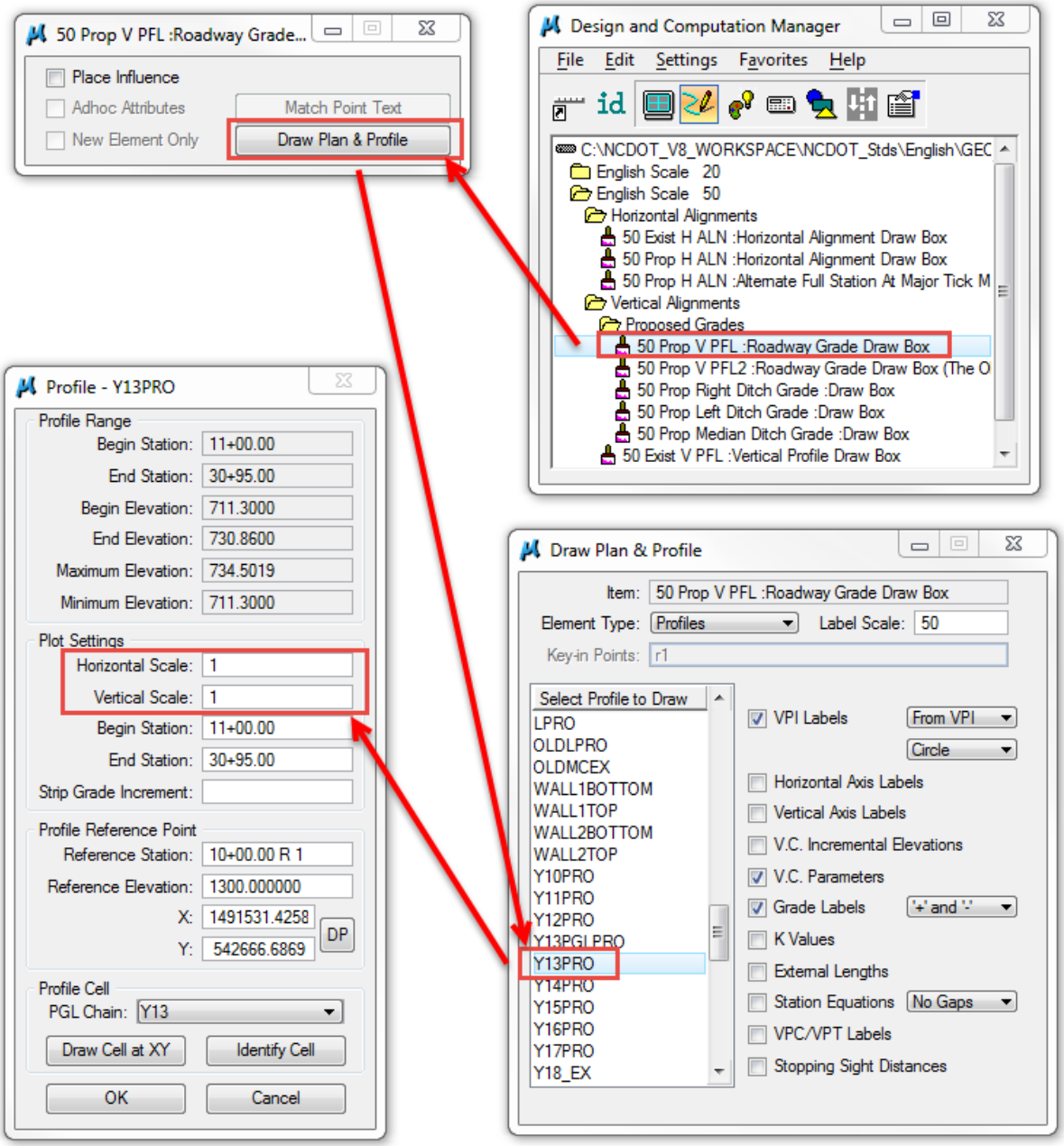
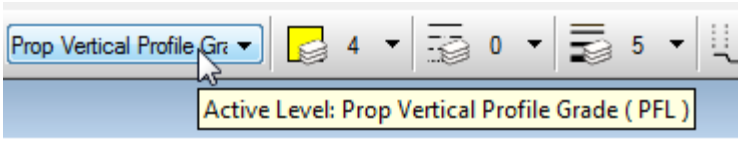
Quick Reference Guide

