

# AUTODESK GUIDANCE

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1. Combination Scale Factor
  - a. The CSF will be neglected for transverse measurements.
  - b. All bridge span lengths and stations in Infoworks will be grid dimensions.
  - c. All Inventor items will be built using ground dimensions.
  - d. Additional notes required to denote what is grid and what is ground
    - i. May need dual models for some scenarios when girders need to be in ground dimensions
2. Dimensions and Notes
  - a. All dimensions and notes will be placed in "Paper Space" at a 1:1 scale.
  - b. Standard details will be placed in "Paper Space" at the correct scale.
    - i. If detail needs modification place in Model Space at 1:1 scale and modify accordingly and place on sheet the same as any other detail.
  - c. Borings placed on Revit sheet at 1" = 20'-0".
3. Microstation to ACAD line weights
  - a. MS 0 = ACAD 0.09
  - b. MS 1 = ACAD 0.18
  - c. MS 2 = ACAD 0.25
  - d. MS 3 = ACAD 0.30
4. Greyscale Colors
  - a. 250 – 255
    - i. These will plot as their respective shades of grey
5. Sheet Size
  - a. All Autodesk sheets will be 11x17 (Autocad & Revit).

## PROJECT FILES

### ACAD\_Template.dwt

S:\Bridge\_CADD\Autodesk\Civil\_3D\Templates

- Autodesk Drawings (Rehab)
- Details for Revit Import

### ACAD\_DeckGrid\_Template.dwt

S:\Bridge\_CADD\Autodesk\Civil\_3D\Templates

- Autodesk Drawings (Deck Grids)

### Sheet Set Template.dst

S:\Bridge\_CADD\Autodesk\Civil\_3D\Templates

- Sheet Sets for Autocad Drawings (Rehab)

### Deck Grids Sheet Set Template.dst

S:\Bridge\_CADD\Autodesk\Civil\_3D\Templates

- Sheet Sets for Autocad Drawings (Deck Grids)

### C3D\_Template.dwt

S:\Bridge\_CADD\Autodesk\Civil\_3D\Templates

- Alignments for Infraworks
- Terrain for Infraworks and Revit
- Borings for Revit

### XXXX000BRDSNTB1.dwg

S:\Bridge\_CADD\Autodesk\Civil\_3D\Templates

- Tables for Revit Projects
  - One file for each bridge on the project

### Bridge\_061820.rte

S:\Bridge\_CADD\Autodesk\Revit\Templates

- Revit Projects

## STANDARD DRAWINGS

- PDF: BR\_Std\_Dwg\_Binder
- CAD: BR\_Std\_Dwg.dwg
- Sheet Set: BR\_Std\_Dwg\_Set

S:\Bridge\_CADD\StdDwg\PDF

S:\Bridge\_CADD\StdDwg\CAD

S:\Bridge\_CADD\StdDwg\CAD

The following guide is for placing Autodesk Bridge Models and Design Files on BIM360.

1. Create a “Bridge Model” folder in BIM360 in the “BR” folder under the project:
  - a. This will be where the CADD files for the bridge model will be stored
2. Create the following folders in the “Bridge Model” folder depending on the project type

New Bridge	Rehab
Inventor	Autocad
Infraworks	
Revit	
Civil 3D	
Autocad	

## **INVENTOR**

1. Copy the “Inventor Template Folder” to Inventor folder under the project on BIM360
2. Rename the folder accordingly based on the object created
  - a. 3D Model Filename: XXXX000BR~~XXX~~001 (File class to be named per the object ex. BNT, PRD, RDE)
3. Create the Inventor parts and assemblies as needed for the object in this folder
  - a. 3D Model Filename: XXXX000BR~~XXX~~001.IPT (File class to be named per the object ex. BNT, PRD, RDE)
4. Export the part or assembly to the “IW\_Export” Folder

## **INFRAWORKS**

1. Created with “Model Builder”
  - a. Locate the Infraworks files
    - i. Location: C:\Users\XXXX\Documents\Autodesk InfraWorks Models\Autodesk 360\716977
    - ii. The “716977” folder is a random number, located in this folder will be another folder and a \*.sqlite file with a name matching the filename given in Infaworks when the model was created.
  - b. Move the folder and the \*.sqlite file to BIM360
    - i. Folder Filename: XXXX000BR~~MAP~~001
    - ii. Filename: XXXX000BR~~MAP~~001.SQLITE
    1. The \*.sqlite file and the accompanying folder must have the same filename
2. Created from scratch
  - a. Save the file to the Project Infraworks folder on BIM360
    - i. Use the above filename for the file

## REVIT

1. Place Revit file on BIM360
  - a. Filename: XXXX000BRRVT001.RVT

## CIVIL 3D

1. Place Civil 3D files on DMS
  - a. Terrain Filename: XXXX000BRETR001.DWG
  - b. Alignment Filename: XXXX000BRALN001.DWG
  - c. Borings Filename: XXXX000BRCOR001.DWG
  - d. 3D Bridge Filename: XXXX000BRGEN001.DWG
    - i. This file will contain the Revit or Infraworks export for Road Design Plans
  - e. Map File Filename: XXXX000BRMAP001.DWG (Contains XREF of the above files)
    - i. The Map file is only needed if required by design.

## AUTOCAD

1. Place Autocad file on BIM360
  - a. 3D Model Filename: XXXX000BRXXX001.DWG (File class to be named per the object ex. BNT, PRD, RDE)
  - b. Rehab Filename: XXXX000BRREH001.DWG (Only one file per Rehab, All sheets in this file)
  - c. Tables Filename: XXXX000BRDSNTB1.DWG
2. Place Civil 3D export to Autocad on BIM360
  - a. Terrain Filename: ACAD-XXXX000BRETR001.DWG
  - b. Alignment Filename: ACAD-XXXX000BRALN001.DWG
  - c. Borings Filename: ACAD-XXXX000BRCOR001.DWG

## SHEET SET

1. Place Autocad Sheet Set file on BIM360
  - a. Sheet Set Filename: XXXX000BRREH001.DST
    - i. The sheet set is only required for Autocad Rehab projects.
    1. The filename should match the Autocad filename.

The following guide is to get OpenRoads alignments and terrain into Autodesk for bridge modeling.

Download the following road design files from DMS

- XXXX000XXALN001.DGN (OpenRoads Alignment file)
- XXXX000XXETR001.DGN (OpenRoads Terrain file)

## OPEN ROADS

### TERRAIN EXPORT

Open the XXX000XXETR001.DGN file in OpenRoads

- Select the terrain boundary line
- Hover mouse over selected boundary line until dialog box pops up
- Expand the 3<sup>rd</sup> Option from the left (Export Terrain Model)
- Select LandXML Export



Enter the appropriate values in the Next 3 dialog box popups at the cursor.

Enter a Project Name

Enter Export Value	
Export Options: Project Name	Anaconda West

Left Click to accept

Enter a project description

Enter Export Value	
Export Options: Project Description	

(This may be left blank)

Left Click to accept

Verify "Export Both" is the current value

Enter Export Value	
Export Options: Export Options	Export Both <input checked="" type="checkbox"/>

Left Click to accept

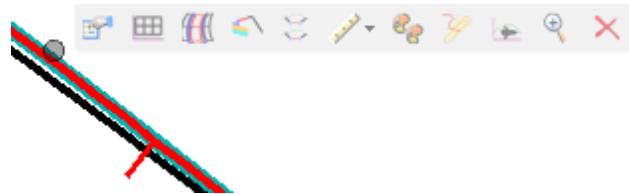
Save the file to BIM360 in the Civil 3d folder with the following filename

Filename: XXXX000BRETR001.XML

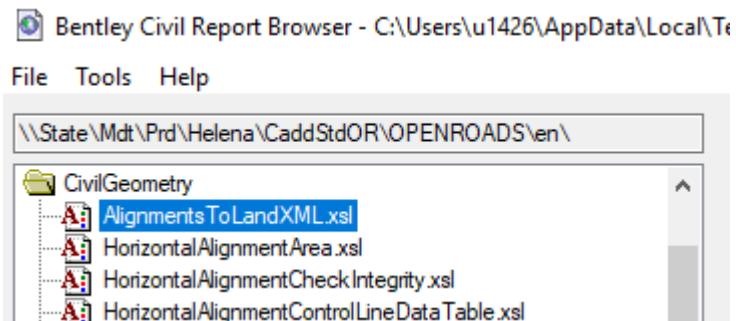
## ALIGNMENT EXPORT

Open the XXX000XXALN001.DGN file in OpenRoads

- Select the alignment
- Hover mouse over selected alignment until dialog box pops up
- Expand the 4th Option from the right (Horizontal Geometry Report)



Select “AlignmentsToLandXML.xlsx” from the CivilGeometry folder (This should be the first option in the list)

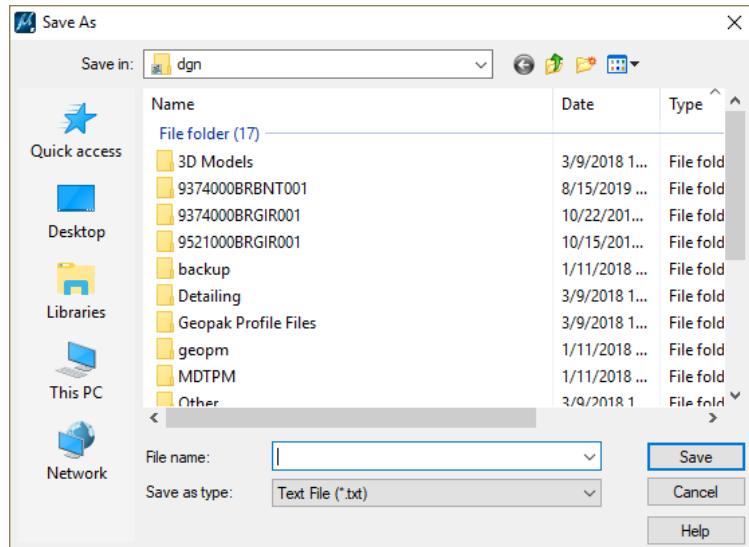


Do a File > Save As

Save the file to BIM360 in the Civil 3D folder with the following filename

New Filename: XXXX000BRALN001.XML

**LEAVE THE “Save as type” SET TO  
“Text File (\*.txt)”**



## CIVIL 3D

Create a new file from the Template: C3D\_Template.dwt

Save the new file as:

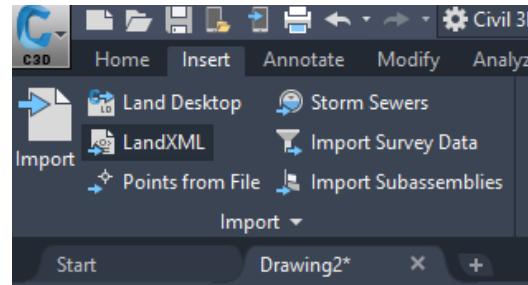
- Alignment: XXXX000BRALN001.DWG
- Terrain: XXXX000BRETR001.DWG

