MDOT – OpenRoads Reference Information

Contents

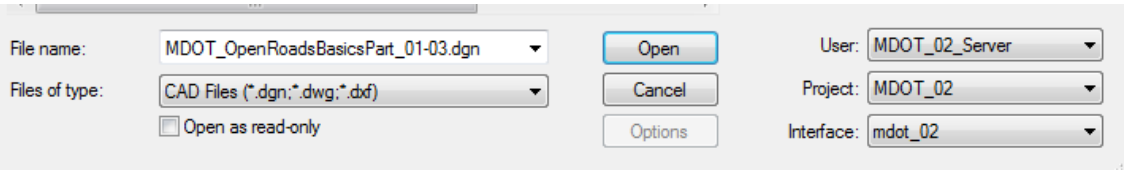
General Information

This document includes reference information necessary to create intelligent geometry for the purposes of design modeling using Power GEOPAK Open Roads Editions (SS3 or SS4). The basic tools and information described in this document can be used to create models for various design disciples such as roadways, structures or utilities to name a few.

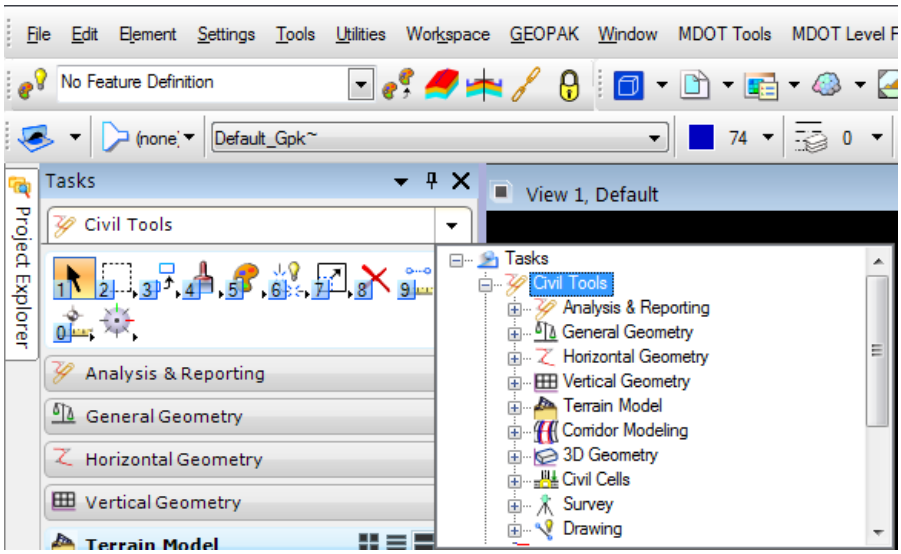
A working knowledge of basic MicroStation functions was anticipated in the creation of this document. This knowledge can be obtained by completing the Online Bentley LEARN Training Course – MicroStation Basics, and the MDOT OpenRoads Basics Training Course.

General Reference Info

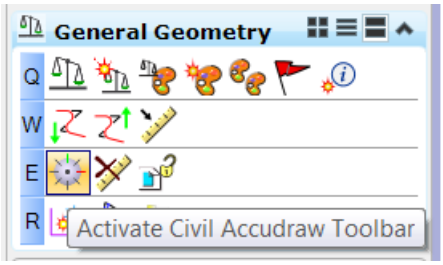
- Bentley Power GEOPAK OpenRoads Edition products refers to SS4 Power GEOPAK or Civil Suite
- Bentley Power GEOPAK SS4 and Civil Suite are civil design software packages that run as a part of the MicroStation CADD platform
- MDOT Utilizes the OpenRoads tool set inside of Power GEOPAK and the Civil Suite for civil design modeling
- MDOT requires the use of the MDOT_02 Workspace with OpenRoads Editions Products



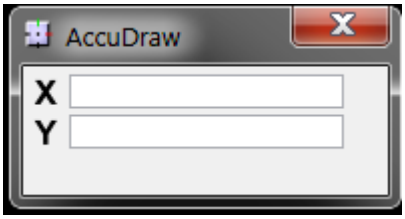
- OpenRoads tools are found on the MicroStation Task Bars Civil Tools or Civil Tools (MDOT)



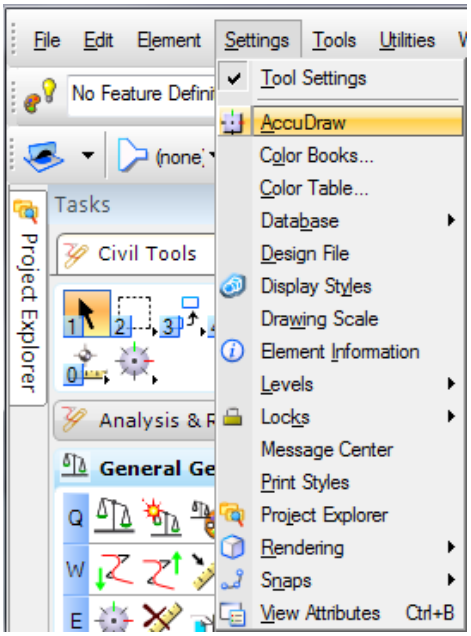
- **Civil AccuDraw** used for the precision creation of Civil Geometry is located on the General Geometry Task Menu.

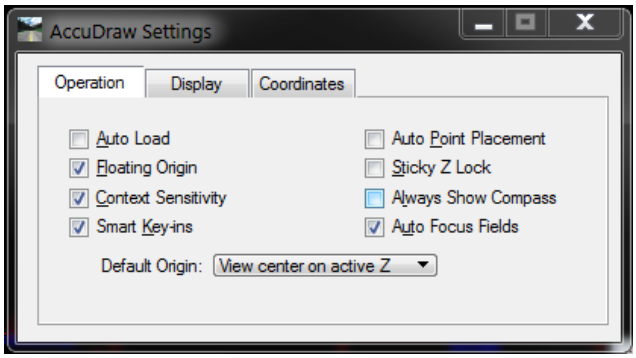


NOTE: Civil AccuDraw and MicroStation AccuDraw should not both be opened or used together at any time. If MicroStation AccuDraw is opened use the "x" to close the dialog.



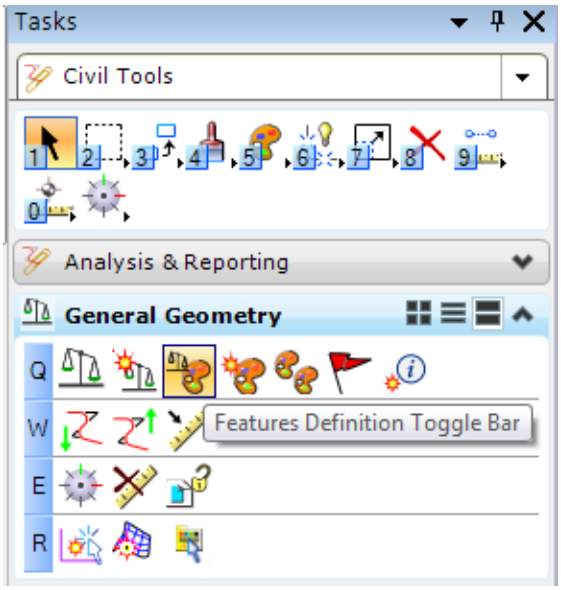
NOTE: The auto loading of MicroStation AccuDraw can be disabled using the Settings\AccuDraw Menu and unchecking the Auto Load check box. If the Auto Load check box is checked or enabled, MicroStation AccuDraw will be on every time Power GEOPAK is launched.





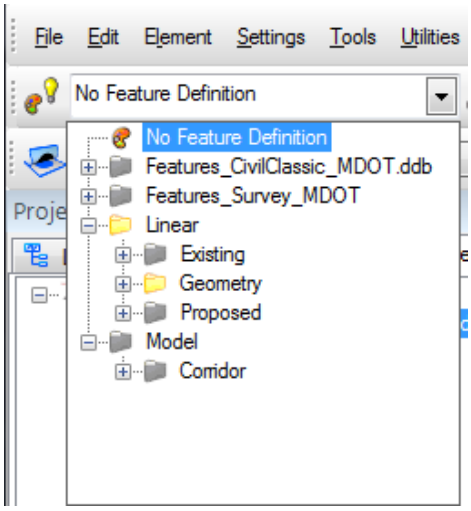
- **Common Terms:**
  - The term *feature* indicates a typical project item such as culvert, edge of pavement, back of curb, centerline of ditch, etc.
  - The term *element* refers to the type of graphical item used to create a feature such as a line, arc, b-spline, or complex chain (several lines, curves or b-splines grouped together).
  - The term *Civil Geometry Elements* refers to graphical items created with Civil Tools. Civil Geometry Elements retain information pertaining to how they were created.
  - The term *Feature Definition* refers to the symbology and attributes assigned to a civil geometry element.
  - Civil Geometry Elements are often referred to as features.

- **Feature Definition Toggle Bar** used for assigning symbology to Civil Geometry is located on the General Geometry Task Bar.



NOTE: The Feature Definition Toggle Bar is the key dialog for controlling the look and feel of any Civil Geometry element created in the DGN.

- The Feature Definition Toggle Bar is broken down into the following categories in the MDOT_02 Workspace. The primary folder used for assigning feature definitions during design model creation for MDOT is the folder named Linear.

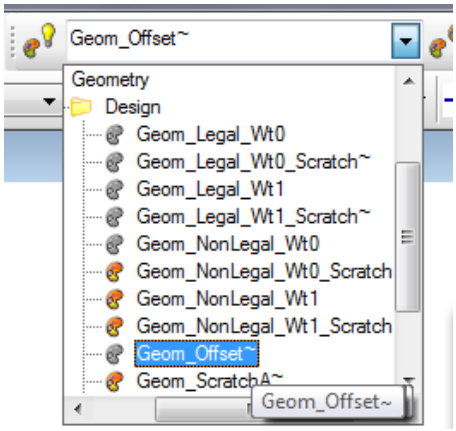


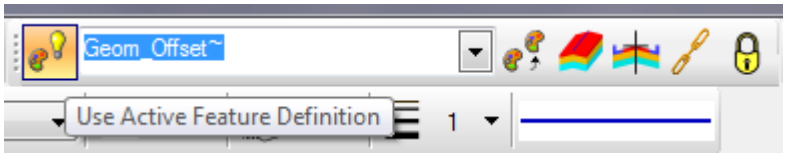
The folder named Existing contains feature definitions for creating existing features not provided by survey or needed to augment, replace or substitute any existing feature.

