

Rapport 2009:34

Baseline study

(Settlement historical and archaeological)

PELLIVUOMA

A baseline study for an EIA for Pellivuoma mining projects. Pajala parish and municipally Province of Västerbotten, County of Norrbotten.



Norrbottens museum

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Dnr 068-2009

Technical information

County Administrative Board's Register Number:	-
County Museum of Norrbotten's Register Number:	068-2009
Assigner/financier:	Hifab Inc / Northland Resources Inc
Ancient remains number:	Newly registered: Raä 335 and Raä 336, Junosuando parish. Raä 1270, Raä 1271 and Raä 1273, Pajala parish. Known remains in the vicinity: Raä 62:1, Raä 63:1, Raä 64:1, Raä 65:1-3, Raä 66:1, Raä 67:1, Raä 72:1, Raä 75:1-2, Raä 78:1, Raä 81:1, Raä 82:1, Raä 83:1-2, Raä 84:1, Raä 85:1, Raä 87:1-2, Raä 88:1-2, Raä 89:1, Raä 90:1, Raä 91:1, Raä 92:1, Raä 93:1, Raä 94:1, Raä 96:1-3, Raä 100:2, Raä 372:1, Raä 376:1, Raä 377:1-5, Pajala parish.
Type of ancient remains:	Newly registered: Carving, medieval/historical time (1), Tar pile (2), Reindeer enclosure (2) Known remains in the vicinity: Tar piles, crofter-settlement remain, house foundations (historical time), settlement (without visible remain, i.e. prehistoric settlement), settlement pits, hearth, trapping pits, natural object/object with tradition (false rune stone), mine shaft, quarry, summer grave, site for find without context. Place for mill.
Municipality:	Pajala
Parish:	Junosuando, Pajala
Province:	Västerbotten
County:	Norrbotten
Type of assignment:	Baseline study, archaeological and settlement historical
Dating:	The newly registered remains are all from the 19th century and onwards, but the reindeer enclosure Hosiokangas has according to tradition a lineage back to the 18 th century. The first homesteads in the village of Käymäjärvi were founded in the 1860's and 1870's. The earlier known remains from the area around Käymäjärvi and in the vicinity of Pellivuoma dates back to the Stone age and onwards to present day.
Type of object:	All newly found remains will be classified as "other cultural-historical remains".
Field days and duration:	4 days (11-14 August 2009), (75 hours; 32 x 2 persons + 11 x 1 person)
Time for writing report:	5 work days, (112 work hours divided on 3 persons)
Managing of finds:	-
Project leader:	Olof Östlund
Responsible for report:	Olof Östlund
Writer of report:	Carita Eskeröd, Frida Palmbo and Olof Östlund
Field personnel:	Olof Östlund (archaeologist and project leader), Frida Palmbo (archaeologist and assist. project leader) and Carita Eskeröd (settlement antiquarian)
Referens group:	Lars Backman (archaeologist, County Museum of Norrbotten), Carina Bennerhag (archaeologist, County Museum of Norrbotten) and Jennie Sjöholm, (settlement antiquarian, County Museum of Norrbotten)
Under consultants:	-
Area of investigation:	Surveyed areas during the field work corresponds to about 3,7 km ² .
Height above sea level:	About 170-260 metres above sea level
Economic map:	28M 7a, 28M 7b, 28M 7c. 28M 8a, 28M 8b, 28M 8c, 28M 9 b, 28M9c, 28M 9d, (Economic map, the Swedish Surveying Office's digital mapping)
Documentation material:	All originals, in this case written notes and digital photos, are kept at the County Museum of Norrbotten's corresponding (acts-, picture-) archive. This applies to analogue as well as digital material.

Photo Acc number 2009:92:01-32, 2009:001-184, (216 pictures) Appendix 2

Digital documentation material: The digital basic data for decision exists in shape format in RT90 2,5 gon W. It's stored at the museum's servers. Back-up-copies are created daily by the County Council's personnel on all material that is stored on server. In the meantime recommendations for long term storage of digital archaeological material are awaited from the Swedish National Heritage Board (SNHB).

Digital software: Microsoft Office (XP), ArcPad 7.0.1, ArcGIS 9.2-9.3, Adobe PhotoShop Elements 4.0, FieldGIS,

Archaeological finds: No finds were recovered.

Photo: Digital, Acc nr 2009:92:01-32, 2009:001-184, appendix 2

Drawings: -

Photographs on front page:

Upper picture: The village of Käymäjärvi. Canal in the mire towards Ylijoki. View towards the north eastern part of the village. Acc number 2009:108:123, © County Museum of Norrbotten, Carita Eskeröd.

Lower picture: Place for the Pellivuoma deposit. Acc number 2009:92:09 © County Museum of Norrbotten, Olof Östlund

Report

Baseline study (archaeological and settlement historical)
 Pellivuoma and Käymäjärvi with their immediate vicinity
 Pajala parish and municipality
 Province of Västerbotten
 County of Norrbotten

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Introduction

Background

The County Museum of Norrbotten performed the field work part of a baseline study (a background study of the cultural environment) during the period 11-14 of August 2009 as under consultants for Hifab Envipro Miljöteknik, which in their turn was engaged by Northland Resources Inc.

The baseline study was caused by the planned mining activity at the mire named Pellivuoma, positioned south of the village Käymäjärvi and 22 km North West of Pajala. The plans encompass stretches of transport routes along existing forest motor roads that winds north towards Kaunisvaara (appendix 1:1).

The archaeological work was performed by Olof Östlund and Frida Palmbo and the settlement antiquarian work was performed by Carita Eskeröd, all are employees of the County Museum of Norrbotten. Jennie Sjöholm, settlement antiquarian at the County Museum of Norrbotten, has contributed with historical information around the mining industry.

Both the archaeological and settlement historical parts of the work has mainly encompassed archive and literature studies but also a field inventory by the areas closest to the planned mining area and the most likely places for access routes to the mining area.

The baseline study should not be confused with a special archaeological inquiry that can be demanded by the County Administrative Board. Such an inquiry could only be called for after the County Administrative Board have looked at the final environmental impact assessment (EIA) and then deemed it necessary to perform a special archaeological inquiry, this according to 11§ 2 chap. of the Cultural Heritage Act (SFS 1988:950).

Summary

The archaeological part of the baseline study resulted in the registration of 5 new other cultural-historical remains within or close to the areas that can be affected by the planned mining activity (appendix 1:3 and appendix 3).

The remains consists of 1 carving (medieval /historical time) (Raä 335, Junosuando parish), 2 chemical industries (tar piles), (Raä 335 Junosuando parish and Raä 1270, Pajala parish) and 2 reindeer enclosures, (Raä 1271 and Raä 1273, both within Pajala parish). The newly registered remains were marked out with red paper ribbon which is used to mark cultural remains in the field. All remains have been positioned with handheld computer and GPS and have also been documented in text and photography.

The County Museum of Norrbotten has chosen to survey certain parts of the suggested areas of inquiry (appendix 1:2) in order to get an insight into the cultural environment of the area in question. The museum regarded that besides archive studies, literature studies and surveying available databases it was important to get an understanding of the landscape in the area of inquiry. Both the desktop studies and the field work have been important before the background study of the cultural environment around Pellivuoma. By combining desktop studies with field work a sufficient material has been gathered to make an assessment of the cultural environment and its values in this area.

The cultural environment in the area around Käymäjärvi and the site for the planned mine in Pellivuoma shows that the area has been used continuously from pre-history to historical times. Remains in the form of non-context finds, settlement pits and prehistoric settlements bare witness that the area has been attractive for mankind for a long time. Tar piles, charcoal stacks and house foundations tell of forestry and that the area of immediate interest lies within Muonio sami village contributes to the possibility of encountering remains of reindeer husbandry.

The settlement antiquarian results from the baseline study can be summed up like this: There is today one road that leads to the village of Käymäjärvi which is built in the 1930's. The modern stretch of the road coincides in large parts with the original road to the village but with a much straighter stretch without regard to the topography. Within the area there is a smaller road network which follows the features of the landscape and leads to land which were important for the inhabitant's survival.

The agricultural landscape consists of (in Norrbotten) traditionally used grounds such as hay-making mires and shore pastures (appendix 1:8).

The settlement has a long tradition from forest Sami's camp grounds, kenttä-sites to villages and the society of today. Within the structure of the village the buildings take form of farm-houses and outhouses (i.e. sheds for animals) placed according to the traditional system in Norrbotten. The village has from its establishment in the 1800's continuously evolved and buildings typical for each period have been erected. Outside the village structure there are hunting cabins and remains of crofter settlements, hay barns, a flood irrigation pond with belonging canal, and a log-driving channel with a dam belonging to it. These expressions and structures are important to take care of in order to protect the identity of the district.

Aim

The aim of the baseline study is to decide in which way the cultural environment is affected by the planned mining activity. The purpose of the cultural environment management is to protect and to care for our cultural environment. The term cultural environment means environments that mirror our history and that tell us of human activity. Whole environments and historical connections are just as important as individual ancient remains or buildings. The visible cultural landscape can consist of for example settlement environments, ownership structures, old road networks, vegetation patterns, enclosures and visible ancient remains. Adding to this there are further traces of the past, for example ancient remains that is fully or partly concealed under ground.

The field inventory aimed mainly to survey the areas closest to the planned mining area and the most likely areas for planned access routes to the earlier mentioned area (appendix 1:1-1:2). The field inventory was intended to focus on finding and/or visiting places of cultural-historical interest. During the desktop study of the areas of inquiry and during the four days of field work there would be done an assessment of which ancient environments and which settlement environments there is and could be in the area. Included in this work was also an assessment with focus on presenting what is valuable in each environment.

If new ancient remains and/or cultural-historical remains would be found during the field work these would be documented in text and photography. All new remains that the archaeologists registered was documented through positioning with handheld computer/GPS and descriptions according to the Swedish National Heritage Board's (SNHB) form for registration in the ancient remains register (FMIS). The course of action used for describing ancient remains follows the criteria that SNHB has established and used during ancient remains inventory, these criteria can be found in this written document: *Informationssystemet för fornminnen – lista med lämningstyper och antikvarisk praxis*.

The baseline study is meant to provide an increased knowledge of the area around Pellivuoma which is important for Northland Resources Inc's future planning as well as for future decisions from the County Administrative Board.

Direction

With starting point in the topography and the ancient remains in the area the assessment before the actual field work was that it was likely to find remains from reindeer husbandry and forestry within the suggested areas (appendix 1:1-1:2), but the County Museum of

Norrbotten also estimated that other settlement remains could occur within the area of inquiry.

After a detailed map study of the area the Museum suggested two main areas where the field work would take place, this suggestion were made according to the map material supplied by Northland Resources Inc. before the assignment started. The two areas are; the area around the village of Käymäjärvi and the area around Pellivuoma/Muotkavuoma (appendix 1:2). When Northland Resources pointed out the northern access route as the most probable to Kaunisvaara this stretch of road also were taken into account during the field work. The areas lie so close that they can be affected by Northland Resources' plans for ore mining. The County Museum of Norrbotten chose areas to visit during the baseline study with starting point in topography, soil classes, vegetation and other natural conditions. These indicate where there is most likely to find ancient remains and cultural remains. If one were to boil it down you can say it like this; even, dry sand grounds with a proximity to fresh water gives greater possibilities to find remains from human activity than in areas with rough, wet, steep and rocky grounds.

The settlement historical archive material regarding the area of inquiry was scarce. Through telephone interviews in combination with the archive material we successfully managed to establish a background before the visit on site. The purpose with the visit in the area was to investigate if there are visible and readable traces of the historical development in the area in the form of cultural environment-systems, separate objects, places and so forth that are sensitive to possible effects from a possible exploitation.

Prerequisites of the Area

Topography and natural landscape

The northern part of Pajala municipality is generally speaking dominated by the river valleys of the rivers Torne and Muonio. The river Torne runs from west to east through Junosuando and then onwards through Pajala and Kengis, while the river Muonio forms the border towards Finland in the east and north. Between the rivers is a flat and moraine covered primary rock plain. In this plains-landscape there are widespread wetlands mainly on levels between 170 and 220 metres above sea level. The plain is only disturbed by occasional heights that in several cases reaches heights of about 300 metres above sea level (Algotsson & Sturk 1991:27).

The river Torne has two great tributaries, the Lainio River and Muonio River; each has a larger water volume than the main course. When the Torne River joins with the Lainio and the Muonio Rivers the river Torne turns in both cases in an almost right angle so that it follows the direction of its tributaries. It is clear that the Torne River runs into its tributaries and not the other way around. This phenomenon is interpreted as that the tributary rivers once constituted the original river courses, where Muonio River sometimes is regarded as the main course of the whole river system. The Muonio River's course was also the first to be free from the glacial ice, followed by the Lainio River and finally the course of Torne River (Saarnisto 1991:33).

The area for the planned mining activity lies south of the village of Käymäjärvi at the mire Pellivuoma and to be exact; Muotkavuoma which is the south eastern part of the same mire. The baseline study focused during the field work mainly on the areas closest to Pellivuoma and Käymäjärvi, but also on the stretch of road towards the village of Kaunisvaara. The area around Pellivuoma lies about 20 km north west of Pajala (appendix 1:1 and 1:2).

In the great river valleys in the south and east there are sediment soils (sand and different kinds of silt) that have been deposited by the sea during the end of the ice age and, after the rise of the land, by the rivers. In the vicinity of Pellivuoma there are glacial river sediment situated at Käymäjoki, in the form of a boulder-ridge about 4,5 km downstream from Käymäjärvi. Besides this the soils consists of equal parts of moraine ground and wetland. Yet the stretch of the forest motor road towards Kaunisvaara leads into another area with

glacier river sediment rich in sand around Kaunisjoki on the north western side of Ahvenvuoma. The heath landscape lies about 9 km east of Käymäjärvi and 3-5 km west of the village of Kaunisvaara (appendix 1:6).

The lake Käymäjärvi lies like in a cauldron between mountains in the north east and south west. The part of the village Käymäjärvi that lies north of the lake lies in a south west slope that has good conditions for settlement and cultivation (appendix 1:1-1:2).

When it comes to the vegetation it consists to most parts of coniferous forest rich in moss and herbs and wetlands around Pellivuoma and Käymäjärvi. There is also dryer areas where lichen rich coniferous forest grows, mainly on the top and the south slope of the mountain Lompolovaara west of Käymäjärvi. The same types of forest exist also in the heaths around Kaunisjoki, north west of Ahvenvuoma, where the earlier mentioned forest motor road stretches (appendix 1:1).

History and ancient remains environment

The Swedish National Heritage Board (SNHB) has performed ancient remains inventory in the area of current interest in 1992, during this inventory several remains were registered, however not within the area of inquiry. Remains have mainly been discovered on each side of the Torne River. Along the river stretch there were registered remains in the form of cooking pits, hearths, settlement banks, settlement pits, trapping pits, a Sami cot, prehistoric settlements with finds of among others stone material in quarts, quartzite and green-stone, burnt clay, clay pipes, fire-cracked rock and burnt bone. To that there is a multitude of other cultural-historical remains in the same area: tar piles, house foundations, mill, wood industry, ancient road and remains of crofter-settlement (appendix 1:4).

When regarding the area with focus on the ancient remains the area around Käymäjärvi is also attractive. The lake that lies within a cauldron between two mountains, the fine south slope and the running water in Käymäjoki has throughout the ages made the place interesting (appendix 1:1-1:2). According to a local, a movement to and from Parkalompolo has taken place "already before the village existed" via the mires and the lake system which Käymäjärvi is a part of. A prerequisite for Sami remains exists therefore and there are also several finds without context in the village that has the character of stone age-objects (see below).

Ancient conditions

During the Stone Age and the Bronze Age the climate was much warmer than it is today (even if the green house-effect effectively is changing that). During the summer months, when the sun was up almost round the clock, the conditions was very good for establishing and creating a good life in this region around the rivers, sea coves and the lakes. The winters weren't as cold as during the Iron Age and the so called "small ice age" during the 1600's. If the sea was close enough there was the possibility of collecting food both from the sea and the inland lakes. Aside from this the land living fauna was a valuable resource for food.

When the sea level stood at its maximum for about 10 500 years ago (Lindén 2006:12) or possibly some centuries earlier (see Palmbo & Östlund 2009), the highest coast line stood at a level of about 165 metres above modern sea level. A sea cove lay about 9 km east of Käymäjärvi and another sea cove lay about 6 km to the south east of the now planned mining area at Pellivuoma (appendix 1:4). Käymäjoki and the lake Käymäjärvi lie relatively close to the highest coast line and the lake would be the first one an eventual visitor would arrive to if they travelled along Käymäjoki from the cove in the south east. The lake is also the first a traveller would see if he or she travelled up along the river Torne in more recent days.

Accordingly there are possibilities for settlements dating all the way back to the time for melting and withdrawing of the inland ice in the area. This also applies to the sand grounds at the other sea cove, east of Käymäjoki. There around Kaunisjoki's outlet in the prehistoric sea cove are very fine sand areas and there are also stone age settlements registered

there (appendix 1:4 and see A, appendix 1:6). There are also good settlement locations along the road that leads up to Käymjärvi, at Käymäjoki (see B, appendix 1:6).

With consideration to the fast elevation of the land of about 8 metres per century (Lindén 2006:12) these conditions didn't last long due to the vanishing of the sea coves by the rise of the land. Within a century or two the good settlement locations are placed at lakes or water courses that today in some cases is transformed into wetland.

The water in the form of sea, lakes or water courses has played a huge role in deciding where people have settled. Along the road that stretches from the Torne River to the north west, towards Käymjärvi, there are remains consisting of house foundations (historical time), tar piles, trapping pits, settlement pits and a hearth (appendix 1:4), but these remains has no connection to the road what so ever. In most cases (the hearth may be the only exception) it is the water course of Käymäjoki and the sand grounds around it that has decided where these cultural remains and ancient remains have been placed.

Previously known ancient remains

There are several settlement banks registered downstream Käymäjoki, close to the Torne River and about 13-15 km south east of Käymjärvi (appendix 1:4). Settlement banks are the same as hut beds or remains of buildings and in the Torne valley these most commonly date to the transition between the late Stone Age and early Bronze Age. Two of the settlement banks (Raä 178 and 183, Pajala parish, appendix 1:5) we will return to under the headline *Research history* because they are scientifically examined, i.e. excavated by archaeologist. The two settlement banks are part of a complex cultural environment around Erkheikki/Juhonpieti on both sides of the Torne River. This area is spotted with remains from pre-history with for instance settlement banks, settlement pits and cooking pits that stretches chronologically into historical times with Sami remains and well-preserved agriculture villages both when it comes to village structure as well as the collection of buildings.

The ancient remains environment shows that humans lived in the area for several thousand years ago. The prehistoric settlements shows finds of fire-cracked rock, remains from the manufacture of tools and burnt bone from among other moose and beaver. A find of a casting mould for a bronze axe of clearly eastern influence gives us evidence that casting of bronze occurred in the area. The two villages of Erkheikki and Juhonpieti is very interesting from a cultural-historical point of view because of the fact that their settlement and village structure is distinctively separate from other villages in this region. In the area there is also the hay-making mire of Vasikkavuoma, south of the Torne River, where hay is still made using scythes. The villagers gathered timber, coal and tar from the forest which tar piles and charcoal stacks bear witness to (Burman 1998).

Around the lake Käymjärvi and the village with the same name, which was founded in the first half of the 19th century, there are registered several remains: there is tar piles (Raä 88:1-2, Pajala parish), a pit of unclear characteristics (Raä 94:1, Pajala parish), site of find for fragment of North-bothnic tool made of green-stone (Raä 92:1, Pajala parish), site of find of slate chisel (Raä 93:1, Pajala parish), mine shaft (Raä 96:1, Pajala parish) and finally a "false" rune stone (Raä 90:1, Pajala parish), the so called Vinsa-stone. Upstream of the water course of Ylijoki, (tributary to Käymjärvi) there is remains of a mill (Raä 91:1:1, Pajala parish), an iron ore quarry (Raä 89, Pajala parish) (according to tradition about 200 years old) and two settlement pits (Raä 87:1-2, Pajala parish) (appendix 1:4-1:5).

