



Groundwater Study Frequently Asked Questions (FAQs)

The LCPCC Groundwater Study references private well drillers' data called "static water level" which are based on individually drilled wells and hydrostudy reports which are based on subdivision development requirements. (See Q9 and Q10 for an understanding of each of these studies referenced in the report).

Q:10 Explain the difference between drawdown and the water table?

A: The water table is the elevation of the top of the saturated zone in Loudoun's unconfined aquifer. It represents the natural groundwater level in the surrounding geologic formation.

Drawdown is the amount the water level drops in response to pumping. It is measured as the difference between the static (non pumping) water level and the pumping water level. Drawdown can be observed inside a well or in the aquifer around the well when the water table is pulled lower creating a cone (or area) of depression. When a well is pumped it can reduce the water available to other wells within that cone during pumping.

Water levels in a well fluctuate quickly with pumping cycles, while the water table in the aquifer reflects broader, slower moving changes such as seasonal recharge, land use shifts, or long term over pumping.

Comparison Table: Drawdown vs. Water Table

Component	Drawdown in a Well	Water Table in an Aquifer
Location of decline	Occurs in the wellbore as water level drops during pumping	Occurs in the surrounding fractured rock aquifer; can be inferred from monitoring
Temporal Change	Cycles rapidly with pump operations (minutes to hours)	Responds to nearby pumping, recharge and seasonal pattern (days to years)
Permanency of decline	Typically recovers quickly once the pumping stops	Can show long-term or abrupt shifts due to drought, land use change, earthquake or sustained pumping
Trend	Localized and short-term	Responds to regional impacts driven by climate, land use change or cumulative groundwater withdrawals