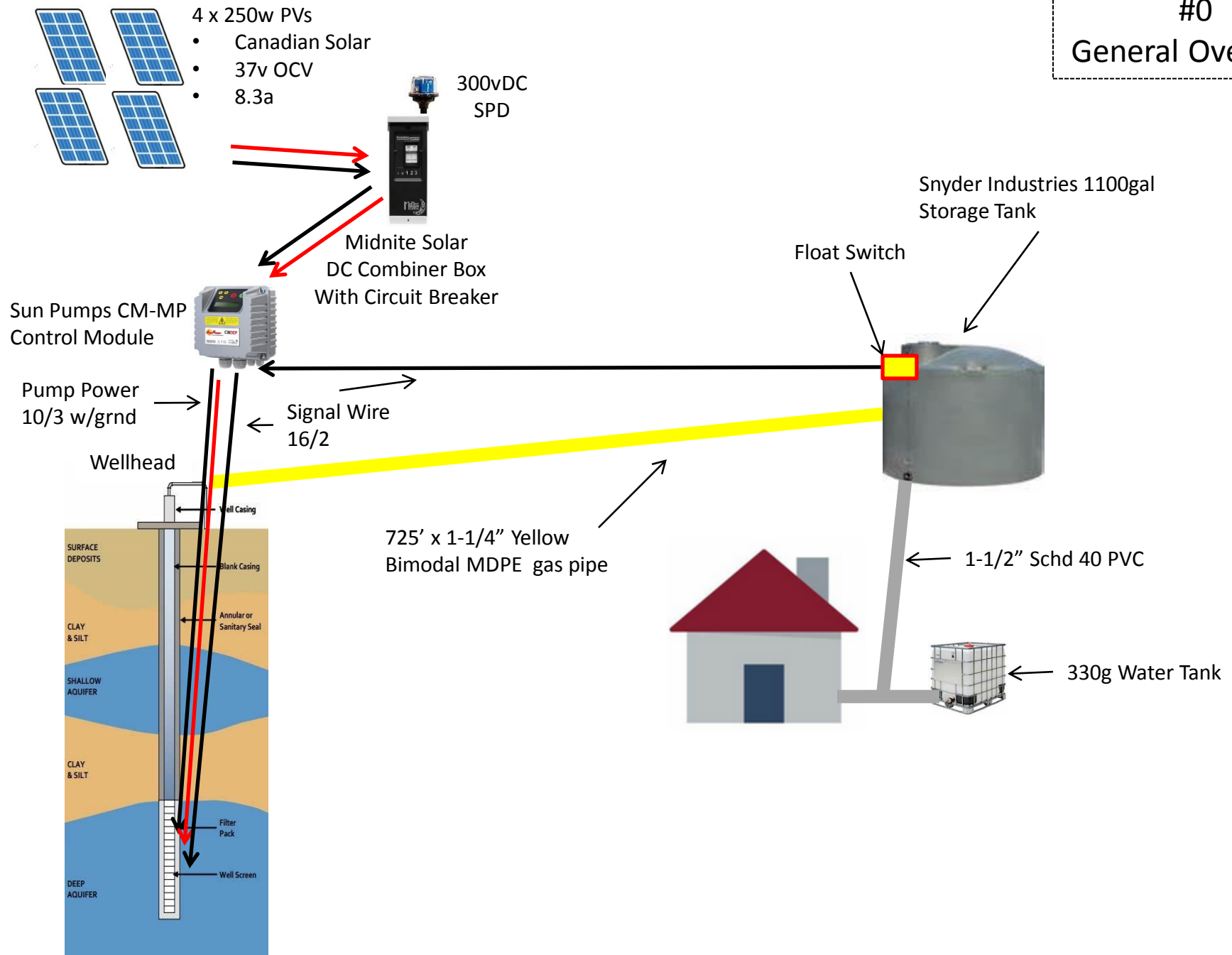
