

Practice: 634 - Waste Transfer

Scenario # 1 Inlet and Reception Pit, less than 1000 gal, with pipe

Scenario Description: Actual Scenario # 1

New York

Installation for a wastewater collection system that includes materials and structures to collect liquids of a design volume less than 1000 gallons such as silage leachate, lot runoff and other contaminated liquid effluent. This may include curbs, screens, precast manholes, sumps or catch basins. The wastewater will typically be transferred from the collection basin to a waste storage facility through a gravity or low pressure pipe.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots.

Before Practice Situation:

Inadequate storage is available to collect wastewater from an operation that may contaminate surface or groundwater resources. The liquids contain few solids or limited solids that can be easily screened out without blocking the collection intake.

After Practice Situation:

This practice scenario is suitable where the estimated design volume for wastewater transfer is less than 1000 gallons of contaminated liquid that may flow from silage bunkers or animal lot areas after a precipitation event. The practice scenario typically includes materials and installation of flat and formed concrete for curbs and/or gutters to collect liquids. With the installation of a precast 5' dia. manhole with lid or catch basin with grate. The cost includes excavation, placement of bedding as needed, placement of structure and backfill with construction of concrete inlet collection area and 150 LF of 6" pipe to transfer liquids to final location, a waste storage facility. Transfer pump if needed must be contracted under pumping plant, PS 533.

Scenario Feature Measure:

Collection volume installed

Scenario Typical Size:	1000	Gallon	Tot Unit Cost	\$6.42
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Ungraded,	5	Cubic yard	\$20.83	\$104.15
Materials	Catch Basin, concrete, 60" dia.	1	Each	\$2,060.23	\$2,060.23
Materials	Pipe, PVC, 6", SCH 40	150	Foot	\$6.52	\$978.00
Equip./Install.	Concrete, CIP, formed reinforced	2	Cubic yard	\$477.12	\$954.24
Equip./Install.	Concrete, CIP, slab on grade,	4	Cubic yard	\$221.81	\$887.24
Equip./Install.	Backhoe, 80 HP	8	Hour	\$61.42	\$491.36
Labor	Equipment Operators, Heavy	8	Hour	\$36.55	\$292.40
Labor	Supervisor or Manager	8	Hour	\$45.77	\$366.16
Mobilization	Mobilization, medium equipment	1	Each	\$282.78	\$282.78

Payment types:

Total Cost: \$6,416.56

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$4.81	EQIP-HU	\$5.77
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 2 Inlet and Reception Pit, 1k to 5k gal, with pipe

Scenario Description: Actual Scenario # 2

New York

Installation for a wastewater collection system that includes materials and structures to collect liquids of a design volume between 1000 and 5000 gallons such as silage leachate, lot runoff and other contaminated liquid effluent. This scenario includes a reinforced concrete manure reception pit for temporary storage and transfer of manure and wastewater for an animal operation. Reception Pit includes safety fence w/gate or solid/grated cover. The wastewater will typically be transferred from the collection basin to a waste storage facility through a gravity or low pressure flow pipe.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots.

Before Practice Situation:

Inadequate storage is available to collect wastewater from an operation that may contaminate surface or groundwater resources.

After Practice Situation:

This practice scenario is suitable where the estimated design volume for waste collection and transfer is between 1000 and 5000 gallons of liquid waste. The practice scenario typically includes materials and installation of flat and formed concrete for curbs and gutters to collect liquid slurry waste and the installation of an 8'x12'x6' reinforced concrete reception pit formed in place that includes safety fence w/gate or solid/grated cover. The cost includes excavation, placement of subgrade as needed, forming, pouring and finishing of concrete structure and backfilling and 150' of 6" pipe to move liquids to final location. Transfer pump if needed must be contracted under pumping plant, PS 533.

Scenario Feature Measure:

Collection volume installed

Scenario Typical Size:	4300	Gallon	Tot Unit Cost	\$2.94
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 6", SDR 35	150	Foot	\$3.69	\$553.50
Materials	Aggregate, Gravel, Ungraded,	12	Cubic yard	\$20.83	\$249.96
Materials	Safety chain tractor barrier	40	Foot	\$2.81	\$112.40
Equip./Install.	Concrete, CIP, formed reinforced	14	Cubic yard	\$477.12	\$6,679.68
Equip./Install.	Concrete, CIP, slab on grade,	6	Cubic yard	\$221.81	\$1,330.86
Equip./Install.	Backhoe, 80 HP	12	Hour	\$61.42	\$737.04
Equip./Install.	Demolition, concrete	3	Cubic Yard	\$19.15	\$57.45
Labor	General Labor	48	Hour	\$23.16	\$1,111.68
Labor	Equipment Operators, Heavy	12	Hour	\$36.55	\$438.60
Labor	Supervisor or Manager	24	Hour	\$45.77	\$1,098.48
Mobilization	Mobilization, medium equipment	1	Each	\$282.78	\$282.78

Total Cost: \$12,652.43

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$2.21	EQIP-HU	\$2.65
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer**Scenario # 3 Inlet and Reception pit, over 5000 gal****Scenario Description: Actual Scenario # 3****New York**

Installation for a wastewater collection system that includes materials and structures to collect liquids of a design volume greater than 5000 gallons such as lot runoff, manure slurry and other contaminated liquid effluent. The wastewater collected in this pit is intended to be transferred to final storage within a 48 hour period. This scenario includes a reinforced concrete manure reception pit for temporary storage and transfer of manure and wastewater for an animal operation. Reception Pit includes safety fence w/gate or solid/grated cover. The wastewater will typically be transferred from the collection basin to a waste storage facility through a gravity or low pressure flow conduit.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots.

