

WILDFIRE MITIGATION PLAN

For Patrick and Lynda Cavanaugh Residence
490 St. Vrain Road, Boulder CO 80302
Docket: SPR - 05-067
Inspection date: 5/23/2005

Knowledge to Go Places

Boulder District
5625 Ute Highway
Longmont, Colorado 80503-9130
(303) 823-5774

Prepared for:

Patrick and Lynda Cavanaugh
2907 Bryn Mawr Place
Longmont, CO 80503
Phone: 303-776-3782

Prepared by:

Cory Secher - Forester
Boulder District
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SITE LOCATION AND PROPERTY DESCRIPTION

The property is located at Section 29, Township 3N, and Range 72W PT NE1/4SW1/4. The fire protection district is the Allenspark fire protection district (303-747-2586). There are no existing structures located on site. There will be a new residence with detached garage built on site. The lot is 3 acres in size and has a ~15-20% percent slope with a southeast aspect. The residence is at 8,500 feet in elevation, and has total of 3,600 square feet. The proposed building site is on a ridge and it is a relatively dry site. There is a road located about 200 feet north of residence creating a small barrier that may help stop or slow the spread of a surface/crown fire on the site.

CONSTRUCTION DESIGN AND MATERIALS

The proposed house has a relatively simple design with a simple roofline and is oriented with a northwest aspect. The roofing material will consist of asphalt shingle. The exterior wall material is to be hardiplank (cement). Soffits are to be 3/4" thick hardboard.

The structure has 16 medium sized windows with the primary viewing direction being toward the northwest side of the structure. Windows will be double glazed with low e-coated tempered glass and frames made of aluminum. Exterior doors are to be 1-3/4", fire-rated, and made of fiberglass.

The one deck will be constructed of composite materials and supported by timber posts. The deck will be open and enclosed while isolated from the surrounding landscape with decorative stone over a polyglass weed barrier.

The propane tank is 25 feet northwest of residence. Vegetation within 10 feet of the propane tank will be kept cleared. Utilities for the property will be above ground from a pole. The septic field is located ~120 feet southeast of residence. There is a pre-existing well located 65 feet northeast of residence.

DRIVEWAY ACCESS FOR EMERGENCY VEHICLES

Access to the property from Lyons take Highway 7 past Allenspark and take a right onto Taylor Road and continue to St. Vrain Road and take a right, the road will fork so stay on the left and continue for about 1/4 mile and the property is on the right. The existing driveway will create a little additional site disturbance and soil compaction and will require the removal of only a few trees. The driveway will be 12 feet wide with a vertical clearance of 13'6" and a grade that is less than 12%. The driveway is ~200 feet long therefore there will be a turn around required. The driveway is less than 400 feet therefore no pull-outs are required.

EMERGENCY WATER SUPPLY FOR FIRE FIGHTING

The water source will be from a 1,800 gallons fire cistern that will be located ~180 feet north of residence. The cistern will have a dry hydrant connection with a 6 inch NH threaded connection and cap. Alternatively, a contribution may be made to the fire protection district community cistern fund (if available). Contact the Allenspark fire protection district (303-747-2586) 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. 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 piled. Note that if you decide to burn piles, you must obtain a valid Open Burning Permit from the Boulder County Environmental Health Department and notify your local fire protection district (Allenspark fire protection district (303-747-2586)).

DEFENSIBLE SPACE ZONES AND FOREST MANAGEMENT

The site has a dominant overstory consisting of ponderosa pine (*Pinus ponderosa*) with an aspen (*Populus tremuloides*) understory component. The area is predominantly fuel model 9 with ground fuels consisting of grasses and forbs. 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. There is no sign of any current insect and disease problems on the property at the time of inspection.

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 three-foot wide, non-flammable strip will be created using decorative stone/polyester over a polyglass 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 is to be removed. Any large dead woody material on the ground will also be removed. Firewise plants will be used for landscaping and re-vegetation. Grasses will 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) will 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 are to be retained for screening. 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 minimum crown spacing). No trees will 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 10 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 will 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 www.colostate.edu/Depts/CSFS/ 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 should 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
- 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; check the Boulder Fire Weather website at www.crh.hoaa.gov/den/fireindx.html
- 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.

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.

Fire season – The period(s) of the year during which fires are likely to start, spread and do damage to values-at-risk sufficient to warrant organized fire suppression; a period of the year set out and commonly referred to in fire prevention legislation. In B.C. the fire season is considered to extend from April 1 to October 31.

