C&A SURVEYORS

3D MODELING SERVICES

INDUSTRY LEADERS

Upfront Pricing

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LEVEL OF DEVELOPMENT VS LEVEL OF DETAIL

At C & A Surveyors we understand that while both level of development and level of detail are abbreviated as LOD, they both mean different things.

The Level of Detail talks about the graphical details that are added to a model. The Level of Development is a measure of gravity of information represented by a BIM element, this specifically refers to the level of certainty about an object, including brand, exact material, structural information, cost and energy rating to just name a few examples.

For contractors, details like manufacturer and model number are of utmost importance. LOD models created in Revit signify the amount and type of information required by various project stakeholders for specific purposes.

Generally, as surveyors we specialise in Level of Detail with emphasis on spatial accuracy. Meaning that our models are accurately coordinated based on either MGA/AHD coordinates or in reference to site Boundaries/AHD.

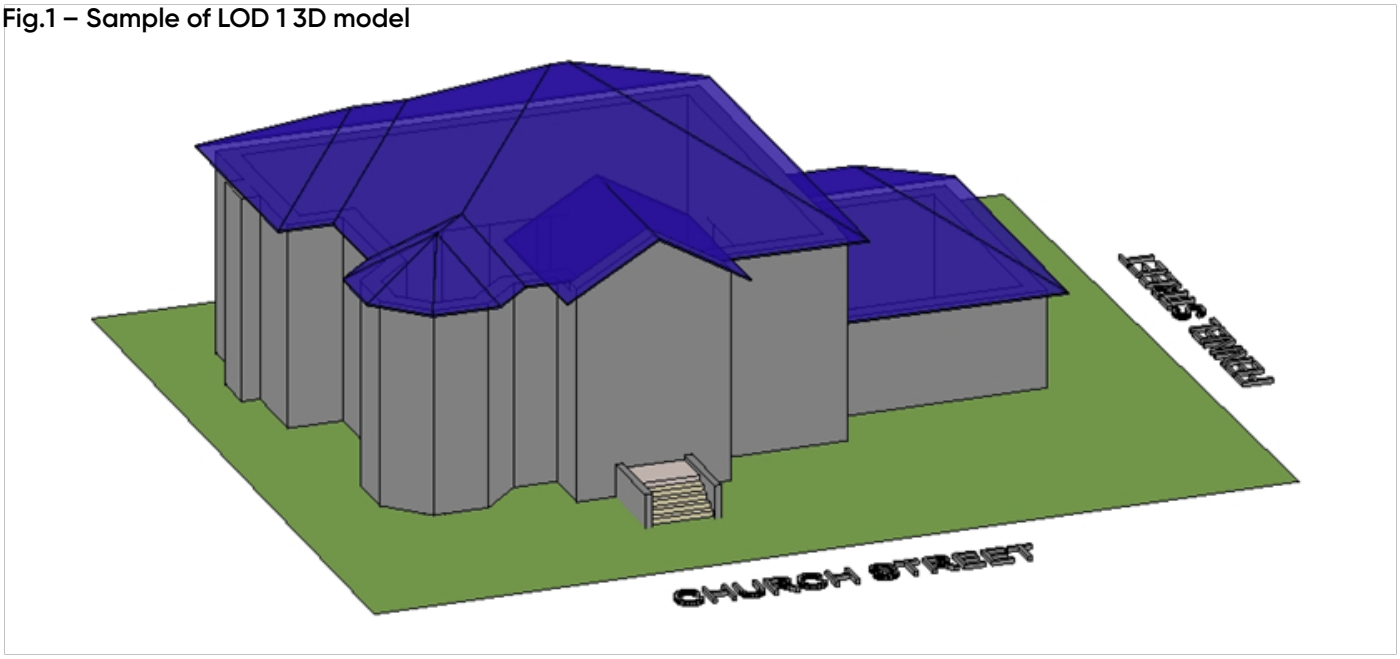
There are many different types, levels and specifications around 3D modelling and in the following pages we will briefly explain the various options, so you as a customer can make an informed decision on what is best suitable for your projects.