## TERRAIN IMPORT

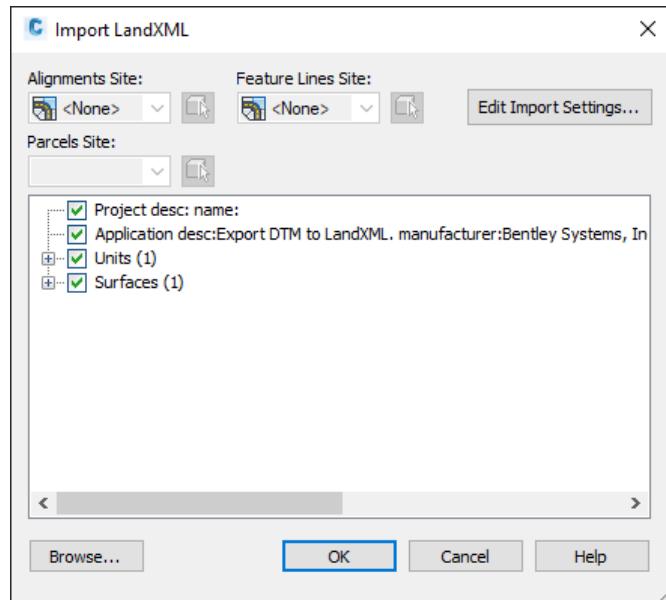
Open the XXXX000BRETR001.DWG file

From the “Insert” tab select “LandXML”

Select the XXXX000BRALN001.XML created above from BIM360



Verify the Import LandXML dialog box matches what is shown here

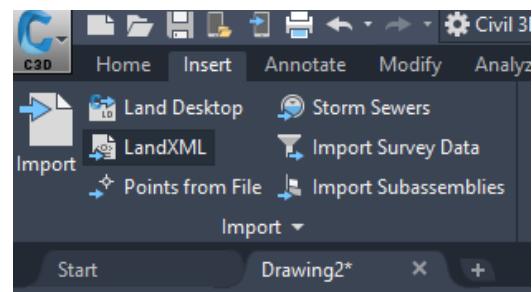


## ALIGNMENT IMPORT

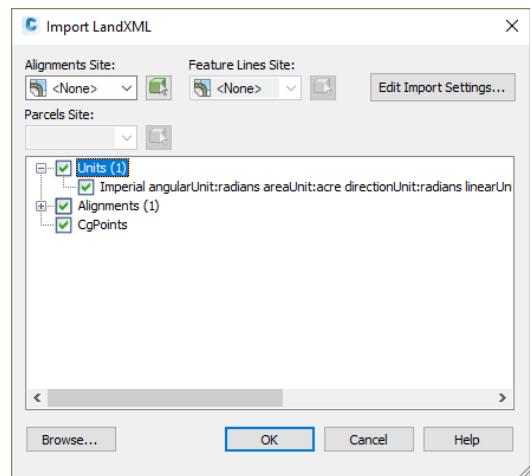
Open the XXXX000BRALN001.DWG

From the “Insert” tab select “LandXML”

Select the XXXX000BRALN001.XML created above from BIM360



Verify the Import LandXML dialog box matches what is shown here



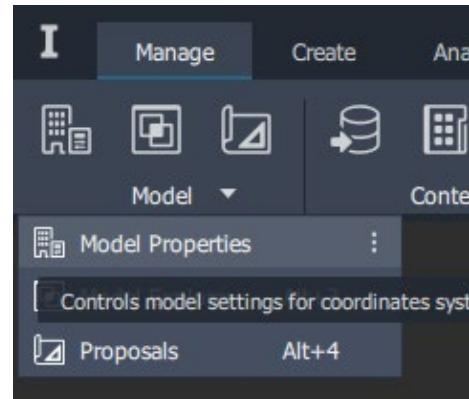
## INFRAWORKS

Create a new file or open an existing file

New Filename: XXXX000BRMAP001 (There is no file extension when creating Infraworks files)

The initial model will need its model properties set for the proper coordinate system

Select the “Model Properties” from the “Model” tab

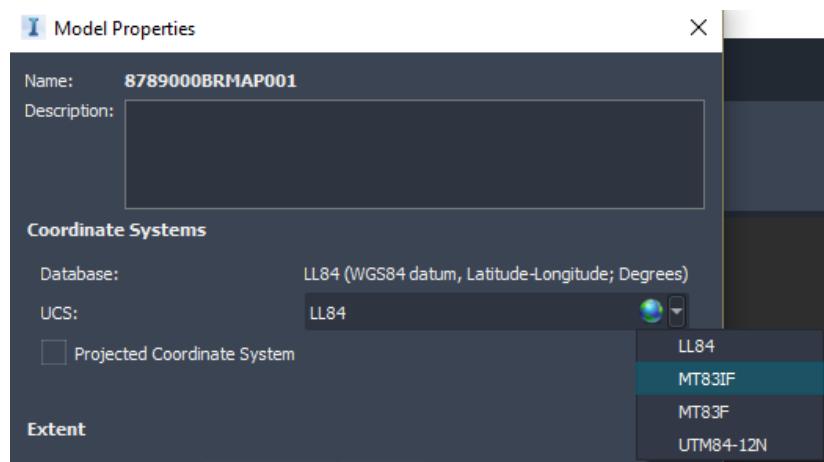


Expand the USC box and Select the MT83IF coordinate system

If this option is not available

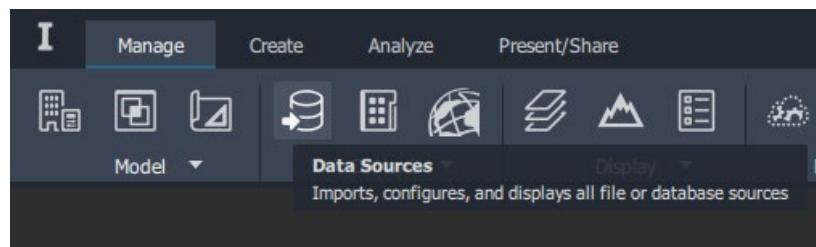
Select the “Globe” icon and scroll down and select the following

- USA, Montana
  - MT83IF

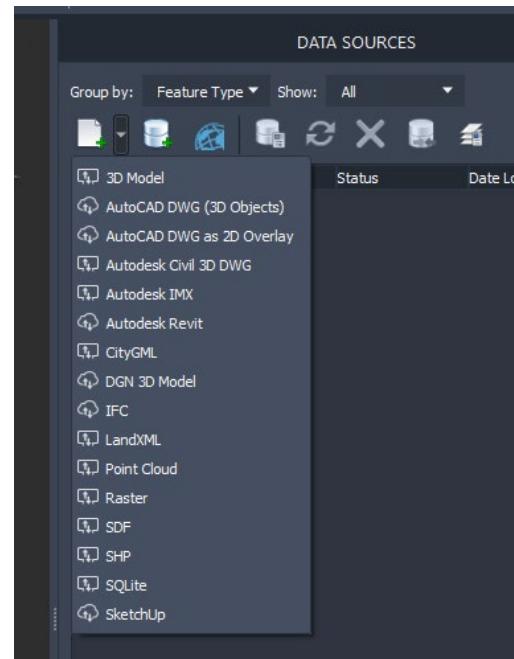


## TERRAIN IMPORT

Open the “Data Source” toolbox



Add a data source by “Autodesk Civil 3D DWG”

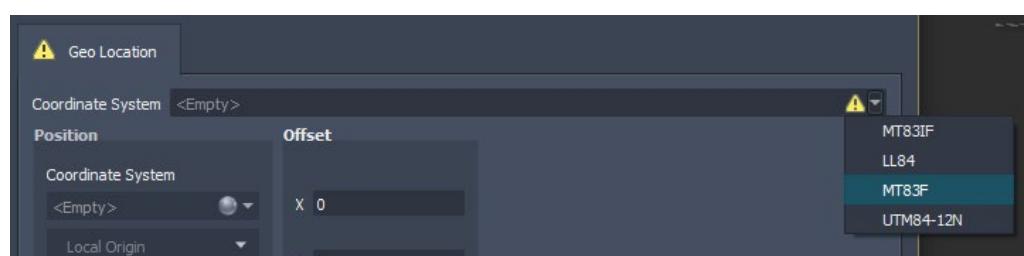


Select the terrain file XXXX000BRETR001.DWG created in the Civil 3D Terrain import section.

This data source now needs to be configured.

Double click on the newly added data source

Change the coordinate system to MT83IF

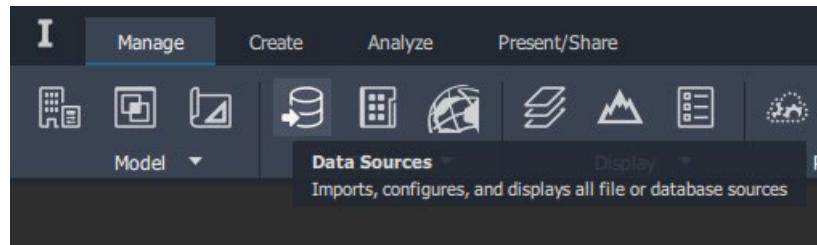


Select Close and Refresh at the bottom of this box when finished

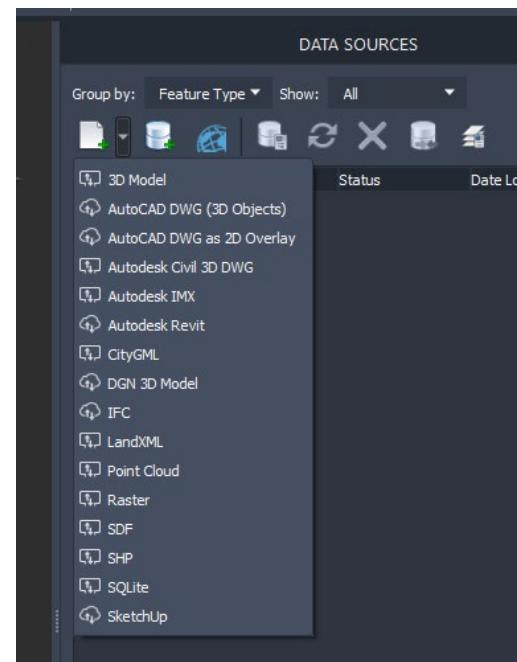
The terrain is now loaded into the model.

## ALIGNMENT IMPORT

Open the “Data Source” toolbox



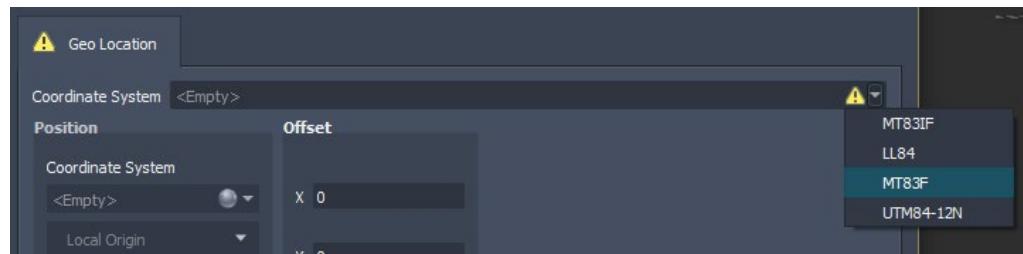
Add a data source by “Autodesk Civil 3D DWG”



Select the alignment file XXXX000BRMAP001.DWG created in the Civil 3D alignment import section.

