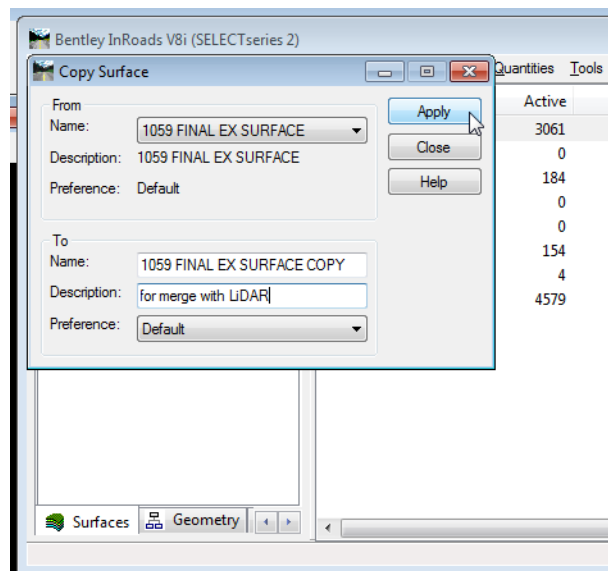
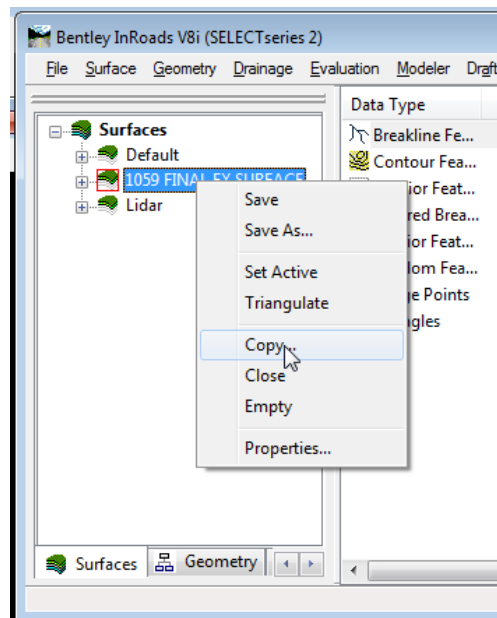


Merging Surfaces

8/21/2014

Sometimes it is necessary to supplement survey data with other methods of existing ground data. If we perform a field survey of our project but still require more data to complete our existing ground model, we can supplement the field survey data with data from a DEM or LiDAR. These forms of existing ground data are lower quality than the field survey, but they will allow us to generate decent ground information.

To begin, create **A COPY** of the field survey data as well as the LiDAR information we will be adding.



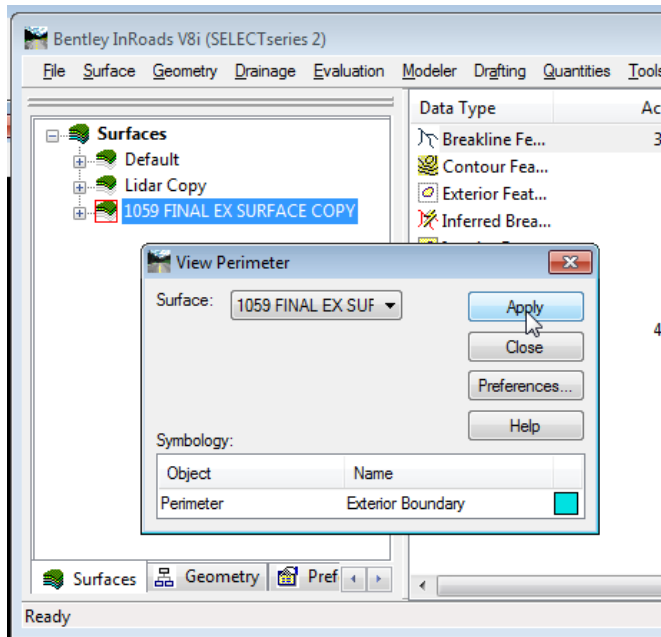
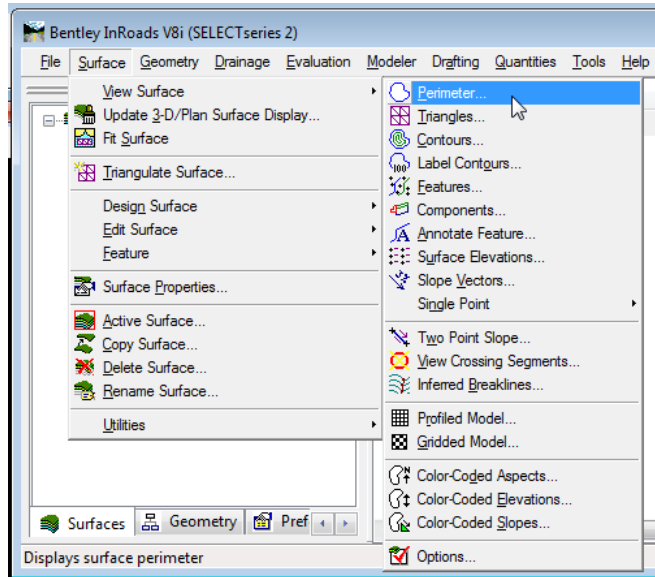
If we were to merge the two surfaces now, we would likely see very abrupt changes in elevations between the two surfaces along this exterior boundary line due to some subtle differences between the elevations of the field data and the supplemental data. To account for these differences, it is advisable

