

7_06 FORCING A SHALLOW FILL INSTEAD OF A CUT DITCH

Question:

I have four to five stations of shallow cut but I want to make them into shallow fills. In other words, cut the hill using an extended line from the shoulder point. I think I could come up with a line that matches the 8% from the shoulder but the end condition is hit or miss when getting back to existing ground. I've tried the end condition exception also without any progress. Is there another way?

Answer:

It may be as simple as changing the end condition priority to process fills before cuts (or vice versa). Or it can be more complicated as targeting existing features such as the existing ditch point and bypassing the first instance of the existing ground line (top of hill) to connect with the second instance at the bottom of the existing ditch. What we are trying to do moving forward is "*change the culture*" in the way we do roadway design. The concept is simple. Take the default template settings (typical section) and push it through your corridor. Then adjust a **range** of stations to meet your project requirements **if** they are different from the default values, such as side slopes, usable shoulder width, ditch width, guardrail warrant points, etc. The roadway models should be viewed and designed as whole system of interconnecting template drops, not individual independent cross sections.

We would like to avoid the mentality of fixing cross sections stations by stations. I know this is the mindset of Roadway squad leaders for past 30 plus years. There are many factors to consider with the "fixing station by station" practice:

- The shallow ditch may be the start of a larger ditch system later on the project – pre THY.
- Hydro may want to extend the depth of the shallow ditch for positive drainage flow – post THY.
- The existing terrain (TIN) is created by triangulations of points and break lines. The accuracy and precision of the data is limited and not an "absolute" representation of the real-world conditions at the project site. Thus tying the roadway shoulder cross section by cross section with variable usable shoulder widths to the existing ground (bypassing cut and fill end conditions) or labeling the beginning and ending of the project with a "measured" cross slope of the existing surface (e.g. -0.06 LT, +0.03 RT – which adheres to no standard superelevation design) instead of labeling them as "EXIST" may not be an ideal practice.