This data source now needs to be configured.

Double click on the newly added data source



Change the coordinate system on the “Geolocation” tab to MT83IF

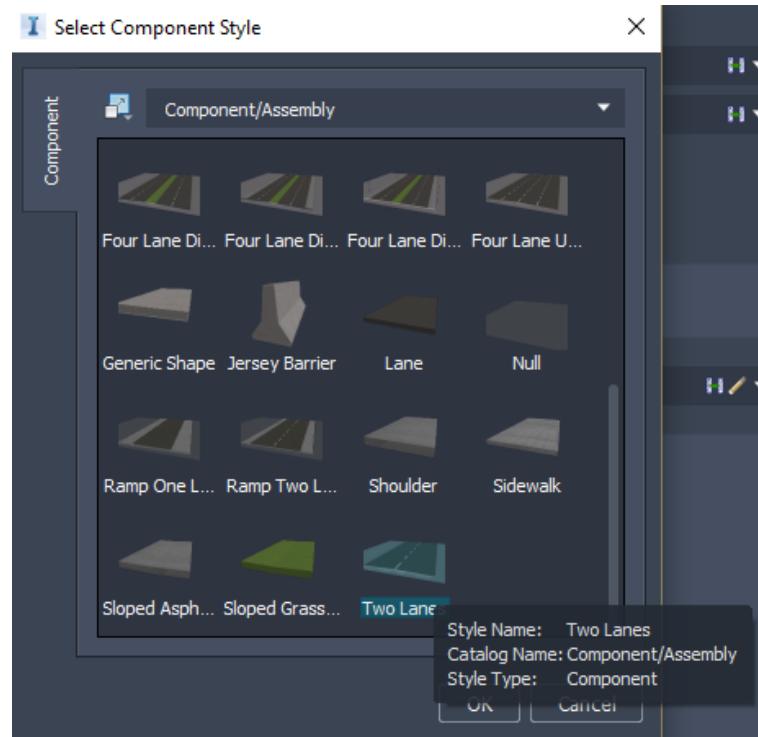
Click on the style chooser on the “Common” tab > Style Section > Assembly Style



Browse to the style

Component/Assembly/Two Lanes and press OK

Currently the “Two Lanes” style comes into the model as 4 Lanes. Just use the outside 2 lanes as shoulders or delete them based on the needs of the model.



Select Close and Refresh at the bottom of this data source configuration when finished

The alignment is now loaded into the model.

The following guide is to get Civil 3D Terrain into Revit.

Download the following files from DMS

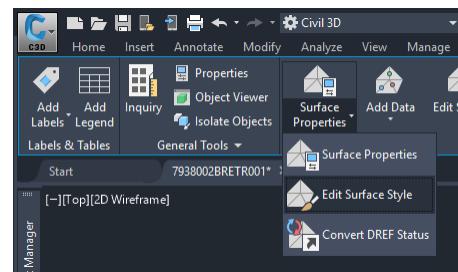
- XXXX000BRETR001.DWG (Civil 3D Terrain file)

## CIVIL 3D

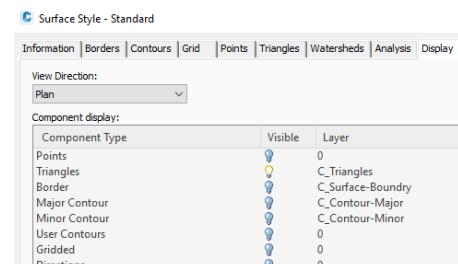
### TERRAIN EXPORT

Open the XXX000BRETR001.DWG file created in the “Openroads Road Data to Autodesk” Guidance

- Select the terrain
- From the “Tin Surface” tab select Surface Properties from the Modify panel.
- Choose “Edit Surface Style”

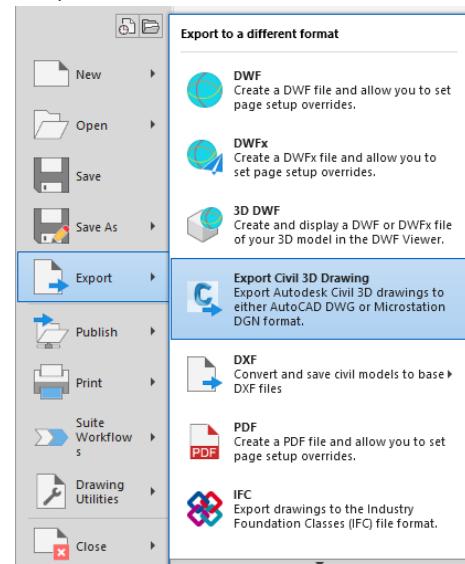
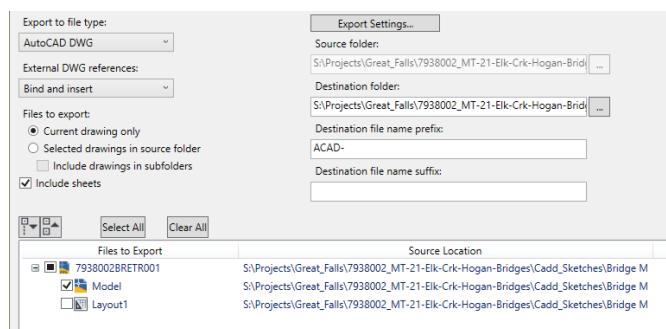


- On the display tab turn off all “Components” except triangles
  - Verify “Triangles” are on a layer that is NOT 0



Your file should show the terrain as triangles only

- Export the file to DWG (This will strip all Civil 3D data from the file)
- Select the appropriate Destination folder for the new file
- Filename: ACAD-XXXX000BRETR001-Model.DWG
  - The “ACAD\_” prefix and the “-Model” suffix will be automatically applied in the export dialog box
- Uncheck all layouts, so only the model is exported



## AUTOCAD

### REFERENCE MARKER

Open the ACAD-XXXX000BRETR001-Model.DWG file previously exported

Remove any objects or triangles that are not required by simply deleting them.

If it is determined the whole terrain area is not required for the bridge project remove the excess triangles and the associated points and labels.

Locate a marker a known coordinate location in the file

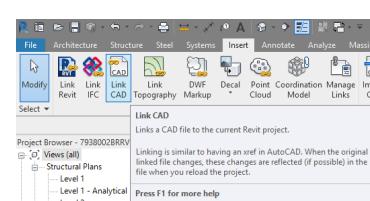
- Note the coordinates of the marker
  - They will be required for use in Revit later to align the terrain to the bridge
- Locate the marker near the bridge location but out of the area required for the plans

## REVIT

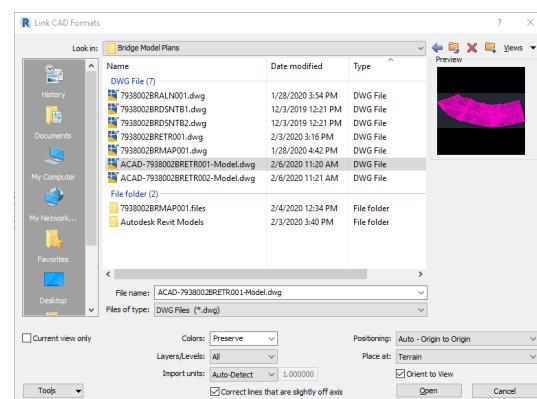
### TERRAIN IMPORT

Open the Revit file XXXX000BRRVT001.RVT containing the bridge model

- On the Insert tab select “Link CAD”



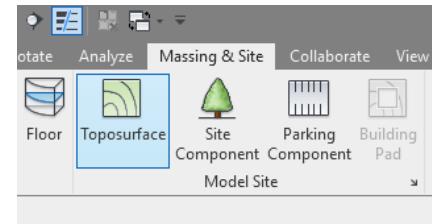
- Link to the ACAD-XXXX000BRETR001-Model.DWG file from the Terrain Export section of this guidance
- Positioning: Auto – Origin to Origin
- Place at: Terrain
- Import Units: Auto-Detect



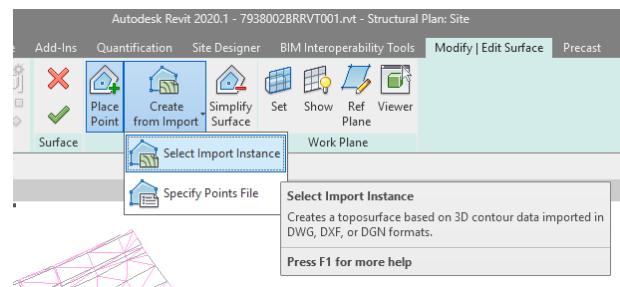
- Move the terrain from its current location to near the bridge model
  - It will be placed near the survey point in the “Site” Level
- Modify the survey point coordinates to match the coordinates noted above
- Align the marker in the linked file with the survey marker

## TOPOGRAPHY

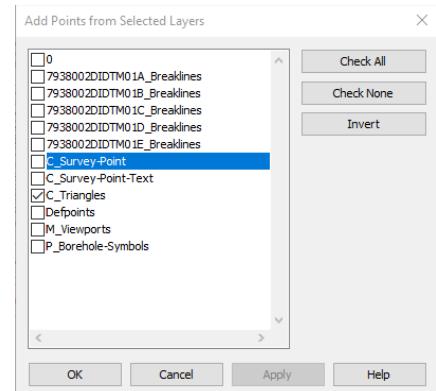
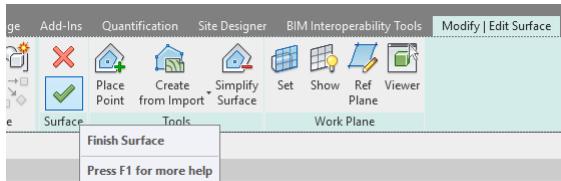
- From the “Massing & Site” tab select Toposurface



- In the Modify | Edit Surface tab select “Select Import Instance” from the “Create from Import” Tool
- Select the ACAD-XXXX000BRETR001-Model.DWG triangles that were imported

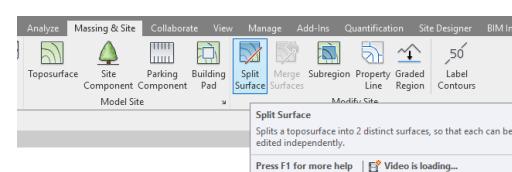


- Uncheck all items except “Triangles”
- Select “OK” to load the topography
- Select Finish Surface

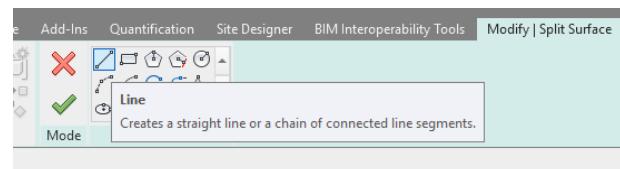


The Surface will now need cleaned up due to Revit creating additional triangles around the perimeter for the terrain

- Select the surface and choose “Split Surface” from the Massing & Site tab and select the Revit surface



- Using the line tool place a chain around the linked terrain to form a closed boundary
- Select Finish Surface when Done



This will create 2 separate surfaces.