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

Forest ecology – The relationships between forest organisms and their environment.

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.

New forestry – A philosophy or approach to forest management that has as its basic premise the protection and maintenance of ecological systems. In new forestry the ecological processes of natural forests are used as a model to guide the design of the managed forest.

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).

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

Wildfire mitigation plan – A plan to reduce wildfire hazards around a home or other structure through fuels reduction. A document to inform urban interface home owners of the dangers and responsibilities of living in the interface. A plan to help outline the initial and ongoing fuels reduction needed to maintain an effective and healthy wildfire defensible space.



**Colorado
State**
FOREST
SERVICE

Knowledge to Go Places

Boulder District
5625 Ute Highway
Longmont, Colorado 80503-9130
(303) 823-5774

Annual fire safety checklist

- Thin trees and brush properly within defensible space.
- Remove trash and debris from defensible space.
- Remove trees growing through a porch or other portions of a structure.
- 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 away from the home.
- Use noncombustible roof materials.
- Place shutters, fire curtains or heavy drapes on windows.
- Place screens on foundation and eave vents.
- Enclose sides of stilt foundations and decks.
- Use a chimney screen or spark arrester in fireplaces.
- 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.
- Post address signs that are clearly visible from the street or road.
- Make sure that driveways are wide enough for fire trucks and equipment.
- 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.
- Install and test smoke detectors.
- 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

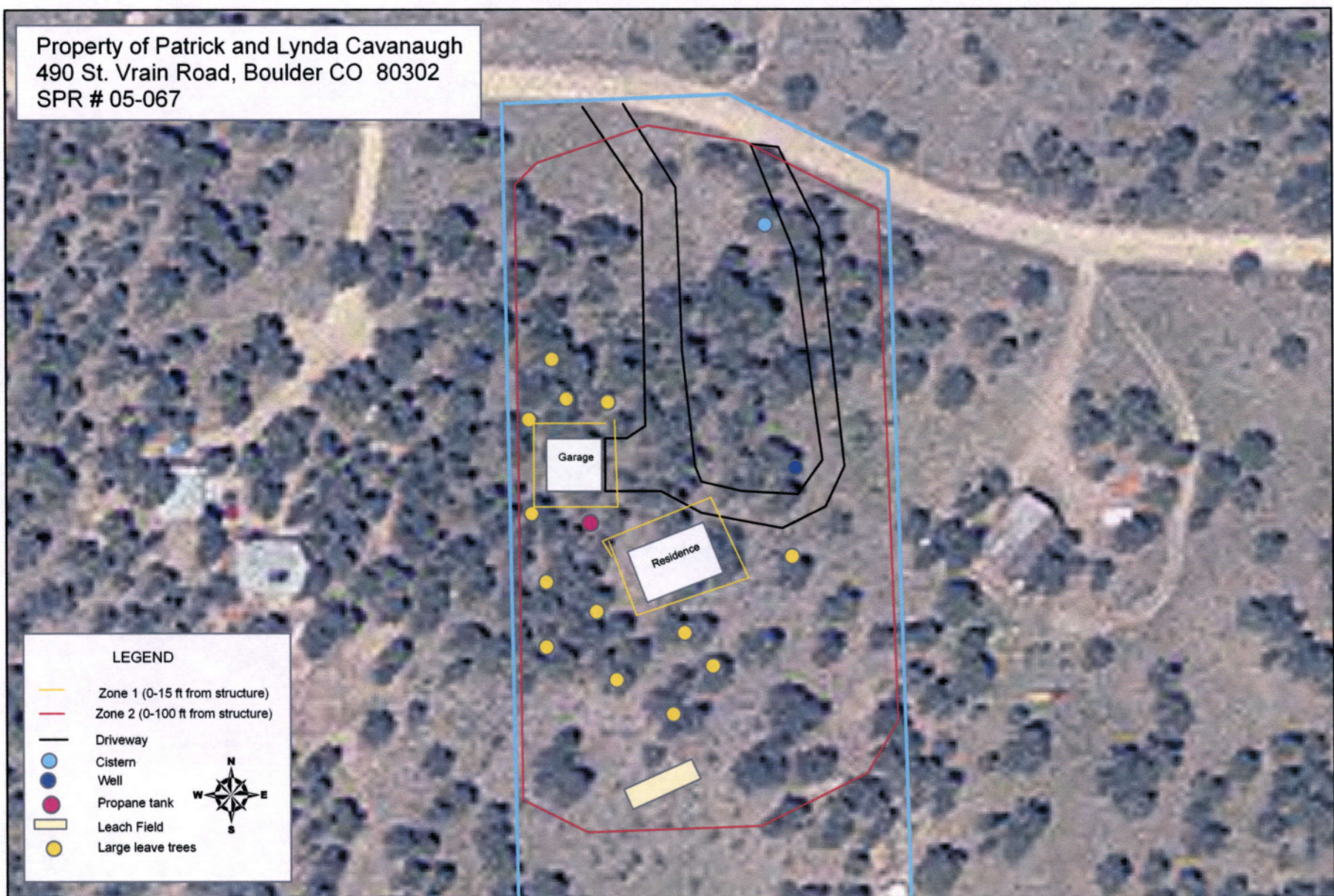
Whether you choose to stay to defend your home or to evacuate, complete as many of the following preparations as possible.