Before Practice Situation:

Inadequate storage is available to collect wastewater from an operation that may contaminate surface or groundwater resources.

After Practice Situation:

This practice scenario is suitable where the estimated maximum design volume for wastewater collected is greater than 5000 gallons of liquid waste within 48 hours or before it is stored or treated. The practice scenario typically includes materials and installation of flat and formed concrete for curbs and gutters inlet area to collect liquid slurry waste and the installation of an 12 ft wide x 16 ft long x 6 ft deep reinforced concrete reception pit formed in place that includes safety fence w/gate or solid/grated cover. The cost includes excavation, placement of subgrade as needed, forming, pouring and finishing of concrete structure and backfilling and 150' of 6" pipe to transfer to final location. Transfer pump if needed must be contracted under pumping plant, PS 533.

Scenario Feature Measure:

Collection volume installed

Scenario Typical Size:	8600	Gallon	Tot Unit Cost	\$2.76
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Equip./Install.	Dozer, 80 HP	12	Hour	\$73.71	\$884.52
Equip./Install.	Concrete, CIP, formed reinforced	22	Cubic yard	\$477.12	\$10,496.64
Equip./Install.	Concrete, CIP, slab on grade,	11	Cubic yard	\$221.81	\$2,439.91
Equip./Install.	Demolition, concrete	4	Cubic Yard	\$19.15	\$76.60
Labor	Supervisor or Manager	40	Hour	\$45.77	\$1,830.80
Materials	Safety chain tractor barrier	60	Foot	\$2.81	\$168.60
Materials	Aggregate, Gravel, Ungraded,	15	Cubic yard	\$20.83	\$312.45
Equip./Install.	Backhoe, 80 HP	32	Hour	\$61.42	\$1,965.44
Equip./Install.	Tractor, agricultural, 120 HP	16	Hour	\$59.90	\$958.40
Labor	Equipment Operators, Light	28	Hour	\$24.05	\$673.40
Labor	General Labor	80	Hour	\$23.16	\$1,852.80
Labor	Equipment Operators, Heavy	32	Hour	\$36.55	\$1,169.60
Mobilization	Mobilization, small equipment	2	Each	\$190.19	\$380.38
Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56

Payment types:

Total Cost: \$23,775.10

<u>PayType</u>	<u>Unit Payment</u>	<u>PayType</u>	<u>Unit Payment</u>
EQIP	\$2.07	EQIP-HU	\$2.49
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 4 Concrete channel

Scenario Description: Actual Scenario # 6

New York

Installation of a concrete channel that consists of a slab with curb and footing on each side of the slab for the entire length of the channel to enable the facility manager to direct liquid waste to an existing collection basin and/or waste storage facility. Acceptable safety system exists or is not needed.

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Practice Situation:

Typical installation of a 12 foot wide 100' long concrete channel that consists of a 5" thick concrete slab with curbing on each side of the slab that is 2' high, 6" thick with footing for the entire length. The purpose is to transfer liquids or manure slurry from one area to an existing collection basin or waste storage facility. Safety system already exists or is not needed.

Alternative configurations can consist of the installation of a more narrow or wider channel that may or may not have curbs or a deeper shaped channel and may include a half pipe on the bottom.

Scenario Feature Measure:

Bottom surface area of concrete channel

Scenario Typical Size:	1200	Square Foot	Tot Unit Cost	\$11.68
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Ungraded,	26	Cubic yard	\$20.83	\$541.58
Equip./Install.	Concrete, CIP, slab on grade,	26	Cubic yard	\$221.81	\$5,767.06
Equip./Install.	Concrete, CIP, formed reinforced	11	Cubic yard	\$477.12	\$5,248.32
Equip./Install.	Backhoe, 80 HP	12	Hour	\$61.42	\$737.04
Equip./Install.	Demolition, concrete	4	Cubic Yard	\$19.15	\$76.60
Labor	General Labor	12	Hour	\$23.16	\$277.92
Labor	Equipment Operators, Heavy	12	Hour	\$36.55	\$438.60
Labor	Supervisor or Manager	8	Hour	\$45.77	\$366.16
Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56

Total Cost: \$14,018.84

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$8.76	EQIP-HU	\$10.51
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 5 Short Scrape with safety gate, less than 20 LF

Scenario Description: Actual Scenario # 7

New York

Installation of a short concrete channel (< 20 LF) that consists of a slab with curb and footing on each side of the slab for the entire length of the channel to enable the facility manager to direct liquid waste to a collection basin and/or waste storage facility at the end of a push-off ramp. A safety gate is installed at the end of the push-off ramp.

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Practice Situation:

Typical installation of a 12 foot wide 15' long concrete channel that consists of a 8" thick concrete slab with curbing on each side of the slab that is 2' high, 8" thick with footing for the entire length. The push-off ramp ends with a Safety gate that swings to allow waste to be moved into the storage facility. The purpose is to transfer liquids or manure slurry from one area to a collection basin or waste storage facility. Includes safety gate for human and animal exclusion.