Undercarriage and Vertical Clearance with AutoTurn 9.1

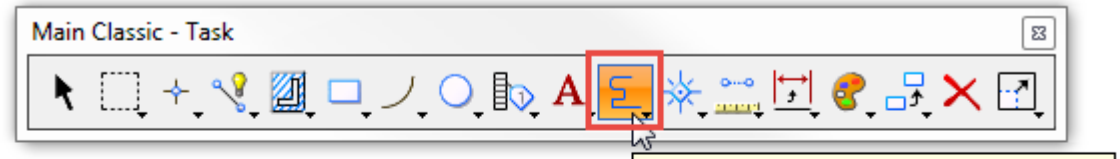
1. The proposed profiles must be relayed-out at full 1:1 scale (without vertical exaggeration). Use the Geopak D&C Manager to accomplish this task.

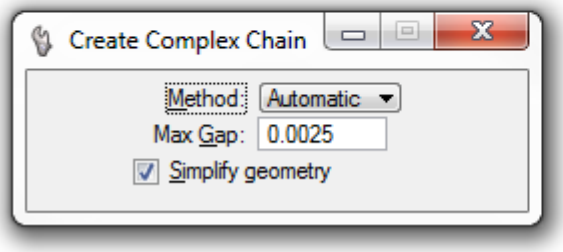


2. Change the active level to **Prop Vertical Profile Grade**.



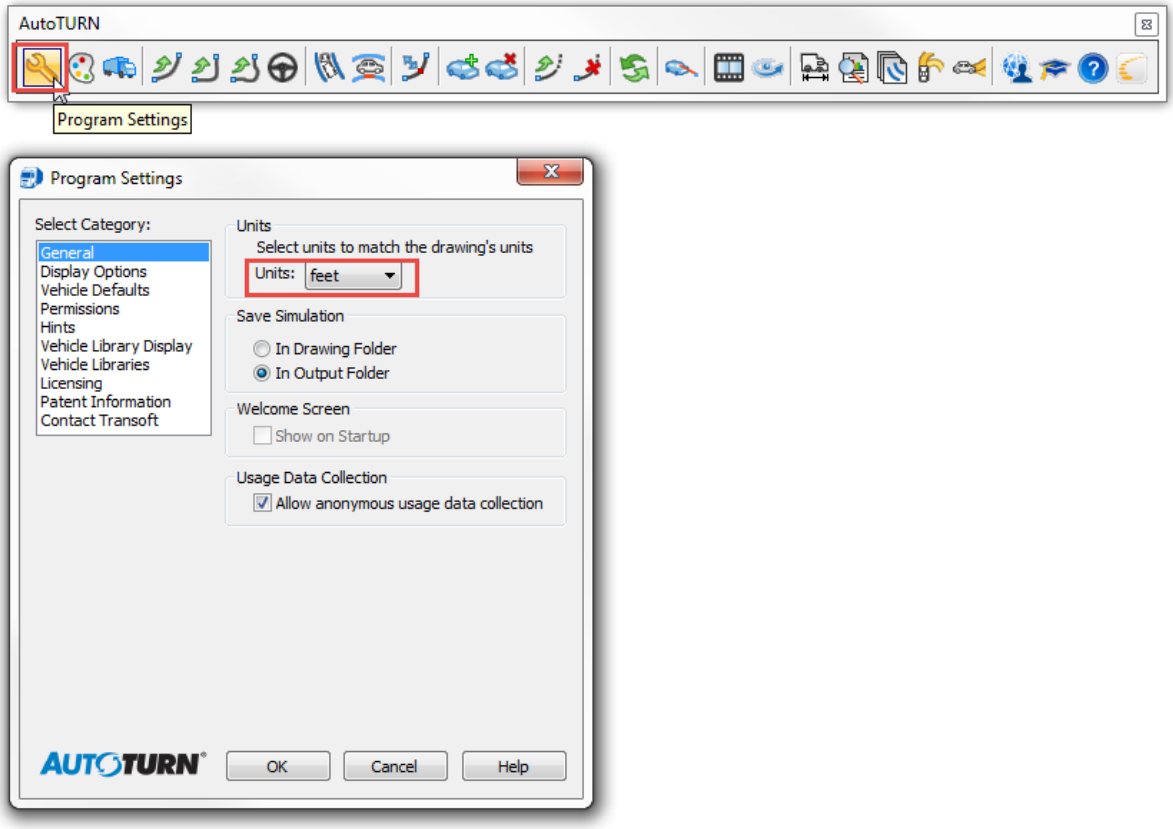
3. Just like the horizontal turning paths, the profile elements must be converted to a line string or complex chain element type. Use the **Create Complex Chain** tool to convert the profile individual line and arc elements to a complex chain.



