Bentleyuser.dk meeting - 2022

Data Migration & Workflows

Matthias Heise,
Consultant, Civil Engineering Success Services

Bentley
Advancing Infrastructure

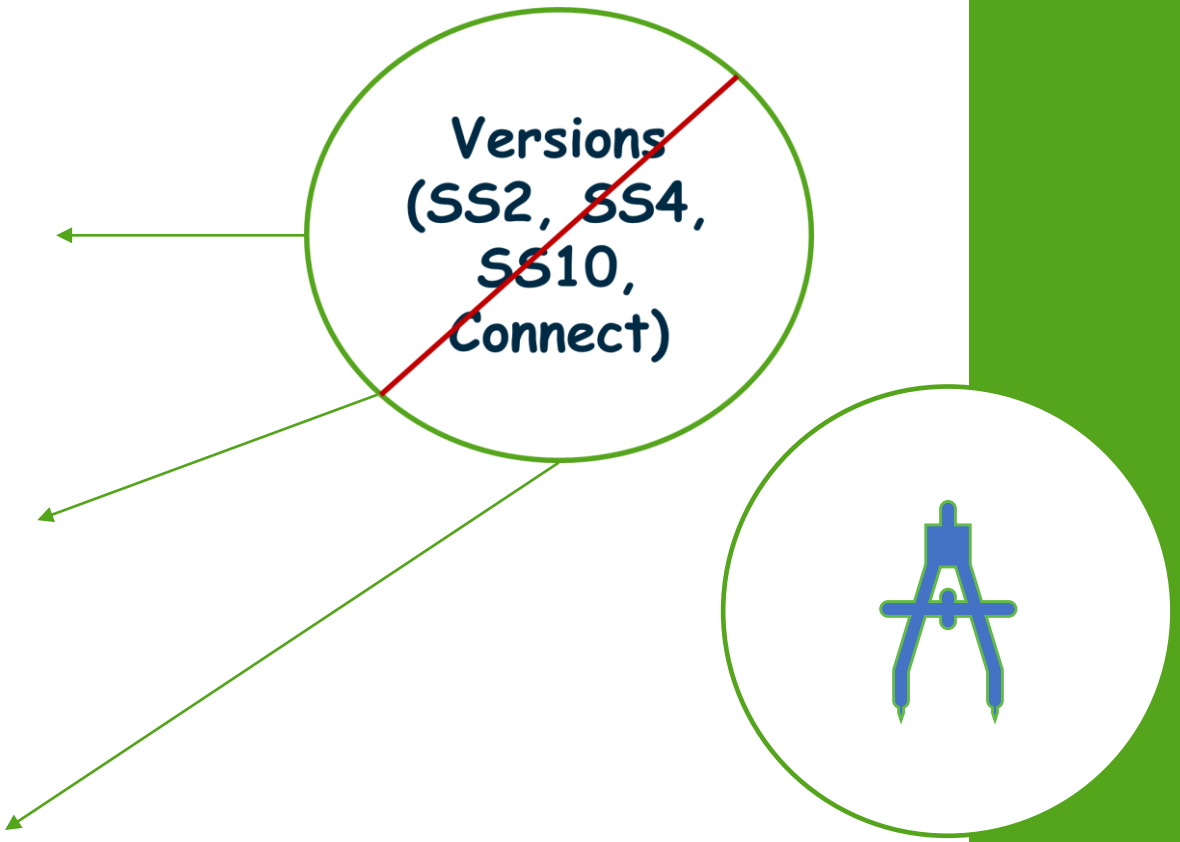
© 2022 Bentley Systems, Incorporated

Types of Project Data

1. **V8i (non-OpenRoads)**
   - *e.g., SS2, SS4, SS10*

2. **V8i (OpenRoads)**
   - *e.g., SS4, SS10*

3. **Connect (OpenRoads)**
   - *e.g., 10.08, 10.09, 10.10*



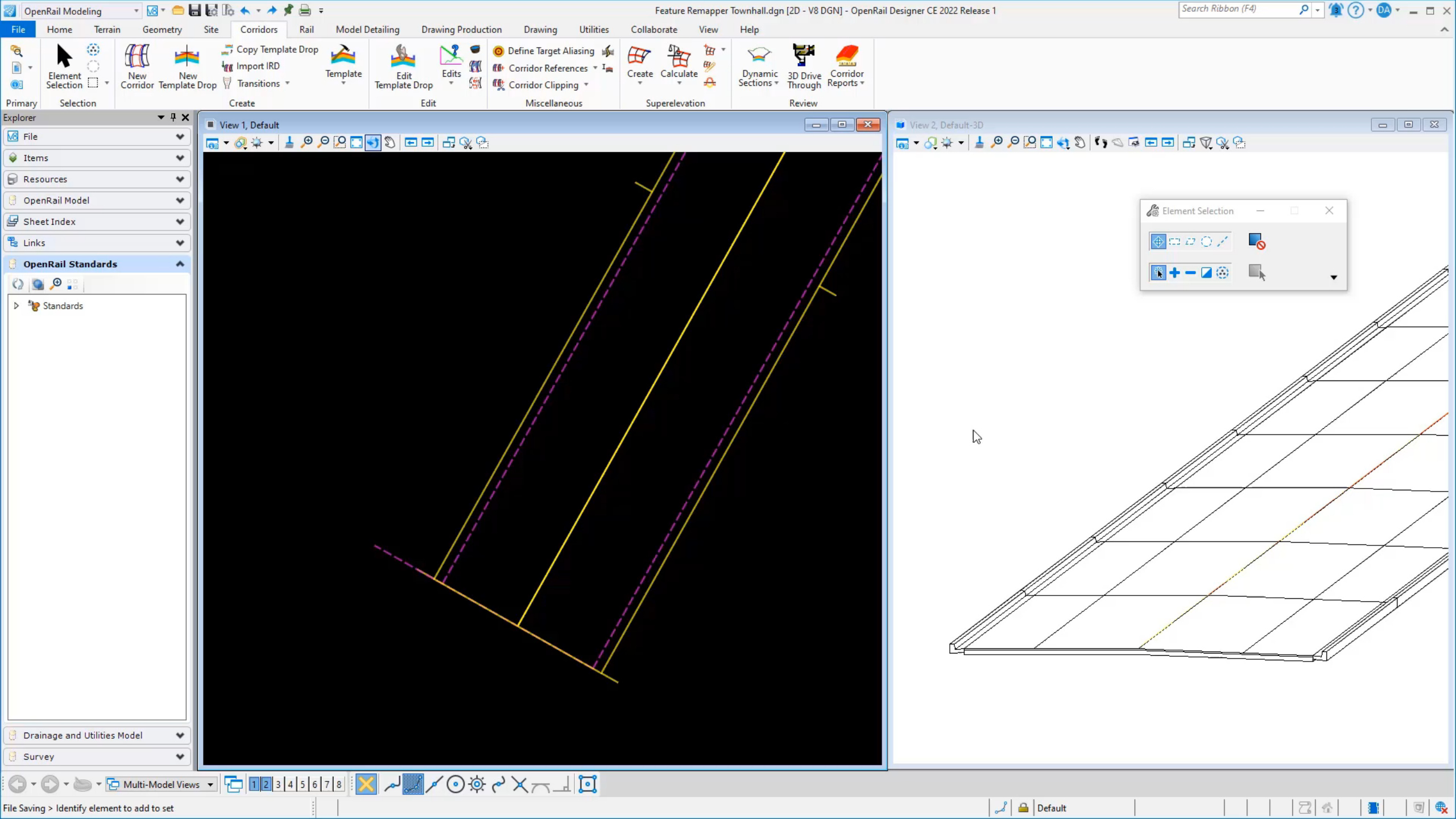
**** Assume a Connect workspace is already created.***

 © 2022 Bentley Systems, Incorporated

Feature Re-mapper

Used to re-map feature definitions from one standard to another.

- *ITL, IRD (**2021 R 2**)*
- *DGN, DGNLIB (**2022 R 1**)*
  - *Terrain, Geometry, Corridors*
- *D&U, 3D Linear Geometry (**Future**)*

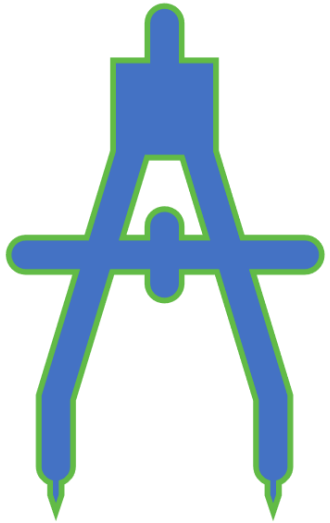

OpenRail Modeling
Feature Remapper Townhall.dgn [2D - V8 DGN] - OpenRail Designer CE 2022 Release 1
Search Ribbon (F4)
File
Home
Terrain
Geometry
Site
Corridors
Rail
Model Detailing
Drawing Production
Drawing
Utilities
Collaborate
View
Help
Primary
Element Selection
Selection
New Corridor
New Template Drop
Copy Template Drop
Import IRD
Transitions
Template
Create
Edit Template Drop
Edits
Edit
Define Target Aliasing
Corridor References
Corridor Clipping
Miscellaneous
Create
Calculate
Superelevation
Dynamic Sections
3D Drive Through
Corridor Reports
Review
Explorer
File
Items
Resources
OpenRail Model
Sheet Index
Links
OpenRail Standards
Standards
Drainage and Utilities Model
Survey
View 1, Default
View 2, Default-3D
Element Selection
Multi-Model Views
1 2 3 4 5 6 7 8
File Saving > Identify element to add to set
Default

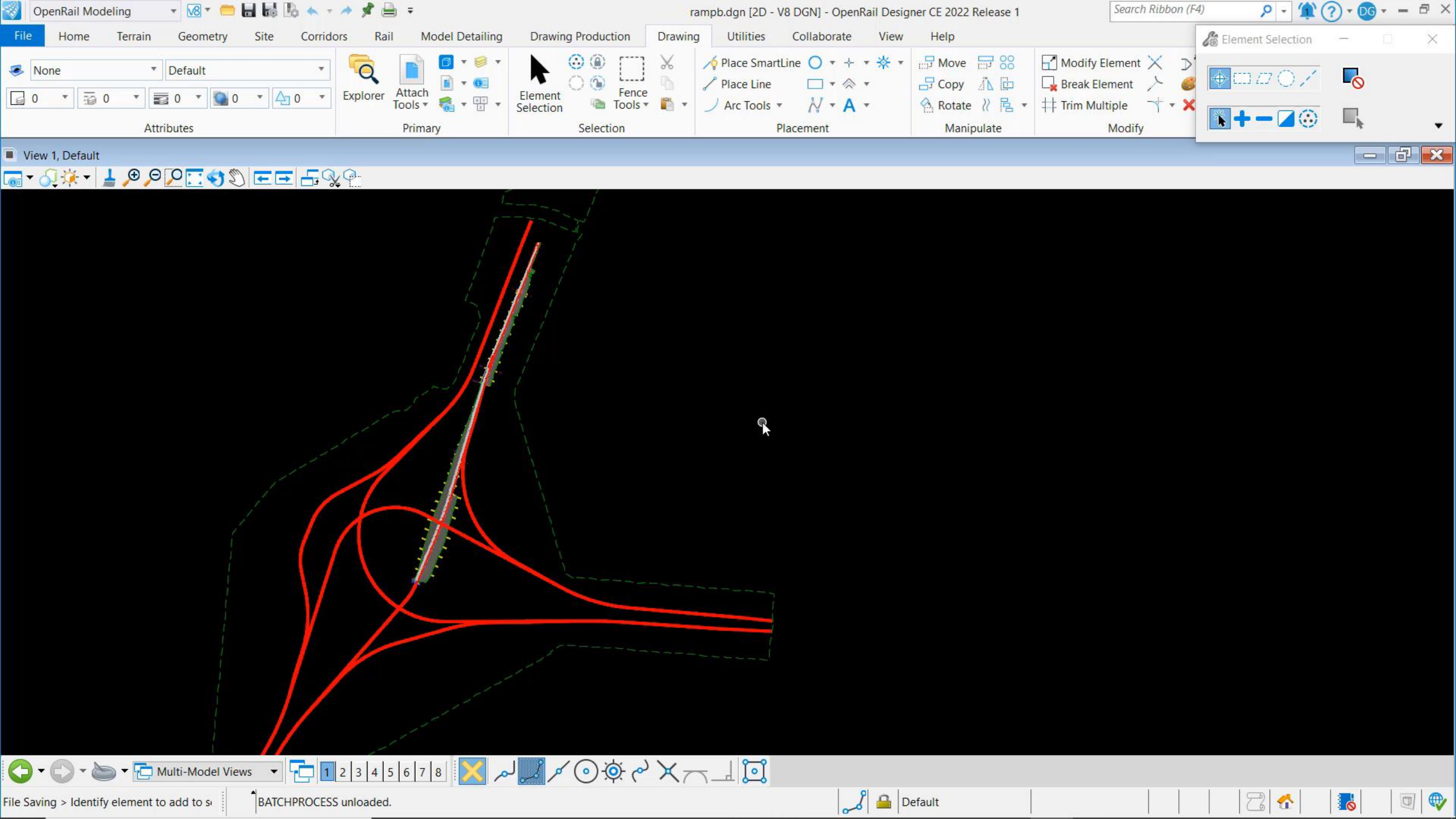
Key in to remap in batch mode.

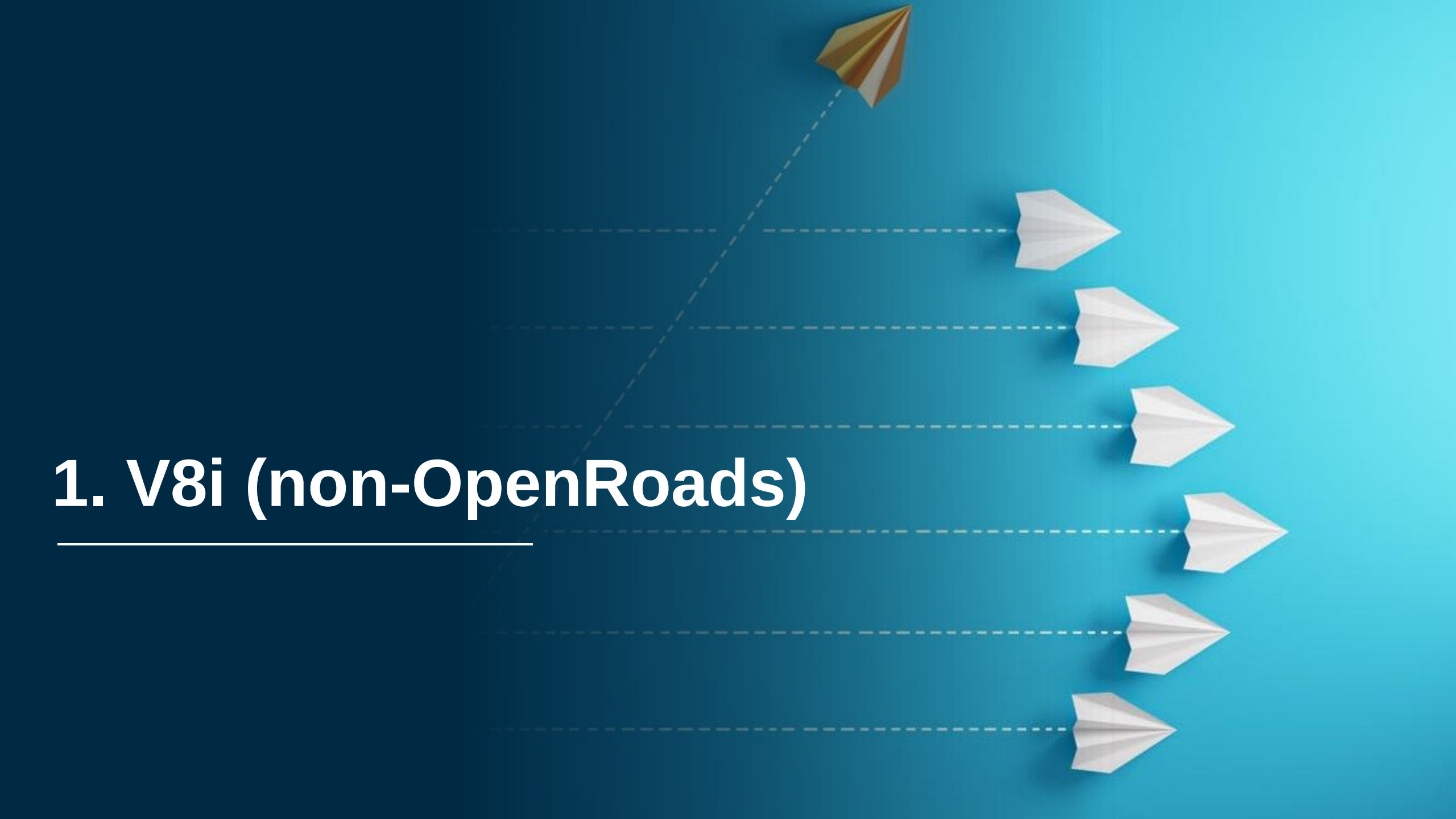
CIVIL FEATURE REMAPPER PathToXmlFile *[PathToItlOrIrdFile]*

- *PathToXMLFile* – ***required*** *path to the configuration file*
- *PathtoItlORIrdFile* – ***optional*** *(use only if re-mapping an ITL or ORD File)*

Use with *Batch Process* tool to remap multiple files or entire projects!




