

Practice: 582 - Open Channel

Scenario: #1 - excavation, normal conditions

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 6' deep x 15' wide bottom x 100' length with a side slope of 2.5:1. The practice is used for the restoration of a natural or artificial channel to improve the process and ecological function in a degraded and eroding stream. Conditions are normal. Normal conditions include: a location easily accessible from a main road, soils without large rock or difficult clay to excavate, and/or other aspects that are average compared to excavation work in the area. This scenario assists in addressing the resource concerns: streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

A stream or channel with active streambank erosion or headcuts and inadequate capacity to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

An earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Flooding and erosion is no longer a resource concern.

Scenario Feature Measure: Volume of earth excavated in CY's

Scenario Unit: Cubic Yard

Scenario Typical Size: 500

Scenario Cost: \$1,400.27

Scenario Cost/Unit: \$2.80

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|---|------------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 500 | \$1,145.00 |
| Mobilization | | | | | | |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$255.27 | 1 | \$255.27 |

Practice: 582 - Open Channel

Scenario: #2 - excavation, difficult conditions

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 6' deep x 15' wide bottom x 100' length with a side slope of 2.5:1. The practice is used for the restoration of a natural or artificial channel to improve the process and ecological function in a degraded and eroding stream. Conditions are difficult. Difficult conditions include: a location that requires a significant drive off the main road, soils with large rock or difficult clay to excavate, and/or other aspects that create difficulty in excavation compared to similar work in the area. Construction may include vegetation and/or a lightly armored bank toe. This scenario assists in addressing the resource concerns: streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

A stream or channel with active streambank erosion or headcuts and inadequate capacity to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

An earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Flooding and erosion is no longer a resource concern.

Scenario Feature Measure: Volume of earth excavated in CY's

Scenario Unit: Cubic Yard

Scenario Typical Size: 500

Scenario Cost: \$1,938.83

Scenario Cost/Unit: \$3.88

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|--|------------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 500 | \$1,145.00 |
| Labor | | | | | | |
| Supervisor or Manager | 234 | Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc. | Hour | \$42.58 | 8 | \$340.64 |
| 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 | \$24.74 | 8 | \$197.92 |
| Mobilization | | | | | | |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$255.27 | 1 | \$255.27 |

Practice: 582 - Open Channel

Scenario: #3 - excavation and fill, normal conditions

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 6' deep x 15' wide bottom x 100' length with a side slope of 2.5:1. Excavation and earth fill is required. The practice is used for the restoration of a natural or artificial channel to improve the process and ecological function in a degraded and eroding stream. Conditions are normal. Normal conditions include: a location easily accessible from a main road, soils without large rock or difficult clay to excavate, and/or other aspects that are average compared to excavation work in the area. This scenario assists in addressing the resource concerns: streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

A stream or channel with active streambank erosion or headcuts and inadequate capacity to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

An earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Some fill was used to complete the channel shape. Flooding and erosion is no longer a resource concern.

Scenario Feature Measure: Volume of earth excavated in CY's

Scenario Unit: Cubic Yard

Scenario Typical Size: 500

Scenario Cost: \$3,525.27

Scenario Cost/Unit: \$7.05

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|---|------------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Earthfill, Roller Compacted | 49 | Earthfill, roller or machine compacted, includes equipment and labor | Cubic yard | \$4.25 | 500 | \$2,125.00 |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 500 | \$1,145.00 |
| Mobilization | | | | | | |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$255.27 | 1 | \$255.27 |

Practice: 582 - Open Channel

Scenario: #4 - excavation and fill, difficult conditions

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 6' deep x 15' wide bottom x 100' length with a side slope of 2.5:1. The practice is used for the restoration of a natural or artificial channel to improve the process and ecological function in a degraded and eroding stream. Excavation and earth fill is required. Conditions are difficult. Difficult conditions include: a location that requires a significant drive off the main road, soils with large rock or difficult clay to excavate, and/or other aspects that create difficulty in excavation compared to similar work in the area. Construction may include vegetation and/or a lightly armored bank toe. This scenario assists in addressing the resource concerns: streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

A stream or channel with active streambank erosion or headcuts and inadequate capacity to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

An earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Some fill was used to complete the channel shape. Flooding and erosion is no longer a resource concern.

