



Appendices

Call for Tender in accordance with the
Regulations Regarding Public Procurement,
Parts I and III

for the procurement of

**FRAMEWORK AGREEMENT FOR THE
PURCHASE OF ANALYSES OF SCIENTIFIC
SAMPLES FROM DEVELOPMENT-LED
ARCHAEOLOGICAL INVESTIGATIONS**

Ref. no. 427/26/550/RCa

Appendix 1: The Client's Requirements

1 THE AIM OF THE PROCUREMENT

NIKU, the Norwegian Institute for Cultural Heritage Research, (also known as the Client) is responsible for archaeological investigations and monitoring in Norway's medieval cities, medieval churches, cemeteries, monasteries and fortresses, and any remains of such sites. In connection with these investigations, NIKU requires the undertaking of scientific analyses within the fields of archaeological dating, archaeobotany, and paleoecology.

The procurement relates solely to the analysis of samples connected to development-led archaeology projects, and not those from NIKU's research projects, special collaborative projects, environmental monitoring projects, or work undertaken by other departments in NIKU.

The procurement aims to enter into contract with one or more efficient and stable suppliers who are to undertake analyses of material from NIKU's archaeological investigations. NIKU is looking for suppliers with good capacity and capability, who can provide services at competitive prices and to deadlines. The contract is subdivided into multiple parts. A supplier can make an offer for as many parts as they wish, and each offer will be evaluated independently of the others.

NIKU's archaeologists are responsible for taking the samples and packing and sending them to the supplier for analysis, unless otherwise agreed. Unless NIKU states otherwise, samples are to be returned after the completion of the task. This applies to both cleaned samples and any remaining material. The supplier cannot destroy remaining materials without obtaining NIKU's approval for this in advance. NIKU covers the cost of sending the samples both to and from the supplier.

The supplier is to cover any costs relating to meetings with the Client themselves.

2 DESCRIPTION OF THE SERVICE TO BE PROVIDED

2.1 Scope

As stated in the *Conditions of Tender*, Paragraph 1.2, bidders should be aware that it is not possible to provide a binding total value of the contract or its individual parts. The scope of the contract and the size of individual orders is dependent on the specific budget posts in NIKU's project budgets, in accordance with the determinations of the Directorate of Cultural Heritage.

2.2 Description of the service to be provided

As noted above, the contract consists of four parts. Each part corresponds to a specific type or types of analysis of samples from archaeological investigations. The parts are presented below.

Information on the awarding criteria and general requirements for all parts can be found in the *Conditions of Tender* and the *Contract*. The specific requirements for each part are set out in this document, under Paragraph 3.

NIKU owns the results of the analyses that are ordered, as set out in the *Contract*, Paragraph 2.2.

Part 1: Radiocarbon dating

^{14}C -dating is used to date organic material. The results are often important preconditions for being able to place archaeological finds in historical context, also during ongoing investigations. This is thus a type of analysis where fast processing time is important. Statistical analysis can also contribute to the interpretation of the results.

Samples are chosen with minimising factors that can negatively affect dating in mind, and the material is cleaned for foreign objects before sending and is delivered securely packed.

Part 2: Environmental archaeology

Pollen analysis involves determining the species and counting the frequency of pollen types found in soil samples. By identifying the various trees and plants in each sample, pollen analysis can help to reveal the composition of past landscapes.

Samples are normally taken from sections and stored in air-tight tubes or small sample bags.

The remains of fruit, seeds, flowers, leaves, stems, roots and much more can be found in archaeological contexts. Together with insects, such analyses can tell us a great deal about landscape, climate and urban contexts in the past.

The standard sample size is 2.5 to 5 litres, contained in plastic buckets with a lid.

Both pollen and macrofossil analysis require a good level of knowledge of historical Norwegian vegetation conditions.

3 REQUIREMENTS OF SUPPLIERS

It is a requirement that the supplier has access to the appropriate equipment and technical competence for the specific sub-contract. Key persons must be fluent in either English or a Scandinavian language and have documented skills and experience within the relevant type of analysis. A detailed description of the analysis process should also be provided.

The sending of samples and contextual information should be able to be done in a simple and effective manner, especially when considering that there will likely be orders of large numbers of samples.

