

- ▣ Water leaves the farm in two main ways
- ▣ Pumping
- ▣ Evaporation/Transpiration

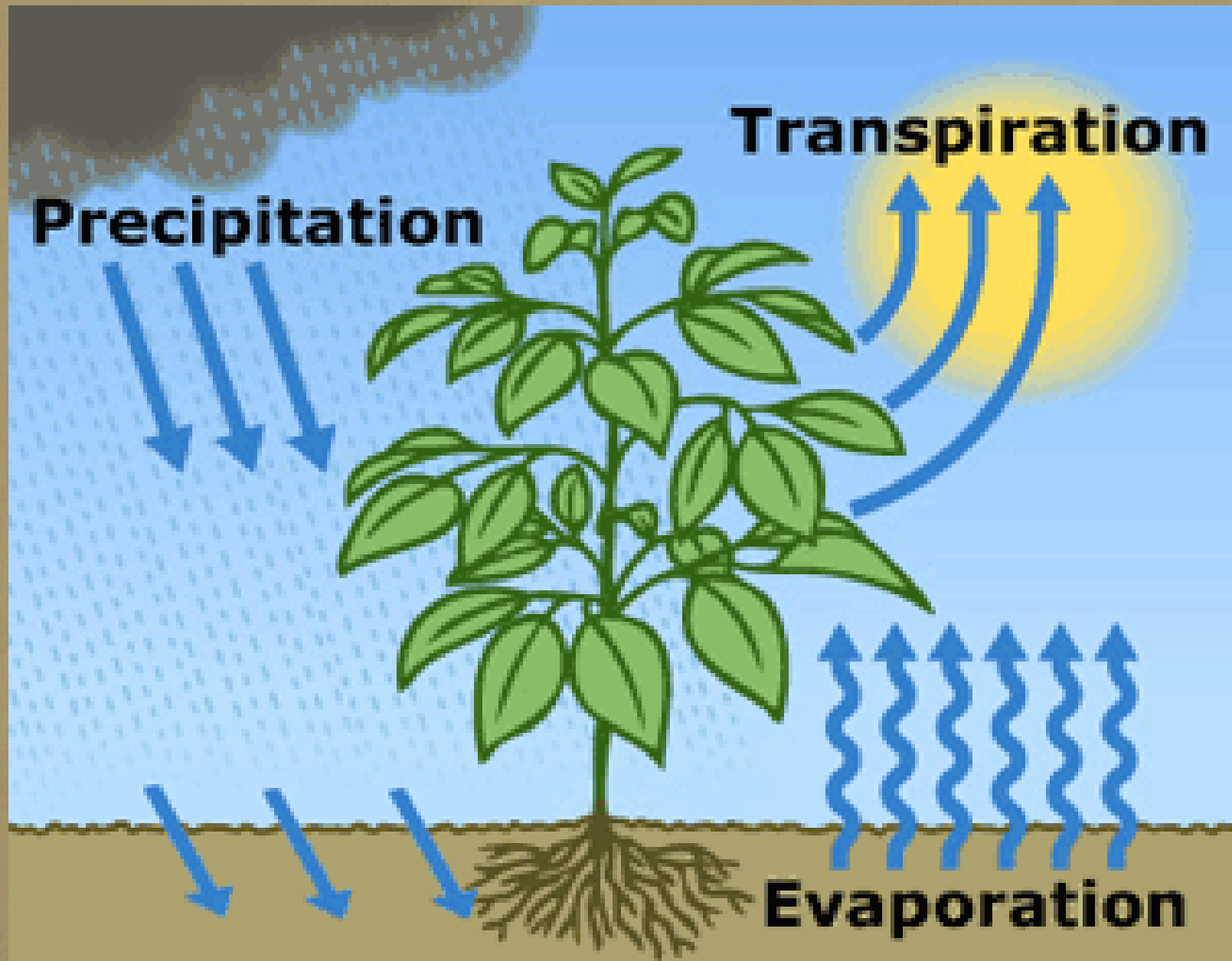
- ▣ Water comes to the farm three main ways
- ▣ Rainfall
- ▣ Irrigation
- ▣ Seepage

It is incumbent upon us to manage these factors across time to protect the crop while minimizing pumped discharges

