

Getting Started in SS3 Bentley Civil Power Products

BCR1WK2

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BCR1WK4

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Getting Started in SS3 Bentley Civil Power Products

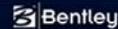
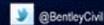


- This hands-on, four-hour workshop empowers casual or new users to get productive in SELECTseries3 more quickly!
 - Learn the built-in CAD tools and how to navigate the new Civil data file - the dgn!
 - Evaluate civil models! Import Existing Terrain!
 - Learn "the Rules"!
 - Directly and Intelligently Edit Designs by Click-and-Type!
 - Build Roads! Create Corridors! Grade Building Pads!
 - Save time with Civil Cells!
- For all Bentley Civil users.
- At the end of this training session, an assessment will be given. We will review all assessment questions and answers to see what you have learned.

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Learning Objectives



After this session you will be able to:

- Open an OpenRoads Technology Design and describe its contents
- Edit Civil Rules to change engineering/geometric properties
- Describe why we use Civil Geometry Tools rather than "simply" "Add Civil Rules" to graphics
- Create Horizontal and Vertical Geometry
- Create 3D Roads ("Corridors")
- Create Building Pads and associated grading
- Place Civil Cells

Keeping It Simple



I am purposely ignoring some integration and time-saving options to focus on one-concept-at-a-time fundamentals. Ignored items include:

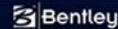
- Civil AccuDraw – necessary for many workflows
- Keyed in Coordinates: trust me, the software can handle that
- Design Standards
- Auto Best Fit Verticals
- Create 3D Automatically



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Trying to keep it at a “Drinking from a Fire Hydrant” level, rather than a “Drinking from a Volcano” level.

Learning Objectives



At the end of *this session* you will NOT be OpenRoads Technology Gurus...

But after these 2013 Bentley LEARNING Conference
OpenRoads Technology sessions, you might be:

(General) Transitioning to OpenRoads Technology	(Geom) Geometry Creation Made Simple
(General) What Does Design Intent Mean to You?	(Geom) OpenRoads Technology Workshop: Horizontal Geometry
(General) Moving to SELECTseries 3 for GEOPAK Users	(Geom) OpenRoads Technology Workshop: Vertical Geometry
(General) Moving to SELECTseries 3 for InRoads Users	(Cells) Eliminate Redundant Modeling With Civil Cells!
(General) Administering Bentley Civil Software (SS3)	(Cells) OpenRoads Technology: Using Civil Cells
(General) Understanding Features	(Corridor) OpenRoads Technology Workshop: Corridor Modeling
(General) Civil Design Review: 3D Modeling and Clash Detection	(Corridor) Superelevation in the OpenRoads Environment
(General) OpenRoads - Best Practices	(Corridor) Superelevation Workshop for the OpenRoads Environment
(Survey) Importing and Editing Survey Data	(Sheets) From Civil Model to Cross Section Sheets
(Survey) OpenRoads Technology for Surveying	(Sheets) From Civil Model to Cross Section Sheets Workshop
(Terrain) The NEW Terrain Model	(Site) Road and Site Are Now One!
(Terrain) Managing the Ever-growing Terrain Model	(Site) Integrated Road and Site Modeling
(Terrain) OpenRoads Technology: Terrain Modeling Workshop	(Site) Site Unchained
(Terrain) Using Point Clouds in Civil Workflows	(Util) Technology Update: Bentley Civil Subsurface Utility Design and Analysis

Today's Workflow

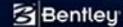


- Why OpenRoads Technology?
- What's new about my Work Environment?
- What's a Civil Rule? Why a Civil Rule?
 - We'll Build some Centerlines
- Explore a pretty cool Rule-based Site Model
- Terrains: Create and Analyze
- Explore the 2D/3D Work Environment – Models/Views/References
- Building Simple Horizontal and Vertical Geometry
- Building a Simple Corridor
- Placing and Grading a Building Pad
- Placing Civil Cells

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Why OpenRoads Technology?