OpenRail Modeling
rampb.dgn [2D - V8 DGN] - OpenRail Designer CE 2022 Release 1
Search Ribbon (F4)
File
Home
Terrain
Geometry
Site
Corridors
Rail
Model Detailing
Drawing Production
Drawing
Utilities
Collaborate
View
Help
Element Selection
None
Default
Attributes
Explorer
Attach Tools
Primary
Element Selection
Fence Tools
Selection
Place SmartLine
Place Line
Arc Tools
Placement
Move
Copy
Rotate
Manipulate
Modify Element
Break Element
Trim Multiple
Modify
View 1, Default
Multi-Model Views
File Saving > Identify element to add to s
BATCHPROCESS unloaded.
Default



1. V8i (non-OpenRoads)

Best Practice

Reports for Validation

Run reports in your current version

- Geometry Reports
- Superelevation Reports
- Corridor Reports
- Drainage Reports

Import

Geometry

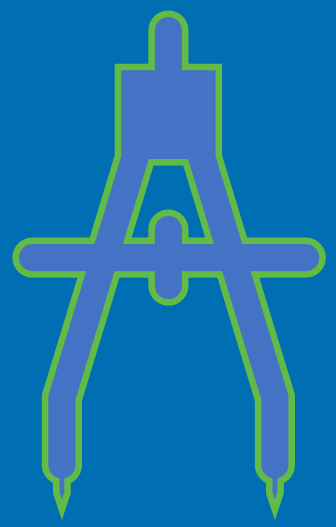
Terrain

IRD

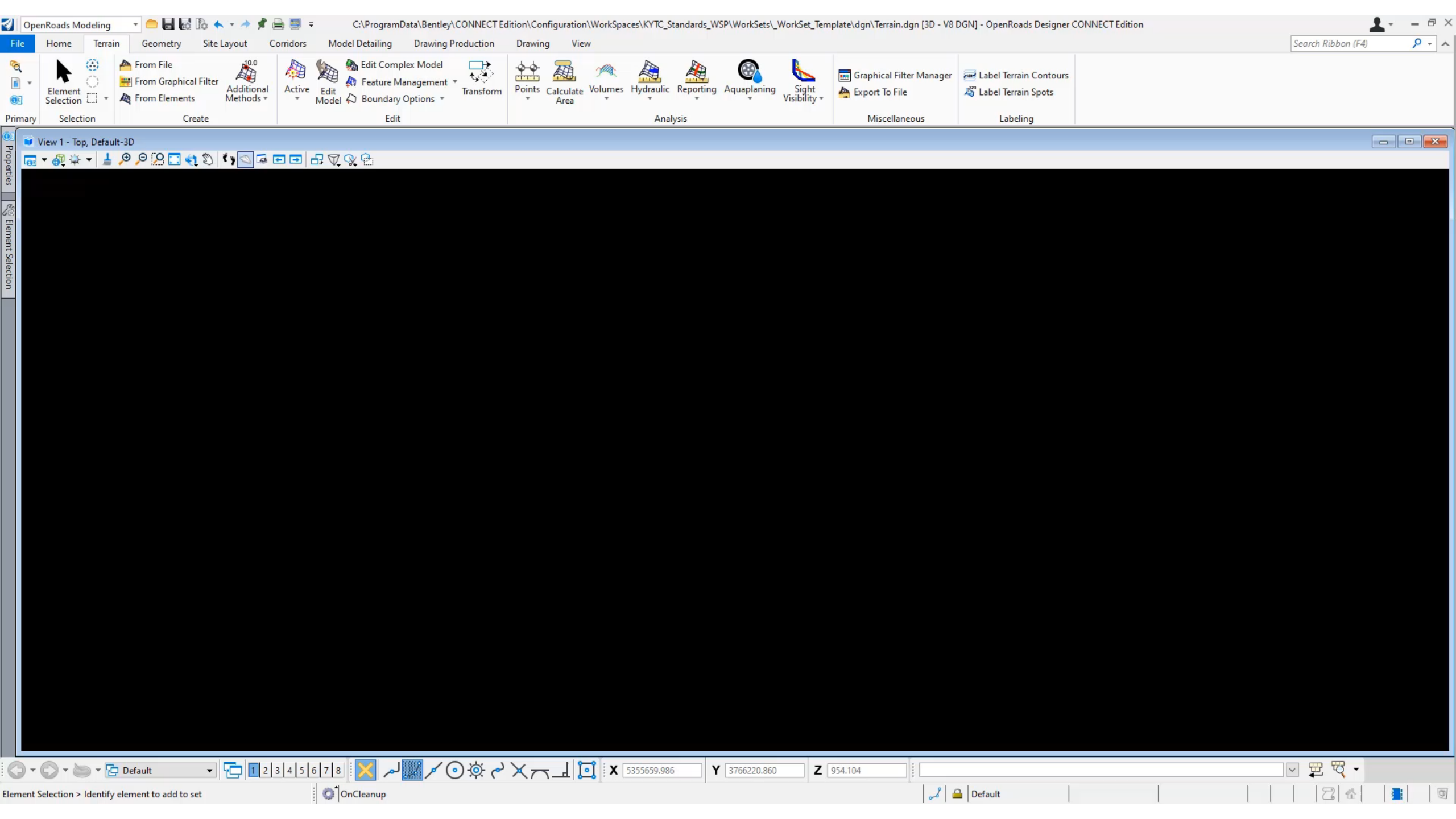
Superelevation

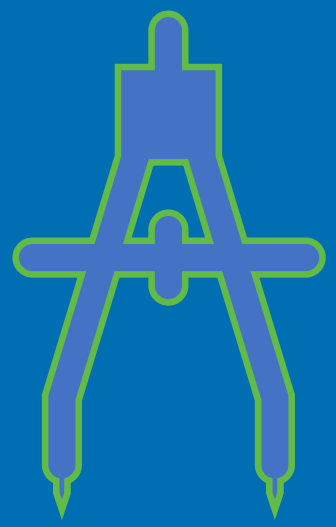
* ITL

Drainage



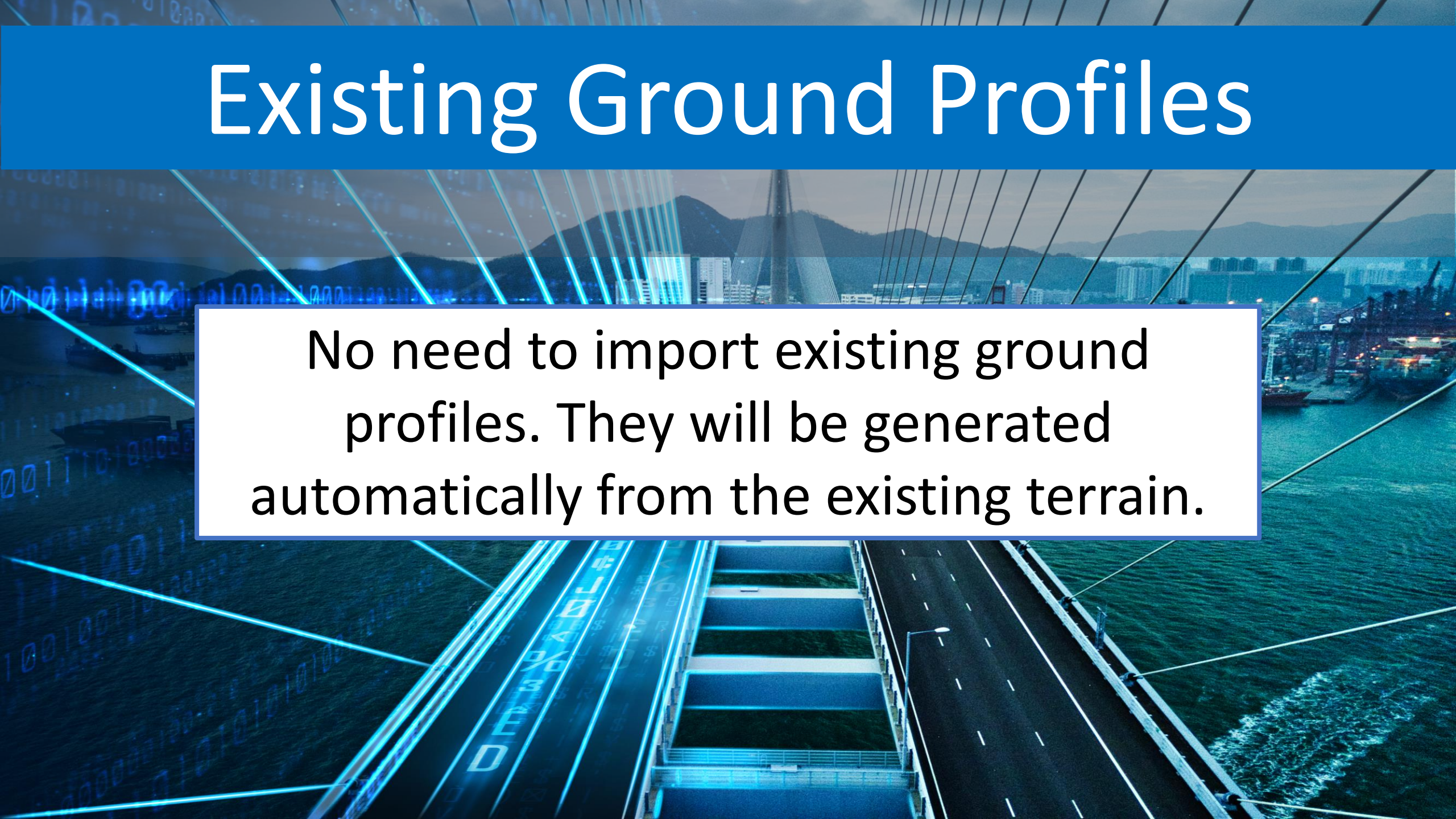
Import Terrain


OpenRoads Modeling
C:\ProgramData\Bentley\CONNECT Edition\Configuration\WorkSpaces\KYTC_Standards_WSP\WorkSets_WorkSet_Template\dgn\Terrain.dgn [3D - V8 DGN] - OpenRoads Designer CONNECT Edition
File
Home
Terrain
Geometry
Site Layout
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
Primary
Element Selection
Selection
From File
From Graphical Filter
From Elements
Additional Methods
Create
Active
Edit Model
Edit Complex Model
Feature Management
Boundary Options
Transform
Edit
Points
Calculate Area
Volumes
Hydraulic
Reporting
Aquaplaning
Sight Visibility
Analysis
Graphical Filter Manager
Export To File
Miscellaneous
Label Terrain Contours
Label Terrain Spots
Labeling
View 1 - Top, Default-3D
Properties
Element Selection
Default
X 5355659.986
Y 3766220.860
Z 954.104
Element Selection > Identify element to add to set
OnCleanup
Default



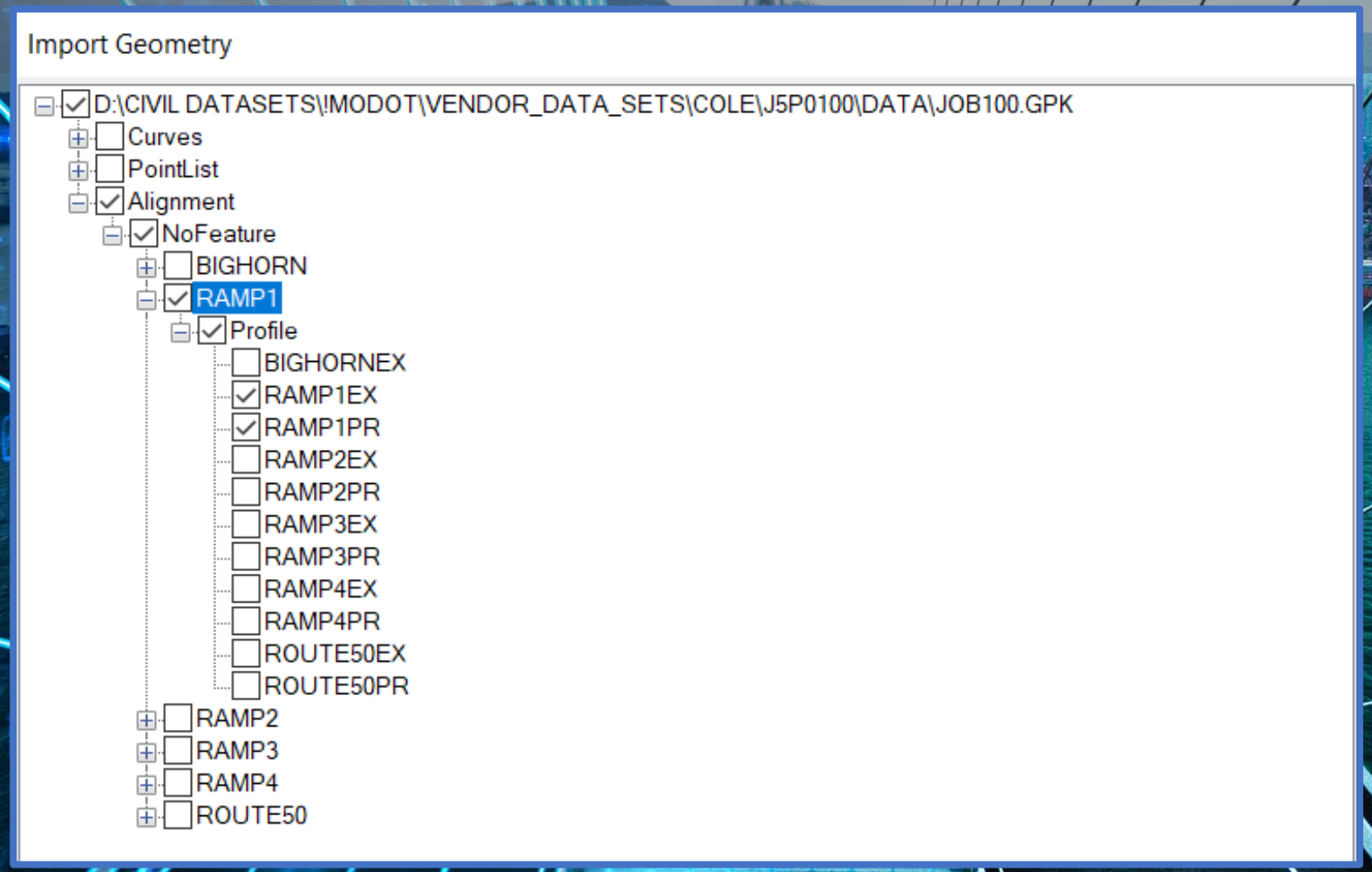
Import Geometry

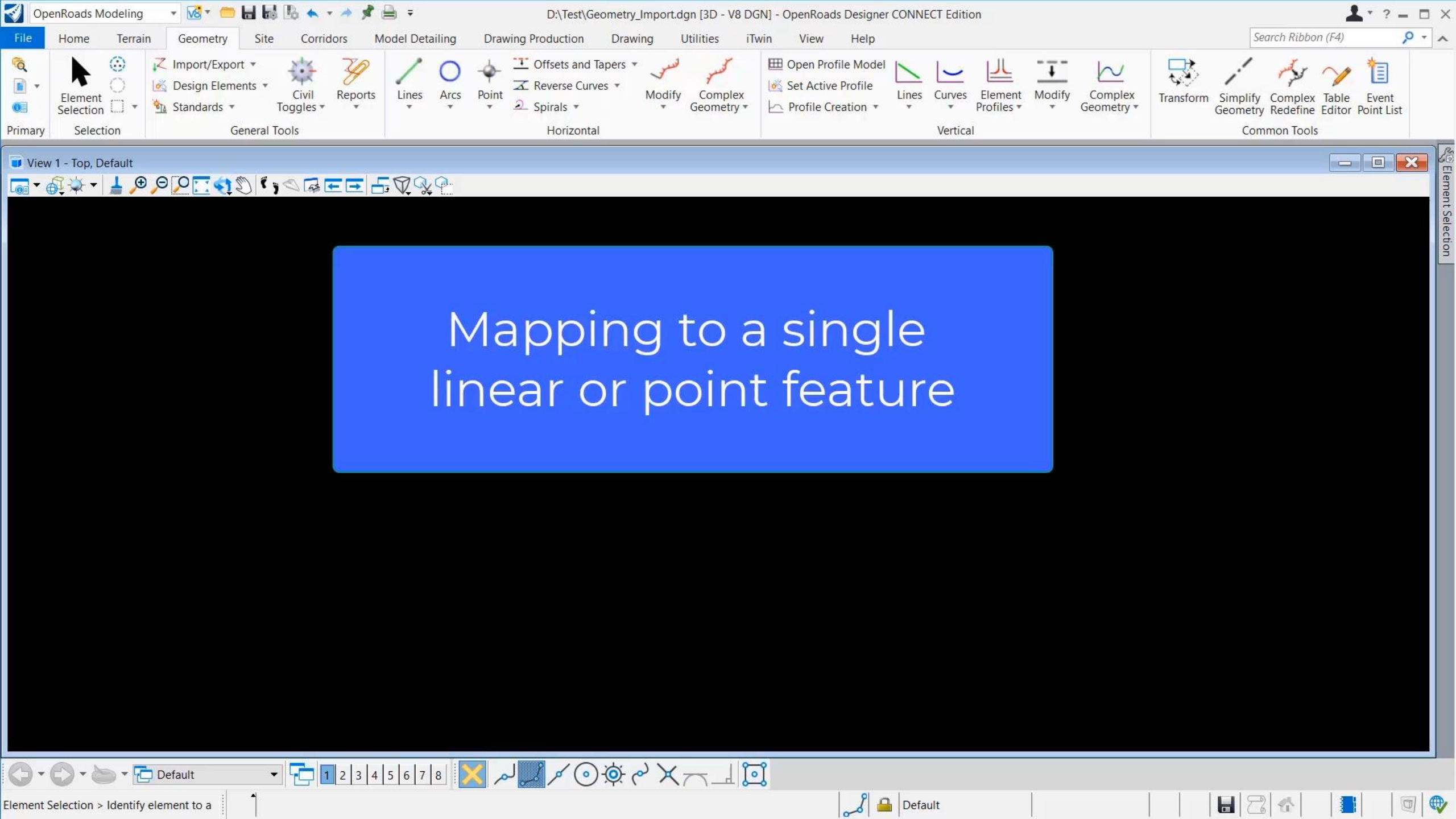
Existing Ground Profiles

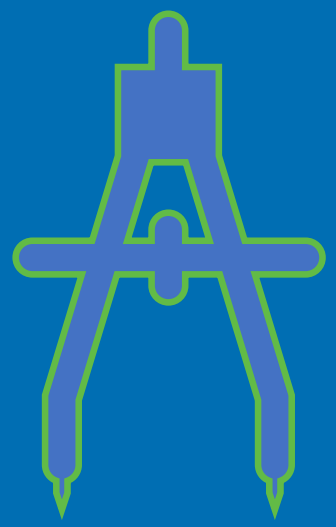


No need to import existing ground profiles. They will be generated automatically from the existing terrain.

