## 3_4 SLOPE STAKE TIE TO EXISTING DTM FEATURES

Question:

I want to vary the side slopes to tie to certain key features in the existing ground cross section, such as the existing shoulder point, existing slope stake, and existing ditch point. Without hand-modifying each template drop, how do I do this with Roadway Designer?

Answer:

When the Geopak TIN file was first generated, the 3D breaklines (along with the spot elevations) are extracted from the DTM DGN file.
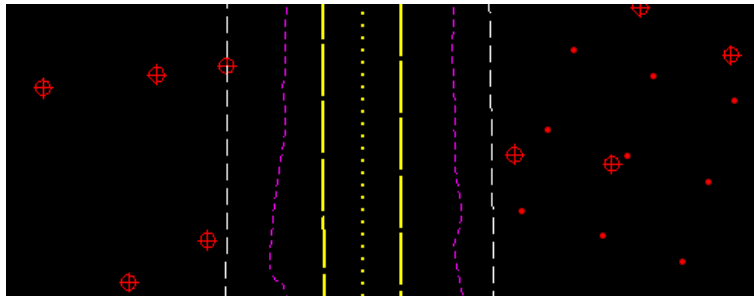
These 3D breaklines usually represent a key feature such as the existing centerline, existing EOP, existing shoulder point, existing slope stake, existing ditch point(s), etc. The breaklines and spot elevations also form breaks or create vertices in the existing ground cross section. When Corridor Modeling converts the Geopak TIN to a DTM, the breaklines information is carried over as DTM features. Roadway Designer can then use "Point Controls" to tie the template slope stake points to these DTM features.