The folder named Geometry contains the feature definitions for Alignments.

The folder named Proposed contains the feature definitions for drawing all other typical project features.

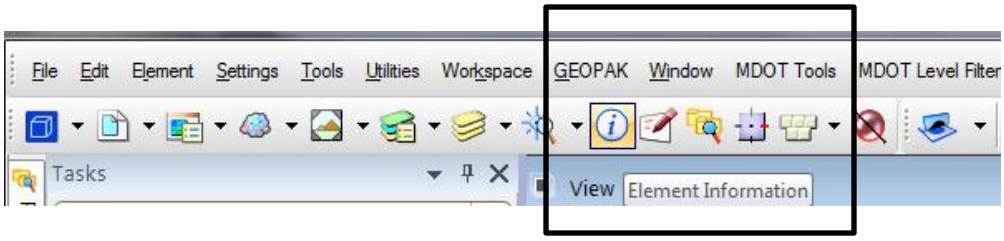
- The feature definition selected from the drop-down menu will be used if the "Use Active Feature Definition" toggle is highlighted.



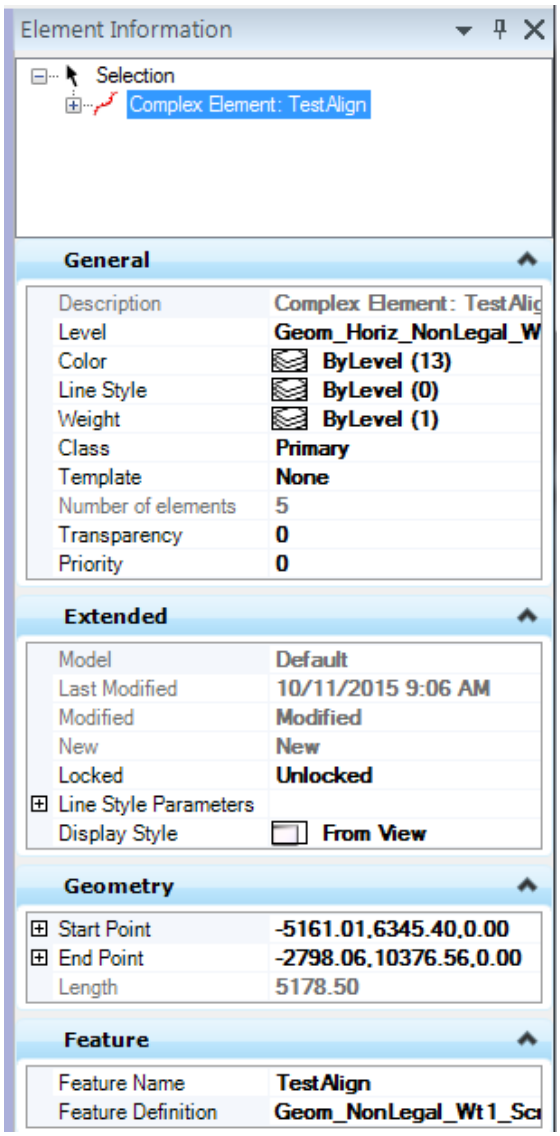


NOTE: If the "Use Active Feature Definition" toggle is not highlighted, new civil geometry elements will be created without a defined feature definition. Civil Geometry features work best when a feature definition is applied. Feature definitions can be added or changed on any civil geometry element using Element Information or Properties.

- **Element Information** is used to view the properties of any graphical item in the DGN file and is located on the MicroStation Primary Tools tool bar.



NOTE: Element information shows the properties of any selected element. Select an element by left clicking on it. (What is shown in the dialog will vary depending on the item selected)



Feature Name and Type

Symbology

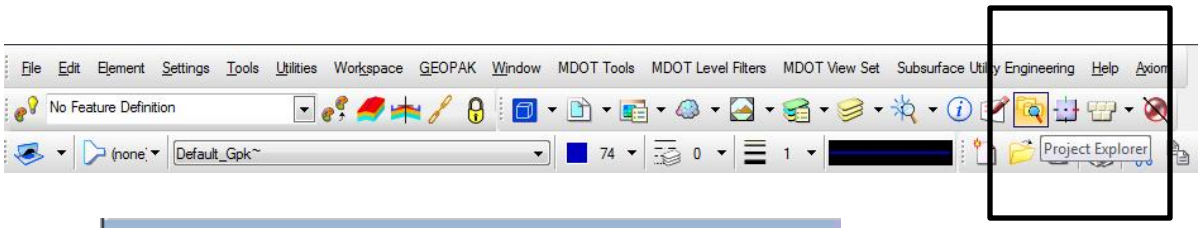
General Information

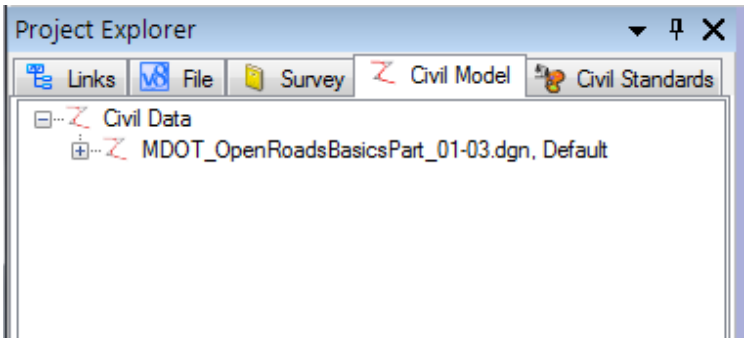
Element Limits

Feature Name and Feature Definition Applied

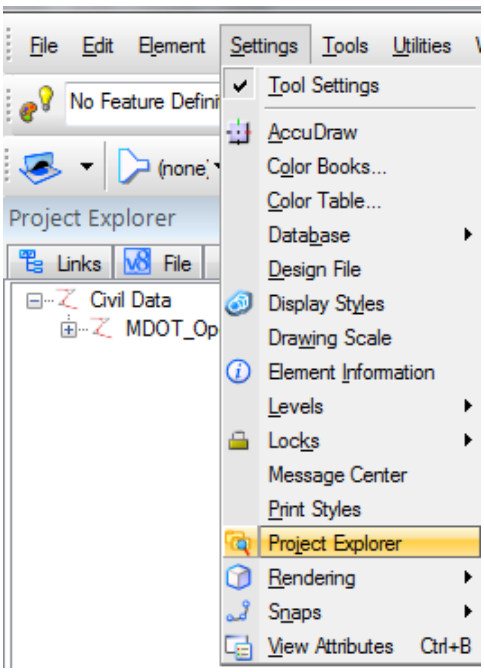
NOTE: Items in black can be modified in this dialog.

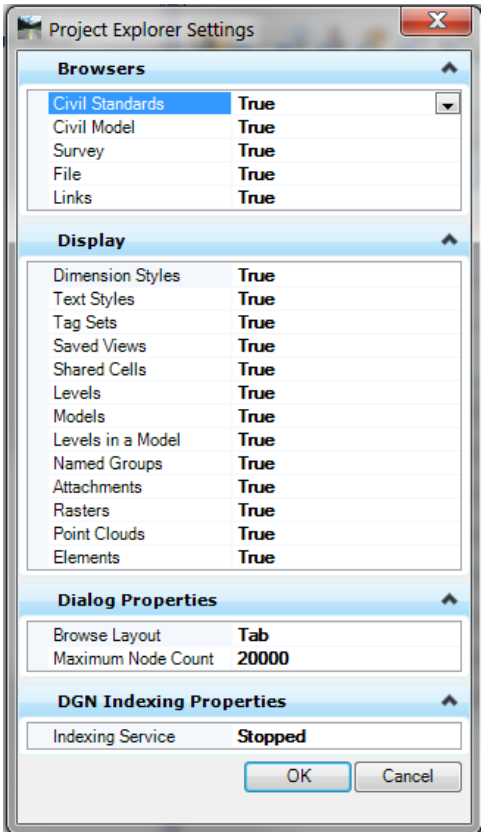
- **Project Explorer** is used to view all the items in the active DGN file. It can be activated on the MicroStation Primary Tools menu bar.



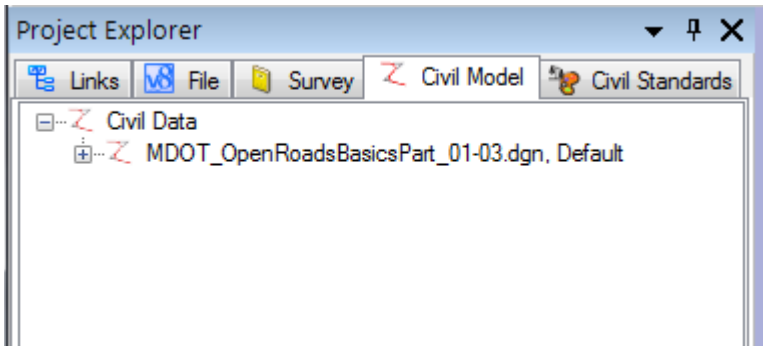


NOTE: The tabs visible on the Project Explorer Dialog are controlled by the Project Explorer Settings Dialog found under Settings\Project Explorer. Adjusting the toggles will alter the content shown in the dialog.



