



# Jump Start with Civil Workspace

Presented by: Robert Nice – Bentley Systems

# Jump Start with Civil Workspace

- This presentation will cover the essential requirements for developing a workspace for V8i (SELECTseries 3).
- 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.

# Learning Objectives

After this presentation you will be able:

- Understand the major requirements for developing a workspace.
- Have a good understanding of the Bentley-Civil delivered example workspace.
- Comprehend a “Best Practices” approach to organizing your workspace.

# Jump Start with Civil Workspace

- What is a *MicroStation Workspace*?
  - A custom MicroStation environment or configuration. By selecting a defined workspace, you customize MicroStation for a specific discipline, project, task, or standard.

# Jump Start with Civil Workspace

- Why do we need a *Workspace*?
  - Streamlining of workflows
  - Standards enforcement
  - Support consolidation
  - Unified training
  - Ease of Use

# Jump Start with Civil Workspace

- *Bentley-Civil Workspace*
  - *Excellent for “out of the box experience”*
  - *Provides an example for developing own workspace*
  - *Prevents Agencies and Consultants from “starting from scratch”*

# Jump Start with Civil Workspace

- *Bentley-Civil Workspace*

- Included as part of the default install process

- Default Path for Layered Suite Products

- C:\ProgramData\Bentley\MicroStation V8i (SELECTseries)\WorkSpace\Projects\Examples

- Default Path for Power Products

- C:\ProgramData\Bentley\PowerInRoads V8i (SELECTseries 3)\WorkSpace\Projects\Examples

# Jump Start with Civil Workspace

- Accessing the *Bentley-Civil Workspace*

- *User*

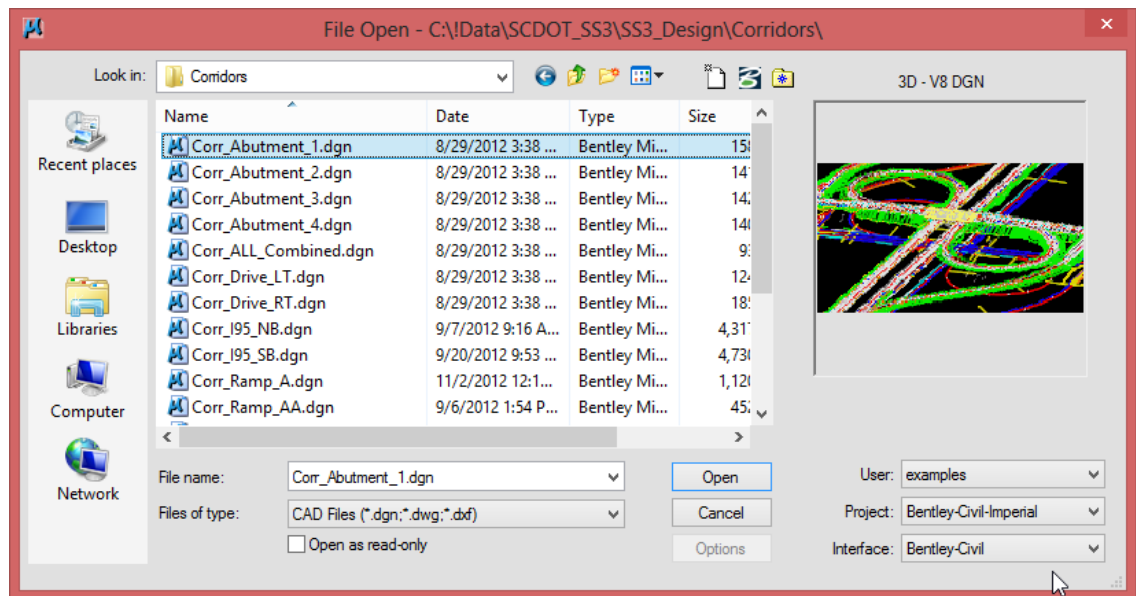
- *Examples*

- *Project*

- *Bentley-Civil-Imperial*
- *Bentley-Civil-Metric*

- *Interface*

- *Bentley-Civil*





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- *Suggested Workspace Organization*

- Review the Project Configuration File (PCF File)

- Layered Suite Location

- C:\ProgramData\Bentley\MicroStation V8i (SELECTseries)\WorkSpace\Projects\Examples\Bentley-Civil-Imperial.pcf

- Power Product Location

- C:\ProgramData\Bentley\PowerInRoads V8i (SELECTseries 3)\WorkSpace\Projects\Examples\Bentley-Civil-Imperial.pcf

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- Where are the *Workspace Settings* located?
  - DGNLibs should be used to set the specific requirements for a customized workspace.
  - The Bentley-Civil Workspace showcases the use of *DGNLibs* to host the settings associated with the completion of a customized workspace.

