

WILDFIRE MITIGATION PLAN

For Jane Miller
4211 Sugarloaf Rd
Docket: SPRW - 10 - 0070
Inspection date: 3/13/2011

Prepared for:

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PURPOSE OF A WILDFIRE MITIGATION PLAN

The purpose of a Wildfire Mitigation Plan is to give guidelines for reducing wildfire hazards around a home or other structures through fuels reduction. It is a document to inform urban interface home owners of the dangers and responsibilities of living in the interface. This plan will help outline the initial and ongoing fuels reduction needed to create and maintain an effective wildfire defensible space. However, having a wildfire mitigation plan, implementation of a defensible space thinning, and following all the recommendations as outlined in this plan **does not guarantee that your home will survive a wildland fire; however, in combination they will give your home the best potential probability to survive a wildland fire.**

SITE LOCATION AND PROPERTY DESCRIPTION

The property is located in Section 25, Township 1N, and Range 72W, Boulder County. The property is located within the Sugarloaf Fire Protection District (303-442-1050). A 1,872 sq.ft barn is proposed for the site. The lot is 15.5 acres in size and has a modest 0-20 percent slope with a northeast aspect. The site is at 7,600 feet in elevation and located on a mid-slope which is relatively dry. Sugarloaf Rd to the north creates a small natural barrier that may help slow the spread of a surface fire on the site.

CONSTRUCTION DESIGN AND MATERIALS

The proposed barn will have a moderately complex design with a moderately complex roofline and will be oriented with a northeast aspect. **The overall design of the structure greatly influences how it will withstand a wildfire. Complex building forms create heat traps, areas where the walls and roof members intersect on another where eddies form and hot air and embers from a fire can collect. It is important to keep these areas clear of combustibles such as needles and brush.**

The roofing material will consist of metal. **Falling embers and fire brands from a wildfire can land on a roof and ignite the roof, either by directly heating the roofing material, or by igniting light fuels (pine needles) that have collected on the roof. It is recommended to place screening over gutters and/or make a yearly check to keep them clear of leaves and needles.**

The exterior wall material is to be metal and stone. **All operable windows must be provided with screening that is constructed of either aluminum, galvanized steel, copper or of an approved material that when exposed to flame for 15 seconds, will not burn through or melt, and remains intact. Windows are one of the weakest parts of a structure with regards to wildfire. They often crack and fail before the structure itself ignites, providing a direct path for embers and radiant heat to reach the interior. It is best to minimize the number of windows, especially on the downhill side of the structure. Fire typically burns up hill faster and will create a great deal of radiant heat.**

UTILITIES

The propane tank is to set on a pad of crushed rock overlaying a weedbarrier ~20 ft northwest of the residence. Utilities for the property are buried from a pole ~150 ft. southeast of the residence. The septic field is located ~110 ft. northeast of the residence. A well is located ~300 ft. northwest.

DRIVEWAY ACCESS FOR EMERGENCY VEHICLES

Access the property from Boulder by traveling west on Boulder Canyon, turn north on Sugarloaf Rd end at 4211 Sugarloaf Rd. Emergency evacuation from this property is dependent on the location of a fire at a given time. Two main evacuation routes could be east on Sugarloaf Rd to Boulder Canyon and east to the city of Boulder or west on Sugarloaf Rd to the Peak To Peak Hwy.

Construction use on the existing driveway will not create site disturbance or soil compaction and will not require the removal of any trees. The driveway must be ~12 feet wide with a vertical clearance of 13'6" and a grade that is less than 12 percent. The driveway is approximately 585 ft long. A hammerhead turnout already exists within 50 feet from the residence. Since the driveway is greater than 400 ft., one pull-outs already exists along the driveway.

EMERGENCY WATER SUPPLY FOR FIRE FIGHTING

Emergency water source will be from a community cistern within the Sugarloaf Fire Protection District. The residence will also be making a contribution to the community cistern fund. Contact the Sugarloaf Fire Protection District (303-442-1050) for more information and specific details.

FUELS REDUCTION

All trees to be removed are marked with blue spray paint. All trees that are to remain within zones 1 and 2 will be unmarked and need to be pruned to a height of 6 ft or 1/3 the height of the tree, whichever is less. If the property is less than 1 acre it may not have zones marked due to boundary interference. Harvested wood that remains on site will be stacked at least 30 feet from the house and at the same elevation when possible. Slash from the harvest will be hauled. Note that if you decide to burn piles, you must obtain a valid Open Burning Permit from the Boulder County Environmental Health Department (303-441-1180) and notify your local fire protection district Sugarloaf Fire Protection District (303-442-1050).