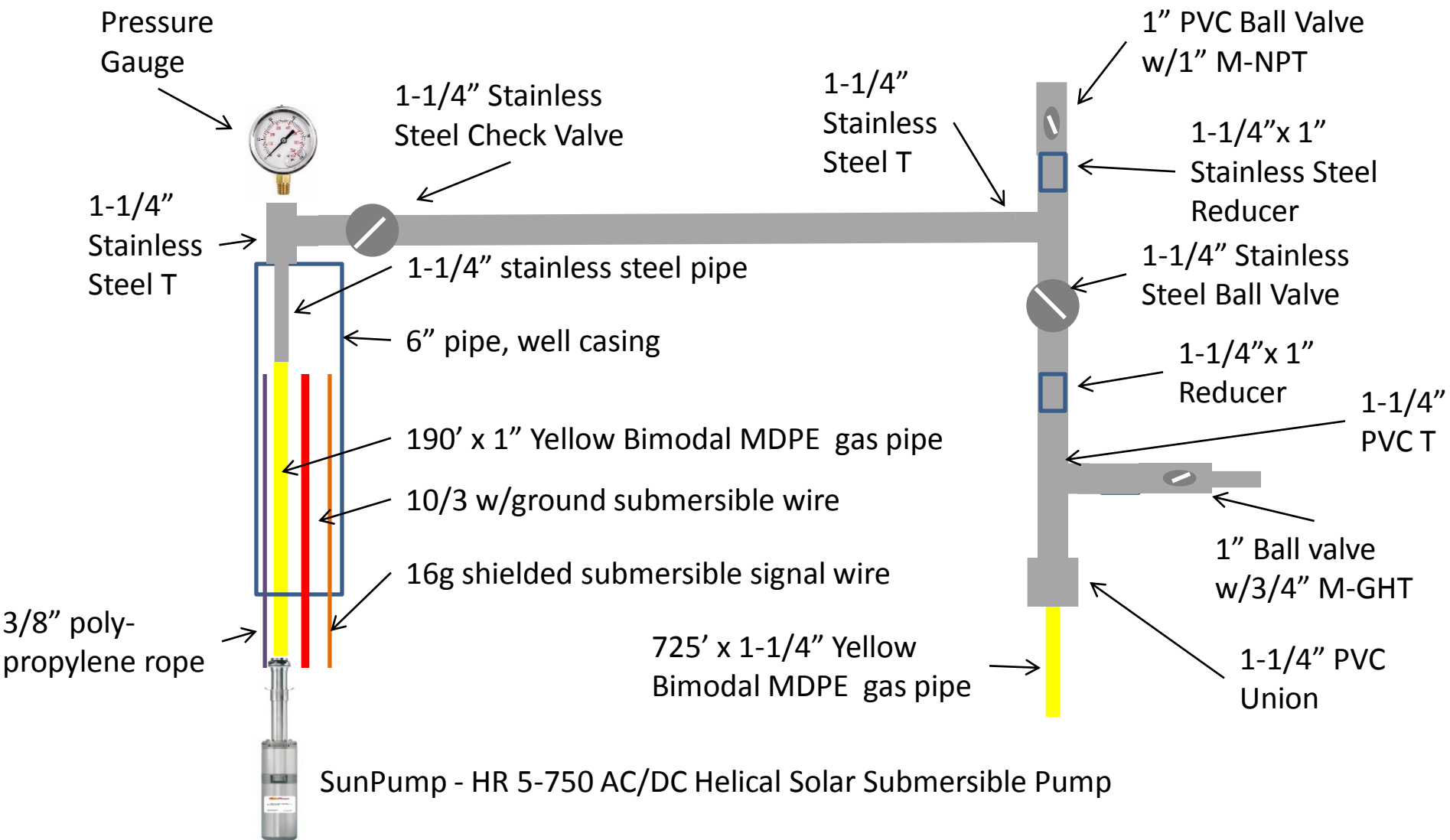


