

Illustrated Tire Tank Installation Guidelines 12/15/2011

These guidelines have been adapted from guidelines developed by Herschel George – Kansas State University Watershed Specialist.

Select site for tank

- Need a minimum of 4 feet in difference between water level in pond and the top of the tank after installation
- If possible, the site should allow for an overflow pipe to daylight out back to the stream
- Avoid naturally wet areas or areas of surface flow, like the flow path from the emergency spillway



Choose the tire size needed and the type of opening.



- Smaller tires (such as the one on the left) will work for herds with cows or fewer numbers of yearlings.
- Larger tires (on the right) will be needed for larger cow herds or yearling pastures to ensure all have ample access to the water.
- You may also need to consider other watering locations available.
- The whole tire can be available for drinking or you can have half the tire available or cut small holes for drinking access

Plumb water lines to and from the proposed site.

- Ideal to have 1 ½ or 2 inch waterline to and from the tank
- Ideal to have flexible connector on both incoming and overflow lines at the tank
- Ideal to have brass or galvanized line coming into tank to connect to float valve



Note: Special attention should be paid to the area where the pipe goes through the dam. The trench in this area should be well compacted to ensure against seepage along the pipe. An anti-seep collar can also be used to help cut off any potential seeps.

Here is one example of an inlet assembly which can be used in the pond from which the water is flowing. This can be used on a new pond or slide out into an existing pond.



If the pond is not fenced, this assembly should be protected and supported by posts or other supports.

Cut Tire Opening

- This can be done offsite or after the tire is set on site

- Tools needed – Tire chalk, drill with large twist bit, reciprocating saw with metal cutting blade with 6 to 8 teeth per inch, cleaning and lubricating fluid (dish soap will work)
- Mark the desired cut line with tire chalk
- Cut and remove the center of the tire



It helps to have at least one other person to stabilize the saw and lubricate the blade as the cut is being completed. Supporting the cut part of the tire will also help prevent binding on the blade.



Level Site and Set Tire Into Site

- Ideal to have tire base into the ground at least a few inches
- Ideal to have geotextile around the tank to keep the gravel from sinking into the mud.
- Firm and tamp the gravel base under the tank
- Level tank using a tube level
- It is optional to place reinforcing for the concrete now or to use fiberglass reinforcing in the concrete



Tire is placed over geotextile and checked for level.



This is a close up of the geotextile used. Recommend extending it at least 8 feet beyond the outside of the tire and covering with gravel

Finish Plumbing Inlet and Overflow

- Plumb the inlet line so the bottom of the metal pipe threads are even with the top of the bottom tire bead (this will be the top of the concrete when poured)
- Lightly thread a female connector onto the top of the pipe with a 1 foot or longer piece of pipe to prevent concrete from getting into pipe or on the threads and to allow you to keep this as vertical as possible during concrete placement. Do NOT glue these pieces as they will be removed after the concrete has cured.
- Plumb the overflow so the top of the collar connector is just flush with the top of the bottom tire bead.
- Lightly place a 1 foot or longer piece of spare pipe into the connector but DO NOT glue it. This will be removed after the concrete has cured.



Plumbing the inside of the tank. Note the flexible connection used to account for shifting of the line or tank.



Herschel is holding the flexible connection he uses on the intake line.

Firm, Tamp and Fill the Center of the Tank

- Leave 4 to 6 inches of depth for the concrete to be placed. You can leave more but it will require more concrete.



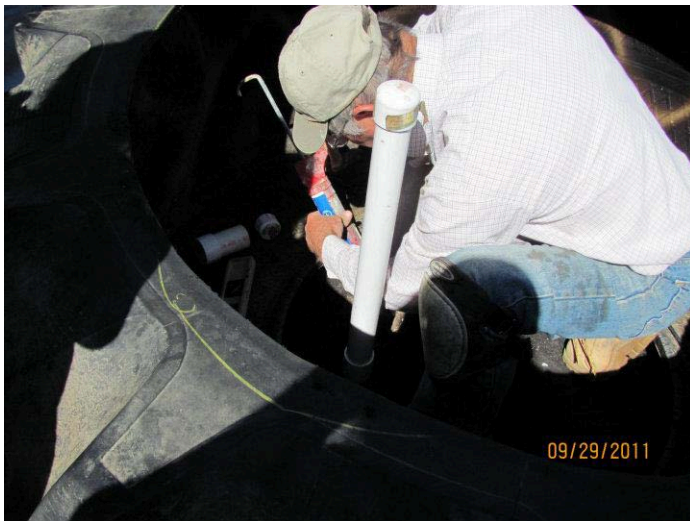
Inside of tire is filled with sand or lime screenings and tamped to allow 4 to 6 inches of concrete depth.

