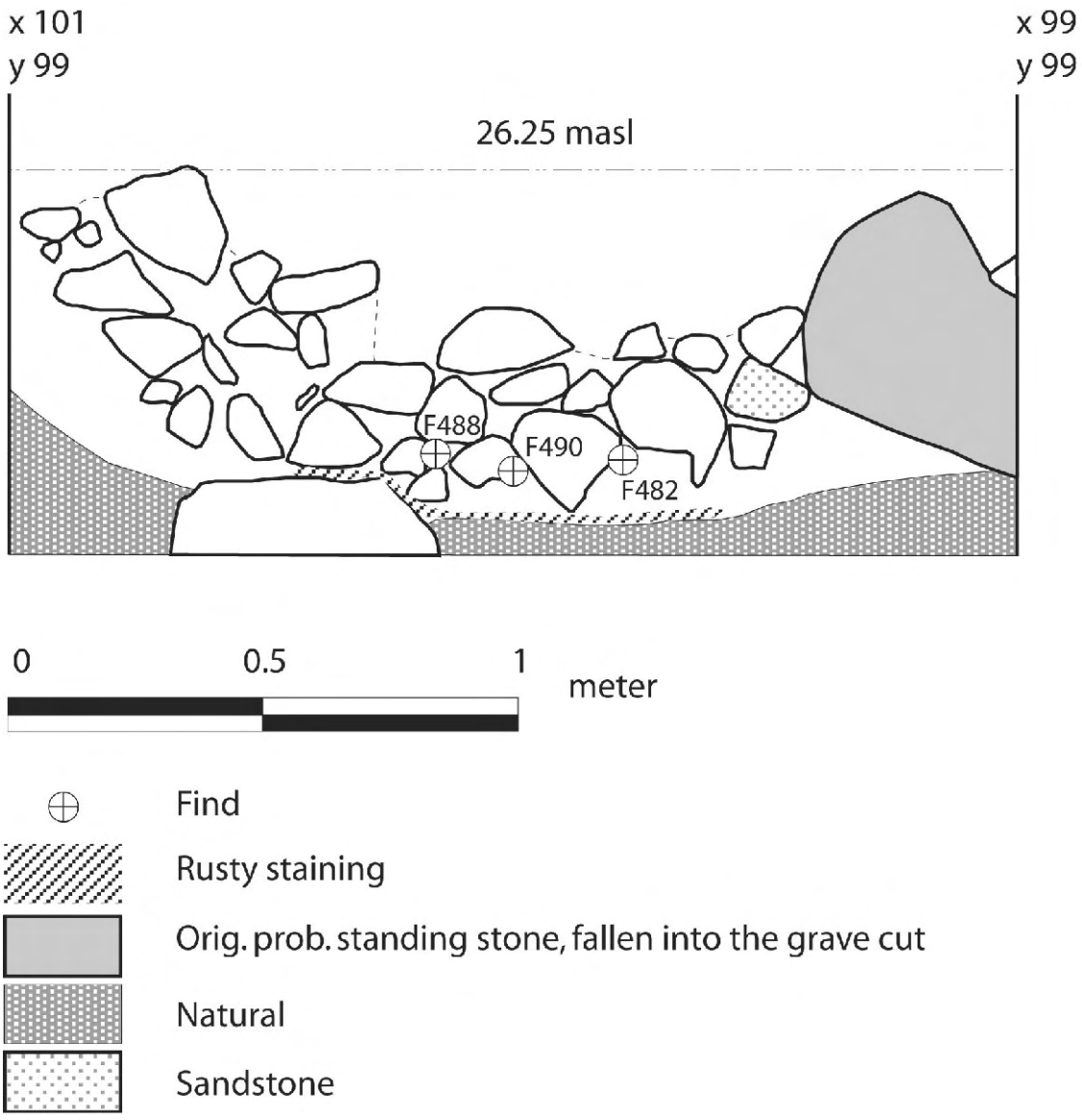
Section 6 through the boat grave cut seen from the NE. The coloured stone was a fallen orthostat.



