CONNECT
DDE GUIDE

CTDOT

CONNECTICUT DEPARTMENT OF TRANSPORTATION

DIGITAL DESIGN ENVIRONMENT GUIDE

CONNECT EDITION

Volume 11 – OpenBridge Modeler

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Course Overview

In this module you will learn how to create base models for bridge/structure designs.

Skills Taught

- Learn how to select the proper Workspace and WorkSet.
- Select the proper seed file to create a Base Model.
- Align a file so it's in the proper geospatial location.

Introduction

OpenBridge Modeler is a bridge information modeling application offering:
- Geometric layout tools
- Connection to analysis and design
- Visualization and documentation
- Collaboration across disciplines
- Data re-use across the bridge life cycle from design to construction, and all the way to maintenance and operations.
- Parametric capabilities, allowing for instant updates to the bridge based on changes to roadway geometry.

Ribbon Interface

Tools can be accessed a variety of ways, including the Ribbon, Search and Context Sensitive Menus. Ribbons are arranged by Workflows, which are selected from a pull-down in the upper left corner of the software.

To activate the OpenBridge Modeler workflow use the pick list in the upper left corner if it is not already active.
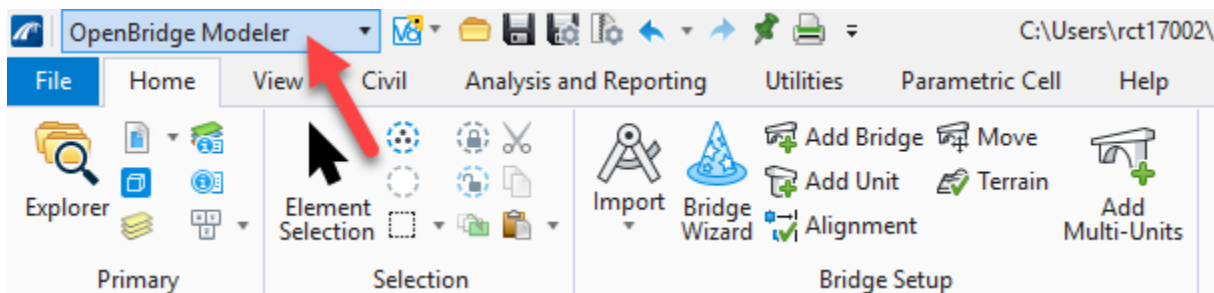

Figure 1 OpenBridge Modeler Workflow

The ribbon menu will reflect the OpenBridge Modeler tools. The tools are organized into categories on the ribbon tabs.

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- **Home –** Common tools such as Explorer, references, models, element selection, fences, bridge setup, support lines, superstructure, substructure and accessory.

- **View –** Commonly used view control tools.

- **Civil –** Tools from OpenRoads Designer including horizontal and vertical geometry tools, superelevation and cross section, terrain modeling and 3D Geometry. Analysis and Reporting- Bridge reporting, drawing generation and measuring tools.

- **Utilities –** Interoperability with Bentley analytical products, ICM, Export, Libraries, AccuDraw ACS tools and Clash Detection.

- **Parametric Cell –** Special tools for tagging various parts of a cell solids elements as cap, column, etc. Also provides for mapping of OBM variables to user-defined variables on a parametric cell.

