

WILDFIRE MITIGATION PLAN

For Martin Leopold
429 Ridge Road, Ward, CO 80481
Docket: SPRW - 09- 011
Inspection date: 6/9/2009

**Colorado
State**
FOREST
SERVICE
Boulder District
5625 Ute Highway
Longmont, CO 80503
(303) 823-5774
FAX: (303) 823-5768

Prepared for:
Martin Leopold
740 Yale Road
Boulder, CO 80305
Phone: 720-565-0107

Prepared by:
Nicole Palestro
Boulder District
Phone: (303) 823-5774
E-mail: palestro@lamar.colostate.edu

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 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 27, Township 2N, Range 72W, Boulder County. It is located within the Lefthand Fire Protection District. The lot is 5.35 acres in size and has a modest ~2-5 percent slope with a east aspect. The site is at ~8,500 feet in elevation and located in a valley which is relatively dry. Ridge Road to the west will create a small natural barrier that may help slow the spread of a surface fire on the site.

CURRENT AND FUTURE PLANS FOR THE SITE

A 3,316 sq. ft. remodel is proposed for the site. There is one house and a detached garage located on the site at this time.

CONSTRUCTION DESIGN AND MATERIALS

The proposed remodel will have a moderately complex design with a moderately complex roofline and will be oriented with a western aspect. Buffer material around the structure will be of stone. **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 with one another creating eddies where 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 Class A asphalt shingles. Soffit material will be of 3/8" cement board. **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 gutters and roofs clear of leaves and needles.**

The exterior wall material is to be stucco. The structure will have 30 medium sized windows. Windows will be double glazed with Low E-coating and tempered glass where required. Frames will be made of fiberglass clad wood. Exterior doors are to be fire-rated, and made of solid core fiberglass that is not less than 1-3/4 inches thick. There are no window wells present on this structure. **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 uphill faster and will create a great deal of radiant heat.**

A deck will be constructed of composite decking material with wood supports. The deck will be enclosed underneath and open overhead. The deck will have a buffer material of crushed decorative stone on top of a non-combustible polyester weed barrier. **Decks must be kept clean and free of combustible materials. Keep debris such as pine needles, wood, and vegetation away from deck. Each year rake pine needles and other combustible material from underneath decks and overhangs.**

UTILITIES

There are 2 propane tanks located ~ 40 feet to the west of the structure. Utilities for the property will be buried from a pole located ~85 feet to the west of the structure. The septic field will be located ~40 feet to the east of the structure. A well is located ~40 feet to the west of the structure. **Propane tanks above ground must not have anything combustible around them (such as firewood, or wooden fencing) or above them (such as overhanging tree limbs). Slash pile and wood piles should be at least 30 feet from the tank. Maintain a 10-foot vegetation free zone around the propane tank.**

DIRECTIONS AND EVACUATION ROUTES TO AND FROM PROPERTY

To reach the property from Boulder, head west on Lefthand Canyon through Jamestown to the Bar K Ranch subdivision. Emergency evacuation from this property is dependent on the location of a fire at a given time. Two main evacuation routes could be on Ridge Road to Rock Lake Road or Ridge Road to Ranch Road. Both routes connect to Overland Road which connects with the Peak To Peak Hwy to the west and James Canyon on the east.

DRIVEWAY ACCESS FOR EMERGENCY VEHICLES

Construction on the site will not create any additional site disturbance of soil compaction to the existing driveway. It will require the removal of few trees. The driveway is ~12 feet wide with a vertical clearance of 13'6" and a grade that is less than 12 percent. The driveway is ~70 feet in length and is connected to the main road on two sides. **However, on longer driveways, pull-outs and turn-arounds are essential for emergency vehicles to be able to turn around or pass safely on any road or driveway.**

EMERGENCY WATER SUPPLY FOR FIRE FIGHTING

The emergency water source will be from a fire cistern or a community cistern. A potable water cistern is located ~30 feet to the west of the structure. Contact the Lefthand Fire Protection District (720-214-0560) 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 should 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.

FOREST COMPONENT AND HEALTH

The site has a dominant overstory consisting of ponderosa pine (*Pinus ponderosa*) with a ponderosa pine, Douglas-fir (*Pseudotsuga menziesii*) and quaking aspen (*Populus tremuloides*) component. The understory consists of a dense cover of native grasses, shrubs and forbs. The forested area is best represented by Fuel Model 9. Fuel Model 9 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.

There were signs of dwarf mistletoe and ips beetle activity noted 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) 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 over a polyester 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 to 10 feet from the structure. **In this zone, all highly flammable vegetation such as ground juniper should be removed.** Ground juniper contains a high oil content. This in combination with the dead material that builds up underneath the shrub produces very flammable vegetation. 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 structure. **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 retaining the larger, healthier trees. Snags, 2 to 4 per acre, can be retained for wildlife. Slash in this zone can be lopped and scattered and/or piled for wildlife use. Large amounts of slash should be disposed of by chipping, hauling to an approved site, or burning. Burn permits can be obtained from Boulder County.