- 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 on [Forest Home Fire Safety](#), 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.)

Property of Patrick and Lynda Cavanaugh
490 St. Vrain Road, Boulder CO 80302
SPR # 05-067



LEGEND

- Zone 1 (0-15 ft from structure)
- Zone 2 (0-100 ft from structure)
- Driveway
- Cistern
- Well
- Propane tank
- Leach Field
- Large leaf trees



0

185

370

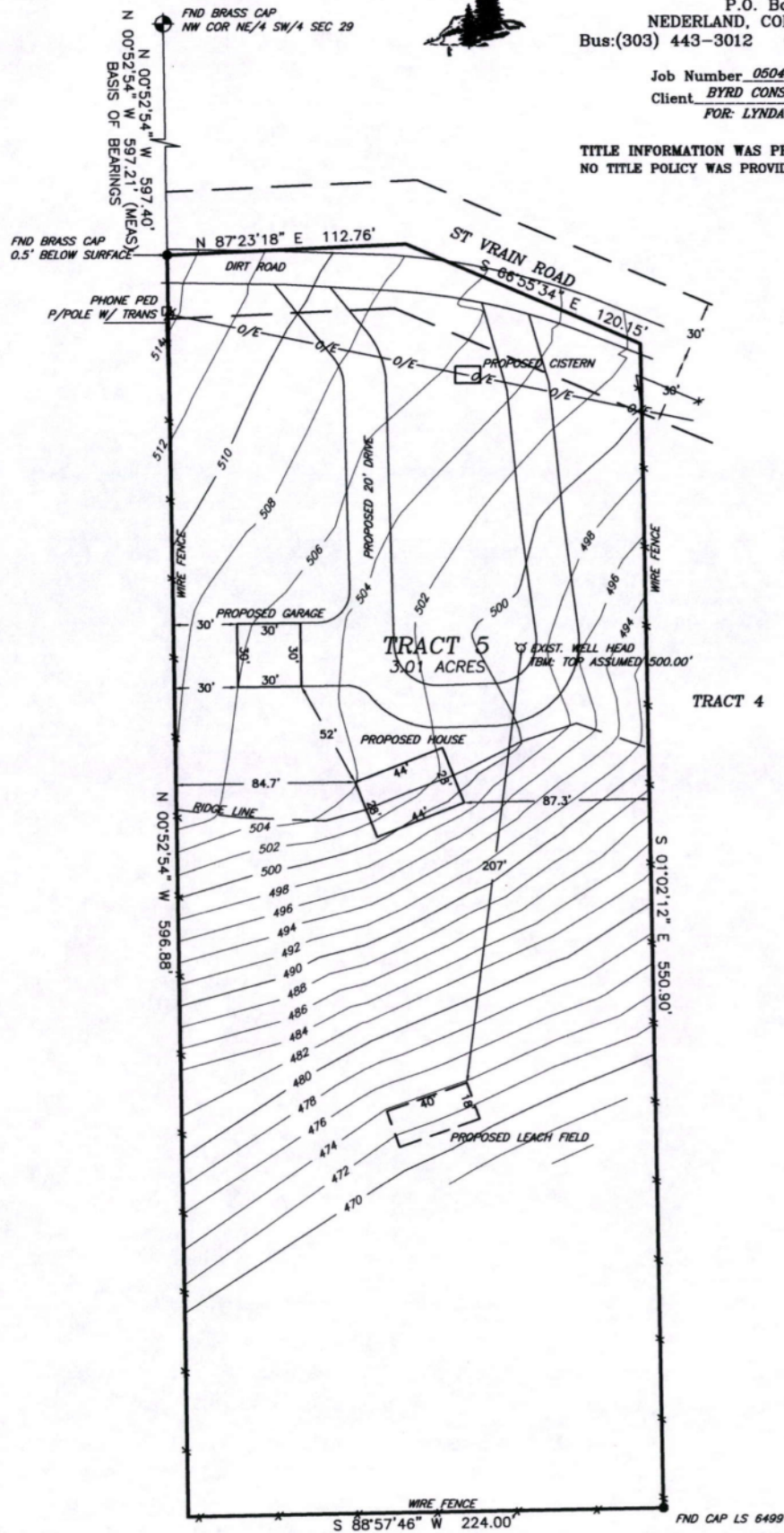
740 Feet

PROPOSED SITE PLAN - TRACT 5
NE/4 OF THE SW/4 SECTION 29 T-3-N R-72-W OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO

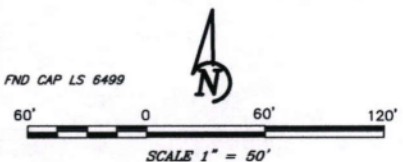
MTN. SURVEYING & MINERAL SERVICES
P.O. Box 783
NEDERLAND, COLORADO 80466
Bus:(303) 443-3012 CARL G. SWIFT LS 26301

Job Number 050419
Client BYRD CONSTRUCTION CORP
FOR: LYNDA CAVANAUGH

TITLE INFORMATION WAS PROVIDED BY:
NO TITLE POLICY WAS PROVIDED.



CONTOURS: TBM: TOP OF EXISTING WELL HEAD ASSUMED 500.00';
CONTOURS ARE AT A TWO FOOT INTERVAL.



Cory Secher

From: <Byrdconstruct@aol.com>
To: <csecher@lamar.colostate.edu>
Sent: Wednesday, July 20, 2005 2:03 PM
Subject: Wildfire mitigation plan for TBD St. Vrain Rd., Allenspark

Hi Cory - you've done some work on the wildfire mitigation plan for the property at TBD St. Vrain Rd., Allenspark. The homeowners are Pat and Lynda Cavanaugh. You said you needed the SPR docket no. assigned by the County, and then you could complete the plan. That number is SPR-05-067. Please send a copy of the plan to us at:

Byrd Construction Corporation
PO Box 1448
Nederland CO 80466

and the original to the homeowners at:

Pat and Lynda Cavanaugh
2907 Bryn Mawr Place
Longmont CO 80503

Please send the invoice for the work to us.