Feature Definitions

Feature Definitions are used to control symbology, annotation, and various other properties that are applied to the geometric elements. These have been pre-set in the workspace set up. Below is an example of what the set up looks like for Barrier.
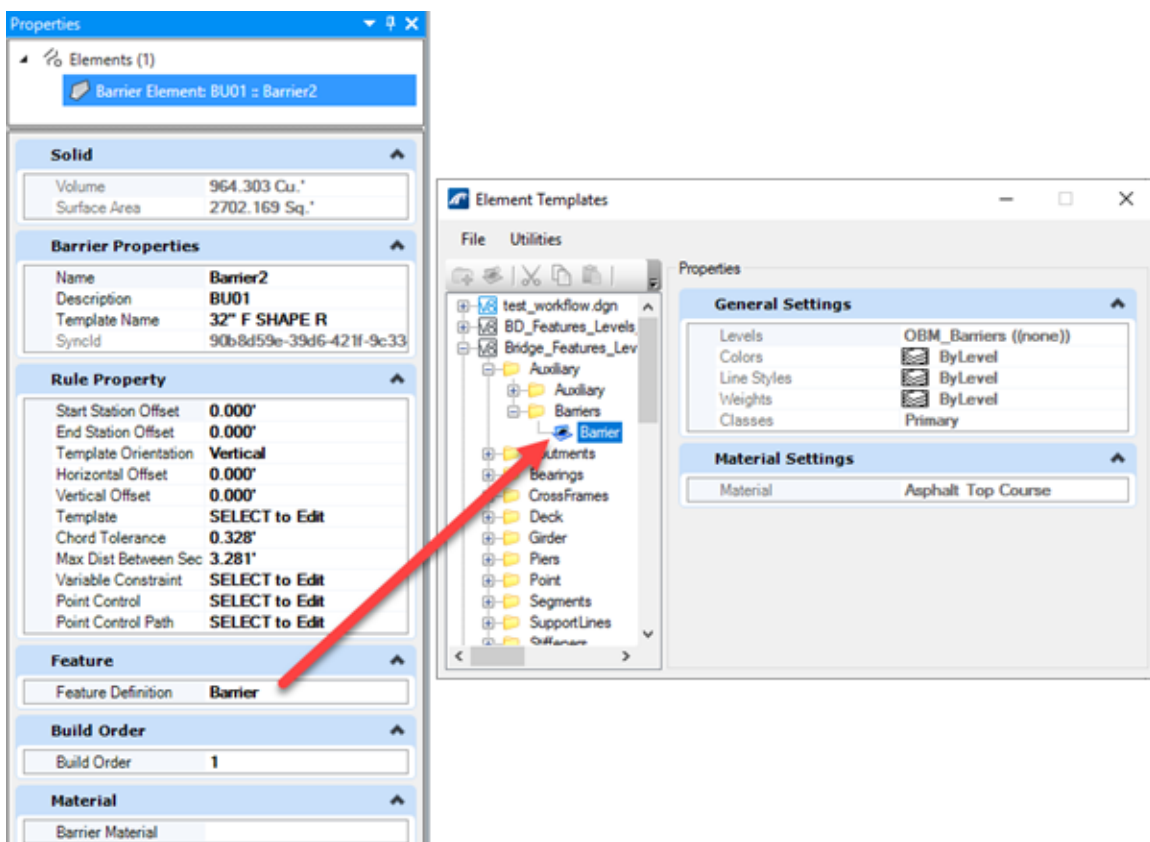

Figure 2 OpenBridge Feature Definitions and Element Templates

Exercise 1 – WorkSet Bridge Templates

OpenBridge Modeler uses custom templates which designers can create and modify including:

- 2D Templates: Decks, Beams, Columns, and Barriers
- 3D Templates: Piers, Abutments, and Wingwalls
- Parametric Templates

The Bridge Templates point to the Project (WorkSet location) *...- Design\Standards\Bridge Templates*. This will allow designers Read/Write access to these files. The first time a designer begins working on a project they should review these files using Windows File Explorer.

1. Compare these two folder locations to make sure the WorkSet has all the needed files.

    ...CT_Configuration\Organization-BIM_CT_Bridge Standards\Bridge Templates

    Project (WorkSet location) *...- Design\Standards\Bridge Templates*

2. If the Bridge Templates folder does not exist, the designer will need to copy the *Bridge Templates* folder from:

    ...CT_Configuration\Organization-BIM_CT_Bridge Standards\Bridge Templates

    to: *...- Design\Standards*

3. If there is already a *Bridge Templates* folder in the WorkSet location *...- Design\Standards* and after reviewing it looks to have missing or out of date files, the designer will need update.

Note: *New Designers should be cautious when copying over files already in the WorkSet location as they may overwrite work done by another Designer. Keep in mind designers may have modified some of these files so a careful review should be followed when deciding what files to update.*

Exercise 2 - Base Model Creation

2.1   Startup

Before attempting to open or create DGN files users should make sure the following is in place:

1. CTDOT users should have the CTDOT CONNECT DDE synced through SharePoint with the COMPASS Project Synced along with the CAD Configuration.