Merging Surfaces

8/21/2014

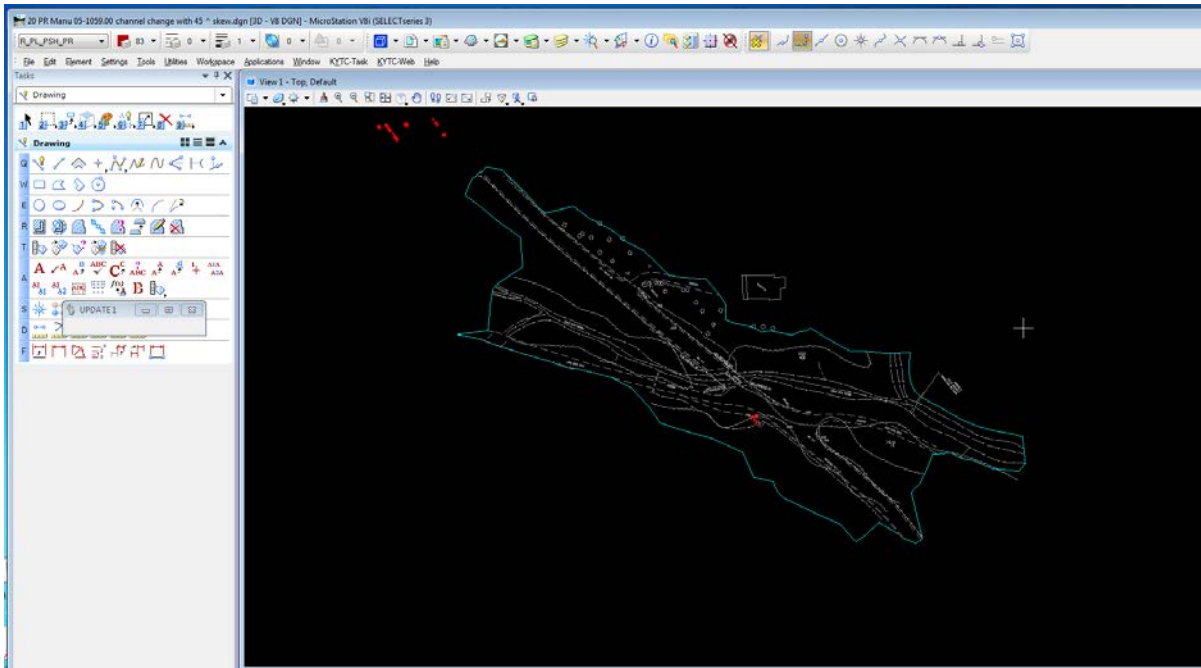
provide a “buffer” area between the two data sets. To do this, we can offset the exterior boundary of the field data by a set distance; that distance could be 5’, 10’, 20’ or more. The distance you offset will be dependent on the severity of the elevation difference at the boundary. The lower the offset value, the more “accurate” your merged surface data will be. The purpose of the “buffer” area is to provide a small transition region between the elevations of the field survey and the elevations from the supplemental data.

The next step is to view the exterior boundary of the field survey data in our DGN file.