OTHER DEFENSIBLE SPACE 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.

- Keep firewood at least 30 feet away from buildings; clear weeds and grass from around wood piles
- When possible, create and maintain an irrigated green space in zone 1 and/or 2; keep grasses mowed at least 6" to 8" in height
- Place and maintain screens and spark arresters on chimneys
- Place and maintain screens on soffit vents, roof vents, and attic openings
- Place shutters, fire curtains or heavy drapes on windows.
- Enclose sides of stilt foundations and decks.
- Place placards on garages if storing flammable materials inside.
- Install and test smoke detectors.
- Remove unnecessary accumulations of debris and trash from yards
- Connect, and have available, a minimum of 50 feet of garden hose with an adjustable nozzle
- Keep tools such as shovels, rakes, ladders, and axes available and ready for use
- Create reflective easy to see signs for driveways and property addresses
- Avoid storing combustibles under decks such as wood piles, scrap lumber, and fuels
- Maintain your defensible space yearly; contact your local forester for a 5-year maintenance inspection
- 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
- Establish an escape route and safety zone with the aid of your local fire protection district
- Check with appropriate highway agencies to make sure load limits are posted on bridges and for the appropriate protocol for posting load limits for bridges on private property.



Annual Fire Safety Checklist

- Thin trees and brush properly within defensible space.
- Remove trash and debris from defensible space.
- Remove needles and pine cones from window wells.
- Clear leaves and debris from the roof and gutters of structures.
- Remove branches that overhang a chimney or roof.
- Stack firewood uphill from a home or on a contour at least 30 feet away from structures.
- Clear weeds and grass from around wood piles.
- Check and maintain screens on soffit vents, roof vents, and attic openings.
- Remove any combustibles from under decks, porches or entrances ways.
- Clear vegetation from around fire hydrants, cisterns, propane tanks, etc.
- Make sure that an outdoor water supply is available with a hose, nozzle and pump.
- Make sure address signs are still clearly visible from the street or road.
- Make sure that driveways are wide enough for fire trucks and equipment.
- Practice a family fire drill and evacuation plan.

Evacuation Tips

- If a wildfire is threatening your area, listen to the radio for updated reports and evacuation information.
- Confine pets to one room and make plans to take care of them in the event of evacuation.
- Arrange for temporary housing with a friend or relative whose home is outside the threatened area. Leave a note in a prominent place in your home that says where and how you can be contacted.
- If your home is threatened by wildfire, you will be contacted and advised by law enforcement officers to evacuate. If you are not contacted or you decide to stay and help defend your home, evacuate pets and family members who are not needed to protect your home.
- Remove important documents, mementos, etc. from the possible fire area.
- Choose an evacuation route away from the fire if possible. Watch for changes in the speed and direction of the fire and smoke.

Take a disaster supply kit containing:

- Drinking water.
- A change of clothing and footwear for each family member.
- Blanket or sleeping bag for each person.
- First-aid kit and prescription medications.
- Emergency tools including a battery-powered radio, flashlight and extra batteries.
- Extra set of car keys and credit cards, cash or traveler's checks.
- Extra pairs of eyeglasses or other special items for infants, elderly or disabled family members.

Defending Your Home

Whether you choose to stay to defend your home or to evacuate, complete as many of the following preparations as possible.

- **DO NOT JEOPARDIZE YOUR LIFE. NO MATERIAL ITEM IS WORTH A LIFE.**
- Wear fire-resistant clothing and protective gear.
- Remove combustible materials from around structures.
- Close or cover outside vents and shutters.
- Position garden hoses to reach the entire house, but do not turn the water on until it is needed. Hoses should have an adjustable nozzle.
- Place large, full water containers around the house. Soak burlap sacks, small rugs or large rags in the containers.
- Place a ladder against the roof of the house on the opposite side of the approaching wildfire. Place a garden hose near the ladder, prepared as described previously.
- Place portable pumps near available water supplies, such as pools, hot tubs, creeks, etc.
- Close all windows and doors. Do not lock them.
- Close all inside doors.
- Turn on a light in each room and all outside lights. Leave them on even during daylight hours.
- Fill tubs, sinks and similar containers with water.
- Shut off gas supplies to structures at outside meters. Shut off propane supplies at the outside meter of the tank.
- Remove curtains made of lace, nylon or other light materials. Close blinds, heavy drapes and fire resistant window covers.
- Move overstuffed furniture into the center of the house, away from windows and sliding doors.
- Cars should be parked in the garage, facing out. Close the windows of the vehicle but do not lock the doors. Leave the keys in the ignition.
- Close the garage door but leave it unlocked. Disconnect automatic garage door openers.