- Delete the surface that contains the extra contours
  - This may need to be done multiple times to split all the excess triangles for the required surface

The following guide is to get Autocad Tables into Revit.

## AUTOCAD

### CREATE TABLES

Copy the XXX000BRDSNTB1.DWG file to your working folder

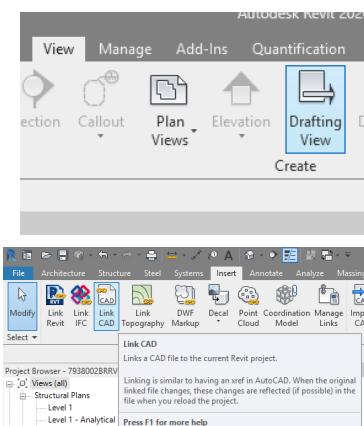
- Delete any tables not required for the project
  - This is not necessary
- Create any new tables required for the project
  - Any new tables need to be placed on their own level
    - Begin new levels for table with the prefix “T\_”
    - Follow the naming convention of the premade tables for all new tables
- Modify the existing tables in the file as necessary to meet the project needs
  - Do not modify the size of the “T\_Seismic” table
    - This table is sized to fit on the notes sheet and at the same width as the text columns

## REVIT

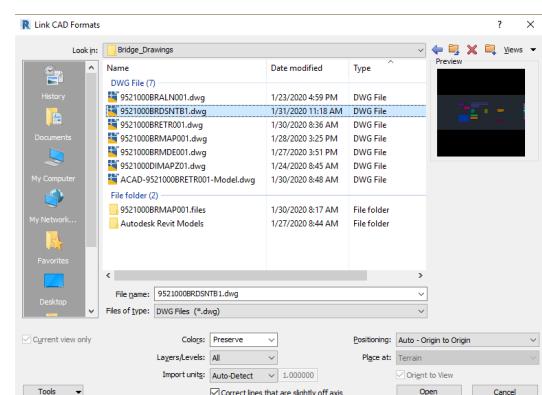
### TABLE IMPORT

Open the Revit file XXXX000BRRVT001.RVT containing the bridge model

- From the View tab, Create panel, Create a new Drafting View
- In the Drafting View from the Insert tab select “Link CAD”

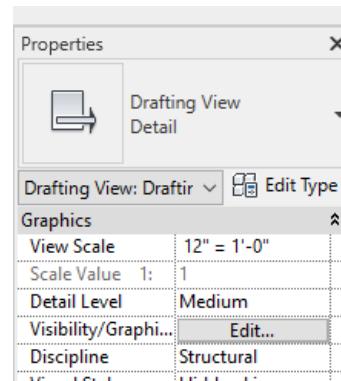
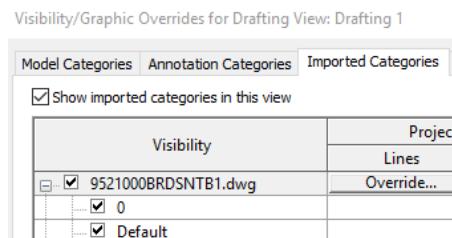


- Link to the XXX000BRDSNTB1.DWG file containing the tables
- Positioning: Auto – Origin to Origin
- Import Units: Auto-Detect



All tables in the Autocad file will now show up in Revit

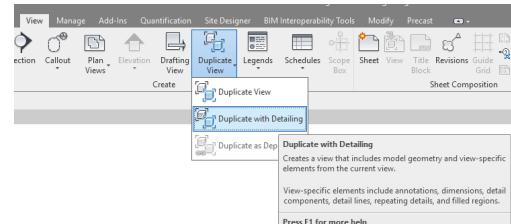
- On the Properties palette select Edit for the Visibility/Graphics
- On the Imported Categories Tab, expand the file that matches the tables file



- Uncheck all the layers except the one which has the table you want displayed
- Select "OK"

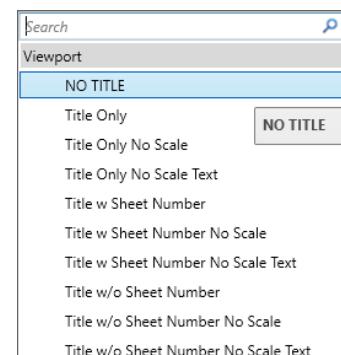
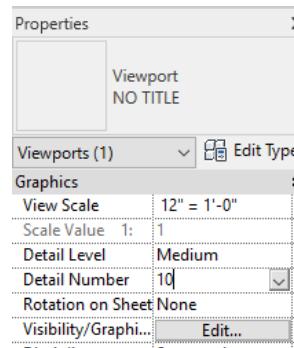
To create additional tables from the same Autocad file

- Select the table in the Project Browser
- Right Click and Select Duplicate View Duplicate View with Detailing
- Uncheck the appropriate layers to display the correct table



When placing the table on the sheet set the following properties

- Set the viewport to "NO TITLE"
- Set the Detail Number to a number greater than the number of details that will be placed on the sheet



The following guide is to get Geotech Borings into Civil 3D and Revit.

Download the following file from BIM360

- XXXX000BRALN001.DWG (Civil 3D Alignment file)

Rename the two files received from Geotech per the following

- File Containing the boring materials and their respective depths
  - Field Geological Descriptions.csv
- File Containing the boring locations
  - Location Details.csv

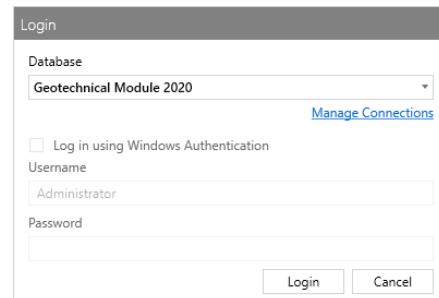
## CIVIL 3D

### BORINGS IMPORT

Open the XXXX000BRALN001.DWG file

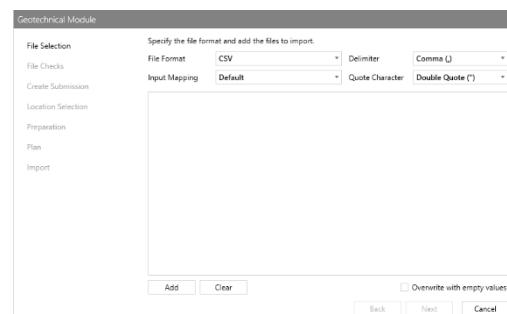
Set the Annotation scale to match the scale of the Footing Plan

- On the Geotechnical Module Tab, In the Data Management Panel select Connect
- Verify the dialog box matches what is shown here and Login



### PROJECT SELECTION HERE (NOT FINISHED)

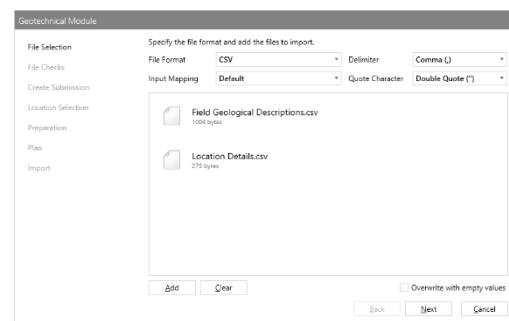
- From the Data Management Panel select Import
- The dialog box should match what is shown here
- Choose Add



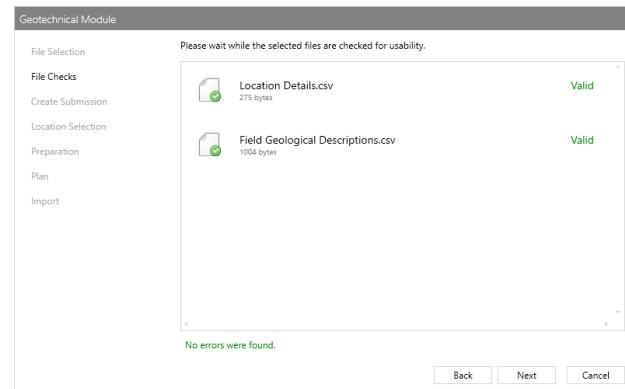
# AUTODESK GEOTECH LOG OF BORINGS

February 14, 2020

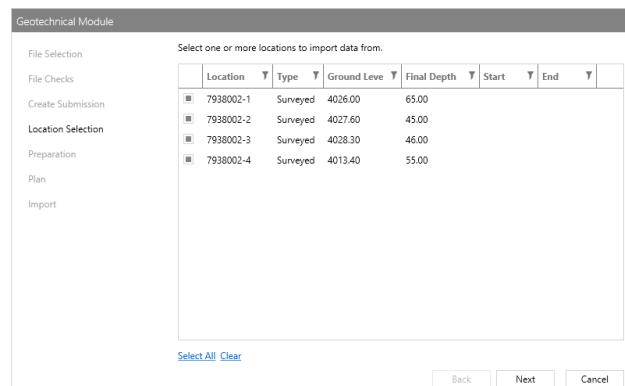
- Browse to the location of the Geotech \*.csv files
- Select both files and open
- Select Next



- Select Next on the Next dialog
  - Both files should now show as valid



- Select all borings to import into the file
- Select Next



- Select Next on this dialog box after reviewing the information shown

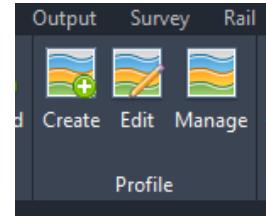


- After the import is complete select Finish
- You should now see the borings at the correct locations along the alignment

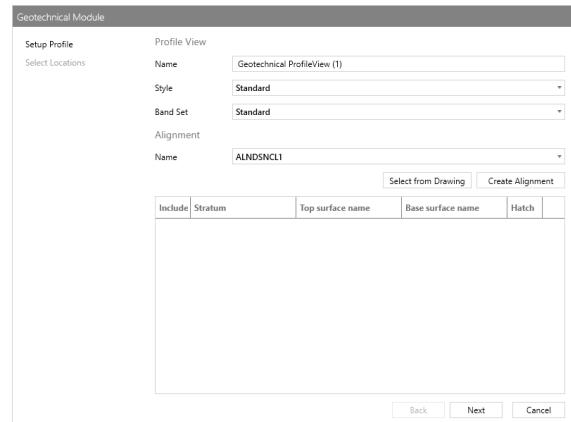
## LOG OF BORINGS DETAIL

Open the Attach the XXXX000BRALN001.DWG file

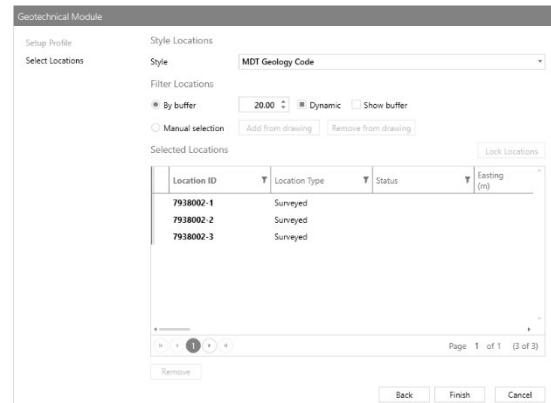
- On the Geotechnical Module Tab, In the Profile Panel select Create



