Exercise 14-3

This group exercise uses the GEOPAK profile tools to plot proposed fill slopes under the bridge as they pass under the right exterior girder. Data from Exercise 14-2 provides the information needed to accomplish this task. Once the fill slopes have been plotted, they can be used to determine the minimum from front face to front face of the end bents. These will be the horizontal lengths as measured along the alignment for Route 50.

1. Open the MicroStation file **t:\br-proj\a_geopak\d5\j5p0100\data\profile_j5p0100.dgn**.

   Do a MicroStation fit-view. At the top of the drawing are three diagonal lines. Adjust the MicroStation window so you are zoomed in on the right most diagonal line and the text above it and to the right. This area will be used to plot the right edge of the bridge.

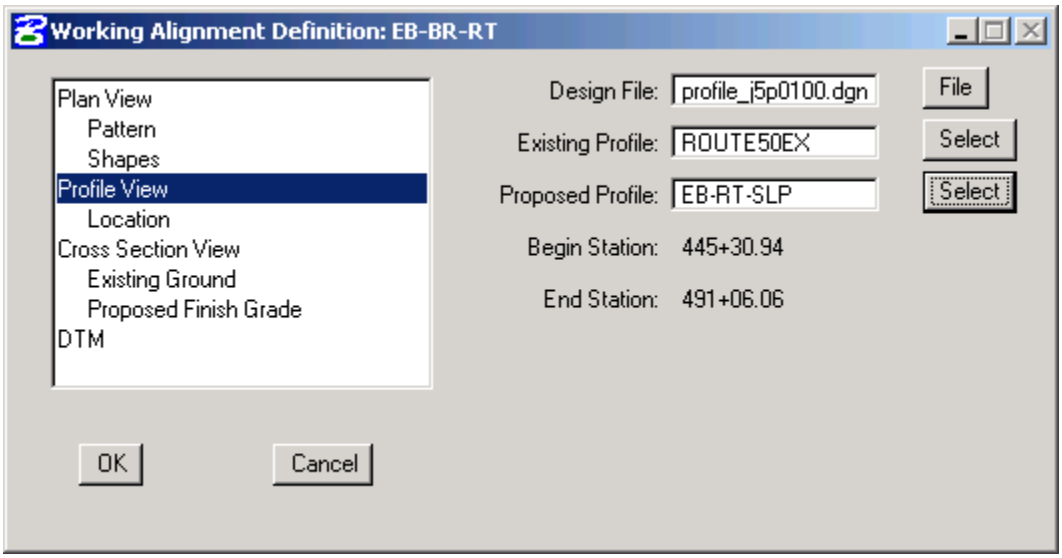
2. Open the project **t:\br-proj\a_geopak\d5\j5p0100\project\j5p0100.prj**.

   Enter the as user **userc**.

3. To keep track of the information for the left edge of the bridge, copy the **Route50** working alignment to **EB-BR-RT** and enter that working alignment.

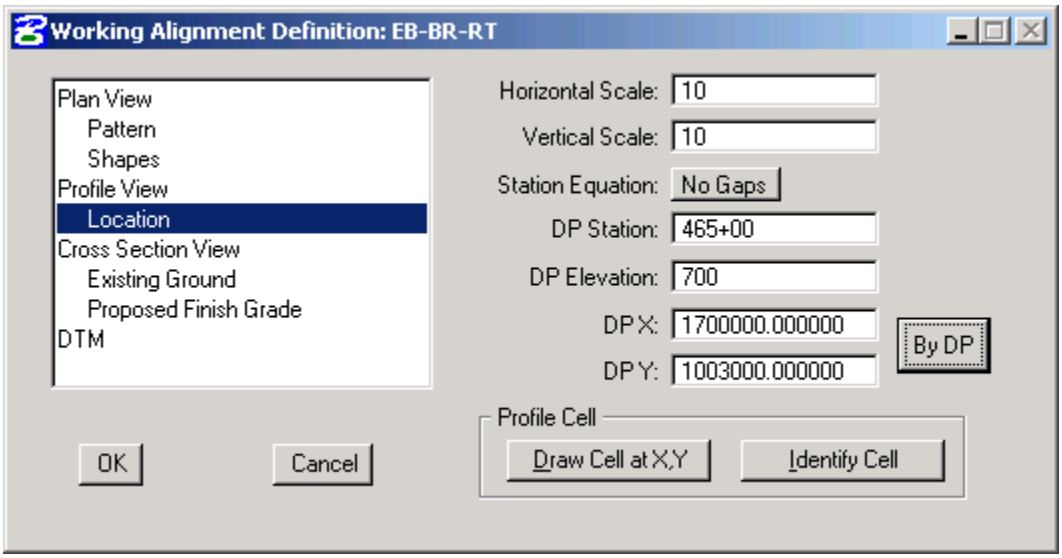
   Make the following changes in the **Profile View** section of the Working Alignment Definition:

