

Mountain Boy Mining Company RFP



Mountain Boy Mining Co.

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Avalanche Science Program, Colorado Mountain College

March 18, 2020

Avalanche Safety Plan

Operational Goals, Objectives, and Priorities

Our operational goals for Mountain Boy Mining Co. will be to keep mining operations ongoing without interruption from avalanches while keeping staff and infrastructure safe. Our objective, as will be outlined in detail throughout this RFP, is to allow mining operations to persist year-round uninterrupted by avalanches. Keeping employees safe with respect to the avalanche hazard is the number one priority throughout the winter season followed by keeping mining operations open and protecting the infrastructure of the mine.

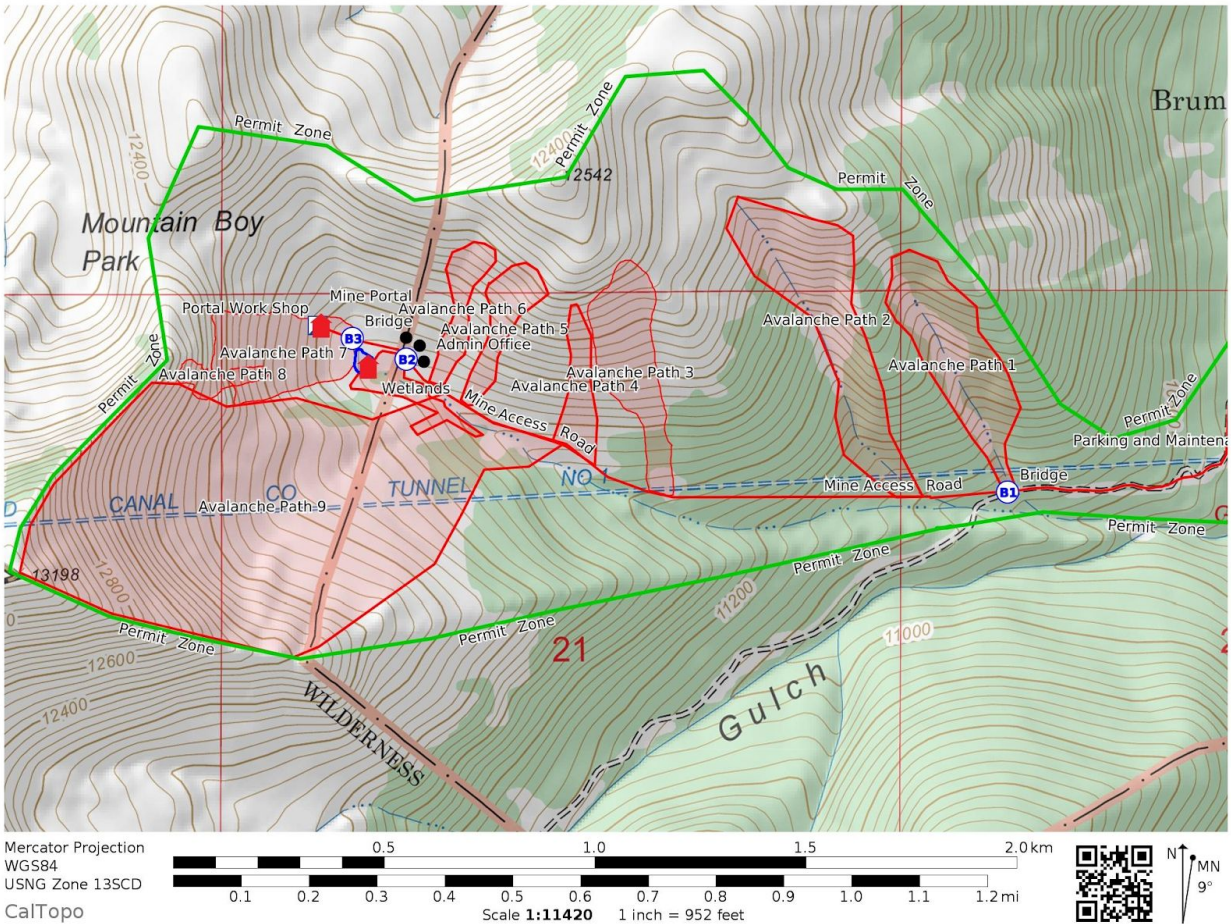
Our snow safety team will consist of three full-time avalanche forecasters, one of whom will be the lead forecaster and work year round doing maintenance and data collection and analysis during the summer. We will also have a forecasting assistant to help during peak periods of instability and season-long data collection as well as a mining equipment operator to assist with avalanche mitigation. With three forecasters we can work in 24 hours shifts with 48 hours off throughout the winter season.

Avalanche Risk Assessment

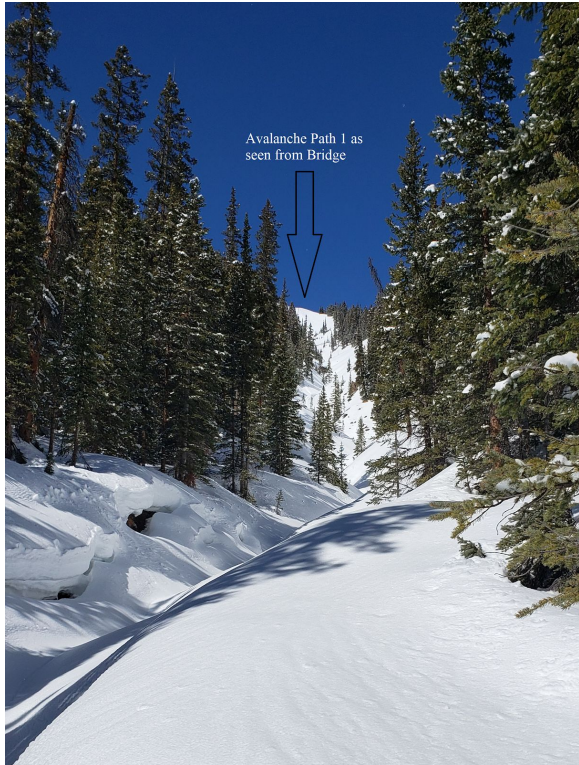
In the mines permit zone our items at risk throughout the winter season are workers and infrastructure. The vulnerability of our workers is highly variable but all employees entering the mine permit area will be required to wear/carry personal protective equipment(PPE) of a beacon, shovel, and probe, as well as wearing a recco tag on their person at all times while in the permit area to decrease their vulnerability to avalanches. Infrastructure at risk consists of buildings, the mine portal, vehicles, the road, and any and all remote avalanche control systems (RACs) as well as weather stations that we recommend installing. Any avalanches with a destructive size equal

to D2 or larger according to the Conceptual Model of Avalanche Hazard (Statham et al, 2017) are an unacceptable risk for employees traveling by foot, and avalanche sized D3 or larger is an unacceptable risk for mining infrastructure.