2. Consultants should have CTDOT DDE properly installed or be syncing to the CTDOT DDE SharePoint/COMPASS system.

3. Make note of the **Coordinate System** you will be working in. If you have existing survey data, you will need to find out what system is being used **(NAD 83/NAVD 88 or NAD 27/NAVD 29).**

4. Log on to the CONNECTION Client. Bentley Connect licensing requires users to log into their Bentley account to secure a software license. CTDOT users should log in using your CTDOT email address and Bentley password.If you do not see the dialog box, select the ∧ icon on the bottom Windows Screen. Click on the Connection Client Icon and select **Open.**
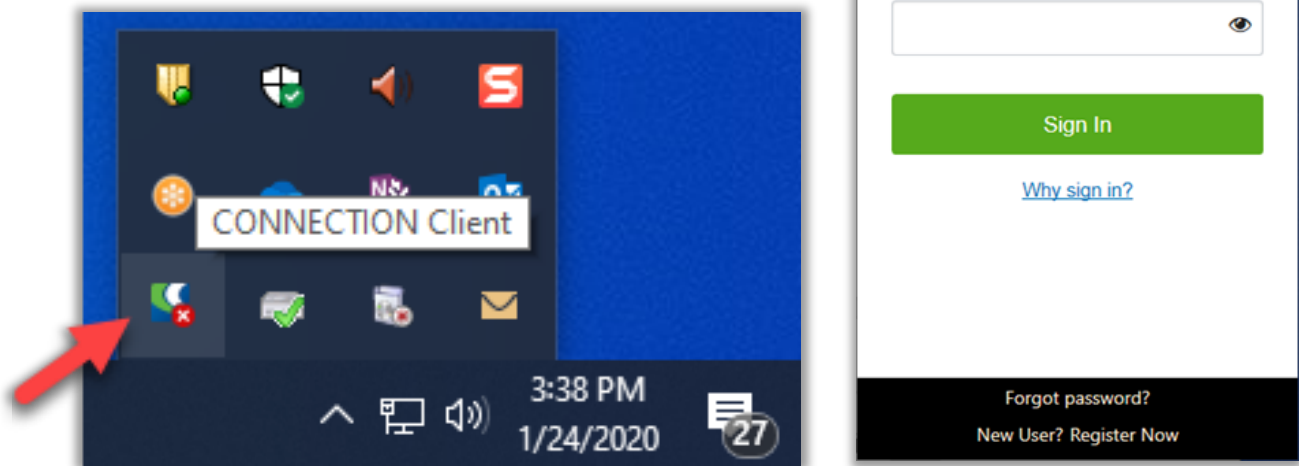

Figure 3 CONNECTION Client System tray

5. Launch the Application.

- **Consultants**
  Start the software via an appropriate **CTDOT DDE** icon
- **CTDOT employees**
  On your desktop double click on the **CAD Accounting** icon.