   Proposed Profile: **EB-RT- SLP**



Adjust the values in the **Location** section of the Working Alignment Definition to those shown in the following figure:

Horizontal Scale:	**10**
Vertical Scale:	**10**
DP Station:	**465+00**
DP Elevation:	**700**



Click on the **By DP** button and snap to the upper end of the diagonal line and accept. This will set the DP X and DP Y values to those shown above.

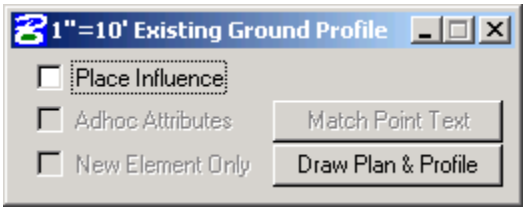
Place the profile cell by clicking on the **Draw Cell at X,Y** button. The active MicroStation text setting controls size of the text in the cell.

Save the changes to the working alignment definition by selecting the **OK** button.

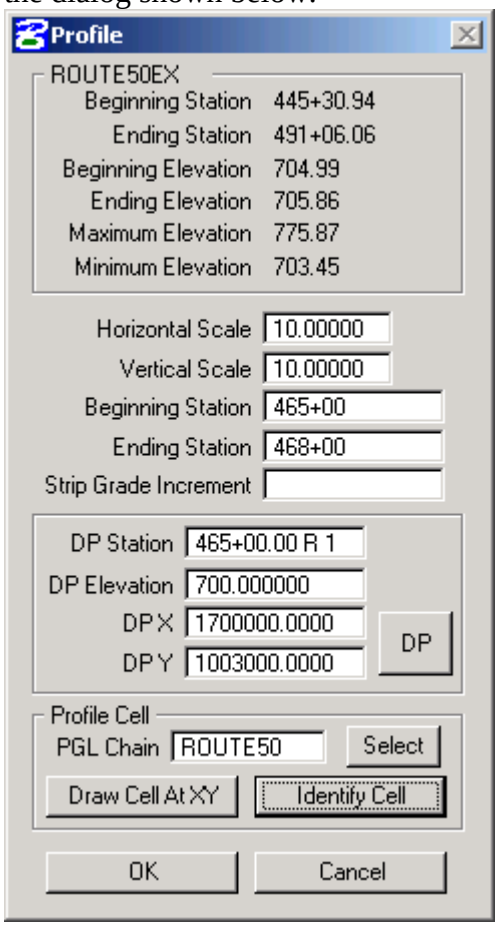
4. Open **Design and Computation Manager** (D&C) from Road Tools using the icon shown to the left. It will be used to plot the profiles for the left edge of the bridge. The first one to be plotted is **EB-RT-SPL**, which defines the maximum height of the fill slope.

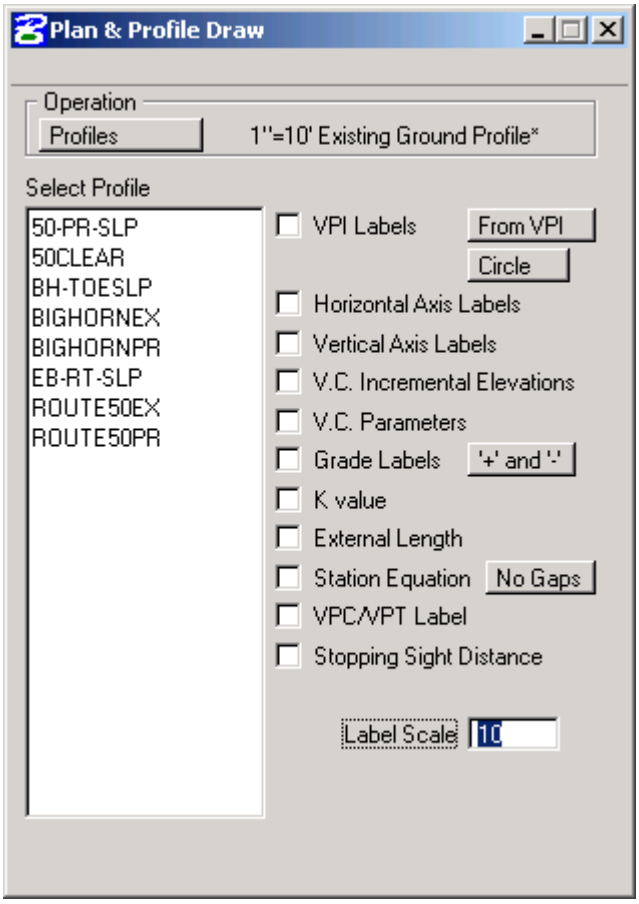
Navigate to:
Drafting Standards\Profile\Existing Ground Profiles\1”=10’ Existing Ground Profile.