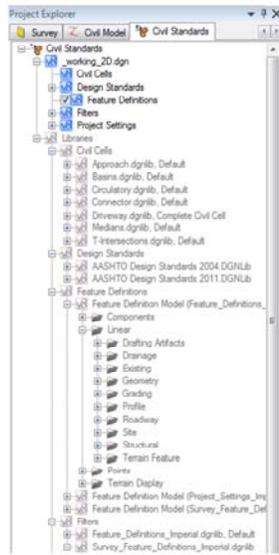


- The **FUTURE** of how information is shared
 - MicroStation is Bentley's Information Platform.
 - Data goes to the DGN. Maximizes Shareability.
- Design Intent
 - Capture it. Honor it.



This enables things we haven't thought of yet (and things we have, like Civil Cells)

Standards: Workspace-managed



- Standards are in DGNLIBs
- DGNLIBs are most easily managed via Workspaces
- Bentley delivers an extensive, robust Workspace



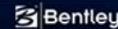
BCR2WK5 – Administering Civil

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Standards are now in dgnlibs.

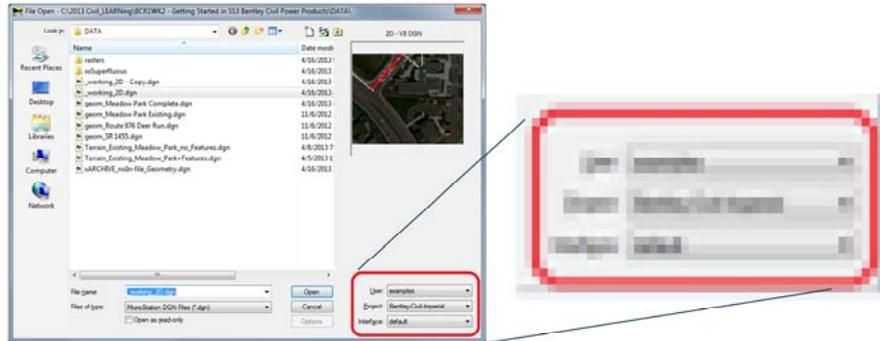
Dgnlibs are best managed by MicroStation Environmental Variables

MicroStation Environmental Variable are best managed by Workspaces

Bentley delivers an Imperial and a Metric Workspace with the product.

Delivered Workspace

- Select it in the MicroStation File Open dialog
- User: examples
- Project: Bentley-Civil-Imperial



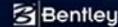
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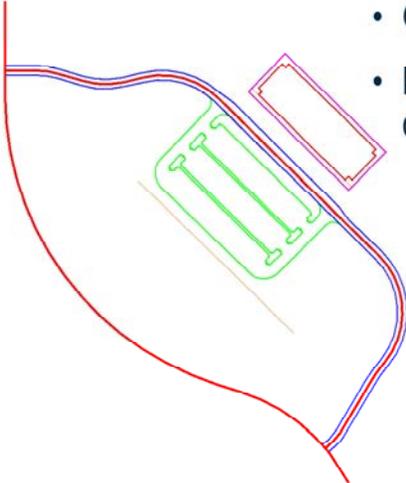


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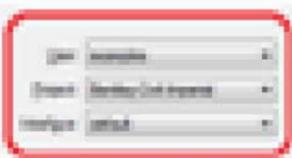
Throughout this Workshop and the LEARNING Conference,
SS3 courses will utilize the Bentley-Civil-Imperial Workspace
Use:

User: examples
Project: Bentley-Civil-Imperial

Exercise: Open up and Look Around



- Open SitePlan2d.dgn
- Ensure the workspace is correct

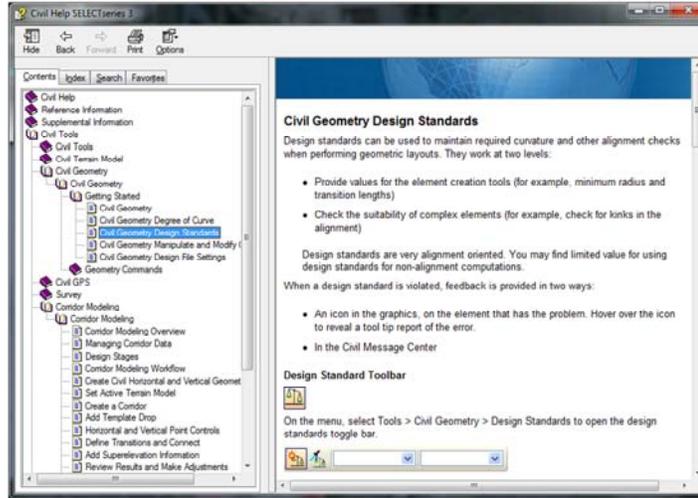


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Open C:\2013 Civil_LEARNING\BCR1WK2 - Getting Started in SS3 Bentley Civil Power Products\DATA\10_2D-Exploring\SitePlan2D.dgn