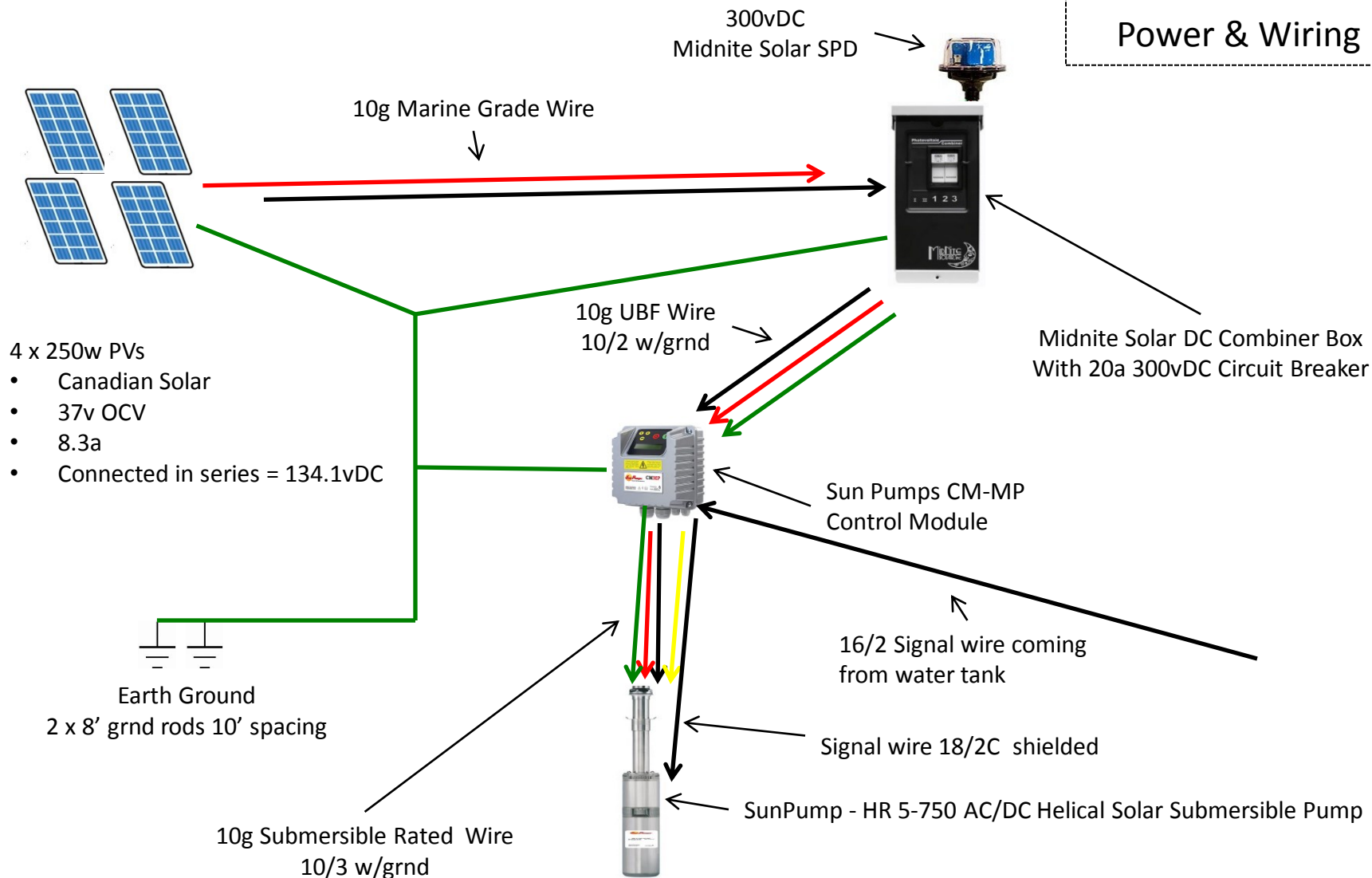
#0 General Overview



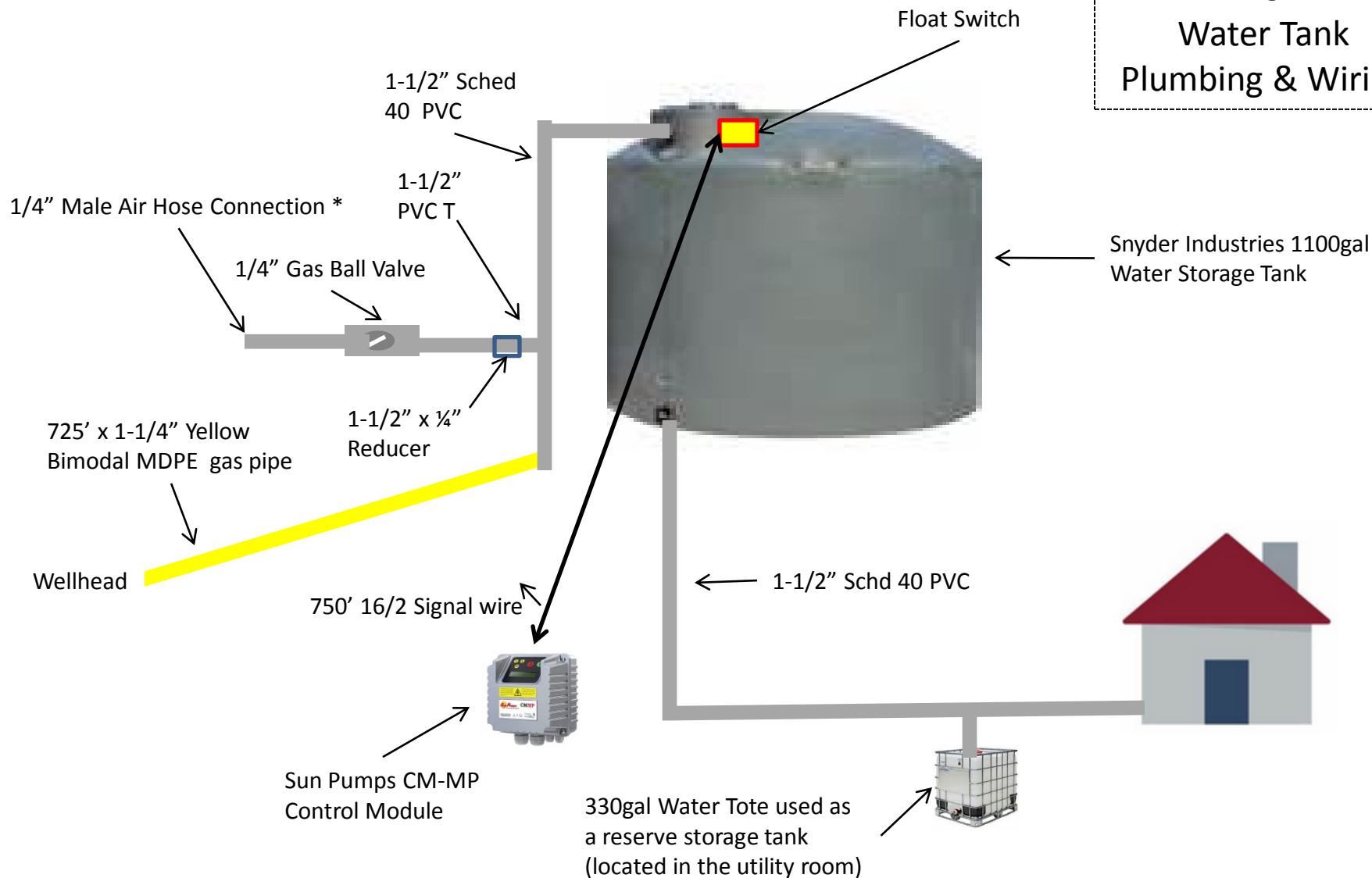
#1
Wellhead Plumbing



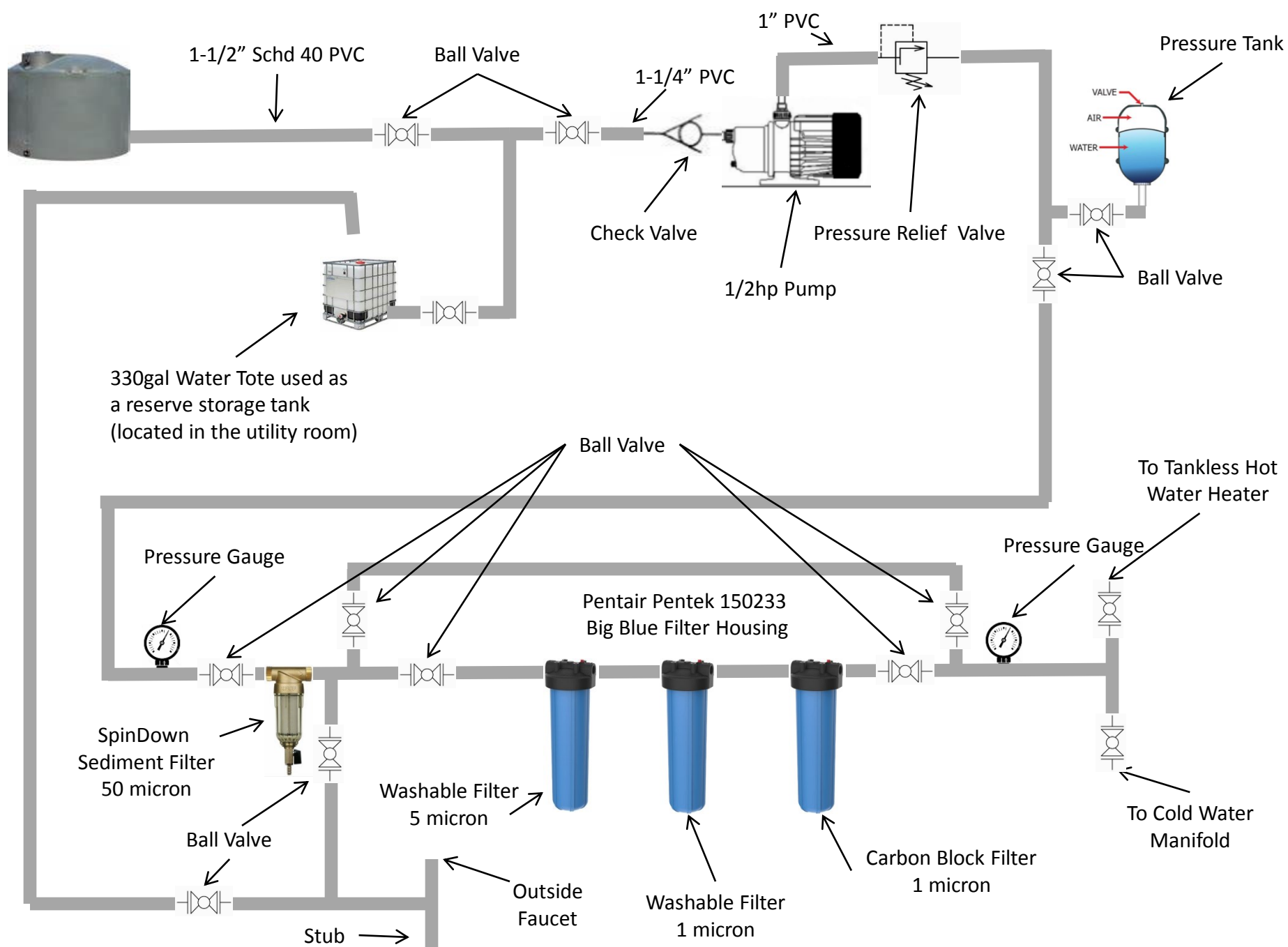
#2 Power & Wiring



#3 Water Tank Plumbing & Wiring



* 1/4" air hose connection is used to hook a compressor or portable air tank to. Then air can be injected into the supply line from wellhead to storage tank. That pushes the water out of the supply line at the GHT outlet at the well head.



