

# Side Drain Length Calculation



**Roadway Design Division**

Website [www.tn.gov/tdot/roadway-design/training.html](http://www.tn.gov/tdot/roadway-design/training.html)

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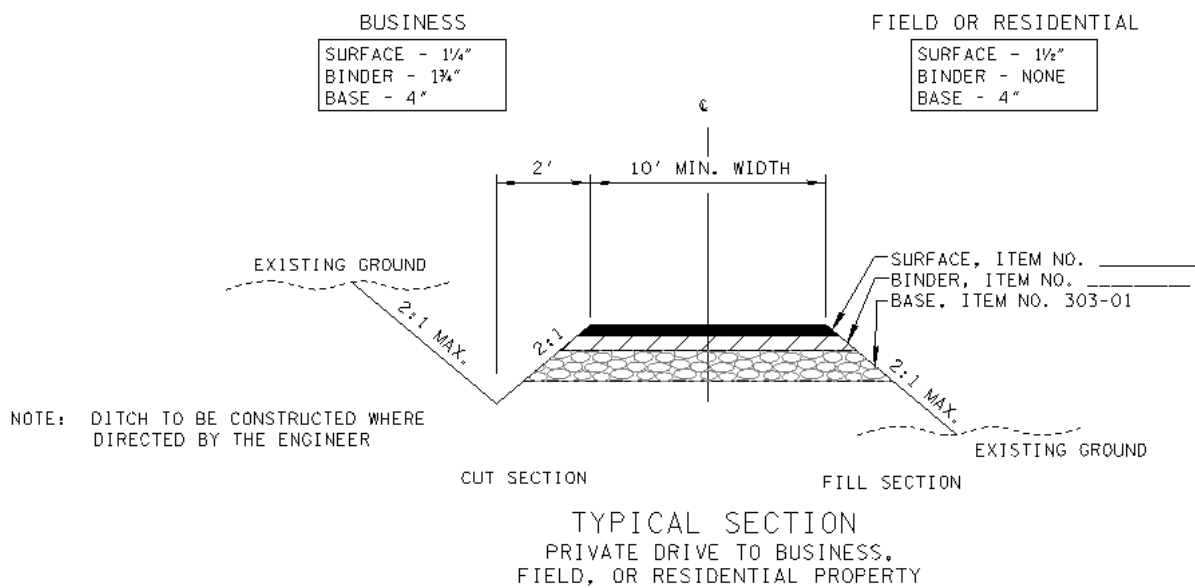
The purpose of this tutorial is to outline the method for calculating the length of side drains to be displayed on roadway plans.

# Side Drain Length Calculation

The length of a side drain is dependent upon:

- The width of private drive, field or business entrance
- The height of drive above the side drain
- The diameter of side drain