For additional copies of these checklists, visit www.colostate.edu and search for wildfire, view the Colorado State Cooperative Extension fact sheet at <http://www.ext.colostate.edu/PUBS/NATRES/06304.html>, or contact the local Cooperative Extension office usually listed under the county government section of your local phone book.

(Information provided by Colorado State University Cooperative Extension and the Colorado State Forest Service.)

Safety Zone Guidelines

A Safety Zone is an area that in the event of a wildland fire you could survive the passing fire without the aid of a fire shelter. A natural safety zone could be an area already burned clean by the fire (in the black), rock areas where flashy fuels are absent, or large bodies of water. A manmade safety zones could be pre-constructed sites such as clear cuts. It should be close enough to your home to consider escape time to reach the safety zone. They should not be located upslope or downwind of the fire or in heavy fuels.

1. Avoid locations that are downwind from the fire.
2. Avoid locations that are in chimneys, saddles, or narrow canyons.
3. Avoid locations that require a steep uphill escape route.
4. Take advantage of heat barriers such as lee side of ridges, large rocks, or solid structures.
5. Burn out safety zones prior to flame front approach.
6. For radiant heat only, the distance separation between you and the flames must be at least four times the maximum flame height. This distance must be maintained on all sides, if the fire has ability to burn completely around the safety zone. Convective heat from wind and/or terrain influences will increase this distance requirement.

Calculations Assuming No Slope and No Wind

<u>Flame Heights</u>	<u>Distance separation</u>	<u>Area in Acres</u>
10 feet	40 feet	1/10 acre
20 feet	80 feet	1/2 acre
50 feet	200 feet	3 acres
75 feet	300 feet	7 acres
100 feet	400 feet	12 acres
200 feet	800 feet	50 acres

Note: Distance separation is the radius from the center of the safety zone to the nearest fuels. When fuels are present that will allow the fire to burn on all sides of the safety zone this distance must be doubled in order to maintain effective separation in front, to the sides, and behind the person.

Area in Acres is calculated to allow for distance separation on all sides for a three person family and a vehicle. One acre is approximately the size of a football field or exactly 208 feet x 208 feet.

Example: Given a fire with 10 foot flame heights (no wind or slope). You would need a minimum of 40 feet between you and the flames. So your total safety zone should be 80 feet x 80 feet. If you are settled into the middle of the safety zone you will have a minimum distance of 40 feet to each edge of the zone.

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.

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
Martin Leopold
429 Ridge Road
SPR - 09 - 011