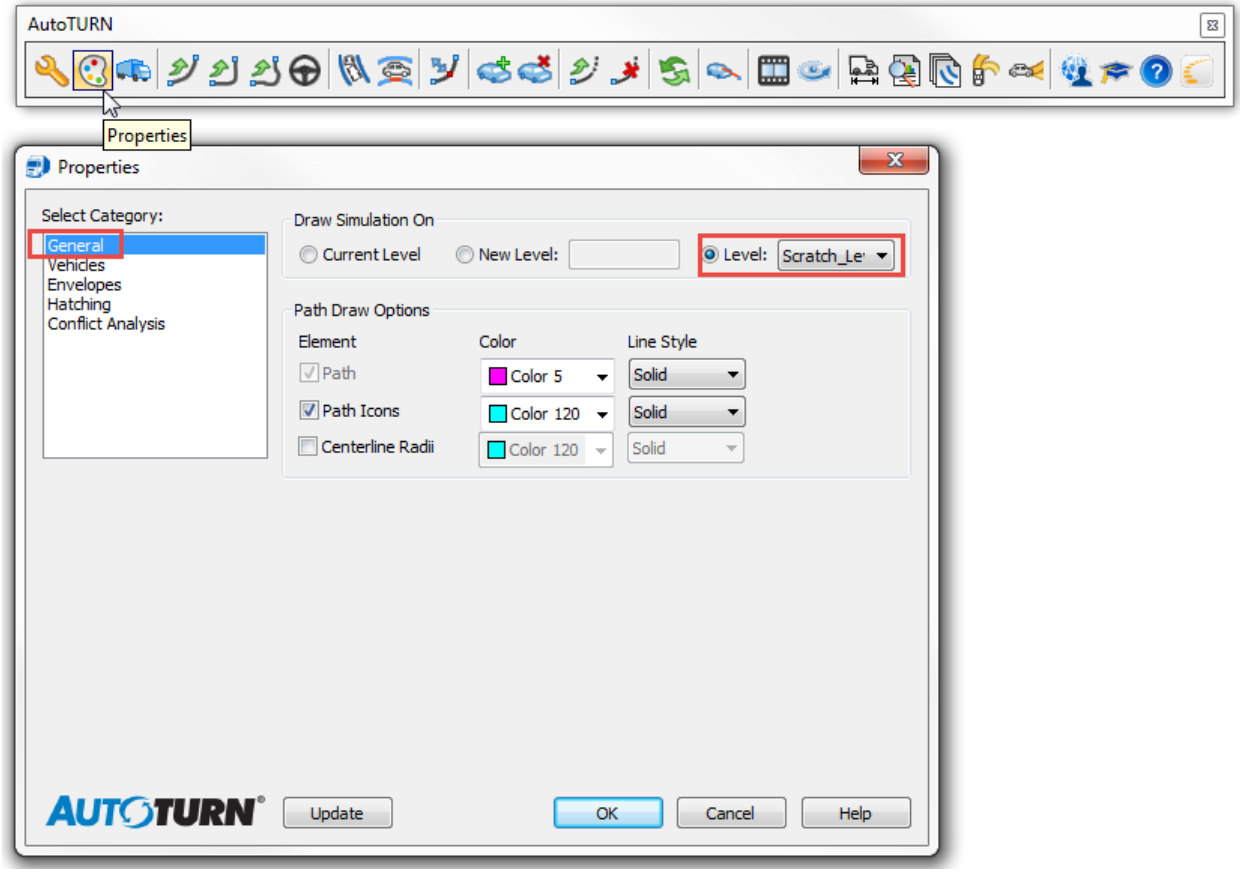


4. Activate AutoTurn

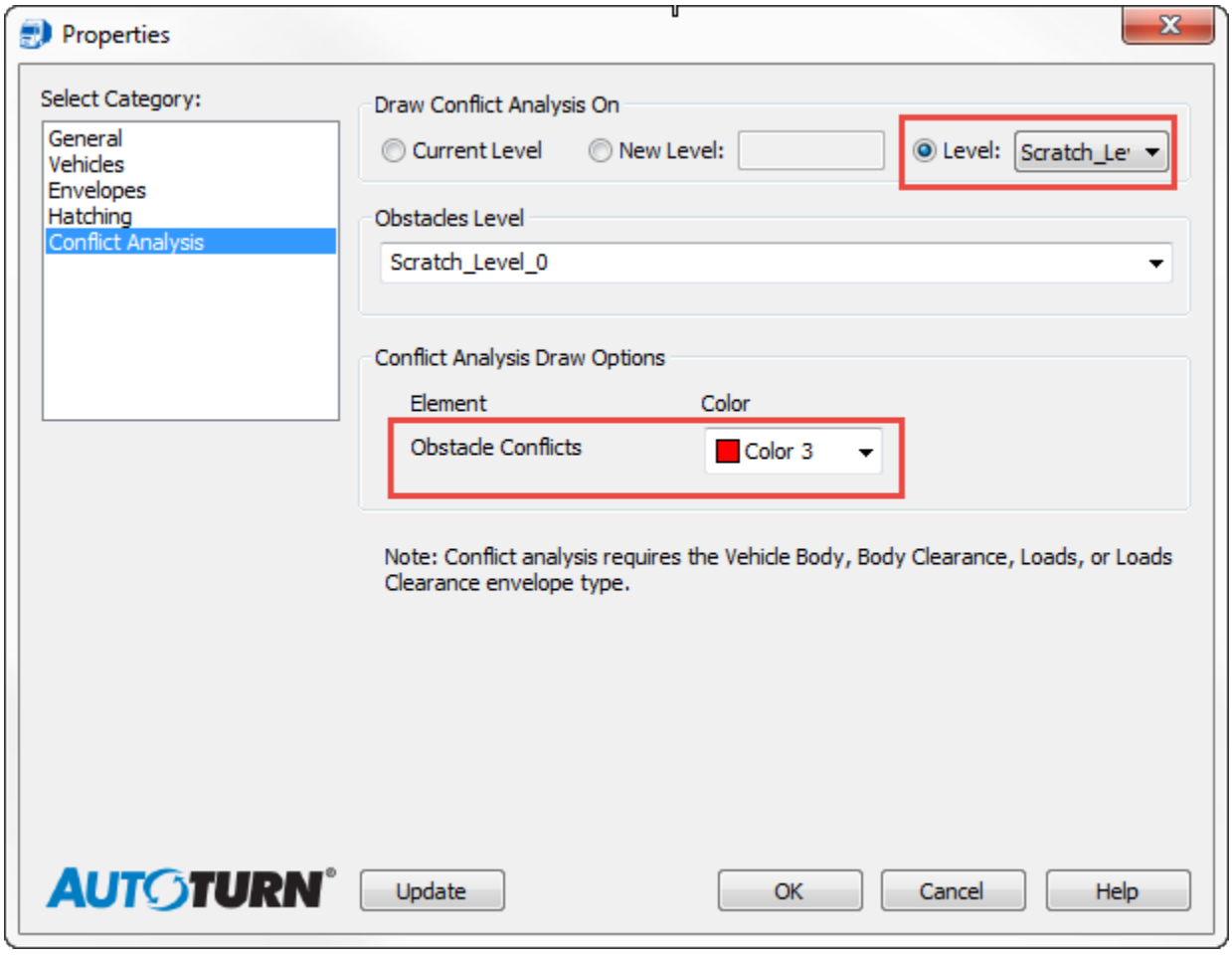
5. Under Program Settings, verify *Units* is set to **feet**.