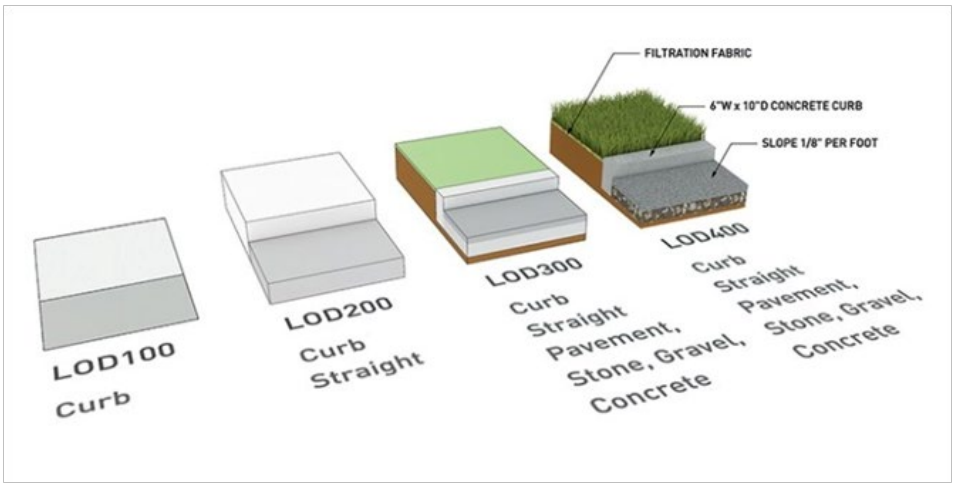
LEVEL OF DETAIL 1

Level of detail 1 for 3D surveys and models is the most basic form of the structure being displayed with only minimum information provided. Generally, these types of models are used for the following:

- Conceptual design
- Building shadow diagrams
- Conceptual cost estimation
- Conceptual gross area plans

Fig.1 – Sample of LOD 1 3D model





LEVEL OF DETAIL 2

Level of detail 2 for 3D surveys, the model elements are graphically represented within the model as a generic system, object or assembly with approximate size, shape, location and orientation. Generally, these types of models are used for the following:

- Major large object coordination
- Basic design
- Allows simple 3D understanding of site conditions
- Energy calculation estimates

Figure 3 – Sample of LOD 2 model

LEVEL OF DETAIL 3

Level of detail 3 for 3D surveys, the model elements are graphically represented within the model in a particular system, i.e. individual details on doors/windows, specific roofing elements such as facades, gutters, and soffits. Other information is supplied within the models, for example wall and roofing materials, detailed site structures i.e. kerb and gutter, services, fences, trees etc.

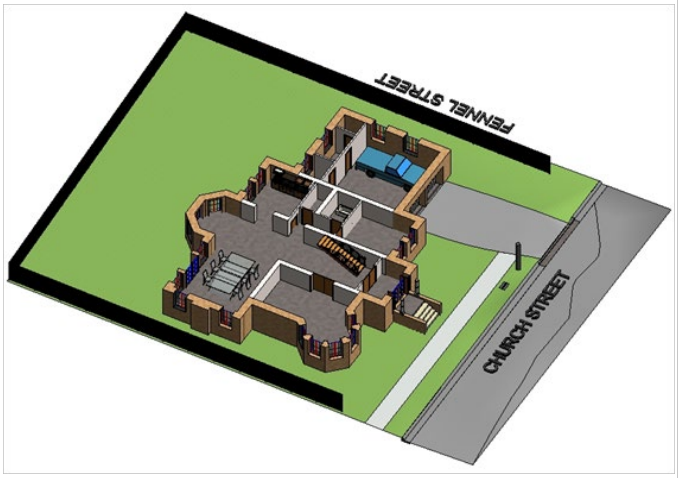
- General object-level coordination
- Time-scaled, ordered appearance of detailed assemblies
- Estimated cost based on measurement of specific assembly (i.e. specific wall type)
- Ability to continue model for extensions or renovations
- High accuracy and complete site picture

LEVEL OF DETAIL 4

Level of detail 4 for 3D surveys, the model elements are graphically represented within the model in a particular system, similar to the LOD 3 model but more advanced information is provided such as MEP (Mechanical/ Electrical/Plumbing) details, structural data like mounting plates/bolts etc.