Please let me know if you have any questions. My number is (303) 258-1595.

Also, just FYI, it looks like the County has assigned the property address as: 490 St. Vrain Rd.

Thanks for all your work!

Karen Stringfellow

7/25/2005

• 12 TBD issues

entered 6-21-05

**Wildfire Mitigation Plan
Field data Form for
TBD St. Vrain Rd.**

Inspection Date: 5-23-05

Landowner Name: Patrick and Lynda Cavanaugh

Mailing Address: 2907 Bryn Mawr Place,

City, State, Zip: Longmont CO 80503

• **Site Address:** TBD St. Vrain Rd.

→ • **Phone number:** 776-3782

• **Road Access:** area code?

• **Docket Number:** SPR #-TBD ★

• **Section:** located in the NEQSWQ 29

Township: 3N

Range: 72W

Legal Description: PT NEQSWQ Sec 29 T 3 N R 72 W

FPD: Allenspark Fire District

Dominant fuel type: forbs + grasses

Dominant overstory: Ponderosa

Co-dominant overstory: aspen

Fuel model type: 9

Slash disposal: TBD - slash piles

Aspect: South-east

Slope: 15-20%

Elevation: ≈ 8500 ft

Building site: ~~ridge~~ ridge (chimney/saddle/valley/ridge/mid-slope)

Site Moisture: medium-low

Natural fire barrier: ~~St. Mary~~ Road North ~200'

Insect & Disease Diagnosis: None

Lot size (acres): 3 acres

Number of Structures: 2

Existing Structures: none

New Structure: House and Garage

• Driveway length: TBD ~~100~~ (~200')

Driveway trees removed: few

• Home Buffer Material: TBD Decorative Stone. / ~~Fiberglass~~ Poly ester.

House Design: Simple

Roof Design: Simple

Roof Material: Asphalt shingles

Soffit Type: hardboard

Siding Material: Hardiplank (cement)

Windows: 16

Windows size: 3'x5' – medium

Window Frames: aluminum

Window aspect: Northwest

Window Construction: Low-e, tempered glass where required by code.