6. On the CT DOT Accounting Menu there will be select *Compass OpenBridge CE.*

   In the *Run Program* field select the needed program, the *Available Account* (funding source) and *Resource Type*. Click on the **Start** button to load the program.
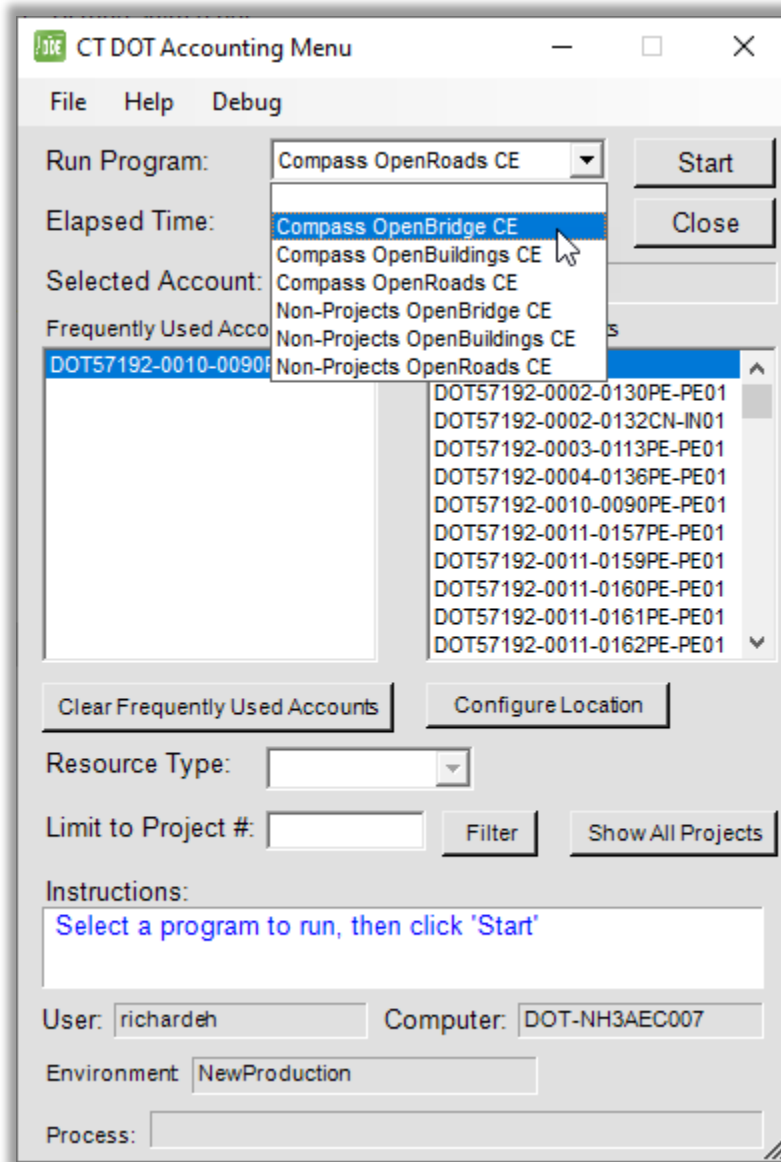

Figure 4 CAD Accounting dialog box

7. After launching the program, a home dialog box for **OpenBridge Designer** will open.

8. On the OpenBridge Designer Home dialog box select **New** to create a new OBDX file in the Bridge subfolder within the WorkSet. This file can also be stored locally on your C or D drive. Name the file with your initials and project number (example: **EHR_1234_1234_CAD_Only.obdx**). This file will only be accessed by one user, everyone working on the project should have their own.

    > **Note:** *If performing analytics using LEAP Bridge Steel, Leap Bridge Concrete or RM bridge create a separate OBDX file in the Bridge subfolder within the WorkSet; using the Project Number in the naming convention (example: **1234_1234_Analytics.obdx**). This file should only be selected when users plan to do analytics, the project team should coordinate its usage as only one person should be accessing it at a time.*
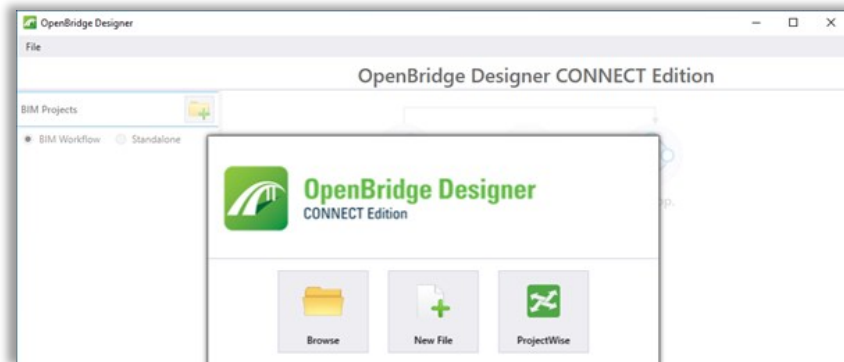

