NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FIREBREAK

(Ft.)

CODE 394

DEFINITION

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

PURPOSE

- 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.

Locate firebreaks to minimize risk to the resources being protected.

Apply erosion control measures to prevent sediment from leaving the site, as applicable.

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

Comply with all applicable federal, state, and local laws and regulations, during the installation, operation and maintenance of firebreaks.

Location

Locate Firebreaks:

- Parallel to public roads, railroads, and adjacent to field boundaries, as applicable for the situation.
- Along property boundaries and within fields where it is determined necessary to protect areas that are not to be burned.
- In connection to existing barriers, such as cultivated fields, streams, lakes, ponds rock bluffs or roads as applicable.
- Surrounding farmsteads, structures, and/or sensitive areas at a safe and effective distance as necessary.

Types and Sizes of Firebreaks

There are five types of primary firebreaks: Natural, Constructed, 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.

Width of the firebreak type(s) is based on the type and height of fuel to be burned, the location of the firebreak in relation to the burn area, and/or the firebreaks level of permanence.

Natural Firebreaks

Existing terrain features such as streams, lakes, ponds, rock outcrops, roads, field borders, skid trails, railroads, utility right-of-ways, cultivated land, or other areas devoid of flammable material can serve as firebreaks for installing low-intensity backfires.

Ensure or enhance natural firebreaks to meet minimum width necessary for any connecting constructed firebreaks.

Adequate personnel and equipment must be available for spot suppression.

Constructed Firebreaks

Use equipment such as disks, graders, plows, or bulldozers to create bare ground constructed firebreaks.

Construct bare ground firebreaks before the fire hazard season or prior to the prescribed burn in a manner to allow travel by fire suppression/control vehicles.

All combustible material will be:

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

Use heavy equipment, such as a bulldozer, to remove thick brush and large trees in rocky areas, creek crossings and on steep slopes.

Construct firebreaks to a minimum width of 3X the height of the tallest vegetation to be burned or 8 feet, whichever is greater.

Apply erosion control measures to prevent sediment from leaving the site. Refer to CRITICAL AREA SEEDING (342) for vegetation establishment and FOREST TRAILS AND LANDINGS (655) for erosion control techniques, such as installation of water bars.

Firebreaks in Forestland Areas

Use leaf blowers/rakes to remove leaves, duff and small branches from existing or newly created firebreaks to bare mineral soil.

Construct firebreaks to a minimum width of 2X the height of the tallest vegetation to be burned or 4 feet, whichever is greater.

Rake fuel away from dead or hollow trees within 100 feet of firebreaks to prevent dead or hollow trees from igniting or falling across firebreaks.

Burned Firebreaks

Burned firebreaks (blacklining) are installed only when used in combination with other types of firebreaks under prescribed conditions to enhance existing firebreaks necessary for adequate control of the fire condition.

Create burned firebreaks within one week of scheduled burn and during evening or early morning hours when temperature is low and the humidity is high (over 40%) and wind speeds are under 10 mph, resulting in an easy to control fire.

Vegetated Firebreaks

Vegetated firebreaks are constructed firebreaks that are planted in cool season plants to reduce future maintenance costs, prevent soil erosion, and provide wildlife food.

Construct vegetated firebreaks to a minimum width of 3X the height of the tallest vegetation to be burned or 15 feet, whichever is greater.

Select plant species that are noninvasive, comprised of attributes making them capable of retarding fire, and easy to maintain.

Refer to CONSERVATION COVER (327) Table 2. for seeding rates of one or more of the suitable species listed below in Table 1.

Table 1 - Suitable Species

Cool-Season Grass Species
Kentucky Bluegrass
Orchardgrass
Legume Species
Alsike Clover
Ladino Clover
Crimson Clover
Red Clover
Annual Lespedeza
Alfalfa

Manage the firebreak to reduce residue, thatch and woody establishment accumulation by grazing, haying or mowing and remove all clippings prior to burn.

For additional forage-based seed mixes refer to FORAGE AND BIOMASS PLANTING (512).

Fertilize, lime and maintain the prepared area at rates according to CONSERVATION COVER (327) and/or PASTURE AND HAYLAND PLANTING (512).

Note: Bluegrass is undesirable in prairie restoration areas and should be substituted with a solid legume firebreak.

Mowed Wet-line

Mowed firebreaks using wet-lines can be used as long as adequate personnel, equipment and water supply areas are available to safely conduct the procedure.

Only use mowed wet-line firebreaks with practices that remove residual fuel such as raking, baling, blacklining and blowing to create a fuel free zone.

Prepare mowed firebreaks to a minimum of 3X the height of the tallest vegetation to be burned or 15 foot, whichever is greater. Set mowing height to approximately 4 inches or less. Remove piles of grass by raking, baling or blowing.

Spray water on the mowed firebreak to create a wet-line immediately in advance of ignition of the fire. Immediately extinguish fire creeping across the mowed firebreak before proceeding further.

Foam solutions can be used to increase the effectiveness of mowed wet-line applications but may require specialized material, equipment and personnel.

CONSIDERATIONS

Firebreaks can be made more effective by “fire intensity reduction mowing.” Strips of vegetation 8 to 15 feet wide in the burn area, adjacent to the firebreak, are mowed to a height of 10 to 15 inches. Flame length and heat intensity are greatly reduced, especially in tall stands and high fuel loads. Be sure mowed material does not become windrowed or concentrated. Consider using this technique adjacent to areas where burn crew members may be located, such as backfire and flank lines.

When using natural barriers, consider the effects on wildlife and fisheries and the crew’s ability to cross in the event of an escape.

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.

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

Consider using diverse species combinations which best meet locally native wildlife and pollinator needs.

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

Firebreak design and layout should include multiple uses.

Consider the beneficial and other effects of installation of the firebreak 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 (IL Job Sheet 338), or other acceptable documentation.

OPERATION AND MAINTENANCE

Mow, disk, or graze vegetative firebreaks to avoid a build-up of excess litter and to control weeds. Time treatment 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.

Control access by vehicles or people to prevent damage.

Stabilize bare ground firebreaks, which are no longer needed.

REFERENCES

Using Prescribed Fire on Illinois Grasslands, IL Ecological Sciences Technical Note No.2
USDA-NRCS, Champaign, IL.

Firebreaks for Prescribed Burning OSU Cooperative Extension Service NREM-2890.

Illinois Forestry Best Management Practices
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