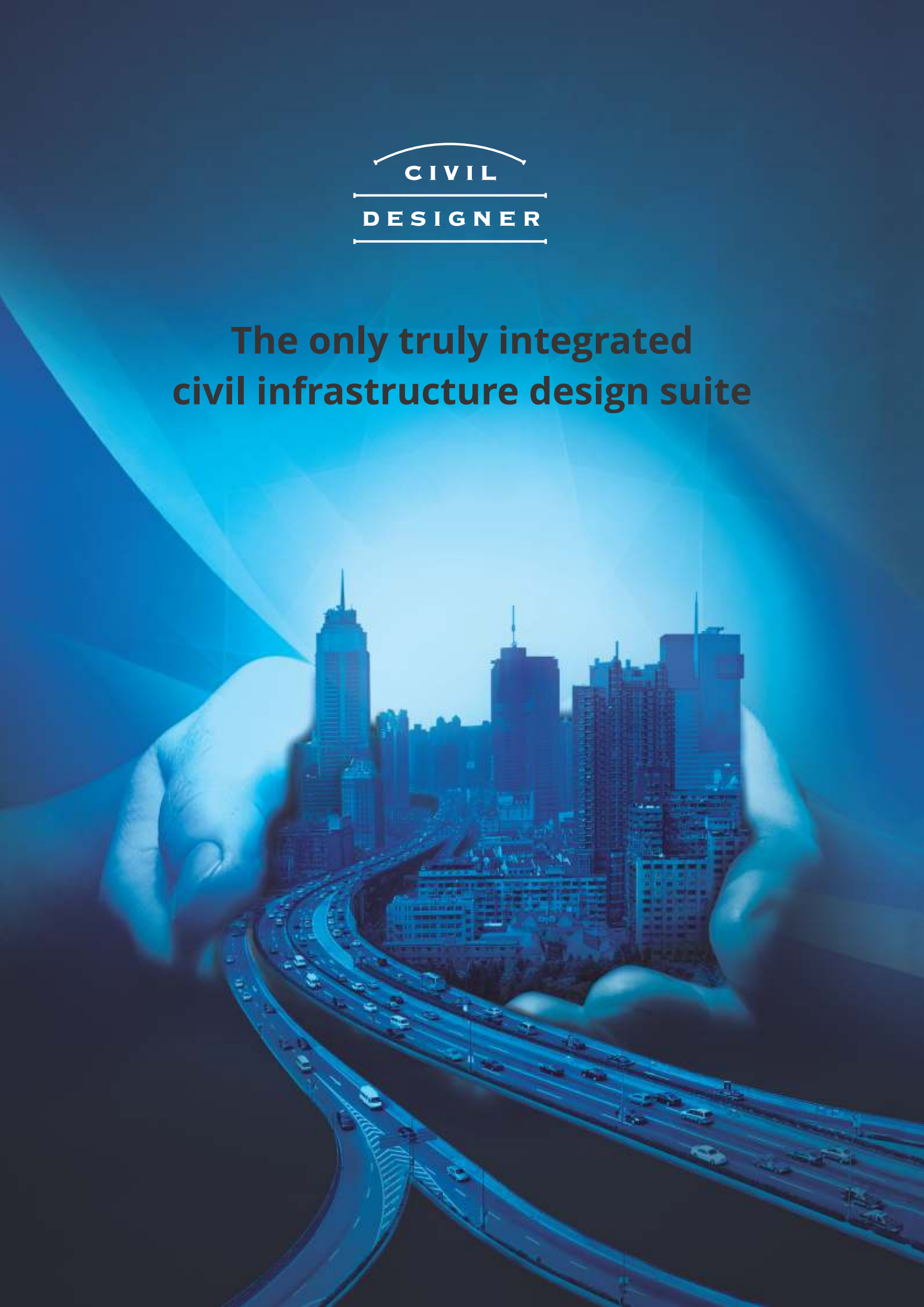# CIVIL DESIGNER

The only truly integrated civil infrastructure design suite

CIVIL DESIGNER

Benefit from the following advantages:

- **Continuous module interaction** – a truly integrated infrastructure design platform.
- **Quick learning curve** – the common interface in all modules ensures ease of use.
- **Time saving** – the modules interact with each other with no need for other programs.
- **Design integrity** – in depth design processes use tried and trusted civil engineering principles.
- **Project collaboration** – fits into your interoperability requirements and BIM workflow.
- **Own the software** – your licence doesn't expire and you can upgrade when you choose to.
- **Cost effective** – take advantage of shared network or VPN licensing with no surcharge.
- **Client driven** – software development based on client needs for optimum usability.
- **Fast project delivery** – benefit from our dedicated Support Centre whenever you need help.