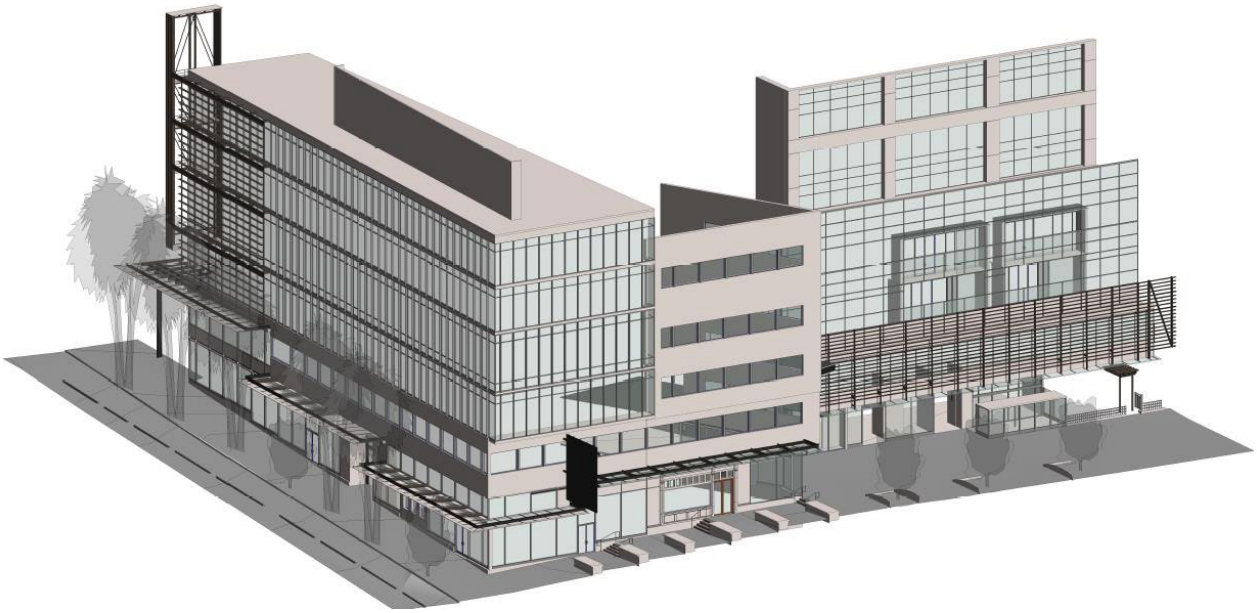
Use most commonly from completed design purposes and final as-built projects.

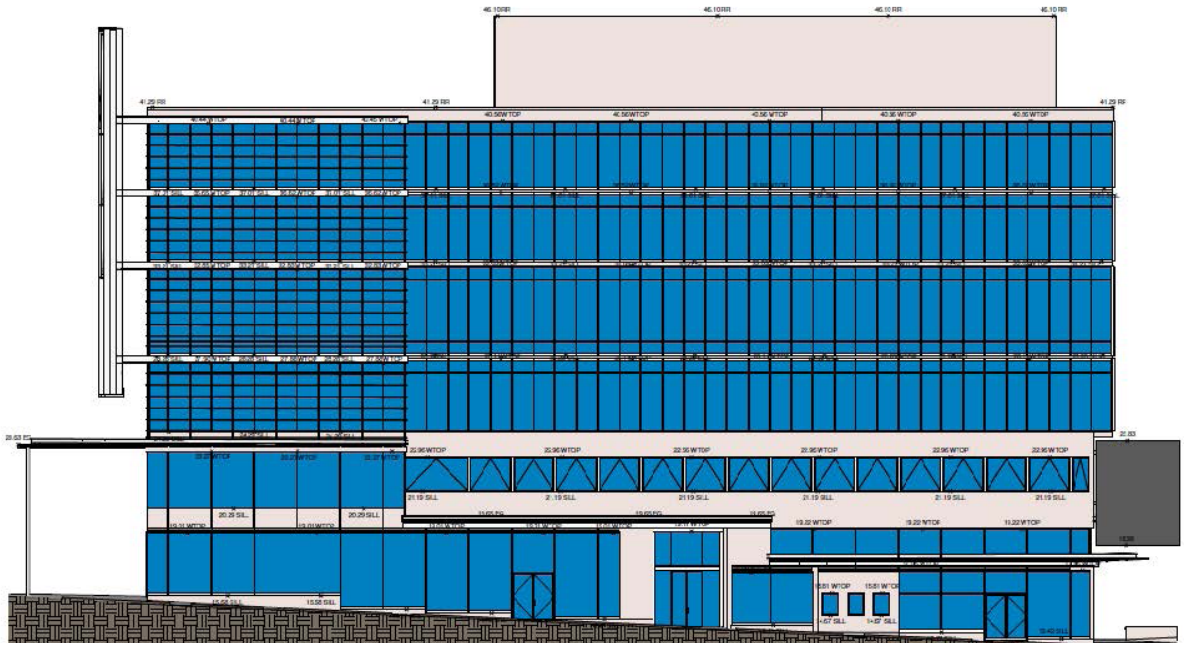
- Design certainty coordination
- Generally internal and external details of building provided
- MEP system modelling
- Structural data including fine details such as mounting plates/bolts/welds etc