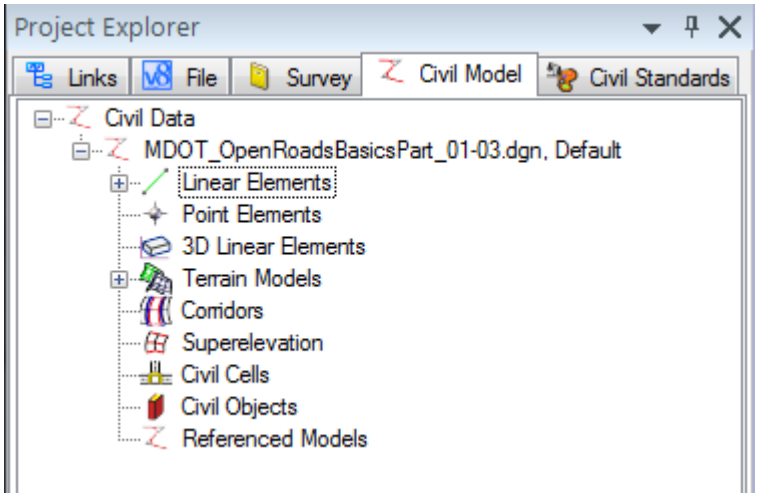


- The key tabs for working with Open Roads model content are the Civil Model and Civil Standards tabs.

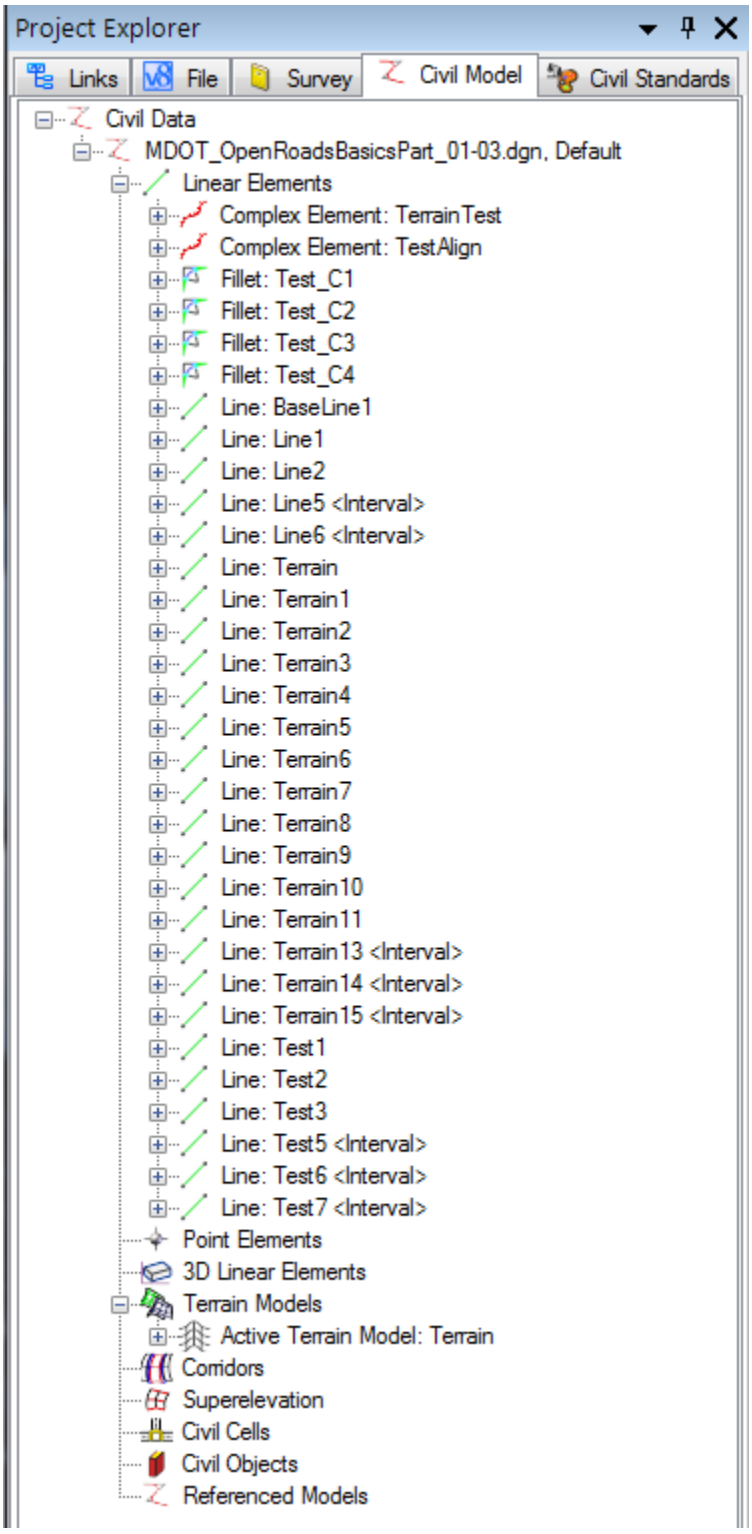


NOTE: The Civil Model tab displays what elements and features are present in the active DGN file and the Civil Standards tab displays what workspace standards (feature styles, standard settings, etc.) that are in use or have been used in the active DGN file.

- On the Civil Model Tab, Click the "+" sign to expand the tree to show the various content types used in the active DGN file. Any element with a "+" sign indicates content of that type is present in the file. The example below indicates that there are at least one Linear Element and Terrain Model in the file.



- Expanding the trees headings further will reveal the features names, as well the individual element type or classification of the features.

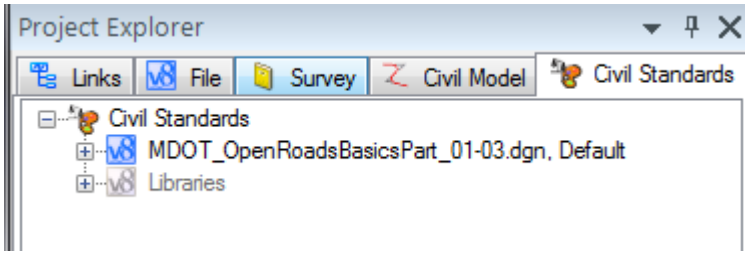


In the example under Linear Elements note that the different types of linear features are sorted by type (icon), the type name (Fillet, Complex, etc.) and then the feature name.

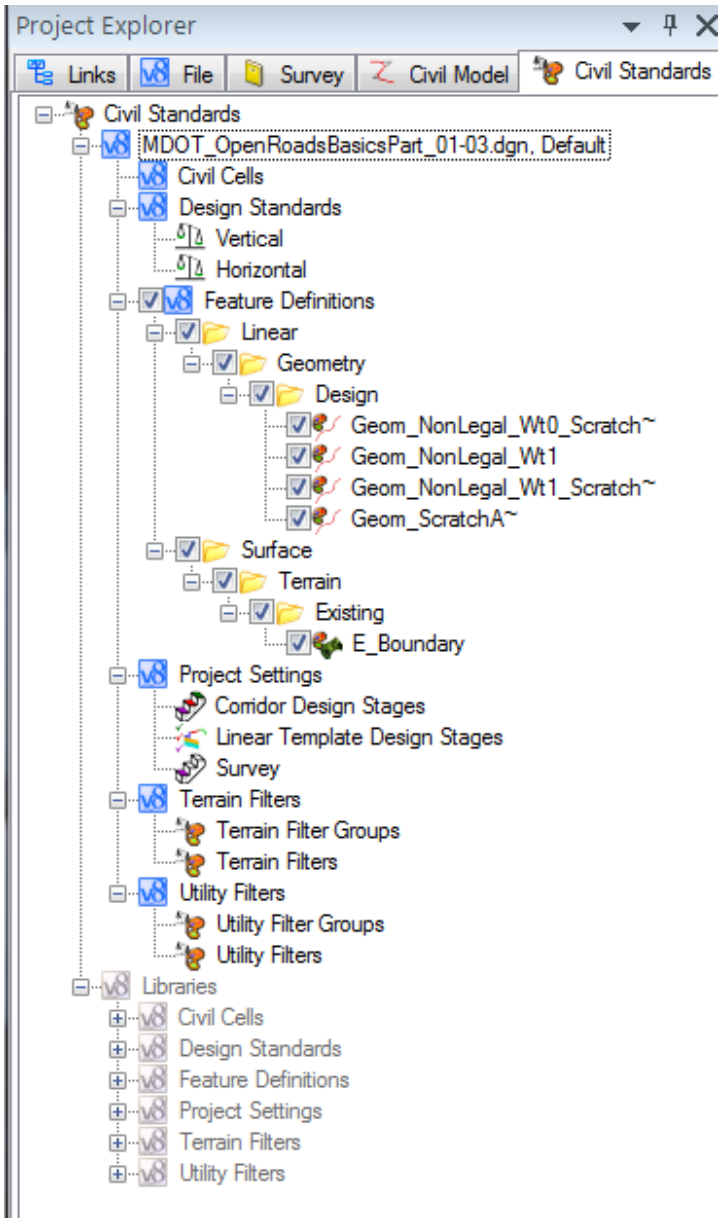
NOTE: It is critical to name all features as they are created. If features are not named by the user, they will be assigned numerical names which are difficult to identify.

The terrain model listed under the Terrain Model heading indicates if the terrain model is active or not. Only one terrain model may be active in a DGN file at any time. The active terrain model is the one that will be targeted in the design modeling process.

- Navigate to the Civil Standards tab on the Project Explorer Dialog to view the standards.



- On the Civil Standards Tab, Click the "+" sign to expand the tree to show the various workspace standards that can be used in the active DGN file.



