

West Goshen Township, PA – Channeline Pipe Arch

The West Goshen Township in Pennsylvania is a beautiful suburban town outside of Philadelphia. They had a neighborhood in town called Knollwood Drive with about 25 homes at the end of a dead-end road.

What was the problem?

The culvert in question ran underneath the Knollwood Drive. Digging it up would have meant preventing emergency vehicle access to the neighborhood, but also disturbing other utilities: gas, water, and sewer. The corrugated metal pipe arch was in horrible condition. The invert was corroded and contained section loss. The geometry of the culvert throughout the length of the culvert was also very misshapen.

What was the solution?

The host pipe was 134 linear feet of estimated 120" x 78" pipe arch. As the host culvert contained some very challenging geometries, it was very difficult to determine what type of liner would have been best. Due to its customizability, the Channeline Pipe Arch solution was selected by the Township and the engineer. Low density cellular concrete was pumped into the annular space at about 25-30 PCF.

Shape Challenges

The engineer and the contractor had to invest some decent energies into surveying the host pipe geometry in the various corner radii.

As you can see in the photos, several different cross sections needed to be pieced together to figure out what the best liner shape would be. Channeline's short lay length segments helped with the insertion of the culvert liner as it made its way through the host pipe.



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The material selection

A handful of solutions were proposed to the town and to the engineer during the first design meeting. Solutions included: lining with pipe arch corrugated metal, lining with a round pipe, and lining with Channeline pipe arch. Ultimately, Channeline offered superior hydraulics with maximum open waterway area and manning's coefficient.

“It is so good to see Channeline’s customization be utilized to it’s fullest. The pipe arch solution that Don and Carroll Engineering came up with solves a very challenging problem.” – Andy Sherwin, Channeline International

A unique liner shape for a full service life solution.

A.J. Jurich was the selected bidder on the project. Don LeBlanc, P.E. of DLVEWS, Inc. and Andy Sherwin of Channeline International worked hand in hand with Jurich to ensure the liner went together smoothly. CJGEO was the selected subcontractor for the grouting of the annular space.



Straightforward install

Channeline goes together with great ease. The segments contain a low-profile bell and spigot which can be belled up within the host pipe. A simple caulking is used to fill the joints prior to grouting the annular space. A customer can request any lay lengths they desire between 0' and 8' long. The project contained lengths as low as 2 foot.

Lessons Learned

Amongst many other things, the primary lessons that were learned here included:

- 1.) Even the most challenging host pipe shapes can be lined. Survey and investigate up-front work will always benefit the final shape of the proposed solution.
- 2.) Channeline can customize to nearly any geometry to meet the projects demands. The install process is very straightforward.
- 3.) With the installation of the West Goshen liner, it became obvious that we need to share this unique solution with as many DOTs, townships, and contractors as we can.

