

Practice: 561 - Heavy Use Area Protection

Scenario: #1 - Reinforced Concrete, no curb

Scenario Description: An eroding area around a watering trough will be stabilized with a reinforced concrete pad with no curb. Installation includes all materials, equipment, vegetation of disturbed areas, and labor to install this practice. Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: The area around a watering trough is muddy and eroding due to trampling by animals as they use the trough.

After Situation: The stabilized area is surfaced with approximately 630 square feet of approximately 12 cubic yards of welded wire mesh reinforced concrete (6" thick) with 8 cubic yards of sand or gravel foundation material (4" deep). Excavation of about 20 CY of soil is required. The removed material will be spread in the adjacent area to a depth of 2". Approximately 400 square feet of disturbed areas and 3200 sf of spoil area is seeded.

Scenario Feature Measure: Area

Scenario Unit: Square Foot

Scenario Typical Size: 630

Total Scenario Cost: \$4,400.46

Scenario Cost/Unit: \$6.98

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	8	\$250.03
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.15	\$16.99
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	4	\$2.91
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.1	\$3.93
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	5	\$3.91
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.44	5	\$2.18
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	0.2	\$24.58
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.1	\$4.66

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	4	\$117.29
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	\$19.74	3	\$59.21

Equipment Installation

Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$290.09	12	\$3,481.09
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and	Acre	\$12.57	0.1	\$1.26

		labor costs.				
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$44.42	4	\$177.66

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$254.77	1	\$254.77
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Practice: 561 - Heavy Use Area Protection

Scenario: #2 - Rock/Gravel on Geotextile

Scenario Description: An eroding area where there is winter feeding of livestock will be stabilized with a rock and/or gravel pad on a geotextile fabric foundation. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice. Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: Typical situation is in a pasture setting where a small herd (< 30 head) is fed at a small winter feeding area away from surface water bodies. This pad is usually shared by 2 or more rotated pastures and has good grass or other filter area between it and water conveyance. The feeding area is muddy and eroding.

After Situation: The stabilized area is surfaced with approximately 1624 square feet (28 ft x 58 ft x 6 in thick) of rock/gravel over a geotextile. Approximately 200 square yards of geotextile fabric will be used. Excavation of 30 CY of material will be needed. The removed material will be spread in the adjacent area to a depth of 2". Revegetation of disturbed areas is assumed to extend 10 feet from the perimeter of the pad (2120 sf) and will include the spoil area of 4862 sf.

Scenario Feature Measure: Area of Rock and or Gravel

Scenario Unit: Square Foot

Scenario Typical Size: 1624

Total Scenario Cost: \$2,429.31

Scenario Cost/Unit: \$1.50

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	30	\$937.61
Geotextile, non-woven, light weight	1209	Non-woven less than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$1.17	200	\$234.61
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.24	\$27.18
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	6.4	\$4.66
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.16	\$6.29
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	8	\$6.25
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.44	8	\$3.49
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	0.32	\$39.32
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.16	\$7.45

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	8	\$234.58
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	\$19.74	16	\$315.76

Equipment Installation

Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$12.57	0.16	\$2.01
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Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$44.42	8	\$355.32
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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	\$254.77	1	\$254.77
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Practice: 561 - Heavy Use Area Protection

Scenario: #3 - Rock/Gravel-GeoCell-Geotextile

Scenario Description: An eroding area around a watering trough will be stabilized with rock and/or gravel in a cellular containment grid on a geotextile fabric foundation. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice. Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with the heavy use area, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: The area around a watering trough is muddy and eroding due to trampling by animals as they use the trough.

After Situation: The stabilized area is surfaced with approximately 630 square feet of rock and/or gravel in approximately 70 square yards of cellular containment grid on approximately 80 square yards of geotextile fabric foundation material (15% overlap). Four inches of gravel are placed in the geocell and an additional 4 inches are placed on top of the geocell to protect the geocells from damage. Excavation of approximately 16 CY is required. The removed material will be spread in the adjacent area to a depth of 2". Approximately 400 square feet of disturbed areas and 2600 sf of spoil area is reseeded.