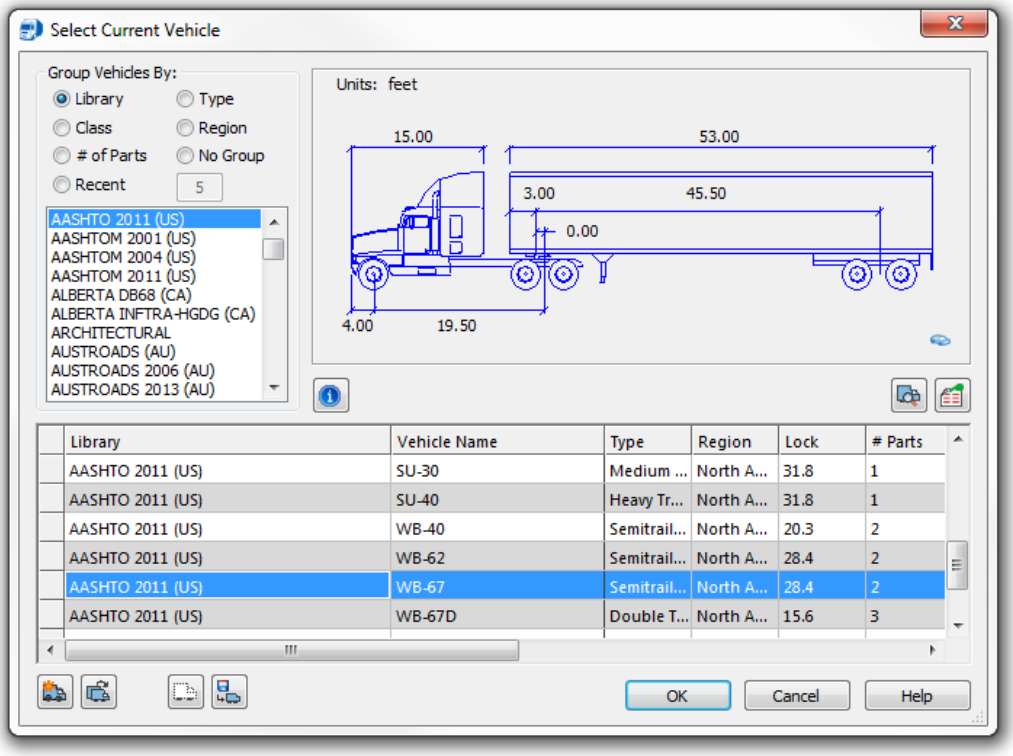
6. Under Properties, verify in the General category that *Draw Simulation On Level* is set to **Scratch_Level_0**.