NIKU's post-excavation work is under normal circumstances to be completed within 18 months of the end of the excavation, and suppliers are to submit a binding deadline and capacity for the completion of their analyses. It is expected that the analysis report is delivered to NIKU at most 90 days after the receipt of samples at the laboratory, and a shorter processing time will count positively when considering the quality of the bid. A quick response time is always important, but is weighed differently for different parts (see below).

It is expected that there is close contact between the supplier and the project manager/co-ordinator at NIKU in terms of analyses and results during each project. All analysis results must reference the contextual units that NIKU requires in each order, such as deposit, area and phase. Reports can be sent electronically. Upon request, results must also be delivered as tables (for example Excel or CSV, according to need). If the report contains photos, these must be delivered to NIKU as separate files at the same time as the report.

If suppliers have feedback and suggestions for improving methods/techniques or can offer relevant supplementary analyses, this will be a factor in the assessment of the quality of the bid – also if suppliers have access to such through agreements with other institutions or Subcontractors. This applies to all parts of the contract.

The requirements set for suppliers per part are listed below.

Part 1: Radiocarbon dating

An important quality criteria for NIKU is a fast processing time. The supplier should also be able to perform a limited number of express datings (< 2 weeks) when necessary.

Suppliers should also state the minimum sample size for various materials that are to be dated.

Examples of supplementary analyses that can be given credit in the assessment of quality (but which are not requirements) are tree species identification, photographs of samples, Bayesian analysis of sample series, and wiggle matching.

The results from radiocarbon dating are to include the following for each sample: $\delta^{13}\text{C}$ ‰ VPDB (where relevant), uncalibrated ^{14}C age BP, calibrated age with confidence interval (1 and 2 SD), and a curve with likely calibrated dating per sample. Median age is also positive. NIKU's sample number must be stated for each individual result.

Part 2: Environmental archaeology

NIKU requires a supplier with extensive experience within the identification of both macro- and microscopic bioarchaeological material, and which has in particular competence with

material from the Nordic Middle Ages. Fast processing times are advantageous, but not crucial for this part of the contract.

It is a requirement that the supplier can undertake both pollen and macrofossil analysis (including insect remains and other faunal material) or submits a proposal together with a subcontractor that can undertake these analyses. It is a further requirement that the supplier should be able to provide photographs with a scale of unusual samples and identified biological specimens.

For macrofossil samples, NIKU requests prices for both floated and non-floated samples. suppliers should also state desired sample size (also for various types/qualities of material/soils, if this varies).

It is also desirable that suppliers specify any other environmental archaeology analyses that they or subcontractors can provide, such as tree species analysis, parasite analysis and analyses of maritime non-vertebrate fauna. Any purchase of these services will be outside the scope of this framework agreement, and as such the price criteria will solely be judged on the price stated for those services that are required (pollen, macrofossil, insect analyses). However, in the consideration of the proposal's quality, additional services will be seen as advantageous.

Pollen and spore analysis

Pollen and spore identification shall be undertaken using established and internationally recognised palynological identification literature, together with appropriate modern reference material and/or reference collections. Pollen and spores shall be identified to the lowest taxonomic level that can be reliably supported by morphological characteristics and available reference material. Where identification to genus or species level is not considered reliable, an appropriate higher taxonomic level or defined pollen type shall be reported.

Relevant identification literature may include, but is not limited to, Moore, Webb & Collinson (1991), *Pollen Analysis*; Reille (1992), *Pollen et Spores d'Europe et d'Afrique du Nord*; Beug (2004/2021), *Leitfaden der Pollenbestimmung für Mitteleuropa und angrenzende Gebiete*; and Fægri & Iversen (1989), *Textbook of Pollen Analysis*, or other recognised equivalent references.

The supplier shall have access to an appropriate pollen reference collection and/or other suitable comparative reference material, and shall be able to demonstrate relevant experience in pollen and spore identification from archaeological contexts in northern Europe.

As a general guideline, a count of 300–500 identifiable pollen and spore units per sample is desirable, in accordance with established professional practice. The precise count shall be determined by the analyst based on the nature and preservation of the sample. Where pollen content, preservation or other characteristics make this difficult, a lower count may be accepted. Any deviation from the stated count shall be reported and taken into account in the interpretation.

