

COL-7-26.34

Columbiana County, Ohio

CLIENT/OWNER

Ohio Dept. of Transportation
District 11
2201 Reiser Avenue
New Philadelphia, OH 44663
Waseem Khalifa
(330) 466-2463

COMPLETION DATE

November 2019 (Design)
June 2021 (Construction –
Est.)

PROJECT COST

\$485,000 (Design)
\$2.9 Million (Construction –
Est.)

E.L. ROBINSON'S ROLE

Prime Consultant
Roadway Design
Bridge Design

PROJECT MANAGER

Rick Engel, PE

KEY STAFF

Michael Vogt, PE
Grant Whittaker, PE
Matt Cornett, PE, PTOE
Tim Sheldon, PE
Brent Downing, PE
Scott Bing, EI



ELR is leading the design team of Lawhon and Associates and 2LMN, selected by District 11 to design the replacement structure carrying State Route 7 in Columbiana, Ohio. The existing structure is a three-span continuous steel beam bridge carrying S.R. 7 over Norfolk & Southern Railroad. The replacement structure will be a new semi-integral steel beam bridge. The new bridge will minimize the overall structure length and reduce the number of spans to a single span bridge. To meet current requirements, the existing vertical clearance over the railroad tracks increased. Profile of S.R. 7 will need to be adjusted to meet these vertical clearance requirements. Minimal roadway work will be minimized as much as possible. The replacement bridge width will match the existing roadway.

Surrounding the challenging site is overhead electric lines and high-tension power lines located just north of the existing bridge. Fiber optic lines run parallel to the railroad tracks in the railroad right-of-way under the middle span, and two-pressurized sanitary force mains run parallel to the railroad tracks under the northernmost span.

The 105-foot single-span structure's replacement raises the bridge to accommodate the required railroad vertical clearance requirements while minimizing roadway profile work and being built using stage construction. ELR has proposed the use of a six girder line plate girder superstructure supported on full height abutments. The six girder line structure is required because of the existing superstructure five beam line arrangement.



The proposed U-type abutments will sit on a single row of deep foundations that span over the two pressurized sanitary force mains. This substructure type used the weight of the turnback wingwalls and the pull-out force of the turnback wingwalls to resist the abutment overturning forces. This abutment type prevents the use of sheet piling during staged construction. Instead, it uses a staged construction turnback wingwall that will function as an abutment counterfort after construction is complete.