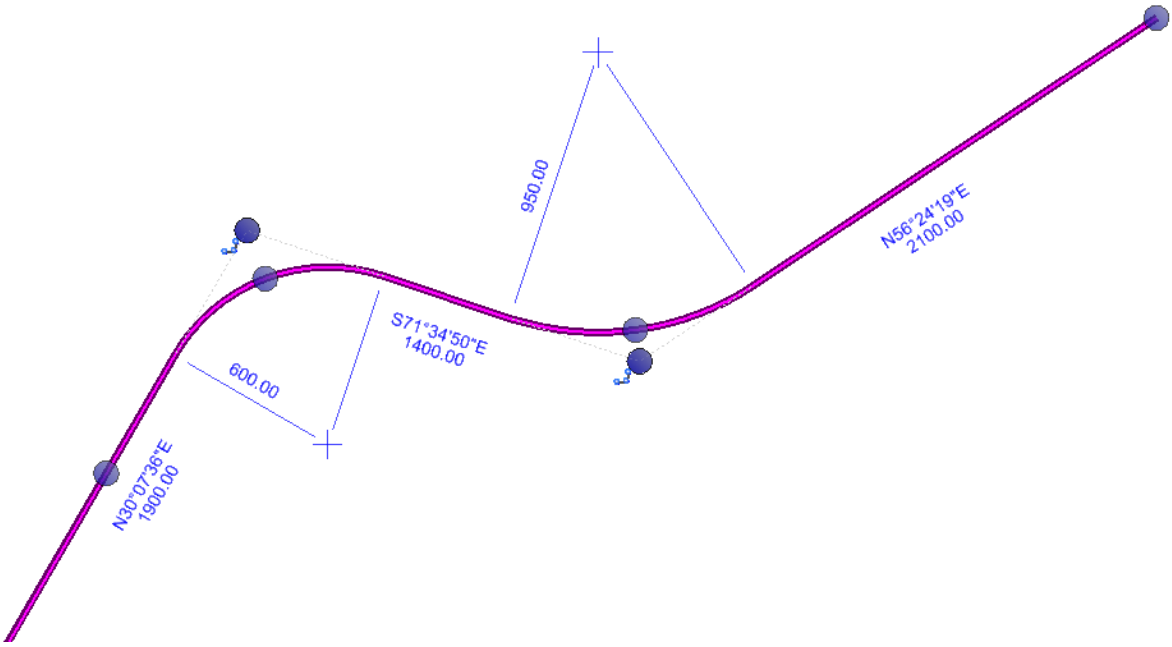
Any file with a "+" sign indicates that standards from the Workspace Libraries have been copied into the file. This occurs if a standard is used in the modeling process.

Any standard content copied into a DGN file can be deleted if necessary.

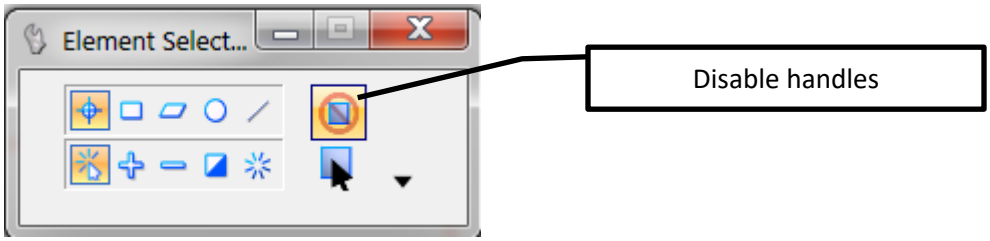
NOTE: Please see the document *Updating GEOPAK Features* for more information pertaining to deleting Civil Standard content from a DGN file.

The Libraries Folder contains the workspace default standard content. It is greyed out because it is read only to the user.

- **Handles:** If a Civil Geometry element is selected it will display “handles” these handles allow for quick editing of the selected feature. (The handles show the length, radius and bearing in the image below) Any handle can be selected and the value modified. The civil geometry element will update dynamically.



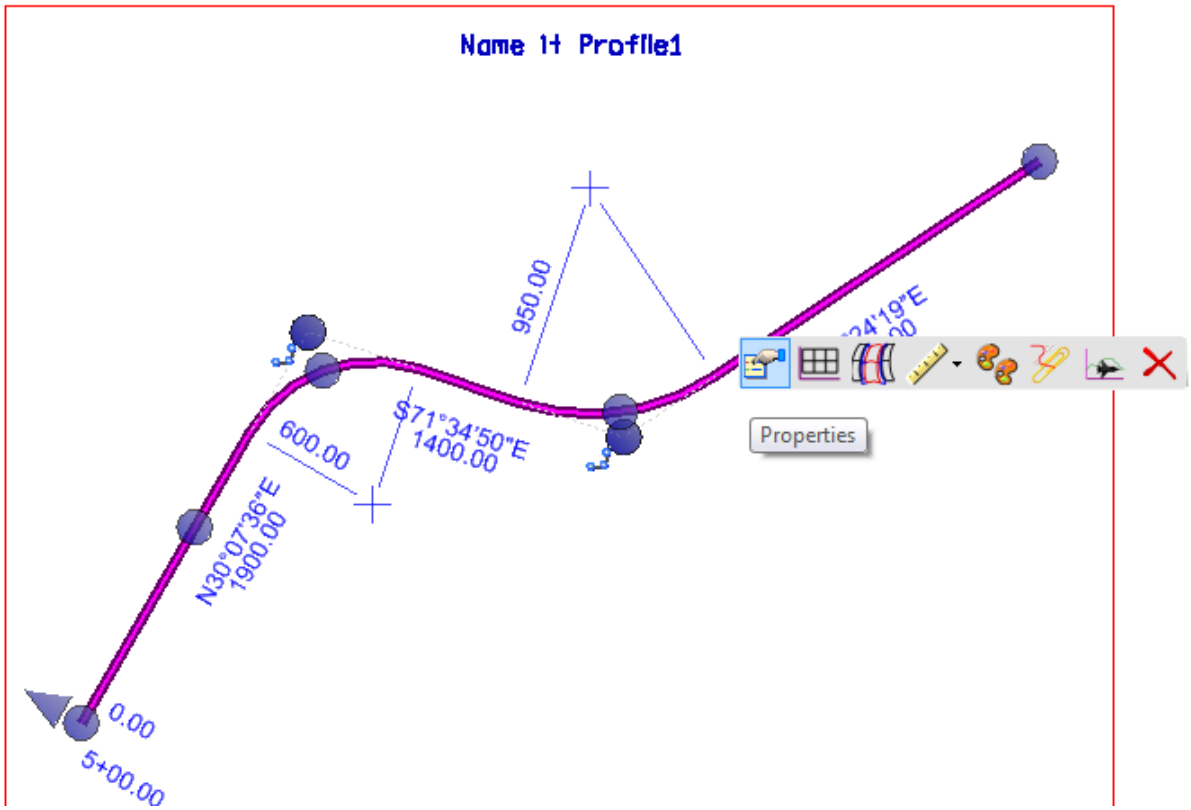
Note: If the Disable handle option is highlighted on the Element Selection dialog below, the handles will not show up when a civil geometry element is selected.



NOTE: Left Clicking and hovering over a civil geometry element will produce a context sensitive menu which provides short cuts to the most common tools associated with the element type selected.

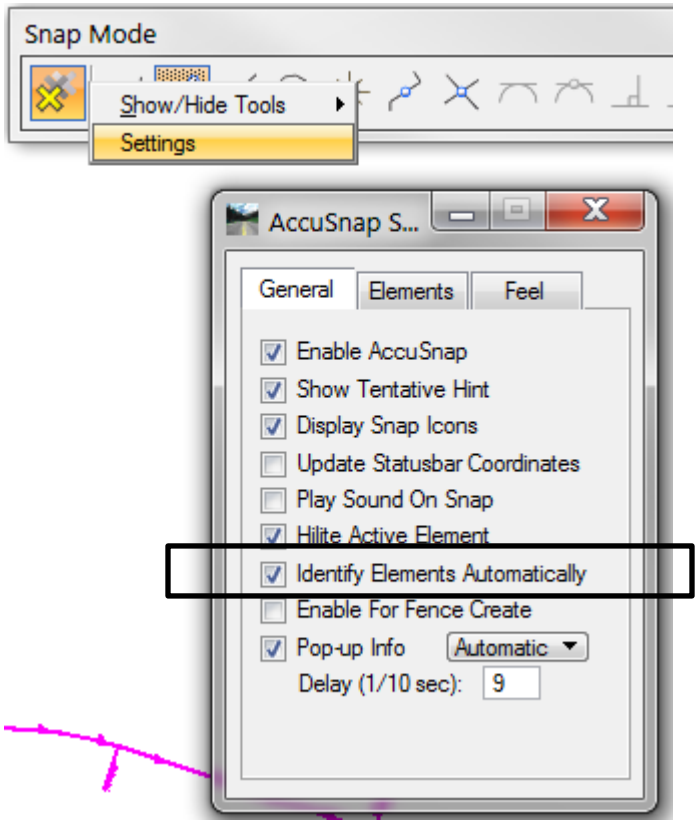
- Left click and hovering over the complex element (Chain) in the example below shows the context menu pertaining to a chain.

Part 4
Create a Profile and Set it Active

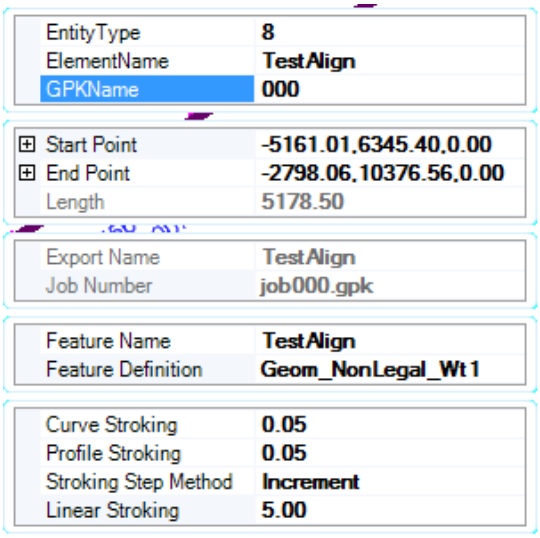


NOTE: The menu will only be visible when the cursor is over the selected element or over the menu itself.

NOTE: If the "Identify Elements Automatically" toggle is not selected on the AccuSnap Menu, the Context Sensitive menus will not appear.



- **Properties** located on any context sensitive menu provides quick access to modify key definitions assigned to a civil geometry element.



NOTE: The menu will only be visible when the cursor is over the selected element or over the menu itself.