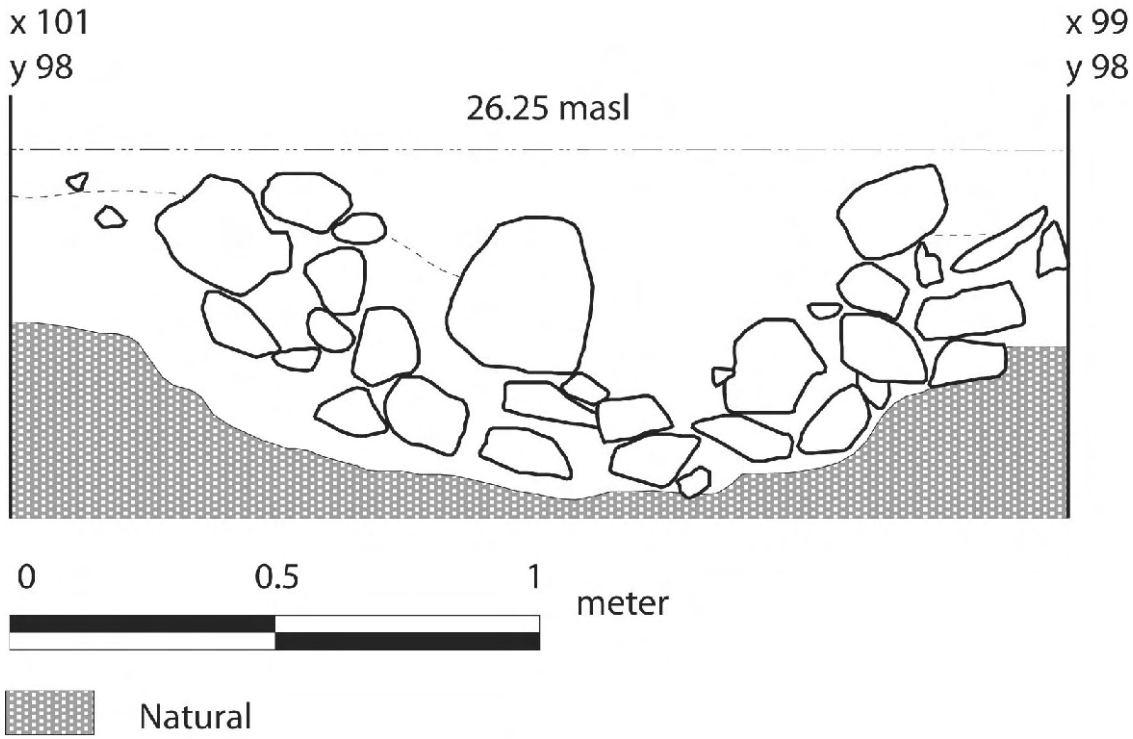
Section 7 through the boat grave cut seen from the NE. The coloured stone was a fallen orthostat.



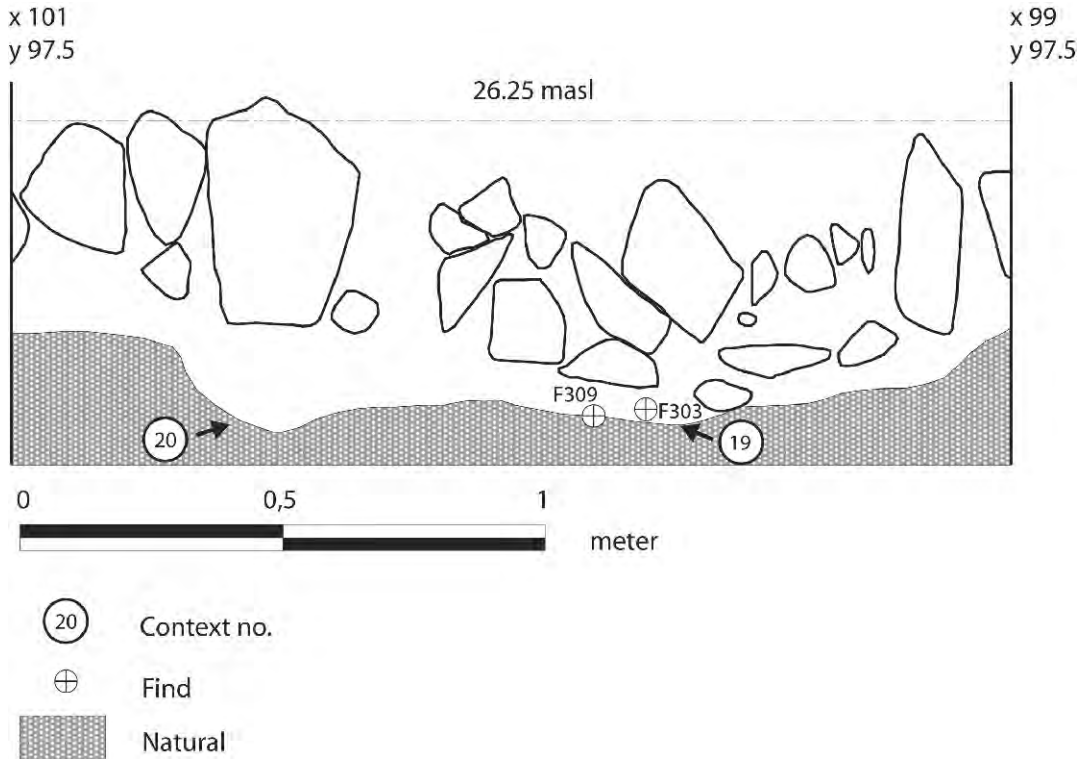
Section 9 through the boat grave cut seen from the NE.



