

IRRIGATION REPAIR REPORT

By Frank Shafer

Our existing Rainbird brand Control Boxes (the six gray boxes you see along the course) and the related water valves (buried in the ground) are used for the irrigation of the golf course. It's my understanding that they were installed in 2007. Our style of water-controlled valves have been discontinued by the manufacturer. This makes getting parts difficult and impacts our ability to make repairs.

The irrigation system has two water pumps: One for the water the sprinkler heads spray onto the greens and tee boxes. The other water pump is used to activate the control of the valves. The valves are opened and closed by the water pressure created by this second pump via one-quarter inch water lines that are attach to each valve. This pump turns off and on all day long as the water pressure changes in the various lines that control the water valves.

The interesting fact about these valves are that they need relatively high-pressure water in those one quarter inch lines in order to keep the valve closed. While working to get the system automated again, I measured pressures between 50 psi and over 90 psi (the highest possible pressure we can measure with our gauge) on some the water lines. I also had readings below 20 psi and that told us we needed to look for the cause of the low water pressure for a particular sprinkler head/control valve.

When there is a leak in the water line or the water line gets clogged with minerals, rust, or sand or the connection on the back of the Control Box develops a leak due to age of the equipment, or the in-line water filter becomes clogged or severely restricted, the water pressure in the line drops. When this happens, the sprinkler head will pop-up whenever the main irrigation water pump is turned on because the valve is stuck in the open position. Some of you may have witnessed these "rogue" sprinkler heads—a sprinkler head watering all by its lonesome self.

Some of you may have also noticed that there is water at the base of many of our Control boxes. This is because there are leaks in some of the connections of the quarter of an inch line to the back panel of the Control Box. These moist areas are attractive places for things like frogs and snakes to live. This makes for an interesting moment when we first take off the back and front covers of the Control Box as to see who's living there.

In the photo of the Solenoid Pins, the tip of the pin has a hole where the water is sent to a valve via the one-quarter inch water line. You can see how small that hole is and how something as small as a few grains of sand can impede the water flow.

I've included commentary on each photo which will hopefully increase your understanding of the project and how hopefully the new system for Holes Seven to Nine should fix our existing irrigation problems for those holes.