To locate and identify which DTM feature you would like to tie the slope stakes to, it helps to be in the DTM DGN file first (TIN triangulation 3D DGN files also work, but not as clear). After processing the template drops in Roadway Designer as normal, use point controls to move the template slope stake point to tie to the DTM feature. The Mode is set to "Both", Control Type set to "Feature", and the Surface is set to the converted existing DTM name. To select the feature name, use the locator button to select the actual breakline element in the DTM DGN file.
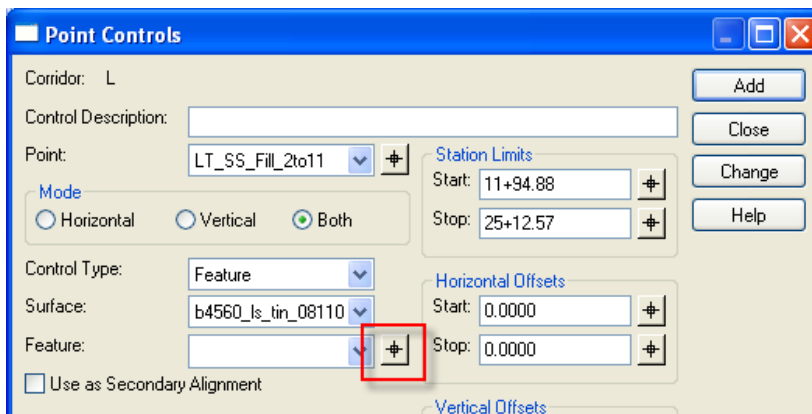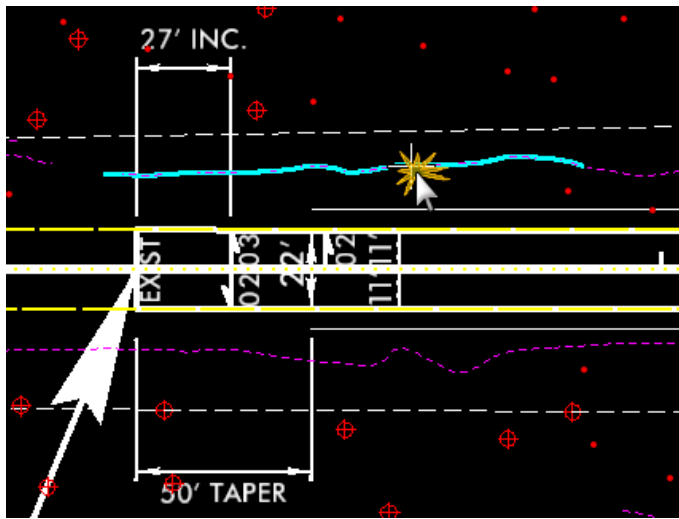
Now the slope stake point is tied to the DTM feature horizontally and vertically.
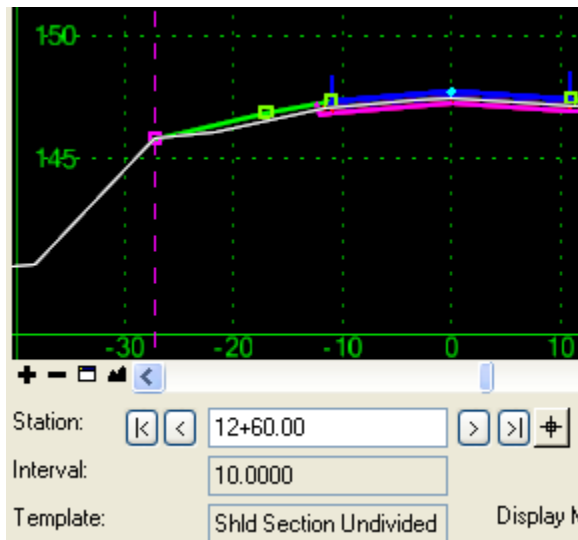
The same type of point control should be applied to fill slopes for guardrail graphics, guardrail warrant, and SBG.
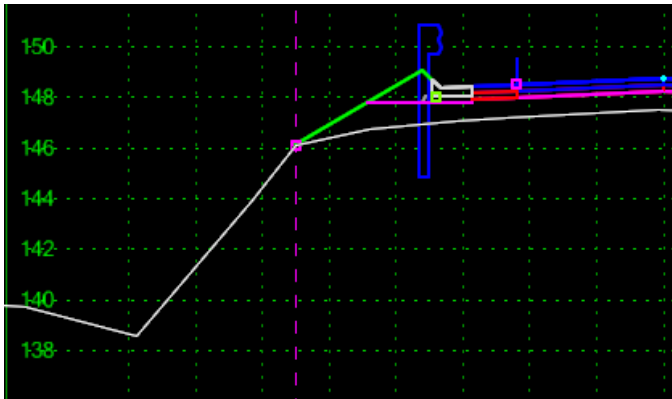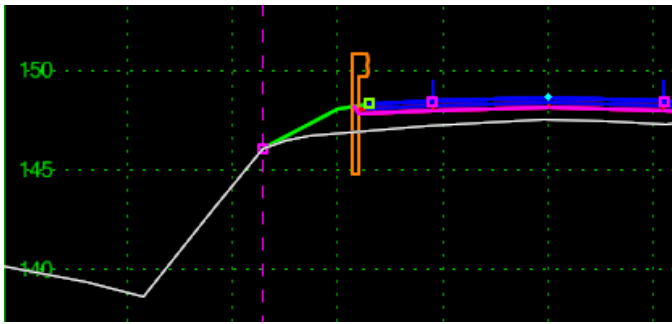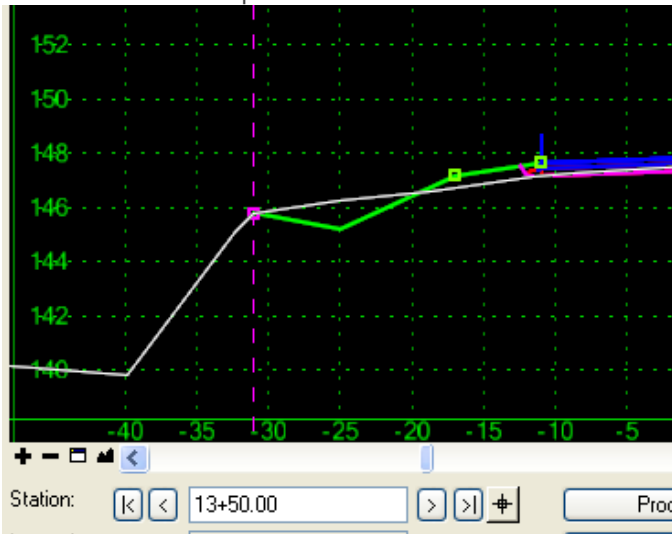
When a cut section is encounter, two options are available.