Legend

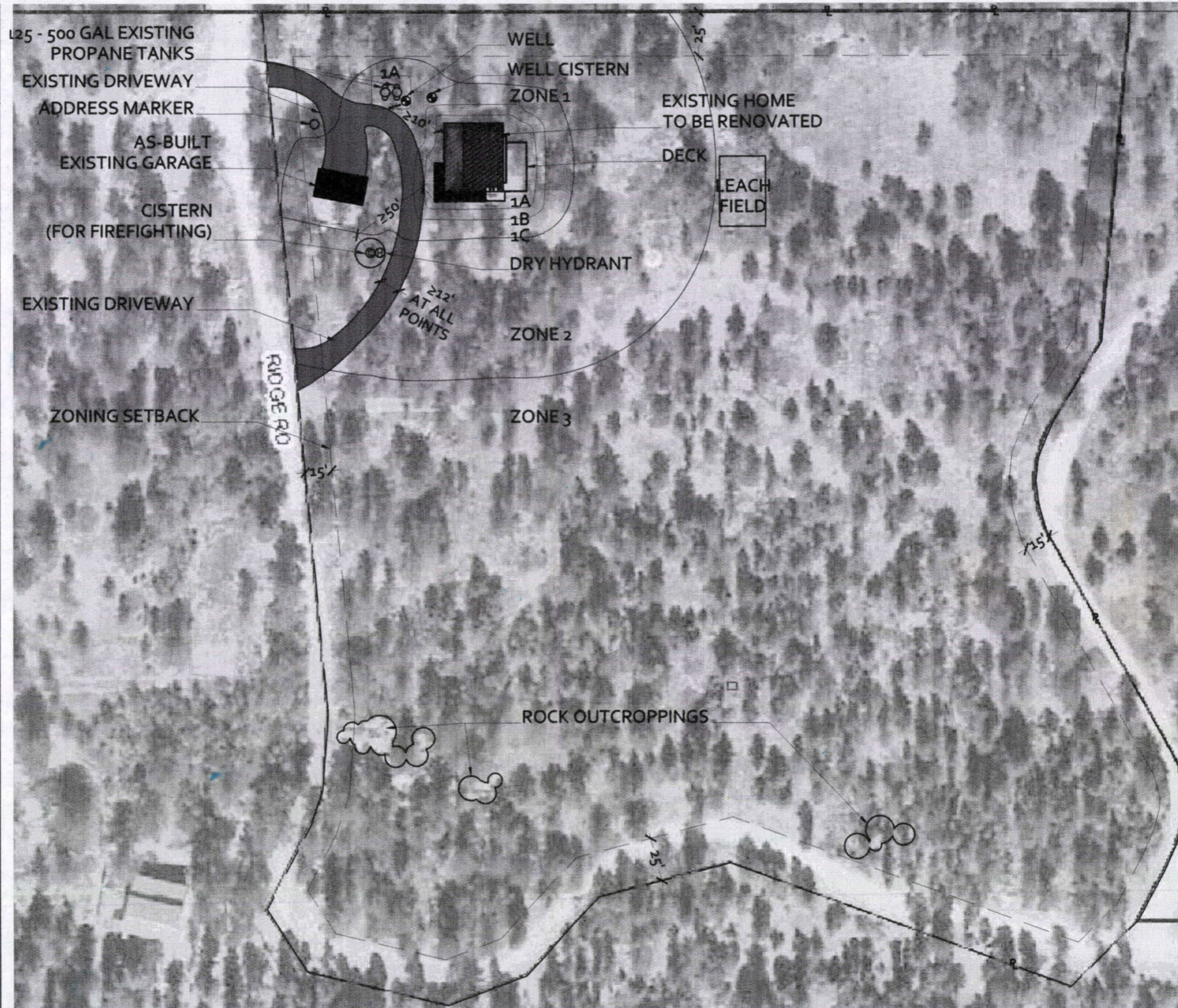
- Zone 1 (Yellow line)
- Zone 2 (Red line)
- Driveway (Black line)
- Large leave trees (Yellow circle)
- Propane (Red circle)
- Well (Blue circle)
- Septic field (Green circle)



House



- ZONE 1 - SAFETY ZONE:**
15 TO 30 FEET AROUND
STRUCTURES
- 1A: 3 TO 5 FEET ALL FLAMMABLE VEGITATION REMOVED, WEED BARRIER WITH CRUSHED ROCK OR GRAVEL
 - 1B: GREEN SPACE
 - 1C: REMAINING AREA MATURE TREES PRUNED UP TO 10 FEET
- ZONE 2 - TRANSITION ZONE:**
FROM ZONE 1 OUT 75 TO 125 FEET FROM STRUCTURES
- ALL LADDER FUEL AND WOODY DEBRIS REMOVED
 - TREES THINNED SO CROWNS ARE WIDELY SPACED 10 FEET CROWN SPACING
 - LIMB TREES 6 TO 8 FEET FROM GROUND
- ZONE 3 - MANAGEMENT ZONE:**
FROM ZONE 2 TO PROPERTY EDGE
- THIN TREES FOR FOREST HEALTH
 - REMOVE DISEASED OR WEAKENED TREES



**LEOPOLD RESIDENCE
429 RIDGE ROAD
WARD, CO 80481**

REVISIONS:
NOTES:

PROJECT INFORMATION:	
FOR:	SITE PLAN REVIEW
TITLE:	WILD FIRE MITIGATION PLAN
DESIGN BY:	JMS
PROJECT NUMBER:	LEO.09.03
DATE:	08.02.09
SCALE:	AS NOTED