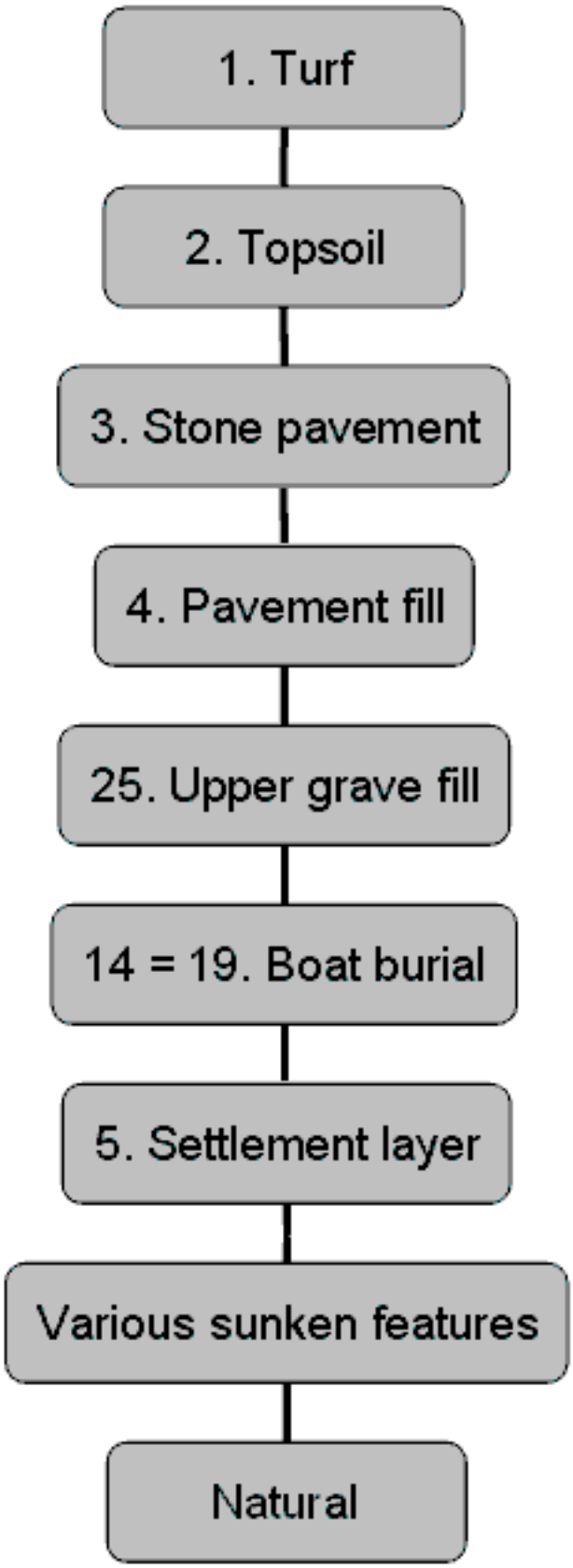
Section 8 through the boat grave cut seen from the NE. The coloured stone was a fallen orthostat.



Section 10 through the boat grave cut seen from the NE.



Section 11 through the boat grave cut, SW end, seen from the NE.



Stratigraphic matrix.

Boat grave 15 seen from the ENE on 4 July 2005, the evening before the excavations commenced.

Boat grave 15, the superstructure's NE end seen from the S during cleaning on 14 July.