1. Keep the ditch and varied the back slope. Use point controls to move the outside ditch boundary point to the DTM feature location.
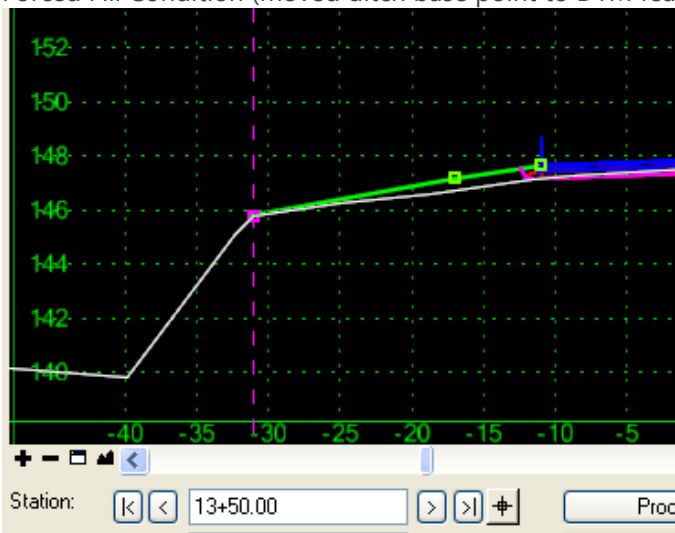2. Force a fill section. Move the ditch base point to the DTM Feature location.
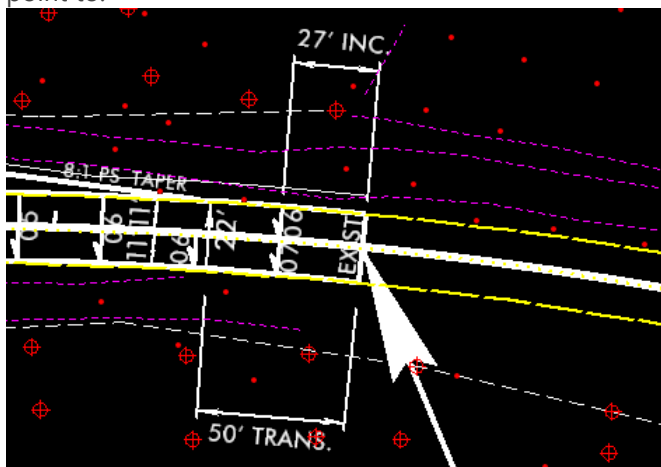
Default Cut Section

Varied Ditch Backslope
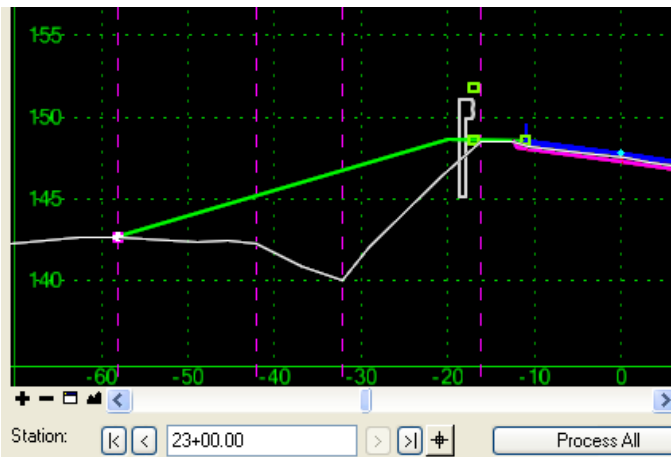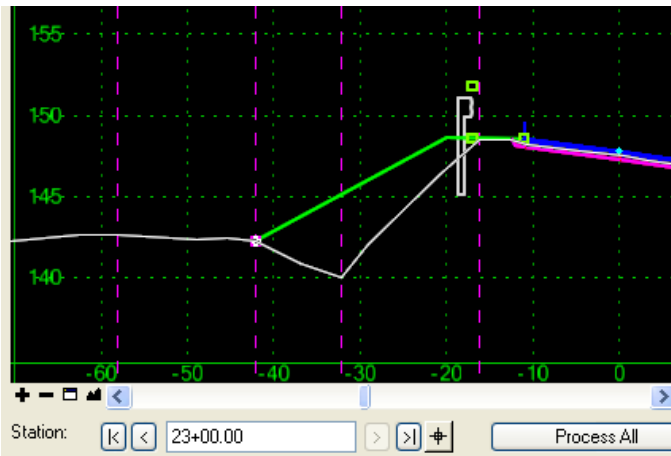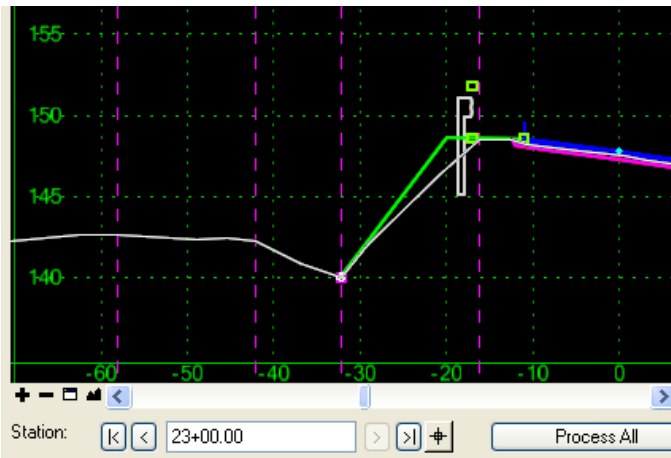

Forced Fill Condition (moved ditch base point to DTM feature)

Other key DTM features (existing slope stake, existing ditch, etc.) can be selected to tie the slope stake point to.

Note that no plan view graphics were imported or stored and no styles were ever targeted by the template points.

We will be working with other NCDOT Units such as Location and Surveys and Photogrammetry to try to determine if a better breakline level naming convention can help with identifying and locating these DTM features in the DTM DGN file. Also determine how the current workflow is impacted by SS3 and the new terrain models.