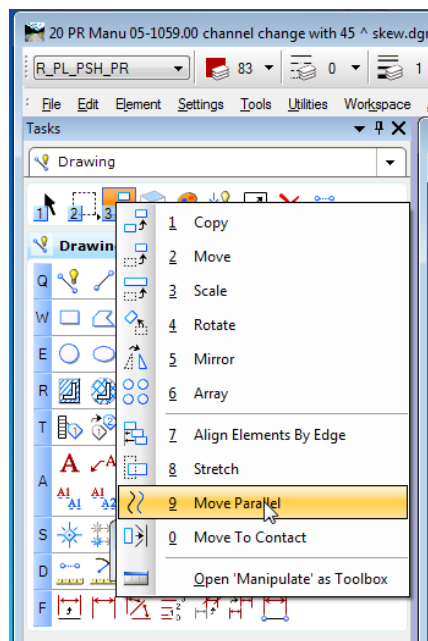


Merging Surfaces

8/21/2014

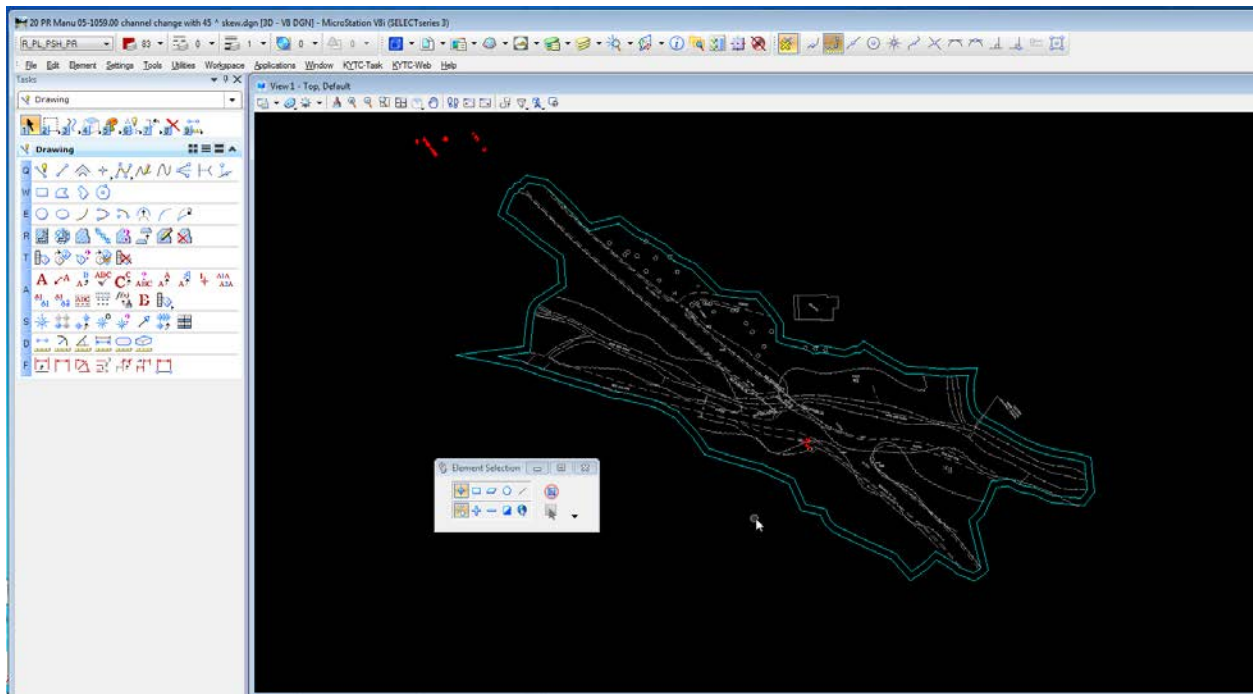
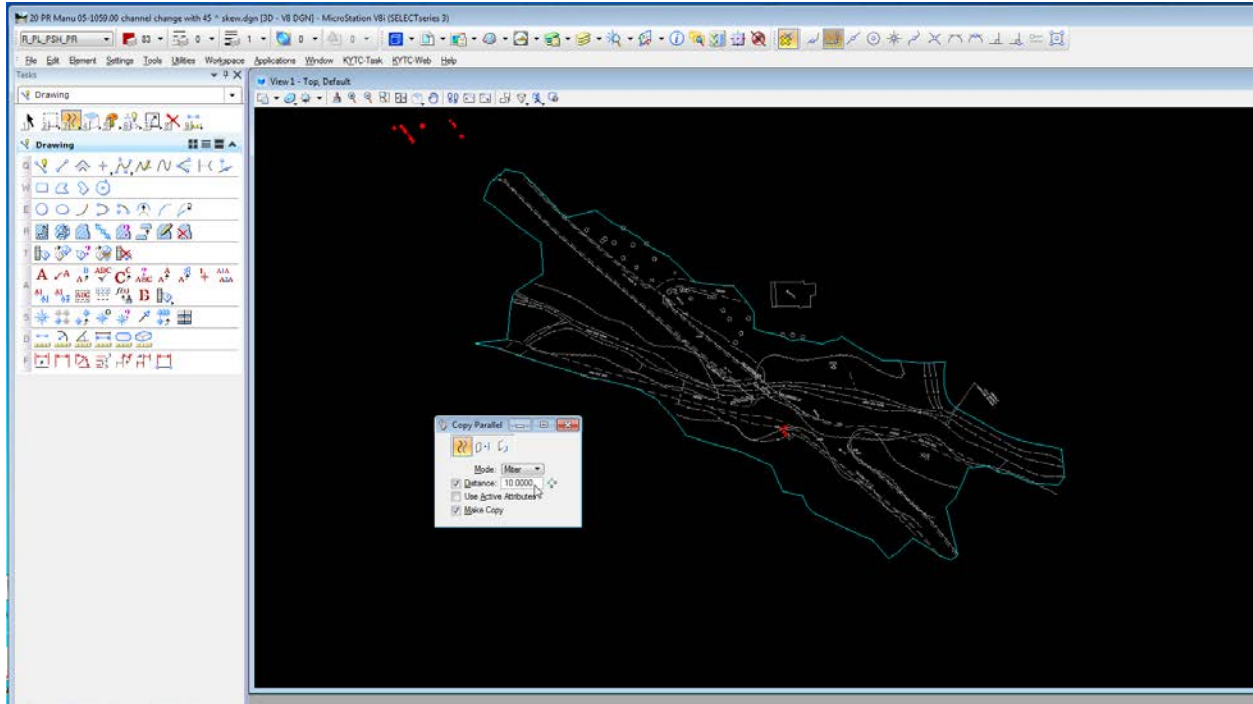