Mountain Boy Mine is located on the eastern side of Independence Pass in Lake County, Colorado. Being located in the Rocky Mountains of Colorado there is a continental snowpack, typically the most unstable snowpack with respect to avalanches. The drainage that the mine is located in is primarily an east-facing drainage with most avalanche paths of concern on the northern slope of the drainage. The Mine Access road crosses directly under a number of the avalanche paths of concern with the mine portal located directly at the bottom of an avalanche path as well. In the map below you can see an overview of the mine infrastructure and the avalanche paths.



To facilitate ongoing mining operations we have begun to develop an avalanche atlas for all of the avalanche paths that threaten infrastructure and/or personnel. Below you will find annotated photographs of avalanche paths, not including our proposed mitigation structures and RACs, as well as an avalanche path map as defined in The Technical Aspects of Snow and Avalanche Risk Management (TASARM, 2016) and an outline for a detailed avalanche atlas we will construct after further observations, data collection, and analysis of the terrain.



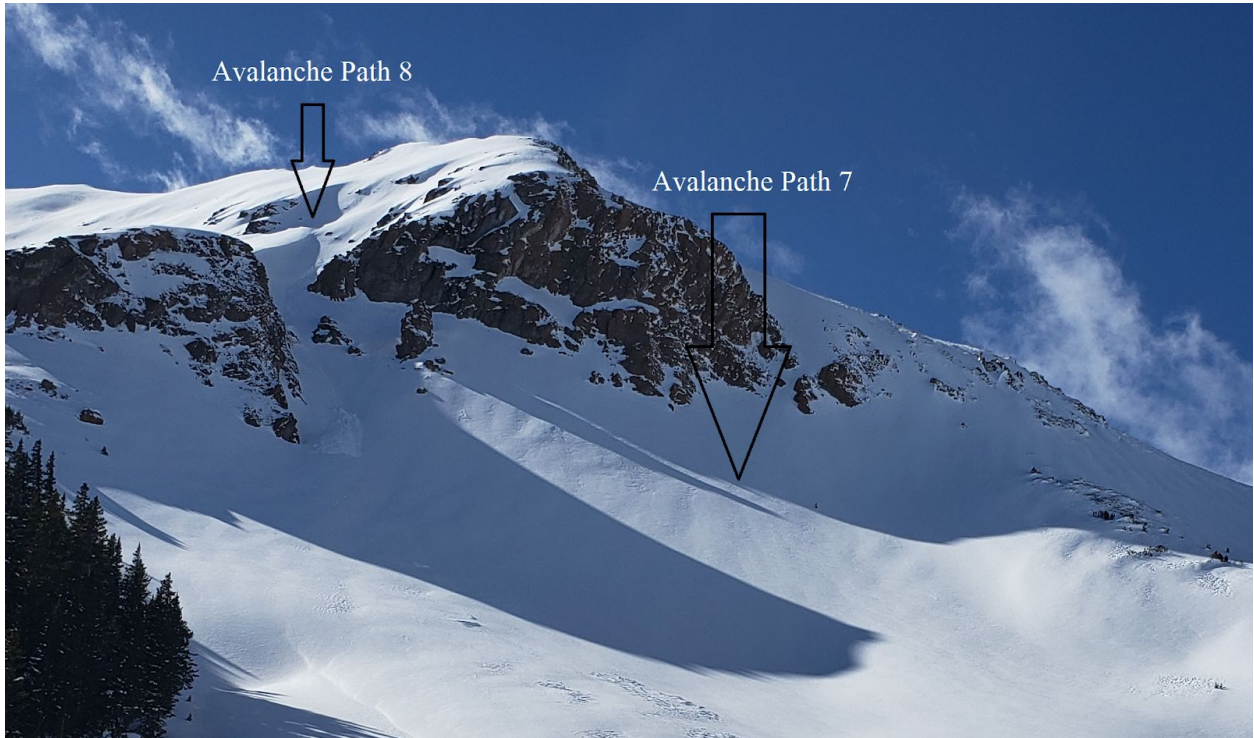
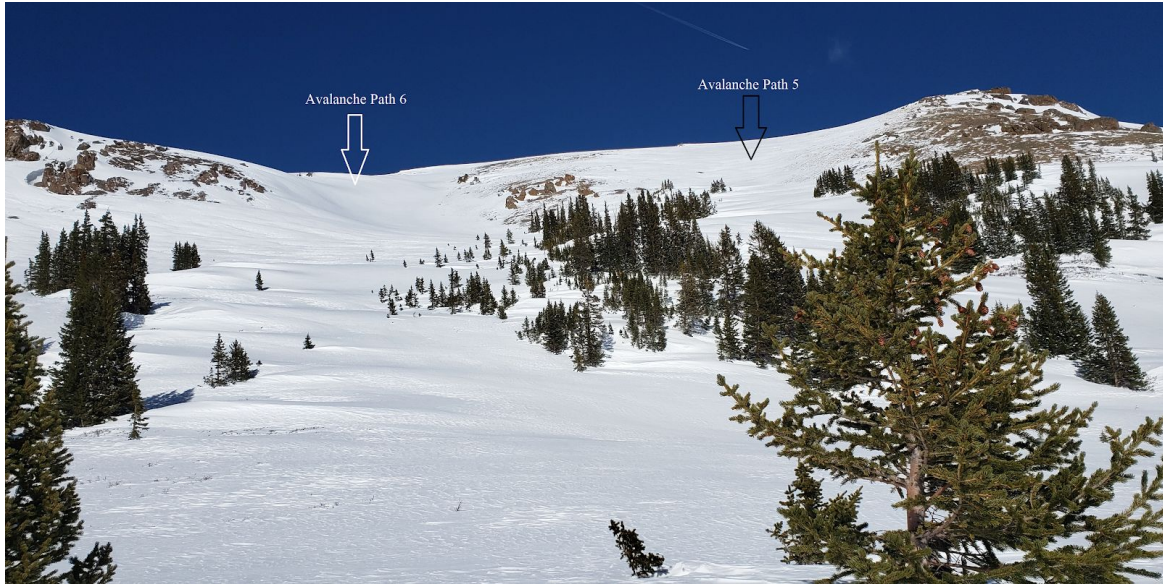
Avalanche Path 1 as seen from Bridge

