

ARCHAEOLOGICAL FIELDWORK DURING THE RECONSTRUCTION OF THE VILJANDI SONG FESTIVAL GROUNDS

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INTRODUCTION

Due to reconstruction works at Viljandi song festival grounds, a series of archaeological investigations took place during the spring and summer of 2013. Archaeological supervision was carried out during several construction works necessitating soil removal, and minor archaeological excavations were carried out. Several construction remains were found at the territory designated for new buildings and for the installation of water, sewerage and electric pipelines.

Viljandi song festival grounds are located inside the heritage protection area of the old town of Viljandi.¹ The grounds are situated in a natural west-eastern transitive hollow. In the Middle Ages the area was near to the town wall and the castle of the Livonian branch of the Teutonic Order. The main gate to the castle, in its third outer bailey, was located east of the studied area, next to the current Estonian Traditional Music Centre (Fig. 1).

Previous researchers have argued that in Viljandi there have been populous suburbs outside the walled area (Arman 1965, 48). Today, there are some data about the

¹ No 27010 in the National Registry of Cultural Monuments, http://register.muinas.ee/?menuID =monument&action=view&id=27010 (15.06.2014).



Fig. 1. Location plan of the archaeological investigation area. Author's reconstruction of medieval situation drawn upon 17th century location plan.

Jn 1. Uurimisala asukohaskeem. Keskaegne situatsioon, autorite rekonstruktsioon 17. saj keskpaiga alusplaani põhjal.

Base map / Aluskaart: Eesti Maa-amet; Drawing / Joonis: Kristel Roog

suburb in front of the Tartu gate on the northern side (Haak 2006) and in front of the Riga gate on north-western side of the town (Tvauri 2000, 56), but there is no information about the situation on the south-western side of the medieval town. The only known medieval object there is St Catherine's chapel, which has been located on a small hill south of the song festival grounds (Fig. 1). These remains were found in 1907 during the establishment of the Ungern-Sternberg burial place and in 1908 the chapel brickwork was excavated (Löwis of Menar 1909). According to a found sculptured capital the chapel has been dated to the beginning of the 15th century (Tuulse 1948, 38). The chapel was demolished in 1558, as the troops of the Czardom of Muscovy approached Viliandi.

From the 18th century this region was connected to the Viljandi manor. The oldest known main building of the manor was situated in the place of St Catherine chapel, and its remains were discovered during the excavations in 1908. It was a wooden build-

ing with a so-called black kitchen located in the centre. Previous researchers have claimed that it is a building from the times of the Swedish Rule. However, it is plausible that the manor was built here after the Great Northern War (1700–1721). This hypothesis is also supported by the pieces of ceramic wall tiles with blue paintings found in the building area (Löwis of Menar 1909, 1). In 1746 the new main building of the manor was constructed into the eastern side of current Tasuja avenue close to the present Estonian Traditional Music Centre. However, the old building still existed at least in the 1780s (Hupel 1782, 322). The new main building of the Viljandi manor in the pseudo-renaissance style has been built on the northern slope of the song festival grounds in the end of the 19th century (Fig. 2).

Some archaeological supervisions have already been carried out earlier in the area of the song festival grounds and close to it mainly on the third fortification of the castle, connected to the establishment of the Estonian Traditional Music Centre and its pipeline constructions (e.g. Haak & Juurik 2007; Bernotas 2008; 2009) with one of the pipelines passing through the song festival grounds (Tvauri *et al.* 2008, fig. 1). Recent archaeological works had, however, been directly involved in the design of the song festival grounds, during which geological drilling was carried out (Bernotas 2012). So far neither construction remains nor *in situ* formed cultural layers have been found in this area during fieldwork. Based on this knowledge, we planned our fieldwork for 2013. However, during large-scale excavations it has become evident that in the past there were several buildings and storage place for burnt lime remains in this area. Despite the fact that in case of a majority of these constructions, only a small part could be investigated, and only few of these can currently be dated, they still contribute to the historical research of Viljandi town and, thus, deserve to be published.

MANOR-TIME STORAGE PLACE FOR BURNT LIME REMAINS, AND THREE STONE CONST-RUCTIONS

The found objects were mostly discovered because they were located on the site of the construction of an ancillary building for the song festival grounds and on the planned water pipeline nearby. A part of a storage place for burnt lime remains was excavated together with the remains of three stone constructions.