Where to get Help

- MicroStation > Help > **{Civil Product} Help**



Exercise: “breathe” in MicroStation?



- Does everyone know how to
 - Viewing: Fit View, Zoom In, Window Area
 - Select, Multi-Select
 - Undo
 - Levels On/Off
 - Manage Reference Files and their Level Display
 - Use Tasks, Main Tools, Drawing Tasks

Exercise: Explore Civil Environment



- Correct Workspace! Examples > Bentley-Civil-Imperial
 - Can Verify via: Workspace > About Workspace

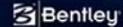
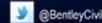
- We'll explore these topics
 - Explore the Civil Tasks
 - Explore the Project Explorer
 - Civil Model, Civil Standards

 - Explore the data, via Project Explorer, Element Info & HUD

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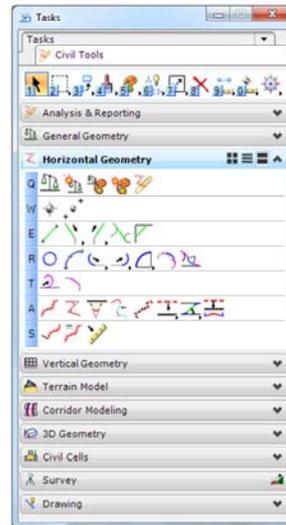


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Have them dock them or pin them or move them around to be visible

The Civil Interface

- Tasks (from Tools > Tasks)
 - Customizable
 - Dockable
 - Pinnable



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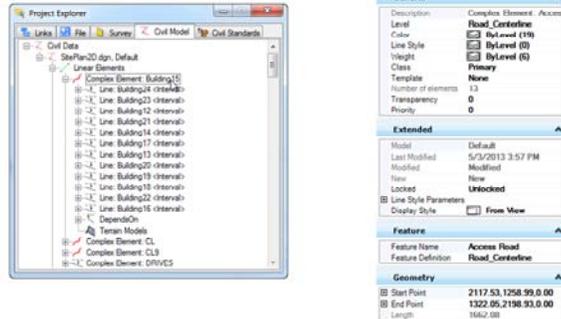
Ensure that your Task Menu is visible (it can be opened by Tools > Task)

Move it somewhere. Consider docking it somewhere.

Click the various Tasks Groups to see the tools.

The Civil Interface

- Project Explorer & Element Info
 - File > Project Explorer
 - Element > Information



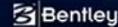
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Open the Project Explorer and the Element Information panels

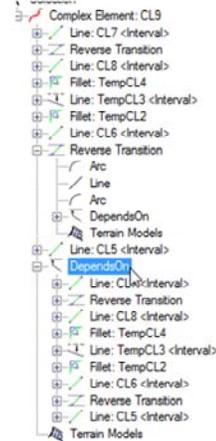
Position them somewhere. Consider docking them somewhere.

Explore the Project Explorer. Review the Civil Standards tab.

Review the Civil Model. Clicking on an item highlights it in the design and shows its properties in the Element Information dialog.

The Civil Interface

- Project Explorer & Element Info
 - Shows the tools used to create an element!
 - Selecting an element highlights it in the design file



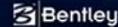
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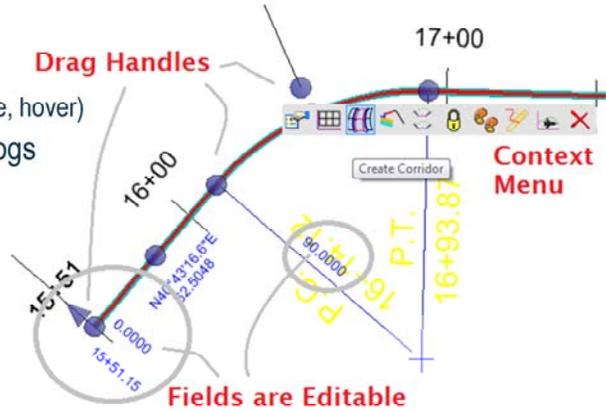


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Select elements in the design. Review the Element's Information.