Alternative configurations can consist of the installation of a more narrow or wider channel that may or may not have curbs or a deeper shaped channel and may include a half pipe on the bottom.

Scenario Feature Measure:

Each

Scenario Typical Size:	1	Each	Tot Unit Cost	\$3,206.44
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Graded	4	Cubic yard	\$30.22	\$120.88
Materials	Safety gate, span manure transfer	14	Foot	\$14.92	\$208.88
Equip./Install.	Concrete, CIP, slab on grade,	6	Cubic yard	\$221.81	\$1,330.86
Equip./Install.	Concrete, CIP, formed reinforced	2	Cubic yard	\$477.12	\$954.24
Equip./Install.	Backhoe, 80 HP	2	Hour	\$61.42	\$122.84
Labor	General Labor	2	Hour	\$23.16	\$46.32
Labor	Equipment Operators, Light	2	Hour	\$24.05	\$48.10
Labor	Supervisor or Manager	2	Hour	\$45.77	\$91.54
Mobilization	Mobilization, medium equipment	1	Each	\$282.78	\$282.78

Payment types:

Total Cost: \$3,206.44

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$2,404.83	EQIP-HU	\$2,885.80
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 6 Long Scrape with Pushoff, 20LF or greater

Scenario Description: Actual Scenario # 8

New York

Installation of a long concrete channel (=> 20 LF) that consists of a slab with curb and footing on each side of the slab for the entire length of the channel to enable the facility manager to direct liquid waste into a waste storage facility. A safety gate is installed at the end of the scape channel.

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Practice Situation:

Typical installation of a 12 foot wide 60' long concrete channel that consists of a 5" thick concrete slab with curbing on each side of the slab that is 2' high, 6" thick with footing for the entire length. The last 10' is 8" thick at the tank wall for a push-off with safety gate that allows the waste to be moved into the storage facility. The purpose is to transfer liquids or manure slurry from one area to a collection basin or waste storage facility. Includes safety gate for human and animal exclusion.

Alternative configurations can consist of the installation of a more narrow or wider channel that may or may not have curbs or a deeper shaped channel and may include a half pipe on the bottom.

Scenario Feature Measure:

Bottom surface area of concrete channel

Scenario Typical Size:	720	Square Foot	Tot Unit Cost	\$12.22
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Ungraded,	16	Cubic yard	\$20.83	\$333.28
Materials	Safety gate, span manure transfer	14	Foot	\$14.92	\$208.88
Equip./Install.	Concrete, CIP, slab on grade,	14	Cubic yard	\$221.81	\$3,105.34
Equip./Install.	Concrete, CIP, formed reinforced	7	Cubic yard	\$477.12	\$3,339.84
Equip./Install.	Backhoe, 80 HP	8	Hour	\$61.42	\$491.36
Equip./Install.	Demolition, concrete	5	Cubic Yard	\$19.15	\$95.75
Labor	General Labor	8	Hour	\$23.16	\$185.28
Labor	Equipment Operators, Heavy	8	Hour	\$36.55	\$292.40
Labor	Supervisor or Manager	4	Hour	\$45.77	\$183.08
Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56

Total Cost: \$8,800.77

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$9.17	EQIP-HU	\$11.00
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 7 Concrete channel to Basin

Scenario Description: Actual Scenario # 9

New York

Installation of a concrete channel that consists of a slab with curb and footing on each side of the slab for the entire length of the channel to enable the facility manager to direct liquid waste to a 4300 gallon wastewater collection basin and/or waste storage facility.

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Practice Situation:

Typical installation of a 12 foot wide 100' long concrete channel that consists of a 5" thick concrete slab with curbing on each side of the slab that is 2' high, 6" thick with footing for the entire length. The purpose is to transfer liquids or manure slurry from one area to a 8'x12'x6' collection basin or waste storage facility. Includes safety chain around the basin for equipment.

Alternative configurations can consist of the installation of a more narrow or wider channel that may or may not have curbs or a deeper shaped channel and may include a half pipe on the bottom.

Scenario Feature Measure:

Bottom surface area of concrete channel

Scenario Typical Size:	1200	Square Foot	Tot Unit Cost	\$21.88
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Ungraded,	28	Cubic yard	\$20.83	\$583.24
Materials	Safety chain tractor barrier	50	Foot	\$2.81	\$140.50
Equip./Install.	Concrete, CIP, formed reinforced	23	Cubic yard	\$477.12	\$10,973.76
Equip./Install.	Concrete, CIP, slab on grade,	22	Cubic yard	\$221.81	\$4,879.82
Equip./Install.	Backhoe, 80 HP	24	Hour	\$61.42	\$1,474.08
Equip./Install.	Demolition, concrete	4	Cubic Yard	\$19.15	\$76.60
Equip./Install.	Dozer, 80 HP	8	Hour	\$73.71	\$589.68
Labor	General Labor	120	Hour	\$23.16	\$2,779.20
Labor	Equipment Operators, Light	8	Hour	\$24.05	\$192.40
Labor	Equipment Operators, Heavy	24	Hour	\$36.55	\$877.20
Labor	Supervisor or Manager	60	Hour	\$45.77	\$2,746.20
Mobilization	Mobilization, small equipment	2	Each	\$190.19	\$380.38
Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56

Total Cost: \$26,258.62

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$16.41	EQIP-HU	\$19.69
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 8 Concrete Channel to Basin to pipe

Scenario Description: Actual Scenario # 10

New York

Installation of a concrete channel that consists of a slab with curb and footing on each side of the slab for the entire length of the channel to enable the facility manager to direct liquid waste to a 4300 gallon collection basin and/or waste storage facility. The wastewater is then transferred from the basin to the waste storage pond through a 6" diameter low pressure pipeline.