A heap of burnt lime remains (Fig. 2: A) consisted of lime, limestone blocks, charcoal and pebbles belonging to granite group rocks (which partially were covered by lime beds). In some carbonaterich areas a red Devonian sand line was visible. Lime contained plenty of goats'



Fig. 2. Location plan for a storage place of burnt lime (A) and remains of buildings (B–H).
Jn 2. Lubjapõletusjäätmete hunniku (A) ja ehituskonstruktsioonide (B–H) asukohaskeem.
Base map / Aluskaart: Eesti Maa-amet; mapping / kaardistus: Jekaterina Lissitsina; drawing / joonis: Kristel Roog

and cows' horns, no artefacts were found. Several limestone pieces were covered by colourful (varying from white to green) vitrified surface. The thickness of the carbonate-rich layer reached 0.7 m. The total area of the bulk of burnt lime is unknown, but it was investigated in an approximately 15×20 m area.

Two charcoal samples help us to date the lime burning time. Charcoal taken from the southern part of the bulk gave the result of 150 ± 25 BP² and charcoal collected from the northern part resulted in 178 ± 25 BP³. Datings calibration⁴ provides a very wide time range while the calibration curve within this time range has a very wide plateau and is rather unstable – corresponding to the years 1667–1950 cal AD and 1668–1950 cal AD with 95.4% probability. Taken into consideration the highest probability, the wood used for lime burning, comes from the 18th century (according to probability of 32.4% coming from 1727–1778 cal AD and 35.9% probability from 1736–1783 cal AD).

Based on the published comparative data (Benkova & Schweingruber 2004), the charcoal used for dating was also used for wood identification by nanotomograph Skyscan 2011. The sample taken from the southern part of the heap showed that wood was diffuse-porous, with pores in small radial files (2–3) and clusters, rays uniseriate with 2–30 cells height (Fig. 3). Accordingly, most probably it was a willow (*Salix*). The sample taken from the northern part of the heap showed that wood was also diffuse-porous, with pores in radial chains, rays uniseriate with 4–20 cells height. As a result, most probably it was an aspen (*Populus*).

² SPb_986.

³SPb 987.

⁴ OxCal v4.2.3. Bronk Ramsey (2013); r.5; IntCal13 atmospheric curve (Reimer et al. 2013).



Fig. 3. Cross section of willow charcoal find from the storage place of burnt lime.
Jn 3. Lubjapõletusjääkide hunnikust leitud pajust pärineva söepala läbilõige.

Photo / Foto: Alexander Kulkov

Despite the fact that the study concerned a relatively late object, probably the remains of a lime burning place built for the construction needs of the Viljandi manor, it is still an interesting industrial archaeological object that provides additional knowledge about lime burning places previously studied by archaeologists in Tartu county (Tvauri & Saimre 2007; 2009; Saimre 2009).

Typically, lime burning was carried out in the areas where the raw material, carbonate rock was available as bedrock exposure or abundant in the Quaternary sediments. From there the lime product was transported to the construction sites (Saimre 2009, 9–10). In the case of Viljandi lime was probably burnt on the construction area, because it is unlikely that lime was brought to the site without prior

clearing from the unburnt waste material. Viljandi is not situated on an area of limestone exposures and therefore three possible sources for raw material of lime production may be considered: (1) the nearest carbonate rock outcrop areas, (2) Quaternary cover sediments (including the travertine that could also be found on the slopes of the ancient Viljandi valley) or (3) appropriate construction material from the buildings destroyed during the Great Northern War (in Estonian territory 1700–1710). The nearest carbonate bedrock area, an outcrop of limestone and dolostone of the Silurian Raikküla Stage is located about 30 km north of Viljandi, in the Võhma, Navesti and Põltsamaa region (Nestor 1997, 94).

The pieces of limestone samples taken from the analysed heap of lime burning remains have a very mixed composition. Three out of the dozen best preserved segments had porous Central Estonian dolomites of the Raikküla Stage, that can be found in Järvamaa. Five segments are micritic limestones with bioclasts that can be found both in the Silurian Raikküla Stage and in the Upper Ordovician beds, distributed in northern Estonia. Three stone pieces represent bioclastic limestone that most likely come from the Upper Ordovician, one piece is a distinct algal limestone from the Upper Ordovician Moe Formation, Pirgu Stage. The nearest bedrock distribution area of such algal limestone extends from Kohila to Pandivere. One flagstone is a local bedrock, a Devonian Aruküla stage sandstone lithified with dolomitic cement. Such thin sandstone beds resembling limestone plates (which are too low quality material for lime production) can be found around entire area of Aruküla stages.

