

# Informational Summary Report of Serious or Near Serious CAL FIRE Injuries, Illnesses and Accidents



## GREEN SHEET

### County Cooperator Fatality

March 18, 2019

Doster Incident

19-CA-TCU-003370

19-CA-TCU-003378

California Southern Region

### SUMMARY

On Monday, March 18, 2019, a CAL FIRE Conservation Camp handcrew was assisting Calaveras County with vegetation removal along county maintained roads. During the project, a large log released from its position upslope of the county road. As the log rolled downhill onto the road, it struck a Calaveras County employee and CAL FIRE handcrew member. The handcrew member suffered minor injuries while the County employee suffered fatal traumatic injuries.



<https://www.surveymonkey.com/r/HT8GR3T>

## CONDITIONS

### **Weather**

Temperature: 70° Fahrenheit  
Relative Humidity: 18%  
Winds: 3 mph east-southeast with gusts to 8 mph  
Visibility: Clear

### **Fuel Type**

Mix of standing live, dead and down trees, slash, brush and regrowth within Butte Fire perimeter (2015)

### **Road Conditions**

Single lane paved road approximately 12 feet wide

### **Topography**

Slope: Varies from 18% to 115%, average slope is approximately 55%  
Aspect: East

### **Work Location**

Doster Road  
Community of Mountain Ranch, CA  
Calaveras County

### **Fire History**

Butte Fire  
September, 2015  
70,868 Acres

### **Tree/Log**

Felled: 2018  
Species: Ponderosa pine  
Length: 68 feet  
Diameter (DBH): 30.5 inches  
Weight: Approximately 11,040 pounds

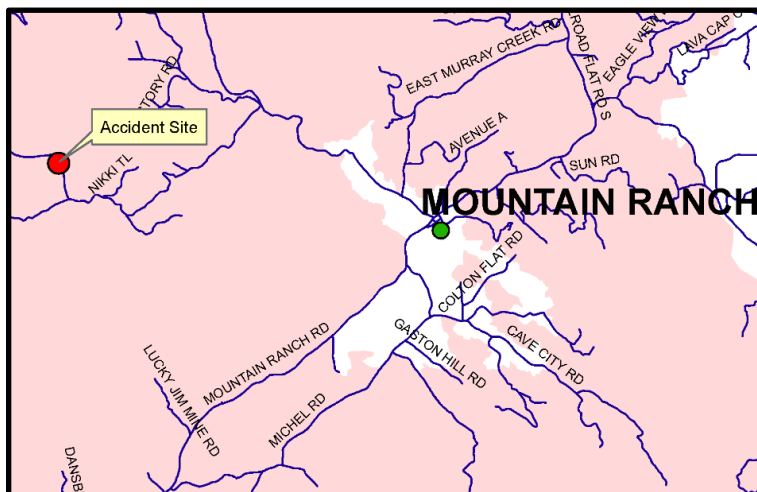
### **Equipment**

Wood Chipper  
Make: Vermeer  
Model: BC1200XL  
Motor: Cummins 3.3L  
VIN/PIN: 1VR7141Y7G1001593

## SEQUENCE OF EVENTS

On Monday, March 18, 2019, a handcrew (Handcrew 1) from a CAL FIRE Conservation Camp was assigned to assist the Calaveras County Roads Division with vegetation removal and debris clean-up along county maintained roads. At approximately 8:37 AM, Handcrew 1, comprised of one CAL FIRE Fire Captain (FC1) and 14 handcrew members, departed the Conservation Camp to meet with the project sponsor in San Andreas, CA. FC1 had returned to work that morning at 7:00 AM after three days off duty.

Upon arrival at the county yard, FC1 met with a Calaveras County Road Maintenance Worker (Cooperator 1). Following a short discussion regarding the day's activities, Handcrew 1 and Cooperator 1 drove out to the project site. The handcrew traveled in a CAL FIRE Emergency Crew Transport (ECT) while Cooperator 1 drove a chipper truck towing a wheeled chipper. A second Road Maintenance Worker (Cooperator 2) met the crew at the project location.



*Map 1- Map showing accident location in relation to the Community of Mountain Ranch within the Butte Fire Perimeter.*

From San Andreas, FC1 and Cooperator 1 drove east into a rural area of Calaveras County near the community of Mountain Ranch (Map 1). At approximately 9:54 AM, they arrived at the project site located along Doster Road, a narrow one-lane paved road within the perimeter of the Butte Fire.

