LAB 31 - Create End Conditions to Search a Surface

This lab demonstrates the ability of an end condition to target multiple surfaces, using target aliasing. In this exercise, a template is edited and new corridor is defined to target multiple surfaces. The existing ground surface was divided into three separate segments along the length of the project. There is also a rock layer surface 10-feet below the existing ground, for the second and third segments, where there is a deep cut section in the profile. The template end conditions target the rock and active surfaces, so target aliasing is required to target all the existing ground and rock surfaces as the corridor extends along the three segments of the project.

Chapter Objectives:

- Modify a template end condition to target a rock layer when that surface is present.
- Build a corridor and use target aliasing to target multiple existing ground and rock layer surfaces along three segments of the project.
- View the corridor to examine the end condition's behavior and determine if templates and target aliasing are working properly

Lab 31.1 - Create End Conditions to Search a Surface

1. Open MicroStation and InRoads using the *12345DES_Create End Cond Search Surf.dgn* file.

   In the MicroStation drawing, notice the three perimeters displayed for each existing ground surface

2. Select **File> Open** from the InRoads menu bar.

3. Select the following files from *C:\Projects\12345\Design\InRoads* and **<D> Open** them.

   - ♦ CDOT_Civil.xin
   - ♦ 12345DES_Geometry-Create End Condit Search Surf.alg
   - ♦ 12345DES_Template-Create End Condit Search Surf.itl
   - ♦ 12345DES_Roadway-Create End Condit Search Surf.ird
   - ♦ Exist_Ground_1-Create End Condit Search Surf.dtm
   - ♦ Exist_Ground_2-Create End Condit Search Surf.dtm
   - ♦ Exist_Ground_3-Create End Condit Search Surf.dtm
   - ♦ Rock_Layer_2-Create End Condit Search Surf.dtm
   - ♦ Rock_Layer_3-Create End Condit Search Surf.dtm

4. **<D> Cancel** the *Open* dialog box to close.

Lab 31.2 - Edit template end condition components to target rock layer.

1. Select **Modeler> Create Template** from the InRoads menu bar.

2. **<D> <D>** on the root folder in the Template Library pane to expand the folder structure.

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3. Expand the *1 - Templates* folder.

4. **<D> <D>** on the *12345_HMA_2Lane_Rock* template
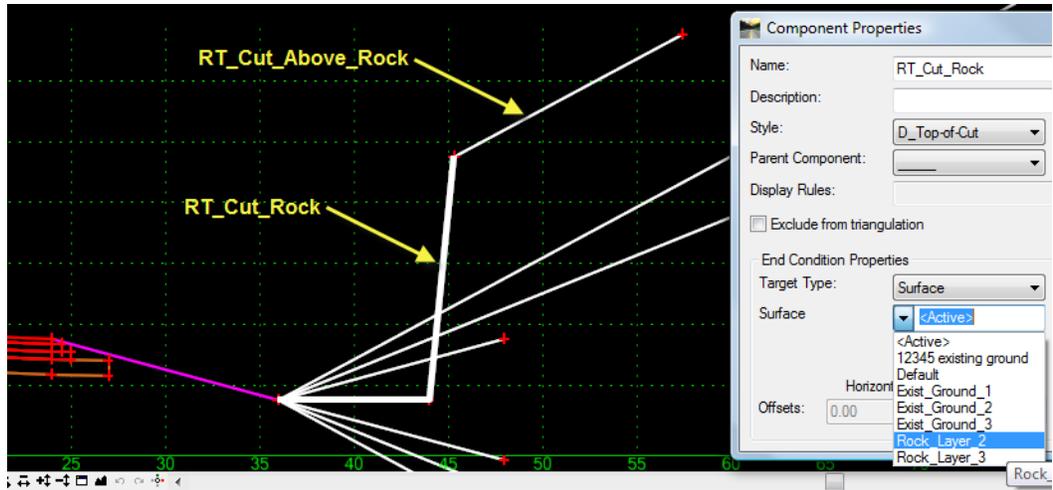
5. **<D> <D>** on the *RT_Cut_Rock* component.

