

**NATURAL RESOURCES CONSERVATION SERVICE
PACIFIC ISLANDS AREA**

CONSERVATION PRACTICE SPECIFICATION

PIPELINE

SCOPE

This specification covers the installation of pipelines for livestock, wildlife or recreational use. Construction shall be in accordance with the plans and these specifications.

INSTALLATION

Materials. Materials for pipelines shall meet the requirements shown in the plans and be field inspected for deficiencies prior to installation.

Steel pipe shall meet the requirements of AWWA Specification C-200.

Plastic pipe shall conform to the requirements of the following ASTM specifications, as applicable:

D 1527 Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80

D 1785 Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

D 2104 Polyethylene (PE) Plastic Pipe, Schedule 40

D 2239 Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter

D 2241 Poly(Vinyl Chloride) (PVC), Pressure-Rated Pipe (SDR)

D 2282 Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR)

D 2447 Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter

D 2513 Thermoplastic Gas Pressure Pipe, Tubing and Fittings

D 2737 Polyethylene (PE) Plastic Tubing

D 2672 Joints for IPS PVC Using Solvent Cement

D 3035 Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter

AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches through 12 inches

AWWA C901 Polyethylene (PE) Pressure Pipe and Tubing, ½ inch through 3 inches

High density polyethylene pipe (HDPE) shall be identified as Type III, Class C, Category 5, Grade P34. Materials for HDPE pipe shall be PE 3408 and have properties that conform to the requirements of the following ASTM specifications, as applicable:

D 1248 Polyethylene Plastics Molding and Extrusion Materials

D 3350 Polyethylene Plastics Pipe and Fitting Materials

Plastic pressure pipe fittings shall conform to the following ASTM specifications, as applicable:

D 2464 Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80

D 2466 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40

D 2467 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80

D 2468 Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings, Schedule 40

D 2609 Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe

D 2683 Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing

D 3139 Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

D 3261 Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing

Solvents for solvent-welded plastic pipe joints shall conform to the following ASTM specifications, as applicable:

D 2235 Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings

D 2564 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings

D 2855 Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings

Rubber gaskets for pipe joints shall conform to the requirements of ASTM F477, Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

Placement. Pipelines shall be placed so they are protected against hazards imposed by traffic, livestock, farm operations, or soil cracking.

Plastic pipe shall be buried or covered with soil for protection from sunlight and the hazards mentioned above. Depth of cover should be 6 inches in locations where the pipeline is not subject to hazards from traffic or farm operations and protection is needed from sunlight only. If protection is needed from traffic and farm operations, the minimum depth of cover should be 18 inches.

Trenches for plastic pipelines shall be free of rocks and other sharp-edged materials. Plastic pipelines may be placed by "plow-in" equipment where soils are suitable and rocks and boulders will not be detrimental to the pipe.

High-density polyethylene pipe, Grade 34, PE 3408, may be laid in a "snake-like" position on ground surface at locations where minimal hazards are imposed by fire, farm operations, and traffic. At vehicle crossings, encasement of pipe or other approved methods shall be used. In areas where burning is very likely, such as pineapple and sugarcane fields, the pipe shall be buried a minimum of 18 inches. Pipes laid on steep slopes should be anchored to control creep and resulting added stresses.

Joints and Connections. All joints and connections shall be made to withstand the design maximum working pressure for the pipeline without leakage and shall leave the inside of the line free of any obstruction that may reduce its capacity below design requirements.

All fittings, such as couplings, reducers, bends, tees, and crosses, shall be installed in accordance with the recommendations of the pipe manufacturer.

Pressure Testing. Before backfilling, the pipe shall be filled with water and tested at design working head or a minimum head of 10 feet, whichever is greater. All leaks shall be repaired and the test repeated before backfilling.

Plowed-in pipelines will be pressure tested at the working pressure for 2 hours. The allowable leakage shall not be greater than one gallon per diameter inch per mile. Should the test exceed

this rate, the defect shall be repaired until retests show that the leakage is within the allowable limits, but all visible leaks must be repaired.

Backfilling. All backfilling shall be completed before the line is placed in service. The backfilling may be done using either hand, mechanical, or water-packing methods.

The initial backfill material shall be selected soil or sand free from rocks or stones larger than one inch in diameter. At the time of placement, the moisture content of the material shall be such that the required degree of compaction can be obtained with the backfill method to be used. The initial backfill material shall be so placed that the pipe will not be displaced, excessively deformed, or damaged.

When hand or mechanically backfilling, the initial fill shall be compacted firmly around and above the pipe as required to provide adequate lateral support to the pipe.

When water packing is used, the pipeline first shall be filled with water. The initial backfill, before wetting, shall be of sufficient depth to insure complete coverage of the pipe after consolidation has taken place. Water packing is accomplished by adding water to diked reaches of the trench in such quantity as to thoroughly saturate the initial backfill without excessive pooling of water. After saturation, the pipeline shall remain full until after final backfill is begun.

Backfill of plastic pipe should be done after the pipe reaches the same temperature as the water or soil. This can be done in a number of ways such as filling with water or by leaving the trench open overnight before backfilling.

BASIS OF ACCEPTANCE

The acceptability of this practice shall be determined by inspections to insure compliance with all the provisions of this specification and to the drawings.

WORKMANSHIP

All construction shall be performed in a workmanlike manner, and the job site shall have a neat appearance when finished.

All disturbed areas not graveled or paved will be vegetated to control erosion.

CONSTRUCTION OPERATIONS

Construction operations shall be carried out in such a manner and sequence that erosion and air and water pollution are minimized and held within legal limits.

The owner, operator, contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

SAFETY

Landowners or operators, sponsoring organizations, and contractors shall be liable for damage to utilities and damage resulting from disruption of service caused by construction activities. The Natural Resources Conservation Service makes no representation on the existence or non-existence of any utilities. Absence of utilities on the drawings is not assurance that no utilities are present at the site.

It is the responsibility of the landowner or operator to determine if there are buried or overhead utilities in the vicinity of the proposed work. They should take proper procedures to insure that the utilities shall not be jeopardized and that equipment operators and others will not be injured during construction operations.