FACADE MODELS

C & A Surveyors recently surveyed and modelled a complex façade in George St, Sydney. The project was needed to ensure that the cladding on the 3 main faces of the building was installed in the correct location both height and position wise.





HERITAGE MODELS

Due to the property being heritage listed, it was imperative that the external and internal structure remain the same. The customer requested a detail survey, boundary identification, floor plans, elevations and 3D model of the site. The field survey was fully complete within one day using our Trimble SX10 system, Trimble X7 laser scanner and Trimble Business Centre software.

ACTUAL SITE PICTURE

POINT CLOUD PICTURE

3D MODELS & ELEVATIONS

MEP MODELS

- Mechanical equipment
- AC ducting

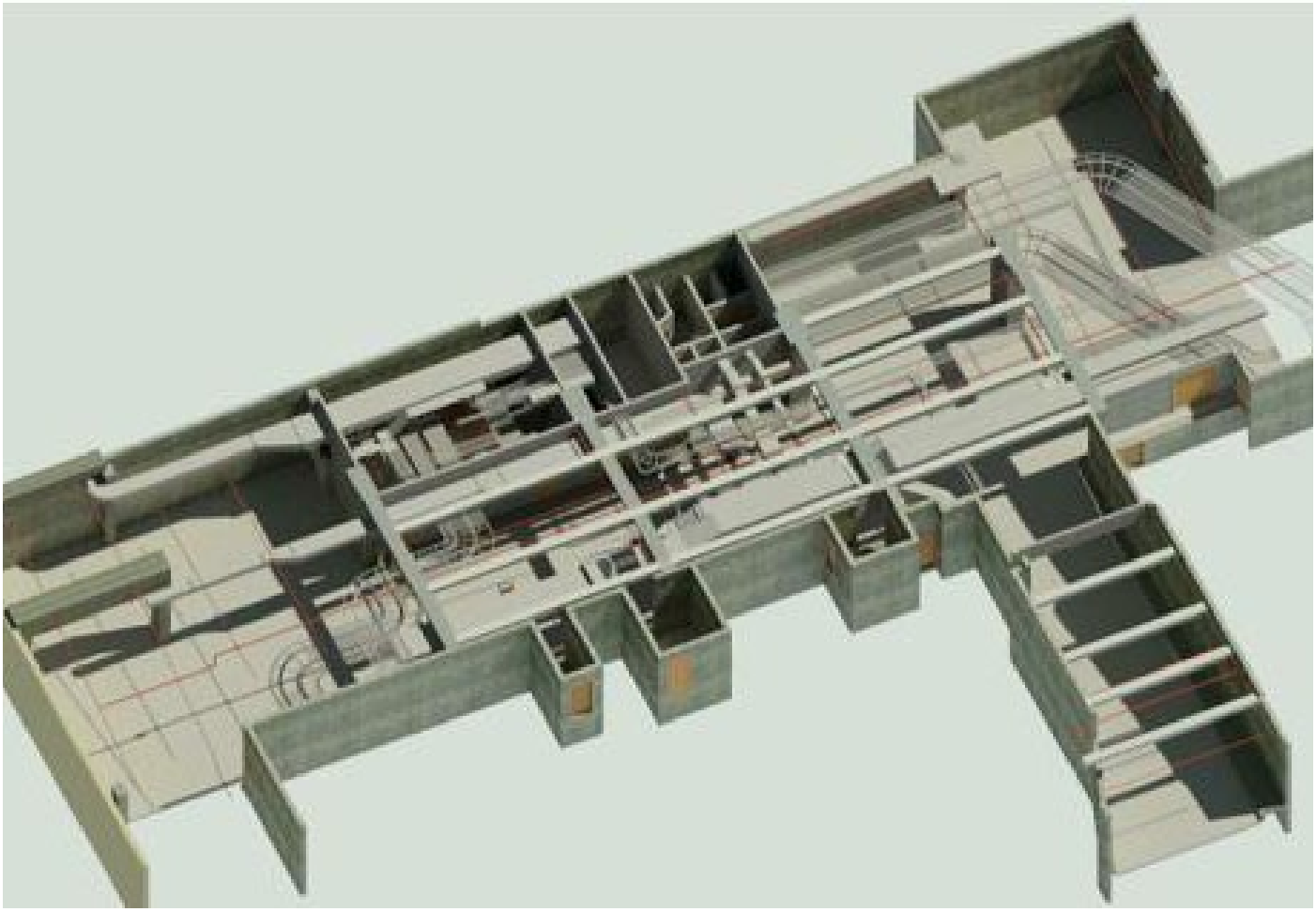
Plumbing

- Pipe work
- Fittings
- Pumps
- Amenities

Electrical

- Cable tray
- Cables etc

Full 3D scanning and modelling of all mechanical, electrical and plumbing systems