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated. Waste transfer structures are needed to transfer wastes to a waste storage pond

After Practice Situation:

Typical installation of a 12 foot wide 100' long concrete channel that consists of a 5" thick concrete slab with curbing on each side of the slab that is 2' high, 6" thick with footing for the entire length. The waste transfer scenario is to scrape liquids or manure slurry from the waste production area down the channel to a 8'x12'x6' collection basin. From the basin it is then transferred through a 6" pipe 500 feet to the waste storage pond. The scenario also includes a safety chain around the basin. The transfer pipe is a 6" diameter gasketed PVC SDR 41 low pressure pipeline. Pipe length for contract is increased by 10% to account for required fittings. The cost includes excavation, placement of subgrade as needed, forming, pouring and finishing of concrete structure and backfilling as well as pipeline installation costs for trench excavation, pipe bedding and backfill. Transfer pump if needed must be contracted under pumping plant, PS 533.

Alternative configurations can consist of the installation of a more narrow or wider channel that may or may not have curbs or a deeper shaped channel and may include a half pipe on the bottom. Also pipe size may be increased to meet flow requirements.

Scenario Feature Measure:

Bottom surface area of concrete channel

Scenario Typical Size:	1200	Square Foot	Tot Unit Cost	\$25.64
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Gravel, Ungraded,	28	Cubic yard	\$20.83	\$583.24
Materials	Safety chain tractor barrier	50	Foot	\$2.81	\$140.50
Materials	Pipe, PVC, 6", SDR 41	550	Foot	\$3.44	\$1,892.00
Equip./Install.	Concrete, CIP, formed reinforced	23	Cubic yard	\$477.12	\$10,973.76
Equip./Install.	Concrete, CIP, slab on grade,	22	Cubic yard	\$221.81	\$4,879.82
Equip./Install.	Earthfill, Manually Compacted	45	Cubic yard	\$6.05	\$272.25
Equip./Install.	Backhoe, 80 HP	24	Hour	\$61.42	\$1,474.08
Equip./Install.	Trenching, Earth, loam, 24" x 48"	500	Foot	\$3.30	\$1,650.00
Equip./Install.	Demolition, concrete	4	Cubic Yard	\$19.15	\$76.60
Equip./Install.	Dozer, 80 HP	8	Hour	\$73.71	\$589.68
Labor	General Labor	150	Hour	\$23.16	\$3,474.00

Labor	Equipment Operators, Light	8	Hour	\$24.05	\$192.40
Labor	Equipment Operators, Heavy	24	Hour	\$36.55	\$877.20
Labor	Supervisor or Manager	60	Hour	\$45.77	\$2,746.20
Mobilization	Mobilization, small equipment	2	Each	\$190.19	\$380.38
Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56

Total Cost: \$30,767.67

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$19.23	EQIP-HU	\$23.08
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 9 Hopper, over 40ft of 24 inch pipe

New York

Scenario Description: Actual Scenario # 13

Gravity flow conduit is typically a large diameter water tight HDPE sanitary sewer pipe used to transfer manure by gravity from one location to another. The gravity transfer system typically consists of an inlet structure or hopper with an adaptor to a smooth interior large diameter HDPE pipe. The pipe conveys the slurry waste liquid between the waste collection point and a manure storage or waste treatment structure. Adequate head on the pipe flow or change in elevation must be available for the gravity system to function and should be evaluated by the design engineer. This practice includes the inlet structure, transfer pipe plus an and all other fittings, trench excavation and backfill, labor and equipment for installation.

This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area and treatment or storage structure that is adequate to provide sufficient head for a gravity flow conduit to transport the slurry waste liquid stream.

After Practice Situation:

Install an 80 foot long gravity transfer system of a precast collection hopper with an adaptor to a water tight smooth interior 24" diameter HDPE sanitary sewer grade pipe that will flow to an outlet at the site of manure treatment or storage. This scenario includes the collection hopper, pipe, inlet, outlet, couplers and all other fittings, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer to make sure there is adequate elevation drop before contracting.

The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Scenario Feature Measure:

Length of pipe installed

Scenario Typical Size:	80	Feet	Tot Unit Cost	\$118.32
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Sand, Graded, Washed	7	Cubic yard	\$29.81	\$208.67
Materials	Aggregate, Gravel, Ungraded,	7	Cubic yard	\$20.83	\$145.81
Materials	Pipe, HDPE, CPT, Double Wall, Soil	88	Foot	\$18.31	\$1,611.28
Materials	Catch Basin, concrete, 60" dia.	1	Each	\$2,060.23	\$2,060.23
Equip./Install.	Concrete, CIP, slab on grade,	7	Cubic yard	\$221.81	\$1,552.67
Equip./Install.	Earthfill, Manually Compacted	33	Cubic yard	\$6.05	\$199.65
Equip./Install.	Hydraulic Excavator, 1 CY	12	Hour	\$125.10	\$1,501.20
Equip./Install.	Demolition, concrete	4	Cubic Yard	\$19.15	\$76.60
Labor	General Labor	24	Hour	\$23.16	\$555.84
Labor	Equipment Operators, Heavy	12	Hour	\$36.55	\$438.60
Labor	Supervisor or Manager	12	Hour	\$45.77	\$549.24

Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56
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Payment types:

				Total Cost:	\$9,465.35
PayType	Unit Payment	PayType	Unit Payment		
EQIP	\$88.74	EQIP-HU	\$106.49		
WHIP	\$0.00	WHIP-HU	\$0.00		

Practice: 634 - Waste Transfer**Scenario # 10 Hopper, with 40 ft or less of 24 inch pipe**

New York

Scenario Description: Actual Scenario # 14

Gravity flow conduit is typically a large diameter water tight HDPE sanitary sewer pipe used to transfer manure by gravity from one location to another. The gravity transfer system typically consists of an inlet structure or hopper with an adaptor to a smooth interior large diameter HDPE pipe. The pipe conveys the slurry waste liquid between the waste collection point and a manure storage or waste treatment structure. Adequate head on the pipe flow or change in elevation must be available for the gravity system to function and should be evaluated by the design engineer. This practice includes the inlet structure, transfer pipe plus an and all other fittings, trench excavation and backfill, labor and equipment for installation.

This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area and treatment or storage structure that is adequate to provide sufficient head for a gravity flow conduit to transport the slurry waste liquid stream.

After Practice Situation:

Install an 30 foot long gravity transfer system of a precast collection hopper with an adaptor to a water tight smooth interior 24" diameter HDPE sanitary sewer grade pipe that will flow to an outlet at the site of manure treatment or storage. This scenario includes the collection hopper, pipe, inlet, outlet, couplers and all other fittings, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer to make sure there is adequate elevation drop before contracting.

The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Scenario Feature Measure:

LF of 24" pipe

Scenario Typical Size:	30	Foot	Tot Unit Cost	\$179.86
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Sand, Graded, Washed	2	Cubic yard	\$29.81	\$59.62
Materials	Aggregate, Gravel, Ungraded,	4	Cubic yard	\$20.83	\$83.32
Materials	Pipe, HDPE, CPT, Double Wall, Soil	33	Foot	\$18.31	\$604.23
Materials	Catch Basin, concrete, 60" dia.	1	Each	\$2,060.23	\$2,060.23
Equip./Install.	Concrete, CIP, slab on grade,	2	Cubic yard	\$221.81	\$443.62
Equip./Install.	Earthfill, Manually Compacted	15	Cubic yard	\$6.05	\$90.75
Equip./Install.	Hydraulic Excavator, 1 CY	6	Hour	\$125.10	\$750.60
Equip./Install.	Demolition, concrete	3	Cubic Yard	\$19.15	\$57.45
Labor	General Labor	12	Hour	\$23.16	\$277.92
Labor	Equipment Operators, Heavy	6	Hour	\$36.55	\$219.30
Labor	Supervisor or Manager	4	Hour	\$45.77	\$183.08

Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56
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Payment types:

				Total Cost:	\$5,395.68
PayType	Unit Payment	PayType	Unit Payment		
EQIP	\$134.89	EQIP-HU	\$161.87		
WHIP	\$0.00	WHIP-HU	\$0.00		

Practice: 634 - Waste Transfer

Scenario # 11 24 inch pipe only

Scenario Description: Actual Scenario # 15

New York

Gravity flow conduit is typically a large diameter water tight HDPE sanitary sewer pipe used to transfer manure by gravity from one location to another. The gravity transfer system typically consists of an existing inlet structure or hopper with attachment to a smooth interior large diameter pipe. The pipe conveys the slurry waste liquid between the waste collection point and a manure storage or waste treatment structure. Adequate head on the pipe flow or change in elevation must be available for the gravity system to function and should be evaluated by the design engineer. This practice includes the pipe attachment to an existing inlet structure and all other fittings, trench excavation and backfill, labor and a equipment for installation. Average cut can range from 4' - 12' in depth. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area and treatment or storage structure that is adequate to provide sufficient head for a gravity flow conduit to transport the slurry waste liquid stream.

After Practice Situation:

Install a 150 foot long 24" diameter water tight HDPE pipe to transfer manure by gravity from one location to another. Average cut for site is 8' deep. A gravity transfer system typically consists of a sealed inlet at an existing waste collection structure to a smooth interior 24" sewer grade pipe that will gravity flow to an outlet at a site of manure treatment or storage. This scenario includes the pipe, inlet, outlet, couplers and all other fittings, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer to make sure there is adequate elevation drop before contracting. If required an inlet structure may be contracted under another scenario.