Scenario Feature Measure: Area of Rock and or Gravel

Scenario Unit: Square Foot

Scenario Typical Size: 630

Total Scenario Cost: \$3,343.46

Scenario Cost/Unit: \$5.31

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	16	\$500.06
GeoCell, 4"	1054	4-inch thick cellular confinement system, three-dimensional, expandable panels made from high-density polyethylene (HDPE), polyester or another polymer material. Includes materials, labor and equipment for the geocell only, does not include backfill	Square Yard	\$27.61	70	\$1,932.74
Geotextile, non-woven, light weight	1209	Non-woven less than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$1.17	80	\$93.84
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.15	\$16.99
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	4	\$2.91
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.1	\$3.93
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	5	\$3.91
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.44	5	\$2.18
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	0.2	\$24.58
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.1	\$4.66

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	6	\$175.94
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	\$19.74	3	\$59.21

Equipment Installation

Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$12.57	0.1	\$1.26
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$44.42	6	\$266.49

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$254.77	1	\$254.77
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Practice: 561 - Heavy Use Area Protection

Scenario: #4 - Bituminous Concrete Pavement

Scenario Description: A parking area for ATVs at the end of a trail to an agricultural area will be stabilized by surfacing with bituminous concrete pavement on an aggregate gravel foundation. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice. To reduce the potential for air quality problems from particulate matter associated with the heavy use area, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: The operator uses ATVs to access a remote field. The ATV parking area is eroding from the tire action.

After Situation: The stabilized area is surfaced with approximately 630 square feet of bituminous concrete pavement on 8 cubic yards of aggregate gravel material. Excavation of approximately 16 CY is required. The removed material will be spread in the adjacent area to a depth of 2". Approximately 400 square feet of disturbed areas and 2600 sf of spoil area is reseeded.

Scenario Feature Measure: Area of Bituminous Pavement

Scenario Unit: Square Foot

Scenario Typical Size: 630

Total Scenario Cost: \$2,516.83

Scenario Cost/Unit: \$3.99

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	8	\$250.03
Asphalt, pavement	1867	Bituminous Concrete, includes materials, equipment and labor for 4" layer, base not included.	Square Foot	\$2.30	630	\$1,449.99
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.15	\$16.99
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	4	\$2.91
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.1	\$3.93
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	5	\$3.91
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.44	5	\$2.18
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	0.2	\$24.58
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.1	\$4.66

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	6	\$175.94
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	\$19.74	3	\$59.21

Equipment Installation

Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$12.57	0.1	\$1.26
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Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$44.42	6	\$266.49
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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	\$254.77	1	\$254.77
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Practice: 561 - Heavy Use Area Protection

Scenario: #5 - Concrete Slab with curb (reinforced)

Scenario Description: A concrete pad with a curb is intensively used by larger herds (> 50 head) of livestock typically concentrated year round. Manure and wasted feed are collected/transferred very frequently (daily to every other day) to a storage facility. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation. A concrete pad with a curb is intensively used by larger herds (> 50 head) of livestock typically concentrated year round. Manure and wasted feed are collected/transferred very frequently (daily to every other day) to a storage facility. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: Cattle are fed in a concentrated area all year round. Animal waste is causing a resource concern because it is difficult to collect from the existing earthen surface.