Figure 5 OpenBridge Designer Launcher

9. On the left side menu unsure that **Standalone** has been selected (not BIM Workflow). Select or create a New Group to expose the **OpenBridge Modeler icon.** On the left menu make sure you a have the **Group** selected **not a DGN file**. After selecting the **Group** click on the **OpenBridge Modeler** icon.
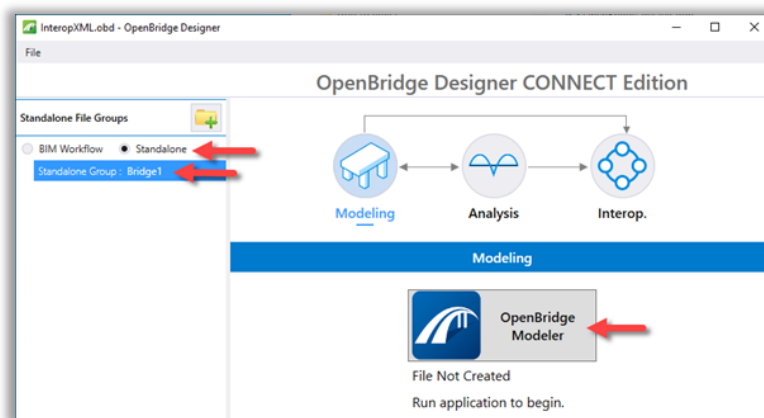

Figure 6 OenBridge Modeler Launcher

Note: *Additional applications are available by clicking on the **Analysis** or the **Interop.** buttons. Instructions on how to use these applications are not part of the CTDOT CONNECT DDE, visit Bentley's website for further instructions.*
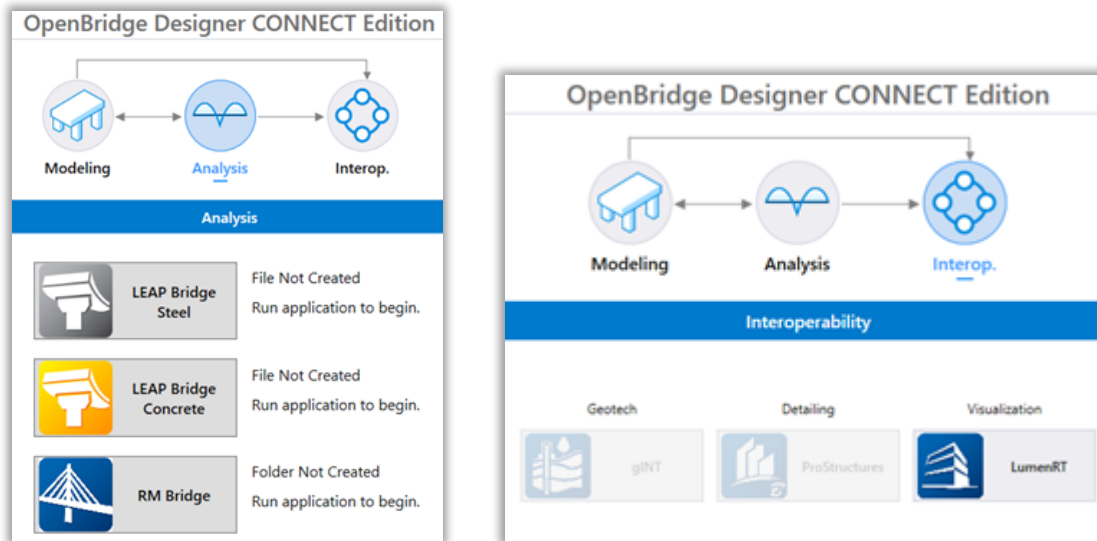

Figure 7 OpenBridge Designer Applications

10. Ensure you are using the **Custom Configuration** and **CT_WorkSpace**, then select the relevant **WorkSet** and **Role**. .

Note: *If you do not see the Project Number listed, please request a Compass/CAD Setup using this link New CAD Project Request*
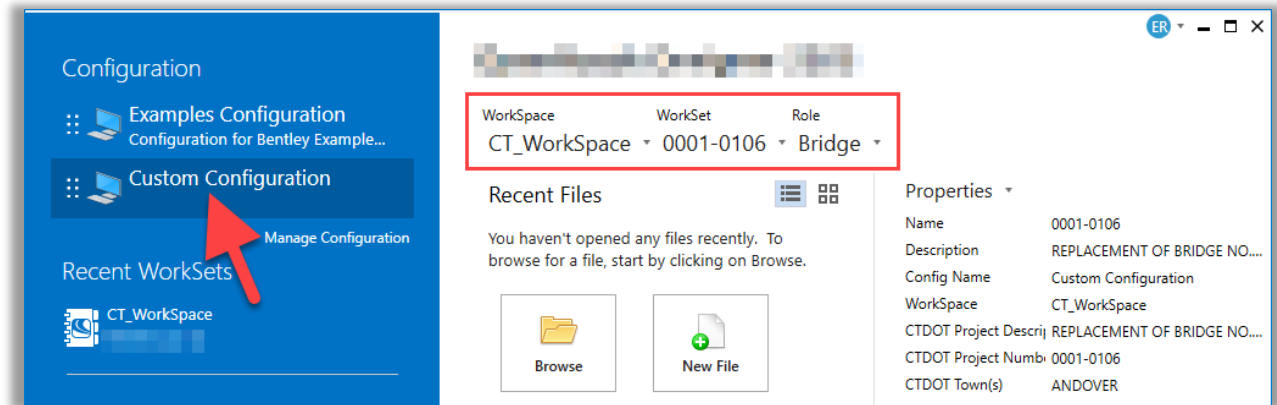