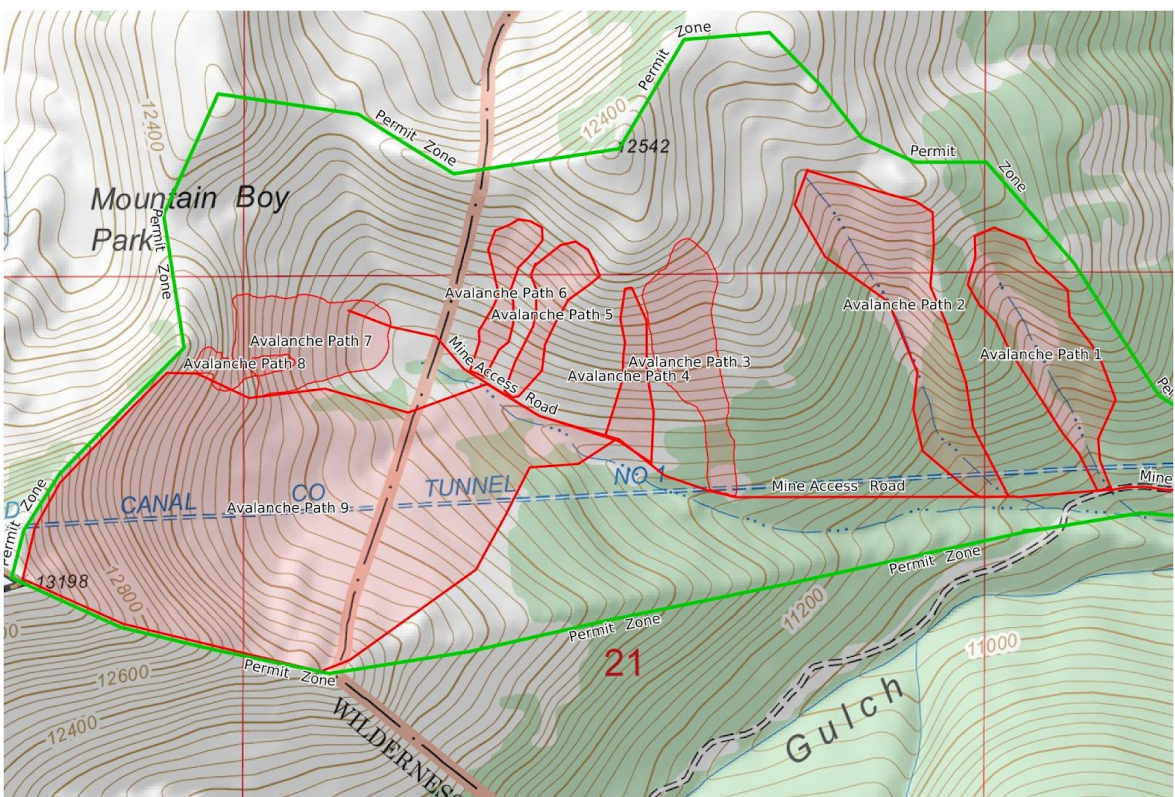


Avalanche Path 4 Directly above road

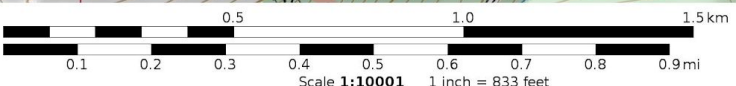


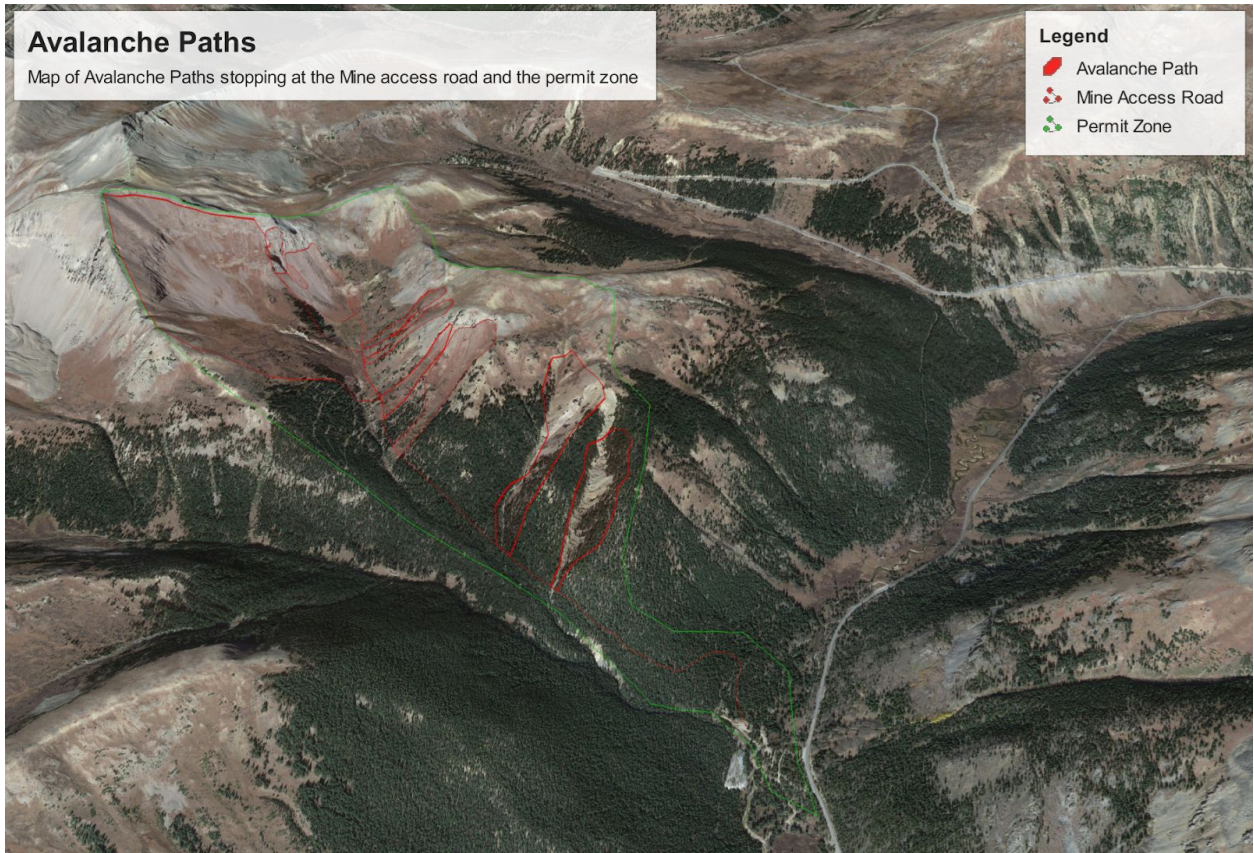
Avalanche Path 3 as seen from the road





Mercator Projection
WGS84
USNG Zone 13SCD
CalTopo





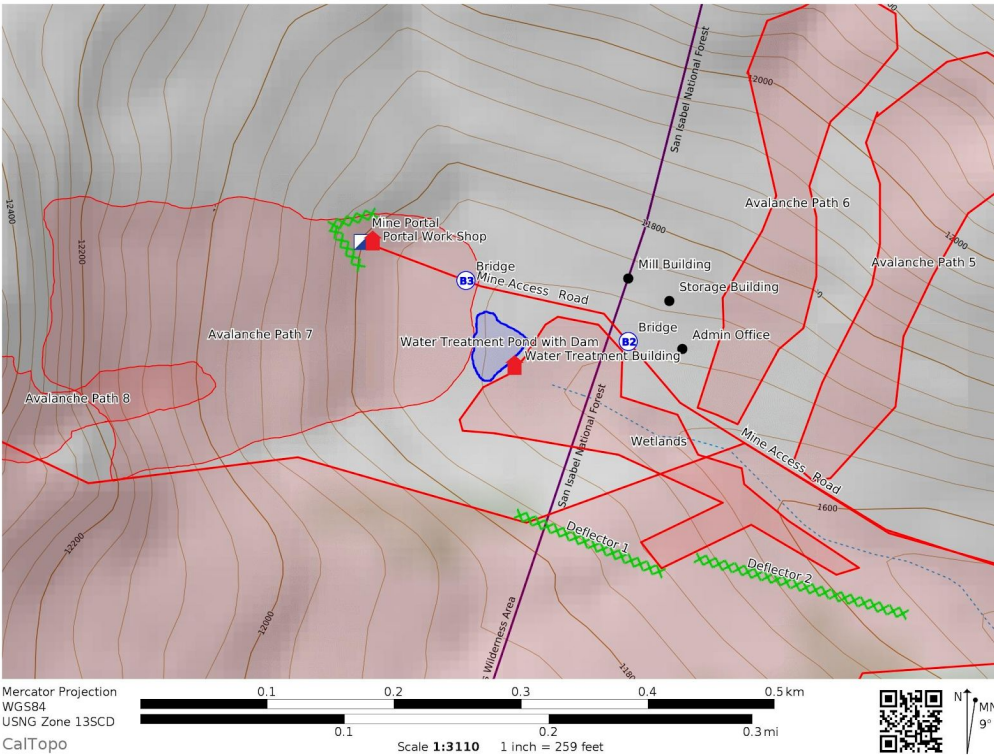
Upon further data collection, observations, and analysis one of these Avalanche Path Identifiers will be filled out to go along with annotated pictures of each individual avalanche path.

Name of Path

Location			Coordinates				Vertical fall (m)	
Starting Zone	Elevation (m)	Top	Avg. Slope Angle (°)		Aspect		Width (m)	
		Bottom						
	Terrain Characteristics							
Track	Elevation (m)	Top	Avg. Slope Angle (°)		Width (m)		Length (m)	
		Bottom						
	Terrain Characteristics							
Runout Zone	Elevation (m)	Top	Avg. Slope Angle (°)		Terrain Trap?			
		Bottom						
	Terrain Characteristics							
Est. Frequency (avalanches:years)	Size 1		Size 2		Size 3		Size 4	Size 5
Historic Avalanche Events								

New Infrastructure Placement

In the map below you will see our recommendations for placement of a new 40x60 ft. mill building, 100x80 ft. admin offices/truck shop, and a 50x50 ft. storage building that in combination with our recommended avalanche mitigation techniques will likely keep these buildings from being damaged or destroyed by avalanches size D3 or larger.



Avalanche Forecasting Plan

We have developed an avalanche forecasting plan to support mining operations including a data collection plan, additional infrastructure needs to support data collection, forecasting process plan amongst the snow safety team, and a daily bulletin to communicate avalanche hazard and the impact on mine operations to personnel.