Precipitation

Transpiration

Evaporation

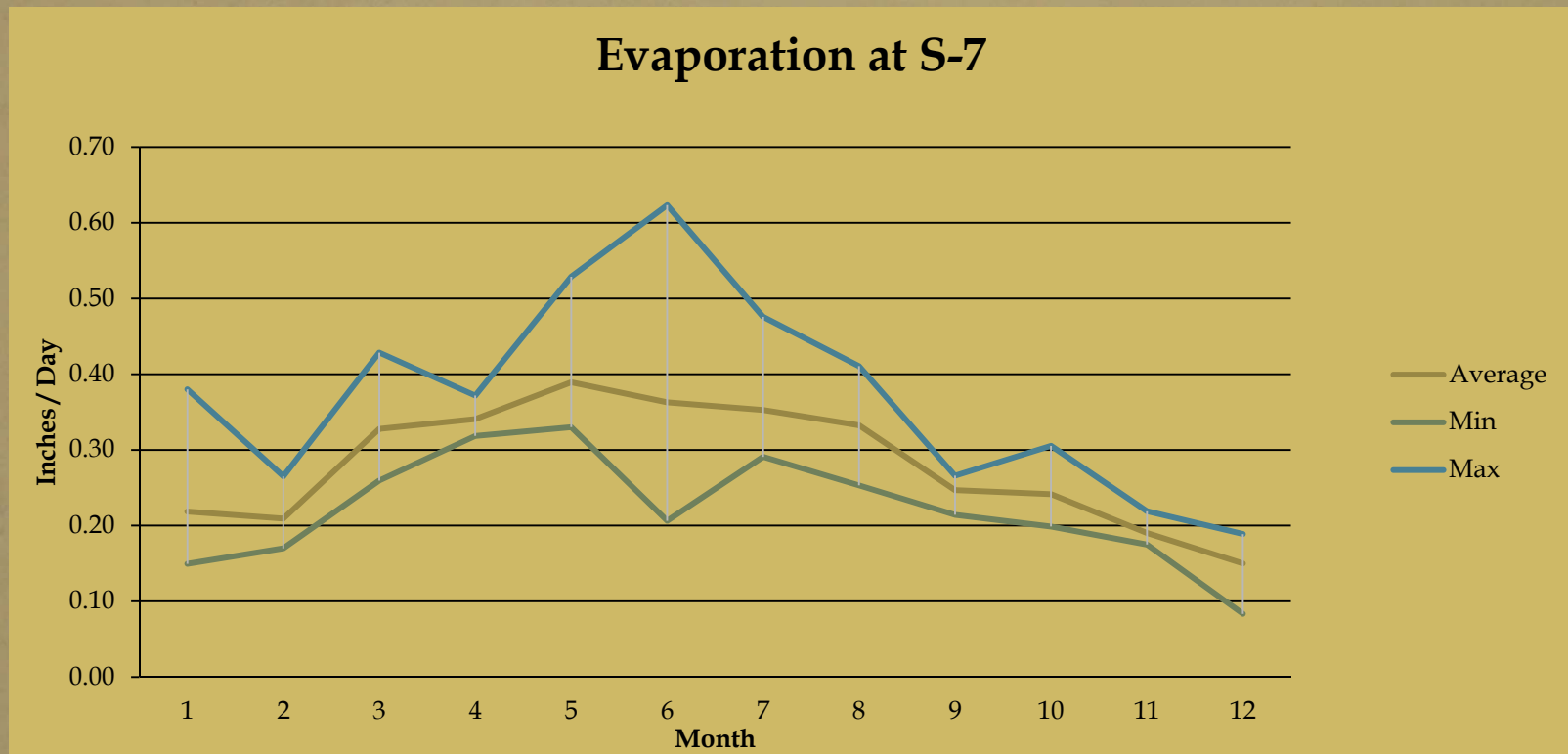




- ▣ Soil water storage can be 1/2 to 1 an inch of rainfall which requires no pumping. Some permits also use delayed pumping which takes advantage of evaporation.
- ▣ Delayed pumping can reduce pumping by about .2 inches per day.
- ▣ Pumping at reduced rates can stretch the discharge cycle a few days allowing evaporation to be of larger effect.