The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Scenario Feature Measure:

Length of pipe installed

Scenario Typical Size:	150	Feet	Tot Unit Cost	\$91.80
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Sand, Graded, Washed	13	Cubic yard	\$29.81	\$387.53
Materials	Pipe, HDPE, CPT, Double Wall, Soil	160	Foot	\$18.31	\$2,929.60
Equip./Install.	Concrete, CIP, formed reinforced	1	Cubic yard	\$477.12	\$477.12
Equip./Install.	Earthfill, Manually Compacted	57	Cubic yard	\$6.05	\$344.85
Equip./Install.	Hydraulic Excavator, 2 CY	30	Hour	\$209.12	\$6,273.60
Equip./Install.	Demolition, concrete	5	Cubic Yard	\$19.15	\$95.75
Labor	General Labor	48	Hour	\$23.16	\$1,111.68
Labor	Equipment Operators, Heavy	24	Hour	\$36.55	\$877.20
Labor	Supervisor or Manager	16	Hour	\$45.77	\$732.32
Mobilization	Mobilization, large equipment	1	Each	\$539.90	\$539.90

Payment types:

Total Cost: \$13,769.55

<u>PayType</u>	<u>Unit Payment</u>	<u>PayType</u>	<u>Unit Payment</u>
EQIP	\$68.85	EQIP-HU	\$82.62
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer**Scenario # 12 12 inch transfer pipe**Scenario Description: **Actual Scenario # 16****New York**

Low pressure flow conduit is typically a PVC pipeline used to transfer wastewater or manure slurry by pumping from one production location to a storage or treatment location. Low pressure flow PVC transfer pipelines can be between 3" and 30" diameter and are designed for a pumping pressure of no more than 100 psi. The low pressure transfer system typically consists of an inlet structure or hopper connected to a smooth interior PVC pipe sized to deliver the design flow. This practice includes the pipe plus the inlet structure connection and all other fittings, trench excavation and backfill, labor and a equipment for installation.

This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Practice Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns. The site of waste collection or structure has the capacity to install a pumping plant but needs a pipeline to transfer the liquid manure slurry under low pressure from the collection site to the treatment or storage structure.

After Practice Situation:

Install a 300 foot long 12 inch diameter low pressure wastewater pipeline to transfer wastewater or manure slurry from one location to another. The low pressure flow situation refers to pipeflow that has an unrestricted outlet and low pumping head pressure. A pumping plant will send the liquid through a pipe inlet at an existing waste collection basin into a 12 inch diameter pipeline to transfer the design volume to an outlet at the wastewater treatment or storage site. This scenario includes the pipe, inlet connection, outlet, couplers and all other fittings, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer before contracting. If required a pumping plant may be contracted under PS 533, Pumping Plant to support this system. The low pressure transfer conduit will provide collection, transfer and containment of the manure slurry, thereby protecting water quality resources.

Scenario Feature Measure:

Length of pipe installed

Scenario Typical Size:	300	Feet	Tot Unit Cost	\$33.40
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Aggregate, Sand, Graded, Washed	14	Cubic yard	\$29.81	\$417.34
Materials	Pipe, PVC, 12", SCH 40	330	Foot	\$14.85	\$4,900.50
Equip./Install.	Excavation, Common Earth, side	97	Cubic yard	\$2.48	\$240.56
Equip./Install.	Earthfill, Manually Compacted	56	Cubic yard	\$6.05	\$338.80
Equip./Install.	Backhoe, 80 HP	24	Hour	\$61.42	\$1,474.08
Equip./Install.	Demolition, concrete	7	Cubic Yard	\$19.15	\$134.05
Labor	General Labor	24	Hour	\$23.16	\$555.84
Labor	Equipment Operators, Light	24	Hour	\$24.05	\$577.20
Labor	Supervisor or Manager	24	Hour	\$45.77	\$1,098.48
Mobilization	Mobilization, medium equipment	1	Each	\$282.78	\$282.78

Payment types:

Total Cost: \$10,019.63

<u>PayType</u>	<u>Unit Payment</u>	<u>PayType</u>	<u>Unit Payment</u>
EQIP	\$25.05	EQIP-HU	\$30.06
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer**Scenario # 13 10 inch Transfer pipe**Scenario Description: **Actual Scenario # 17****New York**

Low pressure flow pipeline used to transfer manure wastewater by a low pressure pump from the waste storage pond to the field where it is applied according to the CNMP. The pipeline moves the water from the pond through a buried mainline with low pressure outlets that spread the water on a vegetated treatment area or to a site where the water is applied through an existing field application system. Low pressure flow PVC transfer pipelines can be between 3" and 30" diameter and are designed for a pumping pressure of 100 psi or less. This practice includes the pipe plus an inlet riser structure, clean-out risers and outlet risers plus all other valves and fittings, trench excavation and backfill, labor and a equipment for installation. 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.

This pipeline is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling; PS 635, Vegetated Treatment Area.

Before Practice Situation:

The waste storage structure is separated from the application fields where wastewater nutrients are needed. Soil nutrients in the near fields have high phosphorus levels from over application near the waste storage facility. The current application operation is high in the use of time and energy and may cause water quality concerns as it is not efficient in transporting the waste to the field.

After Practice Situation:

Install a 1000 foot long 10 inch diameter PVC gasketed IPS pipe that has an SDR of 41 and is water tight under low pressure flow to transfer the manure wastewater. An inlet riser and is located near the pump site of the waste storage pond and designed for the desired pumping pressure and flow volume for the application system. This scenario includes the pipe, inlet riser, couplers, air-vac vents, all other fittings, and risers placed as specified by the design, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer to make sure the design will function.

The transfer pipeline will deliver the manure slurry to the fields for agronomic nutrient utilization according to the CNMP, thereby protecting water quality resources.

