



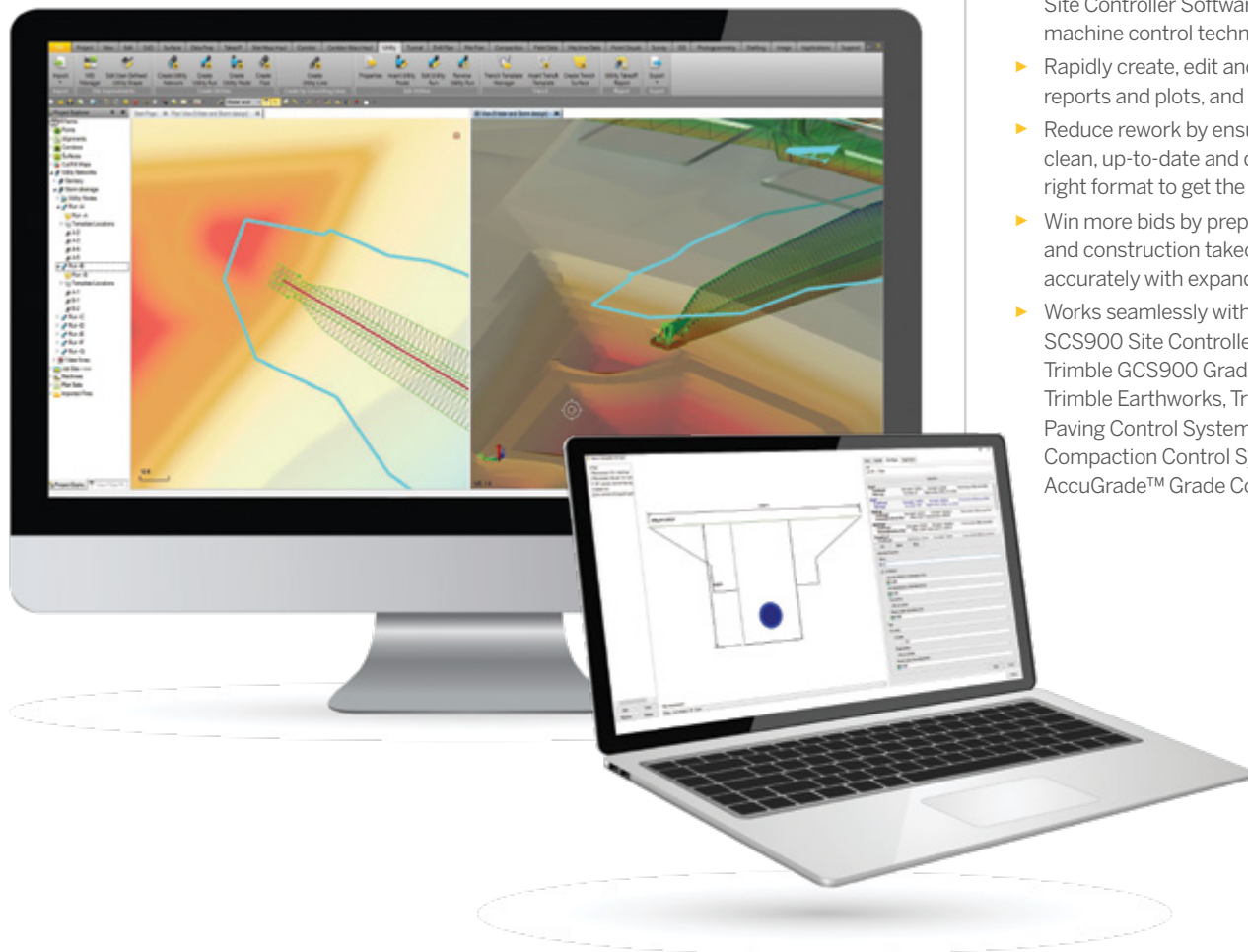
# Business Center - HCE

## UTILITY MODELING MODULE

### TOOLS FOR UTILITY MODELING AND TAKEOFF

Simplify site and infrastructure construction with Business Center - HCE's Utility Modeling module. The Utility Modeling module provides takeoff capabilities and a new dimension to your project. Storm, sanitary, water, gas and cable utility lines can now be modeled as a part of your project, along with the trench work required for construction.

