

**Session title: ARCHAEOLOGY AND CIVIL ENGINEERING:
ISSUES, PROBLEMS, SOLUTIONS**

Organizers: Gerry Wait, Gifford Ltd., Southampton, UK
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Discussant: Margaret Gowen, Margaret Gowen & Co Ltd, Archaeological
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Time: Saturday afternoon

Room:

Session abstract:

Contemporary archaeology is characterized a significant increase of development-led commercial activity and “polluter pay” philosophy. In many instances, this sector of archaeological profession is responsible for conducting a majority of field works and delivery of a vast body of research. This has a profound impact upon the profession as already seen in many countries.

This kind of archaeological activity in relation to construction projects involves co-operation between archaeologists and engineers at various levels including planning, designing and undertaking of field work. Currently, we observe a lack of understanding of professional needs between archaeologists and engineers, which can have financial and environmental impacts, as projects can become delayed with ensuing costs a direct consequence, and as archaeological remains can be unnecessarily damaged or destroyed. Improved skills in the two sectors will reduce the environmental impact of construction engineering projects and improve their efficiency by integrating archaeological considerations into the project management programme and delivery.

The main objectives of the session comprise strategies of deepening and broadening professional understandings between these two professional sectors as well as improving skills to work together more effectively. The session will also debate various models of existing co-operation between these two sectors pursued in development-led context. It will seek examples of best practice that illustrate how it is being conducted to meet professional standards of both archaeological and engineering sector.

Paper abstracts:

**ARCHAEOLOGY AND CONSTRUCTION ENGINEERING SKILLS:
A TRANSNATIONAL TRAINING PROJECT**

Kenneth Aitchison, Institute of Field Archaeologists, Reading, UK

Archaeology and Construction Engineering Skills, also known as 'ACES', is a project funded with support from the European Commission through the Leonardo da Vinci fund of the EC's Lifelong Learning Programme.

This project brings together archaeologists and engineers from four very different European countries – Turkey, Poland, Norway and the UK - to support improvements in quality and innovation in professional, vocational, education and training by developing relevant and innovative e-learning content.

The project seeks to broaden the understanding of professional archaeologists and to help them to recognise the needs and concerns of the engineering sector and also to help members of the construction engineering industry break through the professional mystique of archaeology.

The aim of the project is very definitely not to train archaeologists to act as engineers or *vice versa*, but to improve understandings and capabilities to allow individuals and organisations in the two sectors to work together more efficiently.

The project is developing training material to address identified skills needs as bespoke e-learning modules with support material that can be delivered to learners in each of the partner countries.

The project runs from 2007-2009, and this paper will review the origins, aims and objectives of the project, achievements to date and the plans for completion and subsequent roll-out of its products.

ENGINEERING AND ENGINEERS: PROTECTING THE ARCHAEOLOGICAL OUTCOME IN THE CONSTRUCTION ENVIRONMENT

Brian Durham, Oxford City Council, Oxford, UK

This paper will examine a range of examples where the best-laid conservation plans have gone astray because of what might be considered over-engineering, or as a result of last-minute design changes sometimes taken remotely. On a protected (scheduled) site it will illustrate a sheet-piling operation designed to support an embankment that had already stood for nine centuries, and a mass concrete base for a Christmas Tree. Elsewhere a main contractor was offering to spend his client's money on multiple narrow heavily shored trenches when a wide un-shored trench would achieve the purpose.

On a former medieval churchyard, mass concrete bases for lighting column had been designed on the evidence of test bores that showed satisfactory bearing through 4 m depth of graveyard fill. After the bases had been dug archaeologically, the engineers responded remotely to a verbal report that there was bone in the graveyard fill. Shock horror! The lighting columns would need piles after all. Because in this case the client was the City Council, the writer was in a position to ask the engineers what had changed, and after a three week correspondence they carried out a penetrometer test, which thankfully demonstrated that the bearing was adequate.

