Scenario Worksheet

Practice and Scenario Description:	
Information Type	**Data**
Region	Appalachian
State	North Carolina
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	5
Scenario Name	HDPE (Iron Pipe Size & Tubing) ≤ 8"
Scenario Description	**Description:** Below ground 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 2-inch to 24-inch; and typical scenario size is 6-inch. Construct 1/4 mile (1,320 feet) of 6-inch, Class 130 (SDR-13.5), HDPE pipeline with appurtenances, installed below ground with a minimum 2 feet of ground cover. The unit is weight of pipe material in pounds. 1,320 feet of 8-inch, Class 130 (SDR-13.5), HDPE weighs 4.024 lb/ft, or a total of 5,312 pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. **Resource Concerns:** Inefficient Use of Irrigation Water; Inefficient Energy Use. **Associated Practices:** 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Length of Pipe
Scenario Unit	Foot
Scenario Typical Size	1,320

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$14,198.49	$10.76
Equipment/Installation	$1,690.64	$1.28
Labor	$597.44	$0.45
Mobilization	$185.20	$0.14
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$16,671.77	$12.63

Cost Details:

Select Components

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost	Component Justification	Quantity Justification
Materials	1379	Pipe, HDPE, smooth wall, weight priced	High Density Polyethylene (HDPE) compound manufactured into smooth wall pipe. Materials only.	Pound	$2.43	5843	$14,198.49		(4.024 lbs/ft * 1320 ft)*1.10 = 5843 lbs
Equipment/Installation	1383	Fuser for HDPE Pipe	Fusing machine for 1" to 12" diameter HDPE pipe joints. Equipment costs only. Does not include labor.	Hour	$22.34	16	$357.44		Fuse joints of 1,320 feet of pipe
Equipment/Installation	53	Trenching, Earth, 12" x 48"	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.01	1320	$1,333.20		Trench for 1,320 feet of pipe
Labor	231	General Labor	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	$18.67	32	$597.44		Lay 1,320 feet of pipe
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$92.60	2	$185.20		Trencher move in & out

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Appalachian
State	North Carolina
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	6
Scenario Name	PVC (Plastic Irrigation Pipe) ≤ 8"
Scenario Description	**Description:** Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch; and typical scenario size is 6-inch. Construct 1/4 mile (1,320 feet) of 6-inch, Class 50 (SDR-81.0), PVC PIP with appurtenances, installed below ground with a minimum of 2 feet of ground cover. The unit is weight of pipe in pounds. 1,320 feet of 6-inch, Class 50 (SDR-81.0) PVC PIP weighs 0.936 lb/ft, or a total of 1,236 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. **Resource Concerns:** Inefficient Use of Irrigation Water; Inefficient Energy Use. **Associated Practices:** 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Length of Pipe
Scenario Unit	Foot
Scenario Typical Size	1,320

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,889.01	$1.43
Equipment/Installation	$1,333.20	$1.01
Labor	$896.16	$0.68
Mobilization	$185.20	$0.14
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$4,303.57	$3.26

Cost Details: Select Components

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost	Component Justification	Quantity Justification
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	1359	$1,889.01		(0.936 lbs/ft * 1320 ft)*1.10 = 1359 lbs
Equipment/Installation	53	Trenching, Earth, 12" x 48"	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.01	1320	$1,333.20		Trench for 1,320 feet of pipe
Labor	231	General Labor	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	$18.67	48	$896.16		Laying 1,320 feet of pipe
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$92.60	2	$185.20		Trencher move in & out