**LEOPOLD RESIDENCE
429 RIDGE ROAD
WARD, CO 80481**

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WMP.1

**ZONE 1 - SAFETY ZONE:
15 TO 30 FEET AROUND
STRUCTURES**

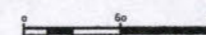
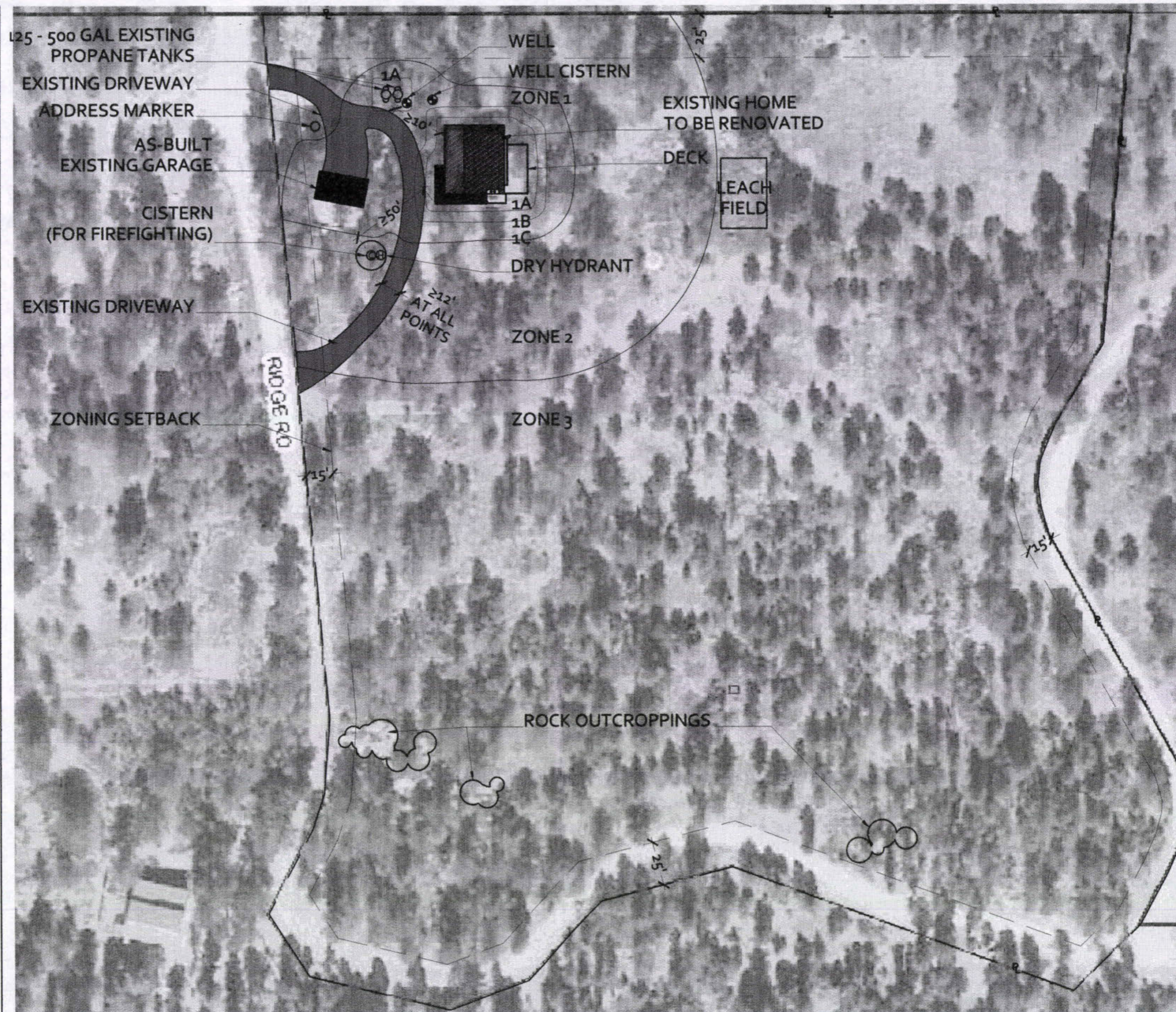
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**ZONE 3 - MANAGEMENT
ZONE: FROM ZONE 2 TO
PROPERTY EDGE**

- THIN TREES FOR FOREST HEALTH
- REMOVE DISEASED OR WEAKENED TREES



Wild Fire Mitigation plan

Martin Leopold
429 ridge road
Ward Colorado 80481
Docket SPRW-09-0011
Building Permit BP-09-0359

June 3, 2009

Prepared for:

Martin Leopold
740 Yale Road
Boulder, CO 80305
Phone: 720-565-0107
mkleopold@yahoo.com

Prepared by:

Joseph M. Sammartino
740 Yale Road
Boulder, CO 80305
Phone: 303-478-6102
jms4design@yahoo.com

FOR APPROVAL OFFICIAL USE
ONLY

Site Location and Property Description:

The property is located at 429 Ridge Road, Ward Colorado 80481. Legal Description is the SW ¼ of the NE ¼ of Section 27, Township 2N, Range 72W. The lot is zoned (F) Forestry. The property is approximately 5.35 Acres in size and is at about 8500 feet in elevation. The site has a modest slope with an East/West aspect.

The proposed construction is to an existing residence which is sited mid slope to the natural terrain. The site features are relatively dry(xeric) site. Natural barriers to the spread of a surface fire on the site include rock outcroppings. A minor gravel road also provides a limited barrier to fire spread. Crown fire spread can best be mitigated through aggressive thinning of the tree stands on this property.

Given the topography and forest/fuel type, the construction design and materials, as well as the multiple directions of access and the relatively limited availability of water for firefighting, the site overall has a high wildfire hazard.

