



LOR-58-7.36 Value Engineering

Wellington, Ohio

Client: Beaver Excavating Company

Contact: Brittany Amy, Brian Francis (330) 478-2151

Key Personnel:

Peter Narsavage, PE
Jamal Nusairat, PhD, PE
Kevin White, PhD, PE

Project Cost:

\$12.3 Million Construction
\$281,606 Design

Value Engineering Savings:

\$209,200 Million

Year Completed:

August 2016 Construction
January 2014 Design

E.L. Robinson's Role:

Value Engineering Design

The project consisted of constructing an underpass grade separation to carry State Route 58 under railroad tracks in the City of Wellington, Ohio. The work also included retaining walls, a stormwater pump station, and associated drainage facilities in addition to the railroad bridge. To reduce costs, ELR proposed several value engineering change proposals that changed all three items.

To reduce costs, E.L. Robinson Engineering redesigned the retaining walls as a combination of soil nail walls and soldier pile and lagging walls to replace the cast-in-place concrete walls in the original design. The new wall system reduced the amount of excavation required and the need for temporary shoring. A soil nail wall was the most cost-effective design, but the railroad would not allow permanent ground anchors (soil nails) within its right-of-way. So ELR designed a soldier pile wall within the railroad right-of-way.

ELR also redesigned the proposed shoring system for the pump station wet well from a braced sheet pile wall to a secant drilled shaft wall with compression rings. To make the best use of the contractor's equipment, the secant drilled shafts were designed to be installed with an augercast piling rig. Leaving the new shoring system in place also allowed ELR to redesign the walls and floors of the pump station wet well for additional savings.

ELR also redesigned the stormwater pump station and the stormwater drainage system to be more efficient and reduce costs. The bottom of the pump station wet well, and associated storm sewers were raised by several feet to keep them above an artesian aquifer layer.