- System Notes -

1. The 330gal water tote is used as an emergency reserve storage tank that is close to the house, freeze resistant, and protected from view and damage. Used as a back-up if anything happens to the well and/or 1100gal main storage tank. Under emergency conditions it would give 2 people approximately 150 days of water. The tote has a sump type outlet. The water is changed every year and bleach is added to the tote when the water is changed.
 2. There is no filter before the pump. The sediment settles to the bottom of the main storage tank prior to entering the system. When the tote is refilled it passes through the 50 micron spindown sediment filter.
 3. The 1/2hp pump is set at 30/50psi in coordination with the pressure tank. PVC inlet is 1-1/4", PVC outlet is 1".
 4. Check valve just before the pump prevents the pressure tank from feeding back into the supply line.
 5. Pressure tank can be isolated out of the water system via a ball valve.
 6. The pressure gauges before and after the filters are for checking pressure differences which would indicate a problem with the filters. Examples: 1) first pressure gauge is used to monitor overall system. 2) 10psi difference in readings from the pre & post filter gauges indicates a problem with the filters.
 7. The brass spin-down sediment filter is 50micron, the filter basket is stainless steel. It can be cleaned by opening the valve at the bottom under pressure or the basket can be removed and cleaned by hand. I purchased an extra "O" ring for the filter.
 8. There is a water tote refill line that is post-spindown filter. This line is used to refill the tote in the event the tote water is used. The refill line is located at the top of the tote and has an air gap.
 9. There is a line that allows for entirely bypassing the filters. This is used for any issue with leaking filter housings, etc. It could also be used while changing/cleaning filters when water is needed in the house during that time.
 10. There are ball valves at the beginning and end of the three water filters, isolating the filters. This allows for the by-pass line to be used supplying water to the house while filters are being changed.
 11. Three water filter housing units are used in series; they are Pentair Pentek 150233 Big Blue Filter Housing, 1" NPT-F 20". Each is mounted with Housing Bracket for Big blue 10" and 20" filter housings. I also purchased 2 Pentair Pentek SW-4 Spanner Wrenches for 20" filter housings. And I also purchased 3 Captain O-Ring - Replacement 151122 O-Rings.
 12. I labeled the housings #1, #2, #3 with a Sharpie. The filters are sized as:
 1. Filter Cartridge, 5 Micron, washable.
 2. Filter Cartridge, 1 Micron, washable.
 3. Hydronix CB-45-2001 Whole House, Commercial & Industrial NSF Coconut Carbon Block Water Filter, 1 Micron
 13. The reasoning behind the filters is this:
 - Larger micron filters are less expensive to purchase.
 - 1 micron #2 filters the same size particles as #3. This keeps #3, the most expensive filter cleaner, saving money.
 - #3 is a carbon block filter for removing tastes, odors, impurities, and contaminants such as microscopic cysts, lead, volatile organic chemicals (VOCs) from water. Carbon block is a better technology and higher efficiency than a GAC carbon filter.
 14. "Stub" is future expansion of system to the outside for additional water supply to garden and lawn.
- Note: We have a .1 micron (point 1 micron) Just Water (formerly Monolithic) 4"X4" Ceramic Filter that can also filter out heavy metals. It is a portable filter system that would be used for all consumable water.

- Filter Changing -

1. I pull the filters annually to wash/clean or change them. I pull them semi-annually to check them and clean them if needed.
2. I change the Coconut Carbon Block Water Filter once per year.
3. I keep a full set of washable filters on hand and change these filters every three years.
4. The 50micron spindown sediment filter gets cleaned as needed but never less than once per year.
5. Here is my process for the 3 large filters:
 - 1) I turn off the entire water system or by-pass the filter line.
 - 2) I remove the #1 filter first, then #2, then #3.
 - 3) For #1 & #2 I do the following –
 - a. I use my large filter spanner and carefully unscrew the filter cartridge. I will actually very gently turn the filter as if I am tightening just the tiniest bit, then unscrew it. Make sure you have a 5gal bucket to dump the water into. Watch that you don't lose track of the large O-ring that acts as a gasket.
 - b. I remove the filter and immediately wash it if it is not "change" time.
 - c. I then take a clean paper towel and completely dry the cartridge housing. The I do so again with another clean paper towel. I especially pay attention to the bottom of the filter cartridge. You will see some sediment on the paper towel.
 - d. Next I spray a small amount of a bleach cleaning solution on a clean paper towel and thoroughly clean the inside of the cartridge housing.
 - e. I then use a clean dry paper towel and wipe down the cartridge housing again.
 - f. I then place the washed filter cartridge, or new cartridge, in the cartridge housing.
 - g. Use that paper towel I then gently clean the O-ring by wiping it down.
 - h. Then I clean the O-ring groove on top of the cartridge housing removing any dirt and water.
 - i. Using a food grade silicone lubricant I coat the O-ring according to the manufacturers recommendation.
 - j. I place the O-ring into the cartridge housing making sure it is properly seated.
 - k. I then replace the cartridge into the cartridge housing top, making sure I don't dislodge the O-ring.
 - l. I tighten the cartridge housing as per manufacturer recommendations. NEVER over tighten!!
 - 4) For #3 I always replace it with a new Coconut Carbon Block Water Filter cartridge.
 - 5) I turn the system back on, check for leaks, and flush the system by flushing the toilet 3 – 4 times until the water is no longer tinted black. The black tint comes from the loose carbon particles coming off the new Coconut Carbon Block Water Filter cartridge.

