Sediment Analysis

River bank section showing layers of accumulated alluvial sediment..

Analysis of the depth, nature and age of sediments lying beneath landform surfaces is an important means of understanding landforming processes and environmental history, and should complement geomorphological mapping in palaeoenvironmental investigations. Sedimentary sequences may be well-exposed in eroding river banks, aggregate quarries and drainage ditches. However, these sections may only expose the upper part of sediment bodies and in these cases, as well as in areas that lack any such exposure, it is usually necessary to extract sediment cores using hand-operated or powered augers.

Examination of a quarry face at Powburn.

Sediment coring on gravel terraces using a percussion corer.

The Till-Tweed project has obtained over 90 sediment cores using these techniques. Of particular interest to the project were palaeochannels of the Till and Tweed that reflect changes in the course of the past river channel. These former ox-bow lakes and floodplain wetlands are the most likely areas for deposition of peat and organic-rich sediments that are suitable for radiocarbon dating and preservation of pollen and plant and insect remains. These fossil materials can reveal much about former environments and human land-use changes.

Examining a sediment core in the field.

Sediment coring and analysis is an inexpensive—medium expense technique which, in association with geomorphological mapping, provides the basis for analysis of environmental change and a means of accessing material for radiocarbon and palaeoecological analysis. It requires the use of specialist equipment and staff.

Watching Brief

A watching brief is defined by the IFA as "A formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons" (Institute of Field Archaeologists Standards and Guidance).

Watching briefs are commonly used on pipelines, quarry sites and other developments that involve digging up large areas of ground, but where no definite archaeological remains are known.

Watching briefs are employed when other evaluation techniques have not detected significant archaeological or palaeoenvironmental remains but there is still considered to be some potential for them to survive, or where the presence and nature of remains could not be accurately established in advance of development.

A watching brief involves the presence of archaeologists and/or palaeoenvironmental specialists on site who supervise, observe and record any remains exposed during the groundworks. Watching Briefs are usually specified by a planning authorities as part of a planning condition in order to monitor the presence or absence of archaeology as topsoil stripping progresses.

A watching brief is a relatively inexpensive technique as it requires few people to be on site, and if little turns up the results will only require reporting. However, if archaeology is found then developers are usually expected to pay for full excavation and recording of the deposits if the development is to go ahead. For this reason archaeologists usually advise clients to budget for a contingency sum in case archaeological or palaeoenvironmental remains are found.

Archaeological features being flagged during a watching brief at a sand and gravel quarry near Milfield Village.

Supervised topsoil stripping taking place on the Northumberland coast over what proved to be a 10,000 year old settlement site.

Excavation

An excavation is defined by the IFA as "A programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site" (Institute of Field Archaeologists Standards and Guidance).

Full archaeological excavation of a site is traditionally thought to be the main activity of archaeologists. Although destructive, excavation is often the most informative field technique and imperative when archaeology would otherwise be destroyed.

A Neolithic pit on a sand and gravel terrace which produced 4,500 year old pottery and flints.

A small-scale excavation in advance of house construction on a gravel terrace in Milfield village which revealed evidence for a Neolithic-Early Bronze Age structure.

Excavations at a gravel quarry in the Milfield Basin revealed six Neolithic buildings, together with hearths and storage pits.

The excavation process follows a typical sequence:

- Once the overburden has been stripped from a site all features are hand cleaned and planned.
- Each feature is usually excavated and a section drawn, a level is put on the section, the feature photographed and surveyed in. The fill of a feature is often sieved to assist with obtaining small finds and charred wood samples for dating and a sample is sometimes kept for environmental analysis. A record sheet for each feature is filled out.
- Once excavation is complete the field archive is digitised and illustrations drawn up for inclusion in a report and publication.
- Following their assessment any specialist analyses, such as pottery, flint, bone, environmental and dating work are undertaken and reports produced.
- A stratigraphy report is produced that describes the excavation and all the features discovered.
- Photographs, slides and digital pictures are developed, catalogued and mounted.
- A report is then prepared for publication that brings together all the information, and the site archive is deposited with the regional collections museum.

As excavation is labour-intensive and throws up more post-fieldwork analysis than other techniques, it tends to be the most expensive type of archaeological work. It is employed as part of the recording stage of the planning process.