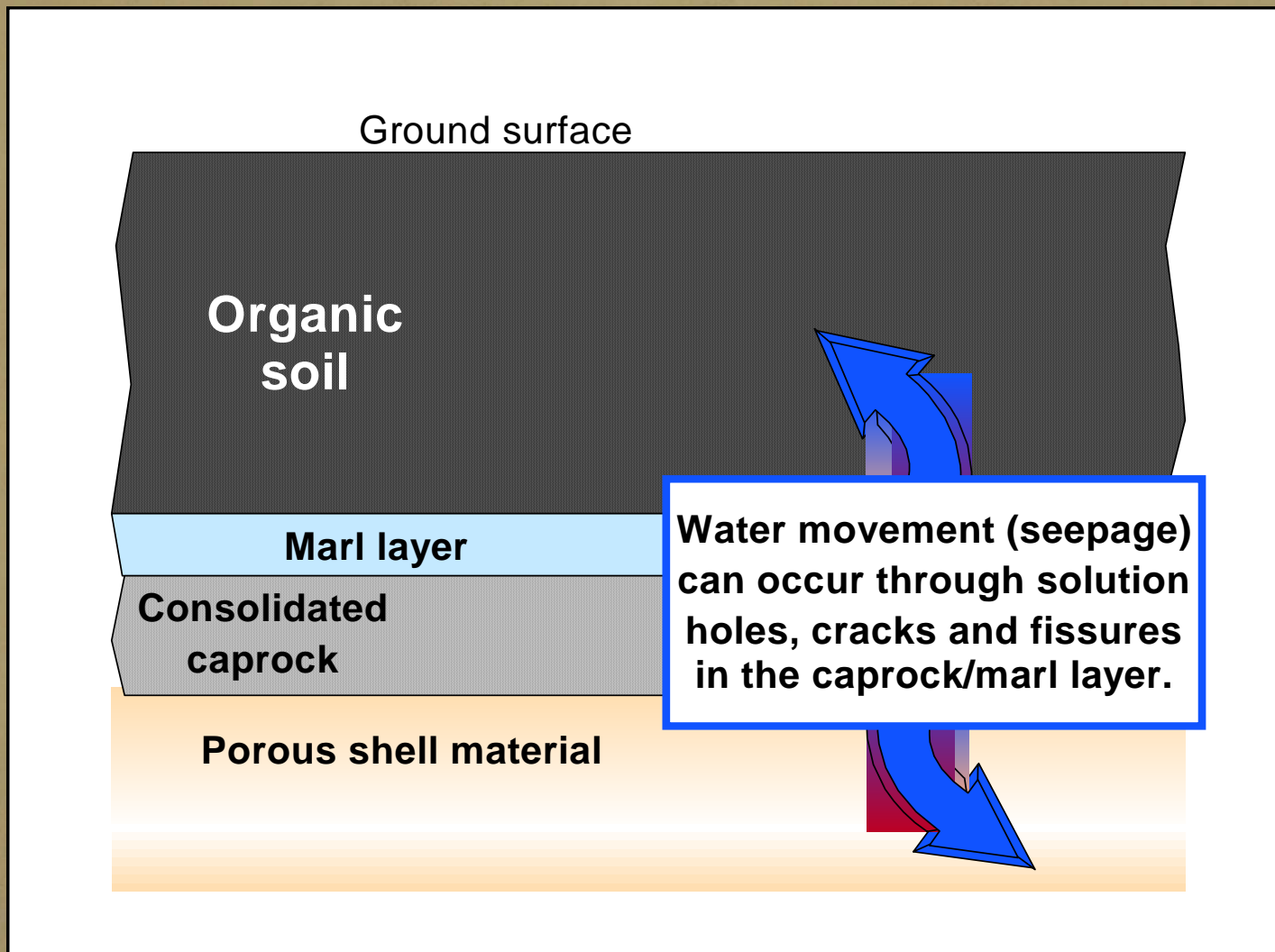
Daily Evaporation

□ SFWMD



- ▣ All of the farms are unique.
- ▣ Pumping decision makers must know how field water level responds to main canal elevation VS time.
- ▣ Once the field water level is reached and held, the pumps have accomplished the task.
- ▣ The field will still seem wet but further pumping will have little or no effect.
- ▣ This water is absorbed and adsorbed in and on the soil and will only leave by evaporation/transpiration.