Install Silicone Beads to Seal Concrete Contact Points

- Place a heavy bead of silicone onto the bottom tire bead that will be in the concrete.
- Place heavy beads of silicone around the intake and overflow pipes about 2 inches down from the top of the concrete line.



A heavy bead of silicone helps seal the concrete to the tire rim.



Sealing with silicone around the inlet and outlet pipes helps to prevent leaks.

Mix the Concrete for the Tank Bottom

Concrete mixture tips from Herschel George: “I have been using a bagged concrete mix with some additions. I add a bit of Portland cement to the mix to make it a bit richer and stronger. I also add a bit of fiber reinforcing to the mix. It helps to maintain the material from cracking apart. Some tell me this is unnecessary, but for the cost it makes me feel better. Fiber adds about \$5 to the cost of a yard of concrete.”

- Mix the concrete with additives for the tire.
- Place concrete into the center through the bead opening only
- Work the concrete under the tire bead as best you can.
- Make sure the pipes are standing straight up as possible.
- If you are using reinforcing wire or rods, make sure they are in place.
- Continue pouring concrete until area below the tire is full to the top of the bead. Trowel the area smooth. You can have ½ inch of crown to the concrete if you desire.
- Check the level of the bottom of the threads on the inlet and the top of the collar for the outlet to make sure they are at the desired depths.



Beginning to place concrete mix. Make sure it is not too stiff to allow working it under the rim.



Working the concrete mix under the rim to ensure good contact.



Concrete is poured to desired level and ready for final troweling. Note relation of concrete to the tire bead and the joints on the inlet and overflow pipes.

Run Water Into the Tire

- Run water outside the concrete area so the water flows softly across the concrete
- Cover the concrete with at least 2 inches of water
- Be sure to protect the installation from disturbance if livestock are present
- Allow the concrete to cure under water preferably for 3 weeks



Tire with water filled to cover concrete for curing. Let this cure for 3 weeks.

Build Gravel Pad Around Tank

- Place coarse gravel around tank. Coarser gravel (2 inch or larger) will form a good base and keep livestock from loafing on gravel pad.
- Leave at least 18 inches of tire showing above finished gravel level.



Coarse gravel is placed around tire tank over geotextile fabric.



Good coarse gravel base will reduce disturbance and livestock loafing around the tank.

After the Concrete Cures (ideally 3 weeks) Install the Water Level Valve with Float

- Consider the refill rate needed when selecting a valve. Small valves cost less but have to slow of a refill rate to meet the demand
- Tanks installed using gravity flow from a pond may have very low pressure, account for this when selecting the valve. (Herschel often uses a valve from Watson Manufacturing Inc. Stock Water Control Products, P.O. Box 397, Morrill, NE 69358. <http://floatvalveusa.com/index.html>)
- Recommend to install a “break away” connection below the valve to protect the metal pipe threads and valve in case livestock do climb into the tank.
- If winter use is considered, install a winter minimum continuous flow valve to prevent freezing.
- Set float level for desired water depth
- May consider an “access shield” over the tank to discourage livestock from climbing into the tank.



Herschel is holding the break away section he recommends to protect the valve and pipe threads.



Showing the recommended valve and float assembly.



Showing the valve with a winter minimum continuous flow valve installed.

With the tank completed, you will now have a good watering location, providing quality water to your livestock. By fencing the pond, you will prolong the life of the pond, reduce the maintenance needed on the pond and protect the quality of the water supplying your new tank.



Note the assembly used here to keep livestock from crawling into the tank. Other options, like a 2 by 6 frame bolted to the top of the tire also work well.



Photos are courtesy of Ron Wells, Tallgrass Legacy Alliance; Paul Ingle Flint Hills WRAPS, and the Allen County Conservation District.