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- *DGNLib* → *Active DGN*
  - The first time a new feature, element template, etc. is used from a DGNLib, just like with Levels, that information will be copied into the active DGN file.

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- *Civil Configuration Variables....*
  - Bentley-Civil Workspace PCF file shows a great example set
  - MicroStation Help
  - Individual Product Help

# Jump Start with Civil Workspace

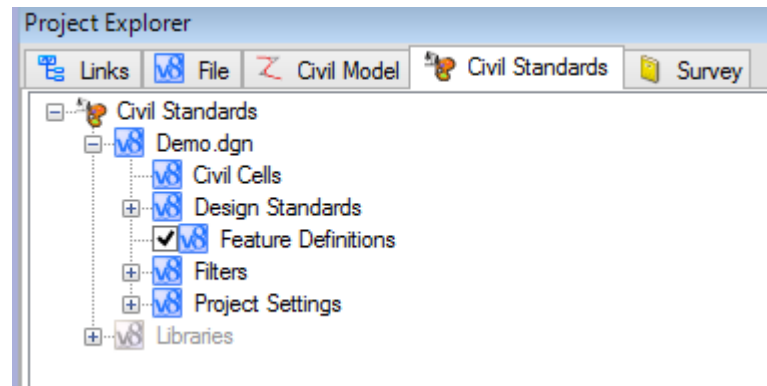
- Important *Configuration Variables*
  - CIVIL\_CONTENTMANAGEMENTDGNLIBLIST
  - CIVIL\_ROADWAY\_TEMPLATE\_LIBRARY
  - CIVIL\_XIN\_FILE
  - CIVIL\_SURVEY\_STYLEFILE
  - CIVIL\_CIVILCELLDGNLIBLIST
  - CIVIL\_DESIGNSTANDARDSDGNLIBLIST
  - CIVIL\_PROJECTSETTINGS DGNLIBLIST
  - CIVIL\_CIVILTMDGNLIBLIST
  - CIVIL\_CIVILSETTINGS\_READONLY
  - CIVIL\_SUPERELEVATION\_RULES\_DIRECTORY

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- *Civil Configuration Variables*
  - These civil specific variables should be set or everything in the included dgnlib will show up.
    - Example, features used to create a civil cell will be made available as selectable features to use from the Civil Cell DGNLib if not set.
    - Setting CIVIL\_CIVILCELLDGNLIBLIST and pointing to that DGNLib, would then only extract civil cells and nothing more.

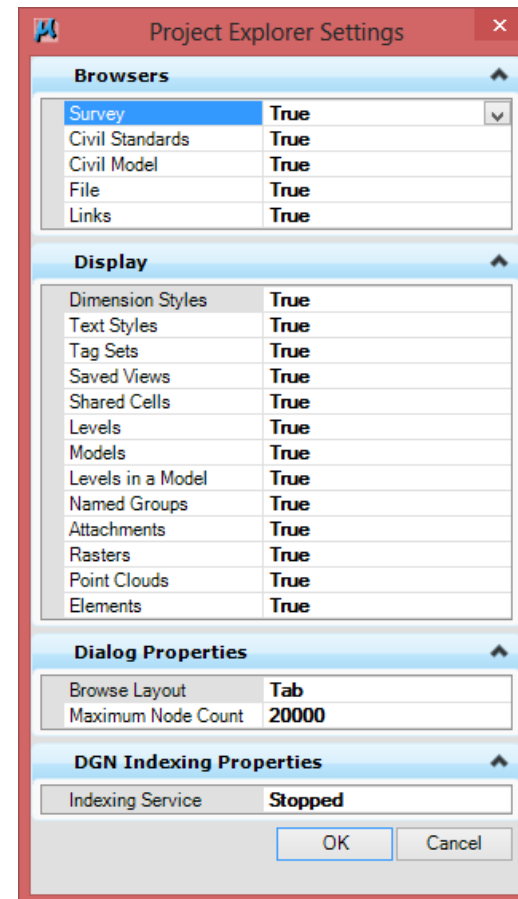
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- Where do I manipulate the properties associated with the workspace entries?
  - *Project Explorer:*
    - MicroStation's interface for browsing elements in a DGN file. Extended by Bentley-Civil to accommodate specialized civil needs.