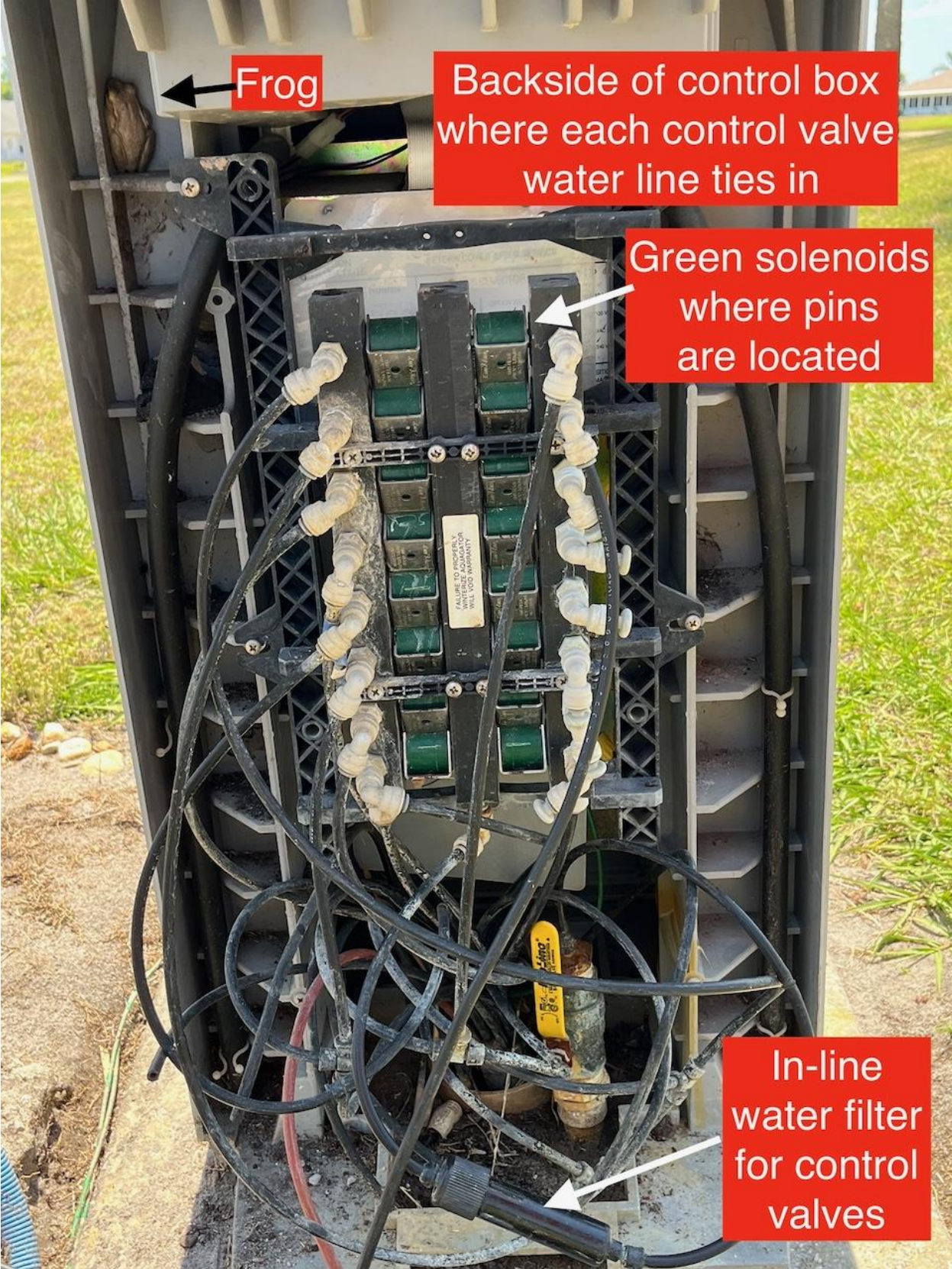
I've also included some photos on the piping that is used on the golf course. Unfortunately, a lower quality pipe was used in sections. We don't know where this lower quality pipe is located until a leak develops. We then have to excavate along the broken or cracked pipe some distance to find where it connects to the higher quality pipe in order to make a proper repair.





