Bentley®
Advancing Infrastructure

Civil Product Update

Ian Rosam – Director, Product Management, Civil Design

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Agenda

- Civil Update
- OpenRoads Brand

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Civil Update

Where are we today

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Bentley Civil Releases

SELECTseries2 – Rail products

Bentley RailTrack (BRT)

Power RailTrack (PRT)

Power Overhead Line (PROL)

Synchronised Road and Rail product release

- "OpenRail" adoption of dynamic modeling technology
- SUE / SUDA
- Incremental enhancments

Bentley Product Stream

OpenRoads V8i Product Lines

Common Modelling Solution

SELECTseries3

SELECTseries3 – MR1

Incremental enhancments and improvments Sub Surface Utility Engineering

SELECTseries3 – MR2

Incremental enhancments and improvments Model Interoprability improvements

SELECTseries4

SELECTseries4 – MR1

SELECTseries4 – MR2 with CONNECT Services

Synchronised Road and Rail product release

- CONNECTION Client
- Windows 10
- Incremental enhancements

Q3/4 2013 | Q1/Q2 2014 | Q3/4 2014 | Q1/Q2 2015 | Q3/4 2015 | Q1/2 2016

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SELECTseries 4 Maintenance Release 2

General Product Enhancements

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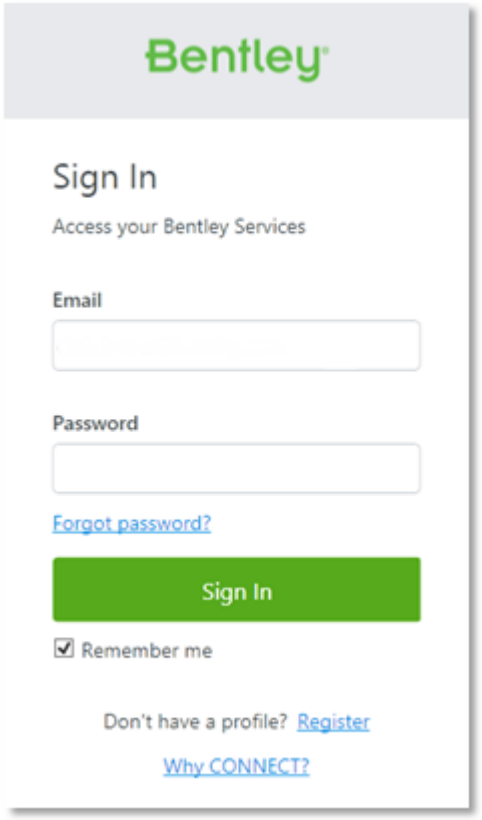
SELECTSeries 4 Maintenance Release 2

- General Enhancements
  - Delivery of Bentley CONNECTION Client.



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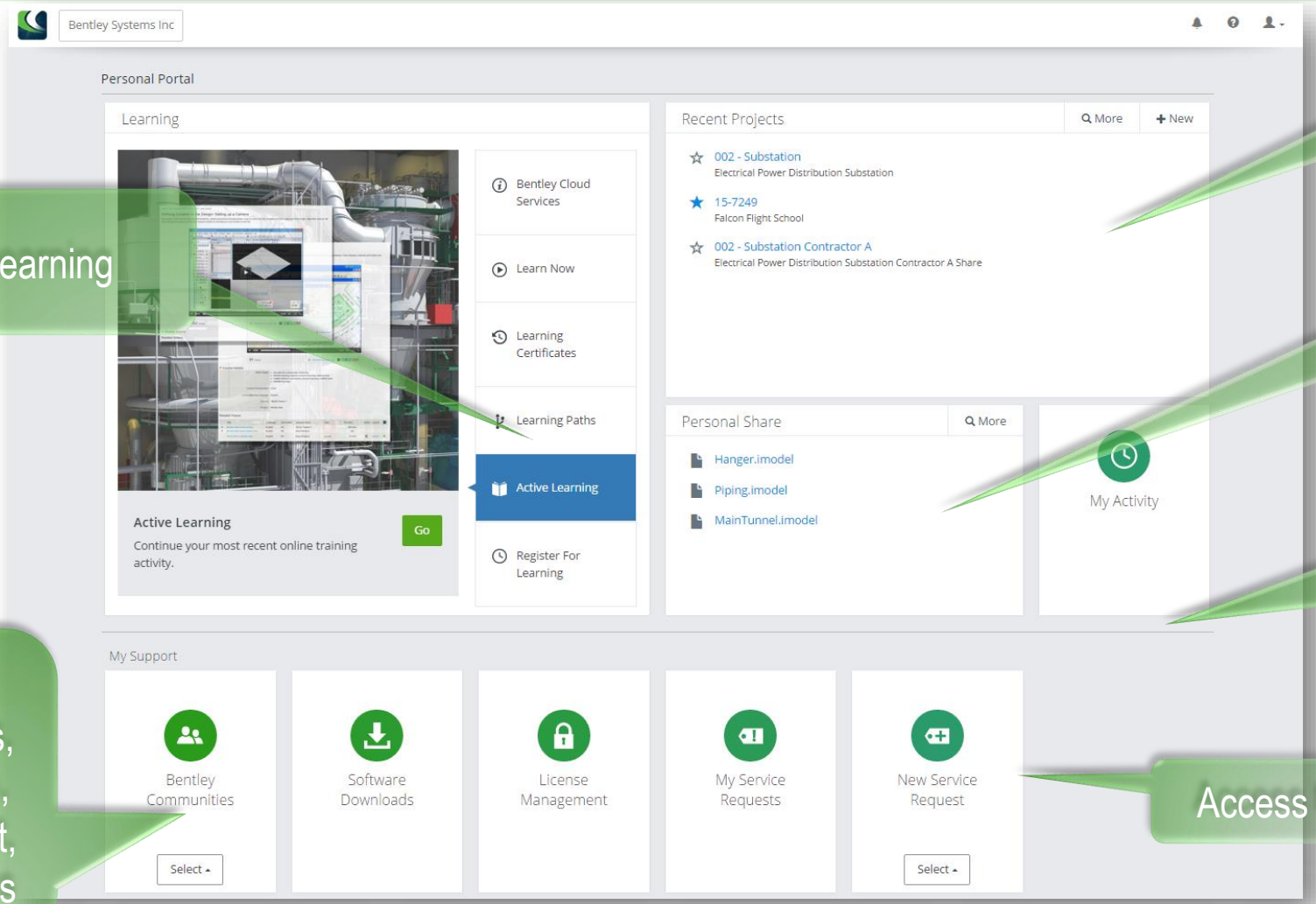
Personal Portal



Access Learning

Direct access to your projects

Share i-models and pdf's with other CONNECTED users

Monitor your application usage and activity

Direct access to Bentley Communities, Software Downloads, License Management, and Service Requests

Access to Service Requests

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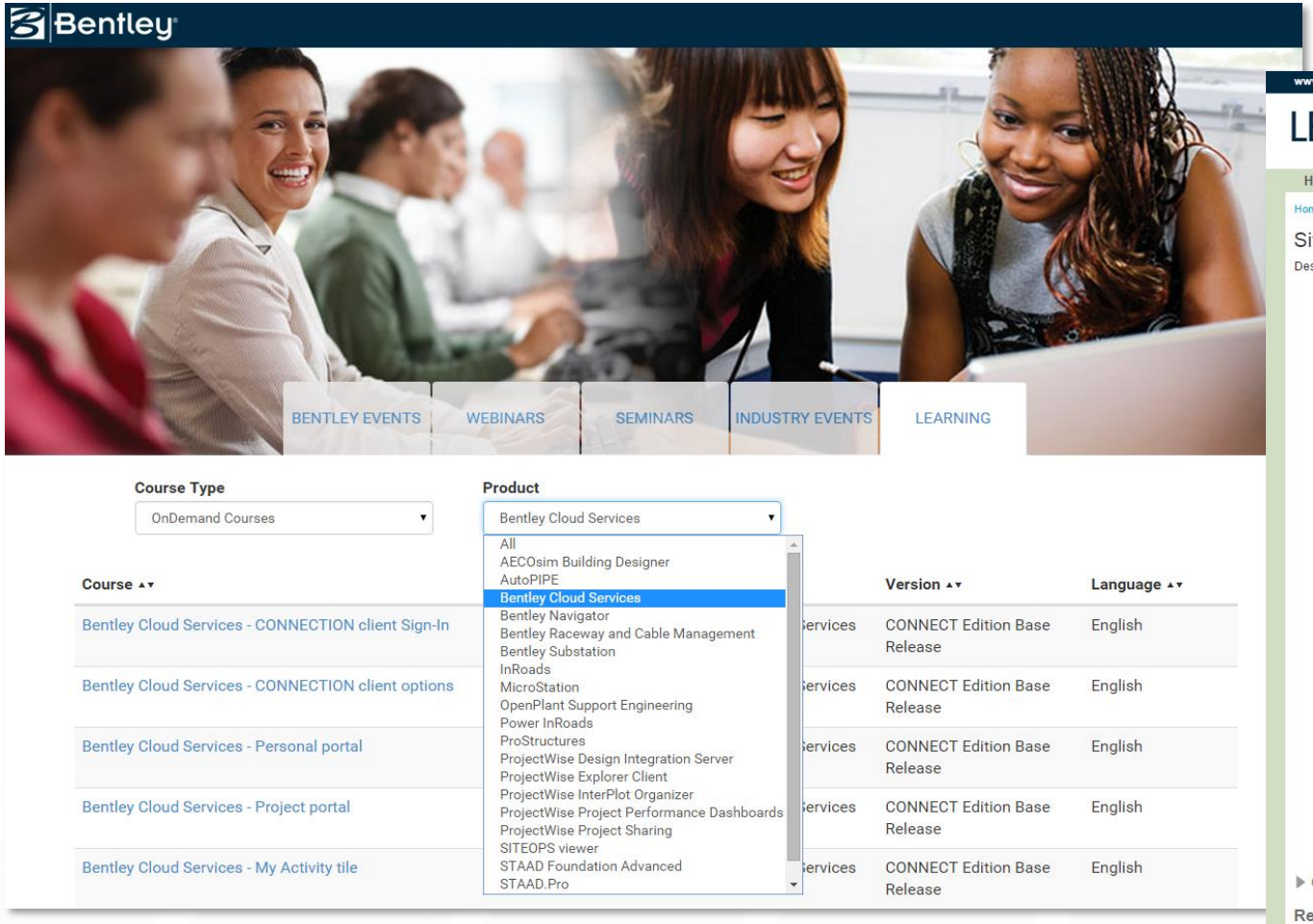
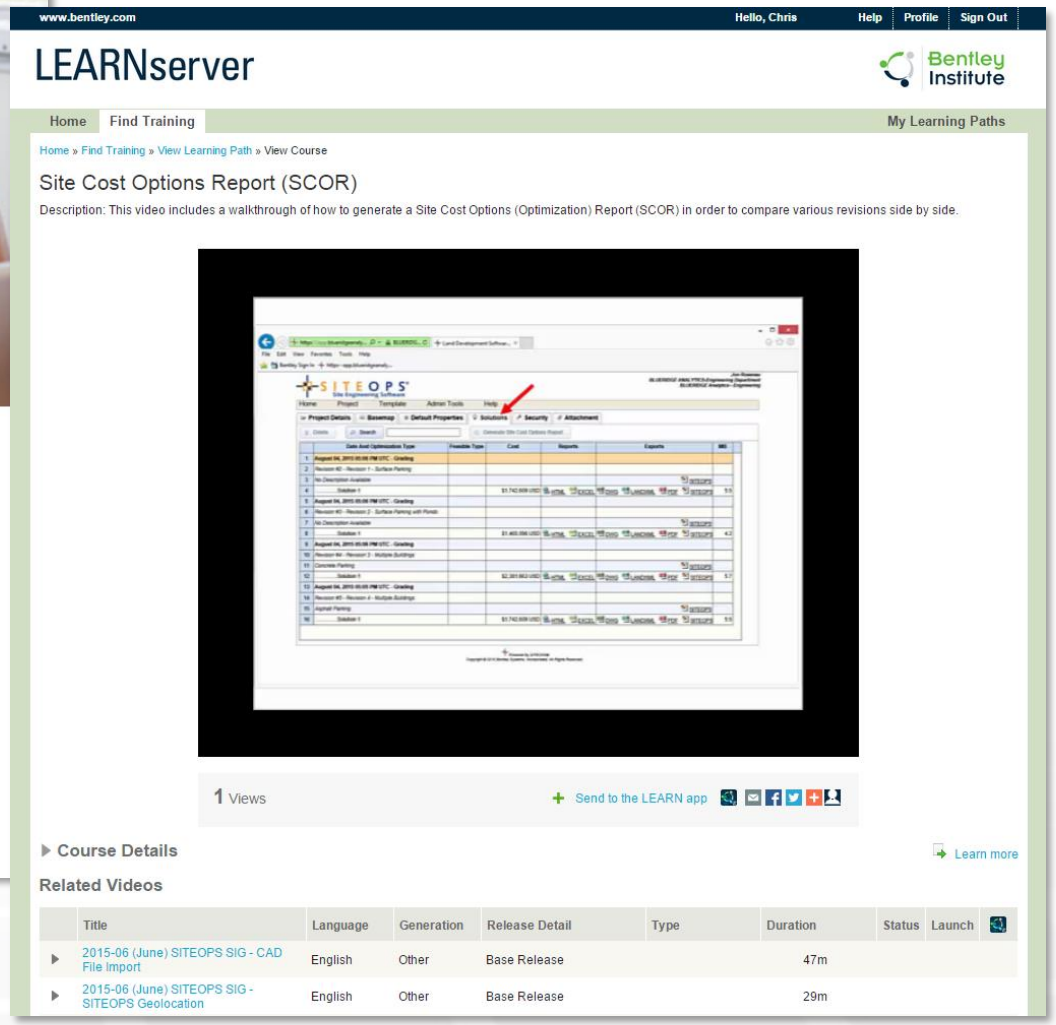
Direct Access to LEARN





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SELECTSeries 4 Maintenance Release 2

- General Enhancements
  - Support for Windows 10.
  - Updated product versions of
    - Subsurface Utilities Design and Analysis.
    - Subsurface Utility Engineering.
    - Bentley Descartes.
    - Bentley Map.

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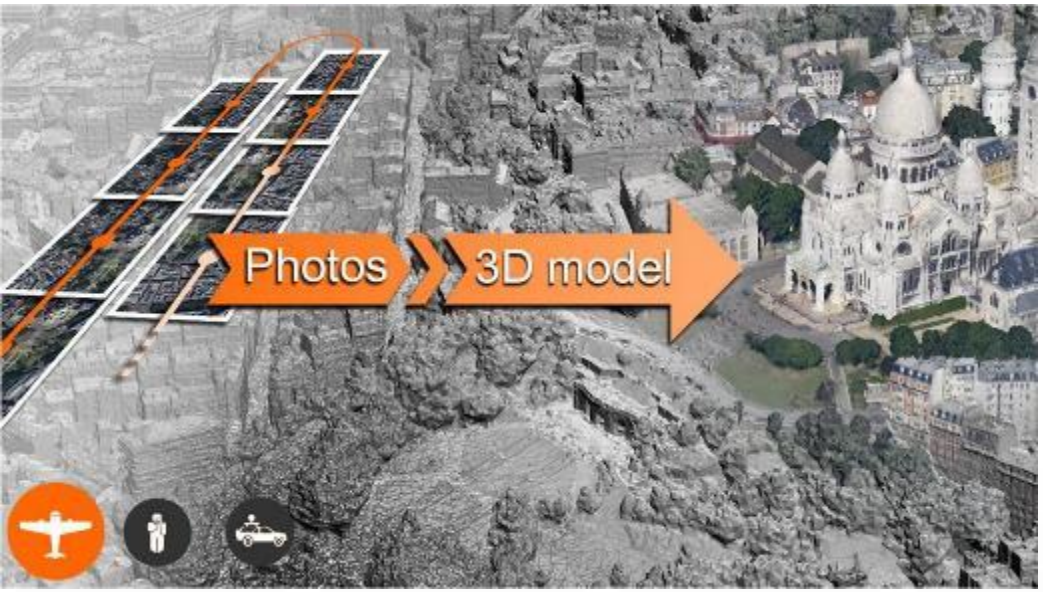
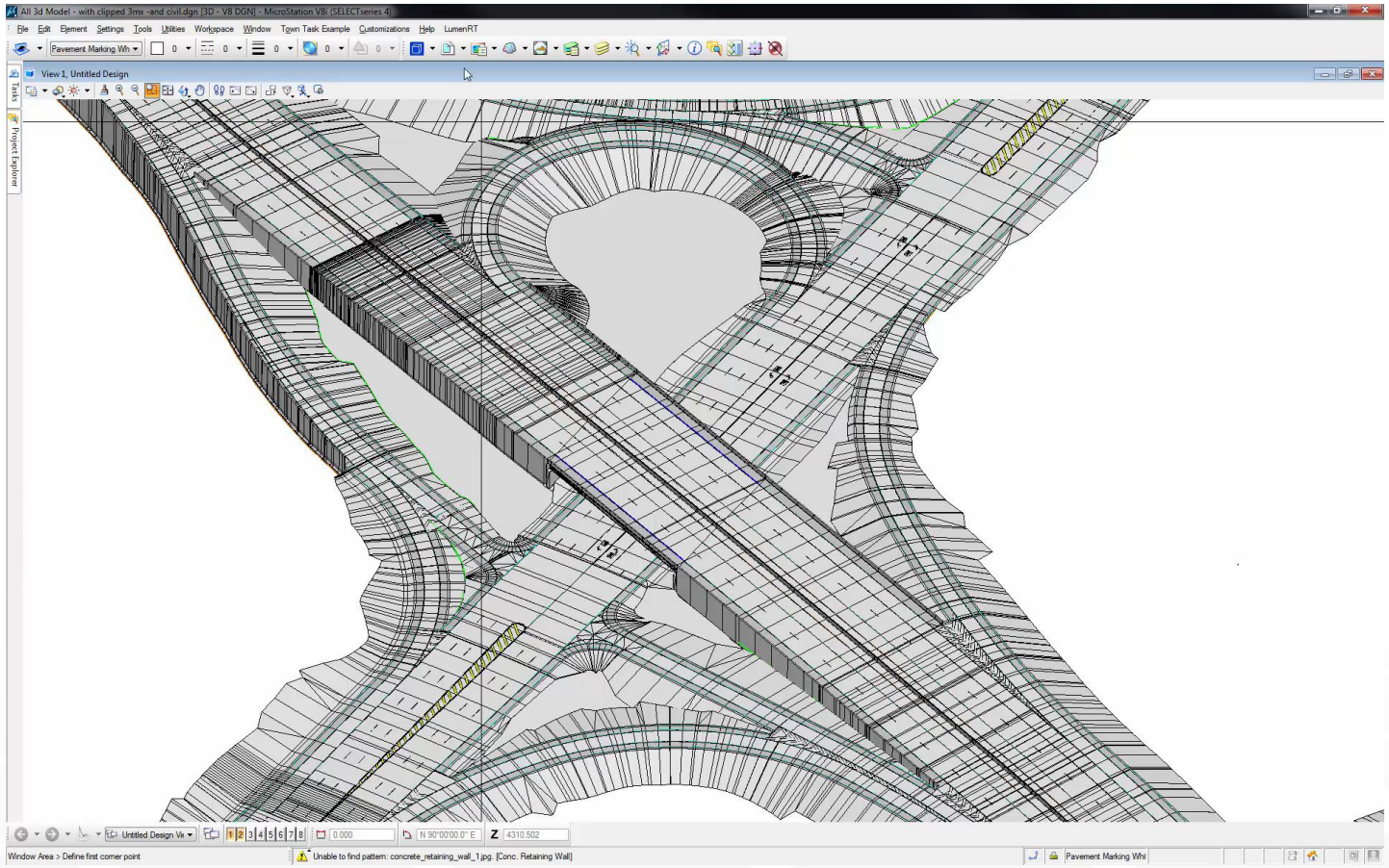
SELECTSeries 4 Maintenance Release 2