Construction Design and Materials:

There are currently Two (2) existing structures located on site; an existing single-family dwelling and existing garage are expected to be renovated. The existing house runs east/west along its major axis. The proposed addition has a very simple design with a simple roofline consisting of 2 simple shed roofs. The existing Garage is also very simple in design with a simple roofline consisting of a gable in the north/south axis.

As this site is located within Wildfire Zone 1, all exterior materials must meet Ignition Resistant (IR) requirements. The roofing material will be (UL listed, Class-A fiberglass reinforced asphalt shingles). Metal gutters with screens will be used to collect runoff water from the roof. The finished exterior wall material will be stucco over OSB sheathing. Trim and fascia will utilize cementitious board materials. Soffits are to be (½"/¾") thick (plywood/hardboard/cement board).

There are some medium sized windows, mainly on the east side. Windows will be fiberglass clad framed units with double-pane (insulated) glazing, which aided in the thermal properties required by the Build Smart program. Windows will have a low-e coating to help minimize transmission of radiant heat into the house. Tempered glass will be used for any skylights and entry doors, per building code. Exterior doors are to be 1-¾" thick fire-rated (wood and/or fiberglass) units (with tempered glass inserts).

The deck(s) will utilize composite decking materials with composite railings, and will be framed with fire treated wood, and supported by (heavy timber (6"x 6") posts. The decks will be open underneath. They will be isolated from the surrounding landscape with, at minimum gravel spread over a weed barrier material. This material will be spread underneath the entire deck surface and out 2' past the drip-lines of the deck(s). One deck will be a roof deck and completely enclosed.

The existing 125 – 500 gal. propane tanks will be 10 or more feet from the house and at least 50 feet from the cistern. It will be at the same elevation as the house. The tank will be buried below ground and surrounded with crushed rock or gravel over weed barrier. No tree branches will overhang the tank and vegetation within 10 feet of the tank will be kept cleared.

Utilities will come off a pole ~85 feet west of the house and come overhead to the service panel on the house. The well is located ~25 feet west of the house. The septic field is located ~135 feet east of the house.

Defensible Space and Forest Management

The area is best represented by Fuel Model 2(C). This fuel model consists of open grown pine stands. Trees are widely spaced with few understory shrubs or tree regeneration. Ground cover is moderate and consists of grasses and/or needles and small woody litter. This model occurs as open-grown, mature ponderosa pine stands in the foothills to upper montane zone. The predominant tree species is ponderosa pine. This type may include some scattered Douglas-fir, Rocky Mountain juniper, and aspen. Shrub species may include wax currant, Rocky Mountain maple, mountain mahogany, and buckbrush. Montane grasses and forbs are also included in this model. The remaining area is exposed rock mainly decomposed granite with large rock outcroppings and a thin layer of duff pine needles and forest litter (dead branches/old rotten logs). Some of the pine trees may be lightly infected with dwarf-mistletoe (*Arceuthobium spp.*)/*Cytospora* canker), and may have to be addressed. There are no indicators of the presence of mountain pine beetle (*Dendroctonus ponderosae*)/western spruce budworm (*Choristoneura occidentalis*)/ *Ips* beetle) on the property at present. No current infestations were apparent on adjacent properties at the time.

In accordance with Boulder County's Wildfire Mitigation requirements, and following the Colorado State Forest Service Guidelines, there are three defensible space zones to be created around the structures on site.

Zone 1 – The Safety Zone – Starts at the foundation and extends out 15 to 30 feet in all directions from the outside edge of the structure(s). Zone 1 can be broken down into three segments or sub-zones:

- **Zone 1A** – Consists of the structure(s) themselves and the area immediately adjacent to and surrounding the structure(s) on all sides. A three-foot wide, non-flammable strip will be created using (crushed rock/gravel) over a weed barrier material. This strip will also extend back under, and out to 2' past the drip line of the decks.
- **Zone 1B** – Extends out from Zone 1A. In this zone, all highly flammable vegetation is to be removed. Any large dead woody material on the ground will also be removed. Native grasses and FireWise plants will be used for landscaping and revegetation. Grasses used for revegetation will be mowed to a maximum height of 6" to 8" twice per growing season and should be irrigated when possible.
- **Zone 1C** – This sub-zone extends out from Zone 1B to 15' from the house. All understory trees and brush (ladder fuels) will be removed as marked. A few of the larger, healthy trees are to be retained for screening (shown on the site plan). All remaining trees in this zone will be pruned to a height of 10 feet. They must be well spaced so that the crowns are not touching (10 foot crown spacing).

Zone 2 – The Transition Zone – This zone extends out from Zone 1C, and acts as a transition zone between the heavily thinned area near the house to the existing forest setting. It extends down slope for 80 feet, to either side for 80 feet and above the structures for 80 feet, except where constrained by boundary restrictions. Tree spacing begins as in Zone 1C and gradually decreases as one approaches the outer edge of the zone. All ladder fuels and poor quality, suppressed and/or diseased trees, 6-8 inches in diameter, make up the majority of the removals. The remaining mature trees will be pruned to a height of 8 feet at the intersection of Zones 1 and 2, with limbing reduced in height to 6 feet as one approaches Zone 3.

