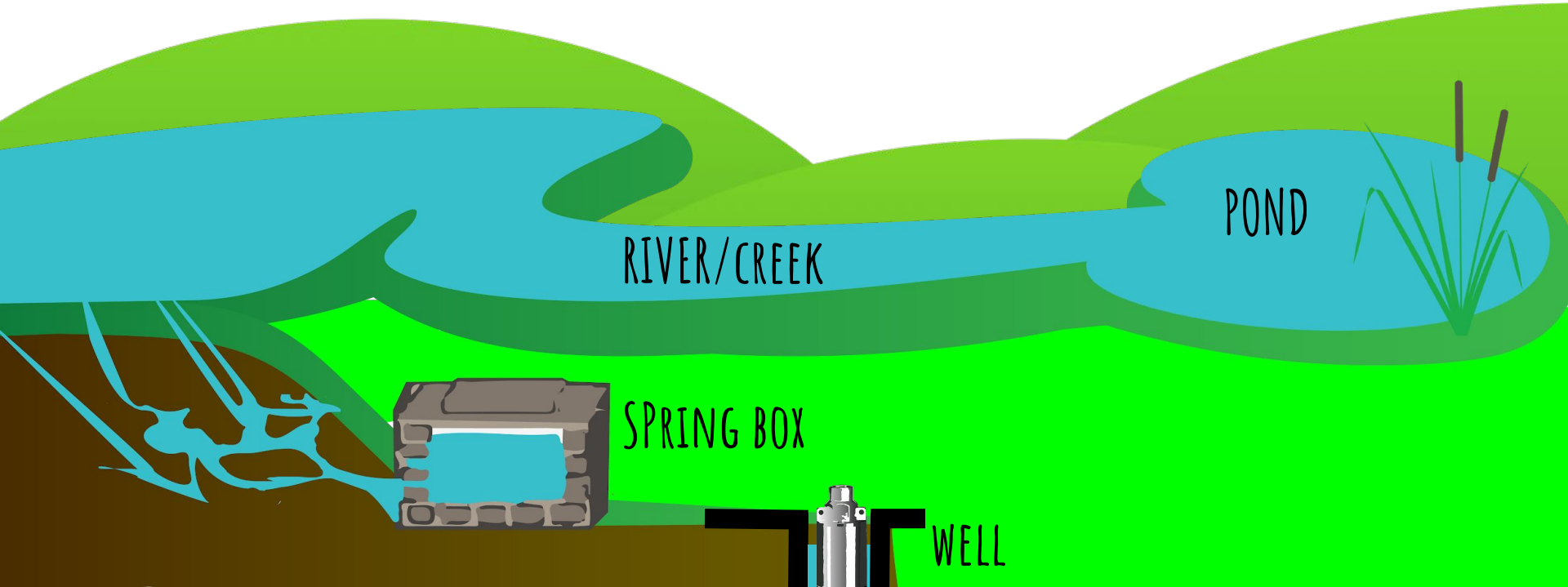
RPS
SOLAR PUMPS

Getting Water from the Sun: Implementing a Solar Pump Irrigation System in Phillipstown