Scenario Feature Measure: Volume of earth excavated in CY's

Scenario Unit: Cubic Yard

Scenario Typical Size: 500

Scenario Cost: \$4,063.83

Scenario Cost/Unit: \$8.13

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|--|------------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 500 | \$1,145.00 |
| Earthfill, Roller Compacted | 49 | Earthfill, roller or machine compacted, includes equipment and labor | Cubic yard | \$4.25 | 500 | \$2,125.00 |
| 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 | \$24.74 | 8 | \$197.92 |
| Supervisor or Manager | 234 | Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc. | Hour | \$42.58 | 8 | \$340.64 |
| Mobilization | | | | | | |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$255.27 | 1 | \$255.27 |

Practice: 582 - Open Channel

Scenario: #5 - Cranberry By-Pass Channel

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 5' deep x 6' wide bottom x 750' length with a side slope of 2:1. Excavation and earth fill is required. The practice is used to create or improve channels to convey low frequency storm flows by-passing cranberry bogs during chemigation. Normal conditions include: a location easily accessible from a main road, soils without large rock or difficult clay to excavate, and/or other aspects that are average compared to excavation work in the area. This scenario assists in addressing the resource concerns: water pollution, streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

No drainage channels exist to convey flows outside of chemigated bogs or a channel with inadequate capacity needs improvements to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

A cranberry by-pass earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Some fill was used to complete the channel shape. Water pollution, flooding and erosion are no longer resource concerns.

Scenario Feature Measure:

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,250

Scenario Cost: \$15,225.54

Scenario Cost/Unit: \$6.77

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|---|------------|-----------------|----------|------------|
| Equipment/Installation | | | | | | |
| Earthfill, Roller Compacted | 49 | Earthfill, roller or machine compacted, includes equipment and labor | Cubic yard | \$4.25 | 2250 | \$9,562.50 |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 2250 | \$5,152.50 |
| Mobilization | | | | | | |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$255.27 | 2 | \$510.54 |

Practice: 582 - Open Channel

Scenario: #6 - Cranberry By-Pass Channel with Rock

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 5' deep x 6' wide bottom x 750' length with a side slope of 2:1. Excavation and earth fill is required. The practice is used to create channels to convey low frequency storm flows by-passing cranberry bogs during chemigation. Normal conditions include: a location easily accessible from a main road, soils without large rock or difficult clay to excavate, and/or other aspects that are average compared to excavation work in the area. This scenario assists in addressing the resource concerns: water pollution, streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

No drainage channel exist to convey flows outside of chemigated bogs or a channel with inadequate capacity needs improvements to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

A cranberry by-pass earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Some fill was used to complete the channel shape and 0.5ft of rock was installed in the flow area to prevent damage from excessive velocities. Water pollution, flooding and erosion are no longer resource concerns.

Scenario Feature Measure: Volume of earth excavated in CY's

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,400

Scenario Cost: \$21,170.86

Scenario Cost/Unit: \$8.82

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|--|------|---|------------|-----------------|----------|-------------|
| Equipment/Installation | | | | | | |
| Earthfill, Roller Compacted | 49 | Earthfill, roller or machine compacted, includes equipment and labor | Cubic yard | \$4.25 | 2400 | \$10,200.00 |
| Excavation, Common Earth, side cast, small equipment | 48 | Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor. | Cubic yard | \$2.29 | 2400 | \$5,496.00 |
| Materials | | | | | | |
| Rock Riprap, graded, angular, material and shipping | 1200 | Graded Rock Riprap for all gradation ranges. Includes materials and delivery only. | Ton | \$32.66 | 152 | \$4,964.32 |
| Mobilization | | | | | | |
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$255.27 | 2 | \$510.54 |