

Practice: 394 - Firebreak

Scenario: #1 - FireBreak-Disked

Scenario Description: Installation of a bare-ground firebreak of a minimum width of 20' around a 20 acre field/farm using farm equipment. Generally water control devices such as water bars are not needed due either to the lack of steep terrain or the temporary nature of the firebreak. This practice is typically implemented to control fire during a prescribed burn of a field with shrubs and/or warm season grasses managed for wildlife. Resource concerns include Wildfire hazard from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, and Habitat degradation.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Installation will be accomplished by making two passes with the use of typical farm equipment such as tractors, plows, disks, or similar implements.

After Situation: Associated Practices: 338-Prescribed Burning; 383-Fuelbreak; 643- Restoration and Management of Declining Habitats; 645-Upland Habitat Development and Management; 647-Early Successional Habitat

Scenario Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 5000

Total Scenario Cost: \$478.81

Scenario Cost/Unit: \$0.10

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Labor

| | | | | | | |
|----------------------------|-----|--|------|---------|---|----------|
| Equipment Operators, Light | 232 | Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers | Hour | \$24.60 | 5 | \$123.00 |
| 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 | \$20.52 | 3 | \$61.57 |

Equipment Installation

| | | | | | | |
|----------------|-----|--|------|---------|-----|---------|
| Tillage, Light | 945 | Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs. | Acre | \$11.25 | 6.8 | \$76.51 |
| Truck, Pickup | 939 | Equipment and power unit costs. Labor not included. | Hour | \$22.00 | 2 | \$44.00 |

Mobilization

| | | | | | | |
|-------------------------------|------|--|------|----------|---|----------|
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$173.74 | 1 | \$173.74 |
|-------------------------------|------|--|------|----------|---|----------|

Practice: 394 - Firebreak

Scenario: #2 - Constructed - Medium equipment, flat-medium slopes

Scenario Description: Use of medium equipment such as small dozers to blade, disk, plow, etc. bare-soil firebreaks on slopes less than 15%. Generally, water control devices such as water bars are limited to 10 or less per 1,000 feet when properly planned and installed using the same equipment. Resource concerns include Wildfire hazards from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, and Habitat degradation.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical.

After Situation: The property is adequately protected from wildfire or can be safely prescribe burned and the potential for excessive erosion from the firebreak is negligible.

Scenario Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 3000

Total Scenario Cost: \$1,469.02

Scenario Cost/Unit: \$0.49

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

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 | \$26.87 | 4 | \$107.50 |
|----------------------------|-----|---|------|---------|---|----------|

Equipment Installation

| | | | | | | |
|--------------|------|--|------|---------|-----|----------|
| Dozer, 80 HP | 929 | Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$66.77 | 4 | \$267.10 |
| Water Bars | 1500 | Installation of graded trail water controlling structures such as water bars, broad based dips for erosion control. Typical cross section is 1.5 feet high with 4:1 side slopes yielding about 0.33 CY/ft of length. | Foot | \$2.57 | 325 | \$836.11 |

Mobilization

| | | | | | | |
|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$258.32 | 1 | \$258.32 |
|--------------------------------|------|---|------|----------|---|----------|

Practice: 394 - Firebreak

Scenario: #3 - Constructed - Medium equipment, steep slopes

Scenario Description: Use of equipment such as small dozers to blade bare-soil firebreaks on slopes greater than 15%. Water control devices such as water bars placed at approximately 15 to 25 per 1,000 ft section of firebreak, are necessary to control erosion. These will be installed with the same equipment. Resource concerns include Wildfire hazard from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, Habitat degradation, Soil erosion, and Excessive sediment in surface waters.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical. As slopes increase, the potential for excessive erosion increases from soil disturbances. Therefore the installation of water control devices such as water bars will be important in protecting the resource base.

After Situation: The property is adequately protected from wildfire or can be safely prescribe burned and the potential for excessive erosion from the firebreak is minimized.

