



## **Silver Creek Orchards Gravity Irrigation**

John Saunders

# What we Grow!!

- Apples- Fresh Fruit
- Cattle- Cow/Calf operation



# Wine Grapes



Varieties we grow: Chardonnay, Cab Franc, Merlot, Cab Sauv, Traminette, Chambourcin, Petit Verdot, Petit Manseng, Viognier

# History of Fruit Production

- My wife is 7<sup>th</sup> generation to grow fruit at SCO
- Fruit has been grown on farm for 150 years





# To Irrigate or Not to Irrigate?

- Central VA “normal” rainfall is 42 inches of rain per year
- Young trees need water



# Fruit Elevation Range 850' to 2000'





# Pokeberry Ridge El. 1700 ft



# Main Irrigation Lake El. 850 ft.





# Design Considerations

- Lake Level 850'
- Pokeberry Ridge Elevation 1700'
- Pressure Required to pump water from lake to ridge  $(1700-850) \times 0.4 = 340$  psi + 80 psi = 420 psi at pump
- Multiple pump stations would be required
- Electricity cost to Pokeberry Ridge \$55,000
- If we wanted water we had to come up with another idea.

# Mountain Stream El. 2000 ft.



## Solid Granite Foundation

We always had water where we found solid granite





# Build a Concrete Dam



# Finished Dam





4" PVC out of the Ravine  
Pipe must go downhill until 30 psi





# The Test “Will it work”?

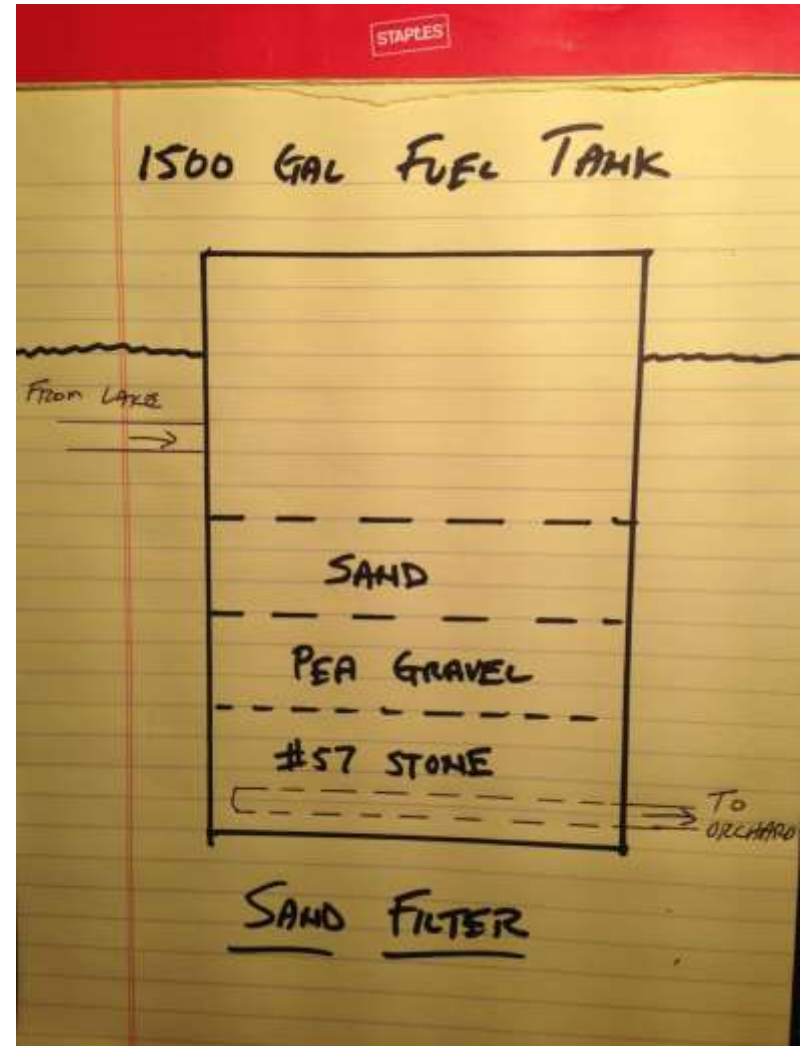


# Pond for Storage El. 1850 ft.





# Homemade Sand Filter





# Backwash sand filter



Going downhill pressure goes up  
quickly!!



# Valve assembly at Fruit Block





# Pressure Reducing Valves



# Irrigating Apples and Grapes



# Lessons Learned

- Too Much water can Kill
- Not enough water can Kill
- Water must go downhill until 30 psi is reached
- Set up system so nutrients and chemicals can be injected
- Homemade filtration systems can be expensive



# Thanks!



Email: [john@silvercreekorchards.com](mailto:john@silvercreekorchards.com)