- The dialog box should populate as shown
- Verify the correct alignment is shown in the dialog box if there are multiple alignments
- Select Next

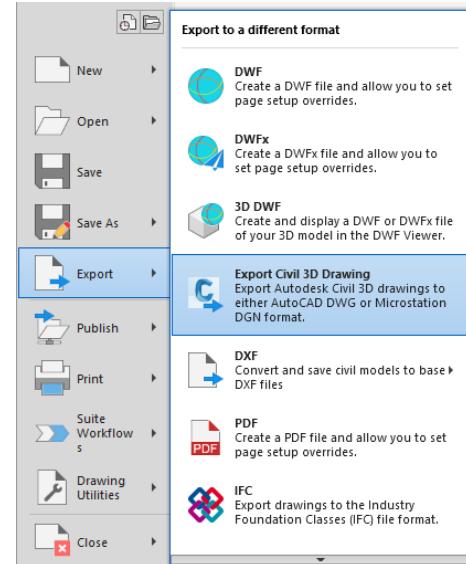
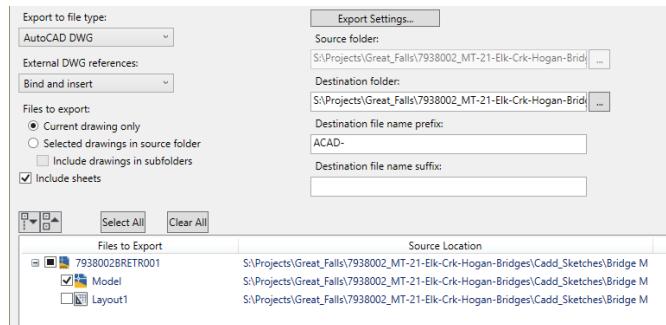


- Verify that the Style is "MDT Geology Code"
- Verify that the borings listed are the borings that are required
  - Adjust the buffer to display other borings that may be beyond the specified distance from the CL Roadway
- For borings show are not shown but don't need to be placed
  - Click the boring and select Remove
- Click to locate the Profile view of the Borings
  - The insertion point of the Profile view is the lower left corner



## BORINGS EXPORT FOR REVIT

- Export the file to DWG (This will strip all Civil 3D data from the file)
- Select the appropriate Destination folder for the new file
- Filename: ACAD-XXXX000BRALN001-Model.DWG
  - The “ACAD\_” prefix and the “-Model” suffix will be automatically applied in the export dialog box
- Uncheck all layouts, so only the model is exported



Rename this newly created file to ACAD-XXXX000BRCOR001-Model.DWG

Copy this newly created file and rename to ACAD-XXXX000BRCOR002-Model.DWG

In the ACAD-XXXX000BRCOR001-Model.DWG file

- Locate a marker at the same coordinates as the marker for the terrain
  - See Civil 3D Terrain to Revit for additional marker information
- Remove the Borings Profile view from the file

The boring locations are now ready for import into Revit

In the ACAD-XXXX000BRCOR002-Model.DWG file

- Remove all elements except the Profile of the borings
- All an elevation scale, tracer lines, and any other necessary information to the borings
- Adjust the lateral locations of the borings in the profile
  - The borings are placed in the Profile at their correct stations with regards to the alignment

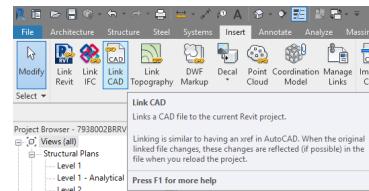
The boring logs are now ready for import into Revit

## REVIT

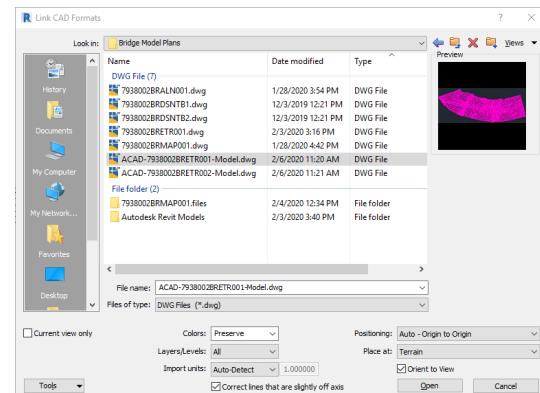
### BORING LOCATIONS IMPORT

Open the Revit file XXXX000BRRVT001.RVT containing the bridge model

- On the Insert tab select “Link CAD”



- Link to the ACAD-XXXX000BRCOR001-Model.DWG file from the Borings Export to Revit section of this guidance
- Positioning: Auto – Origin to Origin
- Place at: Terrain
- Import Units: Auto-Detect
- Move the borings from its current location to near the bridge model
- Align the marker in the linked file with the survey marker

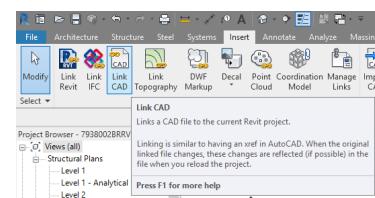
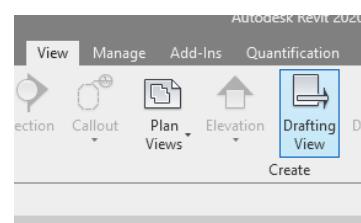


Locate the borings symbol in Revit at the center of the borings and label appropriately in the Footing Plan Level Detail

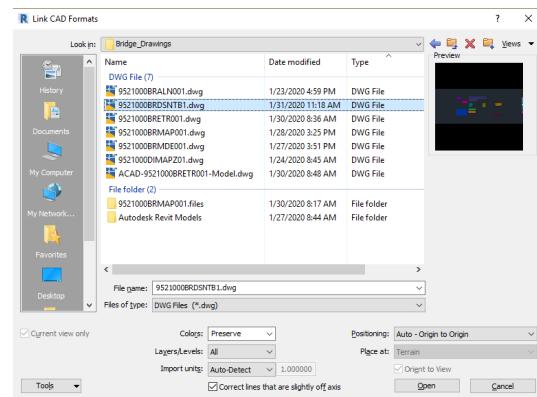
### LOG OF BORINGS IMPORT

Open the Revit file XXXX000BRRVT001.RVT containing the bridge model

- From the View tab, Create panel, Create a new Drafting View
- In the Drafting View from the Insert tab select “Link CAD”



- Link to the ACAD-XXXX000BRCOR002-Model.DWG file containing the Log of Borings Detail
- Positioning: Auto – Origin to Origin
- Import Units: Auto-Detect



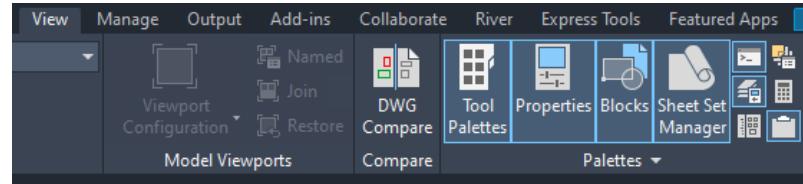
The following guide is to create new Sheet Sets in Autocad.

## **AUTOCAD**

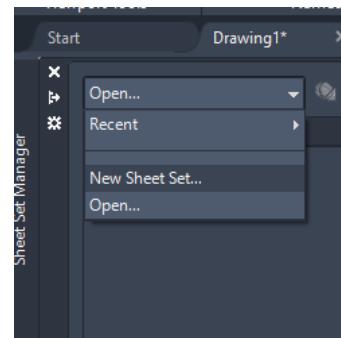
### NEW SHEET SET

Open the Autocad file that contains your sheets

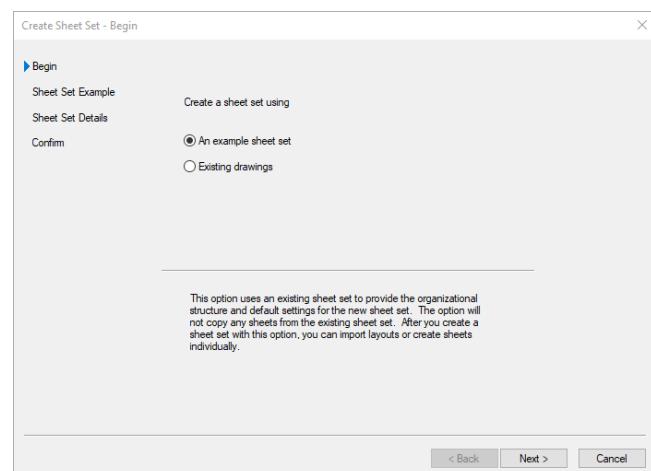
- Open the Sheet Set Manager
  - Location: View tab  
Palettes palette



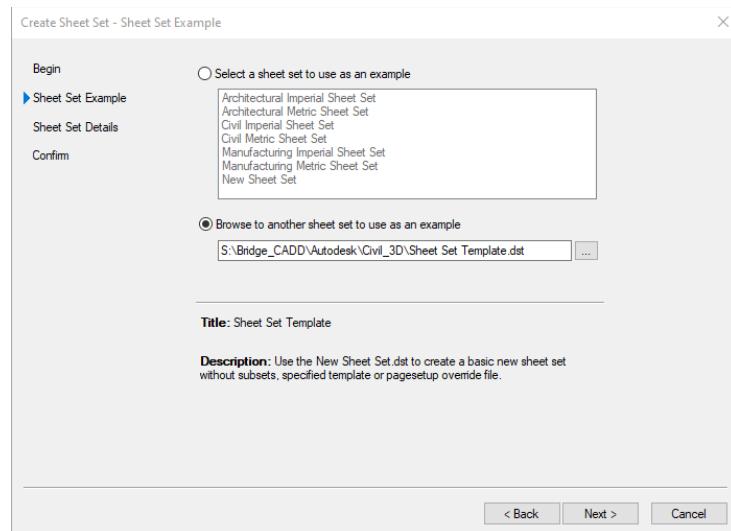
- In the Sheet set manager select New Sheet Set



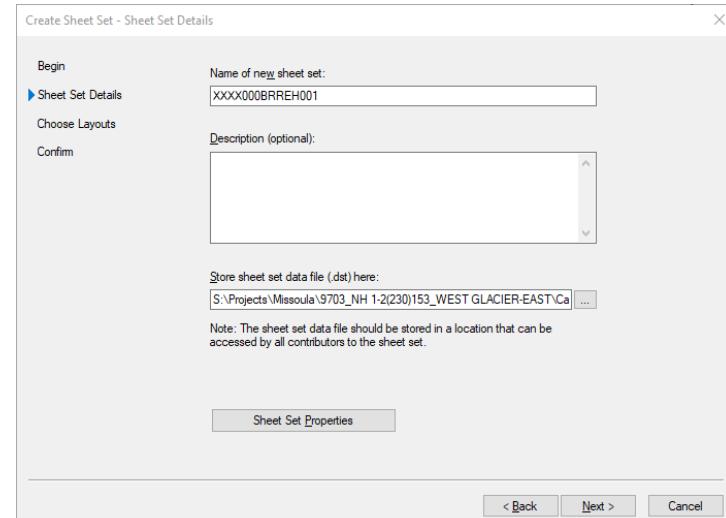
- Toggle Example Sheet Set
- Select Next