Next, select a value for the offset of the field survey boundary and perform the offset. For the example, 10' we will be used.



Merging Surfaces

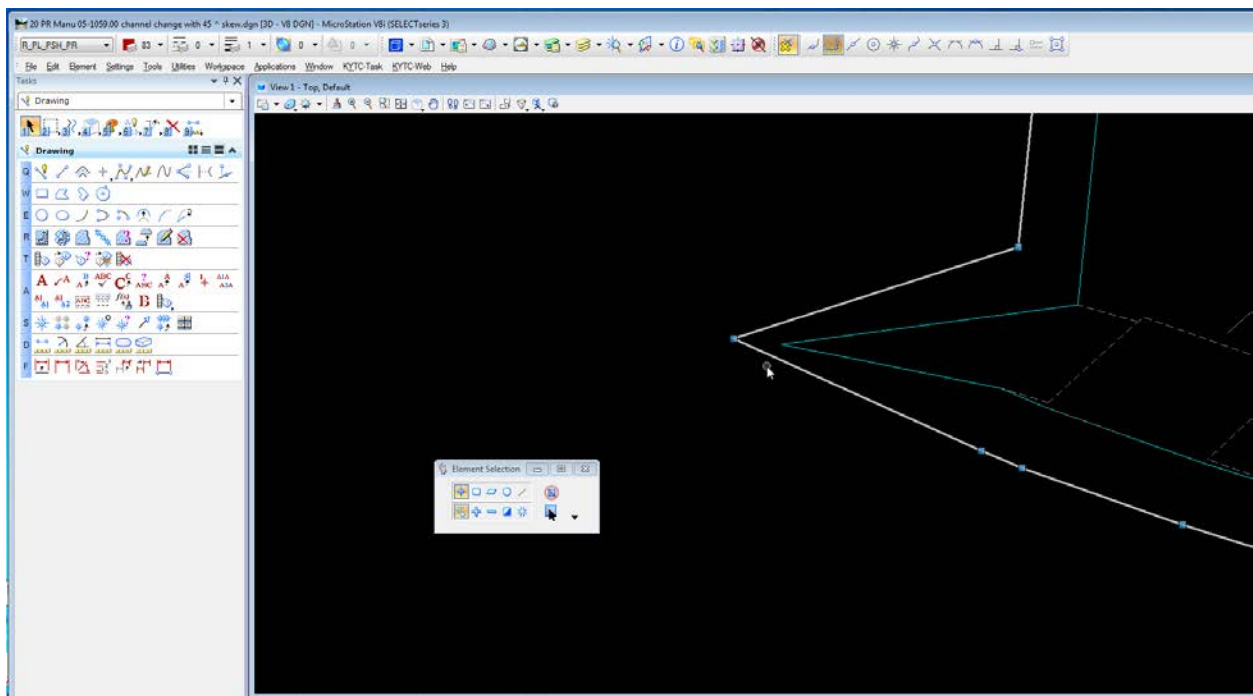
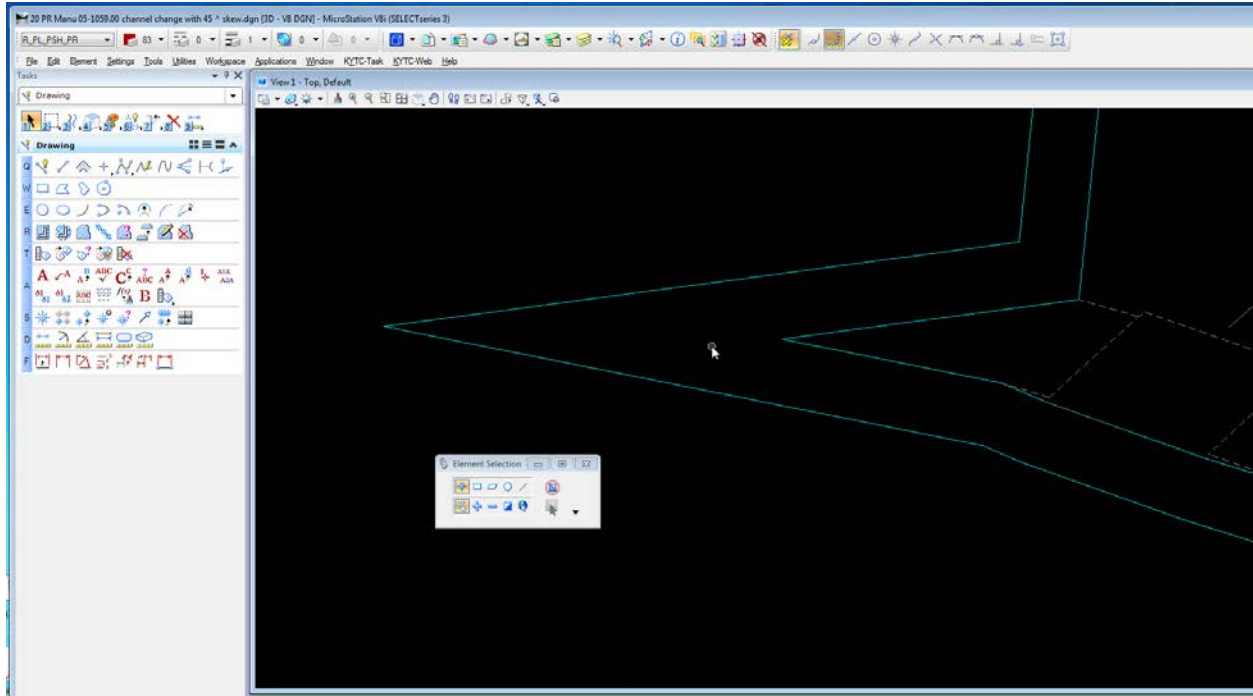
8/21/2014