- General Enhancements
  - Support for Reality Mesh – 3mx file





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SELECTSeries 4 Maintenance Release 2

- Modeling Enhancements
  - Ability to reclassify Components in End Area Volume tool to Unsuitable Material(s).
  - Added Import/Export capabilities for the values assigned for the End Area Volume tool.
  - Added ability to delete Dynamic Cross Sections by right mouse button clicking in Dynamic section and selecting Delete Dynamic Cross Section View.
  - Increased the amount of vertices that can be included in complex shape for clipping.
- Survey Enhancements
  - The copy command no longer creates a survey linear feature or point by default. The graphic created would be just a MicroStation graphic. To enable the <Copy> tool to create a survey linear feature or point set the following configuration variable: CIVIL_SURVEY_RETAIN_SURVEY_ON_COPY=1

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SELECTSeries 4 Maintenance Release 2

- Modeling Enhancements
  - Enhanced support capability to deal with ‘static’ corridors
  - From MR2 a ‘copy’ of the geometry is retained with the Corridor file – benefit if the geom file is detached or swapped out the corridor can still be updated

http://communities.bentley.com/products/road___site_design/w/road_and_site_design__wiki/28223.video-corridor-reattach

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Civil Futures

Beyond SELECTseries 4

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OpenRoads

Digital Construction

Detailed Design

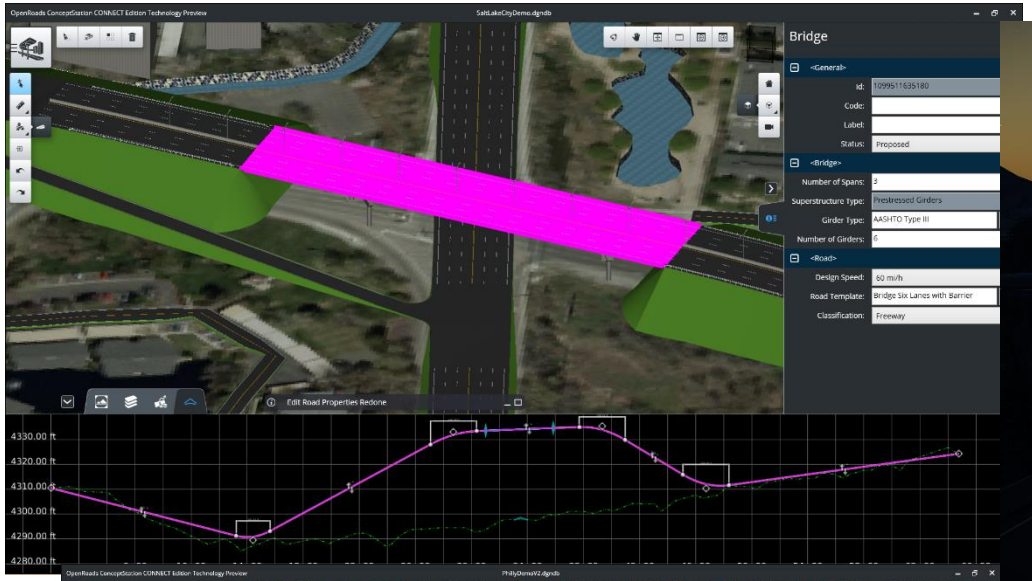
Conceptual Design

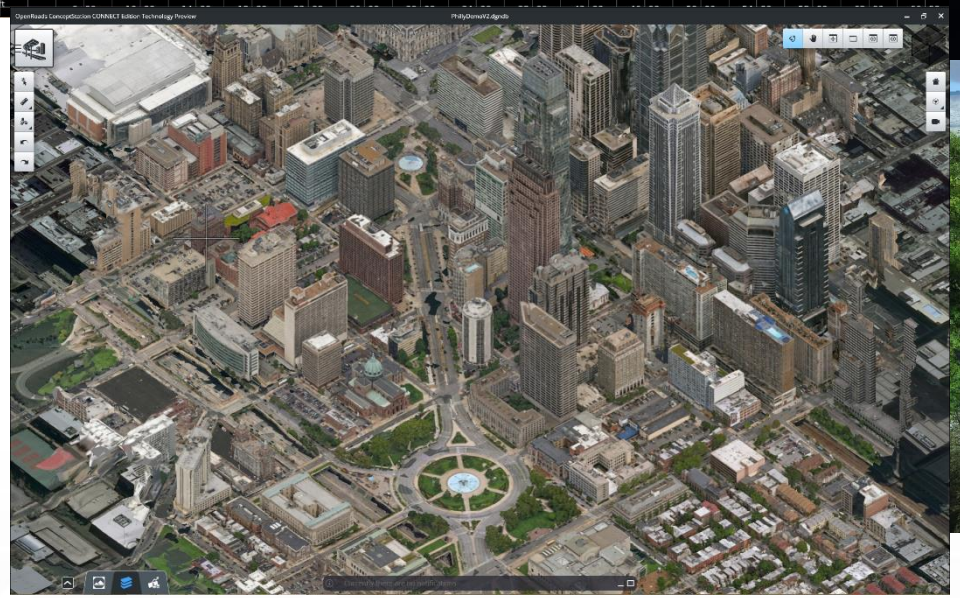
Digital Construction

Detailed Design

Conceptual Design

OpenRoads ConceptStation





Innovative and inspiring

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Better communication

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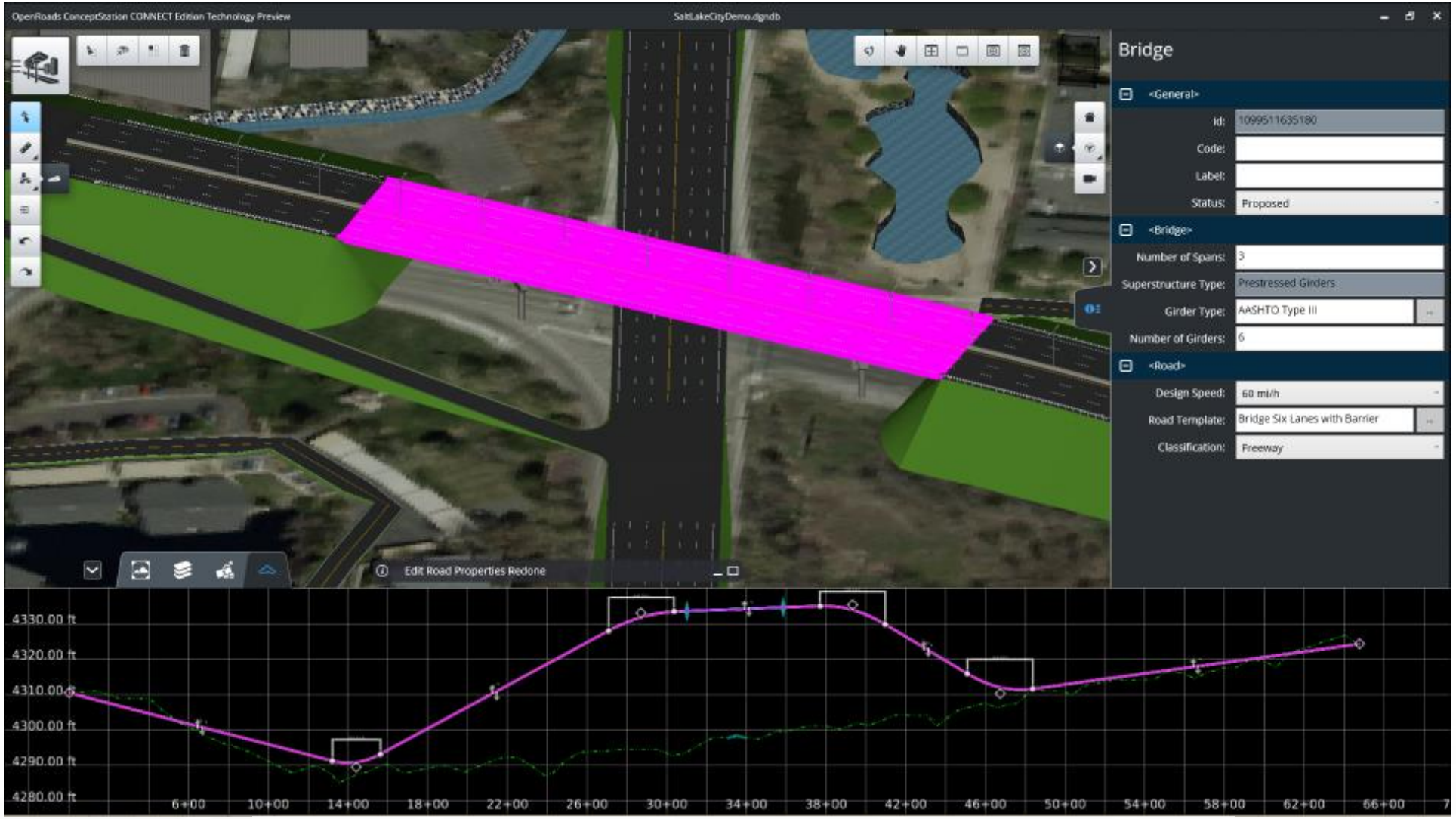

More efficient prototyping

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Smarter trade-offs

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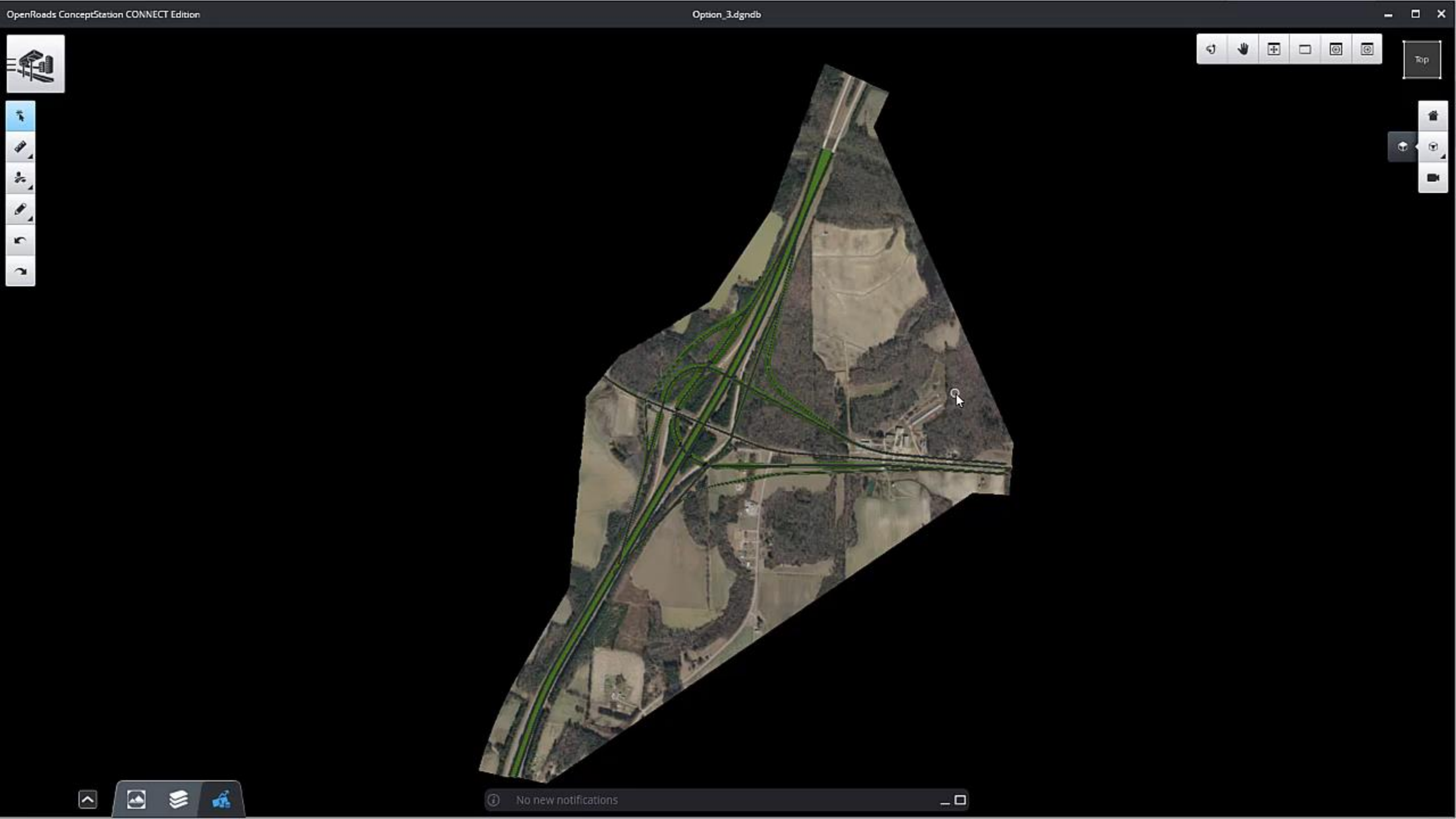
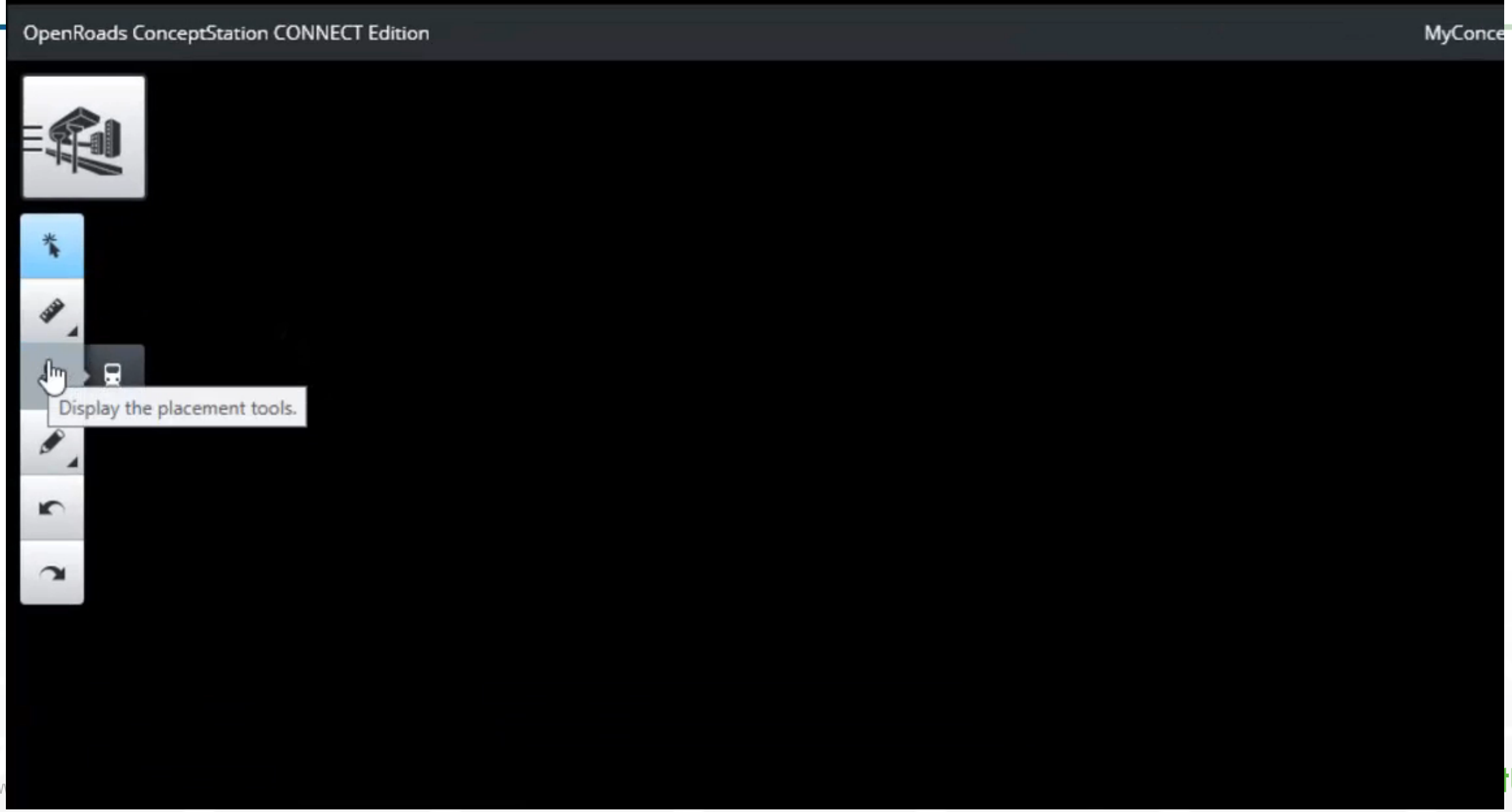
OpenRoads ConceptStation CONNECT Edition
Option3_Start.dgndb
Resize Undone


OpenRoads ConceptStation CONNECT Edition
Option_3.dgndb
Top
No new notifications


OpenRoads ConceptStation CONNECT Edition
MyConce
Display the placement tools.