- Browse to the location of the Sheet Set Template
- Select Next

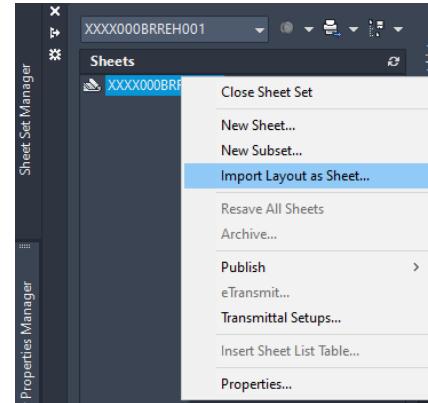


- Give the Sheet set a filename
  - This should match the filename of the Autocad drawing
- Browse to the location where the file will be stored
  - This should be the same location as the Autocad drawing
- Select Next
- Select Finish

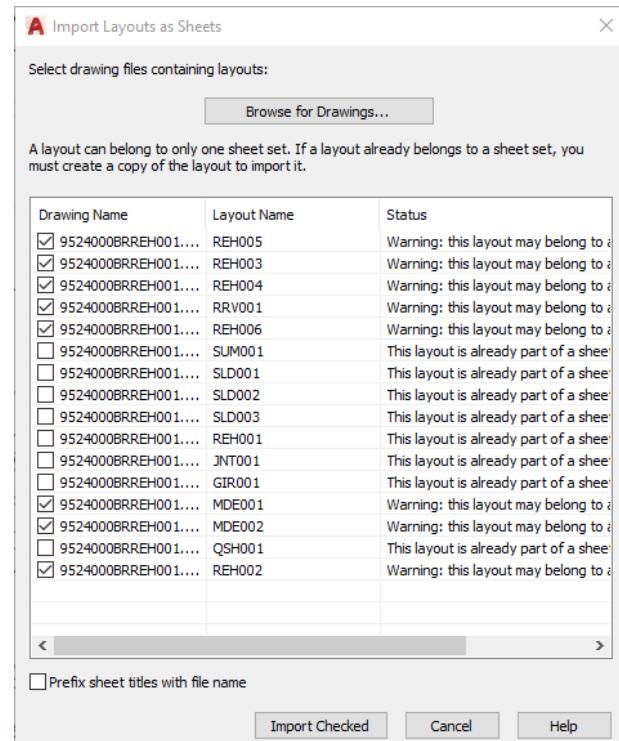


## ADDING SHEETS

- Right Click on the new sheet set and select “Import Layout as Sheet”



- Browse and select your file that contains the sheets
- Select the Autocad layouts that you want to add to the Sheet set
- Select Import Checked

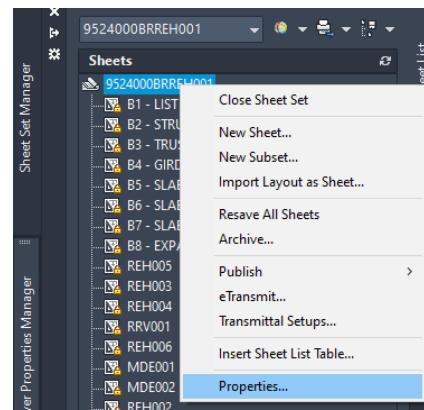


NOTE: Only sheets that are not part of a sheet set may be added.

NOTE: The sheets will now show up in the sheet list by the layout name

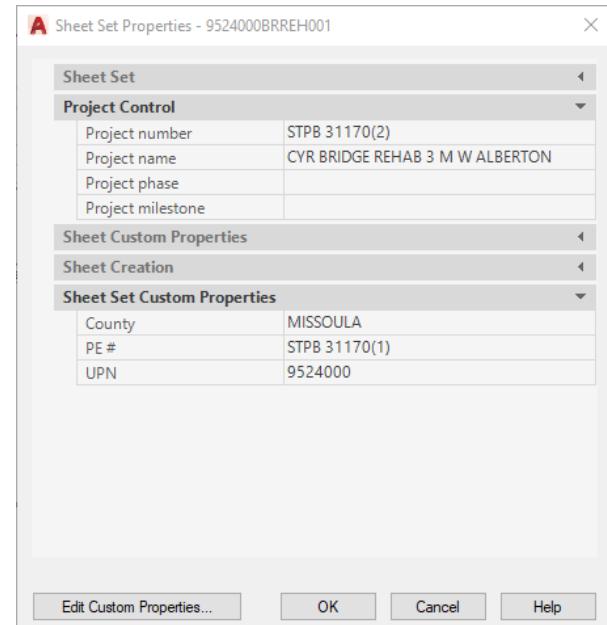
SETTING PROJECT INFORMATION

- Right Click on the new sheet set and select properties



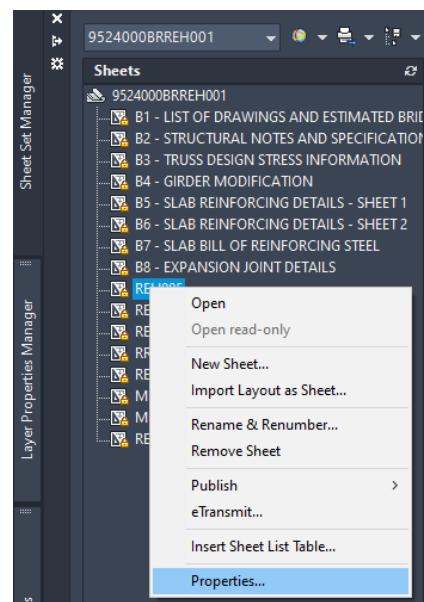
These Properties will fill in the information that is the same for all sheets in the set

- Under Project Control Fill in the following information
- Project Number
  - This will be the Construction Number
- Project Name
- Under Sheet Set Custom Properties Fill in the following information
- County
- PE #
- Select OK



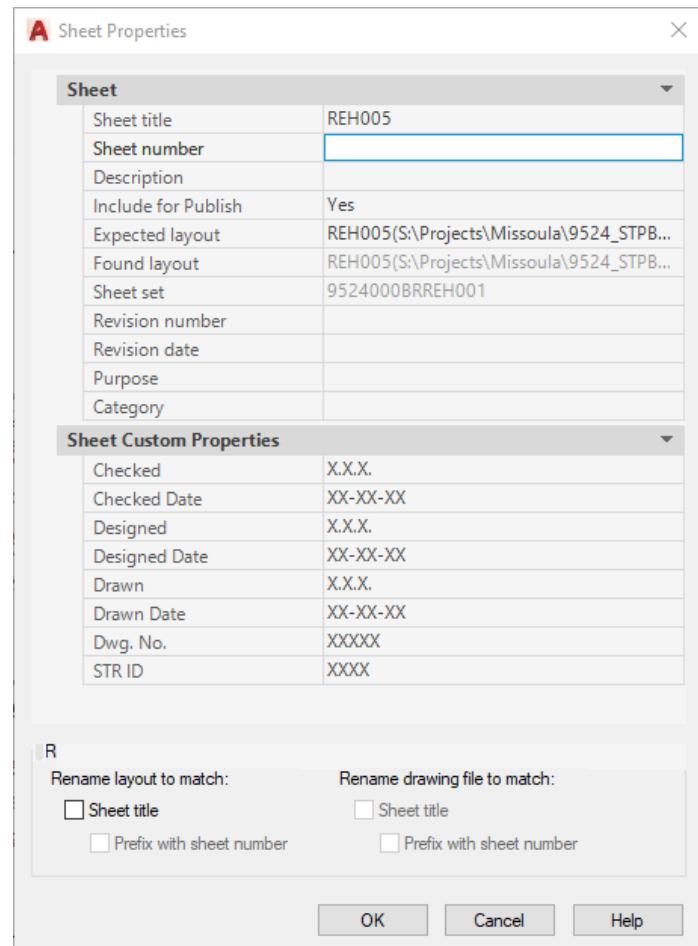
## SETTING SHEET INFORMATION

Right Click on a sheet in the set and select properties



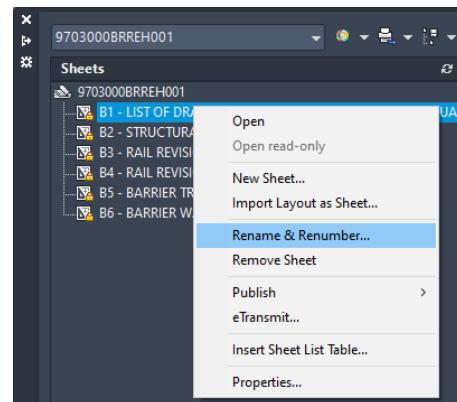
These Properties will fill in the information that is the same for all sheets in the set

- Under Sheet Fill in the following information
- Sheet Title
  - This is what will appear in the upper right corner of the title block and in the list of drawings
- Sheet Number
- Under Sheet Custom Properties Fill in the following information
- Appropriate Initials and Dates for
  - Checked
  - Designed
  - Drawn
- STR ID
- Dwg. No.
  - Leave as "XXXXX" until the drawing numbers are assigned
- Select OK



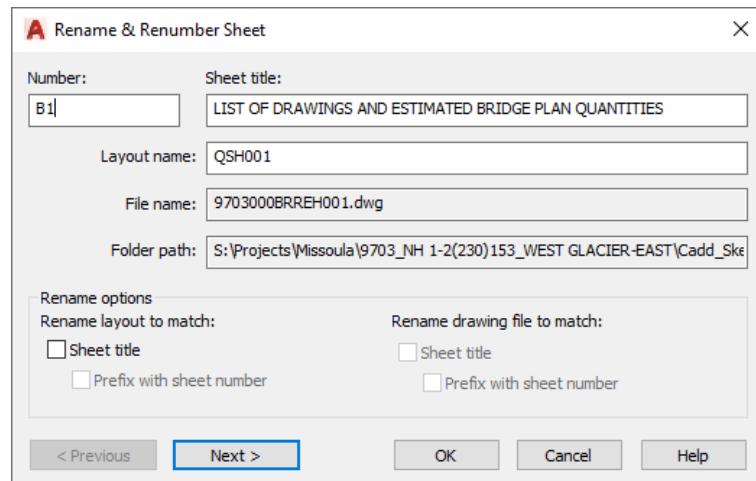
SETTING SHEET NUMBERS AND TITLES

Right Click on the first sheet in the list and select Rename & Renumber



Fill in the following information

- Number
  - This is the sheet number for the sheet that will appear in the title block
- Sheet Title
  - This is the title of the sheet that will appear in the title block
- Layout name
  - Leave this as is