NOTE: A neighbor stopped over to see my water system last week to get some ideas for his system. His first question was how often I change filters. I explained to him about my timing but I also explained to him that it depends entirely on amount of water passing through the filters. There are only two of us and the yard water only passes through the 50 micron spindown sediment filter. Dramatically reducing the total amount of water passing through the household 3-filter system. Since the filters are washable they could be washed whenever needed. The carbon filter is different, recommendations range from 2 – 6 months. However, that is very general. I look at the total amount of water passing through it, the quality of water passing through it, the whole water system, and if algae is developing on the filter. A closed system probably needs less changing, and presence of algae means you waited too long to change it. Our semi & annual timing works for us.

Present Filter Arrangement

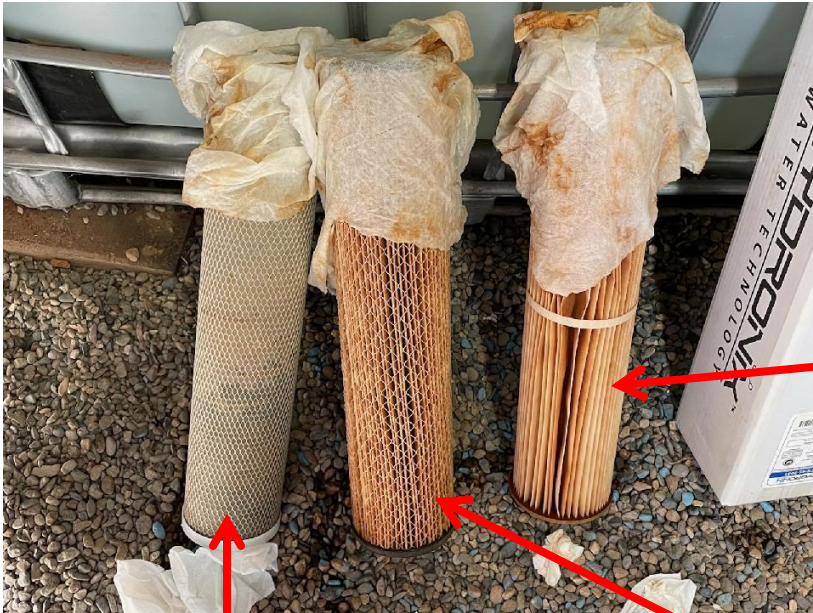


#1
5 Micron, washable filter

#2
1 Micron, washable filter

#3
Hydronix CB-45-2001 Whole House
Commercial & Industrial NSF
Coconut Carbon Block Water Filter, 1 Micron

Pictures of the filters that I just changed...



#1

10 Micron, Washable Filter

1. Notice the amount of sediment on this filter.
2. This is after a washing a year ago.
3. This is a Hydronix SPC-45-2010 filter cartridge.
4. The paper towel is the first paper towel used to clean the filter cartridge housing.
5. I changed this filter to a Hydronix SPC-45-2005.

#3

1 Micron, Carbon Filter

1. Notice there is almost no sediment on this filter.
2. This is after a changing a year ago.
3. This is a Hydronix CB-45-2001 filter cartridge.
4. The paper towel is the first paper towel used to clean the filter cartridge housing.

#1

1 Micron, Washable Filter

1. Notice the amount of sediment on this filter, just about as much as on Filter #1.
2. This is after a washing a year ago.
3. This is a Hydronix SPC-45-2001 filter cartridge.
4. The paper towel is the first paper towel used to clean the filter cartridge housing.

1. Filter cartridge spanner wrench.
2. I have one for each cartridge housing.
3. I use the spanner above the cartridge when changing filters. This keeps a single spanner from wearing out prematurely. And it ensures that I have 3 wrenches total...2 is 1, 3 is a good start.

1. A complete set of 3 replacement O-rings for the filter cartridge housings.
2. The package also contains the spare silicone lubricant.
3. The package also contains the instructions for changing the filters.
4. The package is normally on the wall with the spanner wrench.