Announcement – Bentley and PTV VISSIM

- Bentley and PTV are proud to announce the shortly available integration between OpenRoads ConceptStation and PTV VISSIM

"PTV **Vissim** is recognized in the **US market as the industry standard software for microscopic traffic simulation**. We are constantly working on evolving our solution to ensure we pre-empt market requirements. By collaborating closely with Bentley on OpenRoads ConceptStation, we are making sure users of both companies benefit. Bentley and PTV Group now offer clients a **smooth and convenient workflow process** that integrates two of the top design and traffic engineering software platforms worldwide," said **Miller Crockart, Vice President Traffic Global Sales & Marketing at PTV Group**

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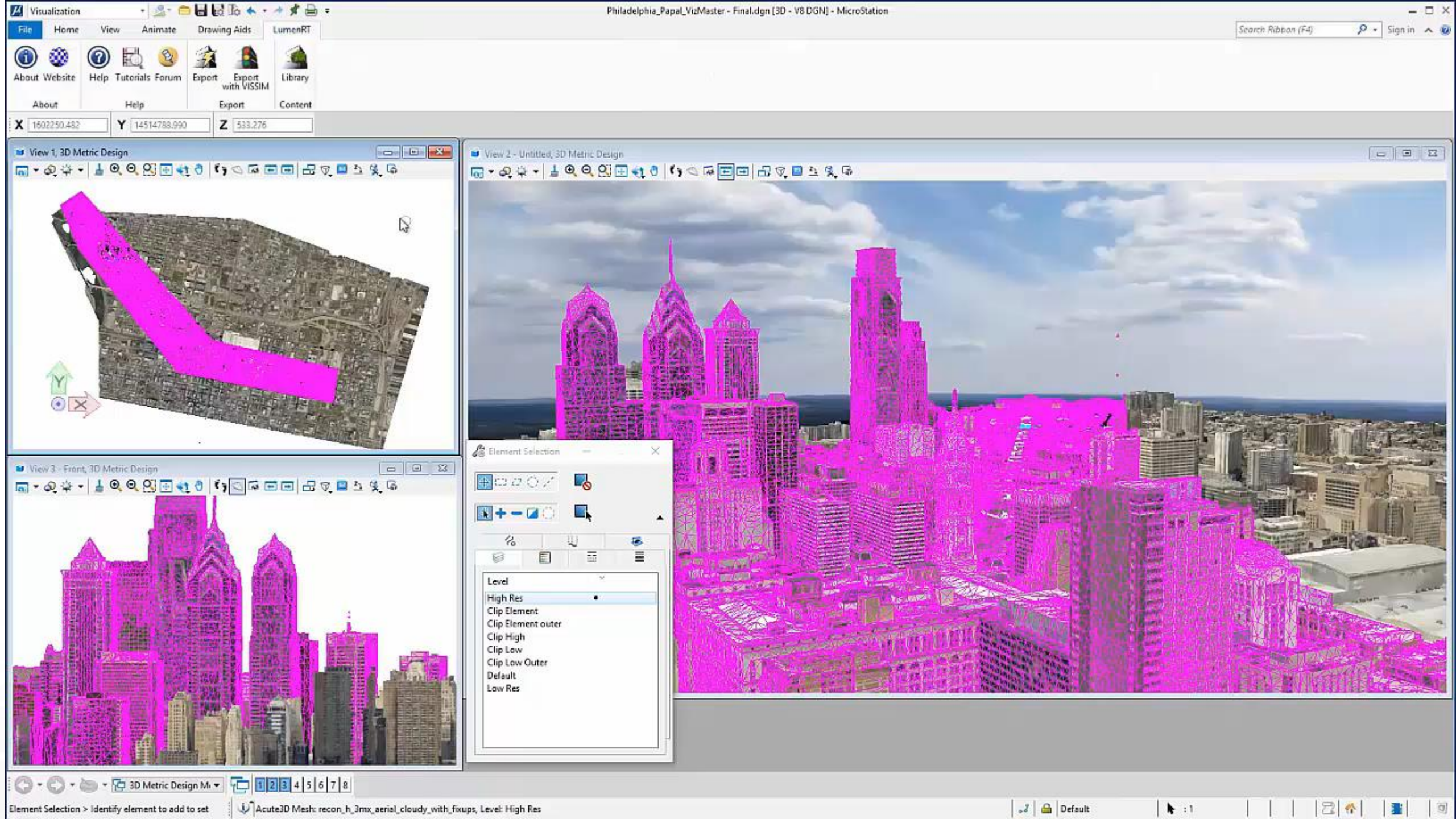
Digital Construction

Detailed Design

Conceptual Design

LumenRT

Bentley
Lumenrt


Visualization
Philadelphia_Papal_VizMaster - Final.dgn [3D - V8 DGN] - MicroStation
File
Home
View
Animate
Drawing Aids
LumenRT
Search Ribbon (F4)
Sign in
About
Website
Help
Tutorials
Forum
Export
Export with VISSIM
Library
About
Help
Export
Content
X 1602250.482
Y 14514788.990
Z 533.276
View 1, 3D Metric Design
View 2 - Untitled, 3D Metric Design
View 3 - Front, 3D Metric Design
Element Selection
Level
High Res
Clip Element
Clip Element outer
Clip High
Clip Low
Clip Low Outer
Default
Low Res
3D Metric Design M
Element Selection > Identify element to add to set
Acute3D Mesh: recon_h_3mx_aerial_cloudy_with_fixups, Level: High Res
Default

Digital Construction

Detailed Design

Conceptual Design

OpenRoads

What is OpenRoads ?

OpenRoads provides a common dynamic modeling **technology** for GEOPAK, InRoads, MXROAD and PowerCivil for “Country”.

OpenRoads technology offers immersive interaction of

- Survey
- Terrain modeling
- Geometry
- Corridor modeling
- Dynamic cross sections
- Civil cells
- Design intent
- Design-time visualization
- Subsurface Utilities

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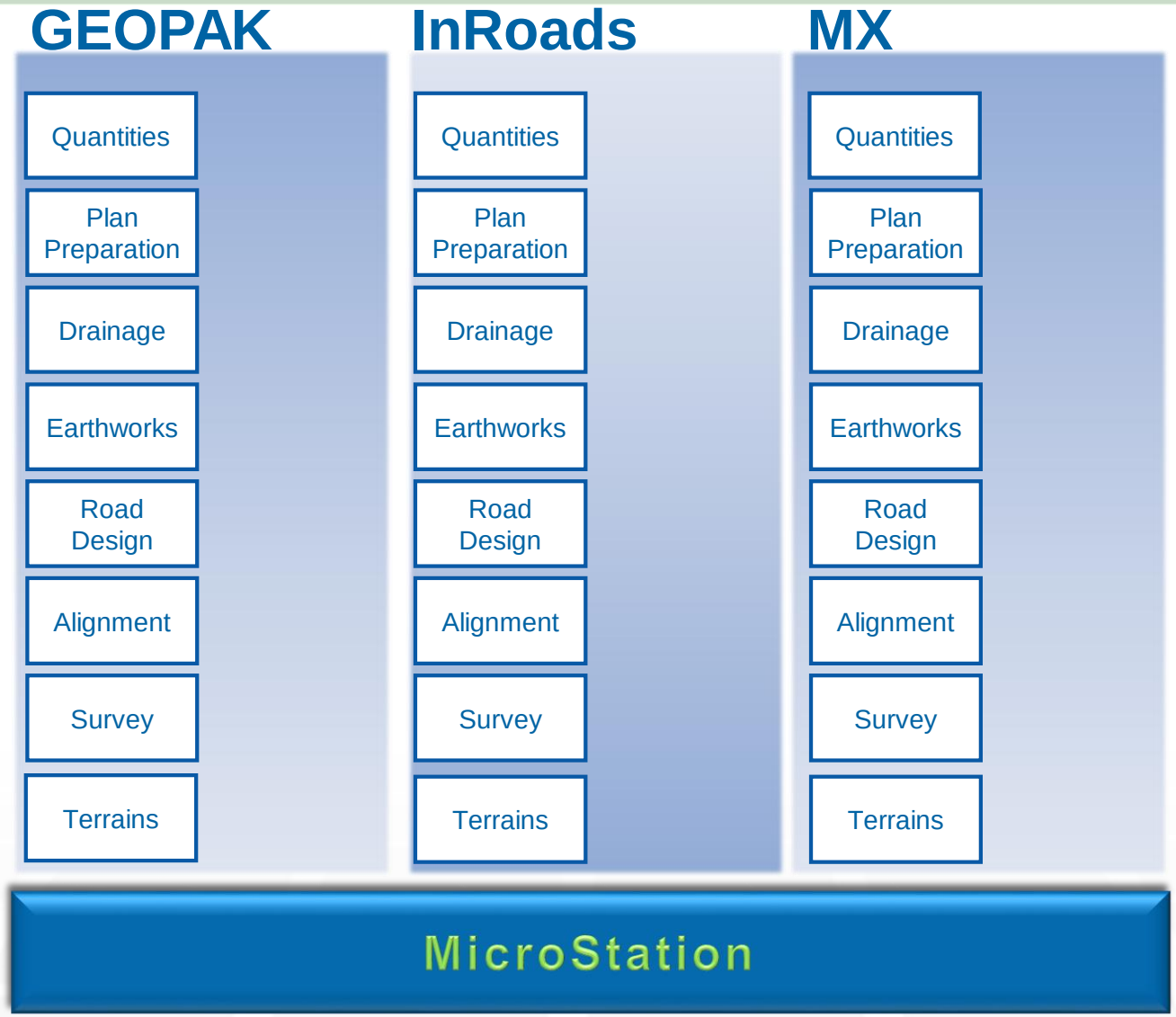
Bentley Civil Evolution



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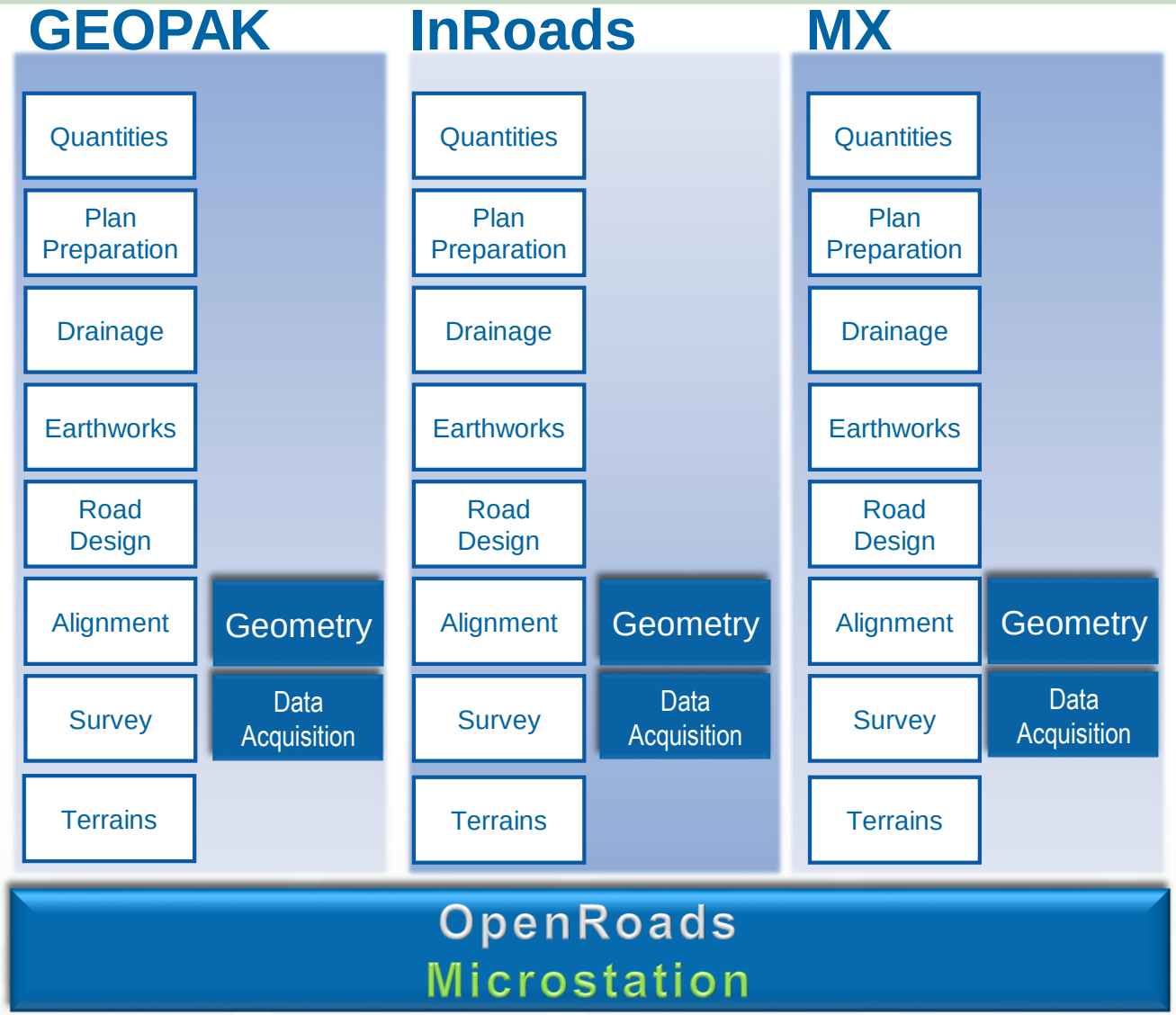
Bentley Civil Evolution (SELECTseries 2)



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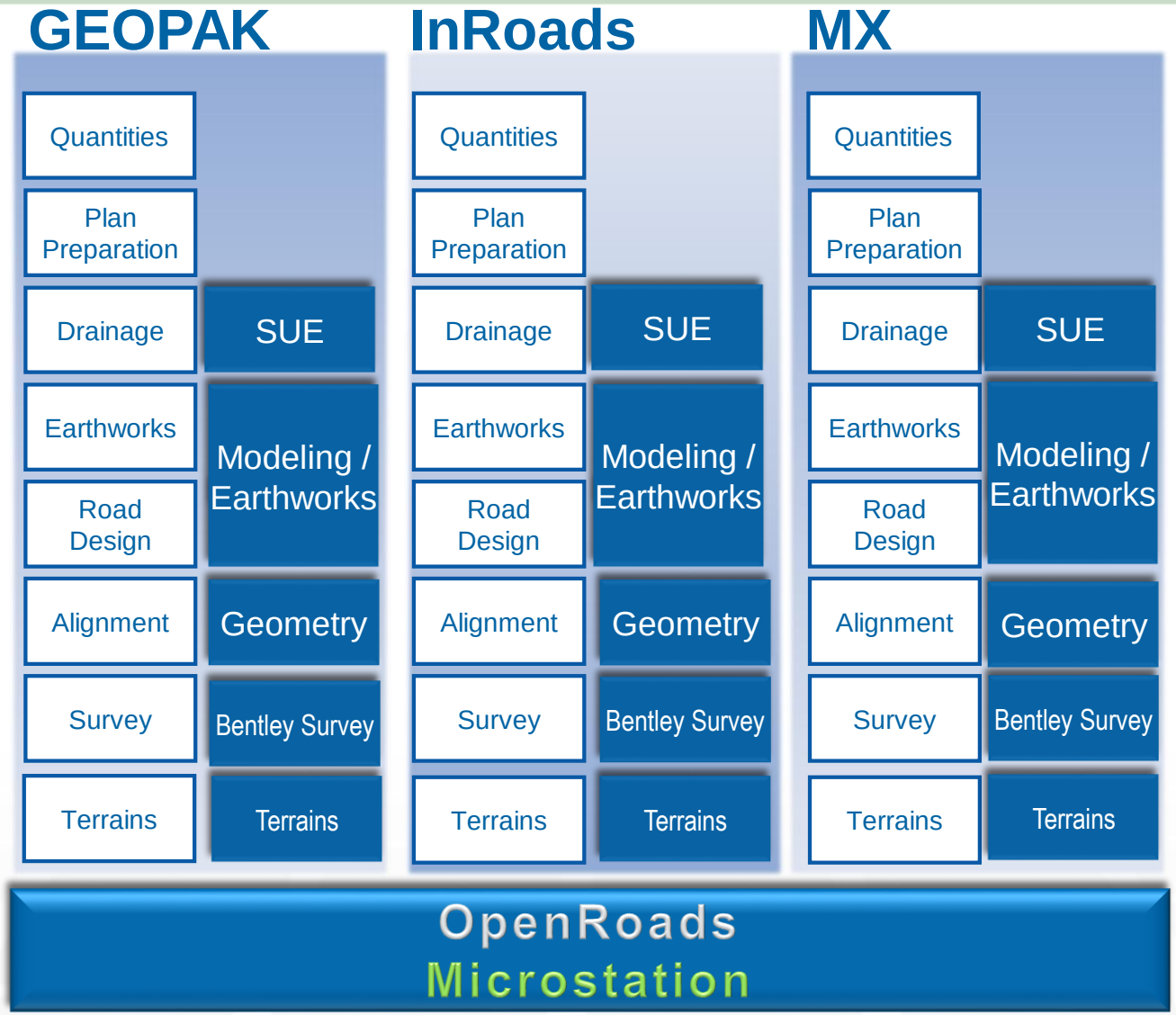
Bentley Civil Evolution (SELECTseries 3)



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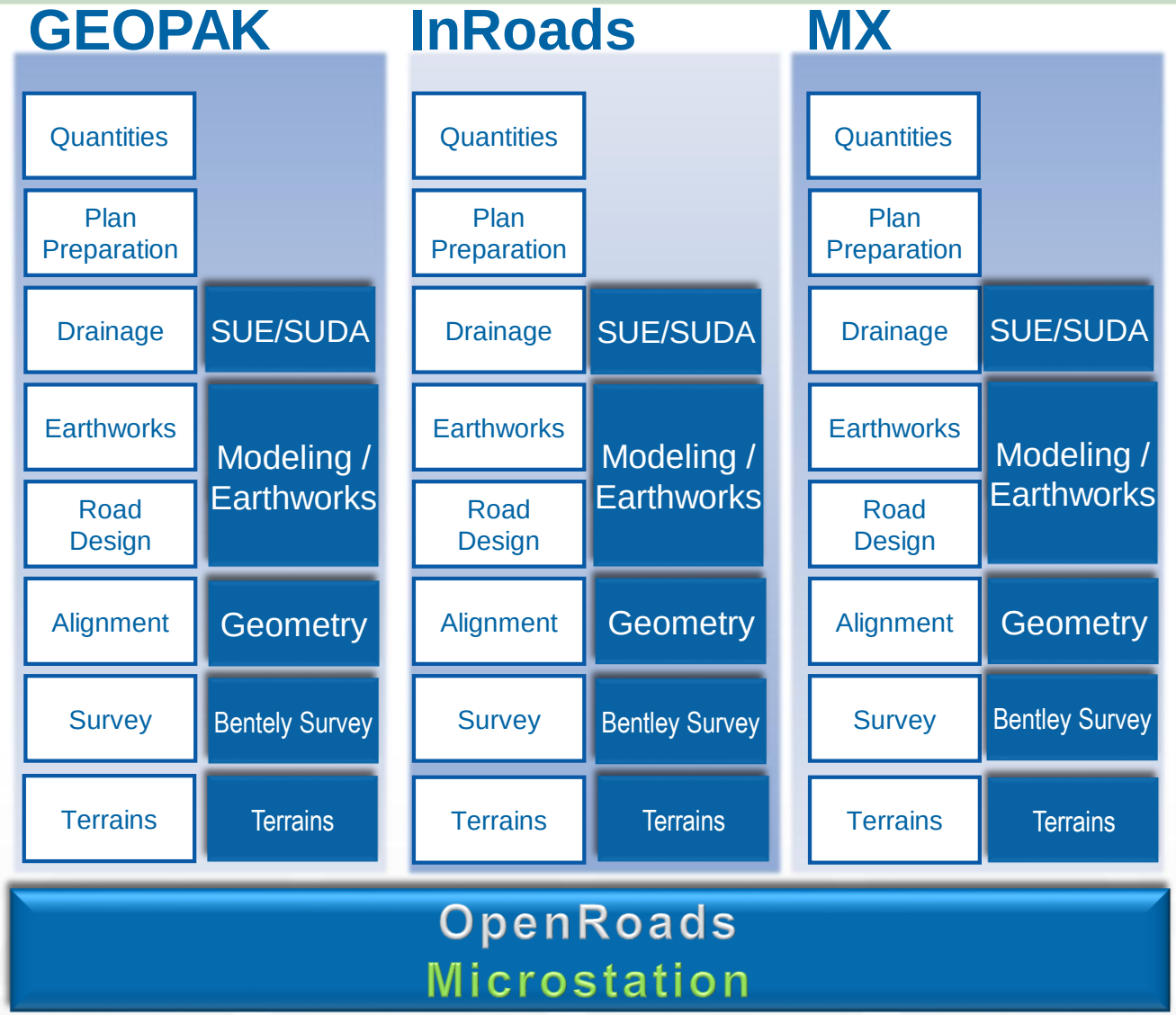
Bentley Civil Evolution (SELECTseries 4)



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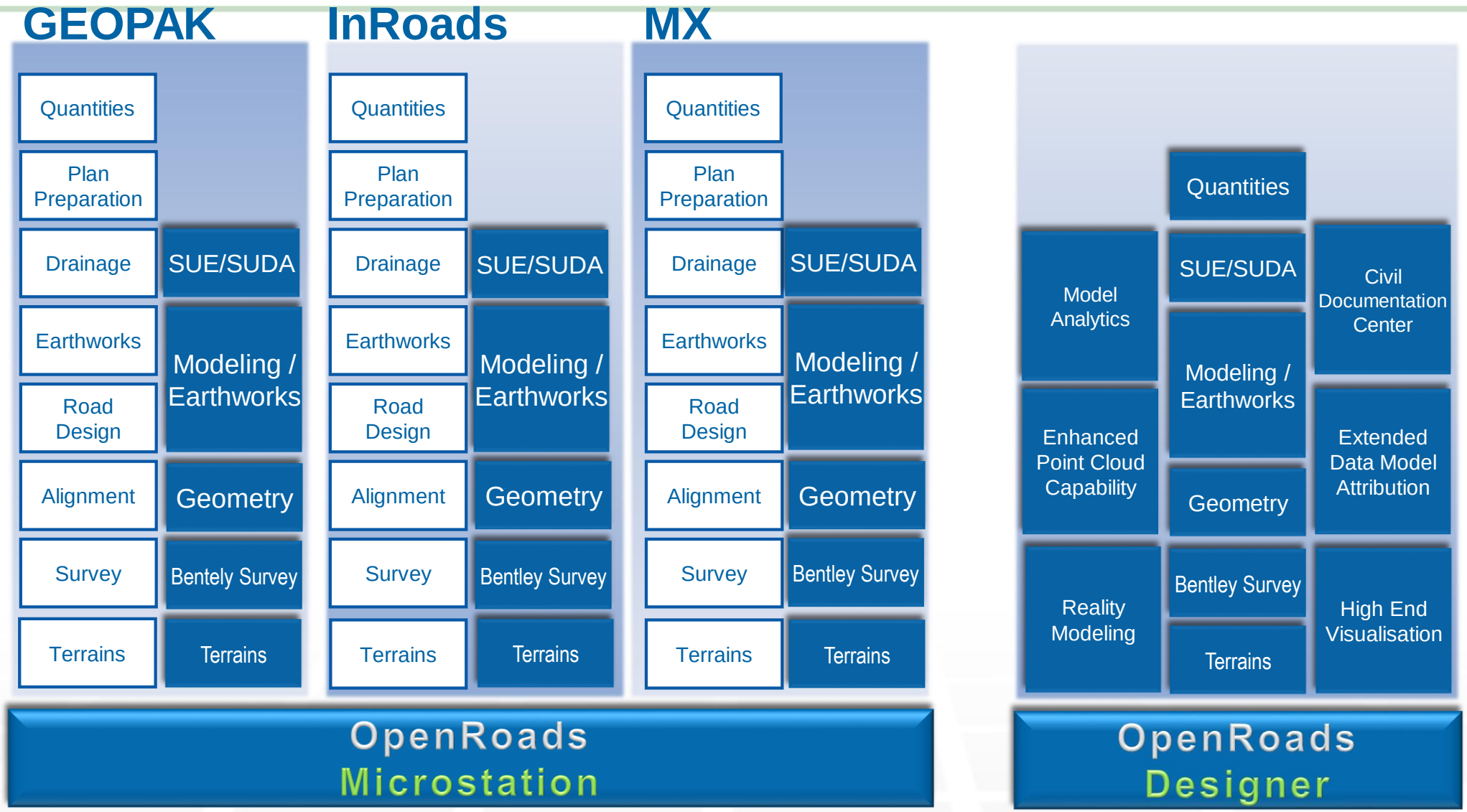
Bentley Civil Evolution



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OpenRoads Designer is Here!