At the forest motor road that stretches north towards Kaunisjoki there is a reindeer enclosure marked out on the economical map (Hosiokangas) (appendix 1:1 and 1:3). This was however not registered in the ancient remains register and therefore the County Museum of Norrbotten registered it during the field work (appendix 3). At Hosiokangas' western end, towards Käymäjoki there is four house foundations from historical time (Raä 372, 377:1, 377:4-5, Pajala parish) and two tar piles (Raä 377:2-3, Pajala parish) registered (appendix 1:4-1:5). In the area around the possible access route that leads north, in the heaths north west of Ahvenvuoma, there are registered a number of ancient remains and cultural remains: At Kaunisjoki there is three tar piles (Raä 81 and Raä 65:1-2, Pajala parish), a house foundation from historical time (Raä 65:3, Pajala parish), a stone age settlement (Raä 63,

Pajala parish), and a trapping pit (Raä 78, Pajala parish). Yet further upstream Kaunisjoki there are more tar piles (Raä 75:1-2, Pajala parish) and a trapping pit (Raä 64, Pajala parish) (appendix 1:4-1:5).

Close to the road that winds east towards Kaunisvaara, in the same area, there is a prehistoric settlement (Raä 72, Pajala parish) and a settlement pit (Raä 62, Pajala parish). About 500 metres north of the same road there is a tar pile (Raä 66, Pajala parish), and a 1000 metres north of the road is two more settlement pits (Raä 83:1-2, Pajala parish), a prehistoric settlement (Raä 82, Pajala parish), and a hearth (Raä 67, Pajala parish) (appendix 1:4-1:5).

There is also a site for finds in the village of Sahavaara, 13 km to the east of Käymäjärvi where 2 North-bothnic tools has been recovered (appendix 1:4).

In the Torne valley there are also remains and loose finds that show of contacts to the east, which isn't that surprising. The water network to the land areas to the east of the Baltic Sea was excellent for travel. Some finds and influences could have its origin from very distant places. Not so far from Käymäjoki's outlet in the Torne River there is registered a loose find (find without context) (Raä 31, Pajala parish, see appendix 1:5) one half of a casting mould for a bronze axe of Ananino-type. This particular type belongs to the period 400-200 B.C. The Ananino-axes have got their name from a grave field and a culture at the Volga River's upper stretch in Russia (Algotsson 1994).

Research history

The economical map sections that encompass the planned Pellivuoma mine and the sections in the immediate vicinity were surveyed by the SNHB during the ancient remains inventory in 1992. During this inventory the remains described earlier were found. In this section we mainly focus on what has been done in the area that is limited by the Torne River in the south, the Muonio River in the east and north and the Lainio River in the west.

In 2004 the County Museum of Norrbotten performed an archaeological excavation barely 20 km to the north west of Käymäjärvi, to north of the village of Kangos. The prehistoric settlement excavated then (Raä 22, Junosuando parish) proved to be the oldest dated site in the whole County of Norrbotten, almost 10 000 years old (Östlund 2004) (appendix 1:5). During the inquiries issued by Northland Resources Inc in the summer of 2009, two prehistoric settlements were however found that were older than the earlier mentioned settlement. These were found at the village of Aareavaara at the Muonio River and were more than 11 000 years old (Palmbo & Östlund script 2009).

The County Museum of Norrbotten did in 2006 a directed inventory in the areas around Kaunisvaara, Pajala and Täreändö where the aim was to search for Norrbotten's oldest settlements; this inventory was a part of the project "*Between ice and sea*". At this occasion no prehistoric settlements were found in the immediate vicinity of the area of inquiry, however one prehistoric settlement were found at Kaunisjoki more than 20 km to east. The aim was mainly to visit already known settlements and gather burnt bone for C¹⁴-dating, the dating was to be done on settlements that could be suspected to be about 10 000 years old. None of the three prehistoric settlements that were dated at Kaunisjoki (Raä 452:1, Raä 1267 and Raä 456:1, Pajala parish, see appendix 1:5) reached that age though. Raä 452 was about 3000 years old, Raä 1267 was about 5000 years old and Raä 456 was about 1300 years old (Östlund 2006).

Two of the settlement banks north of the Torne River at Käymäjoki are excavated and dated with the C¹⁴-method: Raä 183, Pajala parish, at Joenrantamaa is about 4150 years old and Raä 178, Pajala parish, at Käymäniemi is about 3900 years old (Sturk 2002) (appendix 1:5). South of the Torne River are also a number of settlement banks of which several are excavated in 1993 and dated to about the same ages. The dates varies between 3390 and 4240 years of age. Found during these excavations were among others burnt bone from beaver and moose, fire-cracked stone, remains of tool manufacture in quarts, quartzite and something that is labeled as "other mineral" (Algotsson 1994).

In a cultural environment plan for Pajala municipality established in 1991 there are short descriptions of the cultural environment in the villages Käymäjärvi and Kaunisvaara. Beside the remains mentioned earlier, the authors mentions the false "rune stone" under the headline "History", the so called Vinsa-stone, positioned at Käymäjärvi and mentioned so early as in the 1600's. The stone is however a formation formed by nature. Under the headline *Pre-history* of Kaunisvaara it is said that the mountains Kaunisvaara and Sahavaara are regarded as likely origins for the raw material used for the manufacture of the green-stone tools that are found in the Torne valley which dates back to the Stone Age (Algotsson & Sturk 1991:105ff).

Within the area of inquiry there are no published sources for any settlement inventories. The village of Käymäjärvi with a circumference of 89 hectares is registered in the County Administrative Board's preservation program for agricultural landscapes, "Vårt hävdade Norrbotten, Program för bevarande av odlingslandskapets natur- och kulturmiljövärden i Norrbottens län", as preservation class II. In the cultural environment plan (*Kulturmiljövärdsplan för Pajala kommun 1991*) it is mentioned that a settlement inventory is needed in Käymäjärvi and that great precaution and care should be shown the old Sami settlements and reindeer enclosures within the Sami village of Muonio. It is especially implied that even if there is no visible remains the kenttä-sites should be preserved and in as great extent as possible be spared from modern exploitation (Algotsson & Sturk 1991:105). The kenttä-sites is important in understanding the Torne valley's cultural landscape. Käymäjärvi is regarded in inquiry "Skogslandets skatter, Kulturhistorisk utredning för Pajala kommun, Norrbottens län" (Bergman & Nabrink 1984) as an asset for the tourist industry.

Starting points of the baseline study

The work was performed according to the work plan established by the County Museum of Norrbotten (Nbm dnr 068-2009, dated 2009-02-24).

Method and execution

The study is divided into two different focuses: The first focus is the archive review that looks at the cultural landscape north of the Torne River and around Pajala as a whole. The review of the archives should be a background to the interpretation of the cultural environment in the vicinity of the planned mine. The other focus is the actual field work that is limited to the area around the planned mine. The areas that has been included in the field work is the areas in the south west, south, south east, east and north east of the mire of Pellivuoma (or more accurate Muotkavuoma), the area around the settlement at the village Käymäjärvi, and the possible access route north towards Kaunisvaara (appendix 1:1 and 1:3).

The study over the area's cultural environment in the form of settlement and archaeological remains was initially performed as archive and literature studies and as a review of existing databases. In these has a review of the current ancient remains register, a survey of map material, historical sources and other archive material concerning the area from the museum's topographical archive been included. The historical map material that the Swedish Surveying office have over the area is limited and consists only of a general staff's map from 1890 (appendix 1:7).

The field inventory was mainly directed at the areas closest to the planned mining area and the most likely places for planned access routes to the same area (appendix 1:1 and 1:3). After reviewing the County Museum of Norrbotten's work plan Northland Resources Inc decided that it was the northern alternative for an access route that was of immediate interest.

The field inventory focused on finding and/or visiting places of cultural-historical value seen from a settlement antiquarian and archaeological point of view. The inventory was

directed to specific types of areas which by experience are known to hold cultural-historical remains and ancient remains. This was done with starting point in an assessment of the topography of the landscape and geographical location in relation to the natural resources that historically has been important. This refers to fresh water, dry land, sand grounds where rain water doesn't gather, good prerequisites for hunting and fishing or sand slopes suitable for building tar piles (appendix 1:6). During the archaeological part of the inventory interesting areas were visited on foot in order to perform an ocular survey around Pellivuoma and Muotkavuoma as well as in the areas around Käymäjärvi (appendix 1:3). A soil probe was used in order to decide whether remains were created by humans or natural. No excavations were performed. Information from the local population in the villages of Kaunisvaara, Käymäjärvi and Anttis was also investigated.

The settlement antiquarian inventory was mainly concentrated to the village of Käymäjärvi and to the agricultural landscape and access routes in connection with the village (appendix 1:8). The locations were surveyed ocular both with car and on foot and were documented in text and photograph. Short telephone-interviews were the first step before visit on site as well as spontaneous interviews during the actual visit on location in the village. All persons interviewed were all born or lives in the village of Käymäjärvi.

The access route is intended for transport of the ore and will stretch along forest motor roads north towards the village of Kaunisvaara. These will probably be widened and as a consequence we travelled these by car. Parts of the grounds in connection with the road were also surveyed on foot (appendix 1:1 and area 12-16, appendix 1:3).

The County Administrative Board has been informed about the work on the study and has also been notified of the results from the field work. The report will also be sent to the County Administrative Board for their knowledge about the work.

Efforts and observations in the field were documented in text and in photograph. All new remains were registered, positioned with handheld computer/GPS and marked out with red paper ribbon that is used to mark cultural remains in the field. Photographs were taken in digital format. The new remains were registered according to the Swedish National Heritage Board's (SNHB) form for registration in the ancient remains register (FMIS) and in accordance with the SNHB's criteria for this. A digital material for decision making was created in ArcGIS for Northland Resources Inc's and the County Administrative Board's future planning. All original documents, in this case written notes and digital photographs, are kept in the County Museum of Norrbotten's archive and picture archive.

Results

Settlement environment

The area around the village of Käymäjärvi is an environment that historically has been favourable for forest Sami, for Kenttä-sites (a term for permanent fishing places) and for settlement. The life conditions and economic systems have existed from the conditions given by nature and the world around that the inhabitants had contact with. In modern day the village is characterised by the modern society but with a clear historical heritage and preserved small-scale character. The largest cultural-historical meaning is the whole picture which consists of the road network, the agricultural landscape and the settlement pattern (appendix 1:8).

The northern transport route should not be placed in connection with the existing bridge and the log-driving canal where the Lompolovaara road crosses the water course of Käymäjoki. A transport route should be drawn with a good marginal around this location. In this area there should also be a more thorough investigation of an old mill site and a log-driving canal (appendix 1:7 A and 1:9) At Kaunisjoki (appendix 1:5, Raä 65:3, Pajala parish) there should be shown great care to existing settlement and settlement remains when these possibly constitute a place for a crown croft and a tar-boiling cabin from the last decades of the 1800's. At an alternative drawing of a transport route great care should be

shown at Välipirrtti (appendix 1:5, Raä 376:1, Pajala parish) where remains from crofter-settlement and hunting lodges exist today. At a widening of the planned northern access route there is a risk of damaging the reindeer enclosure that lies close to the road at Hosio-kangas (appendix 1:5, Raä 1273, Pajala parish). Besides this there are no other hindrances along the planned northern access route for widening or reinforcing of the road from a settlement-historical point of view.

An access route should not be drawn through the village due to the fact that the settlement as well as the hay-making grounds is sensitive for change with their proximity to the current road. Care should be shown to agricultural landscape that consists of shore grazing-grounds, hay-making mires and hay barns on among others Kaitavuoma, Takajänkkä, Torajärvi but also Vierikkövuoma and Hosiovuoma (appendix 1:2). At a possible exploitation it is important to care for the small-scale settlement pattern (appendix 1:10). If the entrepreneur encounters settlement remains during the building process that isn't mentioned in this report the entrepreneur should contact antiquarian expertise before taking any further measures (see further in the chapter Cultural-historical interpretation and recommendations - settlement and appendixes 1:8-1:10).

Archaeology

In the archaeological part of the field work the proposed areas of inquiry has been generally surveyed with an ocular investigation (appendix 1:1 and 1:3). However a good oversight has been received on the four days in the field on which conditions that nature and topography gives for the possibilities of finding ancient remains and cultural remains in the area around Pellivuoma and Käymjärvi.

Newly registered remains

Raä 335, Junosuando parish, consists of a chemical industry in the form of a tar pile that lies south of Isokovikko, close the mire of Pellivuoma (appendix 1:3 and appendix 3). The tar pile has been registered as "other cultural-historical remain".



Nbm acc number 2009:92:05 © The County Museum of Norrbotten. Raä 335, Junosuando parish. Tar pile located at the forest motor road towards Lompolovuoma. Frida Palmbo in the picture. Photo taken from the north. Photographer: Olof Östlund.

Raä 336, Junosuando parish, consists of a carving in a tree and has been registered as carving medieval/historical time and has received the status of "other cultural-historical remain". The carving is located to the south of Isokovikko, close to the mire of Pellivuoma (appendix 1:3 and appendix 3). The carving consists of a cross chopped into a damage in the tree and is on its way to grow over by the growing bark. Due to this the carving is considered to be older than 50 years.



Nbm acc number 2009:92:01 © The County Museum of Norrbotten. Raä 336, Junosuando parish. Close-up on the carving in the tree. Photo taken from the east. Photographer: Olof Östlund.

Raä 1270, Pajala parish, is a tar pile located in the north eastern part of the village of Käymäjärvi (appendix 1:3 and appendix 3). The remain was registered after a tip from the local villagers in Käymäjärvi and has got the status of "other cultural-historical remain".



Nbm acc number 2009:92:20 © The County Museum of Norrbotten. Raä 1270, Pajala parish. Tar pile in the north eastern part of the village of Käymäjärvi. Frida Palmbo in the picture.

Photo taken from the north east. Photographer: Olof Östlund.

Raä 1271, Pajala parish, consists of a reindeer enclosure and has been registered with the status of "other cultural-historical remain" (appendix 1:3 and appendix 3). The reindeer enclosure lies relatively close to the mires of Pellivuoma-Muotkavuoma. The reindeer enclosure is, according to the locals, called Paskarova's reindeer enclosure, which in Swedish means the Shit-heath's reindeer enclosure. The remain is located south of Pellivuoma along a forest motor road that stretches north from Anttis. According to the locals the enclosure was used after the second world war during the 1940's and 1950's. The reindeer enclosure on Paskarova (Raä 1271) could be in danger if the gravel road up to it is to be widened or used intensively.

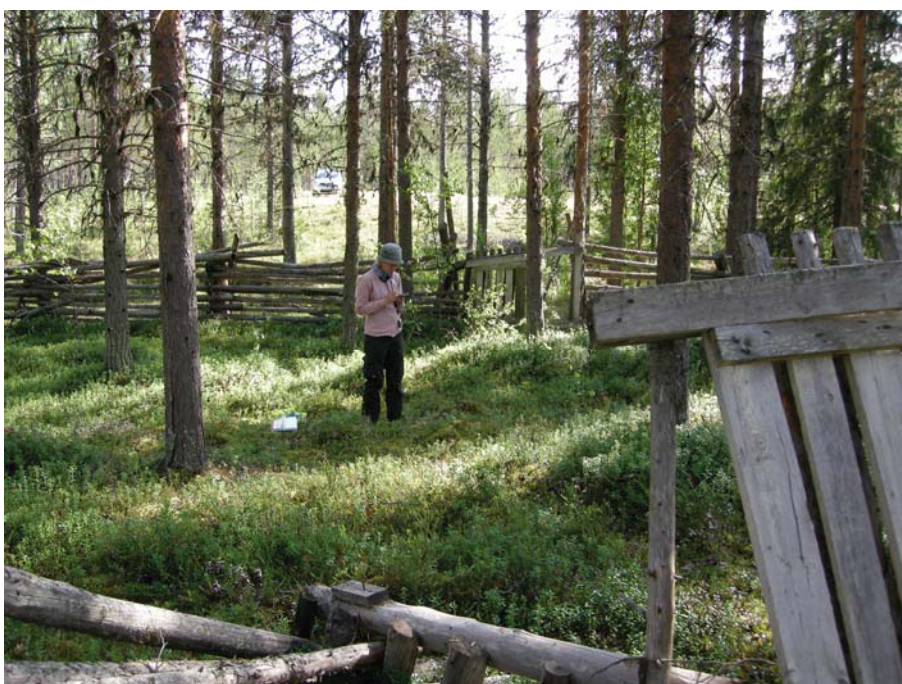


Nbm acc number 2009:92:11 © The County Museum of Norrbotten. Raä 1271, Pajala parish. Reindeer enclosure at Paskarova. Remains of a fence. Photo taken from the east. Photographer: Olof Östlund.

Raä 1273, Pajala parish, consists also of a reindeer enclosure and has been registered as an "other cultural-historical remain" (appendix 1:3 and appendix 3). This enclosure is also relatively close to the mires of Pellivuoma-Muotkavuoma. According to information gathered from the locals the enclosure is called for Hosiokangas' reindeer enclosure, due to that it is placed on the heath Hosiokangas. According to information from the Sami village Muonio the enclosure was built in 1933 and fell out of use in 1972-1973. The reindeer enclosure has however its roots in the 18th century and has been rebuilt several times in the same place. There should also have been a Sami cot in the area that has been localised close to the two streams Vittikkoja or Aittamanoja that both lies north of the Hosiokangas' reindeer enclosure. The enclosure is a so called log enclosure, i.e. constructed by logs and has besides this also two side stalls/offices and catching arms. It is likely that there are remains from older reindeer husbandry in the area. Raä 1273 can be harmed by the possible expansion of the access route to the north.



Nbm acc number 2009:92:16 © The County Museum of Norrbotten. Raä 1273, Pajala parish. Reindeer enclosure at Hosiokangas at the forest motor road between Käymäjärvi and Kaunisvaara. Photo taken from the south-south east. Photographer: Olof Östlund.



Nbm acc number 2009:92:18 © The County Museum of Norrbotten. Raä 1273, Pajala parish. Reindeer enclosure at Hosiokangas. Frida Palmbo stands in a side stall (so called office) and documents the remain in a handheld computer. Photo taken from north-north east. Photographer: Olof Östlund.

The other known remains are mentioned under the headline *History and ancient remains environment*, see above.

According to information from the locals it should have been a Sami camp ground immediately to the north east of the village of Käymäjärvi, south of the mountain of Käymävaara. The information was received after the field work was finished which meant that the site couldn't be visited. As a consequence the Sami camp ground couldn't either be registered in the ancient remains register.

An assessment of the areas archaeological potential

The land around the planned mine at Pellivuoma doesn't leave good chances of finding ancient remains, neither does the areas east of the ore deposit and to the north east of Muotkavuoma. These areas consist of rocky moraine and boulder hewn moraine. The vegetation is very moist and lush with a thick ground vegetation of berry sprigs, with exception for the top of the mountain where it is thinner ground vegetation in the form of lichen and sprigs.

There is however an area to the south and south west of the ore deposit that gives some better odds of finding ancient remains. That is area 5 (appendix 1:3), there the land can be described as sandy ridges that stretches from north west to south east, with wetter areas in between them. The vegetation consists of pine forest and berry sprigs. These areas could be more suitable for finding prehistoric settlements or hearths, but during ocular survey with additional help of a soil probe no remains were found here.

At Pellivuoma's north eastern side, below the mountain Lompolovaara there are occurring areas better suited for ancient settlement, i.e. dryer locations where there are prerequisites for hearths and settlements. Among these there are singularly excellent locations where dry heights formed headlands jutting out into the mire, but nothing were found during the ocular survey (appendix 1:1).

According to the economical map from 1969 there is an older road with approximately the same stretch as today's Lompolovaara road. The old road however went north when it came west of the Vinsa mountain and on to Käymäjärvi (where it now is a path, appendix 1:8), instead of crossing the Käymäjoki 2 km east of Käymäjärvi. The modern road is straightened in order to function as a forest motor road, but the old one can still be seen as an open passage between the trees. The new forest motor road runs through land that is wetter and more inhospitable, with dense birch thicket in the area between Isokoivikko and Muotkamaa (appendix 1:1). In these grounds the possibility of finding any ancient remains is very small.

On Muotkamaa there is a flat slope towards Käymäjoki in the north (appendix 1:1), but the undergrowth in this pine forest is thick with berry sprigs and moss. Machine tracks from forest motors shows that the ground consists of rocky moraine. Further to the east there is a height with a steep side down towards Käymäjoki. The height is made up of a boulder-ridge that is severed by Käymäjoki and then it continues to the south east on the other side of the watercourse.

Better settlement locations exist on the other side of the watercourse where there are more sand areas in direct connection with the boulder-ridge (area 10, appendix 1:3). The modern road to Käymäjoki lies however on the ridge on the east side of Käymäjoki. Besides this there are also gravel pits on the ridge up to the road. The area is heavily affected by human influence in later times and the County Museum of Norrbotten couldn't find any ancient remains on the ridge during the field work.

