

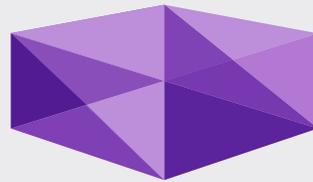
BIM for Infrastructure (BIM4I)

Overview

Building Information Modelling is usually associated with Architectural projects, although as the Infrastructure BIM Taskgroup points out, "BIM" is just an acronym for a collaborative way of working on design and construction projects. The Government announced intention to require collaborative 3D BIM (with all project and asset information, documentation and data being electronic) on its projects by 2016. This includes road and rail projects. To this end, Severn Partnership is ideally placed as early adopters of laser scanning workflows, with 20+ years specialism in rail / Pway survey and a specialist team of Building Information modellers working across a number of BIM platforms. The creation of Infrastructure Building Information Models is not just '3D modelling'. Most BIM survey starts with 3D asset data collection (laser scanning) and involves detailed collaboration with clients to agree a project specification or BIM Execution plan. For our clients, we can produce a detailed BIM execution or Implementation plan to agree LOD (Level of detail) or Grade of detail required; along with exactly how the model will be coordinated, created and stored. This will also highlight what level of additional attribute information or parametric links the BIM ready model will require.

What is BIM for Infrastructure (BIM4I)?

It is a special interest group within the Associate of Geographic Information (AGI) which is supported by the Institute of Engineers (ICE), the Government BIM Task Group and the Construction Project (CPI) Committee. The group provides a forum for BIM professionals such as Severn Partnership to collaborate and provide leadership in establishing how infrastructure and buildings can be integrated and how BIM and Geospatial can interface and converge.



BIM





Project Deliverables

- 3D laser scan point cloud (PTS, PCG & POD)
- Leica TruView - accessed via web browser
- Comprehensive BIM Specification Document
- 3D intelligent Building Information Model
- Rendered visualisations & fly through animations
- Topographical survey in Revit Toposurface/Terrain
- 2D plans, elevations & sections (from model)
- SEEABLE applications via PC, tablet or phone

Case study

BIM for Infrastructure – Teme Viaduct

Summary

BIM For Infrastructure project of a complex girder bridge. Using 3D laser scanning to rapidly capture the 3D geometry on site and Revit to convert the scan to BIM.

In detail

The survey team carried out a Topographical survey (survey4BIM) and established survey control consisting of PGM's and TMG spigots related to a local survey grid. The bridge at Rail level and River level was then 3D laser scanned to allow a fully registered point cloud to be created. A point spacing of approximately 5 to 10mm was achieved over most elements, with individual point accuracies of +/-3mm using our latest Leica P20 laser scanner.

For the purpose of BIM for Infrastructure, the Bridge was modelled in 3D by means of point cloud manipulation and data interrogation, Autodesk Revit was utilised to create bespoke components of the Victorian bridge. The 3D modelling proved to be a rewarding challenge due to the Victorian design and age of the structure and the many complex facets. Not a standard Revit family in sight !



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