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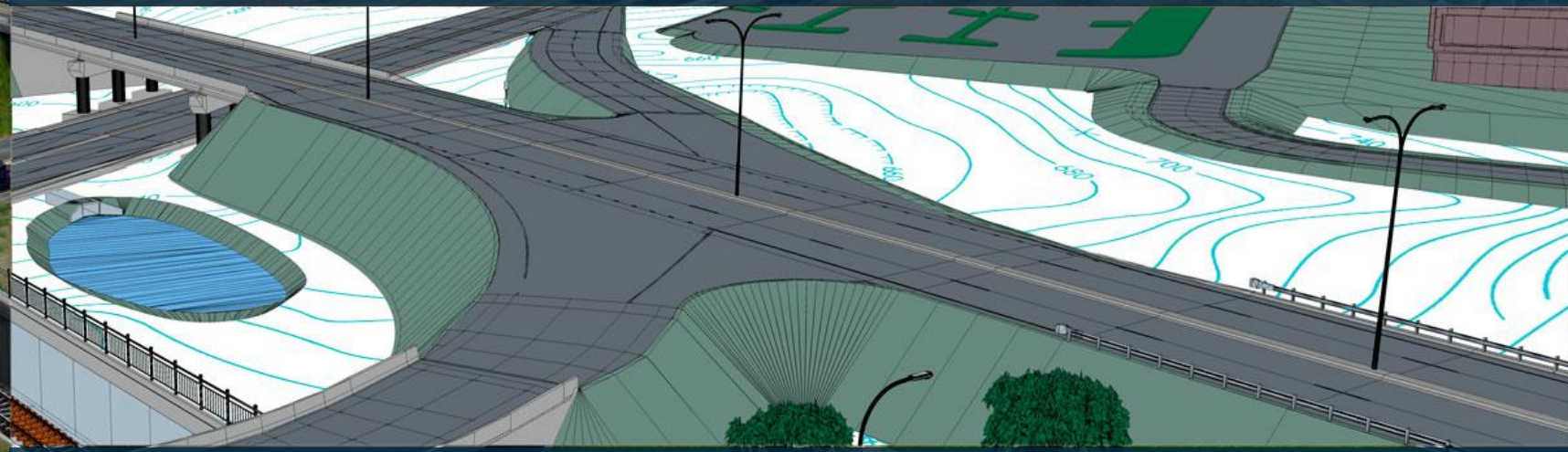
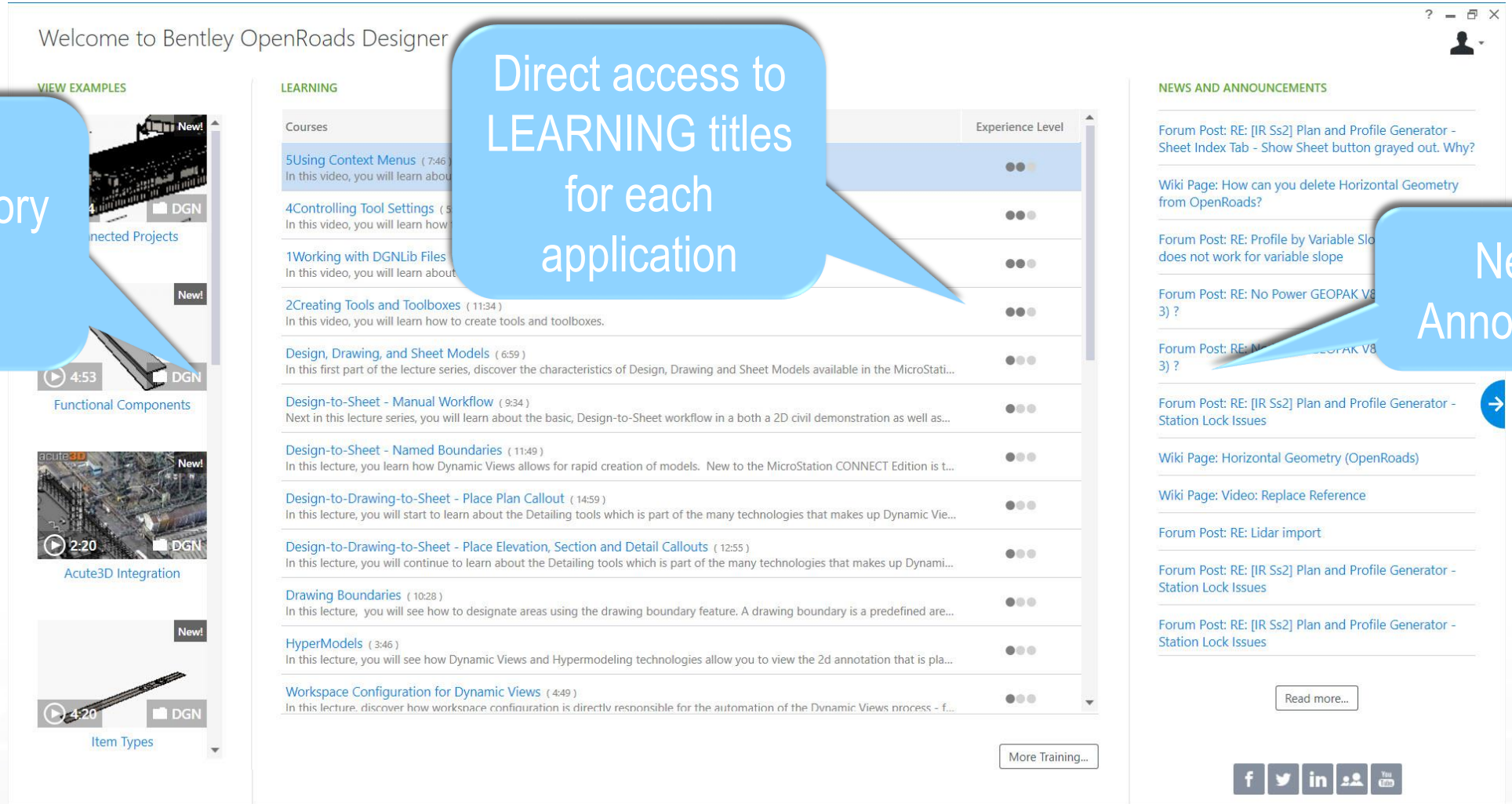
OpenRoads Designer



OpenRoads Designer CONNECT Edition



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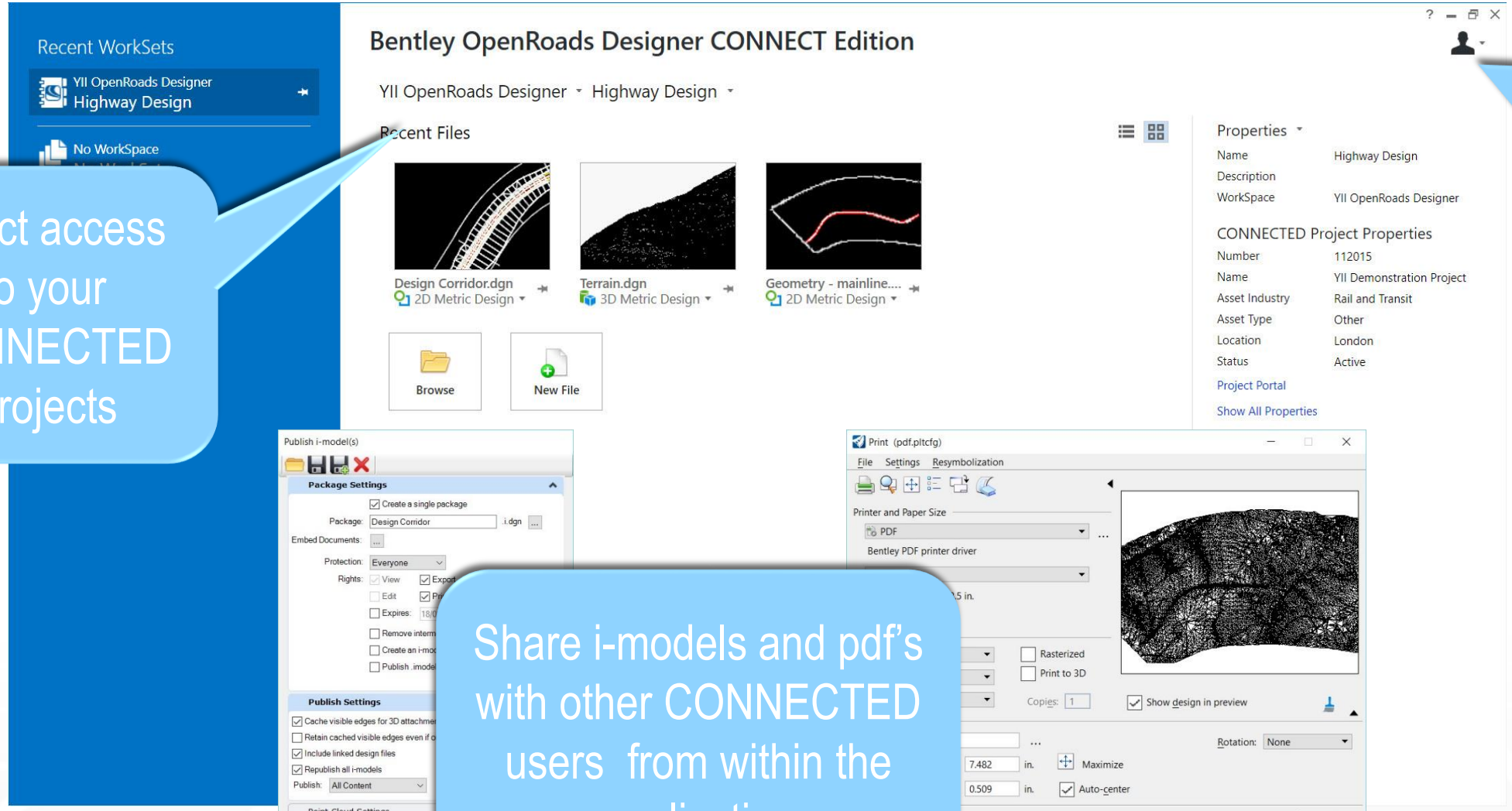
OpenRoads Designer CONNECT Edition



Direct access to your CONNECTED Projects

Directly access your Personal Portal

Share i-models and pdf's with other CONNECTED users from within the application

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OpenRoads Designer | C:\RT 97-Extension Plan&Profile\Geometry.dgn [2D - V8 DGN] - Bentley OpenRoads Designer CONNECT Edition (Technology Preview)

File | Home | Terrain | Geometry | Corridors | Model Detailing | Drawing Production | Drawing | View

Search Ribbon (F4) | Sign in

None | Default | 0 | 0 | 0 | 0 | 0

Attributes

Explorer | Attach Tools | Models | Level Display

Primary

Element Selection

Selection

Reports | Civil Analysis | Corridor Reports

Model Analysis and Reporting

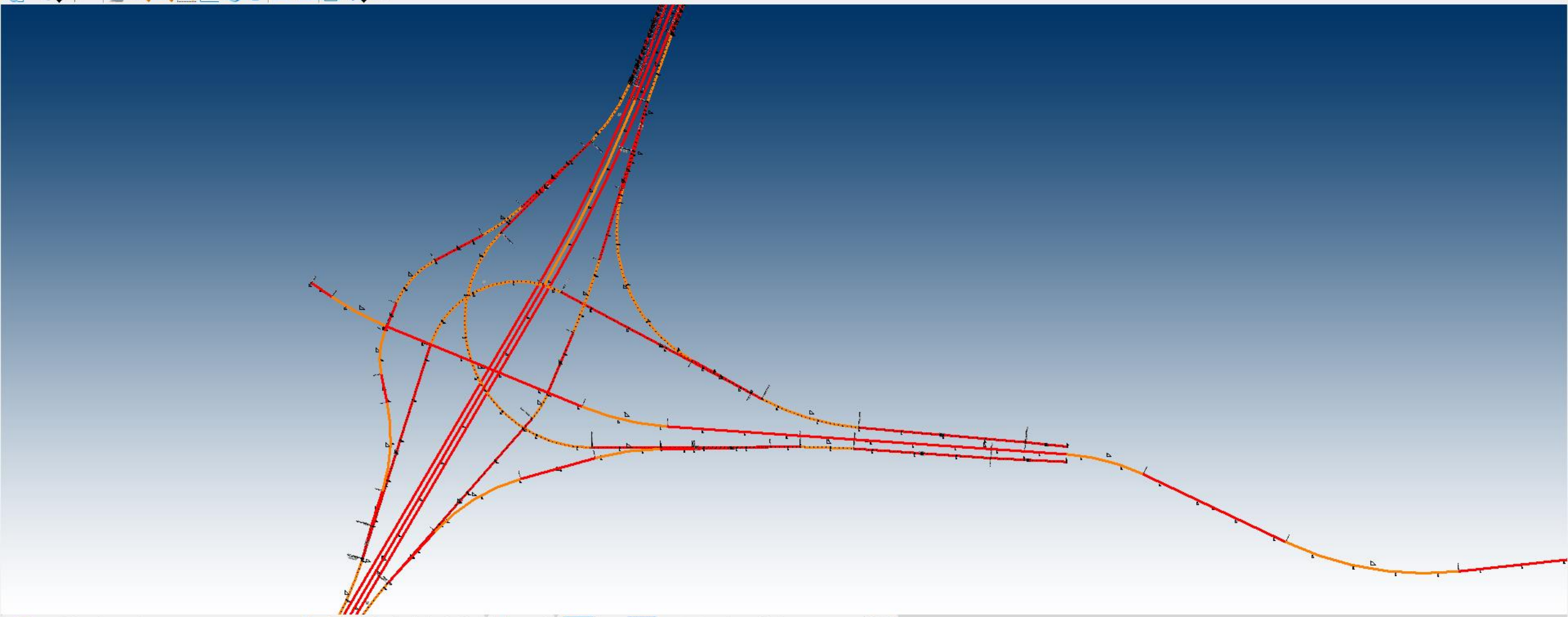
Terrain Import | Import Geometry | Import IRD

Model Import/Export

OpenRoads Help | Open RSS Reader

OpenRoads Help

View 1, Default

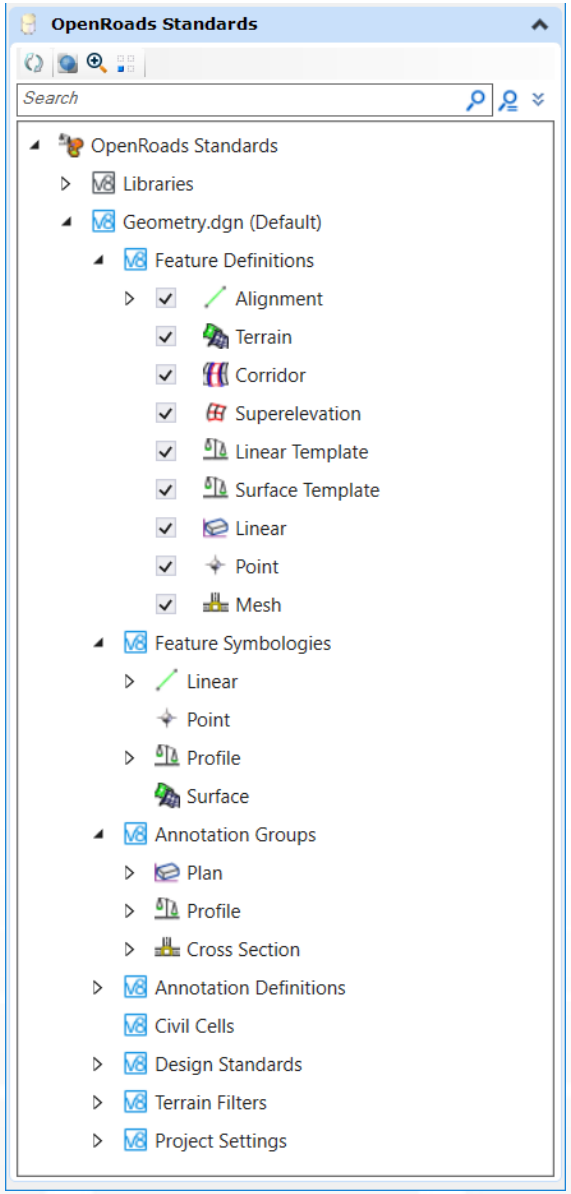


Multi-Model Views | 1 2 3 4 5 6 7 8

Default

OpenRoads Designer CONNECT Edition

Enhanced Civil Model Presentation



Improved Civil Model object

- sorting
- naming
- search
- Navigation

Greater categorization and enhancing on previous feature definitions with new types for