The boat grave's superstructure after most of it had been cleaned, seen from the ESE on 14 July. Note the strip of turf left untouched over the central boat-shaped depression.

The stone pavement being removed, seen from the NE on 18 July.

Top: overview of the trench from a treetop to the the SE on 25 July.
Below: The central depression during cleaning from the NE on 28 July.

A section through the NE half of the central depression with yellow wooden slivers marking rusty stains remaining from clench nails. Seen from the N on 4 August.

The central depression being excavated in half-metre sections from either end, seen from the NW on 11 August.

Above the measuring rod, three amber gaming pieces *in situ* in the final section baulk of stones and fill in the central depression. Seen from the NW on 15 August.

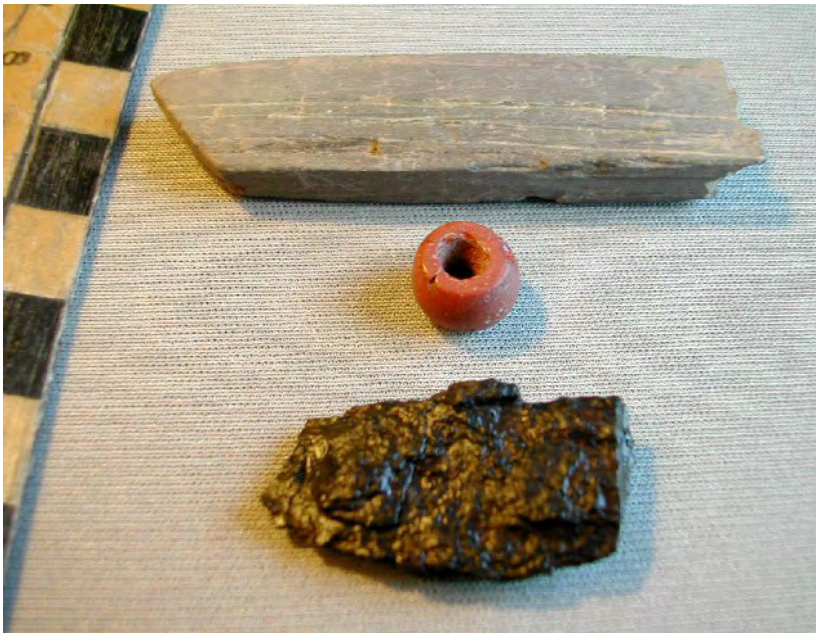
Williams and Rundkvist excavating the final section baulk on 16 August. Note the amber gaming piece exposed *in situ.*

23 amber gaming pieces, found at the centre of the boat, probably originally placed on the roof of the grave cut. Median diameter 36 mm.

Fno	Max diam (mm)	Height (mm)	H/D
382	42,7	30,0	70%
389	34,5	20,7	60%
396	35,7	22,3	62%
401	35,9	24,2	67%
434	35,7	23,4	66%
435	28,2	18,8	67%
436	35,0	23,3	67%
456	36,2	24,2	67%
458	37,2	22,4	60%
461	36,6	20,9	57%
462	36,3	24,5	67%
463	33,0	19,5	59%
468	36,3	25,3	70%
471	33,5	23,3	70%
472	36,3	24,5	67%
473	37,1	23,8	64%
474	36,9	23,9	65%
476	36,1	22,4	62%
479	33,4	24,5	73%
480	29,1	23,9	82%
482	34,3	23,9	70%
490	35,3	23,3	66%
493	39,6	24,5	62%
Median	35,9	23,8	67%

Above: horse and driving gear found in the SW half of the boat. The rings may be the remains of a small bridle bit. The hook belongs to a shaft for a sleigh or small wagon. To the right are five frostnails, only one of which is well preserved, for the horse's hooves.

Below: Slate whetstone and glass paste bead from the centre of the boat. Bottom, a piece of a knife found near the surface of the grave fill, probably a residual piece from the settlement deposit.



Above: find 491, straight and curved fragments of small iron rods, found at the centre of the boat, probably being the remains of clench nails and perhaps a simple strap buckle or box fitting. These sad pieces are in fact among the best preserved clench nails found.

Below: a small decorated silver pin of uncertain date, found near the surface of the settlement layer outside the edge of the Viking period grave superstructure.

Above: selected pieces of burnt daub with impressions of wattle from the upper fill of a daub-filled pit.

Below: cupmark stone found in the boat grave's superstructure. Most likely a re-used Bronze Age item.