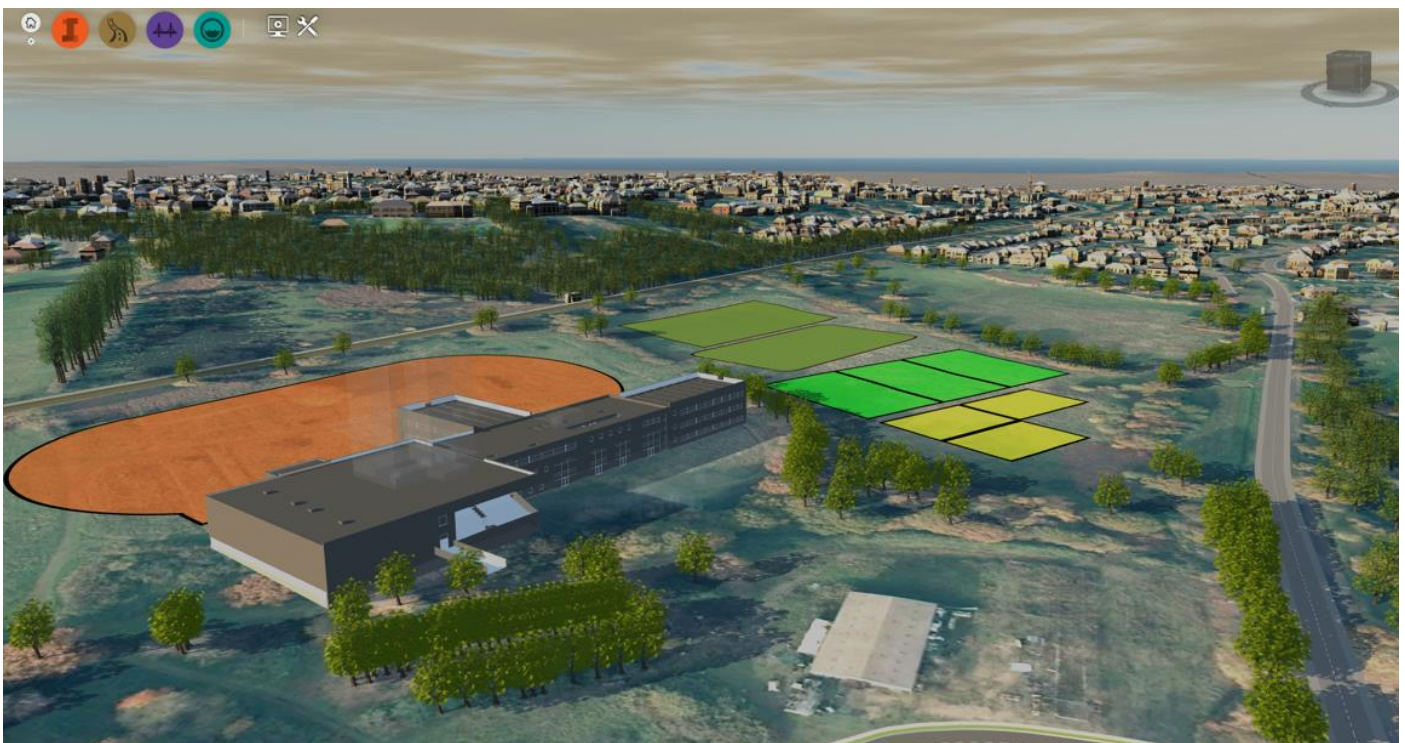


Infracore 360 – Model Creation Process

by David Crowther

Cadline has a team of geospatial specialists with expertise in the integration of both CAD and GIS applications, and so were asked to provide conceptual viewpoints for the environmental assessment and public consultation stages of a planned new development. Infracore 360 is the ideal software to do this as it combines breakthrough 3D modelling and visualisation technology, with cloud access, integrating CAD and GIS capabilities.