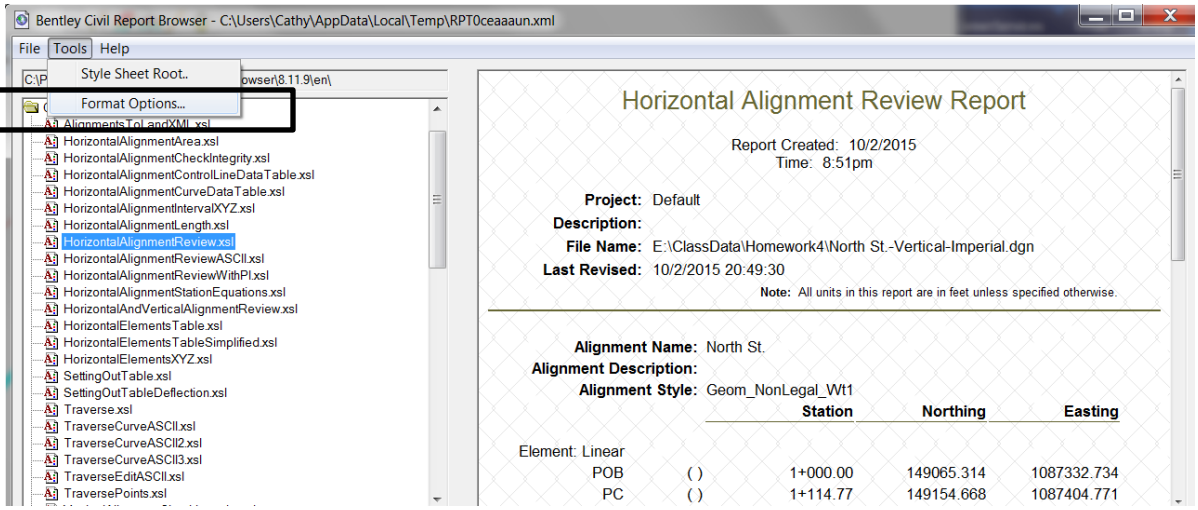
NOTE: Items in black can be modified in this dialog. Do not edit the Entity Type or the Element Name. To change the name of the element, change the Feature Name.

NOTE: The contents of this menu change based upon the element type selected.

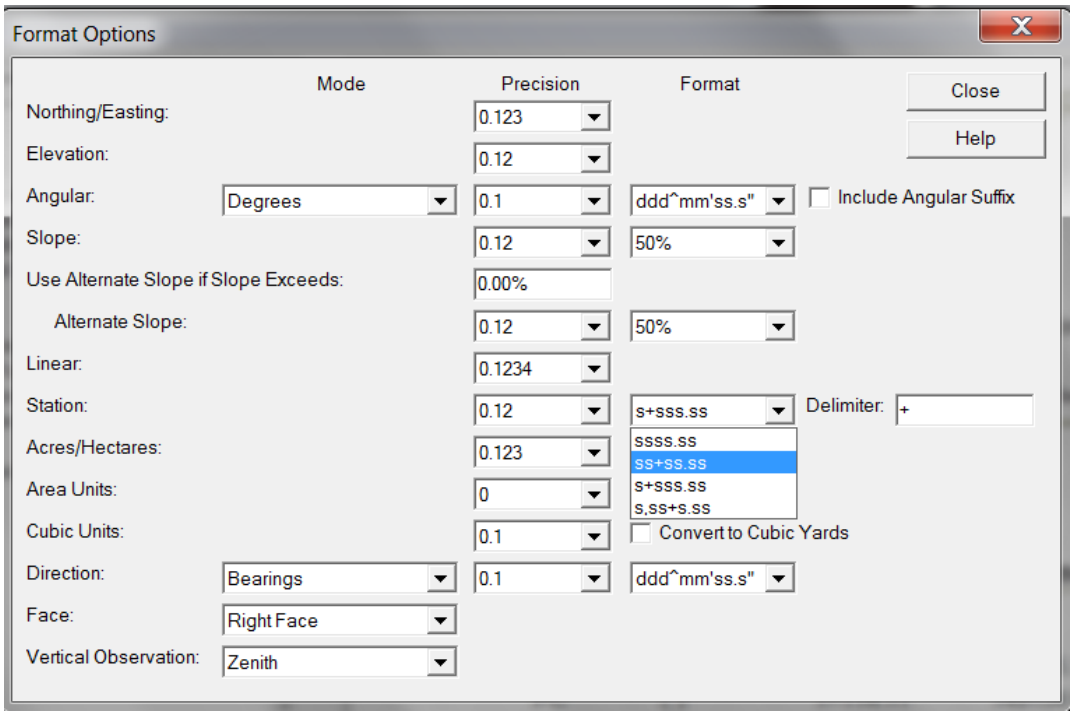
- **Reports** for any Civil Geometry element can be found by selecting the paper clip on any context sensitive menu or under the Analysis & Reporting Task Menu

NOTE: The program defaults are metric stationing and cubic feet volume units. This can be modified once a report is opened. This change is only required once for every computer.

- When a report is selected the report browser will open.

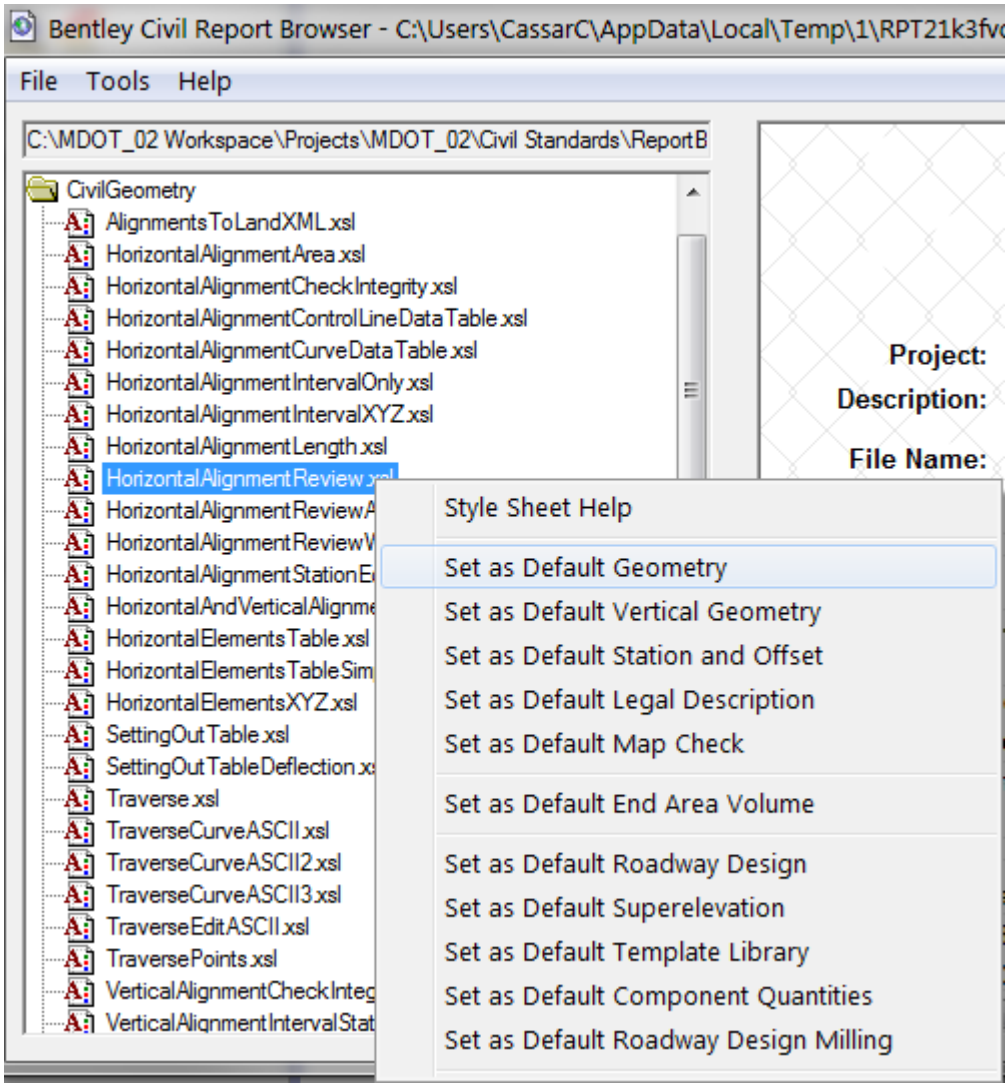


- The report format preferences are found under Tools\Format Options.



- Stationing should be set to English Stations
- Check the “Convert to Cubic Yards” check box if cubic yards are desired on all reports.
- Units and precision formatting will apply to all reports but do not impact the design data in any way.

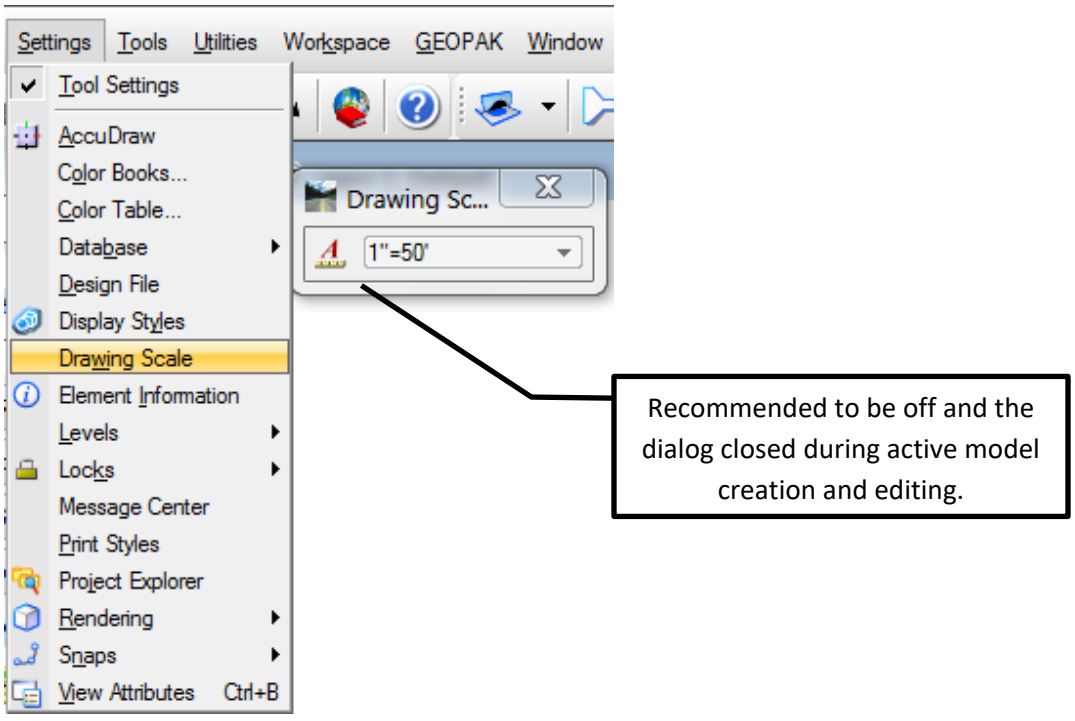
- Any report can be defined as the default report for that type by right clicking on the report and selecting “Set as Default (Report Type)”. The report type selected should match the heading of the report that was selected.