□ Deeper Histosoil and Porous Substrate



- ❑ Internal pumping can be used to lower water tables prior to and during harvest so that only part of the farm is drained into the remainder
- ❑ Use of culverts and risers can segregate which part of the farm is being drained so that only the part of the farm is drained through the pump station

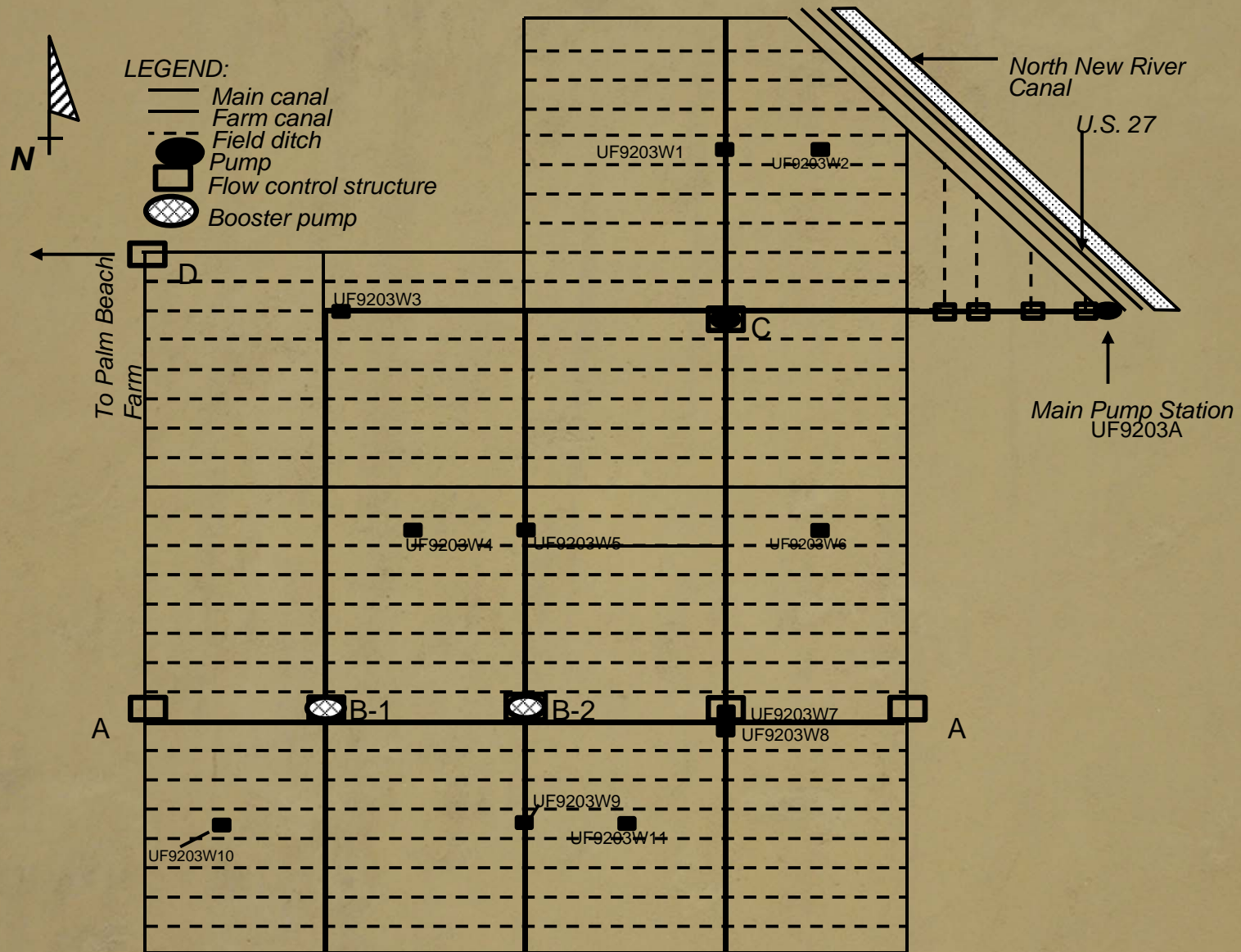
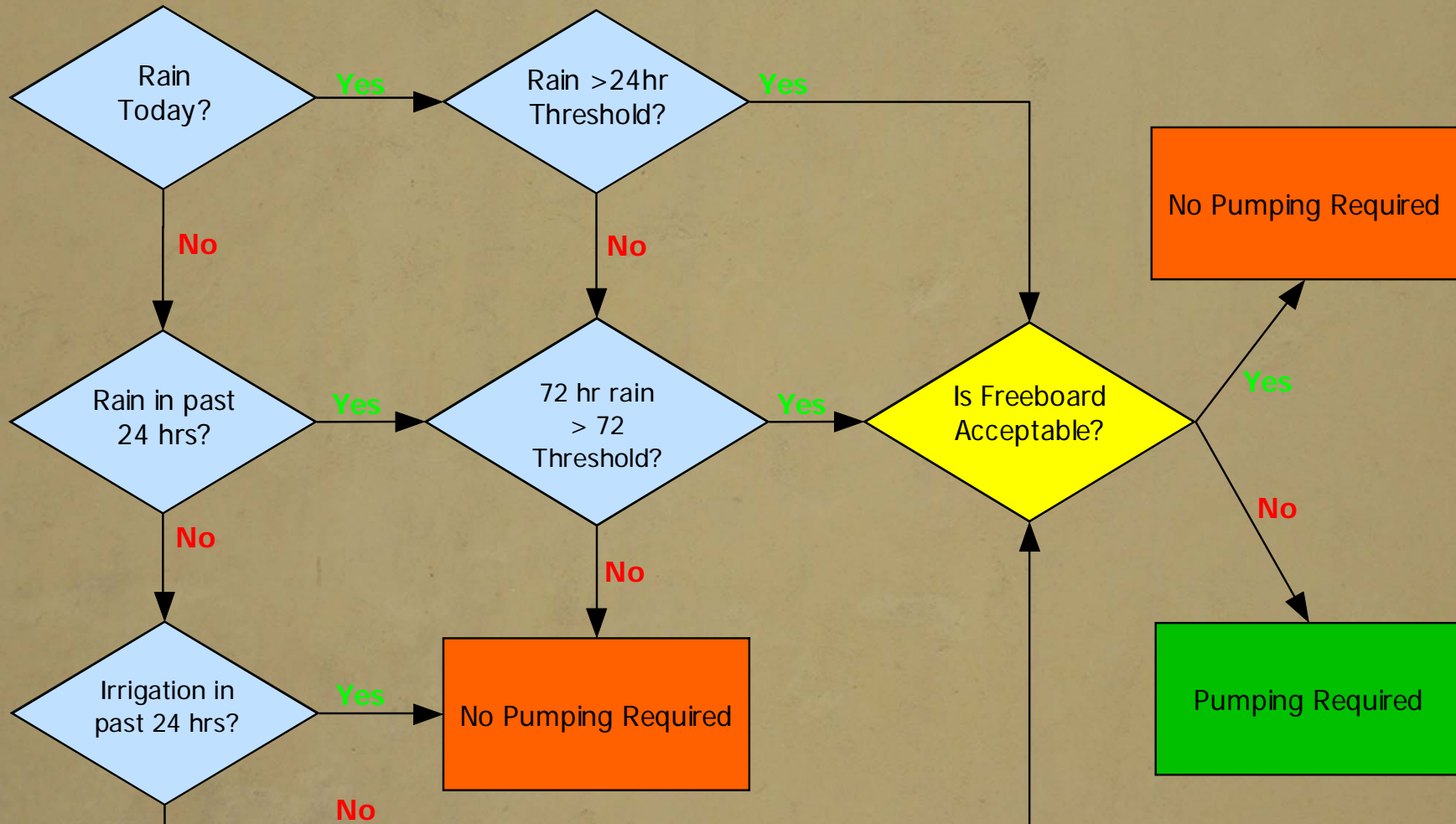