FOREST COMPONENT AND HEALTH

The site has a dominant overstory consisting of Douglas fir (*Pseudotsuga menziesii*) with a Douglas fir and ponderosa pine (*Pinus ponderosa*) component. The understory consists of a dense cover of native grasses, forbs, and shrubs. The forested area is best represented by Fuel Model 8. Fuel Model 8 is represented by closed canopy stands of ponderosa pine and mixed conifer. Understory may consist of small trees and shrubs, grasses and moderate concentrations of down, dead woody litter. High amounts of needle litter may be present. This model can exist from foothills to subalpine. The Black Tiger fire burn through the area in 1989 killing many of the trees. The only remaining trees are directly around the house. The majority of the 15.5 acres is a meadow.

There were no current signs of insect or disease problems on the property at the time of the inspection.

DEFENSIBLE SPACE MANAGEMENT

There are three defensible space zones to be created around the structure(s) on the site. Please note that it is possible that one or more of these zones will cross over the subject property onto adjacent properties. Property boundaries must be respected; mitigation work is not required beyond immediate boundaries. However, landowners are encouraged to contact and work with neighbors if property lines limit the ability to mitigate within the prescribed area. **Defensible space is a benefit, not only to the individual but also to the community as a whole.**

Zone 1 - Starts at the foundation and extends out 15 feet in all directions from the outside edge of the structure(s). Zone 1 is broken down into three segments:

Zone 1A - Consists of the structure(s) themselves and the area immediately adjacent to and surrounding the structure(s) on all sides. A five-foot wide, non-flammable strip must be created using crushed gravel over a fiberglass weed barrier material. This strip will also extend back under, and out to, two feet past the drip line of any decks.

Zone 1B - Extends out from Zone 1A. In this zone, all highly flammable vegetation should be removed. Any large dead woody material on the ground must also be removed. Firewise plants should be used for landscaping and re-vegetation. Grasses should be irrigated when possible and mowed to a maximum height of 6 to 8 inches twice per growing season to a distance of 30 feet from the structure.

Zone 1C - This zone extends out from Zone 1B to 15 feet from the house. All understory trees (ladder fuels) must be removed as marked. These are small seedling and sapling size trees that can be ladders for fire to get in the crowns of the larger trees. A few of the larger, healthy trees can be retained for screening. All remaining trees in this zone must be pruned to a height of 10 feet. They must be well spaced so that the crowns are not touching (10 foot minimum crown spacing). No trees should overhang the house or decks, unless approved by Boulder County or CSFS as "part of the structure" with additional fuels reduction around those trees to insure the defensible space integrity. Trees should be at least 15 feet away from the house on all sides, and a minimum of 20 feet from chimneys.

Zone 2 - This zone extends out from Zone 1C, and acts as a transition zone between the heavily thinned areas near the house to the existing forest setting. It extends down slope between 100-170 feet depending upon slope steepness. Zone 2 also extends on either side of the structure a minimum of 100 feet and behind the house between 70-100 feet assuming no boundary restrictions. Tree spacing begins as in Zone 1C and gradually decreases as you approach the outer edge of the zone. Thinning and crown spacing becomes greater in areas of steep slopes. Ladder fuels and poor quality,

suppressed and/or diseased trees, 6 to 8 inches in diameter, make up the majority of the removals. The remaining mature trees must be pruned to a height of 10 feet at the intersection of Zones 1 and 2 with limbing reduced in height to 6 feet as you approach Zone 3. If there are any questions pertaining to slope and the changes in thinning spacing and distance regulations please refer to <http://www.ext.colostate.edu/pubs/natres/pubnatr.html> and find the *Quick Facts 6.302 Creating Wildfire Defensible Space*.

Zone 3 - This zone extends out from Zone 2 to the edge of the property. It may extend out to areas that are not part of the immediate mitigation efforts. In this zone, a few thicker clumps of trees are acceptable, as well as some unpruned trees near the outer edge. Thinning in this zone adds some protection, but is aimed more at forest health. Trees that are of poor quality or form, or have insect or disease infestations, should be removed. Slash in this zone can be lopped and scattered and/or piled for wildlife use.