## TYPICAL SECTION OF DRIVEWAYS

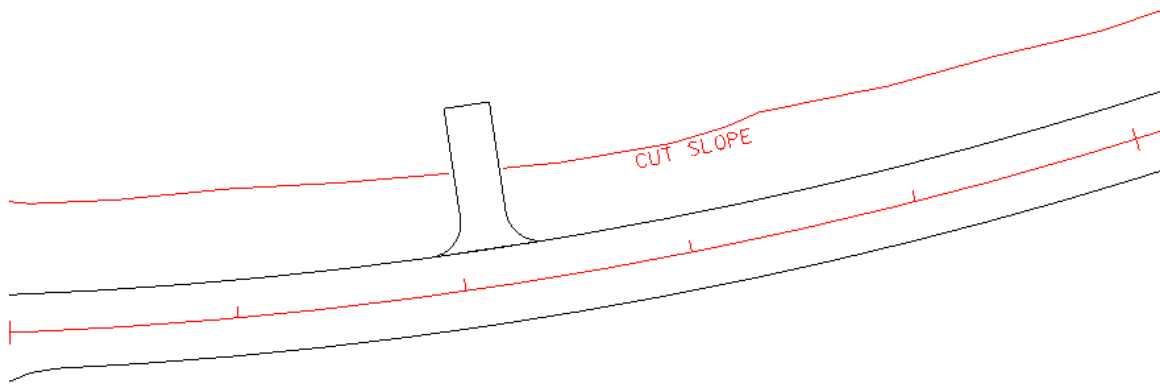


## Side Drain Length Calculation

### EXAMPLE

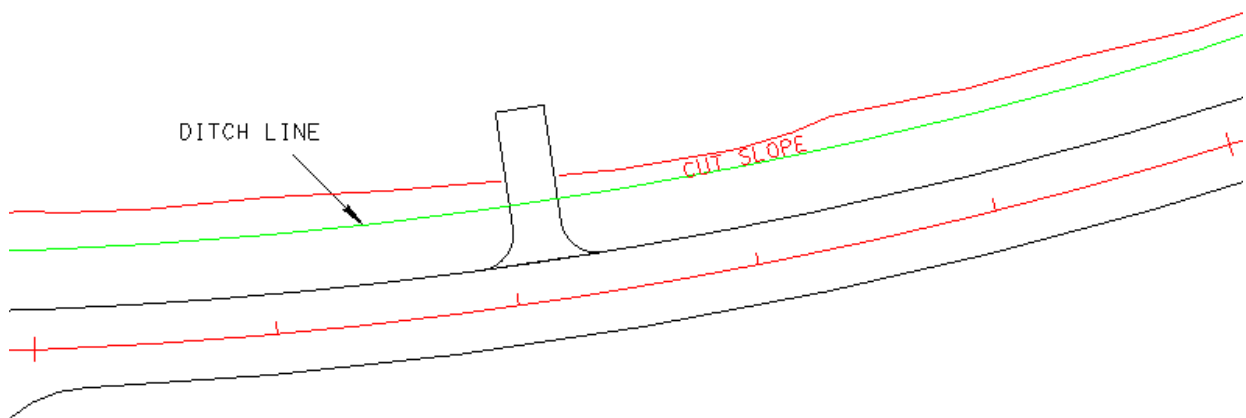
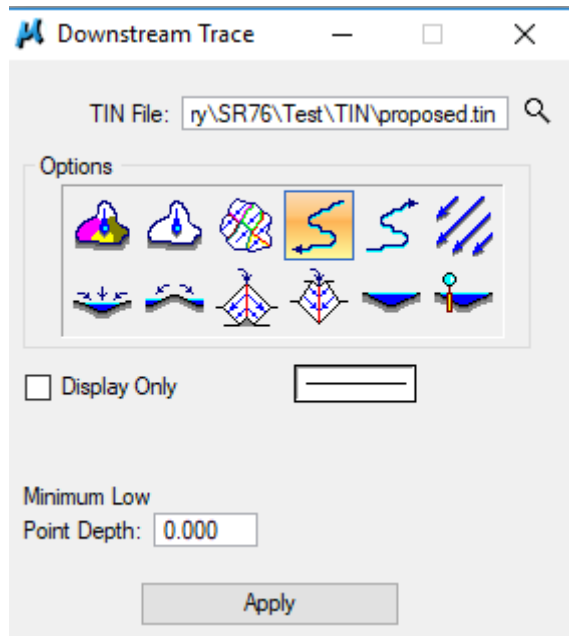
Side drain in cut section

Private Drive Width = 20 ft.



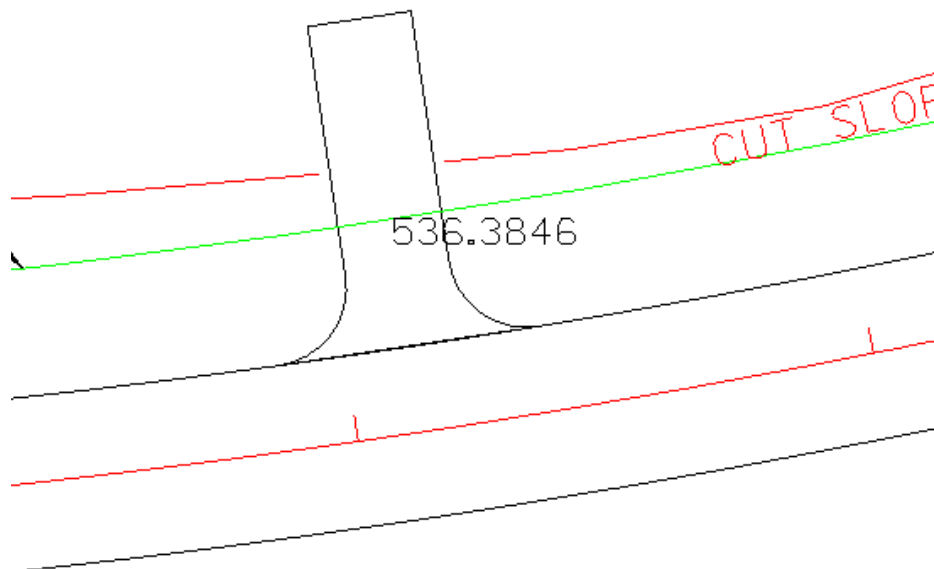
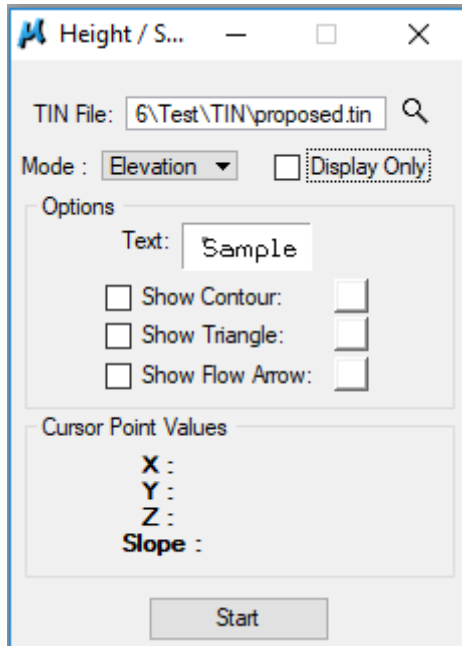
The side drain will be located in the ditch line which can be located using the downstream trace tool if a proposed .tin surface has been created.