Cooperator 1 briefed FC1 on their assignment which included the cutting and chipping of tree limbs as well as chipping of downed woody debris on both

sides of the road. Cooperator 1 told FC1 there would be no need to buck the larger downed logs into smaller sections.

FC1 relayed the day's assignment to the crew members. He formed two chainsaw teams consisting of a Sawyer and a Puller. FC1 directed one team (Saw Team 1) to work on the uphill side of Doster Road and the second team to work on the downhill side of the road.

FC1 assigned two crew members to work with Cooperator 1 at the wood chipper while the remaining crew members formed a daisy chain to feed limbs and other woody debris into the chipper. Cooperator 2 implemented traffic control north of the work

location along Doster Road to slow any incoming vehicles where the crew members would be working.



*Picture 1- Aerial photo of accident site*

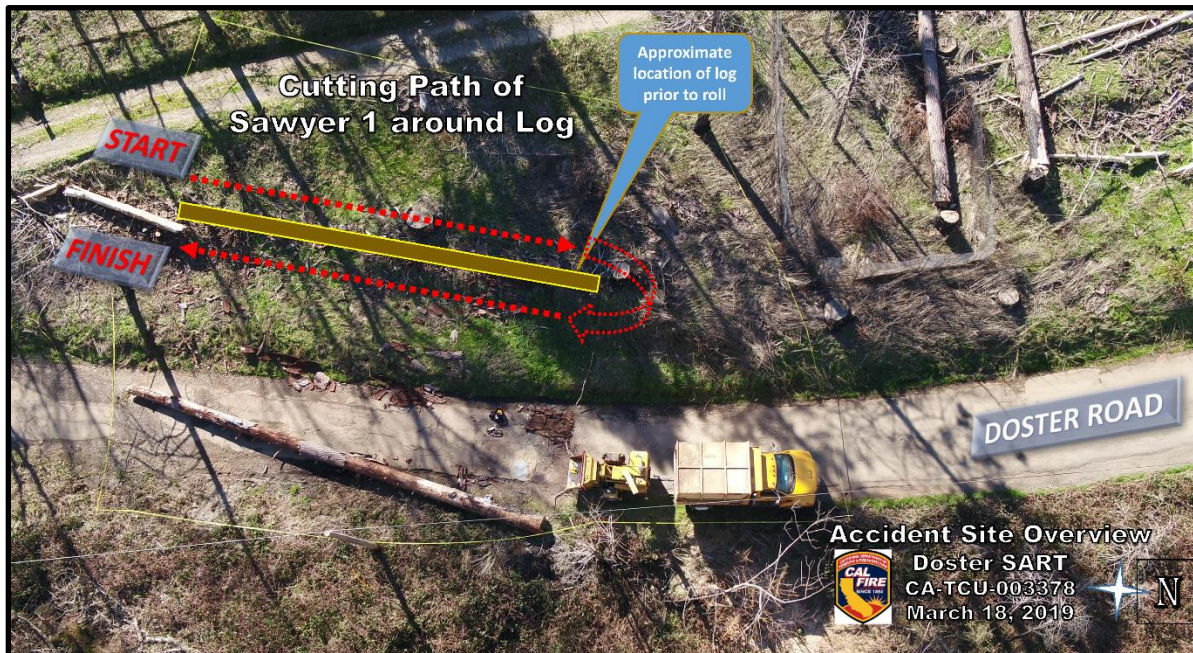
One of the primary objectives for Saw Team 1 was limbing branches off a dead and down Ponderosa pine tree that was felled in the fall of 2018. The tree was not felled by CAL FIRE personnel. The tree was resting parallel to the road, positioned on the outside edge of a small bench that dropped down toward the road. Starting on the uphill side of the tree, Sawyer 1 began cutting branches, progressing from the top of the tree back towards the stump. As Sawyer 1 reached the stump, he transitioned his position to the downhill side of the tree and cut the remaining branches, working back towards the top. Sawyer 1 noticed a number of branches pointed straight down into the soil underneath the log. He did not cut these supporting branches; however, the branches on the downhill side of the log which protruded laterally from the trunk were cut.

Sawyer 1 noticed the tree slightly settle into the ground when he cut one of the longer branches on the downhill side of the tree near the top. Upon completion of limbing, Sawyer 1 continued saw operations. This included bucking and limbing of a small oak tree, in addition to cutting oak sprouts south of the log.