Door Material: Fiberglass

Deck Material: composite materials

Deck Description: Open and enclosed

Deck support type: Timber posts

• Deck Buffer Material: TBD *Decorative Stone*

• Deck Weed Barrier: TBD ~~Polyglass~~ *Polyglass*

Structure sq. ft.: 3400 sq ft (including basement)

Utility Location: pole

~~Sprinklers?~~ *3,600 sq ft²*

Structure aspect: Northwest

Leach Field: ≈ 120 ft from house to SE (proposed)

• Cistern: ≈ 180 ft from house *North*

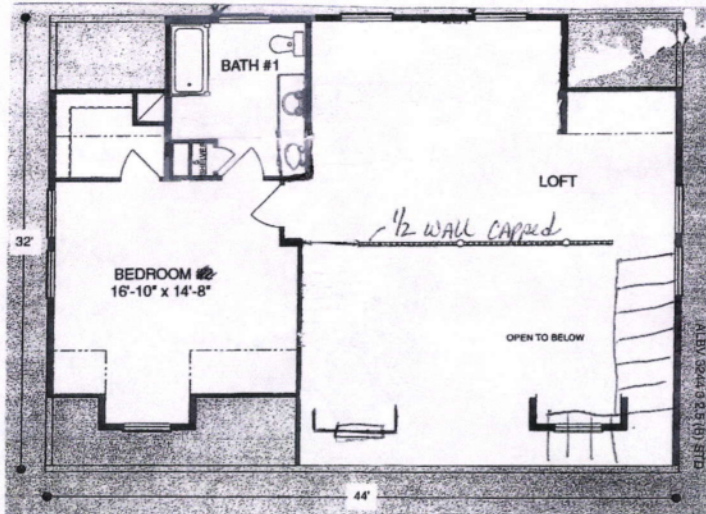
Cistern type: fire cistern (proposed)

• Cistern size: TBD *~1,800 gallons. min.*

Well: $\approx 65'$ from house to NE (existing)

→ Propane tank location: TBD *~25' NW.*

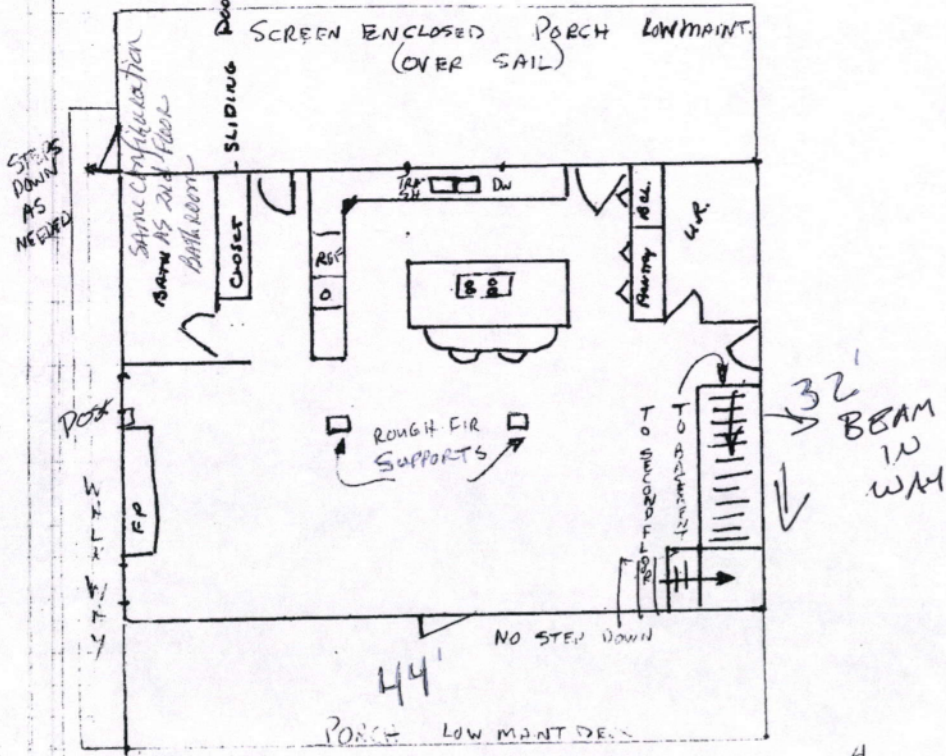
CAVANAUGH



2ND FLOOR

WALKOUT BASEMENT

CAVANAGH



FIRST FLOOR

PULL C
BASIC VIEW

NORTH

MR →
BASS MOUNT