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- Where to control the accessible properties for *Project Explorer*?
  - *Settings > Project Explorer*





# Jump Start with Civil Workspace

- What is a "*Feature*"?
  - A *Feature* is anything that can be seen or located and is a physical part of your design, representing a real world thing. A feature's definition is one of its properties. At any given time in the design process, the feature will have a Horizontal Geometry, a Vertical Geometry, 3D Geometry or a combination to define its location.
    - Curb and Gutter
    - Asphalt Pavement
    - Manhole
    - Edge of Pavement
    - Etc.

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- What is a "*Feature Definition*"?
  - Used to define options when creating features. These are the items which are created in advance, usually used across multiple projects and define symbology, annotation and display characteristics. The feature definition is assigned (usually) in the plan model and profile/3D feature definitions follow from there.

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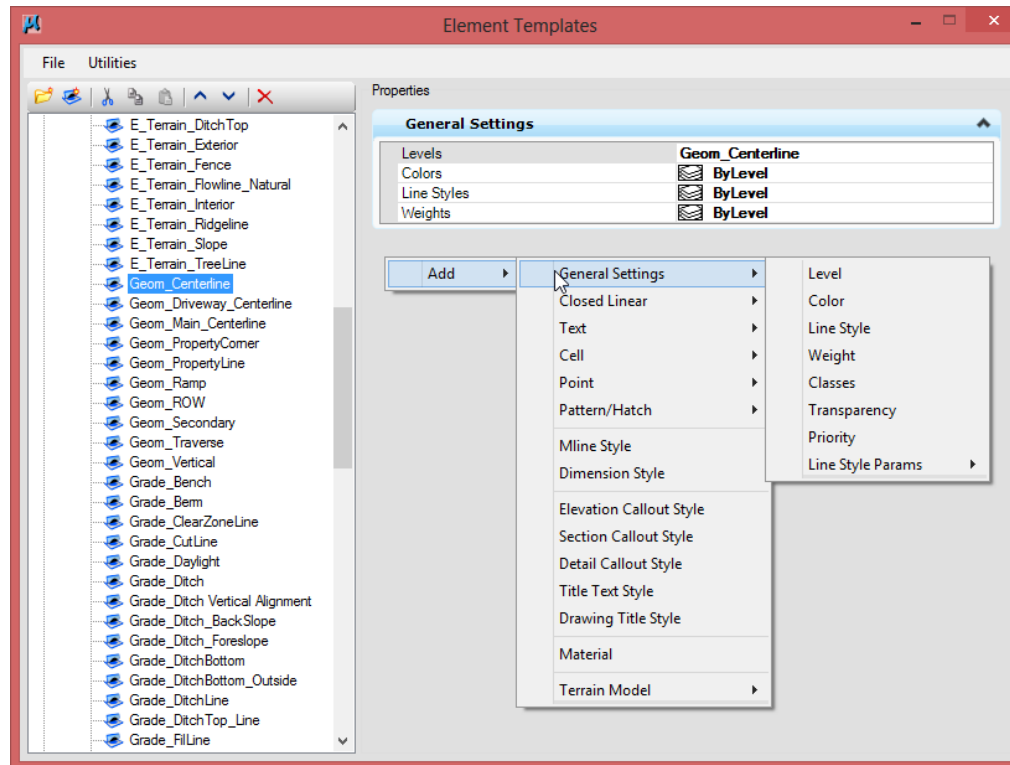
- What types of Features are supported?
  - **Point Feature:** Defined by a single X, Y (Z optional) location. A point need not be featurized. It may be defined as a non-featurized point by way of AccuDraw, Civil AccuDraw, Snap or a data point. Non featurized points are used to control the construction of linear features.
  - **Linear Feature:** In plan model, composed of lines, arcs, spirals, splines or combinations of these. In a profile model, they are composed of lines, parabolas, splines or combinations of these.
  - **Surface Feature:** A surface feature is any area feature defined by way of a terrain model or mesh. A surface has no depth. A terrain model is a special case of a surface which is defined by a triangulated model.

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- How do we assign a "*Feature's Definition*"?
  - *Manual Creation*
  - *Link To Native:* (Legacy Technology Linkage)
    - InRoads – XIN File
    - GEOPAK – DDB File
    - MX – PSS File
  - *Element Templates:* (Embedded in MicroStation – Our Current and Future Path)
    - Supports MicroStation Symbology plus many more options
    - Supports all aspects of MicroStation Terrain Model Elements

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- What are "*Element Templates*"?
  - *Element Template* – A MicroStation concept which allows preconfigured definitions for symbology and other miscellaneous display of MicroStation elements and civil features.



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- What is "*Auto Export*"?
  - *Auto Export*:
    - A Feature Definition.
    - If set to true, the geometry elements are automatically exported to the active MX (FIL), InRoads (ALG) or GEOPAK (GPK) coordinate geometry databases respectively.

