Livestock Pipeline

Definition
A pipeline and the necessary appurtenances installed to convey water from its source to a facility for livestock drinking water.

General Information
A livestock pipeline is part of the system used to provide water for livestock. The watering system could be to facilitate rotational grazing or when the livestock have been excluded from water sources for environmental concerns. The water source for the system could be from a pond, spring, stream, groundwater well or rural water supply. The pipeline delivers the water generally to a trough, tank, or manufactured waterer.

Pipe Material
Livestock pipelines are made from PVC (Poly Vinyl Chloride), PE (Polyethylene), or ABS (Acrylonitrile Butadiene Styrene). The minimum wall thickness is specified by the technician or engineer according to the pressure requirements of the system.

Capacity
The pipeline is to be large enough diameter to convey the flow rate needed for the number of livestock. A minimum ¾ inch diameter pipe is needed for pressurized systems like a well supply or public water supply. For gravity flow systems like from a pond or spring, a minimum of 1.25 inch diameter is needed. Larger diameters may be required depending upon flow rates and velocities in the pipe system.

If the system is planned to have a future expansion, make sure the pipe sizes and ratings are appropriate for the expansion.

Appurtenances
Along with the pipeline, there may be several other appurtenances (valves, fitting, etc.) that may be required. When pumping from a groundwater well, a check valve is...
required to prevent backflow. Pressure relief valves can be used to prevent excessive pressures in the system. A pressure reducing valve is often needed when the pipeline is connected to a rural water system. Air vents can also be needed to prevent air locking, hydraulic issues, or pipe collapse.

A pressurized system needs a float valve at the trough or tank to provide automatic water level control. The pipeline outlet and water level control (float valve) are to be designed and installed to prevent damage by livestock, freezing, and ice. This means that the water supply is generally plumbed into the bottom of the tank or trough with a submerged float valve.

Installation

Prior to installation (before excavating the trench) call the Alabama ONE CALL (811 or 1-800-292-8525) to locate all underground utilities in the vicinity.

Select pipe routes that will minimize the number of high and low spots in the lines. High spots may require air valves, and low spots may require drains.

The pipeline is to be buried at a depth below the ground surface to provide protection from vehicular traffic (usually 2 ft. or more), farming operations (well below any potential plow depth), freezing temperatures (about 1.5 ft., or maybe more in North Alabama), or soil cracking (could be up to 3 ft. in some Blackland Prairie Soils). After the pipeline is connected and before it is buried, a pressure test should be performed to check for leaks. Backfill in the pipe trench should be soil (no rocks against the pipe) and compacted to prevent settlement which may create a hazard for livestock and could lead to erosion along the pipe trench.

After the pipeline is installed and covered, the disturbed area should be vegetated according to NRCS’s Critical Area Planting (342) standard and guide sheet.

Operation and Maintenance

The initial filling of the pipeline shall be done so as to prevent entrapment of air or excessive pressures. Consider marking the pipeline location for future reference and maintenance needs. Pressure gauges on the system can help with operation and quickly identify problems (leaks).

References

NRCS AL Conservation Practice Standards:
   Livestock Pipeline - Code 516
   Critical Area Planting - Code 342