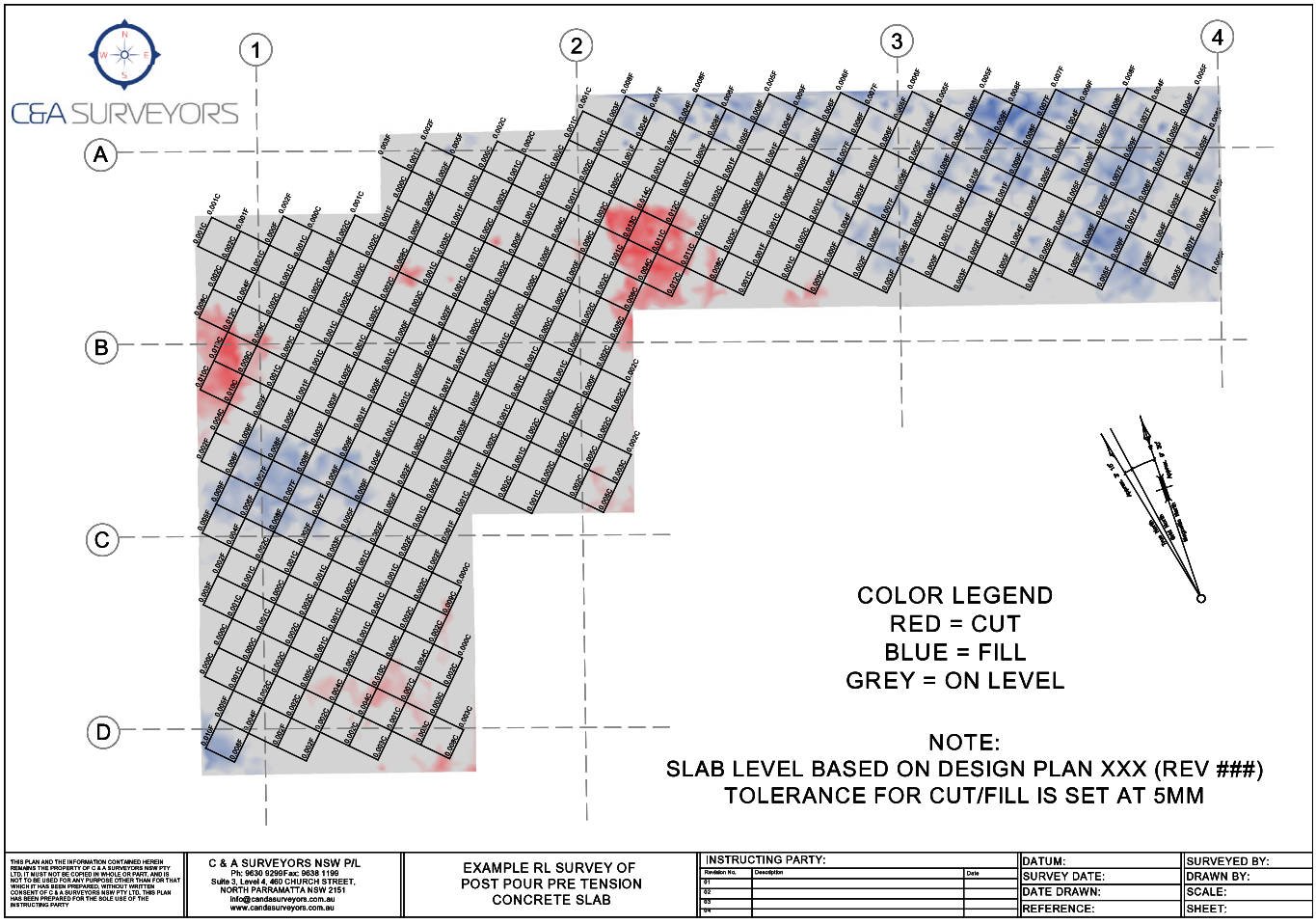
STRUCTURE MODEL

An engineering client was moving a large plastic manufacturing plant from their Sydney to Melbourne site. The difficulty in this was ensuring a smooth transition from one warehouse to the new location and getting the structure into position accurately. The solution was to laser scan and 3D model the entire unit.

We were able to have the completed scans done in single day, the model with fully annotated plans turned around within 2 days of site. This project was completed using our Trimble X7 laser scanner and Trimble RealWorks software then modelled in Autodesk Revit.