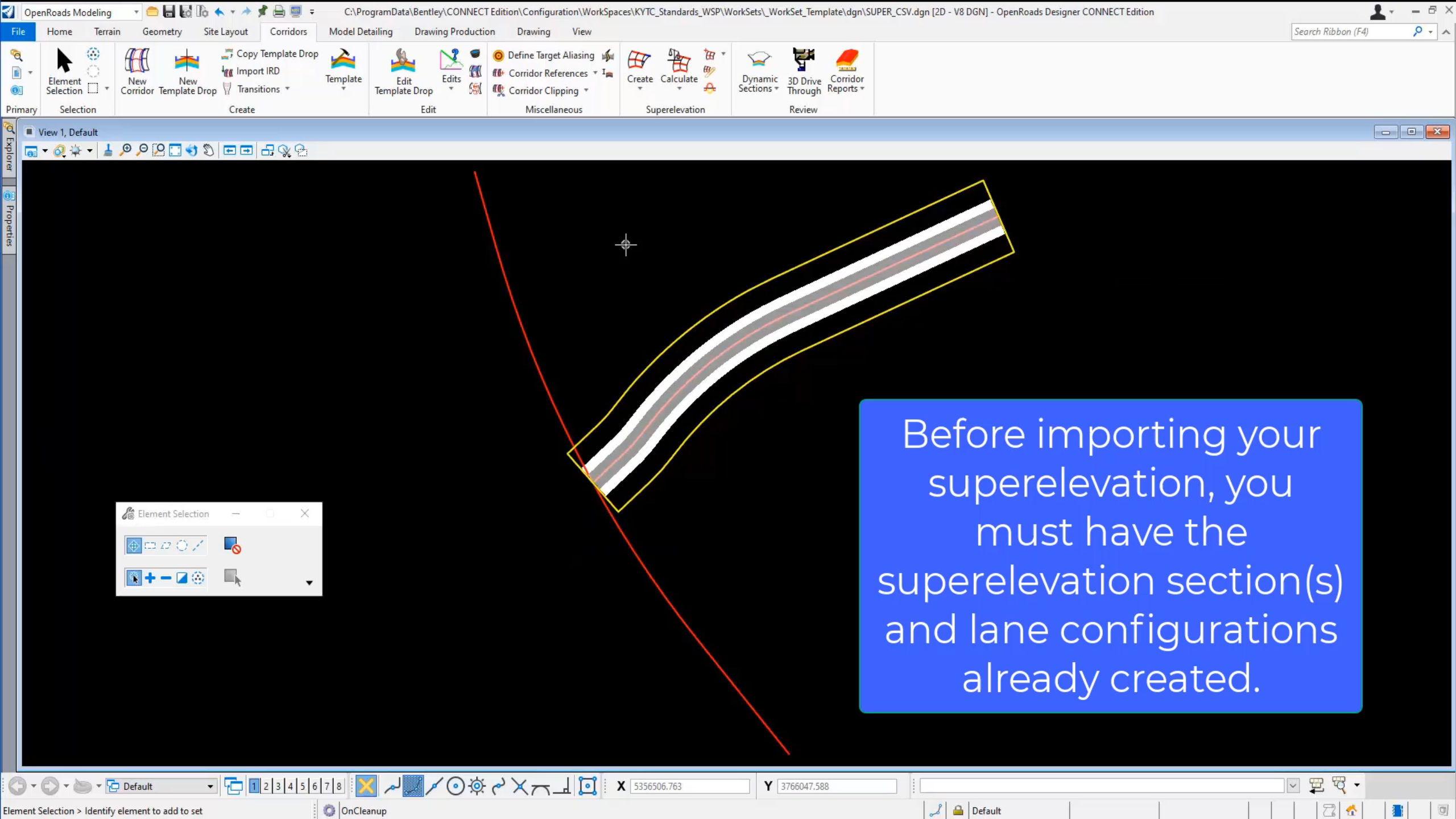
GEOPAK


Import Geometry
D:\CIVIL DATASETS\!MODOT\VENDOR_DATA_SETS\COLE\J5P0100\DATA\JOB100.GPK
Curves
PointList
Alignment
NoFeature
BIGHORN
RAMP1
Profile
BIGHORNEX
RAMP1EX
RAMP1PR
RAMP2EX
RAMP2PR
RAMP3EX
RAMP3PR
RAMP4EX
RAMP4PR
ROUTE50EX
ROUTE50PR
RAMP2
RAMP3
RAMP4
ROUTE50


OpenRoads Modeling
D:\Test\Geometry_Import.dgn [3D - V8 DGN] - OpenRoads Designer CONNECT Edition
File
Home
Terrain
Geometry
Site
Corridors
Model Detailing
Drawing Production
Drawing
Utilities
iTwin
View
Help
Search Ribbon (F4)
Element Selection
Import/Export
Design Elements
Standards
Civil Toggles
Reports
Lines
Arcs
Point
Offsets and Tapers
Reverse Curves
Spirals
Modify
Complex Geometry
Open Profile Model
Set Active Profile
Profile Creation
Lines
Curves
Element Profiles
Modify
Complex Geometry
Transform
Simplify Geometry
Complex Redefine
Table Editor
Event Point List
Primary
Selection
General Tools
Horizontal
Vertical
Common Tools
View 1 - Top, Default
Element Selection
Mapping to a single linear or point feature
Default
Element Selection > Identify element to a
Default



Import Superelevation (CSV)

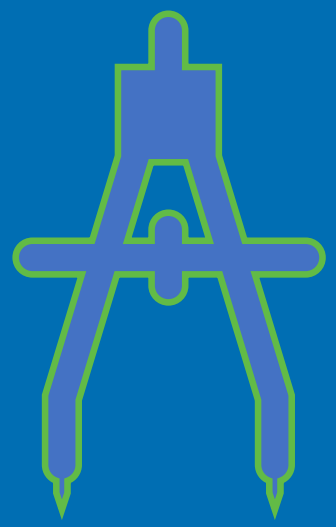

OpenRoads Modeling
C:\ProgramData\Bentley\CONNECT Edition\Configuration\WorkSpaces\KYTC_Standards_WSP\WorkSets_WorkSet_Template\dgn\SUPER_CSV.dgn [2D - V8 DGN] - OpenRoads Designer CONNECT Edition
File
Home
Terrain
Geometry
Site Layout
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
Element Selection
New Corridor
New Template Drop
Copy Template Drop
Import IRD
Transitions
Template
Edit Template Drop
Edits
Define Target Aliasing
Corridor References
Corridor Clipping
Create
Calculate
Dynamic Sections
3D Drive Through
Corridor Reports
Primary
Selection
Create
Edit
Miscellaneous
Superelevation
Review
View 1, Default
Explorer
Properties
Element Selection
Before importing your superelevation, you must have the superelevation section(s) and lane configurations already created.
Default
X 5356506.763
Y 3766047.588
Element Selection > Identify element to add to set
OnCleanup
Default

Superelevation

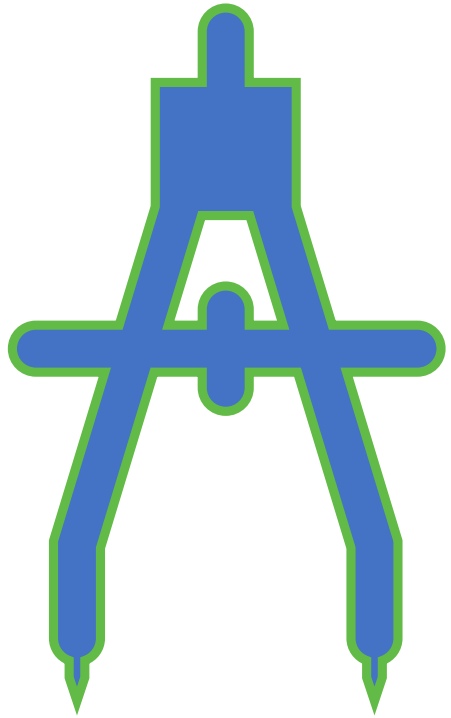
Seeing how you must create your superelevation section(s), the lane configurations and format the CSV, it may be just as ***efficient*** to re-calculate your superelevation from scratch.

Superelevation

Will be automatically imported as part of the IRD file. However, in that case you would not have the option of putting it in a separate file from the corridor.



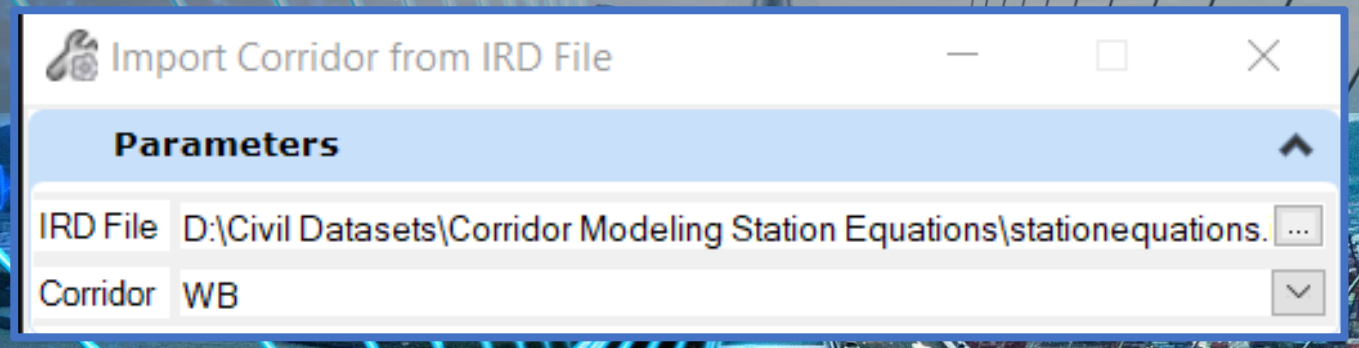
Import IRD



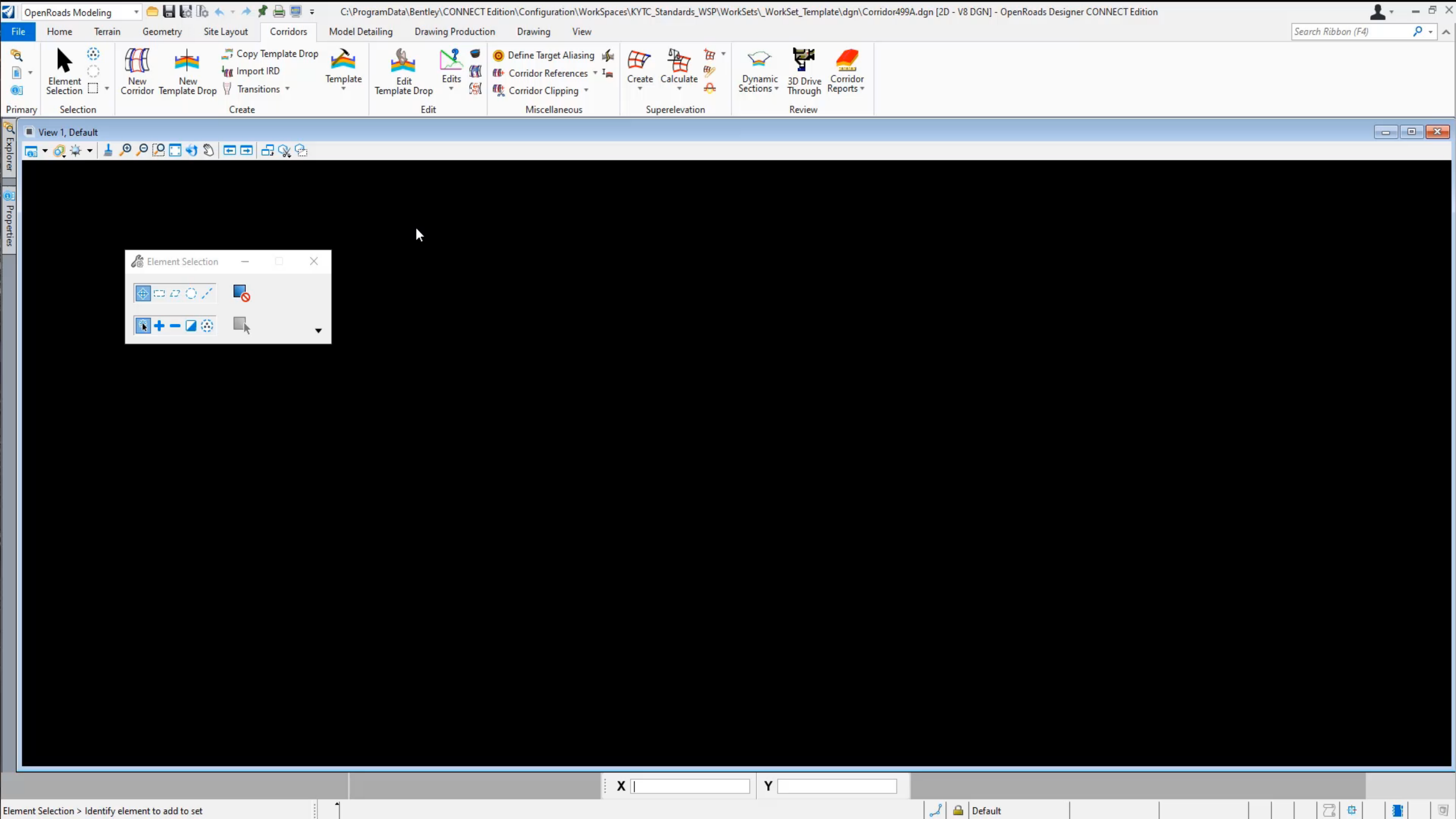
Reminder:

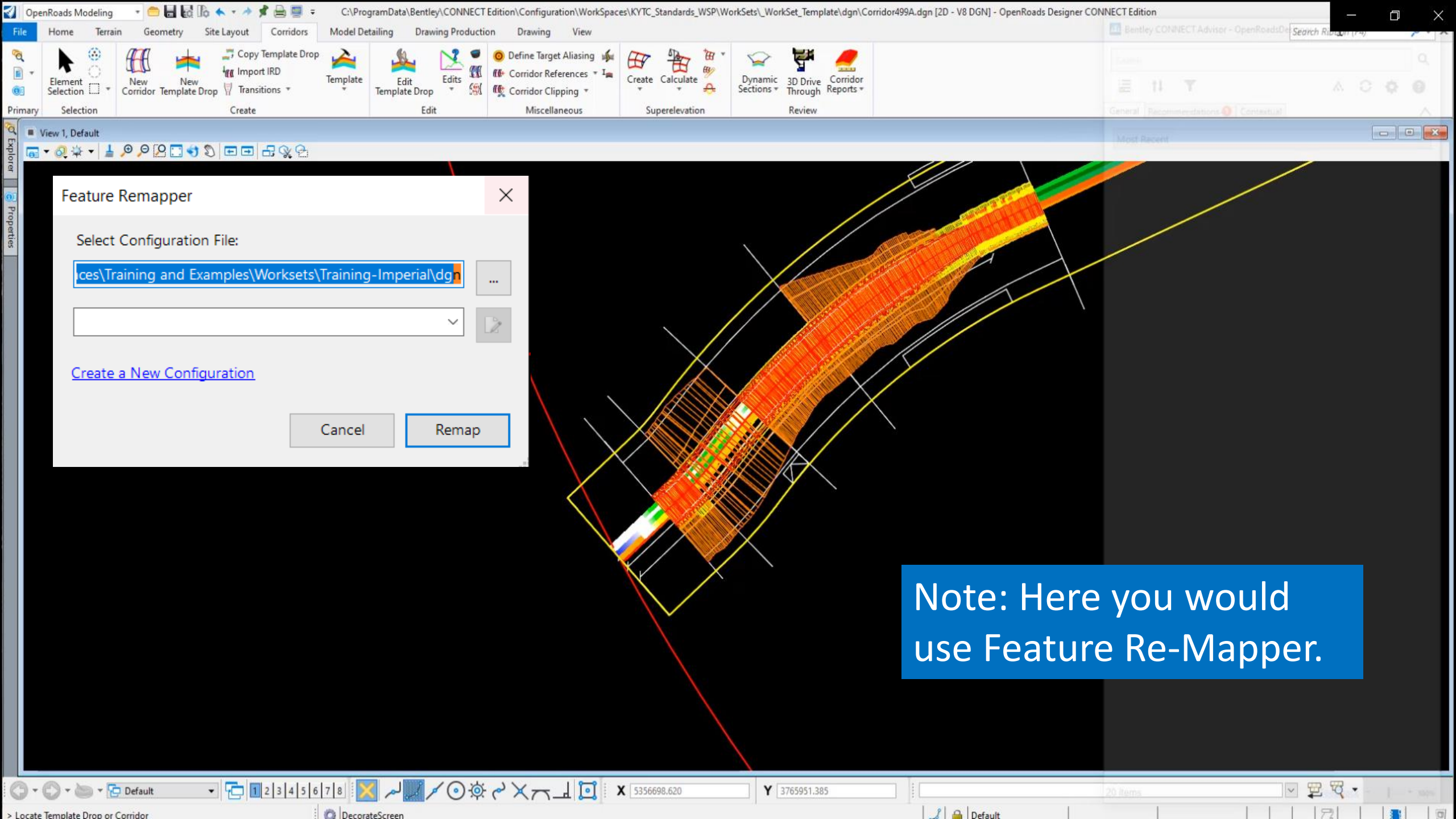
Feature definitions can be updated using the Feature Re-Mapper tool either prior to import (IRD) or you can do it afterward in the DGN.

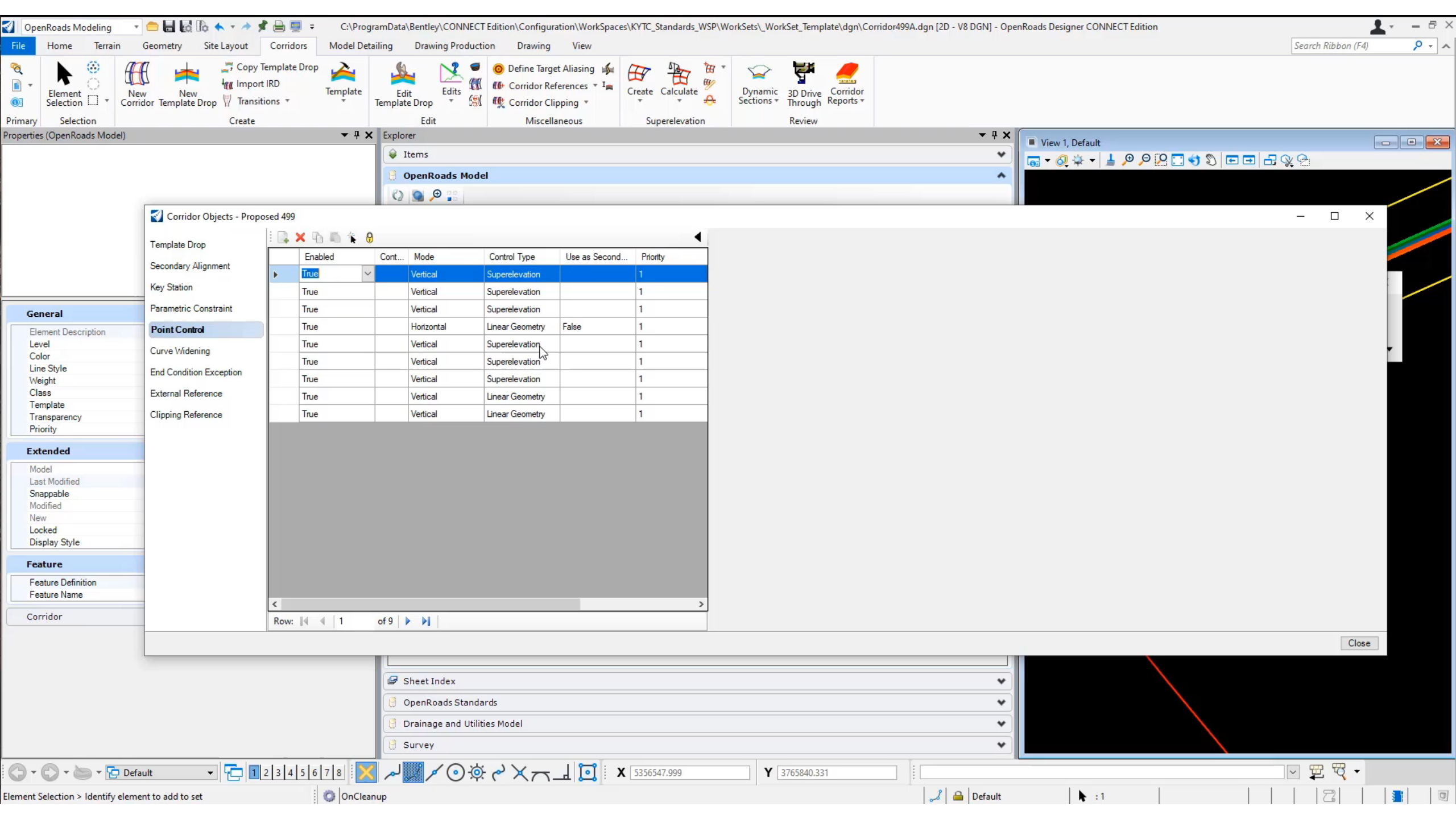
Import IRD

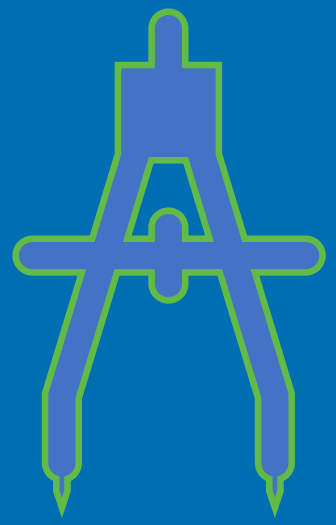


Limitation: Baseline geometry must exist in the same model prior to import. However, geometry could be re-assigned to a reference after the fact.