Something that however has an archaeological potential is the area south of the ridge in area 10 (appendix 1:3), from Hosiokangas in the east to Käymäjoki in the west (appendix 1:3). At Käymäjoki there are already registered remains, since earlier surveys, a house foundation at the croft Välipirtti and there are also four house foundations and two tar piles further to the south at the confluence of Käymäjoki and Lompolojoki (appendix 1:1 and 1:4). The confluence of the two watercourses and the fine sand ground to the west of them is highly suitable for settlement both in prehistory and later times.

The County Museum of Norrbotten chose however to first and foremost focus on the fine sand area between the reindeer enclosure on Hosiokangas and the Käymäjärvi road, along side the forest motor road that possibly can be the access route north towards Kaunisvaara (area 12, appendix 1:3). According to information from the locals the whole area to north east of Käymäjärvi and down to Hosiokangas' reindeer enclosure a good reindeer grazing grounds. During the field work about 40 metres on each side of the forest motor road were surveyed, but no remains were found except Hosiokangas' reindeer enclosure (appendix 1:3 and appendix 3). To the north of the reindeer enclosure the ground quickly gets a consistency of rocky moraine and slopes down towards a watercourse. Yet further north of the reindeer enclosure there are several more ridges, but because of the most likely influence will occur closest to the road the ocular survey was concentrated to the immediate vicinity of the road. The grounds around the rest of the stretch north towards Kaunisvaara consist to large parts of rocky moraine and it's only when you get closer to the sand heaths west of Ahvenvuoma that there are good conditions of finding ancient remains (appendix 1:1).

The areas to west and to the north of Ahvenvuoma are the areas that have the largest archaeological potential. However it is a very large area and only a part of these heath lands were surveyed along the stretch of the road at Ahvenvuoma (area 13-16, appendix 1:3). Nothing of archaeological interest was however recovered during the field work. There is since earlier a prehistoric settlement known and registered on the heath lands (Raä 63:1, Pajala parish), a house foundation from historical times, three tar piles (Raä 81:1 and Raä 65:1-3, Pajala parish), and a trapping pit (Raä 78:1, Pajala parish) (appendix 1:5).

According to information from locals all of the heath lands to the north of the mire Ahvenvuoma are good reindeer grazing grounds. The area to the north east of Kaunisjoki and to the west of Kaunisvaara are heaths with good winter grazing (appendix 1:1).

It is very likely that there are more ancient remains and cultural remains in the area. However, only parts of the stretch of the road south of the watercourse of Kaunisjoki have been subjected to ocular survey. When the planned stretch of road is decided for, the future stretch should be subject to a special archaeological survey. The heath is very large and there are several ridges with depressions in between them. The meandering Kaunisjoki contributes also to the potential of finding Stone Age-settlements and remains from older reindeer husbandry in the area.

Characteristics of the present settlement history in the area of inquiry

The settlement-historical cultural environment can be divided into three characteristics (appendix 1:8). These are the road network (marked with blue colour on appendix 1:7 – 1:10), the agricultural landscape (marked with green colour on appendix 1:7-1:10) and the settlement pattern (marked with red colour on appendix 1:7-1:10).

Road network

The road that leads to the village of Käymäjärvi is a road with long straights connected with sharp turns. The road is wide with sturdy ditches. It winds through the forest, across hills and along side mires and in the vicinity of Käymäjärvi it stretches across mires. Smaller gravel roads diverts in various directions from this larger one. The smaller roads generally follow the topography of the landscape, i.e. along ridges and avoiding mires. This layout indicates that these are of an older road network. The smaller roads, even those are partly ditched, leads to Kursuvaara, Kursunniskanmaa (north east of the village of Käymäjärvi) and Lompolovaara (west of the village). Overgrown roads, more accurately described as paths, leads from Käymäjärvi to Käymävaara, Alanen Sammalvuoma and Torajärvi (east and to the north east of the village), via Kaitavuoma towards Ylinen Sammalvuoma (north

of the village), towards Lompolojärvi and finally towards Muotkavuoma (south of the village) (appendix 1:2 and 1:8).

In the village of Käymäjärvi the road narrows down somewhat and is asphalted. The road winds around the lake and at the road's end on the south side there is a gravel road that continues along the Vinsa Mountain where the area is deforested. This gravel road leads south towards Muotkavuoma and along Käymäjoki on to the Lompolovaara road. The smaller gravel road and the Lompolovaara road meet at the watercourse of Käymäjoki. Over the watercourse stretches a ramp bridge of concrete. At this location there are remnants of a log-driving channel and a dam in relation to the bridge. The channel is built of cast concrete with levers in iron. Upstream there is a concentration of natural rock, possibly an old mill site (appendix 1:2 and 1:7, A).

The forest consists mostly of pine with elements of birch and spruce and is to large parts shaped by modern, rational forestry. The topography is uneven with dry sand hills and moist boggy land.



Nbm acc number 2009:108:025 © The County Museum of Norrbotten. AK-road towards Käymäjärvi. Photographer: Carita Eskeröd.

Agricultural landscape

The open ground in the form of hay-making grounds and grazing grounds is concentrated to the village of Käymäjärvi and is characterised of small scale, open ditches and hay-making mires. When you get closer to the village the landscape opens up towards the lake and the whole area is sheltered by the mountains of Käymävaara and Vinsa (appendix 1:2). The village's common land consists of small areas in the immediate vicinity of the settlement. The common land is like the settlement itself divided on both sides of the road and stretches all the way down to the water. The land is drained by ditches, other clear boundaries doesn't exist. The only stone fence in the village follows a short stretch of the road on the north eastern side of the lake. On the south west side of the lake the meadows are mainly located down at the lake while the settlement is higher up in the terrain. The forest in this area is partly cleared. Today are only a few of the farms permanently inhabited and the ground is today fallow field. The meadows within the village structure are still being cut but the actual harvest isn't always taken care of.

Outside the actual village structure there are hay-making grounds and hay-making mires (appendix 1:8), but the forest is steadily reclaiming these open areas. Along the road that leads to the village within the area of inquiry there are two places with land asserted since earlier. These are located at the fork of the road at Kursunniskanmaa on the left (west) side of the road and about 0,5 km before you reach the village on the right side of the road (appendix 1:8, meadows). The first one mentioned is densely overgrown while the latter one is an open meadow where the grass has been cut. The latter meadow borders to areas of land that has been overgrown. In the edge of the forest there is a cabin with one room and storage. In the eastern edge of the village there are hay-making grounds with two hay barns, these meadows are also being reclaimed by among other birch and osier and the ground is covered with bushes.

Some distance to the north of the village there are earlier asserted meadows and the mire called Takajänkkä. Takajänkkä and the meadows are separated by a decayed fence of which only parts remain. At the northern tip of the lake there is a path that leads to Kaitavuoma, which is a hay-making mire with hay barns (appendix 1:2 and 1:8). Kaitavuoma is not easily accessed but according to an existing sign for the nature reserve Tervavuoma there are hay barns and hay-drying racks on the mire. According to the economical map from 1968 there are 10 hay barns on Kaitavuoma.

Where the road bends around the lake in the north west there are wetlands at Ylijoki, with two canals reused as drainage of the mires – they were originally constructed as part of a flood irrigation pond (Bergman & Nabrink 1984:28) – out to Käymjärvi lake (appendix 1:2). Upstream Ylijoki there are, according to an earlier inventory, the remains of a mill in the form of foundation stones, a timber construction in the form of a dam trench and a foundation for a timber cabin (appendix 1:5, Raä 91:1, Pajala parish). It is reported that during the 1950's there were only stones there and no building (oral account 2009).



Nbm acc number 2009:108:030 © The County Museum of Norrbotten. Hay-making grounds at the south eastern part of the village of Käymjärvi. Photographer: Carita Eskeröd.

Settlement pattern

Scattered settlement

The settlement and the agricultural landscape along the road before arriving to the village of Käymäjärvi is located at fork of the road 99 towards Käymäjärvi, at Pilkkasaajo and along the smaller roads (appendix 1:1). At Pilkkasaajo there is a farm-house and a barn-house from the middle of the 20th century on the north side of the road. South of the road lies smaller storage-houses and a garage. Somewhat further along the road lies a vacation house.

At the crossroads of Kursuvaara the planned northern access route leads onward to Kaunisvaara. To the south west in the same crossroads the road leads towards Välipirtti (area 11, appendix 1:2). On that site there are crofter-settlement remains consisting of house foundation as well as scattered remains of farm buildings and so on. The house foundations consists according to an earlier inventory of natural stone, remains from a fireplace wall in the middle, remains from brick and cement and several stones from foundations of smaller farm buildings (appendix 1:5, Raä 376:1, Pajala parish). In recent days there are no visible remains of these foundations. The croft is called Välipirtti according to the economical map from 1968. According to an oral account the croft and its buildings was still used in the 1950's as a hunting lodge. The Välipirtti of today consists of three modern hunting lodges from the latter part of the 1900's up to the watercourse of Käymäjoki.

At Torajärvi, which lies north east of the village of Käymäjärvi (appendix 1:2) and mentioned in 1879 (Swedish Surveying Office. 25-PAJ-42:27. *Enligt Förslag till skattläggning och områdestilldelning 1879*), there are according to an earlier inventory the remains of a crofter-settlement in a clearing covered with herbvegetation. The remains would consist of two foundations for houses and a privy as well as remains after a dam-embankment constructed of soil, stone and timber (appendix 1:5, Raä 100:2, Pajala parish).

Along the northern access route towards Kaunisvaara and along the road that stretches from Anttis towards Pellivuoma there are occasional hunting lodges and elk towers (appendix 1:1). The hunting lodges lies in groups of 2-4 with storage buildings constructed in timber. The most of the lodges are modern, from the second half of the 20th century. At the watercourse of Kaunisjoki (appendix 1:5, Raä 65:3, Pajala parish, foundation for house, historical time) there are both younger and older lodges. These are a modern lodge, a privy, two barns constructed in timber and an older lodge constructed in timber with carvings that says R.I.M 1897 and 1931, 1914 and 1961. Around the lodges and down towards the watercourse of Kaunisjoki there are meadows. According to an earlier inventory there are remains of a 4x3 metres large foundation for a tar-boiling cabin at the site.

A reindeer enclosure (Raä 1273, Pajala parish) lies along the northern access route, Hosio-kangas, and one along the southern access route at Paskarova (Raä 1271, Pajala parish) that leads from Anttis to Pellivuoma (appendix 1:3). A few hay barns are located on meadows in the vicinity of the village and on hay-making mires.



Nbm acc number 2009:108:016 © The County Museum of Norrbotten. Hunting lodges from late 1800's (possible crown-croft) to the middle of the 1900's at the watercourse of Kaunisjoki. Photographer: Carita Eskeröd.

Gathered settlement

The settlement in Käymjärvi is to large parts concentrated to each side of road that runs through the village. Only a few farms are located further up in the slopes on each side of the lake of Käymjärvi. On the north east side of the lake the farms are placed either to the right or left of the road. On the south west side the road stretches through the older farms which means that farm buildings and related farm-house can lie on separate sides of the road. Later farms are built concentrated to either side of the road. On the south west side of the lake there is also an older cabin with one room, a storage house and a separate privy. Up to these buildings there is also a cairn, possibly from a demolished building. Several buildings are placed where the flat rock is visible. Within the village structure there are also tar piles (appendix 1:10).

The settlement consists of a system of several houses, originally a farm-house (i.e. residential house) with farm buildings of different functions. This structure is preserved into this day to large parts. The farm-groups consist of one or two farm-houses with the farm buildings placed so that the farmyard takes the form of four, three or two rows of houses. Sauna, minor log-cabin (in Swedish: *härbre*, which is a small building primarily used as food storage), summer-time cow barn and hay barns are all placed outside the farm-group. The meadows lies immediately up to the farms on each side of the road (appendix 1:10). The settlement is mixed from different periods as well as from different activities, for example there is a sawmill, bus garage and a school.

Settlement from late 1800's to early 1900's

The older buildings are characterised by their oblong shapes and their saddle roofs. They usually have a timbered frame and are in most cases dressed with panel painted in red with white corner planks and white fittings around doors and windows. There are a few exceptions from this type of building that are not painted red. There is one farm-house along the road and one farm-house further up in the woods behind the school that doesn't have panel; these might have been painted with tar. There are also singular panel-dressed houses painted with oil paint. The roofs are clad with sheet metal but on several houses the shingle roof is intact under the metal. The different buildings lies most often placed with the farm-

house farthest from the road and parallel with it and the farm buildings closer to the road. On the south west side of the lake the road winds through the farm-groups which results that the buildings lie close to the road and on each side of it.

The farm-houses consist generally of a "pöрте" (the room with fireplace) with a different number of small rooms. The farm buildings outside of the actual farm-group are summer-time cow barns of timbered construction, hay barns, the sauna and minor log cabins (*härbre*) with both straight and vase-shaped, curved walls as well as minor log cabins (*härbre*) with long side-timber that's jutting out.



*Nbm acc number 2009:108:117 © The County Museum of Norrbotten. View from the road over the agricultural landscape and an older farm-group in the village of Käymäjärvi. To the left are farm buildings, in the middle a farm-house, farthest to the right a minor log cabin (*härbre*). Photographer: Carita Eskeröd.*

Settlement from the 1930's to the 1950's

During the 20th century several plots of land were parcelled from the original farms. The parcelled plots of lands lie in connection with older plot of land. Farm-houses erected during this time are characterised by a rectangular design and a furnished attic. They are dressed with wooden panels, painted in light oil paints and have metal sheeted saddle roofs. Some of these farm-houses replaced older ones (oral account 2009). Older farm buildings still exist together with farm buildings built in connection with the new farm-houses. The buildings are still placed around a farmyard.

Other buildings that also belong to this period are the sawmill, the wood yard and the bus garage. A long farm building adapted for a rationalised farm-activity based on machine work belongs to one of the oldest farms in the village. The school is a large building located far up in the village structure, the school is no longer in use. Before the school-building was built the education was carried on in different residential houses (oral account 2009).



Nbm acc number 2009:108:083 © The County Museum of Norrbotten. Farm-group in the village of Käymäjärvi, residential house from the 1940's and an older farm building. Photographer: Carita Eskeröd.

Vacation houses

Vacation houses, erected from the 1960's and onwards, are gathered in clusters both on shore-grazing grounds and further up in the slopes on both sides of the lake Käymäjärvi. These buildings are characterised by a low structure, most often only one floor. They are painted in bright colours. The vacation houses lies gathered within the settlement pattern and among themselves gathered as clusters.



Nbm acc number 2009:108:065 © The County Museum of Norrbotten. Cluster of vacation houses on shore-grazing grounds. Photographer: Carita Eskeröd.

Historical retrospect

Despite centuries of forestry and reindeer husbandry have changed biotopes and left cultural traces it is the agriculture and its introduction that has left the largest imprint and formed the landscape we see today. When the people of Norrbotten became farmers we don't know for certain.

At the middle of the 16th century there should have existed a resident and well organised region structure with large farmsteads at the coastal areas and along the rivers, the forested part of the region was colonised later. The period from the middle of the 16th century to the middle of the 18th saw only a small increase of the population. The number of new farmsteads was small and the few farms that were established were placed in the vicinity of the already existing villages. From the 1750's and onwards there occurs an increase in population growth which in connection with the increasing industrialisation created a foundation for a widespread colonisation. The distribution-reforms concerning the land distribution during the 18th and 19th centuries aimed to concentrate and rationalise the agriculture didn't have the revolutionizing effect in the county of Norrbotten as they did in other parts of the country.

During the 1600's the state started to interest itself for the inland in Norrbotten, especially for large areas of forest. The establishment of tax-homesteads was encouraged by the state for the reason of securing access to a work force at the newly discovered mines and for transports of the ore. The state had also military reasons for this as well as a wish to reach these areas with missionaries. The interest and the forms it took can also be seen as a method of securing the area as a part of Sweden in competing over it with Denmark-Norway and Russia. Resident settlement and cultivation of new land was favoured and from the year 1749 every colonist received liberation from taxes from 15 up to 40 years. Despite these generous circumstances the migration never became that large, however there were many Sami that reorganised their camp grounds to farmsteads and became "settlers".

Only in the 19th century did the settler-movement pick up speed in the inland-region. The areas of forest weren't however a complete waste before the resident settlement's establishment, the territory was populated by forest Sami. The forest country was used also by the villages by the rivers for temporary settlement; an example of this is the fishing and hunting settlements that sprang up, the so called Kenttä-sites.

The colonist's settlement was a system of several buildings with a farm-house and different kinds of farm buildings. Some of these grew to self-sustaining villages to the 1950's when the rationalising of the agriculture meant that many of the smaller farms had to be closed down. Because of the lesser prerequisites for a rationalised agriculture in the inland region the fields and hay-making grounds were in a larger extent left to be reclaimed by nature here than in the coastal regions.

The new settlements were most often placed in a slope facing south in order to carry on cultivation in a favourable location. The land has mainly been used for cultivating hay and forage for the cattle that was the base for the agriculture. The cattle demanded large areas of hay-making grounds in order to supply the winter forage. Through dam constructions and pond meadow systems on the mires they managed to supply nourishment in the form of water rich in mineral to natural hay-making grounds. In this way the farmer in the inland region of Norrbotten managed to increase his production of hay. During the end of the 19th century the population started to drain mires and lakes in order to increase the amount of available forage for the cattle. Other sustenance was hunting, fishing and forestry and tar-boiling and the manufacture of charcoal. The 1800's saw increasing industrialisation which meant that the demand for forest products increased at the same rate, this meant that the forested regions had an upswing and a clear secondary sustenance to the agriculture developed. Local householder's associations within the new settlements started to assert ownership rights on their cultivated land and unsettled forest areas that were cultivated by the villages. These developments lead to the partition of land between the state and individuals as well as between the villages themselves.

In order to entice more workers for the state-owned land, those without property from the 1890's and onwards were entitled to establish crofts and smaller farms on the crown's own land. The forest crofts consisted mostly of a modest cabin with a barn, often far from the nearest settlement. The crofter-settlements were often short-lived when the amount of arable soil often was too small in order to sustain a family on it.

Mankind has always used the forest as a source for raw material. We have used it for warmth, light, preparing food, for timber and refined raw material such as charcoal, tar, wooden wares and paper. Constructions associated with forestry are among others charcoal stacks, tar piles, water-driven sawmills, log-driving routes and modern industries. Even during the 19th century the forest was a necessity to provide timber for erecting buildings and to these buildings' roofing. During the same century the forest industry grew even more due to the introduction of the steam-driven sawmill and at the end of the century the forest-covered inland was completely opened up for large-scale forestry. The log-driving routes were expanded, dams for regulation of water were constructed and watercourses were cleaned from boulders in order to make the transports easier.

It was in the 1950's that the modern forest landscape was created through the extensive deforestation. During the 1960's pulp factories were constructed in the county and the forest gained even more in importance. As a result of the introduction of pulp industry the sawmill-industry saw a decline due to the decreased amount of available raw material. Up until the 1960's most of the timber was log-driven and in many watercourses there were dams, shore reinforcements, log-driving canals, lead arms that would lead the timber and stone cists. During the 1950's and 1960's some of the timber began to be transported by trucks directly from the felling to the industry and today all transport is done by truck (Lundin 1992a, Lundin 1992b, Von Sydow & Westerberg 1993).



Nbm acc number 2009:108:151 © The County Museum of Norrbotten. Deforested area along a stretch of road. The road leads from the village Käymäjärvi to the south east along the south side of the watercourse of Käymäjoki. Photographer: Carita Eskeröd.

Mankind has always been in need of social contacts, religious ceremonies and trade. From this need sprang the first and oldest paths, thoroughfares and roads. Into this day the natural transport routes are used, in summertime with boat on rivers and other watercourses or on foot along paths and in wintertime over frozen mires and lakes. In the winter it was easy to travel with skis or a sleigh. Older roads were adapted according to the geographical prerequisites. The roads followed river's and stream's valleys, along ridges and along the edges of

forests and fields. You avoided drawing roads over cultivated land in order to maximise the ground use. During the 1600's and 1700's the state proclaimed ordinances and regulations that concerned the roads but the responsibility to construct and maintain roads lay with the respective owner or ownership of the land all the way into the 19th century. 1841 a board was formed to manage the public roads and water buildings, the so called "*Kungliga Styrelsen för allmänna vägar och vattenbyggnader*" but in reality only small changes were achieved. Only in the 1860's was it any noteworthy change in this when the road network was expanded in the inland region in order to promote trade and make transport of, for example, tar easier.

