

Practice: 521B - Pond Sealing or Lining, Soil Dispersant

Scenario: #1 - Uncovered

Scenario Description:

A 12" compacted soil liner treated with soil dispersant is constructed to reduce seepage from ponds or waste storage impoundment structures. Implementation includes incorporation of the soil dispersant with the soil liner under proper moisture conditions and compaction to the designed liner thickness in three lifts. The typical area is 43,560 square feet. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile).

Associated practices: Waste Storage Facility (313), Pond (378)

Before Situation:

Soils on-site exhibit seepage rates in excess of acceptable limits and are suitable for treatment with dispersants. If not lined, soils will allow the passage of nutrients and pathogens from the waste storage facility or pond negatively impacting water quality.

After Situation:

A compacted soil liner treated with soil dispersant is constructed to reduce seepage from ponds or waste storage impoundment structures. The installed liner reduces or prevents seepage losses, which reduces the delivery of nutrients and pathogens to sub-surface or surface water. The liner is constructed 1 foot thick over a 1 acre area.

Scenario Feature Measure: Volume of Liner Material

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,613

Scenario Cost: \$68,473.91

Scenario Cost/Unit: \$42.45

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
	1143				1	
	1146				1	

Equipment/Installation

Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.26	1613	\$6,871.38
Tractor, agricultural, 120 HP	962	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hour	\$60.02	16	\$960.32

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$23.74	16	\$379.84
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	\$41.42	8	\$331.36
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$97.05	2	\$194.10
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	\$20.29	32	\$649.28

Materials

Soil Dispersant	1490	Soil Amendment (tetrasodium pyrophosphate (TSP), sodium tripolyphosphate (STPP), or soda ash or approved equivalent)	Ton	\$449.91	130.7	\$58,803.24
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Mobilization

Mobilization

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	1	\$1.00
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	1	\$283.39

Practice: 521B - Pond Sealing or Lining, Soil Dispersant

Scenario: #2 - Covered

Scenario Description:

A 12" compacted soil liner treated with a soil dispersant is constructed to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the dispersant with the soil liner under proper moisture conditions, compaction to the designed liner thickness, and placement of soil cover over the treated liner. The typical area is 43560 square feet. The liner is constructed in three areas then the entire area is covered with 12" of soil to protect the liner. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile). Payment is based on volume of treated liner. The cost of the soil cover is included in the payment.

Associated practices: Waste Storage Facility (313), Pond (378)

Before Situation:

Soils on-site exhibit seepage rates in excess of acceptable limits and are suitable for treatment with dispersants. If not lined, soils will allow the passage of nutrients and pathogens from the waste storage facility or pond negatively impacting water quality.

After Situation:

A compacted soil liner treated with soil dispersant and soil cover is constructed to reduce seepage from ponds or waste storage impoundment structures. The installed liner reduces or prevents seepage losses, which reduces the delivery of nutrients and pathogens to sub-surface or surface water. The liner is constructed 1 foot thick over a 1 acre area with 1 foot of soil cover over compacted liner.

Scenario Feature Measure: Volume of Liner Material including Soil Cover over Liner

Scenario Unit: Cubic Yard

Scenario Typical Size: 3,226

Scenario Cost: \$75,345.29

Scenario Cost/Unit: \$23.36

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
	1143				1	
	1146				1	
Equipment/Installation						
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$4.26	3226	\$13,742.76
Tractor, agricultural, 120 HP	962	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hour	\$60.02	16	\$960.32
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$23.74	16	\$379.84
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	\$41.42	8	\$331.36
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