6. In the *Component Properties* dialog box, change the **Surface** to *Rock_Layer_2* and **<D> Apply**

    Note: This end condition has two components and is only placed when there is a rock surface above the ditch bottom. The first component, *RT_Cut_Rock*, extends to intersect the rock layer surface. The second, *RT_Cut_Above_Rock*, is a child of the first and extends to intersect the active surface (existing ground). All other end condition components in this template target the active surface (existing ground).

7. **<D>** on the *Locate Button* next to *Name* in the *Component Properties* dialog box

8. On the left side of the template, **<D>** on the *LT_Cut_Rock* component.
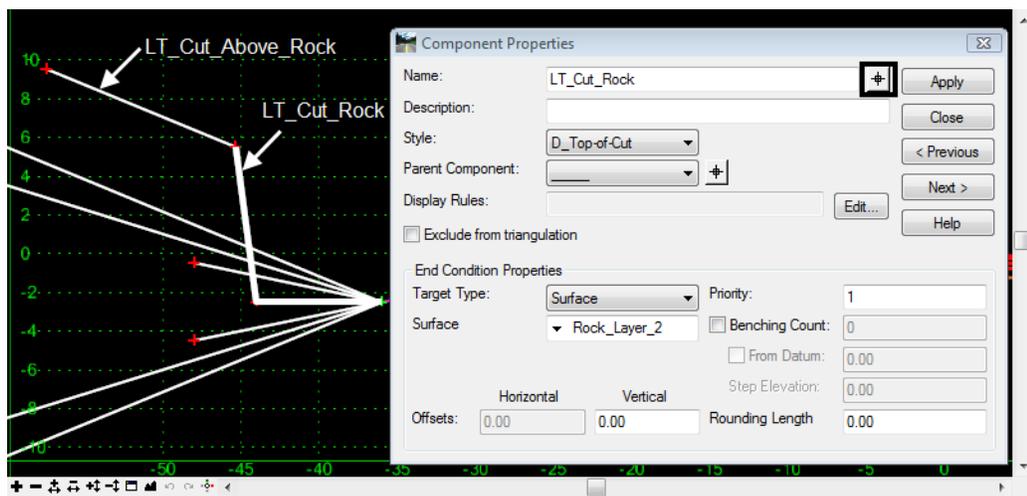
9. In the *Component Properties* dialog box, Change the **Surface** to *Rock_Layer_2*, then **<D> Apply** and **<D> Close**.

Build a corridor that follows the centerline alignment and extends along all three segments of the project.

10. Select **Modeler> Roadway Designer** from the InRoads menu bar.

11. Select **Corridor> Corridor Management** from the Roadway Designer menu bar or

    <D> the corridor management button ![button].

12. In the *Manage Corridors* dialog box:

    ♦ Key in *Centerline* in the Name field.

    ♦ Select **Centerline** Horizontal Alignment.

    ♦ Select **Centerline V** Vertical Alignment.

13. **<D> Add** then **<D> Close**.
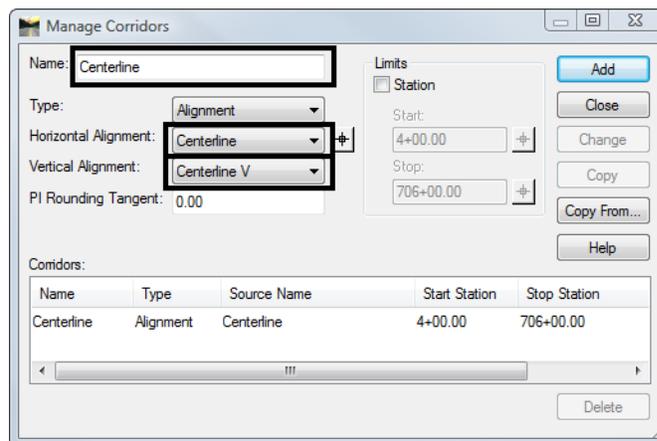
Lab 31.3 - Define template drop for the corridor

1. Select **Corridor> Template Drops** from the Roadway Designer menu bar or **<D>** the

   template drops button ![button] .