Figure 8 OpenBridge Modeler Splash Screen

2.2   Creating a New File

1. Select the **New File** icon. In the New dialog box browse to the ***Bridge/Base_Models*** folder.

   Note: *Do not copy DGN files created with V8i SELECTseries or InRoads SS2, SS3, SS4, or SS10 to the new CTDOT CONNECT Project/WorkSet folders.*

2. The Seed file should be set to ***...CT_Configuration|Organization|Seed|Bridge|Seed3D - CT BridgeDesign.dgn***. If the survey was done in an old Datum, use the 3D Seed Files in this folder ***...CT_Configuration|Organization|Seed|GCS|***

3. In the ***File name*** field enter a name for your file using the CTDOT File Naming structure.

   Example: ***SB_CB_1234_1234_Bridge#.dgn***

4. Select **Save** and the new file will open.

5. After the DGN file is created open File Explorer and browse to the file, **right click** and select **View online**.
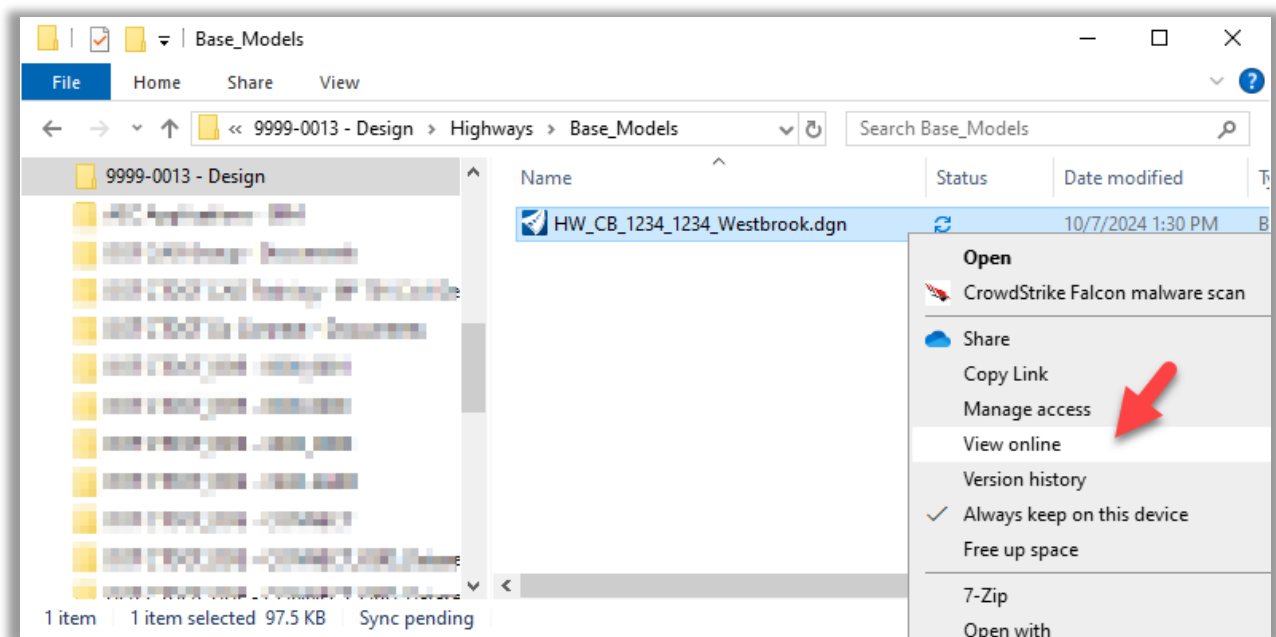