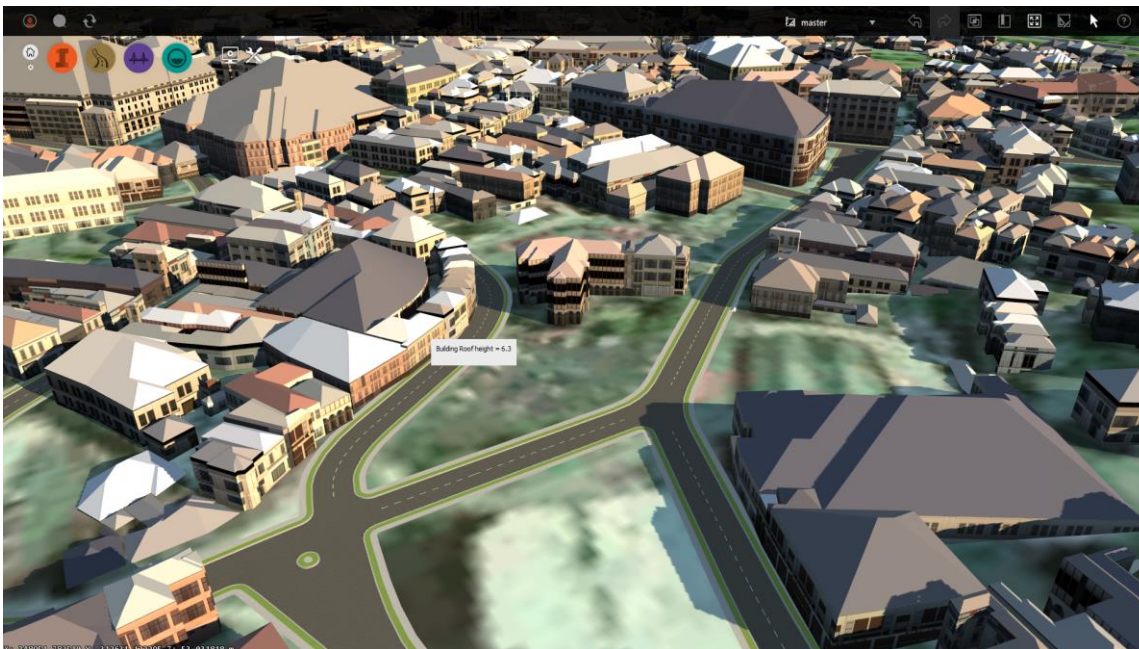
This pilot project utilised a number of environmental, geospatial and infrastructure datasets, from disparate sources, to provide a single model, with scenarios to contrast the current 'as-is' onsite picture with the proposed development, thus enabling an assessment of its impact from various viewpoints.

In partnership with Ordnance Survey, Cadline utilised both spatial databases and desktop GIS applications to configure the datasets into one central repository, generate a real-world model and ultimately to provide the client with outputs including viewpoint images to compare with onsite photographs and drive-through videos to enhance the visualisation process. This blog aims to summarise the project lifecycle and to outline how this work could help you deliver more realistic outputs for your development projects.

Datasets:

Ordnance Survey provided the fundamental mapping datasets for this project, including:

- Terrain^R 5 to generate the Digital Elevation Model (DEM);
- Imagery layer to display aerial images draped over the surface;
- Ordnance Survey MasterMap^R (OSMM) and Building Height attributes (BHA) to generate an accurate representation – both in footprint and height – of the building features for the area of interest, and
- Integrated Transport NetworkTM (ITN) to provide road and path features.

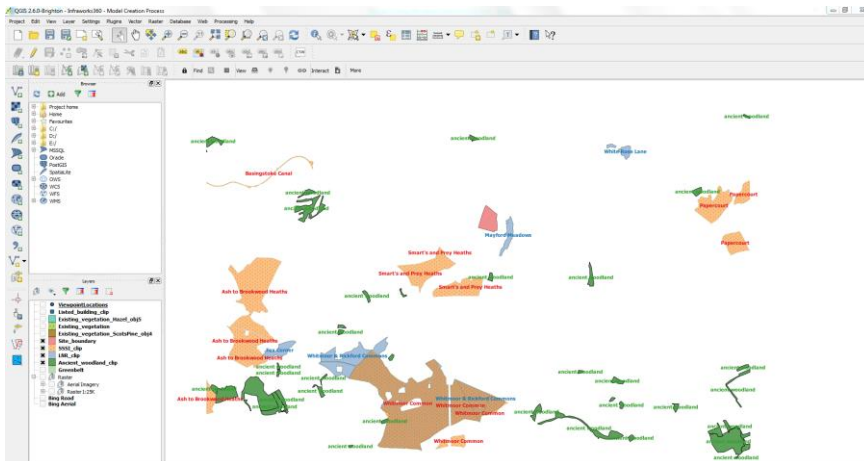


Environmental datasets were provided by the client, although many of these are readily available for download from the Environment Agency - <http://www.geostore.com/environment-agency> -