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- What is "*Auto Annotate*"?
  - *Auto Annotate*:
    - A Feature Definition.
    - If set to true then any annotations defined in the original DDB, XIN or PSS are applied to the element immediately when it is created or edited.
    - Required to point to legacy annotation files to produce Auto Annotation.
  - *GEOPAK Requirements Only*:
    - For Auto Annotation to function, Auto Export MUST be enabled.
    - Auto Annotation such as curve labels, stationing and tic marks will only work on chains. For example stationing cannot auto annotate on a line between points as this is a legacy D&C limitation.

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- What are "*Project Settings*"?
  - *Project Settings*:
    - Customized preferences to be used in the creation of corridor designs and surveys. These preferences can be applied as the defaults for both corridor design and survey creation, or they can be applied at various time increments throughout a project. In addition, these Project Settings can be saved in DGN Libraries and consequently propagated across an organization.



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- *Project Settings* - Supported Options
  - Corridor Design Stage Settings
  - Linear Template Design Stage Settings
  - Survey Settings

# Jump Start with Civil Workspace

- Project Settings – *Corridor Design Stages*
  - Template Management
  - Critical Section Inclusion
  - Display Settings
  - Output Settings

# Jump Start with Civil Workspace

- Project Settings – *Linear Template Design Stages*
  - Display Settings
  - Output Settings

**Note:** The interval of template drops is set by stroking configuration variables for linear template drops

CIVIL\_DEFAULT\_LINEAR\_STROKING = 10.0

CIVIL\_DEFAULT\_PROFILE\_STROKING = 0.05

CIVIL\_DEFAULT\_CURVE\_STROKING = 0.05

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- Project Settings – *Survey Settings*
  - General Settings
  - Point Settings
  - Linking Code Settings
  - Data File Parsing
  - Least Square Defaults
  - Elements Symbology
  - Terrain Model

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- What are "*Graphical Filters*"?
  - Used in developing terrain models.
  - Automated way of storing search settings for graphic elements when creating terrain models using 3D elements.
  - A Graphical Filter can be created for each feature (i.e., spots, breaks, voids).
  - Graphical Filters can be defined as a Graphical Filter group.

# Jump Start with Civil Workspace

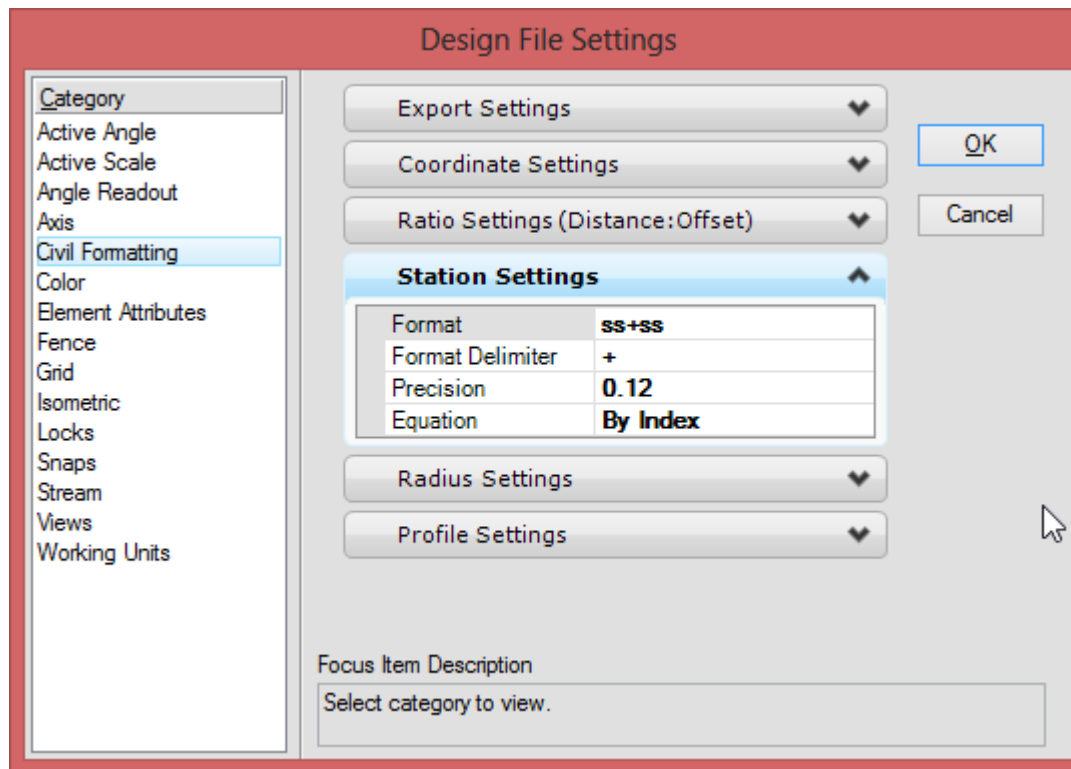
- What are Bentley-Civil "*Standards*"?
  - *Design Standards*: Design Standards can be used to maintain required curvature and other alignment checks when performing horizontal and vertical geometric layouts.
    - Provide values for the element creation tools (for example, minimum radius and transition lengths)
    - Check the suitability of complex elements (for example, check for kinks in the alignment)
  - *Superelevation Preferences*:
    - U.S. method (GEOPAK – Legacy SEP File)
    - International method (MX – Legacy SRL File)
    - InRoads legacy SUP files are not supported in SELECTseries 3