The Civil Interface

- Improved Heads Up Display
 - Editable Fields
 - Drag Handles
 - Context Menus
 - (Select, release, hover)
 - Configurable dialogs



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Selecting an Element shows its rules and Editability via the Interface (Manipulators, etc.).

There is a GUI document in the DOCs folder.

Civil Message Center

- General Geometry > Geometry Toggles > Civil Message Center

The screenshot displays the Civil Message Center dialog box. At the top, it shows 'Hide All', '50 MicroStation', '1 Error', '4 Warnings', and '0 Messages'. The main area is a table with the following data:

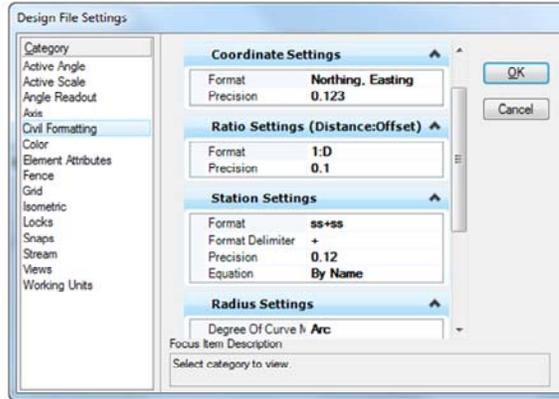
Element	Message	Description
Error	Arc radius is less than minimum	Design Standard Value = 2500.0000 Actual...
Warn...	Tangent length is shorter than minimum	Design Standard Value = 300.0000 Actual ...
Warn...	Arc length is shorter than minimum value	Design Standard Value = 500.0000 Actual ...
Warn...	Tangent length is shorter than minimum	Design Standard Value = 300.0000 Actual ...
Warn...	Tangent length is shorter than minimum	Design Standard Value = 300.0000 Actual ...

A 'Zoom to' button is positioned over the last row of the table. The background of the slide shows a red arc with yellow warning markers, with red lines connecting the markers to the corresponding rows in the table.

We won't use this in class, but the Civil Message Center (General Geometry > Geometry Toggles > Civil Message Center) provides a manageable Error and Warning list.

Civil Settings

- Some Civil Formatting Settings



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This has been preset for us, but in Settings > Design File >> Civil Formatting, there are a variety of settings for Civil-related input, display and output properties.

Civil Rules: what are they?

- Most of the work we do is based on some sort of relationship. Civil Rules remember the relationships.
- It's a Civil Engineering-aware data structure mechanism that captures and manages Design Intent.
 - It stores the Design Intent in the DGN =
 - Long term storage and shareability of Design Intent
- MicroStation doesn't track Design Intent. Civil Rules do.



BCR3LC5 - What Does Design Intent Mean to You

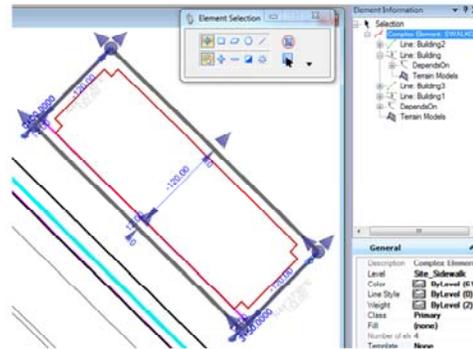
Civil Rules: what are they?



- Most of the work we do is based on some sort of relationship. Civil Rules remember the relationships.
- It's a Civil Engineering-aware data structure mechanism that captures and manages Design Intent.
 - It stores the Design Intent in the DGN =
 - Long term storage and shareability of Design Intent
- MicroStation doesn't track Design Intent. Civil Rules do.
- How do you track/investigate the Rules?

