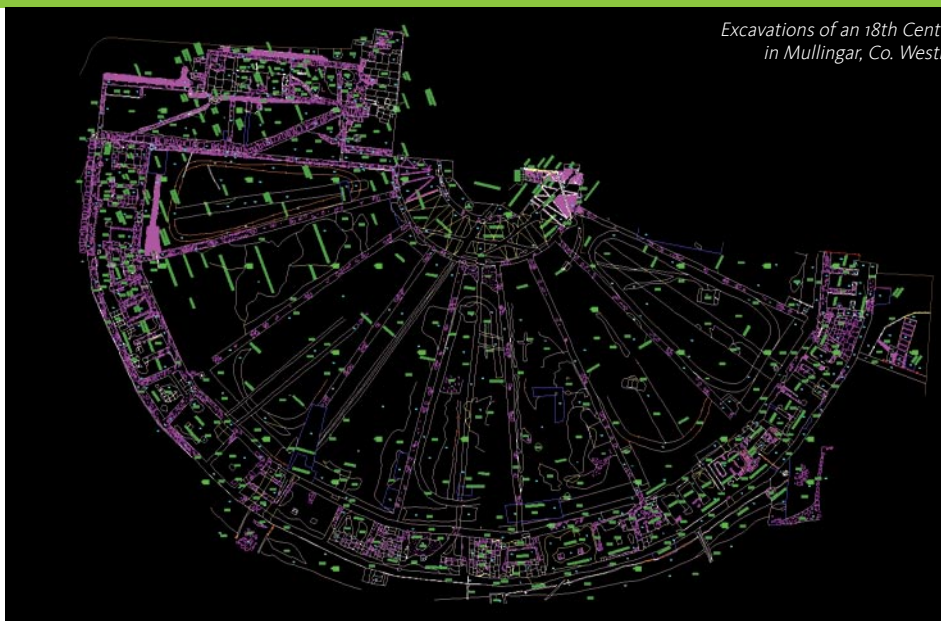


Visualising the Past with AutoCAD® Civil 3D®

There is no doubt that the accelerating pace of development in Ireland in recent decades has been a boost to archaeology. Since archaeology is a key component in many cases of pre-construction development, the role of professional archaeologists is now integral to all planning and development. The firm of Valerie J. Keeley Ltd., VJK, was founded in 1985 and has grown to a current level of over 250 professional staff, qualified field archaeologists. Operations are based at its head office in Castlecomer, Co. Kilkenny and a number of site offices supporting current excavations in various parts of the country.



Excavations of an 18th Century jail in Mullingar, Co. Westmeath.

VJK Ltd. has a large and varied clientele drawn from the public and private sector. It also liaises with the National Museum and the Department of the Environment on behalf of its clients in reporting its findings and mediating in the regulatory decision making process. In such projects the consultant archaeologist is required to undertake assessment, investigation and resolution according to the decisions of the appropriate authorities. The process can take weeks or years, depending on the extent of the proposed development and, of course, significant archaeological discoveries.

Archaeology today combines traditional meticulous scholarship with modern technology and rigorous information recording. It is therefore no surprise that VJK Ltd. as a leading consultancy has invested seriously in its IT infrastructure.

"In addition to the servers and Local Area Network, LAN in Castlecomer we usually set up a small local LAN in the site accommodation anywhere an investigation is likely to be of any significant duration," explains Brian Kenny, who is both office manager and senior draughtsperson. "There could be up to 12 or 15 PCs on one of these LANs, often using wireless for convenience and flexibility. Currently there are 6 of these site offices in operation around the country supporting various archaeological projects"

"We are long standing AutoCAD® users, with three dedicated PCs in head office for CAD work, and each site office generally having 2 CAD PC's also. Our 3 surveyors also have AutoCAD on each of their laptops as their job requires them to be mobile. We now use both AutoCAD 2007 and AutoCAD Civil 3D, for our own work which proves to be very important when importing survey and mapping data from other professionals as well as being able to exchange information regularly in mutually usable formats with, for example, the civil engineers on a road project. It is important that everyone is looking at the same thing and with AutoCAD we are all familiar with the symbology. We do not need to worry about loss of data or that something will get lost in translation."

In addition to the proposed development layouts and road alignments from the engineers, he points out that VJK Ltd. will often have a large amount of Ordnance Survey mapping to underlay its work. "That could mean literally hundreds of digital OS sheets for a whole county, so we need a powerful computing engine to handle all of that, in terms both of smart applications and processing power." In the context of EIS work we can then interpret the impact of any given development on the archaeology and when it comes to site works on a 40km long road scheme it shows us the 'bigger picture'.

*“ Archaeology today
combines traditional
meticulous scholarship
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*Ringfort at Glebe,
Co. Dublin on the South
Eastern Motorway.*

Most project files from clients are in AutoCAD format, which makes for ease of file exchange, he points out. For their archaeological survey work, 2D mapping and drawing are the most commonly used applications. From the VJK Ltd. point of view, it is the quality of the drawings its team can produce, as well as the efficiency and speed, that have made its Autodesk applications such essential elements of the modern professional tool kit for archaeologists. In the last few years, 3D has been an important addition and increasingly important in presenting archaeological information. VJK Ltd. also invest in AutoCAD training to maximise the use of the software.

Brian Kenny uses the example of one of the firm's current projects, the archaeological resolution contract for Kilkenny County Council of the route of the N9/N10 Kilcullen to Waterford road scheme. "There are 54 identified archaeological sites along this route, some with remains over 4,000 years of age and others from the medieval period. For each of these sites a comprehensive set of drawings will be produced to provide a visual representation of the archaeology which will in turn form part of the final report for the site. When the archaeology is exposed, the observed features are hand drawn and then digitised into AutoCAD to a high degree of accuracy and detail so as to give as accurate representation of the archaeology as is possible..."

It is now very common to do a full topographical survey of such sites:

"We then generate Digital Terrain Models in Civil 3D, rendered to show clearly the archaeological features and their distribution. This has actually had a huge impact on our reports. In addition to the clarity value of such presentations and reports in discussion with other interested parties, it is in itself a valuable element of the preservation by record' aspect of our projects."

As with so many other professions, Brian Kenny points out, the ability to explain specialist information to lay-people can be very important at times:

"Working with civil engineers, for example, it is I suppose an obvious advantage to be using drawing software that is actually mutual. But in the context of presentation, it is those terrain models in 3D that have proven enormously valuable in enabling others to grasp the significance of the archaeology in our reports."

"In fact many of our clients are now looking for 3D topographical presentations as a matter of course!" Brian Kenny observes. "It is the easily grasped visualisation that is so important. In landscape it often helps to illustrate features that are not readily visible while in urban locations it is particularly valuable in relating archaeology to its context in the built environment. It is often in this way that ideas emerge for the preservation and incorporation of archaeological features in developments."

Archaeology is certainly not a profession that springs to mind when CAD is discussed. Yet the example of VJK illustrates clearly how the importance of mapping, the spatial relationship of objects and the accurate recording of surveys is integral to modern archaeological surveys and reports. The work of VJK shows that even the past can be visualised to great effect! At a national or institutional level, the linkage to Geographical Information Systems (GIS) is another increasingly important and relevant application of today's technology to traditional professions.

By Leslie Faughnan