HidroVerse™
Universal Water Systems

LODGE & ESTATE

Borehole sustainability worksheet.

Convert your drilling-day test yield into a defensible long-term abstraction rate under SANS 10299-4, and size your reservoir against the peak-hour deficit — not the daily average.

How to use this worksheet

Fill the numbered fields with site-specific values from your hydrogeologist's report and your operations team's peak-demand observations. Carry rows 07 and 10 forward into the engineering specification for any new water system on the site.

#	Input	Your number	How to determine
01	Drilling-day yield (Q_test)	_____ L/s	From the 72-hour constant-rate test.
02	Drawdown at end of test	_____ m	Static water level minus pumped water level.
03	Aquifer transmissivity (T)	_____ m²/day	Hydrogeologist's report; or estimate by Cooper-Jacob.
04	Annual rainfall	_____ mm	South African Weather Service for your quaternary.
05	Recharge factor (R)	0.05–0.18	Higher for sandstone (0.12–0.18), lower for granite (0.05–0.08).
06	Derating factor (D)	0.6–0.8	0.8 if transmissivity > 50 m²/day. 0.6 if < 20.
07	Long-term sustainable yield	Q_sus = Q_test × D	Carry forward to system sizing.
08	Peak-hour design demand	_____ m³/h	Saturday gala peak — NOT daily average.
09	Reserve hours required	_____ h	Q_peak ÷ Q_sus, then × 1.5 safety.
10	Reservoir volume	Q_peak × hours	Bermed storage; in addition to pressure vessel.

Need this run by an accredited team? HidroVerse delivers a SANAS-signed sustainability assessment inside ten business days. nelspruit@hidroverse.co.za