

Rock Structures Speeds Basement and Utility Excavation By 50 Percent With Grade Control

Ryan Goodfellow, Owner and Operator of Rock Structures Utility and Excavating, has been in the excavation and contracting business for more than 20 years. Based in Kaysville, Utah, Rock Structures employs four to seven crew members full time. The company specializes in excavation for new residential homes, underground utility work, as well as rock retaining walls, topsoil, sand and gravel delivery, and demolition and landscape services. Currently, Rock Structures is in the process of installing all of the utility lines and infrastructure for 65 residential lots in Northern Utah, and works with six homebuilding contractors in the area on a regular basis. Goodfellow estimates that, on average, Rock Structures completes two or three basements digs in a week.

Rock Structures' traditional process for digging out basements was to have one crew member, sometimes two, onsite in addition to the excavator operator. Together they would install the site utilities, including the water, sewer and the land drain line. Once complete, the excavator operator would excavate the basement according to the design and, if necessary, would place structural import fill as needed, relying on a grade checker to check elevations and to reach grade within the allowed tolerances. After speaking with the team at SITECH Intermountain about some machine control options from Trimble, Goodfellow determined there was only upside to trying out the Trimble GCSFlex System. He then had it installed on one of his John Deere 210G Excavators.

Accurate and Cost-Effective

The GCSFlex system is a cost-effective and extremely accurate machine control system that is simple to install, rugged and reliable, and includes a graphical display that goes into the operator's cab to show guidance to grade. "When we tried the GCSFlex system, after

the first basement, I realized that I really didn't have to have a grade checker in the hole," said Goodfellow. "I could send him to go do a different excavation job or do a Concrete Prep job or do a final grade. For me and my customers, it made a lot of sense to buy the system to get more done and, ultimately, be more efficient and more profitable."

After several months of using GCSFlex, Goodfellow attended ConExpo 2017 and started hearing buzz about the Trimble Earthworks Grade Control Platform. Trimble Earthworks is the industry's first integrated 3-D aftermarket grade control system with excavator automatics capabilities. The new platform includes intuitive, easy-to-learn software, is extremely customizable, and allows each operator to personalize the interface to maximize productivity, regardless of his or her experience or skill level. It also has a unique "autos" feature where the excavator works semi-automatically, allowing operators to create smooth, flat or sloped surfaces more easily. The platform automatically controls the boom and bucket according to the digital design. From there, the operator controls the stick, and the system prevents the machine from undercutting or overcutting.

"I was asking questions about Earthworks, trying to figure what the system does in relation to GCSFlex," said Goodfellow. "When I saw how operator-friendly the system was and I was told that I would be able to get automatics as well, that really sparked my interest. The fact that I could pull a grade at a percentage of slope or at a degree piqued my interest even more."

After the event, Goodfellow worked with SITECH Intermountain and Trimble to try out Trimble Earthworks, keeping the GCSFlex system on his other John Deere 210G Excavator. SITECH set up the system on his excavator and began with some simple instruction. Goodfellow explains that he instantly liked the large, touch-screen

display and likens the system to having a grade checker with him right in the cab. He also appreciated how simple it was to navigate on the screen and to switch through grades, or to program different slopes.

In addition to how easy the manual interface is to use, Goodfellow also explains that the audible beep that indicates he's at grade is easy to hear from inside the cab, so he can work as efficiently as possible and not be hesitant while listening for the beep. He was extremely eager to use the system to dig out residential utilities, entering the exact slope as needed. Using Trimble Earthworks, he found he could install a 4-inch lateral line at 2 percent slope automatically and directly from the display.

"The system worked great from the first day of our first basement dig," said Goodfellow. "I was doing a utility line and realized that I could dial it into whatever percentage of slope I wanted, whether it was 1 percent, 5 percent or something more atypical. With automatics, I didn't have to worry because I couldn't overcut, and my grades were right there. We double-checked it with a level and it came back showing us the same as what we were putting in. It was at that time that I realized that this system is amazing for what it can do all around."

Piping and Trenching

After that, Goodfellow started experimenting using Trimble Earthworks to lay out pipes and utility trenches. He realized after a few practice runs – and double checking grade – he could hit the correct grade much more quickly with Trimble Earthworks. He believes the automatics feature helps him excavate 40 percent to 50 percent faster, compared to traditional methods. He also estimates he can pull grade from start to finish within about three-tenths of an inch, because his grade is much tighter throughout the stroke. Not only that, when backfilling around the pipes he can accurately place gravel, and grade to the

minimum 2 percent slope, which is required by city code and helps prevent damage or displacement of the pipe.

"Before Earthworks, we used to go through about a dump-truck-load of gravel per basement because of the over-excavation of the utility trenches," said Goodfellow. "After using Earthworks, we started going through approximately half a load of gravel for each basement because I can set the elevation right from the cab and we excavate to the lines and grades shown on the plan first. Since we dig two or three basements a week on average, a significant savings is achieved. A load runs about \$350, and that same load can be used for two basements, so that's roughly a 50 percent increase in profit margin we're able to come up with right there. We estimate this alone saves us upward of \$1,500 each month."

Since adopting GCSFlex and Trimble Earthworks, Goodfellow believes his five-person crew has transformed into an even more efficient and effective team. Rock Structures has increased excavating production on basement jobs by 50 percent. And, because crew members can take on more jobs and can work more proficiently and with greater grade accuracy, contractors and other customers are starting to take notice.

"On top of our production, I think our attention to detail has improved overall," said Goodfellow. "Having Trimble Earthworks really helps us to be more accurate because it allows us to get our dirt grades closer. When we can use less gravel, that equates to less concrete for the foundation guys and down the line. Contractors are all about keeping their costs down, so if we can help them do that, other contractors and our customers will really like working with us."