Scenario Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 1000

Total Scenario Cost: \$1,404.71

Scenario Cost/Unit: \$1.40

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

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 | \$26.87 | 4 | \$107.50 |
|----------------------------|-----|---|------|---------|---|----------|

Equipment Installation

| | | | | | | |
|--------------|------|--|------|---------|-----|----------|
| Dozer, 80 HP | 929 | Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included. | Hour | \$66.77 | 4 | \$267.10 |
| Water Bars | 1500 | Installation of graded trail water controlling structures such as water bars, broad based dips for erosion control. Typical cross section is 1.5 feet high with 4:1 side slopes yielding about 0.33 CY/ft of length. | Foot | \$2.57 | 300 | \$771.79 |

Mobilization

| | | | | | | |
|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$258.32 | 1 | \$258.32 |
|--------------------------------|------|---|------|----------|---|----------|

Practice: 394 - Firebreak

Scenario: #4 - Vegetated Firebreak

Scenario Description: Establishing a 20 foot wide strip of permanent vegetation that will serve as a green firebreak. Scenario includes clearing the site, preparing the seedbed, seeding (typically cool season grasses and/or legumes), and applying needed soil amendments. Clearing will be achieved with the use of a bush hog or similar equipment. Seedbed preparation and vegetation establishment will be accomplished with farm equipment. Soil amendments will be applied according to local FOTG guidance. This scenario does not include follow-up maintenance operations such as weed control, mowing, etc. Resource concerns include Wildfire hazard from excessive biomass accumulation, Soil erosion, and Excessive sediment in surface waters.

Before Situation: Firebreak installed in the fall prior to scheduled spring prescribed burn to control fire. Green firebreak established by planting clover and winter wheat. Soil amendments applied at seeding.

After Situation: The property is adequately protected from wildfire or can be safely prescribe burned. Wildlife habitat will also be enhanced and the potential for erosion from the firebreak is minimized.

Scenario Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 5000

Total Scenario Cost: \$826.86

Scenario Cost/Unit: \$0.17

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

Materials

| | | | | | | |
|--|------|--|-------|----------|-----|----------|
| Herbicide, Glyphosate | 334 | A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only. | Acre | \$15.93 | 2 | \$31.85 |
| Lime, ENM | 75 | Fertilizer: Limestone Spread on field. | Ton | \$121.11 | 2 | \$242.22 |
| One Species, Cool Season, Introduced Perennial Grass | 2313 | Introduced, cool season perennial grass. Includes material and shipping only. | Acre | \$32.72 | 2 | \$65.44 |
| 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 | \$0.66 | 120 | \$79.12 |
| Potassium, K2O | 74 | K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed. | Pound | \$0.50 | 120 | \$59.49 |

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 | \$20.52 | 4 | \$82.09 |
|---------------|-----|--|------|---------|---|---------|

Equipment Installation

| | | | | | | |
|--|-----|--|------|---------|---|----------|
| Chemical, ground application | 948 | Chemical application performed by ground equipment. Includes equipment, power unit and labor costs. | Acre | \$6.19 | 2 | \$12.39 |
| Fertilizer, ground application, dry bulk | 950 | Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs. | Acre | \$6.94 | 2 | \$13.88 |
| Lime application | 953 | Lime application performed by ground equipment. Includes equipment, power unit and labor costs. | Acre | \$10.55 | 2 | \$21.09 |
| Mower, Bush Hog | 940 | Equipment and power unit costs. Labor not included. | Hour | \$52.41 | 2 | \$104.83 |
| Seeding Operation, No Till/Grass Drill | 960 | No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs. | Acre | \$21.56 | 2 | \$43.13 |

Mobilization

| | | | | | | |
|------------------------------------|------|--|------|---------|---|---------|
| Mobilization, very small equipment | 1137 | Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously. | Each | \$71.33 | 1 | \$71.33 |
|------------------------------------|------|--|------|---------|---|---------|

Practice: 394 - Firebreak

Scenario: #5 - Constructed - Wide, bladed or disked firebreak

Scenario Description: Installing a bare-ground firebreak with a width of 30' or more on gently to strongly sloping slopes with equipment such as a dozer with a heavy disk. Using smaller equipment, erosion control devices such as water bars will be installed at approximately 15 to 25 per 1,000 feet of firebreak length. Devices will have stable outlets. Resource concerns include Wildfire hazard from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, Habitat degradation, Soil erosion, and Excessive sediment in surface waters.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Wide firebreaks are needed due to topography, high wildfire risk or to their use as down-wind breaks for prescribed burns. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical. As slopes increase, the potential for excessive erosion increases from soil disturbances. Therefore the installation of water control devices such as water bars will be important in protecting the resource base.