New Leaf Restoration Community Presentation

Zoom Webinar
July 28th, 2020

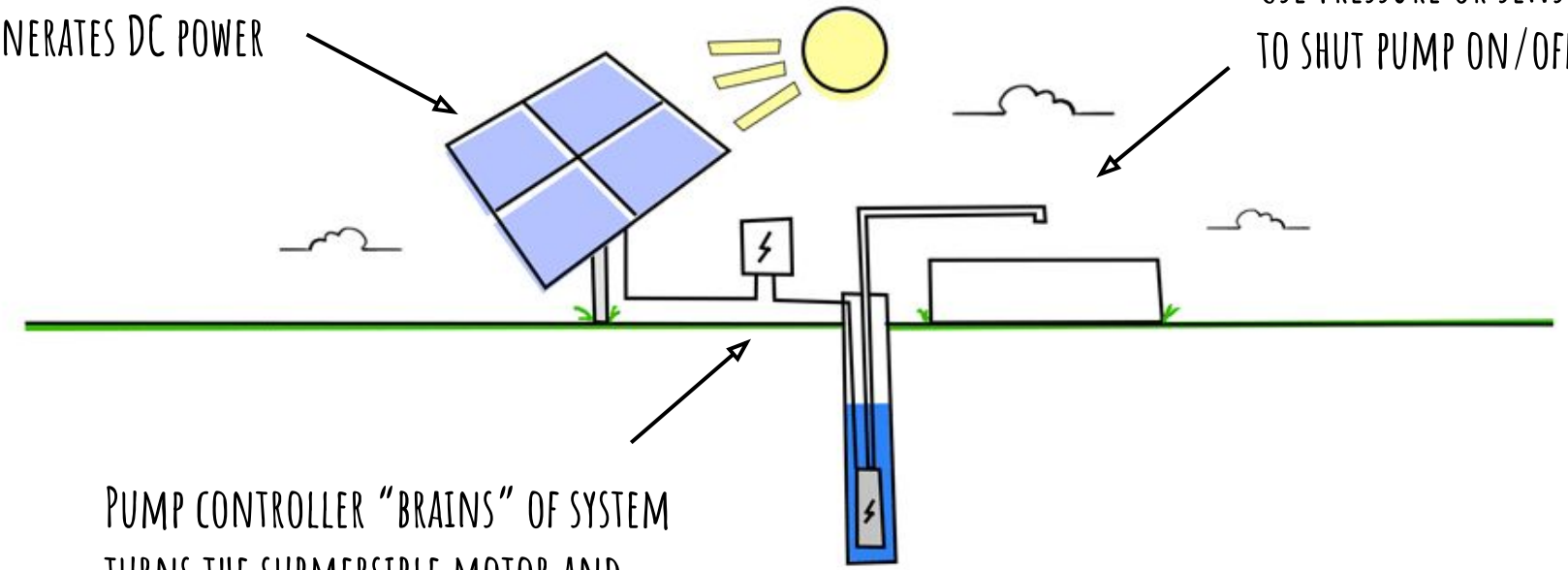
Utilizing Water Resources



Solar Pumping Basics

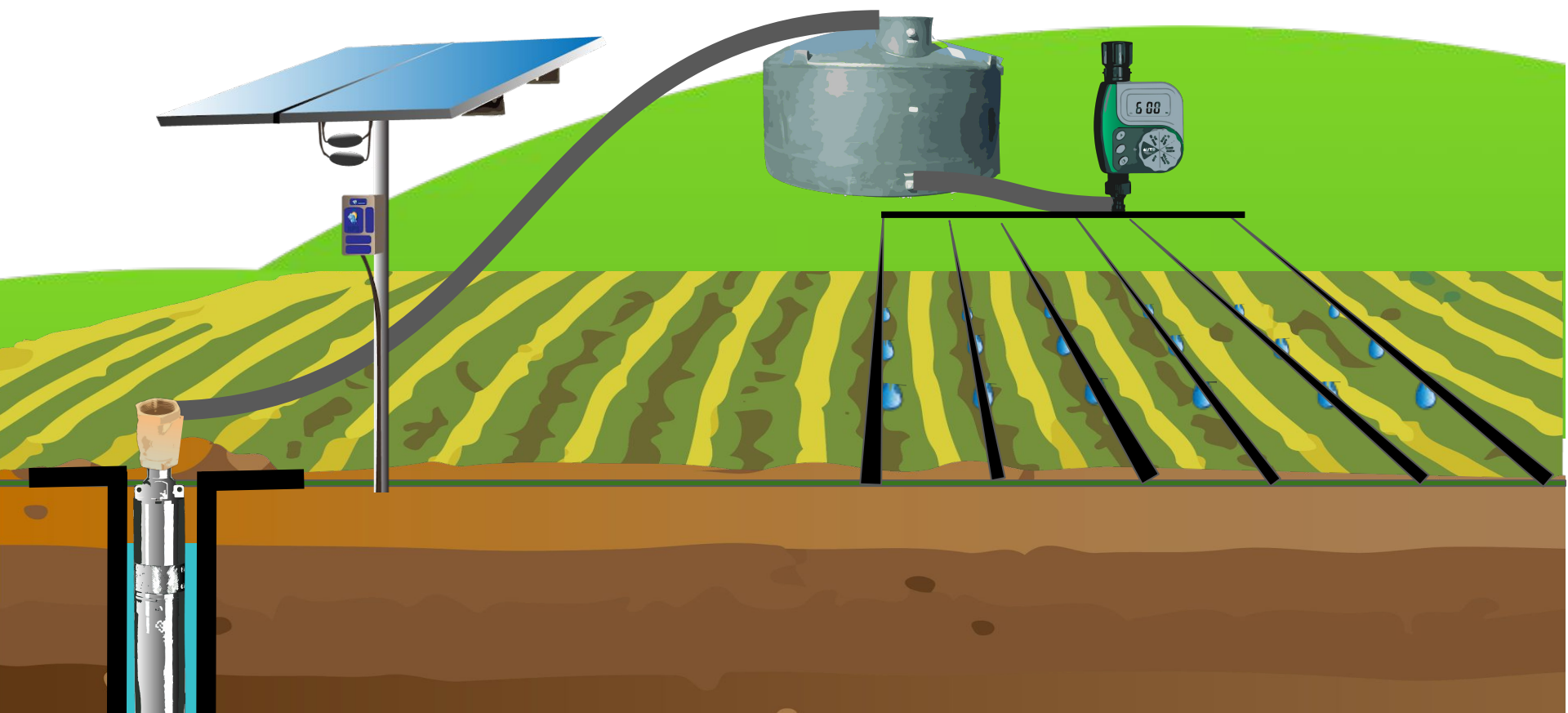
Sun shines on panels,
Movement of electrons
generates DC power