## Side Drain Length Calculation



Using the Height/Slope tool, the elevation at the side drain location in the ditch line can be found.

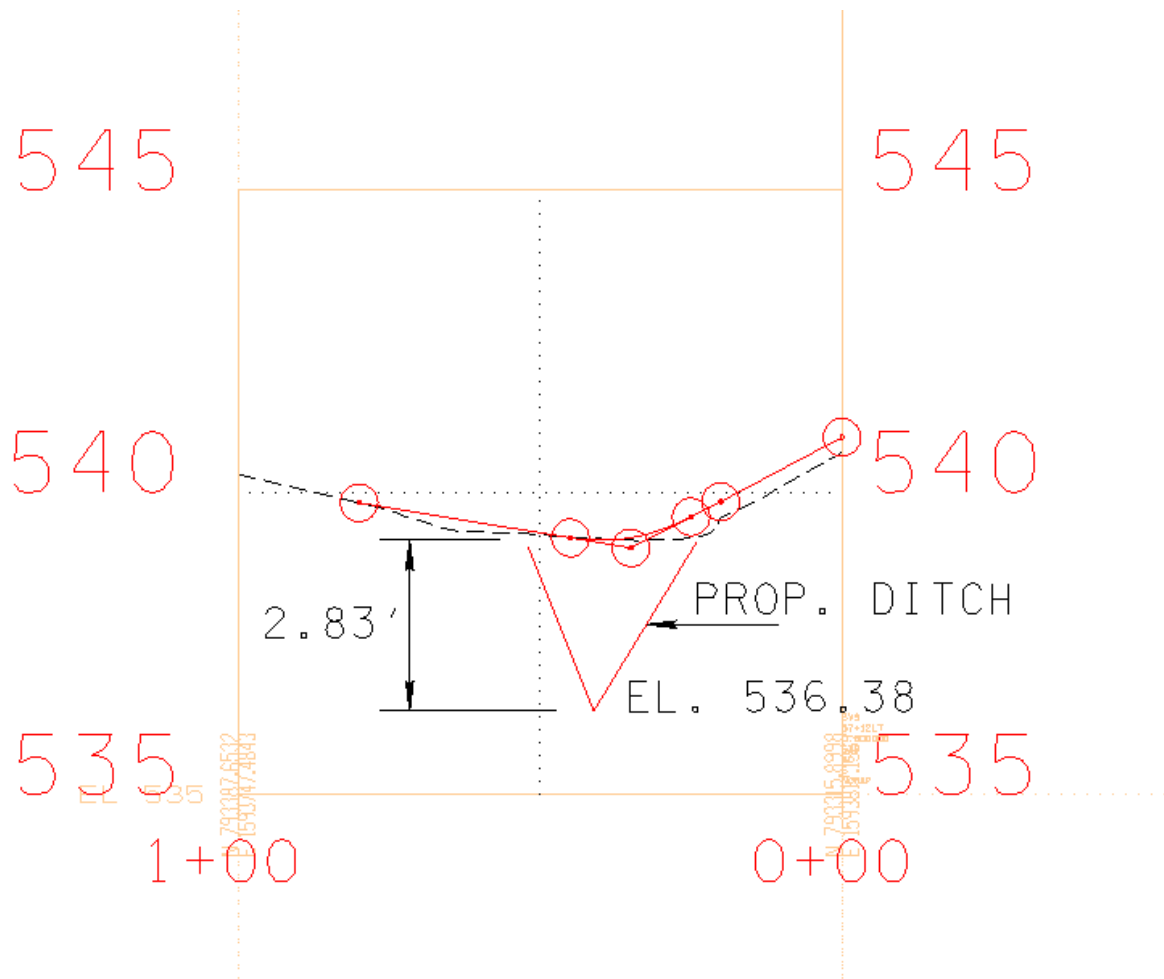
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## Side Drain Length Calculation