Old water controlled valves

These 1/4 inch water lines open and close the valves

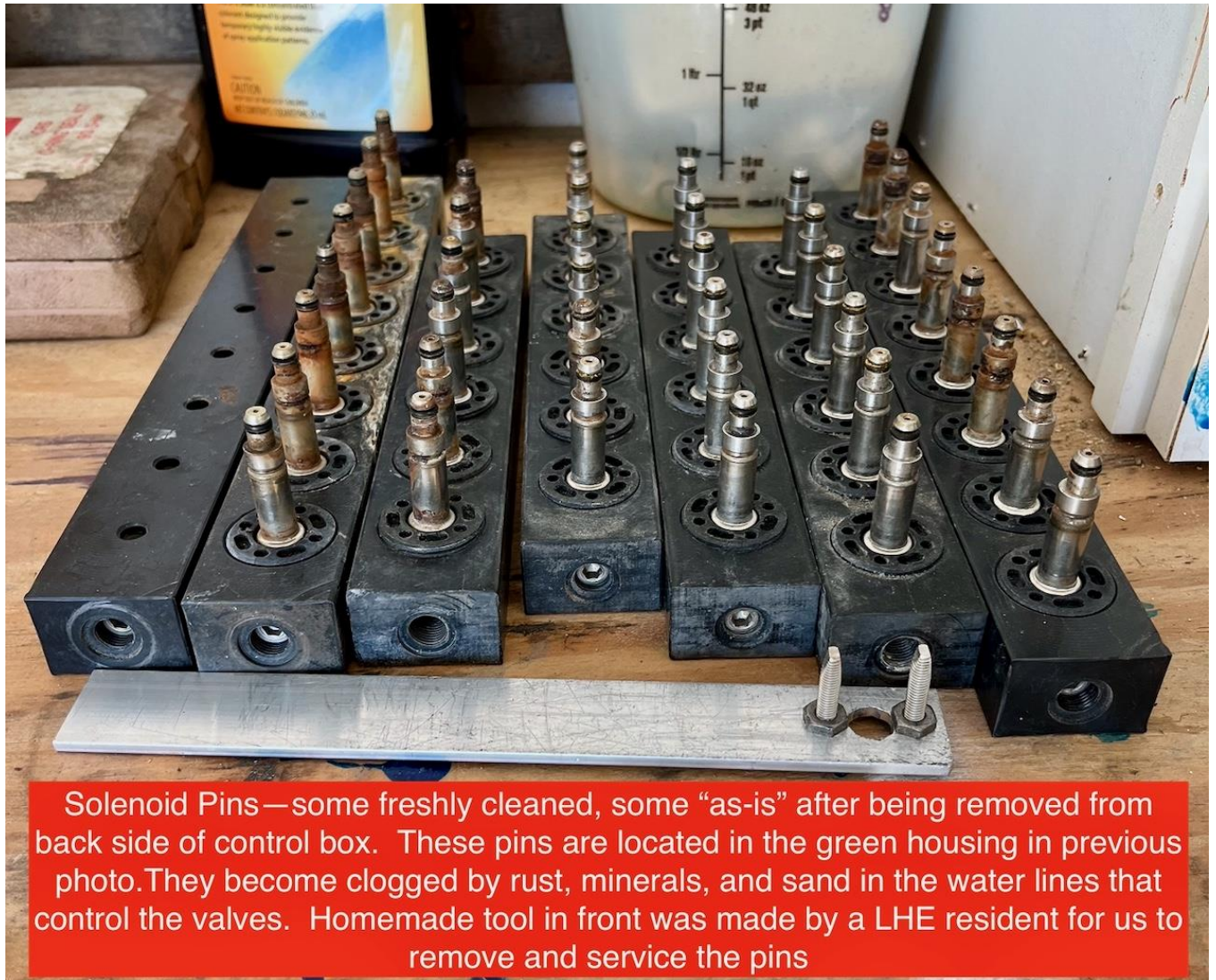


Frog

Backside of control box where each control valve water line ties in

Green solenoids where pins are located

In-line water filter for control valves



Solenoid Pins—some freshly cleaned, some “as-is” after being removed from back side of control box. These pins are located in the green housing in previous photo. They become clogged by rust, minerals, and sand in the water lines that control the valves. Homemade tool in front was made by a LHE resident for us to remove and service the pins