After Situation: The stabilized area is 40' x 100'x 5.5" thick reinforced concrete pavement on 49 cubic yards of compacted, graded aggregate gravel material. The site has a slope of less than or equal to 10%. The concrete HUA is designed to support heavy equipment loads for manure management. It provides a permanent area of steel reinforced 5.5" thick concrete (typically #4 or #5 rebar on 12" centers). A 12 inch tall by 8 inch wide reinforced concrete curb is included around the perimeter of the slab to contain scraped waste materials for transport to storage facility. The curb extends down the long sides of the pad. A 18" wide by 12" deep footer is placed along the short sides of the pad which will have tractor access. Excavation of 111 CY of material will be needed. The removed material will be spread in the adjacent area to a depth of 2". Revegetation of disturbed areas is assumed to extend 10 feet from the perimeter of the pad (3200 sf) and will include the spoil area of about 18,000 sf.

Scenario Feature Measure: Area of concrete

Scenario Unit: Square Foot

Scenario Typical Size: 4000

Total Scenario Cost: \$30,583.77

Scenario Cost/Unit: \$7.65

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Equipment Installation

Concrete, CIP, formed reinforced	38	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$451.17	10	\$4,511.68
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$290.09	68	\$19,726.20
Dozer, 200 HP	928	Track mounted Dozer with horsepower range of 160 to 250. Equipment and power unit costs. Labor not included.	Hour	\$193.34	8	\$1,546.76
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$12.57	0.5	\$6.29
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$44.42	8	\$355.32

Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	49	\$1,531.43
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.75	\$84.95
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	20	\$14.56
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.5	\$19.65

Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	25	\$19.53
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.44	25	\$10.89
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	1	\$122.89
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.5	\$23.29

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	16	\$469.16
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	\$19.74	24	\$473.65
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	\$38.60	24	\$926.33

Mobilization

Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	\$486.42	1	\$486.42
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$254.77	1	\$254.77

Practice: 561 - Heavy Use Area Protection

Scenario: #6 - Concrete(reinforced) Curb on existing slab

Scenario Description: This practice is typically associated with confined animal feeding operation but can be considered for larger herds (> 50 head) on multiple pasture-based grazing systems where animals are managed in controlled central area for winter feeding and lounging. A Comprehensive Nutrient Management Plan (CNMP) would usually address use of this scenario on a confined animal feeding operation. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: Before the practice is installed cattle waste accumulates on the slab but can run off the edges of the slab since there are no curbs to contain it.

After Situation: A 12" tall by 8" wide reinforced concrete curb is installed on the two long sides of an existing 100' x 40' concrete slab. The curb is typically reinforced with #4 or #5 steel bars. The curbs will aid in manure management and reduce water quality degradation.

Scenario Feature Measure: Length of concrete curb in Ln Ft

Scenario Unit: Foot

Scenario Typical Size: 280

Total Scenario Cost: \$4,601.54

Scenario Cost/Unit: \$16.43

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Equipment Installation

Concrete, CIP, formed reinforced	38	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$451.17	7	\$3,158.18
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$21.70	2	\$43.39

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	\$19.74	24	\$473.65
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	\$38.60	24	\$926.33

Practice: 561 - Heavy Use Area Protection

Scenario: #7 - Reinforced concrete slab on a hillside site

Scenario Description: A concrete pad with a curb is intensively used by larger herds (> 50 head) of livestock typically concentrated year round. Manure and wasted feed are collected/transferred very frequently (daily to every other day) to a storage facility. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice. Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: Cattle are fed in a concentrated area. Animal waste is causing a resource concern as it is not being captured and properly utilized.

After Situation: The stabilized area is 40' x 100'x 5.5" thick reinforced concrete pavement on 49 cubic yards of compacted, graded aggregate gravel material. The site has a slope of less than or equal to 10%. The concrete HUA is designed to support heavy equipment loads for manure management. It provides a permanent area of steel reinforced 5.5" thick concrete (typically #4 or #5 rebar on 12" centers). A 12 inch tall by 8 inch wide reinforced concrete curb is included around the perimeter of the slab to contain scraped waste materials for transport to storage facility. The curb extends down the long sides of the pad. An 18" wide by 12" deep footer is placed along the short sides of the pad which will have tractor access. Excavation and re-placement of 634 CY of material will be needed. Cuts and fills will be balanced. The removed material will be spread in the adjacent area to a depth of 2". Revegetation of disturbed areas is assumed to extend 25 feet from the perimeter of the pad (8000 sf).