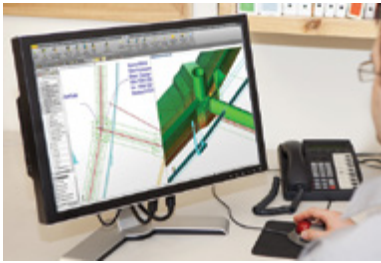
- ▶ Parametrically model utility networks (storm, sanitary, water, gas, electric, cable) and associated trenches; change any aspect and it redraws automatically—including surface changes
- ▶ Compute detailed takeoff quantities for estimating, and 3D models in the form of points, lines and surfaces for use with machine control and site positioning systems
- ▶ Use the Utility Modeling module alone, or with the Data Prep and Takeoff modules
- ▶ Interactively view in 3D how the utilities relate to each other, and how the trench surfaces interact with other surfaces
- ▶ Easily identify multiple depth ranges and see where subsurface strata such as rock will be excavated



### Key Benefits

Business Center - HCE contains powerful tools to help you quickly and easily create accurate, integrated 3D constructible models for site and infrastructure construction. Make better decisions, decrease costly mistakes, and increase efficiency in the office and on the job site.

- ▶ Save time and money by easily finding and resolving construction conflicts in the office, before your crew gets to them on-site
- ▶ Reduce drive time by effectively and seamlessly managing data between the office, Trimble SCS900 Site Controller Software and Trimble machine control technology
- ▶ Rapidly create, edit and draft, generate reports and plots, and publish information
- ▶ Reduce rework by ensuring data is clean, up-to-date and delivered in the right format to get the job done
- ▶ Win more bids by preparing earthwork and construction takeoffs quickly and accurately with expanded levels of detail
- ▶ Works seamlessly with Trimble® SCS900 Site Controller Software, Trimble GCS900 Grade Control System, Trimble Earthworks, Trimble PCS900 Paving Control System, Trimble CCS900 Compaction Control System and Cat® AccuGrade™ Grade Control Systems



### Core Product Functionality

Business Center - HCE software core functionality does much more than just import and export.

- ▶ Creation, editing and visualization commands
- ▶ Import AutoCAD DXF/DWG, Microstation DGN, ICM, LandXML, ASCII points, files from many Trimble systems or other third party systems
- ▶ Create and edit alignments, site calibration, surfaces, points, and breaklines to refine surfaces
- ▶ Calculate volumes between surfaces and measure the bearing and distance between objects
- ▶ Cost-efficiently find and fix errors before they are sent to the field by visualizing and editing in 3D
- ▶ Export to many file formats for maximum versatility

The Core Product is available as a free download, add-on modules extend the functionality of Business Center - HCE.



### Materials and Site Improvement Manager

The Materials and Site Improvement Manager has been expanded to support utility site improvements—utility nodes and utility lines can now be created, quantified and reported for takeoff and estimating.

- ▶ Utility Nodes include headwalls, manholes, cleanouts, valves, meters and hydrants
- ▶ Utility Lines include pipes, culverts, flow channels and cables

### Utility Functions

A range of functions are available to effectively model and manage utilities. Use the Utility Modeling module to create:

- ▶ Utility networks based on type of utility (gravity-based, pressurized or cable) for more efficient reporting; takeoff reporting is carried out at a utility network level
- ▶ Utility nodes, with the tools to position, orientate and define properties like rim or invert elevations, material size/type
- ▶ Utility runs to link utility nodes and utility lines together into a sequence
- ▶ Utility lines, with the tools to position and define the linear elements of a utility line, including all relevant properties (type, size, material, invert elevations, etc.)
- ▶ Utility trench surfaces, 3D surface models of the utility trench for visualization, and for use with machine control or site positioning/survey systems



### Utility Trench Template Manager

The Utility Modeling module includes the Utility Trench Template Manager tool, which defines the trench types needed for different utility lines, different ground conditions and different depths. All trenches contain the trench design, the backfill material design and the depth zones/brackets for estimating purposes.

- ▶ Parametrically-defined sizing allows one template for many trench sizes, trenches adjust automatically based on depth, strata material, pipe and node size
- ▶ Export trench templates as smart objects to other project files, maintaining surface and site improvements
- ▶ Model multiple backfill materials, defined by thickness or relative thickness based on pipe size or location



### Utility Takeoff Reports

Generate reports showing a range of data:

- ▶ Quantities broken out by depth zones
- ▶ All linear site and node site improvement quantities
- ▶ All cut and backfill material quantities

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