OpenRoads Modeling
C:\ProgramData\Bentley\CONNECT Edition\Configuration\WorkSpaces\KYTC_Standards_WSP\WorkSets_WorkSet_Template\dgn\Corridor499A.dgn [2D - V8 DGN] - OpenRoads Designer CONNECT Edition
File
Home
Terrain
Geometry
Site Layout
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
Element Selection
Selection
New Corridor
New Template Drop
Copy Template Drop
Import IRD
Transitions
Template
Create
Edit Template Drop
Edits
Edit
Define Target Aliasing
Corridor References
Corridor Clipping
Miscellaneous
Create
Calculate
Superelevation
Dynamic Sections
3D Drive Through
Corridor Reports
Review
Primary
Explorer
Properties
View 1, Default
Element Selection
X
Y
Element Selection > Identify element to add to set
Default

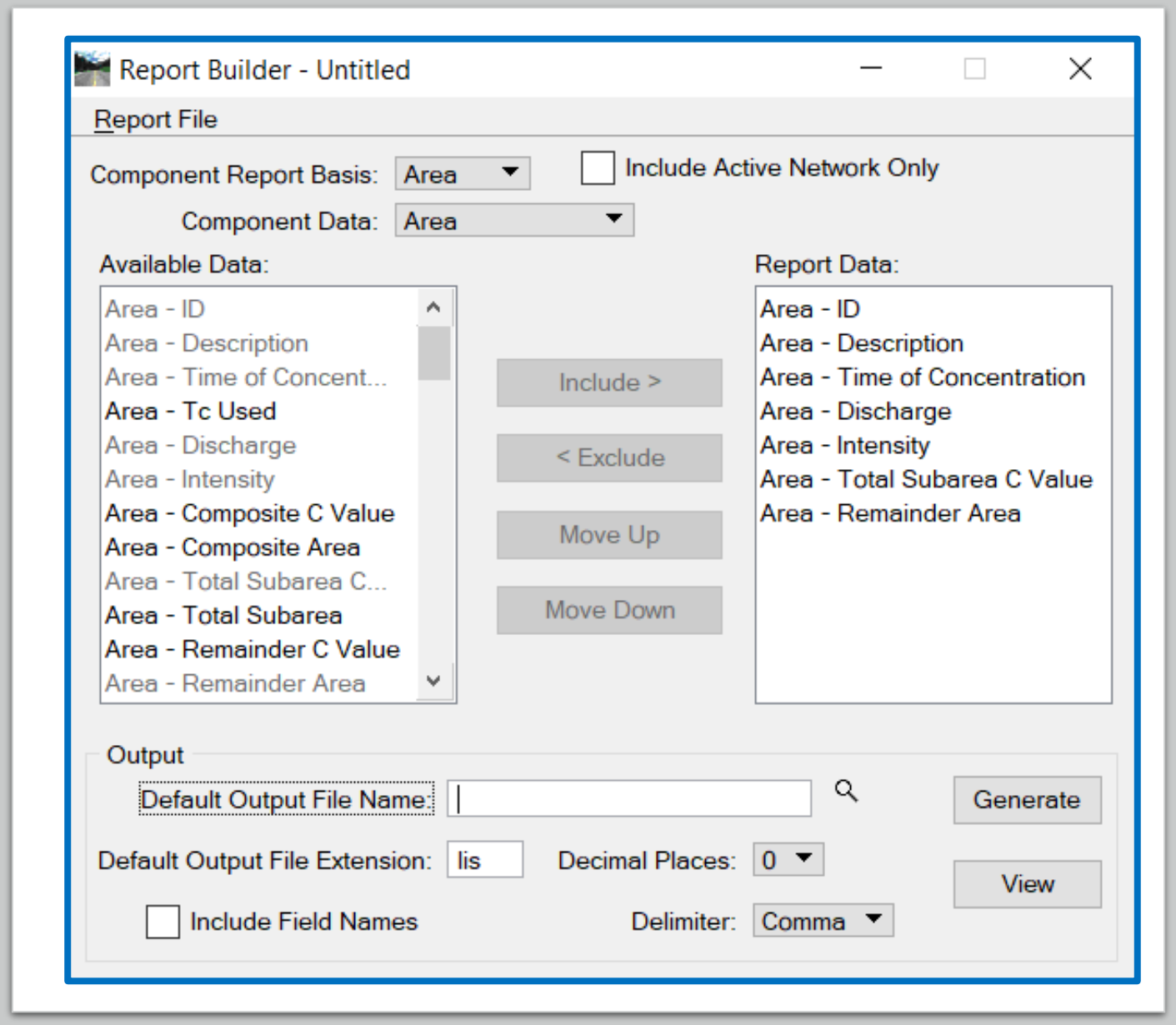

OpenRoads Modeling
C:\ProgramData\Bentley\CONNECT Edition\Configuration\WorkSpaces\KYTC_Standards_WSP\WorkSets_WorkSet_Template\dgn\Corridor499A.dgn [2D - V8 DGN] - OpenRoads Designer CONNECT Edition
File
Home
Terrain
Geometry
Site Layout
Corridors
Model Detailing
Drawing Production
Drawing
View
Element Selection
New Corridor
New Template Drop
Copy Template Drop
Import IRD
Transitions
Template
Edit Template Drop
Edits
Define Target Aliasing
Corridor References
Corridor Clipping
Create
Calculate
Dynamic Sections
3D Drive Through
Corridor Reports
Primary
Selection
Create
Edit
Miscellaneous
Superelevation
Review
View 1, Default
Explorer
Properties
Feature Remapper
Select Configuration File:
ces\Training and Examples\Worksets\Training-Imperial\dgn
...
Create a New Configuration
Cancel
Remap
Note: Here you would use Feature Re-Mapper.
Default
X 5356698.620
Y 3765951.385
Locate Template Drop or Corridor
DecorateScreen
Default


OpenRoads Modeling
C:\ProgramData\Bentley\CONNECT Edition\Configuration\WorkSpaces\KYTC_Standards_WSP\WorkSets_WorkSet_Template\dgn\Corridor499A.dgn [2D - V8 DGN] - OpenRoads Designer CONNECT Edition
File
Home
Terrain
Geometry
Site Layout
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
Element Selection
New Corridor
New Template Drop
Copy Template Drop
Import IRD
Transitions
Template
Edit Template Drop
Edits
Define Target Aliasing
Corridor References
Corridor Clipping
Create
Calculate
Dynamic Sections
3D Drive Through
Corridor Reports
Primary
Selection
Create
Edit
Miscellaneous
Superelevation
Review
Properties (OpenRoads Model)
Explorer
Items
OpenRoads Model
View 1, Default
Corridor Objects - Proposed 499
Template Drop
Secondary Alignment
Key Station
Parametric Constraint
Point Control
Curve Widening
End Condition Exception
External Reference
Clipping Reference
Enabled
Cont...
Mode
Control Type
Use as Second...
Priority
True Vertical Superelevation 1
True Vertical Superelevation 1
True Vertical Superelevation 1
True Horizontal Linear Geometry False 1
True Vertical Superelevation 1
True Vertical Superelevation 1
True Vertical Superelevation 1
True Vertical Linear Geometry 1
True Vertical Linear Geometry 1
Row: 1 of 9
Close
General
Element Description
Level
Color
Line Style
Weight
Class
Template
Transparency
Priority
Extended
Model
Last Modified
Snappable
Modified
New
Locked
Display Style
Feature
Feature Definition
Feature Name
Corridor
Sheet Index
OpenRoads Standards
Drainage and Utilities Model
Survey
Default
X 5356547.999
Y 3765840.331
Element Selection > Identify element to add to set
OnCleanup
Default
: 1



Import GEOPAK Drainage

- **GEOPAK Drainage**
- **Report Builder**
- **Generate separate CSV files for the following:**
  - ***Area***
  - ***Node***
  - ***Links***
  - ***Inlets***

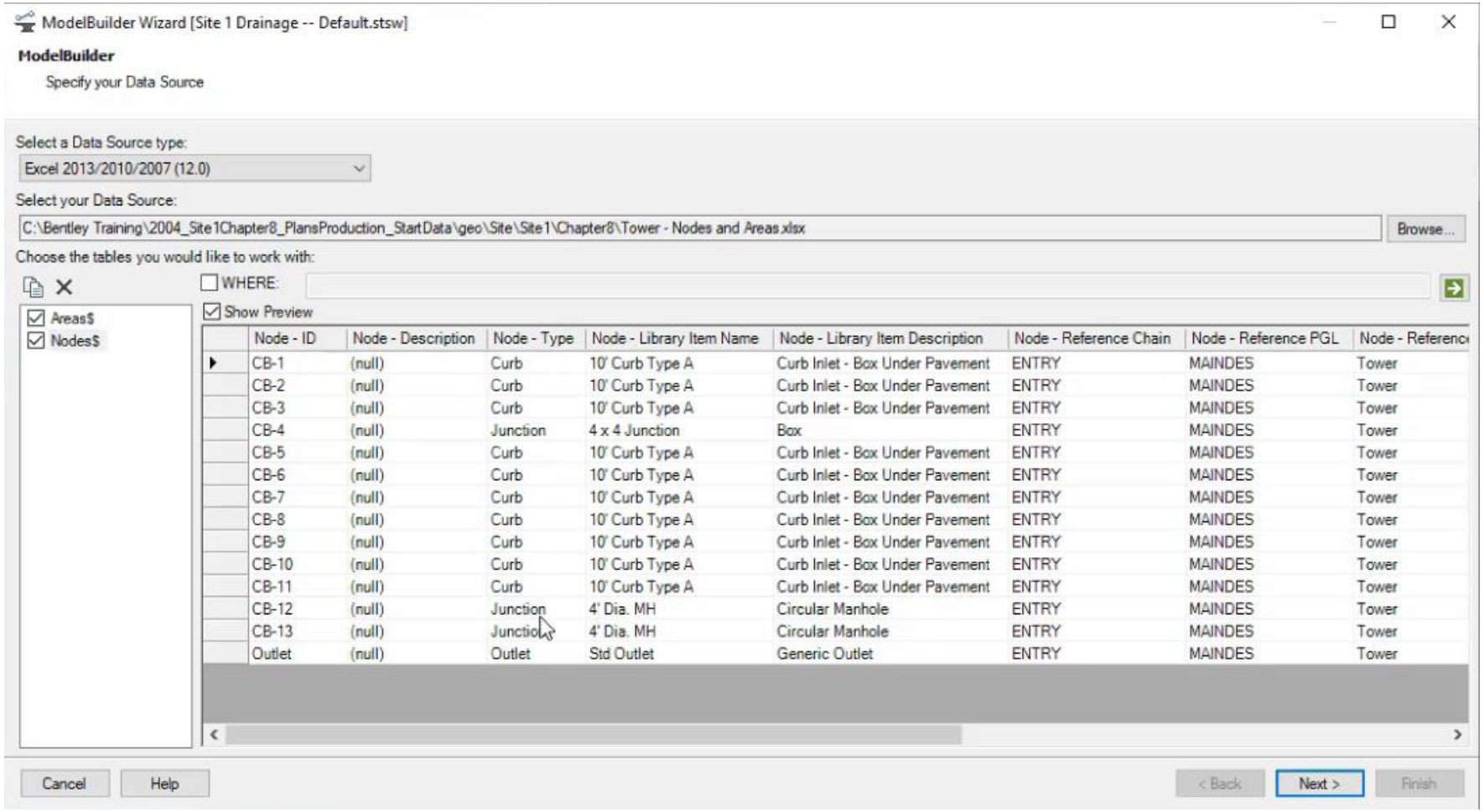


 © 2018 Bentley Systems, Incorporated

Open a file with OpenRoads Designer using your desired workspace.

Drainage & Utilities > Tools > Model Builder.

Map the previously created spreadsheet to D&U



 © 2018 Bentley Systems, Incorporated

Bentley

Video: Migrating GEOPAK SS2 Project Data to OpenRoads Designer

Product(s):	OpenRoads Designer, OpenRail Designer, OpenSite Designer
Version(s):	10.08.00.88+
Area:	General

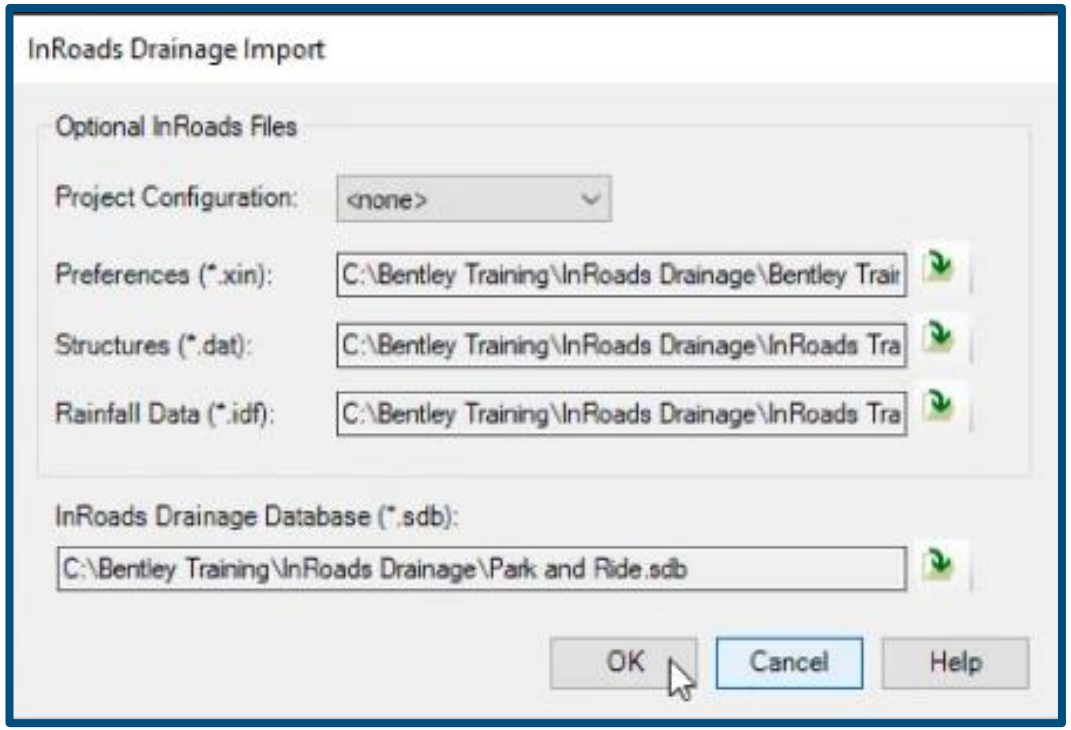
0:00 General Information
1:55 Reports for Validation
2:15 Terrain
4:45 Geometry
7:50 ITL Features
13:20 Superelevation
19:15 Corridors
26:25 Sheets
27:00 Drainage option 1
53:45 Drainage option 2
1:09:00 Validating with Reports

Import InRoads S&S

Open a file with OpenRoads Designer using your desired workspace.

Drainage & Utilities > Import Utilities > Import InRoads.

Set/Modify Feature Definitions



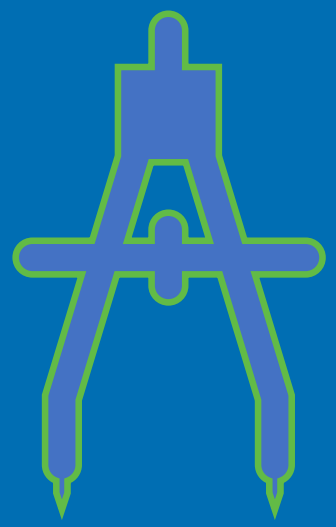
 © 2018 Bentley Systems, Incorporated

Bentley

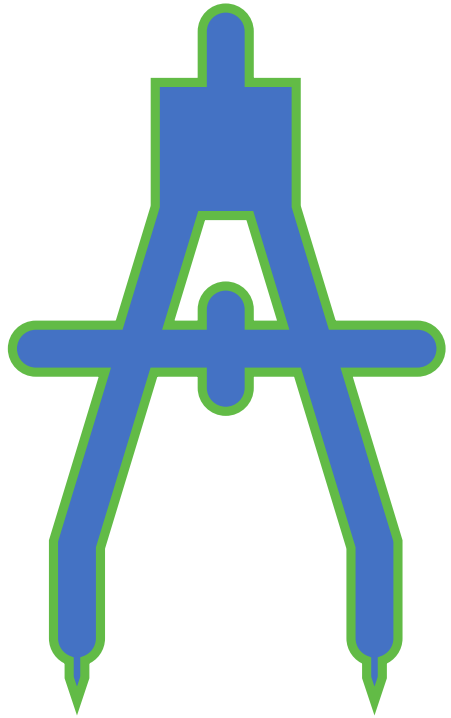
Video: Migrating InRoads SS2 Project Data to OpenRoads Designer

Product(s):	OpenRoads Designer, OpenRail Designer, OpenSite Designer
Version(s):	10.08+
Area:	General

0:00 General Information
1:50 Reports for Validation
2:10 Terrain
4:40 Geometry
8:15 ITL Features
13:45 Superelevation (CSV)
16:45 Superelevation (IRD)
19:45 Corridors
26:55 Sheets
27:20 S&S
34:00 Validating with Reports



Sheets



Depending on numerous factors, your sheets may or may not need to be regenerated.