2. In the *Template Drops* dialog box:

   ♦ Select *Centerline* for the *Corridor* name.

   ♦ Key in *50* for the *Interval*.

   ♦ Expand *1 - Templates* folder in *Library Templates* area.

   ♦ **<D>** on the **12345_HMA_2Lane_Rock** template.

♦   **<D> Add**.
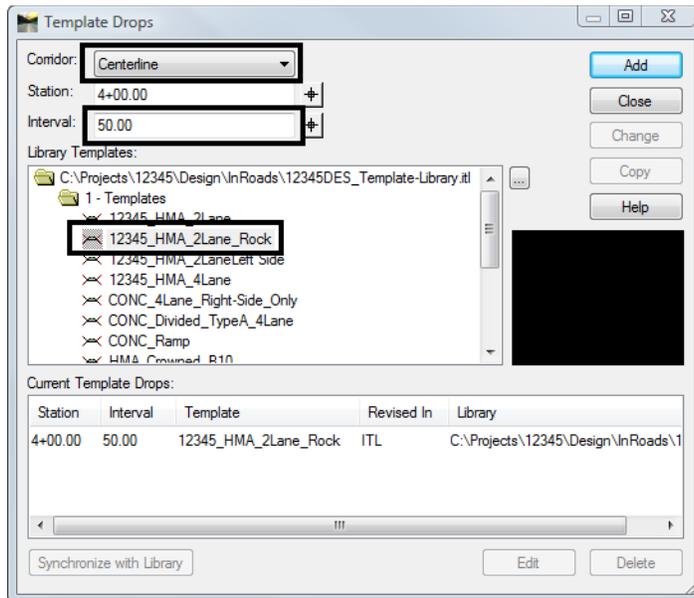
♦   **<D> Close**

Lab 31.4 - Define target aliasing

3. Select **Tools> Target Aliasing** from the Roadway Designer menu bar.

4. In the *Target Aliasing* dialog box:

    ♦   Select *<Active Surface>* for the *Target*.

    ♦   Select *Surface - Exist_Ground_1*, *Surface - Exist_Ground_2* and *Surface - Exist_Ground_3* in the *Surface or Corridor* area.

    ♦   **<D> Add ->**.
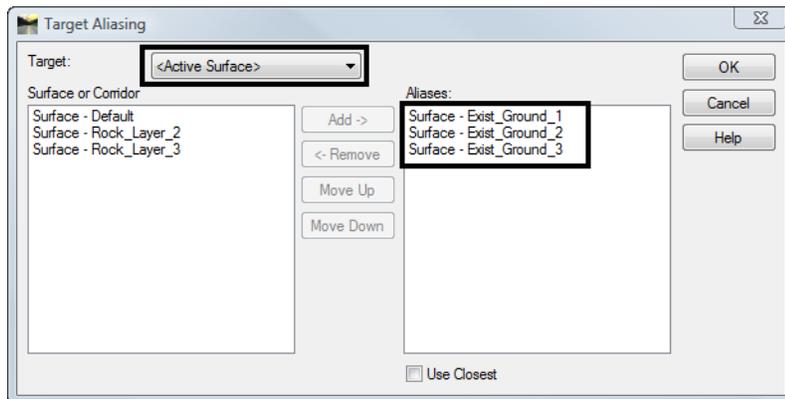
    ♦   Select *Rock_Layer_2* for the *Target*.

    ♦   Select *Surface - Rock_Layer_2* and *Surface - Rock_Layer_3* in the *Surface or Corridor* area.