Zone 3 – The Management Zone – 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, with healthy trees retained for screening. Remaining trees should be limbed up from the ground to a height proportionate to their diameter if less than 10" (for every 1 inch of diameter, the tree should be limbed up 1 foot). Slash in this zone can be lopped and scattered and/or piled for wildlife use. All trees to be (removed/retained) are marked with (blue/yellow) tree marking paint. All trees within zones 1 and 2 that are to remain for screening are (marked with pink "Do Not Cut" flagging/unmarked). Wood generated by the cutting operation will be bucked up into (firewood/poles/logs) and will be (stacked on site at least 30 feet from the house/used for fencing/made into deck supports/hailed off site). Slash will be (chipped and piled, to be spread later at the end of the construction as part of revegetation efforts/hailed off site to an approved disposal facility/piled on site and burned).

Emergency Water Supply for Fire Fighting

The property is located in the Left Hand Fire Protection District.

Note there are no fire hydrants located in this subdivision, and since the property does not have an individual cistern for firefighting on site, the FPD has recommended:

A contribution be made to the community cistern fund to support development of emergency water supplies -- OR
An individual cistern be installed. The cistern must be of no less than 1,800-gallons capacity. The cistern will be located (minimum 50 feet) from the front of the residence and (no further than 150 feet) from the rear of the residence. The cistern will have a (Schedule-40 PVC) dry hydrant connection with a 6" NH threaded connection and cap (note that an 2-1/2" adaptor may be needed, depending upon the requirements of your FPD).

Maintenance

In addition to the above items, several other measures should be taken to make your home more fire safe and add an additional level of safety for your family. While not specifically required through the site review or building process, the following work will help you to maintain a FireWise home and defensible space in the future.

- Check the defensible space yearly; contact the Colorado State Forest Service or your local Fire Protection District for a periodic maintenance inspection
- Keep the main firewood pile at least 30 feet away from the home or any outbuildings; clear weeds and grass from around the pile during the summer. *Note that a small pile of firewood (1/4 cord) may be located near the house for home heating during the wintertime*
- Mow grasses within 30' of the residence to a maximum of 6" to 8" high; when possible, maintain an irrigated greenspace
- Be aware of fire danger; Wildfire Danger signs are posted at the entrance of most major canyons. Your nearest sign is located at (the entrance to (whatever) canyon/at the FPD Fire Station/some other location). Additional information on wildfire danger can be found on the Boulder Fire Weather website at www.crh.noaa.gov/bou/awebphp/fireindx.php.
- Clean debris from the roof and gutters at least twice a year
- Check the screens on foundations, soffit vents, roof vents, and attic openings; maintain spark arresters on chimneys
- Get rid of unnecessary accumulations of debris (i.e. old lumber scraps and construction materials) and trash (such as old rusted barbed wire fencing) from yards
- Keep tools such as shovels, rakes, hoes and axes, available and ready for use; maintain easy access to tool storage area
- If your house has an outside faucet, keep connected, and have available, a minimum of 50' of garden hose with an adjustable nozzle
- Make sure your Boulder County issued, green-and-white address marker is clearly visible from the main access road. Mount the marker on a metal t-post or other non-combustible support, not a tree or wooden post.
- Avoid storing combustible materials (such as firewood or wooden patio furniture) under decks; also avoid storing items such as barbecues, chainsaws, snow blowers, or other gas-powered tools under decks or near combustible materials (such as firewood)
- Practice family fire drills and design a family fire evacuation

Colorado State Forest Service Wildfire Mitigation Plan Data Form

Please be specific. Fill out the data form as completely and as accurately as possible, **do not** leave any blanks. Leaving blanks can delay the process of your wildfire mitigation plan. You may email it to Nicole Palestro at palestro@lamar.colostate.edu or fax it to 303-823-5768, or bring it to the scheduled appointment.

The cost of the Wildfire Mitigation Plan is \$300.00. An invoice will be included when you receive the plan. Payment is due within 30 days from the date of the invoice. Any **Bolded** categories will be filled in by the Colorado State Forest Service (CSFS) representative at the time of initial site visit. If you have any questions about this form please contact Nicole Palestro at 303-823-5774.

Inspection Date: 06.12.09

Landowner name: MARTIN LEOPOLD

Mailing address: 740 YALE ROAD

City, State, Zip: BOULDER, CO 80305

Site address: 429 RIDGE ROAD, WARD CO 80481

Phone number: 720.565.0107

Road access: (Directions from main access road)

Docket number: SPRW-09-0011 (SPR, SPRW, LU, Etc.)

