

Advanced Grading & Earthwork Analysis in Civil 3D

Shawn Herring

ProSoft, Inc



About the speaker



Shawn Herring

Over the past decade, Shawn has been involved in hundreds of projects across the country. During his vast career, Shawn has trained thousands of CADD users, helped hundreds of civil infrastructure companies and major Department of Transportations implement new technologies, standardize workflows and enhance productivity. Shawn has been a part of 100's of Drone and LiDar scanning projects, ranging from simple roadway scans to complex contaminated land restoration projects consisting of 100's of acres.

Shawn can be reached at any of the following:

Email - shawn.herring@prosoftnet.com

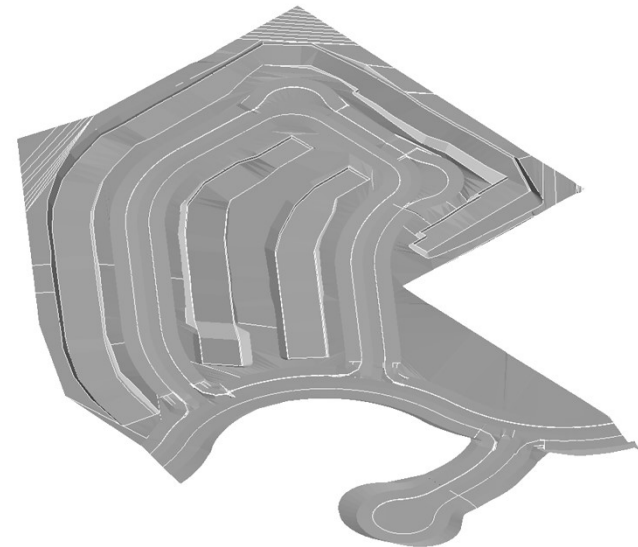
LinkedIn - <https://www.linkedin.com/in/theshawnherring>

Twitter - @TheShawnHerring and/or @ProSoftAEC

Session Description

Advanced Grading and Earthwork Analysis in Civil 3D

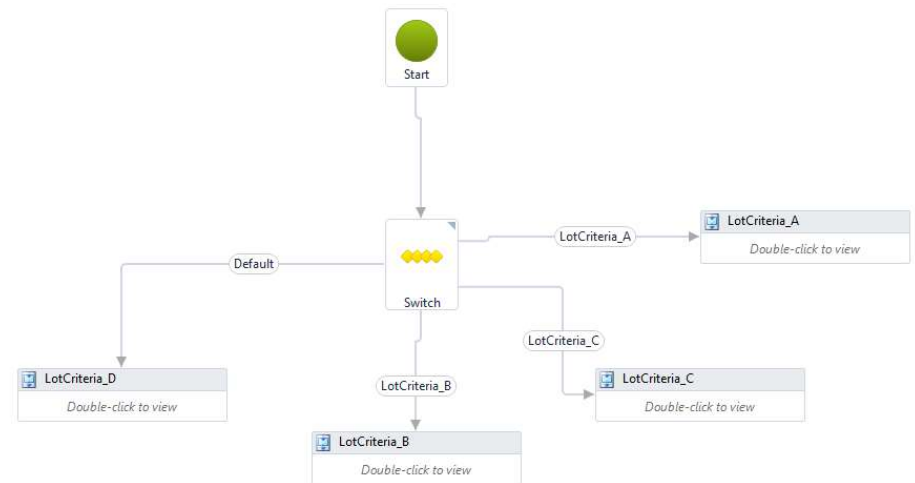
Mass grading requires detailed models, balanced sites, and forward-thinking engineers and contractors. This session will look at a couple of mass grading sites and some best practices in creating, editing, and managing your models. From our model, we'll extract actionable data for projects at the bid and construction stages. We'll also look at best practices for machine control models and discuss some pitfalls to avoid.



Advanced Grading and Earthwork Analysis in Civil 3D

In this session, we will look at the following:

- Project Setup/Overview
- Subassembly Composer
- Data Shortcuts
- Corridor Modeling
- Grading Features
- Volume Takeoff and Exhibit Creation
- Machine Control Guidance



Project Overview

- For the main exercise, we will look at a large residential subdivision. This subdivision consist of approx.. 160 acres and 475 lots. This is on a very challenging site and several million total yards of material will be moved, and over a million yards exported.
- Below are the lot criteria decided upon for this project.
- **LotCriteria A** - Uphill Side. Large cut. Drains from the rear of the lot to the street. The assembly will go 20' from back of curb, step up 3' and extend to back of lot
- **LotCriteria B** – This is an area where the lot is relatively flat. The assembly will go back 10' @ 2%, with a cut depth of 1' @ 2:1 for basement spoils.
- **LotCriteria C** – This is a basement lot, (4 in / 4 out). Lot cuts down for 3 feet at 2:1 slope, the has specified lot pad depth/slope
- **LotCriteria D** – This is a walk out basement lot where the rear portion is 8 feet lower. Lot cuts down for 8 feet at 2:1 slope, the has specified lot pad depth/slope

Project Setup

- Utilizing Data Shortcuts is the only way to keep these types of projects clean and organized, and works well in keeping constantly updated quantities and exhibits. There are many ways to properly break out your files (design and sheets), so this is just one example. For simplicity sake, and time sake, I have broken out my project files as noted below:
- **Design Base 2D** – Contains ONLY 2D geometry of my sites.
- **Design Base** – Contains all XREF and alignments
- **Utility Base** – Contains ONLY utilities. In this case, all utilities are in here, but in many cases, I break out additional DWGs for each utility (WAT, SEW, PI, SD, etc)
- **Grading Base** – Contains XREF of 2D, Datashortcut of EG, alignment/profiles and corridor. Datashortcut for FG and datum created
- **Existing Base** – Contains all survey data and EG surface. Datashortcut of EG created.
- We will do all of our work in the grading base, but first we want to create the necessary subassemblies using subassembly composer.

SOFTWARE DEMO





AUTODESK[®]

Make anything[™]

Autodesk and the Autodesk logo are registered trademarks or trademarks of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the USA and/or other countries. All other brand names, product names, or trademarks belong to their respective holders. Autodesk reserves the right to alter product and services offerings, and specifications and pricing at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document.

© 2019 Autodesk. All rights reserved.