Scenario Feature Measure:

Length of pipe installed

Scenario Typical Size:	1000	Feet	Tot Unit Cost	\$23.41
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 10", SDR 21	1100	Foot	\$14.63	\$16,093.00
Equip./Install.	Trenching, Earth, loam, 24" x 48"	1000	Foot	\$3.30	\$3,300.00
Equip./Install.	Earthfill, Manually Compacted	127	Cubic yard	\$6.05	\$768.35
Equip./Install.	Concrete, CIP, formless, non	1	Cubic yard	\$151.01	\$151.01
Labor	General Labor	70	Hour	\$23.16	\$1,621.20
Labor	Supervisor or Manager	20	Hour	\$45.77	\$915.40
Mobilization	Mobilization, medium equipment	2	Each	\$282.78	\$565.56

Payment types:

Total Cost: \$23,414.52

<u>PayType</u>	<u>Unit Payment</u>	<u>PayType</u>	<u>Unit Payment</u>
EQIP	\$17.56	EQIP-HU	\$21.07
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 14 6 to 8 inch Pressure Pipe

New York

Scenario Description: Actual Scenario # 18

Pressure flow pipeline used to transfer manure wastewater by pumping from the waste storage pond to the field where it is to be applied according to the CNMP. Pressure flow transfer pipelines can be between 6" and 8" diameter but 6" diameter is a commonly used pipe size. Pressure pipe will handle an internal pumping pressure between 130 and 200 psi depending on the designed pumping system and must have gasketed joints to seal for the wastewater transfer.

The pressure pipe moves the water by pumping from the intake location, through a buried mainline with outlet risers spaced at 60 to 300 ft intervals for a traveler applicator or risers. This practice includes the pipe plus an inlet riser structure, clean-out risers and outlet risers plus all other valves and fittings, trench excavation and backfill, labor and a equipment for installation. 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.

This pipeline is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling; PS 635, Vegetated Treatment Area.

Before Practice Situation:

The waste storage structure is separated from the source of wastewater or the application fields where wastewater nutrients are needed. Soil nutrients in the near fields have high phosphorus levels from over application near the waste storage facility. The current application operation is high in the use of time and energy and may cause water quality concerns as it is not efficient in transporting the waste to the field.

After Practice Situation:

Install a 1000 foot long 6 inch diameter PVC gasketed IPS pipe that has an SDR of 21 and is water tight under pressure flow to transfer the manure wastewater. An inlet riser and is located near the pump site of the waste storage pond and designed for the desired pressure and flow for the application system. This scenario includes the pipe, inlet riser, couplers, air-vac vents, all other fittings, and risers placed as specified by the design, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer to make sure the design will function.

The transfer pipeline will deliver the manure slurry to the fields for agronomic nutrient utilization according to the CNMP, thereby protecting water quality resources.

Scenario Feature Measure:

Length of pipe installed

Scenario Typical Size:	1000	Feet	Tot Unit Cost	\$13.57
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 6", SDR 21	1100	Foot	\$6.40	\$7,040.00
Equip./Install.	Concrete, CIP, formless, non	1	Cubic yard	\$151.01	\$151.01
Equip./Install.	Earthfill, Manually Compacted	90	Cubic yard	\$6.05	\$544.50
Equip./Install.	Trenching, Earth, loam, 24" x 48"	1000	Foot	\$3.30	\$3,300.00
Labor	General Labor	70	Hour	\$23.16	\$1,621.20
Labor	Supervisor or Manager	20	Hour	\$45.77	\$915.40

Total Cost: \$13,572.11

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$10.18	EQIP-HU	\$12.21
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 15 Transfer line, pressure, 4 inch or less

Scenario Description:

Actual Scenario # 19

New York

Pressure flow pipeline used to transfer manure wastewater by pumping from a small tank to a waste storage or from a waste storage pond to the field where it is to be applied according to the CNMP. Pressure flow transfer pipelines for smaller pumps can be between 1.5" and 6" diameter but 4" diameter is a commonly used pipe size for smaller pumping systems. Pressure pipe will handle an internal pumping pressure between 130 and 200 psi depending on the designed pumping system and must have gasketed joints to seal for the wastewater transfer. The pressure pipe moves the water by pumping from the intake riser location, through a buried mainline with outlet risers spaced at 60 to 150 ft intervals for a traveler applicator or irrigation heads. This practice includes the pipe plus an inlet riser structure, clean-out risers and outlet risers plus all other valves and fittings, trench excavation and backfill, labor and a equipment for installation. 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. This pipeline is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling; PS 635, Vegetated Treatment Area.

Before Practice Situation:

The waste storage structure is separated from the source of wastewater or the application fields where wastewater nutrients are needed. Soil nutrients in the near fields have high phosphorus levels from over application near the waste storage facility. The current application operation is high in the use of time and energy and may cause water quality concerns as it is not efficient in transporting the waste to the field.

After Practice Situation:

Install a 500 foot long 4 inch diameter PVC gasketed IPS pipe that has an SDR of 21 and is water tight under pressure flow to transfer the manure wastewater. An inlet riser and is located near the pump site of the waste storage pond and designed for the desired pressure and flow for the application system. This scenario includes the pipe, inlet riser, couplers, air-vac vents, all other fittings, and risers placed as specified by the design, trench excavation, pipe bedding and backfill. The site should be evaluated by the designing engineer to make sure the design will function.