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- *Seed File Suggested Edits...*
  - Set DGN File *Civil Settings* appropriately
  - Set Default Drawing Scale
  - Set default Snap Divisor to 1
  - Turn off clip volume for all views in view attributes
  - Delete unused fonts in keyin field
  - Set default text style
  - Attach default cell library
  - GEOPAK must change Civil Settings Station Equation to “By Region” for auto annotate to function properly

# Jump Start with Civil Workspace

- Seed File *Civil Settings*...



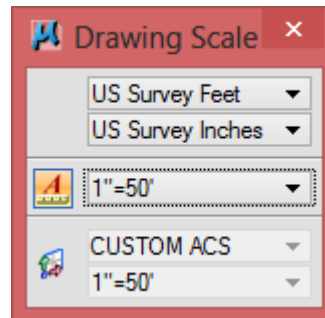


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- *Text Scaling*

- MicroStation Drawing Scale:

- Sets text size for all new functionality including Auto Annotation, Cross Sections, Survey, etc.



- InRoads Global Scale Factor:

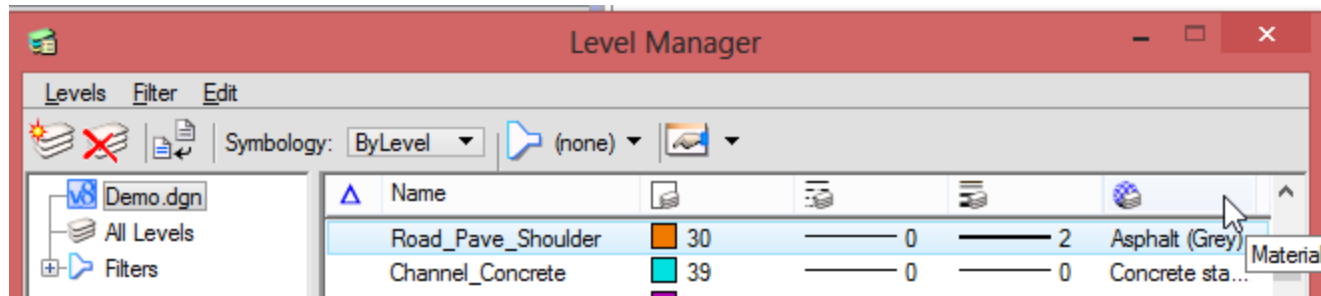
- Uniquely controls Auto Annotation text size
- Does not effect text size in cross sections

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- Material Assignments
  - Can be set per DGN Level
    - One material per level
  - Can be set per Element Template
    - Allows for different materials on same level (i.e. Level Name = Pavement)
  - Important for adequate 3D Model visualization