The diverse geological origin of the investigated burnt remains might refer to the fact that they were collected from Quaternary cover sediments. The glacifluvial gravels accumulated during the melting of ice of the last glaciation contain mixed rock material, which has been transported by ice from north to south all over the area of glaciation.

Most probably the limestone and dolomite rocks were collected from gravel pits close to Viljandi. Still, the probability that part of the limestone may have derived from building ruins after some massive disaster should not be excluded. It should be remembered that during the Great Northern War the city was caught in the battles with Russian troops in 1703 and 1708 (Sepp 1939, 267, 269). However, there is no further data on this. Nevertheless, it is possible to draw conclusions about the destruction extent on the basis of Viljandi castle: its main walls were still present in the 17th century, while after the Great Northern War only few parts of the walls remained.

The investigated remains of burnt lime in Viljandi probably originate from a limekiln that was located right nearby. Also, the position of lime burning remains – their location on the valley hillside – is characteristic to where burning places both in Estonia and elsewhere were often established (Saimre 2009, 18 and literature referenced therein). Depositing waste on a relatively large area is caused by the fact that after burning the mass unsuitable for further use was spread around the kiln and the area was levelled. Lime burning remains were, however, covered by Devonian sand and later by humus rich fill soil.

Partly within lime burning remains and natural Devonian sand, a stone construction was situated (Fig. 2: B). The two-part structure consisted of two parallel walls (made of granite group stones) that were divided in two by brick columns (Fig. 4). The western exterior wall of the construction was 1.2 m to 1.55 m thick. It was laid from stones with an average size of $30 \times 40 \text{ cm}$, with pieces of bricks and roofing tiles in between. Some of the tiles were brittle or had a vitrified surface, indicating that the construction was severely burnt. The eastern part of the wall could only be explored from the southern part of the building. It was stacked quite irregularly with 10 cm to 55 cm stones in diameter, between which there were a few brick pieces. The thickness of the wall reached up to 1 m. Red clay mixed with sand was used as a binder; in the northern part also lime mortar was used. From the northernmost wall until the central part (*ca.* 3 m) the inner part of the wall had traces of fire: in some places the clay had sintered.

The construction consisted of an inner porch and a chamber behind it, the wall between them was mainly made of bricks. Between these chambers there were two openings 0.75 and 0.85 m wide, located next to each other. The west side opening still preserved the fragments of a straight arch. However, it was severely sunk, therefore it was impossible for us to reconstruct the shape of the straight arch. We can only hypothesize about the straight arch in the eastbound opening (Fig. 5). The brick fragments of this straight arch were bound by clay, the upper part of which has sintered in the heat. Bricks (especially on the easternmost column and on the eastern part of the middle column) were in some places se-



Fig. 4. Stone construction viewed from above. 1 – limestone, 2 – binder, 3 – stone, 4 – brick, 5 – limestones with vitrified surface.
Jn 4. Kivikonstruktsiooni pealtvaade. 1 – lubjakivi, 2 – sideaine, 3 – kivi, 4 – tellis,

5 – glasuuristunud pinnaga kivid.

Drawing / Joonis: Evelyn Fridolin



Fig. 5. Stone construction viewed from the south. Jn 5. Vaade kivikonstruktsioonile lõunast. Photo / Foto: Jekaterina Lissitsina

verely burnt and therefore crumbled. The size of the whole bricks of the lateral columns was $31 \times 15 \times 9$ cm, the size of an average column brick was $28 \times 13 \times 7.5$ cm and the straight arch bricks estimated to $32 \times 15 \times 10$ cm. The western column was partly built into the outer wall next to it. The bricks format clearly indicates their medieval origin. Bricks had obvious traces of earlier mortar: thus, we can conclude that the stones have



Fig. 6. Cross section of spruce charcoal find from the burned wooden floor of the cellar.
Jn 6. Kivikonstruktsiooni alumisest kihist leitud kuusest pärineva sõepala läbilõige.

been used more than once.