At approximately 10:16 AM, Sawyer 1's puller (Puller 1) was standing just below the top of the log when he heard a very loud snap. This snapping sound was also heard by other crew members working within the vicinity of the tree. Puller 1 quickly turned around and saw the log starting to roll down the hill. Puller 1 yelled, "Rolling downhill! Rolling downhill!" Puller 1 ran a short distance to the south to avoid being hit by the



log. FC1 and some of the other crew members took evasive action and also started to yell, "Log! Rolling downhill!"



Picture 2- Aerial image of Sawyer 1's limbing route around log (Ponderosa pine)

The log gained momentum as it traveled downhill. Within seconds, it advanced into the roadway. At the same time, Cooperator 1, who was on the road assisting crew members feed the chipper, turned to his left, looked uphill towards the log and quickly put his left arm out to brace for the impact. As the log hit Cooperator 1, the butt of the tree rose up and hit a crew member (Crew Member 1) in the back who was feeding the chipper. Crew Member 1 was not able to hear the verbal warnings because he was wearing earplugs and the noise of the chipper. Crew Member 1 was pushed away from the chipper and downhill off Doster Road. The log ultimately came to a stop on top of Cooperator 1.

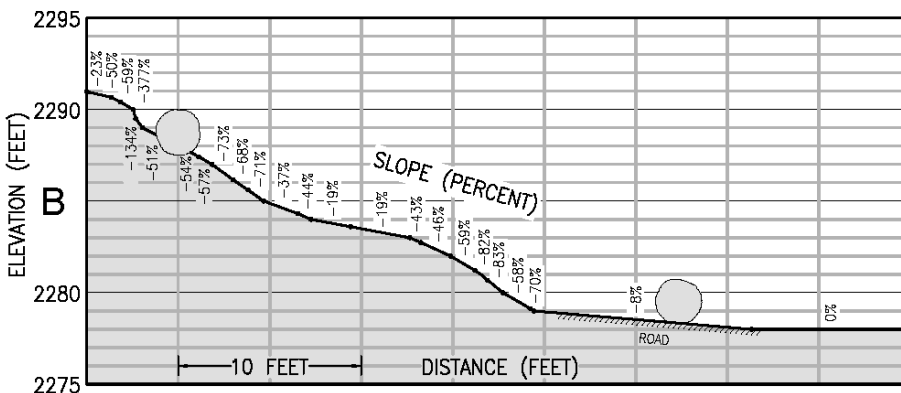


Figure 1- Elevation and percent slope profile showing approximate position of log on slope and final resting place on Doster Road. Branches and slash would have been located uphill and downhill of log.

FC1 ran over to the accident site. He turned off the chipper, directed one of the crew members to get Cooperator 2, and then instructed the remaining crew members to get the log off Cooperator 1. At approximately 10:17 AM, FC1 radioed the San Andreas Emergency Command Center of the medical emergency. While FC1 initiated the emergency response, Sawyer 1 started to cut the log off Cooperator 1 since the log was too heavy to move. As more crew members surrounded the log, they were able to push the log off Cooperator 1 prior to Sawyer 1 finishing his cut.

FC1 directed one of his crew members to get the medical bag, trauma kit and Automated External Defibrillator (AED) off the ECT. Cardiopulmonary Resuscitation (CPR) was initiated and an AED was applied to Cooperator 1. At approximately 10:39 AM, Fire and Emergency Medical Services resources arrived at scene to provide Advanced Life Support (ALS).

## **INJURIES/DAMAGES**

1. Cooperator 1 suffered fatal traumatic injuries.
2. Crew Member 1 suffered minor injuries.

## **SAFETY ISSUES FOR REVIEW**

1. Evaluate and mitigate hazards when working in areas with fire damaged trees, especially in areas where trees were damaged months or years ago and have been exposed to the elements for extended periods of time.
2. Ensure all trees being worked on, or around, are analyzed for stability.
3. Review limbing and chipping procedures with assigned personnel in a Tailgate Safety Briefing before the start of each work day/operational period and ensure it is properly documented.
4. When conducting Tailgate Safety Briefings, be sure to include cooperators in the briefing.
5. Beware of complacency due to repetitious activity, extended duration project work, and successive extended fire seasons.
6. Evaluate placement of personnel and equipment downhill of potential hazards prior to initiating work.
7. [Ishi Incident, Inmate Crew Member Fatality, May 24, 2017](#)  
(Review for hazards associated with chipper noise)
8. [Skull Incident, Inmate Struck By Private Vehicle, February 6, 2014](#)  
(Review for hazards and project work along roadways)