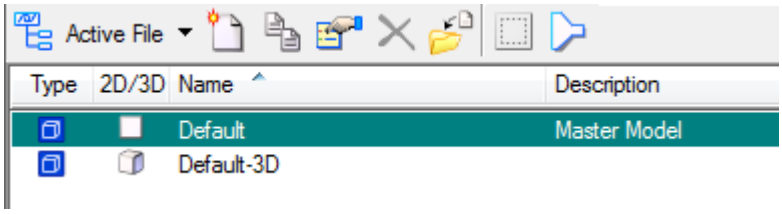
- In the example above Set as Default Geometry should be chosen because a Geometry Report was selected.
- New or modified reports can be added to the default MDOT workspace, please submit them to MDOT Power GEOPAK Support for inclusion.

- **Seed Files** used for the creation of DGN Design files are located in the \\MDOT_02 Workspace\Projects\MDOT_02\Seed Files folder and are provided for each State Plane Zone.
    - Use a 2D seed file for all files used with Civil Geometry Elements such as:
        - Alignments
        - Superelevation Sections
        - Corridor Models
        - Civil Cells
        - Cross Sections
    - Use a 3D seed for DGN files containing only Terrain Model Data such as:
        - Survey Field Books
        - Terrain Models (Existing Triangles or Contours visible)
        - RID Submittal Line String Files
        - RID Submittal Triangle\Terrain Files

- **File Settings** pertain to the operation and view set up within a DGN file.
    - It is not recommended to save settings with open profile or cross section views. These are special views that can sometimes cause errors when opening the DGN file that can only be resolved by opening the DGN in Power GEOPAK SS2.
    - Annotation Scale Dialog controls the active cell, text and line style scales for annotation responsive items in the DGN. This dialog if left open and\or docked is a known bug and will cause a DGN file to crash when switching between the Default 2D view, the Profile view and\or the Cross Section view. The crashing can even occur if the dialog is not opened but Annotation Scale is active.

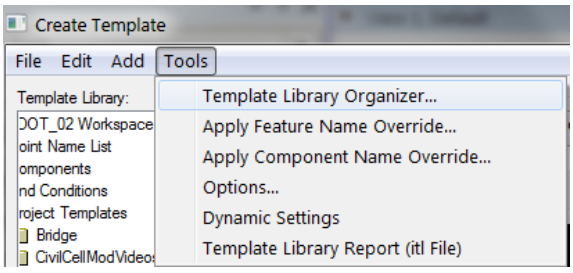


- Do not delete the Default 3D model view from any DGN file.

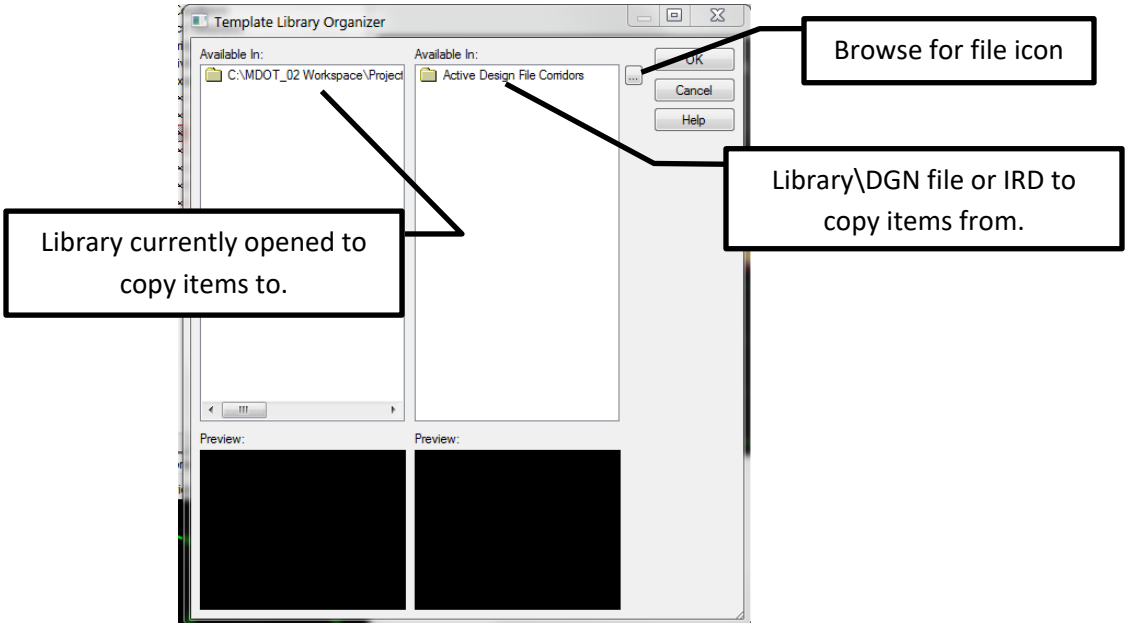


- **Superelevation** within the MDOT 02 Workspace is accomplished with a spreadsheet and VBA. The MDOT Superelevation spreadsheet is located on the standards drive (M:\ for MDOT Users) in the folder MDOT_02 Workspace\Projects\MDOT_02\Civil Standards\Superelevation. The VBA is located under the MDOT Tools\Road pull down menu in Power GEOPAK or Civil Suite.

- **Template Library** stores the MDOT workspace templates and components for the purposes of design modeling. The default MDOT workspace template library is located on the standards drive (M:\ for MDOT Users) in the folder: MDOT_02 Workspace\Projects\MDOT_02\Civil Standards\Roadway Templates.
  - It contains:
    - Components for modeling typical roadway features
    - Components for modeling limited structural\Bridge features
    - Example Templates
    - Templates for drainage structures (Once Bentley's SUE\SUDA product is adopted)
    - The default library should be copied to the project folder for each new project.
    - Project templates should be stored in a template library folder for the project under the Project Templates.
    - Older projects should consider updating the default components after a major workspace update. This can be accomplished with the Template Library Organizer.



- The Template Library Organizer allows user to drag and drop template library items from one template library to another, from a DGN containing a corridor to a template library, or an old template stored in an .IRD file to a new template library.



- When updating old components after a workspace update:
  - Open the template library to be updated
  - Delete the components folder
  - Open the Template Library Organizer
  - Navigate to the template library containing the new components
  - Drag and drop the new components folder into the opened template library.
- When updating templates copied from an .IRD file or older project template library
  - Copy old templates into a new template library containing the latest workspace components.
  - Update the template component and point features styles to the latest workspace features styles.

  NOTE: Any component that is white in color is not defined with a valid workspace features style

- Template Points
  - All point names must be unique in any given template.
  - A template point name should never be blank or begin with a space.
  - The information displayed in Point Properties dialog will be dependent on the point selected and may be different from what is shown above.
  - Template points represent line string locations in the design model. Each point will be used to create a 3 dimensional line string.

- Points that appear Red in color are fully constrained and will respond according to the constraints assigned.
- Points that appear yellow in color are only constrained in one direction and may not respond as intended during the modeling process.
- Points that appear green in color are unconstrained and will not move with respect to any other template point. The origin of the template is always unconstrained and it is the location where the control alignment (or the horizontal line containing the vertical alignment\profile) is applied.
- The origin of the template is typically located at the "0,0" position of the template.
- Click the Apply button in order to confirm any changes made to Point Properties. Changes will not be accepted if the dialog is closed without using the Apply button.

- Template Components
  - All Component names must be unique in any given template.
  - Template component names should never be blank or begin with a space.
  - The information displayed in Component Properties dialog will be dependent on the component selected and may be different from what is shown in the previous dialog.
  - Components represent solids in the design model. Each component will be used to create a 3 dimensional shape or solid based upon the points (line stings) which define the shape.
  - Component colors are dependent on the feature definition applied.
  - All library components are set with the typical settings for modeling.
  - Click the Apply button in order to confirm any changes made to Component Properties. Changes will not be accepted if the dialog is closed without using the Apply button.
- Template End Conditions
  - Multiple end condition options can be placed on a single component. Grouping end conditions will allow the program to cycle through a series of options during the modeling process. The order used by the program is dictated by the end condition Priority.
  - End conditions must be the farthest outside components on a template. Any regular component placed outside of an end condition will be ignored.
  - Best Practice is to keep end condition groupings simple. Only include the necessary side slope conditions to a project template. Complex end condition groupings have a tendency to provide unpredictable results.
  - End condition priorities must be unique per end condition grouping. Avoid skipping or repeating numbers in the sequence. Repeating a number in the sequence will produces errors in the template testing window and unpredictable results in the modeling process.