The construction used to be at least 10 m long. The southern chamber was 2.1-2.5 m wide and 3.86 m long (the western wall was 2.2 m and the eastern 3.86 m in length) and with two anthropogenic layers inside. The upper layer was lime and under it were remnants of burnt wood (Fig. 5). In case of the determined carbon piece, early-latewood transition was gradual, rays universate with 10-15 cells high, occasionally 2-seriate rays with resin canals. Consequently, most probably it is spruce (*Picea*) (Fig. 6). From the chamber on the northern side we managed to open only the eastern outer wall; however, even then not entirely. The chamber itself was at least 5 m long.

A radiocarbon dating 5 has been made from the charcoal collected from the

Photo / Foto: Alexander Kulkov

⁵ SPb_988.

lower layer of the southern chamber, which resulted in 165 ± 25 radiocarbon years. This again, during calibration⁶, provides a very wide time range – with 95.4% probability – years 1664-1950 cal AD. According to the highest probability, the layer originates from the 18th century (with 38.3% probability from 1733-1781 cal AD) and in broad terms is similar to the date of the coal derived from lime burning remains.

The purpose of the stone construction is not unequivocally clear. The size, location and similar building elements are suitable for example to a cellar. Andres Tvauri, an experienced researcher of lime-kilns in Estonia, suggested that this construction was a part of a lime-kiln – a hearth chamber and a room from where the kiln was heated. This question, however, requires further in-depth investigation.

Northeast of the stone construction and heaps of lime burning remains **two fragments of stone walls** were excavated from the congeries of lime burning remains. The purpose of the walls and exact time of their construction are not clear; however, both the position and building method would rather link them to the period of the manor. The western wall, up to 2.75 m thick (Fig. 2: C), had a north-southern direction and was laid with large granite group stones (diameter $30-40 \times 20-30$ cm) bound with greyish lime mortar and clay and was established on the natural sandy ground. The eastern construction (Fig. 2: D) had the same direction but the stones (diameter up to 40×40 cm) were placed into a 1.45 m thick wall rather irregularly and without a binder.

OTHER CONSTRUCTION REMAINS

It is possible that one of the oldest excavated building remains was a corner of the building that could be investigated in a limited area. It was located on the west part of the study area (Fig. 2: E). A 0.6 m thick foundation was stacked from granite group stones. The wall (three rows of which had been preserved) was made of $30 \times 14 \times 8$ cm bricks. Greyish lime mortar was used as a binder. The oldest found artefact from there was a piece of stove tile⁷ with green glaze, made in the end of the 15th and the beginning of the 16th century. It was found from the construction's inner fill soil together with a fragment of glazed ceramics⁸ probably originating from the second half of the 17th century. Thus, the few discovered finds gives us an opportunity to state that the building was demolished in the second half of the 17th century or later. The finds, however, do not offer many clues about the time of constructing the building. It is only possible to speculate that if the aforementioned stove tile fragment originates from the oven that was in this building, it would mean that the brick building erected onto a foundation of granite group stones is medieval. Large-sized bricks seem to support this hypothesis, however, it is not certain that the bricks were not used secondarily in the walls of this building.

Stratigraphically, one of the oldest facilities in the area is a north-south directed wall remnant (Fig. 2: F), which was located a few metres west of the aforementioned stone construction (Fig. 2: B). The wall was built into a trench, excavated into natural Devonian sand. A 0.85 m thick wall bound with lime mortar was made of granite group stones (sized on average 20×20 cm), with pieces of bricks crammed in the joints. Lime mortar was used as a binder. During the cleaning of the wall a rim sherd of a wheel-thrown pot was found from the lime-rich debris. According to its shape, edge profile and contents of the moulding mass, the potsherd probably comes from a Northwest Russian pot originating from the late 16th and early 17th century.⁹ With a certain

⁶ OxCal v4.2.3. Bronk Ramsey (2013); r.5; IntCal13 atomspheric curve (Reimer et al. 2013).

⁷ VM 11453 A 566: 6, dating Andreas Allik (26.02.2014).

⁸ VM 11453 A 566: 5, dating Andreas Allik (26.02.2014).

⁹ VM 11453 A 566: 8, dating Andres Tvauri (14.01.2014).



Fig. 7. Multi-room building remains in the southeastern part of the investigated area.
Jn 7. Uuringuala kaguosast väljapuhastatud mitmeruumilise ehitise jäänused.
Photo / Foto: Jekaterina Lissitsina

precaution it can be assumed that this potsherd marks the time of demolition of that building and implies that this structure was established before the Russian-Livonian War (1558–1583).

