

Reconstruction of Bridge 1400-814, Palmer Road over Mill Brook

Townships of Denville and Randolph | Morris County, NJ



Van Cleef provided design services for the replacement of existing deteriorated 23.5 foot span rolled steel girder bridge with corrugated metal decking, founded on a combination of original stone masonry abutments at the middle and concrete widening on both ends. The new structure is a 28.0 foot span by 37.33 foot wide precast concrete 3-sided frame, founded on a concrete substructure. The new structure includes a separate 4 foot wide by 2.5 foot high by 41.67 foot long precast concrete box culvert through the wingwalls placed to address flooding constraints at the site. The project included approximately 400 Linear Feet of approach roadway construction. To address comments of the local public officials, the vertical profile through the project was adjusted to eliminate a vertical hump in the roadway over the bridge. Both approach roadways were raised over 1 foot at some locations to meet the bridge roadway elevation to provide a more even riding surface through the project. Since the calculated flood water surface elevation was above the existing roadway at the project site, this required extensive work with the hydraulic models to ensure there were no significant changes in the flooding due to the raised approach roadways. To match the existing flooding conditions for certain storm events a separate box culvert structure was installed through the wingwalls. Due to the extensive change in the approach roadway elevations, coordination with two adjacent property owners to provide access to their driveways during construction and provide adequate transitions to their driveways was required.

Project included topographic survey, alternatives analysis (for preferred alignment and structure type with cost considerations), geotechnical engineering design, roadway and bridge design, extensive vertical profile adjustments, obtaining NJDEP Flood Hazard Area and Freshwater Wetlands permits, hydraulic analysis, detour plan, coordination with Township Officials, preparation of cost and quantity estimates, specifications, coordination with utilities, ROW and Easement acquisition, Working Drawing review and addressing contractors RFI's. Project included water main design and construction without disrupting service.

CLIENT CONTACT

Morris County Dept. of Public Works
Div. of Engineering & Transportation
Morristown, NJ

PROJECT HIGHLIGHTS

- Complete Bridge Replacement
- Utility Coordination & Relocation
- Hydraulic Analysis for Significant Bridge and Roadway Changes
- NJDEP Flood Hazard & Freshwater Wetlands Permits
- ROW/Easement Acquisitions
- Coordination with Township Officials & Property Owners
- Vertical Profile Adjustments
- Water Main Design