- Thin suppressed trees and trees with disease and insect infestations and retain the larger, healthier trees.
- Snags can be retained for wildlife.
- Some slash in this zone can be lopped and scattered and/or piled for wildlife enhancement and shelter.
- Large amounts of slash should be disposed of by chipping, hauling to an approved site, or burning.
- For burning permits, check with your local fire protection district.

MAINTENANCE AND RECOMMENDATIONS

As detailed in fact sheet 6.302, *Creating Wildfire Defensible Zones*, an important factor that determines a structure's ability to survive wildfire is defensible space. Defensible space is a maintained area around a structure where fuels (flammable materials) are modified to slow the possible spread of wildfire to the structure, as well as from the structure to the surrounding areas. Defensible space provides a place where structure protection and fire suppression operations may occur. Wildfire hazard mitigation work breaks up fuel continuity, potentially decreasing a wildfire's intensity, and for more effectiveness should be completed beyond a home's defensible space, zone 1 and 2, area into zone 3.

In addition to the above recommendations, several other measures can be taken to make your home more fire safe and add an additional measure of safety for your family. While not required through site plan review, the following measures should be undertaken to maintain the home and defensible space in the future.

- Maintain your defensible space yearly; contact your local forester for a 5-year maintenance inspection
- Establish an escape route and safety zone with the aid of your local fire protection district
- Keep firewood at least 30 feet away from buildings; clear weeds and grass from around pile
- Do not stack fresh cut wood against live trees – this could invite unwanted insects
- When possible, maintain an irrigated green space; mow grasses 6" to 8" high
- Connect, and have available, a minimum of 50 feet of garden hose with an adjustable nozzle
- Have an emergency evacuation plan in place (included in wildfire mitigation plan)
- Be aware of fire danger; your nearest fire danger sign is located at your fire station or check the Boulder Fire Weather website at www.crh.noaa.gov/bou
- Keep driveways and property address marked with reflective easy to see signs
- Maintain screens on foundations, soffit vents, roof vents, and attic openings
- Get rid of unnecessary accumulations of debris and trash from yards
- Keep tools such as shovels, rakes, ladders, and axes available and ready for use
- Clean debris from the roof and gutters at least two times annually
- Check screens and maintain spark arresters on chimneys annually
- Avoid storing combustibles under decks such as wood piles, scrap lumber, and fuels

DEFINITIONS

Aspect – Exposure. The direction a slope faces.

Canopy – The cover of branches and foliage formed collectively by crowns of adjacent trees.

Crown – Branches and foliage of a tree.

Dominant fuel type – Matter that would carry a fire, found on the ground.

Duff – a layer of accumulated dead organic matter (pine needles).

Eddies – Small wind occurrences that are separate from normal wind flows.

Fuel Model – A number system that identifies the types of fuels found on the property that will directly influence fire behavior.

Fire danger - An assessment of both fixed and variable factors of the fire environment, which determine the ease of ignition, rate of spread, difficulty of control, and the fire impact.

Fire hazard - The potential fire behavior for a fuel type, regardless of the fuel type's weather-influenced fuel moisture content or its resistance to fireguard construction. Assessment is based on physical fuel characteristics, such as fuel arrangement, fuel load, condition of herbaceous vegetation, and presence of elevated fuels.

Fire management - The activities concerned with the protection of people, property and forest areas from wildfire and the use of prescribed burning for the attainment of forest management and other land use objectives, all conducted in a manner that considers environmental, social and economic criteria.

Fire risk - The probability or chance of fire starting determined by the presence and activities of causative agents.

Fuel continuity – The proximity of fuels to each other. Helps determine if a fire can sustain itself.

Forest health - A forest condition that is naturally resilient to damage; characterized by biodiversity, it contains sustained habitat for timber, fish, wildlife, and humans, and meets present and future resource management objectives.

Ladder fuels - Fuels that provide vertical continuity between the surface fuels and crown fuels in a forest stand, thus contributing to the ease of torching and crowning.

Limb (verb) –To remove the branches from a tree.

Noxious weeds - Any weed so designated by the Weed Control Regulations and identified on a regional district noxious weed control list.

Overstory – The tree species that forms the uppermost forest layer (dominant and co-dominant).

Slash – The residue left on the ground as a result of forest and other vegetation being altered by forest practices or other land use activities.