The transfer pipeline will deliver the manure slurry to a waste storage or to the fields for agronomic nutrient utilization according to the CNMP, thereby protecting water quality resources.

Scenario Feature Measure:

Length of pipe installed

Scenario Typical Size:	500	Linear Foot	Tot Unit Cost	\$8.27
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 4", SDR 21	550	Foot	\$2.97	\$1,633.50
Equip./Install.	Earthfill, Manually Compacted	45	Cubic yard	\$6.05	\$272.25
Equip./Install.	Trenching, Earth, loam, 24" x 48"	375	Foot	\$3.30	\$1,237.50
Labor	General Labor	35	Hour	\$23.16	\$810.60
Labor	Supervisor or Manager	4	Hour	\$45.77	\$183.08

Total Cost: \$4,136.93

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$6.21	EQIP-HU	\$7.45
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 16 Lot runoff, inlet box, pipe and pump tank

Scenario Description: Actual Scenario # 24

New York

Installation of a wastewater transfer system that includes materials and structures to transfer silage leachate, lot runoff and other contaminated liquid effluent to a waste storage structure or VTA via a pump or siphon system. This scenario includes a collection box or area to screen and direct flow into a pipe which flows to a small tank to hold a pump or siphon which then transfers the wastewater to a waste storage pond or Vegetated Treatment Area. The pump or siphon is contracted under PS 533, Pumping Plant. Distribution systems are contracted as part of the Vegetated Treatment Area PS 635.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling; PS635, Vegetated Treatment Area This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots.

Before Practice Situation:

No method is in place to collect and direct wastewater from an operation that may contaminate surface or groundwater resources. The transfer of waste water to a waste storage facility or VTA is required for the CNMP.

After Practice Situation:

A small collection box is installed at an existing barnyard and waste is transferred under gravity in a 4" dia. PVC pipeline to a 1,000 gallon pump tank. Elevations require pumping to a waste storage facility or VTA. Transfer pump must be contracted under pumping plant, PS 533.

Scenario Feature Measure:

each

Scenario Typical Size:	1	Each	Tot Unit Cost	\$4,835.34
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Collection box, with grate lid	1	Each	\$1,907.62	\$1,907.62
Materials	Pipe, PVC, 4", SCH 40	150	Foot	\$3.96	\$594.00
Equip./Install.	Trenching, Earth, clay, 24" x 48"	150	Foot	\$3.90	\$585.00
Equip./Install.	Backhoe, 80 HP	4	Hour	\$61.42	\$245.68
Equip./Install.	Earthfill, Manually Compacted	40	Cubic yard	\$6.05	\$242.00
Equip./Install.	Concrete, CIP, formed reinforced	1	Cubic yard	\$477.12	\$477.12
Equip./Install.	Concrete, CIP, slab on grade,	1	Cubic yard	\$221.81	\$221.81
Labor	Equipment Operators, Light	4	Hour	\$24.05	\$96.20
Labor	General Labor	4	Hour	\$23.16	\$92.64
Labor	Supervisor or Manager	4	Hour	\$45.77	\$183.08
Mobilization	Mobilization, small equipment	1	Each	\$190.19	\$190.19

Payment types:

Total Cost: \$4,835.34

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$3,626.51	EQIP-HU	\$4,351.81
WHIP	\$0.00	WHIP-HU	\$0.00

Practice: 634 - Waste Transfer

Scenario # 17 Lot runoff, Inlet box and pipe

Scenario Description: Actual Scenario # 25

New York

Installation of a wastewater transfer system that includes materials and structures to transfer silage leachate, lot runoff and other contaminated liquid effluent to a waste storage structure or VTA via gravity. This scenario includes a collection box or area to screen and direct flow into a pipe that then carries the wastewater to a waste storage pond or Vegetated Treatment Area . Distribution systems are contracted as part of the Vegetated Treatment Area PS 635.

Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling; PS635, Vegetated Treatment Area

This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots.

Before Practice Situation:

No method is in place to collect and direct wastewater from an operation that may contaminate surface or groundwater resources. The transfer of waste water to a waste storage facility or VTA is required for the CNMP.

After Practice Situation:

A small collection box is installed adjacent to an existing barnyard and liquid waste is transferred via gravity in a 4" dia. PVC pipeline to a waste storage facility or VTA. Typical systems distance is 300'.

Scenario Feature Measure:

each

Scenario Typical Size:	1	Each	Tot Unit Cost	\$2,426.36
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Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 4", SCH 40	300	Foot	\$3.96	\$1,188.00
Equip./Install.	Backhoe, 80 HP	1	Hour	\$61.42	\$61.42
Equip./Install.	Concrete, CIP, formed reinforced	1	Cubic yard	\$477.12	\$477.12
Equip./Install.	Concrete, CIP, slab on grade,	1	Cubic yard	\$221.81	\$221.81
Labor	Equipment Operators, Light	1	Hour	\$24.05	\$24.05
Labor	Supervisor or Manager	2	Hour	\$45.77	\$91.54
Labor	Skilled Labor	2	Hour	\$39.82	\$79.64
Mobilization	Mobilization, medium equipment	1	Each	\$282.78	\$282.78

Total Cost: \$2,426.36

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	\$1,819.77	EQIP-HU	\$2,183.72
WHIP	\$0.00	WHIP-HU	\$0.00