Around 1900 new methods for constructing roads were introduced. This meant that land that earlier was avoided, for example wetlands, now was utilised as foundation for roads. During the 1920's and 1930's great labour market measures were made in building roads. One of these measures was so called "AK-arbeten" (AK stands for unemployment commission) and between the years of 1932-42 a large part of Norrland's roads were built. AK-roads are easily recognised by their bad adaption to the surrounding landscape, the straight layout connected with abrupt bends and the recurrent variation in height.

In the beginning of the 20th century when the problem of the strength of the concrete was solved through steel reinforcement it became common to construct bridges in concrete. From the 1930's and onward the concrete bridge became the dominant design. Simple ramp bridges were built where only a span of up to 20-30 metres was needed (Grahm & Joelsson 2001).



Nbm acc number 2009:108:038 © The County Museum of Norrbotten. Path/road from hay-making mire and tar pile towards a farm-group in the south east part of the village of Käymjärvi. Photographer: Carita Eskeröd.

The mining industry is one of the county of Norrbotten's main industries. Historically the ore deposits have had a great significance for the development of the county. Iron ore as well as sulphite ore (copper, lead, zink, silver and gold) occurs. Sweden has a bedrock rich in minerals, a prerequisite for extraction of ore. The earliest production of iron was made from lake and mire ore, which was produced already during prehistoric times. During the middle ages we began to extract iron ore from mountains, in the deposits of Bergslagen. There is evidence of a blast furnace in Lapphyttan, in northern Västmanland, dated to the 12th century. At this time people had been extracting copper ore in the mines at Falu copper mine since the 6th century.

The Swedish state was interested in establishing more mines and therefore encouraged mining activities in Norrbotten. In 1635 the Piteå silver agency was founded with mines at Nasafjäll. Kengis works was founded by Arendt Grape, he had in 1646 received royal privileges to establish the works. The works at Kengis was in operation until a fire in 1879. Even after the fire some activity was upheld until 1932. The difficulties of extracting ore in Norrbotten were many and large. The great distances, the harsh climate and the lack on infrastructure added to this. There wasn't the same access either to as large workforce here as further south that could be involved in the production due to the much smaller population.

During the 17th and 18th centuries Sweden was a significant producer of iron and the export was large. During the 19th century however the Swedish export sank at the same time as the demand for iron and steel increased. This was due to among other things that mineral coal had started to replace charcoal at the European works, which meant that they could take up competition with the Swedish equivalents. At the same time the charcoal became more expensive in Sweden when the competition about the forest as a source for raw material grew due to the expanding sawmill-industry.

During the second half of the 19th century there is an extensive investment within iron and steel industry as well as the infrastructure with the expansion of the railroad network. The first half of the 1900's sees a rationalising and specialisation within the iron industry. Sweden and its iron and steel industry creates a niche for itself by specialising in producing special steel such as stainless steel. This also leads to the closure of many works, mainly during the 1960's when there are several mines that are closed down. There is a global lack of iron ore which during the 1950's leads to extensive prospecting ventures and iron ore deposits are found in Brazil, Australia, West Africa, Labrador and Venezuela that with time grows to severe competitors with the Swedish mining industry. During the 1990's and the beginning of the 21st century LKAB is the only iron ore producer in Sweden. One has managed to survive in the international competition by refining the ore to pellets, a work started in the 1950's. In the beginning of the 21st century the ore prices rose substantially as a result of the growth of the economies in China and India. This has a result in increased prospecting as well as an increased interest in opening new mines (Awebro 1992, Hansson 1987, Kumm 1997, Schön 2007).

Historical breaking points within the area of inquiry

The establishment of village structure in Käymjärvi

The village of Käymjärvi's location in a south slope close to the lake and with forests and wetlands in its vicinity is not a coincidence; it is based on the prerequisites of the area, cultural premises and other systems. There is no certainty of when the first homestead was constructed in Käymjärvi. It is likely that the first four homesteads were established in the 1860's and 1870's. Before this the location has probably been used as a Kenttä-site. The term kenttä was used for a permanent but however seasonally used fishing ground up unto a watercourse or a lake (Algotsson & Sturk 1991:54). That the site has been used and visited earlier we know from archaeological material as well as from an expedition in the 1600's to the "false rune stone", the Vinsa-stone. Historical map material over the area of inquiry is scarce and therefore makes it hard to trace singularities over time. According a document from 1879 with propositions about taxation and the region allotment "*Förslag till skattläggning och områdestilldelning 1879*" the circumstances were these:

Käymjärvi Number 1 taxable crown-homestead, granted construction in 1820 with 30 tax free years, cultivated by Haparanda export Inc.

Käymjärvi Number 2 crown-settlement, granted construction in 1861 with 32 tax free years.

Kivikangas Number 3 is registered as Käymäjärvi Number 3 crown-settlement, granted construction in 1864 with 28 tax free years.

Kivikangas Number 4 (2) is registered as Käymäjärvi Number 4 crown-settlement, granted construction in 1864 med 28 tax free years.

There is also a site for a lime stone quarry, a canal for trickling the water from middle Liekojärvi to the north west of the village to the shallow facility at Liekojärvi mire and a partition of forest at Torajärvi (appendix 1:5, Raä 89:1, Pajala parish). Torajärvi lies north east of the village of Käymäjärvi and mentioned in the document from 1879 (Swedish Surveying Office, 25-PAJ-42:27. *Enligt Förslag till skattläggning och områdestilldelning 1879*) as an older settlement and settlement remains at Kaunisjoki (appendix 1:5, Raä 65:3, Pajala parish) which could be remains from a crown croft.

According to the partition of land (laga skifte) of the year 1886 it was only Käymäjärvi Number 2, owned and cultivated by the county sheriff H. Lidström, that had to be moved from the village (Swedish Surveying Office, 25-PAJ-43:6. *Laga skifte 1886*). There are only two buildings drawn out on the general staff's map over Pajala in 1890 (appendix 1:7) despite the fact that we know of several more farms from the partition acts. The map is somewhat indistinct and therefore it is hard to interpret the exact settlement. Meadows in connection with the village are nearly non-existent, especially when comparing it with the older villages in the vicinity such as Anttis, Erkheikki and Lovikka (appendix 1:1). According to the map the only meadow at Käymäjärvi was located where the road bends around the lake (appendix 1:7, B). However there are meadows along the Lompolojoki and around Lompolojärvi (appendix 1:2) and at what today probably is Kaitavuoma (appendix 1:7, C). A mill stood at the site where the village road forks to the south west towards Lompolovaara and crosses Käymäjoki (appendix 1:7, A). This is probably the same site where we today have remains of a log-driving canal and a dam. Upstream of Ylijoki there is today remains of a mill (appendix 1:5, Raä 91:1, Pajala parish, mill) which isn't drawn out on the general staff's map.

From the establishment of the village in the 19th century to the middle of the 20th century the households were virtually self-sustaining. Few wares had to be bought. The life support was based on cattle husbandry with hunting, fishing and forestry with tar-boiling as secondary sustenance. Most of the farms had cows and work horses, the last cows held in the village were held in the 1990's. Within the village there are meadows, hay-making fields, hay-making mires and grazing grounds. Outside the village structure there is the raw material source of the forest as well as hay-making fields and mires, examples of these latter ones are Kaitavuoma, Takajänkkä and Torajärvi (appendix 1:2). In order to gain more hay-making ground some lakes has been drained at Tervavuoma (according to sign for the nature reserve Tervavuoma and from an oral account 2009). The hay-making on the mires was active to the end of the 1940's. On the hay-making mires there were hay barns. The farms could also own reindeer herds which the Sami tended to within the concessional Sami villages. Many of the farms also burned tar into the 1950's (oral account 2009). In a document from 1927 regarding Käymäjärvi Number 1 and a partition of a plot of land from the farm it is mentioned two hay barns on a meadow immediately to the south east of the village, further south east of the partitioned plot of land there is a location called mill site (Swedish Surveying Office, 25-PAJ-1635. *Avsöndring 1928*).



Nbm acc number 2009:108:145 © The County Museum of Norrbotten. View from the south west side of the lake Käymäjärvi over agricultural landscape with a barn on a meadow. On the other side of the lake is settlement and agricultural landscape at the foot of Käymävaara. Photographer: Carita Eskeröd.

Ore deposits

The iron ore deposit at Pellivuoma is situated 24 km west-north west of Pajala and about 11 km north-north east of the village of Anttis and was discovered in 1919. The only access route was a forest motor road from Anttis. In the year 1921 the Swedish parliament imposed ownership and declared the deposit to be property of the Swedish state in 1929. In 1974 the Geological Survey of Sweden examined the area with test drillings. The government agency requested an allotment of two work area-rights regarding the Pellivuoma area. Claims have been made even earlier at several occasions in the vicinity of Käymäjärvi, for example in 1958 did the company Stora Kopparberg make claims that covers the entire lake of Käymäjärvi with shores and areas to south and north east of the lake (The Mining Inspectorate of Sweden, archive). Those that live in the village of Käymäjärvi today or have been born there have with other words always been aware of the ore deposit at Pellivuoma. When travelling over mires and wetlands the water was so coloured by iron that you had to go to running water in order to clench your thirst (oral account, 2009).

The effects of the industrialism

Despite the Swedish crowns strive for an increased tax base with the colonising of the inland the villagers in Käymäjärvi managed to maintain their households by self-sustenance into the middle of the 20th century. During the early 1900's several of the homesteads were split up by partitioning both for house lots and for meadows. The village of Käymäjärvi was one of the new settlements that lived and grew viable all the way to the middle of the 1900's when the rationalising of the agriculture lead to the closing of many farms. The population was when it was at its peak about 200 inhabitants to compare with the population of about 11 today. During the summer however the village is revived when about 100 people returns to the village to spend the summer in their vacation houses.

The older roads were the easiest to travel during the winter with horse and sleigh. According to the general staff's map from 1890 the road to Käymäjärvi followed the watercourse of Käymäjoki coming from the south from Juhonpieti and on the east side of the lake, just

like it does today, into the village and then continued north and then west towards Ainetti-joki (appendix 1:7, blue road mark). The new road that leads to the village was built in the 1930's. When the motor traffic increased the monetary economy became established and the village got a food store and a village shop. As mentioned there have been two stores here before but they are now closed so now the provisions comes by bus two times a week.

The period up to the 1960's saw the most timber log-driven but the coming decades saw a shift towards favouring the truck that could transport the timber directly from the felling to the industry. About 3 km to the south east of the village it was constructed a dam through which the level of lake could be regulated; the level was raised in the winter when the timber gathered in the lake. When spring came the dam was opened and timber was driven along Käymäjoki all the way to the Torne River. In the village was a sawmill that was active until the 1960's. The wooden wares produced there were mainly sold locally and to the villagers themselves. Even the tar piles belonging to the village were used up to the same decade (oral account, 2009). Located at the sawmill there is also a boat house constructed in timber, placed close to the shore.



Nbm acc number 2009:108:048 © The County Museum of Norrbotten. The sawmill at the shore in the village of Käymäjärvi. Photographer: Carita Eskeröd.

Cultural-historical interpretation and recommendations

Archaeology

The book "*Arkeologi i Norrbotten*" (1998) raises the demand of more knowledge about Mesolithic (early Stone Age) settlements. If settlements from the earliest Stone Age are found in the area they could answer questions concerning the settlements' contents and function and would make it possible to compare contemporary settlements in the inland (*Arkeologi i Norrbotten* 1998:29).

The shores around the lake Käymjärvi and the watercourses that leads to and from the lake has been visited by humans since the Stone Age. With the various non-context finds and the fine location in mind it is likely that there have been Stone Age-settlements on the site where the existing village now lies. The lands around the lake have according to tradition been passed through and settled by Sami. Most remains found during the field work part of the baseline study were cultural remains from the 19th century or later but that doesn't exclude the possibility of finding ancient remains in the area. The most likely area to find ancient remains in is the area around Käymjärvi and around the watercourses of Käymäjoki and Lompolojoki. It is also likely to find more ancient remains on the sand heaths north of Ahvenvuoma along the possible access route towards Kaunisvaara (appendix 1:1). When the planned access route through these sand heaths has been decided for the County Museum of Norrbotten recommends the County Administrative Board to consider if the road building should be preceded by a special archaeological inquiry.

Closer to Pellivuoma, in the area with the carving (Raä 336, Pajala parish) (area 2, appendix 1:3) there could also be prerequisites for hearths at the mire's "shores". No hearths were however found at the ocular survey.

Area 5 has also a potential due to the fact that the low sand ridges make good settlement locations. The vegetation in the area is however dense which affects the possibility of finding remains.

Concerning the areas 4, 6, and 9 (appendix 1:3) no remains were found. In these areas there are no environments that are suitable for finding ancient remains with starting point in topography and vegetation on these sites. Areas 4 and 6 have grounds that consist of moraine with a large mixture of stone and boulders. The ground is also very moist and doesn't invite to make camp on. Between areas 6 and 9 there are also no prerequisites for finding ancient remains due to the topography and vegetation. According to the maps the area passes to more flat ground but it is still very wet. There are not great possibilities of finding ancient remains or cultural remains in mentioned areas.

Commentaries around the remains

Prehistoric remains: In the area north of Käymjärvi there are a number of settlement pits that gives evidence of prehistoric activity in the area. Down in the actual village Käymjärvi there are also find locations for a North-bothnic tool made in green-stone (Raä 92:1, Pajala parish) and a slate chisel (Raä 93:1, Pajala parish) which most likely date back to the Stone Age or Bronze Age. The village lies in a south slope (called "lid") close to a lake which should have made up a good settlement location as far back as the Stone Age. On the heaths around Vähäkangas and Ahvenvuoma along the northern access route there are also several remains from prehistoric time. The area consists of glacier river-deposits and therefore makes a great settlement location and in the area it is registered two prehistoric settlements, two trapping pits and one settlement pit. The area also lies about 1,5 km from the highest coast line which results in the possibility of finding settlements from earliest Stone Age. On one of the settlements, Raä 63:1, it was found quarts material, fire-

cracked rocks and charcoal during the ancient remains inventory in 1992. In the description of the other settlement (Raä 82:1, Pajala socken) it is stated that it is a very good settlement location. This prehistoric settlement consists of a concentration of fire-cracked rock which probably comes from hearths (appendix 1:1, 1:4-1:6). If the ancient remains and their diffusion are regarded from a larger perspective, whole of Pajala Municipality, it is clear that the majority of settlements from prehistoric times are located along the Torne River, i.e. at a modern day watercourse.

The carving: In the whole of Norrbotten there is 48 registered carvings called "bläckningar" (damages where people have removed bark) in trees, 12 of these are registered in Pajala municipality. The carving found and registered during this survey is the only one registered in Junosuando parish. Contrary to most of the other carvings that contains year and/or name or initials the one registered now only contains a cross (X) that seems to have been done with an axe.

Carvings are meant to convey a message to other people. Initials and year can mark a form of claim for the land or terrain where it sits. Carvings can also be remains from the pre-Christian Sami belief in the form of symbols but they can also constitute a memorial over events that often are tragic (Hedman 2005:154ff).

Here in Norrbotten it was also common that carvings in trees marked out a path or road, but most often when used in this way there are two carvings in the same tree; one that leads to the tree and one that shows the way from the tree (Hedman 2005:154ff). The carvings can also be done in order to mark out a boundary between properties or other demarcation lines in the forest according to the book "*Lantmannens uppslagsbok*" from 1923 (scanned version on the Internet). In this case the carving probably has something to do with the old forest motor road or a no longer visible boundary line. If the area with the carving is left without exploitation the best alternative is to leave the tree standing.

The tar piles: In the county of Norrbotten there are 3191 registered tar piles of these 765 are within Pajala municipality (information from the ancient remains register FMIS). Tar has been produced in the Scandinavian countries since the Middle Ages and onwards and it was for a long time one of the largest export products. The use of tar piles to manufacture tar was most common into the first decades of the 20th century when artificial substitutes competed away the use of tar (Internet Wikipedia). They were placed in slopes to make it easier for the tar to seep out to be gathered in the slope beneath the tar pile. Forests with large amounts of pine were also a prerequisite for the boiling of tar. The two new registered tar piles lies fully in line with the other remains around Pajala where different kinds of forest industry has a several centuries long history. The two tar piles are only a few of very many around the whole Torne valley. It is however preferred that the two tar piles remain untouched if there is a possibility to avoid them at an exploitation.

The reindeer enclosures: The two reindeer enclosures that have been registered in the vicinity of Pellivuoma are also remains of a tradition that has several centuries of continuity. The enclosure at Hosiokangas is according to tradition at least originally from the 18th century and it has been rebuilt several times during the centuries. Enclosures of timbered construction like that in Hosiokangas are very few and rare in Sweden today. The timbered enclosures should according to information received be typical for the Sami village of Muonio, unlike reindeer enclosures from other Sami villages (*Muonio sameby* 2001). The reindeer enclosure at Paskarova is however much younger according to information from the locals. It was built in the 1940's or 1950's and was probably abandoned sometime in the end of the 1960's. Even the sand grounds along the forest motor road that winds towards Kaunisjoki and Kaunisvaara should be regarded as cultural land where the reindeer husbandry has left its mark. The sand heaths at Kaunisjoki have been used for winter grazing into modern day according to information received from the local population.

Recommendation:The areas closest to the ore deposit

The County Museum of Norrbotten considers that out of the land around the ore deposit at the planned mining activity at Pellivuoma (Muotkavuoma) it is most likely to find ancient remains in the area south west of the planned mining area and in the area to the south west of the watercourse Tulusjoki (area 5, appendix 1:3). If area 5 is to be exploited it is recommended that the area undergoes a special archaeological inquiry. The mountain that lies east of the planned mining area consists of stony and boulder-rich moraine with moist ground vegetation and probably doesn't hold any ancient remains.

After finishing the field work it came to light that Northland Resources Inc. plans a waste rock stock pile and peat stock pile at Pellirova, west and north west of the planned mining area. This new area was not investigated during the field work part of this baseline study. The County Museum of Norrbotten therefore recommends that this area should undergo a special archaeological inquiry due to the fact that the mountain could be a settlement location with its good prerequisites with mire both in the north and south (appendix 1:1).

The areas north and east of Pellivuoma

From an archaeological point of view there should be no greater risk to exploit the areas to the east and north east of the ore deposit. In that area there are no obstacles either for drawing an access route. The most appropriate part to draw the road through is *straight east* of the ore deposit through area 6 and between area 9 and 11 and on to the south end of area 10. In this way the road is built in those areas less likely to hold ancient remains. That area consists of wetland and moraine ground which is mixed with relatively large boulders which makes it less attractive from a cultural-historical point of view. At the same that alternative offers a relatively flat terrain when one has passed area 6. At the connection to the Käymäjärvi road there are several smaller gravel pits in the south end of area 10 where the land already is heavily influenced by modern exploitation. A connection there would do the least damage on the cultural landscape and avoids the cultural-historical remains in area 11 and the foundations for houses (Raä 377:1-5 och 372:1) south of area 11 at the same time.

At Vähäkangas the Raä 1273 (Hosiokangas' reindeer enclosure) could be damaged by the possible expansion of the access route to the north. Hosiokangas' reindeer enclosure has its roots in the 18th century and further remains from reindeer husbandry are likely to be found in the area. If the road is to be widened on the north side, or if a new stretch is drawn north of the enclosure a special archaeological inquiry should take place before the work starts in order to make sure that there are no further remains in the area. The best alternative from a cultural environment conservation point of view is that if the existing road is widened to the south.

On the sand heath Vähäkangas one should as much as possible keep to the existing roads in the northern direction towards the sand heaths around Ahvenvuoma and Kaunisjoki. Where the road must be straightened it must be taken into calculation that the new stretch might have to undergo a special archaeological inquiry.

The County Museum of Norrbotten regards that the sand heaths north and west of Ahvenvuoma and at Kaunisjoki (The green areas within 3 km distance around the letter A in Appendix 1:6) definitely should undergo a more thorough inquiry, a so called special archaeological inquiry. It lays however in the County Administrative Board's responsibilities to take the decision to perform such an inquiry. A more thorough inquiry should definitely take place if the existing forest motor road is to be widened or if entirely new roads are to be built for the ore transports. The best alternative is if one to the greatest extent can use the existing stretches of roads.

The area south of Pellivuoma

The reindeer enclosure at Paskarova (about 2 km to the south west of the ore deposit), Raä 1271, could be in danger if the gravel road in its vicinity is to be widened or used extensively. If that road is to be widened the County Museum of Norrbotten recommends that the widening takes place to the south so that the enclosure can be preserved.