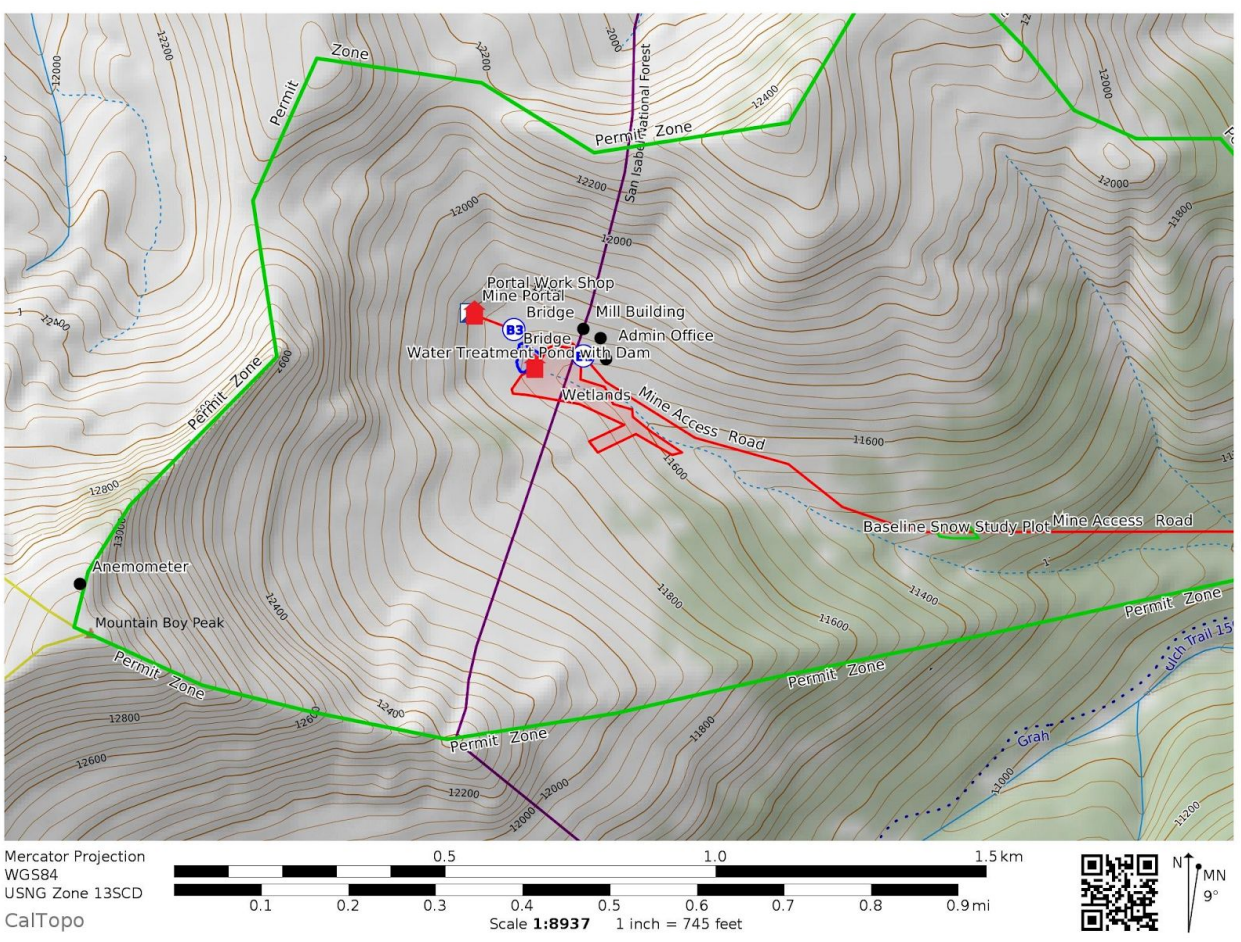
For data collection purposes we have identified a number of existing telemetered weather stations that will give the snow safety team relevant data for snow and weather. These stations are free to access and will have no additional cost to the snow safety budget for Mountain Boy Mining Co. Existing telemetered weather stations we will be using are primarily the Brumley and Independence Pass Snotels for snow data, and Taylor Park, Aspen, and Leadville for weather

data. In addition to these existing weather stations, we will require an installation of a remote weather station to be installed on Mountain Boy Peak as well as a snow study site clearing to be established and a number of snow study tools and snowboard equipment from Snowmetrics, all included in detail in the budget as seen below.

Data Collection Tools	Cost (\$)		
ProSnowKit 2	720		
Snowboard (x2)	144		
Delux 12" SWE Kit	185		
Standard Ramsonde Kit*	1545		optional
Remote Weather Station	7837.92		Quoted from Campbell Scientific

The additional costs for data collection and observation infrastructure will help us track storm and layer formation more accurately in the mining permit area to develop a more accurate forecast and efficient mitigation techniques to keep mining operations running all season long without interruption from avalanches. Our proposed remote weather station will collect wind speeds, wind gusts, air pressure and temperature, relative humidity, and incoming shortwave radiation. Our snow study plot will just need to be cleared of a few trees leveled then small inexpensive installations of temporary infrastructure, such as gates, storm boards, and a snow stake. This snow study plot will act as our baseline dataset for tracking storms and layer formation in the mine permit area. In the map below you can see our snow study site location and remote weather station installation location with respect to the mining infrastructure, as well as the weather station details and quote from Campbell Scientific. (note: We do not recommend

installing the rain gauge that is quoted in Campbell Scientifics quote so subtract 1548\$ from the estimated quote, the accurate price will be shown in the final budget.)



4/15/2020

Campbell Scientific Quote: View your quote and take the next step

Campbell Scientific Quote

View your quote and take the next step



Details

Quote #: 183983
 Quote Date: 27 Mar 2020
 Valid Through: 26 May 2020
 Quoted By: Brittany Batt
 Credit Terms: CHECK/WT
 Freight Terms:
 Incoterms: FOB Logan, UT

To

Dylan Craaybeek
 CO Mtn College Avalanche Science
 113 Dartmouth Dr
 Buena Vista, CO 812111
 United States

Ship To

Products

[Request a Change](#) | [Save as PDF](#) | [Share](#)

#	Model / Part	Description	Qty	Unit Price	Ext. Price
1	UT10-J	10ft Tower w/Adjustable Mast & Grounding Kit -J w/J-Bolt Kit	1	\$748.00	\$748.00

<https://www.campbellsci.com/quote?g=8b6c3615b11fedf1541338342e0b6cf>

4/15/2020

Campbell Scientific Quote: View your quote and take the next step

9	TB4-L25-PT	HS Rain Gage 0.01 inch (0.254mm) Tip w/8 inch Orifice 25ft cable per sensor -PT w/Tinned Wires	1	\$1,403.00	\$1,403.00
10	CM240	Leveling Base & Mount for CS700, TB4, or 385	1	\$145.00	\$145.00
11	LI200R-L15-PT	LI-COR Pyranometer 15ft cable per sensor -PT w/Tinned Wires	1	\$557.80	\$557.80
12	LI2003S	LI-COR Leveling Base	1	\$90.00	\$90.00
13	CM225	Solar Sensor Mounting Stand	1	\$35.00	\$35.00
14	CH200-SW	12V Charging Regulator (-40 to +60C) -SW Standard 1yr Warranty	1	\$355.00	\$355.00