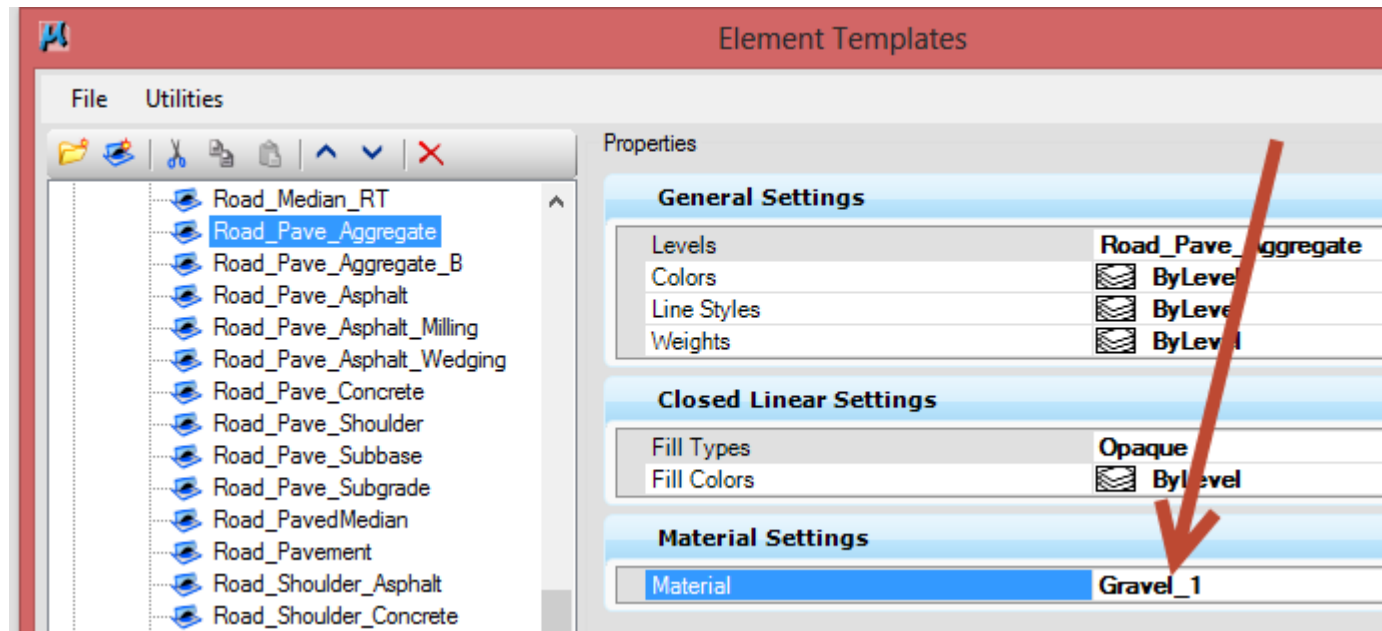
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- Material Assignments using Level



# Jump Start with Civil Workspace

- Material Assignments using Element Templates



# Jump Start with Civil Workspace

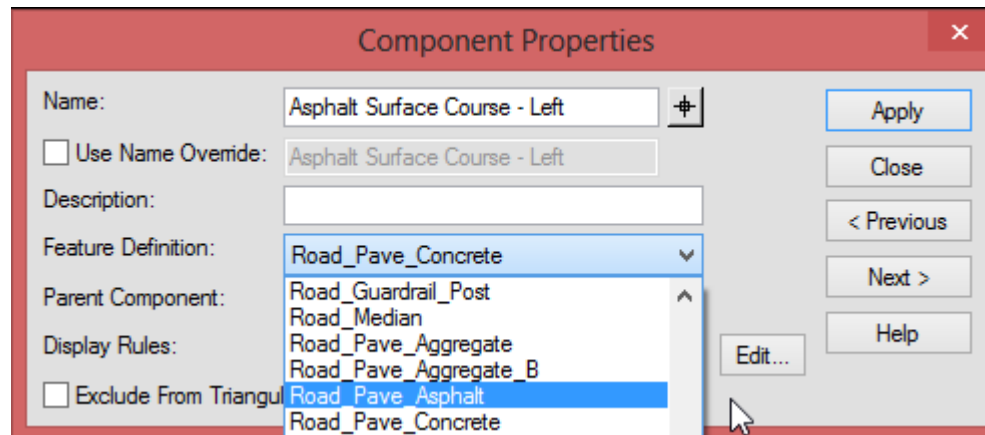
- XIN File
  - Settings / Database LandXML file which contains feature definitions, associated styles, annotation, and other settings.
    - Used by InRoads, GEOPAK, and MX for all settings relating to cutting, annotating, and computing Cross Sections.
    - Used by InRoads ONLY for storing exported Bentley-Civil Geometry and other Legacy settings.

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- Function Key Ideas
  - ***Choose None***
    - Exits the user from any Civil Command
  - ***TerrainModel Analyze Point***
    - *Allows the selection of any alignment or point and provides instant feedback such as station and offset.*
    - *Dynamically Updates*
  - ***Corridor Template library Open***
    - Opens the template library to explore or edit templates

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- Accessing Feature Definitions in Template Components
  - Must be a *Surface Feature*
  - The Surface Feature must be defined by an *Element Template*



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- *Civil Cells*

- Used as a mechanism to preconfigure commonly used complex geometric layouts.
- Commonly stored in DGNLib files for reuse across multiple projects.
- Sometimes useful to store directly in an active DGN file for use in that single location.
- The civil cell will contain horizontal geometry and can also contain vertical geometry.