From the southeastern part of the study area the remains of an at least tworoomed building were found (Fig. 2: G). The walls had been constructed on the natural sand surface, and were built of granite group stones (up to 60 cm in diameter). The northeast-southwest directed wall was 0.55 m thick, and the northwestsoutheast directed wall 0.45 m thick. In both cases grevish lime mortar was used as a binder, which also contained tiny bricks pieces. The floor (Fig. 7) made of large bricks (entire bricks sized 36×15 \times 12 cm) had been preserved next to the northeast-southwest directed wall. Bricks were stacked upon the natural sand surface. Since there are no finds from this area. we cannot make any reasonable as-

sumptions about the age of the building before the radiocarbon sample collected from a charcoal layer on the brick floor has been processed.

Also, in the south-western part of the researched area, a part of the remains of another building was cleaned on a small scale (Fig. 2: H). There it was possible to document a part of a wall in southeast-northwest direction, that was at least 0.4 m thick. The wall was made of granite group stones (sized 20×30 cm) bound with red clay containing brick dust. No datable finds were obtained.

SUMMARY

Archaeological investigations carried out during the reconstruction of Viljandi song festival grounds showed that several buildings were located in this area at different times (altogether at least four, with three more uncertain stone constructions) together with heaps of lime burning remains. So far no other lime burning heaps have been discovered in Viljandi, which makes this find absolutely unique.

However, it is very problematic to date the buildings because they were opened on a very small scale and the number of finds is scarce. It was striking throughout the archaeological excavations that during the construction of several buildings (or their parts), rather large bricks were used, which in general were used in the Middle Ages. During fieldwork it gave us a basis for a working hypothesis that a part of these buildings originate from the Middle Ages and mark a Viljandi suburb characteristic of its time. Radiocarbon datings imply that lime burning remains and one stone construction established onto them originate from the 18th century and were apparently linked to activities of the manor.

The question of the age of the discovered building remains still remains open since there are too few opportunities to date them. In relation to buildings, with ceramic sherds from the Livonian War with Northwest Russian origins and with tile fragments from the Late Middle Ages, it cannot be excluded that they were constructed in the Middle Ages either.

Acknowledgements: The archaeological investigations were funded by the Municipality of Viljandi. This article has been written with support from OÜ Arheograator, supported by a base-financed project of the Institute of History and Archaeology of the University of Tartu, 'Medieval and Modern Age urban space' and by institutional research project of Estonian Research Council 'Estonia in Circum-Baltic space: archaeology of economic, social, and cultural processes' as well as by the European Union through the Centre of Excellence in Cultural Theory in the University of Tartu. The authors also thank Andres Tvauri and Andreas Allik for helping to date the finds and for discussion, and also would like to express their gratitude to artists Evelyn Fridolin and Kristel Roog for preparing illustrations as well as to everyone who has participated in the excavations.

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ARHEOLOOGILISED VÄLITÖÖD VILJANDI LAULUVÄLJAKU EHITUSTÖÖDEL

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2013. a kevadel ja suvel toimusid arheoloogilised väliuuringud Viljandi lauluväljaku ehitustöödel. Ala paikneb looduslikus lääne–ida-sihilises vagumuses, mis keskajal külgnes linnamüüri ja linnusega ning alates 18. sajandist oli seotud Viljandi mõisaga (jn 1). Erinevatel kaevetöödel teostati järelevalvet ning avati väikeste väljakaevamistega üksikuid uusehitusele ja sellega seotud trassidele ettejäävaid objekte. Piirkonnas on paiknenud erinevatel aegadel mitmeid hooneid (kokku vähemalt neli, lisaks veel kolm ebaselge otstarbega kivikonstruktsiooni) ning lubjapõletusjääkide hunnik. Viimane on seni ainulaadne Viljandis.