4/15/2020

Campbell Scientific Quote: View your quote and take the next step

2	CM204	Sensor Crossarm w/one CM210 Mounting Kit, 4ft	1	\$95.00	\$95.00
3	CR1000X-NA-ST-SW-CC	Measurement & Control Datalogger -NA No Additional Coms -ST -40 to +70C -SW Standard 3yr Warranty -CC Campbell Calibration	1	\$1,750.00	\$1,750.00
4	05103-L13-PT	Wind Monitor 13ft cable per sensor -PT w/Tinned Wires	1	\$1,078.27	\$1,078.27
5	SP20-PT-SM	20W Solar Panel, 15ft Cable -PT w/Tinned Wires -SM Std Mounting Kit	1	\$326.00	\$326.00
6	CS100	Setra 278 Barometer (600 -1100 hPa), 30 inch Cable	1	\$650.00	\$650.00
7	EE181-L15-PT	E+E Temperature/RH Probe 15ft cable per sensor -PT w/Tinned Wires	1	\$496.85	\$496.85
8	RAD10E	METSPEC 10-Plate Solar Radiation Shield for Larger Sensors	1	\$180.00	\$180.00

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4/15/2020

Campbell Scientific Quote: View your quote and take the next step

17	LOGGERNET-D	Datalogger Support Software -D Download Only NOT CANCELABLE OR RETURNABLE PRODUCT	1	\$790.00	\$790.00
18	ENC16/18-DC-SB-MM	Weather-Resistant Enclosure, 16 x 18 inches -DC 2 Conduits for Cables -SB Standard Backplate -MM Tripod Mast Mounting	1	\$515.00	\$515.00

Sub Total: \$9,385.92
 Tax: \$0.00
 Freight: \$0.00
Grand Total: \$9,385.92

This quote is governed by the Campbell Scientific, Inc. terms and conditions. Basic orders typically ship within 2-14 days. Banking details will never be requested via unsolicited email. This quote is for domestic purposes only.

Have a question? Contact your sales engineer, Brittany Batt, to receive an answer.

In addition to all the data collection/ observation tools we will also have a member of the snow safety team taking relevant field weather observations when needed, multiple times a day during

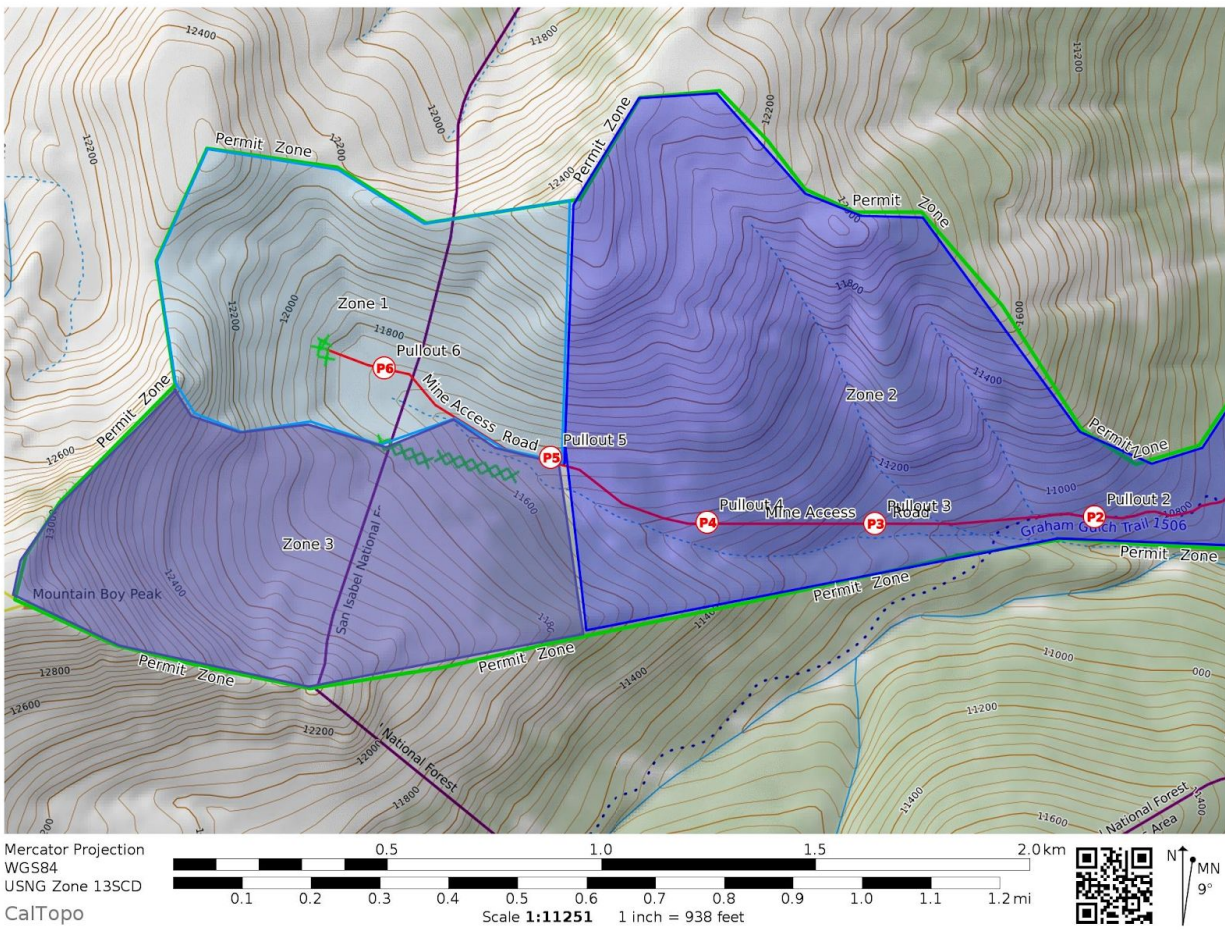
shifts, and we will be working closely with CAIC and CDOT to share data and the avalanche hazard for the forecast zone. The Mountain Boy Mine is located close to the border of the Sawatch, Aspen, and Gunnison CAIC backcountry forecast zones. The entrance of the mine is also along HWY 82, which crosses a number of large avalanche paths that CDOT and CAIC mitigate when necessary. **Access to mine may be restricted by CDOT mitigation of HWY 82 at times**, but these will likely be foreseeable events that the snow safety team can properly communicate with CDOT prepare the mine preemptively in order to continue normal operations on an adjusted schedule.

