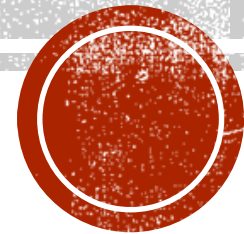


EVERYTHING I LEARNED ABOUT GEOMETRY

OpenRoads Designer v10.10



BEGINNINGS MATTER

- In ProjectWise – use ProjectWise New>Document get your template from CAD_Resources\Seed
- Working on your C: drive or server share, use File>New from inside ORD
- [How to Create New CONNECT DGN Files](#)
- The Naming tool does not really function as expected when File>New is used to create new DGNS in a CONNECT Design Platform project with either MSCE or ORD open. Seed2D.dgn ends up getting created. Subsequent attempts pop open a Conflict page on the wizard.



WHAT'S IN A NAME?

- Use ProjectWise_Document_Naming_Tool_Search.xlsx in the Standards\PW_Standards folder in ProjectWise
- The ORD descriptions are at the bottom of the naming tool list
- GEOM file has civil data in it
- R_K99999_wrk_01.dgn or R_K99999_Misc_01.docx is where your non-civil design notes go

Advanced Document Creation Wizard

Define Document Attributes
You should define environment specific document attributes.
Modified attributes may apply to remaining documents.

Document Naming Tool

Project ID: K99999

Classification: Roadway | Discipline: Roadway | SubDiscipline: Roadway

Document Description

- <Name> Alignment Report -Vertical
- <Name> Alignment Report - Horizontal
- <Description> Aquaplaning Analysis File
- <Name> Comidor Base File
- <Name> Comidor Base Container File
- <Name> Comidor Working File
- <Name> Features for Modeling or Cross Section Display
- <Description> Roadway Features for Cross Section Display
- <Name> Geometry Base File
- <Name> Geometry Base Container File
- <Name> Geometry Working File**
- <Name> LandXML V8i Alignment File
- <Name> LandXML V8i Alignment File
- <Name> LandXML V8i Surface File
- <Name> LandXML V8i Surface File
- <Name> LandXML Geometry File
- <Name> LandXML Geometry File
- <Name> LandXML Terrain File
- <Name> LandXML Terrain File
- <Name> ORD Template Library Working File
- <Description> ORD-generated Plan/Profile Sheets
- <Name> Superelevation Working File (if used)
- <Description> Sight Visibility Analysis File
- <Name> Terrain Base Container File
- <Name> Terrain Finish Grade Base File
- <Name> Terrain Finish Grade Working File
- <Name> Terrain Subgrade Base File
- <Name> Terrain Subgrade Working File
- <Name> Cross Sections Base File
- <Name> Cross Sections Working File

Buttons: < Back, Next >, Cancel



FILE MANAGEMENT

- Keep different types of data in different files – separation
- In a file with civil data - **work exclusively in the Default model**
 - https://www.oregon.gov/odot/EAST/Pages/QuickStart_ORD.aspx

3. Recommendations for Model Naming in Civil DGNs - don't do it

Work only in the **Default** model in any DGN file where you are creating civil data like geometries or corridors.

Do not create new models for civil things with different names. ORD needs to be able to create and manage the Default-3D model.

- Do not manually create other models in a file with civil data when using ORD



TOOLS

- **Feature Definition Toggle Bar** (Toolbar) – use it; it is open and docked for a reason.
- **Tool Settings** Dialog, **Heads-Up** Dialog and **Status Bar** Prompts – You must constantly read and respond to status bar prompts and left-click with your mouse to accept entries that you make in either dialog.
- Move the location of your message center so that the prompts can be completely read.
- Note – typing in is not enough – you must <Tab>, <Enter> or click in another field to submit your entry!



COMMON MISTAKES

- File is not named correctly or in the correct folder
- Trying to place civil data in a file created with V8i
- Civil data is not accessible when referencing (ORD has not made the 3D model)
- Civil data is not in the Default model
- Failing to assign an Alignment Feature Definition or Complex your geometry
- Not following the prompts for commands that require multiple inputs from the mouse
- Not using <Enter> or <Tab> after entering info into a field, like Name