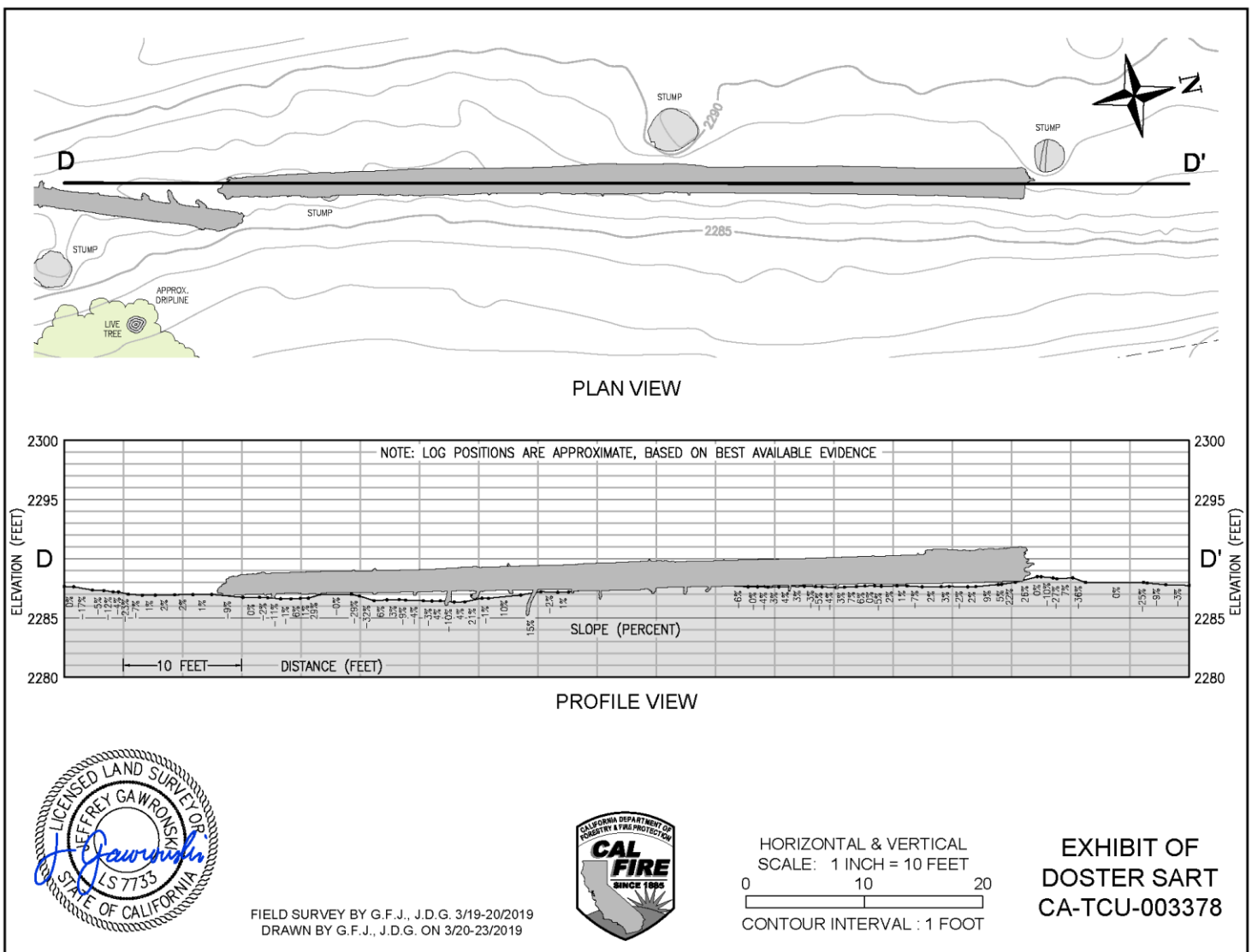
## INCIDENTAL ISSUES/LESSONS LEARNED

1. Consider proximity of saw operations to chipper operations and associated noise pollution which may interfere with the posted lookout's ability to be heard when alerting personnel of an imminent emergency. The posted lookout's sole responsibility is visually/physically alerting personnel who are appropriately wearing ear protection.
2. Supervisory personnel shall conduct "tool box" or "tailgate" safety meetings or the equivalent with their crews at least every ten working days on the job or as needed to emphasize safety. [CAL FIRE Policy 1752](#)
3. Before starting work on a project, the project supervisor will discuss the project plan, including the identification of hazards to and safeguards for employees, with crew members at a tailgate session. No deviations will be made from the project plan unless they are approved by the project supervisor and discussed with the crew at a tailgate session. If work procedures are changed, a new project plan will be prepared, approved, and discussed with crew members as outlined above. Post Project Safety Work Plans at the work sites and keep them on file for future reference and as evidence of compliance with state safety regulations. Retain plans for at least seven years. [CAL FIRE Policy 1751](#)
4. Identify the direction logs may roll or move when the limbs are removed and avoid being in the path of the log. *S-212 Wildland Fire Chain Saws curriculum*