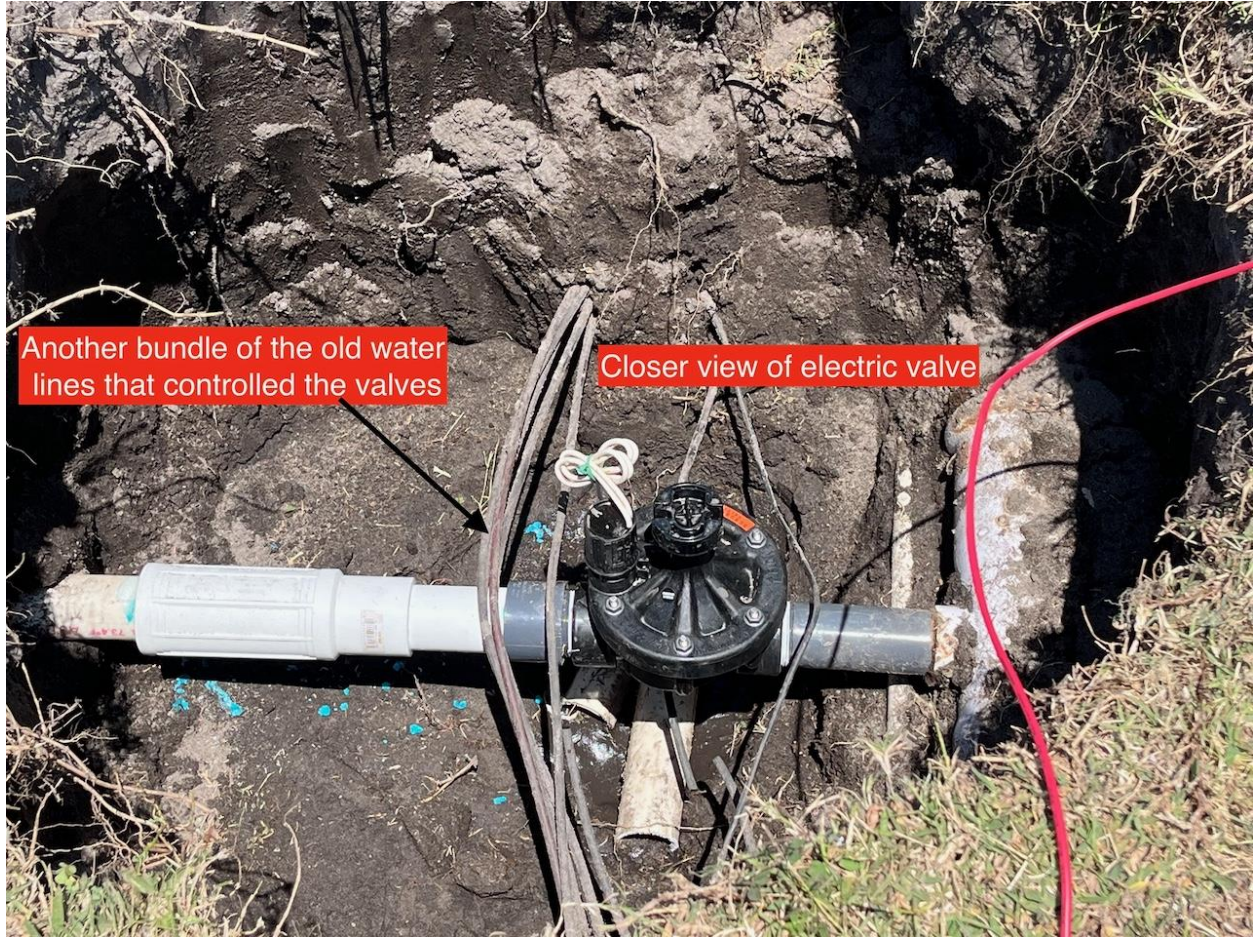


4-inch main water line

Set of 1/4 inch water lines to control old valves

New electric controlled valve

Water line going to sprinkler heads



Another bundle of the old water lines that controlled the valves

Closer view of electric valve

Two electric water valves
with wiring attached



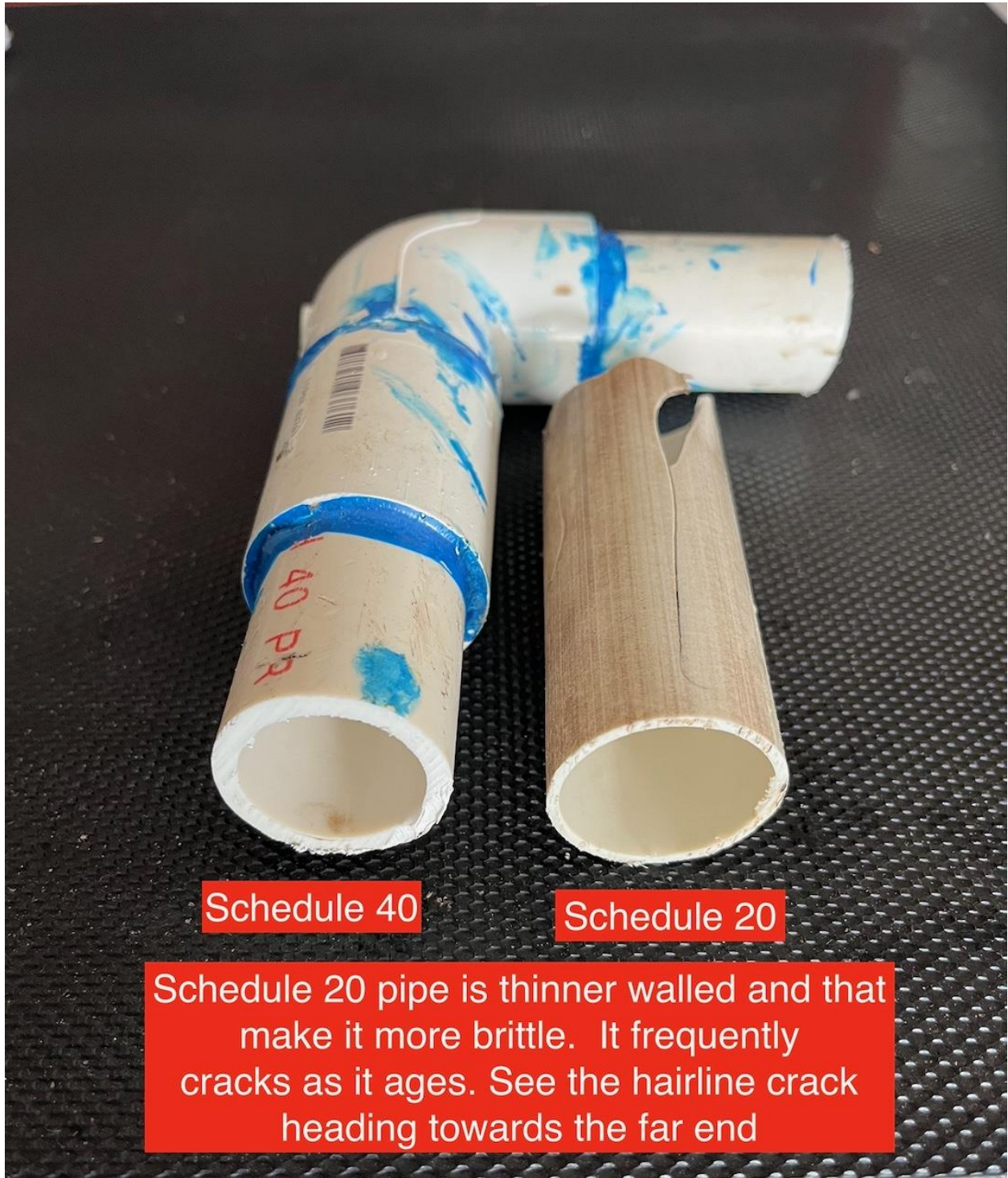


Notice all of the wires that will need to be connected

Control box with new electric bus bar to connect each control valve



8 electric control water valves connected



Schedule 40

Schedule 20

Schedule 20 pipe is thinner walled and that make it more brittle. It frequently cracks as it ages. See the hairline crack heading towards the far end