After Situation: The property is adequately protected from wildfire or can be safely prescribe burned and the potential for excessive erosion from the firebreak is minimized.

Scenario Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 1000

Total Scenario Cost: \$2,636.82

Scenario Cost/Unit: \$2.64

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

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 | \$26.87 | 4 | \$107.50 |
|----------------------------|-----|---|------|---------|---|----------|

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 | \$493.20 | 1 | \$493.20 |
|-------------------------------|------|--|------|----------|---|----------|

Equipment Installation

| | | | | | | |
|---------------|------|--|------|---------|-----|------------|
| Dozer, 105 HP | 1320 | Track mounted Dozer with horsepower range of 90 to 125. Equipment and power unit costs. Labor not included. | Hour | \$85.21 | 4 | \$340.82 |
| Fire Plow | 1306 | Heavy wildland plow or disk used for installing firebreaks. Equipment costs only for plow, use with a dozer component. Labor not included. | Hour | \$50.57 | 3 | \$151.72 |
| Water Bars | 1500 | Installation of graded trail water controlling structures such as water bars, broad based dips for erosion control. Typical cross section is 1.5 feet high with 4:1 side slopes yielding about 0.33 CY/ft of length. | Foot | \$2.57 | 600 | \$1,543.59 |

Practice: 394 - Firebreak

Scenario: #6 - FireBreak-Dozer-Fire Plow

Scenario Description: Practice is installed to facilitate a prescribed burn which will help maintain or enhance habitat (cover, shelter and forage) as well as connecting fragmented habitats. This practice scenario will be implemented to enhance plant condition by improving productivity, health and vigor of desired tree species. Habitat quality will also be improved as a result of reducing the stocking density of plants in the understory by and enabling regeneration of ground level vegetation

Before Situation: A stand of forestland age 12-40+ with prescribed burning planned. Some border or property line firebreaks exist but additional firebreaks are needed to facilitate planned

After Situation: After Practice Implementation: Firebreaks are installed by a contractor using a bulldozer/Fireplow and push blade to clear flammable debris and vegetation along the planned location. Raking and hand work is used to tie bladed firebreaks into streams, wetlands and other sensitive areas. Planned firebreaks are installed according design bladed width. Associated Practices: 338-Prescribed Burning; 383-Fuelbreak; 643- Restoration and Management of Declining Habitats; 645-Upland Habitat Development and Management; 647-Early Successional Habitat

Scenario Feature Measure: Length of feet

Scenario Unit: Foot

Scenario Typical Size: 5000

Total Scenario Cost: \$1,393.30

Scenario Cost/Unit: \$0.28

Cost Details

| Component Name | Id | Description | Unit | Cost | Qty | Total |
|----------------|----|-------------|------|------|-----|-------|
|----------------|----|-------------|------|------|-----|-------|

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 | \$26.87 | 4 | \$107.50 |
| 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 | \$20.52 | 2 | \$41.05 |

Equipment Installation

| | | | | | | |
|---------------|------|--|------|----------|---|----------|
| Dozer, 200 HP | 928 | Track mounted Dozer with horsepower range of 160 to 250. Equipment and power unit costs. Labor not included. | Hour | \$196.04 | 4 | \$784.15 |
| Fire Plow | 1306 | Heavy wildland plow or disk used for installing firebreaks. Equipment costs only for plow, use with a dozer component. Labor not included. | Hour | \$50.57 | 4 | \$202.29 |

Mobilization

| | | | | | | |
|--------------------------------|------|---|------|----------|---|----------|
| Mobilization, medium equipment | 1139 | Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds. | Each | \$258.32 | 1 | \$258.32 |
|--------------------------------|------|---|------|----------|---|----------|