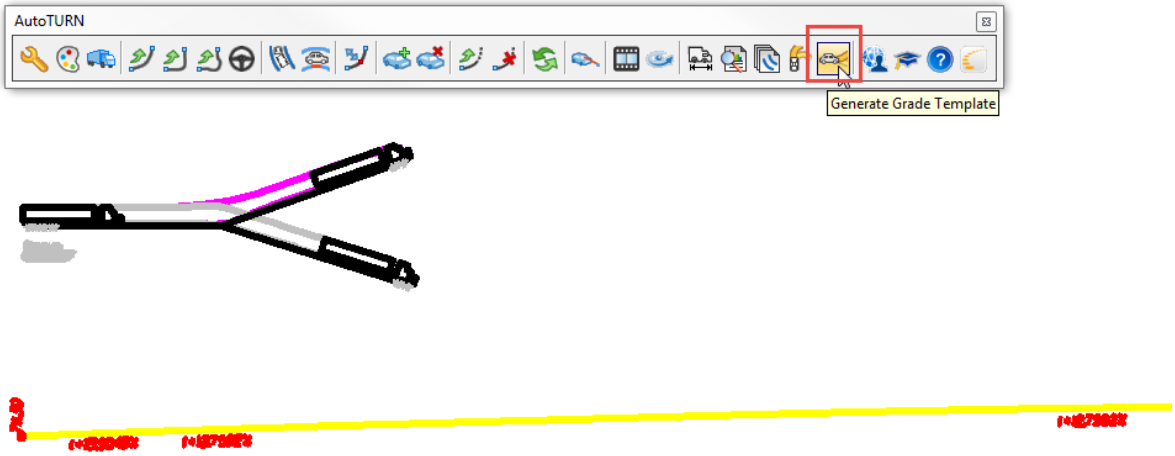
7. Under Properties, verify in the Conflict Analysis category that *Draw Conflict Analysis On Level* is set to **Scratch_Level_3** and the *Obstacle Conflicts* is set to **Color 3** (red).



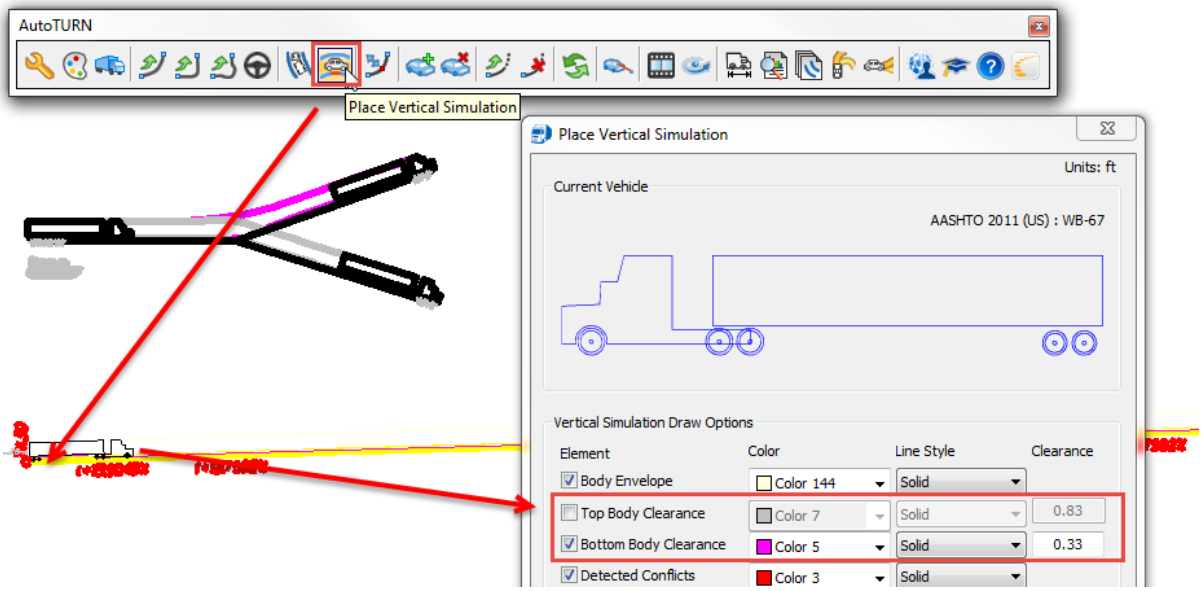
8. Choose the desired vehicle type to analyze from the *Vehicles* toolbox.



