Highway 191 Line Replacement – Ditch 1

October, 2020

The expansion of Hwy 191 created several issues for the Irrigation Company. The one of most interest is where the line goes under the highway just north of the intersection of Hwy 191 and 400 North. Years ago, when the highway was rebuilt in this area, UDOT installed a 3'x3' cement tunnel under the highway. Unsure if this was done while Ditch 1 was still an open ditch or not. Eventually, if not at the time, a 10" PVC pipe was placed inside the cement tunnel to carry the water under the highway.

We did not expect any issues with this tunnel until the construction crew was rotor-milling up the old asphalt in the east side lane and the machine ran into an access box that was installed on the top of the tunnel.

The access box was only a couple inches below the asphalt. Apparently, this was acceptable back when it was built, but the engineers for this recent upgrade were concerned as the box was too high and the quality of the cement work was in question.

Looking inside the tunnel from the access box we could see our pipe line and we also discovered that the tunnel was not a straight shot across the highway. It actually made a 30^{o} bend. The tunnel was found to go from

the east side of the sidewalk on the east side, to the west side of a drive way on the west side. About 100' long.

After much discussion with the UDOT engineers it was finally decided to remove part of the tunnel on the east end, but leave the tunnel in place the rest of the way under the road. Originally, they thought to remove the whole tunnel, but they found that it was built much stronger than they realized. They did though want to flow fill cement into each end of the tunnel.

The company decide that to do this the line needed to be upgraded to tougher HDPE pipe so that it should never have an issue in the future. The PVC pipe inside the tunnel looked to already be leaking some water and the connection at the 30^{o} bend was barely holding together.

So, the company bought 120' of 10" HDPE pipe and had it welded together on the side of the road. Then in a nice warm afternoon when then pipe was hot, a cable was ran though the tunned and the old PVC pipe removed and the new HDPE pipe pulled into the tunnel. The challenging part was that the heavy pipe had to make a 30^{o} bend as it was pulled through the tunnel and to make the connection on the east end. That is why it had to be done after the pipe had been sitting in the sun for a while.

Then the HDPE pipe was connected at both ends to the 10” PVC pipe still in the ground. All this was done with heavy traffic crossing over the tunnel in the middle lanes of the road.

So, the company paid for the pipe, welding the pipe, and the fittings, and the highway contractor did all the cement removal, digging, and install work.