Further conclusions

Norrbottens Museum also regards that additional inventory is necessary if Northland Resources decides to locate transportation corridors to areas between Pellivuoma and Kaunisvaara not examined by archaeologists during this study. Depending on where such corridors are planned there may be need for special archaeological inquiry according to the Cultural Heritage act. However, it is up to the CAB to make a decision on such inquiries.

From a cultural-historical point of view the village of Keymäjärvi should also be avoided with the non-context finds in mind that indicate Stone Age and Bronze Age settlements. Around the village are also several cultural remains that should be preserved.

Settlement (historical time)

The cultural environment and the landscape in the area of inquiry contain many strong and valuable traits that is typical for the forest regions of northern Norrland. These manifestations are important to preserve in order to protect the identity of the region. All we see that is made from human hands, buildings, cultivations, roads and so forth have been constructed in their specific time and in that periods' need and functions now as a mirror of the past and their needs. The physical traces aren't random but are all included in a cultural system and in mankind's interplay with nature. In the cultural-historical entirety the singular objects can find their context in the landscape.

The area around the village of Käymäjärvi is an environment that historically has been favourable for forest Samis, Kenttä-grounds and for colonists. The life conditions and the system for sustenance have existed on basis by the demands given by nature and the world around that one had contact with. Today the village Käymäjärvi is characterised by the modern society but with a clear historical readability and the small scale preserved. The largest cultural-historical meaning consists of the whole picture with the road network, the agricultural landscape and the settlement pattern. The area should be seen as a positive asset in Pajala municipality and as a place where more inhabitants could get the possibility to live with the planned mining activity.

Recommendation:

The County Museum of Norrbotten regards it important to show great consideration and care for the interesting cultural-historical environments that can be affected by the mining activity and the exploitation. Especially should the existing access routes, the agricultural landscape, the settlement pattern and the identified locations (appendix 1:8, 1:9, 1:10) be given attention so that these positive and valuable components could be used as an asset in the ongoing usage of the area. If the mining activity comes in contact with valuable settlement historical places and environments should anti-quarian expertise be contacted and included in the decision process.

If mining activity and exploitation directly affects the site for the log-driving canal and the dam/mill site at the watercourse of Käymäjoki (appendix 1:7, A and 1:9), the settlement remains at the watercourse of Kaunisjoki, Raä 65:3 Pajala parish (appendix 1:5) and in the event of changes in the village the County Museum of Norrbotten recommends that further documentation is performed.

Road network

The road network is valuable both for the community history as well as for the technical history. Routes of communication connect people, places and regions. The road networks could therefore be said to mirror human's movement in time and space. The roads bare witness of man's need for contact and social bonding as well as of the development of the community economy, the political progress and the technical development.

The municipality of Pajala was for very long a region with very few roads. On the general staff's map from 1890 (appendix 1:7) there is only one road that stretches through the area of inquiry from south to north. The roads that exist today are smaller gravel roads or paths and a number of smaller roads that today aren't immediately visible; these are all visible on the economical map from 1969. The smaller roads are probably built in the late 1800's and the early 1900's when the trade and regulations about roads changed. These roads follow the lines of the landscape and are often narrow and winds back and forth. Several forest motor roads were built from the middle of the 20th century. The modern road that leads to the village of Käymäjärvi is a typical AK-road from the time when new methods for constructing roads were designed and the traffic increased. This road follows the old one that could be observed on the general staff's map to large extents but has a much straighter stretch without concern for height differences in the terrain. The log-driving canal and the dam at the watercourse of Käymäjoki bare witness of a time when the log-driving was the prevalent method for transporting timber. The concentration of natural stone upstream could be remains from a mill that is marked out on the general staff's map from 1890.

Recommendation:

At a possible mining activity and exploitation it is especially important that roads and other access routes aren't built in close proximity of cultural-historically important roads, paths, log-driving remains etc. An access route shouldn't be built through the village when settlement and hay-making grounds which are sensitive for change lies in the immediate vicinity of the existing road. Roads intended for heavy transport generally have to be reinforced and widened in a way that would harm the small scale-character the roads in the village have today (appendix 1:9).

Agricultural landscape

The landscape is a historical bearer of information that we together has created during many hundreds of years. The agricultural landscape is cultural-historically valuable on the basis of the long history of using the forest and the land for resources in Norrbotten. Due to the old-fashioned agriculture the natural and cultural environment have to large parts been preserved.

The history is in many ways visible in the modern landscape through ground usage, roads and settlement locations. There are bearers of value both within the village structure and outside it, within the village these are among others hay-making grounds, hay-making mires and grazing grounds at the shores of the lake and outside the village structure they are represented by the forest itself, meadows and again hay-making mires such as Kaitavuoma, Takajänkkä and Torajärvi. The method of making hay on mires was important in order to gather enough hay for the cattle which was the base for the sustenance on the homesteads. Canals and dams was a common method to increase the flooding level and through this increase the amount of nourishment supplied to the ground.

Settlement remains with a direct connection to the agriculture are the remains of a canal and dam for regulation of the water level, hay barns and the remains of on, possibly two, mills. In the hay barns the hay was stored after it was cut and then transported back to the farm during winter. The mills were extremely important in the agricultural society. Every village often had a collectively owned mill. Village mills were common a good bit into the 20th century.

Recommendation:

At exploitation it is important that the old-fashioned cultivated land in the form of shore-grazing grounds, hay-making fields and wetlands are kept open and free from new constructions and roads. The mill remains, hay barns and canals that still remain should be preserved so that we don't lose the traces of the traditional hay-making on mires (appendix 1:9).

Settlement pattern

The settlement pattern as a whole shows a long continuity by the inhabitant's ways of using the landscape for survival. From a forest Sami camp ground to a possible kenttä-ground relieved by a characteristic 19th century settler environment with open agricultural landscape and hay-making mires to the society of today. The settlement illustrates the historical growth and the continuous change in the region. The different growth rings tell us pedagogic of passed ages lives and work, the development of society and the life demands for different groups of society.

The older type of constructing and placing buildings on individual farms in Norrbotten are a farm-house, a barn, a stable and outbuildings placed in square around a yard. Outside the yard are among others a summer cow barn, hay barns, sauna, mill and minor log cabins (*härbre*). Many buildings and farms grouped in this way are still preserved in Käymäjärvi. The farms are still owned to large parts of the families that were the first colonists here. In individual houses there are also represented architecture, building technique and material from at least three eras. These elements are valuable qualities in the cultural environment. Outside the village structure lays two likely crown crofts with different settlement remains and an existing cabin from the end of the 19th century. This bare witness of the often short-lived crown crofts and their typical placement with simple buildings outside the village structure but up to watercourses.

Recommendation:

At a possible exploitation it is important to care for the small-scale settlement. In order to preserve the valuable cultural-historical qualities of the village Käymäjärvi it is important that no roads are built through the village, that no concentration of settlement is made or that temporary buildings are erected in connection with the planned mining activity. Temporary buildings and concentration of settlement have a tendency to create unoccupied spaces after an activities' peak has passed. If existing settlement or buildings are claimed for residents or activities a general caution and care should be shown at possible changes (appendix 1:10).

Luleå 2010-02-04

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Fornsök: www.raa.se

Wikipedia om tjärdalar (about tar piles): <http://sv.wikipedia.org/wiki/Tj%C3%A4rdal>

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Maps

The Swedish Surveying Office, General staff's map of 1890, *Generalstabskarta år 1890 Pajala, Nr 242-16-1*

The County Museum of Norrbotten Economical map of 1969

Appendixes

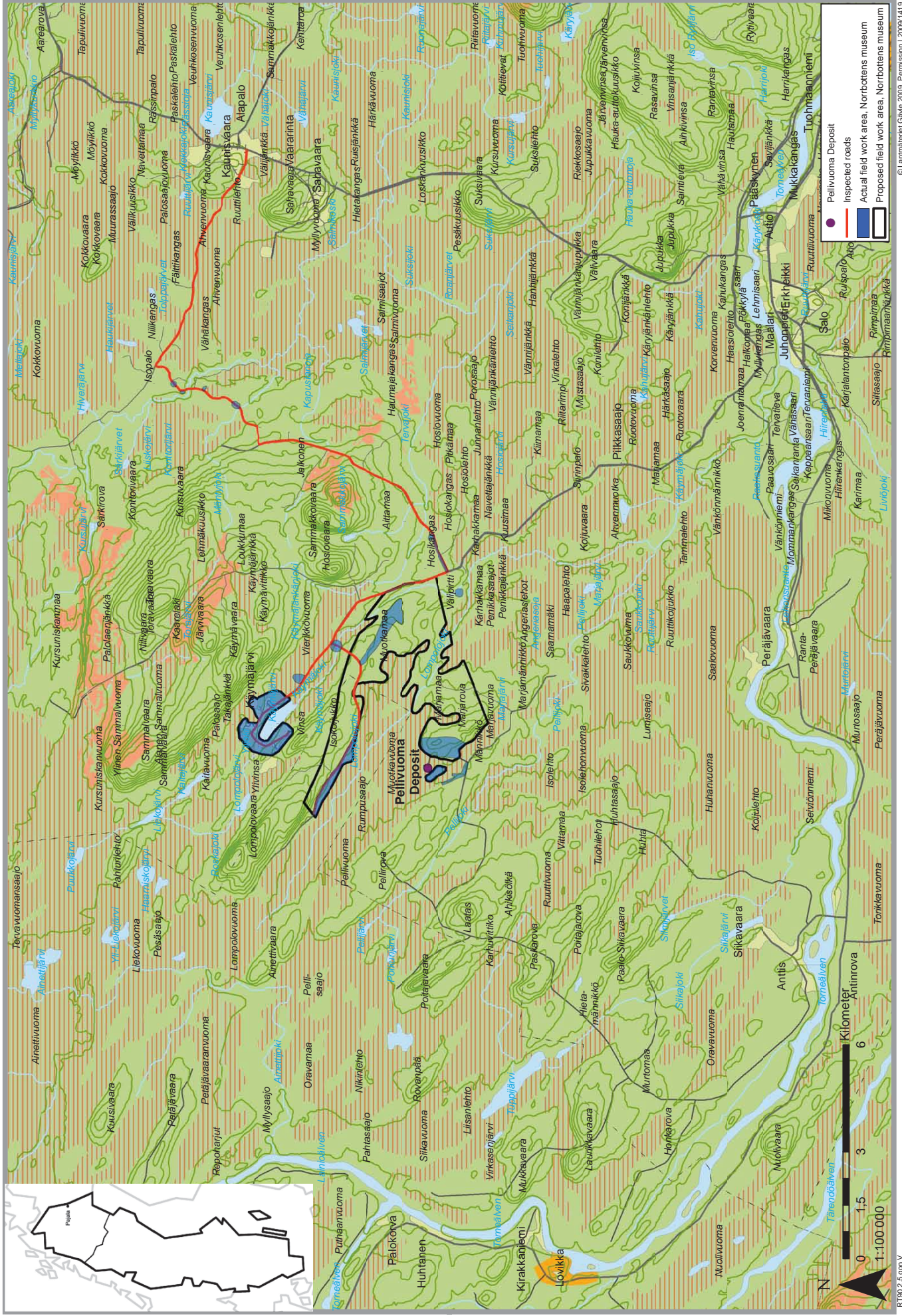
1. Maps

- 1:1 General topographical map
- 1:2 Käymjärvi with place names mentioned in the settlement historical section
- 1:3 Current areas of inquiry with archaeological results
- 1:4 Ancient remains with the highest coast line marked
- 1:5 Raä-numbers mentioned in the report
- 1:6 Soil class map marked with good settlement locations
- 1:7 General staff's map 1890
- 1:8 Settlement historical characteristics within the area of inquiry
- 1:9 Settlement historical results of interesting environments: roads and agricultural landscape
- 1:10 Settlement historical results of interesting environments: settlement

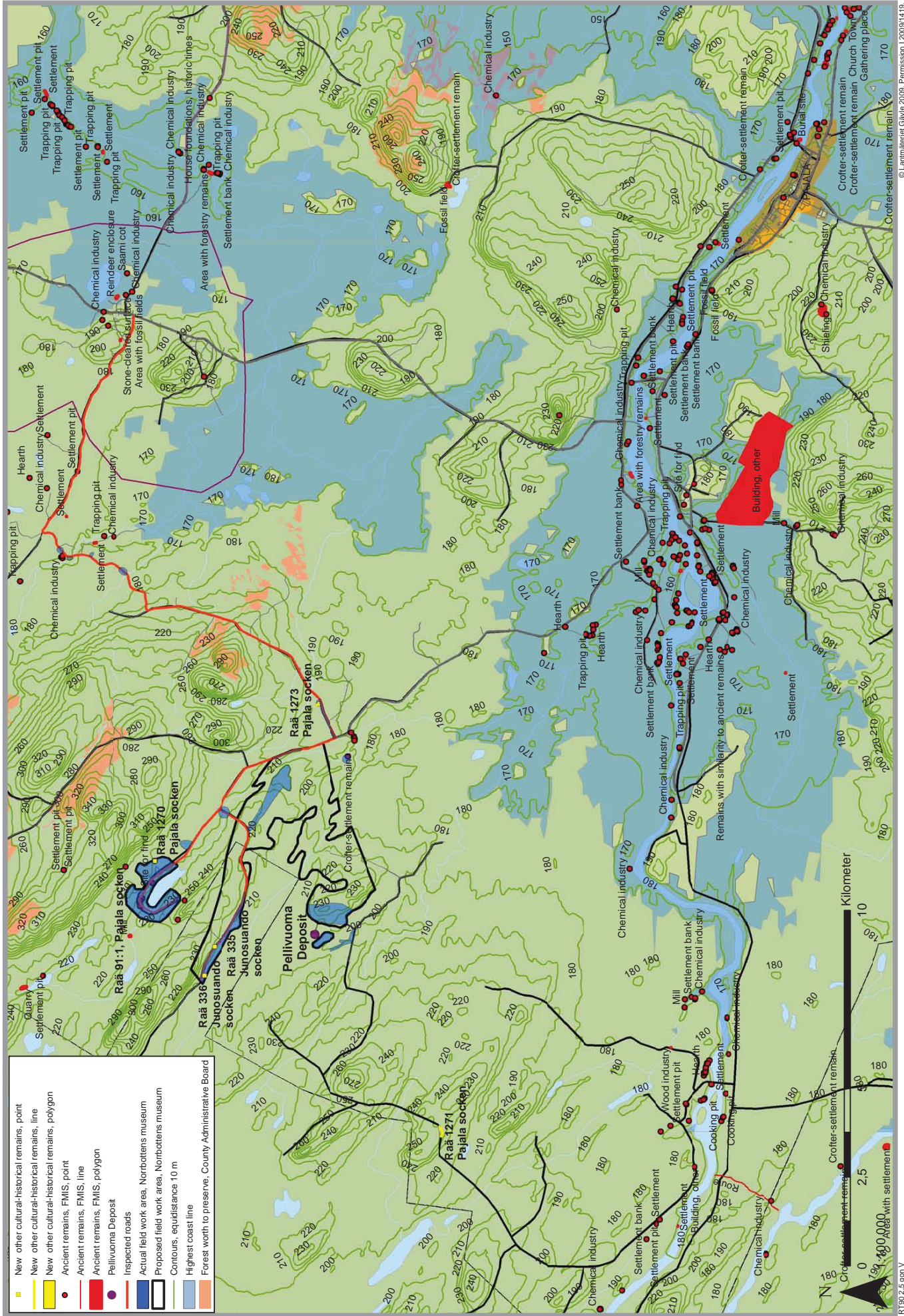
2. Photo list

3. Remain list

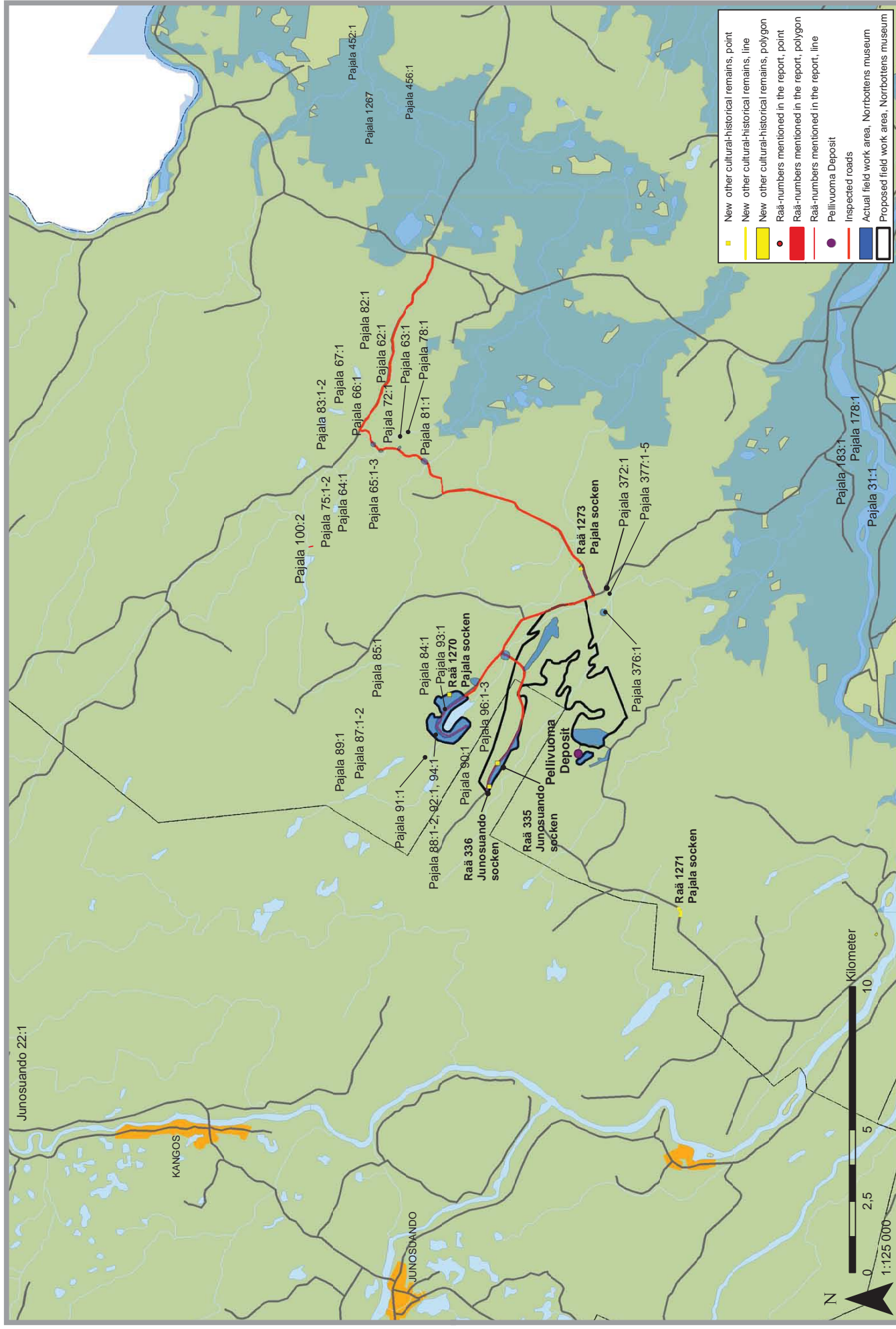
General topographical map



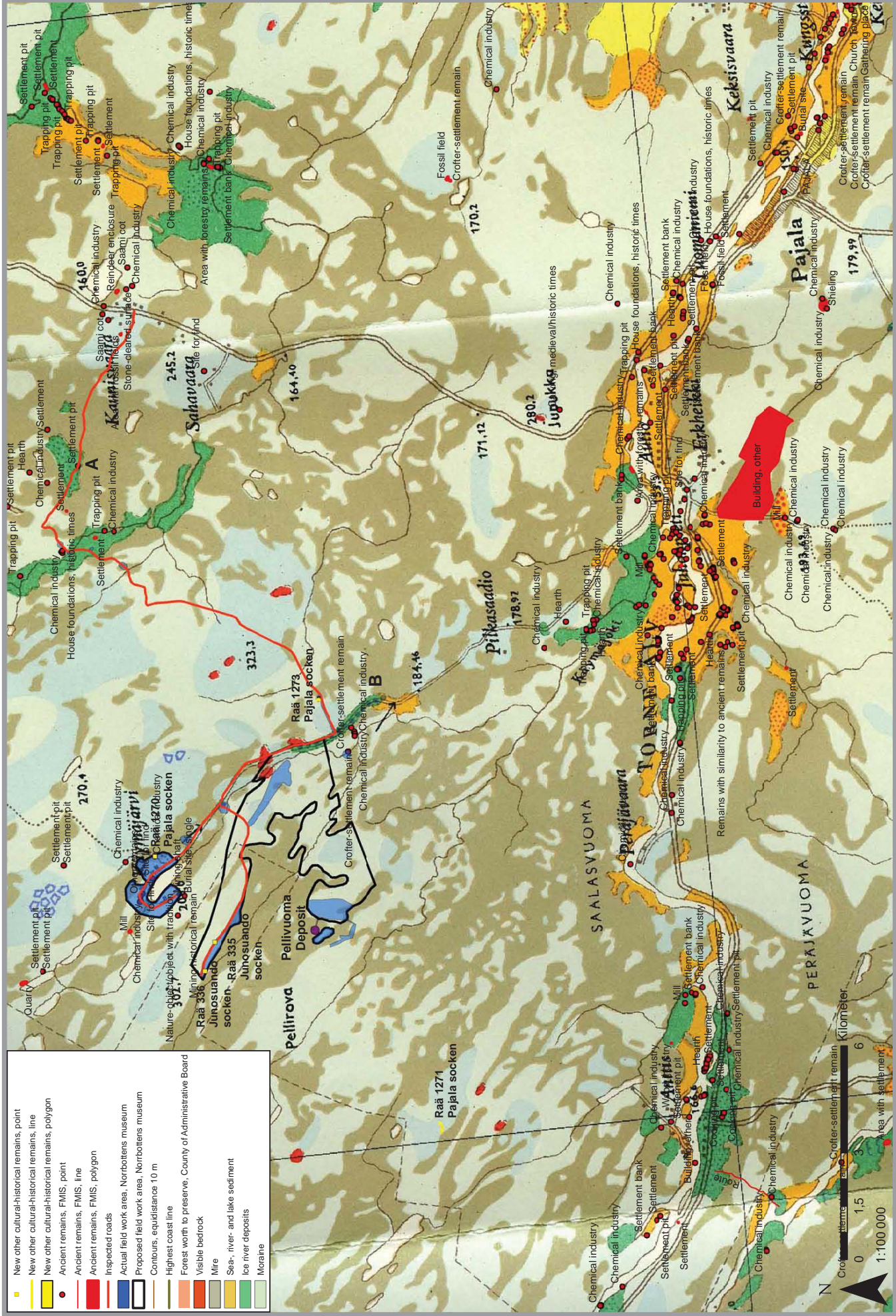
Ancient remains with the highest coast line marked



