

Civil CAD CONSULTANT

Express-TIP

On the Side

Q: When using the Vector Offset constraint on a point, what is the Value that is listed?

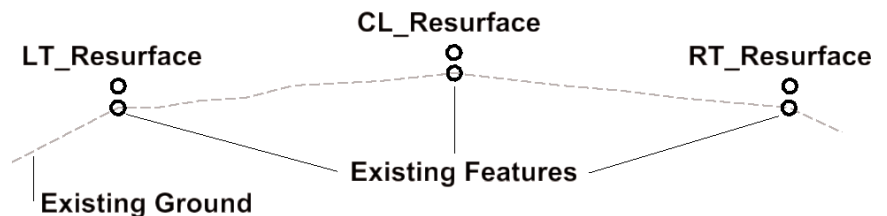
A: The value is the *offset* part of the **Vector Offset** constraint. It is a perpendicular distance from the vector to the point. Positive values are to the right of the vector, negative values to the left, with the order of the parents determining the direction of the vector.

Resurface

Clearing the high points II

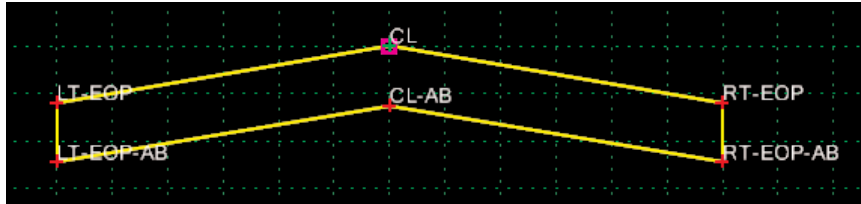
In the last *Civil CAD Consultant Express-Tip*, we looked at using the **Resurface** command to create new features for a centerline and edges that would clear the existing roadway and add a minimum lift. Now, let's take a look at how these features can be used.

1 Since the **Resurface** command uses the same names for the resurface features that were used for the original features, start by using **Surface > Feature > Feature Properties** to rename the features LT_Resurface, CL_Resurface and RT_Resurface to easily tell new from old.



If the roadway is going to follow the existing edges in width, then you can use these features as the Horizontal and Vertical Point Controls for your overlay template.

2 Create the template(s) for your new roadway. Here, we'll just use an asphalt component to demonstrate.



Note: If you want the bottom of the component to follow the current conditions, assign a **Project to Surface** constraint on each of the bottom points instead of the normal Vertical.

3 Set up the **Corridor** in **Roadway Designer** and assign the **Template Drops**, then:

- Select **Corridor > Point Controls**.
- Assign the new Centerline to follow the **CL_Resurface** feature.
- Assign the new Right Edge to follow the **RT_Resurface** feature.
- Assign the new Left Edge to follow the **LT_Resurface** feature.

Horizontal and Vertical Controls:

E...	Pri...	Name	Mode	Type	Control
X	1	CL	Both	Feature	Resurface features:CL_Resurface
X	1	RT-EOP	Both	Feature	Resurface features:RT_Resurface
X	1	LT-EOP	Both	Feature	Resurface features:LT_Resurface

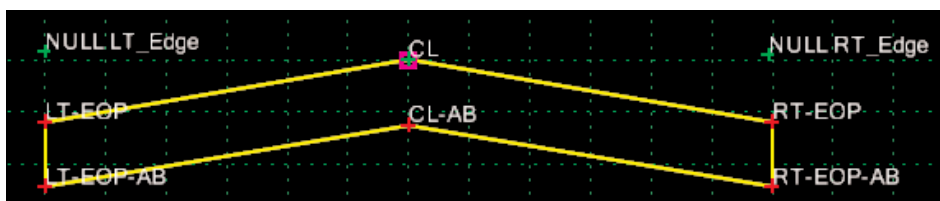
Note: Any points that fall on the same line defined by the CL to Edge vector should use a **Vector Offset** constraint to define the slope, since it will vary with existing conditions.

The proposed roadway follows the horizontal and vertical of the Resurface features for the top of the component, and the bottom of the component follows the existing ground.

If you are widening in addition, you can use the resurface features to establish the cross slope, then use a Vector Offset on the edge features.

1 Define your template using the appropriate width for your widening.

2 Add Null points to your template for each Edge. It does not matter exactly where you add them, as their position will be established using **Point Controls**.



3 Assign the Edges a **Vector Offset** constraint, using the CL and the Null points as the parents.

Constraint 1
Type: Vector-Offset
Parent 1: CL
Parent 2: NULL LT_Edge
Value: 0.00
Label:

4 Set up the Corridor in **Roadway Designer** and assign the **Template Drops**.


5 Select **Corridor > Point Controls**.

Assign the new Centerline to follow the **CL_Resurface** feature.
Assign the Null RT_Edge to follow the **RT_Resurface** feature.
Assign the Null LT_Edge to follow the **LT_Resurface** feature.

Horizontal and Vertical Controls:

E...	Pri...	Name	Mode	Type	Control
X	1	CL	Both	Feature	Resurface features:CL_Resurface
X	1	NULL RT_Edge	Both	Feature	Resurface features:RT_Resurface
X	1	NULL LT_Edge	Both	Feature	Resurface features:LT_Resurface

The proposed overlay follows the slope of the Resurface features for the top of the component, and the bottom of the component follows the existing ground, while the width is determined by the Edge points on the template.

At the recent *Roads and Bridges Conference* in Charlotte, Bentley demonstrated the new **Overlay** tools coming in the SS1 version of V8i. They are very impressive, so watch for more information as the new software becomes available. 

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