Use pressure or sensors
to shut pump on/off

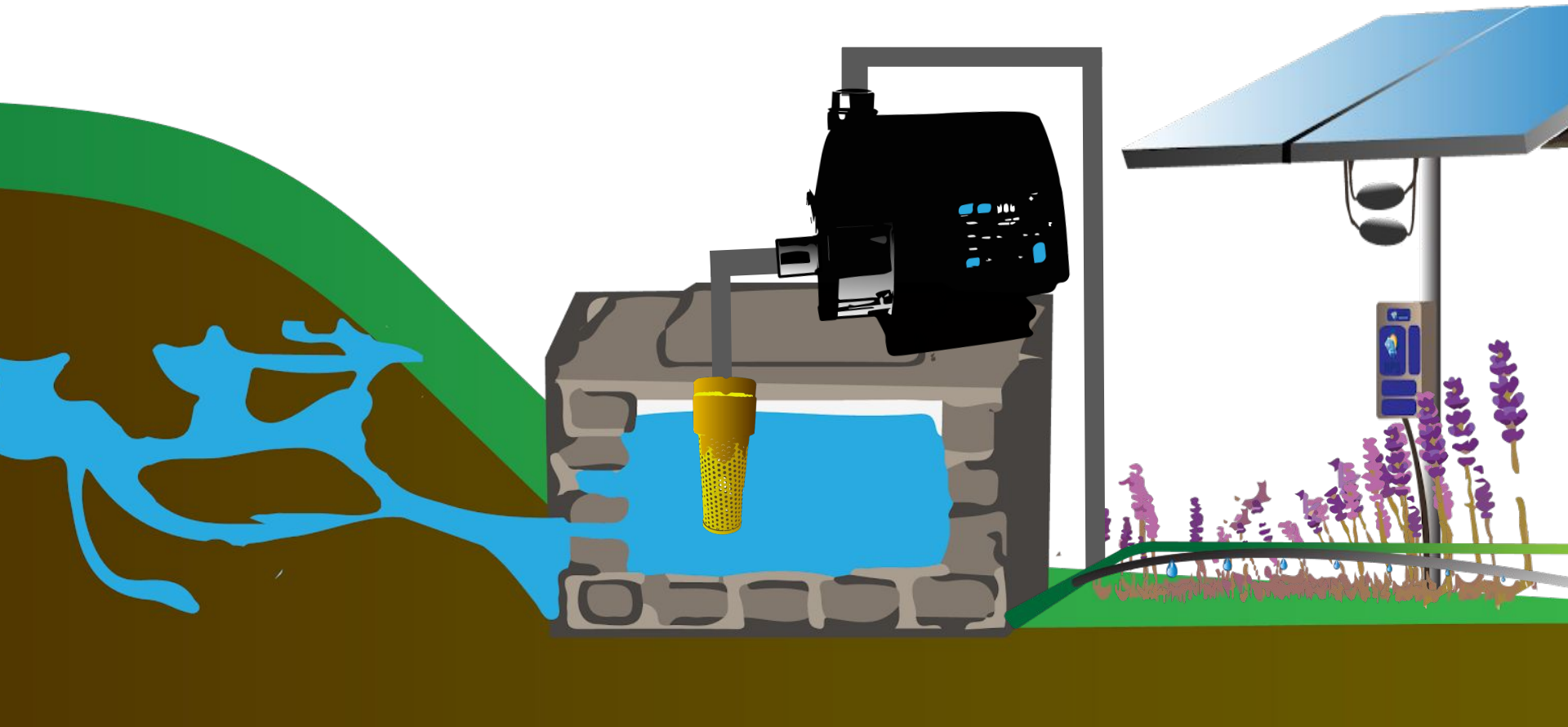


Pump controller "brains" of system
turns the submersible motor and
drives pump, pushing water against
gravity to the surface