Figure 9 File Explorer View online tool

6. The Projects SharePoint site will open, sort by **Date**, click on the **three dots**, select ***More ›
Check Out***

> ***Note:*** *When you are done working on the DGN file, exit the program and go back to the SharePoint Site and **Check In** the file.*
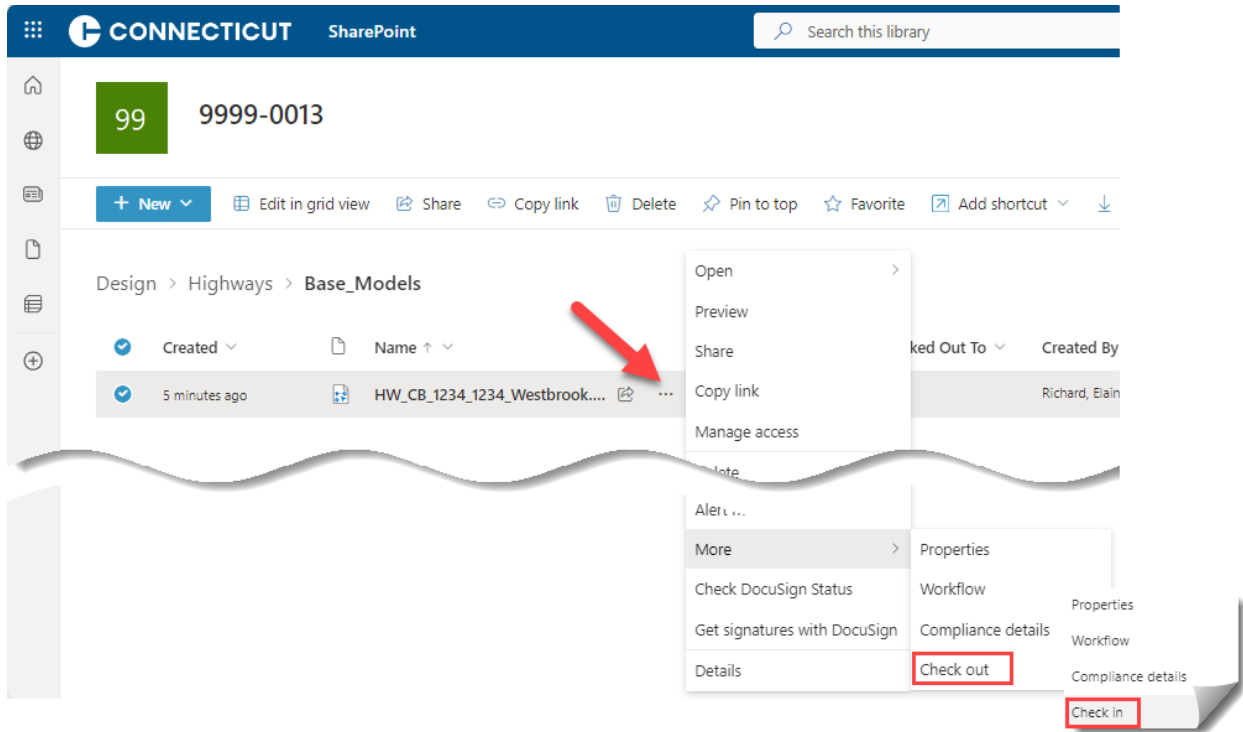

Figure 10 SharePoint Check out

2.3 Referencing

Reference in other Design Unit's DGN files. This could include but not limited to Highway, Illumination, Signal, Signing, Pavement Markings and Existing Survey.

1. Select the **CTDOT** workflow and click on the **Attach** Tab, in the **References** section click on **Attach Reference**.

2. Navigate to the ***Highways|Base_Models*** folder and reference the Highway Design Base Model files. Choose the needed Models (most likely its "Default") and use **No Nesting**.

