

**Practice:** 516 - Livestock Pipeline

**Scenario:** #1 - PVC IPS Less than 1.5 inches

**Scenario Description:** Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1-inch. Construct 1,320 feet of 1-inch, Schedule 40, PVC Pipeline with appurtenances, installed below ground with a minimum 1.5 feet of ground cover. The scenario unit is weight of pipe material in pounds. 1,320 feet of 1-inch, Schedule 40, PVC pipe weighs 0.240 lb/ft, or a total of 317 pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 10% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

**Before Situation:** Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

**After Situation:** Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

**Scenario Feature Measure:** Length of Pipe

**Scenario Unit:** Foot

**Scenario Typical Size:** 1320

**Total Scenario Cost:** \$2,858.83

**Scenario Cost/Unit:** \$2.17

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Equipment Installation**

Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	\$1.15	1320	\$1,523.86
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**Labor**

General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$22.04	12	\$264.52
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**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$227.64	2	\$455.29
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**Materials**

Pipe, PVC, dia. < 18", weight priced	1323	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	\$1.77	348	\$615.17
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**Practice:** 516 - Livestock Pipeline

**Scenario:** #2 - PVC IPS 1.5 inches - 2.5 inches

**Scenario Description:** Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1½-inch. Construct 1,320 feet of 1½-inch, Schedule 40, PVC Pipeline with appurtenances, installed below ground with a minimum 1.5 feet of ground cover. The scenario unit is weight of pipe material in pounds. 1,320 feet of 1½-inch, Schedule 40, PVC pipe weighs 0.501 lb/ft, or a total of 661 pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 10% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

**Before Situation:** Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

**After Situation:** Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

**Scenario Feature Measure:** Length of Pipe

**Scenario Unit:** Foot

**Scenario Typical Size:** 1320

**Total Scenario Cost:** \$3,528.79

**Scenario Cost/Unit:** \$2.67

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Equipment Installation**

Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	\$1.15	1320	\$1,523.86
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**Labor**

General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$22.04	12	\$264.52
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**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$227.64	2	\$455.29
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**Materials**

Pipe, PVC, dia. < 18", weight priced	1323	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	\$1.77	727	\$1,285.13
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**Practice:** 516 - Livestock Pipeline

**Scenario:** #3 - PVC IPS 3 inches and greater

**Scenario Description:** Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 3-inch. Construct 1,320 feet of 3-inch, Schedule 40, PVC Pipeline with appurtenances, installed below ground with a minimum 1.5 feet of ground cover. The scenario unit is weight of pipe material in pounds. 1,320 feet of 3-inch, Schedule 40, PVC pipe weighs 1.390 lb/ft, or a total of 1,835 pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 10% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

**Before Situation:** Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

**After Situation:** Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

**Scenario Feature Measure:** Length of Pipe

**Scenario Unit:** Foot

**Scenario Typical Size:** 1320

**Total Scenario Cost:** \$5,987.26

**Scenario Cost/Unit:** \$4.54

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Equipment Installation**

Trenching, Earth, 12" x 48"	53	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	\$1.15	1320	\$1,523.86
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**Labor**

General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$22.04	20	\$440.86
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**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$227.64	2	\$455.29
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**Materials**

Pipe, PVC, dia. < 18", weight priced	1323	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	\$1.77	2018	\$3,567.25
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**Practice:** 516 - Livestock Pipeline

**Scenario:** #6 - Surface HDPE (Iron Pipe Size & Tubing)

**Scenario Description:** Description: on-ground surface installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1¼-inch. Construct 400 feet of 1¼-inch, Class 200 (SDR-9.0, PE4708), HDPE Pipeline with appurtenances, installed on the ground surface. Typical size range of pipe installed: 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. 400 feet of 1¼-inch, Class 200 (SDR-9.0, PE4708), HDPE pipe weighs 0.362 lb/ft, or a total of 145 pounds. Appurtenances include: couplings, fittings, anchors, gate valves (1), air release valves (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 5% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

**Before Situation:** Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

**After Situation:** Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

**Scenario Feature Measure:** Length of Pipe

**Scenario Unit:** Foot

**Scenario Typical Size:** 400

**Total Scenario Cost:** \$580.13

**Scenario Cost/Unit:** \$1.45

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Labor**

General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$22.04	4	\$88.17
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**Mobilization**

Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$62.86	2	\$125.72
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**Materials**

Pipe, HDPE, smooth wall, weight priced	1379	High Density Polyethylene (HDPE) compound manufactured into smooth wall pipe. Materials only.	Pound	\$2.10	152	\$318.65
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**Equipment Installation**

Fuser for HDPE Pipe	1383	Fusing machine for 1" to 12" diameter HDPE pipe joints. Equipment costs only. Does not include labor.	Hour	\$23.79	2	\$47.59
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