Click on **Draw Plan & Profile** in the Operations box shown below.



Change the label scale to **10** as depicted to the right and click on **ROUTE50EX** in the Select Profile list. This will bring up the dialog shown below.





Change the following values:

Begin Station: **465+00**
Ending Station: **468+00**

Click on the **Identify Cell** button, data point on profile cell plotted in the previous step, and data point to accept.

Select **OK** to plot the profile.

In D&C Manager, **double-click** on:
Proposed Ground Profiles\10 Scale Proposed Ground Profile 1”=10’’ H & 1”=10’ V.
This will update **GEOPAK Plan & Profile Draw** to the defaults for proposed profiles.

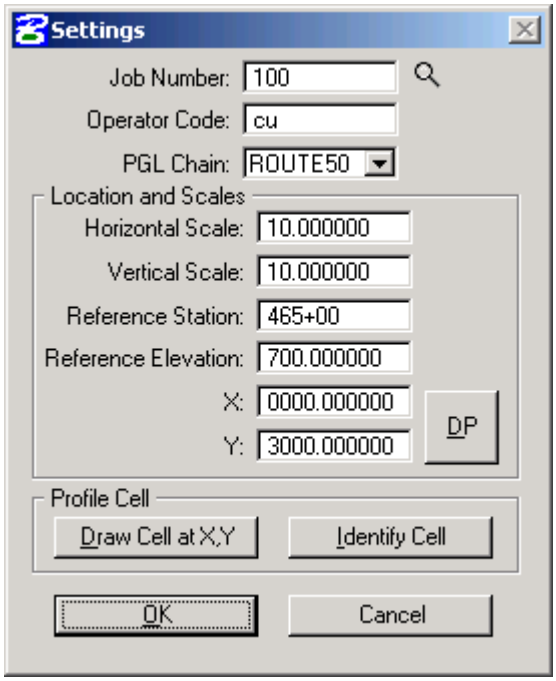
Select **EB-RT-SLP** from the **Select Profile** list.

The settings should be the same as shown above in the figure on the left except for the name of the profile at the top of the dialog and the profile information. Select the **OK** button to plot the EB-RT-SLP profile as the propose profile.

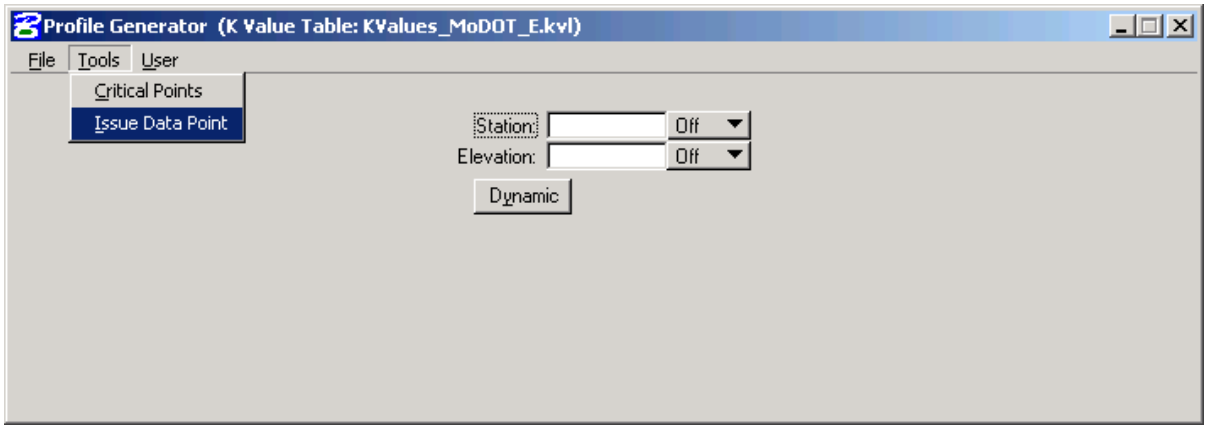
5. In the main D & C dialog, switch to:
   Design Standards \ Cross Sections \ Proposed Surfaces \ Ground (Proposed).

   Make sure **Place Influence** is turned **checked**. This will set the MicroStation symbology to those for fill slope under the bridge. Keep D & C open.

   Go into **Vertical Alignment** from the Road Project Dialog, which will bring up the **Settings** dialog box shown below.

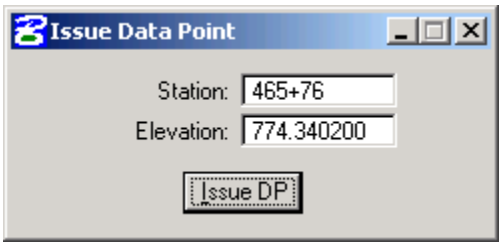


   Everything should be set from the Working Alignment Definition. If your settings do not match those shown above, click on the Identify Cell button in the dialog, data point on the profile cell for the EB-LT profiles. Click the **OK** button. This will bring up the **Profile Generator** dialog box:



   Go to **Tools >> Issue Data Point** as shown above.

6. Use the Issue Data Point to plot the fill slopes. To do this, active the MicroStation **Place Line** tool. Enter the following values into the Issue Data Point dialog as shown below:
   Station: **465+76** Elevation: **774.3402**.



   Click the **Issue DP** button to begin a fill slope line.

   Issue data points for the following values to draw the rest of the line:

Station	Elevation
465+77.00	773.8438
465+80.00	772.3540
465+90.00	767.3560
466+00.00	762.4142
466+07.44	758.7149

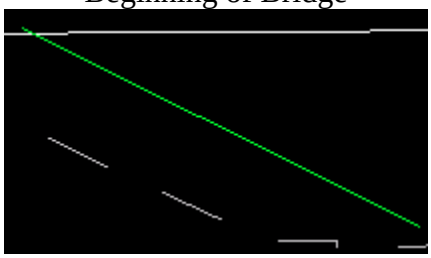
   Do a MicroStation reset to end the line. Draw a second line for the other fill slope using the following values:

Station	Elevation
466+55.20	758.9035
466+60.00	761.3367
466+70.00	766.4102
466+80.00	771.4865
466+85.00	774.0253
466+86.00	774.5334

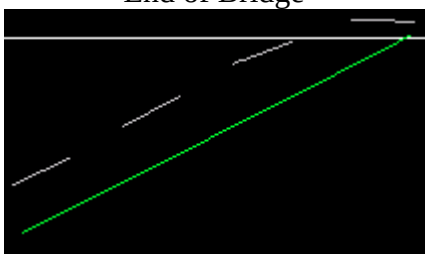
   Close D & C Manager and Profile Generator.

7. The lines plotted in the previous step are shown below. The point of interest is where the solid fill slope line crosses the line parallel to the proposed alignment.

Beginning of Bridge

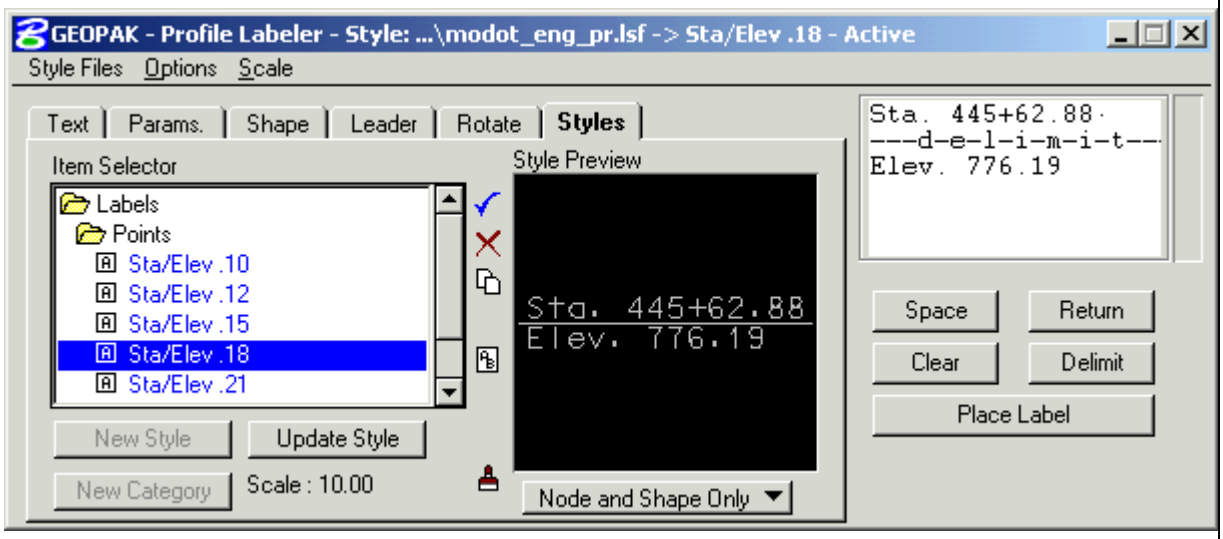


End of Bridge



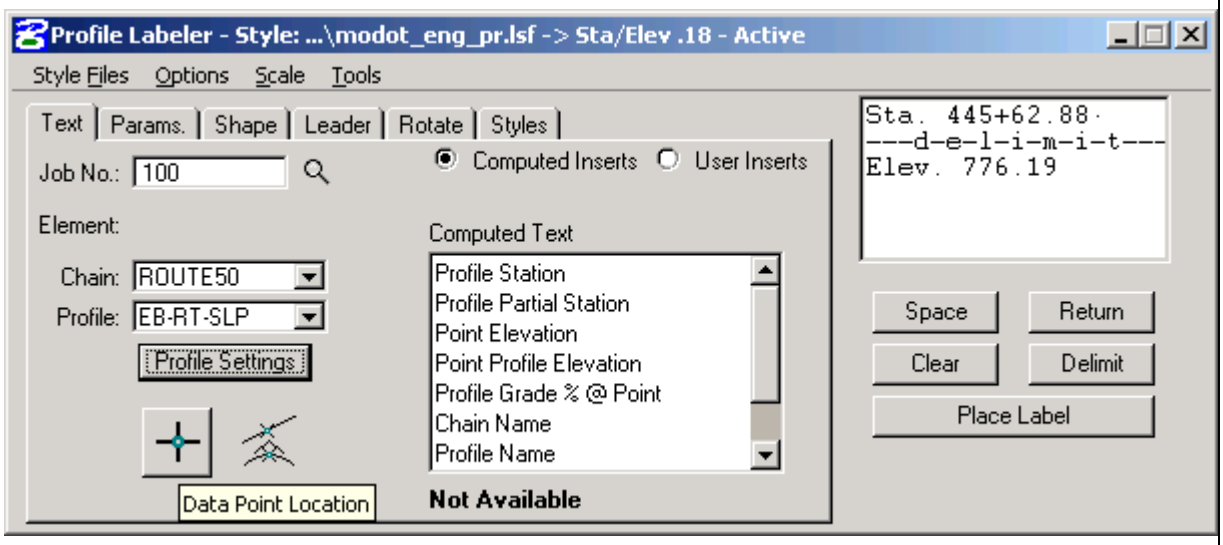
8. Use the Profile Labeler to find the station and elevation where the fill lines and **EB-RT- SLP** cross. Profile Labeler is the fifth tool in the Plans Preparation toolbox shown below.

Go to the **Styles** tab in **Profile Labeler**. Open the **Points** folder and double click on the **Sta/Elev .18** style in the **Item Selector** as shown in the following figure.



Go to the **Scale >> Change Scale** pull down menu and make sure the **Scale Style** is set to **10**.

Switch to the **Text** tab and select the **Data Point Location** button indicated in the dialog box depicted below. If the Data Point Location icon is not there, click on Profile Settings and click OK in the dialog box that appears. Snap to the intersection of the fill-slope line with the plotted profile and accept the snap.



Click on the **Place Label** button and place the label.

9. Compare your intersection points to the values given below.

Location	Station	Elevation
Bent 1	465+76.69	774.00
Bent 4	466+85.79	774.42

These station values can be used to determine the minimum distance from front face of end bent to front face of end bent along the right exterior girder. Remember, however, that the stationing is measured along the chain, which is at the centerline of median. This needs to be kept in mind when determining the actual bridge length.

Save changes to the MicroStation drawing.