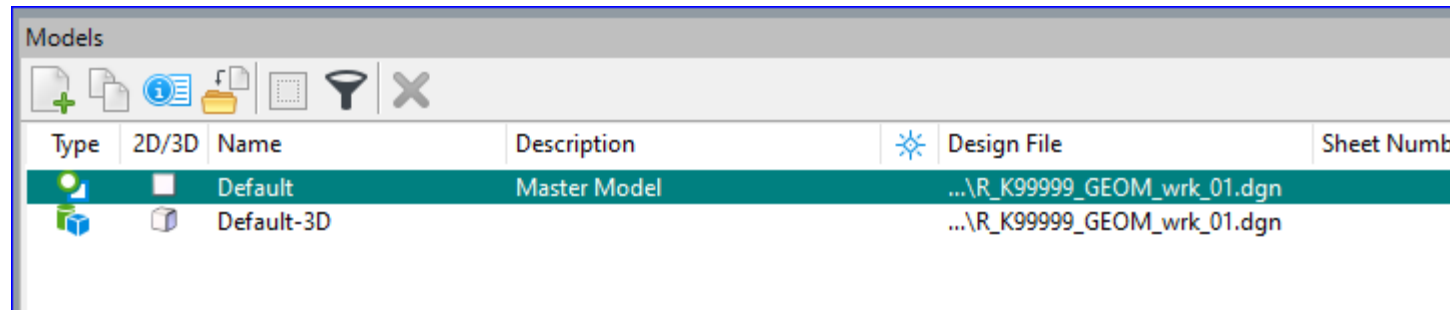
WHAT HAPPENS WHEN I MAKE A TERRAIN ACTIVE?

- It causes OpenRoads to do a few things that you can actually see happen. **OpenRoads must perform these tasks** in order to view profiles and cross sections.
- Activating a terrain also exposes the civil data that is in the file or attached as a reference to the file. The civil data is made visible when your geometry is referenced into other files, so other people and processes can access your civil data.



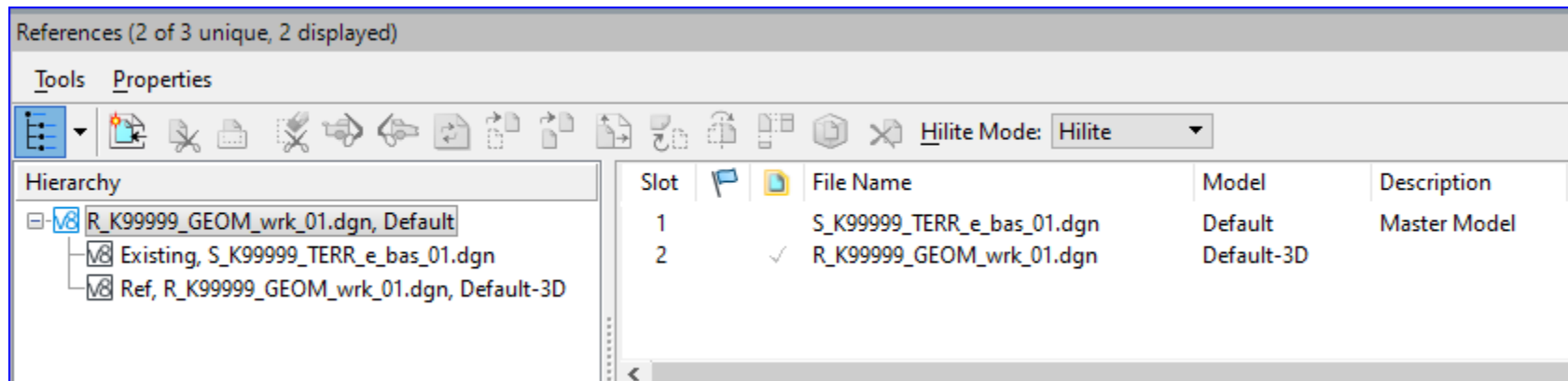
WHEN I MAKE A TERRAIN ACTIVE...

1. ORD automatically creates a 3D model in your 2D file named Default-3D and makes a self-reference attachment to that model (Live nesting, Depth=1).



The screenshot shows the 'Models' palette in AutoCAD. It contains two entries:

Type	2D/3D	Name	Description	Design File	Sheet Number
	<input type="checkbox"/>	Default	Master Model	...\R_K99999_GEOM_wrk_01.dgn	
	<input type="checkbox"/>	Default-3D		...\R_K99999_GEOM_wrk_01.dgn	



The screenshot shows the 'References' palette in AutoCAD. It displays a hierarchy of references and a table of attachment details.