- Template Library Best Practices
  - Create a new project template library by making a copy of the workspace default library for every new project and save it in the folder with the project design (Model) DGN files.
  - Create a new folder for each project to store all the project specific templates.
  - The template library does not auto save. Changes must be saved manually and are not maintainined if the program crashes prior to saving.
  - The template with the RED box surrounding the template symbol in the library items tree is the active template and the that will be modifed during any editing.
  - The project template library must opened anytime Power GEOPAK is launched. Such as in after a Crash, after a Windows ReBoot, or if the program is closed normally.
  - When using mulitple templates or multiple components representing a similar location on a project (like edge of pavement) it is vital to ensure that all like points and components have the same name or override name so that the model will be produced without gaps in the 3D line stings or components.
  - No editing, measureing or drawing in the DGN are possible with the template library opened. The template library must be closed before anything may be done in the DGN.
  - The template Library organizer can be used to drag and drop templates between template libraries, from Active DGN files containing a least one Corridor Model or legacy GEOPAK Corridor Modeler .IRD files.
  - Use the Dynamic Settings Apply Affixes to add prefixes or suffixes to the template points and components during template creation to maintain unique point and component names throughout a single template. The affix selected depends on the location of the component and point with respect to the origin of the template (0,0). If apply affixes is not selected, subsequent components and points will have an incremental number added to their names to force unique naming. It is recommended to include at a minimum “R” and “L” to point names and component names to make them easily identifiable by the side of the origin they belong to during the modeling process. This dividing line is commonly the roadway centerline.

Civil Data Reference Info

- **Existing Ground Terrain Models** are created with survey data and are used to tie a proposed model to the existing conditions.
    - Existing\Original Ground Terrain Model **"Dos":**
        - Store the 3D Existing Terrain Model DGN file in the working DGN folder (either a copy of the survey provided DGN file or a DGN created during design using the existing ground TIN or XML file provided by survey)
            - Review the Existing Ground Terrain Model Creation.PDF and the Active Terrain Model.PDF documents for more information
        - Reference the 3D DGN file containing the Existing Terrain Model to all proposed models and have it set as the active surface in all the proposed DGN model files.
        - Use the same Existing Terrain Model for all model files of the same project that must connect together
        - Submit the DGN file containing the Existing Terrain Model along with any electronic submittal of proposed model data (Such as Milestone RID Submittals)
    - Existing\Original Ground Terrain Model **"Don'ts"**:
        - Don't use the Survey 3D DGN file (containing the survey fieldbook) as the existing ground terrain model
        - Don't reference the Survey 3D DGN file (or any file containing a survey fieldbook) to any project DGN files
        - Don't copy 3D features from the Survey 3D DGN file (3D features from created by survey data) into any project file
        - Don't reference the Existing Ground DGN from the Survey Pre-Construction folder
        - Don't detach an Active Existing Ground Terrain Model from a model file without first clearing it as the Active Terrain Model
        - Don't detach the Active Existing Terrain Model from any DGN model file submitted as part of an electronic submittal (Such as milestone RID Submittals)

- **Horizontal Geometry** is created with Civil Geometry tools which retains the design intent.
    - Chain names are restricted to 11 characters or less with no special character or spaces allowed in the name. The use of an under bar is allowed in chain naming convention.
    - If the feature definition of a chain (alignment) is changed to a Geometry feature definition containing a "`" in the name, that does not auto export to the GPK, it will be removed from the GPK.
    - A complexed element (Chain\Alignment) can be dropped and reduced to its individual parts using the MicroStation Drop Elements command located on the task menu. Dropping a complexed chain which has been written to a GPK will remove it from the GPK.
    - Deleting a chain from a DGN file will also remove that chain from the GPK.
    - The method used to create the element will dictate how it can be edited. So if create the element using bearings if it is desired to use the bearing to edit the feature.
    - Horizontal Geometry imported from a GPK cannot be updated with Classic GEOPAK tools.

- **Vertical Geometry** is created in special profile views in the DGN file where the parent horizontal geometry exists.
    - Profile names are restricted to 11 characters or less with no special character or spaces allowed in the name. The use of an under bar is allowed in profile naming convention.
    - If the feature definition of a profile (vertical alignment) is changed to a Geometry feature definition containing a "`" in the name (is not set to Auto Export to the GPK), the profile and associated horizontal alignment will be removed from the GPK.
    - A complexed element (Profile\ Vertical Alignment) can be dropped and reduced to its individual parts using the MicroStation Drop Elements command located on the task menu. Dropping a complexed profile which has been written to a GPK will remove it from the GPK. It will not remove the associated chain\horizontal alignment from the GPK.
    - Deleting a profile from a DGN file will also remove that profile from the GPK.
    - Deleting the parent chain\horizontal alignment will delete the associated profile\vertical alignment. A profile is a child of a chain and will not persist if the chain is deleted.
    - Each chain\horizontal alignment may contain many profiles only one of which may be Active at any given time.
    - To change the Active profile, first select the current active profile and clear it as the Active Profile (on the context sensitive dialog) before selecting the new profile and setting it Active.
    - Drawing with MicroStation drawing tools in the Profile View may cause file corruption.
    - Any elements in the Profile View will be deleted if the chain\horizontal alignment is deleted.
    - It is not advisable to create profiles with the Classic GEOPAK tools and attempt to import them into Open Roads Edition products. Data is auto updated from a DGN to a GPK, but not from a GPK to a DGN.
    - Deleting a profile in the Default 3D view will not delete the profile from the horizontal feature but if it was set as the active profile it will clear it.

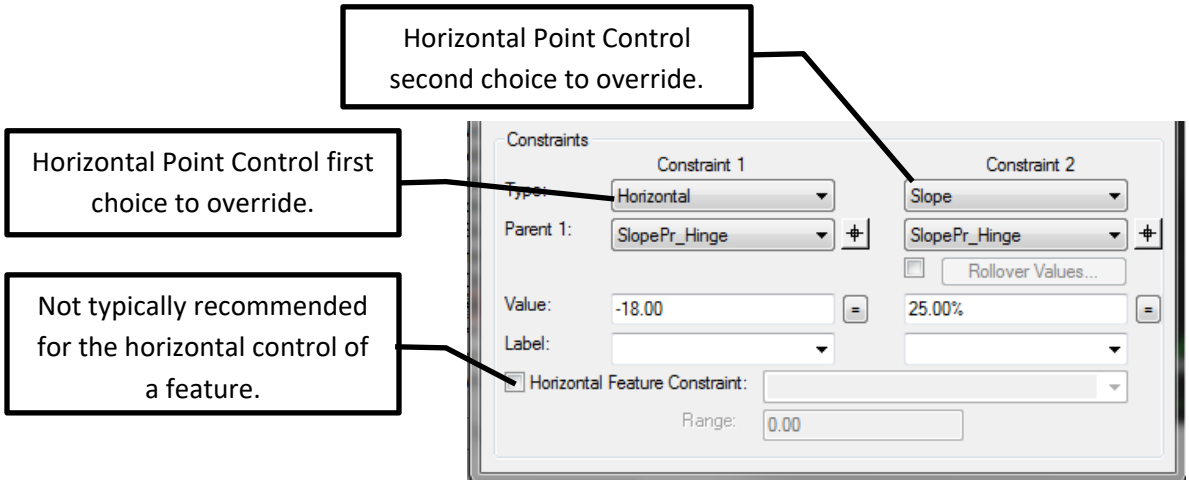
- **Corridors** are built on horizontal and vertical geometry and contain at least one template.
    - Corridor Template Drops
        - Changes made to a template assigned to a corridor in the DGN file can be copied back to the project template library using the Temple Library Organizer.
        - Changes to templates in the project template library will not be visible on a corridor where the template is used until the template is synchronized with the library.
        - If the Template Drop boundary is a constant shape (not following the outline of the finished model) then the templet drop exceeds the limits of the assigned profile. Adjust the template drop limits or the profile so the limits match to have the Template Drop boundary follow the model limits.

- Corridor Editing
  - When the Lock is closed the corridor will automatically update when any changes are made to the corridor or associated features (all rules are followed dynamically).
  - When the Lock is opened the corridor will not automatically update when changes are made to the corridor or associated features. Changes made to a corridor when the lock is opened will not be realized until the lock is closed and the corridor is reprocessed manually.
  - Canceling out of Corridor Creation can create empty corridor models. If there are empty corridor models in the DGN extra blue shapes not following the model limits will be visible. These extra corridor models should be deleted to avoid confusion.
  - A list of the corridors and any assigned controls on a corridor in the DGN file can be found in Project Explorer.
- Corridor Objects Dialog
  - Provides access to all the definitions and controls of the corridor model.
  - If the Template listed in the dialog is blue in color, the template assigned to the corridor exists in the current template library that is loaded but it is not synchronized with the template of the same name in current template library which is loaded.
  - If the Template listed in the dialog is red in color the template assigned to the corridor does not exist in the template library currently loaded.
  - The Locate Icon will allow the graphical selection of a station however it only works if the cursor is positioned in the station column intended to be graphically selected.

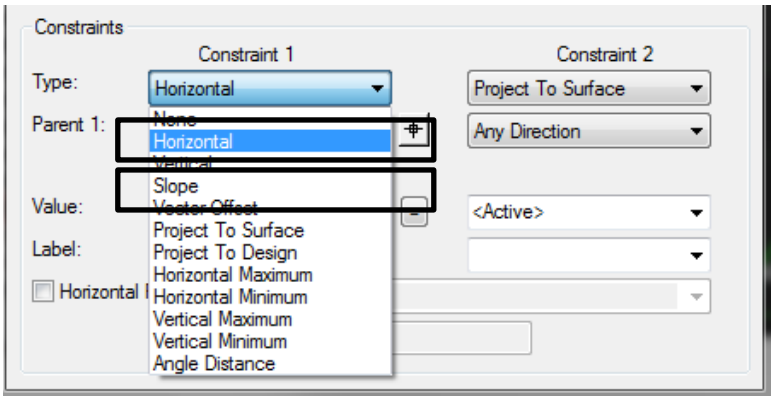
- **Dynamic Cross Sections** provide a live cross section view of everything visible in the 3D model view of a DGN file containing a corridor model.
  - The cross section view only displays elements visible in the 3D model view. To view the existing ground in cross section only the exterior boundary needs to be visible.
  - It is not advisable to "Save Settings" with a cross section view window open in the DGN file; doing so can cause errors when opening the DGN file.
  - Use care when stepping trough cross sections. Each step forward or backward with navigation buttons cause the program to slice the 3D model view. Stepping too quickly can cause the program to crash.
  - Temporary Dimension Lines can only be placed on template points that were included in the corridor that was used to open the cross section view.