Results shall be interpreted in relation to the analysed pollen and spore assemblage and, where relevant, consider local and regional vegetation, natural and anthropogenic vegetation, evidence of cultivation or other land use, and taphonomic factors such as preservation and redeposition. Interpretation shall be appropriate to the nature and limitations of the material and dataset.

The report should include photographs with a scale of significant or unusual finds where these contribute to interpretation.

Plant macroremains analysis

Plant macroremains analysis shall be undertaken using established and recognised identification literature, together with appropriate modern reference material and/or reference collections. Plant macroremains shall be identified to the lowest taxonomic level that can be reliably supported by morphological characteristics and available reference material. Where identification to genus or species level is not considered reliable, an appropriate higher taxonomic level or relevant group/type shall be reported.

The supplier shall have access to appropriate modern reference material and/or reference collections and shall be able to demonstrate relevant experience in the identification of plant macroremains from archaeological contexts, including northern European contexts. The identification methods and principal references used shall be stated in the report.

Results shall be documented in a form that allows the analysis to be reviewed and further used. As a minimum, the results shall include identified taxa or groups/types, quantities or counts, and relevant information about the sample material. Where relevant, preservation, fragmentation and other factors affecting identification and interpretation shall also be documented.

The analysed material shall be interpreted in relation to its archaeological and stratigraphic context. Where relevant, interpretation may address vegetation, cultivation and other land use, food and resource use, and other environmental or activity-related evidence supported by the material. Taphonomic factors, including charring, degradation, redeposition and selective preservation, shall be considered where relevant. Interpretation shall be appropriate to the nature and limitations of the material and dataset.

Finds of insects or other animal remains encountered during plant macroremains analysis shall be noted and documented where possible. Where such remains appear potentially significant, this shall be indicated in the report and, where appropriate, recommendations may be made for further specialist analysis.

The report should include photographs with a scale of significant or unusual finds where these contribute to interpretation.

Insect analysis

Insect remains shall be identified using established and recognised entomological identification literature and appropriate modern comparative reference material and/or reference collections. Remains shall be identified to the lowest taxonomic level that can be reliably supported by their morphological characteristics, preservation and available reference material. Where identification to species level is not considered reliable, an appropriate higher taxonomic level or taxonomic group shall be reported.

The supplier shall have access to appropriate modern comparative reference material and/or reference collections and shall be able to demonstrate relevant experience in the identification and analysis of insect remains from archaeological contexts, including northern European contexts. The identification methods and principal references used shall be stated in the report.

Results shall be documented in a form that allows the analysis to be reviewed and further used, and shall include, as a minimum, identified taxa or taxonomic groups, quantities or frequencies, sample information and relevant information on preservation. Where appropriate, the results shall distinguish between taxa representing different environmental conditions, habitats or human activities.

The insect assemblage shall be interpreted in relation to the archaeological and stratigraphic context of the sample. Where relevant, interpretation may address environmental conditions, habitat, climate, vegetation, water conditions, human activity, waste or resource use, and other environmental or activity-related information supported by the material. Taphonomic factors,

including preservation, fragmentation, redeposition and contamination, shall be considered where relevant. Interpretation shall be appropriate to the nature and limitations of the material and dataset.

The report should include photographs with a scale of significant or unusual insect remains where these contribute to identification or interpretation.

Appendix 2: The supplier's offer

This is to include:

- Confirmation of which part or parts the supplier is bidding for
- Documentation of the competence and experience of key persons, cf. the awarding criteria in the Conditions of Tender (Chapter 4)

Appendix 3: Administrative provisions and order form

1 INTERACTION BETWEEN THE CLIENT AND THE SUPPLIER

NIKU will invite the supplier to meetings when necessary.

2 SUBCONTRACTORS

As per the Contract, Paragraph 4.1.2.

The supplier's approved subcontractors:

Name	Organisation no.	Delivery area

Signed agreement between the supplier and their subcontractors is to be attached if relevant.

ORDER FORM

The following template (or equivalent) may be used when ordering:

ORDER - FRAMEWORK AGREEMENT FOR THE PURCHASE OF ANALYSES OF SCIENTIFIC SAMPLES FROM ARCHAEOLOGICAL INVESTIGATIONS

An order is placed under the framework agreement for the purchase of analyses of scientific samples from archaeological investigations between NIKU and [supplier], signed [xx.xx.xxxx], NIKU reference number 427/26/550/RCa The conditions of the framework agreement apply to the order, unless otherwise stated in the order.