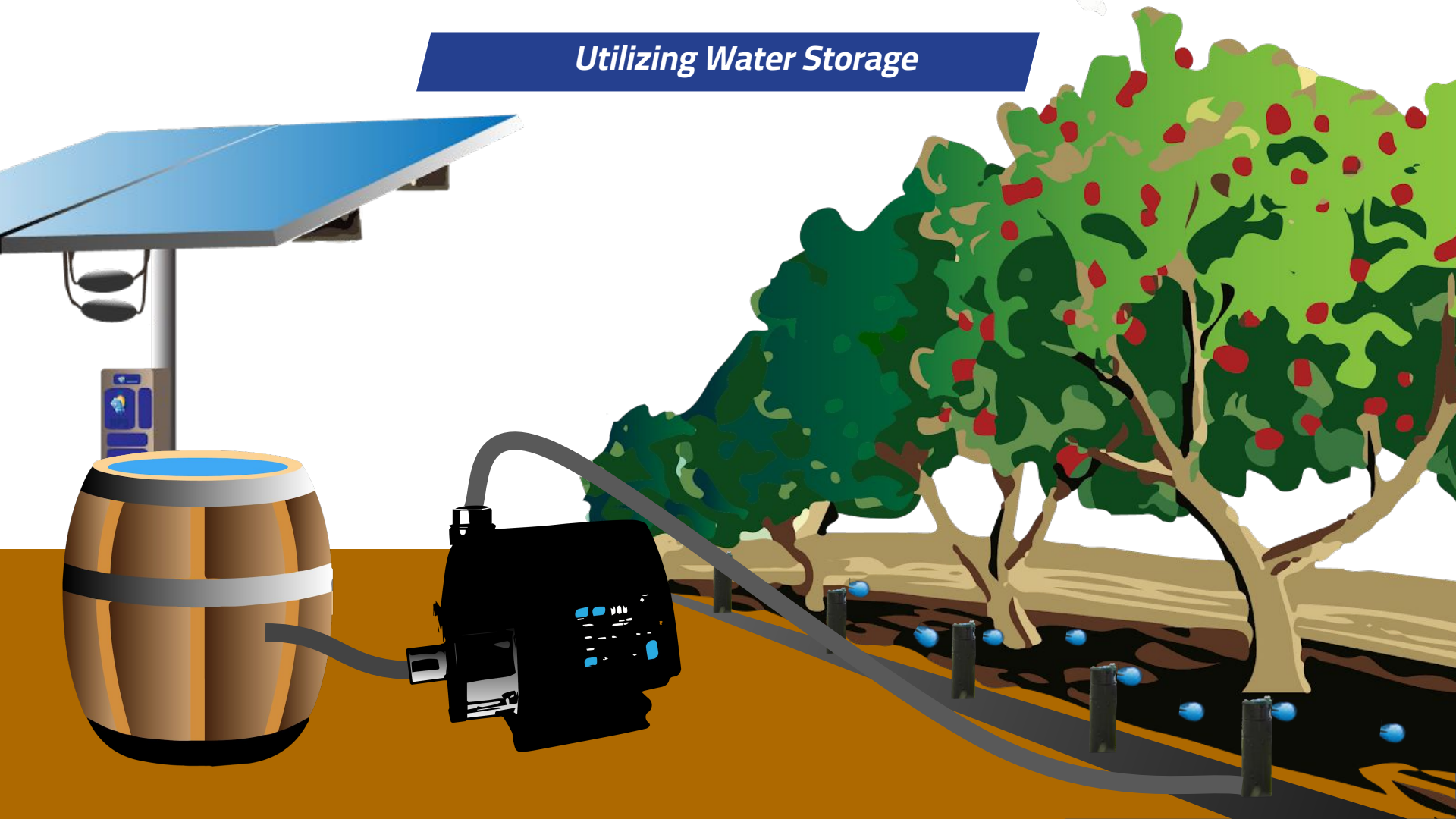
Gravity Fed Irrigation



Spring Box + TPP



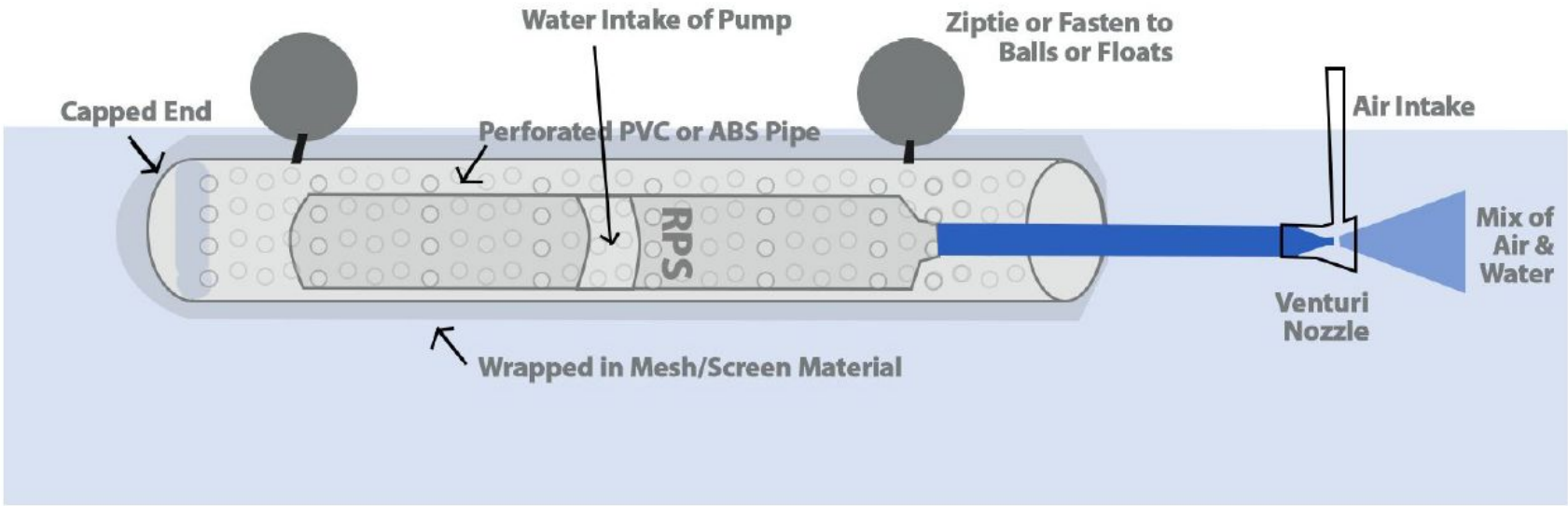
Utilizing Water Storage



Basic TDH Equation Example

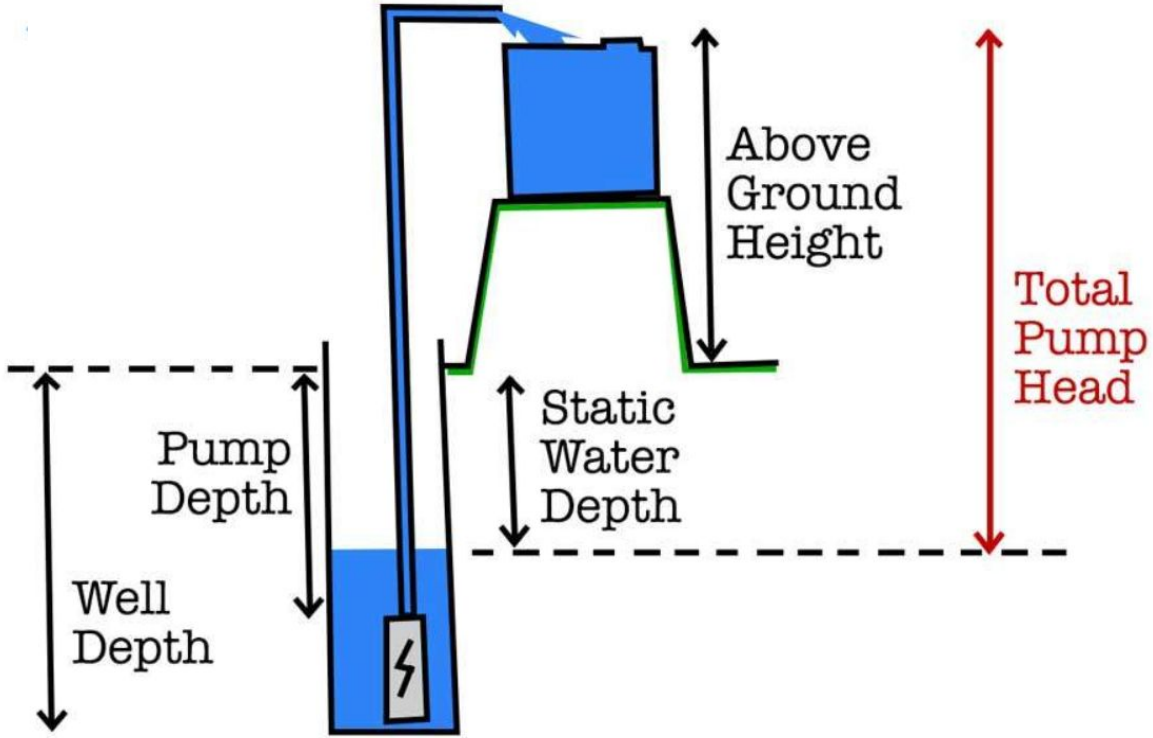