Kõige ulatuslikumad uuringud toimusid uue abihoone alal ja läheduses. Seal kaevati välja osa lubjapõletusjääkide hunnikust ja kolmest kivikonstruktsioonist. Avatud osas u 15 × 20 m suurune ja kuni 0,7 m paksune lubjapõletusjääkide hunnik (jn 2: A) koosnes lubjast, lubja- ja väheste muude kivide tükkidest (millest paljud olid glasuuristunud pinnaga), sõest ja Devoni liiva läätsedest ning sisaldas ka rohkesti lehmade ja kitsede sarvi. Hunnikust kogutud paju ja haava söest (jn 3) tehtud radiosüsiniku analüüsi alusel pärinevad lubjapõletusjäätmed tõenäoliselt 18. sajandist (150±25 radiosüsiniku aastat – SPb_986 ja 178±25 radiosüsiniku aastat – SPb_987). Kümmekonnast jäätmehunnikust kogutud ning täpsemalt analüüsitud kivitükist on kolm poorsed Kesk-Eesti dolomiidid (leidub Järvamaal Raikküla lademes), viis mikriitsed bioklastidega lubjakivid (leidub nii Siluri Raikküla lademes kui ka sellest põhja pool levivates Ülem-Ordoviitsiumi kihti des), kolm bioklastilised lubjakivid (leidub Ülem-Ordoviitsiumi kihtides, lähim aluspõhjaline levila Kohilast Pandivereni) ning üks dolomiittsemendiga kivistunud Devoni Aruküla lademe liivakivi. Põletusjäätmete kirju geoloogiline päritolu võib viidata nende kogumisele pinnakatte kihtidest, tõenäoliselt linnalähedastest kruusaaukudest, kuid välistada ei saa ka võimalust, et lubjakivi on korjatud linnaterritooriumi puhastamisel Põhjasõjast jäänud rusust. Tõenäoliselt on tegemist laialiplaneeritud lubjapõletusahjuga.

Osaliselt lubjapõletusjäätmete kuhjas paiknes suur kivikonstruktsioon (jn 2: B), mis alumisest inimtekkelisest kihist võetud kuuse söe järgi (jn 6) ehitati tõenäoliselt samuti 18. sajandil (165±25 radiosüsiniku aastat – SPb_988). Kivikonstruktsioon on olnud vähemalt 10 m pikkune ja koosnenud kahest, ligi 4 m pikkusest ja 2,1–2,5 m laiusest ja vähemalt 5 m pikkusest, kambrist, mida eraldas kahe kõrvuti võlvitud avaga peamiselt sekundaarkasutatud tellistest laotud vahesein (jn 4 ja 5). Kuni 1,55 m paksused välismüürid olid laotud kuni poole meetrise läbimõõduga kividest ning seotud savi ja kohati lubimördiga. Tegemist võib olla kas keldri või lubjapõletusahju jäänustega.

Lubjapõletusjäänuste hunnikust kirdes kaevati välja kaks suurtest kividest müürikatket (jn 2: C), mille otstarve ja täpne rajamise aeg ei ole selged, kuid nii asend kui ka ehitusviis lubavad neid siduda samuti mõisaaegse ehitusetapiga.

Lisaks uuriti väikeses mahus veel nelja ehitise osi. Üks vanimatest hoonetest oli uurimisala lääneosas avatud kivist vundamendiga ja suuremõõdulistest tellistest laotud seintega hoone nurk (jn 2: E). Vanim leid hoone sees olnud täitepinnasest on 15. sajandi lõpust 16. sajandi algusest pärinev rohelise glasuuriga kahlikatke ja noorim leid 17. sajandi teisest poolest pärinev savinõu katke. Viimane võib dateerida maja lammutusaega.

Stratigraafiliselt on üks vanemaid rajatisi ka lubimördiga seotud kividest vundamendijäänus (jn 2: F), mis kaevati välja suurest kivikonstruktsioonist mõni meeter lõuna poolt. Müür oli rajatud looduslikku Devoni liiva kaevatud kraavi. Müüri puhastamisel leiti lubjasest lammutusprahist 16. sajandi lõpu või 17. sajandi alguse keraamika kild. Teatava ettevaatlikkusega võib oletada, et savinõukild markeerib hoone lammutamise aega ja hoone on rajatud enne Liivi sõda.

Uuringuala kaguosast leiti veel ühe vähemalt kaheruumilise hoone jäänused (jn 2: G). Looduslikku liivapinda rajatud kivimüüride vastas oli säilinud suurtest tellistest põrand (jn 7). Väikeses mahus puhastati välja ka ühe ehitusjäänuse osa (jn 2: H) uuringuala lõunaosas. Mõlema hoonevare dateerimiseks puuduvad aga paraku pidepunktid.