



BERNIER CONSTRUCTION, INCORPORATED PROJECT SUMMARY

Project Title: Mottershead Site, Box Culvert Installation Project

Location: East Brandywine Township, Chester County, PA

Scope: Design, manufacture, storage, delivery, installation, and assembly of a reinforced concrete culvert

Berner Construction, Inc. was contracted by the U. S. Department of Agriculture, Natural Resources Conservation Service to design, manufacture, store, deliver, install, and assemble a multi-section, reinforced concrete, box culvert. The scope of work included all work associated with the culvert structure including stream management, erosion and sedimentation control, excavation, backfill, placement of the culvert and the cast-in-place closure concrete pour.

The box culvert was to be installed in a tributary of the Brandywine Creek, adjacent to a major thruway. The project was under close scrutiny of the local watershed commission, township personnel, PADOT, and PADEP. A strict Erosion Control Plan was implemented so as not to disturb the streambed, sedimentation, or downstream users of the creek.



Prior to restoration

Dewatering of the stream section was accomplished by installing a sandbag coffer dam and using several submersible pumps to pump the stream around the culvert to discharge further downstream. The existing concrete apron was sawcut and removed to accommodate the new box culvert. The concrete toe wall and stone bedding was placed in preparation for the culvert.

The box culvert was delivered in nine sections. A 200 ton crane was used to place each section in the stream bed adjacent to the roadway. Traffic control flaggers were used to direct the transport vehicles to the cross streets of the project site on a schedule that allowed the crane to lift and set each section with minimal traffic interruptions. The sections were installed and post-tensioned in place. The sidewalls and wingwalls were placed, then the cast-in-place transition sections were formed and poured.



Installation of the box culvert sections

The cast-in-place concrete sections were allowed to cure 28 days prior to placing soil backfill on and around the structure. The area was backfilled with two feet of cover material and the site was restored by grading, seeding, and mulching.

Work was completed in the winter and early spring of 2009.