- Alignments
- Corridors
- Linear Templates
- Area Templates

Improved sorting, search and navigation

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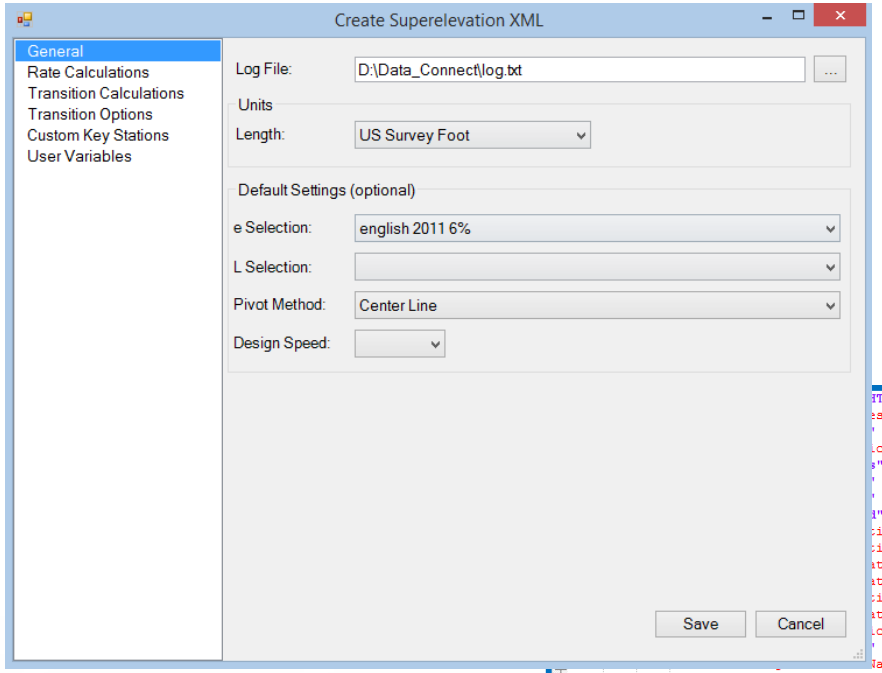
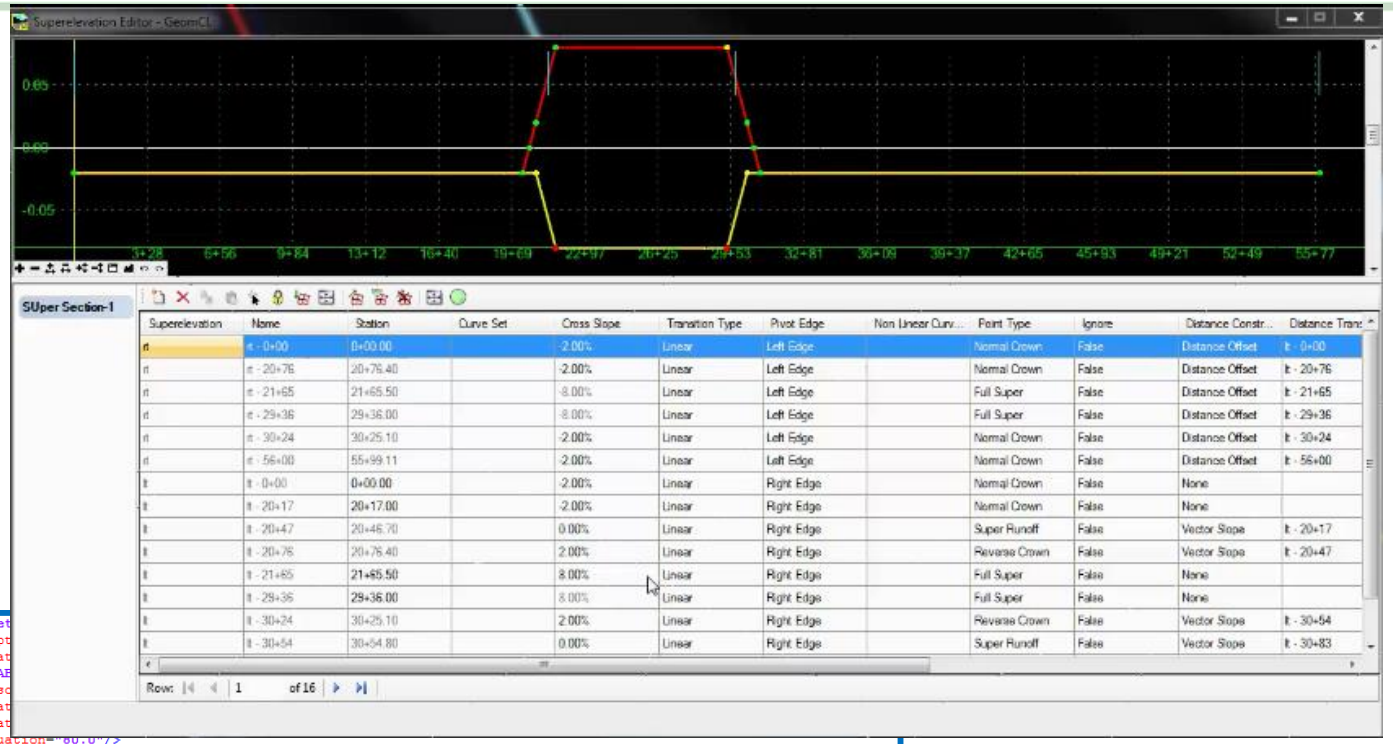
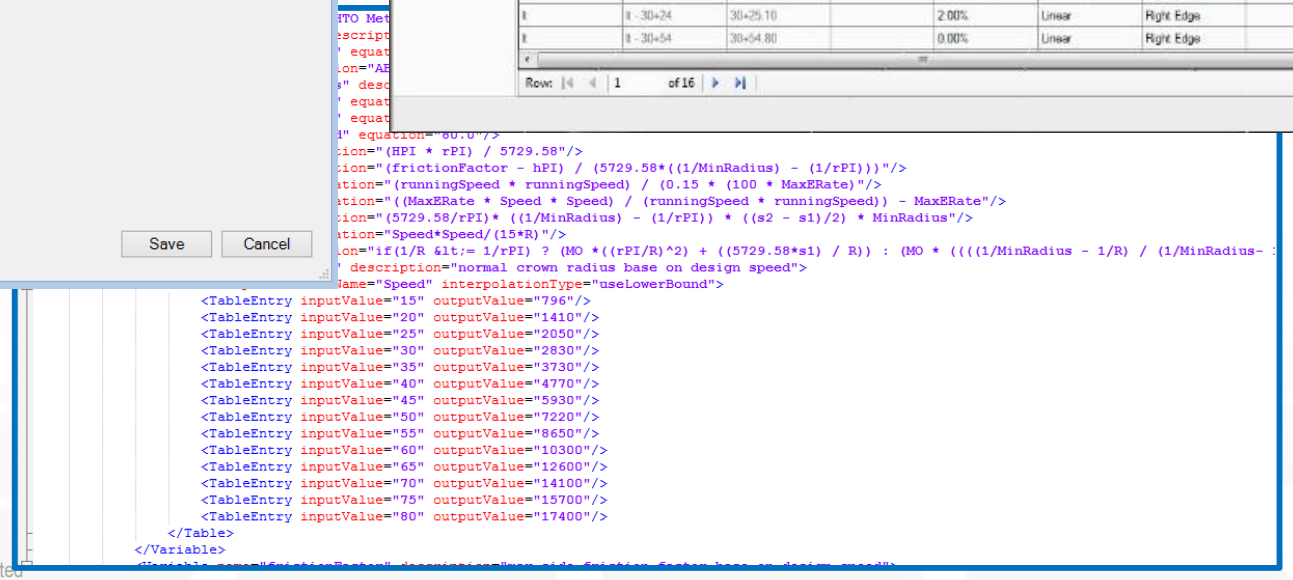
OpenRoads Designer CONNECT Edition

Enhanced Superelevation Engine







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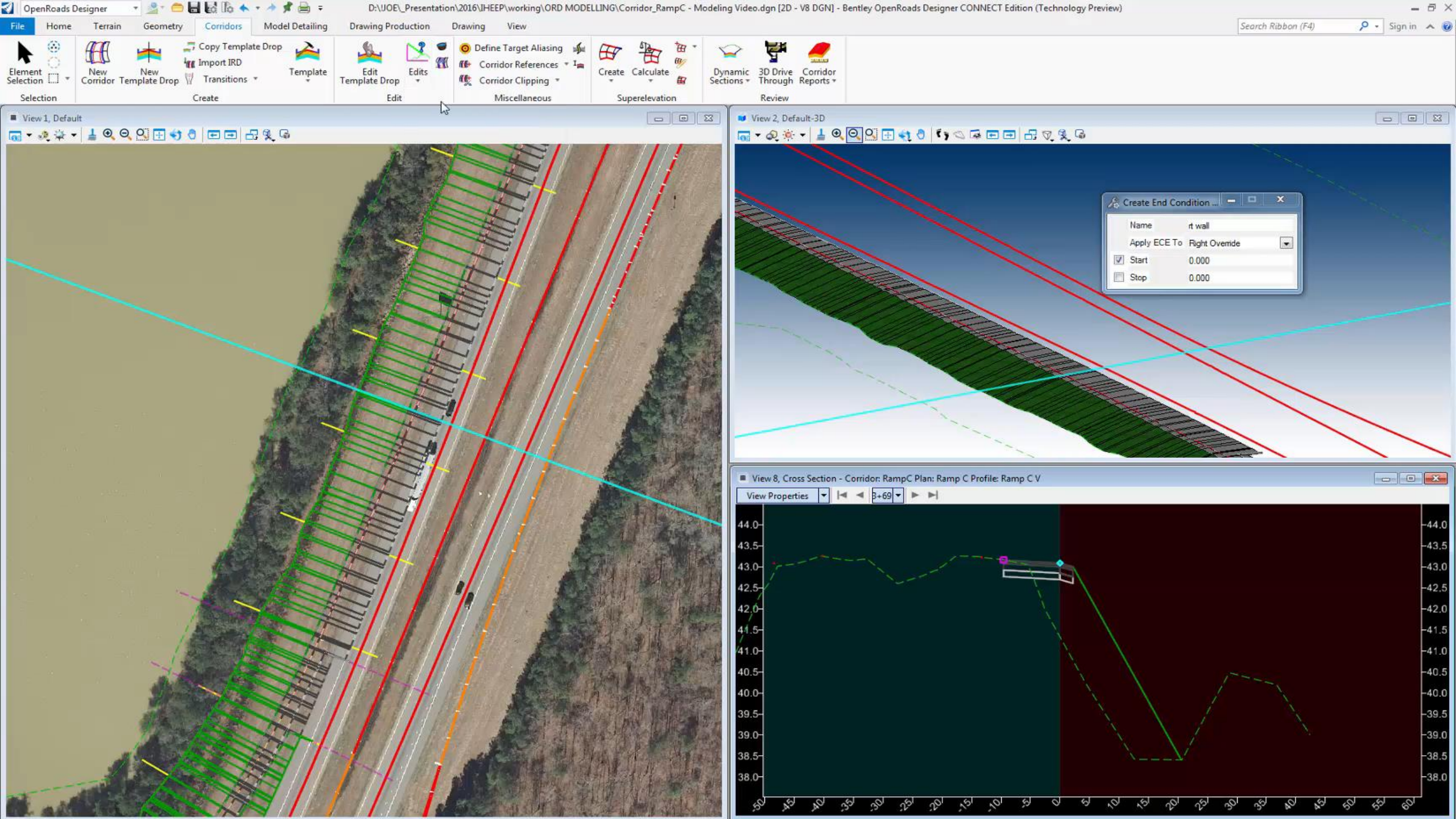
OpenRoads Designer
D:\UOE_Presentation\2016\IHEEP\working\ORD MODELLING\Corridor_RampC - Modeling Video.dgn [2D - V8 DGN] - Bentley OpenRoads Designer CONNECT Edition (Technology Preview)
File
Home
Terrain
Geometry
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
Sign in
Element 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
View 1, Default
View 2, Default-3D
Create End Condition ...
Name
rt wall
Apply ECE To
Right Override
Start
0.000
Stop
0.000
View 8, Cross Section - Corridor: RampC Plan: Ramp C Profile: Ramp C V
View Properties
3+69
44.0
43.5
43.0
42.5
42.0
41.5
41.0
40.5
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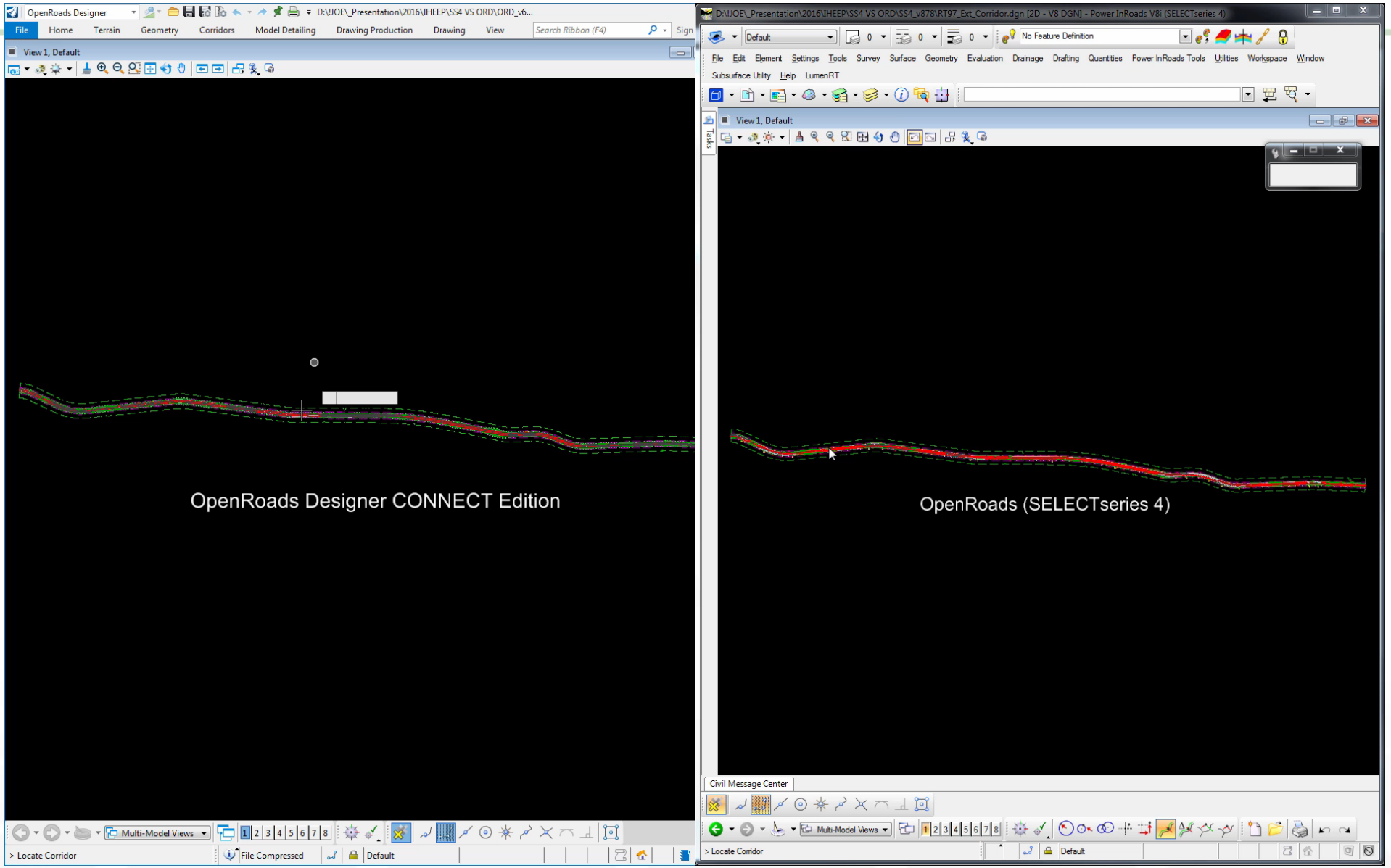
Modeling Performance Gains - Side by Side comparison



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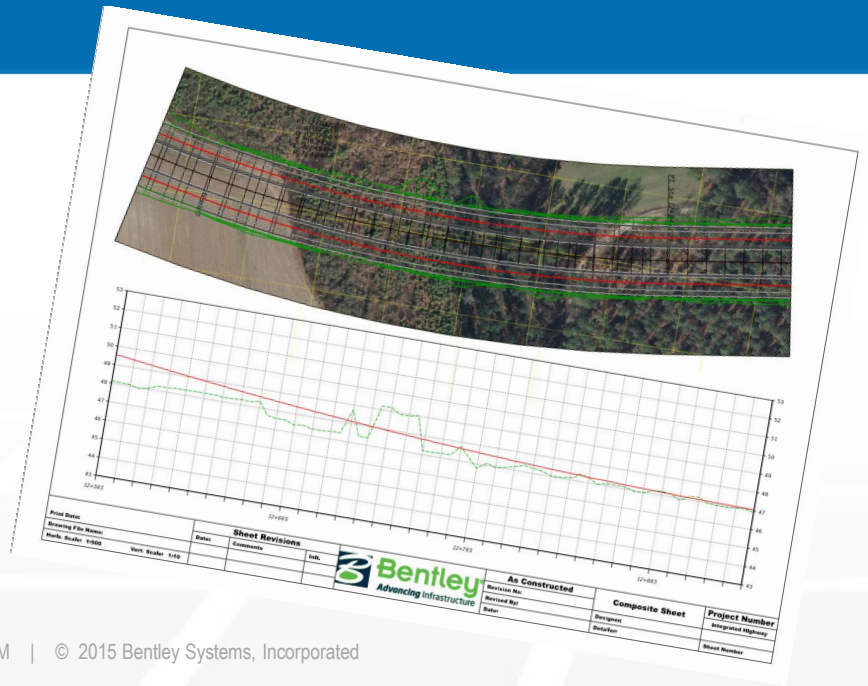
Drawing Production

- Based on CONNECT Documentation Centre

- Sheet indexing
- Batch plotting / publishing
- Drawing Annotation Scale Aware
- Display Rules
-



Enhanced to provide Civil Context

- New sheeting capability for Plan / Profile / Cross Section annotation methods.
- Automatic bulk annotation for design and sheet models
- Annotation definition editor / manager
- Associative annotation for automatic updates

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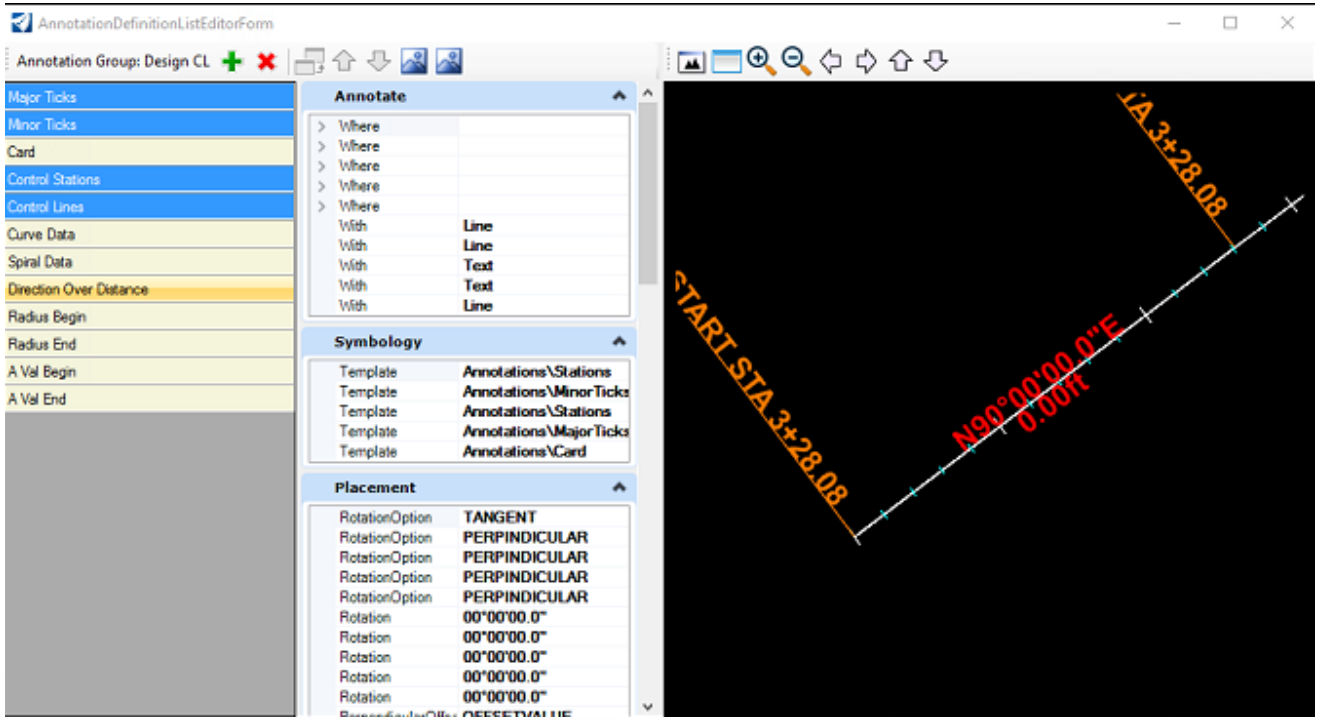
Civil Annotation