Uphill elevation change 20 feet + Drip line 20 psi 45 feet = 65 feet TDH

Pond Aeration with Venturi Nozzle



Pump Sizing Fundamentals

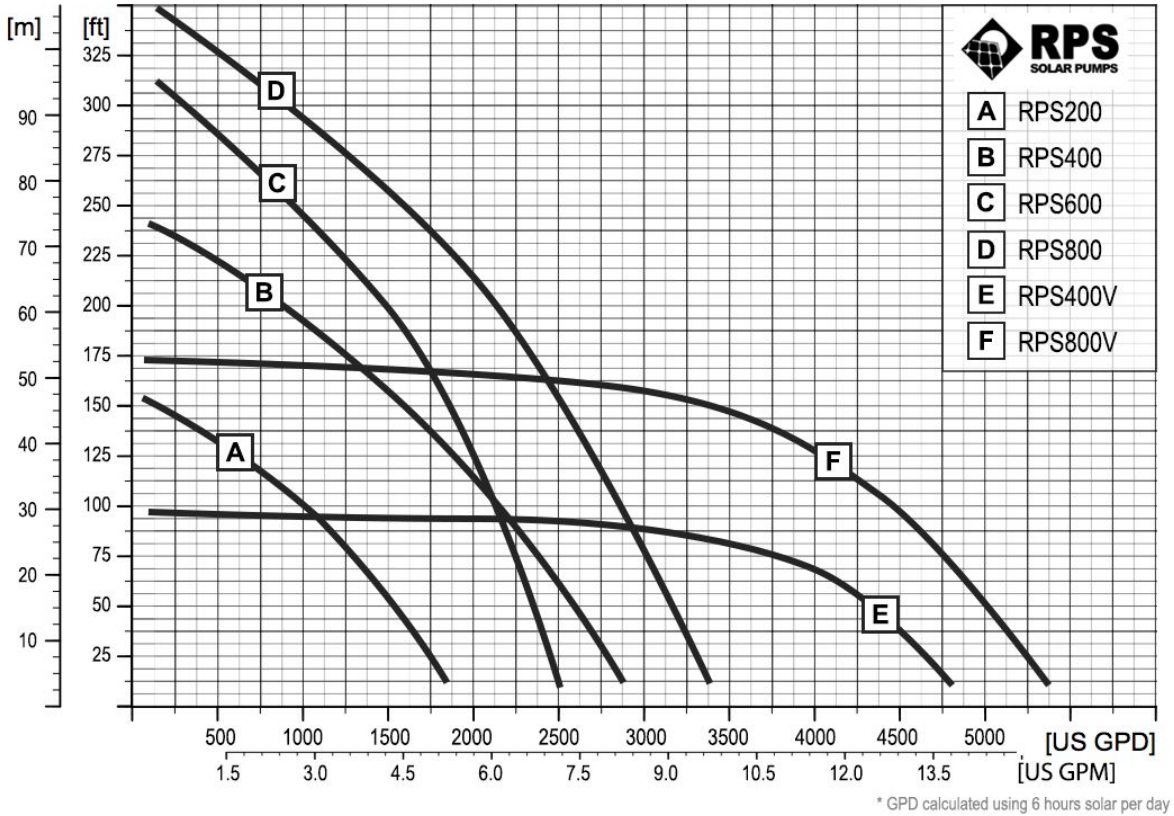
Total Dynamic Head (TDH) = (Static Water Depth + Drawdown + Additional Lift) + Frictional Losses in Pipe + Pressure



