Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

FIREBREAK

CODE 394

(ft)

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DEFINITION

A permanent or temporary strip of bare or vegetated land planned to retard fire.

PURPOSE

This practice is used to accomplish one or more of the following purposes–

- Reduce the spread of wildfire
- Contain prescribed burns

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on all land uses where protection from wildfire is needed or prescribed burning is applied.

CRITERIA

General Criteria Applicable to All Purposes

Firebreaks may be temporary or permanent and shall consist of fire-resistant vegetation, non-flammable materials, blackened (burned) areas, bare ground, or a combination of these.

Firebreaks will be of sufficient width and length to contain the expected fire.

Firebreaks shall be located to minimize risk to the resources being protected.

Erosion control measures shall be installed to prevent sediment from leaving the site, when applicable.

Plant species selected for vegetated firebreaks will be noninvasive and capable of retarding fire.

The landowner shall comply with applicable federal, state, and local laws and regulations, during the installation, operation and maintenance of this practice.

Location

Firebreaks shall be located:

- Parallel to public roads, railroads, and adjacent to field boundaries, if needed in the situation.
- Along property boundaries, within burn units or within fields where it is determined necessary to protect areas that are not to be burned.
- Where possible the firebreaks shall be connected to natural barriers such as cultivated fields, streams, rock bluffs, or roads.
- To protect farmsteads or other structures by surrounding them at a safe distance.

NRCS reviews and periodically updates conservation practice standards. To obtain the current version of this standard, contact your Natural Resources Conservation Service State office or visit the Field Office Technical Guide online by going to the NRCS website at https://www.nrcs.usda.gov/ and type FOTG in the search field.

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Width
The total width of the firebreak is based on the type of fuel to be burned and the location in relation to the area to be burned.

Combinations of firebreak types can be used to establish the total firebreak width (e.g. 10' bare ground firebreak + 290' blackline firebreak = 300' minimum width).

The following minimum firebreak widths shall be established along the edges of the burn unit:

- Downwind edge - 100 feet wide, when fuel consists of non-volatile herbaceous vegetation and 500 feet wide when volatile fuels such as juniper are on-site.
- Downwind flank edge – 100 feet wide, when fuel consists of non-volatile herbaceous vegetation and 300 feet wide when volatile fuels such as juniper are on-site.
- Upwind flank edge – 10 feet wide and 100 feet wide when volatile fuels such as juniper are on-site.
- Upwind edge – 10 feet wide.

Types of Firebreaks
There are 5 basic types of firebreaks: Natural, Bare Ground, Blackline (burned), Vegetated and Mowed Wet-line. The type selected will be determined by the specific site conditions, due to the variability of vegetation types, topography, and soil conditions.

Natural Firebreaks
Existing terrain features such as streams, lakes, ponds, rock outcrops, roads, field borders, skid trails, landings, drainage canals, railroads, utility right-of-ways, cultivated land, or other areas devoid of flammable material can serve as a firebreak as long as the minimum width requirements are met.

Bare Ground (constructed) Firebreaks
Disks, graders, plows, or bulldozers can be used to create bare ground firebreaks.

Bare ground firebreaks shall be constructed before the fire hazard season or prior to the prescribed burn, and fashioned so that it can be traversed by fire suppression vehicles.

All combustible material shall be:

- Covered with soil by machinery.
- Stacked outside the planned burn unit.
- Stacked inside the burn unit well past the minimum firebreak width.
- Stacked and burned prior to the prescribed burn when the surrounding fuel source is too green or wet to burn.

Heavy equipment, such as a bulldozer, will be required on rocky areas, creek crossings, steep slopes and to remove thick brush or large trees.

The width of the bare ground firebreaks shall be a minimum of 10 feet. Other firebreak types can be used in combination with bare ground firebreaks to establish the minimum total width required.

Slopes 10% and greater will have water bars constructed. (Refer to: Forestry Extension Report #5, Best Management Practices for Forest Road Construction and Harvesting Operations in Oklahoma.)

Blackline (Burned) Firebreaks
Blackline firebreaks are installed only when used in combination with other types of firebreaks to meet the minimum total width requirement.