These included:

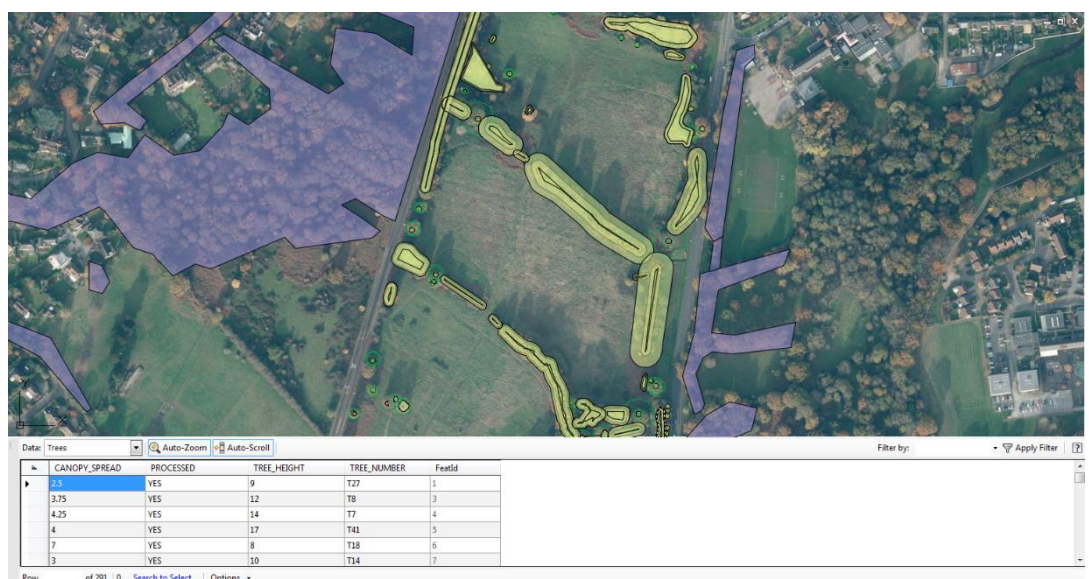
- Sites of Special Scientific Interest (SSSI).
- Local Nature Reserves (LNR).
- Ancient Woodlands.
- Areas of Outstanding Natural Beauty (AONB).

All of which once opened within a desktop GIS such as QGIS, enabled us to geospatially assess whether the planned site encroached on any environmentally sensitive areas, so that new site locations could be considered or remediation steps implemented.



Tree and vegetation datasets are integral to the model and the viewpoints which are ultimately generated. Two sets of vegetation datasets were used for this project:

- A detailed **site survey of the trees** that are on the planned development were provided in an AutoCAD DWG file. The attribute information containing the individual tree heights were provided in a separate PDF document, and merged into the tree features using various geoprocessing routines.
- **Existing vegetation** surrounding the development, which was digitised in AutoCAD Map 3D using aerial photography as a background map. This was then quality checked by onsite ground truthing.



Modelled within I360 the trees and existing vegetation provide an accurate representation of real world features that have an effect on the planning process and need to be carefully considered for environmental impact assessment.