Centrifugal vs. Helical

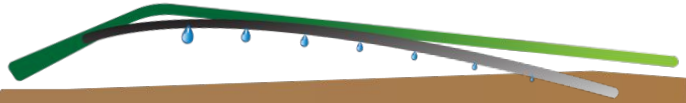
Pump Sizing Fundamentals

Total Dynamic Head (TDH) = (Static Water Depth + Drawdown + Additional Lift) + Frictional Losses in Pipe + Pressure



Using Irrigation Emitters

Drip Line



1 PSI
=
2.31 feet

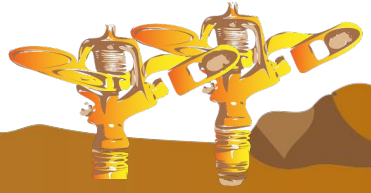
Small Sprinkler

20 PSI
or
45 feet

Soaker/ Large sprinkler

35 PSI
or
80 feet

Ratchet head



45 PSI
or
100 feet

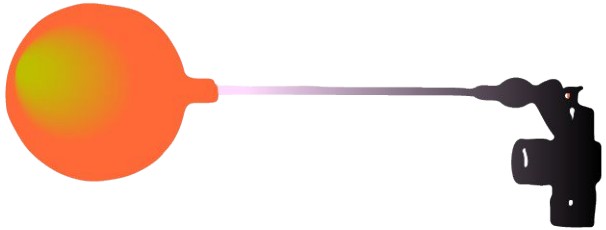
60 PSI
or
150 feet

Irrigation Timers + Pressure Shut Off

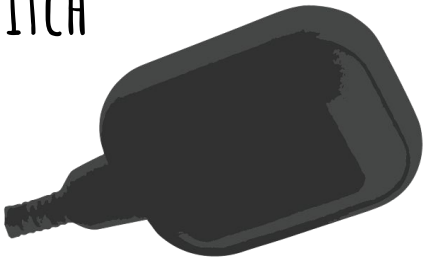
Reverse Action Pressure Switch

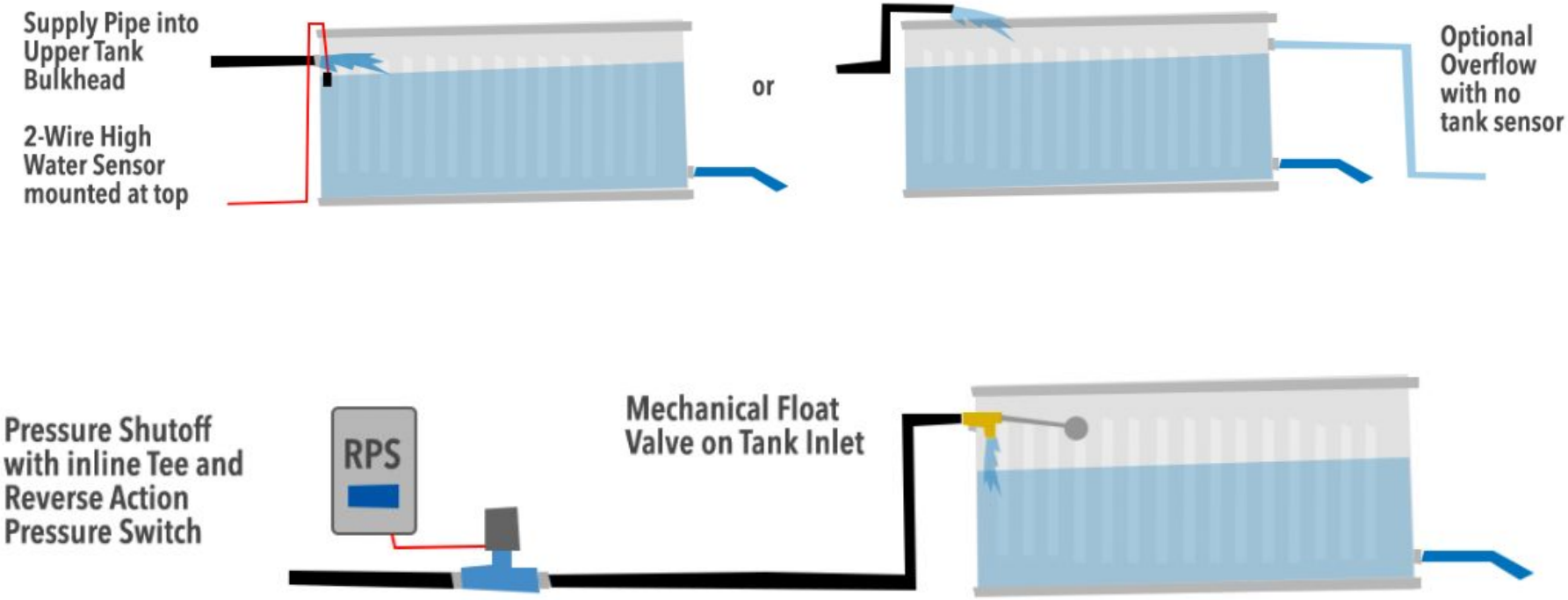
Irrigation timer

Mechanical float valve



Float switch




Supply Pipe into Upper Tank Bulkhead
2-Wire High Water Sensor mounted at top
or
Optional Overflow with no tank sensor
Pressure Shutoff with inline Tee and Reverse Action Pressure Switch
RPS
Mechanical Float Valve on Tank Inlet