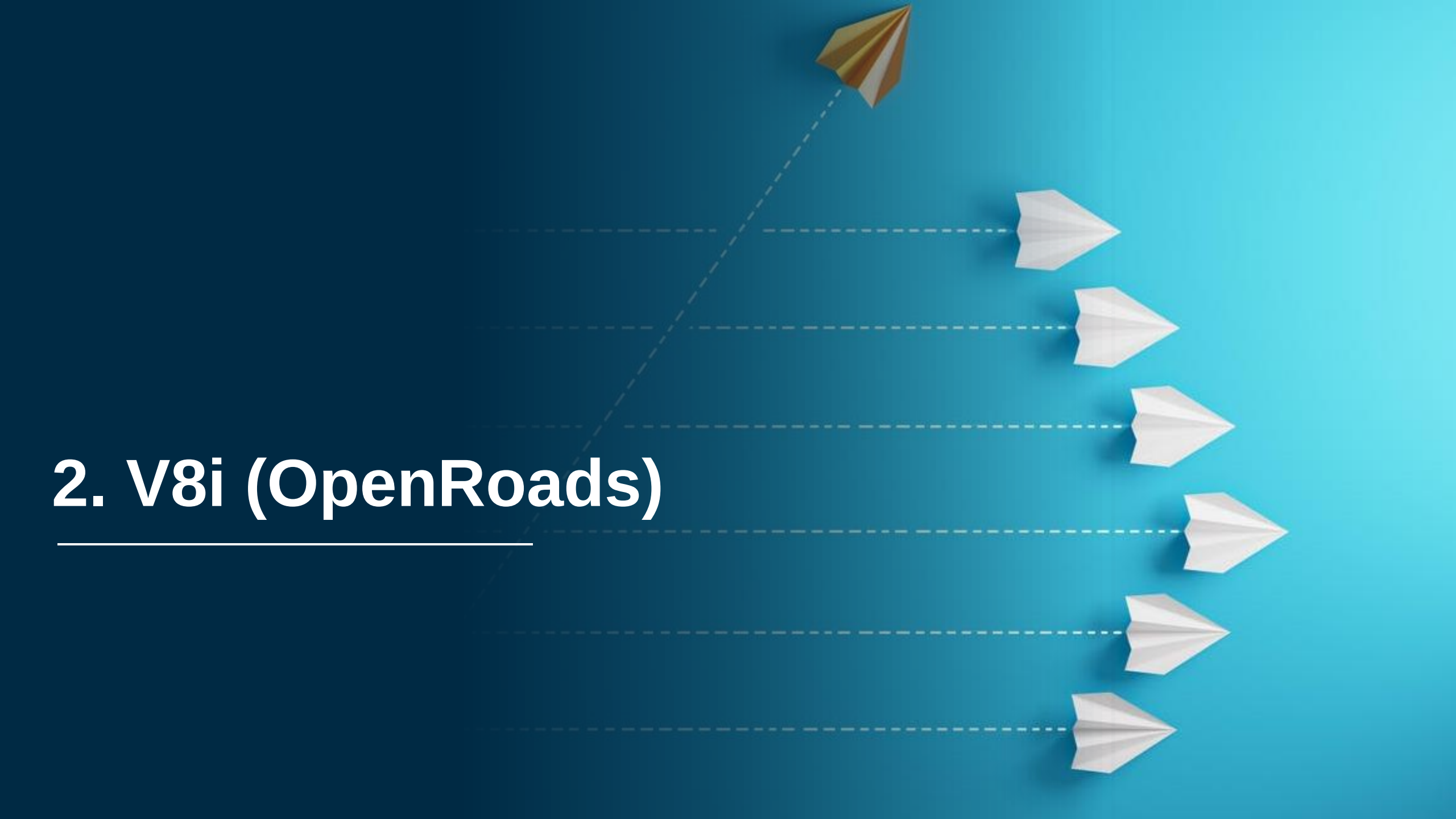
Validate

- Geometry Reports
- Superelevation Reports
- Corridor Reports
- Drainage Reports

 © 2018 Bentley Systems, Incorporated

Bentley

2. V8i (OpenRoads)



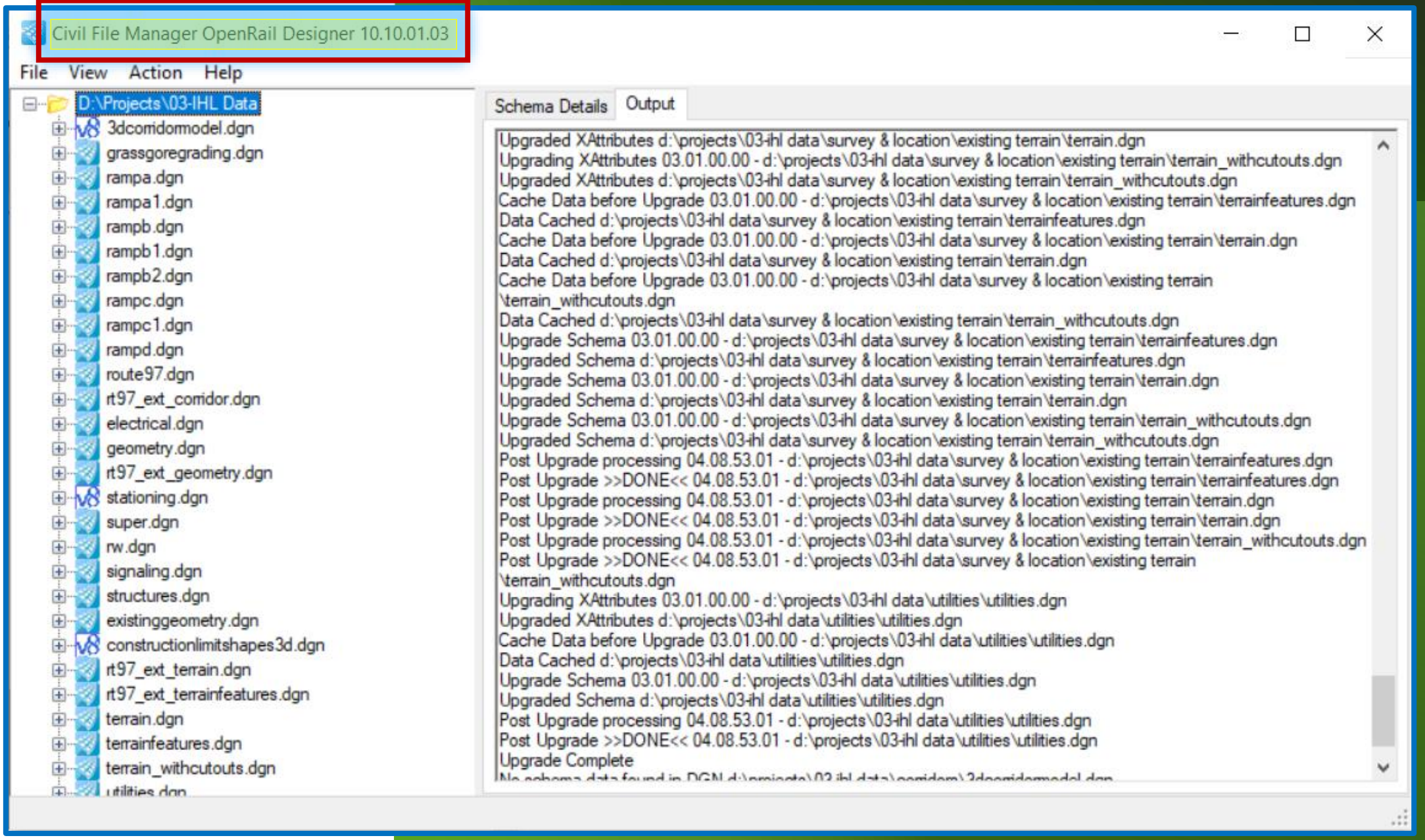
Best Practice

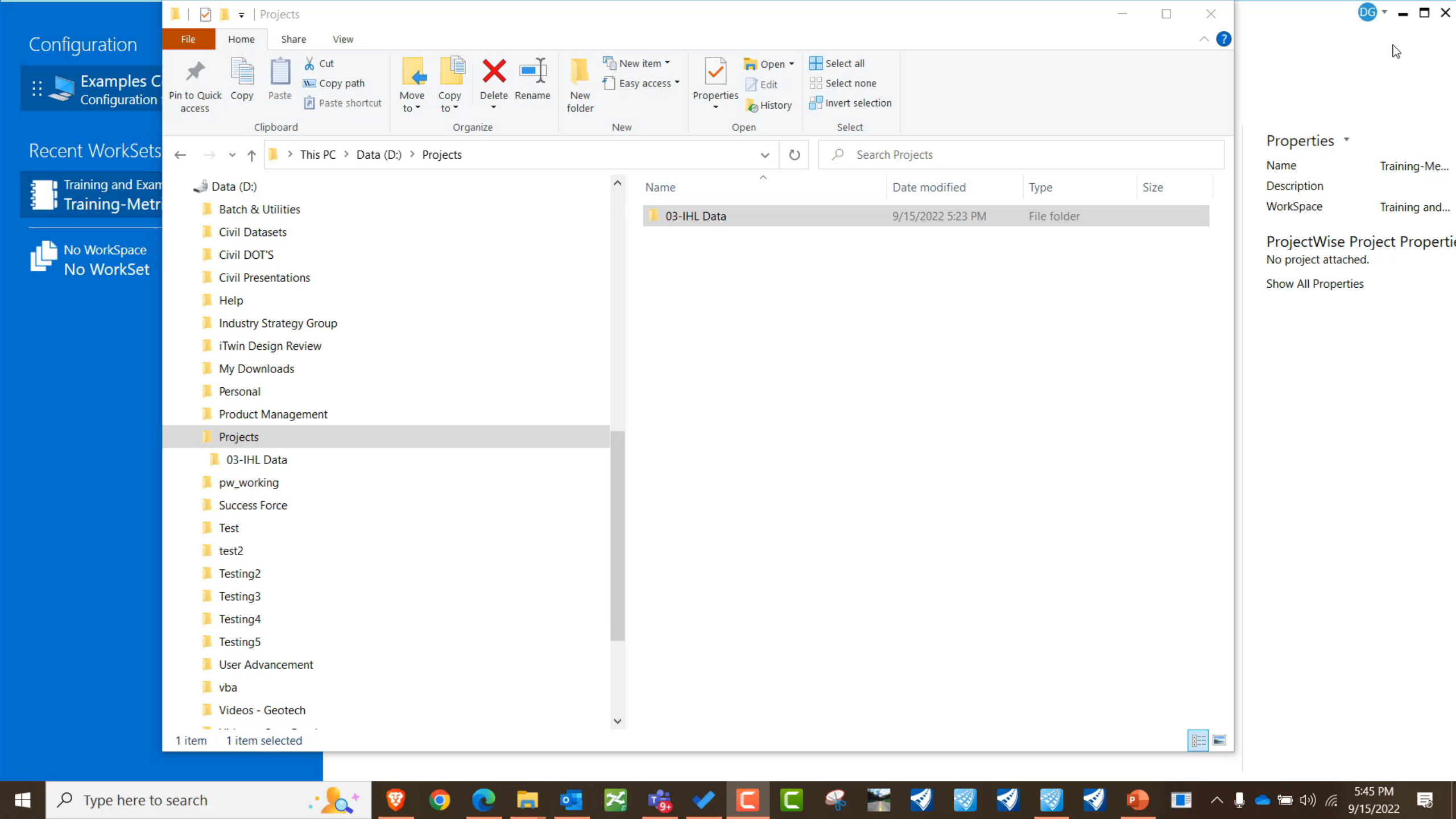
Reports for Validation

Run reports in your current version

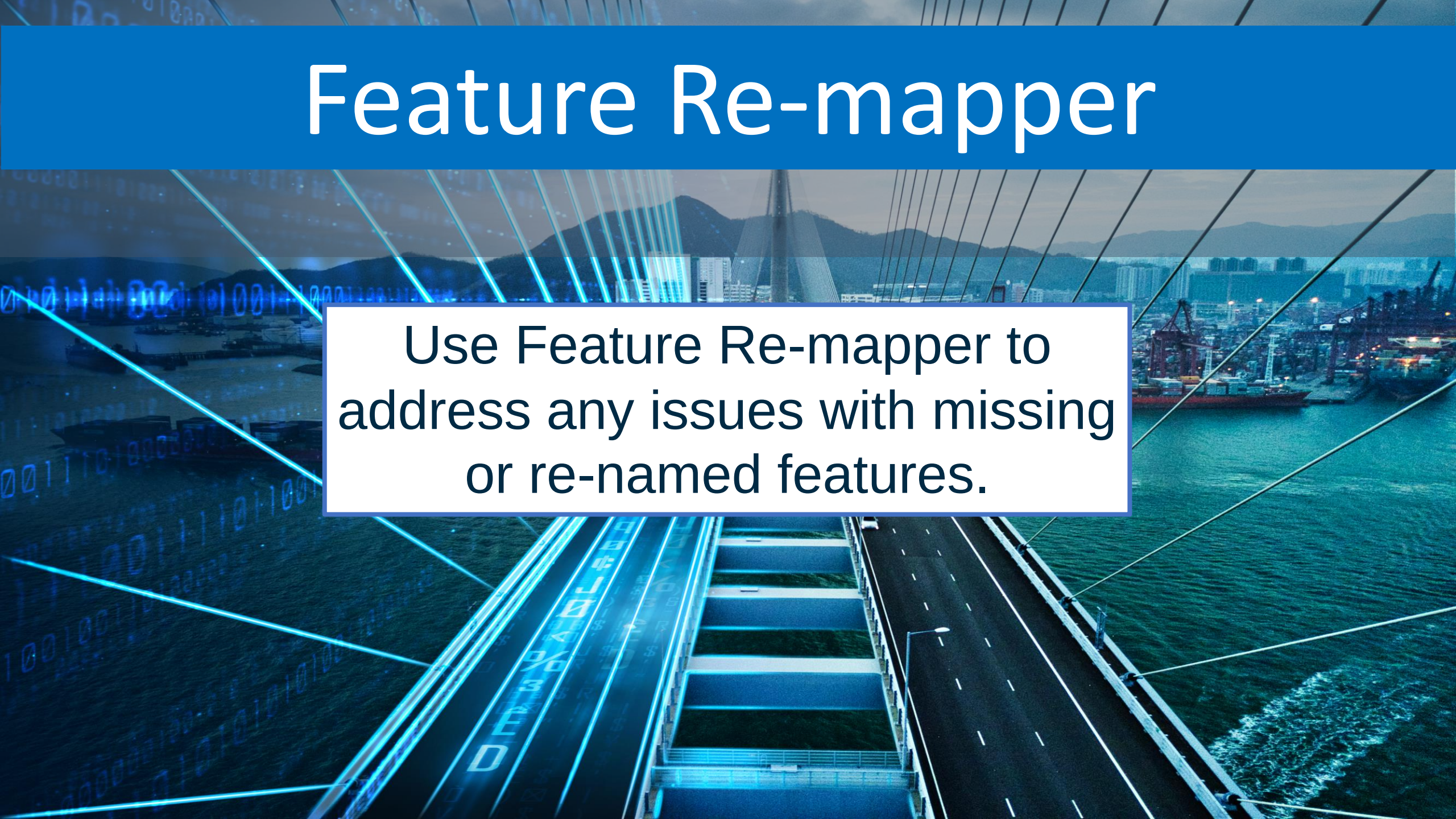
- Geometry Reports
- Superelevation Reports
- Corridor Reports
- Drainage Reports

Civil File Manager


Civil File Manager OpenRail Designer 10.10.01.03
File
View
Action
Help
D:\Projects\03-IHL Data
3dcorridormodel.dgn
grassgoregrading.dgn
rampa.dgn
rampa1.dgn
rampb.dgn
rampb1.dgn
rampb2.dgn
rampc.dgn
rampc1.dgn
rampd.dgn
route97.dgn
rt97_ext_corridor.dgn
electrical.dgn
geometry.dgn
rt97_ext_geometry.dgn
stationing.dgn
super.dgn
rw.dgn
signaling.dgn
structures.dgn
existinggeometry.dgn
constructionlimitshapes3d.dgn
rt97_ext_terrain.dgn
rt97_ext_terrainfeatures.dgn
terrain.dgn
terrainfeatures.dgn
terrain_withcutouts.dgn
utilities.dgn
Schema Details
Output
Upgraded XAttributes d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Upgrading XAttributes 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain\terrain_withcutouts.dgn
Upgraded XAttributes d:\projects\03-ihl data\survey & location\existing terrain\terrain_withcutouts.dgn
Cache Data before Upgrade 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain\terrainfeatures.dgn
Data Cached d:\projects\03-ihl data\survey & location\existing terrain\terrainfeatures.dgn
Cache Data before Upgrade 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Data Cached d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Cache Data before Upgrade 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain
\terrain_withcutouts.dgn
Data Cached d:\projects\03-ihl data\survey & location\existing terrain\terrain_withcutouts.dgn
Upgrade Schema 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain\terrainfeatures.dgn
Upgraded Schema d:\projects\03-ihl data\survey & location\existing terrain\terrainfeatures.dgn
Upgrade Schema 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Upgraded Schema d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Upgrade Schema 03.01.00.00 - d:\projects\03-ihl data\survey & location\existing terrain\terrain_withcutouts.dgn
Upgraded Schema d:\projects\03-ihl data\survey & location\existing terrain\terrain_withcutouts.dgn
Post Upgrade processing 04.08.53.01 - d:\projects\03-ihl data\survey & location\existing terrain\terrainfeatures.dgn
Post Upgrade >>DONE<< 04.08.53.01 - d:\projects\03-ihl data\survey & location\existing terrain\terrainfeatures.dgn
Post Upgrade processing 04.08.53.01 - d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Post Upgrade >>DONE<< 04.08.53.01 - d:\projects\03-ihl data\survey & location\existing terrain\terrain.dgn
Post Upgrade processing 04.08.53.01 - d:\projects\03-ihl data\survey & location\existing terrain\terrain_withcutouts.dgn
Post Upgrade >>DONE<< 04.08.53.01 - d:\projects\03-ihl data\survey & location\existing terrain
\terrain_withcutouts.dgn
Upgrading XAttributes 03.01.00.00 - d:\projects\03-ihl data\utilities\utilities.dgn
Upgraded XAttributes d:\projects\03-ihl data\utilities\utilities.dgn
Cache Data before Upgrade 03.01.00.00 - d:\projects\03-ihl data\utilities\utilities.dgn
Data Cached d:\projects\03-ihl data\utilities\utilities.dgn
Upgrade Schema 03.01.00.00 - d:\projects\03-ihl data\utilities\utilities.dgn
Upgraded Schema d:\projects\03-ihl data\utilities\utilities.dgn
Post Upgrade processing 04.08.53.01 - d:\projects\03-ihl data\utilities\utilities.dgn
Post Upgrade >>DONE<< 04.08.53.01 - d:\projects\03-ihl data\utilities\utilities.dgn
Upgrade Complete


Configuration
Examples C
Configuration
Recent WorkSets
Training and Exam
Training-Metr
No WorkSpace
No WorkSet
Projects
File
Home
Share
View
Pin to Quick access
Copy
Paste
Cut
Copy path
Paste shortcut
Clipboard
Move to
Copy to
Delete
Rename
Organize
New folder
New item
Easy access
New
Properties
Open
Edit
History
Open
Select all
Select none
Invert selection
Select
This PC
Data (D:)
Projects
Search Projects
Data (D:)
Batch & Utilities
Civil Datasets
Civil DOT'S
Civil Presentations
Help
Industry Strategy Group
iTwin Design Review
My Downloads
Personal
Product Management
Projects
03-IHL Data
pw_working
Success Force
Test
test2
Testing2
Testing3
Testing4
Testing5
User Advancement
vba
Videos - Geotech
Name
Date modified
Type
Size
03-IHL Data
9/15/2022 5:23 PM
File folder
1 item
1 item selected
Properties
Name
Training-Me...
Description
WorkSpace
Training and...
ProjectWise Project Properti
No project attached.
Show All Properties
Type here to search
5:45 PM
9/15/2022

Feature Re-mapper



Use Feature Re-mapper to address any issues with missing or re-named features.