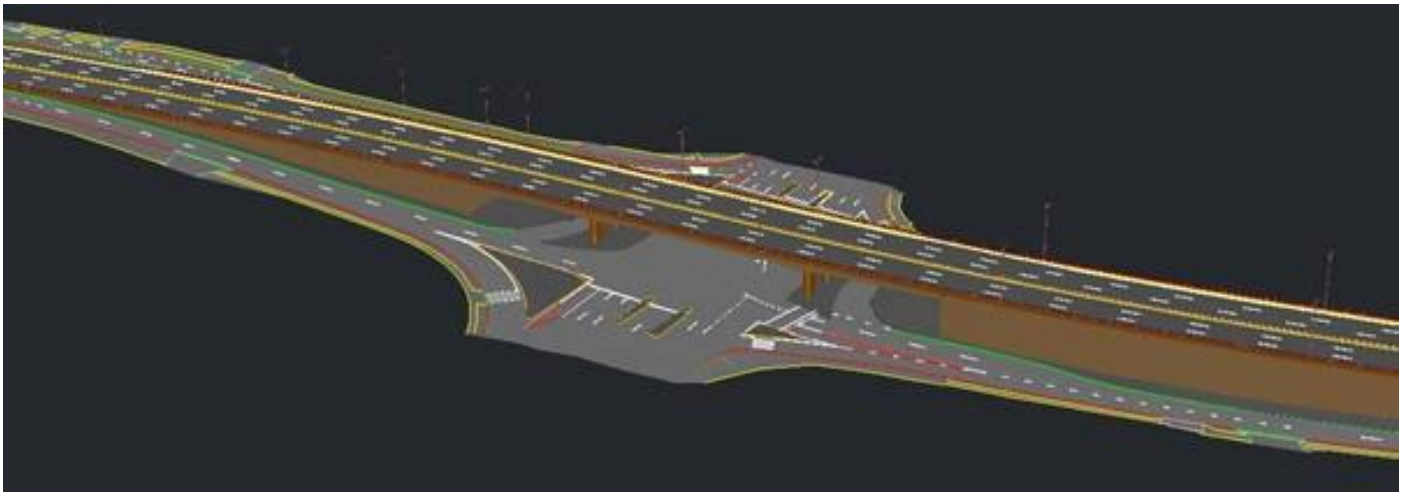
SLAB SCANNING

Concrete slab as built survey, showing cut and fill from the design. Laser scanning of pre & post tension concrete slabs, processing and creating cut fill heat map from design RLS



INFRASTRUCTURE PROJECTS

C&A Surveyors also specialise in large scale infrastructure data capture and 3D modelling. Alongside these works we can provide 3D modelling of all underground locating services to a high degree of accuracy.



