Replacing existing 48” Corrugated Metal Pipe with new 54” Concrete Pipe in Delaware

Eastern States Construction, in Wilmington, DE was called upon to keep the traffic flowing while the failing line was replaced.

The work was completed quickly with very little inconvenience to the traveling public.

The job consisted of replacing the existing 48” Corrugated Metal Pipe Culvert (CMP) that was failing.

The specifications called for the new pipe to be 54” Reinforced Concrete Pipe (RCP).

Because traditional open cut methodology would have closed the highway for a time and resulted in a patch in the pavement, it was decided to remove the old pipe and install the new pipe in its place by tunneling.

The equipment necessary to perform the work consisted of a jacking unit capable of pushing 54” RCP with a half a million pounds of thrust and a shield to protect the men as they worked to remove the old CMP and excavate as necessary to accommodate the new pipe.

The equipment was supplied by Tenbusch, Inc.

More information is available at www.tenbusch.com

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The photo above shows the small footprint that was required to do the work. The existing CMP was replaced in both directions from a work pit in the highway median.

The shield shown above is attached to a joint of new RCP. Because the ground was stable, a simple shield was all that was required. It protected the men as they removed the old CMP and excavated a small amount of material to accommodate the new larger diameter pipe.

Tenbusch, Inc. supplies simple shields as shown above as well as more elaborate shields that can be steered (both mechanically and hydraulically) for use with concrete pipe, steel casing pipe, and tunnel liner plate. When using liner plate, the shield must be capable of advancing itself forward while protecting the men as they assemble more liner plate.

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As you can see from the photo above and to the right – the seams of the existing CMP had deteriorated to allow bedding material to migrate into the pipe. This migration of bedding material has a dramatic effect on the structural integrity of this kind of pipe.

The old corrugated metal pipe was easily removed by the tunnel crew as they prepared the existing hole for the new Concrete Pipe.

The photo to the right shows the new 54" Concrete Pipe installed