CONTRACTUAL ARCHAEOLOGY IN ROMANIA: A DECADE OF RESCUE EXCAVATIONS (2000-2008)

Paul Damian, Corina Borș, National History Museum of Romania, Bucharest, Romania

In Romania, in comparison with other European countries, took place a limited number of preventive archaeological researches, due to the development of industrial infrastructure projects or townplanning programs in urban centres. The beginning of the rescue archaeology in Romania is related to the communism period. During the last decade a certain number of large-scale contractual archaeological works were undertaken regarding the development of road, industrial and commercial infrastructure. Some of the most important were the construction of the A2 motorway (from Bucharest to Constanța) and Transylvania motorway, the mining project from Roșia Montană or the development certain commercial areas in urban environment. The paper aims to present the recent projects, the applicable legislative framework (national and European) and actual aspects of the dialogue with relevant authorities. It will be considered a proposal for an action plan regarding the management of future preventive excavations required by the forthcoming construction works on pan-European transportation routes or for oil or gas pipelines crossing Romania, all of these having a potential impact on areas with archaeological heritage. We intend to make a series of proposals for a better cooperation mandatory to exist between archaeologists, townplanners, engineers, the solutions being drafted from specific European regulations.

CONSTRUCTION VERSUS ARCHAEOLOGICAL SECTOR: ENEMIES OR FRIENDS?

Sidsel Jerkø, SINTEF Building and Infrastructure, Oslo, Norway

The construction sector in Norway is dominated by small and middle-sized companies in addition to a few bigger ones. The sector is very dynamic, especially close to bigger cities, and there it is marked by high costs due to increasing urbanisation flourishing in a healthy and stable economy. This leads to a lack of skilled workers, as well competition from foreign companies.

We have studied a number of construction projects aimed at researching the borderline between the construction and archaeological sector. From the cases in question we can discern matters of principal interest to be discussed on professional and political levels and contribute to defining the “best practice”.

The paper will discuss expectations of the construction sector in Norway as regards its multiscalar co-operation with archaeologists including protection of archaeological heritage at the planning phase, scope of archaeological excavations, restoration policies and the like.

Initially, the construction sector seems to prefer that these two sectors operate separately. However, the “best practice” policy will also be discussed underlying that for a number of reasons “good dialogue with archaeologists is necessary” at all the phases of a building process. This will probably be in the clients’ own economic interest.

'ARCHAEOLOGICAL' CHALLENGES FOR POLISH CONSTRUCTION INDUSTRY – SAVING THE NATIONAL HERITAGE

Andrew Minasowicz, Polish Association of Building Managers, Warsaw, Poland
Paul Nowak, Polish British Construction Partnership, Ltd, Warsaw, Poland

The paper starts with a description of Polish construction industry. Vast number of projects: in transport infrastructure – thousands of kilometres of motorways and national roads, new airports, railways, to be build up to 2013; environmental infrastructure – hundreds of water and waste water treatment plants to be constructed; preparation for football European Championships in 2012 – is the big challenge for construction engineers not only from technical point of view but also from the position of the national heritage protection. Nowadays on Polish sites there is a need for closer co-operation between construction engineers and managers with archaeologist – dealing with all possible types of archaeological findings and discoveries. Leonardo da Vinci Project titled: “Archaeology and Construction Engineering Skills” (ACES) will create the e-learning courses for construction engineers and for archaeologists for better understanding mutual duties on site.

The second part of the paper will present some chosen aspects of construction engineers' and archaeologists' co-operation on Polish building sites. Results of the research in this field will be presented: what are the problems connected with national heritage protection when undertake investment projects in construction: from the early stage – pre-feasibility, throughout planning and designing phase, up to construction phase.

The third part of the paper will present some interesting case studies taken from Polish construction project: preparatory works of archaeologists on future sites, archaeological aspects during tender stage, on site discoveries of archaeological deposits.

The fourth part of the paper will show the role of PSMB and PBCP in the LdV Aces project.

ACES: ENGINEERING AND ARCHAEOLOGY INTERFACES IN THE UK. ISSUES ARISING FROM THE UK INDUSTRY PANEL

Gerry Wait, Gifford Ltd, Southampton, UK

In 1990 the government published a guidance document called Planning Policy Guidance Note 16: Archaeology and Planning. This document consolidated the trend towards the creation of a fully commercialisation of the conduct of much of the archaeological endeavour in the UK when the need for this arises through the environmental impact and development process. The intervening 17 years have seen archaeology change and mature as a professional discipline. This has entailed a continuing formalisation of the contractual and processual interfaces between the archaeological practitioners and their engineering counterparts.

The present situation is one of largely accepted - but not completely formalised - processes and systems integrating archaeology into both design and construction projects. In general the systems are robust - they 'work'.

However, their effectiveness is still limited by identifiable failings and gaps. This paper reviews these failings and gaps as viewed by design and construction engineers/managers in the UK, with some observations offered by the author who is a practising archaeologist who has been embedded in a major engineering design company since 1994.