- Plan / Profile / Cross Section annotation methods.
- Automatic bulk annotation for design and sheet models
- Annotation definition editor / manager
- Associative annotation for automatic updates
- Built from Test Styles / Text Favorites
-



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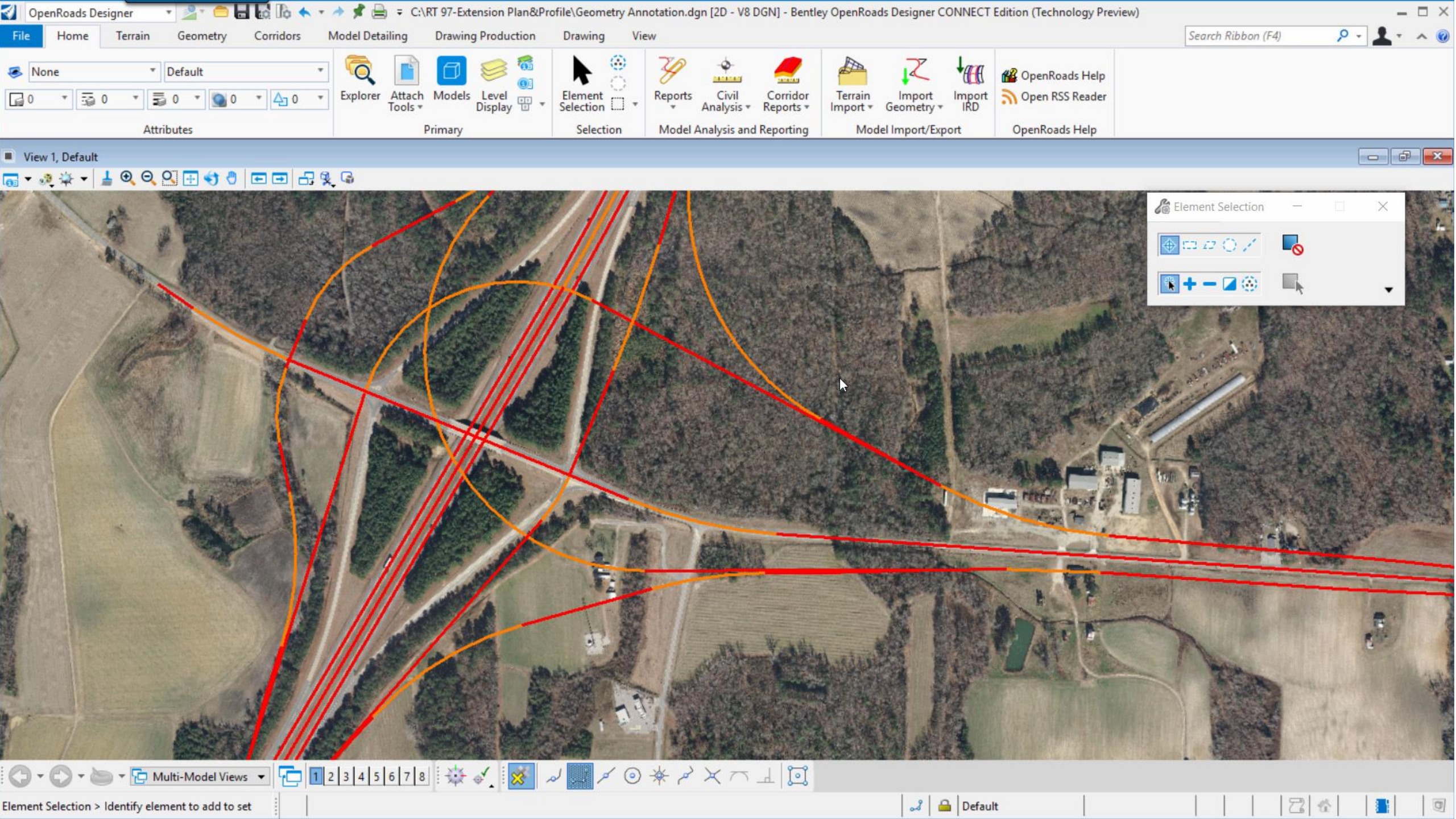
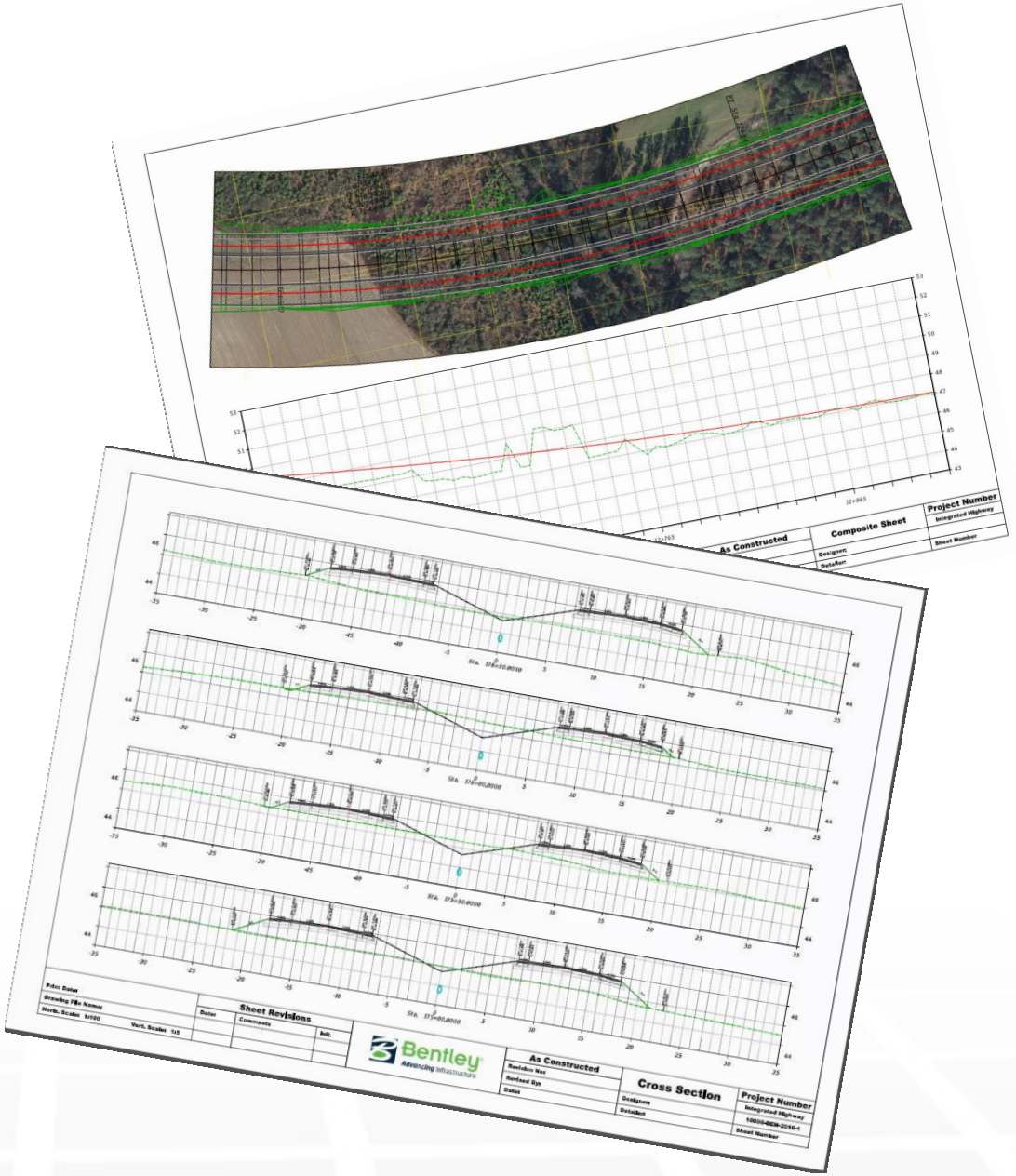

OpenRoads Designer
C:\RT 97-Extension Plan&Profile\Geometry Annotation.dgn [2D - V8 DGN] - Bentley OpenRoads Designer CONNECT Edition (Technology Preview)
File
Home
Terrain
Geometry
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
None
Default
Attributes
Explorer
Attach Tools
Models
Level Display
Primary
Element Selection
Selection
Reports
Civil Analysis
Corridor Reports
Model Analysis and Reporting
Terrain Import
Import Geometry
Import IRD
Model Import/Export
OpenRoads Help
Open RSS Reader
OpenRoads Help
View 1, Default
Element Selection
Multi-Model Views
1 2 3 4 5 6 7 8
Element Selection > Identify element to add to set
Default

Civil Sheeting

- Civil context aware drawing production methods for Plan / Profile / Cross Section drawings.
- Sheet scale aware annotation
- Dynamic profile and cross section through the 3D model
- Automatic bulk annotation for Plan / Profile / Cross Sections
- Associative annotation for automatic updates



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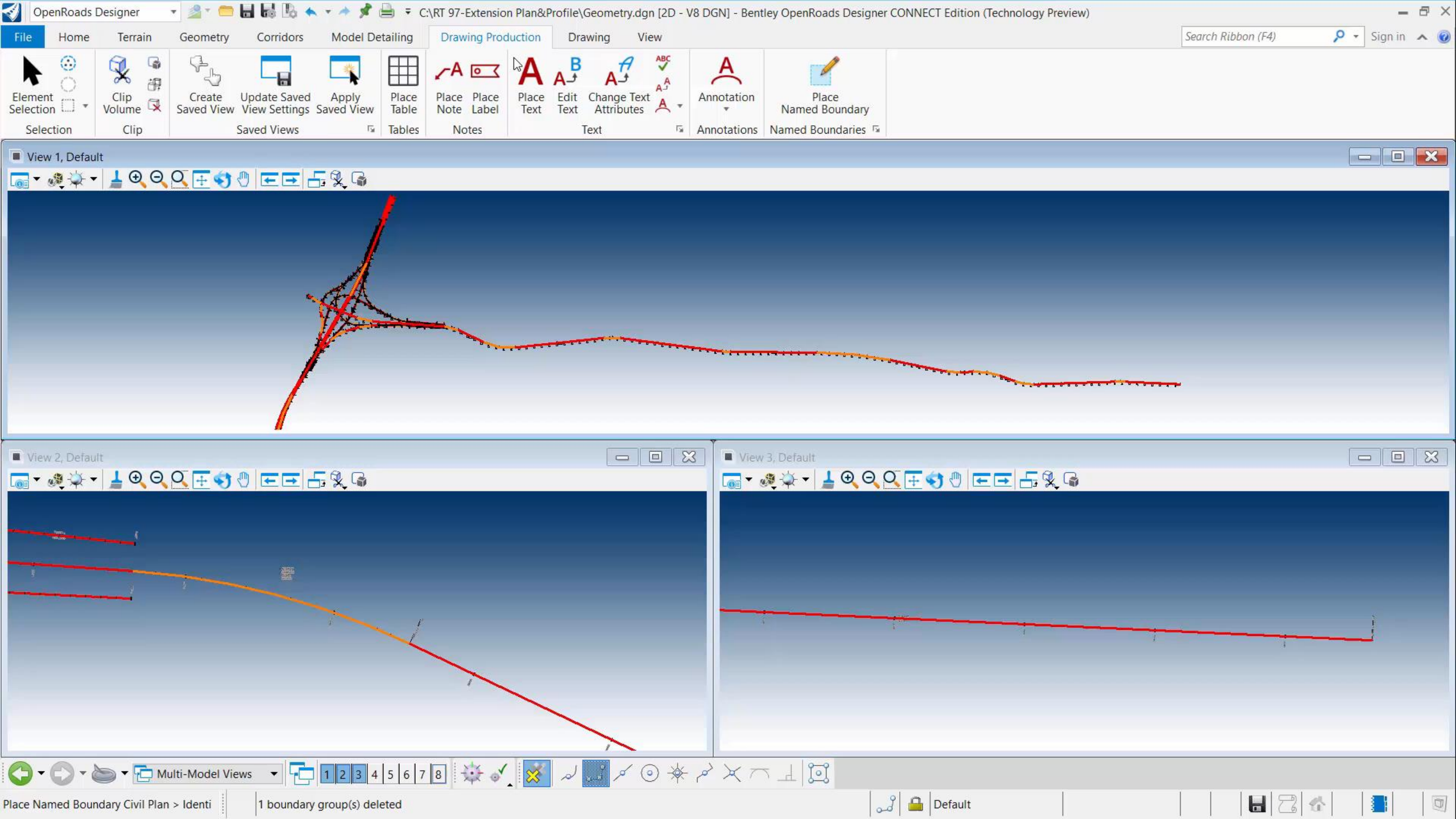
OpenRoads Designer
C:\RT 97-Extension Plan&Profile\Geometry.dgn [2D - V8 DGN] - Bentley OpenRoads Designer CONNECT Edition (Technology Preview)
File
Home
Terrain
Geometry
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
Sign in
Element Selection
Clip Volume
Create Saved View
Update Saved View Settings
Apply Saved View
Place Table
Place Note
Place Label
Place Text
Edit Text
Change Text Attributes
Annotation
Place Named Boundary
Selection
Clip
Saved Views
Tables
Notes
Text
Annotations
Named Boundaries
View 1, Default
View 2, Default
View 3, Default
Multi-Model Views
Place Named Boundary Civil Plan > Identi
1 boundary group(s) deleted
Default

OpenRoads Designer CONNECT Edition

- Publishing capable of meeting the challenging and changing deliverables requirements of models and drawings for
  - Submittals
  - Construction
  - Mobile
  - Scheduling simulation

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OpenRoads Designer - Integrated Capability

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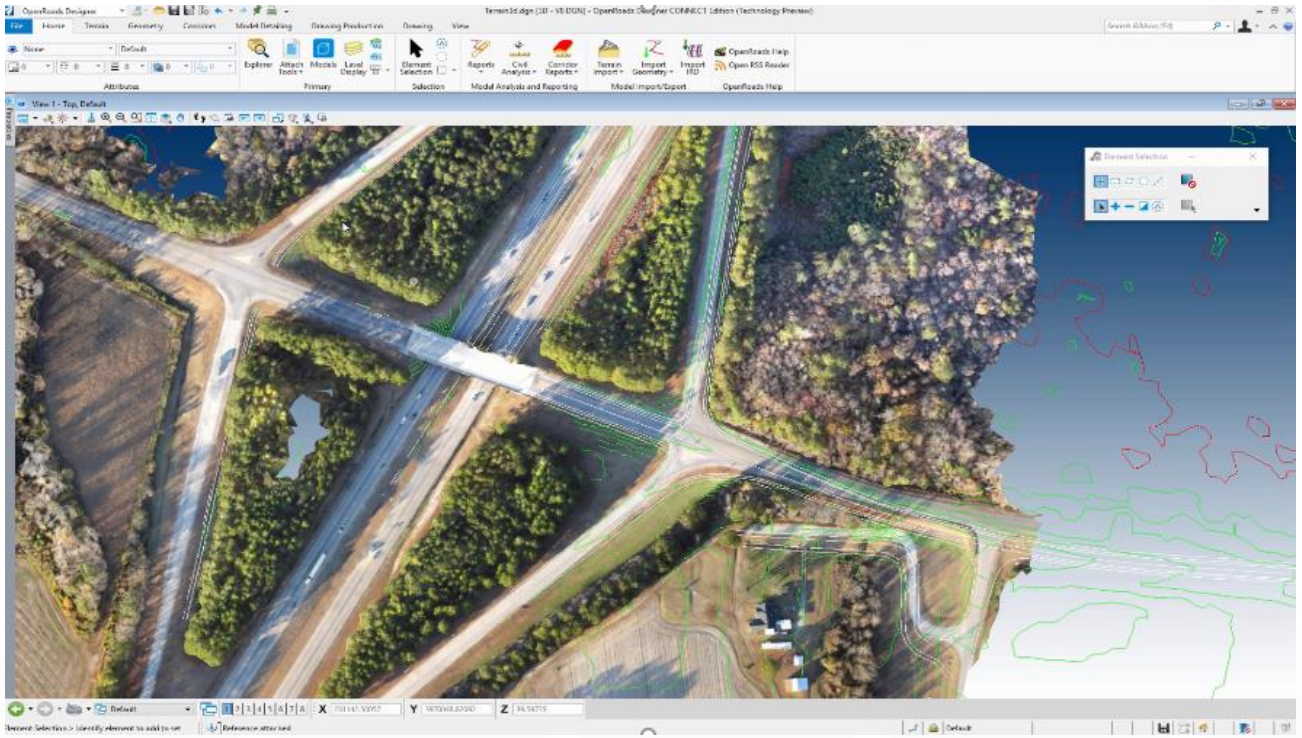
Integrated Capability – Reality Modeling

- Advanced Point Cloud Capability
- Linear / breakline extraction from surfaces
- Reality Mesh consumption
- High resolution raster image draping