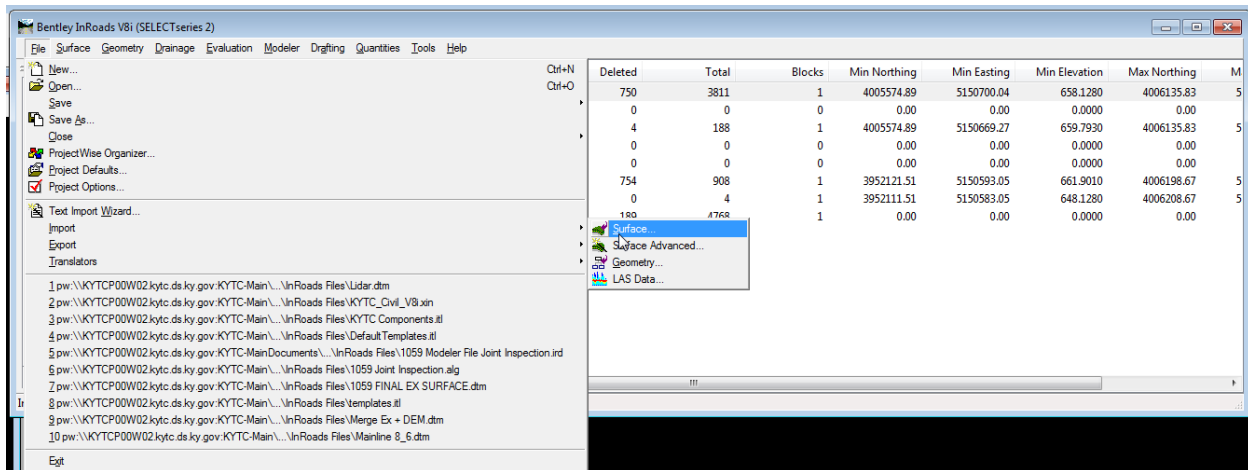
Merging Surfaces

8/21/2014

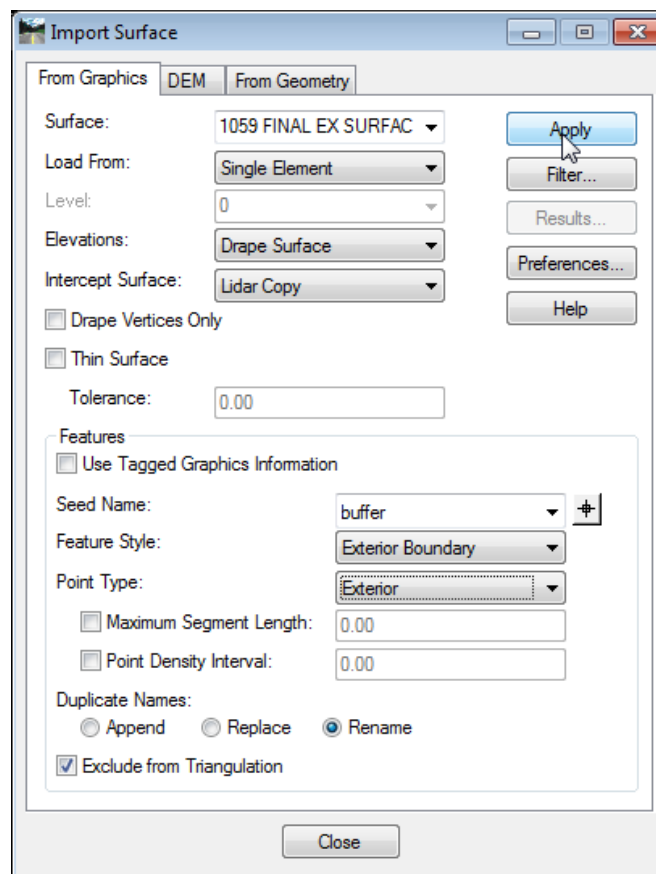
The offset boundary can create sharp points or cross itself and create loops. If this is discovered, it can be edited manually by moving or deleting vertices to get a boundary that is more reasonable.



We can now import the offset line into our field survey surface. In InRoads, go to **File>Import>Surface**.



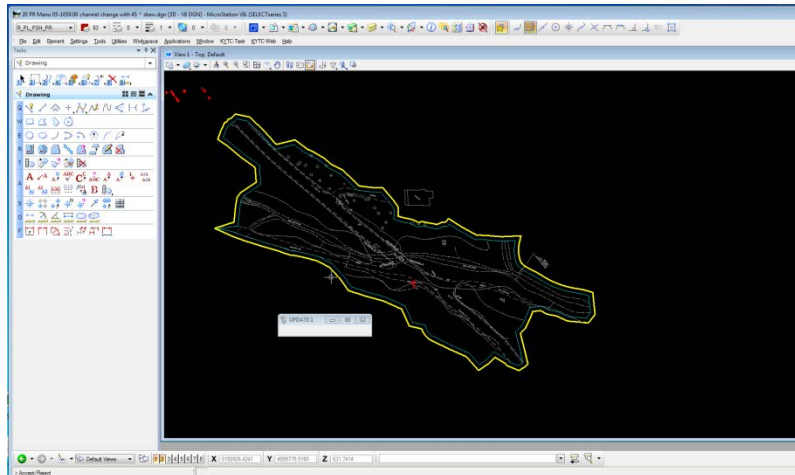
Under “**Surface**”, select your field survey surface; this is where it will place the imported feature. We will “**Load From**” **Single Element** and give the feature “**Elevations**” by **Drape Surface**. The “Intercept Surface” should be set to the supplemental data surface. Give the feature a **Name** and **Feature Style** and set the **Point Type** to **Exterior**.