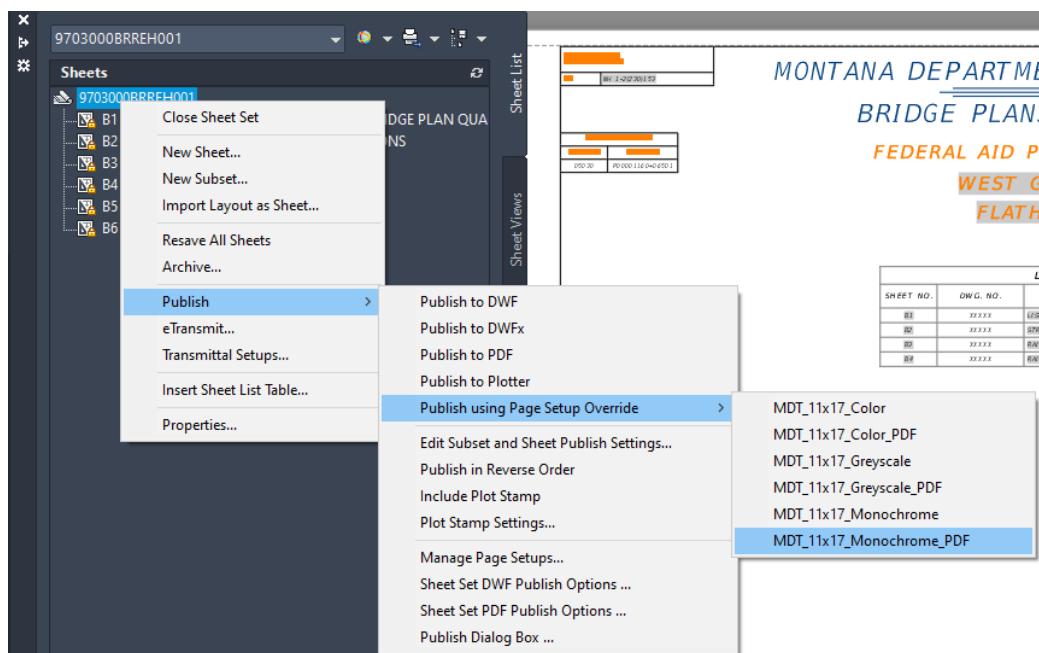
Do **NOT** check the Rename layout check box at the bottom

Press Next to proceed to the next sheet in the list

Press OK when done numbering and naming the sheets

**NOTE:** These can also be set under the Sheet Properties with the Sheet Title & Sheet Number fields. See "Setting Sheet Information" section of this guide for additional details.

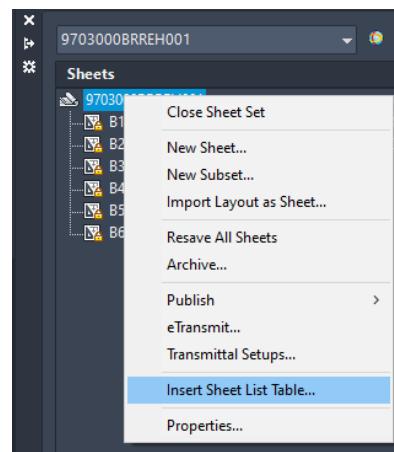
## PLOTTING



- Plot full sheet set
  - Right click on the sheet set name
- Plot single sheet
  - Right click on the sheet that needs plotting
  
- Select Publish
  - Publish using Page Setup Override
    - Select the required plot style for the set
      - MDT\_11x17\_Color
      - MDT\_11x17\_Color\_PDF
      - MDT\_11x17\_Greyscale
      - MDT\_11x17\_Greyscale\_PDF
      - MDT\_11x17\_Monochrome
      - MDT\_11x17\_Monochrome\_PDF

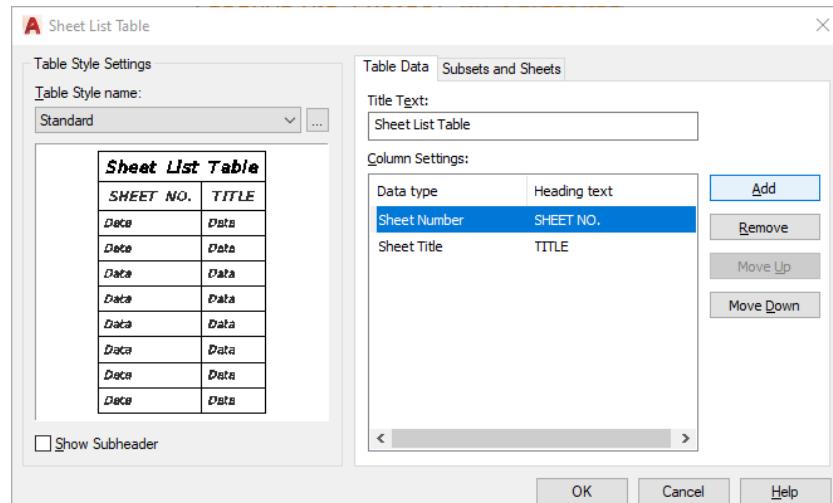
## LIST OF DRAWINGS

Right click on the sheet set name and select Insert Sheet List Table



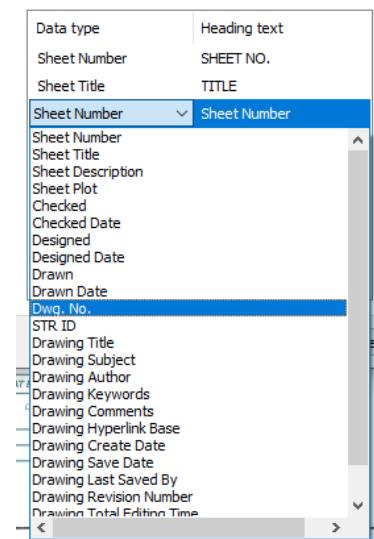
Change the Title Text from “Sheet List Table” to LIST OF DRAWINGS

Click Add and a new row will be added to the list of columns, this will be com the drawing number



Click on the sheet number text of the new row and select “Dwg. No.” from the list

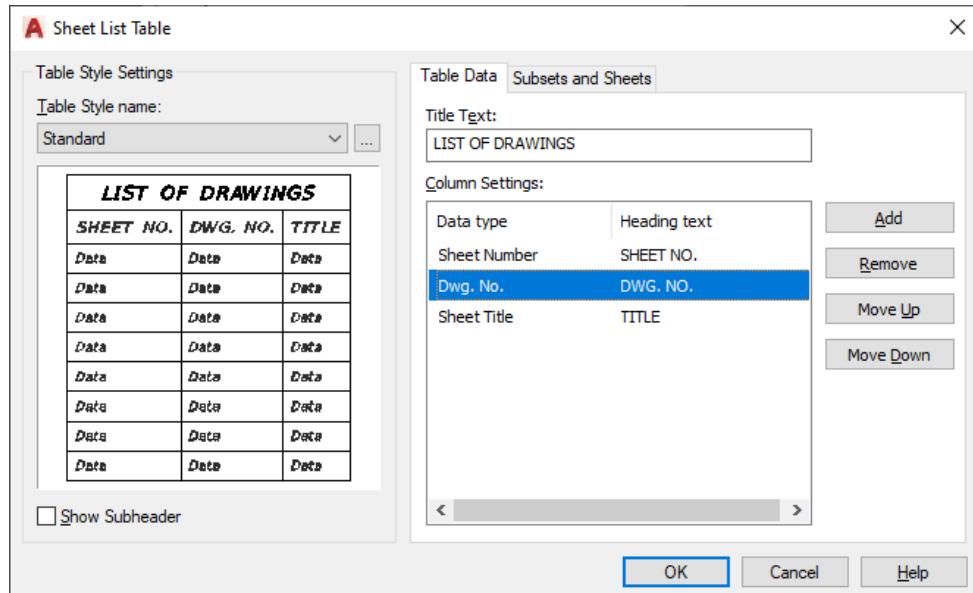
Double click the text “Dwg. No.” under the Heading text column and change the text to DWG. NO.



Make sure the “Dwg. No.” row is selected and click move up to move this row between the “Sheet No.” and “Title” rows.

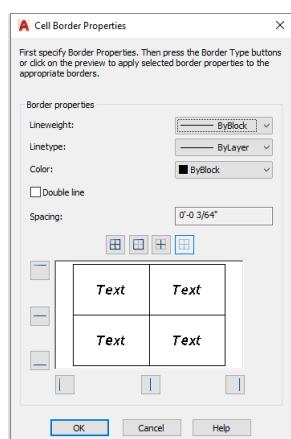
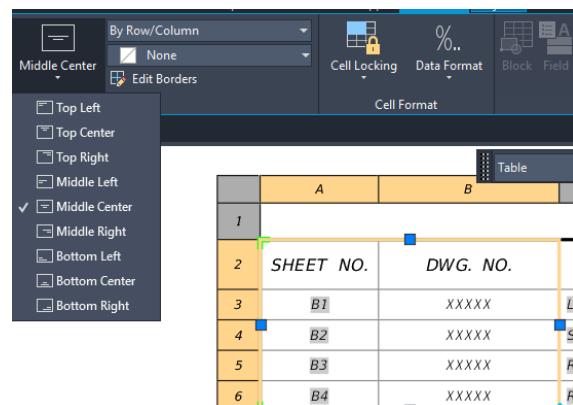
The dialog box should match what is shown here

Click Ok



Locate a point at which to insert the table

Format the table remove the column and row borders and set the “Sheet No.” and Dwg. No.” columns to center justified. The column and row borders should show up grey if they are turned off



LIST OF DRAWINGS		
SHEET NO.	DWG. NO.	TITLE
B1	XXXXX	LIST OF DRAWINGS AND ESTIMATED BRIDGE PLAN QUANTITIES
B2	XXXXX	STRUCTURAL NOTES AND SPECIFICATIONS
B3	XXXXX	RAIL REVISION DETAILS - SHEET 1
B4	XXXXX	RAIL REVISION DETAILS - SHEET 2

The following guide is to create deck grids in Autocad.

Each structure will get its own deck grid drawing, sheet set and pdf of the deck grids.

This procedure will require the detailer to only draw the outline of the bridge with the appropriate centerlines and annotations. **Make no other modifications to the file or the sheets.**

## **AUTOCAD**

Create a new Autocad file

- Template = ACAD\_DeckGrid\_Template.dwt
- Filename = MDT Structure ID
- Save Location =

Draft the outline of the bridge

- Draft the bridge such that the following is met
  - Extreme end of bridge is located on the line Y = 0
    - This will be the end of slab or edge of paving notch
  - Left face of rail is located on the line X = 0
  - All Annotations are within the deck grid boundary boxes

***Any object that extends outside of the boundary boxes will not appear on the sheets***

- Annotate the bridge with the following in model space at a 1" = 5'-0" annotation scale.

Annotating in model space will allow for copying the required annotations from sheet to sheet.

The annotation scale will be previously set in the Template

- CL Roadway
  - Each sheet containing the bridge
- Face of rail (each side)
  - Each sheet containing the bridge
- End of slab or Edge of Paving Notch
  - Beginning and end of bridge
- Draft the bridge using the following layers
  - DG\_Centerlines
    - All centerlines used for the bridge (CL Roadway, CL Bents)
  - DG\_Slab
    - Outline of the bridge
  - DG\_Text-Dimensions
    - All annotations

## SHEET SET

Create a new Sheet Set, See MDT Guidance Autodesk Sheet Sets for additional information.

- Template = Deck Grids Sheet Set Template.dst
- Filename = MDT Structure ID
- Save Location =

Fill in the 6 fields in the “Sheet Set Custom Properties” Section Only. This information will populate the title block on all sheets.