Raä-numbers mentioned in the report

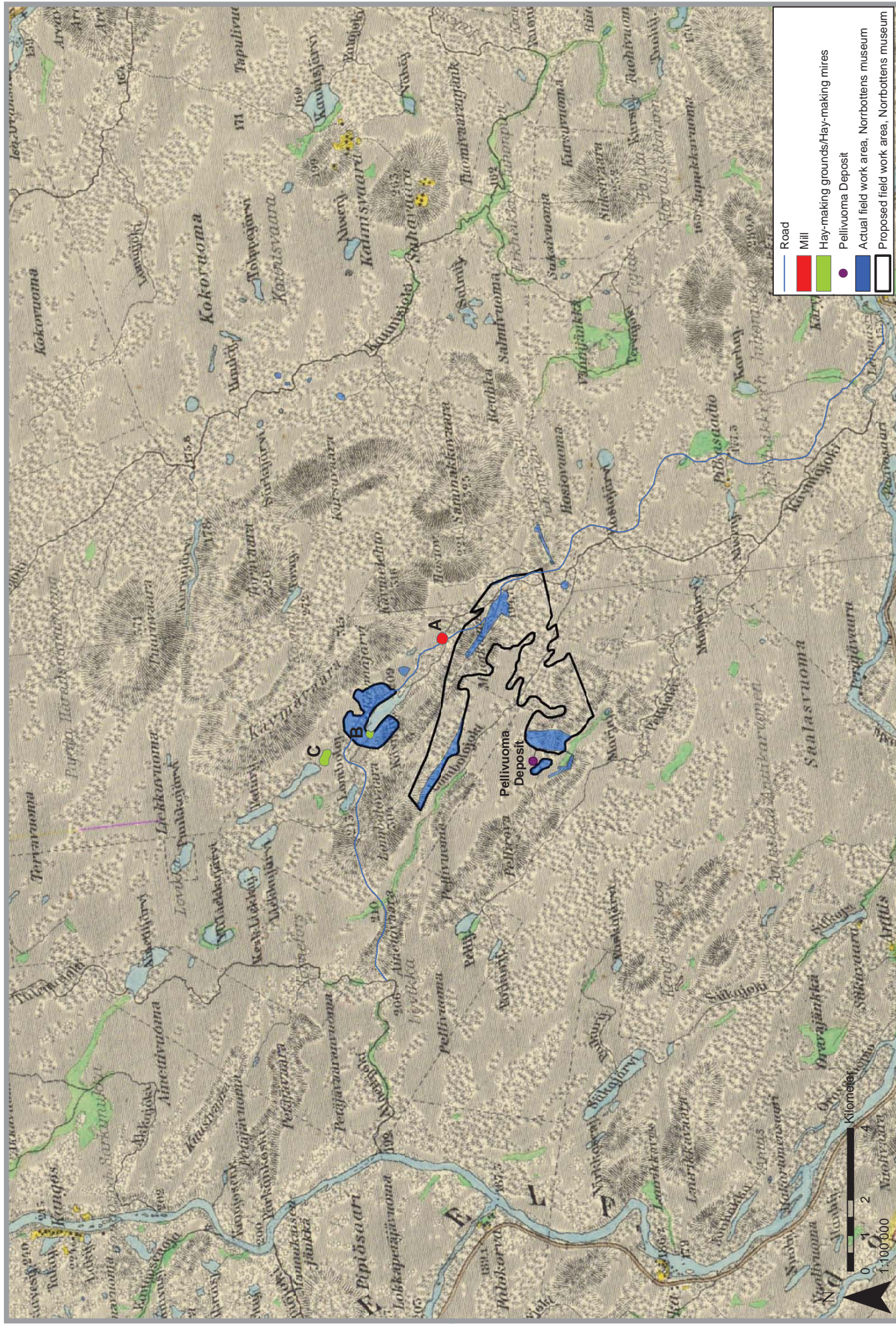


Soil class map marked with good settlement locations

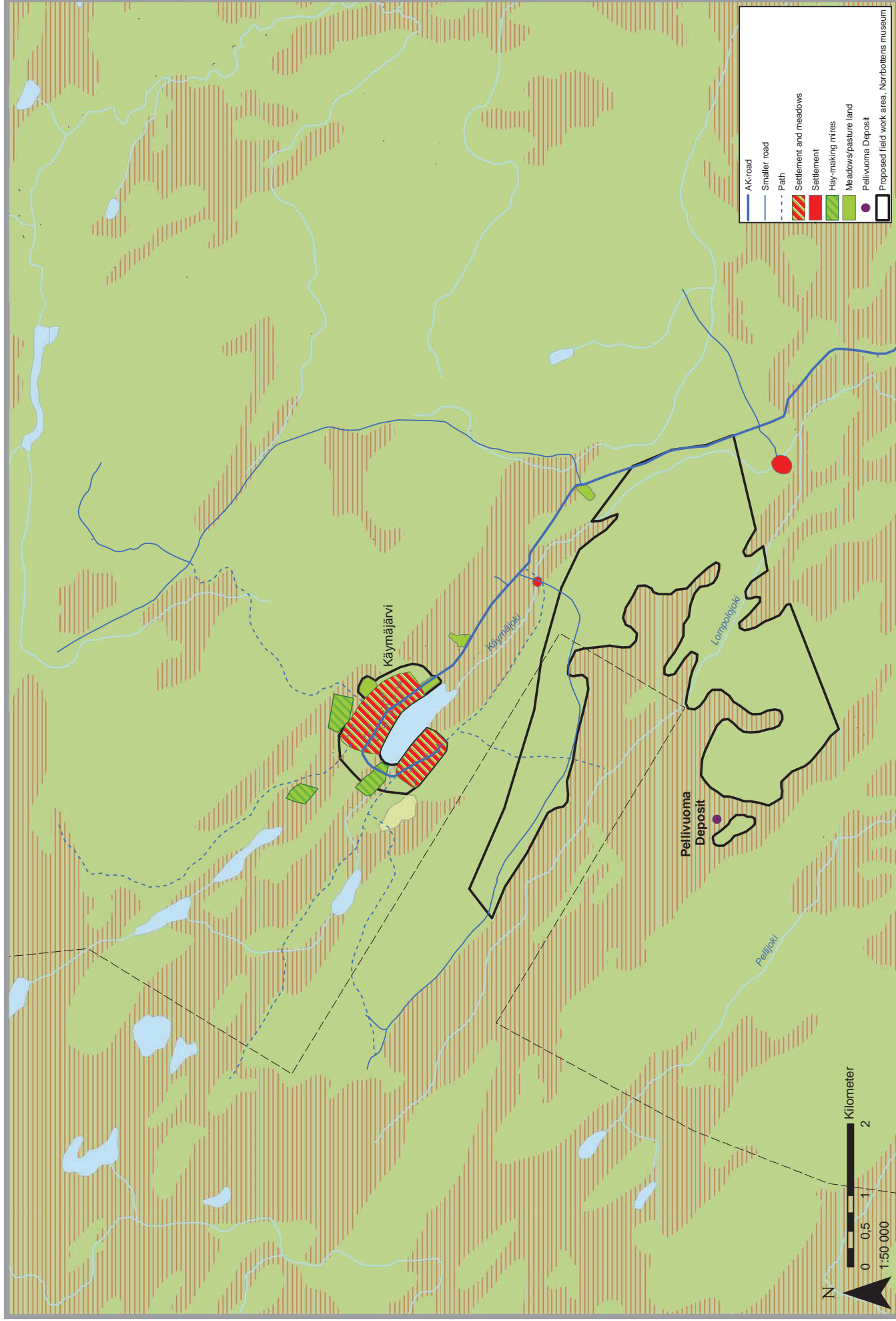


- New other cultural-historical remains, point
- New other cultural-historical remains, line
- New other cultural-historical remains, polygon
- Ancient remains, FMIS, point
- Ancient remains, FMIS, line
- Ancient remains, FMIS, polygon
- Inspected roads
- Actual field work area, Norrbottens museum
- Proposed field work area, Norrbottens museum
- Contours, equidistance 10 m
- Highest coast line
- Forest worth to preserve, County of Administrative Board
- Visible bedrock
- Mire
- Sea-, river- and lake sediment
- Ice river deposits
- Moraine

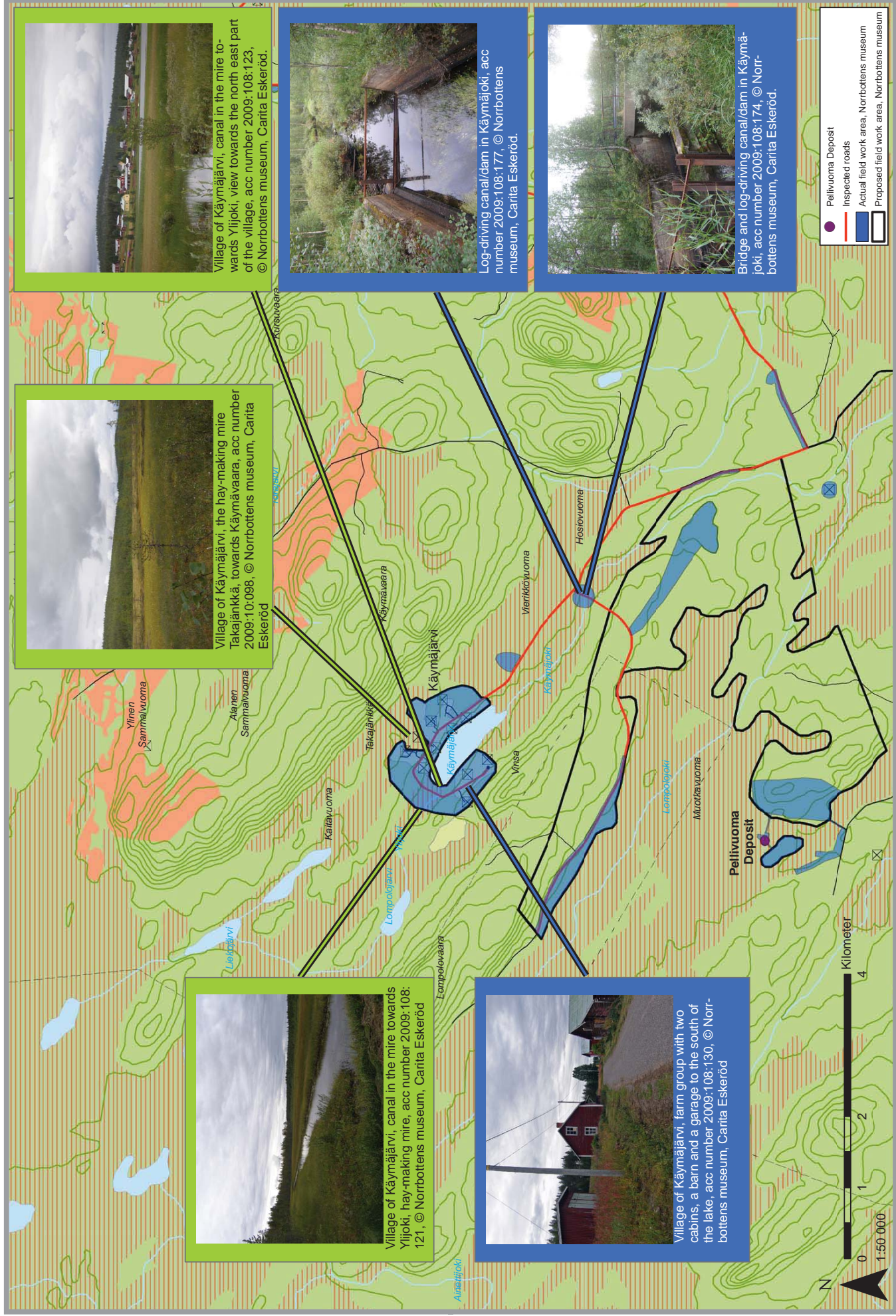
General staff's map 1890



Settlement historical characteristics within the area of inquiry



Settlement historical results of interesting environments: roads and agricultural landscape



RT80.2.5 gon V © Lantmäteriet Gävle 2009, Permission 1 2009/1419.

Settlement historical results of interesting environments: settlement



Photolist Pellivuoma

Acc number: 2009:92:01-32, 2009:108:001-185

Photographers: Olof Östlund (OÖ), Frida Palmbo (FP) and Carita Eskeröd (CE)

Bold marking of text in the list indicates which of the pictures that is included in the report.

Acc number	Motif	Taken from	Photographer
2009:92:01	Raä 336, Junosuando parish. Close-up on carving in tree.	E	OÖ
2009:92:02	Raä 336, Junosuando parish. Carving in tree. Frida Palmbo in the picture.	E	OÖ
2009:92:03	Remains of the old forest motor road (visible on the economical map from 1968) towards Lompolovuoma.	E	OÖ
2009:92:04	Raä 335, Junosuando parish. Tar pile, located at the forest motor road towards Lompolovuoma. Frida Palmbo in the picture.	N	OÖ
2009:92:05	Raä 335, Junosuando parish. Tar pile, located at the forest motor road towards Lompolovuoma. Frida Palmbo in the picture.	N	OÖ
2009:92:06	Raä 63, Pajala parish. Settlement found in a road during earlier inventories.	SSE	OÖ
2009:92:07	Raä 63, Pajala parish. A bit closer to the houses than in picture 2009:92:06. Kaunisjoki in the background.	SSE	OÖ
2009:92:08	Raä 63, Pajala parish. The ridge where the settlement is located.	NNW	OÖ
2009:92:09	The mire islet on top of the centre of the ore deposit for the planned mine at Pellivuoma.	SE	OÖ
2009:92:10	The mire islet on top of the centre of the ore deposit for the planned mine at Pellivuoma. Moraine ground mixed with stone.	W	OÖ
2009:92:11	Raä 1271, Pajala parish. Reindeer enclosure at Paskarova. Remains of fence.	E	OÖ
2009:92:12	Raä 1271, Pajala parish. Reindeer enclosure at Paskarova. Remains of fence.	NE	OÖ
2009:92:13	Raä 1272, Pajala parish. According to information; the location of a reindeer enclosure at Anttis.	SE	OÖ
2009:92:14	Raä 1272, Pajala parish. According to information; the location of a reindeer enclosure at Anttis.	S	OÖ
2009:92:15	Raä 1272, Pajala parish. According to information; the location of a reindeer enclosure at Anttis.	SW	OÖ
2009:92:16	Raä 1273, Pajala parish. Reindeer enclosure at Hosiokangas beside the forest motor road between Käymäjärvi and Kaunisvaara.	SSE	OÖ
2009:92:17	Raä 1273, Pajala parish. The reindeer enclosure at Hosiokangas, photograph taken from a side stall (called office).	SSW	OÖ
2009:92:18	Raä 1273, Pajala parish. The reindeer enclosure at Hosiokangas. Frida Palmbo stands in one of the side stalls (so called office) and documents the remains in a handheld computer.	NNE	OÖ
2009:92:19	Raä 1273, Pajala parish. The reindeer enclosure at Hosiokangas. Frida Palmbo stands in one of the side stalls (so called office) and documents the remains in a handheld computer.	NE	OÖ
2009:92:20	Raä 1270, Pajala parish. Tar pile in the NE part of the village Käymäjärvi. Frida Palmbo in the picture.	NE	OÖ
2009:92:21	Raä 1270, Pajala parish. Detail; draw channel in the tar pile. Wooden parts still remain.	S	OÖ
2009:92:22	Raä 372, Pajala parish. "Settlement remains, other" (foundation for house) north of the confluence of the watercourses of Käymäjoki and Lompolojoki.	SW	OÖ
2009:92:23	Raä 377:5, Pajala parish. "Settlement remains, other" (remains of Sami cot-shaped construction) north of the confluence of the watercourses of Käymäjoki and Lompolojoki.	NW	OÖ
2009:92:24	Raä 377:4, Pajala parish. "Settlement remains, other"	NW	OÖ

	(foundation for house) north of the confluence of the watercourses of Käymäjoki and Lompolojoki. Frida Palmbo in the picture.		
2009:92:25	Raä 377:3, Pajala parish. Tar pile north of the confluence of the watercourses of Käymäjoki and Lompolojoki. Frida Palmbo in the picture.	N	OÖ
2009:92:26	Raä 377:2, Pajala parish. Tar pile north of the confluence of the watercourses of Käymäjoki and Lompolojoki. Frida Palmbo in the picture.	N	OÖ
2009:92:27	Raä 377:1, Pajala parish. "Settlement remains, other" (remains of Sami cot-shaped construction) north of the confluence of the watercourses of Käymäjoki and Lompolojoki. Frida Palmbo in the picture.	SSW	OÖ
2009:92:28	View over Käymäjoki. Photograph taken from a moraine ridge south west of Muotkamaa. Frida Palmbo in the picture..	WSW	OÖ
2009:92:29	View over mire shore west of Vähäkangas and south of Kaunisjoki, at the location for a possible northern access route to the planned mine at Pellivuoma.	NNE	OÖ
2009:92:30	Frida Palmbo walks along a fence that has been constructed to avoid the creation snow drifts across the road from the mire Palosaajovuoma to the west of Kaunisvaara. Location for a possible northern access route to Kaunisvaara.	S	OÖ
2009:92:31	Fence that has been constructed to avoid the creation snow drifts across the road from the mire Palosaajovuoma to the west of Kaunisvaara. Location for a possible northern access route to Kaunisvaara.	NW	FP
2009:92:32	Fence that has been constructed to avoid the creation snow drifts across the road from the mire Palosaajovuoma to the west of Kaunisvaara. Location for a possible northern access route to Kaunisvaara.	ESE	FP
2009:108:001	The road towards Käymäjärvi.	SE	CE
2009:108:002	Reindeer enclosure at Hosiokangas, Frida Palmbo in the picture.	S	CE
2009:108:003	Reindeer enclosure at Hosiokangas.	NE	CE
2009:108:004	Reindeer enclosure at Hosiokangas.	NE	CE
2009:108:005	Reindeer enclosure at Hosiokangas.	NE	CE
2009:108:006	Reindeer enclosure at Hosiokangas.	NE	CE
2009:108:007	Reindeer enclosure at Hosiokangas.	W	CE
2009:108:008	Reindeer enclosure at Hosiokangas.	NW	CE
2009:108:009	Hunting lodges east of Aittamaa close to Tervajoki.	W	CE
2009:108:010	Hunting lodges east of Aittamaa close to Tervajoki.	W	CE
2009:108:011	Hunting lodges east of Aittamaa close to Tervajoki.	W	CE
2009:108:012	Hunting lodges east of Aittamaa close to Tervajoki.	W	CE
2009:108:013	Forest motor road with ditches along the northern access route towards Kaunisvaara.	W	CE
2009:108:014	Hunting lodges at Raä 65:3.	SE	CE
2009:108:015	Hunting lodges at Raä 65:3.	SE	CE
2009:108:016	Hunting lodges at Raä 65:3.	W	CE
2009:108:017	Hunting lodges at Raä 65:3, older cabin with a carving among others reading 1897.	W	CE
2009:108:018	Hunting lodges at Raä 65:3.		CE
2009:108:019	Hunting lodges at Raä 65:3.		CE
2009:108:020	Hunting lodges at Raä 65:3.		CE
2009:108:021	Hunting lodges at Raä 65:3.		CE
2009:108:022	Hunting lodges at Raä 65:3.		CE
2009:108:023	Hunting lodges at Raä 65:3.		CE
2009:108:024	The road towards Käymäjärvi, AK road.	SE	CE
2009:108:025	The road towards Käymäjärvi, AK road.	SE	CE
2009:108:026	Hay-making grounds to the south east of the village of	SW	CE