## PHOTOS/SITE DIAGRAMS/MAPS

### LIDAR PROFILE VIEW OF ACCIDENT LOCATION

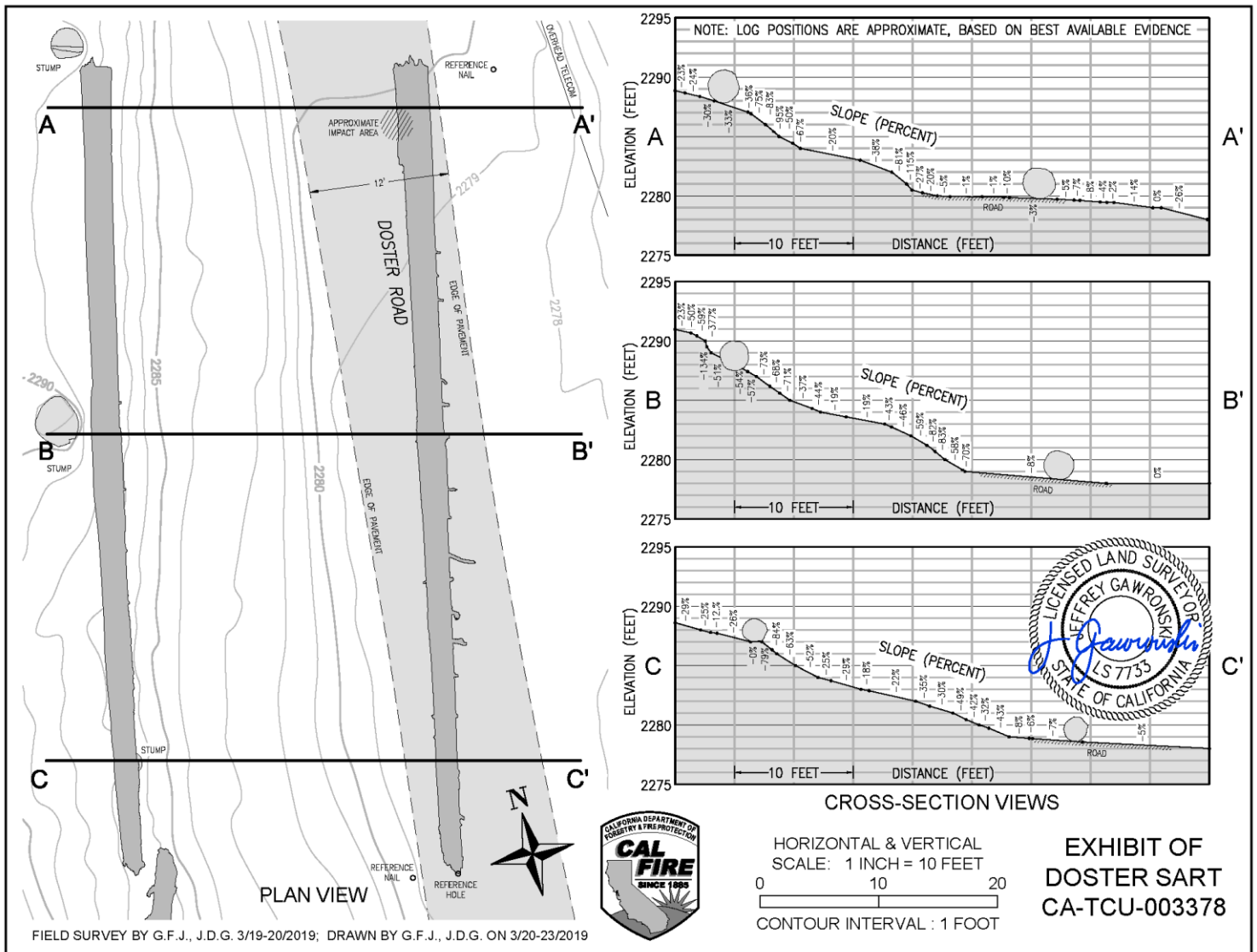
*(Profile view shows approximate position of log on slope prior to rolling downhill)*