Description of the service to be provided, cf. Appendices 1 and 2:

Timeframe and deadline:

Project:

Price, cf. Appendix 4:

Special conditions/Agreed deviation from the framework agreement:

Invoice is to be addressed to:

The invoice is to be sent as a pdf to post@niku.no.

The invoice should include NIKU's project number and project manager. The services provided are to be specified.

The order is formed of two signed copies – one for each party.

For NIKU	For [supplier]
Date:	Date:
Signature:	Signature:
Name:	Name:

Appendix 4: Prices and conditions of payment

1 PRICE FORM

Fill out only those parts that refer to the part(s) you are bidding for. All prices are excluding VAT, but including other taxes and duties.

“Consultancy” may be used for other assignments specified by the Client, for example assistance in formulating project research questions, consultancy services in relation to research or other assignments. The price supplied here is to apply to all categories of consultant.

“Evaluation quantity”: Numbers are for over 2 years. These quantities are an estimate for evaluation purposes and are not binding for the Client.

“Maximum processing time” is the number of days from the supplier’s receipt of samples to the Client’s receipt of the report. The maximum processing time is binding, unless otherwise agreed.

“Capacity” is the total number of samples from all orders that the supplier can process for NIKU within a period equivalent to the maximum processing time. For example: a supplier has stated a capacity of 120 samples and has received three orders from NIKU of 20, 25 and 15 samples that are under analysis (total 60 samples). Until the first order is completed and the report sent, the supplier has a free capacity of $120 - 60 = 60$ samples.

A supplier can agree an extended processing time for orders with more samples than stated capacity, or if the total number of samples from NIKU under analysis will exceed capacity. Any such agreement on extraordinary conditions must be made before samples are sent.

NB: See Framework Agreement – Contract chapter 6: *Mislighold* for details (in Norwegian).

Part 1: Radiocarbon dating

Service (unit)	Price per unit (NOK)	Evaluation quantity (units)
Radiocarbon dating, including sample analysis and reporting (sample)	<Price per sample>	350
Express radiocarbon dating, i.e. Radiocarbon dating, including sample analysis and reporting within two weeks of ordering (sample)	<Price per sample>	50
Consultancy within radiocarbon dating and tree-species identification (hour)	<Price per hour>	20

Maximum processing time and capacity

Radiocarbon dating	<Processing time in days>
Express radiocarbon dating	<Processing time in days>
Capacity radiocarbon dating	<Number of samples>

Part 2: Environmental archaeology

Item (unit)	Price per unit (NOK)	Evaluation quantity (units)
Pollen analysis, including sample analysis and reporting (sample)	<Price per sample>	150
Macrofossil analysis, non-floated, including sample analysis and reporting (sample)	<Price per sample>	250
Macrofossil analysis, floated, including sample analysis and reporting (sample)	<Price per sample>	50
Insect analysis, including sample analysis and reporting (sample)	<Price per sample>	50
Consultancy within these fields (hour)	<Price per hour>	80

Maximum processing time and capacity	
Pollen analysis	<Processing time in days>
Capacity pollen analysis	<Number of samples>
Macrofossil analysis	<Processing time in days>
Capacity macrofossil analysis	<Number of samples>

NB! Be aware that in some cases it may be the case that material from the same sample is to be used for multiple analyses.

Appendix 5: Changes after entry into agreement

1 CHANGES AFTER ENTRY INTO AGREEMENT

If the Client and the supplier agree to a change in the agreement (in terms of the content, changes in remuneration and timescales), the change (content, altered remuneration or timescale) is to be noted here.

Each alteration is to be approved by an authorised representative for each party.

Alterations and additions are to be added to the contract as separate, signed appendices (see template below).

Change log:

No.	Date of authorisation	Description of the change, including alterations in remuneration and timescale where relevant	Effective from

2 TEMPLATE FOR ALTERATIONS TO THE AGREEMENT

Alteration no. XX to the framework agreement for the purchase of analyses of scientific samples from archaeological investigations

between

NIKU and [supplier],

signed [date]

This change is made in accordance with the conditions of the above agreement, unless otherwise specifically set out below.

Description of change:

This document is formed of two signed copies – one copy for each party.

For NIKU	For [supplier]
Date:	Date:
Signature:	Signature:
Name:	Name: