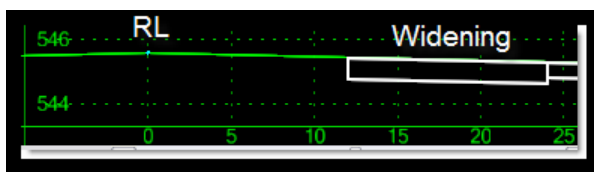




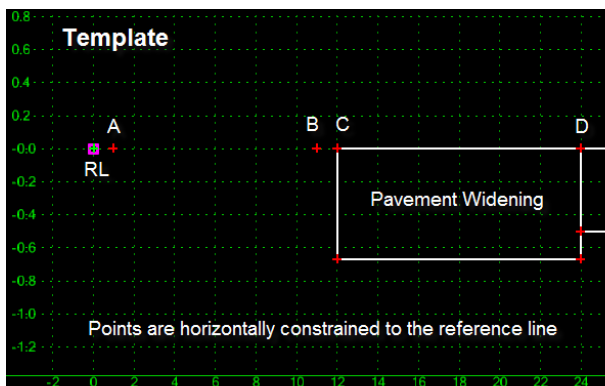
## InRoads Templates - Projecting an Existing Cross-Slope

Use for widening or rehabilitation projects on roadways, levees, channels or any project.

In this tip we use a roadway example where an additional 12 foot lane, shoulder, etc. is added to the outside of an existing roadway. The new lane should use the same cross-slope of the existing roadway to mirror existing conditions including Superelevation.



The End Result – pavement only - cross sectional view



Points A & B are 'Null' points added to the template – meaning they will be used for testing/development only.

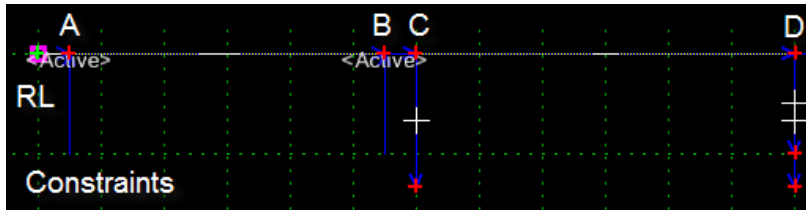
In this example the template is horizontally constrained to the Reference Line. However you can use any combination of constraints and point controls that fit your situation.

The Horizontal controls:

- Point **A** is horizontally constrained as being 1' RT of the reference line to mitigate the RL and the crown of the existing roadway not being 100% in sync. (think vertical location).
- Point **B** is horizontally constrained as being 11' RT of the reference line (same reasoning for the existing edge of pavement).
- Point **C** is horizontally constrained as 12' RT of the reference line (edge of existing pavement and a consistent offset for constructability)
- Point **D** is horizontally constrained at 12' RT of point C (shoulder, etc. continues outside beyond)

**envision**

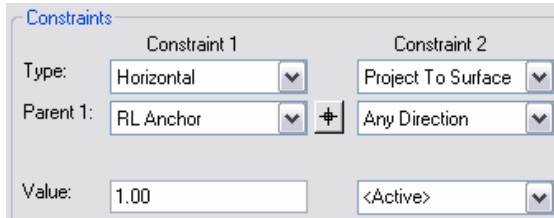
SEE THE CAD POSSIBILITIES



Vertical constraints are based on the existing surface (DTM).

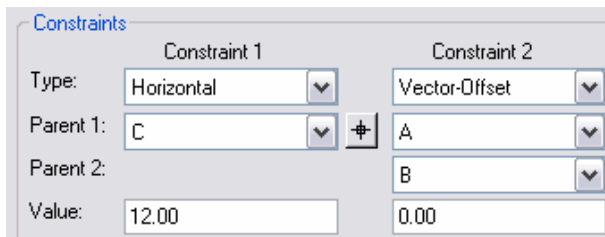
The Vertical controls:

- Points **A** & **B** are both vertically constrained as 'Project to <Active> Surface'. Of course you can hard-code the DTM you are seeking to mix and match your solutions.



The effect of this is that points **A** & **B** are 'draped' on the surface at a defined offset from the reference line. In other words, they can only 'Project to Surface' vertically.

- Once points **A** & **B** have been draped on the surface we have the direction, or slope, between these 2 points.
- Point **C** can also be draped on the surface in this manner or you can use Point Controls to define its horizontal and/or vertical location if you have an existing feature or alignment that defines its current or required location.



Point **D** is defined horizontally from point **C** and its vertical location is defined with a 'Vector-Offset' constraint. With an offset value of 0, the slope between points **A** and **B** are used to project point **D** 12' outside of point **C**.

Give this a try and see if it helps your current workflow!

[The Envision Group](#) is a leading provider of CAD related solutions to engineers, surveyors, and GIS professionals. We have been providing expert solutions for CAD, Civil and Geospatial applications for both government agencies and AEC firms since 1996.