♦ **<D> Add ->**.
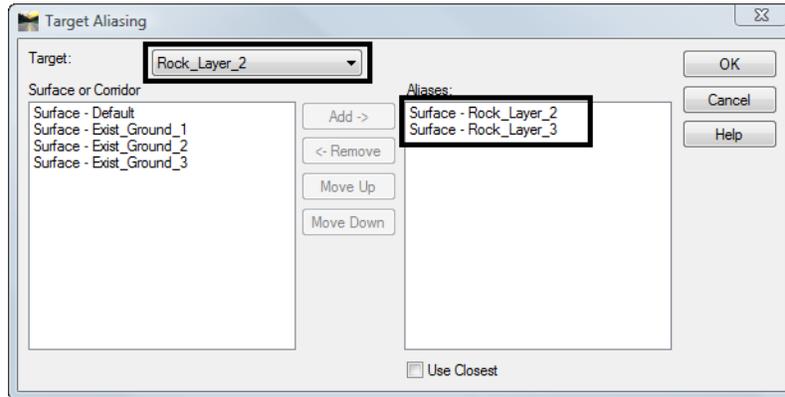
5. **<D> OK**

Lab 31.5 - View the corridor to examine the end condition's behavior and determine if templates and target aliasing are working properly.

1. In the *Roadway Designer* dialog box:

    ♦ Key in **373+00** for the *Station*.
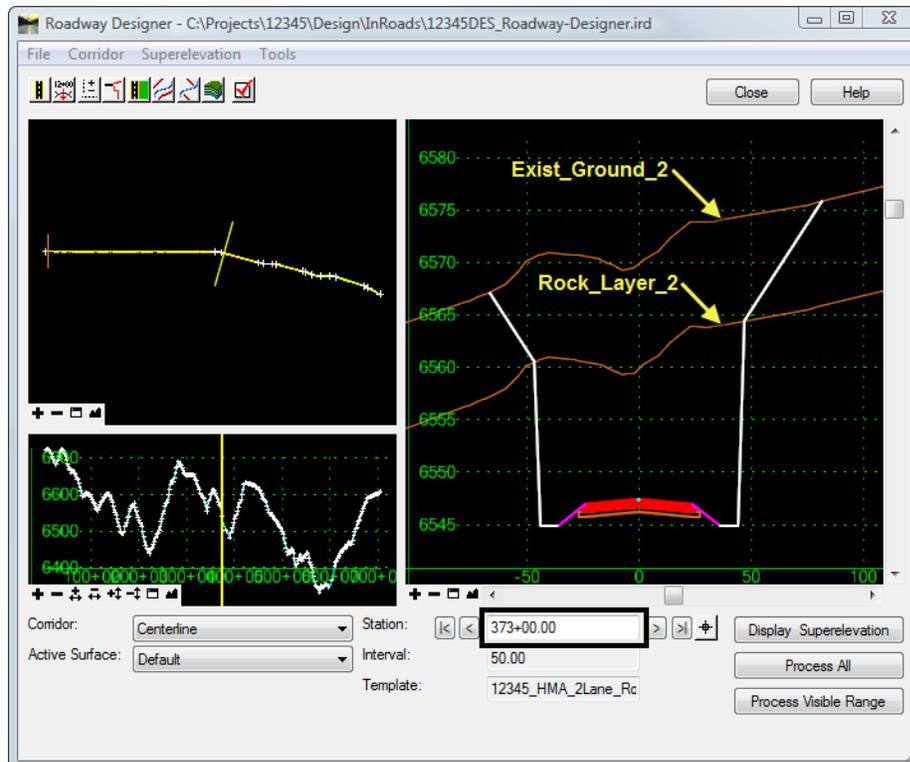
♦   Key in **600+00** for the *Station*.

Note: Notice the end conditions target the multiple existing ground and rock layer surfaces in both of the above Roadway Designer dialog's cross- section viewer. Both of the station locations shown are in deep rock cut sections in the profile.

Chapter Summary:

- In this lab an existing template was modified to target a rock layer.

- In this lab a corridor was built to use target aliasing to target multiple existing ground and rock layer surfaces along three segments of the project.

- In this lab the corridor was examined at the end condition to determine if templates and target aliasing were working properly.