References (2 of 3 unique, 2 displayed)

Tools Properties

Hierarchy

- R_K99999_GEOM_wrk_01.dgn, Default
 - Existing, S_K99999_TERR_e_bas_01.dgn
 - Ref, R_K99999_GEOM_wrk_01.dgn, Default-3D

Slot	File Name	Model	Description
1	S_K99999_TERR_e_bas_01.dgn	Default	Master Model
2	<input checked="" type="checkbox"/> R_K99999_GEOM_wrk_01.dgn	Default-3D	

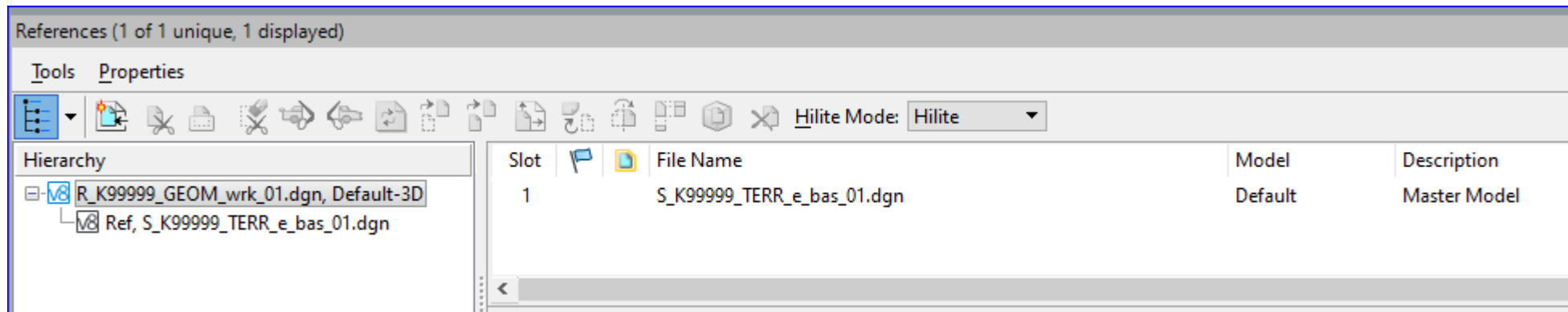


WHEN I MAKE A TERRAIN ACTIVE...

2. In the 3D model (Default-3D), ORD automatically makes reference attachments to the 3D model of every file that was already attached to your 2D model (Default) - but only when the attached references have a civil 3D MODEL THAT WAS CREATED BY ORD!

Active, Default-3D

|_TERR, Default



TIPS FROM THE ORD TRAINING MANUAL —

CHAPTER 4

- Use [ALT] to lock to the beginning or end of an alignment (when using the Heads-Up dialog)
- If you need to add to an alignment that is already complexed, use Geometry>Horizontal>Modify>Append Element
- You can use Insert Vertex to insert a PI in a straight line
- If you want a curve in the location that doesn't have a PI, you can use Geometry>Horizontal>Modify>Insert Fillet and put the PI and the curve in at the same time. The results are complexed whether or not you start with a complexed alignment.
- Be careful in using MicroStation to modify or manipulate civil geometry elements. If you end up with a standalone interval, you may experience erratic results when trying to use it as an alignment.



TIPS FROM THE ORD TRAINING MANUAL —

CHAPTER 4

- Complex by PI command is not easy to add spirals after-the-fact. Can always use the MicroStation Drop command to break the element into pieces, make changes and then recomplex - but may lose rules depending upon how the alignment was built.
- Don't forget about the Reports!



TIPS FROM THE ORD TRAINING MANUAL — CHAPTERS 3 AND 5 — CONTAINER FILES

- Container Files are created from Seed2D.dgn. Yet they require the ORD created 3D model named Default-3D.
- In the Terrain Container File - attach a terrain base as reference and activate the terrain to get ORD to create Default-3D in the CF file; leave terrain attached.
- In the Geometry Container File - attach a terrain base as reference and activate the terrain to get ORD to create Default-3D in the CF file; detach the terrain - it has served its purpose.



DEMO — GEOMETRY WORKING FILE

- Create new file
- Attach terrain reference
- Make Terrain active to see the ORD-created Default-3D model and reference attachments
- Sketch a P Line using Complex By PI
- Add a spiral-curve-spiral without de-complexing
- Explain use of the <Alt> key to alter the “mode” of the command to allow you to select an element inside a complex element.

