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Replacement Septic on a Nearly Unusable Property

Homeowners face ongoing projects as part of maintenance, upgrade and/or expansion of their property. A construction process that would be commonplace during new construction can turn into a monster requiring extensive attention. This type of project can also be very costly. The key is to put together a team of professionals with the expertise required to get the job done correctly and as economically as possible. Here is an example of just such a case.

During ExactEx's yearlong support throughout Yavapai County of the gas pipeline installation, one of our projects in Black Canyon City was to install a new conventional septic disposal system on an existing property. This home's existing leach field would be demolished due to the creation and installation of the gas pipeline. However, a failed or damaged leach field could have resulted in the same situation.

The pipeline easement would occupy the only flat area on the property. The existing home occupies a pad constructed at the high end of this small lot. The only land left available in which to place the new leach field was a steep slope sandwiched between the home and pipeline easement. The slope had a vertical transition of about 18 feet, and the soils investigation determined that the only suitable soil layer was approximately 15 feet below the top of the slope.

The Septic Design Engineer, Claycomb Rockwell Associates, designed the trenches to be a maximum of 20 feet deep in order to reach the suitable soil layer. To meet OSHA requirements and make construction feasible, ExactEx needed to cut away the hillside and create a level area within safe reach of the proper soil layer.

During pipeline installation and septic reconstruction, the home would be occupied but have no disposal area for septic waste. ExactEx set up a pumping schedule so that the septic tank would always have capacity and the residents could occupy the home with no noticeable impact. Lassila Liquid Waste Disposal provided reliable pumping service during the course of the project.

A primary challenge was that this cut would be right against the existing home with a significant possibility that the home could shift or slide. ExactEx brought in forensic engineering firm Peterson Geotechnical Group to confirm the maximum safe slope that could be cut adjacent to the home. They also designed a 20-foot deep retrofit foundation pier system to support the home during construction. Arizona Ram Jack, specializing in structural foundation repairs, installed this pier system.

Once the home was stabilized, our ExactEx construction team surgically excavated the hillside. In the adjacent photograph the home appears to be clinging to the ground above this 15-foot high cut. We then installed both the primary and reserve leach field system and provided a simple and accessible valve transfer system adjacent to the septic tank. Once all inspections were performed, we rebuilt the slope and repeated the procedure on the next home to the north.

Last, we installed an erosion protection system and re-vegetated the hillside with a hydroseed mix containing a glue-like additive to hold the mixture in place while it germinates. The hydroseed mix was specifically designed with appropriate plants for this climate and was provided and applied by Common Ground Services, Landscape Specialists.

ExactEx's design-build approach and team attitude allowed us to bring together the right professionals, achieving a successful outcome and making this tricky and risky project look easy.

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ExactEx is an excavation and underground utility contractor performing both new construction and repair of dirt or ground water problems with an emphasis on environmentally friendly construction techniques.