

Joint Sags/Bellies

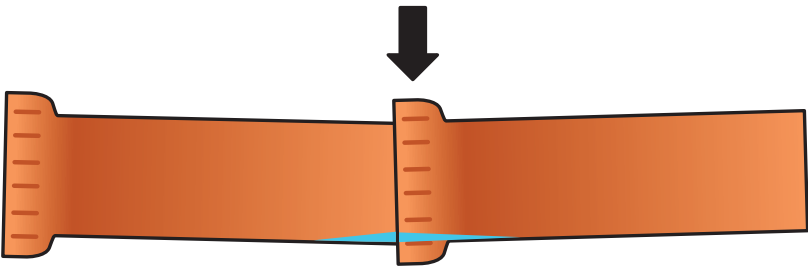


Figure 23: Joint sags are sometimes intentional (as in the case of siphons) and sometimes they occur due to post-construction settlement.

Any pipe can experience some settlement under load which may be due to insufficient bedding/ haunching, foundation support or other issues and not the pipe itself. If the settlement occurs at the joint, this is called a pipe sag. A minor joint sag may not affect the performance of the pipeline. After cleaning, water may remain in the line for a period where the line is at a flat grade. It may take a day or more for the water to completely drain and fully expose low points in the line.

Sags can be an intentional design feature such as in areas where siphons are constructed.

Pipe bellies differ from joint sags as they do not extend across the joint into the next pipe section. In pipe bellies, the water depth starts and stops within one length of pipe.

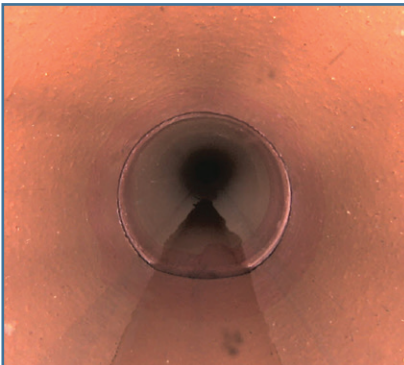


Figure 24: 1/2-inch water depth

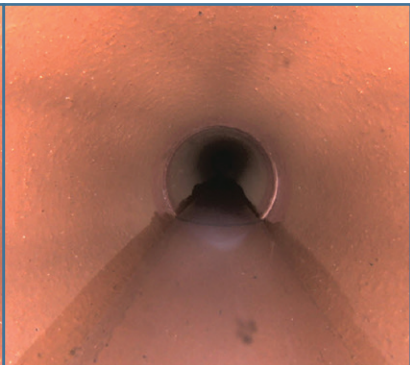


Figure 25: 1 1/2-inch water depth

Where sags occur, estimating the depth of the water is very difficult. This can be an issue no matter what pipe material is being inspected. If viewing video with no dimensional reference point, scale the available dimensions from the screen and apply basic geometry. An illustration of applying this method in an 8-inch pipe is seen in the *Estimating Depth of Flow* chart in Figure 26 below.

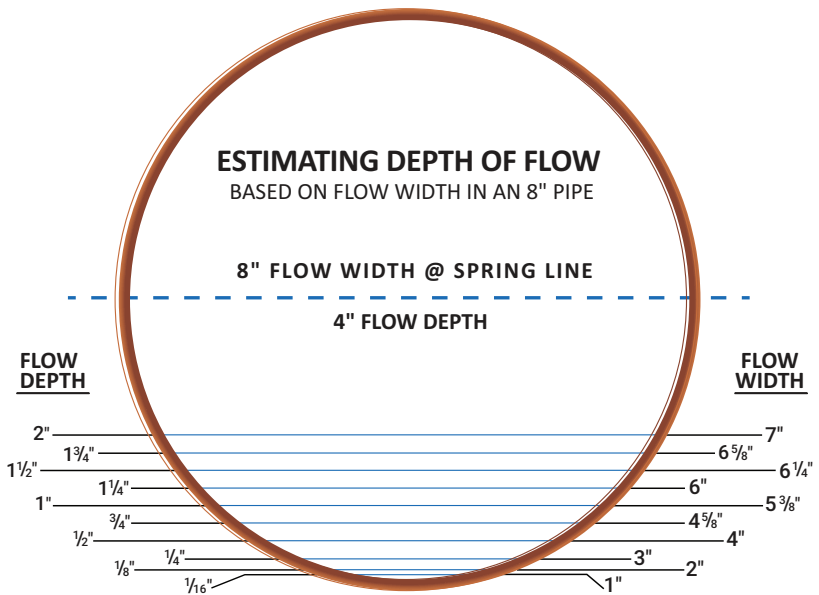


Figure 26: In any pipe material, even a minor depth of water can appear exaggerated due to the optical illusion created by the periphery of the pipe.