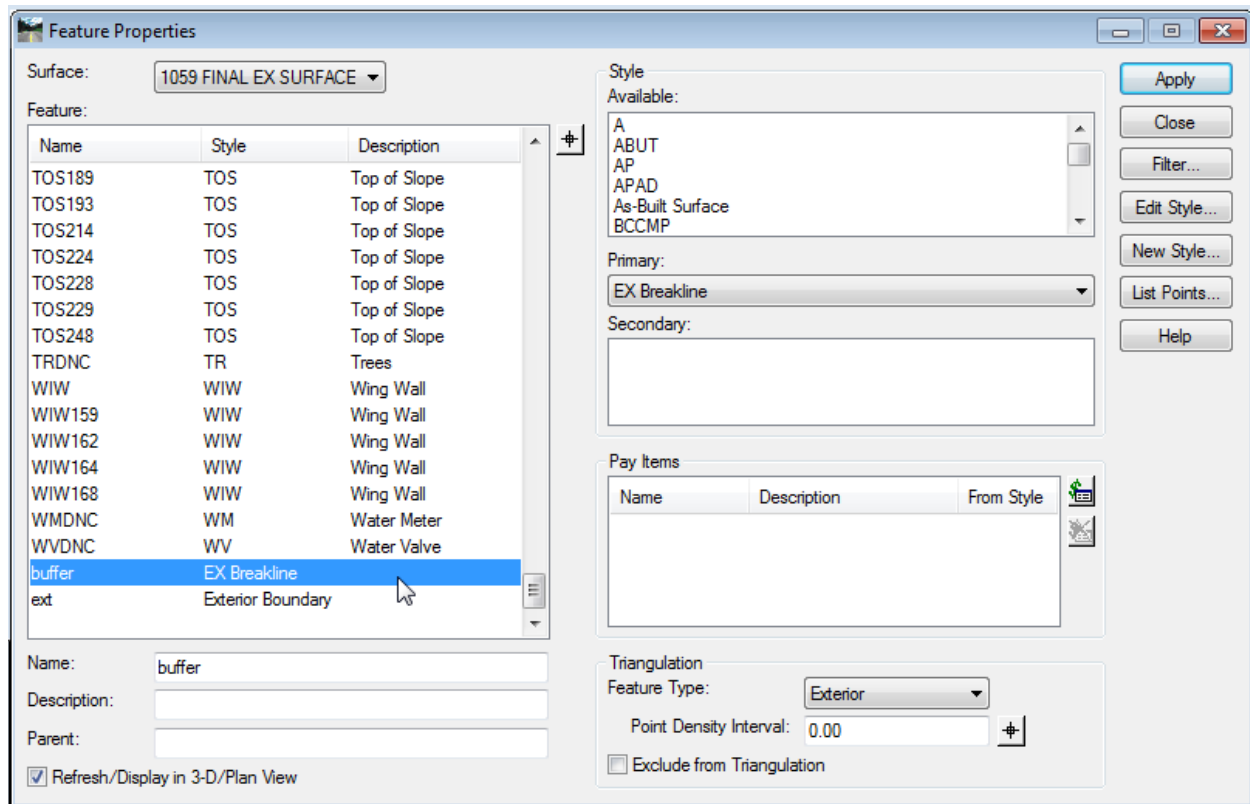
To import the offset line, click **Apply** and select the offset line in the DGN view.

Merging Surfaces

8/21/2014



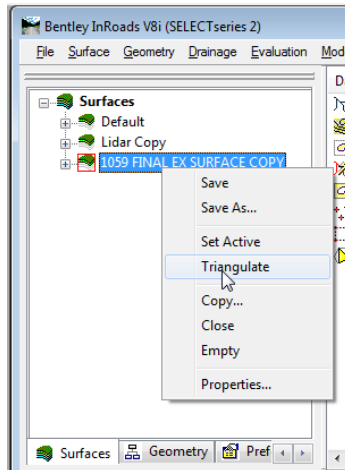
This has placed the offset feature, with elevations from the supplemental data, in our copy of the field survey data.



