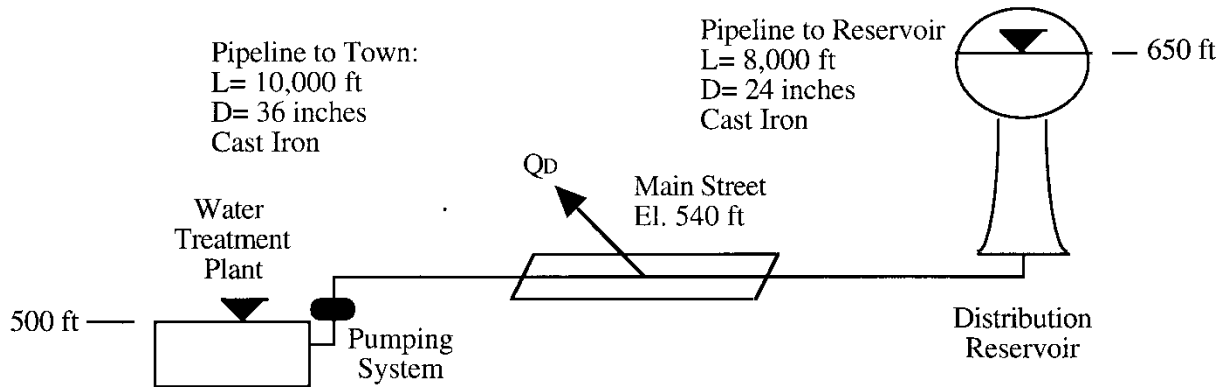


Water Distribution Operation During Low Demand

A pipeline system transports water from a water treatment plant to a town and its distribution reservoir.



The minimum water demand (Q_D) during the day is 10 cfs with the pumps adding 180 feet of the head (E_p) to the system. Evaluate the flow and pressure conditions in the system for this low demand period. Use the Darcy-Weisbach equation for the pipe friction losses. (HINT: Initially assume fully turbulent flow to estimate f , then check the assumption for the estimated flow conditions).

- Determine the flow (in cfs) in each pipe during the low demand period.
- Determine the water pressure (in psi) on Main Street during the low demand period.