Enjoy time saving features:

- **Set up projects easily** – import data from various sources and formats.
- **Handle large data sets** – multiple cadastral drawings and aerial images with a large DTM.
- **Model from CAD** – convert CAD layouts to both proposed or existing road and pipe networks.
- **Full CAD functionality** – work with design and CAD elements within the same environment.
- **Clash and proximity analysis** – check existing and/or proposed design services.
- **Interactive views** – crossing services displayed on plan, long and cross sections.
- **Dynamic layouts** – keep your design and drawing layouts in sync automatically.
- **Save hours of CAD work** – customizable drawing templates for plans, long and cross sections.
- **Fast built-in 3D rendering** – generate 3D views and drive-throughs at any stage of design.
- **Collaborate with other professionals** – advanced IFC BIM, LandXML, DWG, DXF & SHP support.

DESIGN CENTRE PLATFORM

Combines a bespoke CAD, aerial image handling, and powerful digital terrain modelling to host the design modules and provide all the functionality required to produce your final drawings.

SURVEY & TERRAIN MODULE

Advanced survey calculations and draughting routines for bulk earthworks, terrace or dam wall design including material volumetrics and haulage optimization.

ROADS MODULE

Interactive geometric functions for the design and rehabilitation of multiple-lane highways, single/dual carriageway roads, railway lines and airports incorporating intersections, roundabouts and cul-de-sacs.

SEWER MODULE

Foul water network analysis and design with connection modelling, which calculates inflows, attenuation, stormwater infiltration, pipe sizes, levels, slopes and trench excavation quantities.

STORM MODULE

Stormwater network analysis and design with catchment runoff (Illudus, Rational, Wallingford & SWMM), infiltration losses, pipes sizes, levels and slopes, flows, overflows, detention storage and trench excavation quantities.

WATER MODULE

Analysis and extended time simulation of large fluid handling networks including reservoirs, boreholes, pumps, gate/air/scour valves, house connections, fire hydrants and public stand pipes.

TURN MODULE

Simulation of low speed turning manoeuvres along a specified tracking path for cars, trucks, articulated vehicles, trailers, commercial aircraft, and forklifts in both forward and reverse.
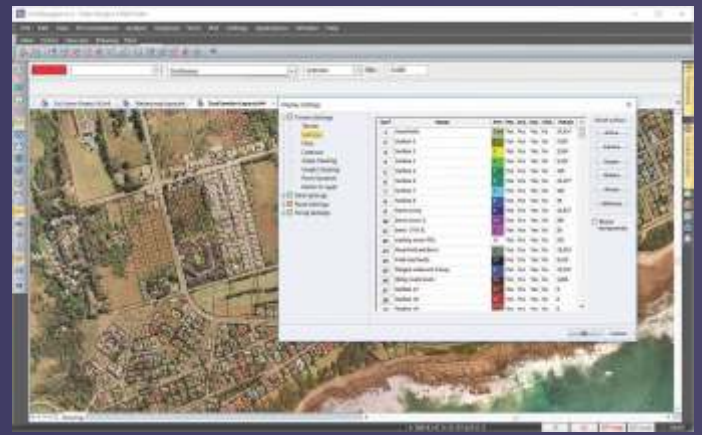
CAD & RENDERING MODULE

Extended 2D/3D drafting functionality for final tender and construction drawing production. Specialised 3D rendering and animation for design verification and realistic design model video presentations.

DESIGN CENTRE

- Fully compatible with DWG, DXF, DGN, LandXML and SHP
- Easily set up different coordinate systems
- Use multiple aerial photographs as a backdrop to your design
- Multiple (400+) drawing layouts and viewports
- Embedded drawings (Xrefs), blocks and coordinate tables
- Extra large DTMs with 255 surfaces
- Super-fast import of DTM points and triangulation
- Intelligent breakline generation using point descriptors
- Proximity analysis in conjunction with design modules
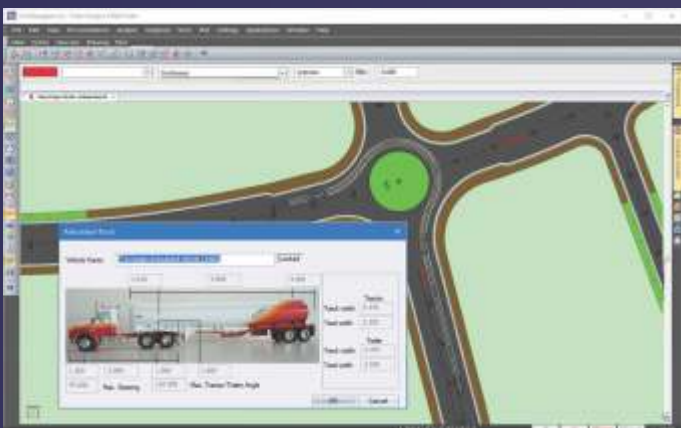- Dynamic updating of construction drawings

ROADS

- Handles up to 2500 roads of 400km each per project
- Super-fast 3D junction, roundabout and cul-de-sac design
- Dynamic 3D surface meshes with contour and drainage displays
- Regression analysis of existing single and dual carriageways
- Fully customizable TD9_93 design criteria
- Intelligent profile selection for multiple cut and fill conditions
- View and edit individual cross-sections and components
- Climbing / auxiliary lane design with speed profiling
- Minimum sight distance checking with full 3D analysis
- Water Film Thickness analysis with water depth gradient display