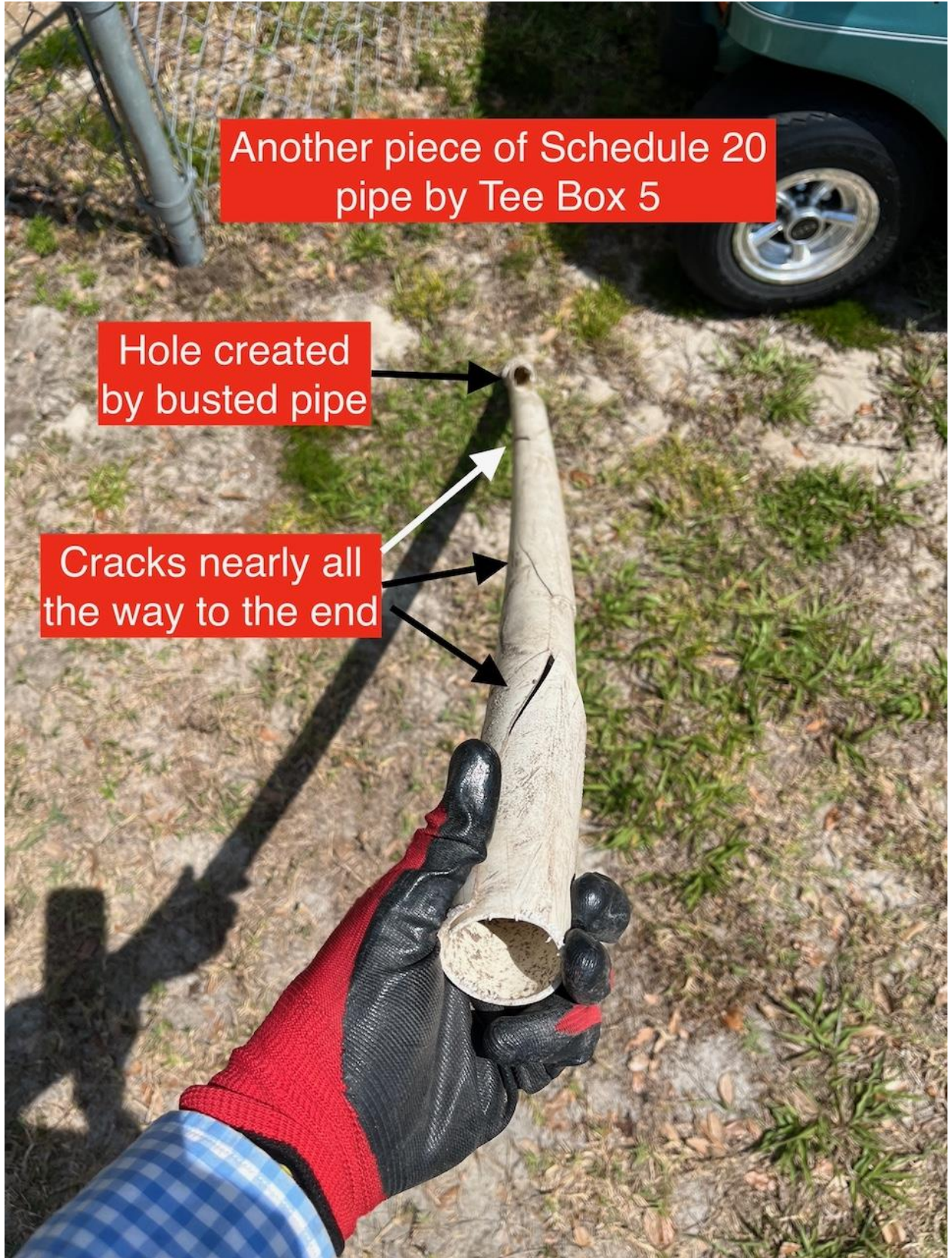


This piece of Schedule 20 pipe was near the entrance gate and had a metal bolt pushed into the top hole. The bolt did not stop the leak, only slowed the flow of leaking irrigation water

Another piece of Schedule 20 pipe by Tee Box 5

Hole created by busted pipe

Cracks nearly all the way to the end



Schedule 20 pipe cracked and busted near the dog park. Suspect that as the water soaked into the ground, the sand above the pipe filled into the cracks.