Estimating Water Use for Gardens

Greenhouse Drip Line Calculation

50 emitters x 2 gallons per hour =
100 gallons per hour total

100/ 60 min = 1.6 gallons
per minute needed


RPS
STANLEY
PowerLock
16'
4"

Wiring Battery Systems

Thank You!

valerie@ruralpowersystems.com

RPSsolarpumps.com

RPS
SOLAR PUMPS

888-637-4493

40250 County Road 27
Woodland, CA 95776

Using Batteries as a Backup

Freeze Protection

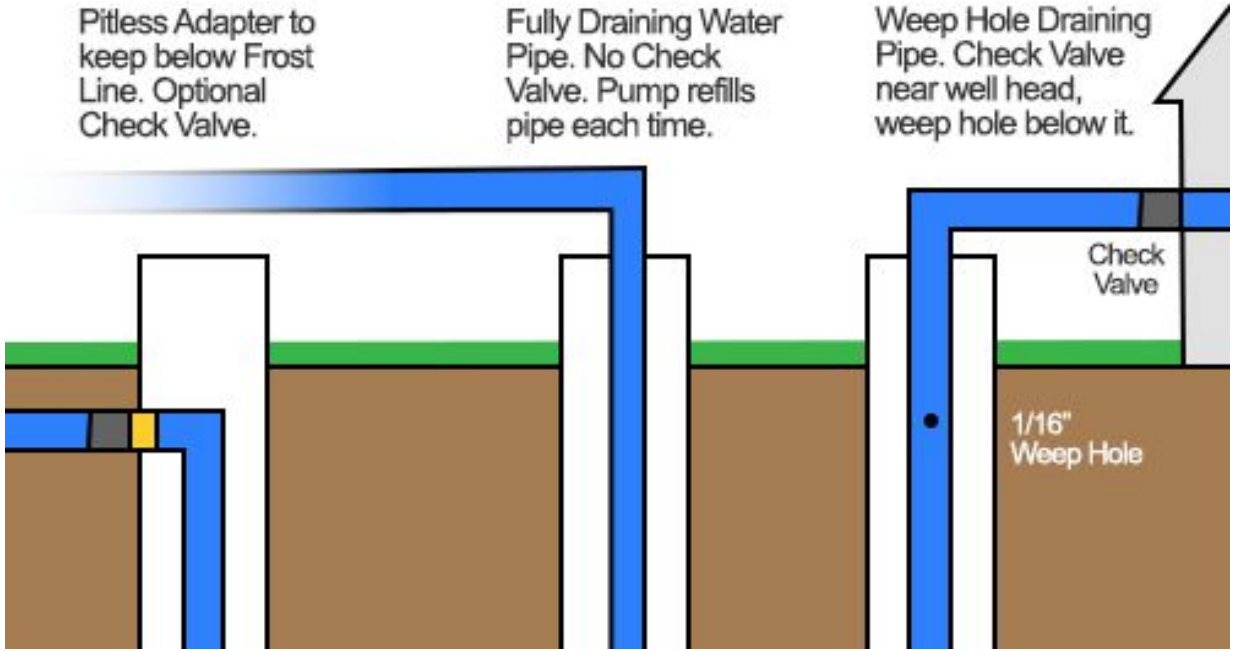
RPS Solar Well Pumps

Options for Freeze Protection

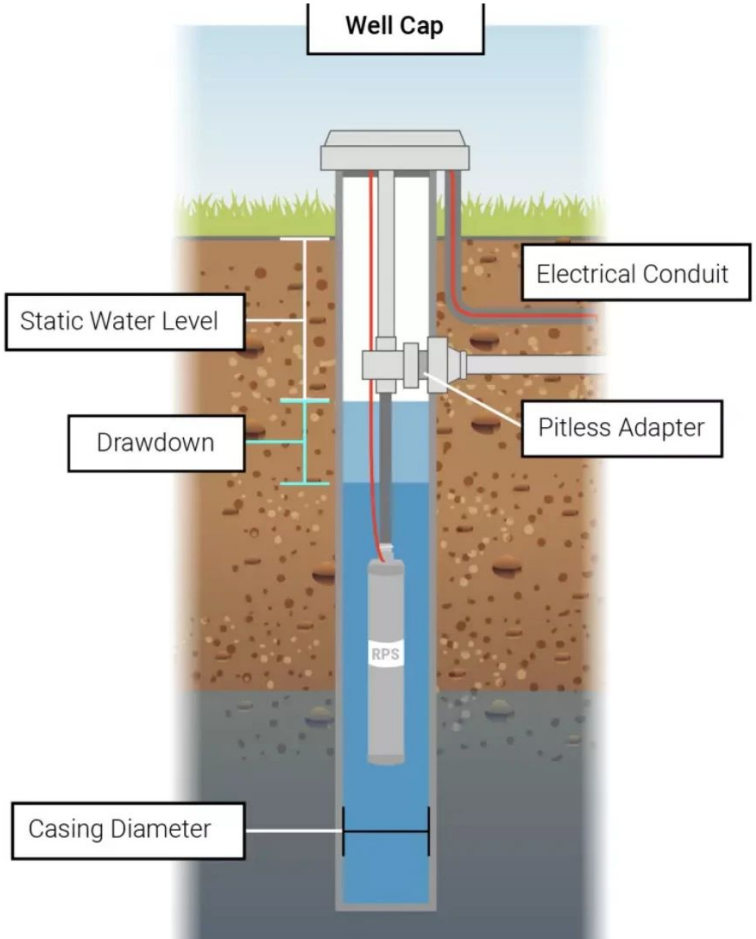
Pitless Adapter to keep below Frost Line. Optional Check Valve.

Fully Draining Water Pipe. No Check Valve. Pump refills pipe each time.

Weep Hole Draining Pipe. Check Valve near well head, weep hole below it.



Freeze Protection



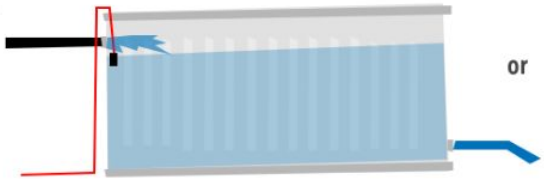
Poly Pipe

Hose Clamps

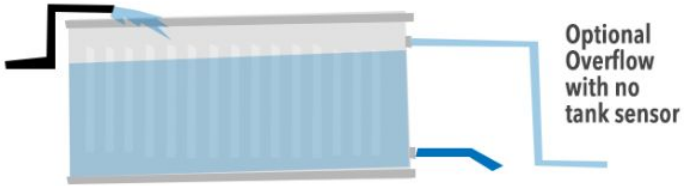
Barbed Coupling
(Insert to NPT)

Supply Pipe into
Upper Tank
Bulkhead

2-Wire High
Water Sensor