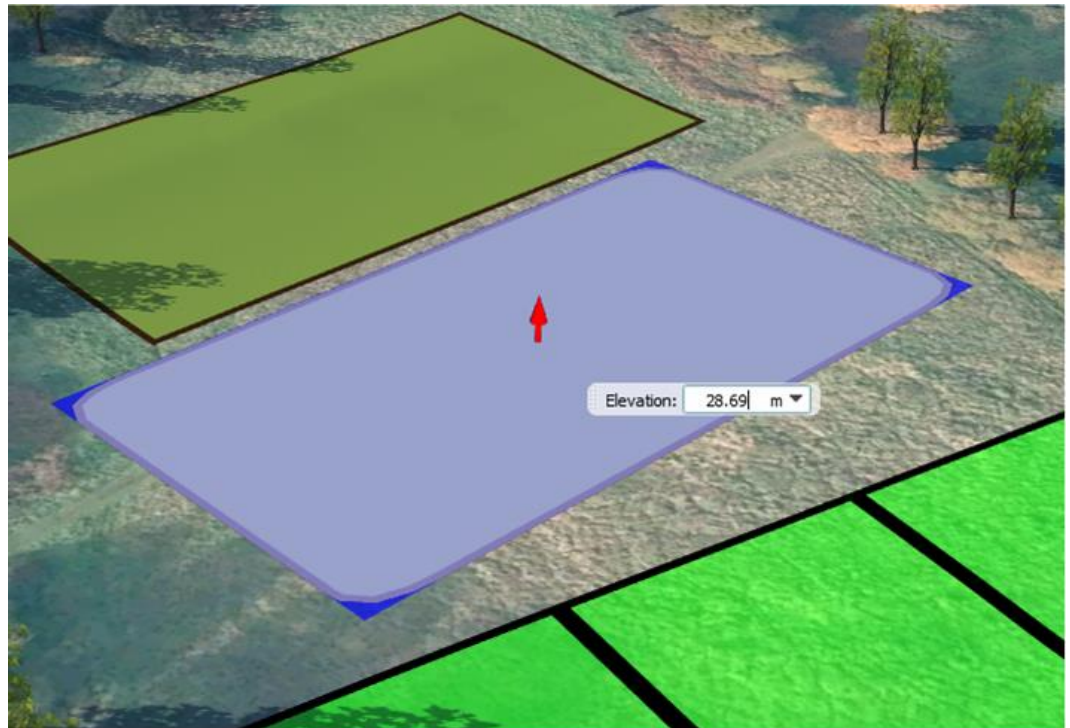


Modelling the Planned Development:

Once the 'as-is' situation is modelled, you can then start to import architectural CAD drawings, complex 3D models and add additional information, such as access roads, railways, floodlights, as well as sub-surface information, such as pipelines and drainage.



While architectural drawings are being completed I360 allows you to model representations of a development by creating coverage layers, where you can define the surface type and modify 'levels'.

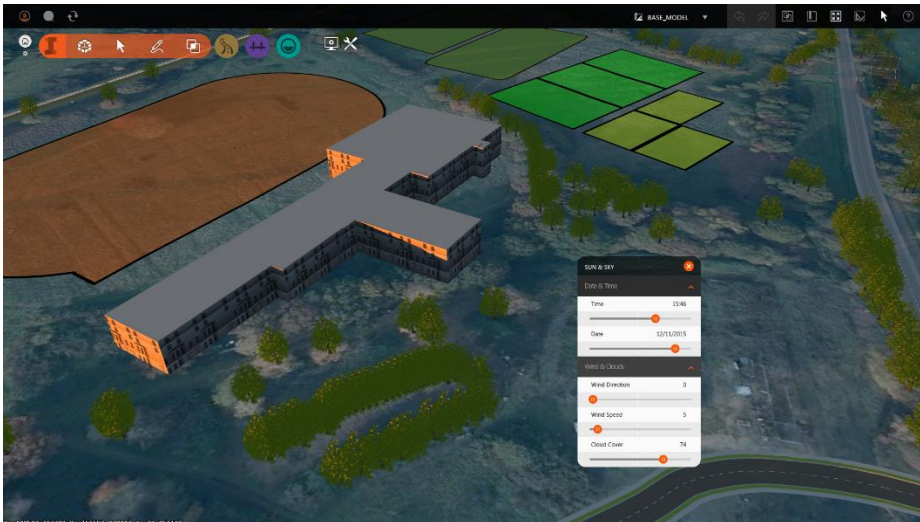


Model Outputs:

The 'create snapshot' tool was then utilised to generate a number of viewpoint images that could be shown alongside, or even stitched together with onsite photo's to demonstrate the impact a planned development will have from strategic locations.



There are settings to model cloud cover, wind speed, the time of day and day of year, so that images reflect different weather and temporal conditions as required.



A 'Storyboard' creator also allows you to generate Avi videos to illustrate the view of planned developments from existing or planned access roads.



The key to generating an accurate and reliable I360 model, is not the power of the software itself, but the ability to coordinate disparate and complicated datasets into one central 'source of truth'. With cloud access to the model, all stakeholders, including developers, environmental consultants, surveyors, local authorities, architects and the public can be engaged with the process as the site moves through all the stages of the development process.