The forecasting plan process will be an ongoing in-depth analysis of the snowpack and weather observations and sources of uncertainty by the entire snow safety team with input from the mine site manager and shift supervisor to be summarized on our “Forecast Baton.” Since the mine is closed to public access natural avalanches are our primary concern over human triggered avalanches. During each shift change for the snow safety team, every 24 hours, the forecaster ending their shift will work with the forecaster beginning their shift to complete a form summarizing all relevant observations from the previous shift and forecasting for the future shift. Included in this form, referred to as the Forecast Baton will be daily data from existing and new weather stations, field weather and snowpack daily observations, relevant avalanches, avalanche mitigation results, paths of concern, areas of uncertainty, a 24-hour forecast, and the avalanche bulletin (as seen below) that is released to all mining personnel in email and posted form at the mine entrance.

Danger Rating	Description	Travel Restrictions
Low (0)	Avalanches unlikely to possible and relatively harmless to could bury, injure, or kill a person.	PPE required, standing in avalanche paths not allowed.
Moderate (1)	Notice: Avalanches possible to likely and could bury, injure, or kill a person to could damage a truck, or break a few trees.	PPE required, no leaving vehicles or buildings, travel by foot restricted to walking between buildings and cars, stopping trucks in avalanche paths not allowed.
High (2)	Caution: Avalanches are likely to almost certain and could damage a truck, break a few trees to destroy a large truck and several buildings or a whole forest area.	PPE required, no travel allowed without permission from shift supervisor or member of snow safety team, plows can only work with spotters.
Extreme (3)	Very Large to historical avalanches	Operations temporarily suspended, no travel allowed

The process of filling out the Forecaster Baton will also be a debrief (PM Form) for the forecaster completing their shift, a briefing (AM Form) for the forecaster beginning their shift, and a snow safety overview of the day for the mine with recommendations for mitigation. We highly recommend that the site manager, shift supervisor, and/or their assistants attend this meeting to mitigate bias of the avalanche forecasting team as well as to have clear communication between the avalanche safety team and mining operations.

For forecasting and mitigation purposes we have divided the mining permit area into three forecasting zones relating to the potential destructive size and frequency of those avalanche paths with respect to our elements at risk. Below is a map of the forecast zones and the full bulletin for forecasters as well that will be seen on the “Forecast Baton”.



Danger Rating	Description	Travel Restrictions	Mitigation Techniques	Forecaster Notes
Low (0)	Avalanches unlikely to possible and relatively harmless to could bury, injure, or kill a person.	PPE required, standing in avalanche paths not allowed.	Likely no mitigation necessary unless preemptive mitigation for an incoming storm	
Moderate (1)	Notice: Avalanches possible to likely and could bury, injure, or kill a person to could damage a truck, or break a few trees.	PPE required, no leaving vehicles or buildings, travel by foot restricted to walking between buildings and cars, stopping trucks in avalanche paths not allowed.	Specialized snow removal trucks in Denver alerted to standby. Mitigation recommended in zone 1	

High (2)	Caution: Avalanches are likely to almost certain and could damage a truck, break a few trees to destroy a large truck and several buildings or a whole forest area.	PPE required, no travel allowed without permission from shift supervisor or member of snow safety team, plows can only work with spotters.	Mitigation recommended in zones 1 and 2. Special snow removal trucks likely required	
Extreme (3)	Very Large to historical avalanches very likely to almost certain	Operations temporarily suspended, no travel allowed	Aggressive mitigation techniques likely required in zones 1 and 2 potentially in zone 3	Consider evacuation all non-essential personnel

Forecast Zone 1 is our primary area of concern with respect to avalanches. Avalanche mitigation will be completed in Forecast Zone 1 when avalanches D2 or larger are possible to almost certain, natural avalanches are few to several, according to the Conceptual Model of Avalanche Hazard (Statham et al, 2017). Avalanche mitigation in Zone 2 will be completed when avalanches D3 or larger are possible to almost certain. Zone 3 is only an area of concern when historical avalanches D4 or larger are likely to almost certain with our proposed avalanche deflector mounds. There would have to be a historical avalanche in Zone 3 to reach the road and do any damage to infrastructure.

