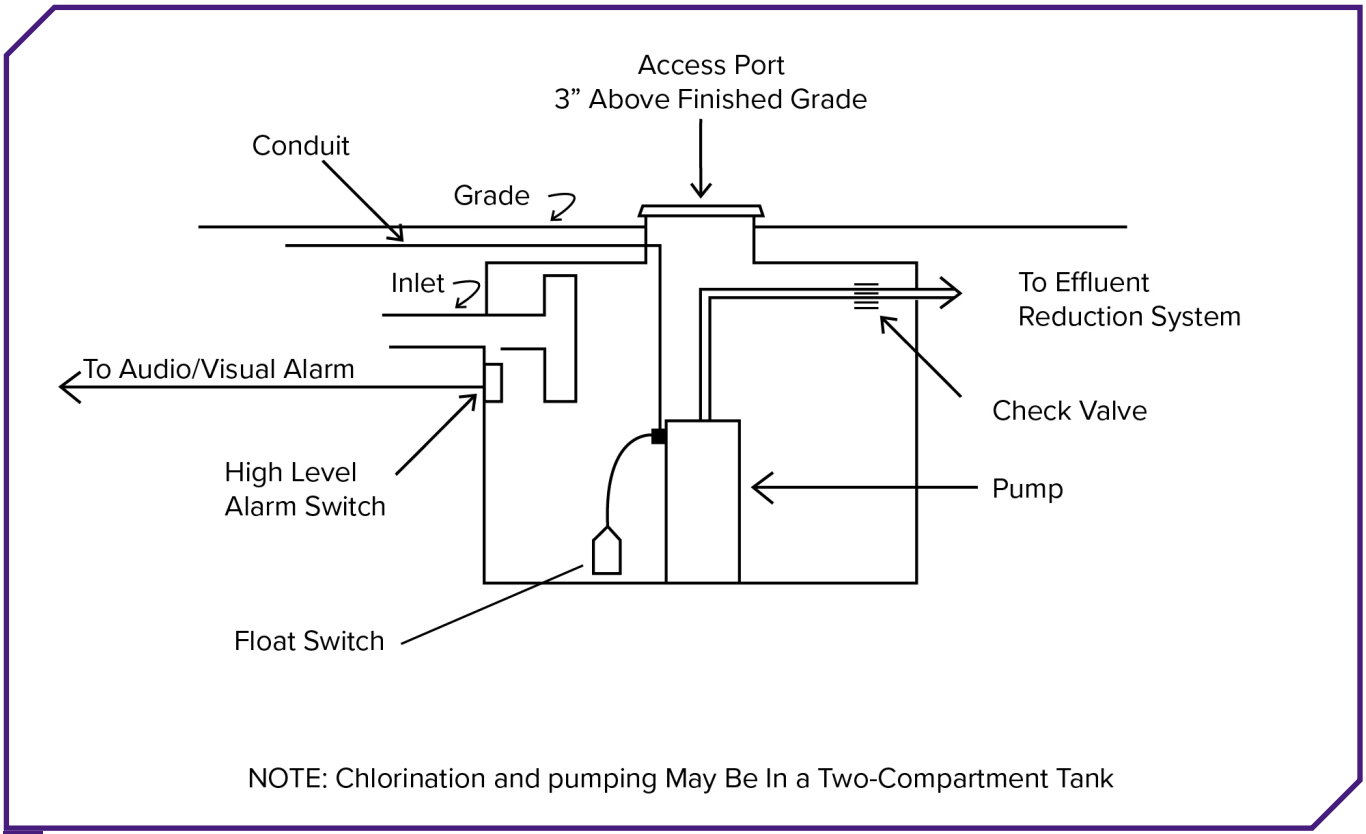
Wastewater Installers
Pumping Station

The use of a pumping station is required when the topography or elevation of the site prevents gravity flow of liquid from one location to another. The pumping station can be a part of any orientation septic unit series including conventional septic/absorption field systems, aerobic treatment units and other configurations using effluent reduction or distribution methods.

Design

The pumping station consists of a holding tank, pump, piping and electrical controls that are used to store and move liquid between treatment methods. The pumps (impellers and castings) must be constructed of corrosive-resistant materials that can handle peak flow rates for the corresponding septic systems. The plans for a pumping station should take into consideration the gallons per day of the unit to account for the volume of wastewater effluent to store and transport. The holding tank will also be constructed of the same materials as a standard septic tank. These materials must be resistant to hydrogen sulfide (H2S) corrosion. The holding tanks will have a minimum diameter of 24 inches to store effluent from the treatment process. The station should be built on a stable, long-term foundation to prevent the floating of the tank due to the high water table. All holding tanks, gaskets, grooves and covers must be watertight, including wall seams, tank floor and openings between pipes and wires. Additionally, all covers and access openings will be greater than 3 inches above ground, to prevent the entrance of surface runoff water. The cover should be greater than 12 inches in diameter for accessibility to perform maintenance. The preferred method of maintenance minimizes contact with the wastewater, so the installation of a pumping system should allow personnel quick, convenient disconnection from discharge piping and electrical wiring. The foundation and location should be open and suitable for lifting the pump from the holding chamber for maintenance with minimal exposure to the effluent in the tank.

Pumping station installation for septic system.
Photo by Richard Grabert.



Schematic from Louisiana Department of Health Code.

Pump and Electrical Controls

Pumps should be cycled in a manner not to disturb downstream systems. If there is too much flow from the pump, the downstream treatment processes could be less efficient and thus ineffective. There will be three water level controls that will automatically operate the pump system:

- **Pump off:** This level shall be set at the minimum liquid depth as recommended by the specific pump’s manufacturer.
- **Pump on:** This level shall be set to provide a minimum working volume of 10% of the average daily design flow.
- **High water alarm:** This level shall be set to provide for a net storage volume between the “pump on” level and the “high water alarm” level of 10% of the average daily design flow.

An installer can also consider a reserve volume between the high water level and the invert of the inlet pipe to the holding tank. Raw sewage pumps and piping must accommodate the passage of 2-inch solids. Piping should not be less than 1.25 inches in diameter and be capable of withstanding a pressure of 75 psi.

For the electrical controls, there will be an audible and visible high water alarm to alert the owner when there is an issue with the system. This alarm will have a conveniently located reset button for the audible signal for accessibility. The pump must be wired for automatic level control with a manual override located at the control panel. All conduits must be accounted for in the electrical work and connection to the main house must be up to code. In addition, a ground fault interrupt (GFI) required for mechanical plants should also be used for pump stations.

Additional Requirements

The Office of Public Health does **not** have the authority to inspect or approve electrical connections, is not qualified in the area of such electrical connections and will not assume responsibility for such electrical safety considerations. Plans must include proper specifications for electrical connections like air pumps or mechanical units.

References

- https://www.doa.la.gov/media/j3hnpfdy/51.pdf
- https://ldh.la.gov/page/wastewater

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