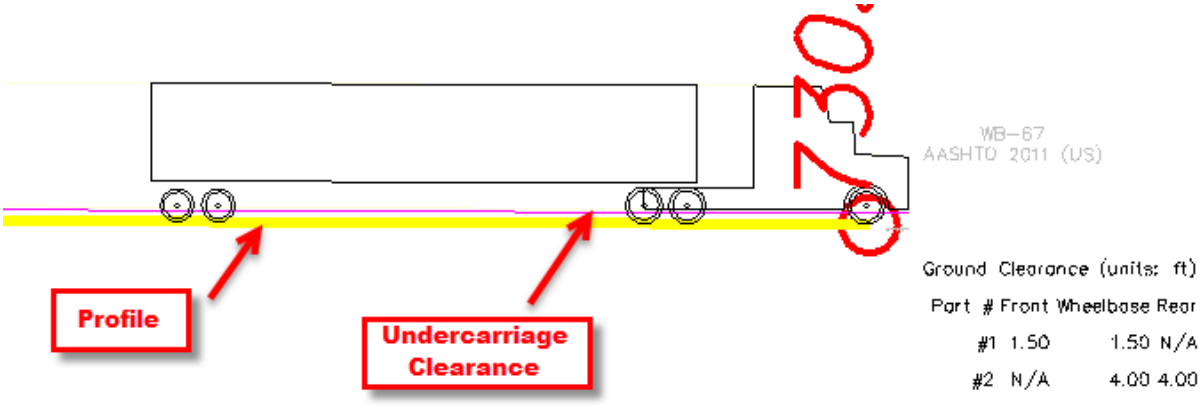
9. Click on the Generate Grade Template icon and place the vehicle information cell near the proposed profile.



10. Click on the Place Vertical Simulation icon and data point to the beginning of the profile to accept. Once the simulation is complete, select the desired color and vertical offset for the **Top Body Clearance** (vertical clearance) and/or **Bottom Body Clearance** (undercarriage).

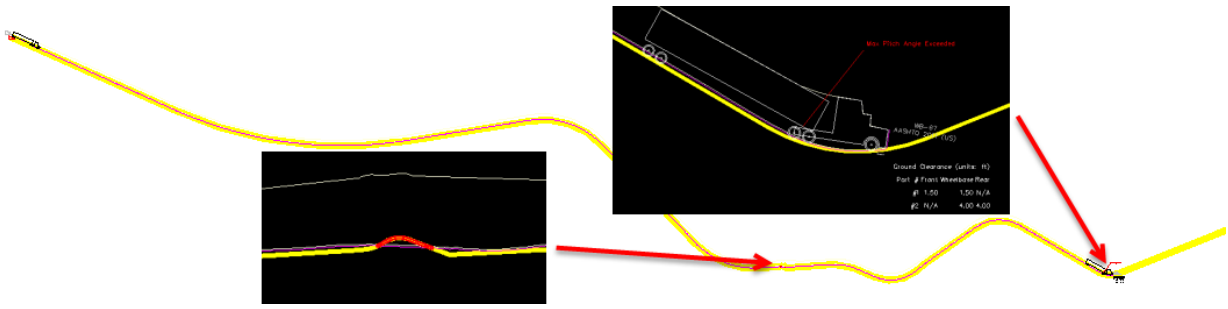


11. Verify the results of the simulation. If there is no conflict then the simulation is processed to the end of the profile without reports of an error.



For steeper grades, such as with most commercial driveways, conflicts (errors) are reported in red.

If a “Max Pitch Angle Exceeded” error between the tractor and the trailer has occurred, the simulation will stop at that point.



Note that the undercarriage clearance for tractor trailers is calculated by the lowest point (plus additional offset) of the tractor. It does not account for the trailer landing gear in the up position. The assumption is the landing gear is not lower than the bottom of the trailer plus additional offset.