	Käymäjärvi.		
2009:108:027	Hay-making grounds to the south east of the village of Käymäjärvi, cabin with one room and a storage.	SW	CE
2009:108:028	Hay-making grounds to the south east of the village of Käymäjärvi, cabin with one room and a storage.	W	CE
2009:108:029	Land to west of the above mentioned.	SW	CE
2009:108:030	Hay-making grounds in the south east part of the village of Käymäjärvi by, to west of the road.		CE
2009:108:031	Hay-making grounds in the south east part of the village of Käymäjärvi by, to west of the road.		CE
2009:108:032	Mark between hay-making grounds to the north of the above mentioned.		CE
2009:108:033	The road at the beginning of the village of Käymäjärvi.	SE	CE
2009:108:034	Farm group in the village of Käymäjärvi, Väinö Martikkala.		CE
2009:108:035	Farm group in the village of Käymäjärvi, Väinö Martikkala.		CE
2009:108:036	Barn along the road, east of the farm group mentioned above.	W	CE
2009:108:037	Barn along the road, east of the farm group mentioned above.	W	CE
2009:108:038	Barn along the road, east of the farm group mentioned above.	E	CE
2009:108:039	Buildings in the same farm group as mentioned above, Väinö Martikkala.	E	CE
2009:108:040	Buildings in the same farm group as mentioned above, Väinö Martikkala.	S	CE
2009:108:041	Buildings in the same farm group as mentioned above, Väinö Martikkala.		CE
2009:108:042	Buildings in the same farm group as mentioned above, Väinö Martikkala.		CE
2009:108:043	Buildings in the same farm group as mentioned above, Väinö Martikkala.	S	CE
2009:108:044	Tar pile along the same road as 2009:108:036, to the north of the road.		CE
2009:108:045	Vacation house in the south east part of the village of Käymäjärvi.	SW	CE
2009:108:046	Sawmill in the south east part of the village of Käymäjärvi, at the lake.	E	CE
2009:108:047	Farm group located at the sawmill mentioned above.	E	CE
2009:108:048	Sawmill in the south east part of the village of Käymäjärvi, at the lake.	E	CE
2009:108:049	Older farm, the village of Käymäjärvi to the east of the lake, right side of the road.	S	CE
2009:108:050	Farm groups in the village of Käymäjärvi to the east of the lake, right side of the road.		CE
2009:108:051	Farm groups in the village of Käymäjärvi to the east of the lake, left side of the road.		CE
2009:108:052	Farm in the village of Käymäjärvi to the east of the lake, right side of the road, Rune Skarpsvärd.	E	CE
2009:108:053	Farm in the village of Käymäjärvi to the east of the lake, right side of the road, Rune Skarpsvärd.	SW	CE
2009:108:054	Hay-making grounds, timbered cabins and barns belonging to the farm mentioned above.	SW	CE
2009:108:055	Farm groups in the village of Käymäjärvi to the east of the lake, left side of the road.		CE
2009:108:056	Farm groups in the village of Käymäjärvi to the east of the lake, right side of the road.		CE
2009:108:057	Old road towards Kaitavuoma (Tervavuoma nature reserve).	S	CE
2009:108:058	Old road towards Kaitavuoma (Tervavuoma nature reserve).	S	CE
2009:108:059	Farm groups in the village of Käymäjärvi to the east of the lake, left side of the road.		CE

2009:108:060	Small, timbered cabin belong to the farm group mentioned above.		CE
2009:108:061	Farm group in the village of Käymäjärvi to the east of the lake, to the left of the road, in the north part of the village.	W	CE
2009:108:062	Village of Käymäjärvi, the same farm group as mentioned above.	W	CE
2009:108:063	Village of Käymäjärvi, the same farm group as mentioned above.	W	CE
2009:108:064	Village of Käymäjärvi, the same farm group as mentioned above.	E	CE
2009:108:065	Mixed settlement in the village of Käymäjärvi, east of the lake, right side of the road.		CE
2002:108:066	Village of Käymäjärvi, the same farm group as 2009:108:061.		CE
2009:108:067	Village of Käymäjärvi, Arnold Björnström 5:4.		CE
2009:108:068	Village of Käymäjärvi, Arnold Björnström 5:4.		CE
2009:108:069	Paper from the shop activity in Käymäjärvi, Arnold Björnström 5:4.		CE
2009:108:070	Paper from the shop activity in Käymäjärvi, Arnold Björnström 5:4.		CE
2009:108:071	Paper from the shop activity in Käymäjärvi, Arnold Björnström 5:4.		CE
2009:108:072	Village of Käymäjärvi, Arnold Björnström 5:4, summer barn.		CE
2009:108:073	Village of Käymäjärvi, Arnold Björnström 5:4, tar pile used into the 1940's.		CE
2009:108:074	Village of Käymäjärvi, Arnold Björnström 5:4.		CE
2009:108:075	Village of Käymäjärvi, east of the lake, to the left of the road a former bus garage.		CE
2009:108:076	Farm group L. Björnström with two farm houses, one older and one younger barn, storage house, sauna and a small timbered cabin, in the village of Käymäjärvi, east of the lake, to the west of the road.		CE
2009:108:077	Farm group L. Björnström. Village of Käymäjärvi, same farm group as mentioned above. Farm house and small timbered cabin.		CE
2009:108:078	Farm group L. Björnström. Village of Käymäjärvi, same farm group as mentioned above. Storage house.		CE
2009:108:079	Farm group L. Björnström. Village of Käymäjärvi, same farm group as mentioned above. Storage house and small timbered cabin.		CE
2009:108:080	Farm group L. Björnström. Village of Käymäjärvi, same farm group as mentioned above. Vase shaped small, timbered cabin and sauna.		CE
2009:108:081	Farm group L. Björnström. Village of Käymäjärvi, same farm group as mentioned above. Vase shaped small, timbered cabin.		CE
2009:108:082	Farm group Sixten Björnström. Village of Käymäjärvi to the east of the lake, east of the road. Two farm houses.		CE
2009:108:083	Farm group Sixten Björnström. Village of Käymäjärvi to the east of the lake, east of the road. Farm houses, barn and storage house.		CE
2009:108:084	Village of Käymäjärvi. Same farm as mentioned above.		CE
2009:108:085	Farm group Sixten Björnström. Village of Käymäjärvi to the east of the lake, east of the road.		CE
2009:108:086	Farm group Sixten Björnström. Village of Käymäjärvi to the east of the lake, east of the road.		CE
2009:108:087	Farm group Sixten Björnström. Village of Käymäjärvi to the east of the lake, east of the road.		CE
2009:108:088	Farm group L. Björnström. Village of Käymäjärvi. Same as 2009:108:076. Younger barn.		CE

2009:108:089	Farm group L. Björnström. Village of Käymäjärvi. Same as 2009:108:076. Older barn.		CE
2009:108:090	Farm group. Village of Käymäjärvi, east of the lake up to the mire Takajänkkä. Older house of timbered construction and barn/storage house.	N	CE
2009:108:091	Village of Käymäjärvi. Same farm group as mentioned above, smoke sauna.		CE
2009:108:092	Village of Käymäjärvi. Same farm group as mentioned above, smoke sauna.		CE
2009:108:093	Village of Käymäjärvi. Same farm group as mentioned above, smoke sauna.		CE
2009:108:094	Village of Käymäjärvi. Same farm group as mentioned above, smoke sauna.		CE
2009:108:095	Fence between the farm group mentioned above and Takajänkkä, village of Käymäjärvi.	S	CE
2009:108:096	Fence between the farm group mentioned above and Takajänkkä, village of Käymäjärvi.	S	CE
2009:108:097	Village of Käymäjärvi, the mire Takajänkkä.	SW	CE
2009:108:098	Village of Käymäjärvi, the mire Takajänkkä.	SW	CE
2009:108:099	Farm group. Village of Käymäjärvi, east of the lake up to the mire Takajänkkä. Older house of timbered construction, same as 2009:108:090.	S	CE
2009:108:100	Farm group. Village of Käymäjärvi, east of the lake up to the mire Takajänkkä. Older house of timbered construction, same as 2009:108:090.	S	CE
2009:108:101	Farm group with cabin of timbered construction, barn and a small timbered cabin. The village of Käymäjärvi, east of the lake and east of the road. Northern part of the village.	SW	CE
2009:108:102	Same as 2009:108:101, village of Käymäjärvi. Cabin.	N	CE
2009:108:103	Same as 2009:108:101, village of Käymäjärvi. Barn.		CE
2009:108:104	Same as 2009:108:101, village of Käymäjärvi. Barn and storage house.		CE
2009:108:105	Same as 2009:108:101, village of Käymäjärvi. Cabin.		CE
2009:108:106	Same as 2009:108:101, village of Käymäjärvi. Small timbered cabin.	S	CE
2009:108:107	Same as 2009:108:101, village of Käymäjärvi. Farm group.	SE	CE
2009:108:108	Village of Käymäjärvi, view to east from the school, east side of the lake.	N	CE
2009:108:109	Village of Käymäjärvi, east side of the lake to the north of the road. The school.		CE
2009:108:110	Village of Käymäjärvi, east side of the lake to the north of the road. Small timbered cabin, in the back of the picture is the school.		CE
2009:108:111	Village of Käymäjärvi, east side of the lake to the north of the road. Small timbered cabin.		CE
2009:108:112	Village of Käymäjärvi, view same as mentioned above towards 2009:108:101.	SW	CE
2009:108:113	Village of Käymäjärvi, farm group north east of the lake and south of the road. Cabin and barn from about the 1950's.	N	CE
2009:108:114	Village of Käymäjärvi, same as above.	NW	CE
2009:108:115	Village of Käymäjärvi, stone fence in the north part of the village, to the north east of the lake.		CE
2009:108:116	View from the stone fence towards 2009:108:101 and the school. Village of Käymäjärvi.	W	CE
2009:108:117	View from the stone fence towards 2009:108:101. Village of Käymäjärvi.	SW	CE
2009:108:118	Same as 2009:108:115.	W	CE
2009:108:119	Same as 2009:108:113.		CE

2009:108:120	Village of Käymäjärvi, the road in the north west of the lake at the mire and Ylijoki.	NE	CE
2009:108:121	Village of Käymäjärvi, canal in the mire towards Ylijoki, hay-making mire.	SE	CE
2009:108:122	Village of Käymäjärvi, canal in the mire towards Ylijoki, hay-making mire.	W	CE
2009:108:123	Village of Käymäjärvi, canal in the mire towards Ylijoki, view towards the north east part of the village.	W	CE
2009:108:124	Village of Käymäjärvi, farm group south of the lake and north of the road.		CE
2009:108:125	Village of Käymäjärvi, farm south east of the lake and south east of the road.	W	CE
2009:108:126	Village of Käymäjärvi, farm group south east of the lake.	SW	CE
2009:108:127	Village of Käymäjärvi, shore-grazing meadow and hay barn to the south of the lake and east of the road.	SW	CE
2009:108:128	Same as above.		CE
2009:108:129	Same as above		CE
2009:108:130	Village of Käymäjärvi, farm group with two cabins, a barn and a garage to the south of the lake.	SE	CE
2009:108:131	Same as above, barn on the east side of the road.	SE	CE
2009:108:132	Same as above, cabin on the west side of the road.	SE	CE
2009:108:133	Same as above, cabin on the east side of the road.	SE	CE
2009:108:134	Same as above, barn.	NW	CE
2009:108:135	Same as 2009:108:134.	NW	CE
2009:108:136	Same as 2009:108:134.		CE
2009:108:137	Same as 2009:108:134.		CE
2009:108:138	Village of Käymäjärvi, south of the lake and to west of the road, a small timbered cabin.		CE
2009:108:139	Garage belonging to 2009:108:130.		CE
2009:108:140	Village of Käymäjärvi, the last farm group on the south side of the lake.	W	CE
2009:108:141	Same as 2009:108:127.	S	CE
2009:108:142	Same as 2009:108:127.	S	CE
2009:108:143	Village of Käymäjärvi, south of the lake and on the west side of the road, a smithy. NW of the last farm group.	N	CE
2009:108:144	Same as mentioned above, barn.	N	CE
2009:108:145	Village of Käymäjärvi, view over the lake and the north west part of the village.	S	CE
2009:108:146	Village of Käymäjärvi, a cairn to the south west of the lake and south east of the road.	SW	CE
2009:108:147	Older cabin located beside the cairn mentioned above.	N	CE
2009:108:148	Same as above.	S	CE
2009:108:149	Same as 2009:108:147, privy.	N	CE
2009:108:150	Same as above.	N	CE
2009:108:151	Village of Käymäjärvi, a road south west of the lake that follows Käymäjoki to the south east.	NW	CE
2009:108:152	Garage to the south west of the lake and north east of the road.	S	CE
2009:108:153	House belonging to 2009:108:152.	S	CE
2009:108:154	Barn, south west of the lake and south east of the road.		CE
2009:108:155	Farm group, south west of the lake and south east of the road.	E	CE
2009:108:156	Same as 2009:108:155.		CE
2009:108:157	Farm group and vacation houses, south west of the lake and east of the road.	SW	CE
2009:108:158	Same as mentioned above.	S	CE
2009:108:159	Village of Käymäjärvi, view from mire to the south west.	E	CE
2009:108:160	Village of Käymäjärvi, view from mire to the west.	E	CE
2009:108:161	Village of Käymäjärvi, view from mire to the north east part of	E	CE

	the village.		
2009:108:162	Village of Käymäjärvi, view from mire to the south west.	E	CE
2009:108:163	Village of Käymäjärvi, older, renovated small timber cabin, located on the north east side of the lake and to the north of the road.	SE	CE
2009:108:164	Vacation house, north east side of the lake and to the south of the road.	N	CE
2009:108:165	Vacation house, north east side of the lake and to the south of the road.	N	CE
2009:108:166	Village of Käymäjärvi, north east side of the lake and to the south of the road. The first farm group.		CE
2009:108:167	Village of Käymäjärvi, north east side of the lake and to the south of the road. Hay-barn on meadow.		CE
2009:108:168	Same as above.		CE
2009:108:169	Same as above.		CE
2009:108:170	Possible mill remain at Käymäjoki to the south east of the village of Käymäjärvi, view upstream Käymäjoki.		CE
2009:108:171	Log-driving canal/dam in Käymäjoki, at the same site as 2009:108:172, view downstream Käymäjoki.		CE
2009:108:172	Bridge over Käymäjoki to the south west of Käymäjärvi, the car points towards Lompolovaara.	N	CE
2009:108:173	Same as 2009:108:171.	NW	CE
2009:108:174	Same as 2009:108:171.	NW	CE
2009:108:175	Same as 2009:108:171.		CE
2009:108:176	Same as 2009:108:171.		CE
2009:108:177	Same as 2009:108:171.		CE
2009:108:178	Same as 2009:108:171.		CE
2009:108:179	Same as 2009:108:171.		CE
2009:108:180	Hunting lodges at Välipirtti Raä. 376:1.		CE
2009:108:181	Hunting lodges at Välipirtti Raä. 376:1.		CE
2009:108:182	Reindeer enclosure at Paskarova. Remains of a fence. See 2009:92:11.		CE
2009:108:183	Reindeer enclosure at Paskarova. Remains of a fence. See 2009:92:11.		CE
2009:108:184	Hunting lodges along the road in the vicinity of Poitajarova.		CE

List of remains

Archaeological and settlement antiquarian feasibility study intended as part of an environmental impact assessment (EIA) before a planned mining activity at Pellivuoma, Pajala parish and municipality, the landscape of Västerbotten, county of Norrbotten. Assigner: Northland Resources Inc.

(NB, the list below only contains the remains that were found and registered during the archaeological part of the feasibility study. It doesn't comprise area descriptions and assessments of landscape, topography, ground type or the cultural landscape as a whole, assessments that could play a part in the decision-process about a special archaeological inquiry).

Newly registered remains:

Number	Type of remain	Description	Coordinates x/y RT 90 2,5 gon W	Antiquarian assessment
Raä 336, Junosuando parish (temporary id -1)	Carving, historical time	Carving in a pine. On the E side of a pine is 1 carving. It constitutes a cross 0,16 x 0,16 m, about 1 cm deep into the tree. The carving is about 1,4 m above ground. The carving is overgrown with lichen.	7493750 / 1804394	Other cultural-historical remain
Raä 335, Junosuando parish (temporary id -2)	Chemical industry	Tar pile, round, 9 m diam, consists of an internal pit, 5 m diam, 0,5 m deep, surrounded by a bank, 2 m wide and 0,2-0,4 m high. Opening towards SSW. Outside the opening is a channel that partly has vanished after a road construction. The remaining channel is 1,4 m long, 0,7 m wide and about 0,2 m deep. During probing in the middle of the pit a rich amount of charcoal was revealed. In the middle of the pit is 6 larger stones, 0,5-1,1 m in diameter. These probably come from the construction of the road. Outside the bank is 8 pits. Growing on the tar pile is about 10 pines, 2 birches, deciduous bushes, pine plants, moss and berry sprigs.	7493471 / 1805206	Other cultural-historical remain
Raä 1271, Pajala parish (temporary id -3)	Reindeer enclosure	Reindeer enclosure, about 340 m l (E-W), consisting of sawn planks and round posts. Occasional parts of the fence are still standing while others have tumbled down. The fence is heavily decomposed and overgrown. On the N side of the W part of the fence there are random spots of other vegetation in comparison with the surrounding forest. The pine forest within the enclosure is about 30-50 years old. With starting point in the remaining fence's shape and diverging ground vegetation it is assumed that the enclosure stretches north from the fence. According information received from the local population the reindeer enclosure was used after the second world war, during the 1940's and 1950's. Overgrown with pine, occasional spruce, berry sprigs and moss.	7487065 / 1800013	Other cultural-historical remain
Raä 1273, Pajala parish (temporary id -6)	Reindeer enclosure	Reindeer enclosure, about 60 m diam, consisting of an area with about 10-15 year old pine plants and young deciduous trees that differ from the older surrounding forest. The area is surrounded by a log-enclosure, which has collapsed on some places. On the SE side is 2 side stalls on the outside of the enclosure. The NE side stall measures 22x13 m (NNE-	7490556 / 1812045	Other cultural-historical remain

		SSW) and the SW stall measures 12x10 m (NE-SW). Remains of trapping arms are visible in the WNW part of the enclosure. According the Sami village Muonio the enclosure was used from 1933 to 1972-1973. However the enclosure should have its roots in the 18th century and has been rebuilt several times. A Sami cot should also be found in the area. The growth in the enclosure consists of several fully grown pines, a few birches, deciduous bushes, young pine plants, berry sprigs, moss and grass.		
Raä 1270, Pajala parish (temporary id -7)	Chemical industry	Tar pile, round, about 8 m diam, consisting of an internal pit, about 4 m diam and 0,2 m deep. Surrounded by a bank, 2 m wide and 0,1-0,3 m high. Opening towards SSW. Outside this is a channel, 5 m long, 1,0-2,0 m wide and about 0,5 m deep. In the channel it is remains of a wooden construction. During probing in the middle of the pit rich amounts of charcoal was found. In the middle of the pit lies an old oil drum. 1 pit is outside the tar pile's SW side. According to information from the local population the tar pile was used into the 1950's. Overgrown with several young birches, deciduous bushes, moss and berry sprigs. 1 spruce stands in the bank and several young spruces stands in the channel.	7495145 / 1807611	Other cultural-historical remain