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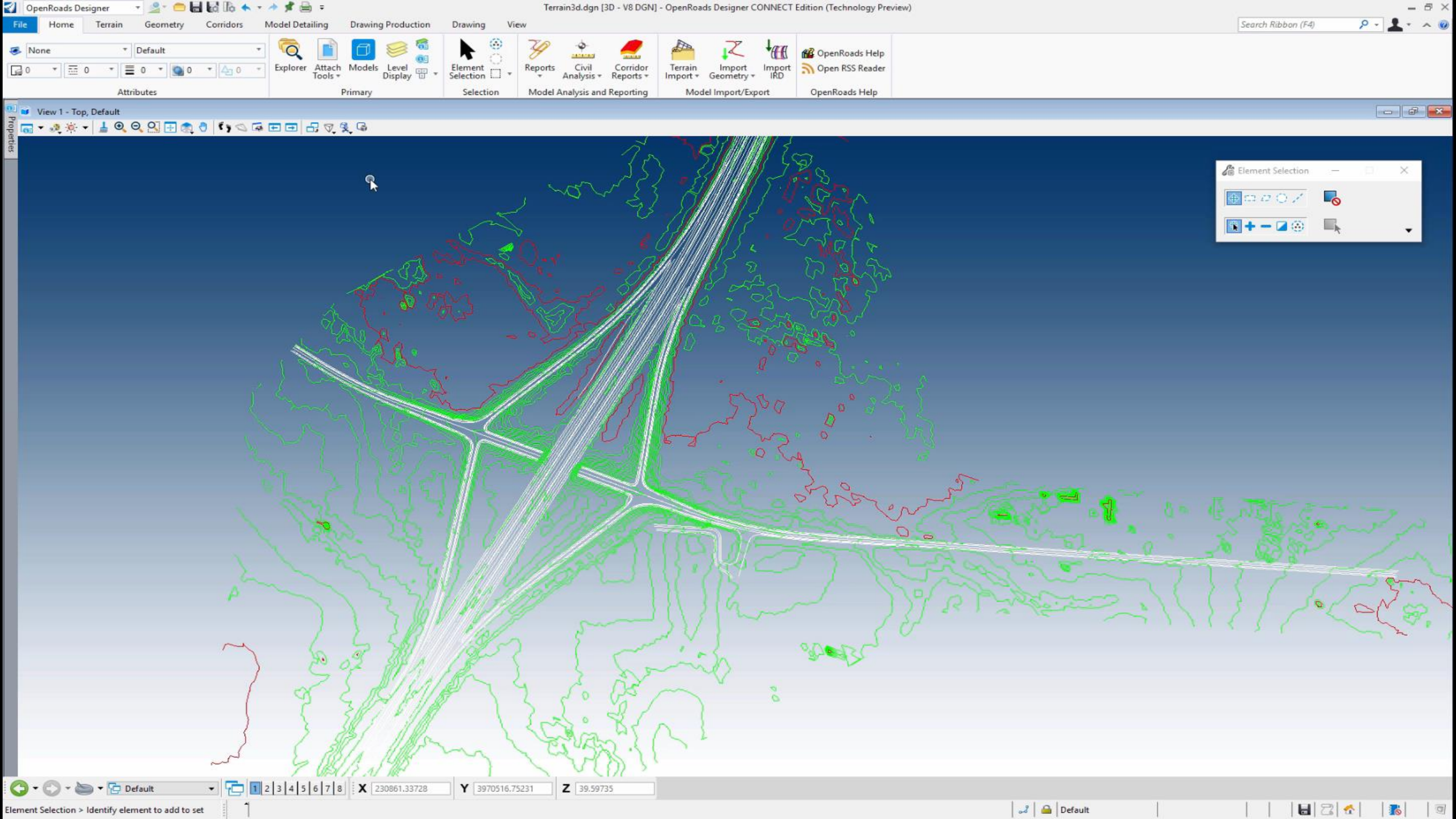
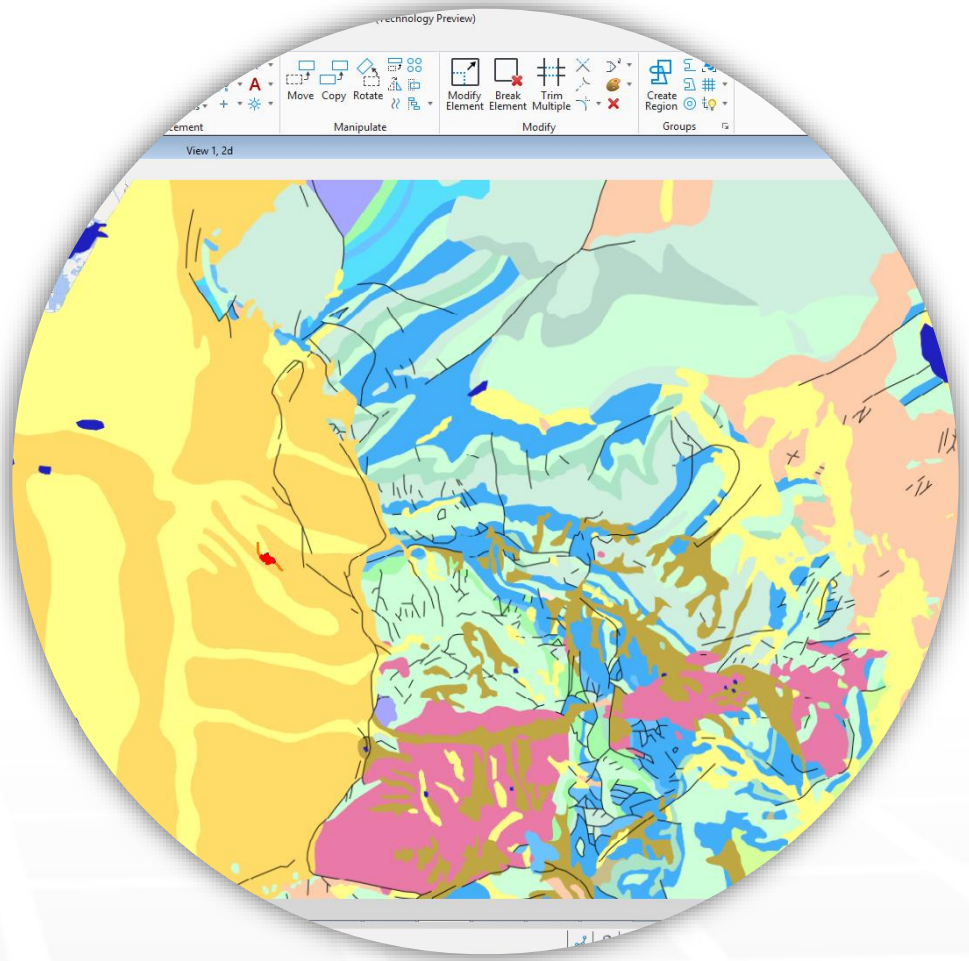

OpenRoads Designer
Terrain3d.dgn [3D - V8 DGN] - OpenRoads Designer CONNECT Edition (Technology Preview)
File
Home
Terrain
Geometry
Corridors
Model Detailing
Drawing Production
Drawing
View
Search Ribbon (F4)
None
Default
Attributes
Explorer
Attach Tools
Models
Level Display
Primary
Element Selection
Selection
Reports
Civil Analysis
Corridor Reports
Model Analysis and Reporting
Terrain Import
Import Geometry
Import IRD
Model Import/Export
OpenRoads Help
Open RSS Reader
OpenRoads Help
View 1 - Top, Default
Element Selection
Properties
Default
X 230861.33728
Y 3970516.75231
Z 39.59735
Element Selection > Identify element to add to set
Default

Integrated Capability - Geotechnical

- Direct Link to gINT Data base
- Preliminary Investigation
  - Locate and review data for proposed site
  - Develop drilling plan
- Go / No Go decision
  - Clearance on environmental
  - Site access and archeological review
-



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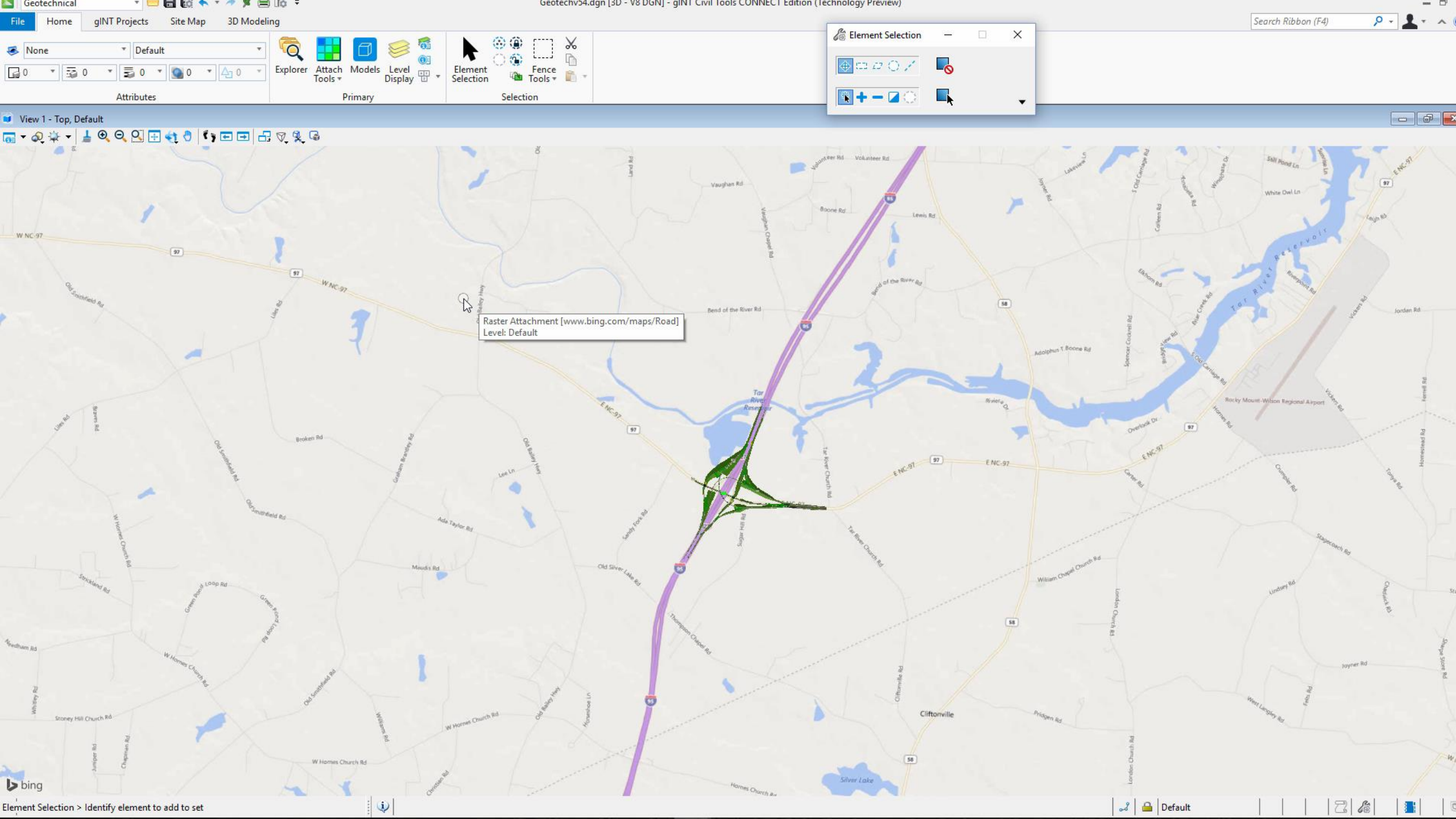
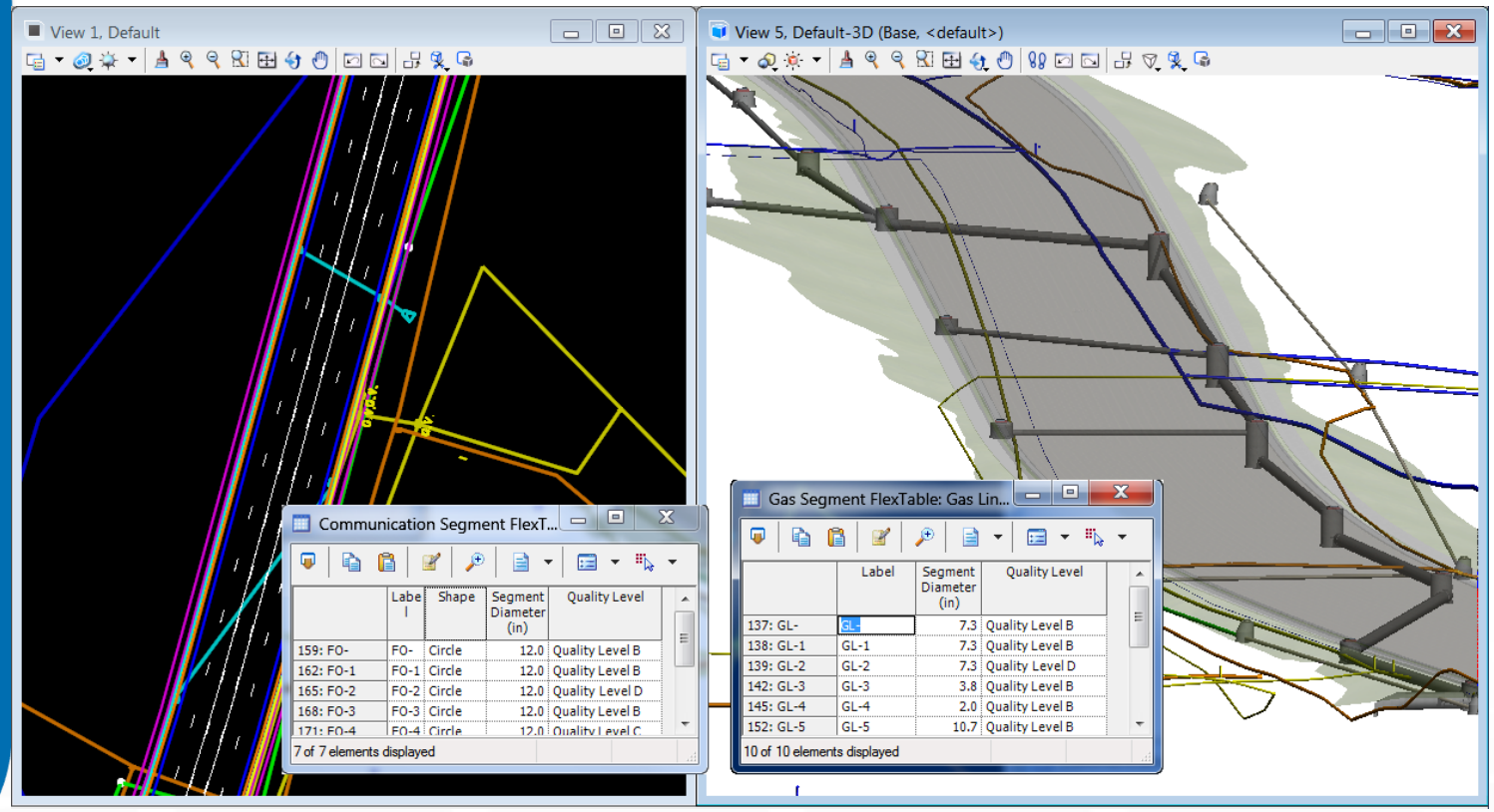

Geotechnical
Geotechv54.dgn [3D - V8 DGN] - gINT Civil Tools CONNECT Edition (Technology Preview)
File
Home
gINT Projects
Site Map
3D Modeling
Search Ribbon (F4)
None
Default
Attributes
Explorer
Attach Tools
Models
Level Display
Primary
Element Selection
Fence Tools
Selection
Element Selection
View 1 - Top, Default
Raster Attachment [www.bing.com/maps/Road]
Level: Default
Tar River Reservoir
Cliftonville
Silver Lake
bing
Element Selection > Identify element to add to set
Default

Subsurface Utility Capabilities

- Based on OpenRoads Modelling
- 3D modeling of all underground assets, existing or proposed.
- Hydraulic Design of Storm and Sanitary Utilities.
- Advanced Conflict Detection / Conflict Management.



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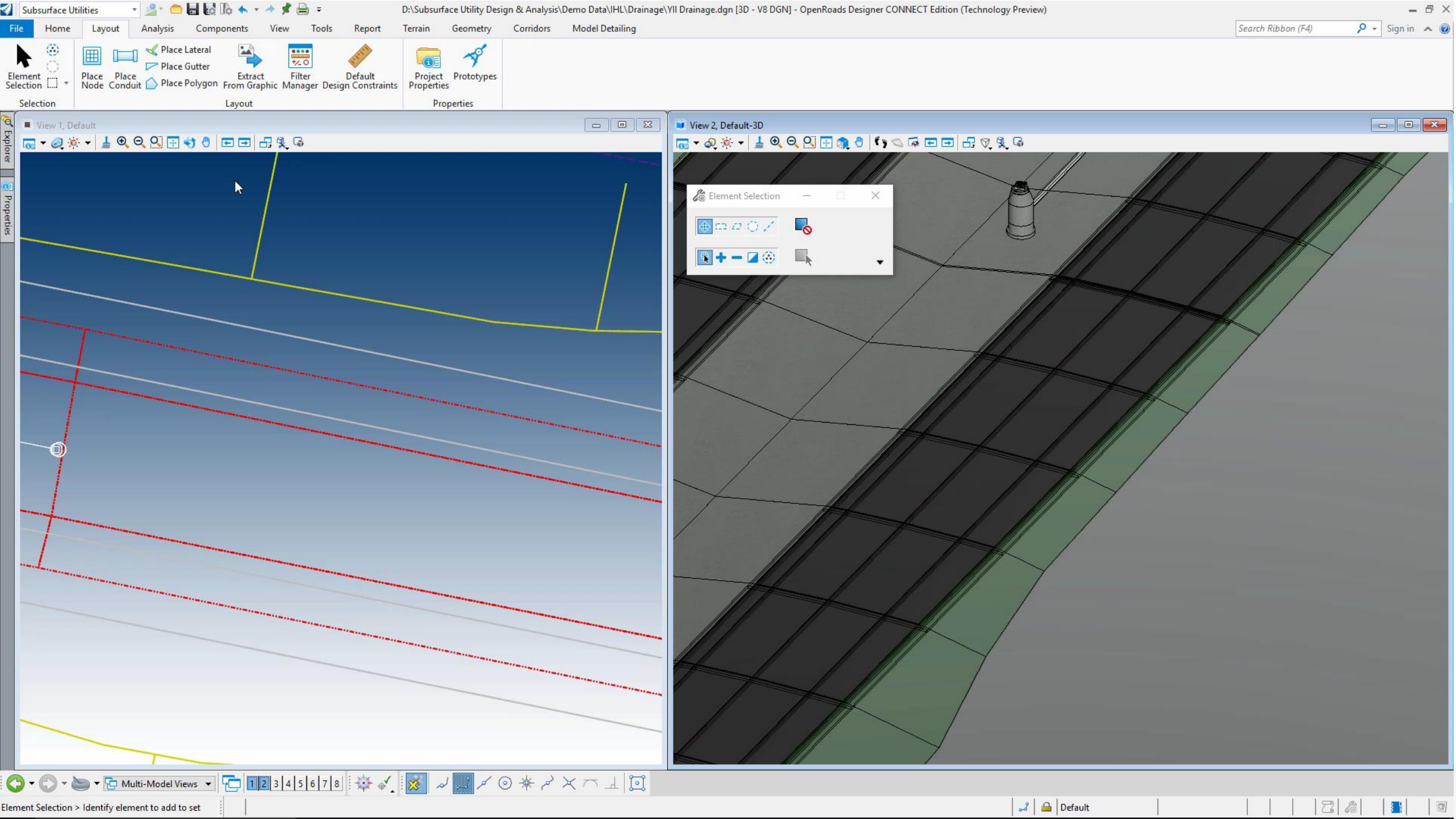

Subsurface Utilities
D:\Subsurface Utility Design & Analysis\Demo Data\IHL\Drainage\YII Drainage.dgn [3D - V8 DGN] - OpenRoads Designer CONNECT Edition (Technology Preview)
File
Home
Layout
Analysis
Components
View
Tools
Report
Terrain
Geometry
Corridors
Model Detailing
Search Ribbon (F4)
Sign in
Element Selection
Place Node
Place Conduit
Place Lateral
Place Gutter
Place Polygon
Extract From Graphic
Filter Manager
Default Design Constraints
Project Properties
Prototypes
Selection
Layout
Properties
View 1, Default
View 2, Default-3D
Element Selection
Explorer
Properties
Multi-Model Views
Element Selection > Identify element to add to set
Default

OpenRoads Designer CONNECT Edition

Limited Access

A pre-release made available for feedback, evaluation and planning, **by invitation only.**

Early Access

A pre-release is made available for feedback, evaluation, and planning, open to all **Users.**

General Access

A release of all capabilities of a product or service, and made available to all **Users**.