Blackline firebreaks can be installed by constructing two 10 foot wide parallel strips to mineral soil, around the area to be burned (Refer to Oklahoma NRCS Job Sheet JS 394 01). The two parallel strips shall be

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approximately 100 feet apart on grasslands and up to 500 feet apart when volatile fuels are to be burned. Burn the area between the strips to complete the firebreak.

Flammable material, such as logs, limbs, brush piles, standing or downed juniper, or discarded fence posts shall be removed from the blackline firebreak.

Burning of the blackline firebreaks shall be implemented using guidance found in the Oklahoma NRCS Prescribed Burning (338) standard and/or with the assistance of the Oklahoma Forestry Services Division.

Vegetated Firebreaks

Vegetated firebreaks are constructed firebreaks, which are established to non- flammable perennial or annual cool season plants to reduce future maintenance costs, prevent soil erosion, and provide wildlife food.

Establish vegetation across the entire minimum firebreak width if the vegetated firebreak is the only means of fire protection.

Vegetated firebreaks will be established according to the Oklahoma NRCS Critical Area Planting (342) and/or Cover Crop (340) standard.

Fertilizer will be applied according to the Oklahoma NRCS Nutrient Management (590) standard.

Mowed Wet-Line

Mowed firebreaks using wet-lines can be used as long as adequate personnel, equipment, and water supplies are available for safe conduct of the procedure.

Mowed firebreaks shall be a minimum of 10 feet wide or 10 times the height of the flammable vegetation in the area to be burned. The mowing height shall be approximately 4 inches or less. Piles of grass shall be removed by raking or baling.

Water will be sprayed on the mowed firebreak to create a wet-line immediately in advance of ignition of the fire. Fire creeping across the mowed firebreak shall be immediately extinguished before the ignition crew proceeds along the mowed firebreak.

Burned firebreaks can be used in combination with mowed wet-line firebreaks to create the total minimum firebreak width.

Mowed wet-line firebreaks can provide a firm surface for equipment but can be quite time consuming and less predictable, therefore it is not the preferred method. However, mowed wet-line firebreaks can be feasible alternatives on steep slopes to reduce erosion potential.

CONSIDERATIONS

When using natural barriers, consider the effects on wildlife and fisheries and the crew's ability to cross them if the fire escapes.

Electric lines can be hazardous in heavy smoke as they may conduct electricity to the ground, therefore use caution when burning near them.

Attempt to locate firebreaks near ridge crests and valley bottoms to reduce fire intensity.

If winds are predictable, firebreaks should be located perpendicular to the wind and on the upwind side of the area to be protected.

Consider using diverse plant species combinations, on vegetated firebreaks, which best meet local native wildlife and pollinator needs.

Locate firebreaks on the contour where practical to minimize risk of soil erosion.

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Design and layout should include multiple uses such as roads, food plots, etc.

Consider the beneficial and other effects of firebreak installation on cultural resources and threatened and endangered species, natural areas, riparian areas and wetlands.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan and the burn plan (JS 338 01), or other acceptable documentation. In the prescribed burn plan record location, type, dimensions, equipment requirements, and maintenance of firebreak.

OPERATION AND MAINTENANCE

Mow, disk, or graze vegetative firebreaks to avoid a build-up of excess litter and to control weeds. Treatment should be timed to reduce impacts to nesting when possible.

Inspect all firebreaks for woody materials such as dead limbs or blown down trees and remove them from the firebreak.

Inspect firebreaks at least annually and rework bare ground firebreaks as necessary to keep them clear of flammable vegetation.

Repair erosion control measures as necessary to ensure proper function.

Access by vehicles or people will be controlled to prevent damage.

Bare ground firebreaks, which are no longer needed, will be stabilize.

REFERENCES

OSU Cooperative Extension Service Circular E 927, “Using Prescribed Fire in Oklahoma”.

“A Guide for Prescribed Fire in Southern Forests”. USDA Forest Service, Southern Region. Technical Publication R8-TP 11, February 1989.

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