Earlier known remains that are mentioned in the report:

Number	Type of remain	Description	Coordinates	Antiquarian assessment
Raä 22 Junosuando parish	Settlement	Settlement, partly excavated, about 55x35 m (N-S). Within the settlement one construction was found. This consists of 1 hearth. In a sandy, exposed area above a road bank 5 quartzite fragments, about 25 quartz fragments and about 30 burnt bone fragments which were recovered during the inventory in 1993. 38 m N of the area's NE corner is a pit, oval, 9x2 m (NNW-SSE) and 0,2 m deep. The pit, which is disturbed in its N part by dumped stumps and timber, is possibly formed by nature. -- Addition RAÄ 321-2933-2004: The County Museum of Norrbotten performed in 2004 an archaeological inquiry in the area. Within the settlement was found 1 quartz fragment. Further to the N a quartz scrape was found and another quartz fragment was found in the W road band. Yet further quartz fragments were found in a smaller road W of the main road. The pit found during the inventory was probed and a suggested double ground surface was observed. This could be a possible settlement pits/settlement bank; it's however diffuse and should be further investigated. The settlement area was widened towards N and W. -- Addition dnr 321-3223-2006: During a archaeological pre-investigation in 2004 a profile trench was dug through the oval shaped pit that showed to be created by	7510110 / 1792394	Ancient remain

		<p>nature. In the other trenches there was found 1 construction consisting of a round, bowl-shaped hearth pit, 0,25 m large, with a plane bottom. The settlement can be concluded after this investigation to be located only to the E of the road and probably stretches further to the east. Finds of struck quarts and green-stone/slate, a part of a core, an anvil stone and burnt bone. 14C-dating to 8555 +/- 65 BP and 8720 +/- 60 BP (uncalibrated).</p> <p>Rolling sand dunes. Forest (pine).</p>		
Raä 31:1 Pajala parish	Site for find	<p>Site for find of cast form for an axe of the ananino-type. No other finds during the inventory in 1992. According to Torvald Tornberg, Juhonpieti, and the widow to the man who found it J.L. Aaro the given location is the exact position for the find. The cast is 72 mm long, 54-61 mm wide and up to 13 mm thick. On the concave inside there is a decor of three horizontal lines. Above these is a zig-zag ornament and above that are pair-wise orientated vertical lines. On the cast's lower part, two lines running down to the lower corners. The cast was found during work with a salmon trap around 1954 by John L Aaro, Erkheikki. The cast has been donated to the County Museum of Norrbotten with the number 8755.</p> <p>Stony river shore without vegetation.</p>	7479957 / 1814592	Other cultural-historical remain
Raä 62:1 Pajala parish	Settlement pit	<p>Settlement pit, round, 1.5 m diam and 0.2 m deep. Surrounded by an occasionally diffuse bank, 1.0 m wide and 0.1 m high. Overgrown with sprig.</p> <p>Flat sand deposits. Forest (pine).</p>	7497307 / 1818556	Ancient remain
Raä 63:1 Pajala parish	Settlement	<p>Settlement with a Stone Age-character, uncertain spread, located on a sand ridge and naturally limited by wetland in the W and a brook in the E. Within mentioned area, 5x2 m (N-S), quarts refuse was found in eroded areas of road 6. At a test excavation about 10 fire-cracked rocks and occasional charcoal particles were found at a deep of about 0.2 m.</p> <p>Sandy height, immediately W of a brook ravine. Forest (sparse pine forest).</p>	7496823 / 1816542	Ancient remain
Raä 64:1 Pajala parish	Trapping pit	<p>Trapping pit, almost oval, 3.5x3.8 m (N-S) and 0.7-0.9 m deep. Bowl shaped bottom with a uprooted tree in the NNE.</p> <p>Moraine in connection with brook ravine in the SW. Forest (sparse pine forest).</p>	7498919 / 1815470	Ancient remain
Raä 65:1-3 Pajala parish	1) Chemical industry 2) Chemical industry 3) Foundation for house, historical time	<p>1) Tar pile, round, 8 m diam, consisting of a pit, 2 m diam and 0.2 m deep. Surrounded by a bank, 3 m wide and 0.2-0.5 m high, with an opening in the SSE. In front of the opening is a pit, 2 m long, 0.5 m wide and 0.5 m deep. In the SW part of the bank is an uprooted tree. Overgrown with sprig and about 5 pines. 16 m NNW of number 1 is 2) Tar pile, round, 13 m diam, consisting of a pit, 7 m diam and 1.0 m deep. Surrounded by a bank, 1.0 m wide and 0.1 m high (secondary bank, boiling). The bank is surrounded by yet another bank, 2.0 m wide and 0.1 m high (original bank, boiling). The banks have an opening in the WSW. In front of the opening is a pit, 3 m long, 1.5 m wide and 0.5 m deep. Overgrown with deciduous bushes and about 10 pines. 23 m NE of number 2 is 3) Settlement remain other, rectangular, 4x3 m (WNW-ESE), consisting of a sandy bank with a stove wall remain in the WNW. Surrounded by about 5 pits. Overgrown with sprig. Foundations for a tar-boiling cabin.</p>	7497736 / 1816120 7497760 / 1816142 7497735 / 1816179	Other cultural-historical remain

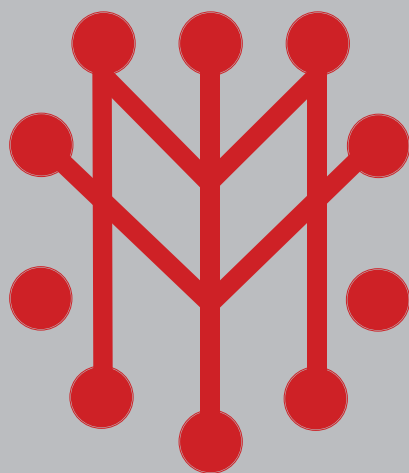
		Sandy ridge towards brook in the SSE. Forest (pine).		
Raä 66:1 Pajala parish	Chemical industry	Tar pile, round, 8 m diam, consisting of a pit, 3 m diam and 0.5 m deep. Surrounded by a bank, 2.5 m wide and 0.5 m high, with an opening in the NE. Overgrown with three birches and six pines. Well-preserved. Sandy height next to mire. Forest (sparse pine forest).	7498153 / 1818085	Other cultural- historical remain
Raä 67:1 Pajala parish	Hearth	Hearth, oval, 1x0.5 m (N-S) and 0.1 m high. The stones are 0.1-0.3 m large and covered in moss. The hearth can probably be connected to two foundations for timbered houses about 33 m WNW of the hearth. The foundations are about 100 years old and belong most likely to a logger's cabin with a belonging stable. Sandy height next to mire. Forest (pine with occasional birches).	7498667 / 1818373	Ancient remain
Raä 72:1 Pajala parish	Settlement	Occurrence of fire-cracked stone, uncertain spread. On a stretch of 25 m (E-W), fire- cracked stone was found on three places with probe in a still used road. In the W part large amounts of fire-cracked stone was found within an area of (N-S), 2x1.3 m. W edge of a sand ground area next to a fresh water springs. Forest (pine).	7497624 / 1817290	Ancient remain
Raä 75:1-2 Pajala parish	1) Chemical industry 2) Chemical industry	1) Tar pile, oval, 13x11 m (NE-SW), consisting of a pit, 3x5 m (NE-SW) and 1.0 m deep. Surrounded by a bank, 4-5 m wide and 1.0 m high, with an opening in the SE. In front of the opening is a channel, 3 m long, 1 m wide and 0.5 m deep. Overgrown with about 15 pines and bushes. 3 m N of number 1 is 2) Tar pile, oval, 5x4 m (N-S), consisting of a pit, 3 m diam and 0.1 m deep. Surrounded by a bank, 0.5-1.0 m wide and 0.2 m high, with an opening in the E. In front of the opening is a pit, 1.5 m long, 0.5 m wide and 0.3 m deep. Overgrown with about 10 pines. Sand-gravel slope, mild elevation. Forest (pine).	7499346 / 1815359 7499364 / 1815358	Other cultural- historical remain
Raä 78:1 Pajala parish	Trapping pit	Trapping pit, oval, 3.2x2.5 m and 0.4 m deep. Surrounded by an occasional diffuse bank, 0.5-2.0 m wide and 0.1 m high. Sandy wetland next to brook. Forest (dense forest of young birch).	7496569 / 1816741	Ancient remain
Raä 81:1 Pajala parish	Chemical industry	Tar pile, round, 11 m diam, consisting of a pit, 6 m diam and 1 m deep. Omgiven Surrounded by a bank, 2.5 m wide and 0.5- 1.0 m high, with an opening in the E. In front of the opening is a pit, 2 m long, 1 m wide and 0.3m deep. Overgrown with bushes and about 20 young trees. Moraine height next to brook. Forest (birch, spruce and bushes).	7496289 / 1816718	Other cultural- historical remain
Raä 83:1-2 Pajala parish	1) Settlement pit 2) Settlement pit	1) Settlement pit, oval, 1.7x1.3 m (WNW- ESE) and 0.4 m deep. ESE of the pit's edge is an irregular bank, 2-3 m wide and 0.3 m high. The bank is rather diffuse. 2.5 m SW of number 1 is 2) Settlement pit, round, 1.2 m diam and 0.3 m deep. The bank is diffuse. Flat gravel deposits surrounded by wetland. Forest (culled pine forest).	7499293 / 1817415 7499271 / 1817412	Ancient remain

Raä 84:1 Pajala parish	Chemical industry	Tar pile, round, 8 m diam, consisting of a pit, 2 m diam and 0.5 m deep. Surrounded by a bank, 3 m wide and 0.5-1 m high, with an opening in the SW. In front of the opening is a pit, 3.5 m long, 0.8 m wide and 0.2 m deep. Moraine slope. Forest (bushes and spruce).	7495958 / 1807450	Other cultural-historical remain
Raä 85:1-2 Pajala parish	1) Settlement pit 2) Settlement pit	1) Settlement pit, rectangular, 2.5x0.8 m (WNW-ESE) and 0.4 m deep. 1.5 m S of number 1 is 2) Settlement pit, rectangular, 2.7x0.5 m (N-S) and 0.2 m deep. In connection with the pits was yet other hollows, these were however diffuse. Jutting ledge in a moraine slope. Forest (sparse forest with young pines).	7497697 / 1807355 7497693 / 1807356	Object under surveillance
Raä 87:1-2 Pajala parish	1) Settlement pit 2) Settlement pit	1) Settlement pit, oval, 2.2x1.1 m (NNE-SSW) and 0.5 m deep. Surrounded by an occasional diffuse bank, 0.5-1 m wide and 0.1 m high. Overgrown with sprig and one spruce. 5 m NNW of number 1 is 2) Settlement pit, oval, 2x1.1 m (N-S) and 0.2 m deep. Possibly also a third pit situated between number 1 and 2. Gravel ridge next to lake. Forest (mixed).	7498268 / 1804385 7498283 / 1804385	Ancient remain
Raä 88:1-2 Pajala parish	1) Chemical industry 2) Chemical industry	1) Tar pile, round, 9 m diam, consisting of a pit, 3 m diam and 1.3 m deep. Surrounded by a bank, 3 m wide and 0.5 m high, with an opening in the SW. In front of the opening is a pit, 3 m long, 1.5 m wide and 0.3 m deep. Overgrown with about 30 pines and birches and bushes. 5 m NW of number 1 is 2) tar pile, round, 8 m diam, consisting of pit, 2.8 m diam and 0.5 m deep. Surrounded by a bank, 2.5 m wide and 0.4 m high, with an opening in the S. In front of the opening is a channel, 1.5 m long, 1 m wide and 0.2m deep. Overgrown with about 20 trees. Moraine slope towards brook in the SW. Forest (pine and birch).	7495553 / 1806351 7495565 / 1806335	Other cultural-historical remain
Raä 89:1 Pajala parish	Quarry	Quarry. In an area of 200x50 m (NW-SE), it was observed remains after a quarry activity in the form of an iron ore crush, a quarry in the mountain and a pit. The area is heavily overgrown by sprig vegetation. According to Väinö Martikkala in Käymäjärvi the iron ore was extracted by a man named Pekka who transported the ore to the blast furnace at Palokorva with the help of seven draught reindeers for about 200 years ago. Mountain exposed next to lake. Forest (spruce and birch).	7498826 / 1804048	Other cultural-historical remain
Raä 90:1 Pajala parish	Nature-object/object with tradition	Natural stone, sand stone?, 3x2 m (NE-SW) and close to 1 m high. On the vertical S side there are eroded areas in the shape of "signs". According to earlier notations about the stone it was discovered during the 1600's by the famous ancient remains-researcher, Johannes Hadorph. He was later to become head of the Swedish National Heritage Board. Other celebrities that have visited the stone is the Maupertuis-expedition with Anders Celsius. The tradition about the stone is whether or not the signs are made human hand or not. NW-slope of a mountain. Forest (clearance with young pine and seed pine).	7494502 / 1805954	Other cultural-historical remain
Raä 91:1 Pajala parish	Mill	Remains of a mill, consisting of foundation stones in naturally formed stone and a timbered construction that is the remains of a log-driving canal. 8 m S of the mill remains is a foundation for a timbered cabin, square, 2x2 m and 0.1 m high. Moraine mixed with boulders next to a	7495840 / 1805500	Other cultural-historical remain

		smaller brook. Forest (mainly birch).		
Rää 92:1 Pajala parish	Site for find	Site for find of fragment of a North-bothnic tool. During the inventory no further finds were made at the given location, which is now overgrown with grass. According to Albin Björnström in Käymäjärvi the tool was found during the potato harvest for about 20 years ago. The object is made of green-stone and has a sharpened edge. See sketch in the inventory documents. Slight SW-slope towards lake. Field (grass meadow).	7495493 / 1806564	Other cultural-historical remain
Rää 93:1 Pajala parish	Site for find	Site for find of a slate chisel. During the inventory in 1992 the location for the find was overgrowing fields. No further finds were made. According to earlier documentation the object was found in 1930. Väinö Martikkala in Käymäjärvi has pointed out the location of the find and told us that it was found by Johan Björnström. The object is made from green-black slate, double edged, 8.7 cm long, 2.7 cm wide and 2.4 cm thick, to some amounts sharpened. Now kept at the SHM, number 19551. Slight SW-slope towards lake. Field (grass meadow).	7495211 / 1806992	Other cultural-historical remain
Rää 94:1 Pajala parish	Other	Pit, round, 1.7 m diam and 0.2 m deep. In the WSW-WNW is bank, 1.5-2 m wide and 0.3 m high. The pit doesn't look like a settlement pit or a quarry pit. A summer grave can not be completely excluded as a possibility, even if there are no traditions about one here. Slight sandy moraine slope towards lake in the SW. Forest (spruce with elements of birch).	7495554 / 1806493	Other cultural-historical remain
Rää 96: 1-3 Pajala parish	1) Mining shaft 2) Scrap rock cairn 3) Summer grave	1) Mine shaft, 6x4.5 m (N-S) and 4 m deep. The shaft has been created in connection with the extraction of an iron ore deposit. Immediately ENE of number 1 is 2) Scrap rock cairn, irregular, 11x7 m (N-S) and 2 m high. The cairn lies in a steep slope. Inside number 1 is 3) Summer grave, in the bottom of the mine shaft. Some clear traces from the burial can not be seen but can be revealed at a more thorough control. According to Väinö Martikkala in Käymäjärvi the tradition says that the shaft has had the function of a summer grave for the fin "Järvi-Janne", which caught a disease and died in connection with digging ditches around the lake Kaitajärvi. Järvi-Janne was buried in the summer and transported in the fall to Pajala. The old Pajala road lies about 100 m below the grave. E-slope of a moraine height to the W of a lake. Forest (Some pines and bushes).	7494305 / 1806503	Other cultural-historical remain
Rää 100:2 Pajala parish	2) Dam embankment	2) Dam embankment, 100 m long (N-S), 1.5-3 m wide and 1 m high. The embankment consists of soil, stone and timber constructions. The embankment forks into a V-shape on each side of the stream furrow. The main stretch is marked out on the ortophoto. Moraine mixed with boulders. Forest (pine with elements of birch).	7499997 / 1812777	Other cultural-historical remain

Raä 178:1 Pajala parish	Settlement bank	Settlement bank, oval, 13x9 m (N-S), consisting of a recess, oval, 6x3.3 m and 0.25 m deep. Relatively flat bottom. The bank is 2.5 m wide and up to 0.1 m high. Overgrown with 6 pines. 11 m to the E is a pit, 1.5 m diam and 0.15 m deep, situated in a slope, which during probing showed an amount of charcoal in the lowest layer of soil.	7480670 / 1816534	Ancient remain
Raä 183:1 Pajala parish	Settlement bank	Settlement bank, oval, 13x9m (ENE-WSW), consisting of a recess, almost rectangular, 7x3 m and 0.2-0.3 m deep, with a relatively flat bottom. The bank is 3-5 m wide and 0.05-0.4 m high, most visible at the N long side and at the short side. At probing some pale soil emerged. Overgrown with twelve young pines.	7481148 / 1815417	Ancient remain
Raä 372:1 Pajala parish	Foundation for house, historical time	Foundation for house, 6x5 m (NE-SW), with foundation stones of naturally shaped stone, 0.4-0.6 m large. In the SW part is a cellar pit, 1.5x1 m (N-S) and 0.4 m deep. During inventory there were still decomposed wooded remains in the pit, otherwise it is surrounded by natural stone. In the S corner is a stove wall remain. Overgrown with two young pines and pine plants. The gravel edge of a terrace facing a wetland.	7489627 / 1811219	Other cultural-historical remain
Raä 376:1 Pajala parish	Crofter-settlement remains	Croft remains, within an area of 50x40 m (NE-SW), consisting of 1 foundation for a house and scattered remains of farm buildings etc. The foundation is situated in the area's SE part, 10x7 m (NE-SW), and consists foundation stones of naturally shaped stone, stove wall remain in the middle and remains from brick and cement. The remaining area consists of an open but overgrowing yard with several foundation stones from smaller farm buildings. According to the economical map from 1968 the croft is called Välipirtti. Gravel moraine, slight NW-slope towards smaller watercourse.	7489716 / 1810546	Other cultural-historical remain
Raä 377:1 -5 Pajala parish	1) Foundation for house, historical time 2) Chemical industry 3) Chemical industry 4) Foundation for house, historical time 5) Foundation for house, historical time	1) Settlement remains other, consisting of a smaller elevation in the form of an almost round bank, 6 m diam and 0.8-1.2 m high. Within are two pits, 1x1 m in the E and W part. On some places in the bank foundation stones can be felt. Overgrown with one spruce and bushes. 50 m E of number 1 is 2) Tar pile, almost round, 16 m diam, consisting of a pit, 6 m diam and 1.5 m deep. Surrounded by a bank, 4-6 m wide and 0.3-1.4 m high, with a channel in the S, 4.5 m long and 1.2 m wide. Farthest out is a pit, 5x2 m and 0.3 m deep, with place for a tar barrel. Overgrown with about 10 pines, 5 spruces and bushes. Next to each other, 120 gon beside number 2 is 3) Tar pile, almost round, 10 m diam, consisting of a pit, oval, 5x3 m (E-W) and 0.6 m deep. Surrounded by a bank, 2.5-4 m wide and 0.1-1.3 m high, with a channel in the S, 5 m long and 1 m wide. Overgrown with three pines, one young spruce and bushes. 27 m to the E of number 3 is 4) Foundation for house, 4x4 m (NE-SW), with moss covered banks laid over the joists. Within is a flat surface with a stove wall remains in the SW corner. Entrance in the SE part, marked with a 1 m wide opening in the bank foundation. 19 m NE of number 4 is 5) Settlement remains other, consisting of an almost round elevation, 6 m diam and 0.4-1 m high. Within in the NE part is a smaller pit, 1.5 m diam and 0.2 m deep. An entrance can barely be seen in the SW part, with a 1 m wide interruption in the bank foundation.	7489536 / 1810990 7489532 / 1811052 7489532 / 1811052 7489542 / 1811078 7489550 / 1811104	Other cultural-historical remain

		Gravel and boulder moraine in a SE-slope of a smaller height. Forest (mixed).		
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