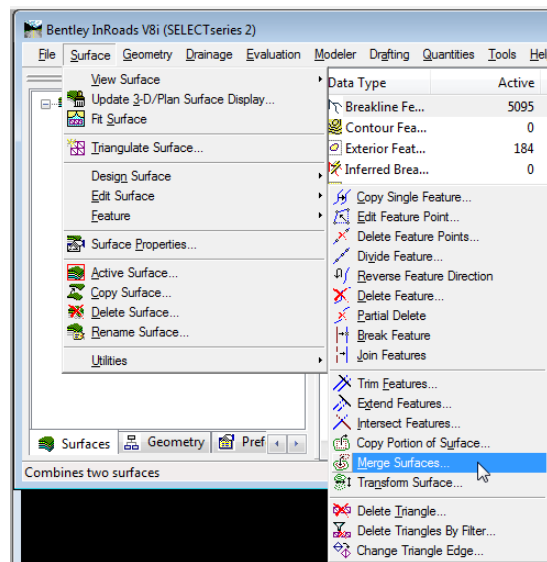
Merging Surfaces

8/21/2014

Next, re-triangulate the field survey surface to reflect the new changes.



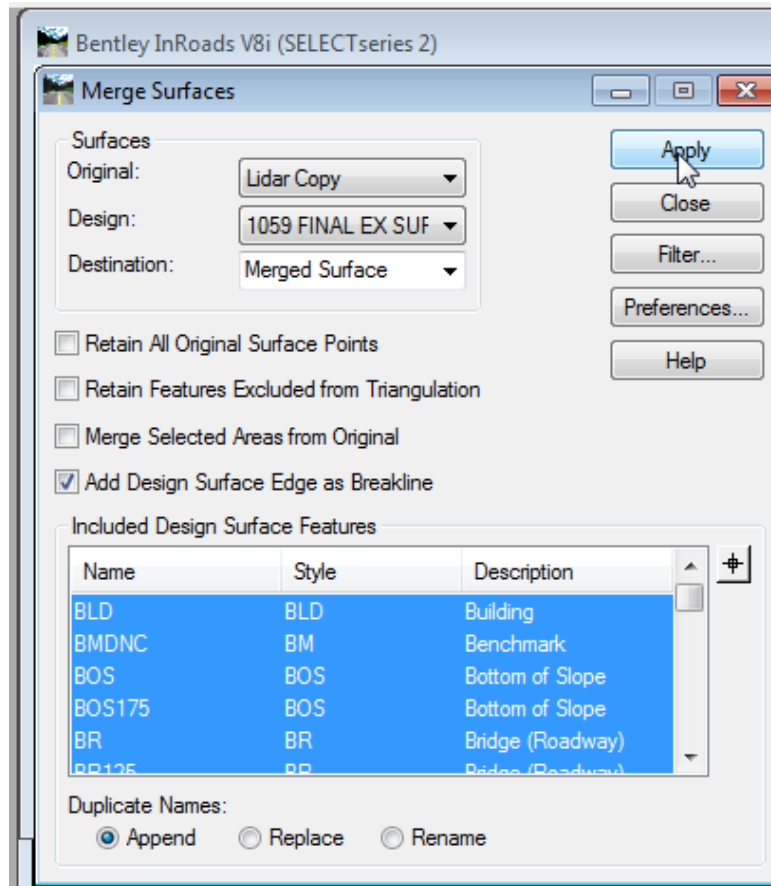
Now we can merge the two surfaces together. In InRoads, select **Surface>Design Surface>Merge Surfaces**.



Merging Surfaces

8/21/2014

The **Original** surface needs to be set to the surface containing your supplemental information. The **Design** surface is the surface that has your field survey data and the offset feature. The **Destination** surface needs to be selected or you can type a name in the field and it will create the surface for you. Usually, the only toggle you need on is the “**Add Design Surface Edge as Breakline**” toggle. To learn more about all the toggles, view the Bentley help documentation. Select all the features you want to merge from the field survey surface into the new combined surface (usually you want all of the features) and select **Apply**.



You have created a merged surface with a smooth transition between the field survey data and the supplemental data. If you have any questions on this process, please contact the KYTC Highway Design Developmental Branch at 502-564-3280.