Section: 27

Township: 2N

Range: 72W

Legal Description:

Elevation: 8500 (feet)

Lot size: 5.35 (Acres)

Driveway length: ~70 (Actual length in feet from road to home)

Driveway trees removed: _____ (few/many/none) - TBD

House design: Simple (moderately complex - any shape with a few alcoves or complex - any shaped with a number of alcoves complex design)

Home buffer material: _____ (Material that is spread 5 ft. wide around the house - stone/crushed gravel/decorative stone)

Roof Design: Simple (moderately complex/complex)

Roof material: Asphalt Shingle (Class A- Asphalt shingles/concrete tiles/metal (wood roof is not permitted ion Boulder County))

Soffit type and thickness: Cement Board (3/4" Plywood or 3/8" hardboard/cement board)

Siding material: Stucco (Cement/hardboard/log/stucco/stone/wood - **wood siding is not permitted on high hazard sites**)

Windows (#): ~30 (number of windows in the structure)

Window Size: MED (On average: small - <3x4', medium - 4x5', large <5x6')

Window Frames: Fiberglass Clad Wood (Wood or aluminum clad wood/ **vinyl is not permitted on high hazard sites**)

Window Aspect: EAST (Dominant viewing direction)

Window Construction: Low E (Low E- Coating/Tempered glass/etc...)

Window Wells: NONE (Number and location if present, these are windows that site below ground level, usually in a basement)

Sliding Glass Doors: EAST (Location and Number)

Door Material: Fiberglass (Wood/steel/fiberglass/composite)

Deck material: Composite (type of composite materials, **wood is not permitted**)

Deck Description: ENCLOSED underneath (Enclosed deck/open deck/enclosed underneath/open underneath)

Deck support type: ENCLOSED Framing (Timber posts/logs/steel/concrete/decorative stone)

Deck buffer material: Decorative stone (Crushed rock/gravel/decorative stone)

Deck weed barrier: Polyester (Fiberglass/polyester)

Number of Structures: 2 (All structures to be present, including sheds, garages and out buildings)

Existing Structures: 2 HOUSE + GARAGE (House/barn/garage/etc.)

New Structure: NONE - RENOVATION (House/Barn/garage/new addition/etc...)

Structure Square feet: 3316 (Total sq.ft. of structure - **this must be accurate and match the sq.ft that you submitted for SPR, if it has changed, please specify**)

Structure aspect: EAST (Dominant facing direction/view, N, S, E, W)

Utility Location: POLE / ~ 85' (Pole/buried: Direction and distance from residence - N, S, E, W/20ft, 30ft, 40ft, etc...)

Detached Garage (if applicable): 450 (Total square feet)

Out buildings: _____ (Total square feet of any and all sheds, cabins, ect...)

Leach field: _____ (Direction and distance from residence - N, S, E, W/20ft, 30ft, 40ft, etc...)

Cistern size (if applicable): 2400 (gallons - <2,000 sq.ft - 1,800 gal., >2,000 to 2,500 sq.ft - 2,400 gal., >2,400 gal. to 3,599 - 3,600 gal., and >3,600 full interior NFPA 13 D Sprinkler system per Boulder County)

Cistern Location: 50' SW (Direction and distance from residence - N, S, E, W/20ft, 30ft, 40ft, etc...)

Cistern Type: _____ (Domestic Cistern or Fire Cistern)

Making a donation to community cistern : _____ (Yes or No) - Preferrable

Have you talked to the local fire department : NO (Yes or No)

Are you required to have a sprinkler system : NO (Yes or No) (If your house/addition is greater than 3,600 sq.ft. you are required to have an a full interior NFPA 13 D Sprinkler system per Boulder County)
 ← NO PER BOULDER / YES PER LEFTHAND

Water supply: well (Well or main line)

Well (if applicable): WEST/N (Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Propane or natural gas: Propane

Propane Tank location: NW/40 FT (Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Slash disposal: Hauled (Chipped/hauled/burned/lop-scatter)

Can you provide a map of utility locations for the property : yes. (e.g. location of propane, tank, leach field, well, cistern, etc... Yes or No)

Comments: _____

This part will be filled out by the CSFS inspecting forester

FPD: _____

Dominant fuel type: _____ (Grass/forbs/shrubs/slash/etc)

Dominant overstory: _____

Co-dominant overstory: _____

Fuel model type: _____

Aspect: _____ (Direction of slope)

Slope: _____ (Percent)

Building site: _____ (Chimney/saddle/valley/ridge/mid-slope)

Site moisture: _____

Natural fire barrier: _____

Insect & Disease Diagnosis: _____

Comments: _____