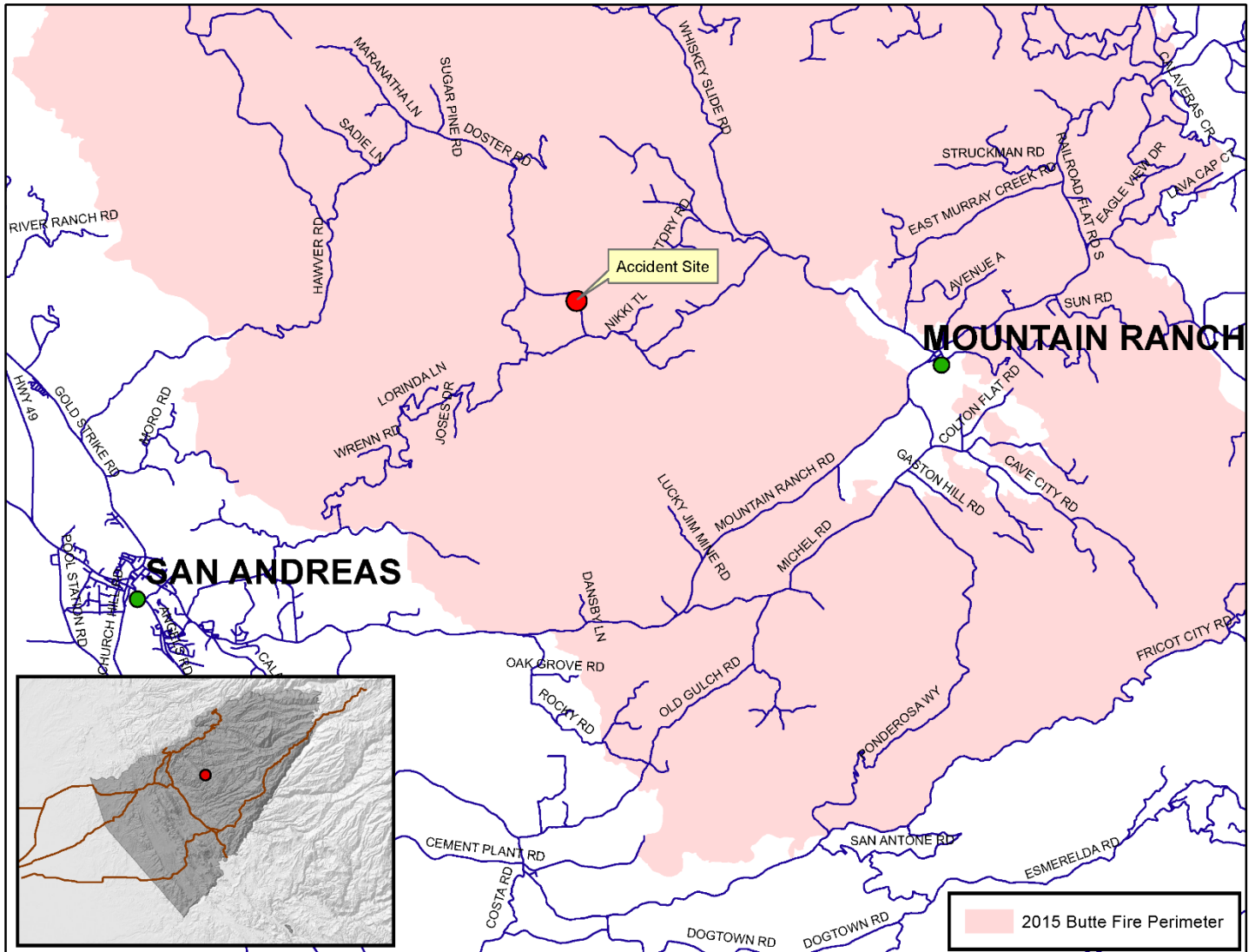


## LIDAR CROSS SECTIONAL VIEW OF ACCIDENT LOCATION

*(Cross-Section view shows approximate position of log on slope prior to rolling downhill as well as resting location of log on Doster Road)*



## DOSTER OVERVIEW MAP



## **LiDAR DATA SCENE RECONSTRUCTION**

***(Approximate location of log on hill above Doster Road)***

*Note: Scene does not show limbs and slash on and around tree prior to start of chainsaw operations*