- Bridge Name
  - Use the name listed in SMS
- MDT STR. ID
- NBI Number
- Route
  - Use the route listed in SMS
- Ref Point
  - Use the Reference Point listed in SMS
- Number of Sheets
  - This will be the total number of sheets; this is also the number located in the deck grid boundary that is on the last sheet containing the bridge

Add only the sheets containing the bridge to the sheet set

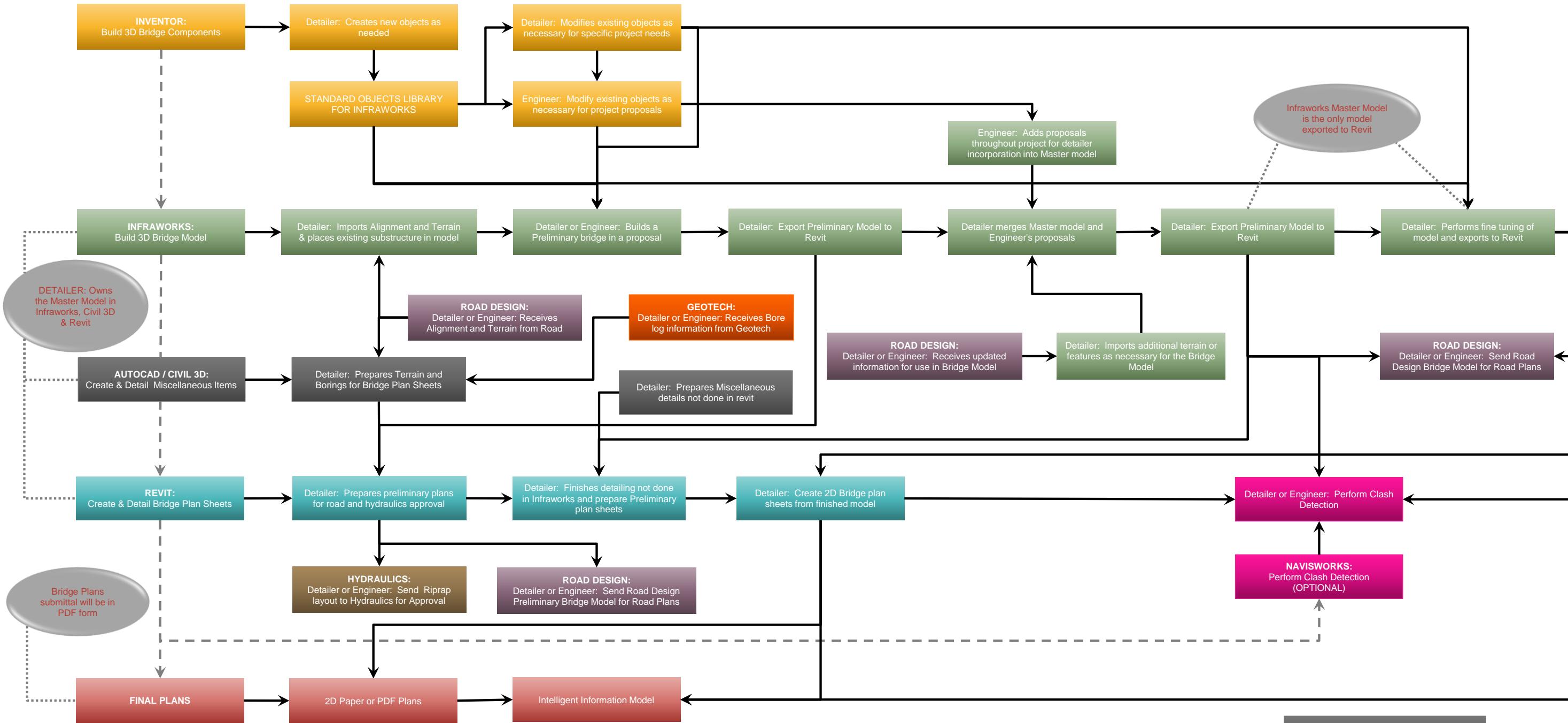
- Rename and Renumber
  - Will need to fill in the number box in the dialog
    - All other information to remain as is
    - This will number the sheets correctly in the title block

Plot the sheet set

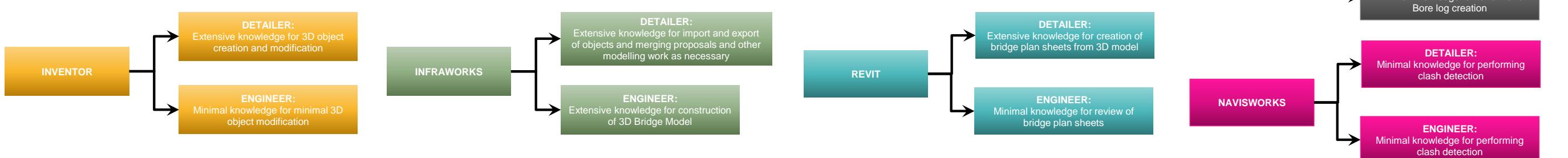
**Verify ALL levels are turned on and thawed before plotting**

- Publish
  - Publish using Page Setup Override
    - MDT\_DeckGrid\_11x17\_Greyscale\_PDF
      - Save the pdf to the same location as the Autocad file and Sheet Set using the structure number as the file name

## AUTODESK 3D BRIDGE WORKFLOW

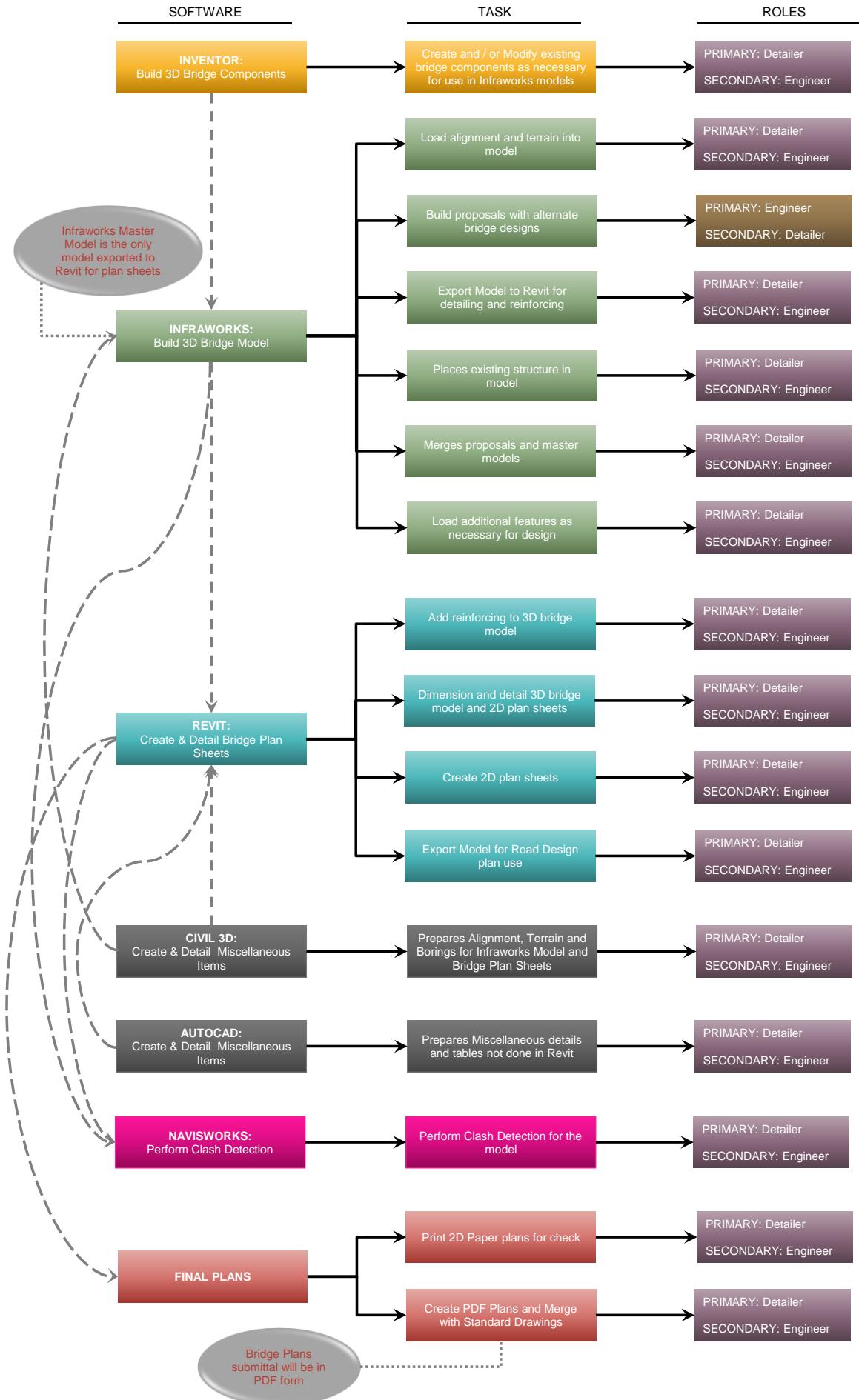


# AUTODESK PRODUCT KNOWLEDGE



# AUTODESK 3D BRIDGE WORKFLOW ROLES

February 7, 2020



The following guide is to clip Open Roads terrain for use in Infraworks, Civil 3D and Revit.

Download the following file from BIM360

- XXXX000RDETR001.DGN (Open Roads Terrain file)

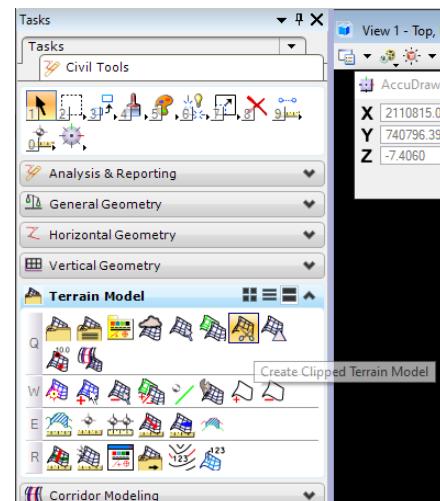
## OPEN ROADS

### TERRAIN CLIP

Open the XXXX000RDETR001.DGN file

Locate a rectangle or closed shape at the boundary of the area to be clipped.

- From Civil Tools / Terrain Model
  - Create Clipped Terrain Model
- Select the boundary of the existing terrain model
- Next select the clipping boundary
  - This is the rectangle created earlier
- Right click to reset



Enter the appropriate values in the next 3 boxes

Set Horizontal value = 0

Horizontal Offset
Horizontal Offset <input type="text" value="0.0000"/>

Left Click to accept

Set Vertical Offset value = 0

Vertical Offset
Vertical Offset <input type="text" value="0.0000"/>

Left Click to accept

Set Clipping Method to "External"

Clipping Method
Clipping Method <input type="text" value="External"/>

Left Click to accept

The terrain has now been clipped where the boundary lines intersected the existing terrain. Use this new boundary line for exporting to Infraworks, Civil 3D and Revit.