mounted at top



or



Optional
Overflow
with no
tank sensor

Poly Pipe

Hose Clamps

Barbed Coupling
(Insert to NPT)

Check Valve

Threaded Nipple

Pressure Shutoff
with inline Tee and
Reverse Action
Pressure Switch

Mechanical Float
Valve on Tank Inlet

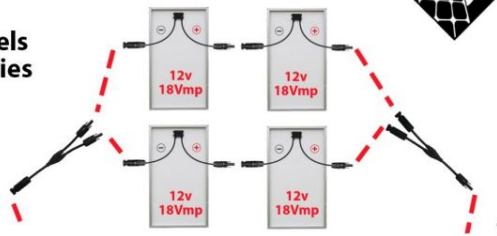
Wiring Battery Systems

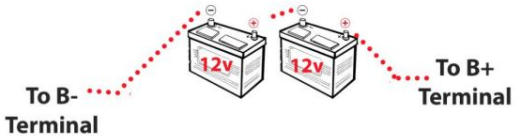
For **RPS 400** with 100w Panels & 12v batteries

24v

4x 100w Panels
2x 12v Batteries

RPS SOLAR PUMPS



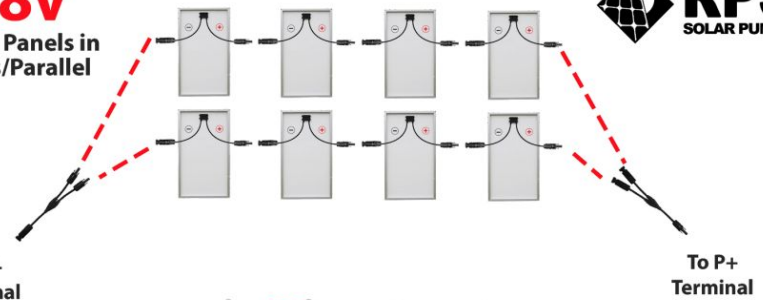


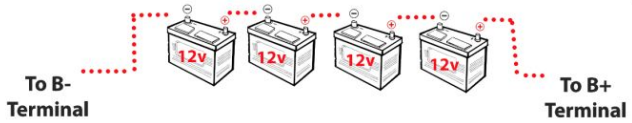
For **RPS 800** with 100w Panels

48v

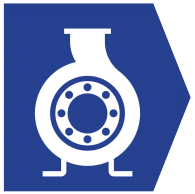
8x 12v Panels in Series/Parallel

RPS SOLAR PUMPS





SECTION 1



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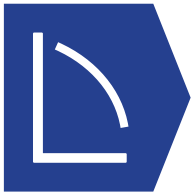

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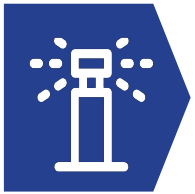

Pairing Pumps with Irrigation

SECTION 2

Case Study Examples

Battery Power

Freeze Protection