Figure 3A-BMP: UF9203A hydraulic system and farm layout.

- ▣ It may be possible to stretch the time of a major pumping event which will lower velocities and allow more water loss through evaporation.
- ▣ This will also allow better control of seepage while the SFWMD canals drop to normal levels.
- ▣ Learn the response of your farm to pumping, canal water levels, time and, evaporation.
- ▣ The result will be less fuel, less water discharged and, less sediments and other detritus in the sampler. All of this results in a lower P load from the farm

- ▣ On Histosoils
- ▣ After major rain events where the soil is saturated or flooded and the pump canal has reached the shut off elevation. **You will still wait a week while water evaporates before you can reenter the field**
- ▣ The water adsorbed and absorbed in the top 10 inches or so of the field will only leave by evaporation regardless of the field water table
- ▣ For better draining, sandy soils the time will be less but here is still no advantage in pumping below target water levels

Regulated Pumping Practices



Detention: temporarily holding water until conditions for release are met; object is to control discharge rates to reduce impact on downstream receiving systems.

Retention: preventing water from discharging into receiving waters; water is held until it is lost to percolation, evapotranspiration or evaporation.

EAA Detention BMP is a hybrid of detention and retention



if the soil.

- ▣ If the ditches are shallow, the farm canals are not well developed and, the underlying rock is consolidated the farm will drain like a sponge over a parking lot. Once surface water is pumped away only evaporation will remove water from the soil.

