**Friends of the Environment Report – Scenarios 3-4**

Groundwater Modelling, HWRS518

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### Scenario 3: Post development with seasonality

Build the pre-development model with seasonality and extend the run time to 100 years PLUS your burn in time. This represents the 100 years that the town has been pumping to date. There was no pumping during the pre-development period. The town's water demand has increased exponentially, with the pumping rate changed every 10 years following the equation: Q = 1.5 \* t^1.5, for Q in m3/day and t in years. To avoid confusion, the pumping rate is zero for for the burn-in time (I'll assume 25 years, here). Then, on April 1 of year 25, the pumping increases to 47 m3/day. On April 1 of year 35 it increases to 134 m3/day. Then, on a 10 year schedule, it continues to: 246; 379; 530; 697; 878; 1073; and 1281 m3/day. This model defines the system at the current time - remember, the town has been pumping for 100 years already.

### Scenario 4: Post development with seasonality, future projection

Project your post-development model with seasonality an additional 100 years into the future. (Remember to project the town's water demand, too!)

* Compare this model with your pre-development model with seasonality.
* How can you quantify the impacts of the town's water extraction on the hydrologic system? Describe your metrics as precisely as you can and quantify the impact(s).