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- *Civil Cells* DGNLib Organization
  - Create and use Civil Cells from active DGN file (Project Specific Based)
  - Store one Civil Cell per DGNLib
  - Store multiple Civil Cells per DGNLib in a single DGN model
  - Store multiple Civil Cells per DGNLib using multiple DGN models

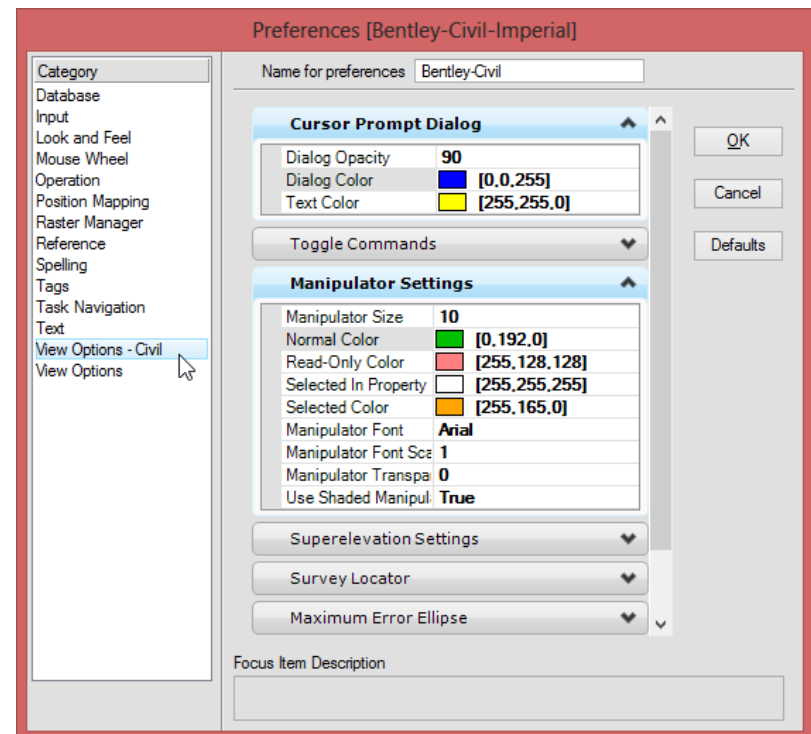
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- *User Preference* Considerations

- View Options – Civil

- Customize the look and feel of numerous items relating to geometry manipulation.

- Manipulator settings
- Superelevation settings
- Survey locator
- Error ellipses
- Context flyover settings
- Etc.



# Jump Start with Civil Workspace

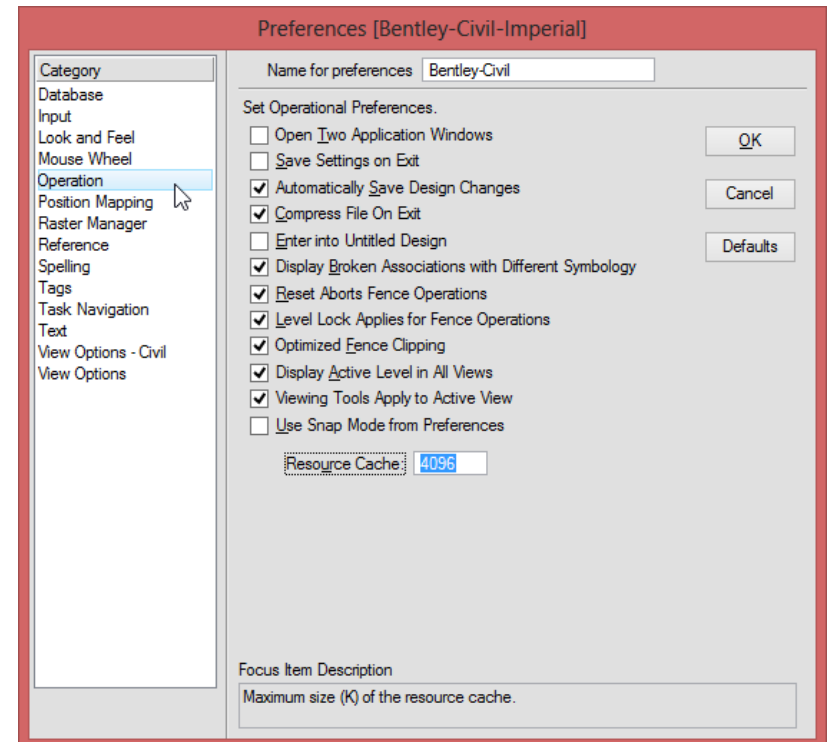
- *User Preference* Considerations

- Operation

- Resource Cache

- Suggest increasing in multiples of 1024.