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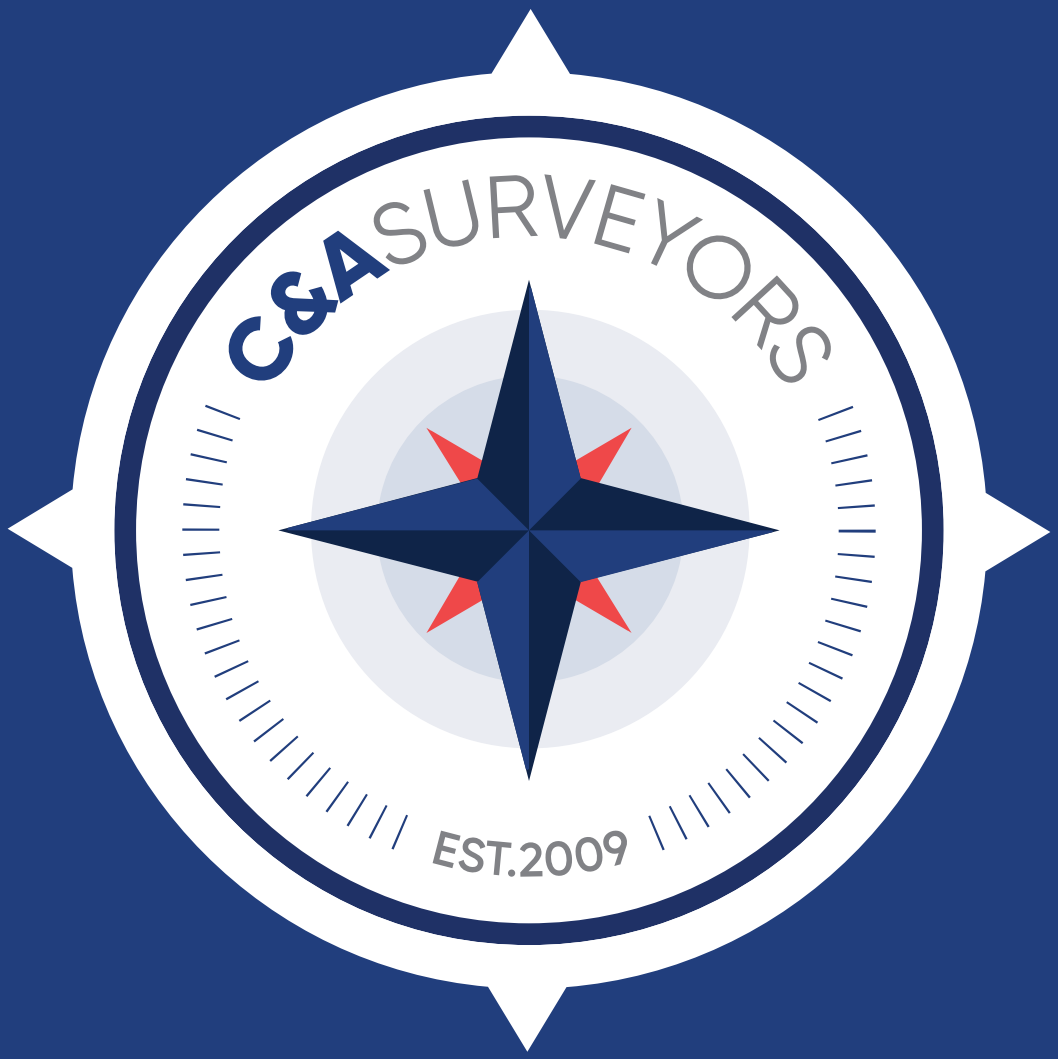

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