Limitations

1. Only supports SS4 and SS10 data.
2. No support for D&U (SUDA).
3. Superelevation is *static*.

Import SUDA

- **From V8i, create a Selection Set of your SUDA data.**
- **Subsurface Utilities > Project > Export > Export Submodel.**
- **From ORD, Import Utilities > Import OpenFlows Submodel.**
- **Set/Modify Features.**

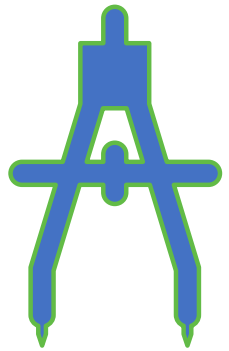
Video: Migrating GEOPAK SS4/SS10 Project Data to OpenRoads Designer

Product(s):	OpenRoads Designer, OpenRail Designer, OpenSite Designer
Version(s):	10.08.00.88+
Area:	General

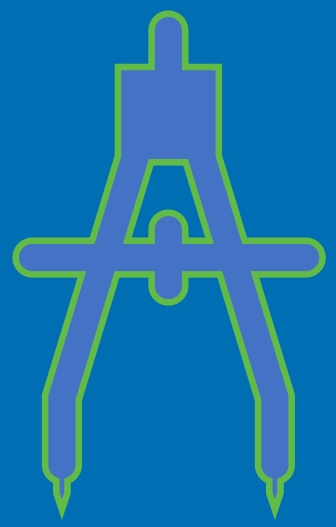
Video: Migrating InRoads SS4/SS10 Project Data to OpenRoads Designer

Product(s):	OpenRoads Designer, OpenRail Designer, OpenSite Designer
Version(s):	10.08+
Area:	General

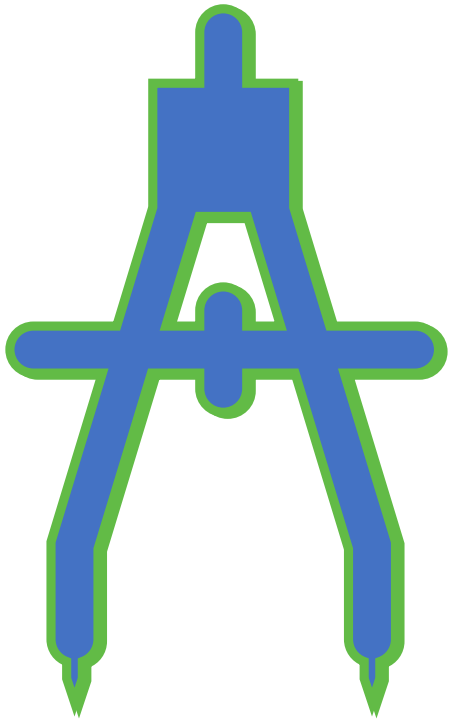
0:00 General Information
1:40 Reports for Validation
2:00 ITL Features
7:30 Upgrading Data Files
18:30 Sheets
18:50 Drainage
29:00 Validating with Reports



 © 2018 Bentley Systems, Incorporated



Sheets



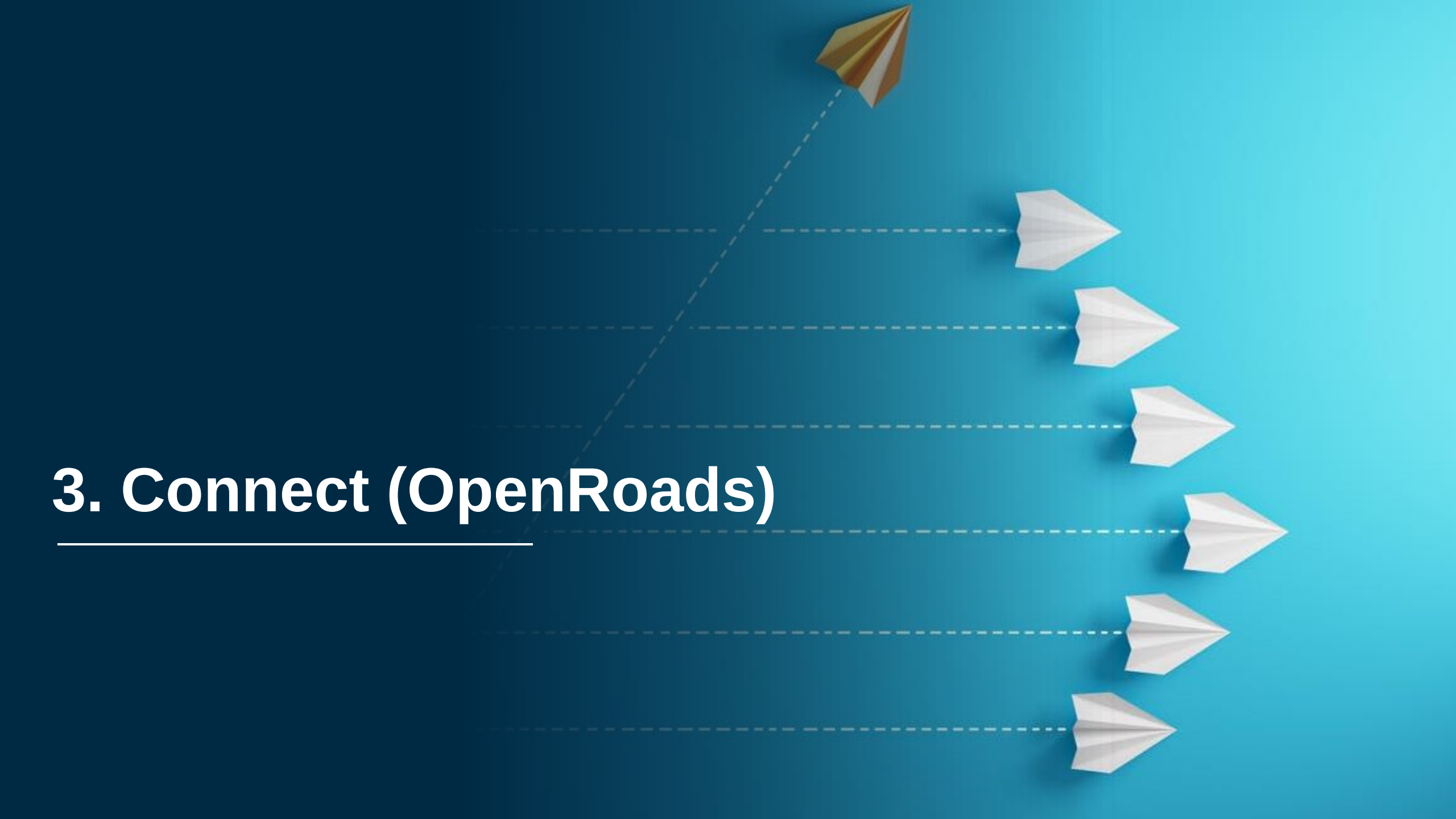
Depending on numerous factors, your sheets may or may not need to be regenerated.

Validate

- Geometry Reports
- Superelevation Reports
- Corridor Reports
- Drainage Reports

 © 2018 Bentley Systems, Incorporated

Bentley



3. Connect (OpenRoads)

Best Practice

Reports for Validation

Run reports in your current version

- Geometry Reports
- Superelevation Reports
- Corridor Reports
- Drainage Reports

Side-by-Side Installations

Side-by-Side

Gives you the ability to install multiple versions of *OpenX Designer* products on the same machine.

Introduced in 2021 R 1 (10.10.01.03).

Major vs. Minor

Side-by-Side installations only apply across **Major** versions. If you attempt to install a **Minor** version alongside it's parent it will upgrade as in the past.

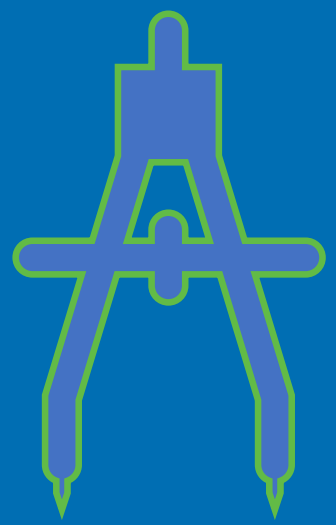
Side-by-Side: *10.**09**.01.33, 10.**10**.01.xx, 10.**11**.00.xx*

Upgrade Only: *10.**10**.00.xx, 10.**10**.01.xx, 10.**10**.02.xx*

OpenRoads Designer CONNECT Edition	Bentley Systems, Incorporated	10/4/2021	5.77 GB	10.9.2.3
OpenRoads Designer CE 2022 Release 1	Bentley Systems, Incorporated	9/13/2022	9.79 GB	10.11.20.24
OpenRoads Designer CE 2021 Release 2	Bentley Systems, Incorporated	6/27/2022	8.28 GB	10.10.23.15

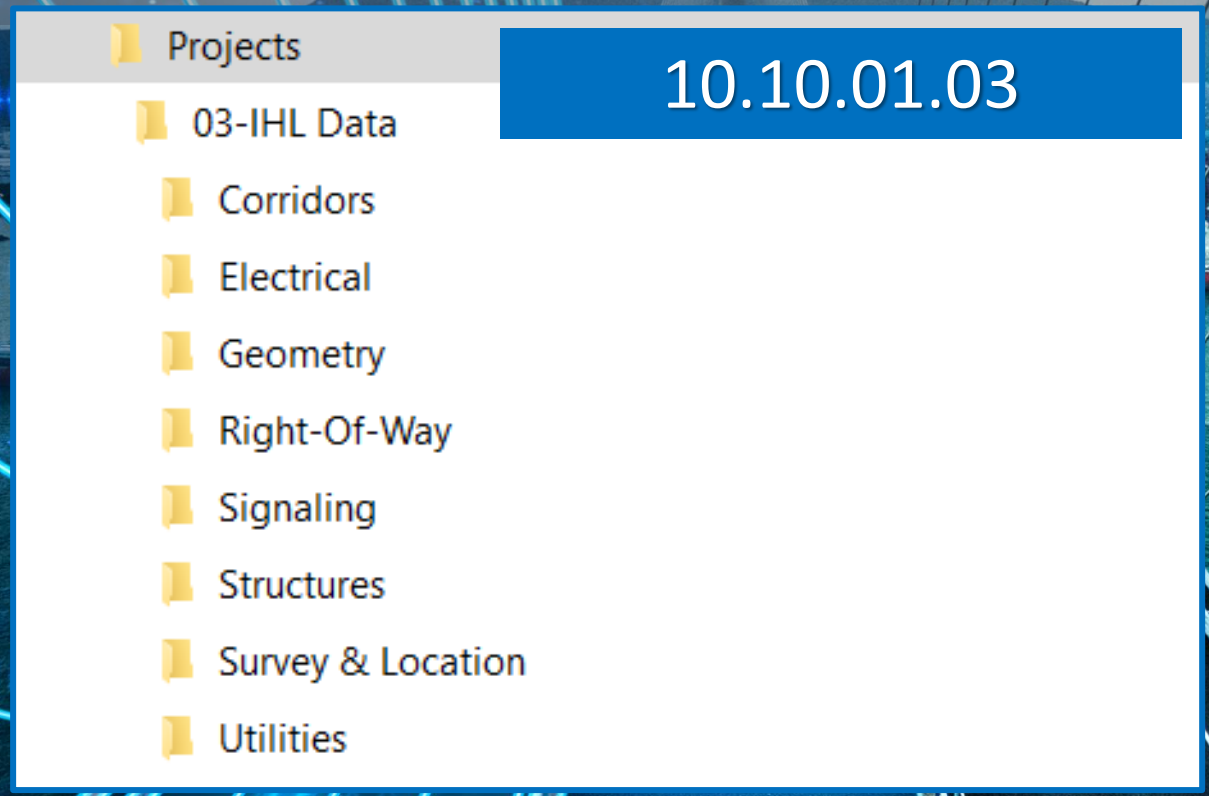
 © 2020 Bentley Systems, Incorporated

Bentley

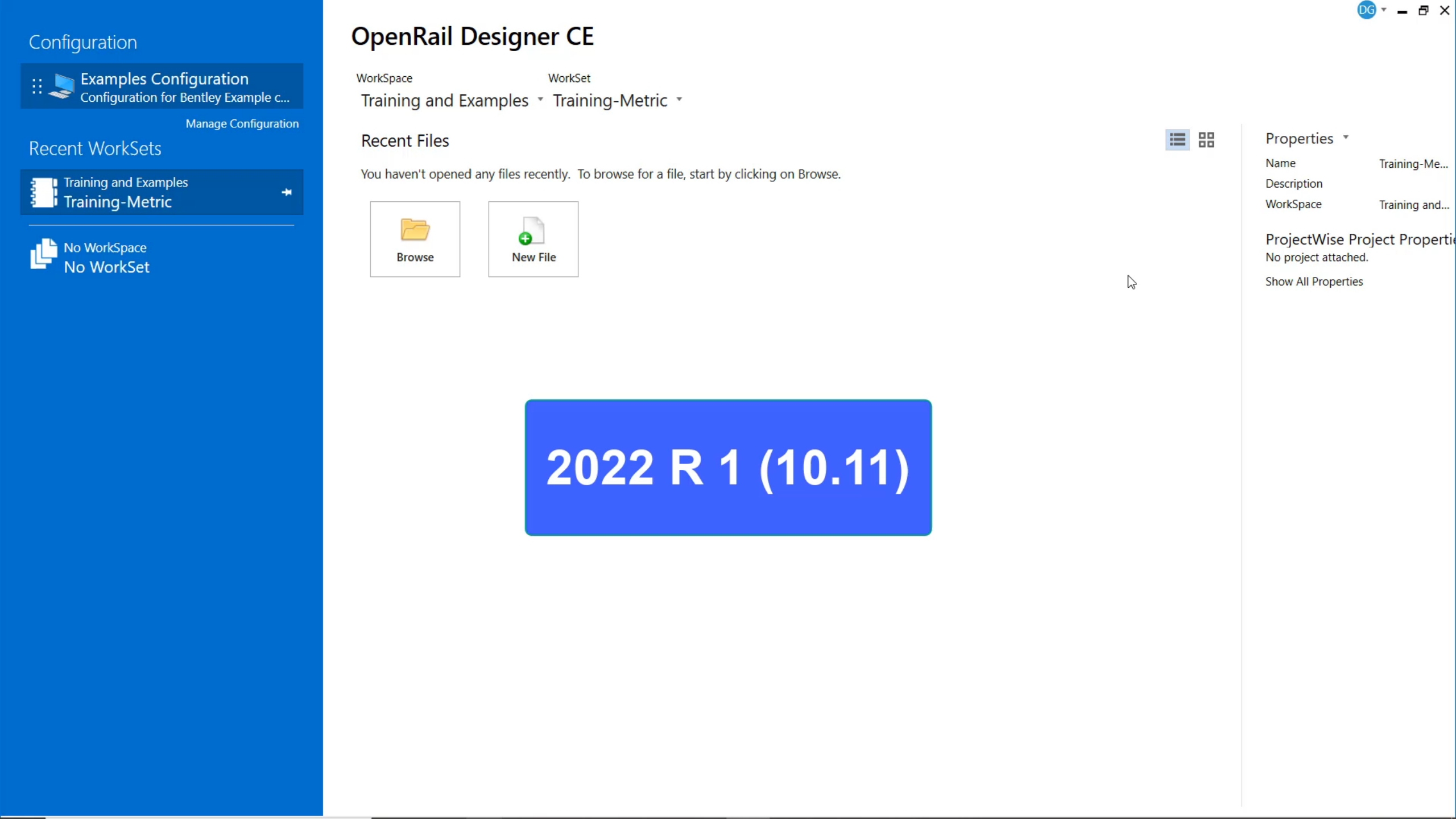


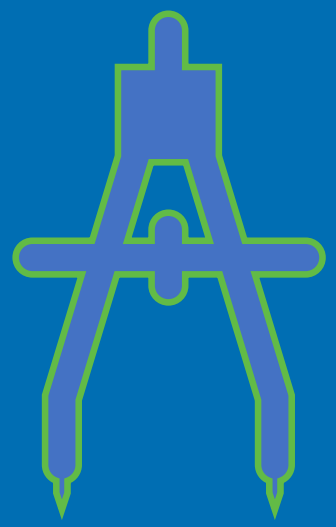
Upgrade (File)

2021 R 1 → 2022 R 1

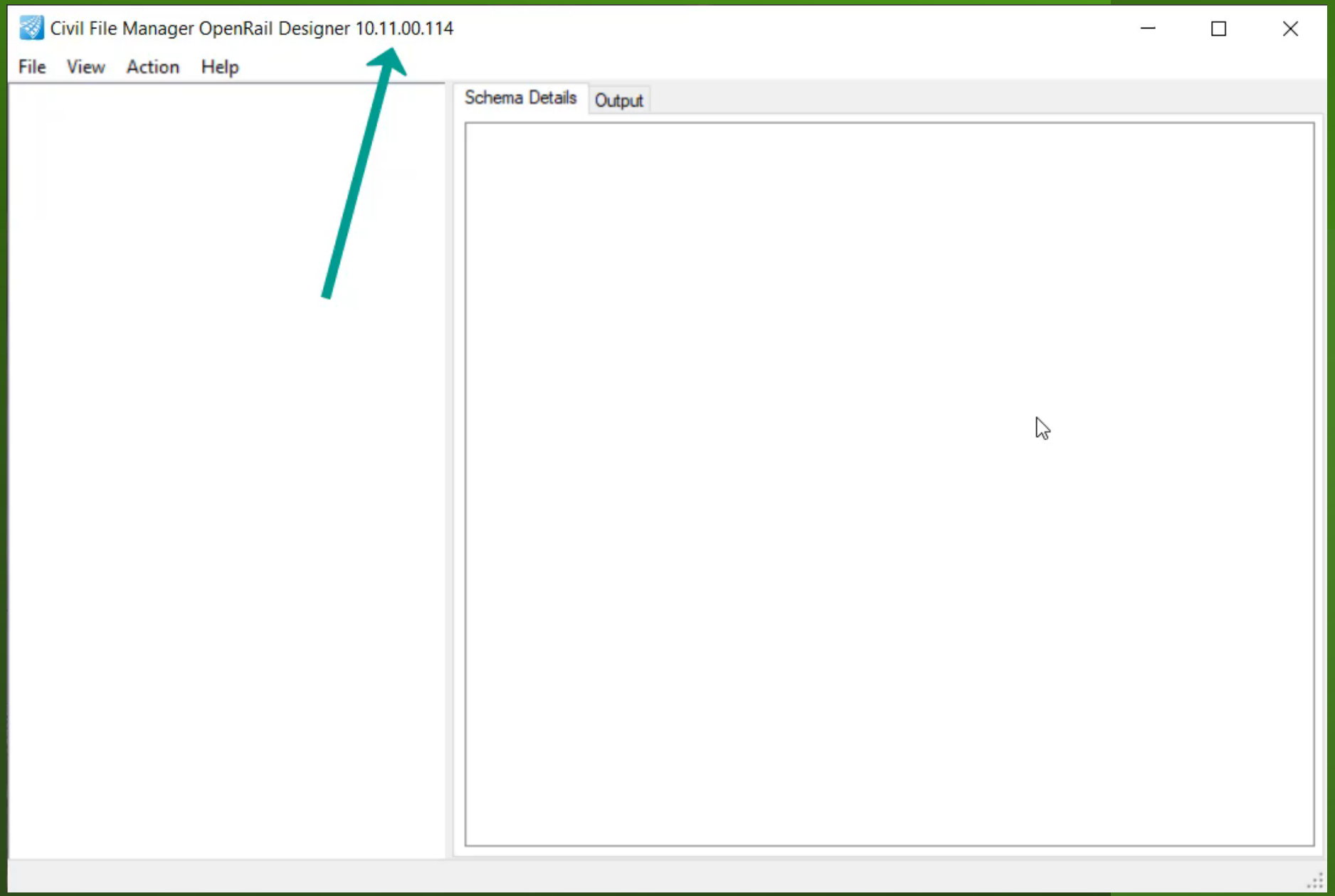


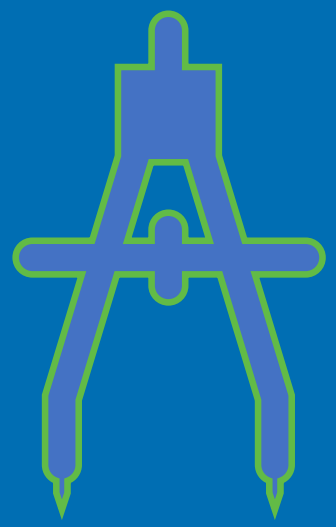
10.10.01.03


Configuration
Examples Configuration
Configuration for Bentley Example c...
Manage Configuration
Recent WorkSets
Training and Examples
Training-Metric
No WorkSpace
No WorkSet
OpenRail Designer CE
WorkSpace
Training and Examples
WorkSet
Training-Metric
Recent Files
You haven't opened any files recently. To browse for a file, start by clicking on Browse.
Browse
New File
Properties
Name
Training-Me...
Description
WorkSpace
Training and...
ProjectWise Project Properti
No project attached.
Show All Properties
2022 R 1 (10.11)