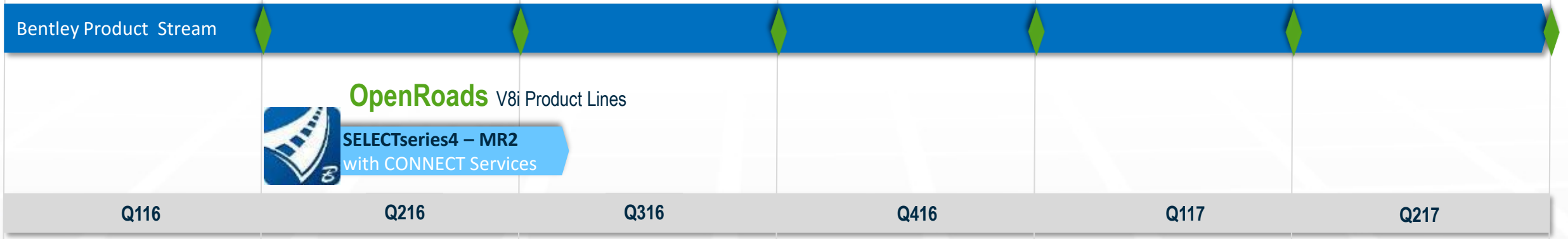
Regular Updates

What happens next ?

Bentley Community will host Early Access program

Learn Content made available

SIG meeting will introduce OpenRoads Designer



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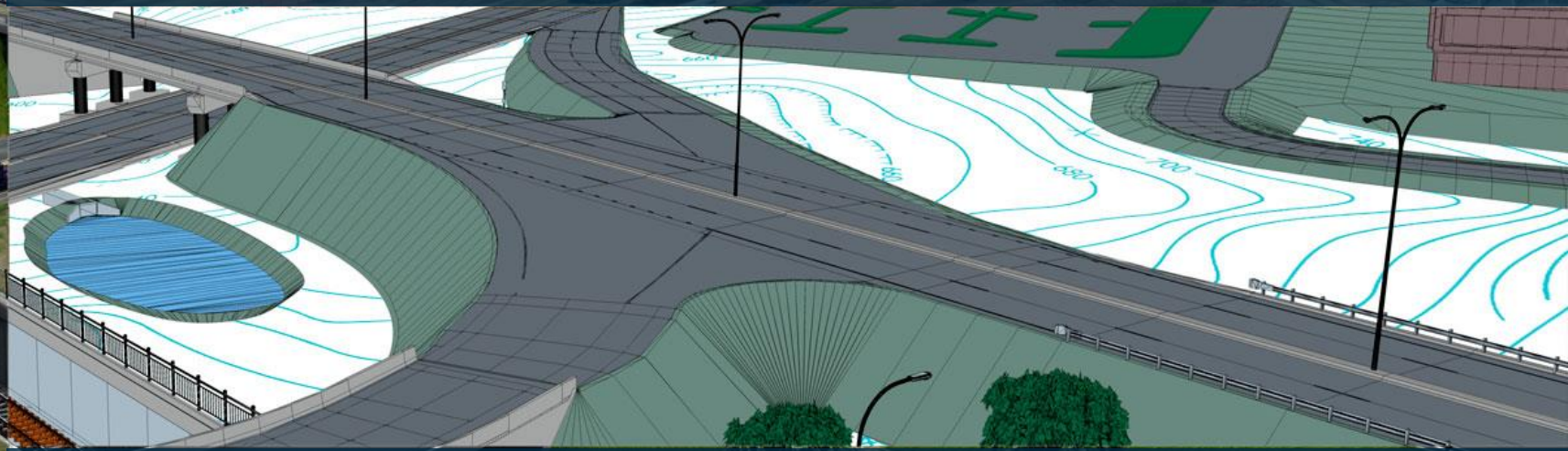
OpenRoads Designer



Early Access Available from 1st December 2016

Bentley Communities

Message from Bentley Communities

[AUTOMATED MESSAGE; do not reply -- please follow the links below if you wish to act on this Communities message.]

Ian Rosam invited you to join Openroads Designer Early Access:

IMPORTANT: Please make sure you complete the following steps (in order):

1. Have a Bentley User Profile (described here)
2. Are signed in to Bentley Communities (click here to sign in)

After the above steps are completed, then you can Accept this invitation online.

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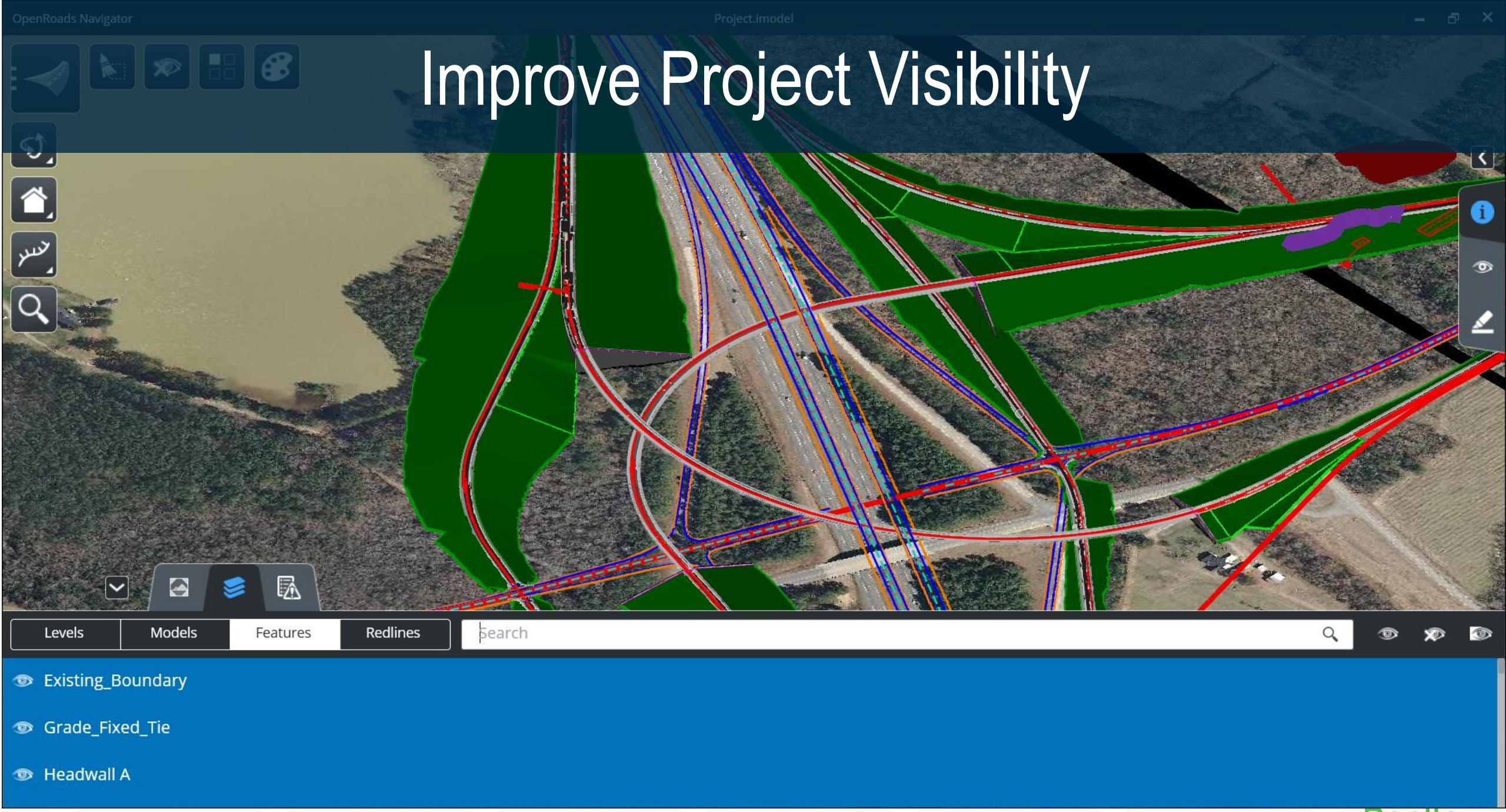
Digital Construction

Detailed Design

Conceptual Design

OpenRoads Navigator

Improve Project Visibility



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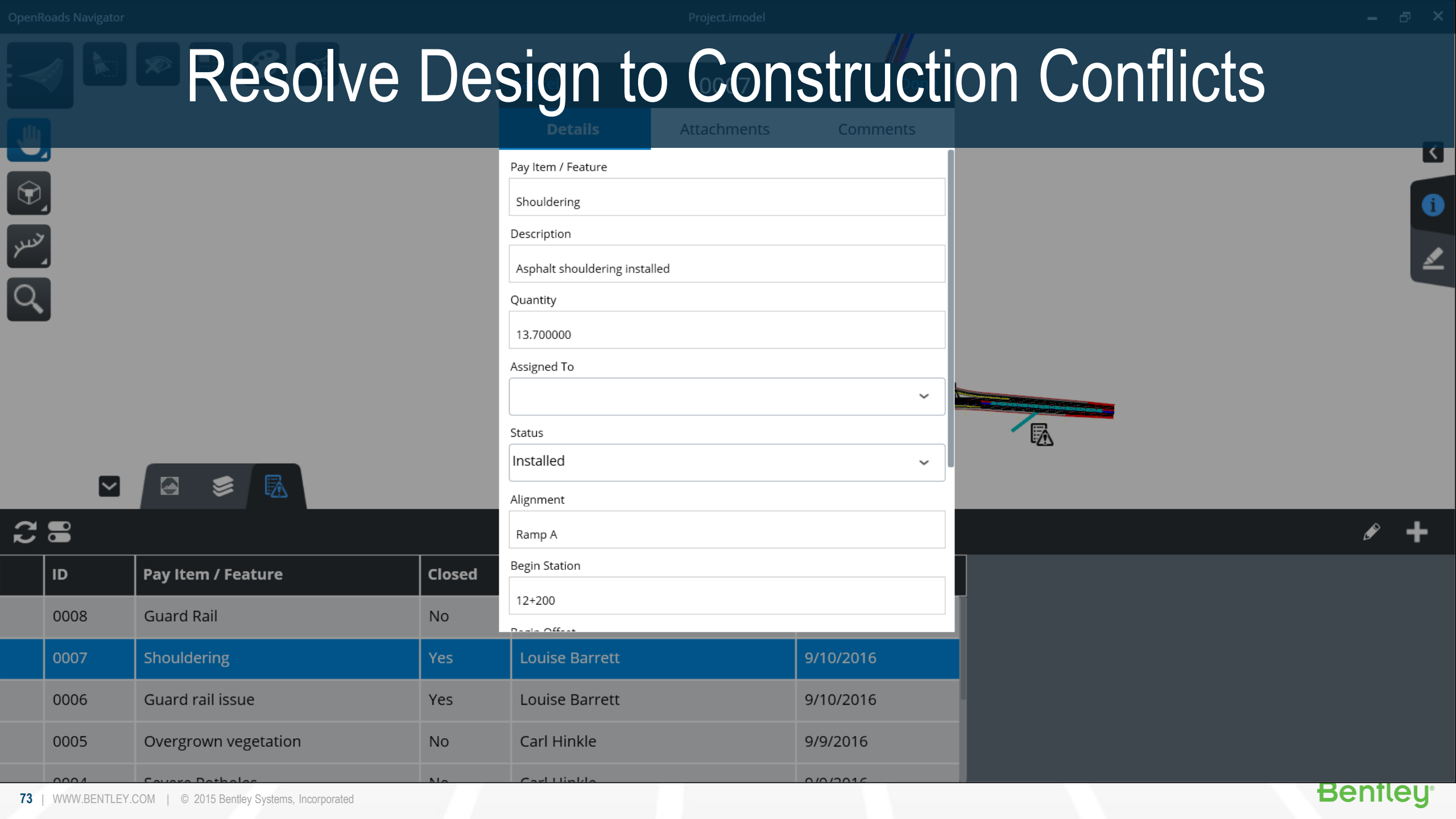
Resolve Design to Construction Conflicts



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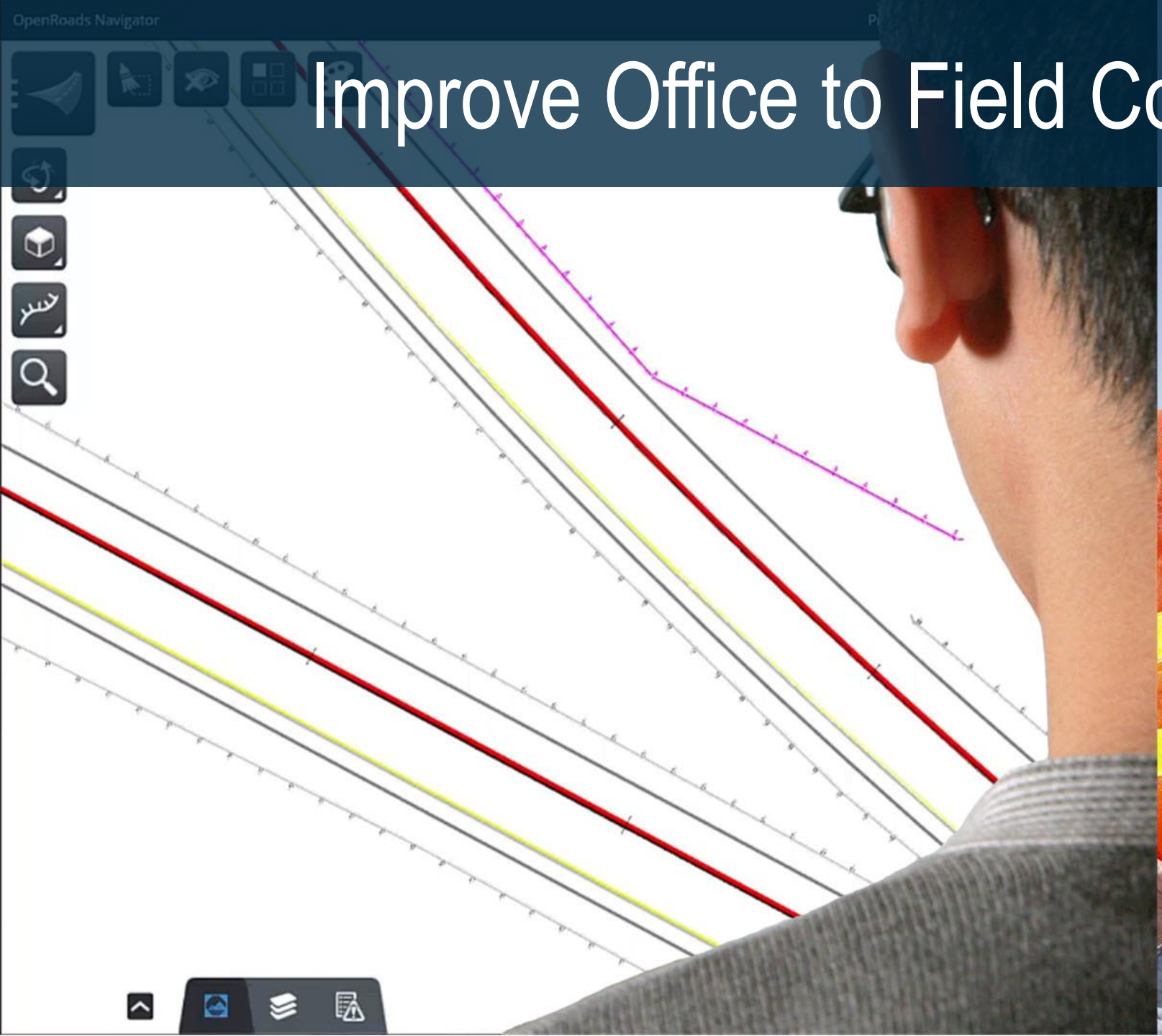
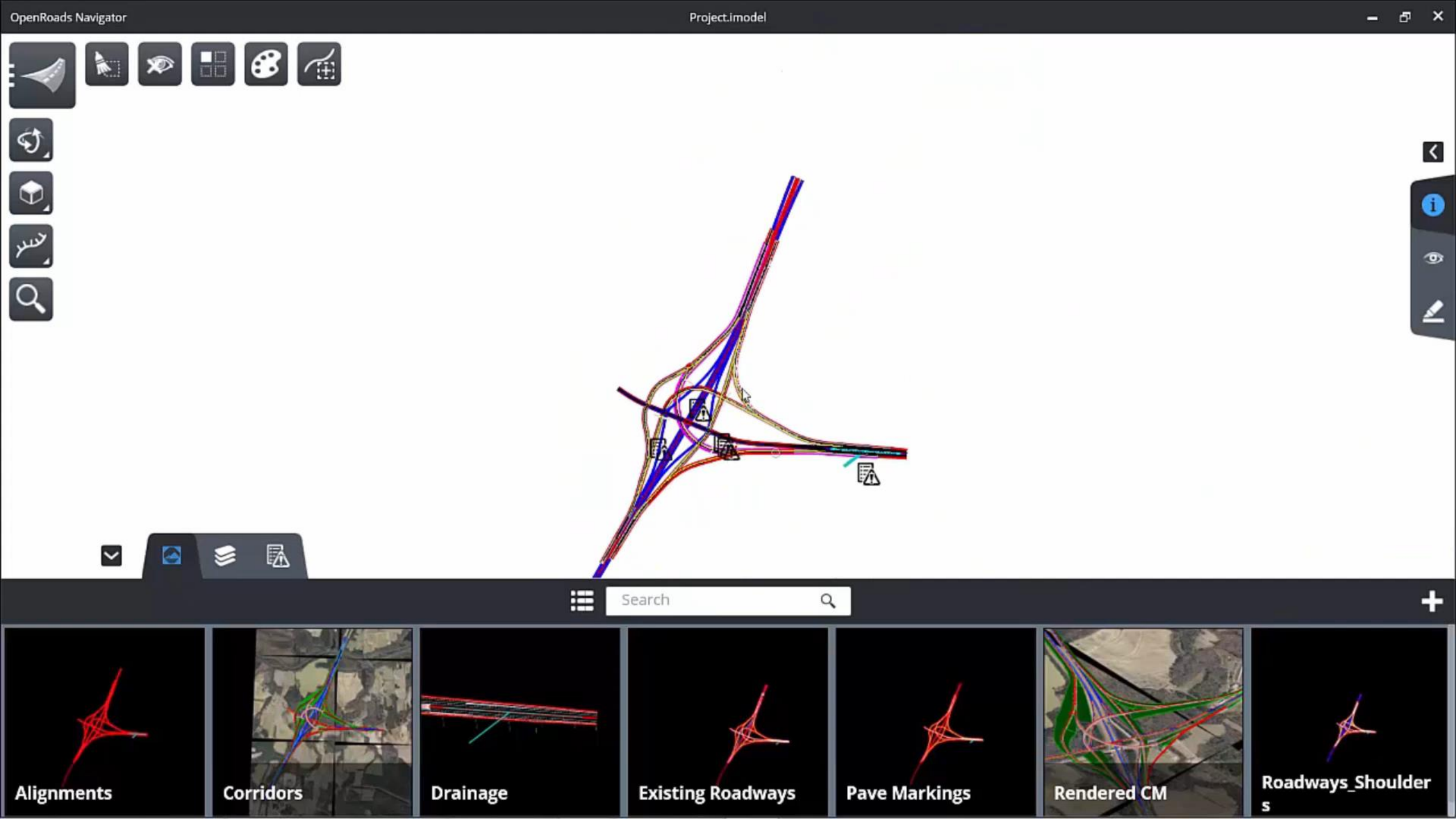
Improve Office to Field Collaboration




OpenRoads Navigator
Project.imodel
Search
Alignments
Corridors
Drainage
Existing Roadways
Pave Markings
Rendered CM
Roadways_Shoulders

OpenRoads

Thank You

Have a great conference!

Bentley
Advancing Infrastructure

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