Exercise: Explore Rules

- Continue in SitePlan2d.dgn
- Explore the data, via Project Explorer, Element Info & Heads Up Display
- Select & Element Info: **building pad perimeter**



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Additional information can be found in the “footprints” in Element Information how it was built:

It's based on the temp line offset

Back wall is offset from front wall

Side walls are snapped between front and back walls

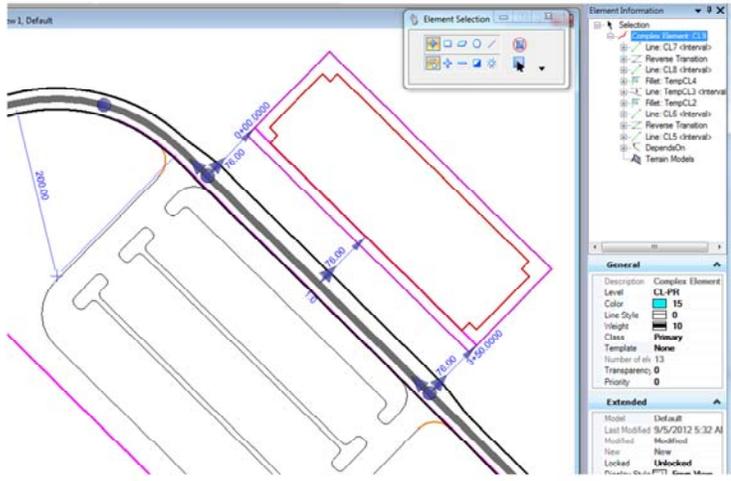
Then it was complexed

Change the width of the building.

Change the offset between the building and the sidewalk.

Exercise: Explore more Rules

– Review the Entrance Road



The screenshot displays a Bentley software interface for reviewing a road layout. The main workspace shows a road with several elements highlighted in different colors: a blue line, a red line, a purple line, and a yellow line. The road is labeled with stationing numbers: 1+00.00, 1+50.00, 2+00.00, 2+50.00, and 3+00.00. A parking area is visible to the left of the road. The interface includes a top menu bar, a toolbar, and a right-hand panel with the following sections:

- Selection:** A list of selected elements including Line: CL7 Interval, Reverse Transition, Line: CL8 Interval, Fillet: Temp:CL4, Line: Temp:CL3 Interval, Fillet: Temp:CL2, Line: CL6 Interval, Reverse Transition, Line: CL5 Interval, and Terrain Models.
- General:** Properties for the selected element, including Description (Complex Element), Level (CL4-PK), Color (15), Line Style (0), Weight (10), Class (Primary), Template (None), Number of pts (13), Transparency (0), and Priority (0).
- Extended:** Additional properties such as Model (Default), Last Modified (9/5/2012 5:32 AM), Modified (Modified), Name (None), Locked (Unlocked), and Properties (CL4-PK).

At the bottom of the slide, there is a footer with the following information:

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Explore how the road is built

Take a look at the parking

Exercise: Explore Geometry

The screenshot shows a software interface with a blue centerline element. A context menu is open over the element, listing options: Properties, Profile, and Report. A red box highlights a toolbar with various icons. Below the element, a 'Horizontal Alignment Review Report' is displayed, showing details like Project: Default 2D, File Name, and Alignment Name: North_Bound.

- Note the Context Menu
 - Select, hover
 - Properties
 - Profile
 - Report

– Click Report

Horizontal Alignment Review Report
 Report Created: 5/2/2013
 Time: 4:43pm
 Project: Default 2D
 Description:
 File Name: C:\2013\Col_LEARNING\BCHTYW02 - Getting Started in 3D3 Bentley Civil Power Products\DATA\Full_Condor\cleaned\F02_Geometry+refs.dgn
 Last: 5/2/2013 13:34:06
 Revisited:
 Note: All units in this report are in feet unless specified otherwise
 Alignment Name: North_Bound
 Alignment Description:
 Alignment Style: Geom_Centerline

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Let's invoke the Context menu
 Pick a Centerline
 (Select, hover...)

Run a quick report