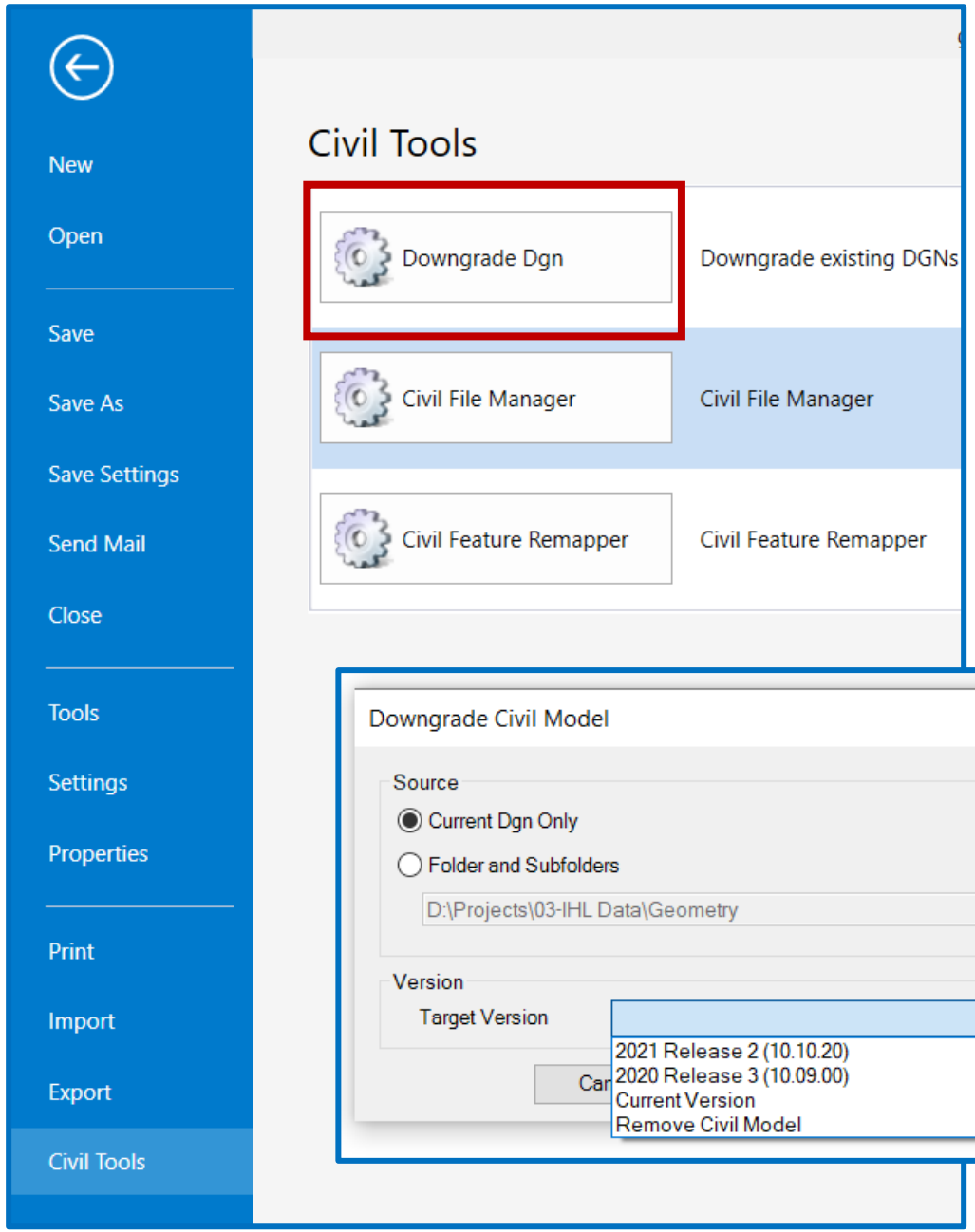


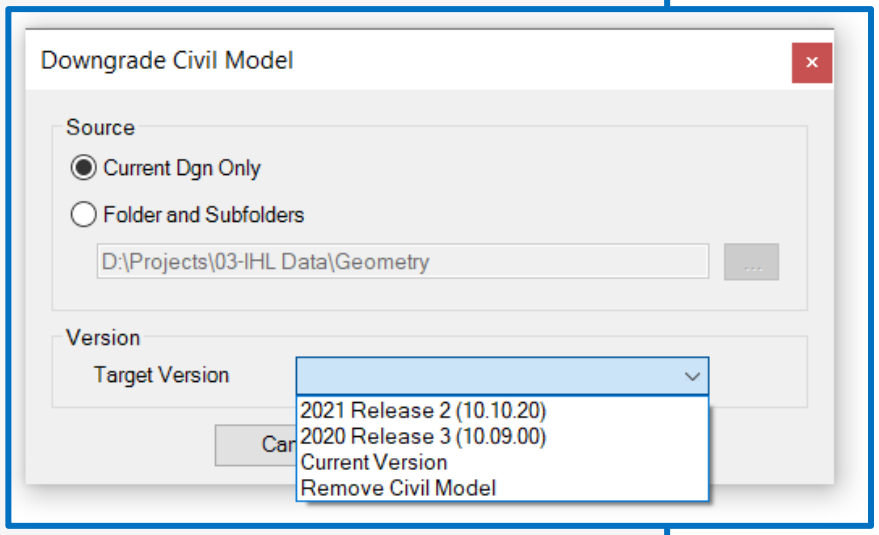
Upgrade (Project)


Civil File Manager OpenRail Designer 10.11.00.114
File
View
Action
Help
Schema Details
Output

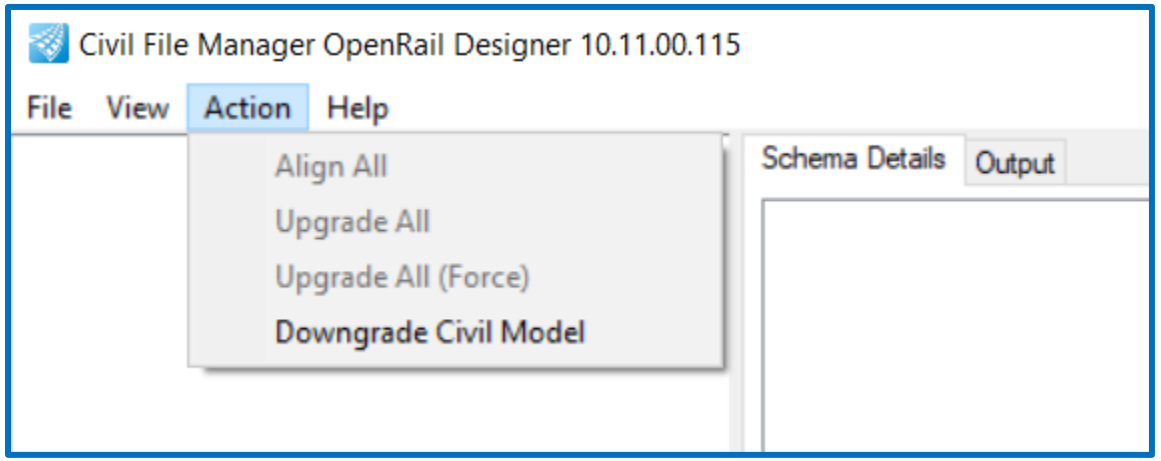


Downgrade



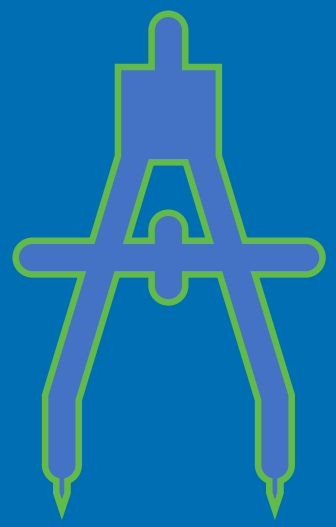


- Supports 2 previous versions.
- Current DGN or entire folder/project.
- *Remove Civil Model* removes all civil intelligence and leave graphics only.



 © 2020 Bentley Systems, Incorporated

Bentley

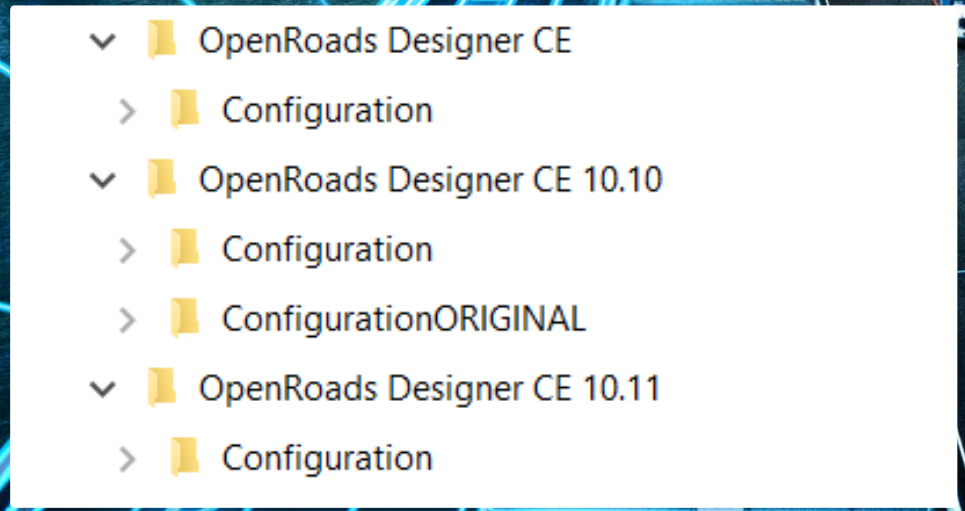


Workspace Compatibility

Workspace Compatibility

Here we have 3 workspaces, one for each version of OpenRoads Designer (10.09, 10.10 and 10.11).

C:\ProgramData\Bentley



Workspace Compatibility

Keep in mind that we can use an **older workspace** (e.g., 10.10) with a newer version of OpenRoads (e.g., 10.11).

Bentleyuser.dk meeting - 2022

Data Migration & Workflows

Bentley
Advancing Infrastructure

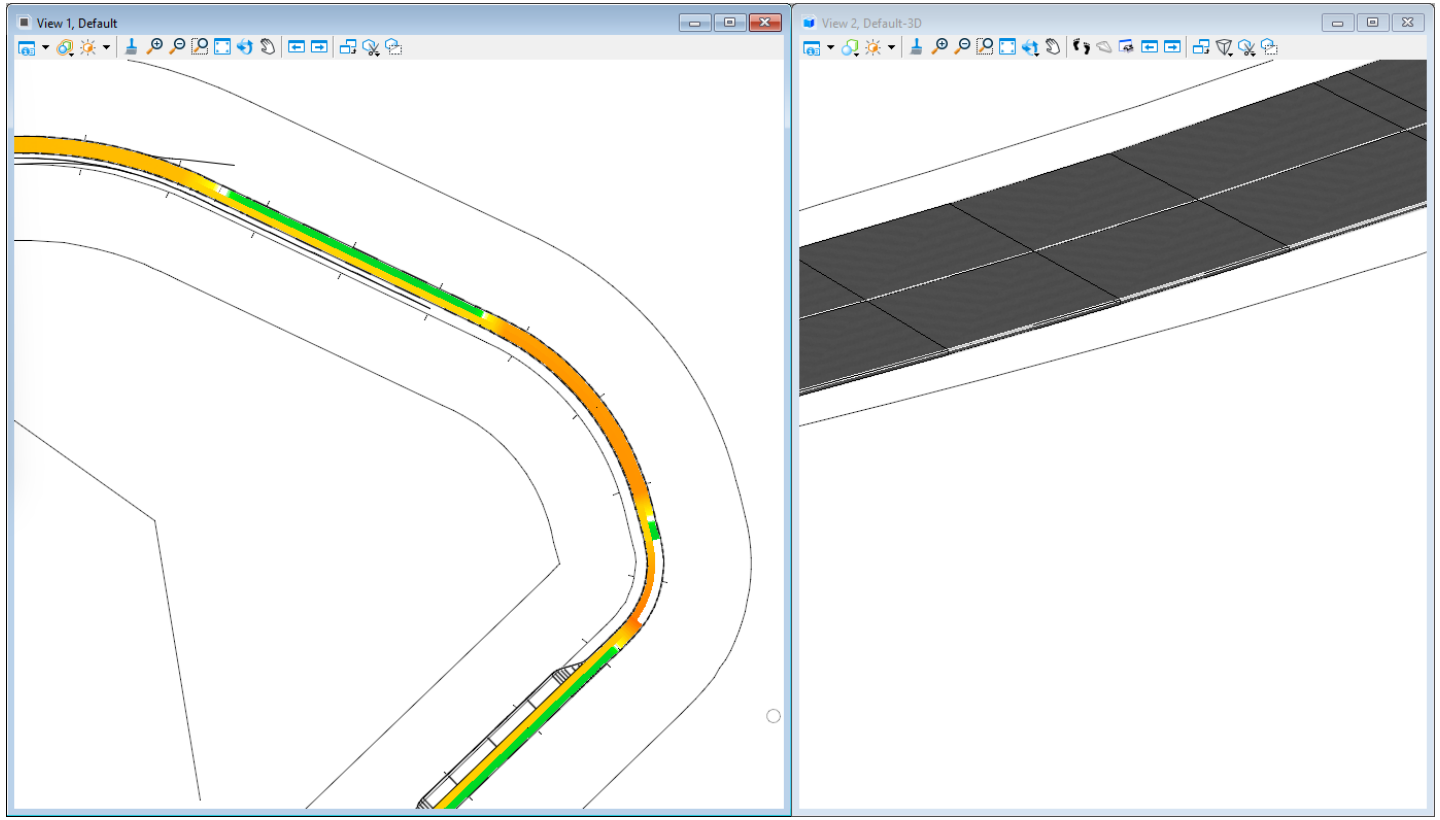
© 2022 Bentley Systems, Incorporated

Backup

 © 2022 Bentley Systems, Incorporated

My test data

- Meine Daten



 © 2022 Bentley Systems, Incorporated

Knowledge and Capabilities

- What do you want to achieve?
- What this tool can do for you?
- How to fit this into your workspace
- Do you begin from zero or do you have something like a concept of layers, templates, cell libraries …?

 © 2022 Bentley Systems, Incorporated

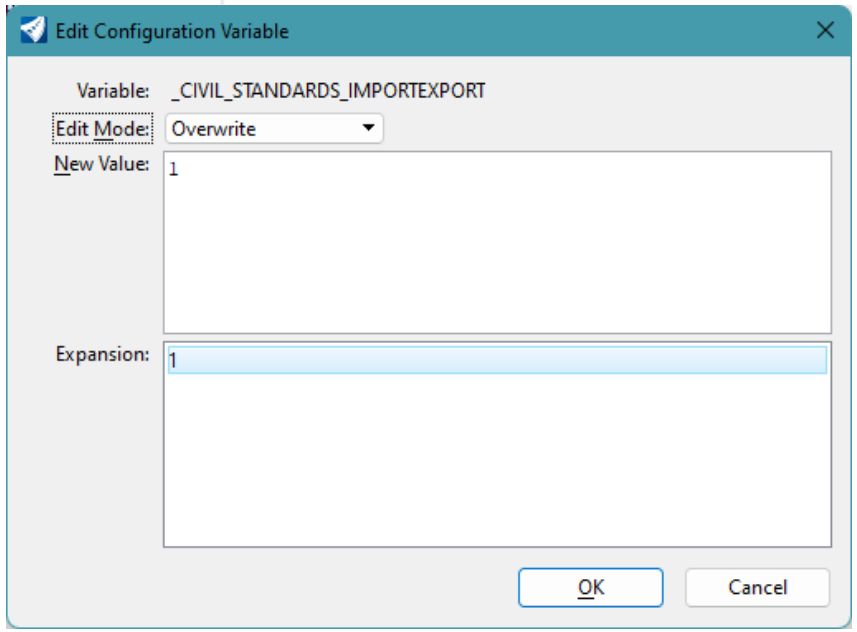
Bentley Advancing Infrastructure

Migration utilities

Who uses or used them?