Snag – Standing dead tree, often used by wildlife such as woodpeckers, owls, and other various mammals.

Understory – Plants that grow underneath the overstory species.

Wildland urban interface – a popular term used to describe an area where various structures (most notably private homes) and human developments meet or are intermingled with forest and other vegetative fuel types.



Property of
Jane Miller
4211 Sugarloaf Road
SPRW - 10 - 0070



Legend

-  Zone 1
-  Zone 2
-  Driveway
-  Property Boundary

-  Septic field
-  Large leaf trees
-  Propane
-  Well
-  House
-  Barn



Site Plan Review Waiver Fact Sheet

The applicant(s) is/are required to complete each section of this Fact Sheet is required to be completed, even if the information is duplicated elsewhere in the application. Completed Fact Sheets cut application review time, and assist staff in expediting determinations. Please make duplicates of this page if the project involves more than two structures. **Please note:** If a project is granted a SPR Waiver but the building permit floor area calculations result in new floor area exceeding 2,000 sq. ft., then the project will trigger a full SPR prior to issuance of a building permit.

Structure #1 Information

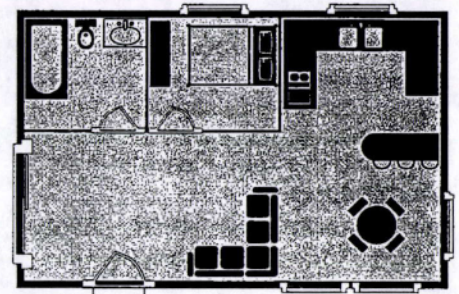
Type of Structure: (e.g. residence, studio, barn, etc.)		POLE BARN	
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)		sq. ft.	Demolish: sq. ft.
Are new floor areas being proposed where demolition will occur? ☐ No ☐ Yes (include the new floor area square footage in the table below)			
Proposed Floor Area (New Construction Only)			☐ Residential ☒ Non-Residential
	Finished	Unfinished	Total
Basement:	sq. ft.	sq. ft.	sq. ft.
First Floor:	sq. ft.	sq. ft.	1872 sq. ft.
Second Floor:	sq. ft.	sq. ft.	sq. ft.
Garage: ☐ Detached ☐ Attached	sq. ft.	sq. ft.	sq. ft.
Covered Deck:	sq. ft.	sq. ft.	sq. ft.
Total:	sq. ft.	sq. ft.	sq. ft.
			Total Bedrooms

Project Identification:

Project Name:
Property Address/Location:
Current Owner:
Size of Property in Acres:

Determining Floor Area

Floor Area is measured in terms of square feet. The total square footage is as everything within the exterior face of the outside walls which includes garages and basements. The shaded area on the diagram indicates the area counted as square feet.



Residential vs. Non-Residential Floor Area

Residential floor area includes all attached and detached floor area (as defined in Article 18-162) on a parcel, including principal and accessory structures used or customarily used for residential purposes, such as garages, studies, pool houses, home offices, workshops, gazebos, and carports under 200 square feet each, up to 400 square feet total. Barns used for agricultural purposes are not considered residential floor area.

Note: If an existing wall(s) and/or roof(s) are removed and a new wall(s)/roof(s) are constructed, the associated floor area due to the new wall(s)/roof(s) are considered new construction and must be included in the calculation of floor area for the Site Plan Review and shown on this Fact Sheet.

If a Limited Impact Special Review is required, then call 303-441-3930 and ask for a new Pre-application Conference for the Limited Impact Special Review.

Structure #2 Information

Type of Structure: (e.g. residence, studio, barn, etc.)			
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)		sq. ft.	Demolish: sq. ft.
Are new floor areas being proposed where demolition will occur? ☐ No ☐ Yes (include the new floor area square footage in the table below)			
Proposed Floor Area (New Construction Only)			☐ Residential ☐ Non-Residential
	Finished	Unfinished	Total
Basement:	sq. ft.	sq. ft.	sq. ft.
First Floor:	sq. ft.	sq. ft.	sq. ft.
Second Floor:	sq. ft.	sq. ft.	sq. ft.
Garage: ☐ Detached ☐ Attached	sq. ft.	sq. ft.	sq. ft.
Covered Deck:	sq. ft.	sq. ft.	sq. ft.
Total:	sq. ft.	sq. ft.	sq. ft.
			Total Bedrooms