Scenario Feature Measure: Area of concrete

Scenario Unit: Square Foot

Scenario Typical Size: 4000

Total Scenario Cost: \$38,598.14

Scenario Cost/Unit: \$9.65

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Equipment Installation

Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$55.82	4	\$223.28
Concrete, CIP, formed reinforced	38	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$451.17	10	\$4,511.68
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$290.09	68	\$19,726.20
Dozer, 200 HP	928	Track mounted Dozer with horsepower range of 160 to 250. Equipment and power unit costs. Labor not included.	Hour	\$193.34	32	\$6,187.03
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic Yard	\$3.77	634	\$2,391.57
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$12.57	0.18	\$2.26

Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	49	\$1,531.43
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.27	\$30.58
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	7.2	\$5.24
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.18	\$7.07
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	9	\$7.03
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total	Pound	\$0.44	9	\$3.92

		product applied, no conversion is needed.				
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	0.36	\$44.24
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.18	\$8.38

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	36	\$1,055.61
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	\$19.74	32	\$631.53
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	\$38.60	32	\$1,235.11

Mobilization

Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	\$486.42	1	\$486.42
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$254.77	2	\$509.54

Practice: 561 - Heavy Use Area Protection

Scenario: #8 - Concrete Slab, not rebar reinforced

Scenario Description: A small winter feeding area will be stabilized by installation of a 5 inch thick concrete slab that is .not rebar reinforced. Waste materials are removed periodically from the pad with small front end loader tractor and land applied at appropriate times. This practice is typically associated with pasture grazing operations and would be located to serve 2 or more pastures. Installation includes all materials, equipment, vegetation of disturbed areas, and labor to install this practice. Where contaminated runoff will cause a resource concern, make provisions to collect, store, utilize, and/or treat contaminated runoff in accordance with the appropriate Conservation Practice Standard. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (Code 380) or Herbaceous Wind Barriers (Code 603). This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

Before Situation: This scenario addresses stabilizing soil areas where livestock are fed, typically during winter months. Typical herd size is small to medium (~30 to 50 head). Currently the cattle are winter fed on the ground and they disturb the soil, degrading soil quality. Animal waste is also able to run off the site, causing potential degradation to water quality.

After Situation: The 25' by 25' x 5.5" thick (630 square foot) stabilized area is surfaced with approximately 11 cubic yards of concrete with fiber reinforcement on 8 cubic yards of graded aggregate gravel material for surfacing areas. Excavation of about 18 CY of soil is required. The removed material will be spread in the adjacent area to a depth of 2". Approximately 1400 square feet of disturbed areas and 3020 sf of spoil area is reseeded.

Scenario Feature Measure: Area of concrete

Scenario Unit: Square Foot

Scenario Typical Size: 630

Total Scenario Cost: \$3,264.66

Scenario Cost/Unit: \$5.18

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$31.25	8	\$250.03
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$113.27	0.15	\$16.99
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.73	4	\$2.91
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	\$39.29	0.1	\$3.93
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	5	\$3.91
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.44	5	\$2.18
Straw	1237	Small grain straw (non organic and certified organic). Includes materials only.	Ton	\$122.89	0.2	\$24.58
Three Species Mix, Cool Season, Introduced Perennial Grass	2315	Cool season, introduced grass mix. Includes material and shipping only.	Acre	\$46.58	0.1	\$4.66

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$29.32	4	\$117.29
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Equipment Installation

Concrete, CIP, Slab on Grade, fiber reinforced	2001	Fiber reinforced concrete formed and cast-in-place as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$218.59	11	\$2,404.50
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and	Acre	\$12.57	0.1	\$1.26

		labor costs.				
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$44.42	4	\$177.66

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$254.77	1	\$254.77
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