- Sets the amount of memory, in KB, reserved for resources read from the product resource files and application resource files.



# Learning Paths: Ready-Made Training Plans

Choose from:

- Bentley recommendations
- Configure your own
  - Organizational
  - Personal

Select:

- Product(s) and version(s)
- Language
- Training type

Enroll team members in:

- One learning path
- Multiple learning paths

**Personalize Learning Path**

Use this form to personalize a Learning Path. You can enable/disable specific course offerings by expanding the "Find Training" tab, and even add new course blocks into your Learning Path. Click the Help icon for more detailed instructions and a Step-By-Step guide.

Name\* Peter's custom lp  
Description\*  
Learning Path Type:  Personal Learning Path  Set as Company Learning Path

**Courses**

MicroStation Essentials III  
MicroStation Essentials is designed for the new MicroStation user and builds a solid foundation in the concepts, tools and features found in the MicroStation drawing environment. Starting with setting... [More](#)

Find Training (14)

Live	Title	Language
<input type="checkbox"/>	MicroStation Essentials	English
<input type="checkbox"/>	MicroStation Essentials Basics	English
<input type="checkbox"/>	MicroStation Essentials Express	English
<input type="checkbox"/>	MicroStation Essentials	English
<input type="checkbox"/>	MicroStation for AutoCAD Users	English
<input type="checkbox"/>	MicroStation for AutoCAD Users Express	English
<input type="checkbox"/>	MicroStation for Mining and Metal Extraction	English
<input type="checkbox"/>	MicroStation for AutoCAD Users Express	English

On-Demand

Title	Language	Generation
<input type="checkbox"/>	MicroStation Essentials Lecture Series	English VBI
<input type="checkbox"/>	MicroStation Quick Start Guide	English VBI
<input type="checkbox"/>	MicroStation Essentials	English VBI
<input type="checkbox"/>	MicroStation for AutoCAD Users	English VBI
<input type="checkbox"/>	MicroStation for Mining and Metal Extraction	English VBI
<input type="checkbox"/>	MicroStation Essentials	English VBI

**Personalize Learning Path**

Use this form to personalize a Learning Path. You can enable/disable specific course offerings by expanding the "Find Training" tab, and even add new course blocks into your Learning Path. Click the Help icon for more detailed instructions and a Step-By-Step guide.

Name\* MicroStation Technician in a Roadway Setting  
Description\* 2 year onboarding program. 72 LU's. Multi-product MS: PW, InterPlot, InRoads. Live and on-demand self-study.  
Learning Path Type:  Personal Learning Path  Set as Company Learning Path

**Manage Master Course List**

ProjectWise User Essentials III  
This course is for individuals who need to manage documents throughout a project cycle and work in the ProjectWise managed environment. It presents techniques for working in the integrated environment... [More](#)

LU's:

Find Training (10)

Live	Title	Language	Generation	Release Label	LU's
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	SELECTseries 2	8
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	SELECTseries 3	8
<input type="checkbox"/>	ProjectWise Client Start Up Guide	English	VBI	Base Release	4
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	Base Release	8

Displaying items 1 - 4 of 4

On-Demand	Title	Language	Generation	Release Label	LU's	Type
<input type="checkbox"/>	Design Management Studio	English	VBI	Base Release	1	OnDemand eLearning: Lecture
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	SELECTseries 2	8	OnDemand eLearning: Hands-on
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	SELECTseries 3	8	OnDemand eLearning: Hands-on
<input type="checkbox"/>	ProjectWise Client Start Up Guide	English	VBI	Base Release	4	OnDemand eLearning: Hands-on
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	Base Release	8	OnDemand eLearning: Hands-on
<input type="checkbox"/>	ProjectWise User Essentials	English	VBI	Base Release	5	OnDemand eLearning: Hands-on

Displaying items 1 - 6 of 6

[ADD MORE](#)

MicroStation Essentials III  
MicroStation Essentials is designed for the new MicroStation user and builds a solid foundation in the concepts, tools and features found in the MicroStation drawing environment. Starting with setting... [More](#)

LU's:

# Assessment

1. **True or False:** It is recommended to store workspace settings in specific DGNLibs

Answer – *True*

2. An effective workspace should at minimum include:

- a) Levels
- b) Civil Cells
- c) Feature Definitions
- d) All the Above

Answer – *d) All the Above*

3. **True or False:** For a Feature Definition to be listed in the Template Library for components, it must be setup as a Surface Feature that is defined by an Element Template

Answer – *True*

# Conclusion

# Questions?