Draw existing and proposed profile of the drive using the standard documentation as a guide

[https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/cadd\\_files/documents/Private%20Drive%20Profiles.pdf](https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/cadd_files/documents/Private%20Drive%20Profiles.pdf)



Assuming a 18" diameter side drain, the height is  $2.83 - 1.5 = 1.33'$

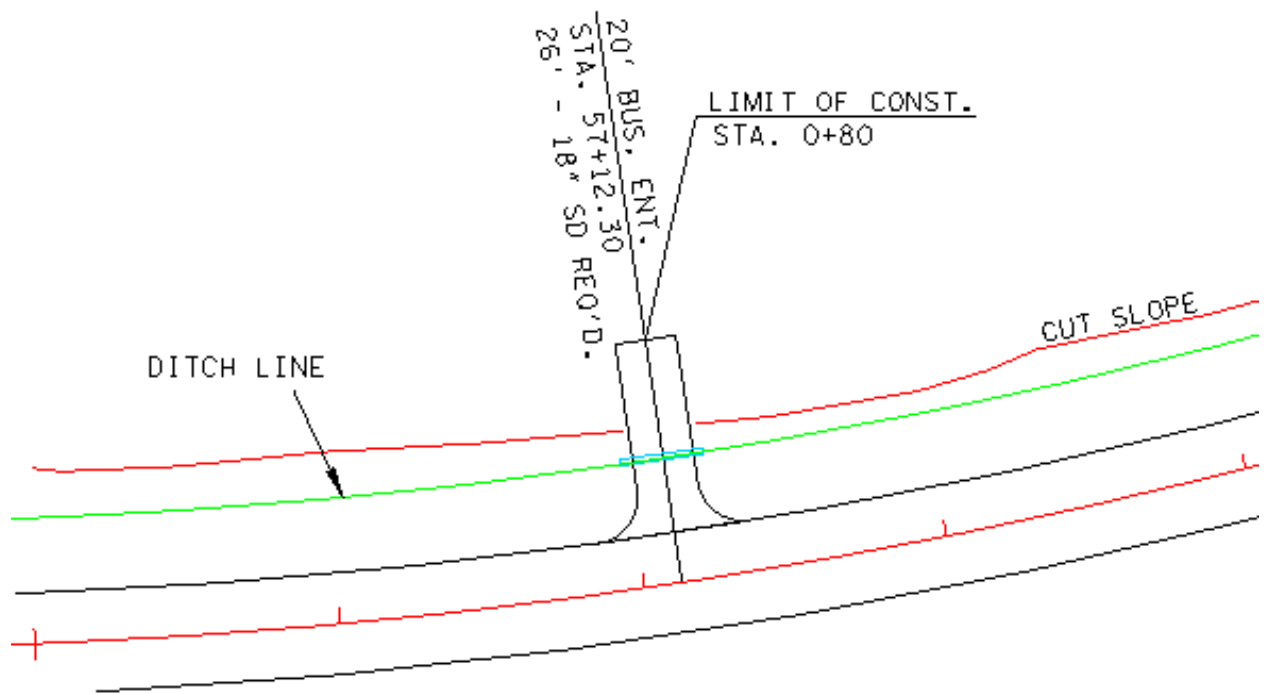
Length:

Using 2:1 side slopes for drive:

$(2 \times 1.33) \times 2 = 5.32$  (for side slopes)

+ 20 (width of drive) = 25.32, or 26'

# Side Drain Length Calculation



View of Side Drain on plans