[Migration Utilities - OpenRoads | OpenSite Wiki - OpenRoads | OpenSite - Bentley Communities]

Name	Date modified	Type	
DDB Extractor	12/2/2021 8:03 AM	File folder	
Element Template Utility	12/2/2021 8:03 AM	File folder	
Features Import Export	12/2/2021 8:03 AM	File folder	
Font Remap	12/2/2021 8:03 AM	File folder	
GEOPAK Survey SMD Exporter	12/2/2021 8:03 AM	File folder	
Save Levels To Elem Temp	12/2/2021 8:03 AM	File folder	
Scale Models	12/2/2021 8:03 AM	File folder	
Template Library ITL Converter	12/2/2021 8:03 AM	File folder	
Template Library ITL Feature ReMapper	12/2/2021 8:03 AM	File folder	
XIN Extractor	12/2/2021 8:03 AM	File folder	
XSL Style Sheets Converter	12/2/2021 8:03 AM	File folder	
Migration_Utilities_2020_R3.zip	4/8/2021 2:07 PM	Compressed (zipp...	11,153 KB



 © 2022 Bentley Systems, Incorporated

Bentley Advancing Infrastructure

Your and My comments

Workspace and Standards (i.e. building smart)

Model

Discipline

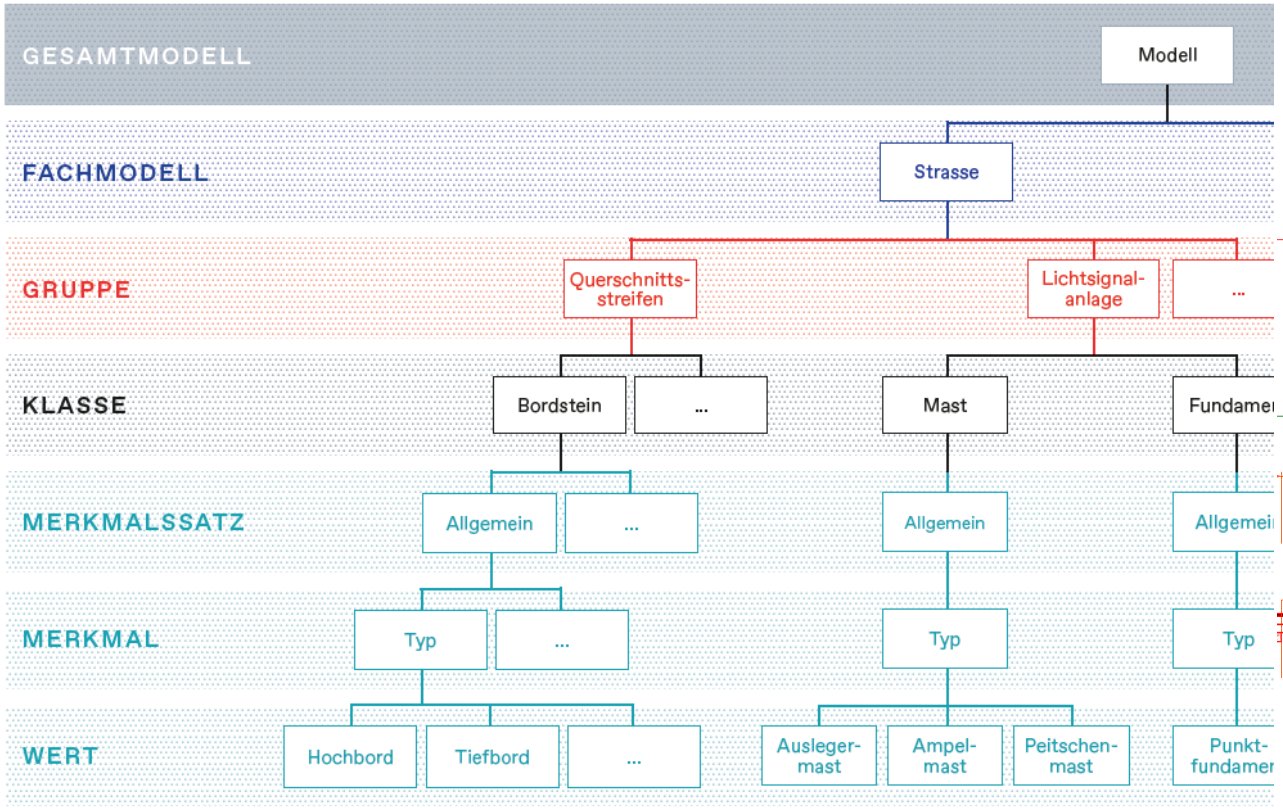
Group

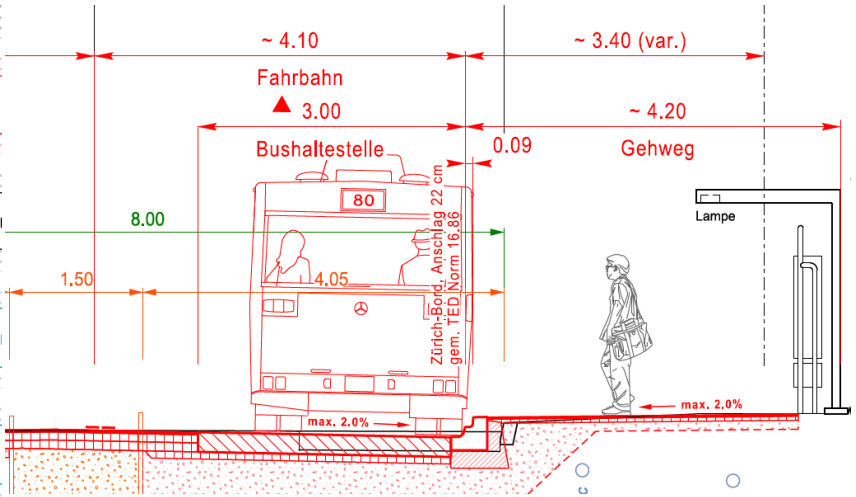
Class

Attribution.

Attribution..

Value





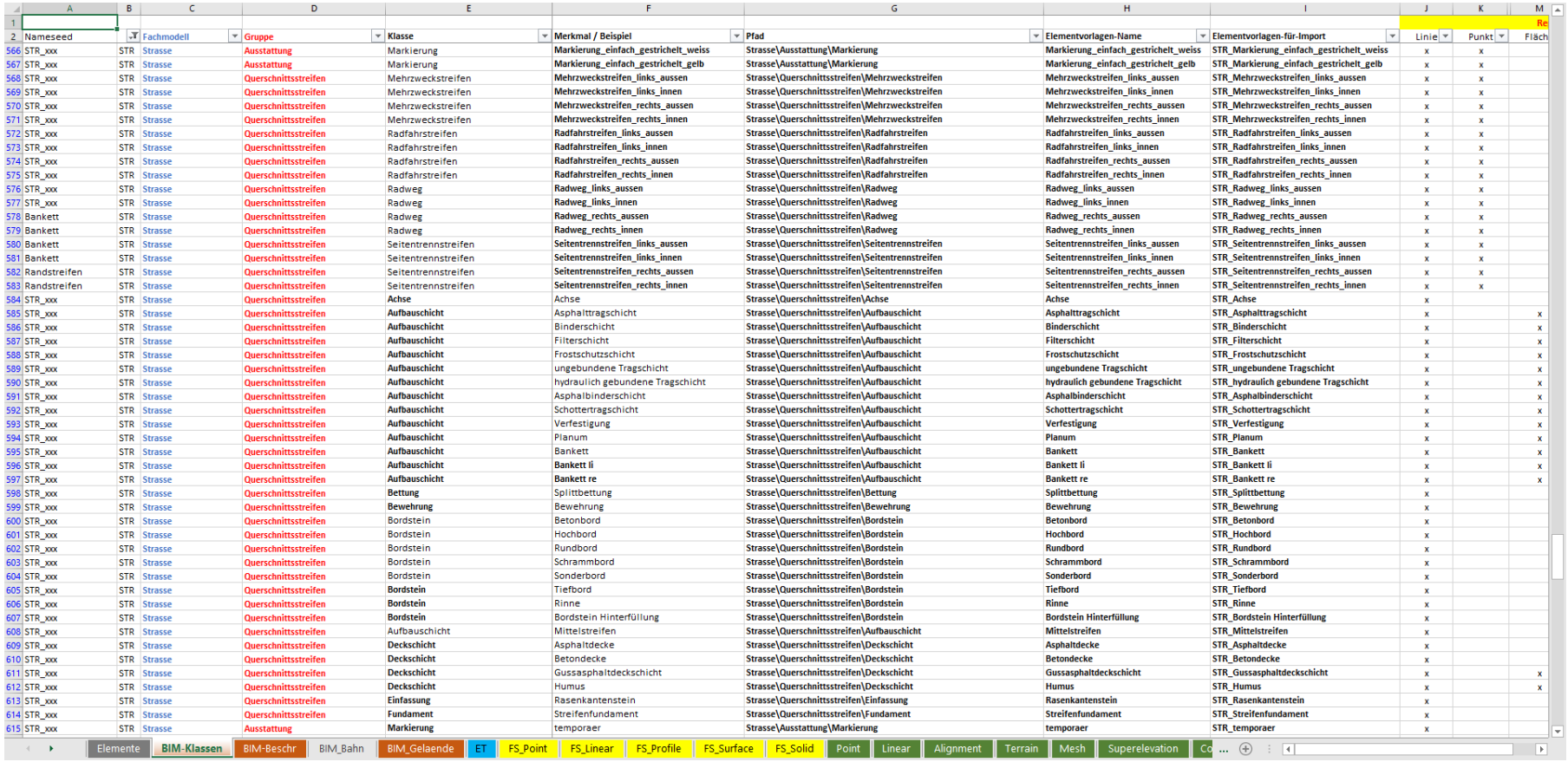
 © 2022 Bentley Systems, Incorporated

Bentley Advancing Infrastructure

Your and My comments

Do you create such tables?

If not, how do you order your feature definitions?



	A	B	C	D	E	F	G	H	I	J	K	M
1												Re
2	Nameseed		Fachmodell	Gruppe	Klasse	Merkmal / Beispiel	Pfad	Elementvorlagen-Name	Elementvorlagen-für-Import	Linie	Punkt	Fläch
566	STR_xxx	STR	Strasse	Ausstattung	Markierung	Markierung_einfach_gestrichelt_weiss	Strasse\Ausstattung\Markierung	Markierung_einfach_gestrichelt_weiss	STR_Markierung_einfach_gestrichelt_weiss	x	x	
567	STR_xxx	STR	Strasse	Ausstattung	Markierung	Markierung_einfach_gestrichelt_gelb	Strasse\Ausstattung\Markierung	Markierung_einfach_gestrichelt_gelb	STR_Markierung_einfach_gestrichelt_gelb	x	x	
568	STR_xxx	STR	Strasse	Querschnittsstreifen	Mehrzweckstreifen	Mehrzweckstreifen_links_aussen	Strasse\Querschnittsstreifen\Mehrzweckstreifen	Mehrzweckstreifen_links_aussen	STR_Mehrzweckstreifen_links_aussen	x	x	
569	STR_xxx	STR	Strasse	Querschnittsstreifen	Mehrzweckstreifen	Mehrzweckstreifen_links_innen	Strasse\Querschnittsstreifen\Mehrzweckstreifen	Mehrzweckstreifen_links_innen	STR_Mehrzweckstreifen_links_innen	x	x	
570	STR_xxx	STR	Strasse	Querschnittsstreifen	Mehrzweckstreifen	Mehrzweckstreifen_rechts_aussen	Strasse\Querschnittsstreifen\Mehrzweckstreifen	Mehrzweckstreifen_rechts_aussen	STR_Mehrzweckstreifen_rechts_aussen	x	x	
571	STR_xxx	STR	Strasse	Querschnittsstreifen	Mehrzweckstreifen	Mehrzweckstreifen_rechts_innen	Strasse\Querschnittsstreifen\Mehrzweckstreifen	Mehrzweckstreifen_rechts_innen	STR_Mehrzweckstreifen_rechts_innen	x	x	
572	STR_xxx	STR	Strasse	Querschnittsstreifen	Radfahrstreifen	Radfahrstreifen_links_aussen	Strasse\Querschnittsstreifen\Radfahrstreifen	Radfahrstreifen_links_aussen	STR_Radfahrstreifen_links_aussen	x	x	
573	STR_xxx	STR	Strasse	Querschnittsstreifen	Radfahrstreifen	Radfahrstreifen_links_innen	Strasse\Querschnittsstreifen\Radfahrstreifen	Radfahrstreifen_links_innen	STR_Radfahrstreifen_links_innen	x	x	
574	STR_xxx	STR	Strasse	Querschnittsstreifen	Radfahrstreifen	Radfahrstreifen_rechts_aussen	Strasse\Querschnittsstreifen\Radfahrstreifen	Radfahrstreifen_rechts_aussen	STR_Radfahrstreifen_rechts_aussen	x	x	
575	STR_xxx	STR	Strasse	Querschnittsstreifen	Radfahrstreifen	Radfahrstreifen_rechts_innen	Strasse\Querschnittsstreifen\Radfahrstreifen	Radfahrstreifen_rechts_innen	STR_Radfahrstreifen_rechts_innen	x	x	
576	STR_xxx	STR	Strasse	Querschnittsstreifen	Radweg	Radweg_links_aussen	Strasse\Querschnittsstreifen\Radweg	Radweg_links_aussen	STR_Radweg_links_aussen	x	x	
577	STR_xxx	STR	Strasse	Querschnittsstreifen	Radweg	Radweg_links_innen	Strasse\Querschnittsstreifen\Radweg	Radweg_links_innen	STR_Radweg_links_innen	x	x	
578	Bankett	STR	Strasse	Querschnittsstreifen	Radweg	Radweg_rechts_aussen	Strasse\Querschnittsstreifen\Radweg	Radweg_rechts_aussen	STR_Radweg_rechts_aussen	x	x	
579	Bankett	STR	Strasse	Querschnittsstreifen	Radweg	Radweg_rechts_innen	Strasse\Querschnittsstreifen\Radweg	Radweg_rechts_innen	STR_Radweg_rechts_innen	x	x	
580	Bankett	STR	Strasse	Querschnittsstreifen	Seitentrennstreifen	Seitentrennstreifen_links_aussen	Strasse\Querschnittsstreifen\Seitentrennstreifen	Seitentrennstreifen_links_aussen	STR_Seitentrennstreifen_links_aussen	x	x	
581	Bankett	STR	Strasse	Querschnittsstreifen	Seitentrennstreifen	Seitentrennstreifen_links_innen	Strasse\Querschnittsstreifen\Seitentrennstreifen	Seitentrennstreifen_links_innen	STR_Seitentrennstreifen_links_innen	x	x	
582	Randstreifen	STR	Strasse	Querschnittsstreifen	Seitentrennstreifen	Seitentrennstreifen_rechts_aussen	Strasse\Querschnittsstreifen\Seitentrennstreifen	Seitentrennstreifen_rechts_aussen	STR_Seitentrennstreifen_rechts_aussen	x	x	
583	Randstreifen	STR	Strasse	Querschnittsstreifen	Seitentrennstreifen	Seitentrennstreifen_rechts_innen	Strasse\Querschnittsstreifen\Seitentrennstreifen	Seitentrennstreifen_rechts_innen	STR_Seitentrennstreifen_rechts_innen	x	x	
584	STR_xxx	STR	Strasse	Querschnittsstreifen	Achse	Achse	Strasse\Querschnittsstreifen\Achse	Achse	STR_Achse	x		
585	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Asphalttragschicht	Strasse\Querschnittsstreifen\Aufbauschicht	Asphalttragschicht	STR_Asphalttragschicht	x		x
586	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Binderschicht	Strasse\Querschnittsstreifen\Aufbauschicht	Binderschicht	STR_Binderschicht	x		x
587	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Filterschicht	Strasse\Querschnittsstreifen\Aufbauschicht	Filterschicht	STR_Filterschicht	x		x
588	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Frostschutzschicht	Strasse\Querschnittsstreifen\Aufbauschicht	Frostschutzschicht	STR_Frostschutzschicht	x		x
589	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	ungebundene Tragschicht	Strasse\Querschnittsstreifen\Aufbauschicht	ungebundene Tragschicht	STR_ungebundene Tragschicht	x		x
590	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	hydraulich gebundene Tragschicht	Strasse\Querschnittsstreifen\Aufbauschicht	hydraulich gebundene Tragschicht	STR_hydraulich gebundene Tragschicht	x		x
591	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Asphalbinderschicht	Strasse\Querschnittsstreifen\Aufbauschicht	Asphalbinderschicht	STR_Asphalbinderschicht	x		x
592	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Schottertragschicht	Strasse\Querschnittsstreifen\Aufbauschicht	Schottertragschicht	STR_Schottertragschicht	x		x
593	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Verfestigung	Strasse\Querschnittsstreifen\Aufbauschicht	Verfestigung	STR_Verfestigung	x		x
594	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Planum	Strasse\Querschnittsstreifen\Aufbauschicht	Planum	STR_Planum	x		x
595	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Bankett	Strasse\Querschnittsstreifen\Aufbauschicht	Bankett	STR_Bankett	x		x
596	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Bankett li	Strasse\Querschnittsstreifen\Aufbauschicht	Bankett li	STR_Bankett li	x		x
597	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Bankett re	Strasse\Querschnittsstreifen\Aufbauschicht	Bankett re	STR_Bankett re	x		x
598	STR_xxx	STR	Strasse	Querschnittsstreifen	Bettung	Splittbettung	Strasse\Querschnittsstreifen\Bettung	Splittbettung	STR_Splittbettung	x		
599	STR_xxx	STR	Strasse	Querschnittsstreifen	Bewehrung	Bewehrung	Strasse\Querschnittsstreifen\Bewehrung	Bewehrung	STR_Bewehrung	x		
600	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Betonbord	Strasse\Querschnittsstreifen\Bordstein	Betonbord	STR_Betonbord	x		
601	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Hochbord	Strasse\Querschnittsstreifen\Bordstein	Hochbord	STR_Hochbord	x		
602	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Rundbord	Strasse\Querschnittsstreifen\Bordstein	Rundbord	STR_Rundbord	x		
603	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Schrammbord	Strasse\Querschnittsstreifen\Bordstein	Schrammbord	STR_Schrammbord	x		
604	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Sonderbord	Strasse\Querschnittsstreifen\Bordstein	Sonderbord	STR_Sonderbord	x		
605	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Tiefbord	Strasse\Querschnittsstreifen\Bordstein	Tiefbord	STR_Tiefbord	x		
606	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Rinne	Strasse\Querschnittsstreifen\Bordstein	Rinne	STR_Rinne	x		
607	STR_xxx	STR	Strasse	Querschnittsstreifen	Bordstein	Bordstein Hinterfüllung	Strasse\Querschnittsstreifen\Bordstein	Bordstein Hinterfüllung	STR_Bordstein Hinterfüllung	x		
608	STR_xxx	STR	Strasse	Querschnittsstreifen	Aufbauschicht	Mittelstreifen	Strasse\Querschnittsstreifen\Aufbauschicht	Mittelstreifen	STR_Mittelstreifen	x		
609	STR_xxx	STR	Strasse	Querschnittsstreifen	Deckschicht	Asphaltdecke	Strasse\Querschnittsstreifen\Deckschicht	Asphaltdecke	STR_Asphaltdecke	x		
610	STR_xxx	STR	Strasse	Querschnittsstreifen	Deckschicht	Betondecke	Strasse\Querschnittsstreifen\Deckschicht	Betondecke	STR_Betondecke	x		
611	STR_xxx	STR	Strasse	Querschnittsstreifen	Deckschicht	Gussasphaltdeckschicht	Strasse\Querschnittsstreifen\Deckschicht	Gussasphaltdeckschicht	STR_Gussasphaltdeckschicht	x		x
612	STR_xxx	STR	Strasse	Querschnittsstreifen	Deckschicht	Humus	Strasse\Querschnittsstreifen\Deckschicht	Humus	STR_Humus	x		x
613	STR_xxx	STR	Strasse	Querschnittsstreifen	Einfassung	Rasenkantenstein	Strasse\Querschnittsstreifen\Einfassung	Rasenkantenstein	STR_Rasenkantenstein	x		
614	STR_xxx	STR	Strasse	Querschnittsstreifen	Fundament	Streifenfundament	Strasse\Querschnittsstreifen\Fundament	Streifenfundament	STR_Streifenfundament	x		
615	STR_xxx	STR	Strasse	Ausstattung	Markierung	temporaer	Strasse\Ausstattung\Markierung	temporaer	STR_temporaer	x		

Elemente | BIM-Klassen | BIM-Beschr | BIM_Bahn | BIM_Gelaende | ET | FS_Point | FS_Linear | FS_Profile | FS_Surface | FS_Solid | Point | Linear | Alignment | Terrain | Mesh | Superelevation | Co ...

 © 2022 Bentley Systems, Incorporated

Bentley Advancing Infrastructure