Modeling Best Practices

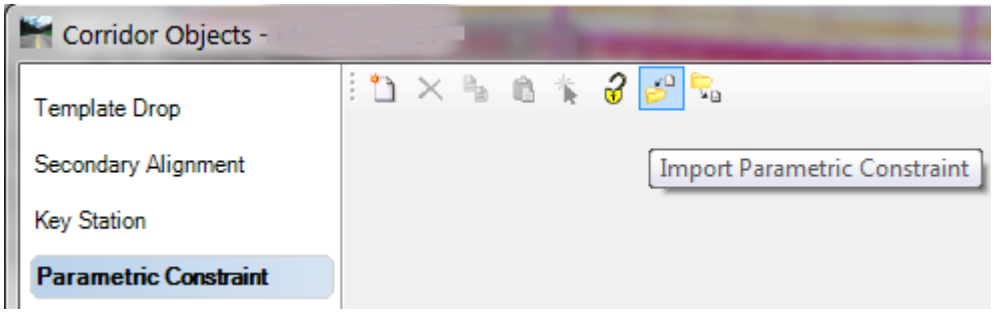
- **Modeling using Existing Ground Features** such as in overlay projects, mill and fill projects, for the centerline or control line of a roadway or using existing edges of pavement.
    - If the feature must follow an existing or proposed horizontal element use a horizontal point control to direct the template point to follow the feature. Do not use the Horizontal feature constraint option in the template library.
        - One template point constraint must be set to a horizontal constraint for this to work best.



    - For the model to follow a ground profile, have the template do the work by setting one of the associated template point constraints to seek the active surface.
        - Use the Active Surface in the definition do not name a specific terrain model for best results.
        - Use a horizontal constraint for the second constraint if the horizontal position of the feature must be fixed regardless of the elevation of the profile.
        - Use the slope constraint for the second constraint if the slope must be fixed regardless of the elevation of the profile.



- **Key Stations** force the model to evaluate the data and process at a specific location.
    - Extensive use of key station is known to have a negative impact on model processing speeds and should be used only when necessary.
- **Point Controls** allow the user to override any template point constraint.
    - Features can be used that exist in the Default 2D or 3D view of a DGN file.
    - They can be referenced to the file containing the corridor model.
    - Point controls defined by Linear Geometry:
        - A selected civil geometry feature from the Default 2D view.
        - Do not need to be added as a reference to the corridor.
    - Point controls defined by Feature definition:
        - A selected civil geometry feature from the Default 2D view.
        - Need to be set as a reference to the corridor for which they are used.
    - Point Controls defined by Corridor Feature:
        - A selected feature from the Default 3D view.
        - Do not need to be added as a reference to the corridor.
- **Parametric Constraints** are re-definable variables defined by the label associated to a point constraint in the template library.
    - Are helpful for manipulating template points over a user defined range.
    - Extensive use of Parametric Constraints is known to be time consuming and hard to manage.
    - Parametric Constraints are ignored if conflicting Point Controls are also defined for the same point.
    - They can be imported into through the corridor objects dialog.



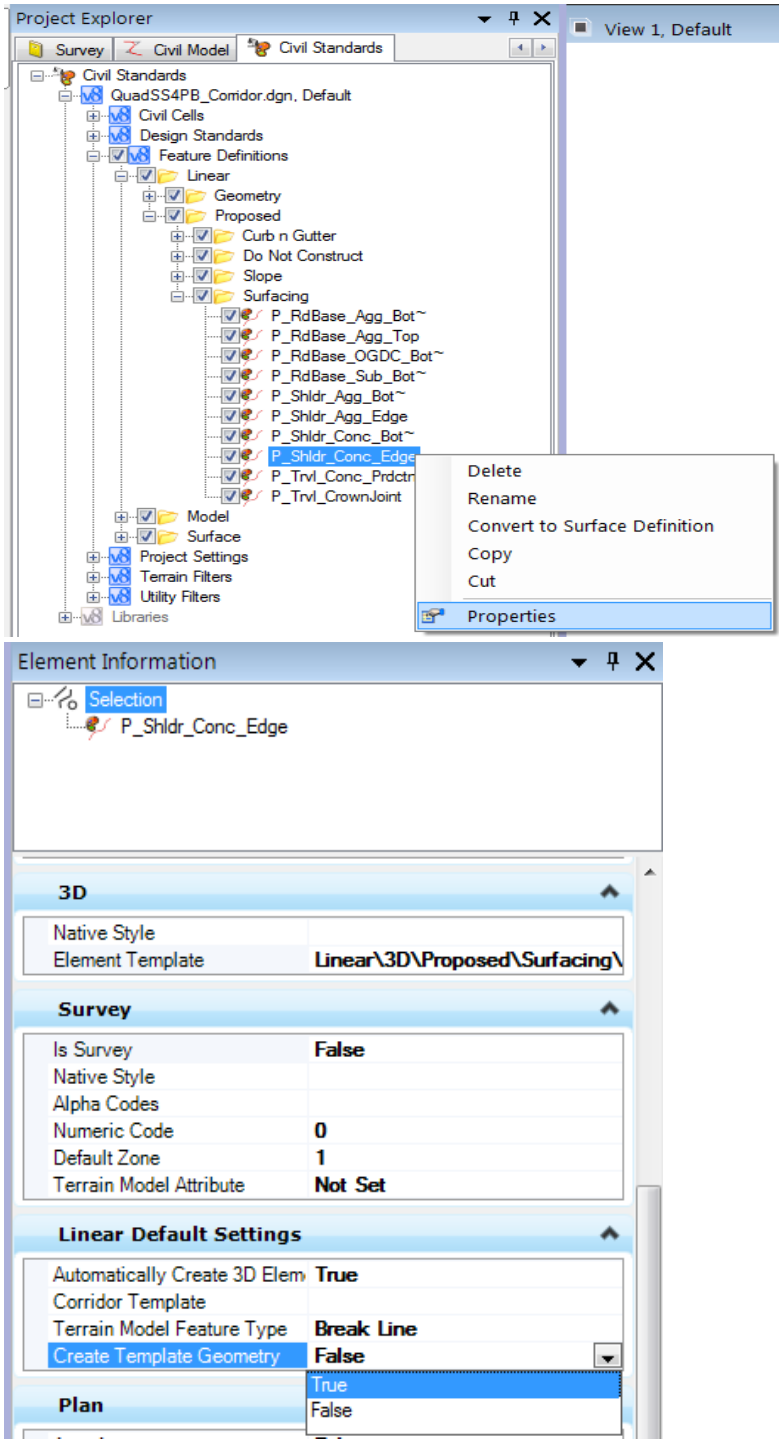
    - The following format is required to import parametric constraints. Best practice is to make a parametric constraint, export the TXT file and then use that file to obtain the formatting. The editing can be done in Excel.

```
*label     |type       |start value     |stop value      |start station  |stop station   |enabled
*-------------------------------------------------------------------------------------------------
CnG_Bk_Height|Distance  |0               |0.458334248687664|0+50.99        |0+60.99        |X
```

    - Creating and importing common transitions like 10’ curb transitions can save a great deal of time.

- **Corridor Clipping References** are used to slice out sections of corridor models or linear templates for items like civil cells, connecting walls, bridge approaches or other corridor models.
    - Clipping references should never completely slice a model in two.
        - In the event that a corridor model must span a gapped area, create separate corridor models on each side of the gap.
        - Each corridor model in a design project must have a unique.
    - Clipping references do not need to be civil geometry features.
    - Clipping references do not need to be 3D elements.
    - Corridor models will dynamically respond to changes in the location or size of clipping reference.
- **Template Geometry** is 2D geometry that contains the active profile of the 3D line string created by the corridor template points and is most commonly used for the placement of civil cells.
    - The edges of pavement are the only default template geometry that is created in the corridor DGN file.
    - Template geometry line work should not be used for the creation of any feature that will need to be used by the corridor from which it was created because it will cause circular referencing errors.
    - Template geometry should only be created for features that are required for connecting to other corridors or placing civil cells. It should never be used to display the plan view features for the purposes of plan production. The plan view is produced by the display of the 3D line stings found in the Default 3D view with Level Overrides turned on.
    - Extensive use of template geometry has been associated with negative impacts on model processing speeds. It is highly recommended to minimize the use of this function.
    - Template geometry used for the placement of Civil Cells should never be clipped from the corridor or turned off with display rules or any civil cell attached to the feature will fail.
    - Template geometry with gaps (due to poor use of point names or override names) may create problems when attempting to place civil cells. If the template geometry is broken (as in two pieces) at the location that a civil cell must be placed, then a dummy placement line spanning the gap and containing an active projected profile from both segments must be used for the placement of the civil cell.
    - In the event that another feature is required to place civil cells such as the edge of shoulder (which is helpful for drive approaches when the roadway is in superelevation) then the “Create Template Geometry” toggle must be set to “True” for the shoulder. This is accomplished in the Project Explorer and Element Information dialogs. See the following workflow for the steps required to enable\disable the create template geometry toggle for a feature.

- Enabling “Create Template Geometry”
  - Navigate to the Civil Standards\Linear\Proposed\Surfacing folder
  - Select the feature and Right Click to select Properties
  - On the Element Information menu locate the Linear Default Settings tab
  - Change the Create Template Geometry toggle to True.



Technical Support

Please email any questions, issues or problems associated with this document to:

MDOT-EngineeringSupportTraining@Michigan.gov

Additional Design Services Help and Support can also be obtained through the following email resources:

MDOT-BridgeDesignSupport@Michigan.gov – For help with bridge design software, cells, levels, and workspace tools.
MDOT-Drainage-Utility@Michigan.gov – For help with GEOPAK Drainage, drainage cells and other subsurface utility modeling tools.
MDOT-CaddSupport@Michigan.gov – For help with cells, levels, line styles, dimensions, and other CADD and workspace tools.
MDOT-RoadwayModelingSupport@Michigan.gov – For help with roadway modeling, modeling templates, civil cells and workspace tools.
MDOT-Survey_Support@Michigan.gov – For help with survey data, workflows and processes.