   Note: *Highway Design may elect to have several DGN files which could include Alignment dgns, Modeling dgns, and Drainage dgns. Highway Design.*

3. Navigate to the ***Active_Survey*** folder and reference the Survey *.dgn file. This may include 2 files a Terrain DGN and a Ground Topo (grn) DGN

   Note: *Older DGN Files will need to be referenced in with certain settings to get them to line up in the correct Geospatial location.*

4. For older reference files turn **True Scale** off and set the Scale to ***1:1***.

   Note: *Always do a check by clicking on the Survey's Northing and Easting Grid Marks to compare the files read out. If they do not match you did not properly align the file Geospatially.*
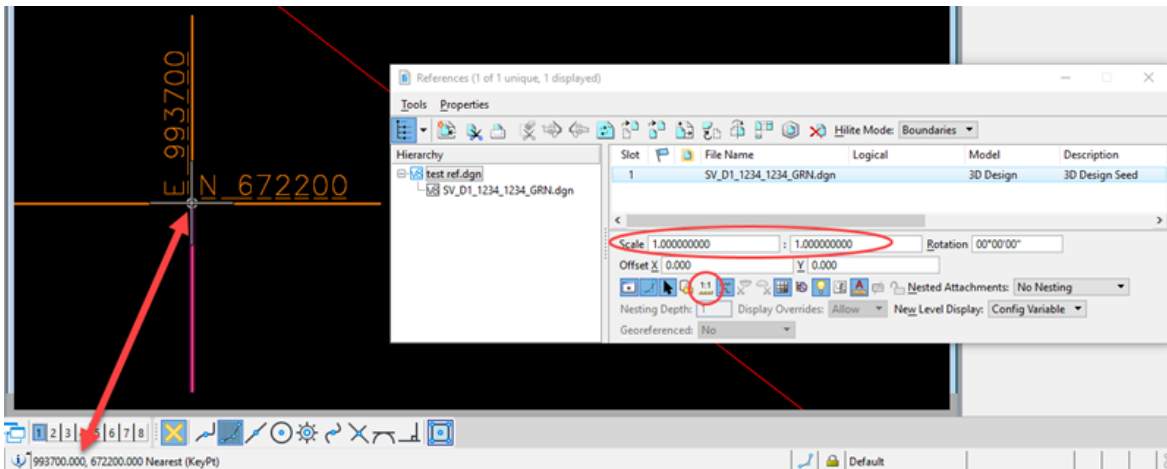

Figure 11 Reference Coordinates

5. Select **Level Display** and turn off the desired levels in the reference files.

6. Activate the terrain by clicking on the terrain boundary, hover over the boundary and from the pop-up menu select the ***Set Terrain Active*** tool.

7. Click again on the terrain boundary and set the override symbology to ***Yes***. Then to help with the horizontal alignment creation, you can turn on the contours.

Figure 12 Override Terrain Symbology

8. Select **Save Settings**.

9. Select the **OpenBridge** workflow and begin designing your structure using the tools available in the ribbon.
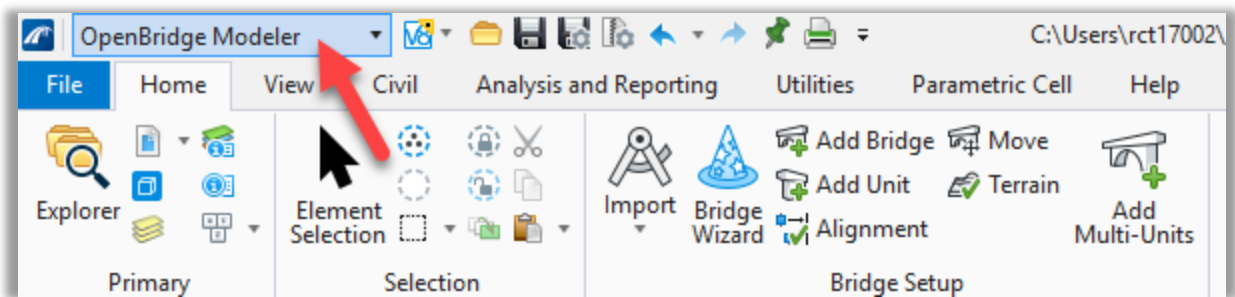

Figure 13 OpenBridge Workflow

2.4   Online Learning

The following two links will help users get started with Bentley's Learning Program

1. [Getting started with Bentley Learn](#)

2. [All Courses - Bentley Learn](#)

Revisions