STORM

- Supports Illudas, Rational, Wallingford and SWMM models
- Simulate dual runoffs with partial flow capture and overflows
- Provision for detention storage at inlets
- Graphically define catchment areas with attributes from DTM
- Attenuate runoff by means of detailed reservoir routing
- Hydraulic routing by Continuity Equation or Time Shift method
- Analyses flow, overflow, capacity, velocity and flow depth
- Calculates optimal culvert size, slope, inlet and outlet levels
- Calculates trench volumes, pipe lengths and manhole depths
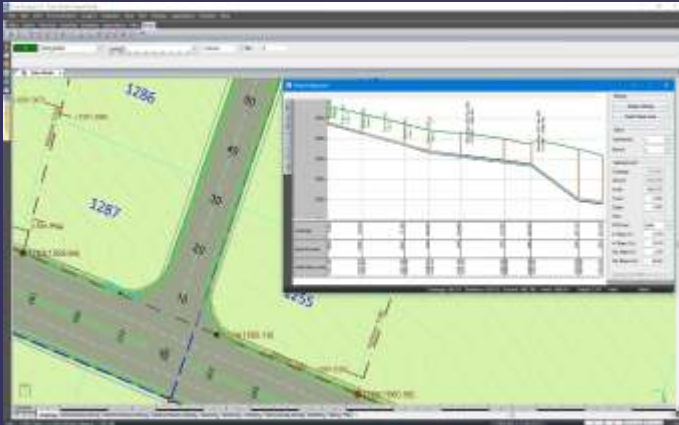- Generates layout plan with pipe schedule and long sections

TURN

- Dynamic simulation of vehicle tracking paths
- Multiple vehicle libraries including UK standards
- User configurable vehicles
- Easy track path definition and creation
- Define way points along the track path
- Cargo Point tracking function
- Projecting load clearance analyzed
- Forward and reverse movements
- Track path to CAD layer with test vehicle profile
- Works in conjunction with existing CAD entities

SURVEY & TERRAIN

- Draft Expert - automated draughting from raw survey data
- Multiple terraces with cut/fill optimisation
- Platform & terrace design using relational 3D string method
- Rapid dam water surface area and volume calculation
- Calculate volumes between any 2 of 255 surfaces
- Powerful survey reduction routines
- Survey calculations, error figures and control surveys
- Observations and figures database for all survey calculations
- Crossing services displayed on plan, long and cross-sections
- Extract long and cross-sections along any alignment

SEWER

- Foul water connection and network analysis
- Property connection analysis using minimum ground level
- Unit inflows with multiple peak flow formulae
- Dynamic time simulation with multiple inflow hydrographs
- Pump stations with up to 4 pumps with various controls
- Analyses flow, overflow, capacity, velocity and flow depth
- Calculates optimal culvert size, slope, inlet and outlet levels
- Pressure flow analysis for surcharged systems
- Calculates trench volumes, pipe lengths and manhole depths
- Generates layout plan with pipe schedule and long sections

WATER

- Demand patterns for large cities, villages & rural communities
- Water loss analysis and consumption databases
- Variable peak factor and PRP consumption analysis
- Link external data tables such as consumption & tariff details
- Borehole hydraulic modeling and water quality analysis
- Customisable pipe database with definable pipe types & sizes
- Pump station control by pressure, water level or time-based
- View velocities, flow, pressure, losses & hydraulic grade lines
- Graphically show and analyze connections and flow rates
- Calculates trench volumes, pipe lengths, bends and junctions

CAD

- Fast import and manipulation of large scale drawing files
- Handle multiple large aerial images with ease
- 'Reality Mesh' image import and dynamic rendering
- Render Views with environment, terrain settings & preset views
- Sub-surface 3D fly-throughs for service proximity verification
- 3D rendering and animation for realistic video model production
- Touch Screen Gestures (Pan, Rotate, Zoom) for use on tablets
- Time saving Survey, Structural, Mechanical, Architectural Toolkits
- Google Earth integration with KML file output
- BIM IFC integration

www.civildesigner.com

"Civil Designer allowed us to do more than ever in a short time frame and was used to create 50km of road in one model with 47 intersections."

Moegtaar Madatt, Technical Director, Mott MacDonald

"Viewing and manipulating the cross sections in the Roads module, as well as the means to integrate with the different DTM surfaces in the project, made the design process very straight forward."

Sunelle Doll, Civil Technician, Royal HaskoningDHV

"The easy to use Terrain, Roads, Water, Sewer and Storm modules, with their time saving tools, help us tackle projects efficiently."

Solly Solomon, Senior Technician, Aurecon

"Fortunately we could rely on a program like Civil Designer to help us balance the complicated earthworks. The project went on to win the Fulton Award."

Carlos dos Santos, Chief Technician, AECOM