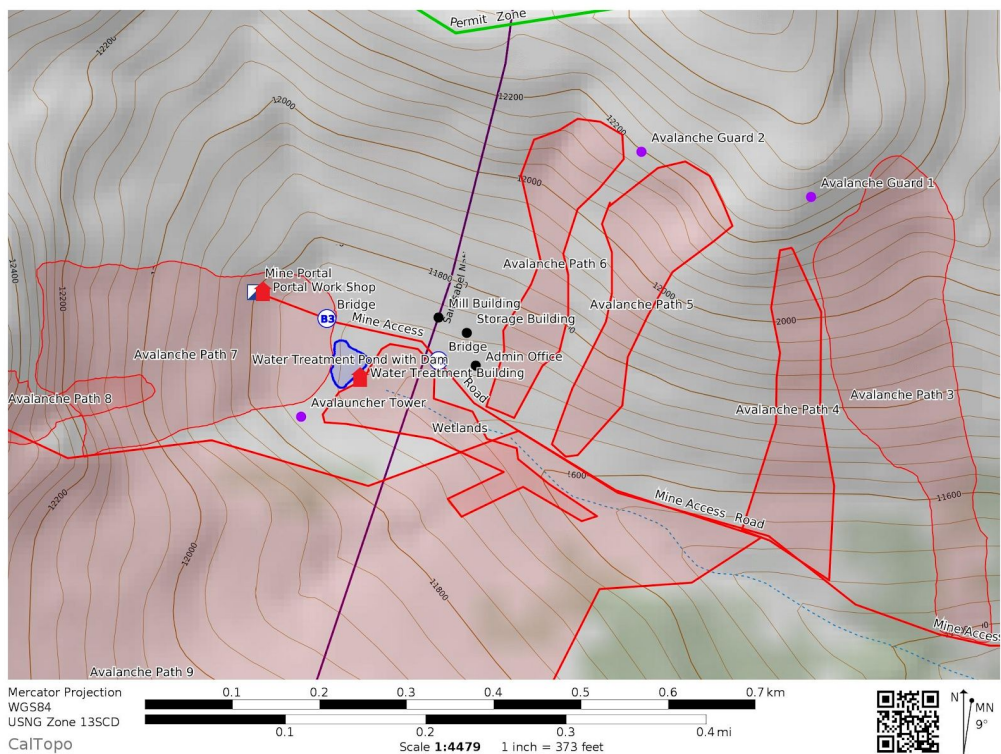
Avalanche Mitigation Plan

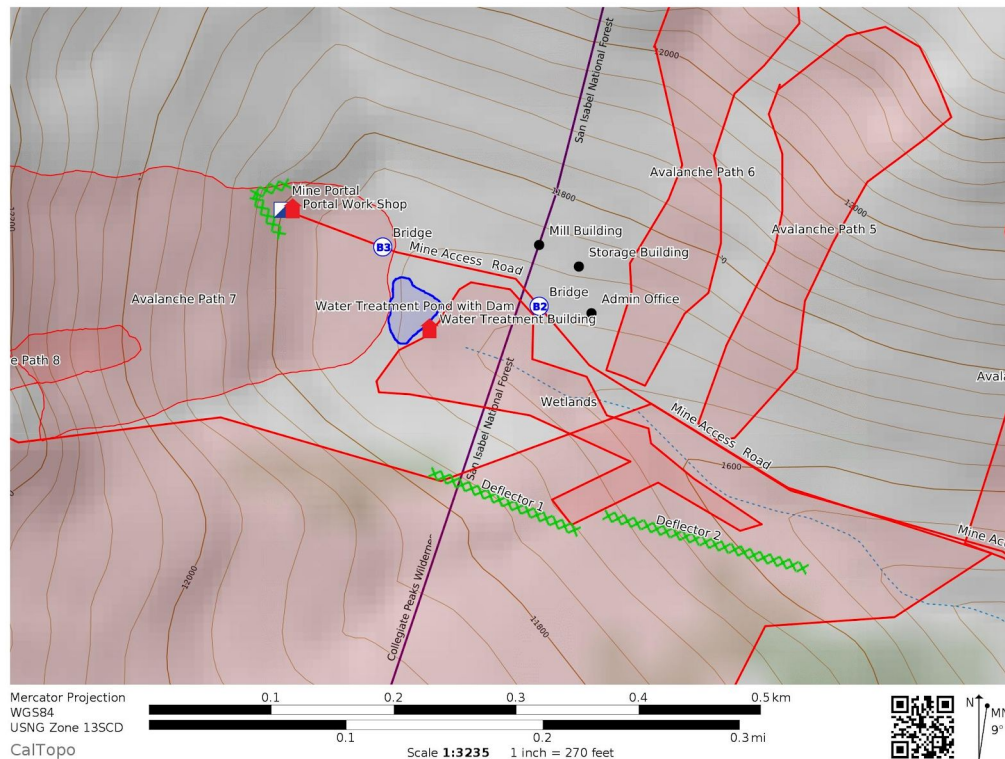
We have designed an extensive avalanche mitigation plan to go along with our forecasting plan to reduce the avalanche hazard to acceptable levels within the mining permit

area. Our proposed mitigation techniques and installations should reduce the avalanche hazard to acceptable levels while mining operations continue with little to no interruption all season long, keeping in mind that rare weather events may occur that may raise our danger rating to extreme (see avalanche bulletin) leading to our recommendation of evacuation of all non-essential personnel until thorough avalanche mitigation procedures have reduced the hazard.

We recommend installing two Avalanche Guards, one above Avalanche Paths 3 and 4 and one above Avalanche Paths 5 and 6. We have determined that an Avalanche Guard will be the most appropriate remote avalanche control (RAC) system to mitigate these paths consistently throughout the season. Any mitigation techniques that require mitigators to travel up to the starting zones is not practical for these paths mid winter, especially during storms, and an Avalanche Guard will be the most price efficient RAC that can adequately affect the starting zones of these avalanche paths. We have included Gazex and Wyssen Tower in the budget as well, both of which could effectively mitigate these paths if you want to choose those RAC systems over the Avalanche Guards. We also recommend the installation of an Avalauncher Tower to mitigate Paths 7 and 8. The installation of multiple Obellx or Gazex RACs would also sufficiently mitigate these paths but we recommend an Avalauncher in order to consistently mitigate throughout the season as often as the Snow Safety Team determines it is appropriate considering these paths can affect the mine portal. The installation of an Avalauncher is far more financially efficient and more appropriate for frequent and effective mitigation of these paths. As well as the installation of two Avalanche Guards and an Avalauncher Tower we recommend the construction of two separate mounds of dirt fill in the locations seen below to increase our safety margin. The splitter located above the mine portal should increase our acceptable avalanche

destructive size on path 7 to D2 or larger so small D1 avalanches will no longer be a concern to workers entering and exiting the portal. With our other installation of a dirt mound deflector below path 9, this increases our acceptable destructive size of avalanches to D4 or larger for that zone. Avalanches with destructive size D2 or D3 are very unlikely to damage any infrastructure with the construction of these dirt deflectors redirecting the avalanche debris into the creek bed below the mining road. The installation of a magazine to store hand charge explosives is the last installation we recommend for avalanche mitigation. See the maps below for RAC, Avalauncher and dirt diversion structures.





Avalanche paths 1, 2, and 9 are of little concern most years which is why we have instituted a plan to mitigate these paths when appropriate to avoid damage to infrastructure or unplanned downtime for mining operations. Avalanche paths 1 and 2 we have determined to have an acceptable destructive avalanche size equivalent to D3 or smaller without damaging or burying the road. If conditions suggest that D4 avalanches or larger are possible we have hand charges and ANFO to manually blast the starting zones when conditions allow the mitigators to travel up on the ridgeline. Avalanche path 9, with the dirt deflectors we recommend installing, will only be of concern to infrastructure if there is a D4 or more destructive avalanche capable of overrunning the dirt deflectors. In extreme circumstances we may recommend a helicopter explosive mission for avalanche path 9, that could also include paths 1 and 2, but this will likely not be necessary in

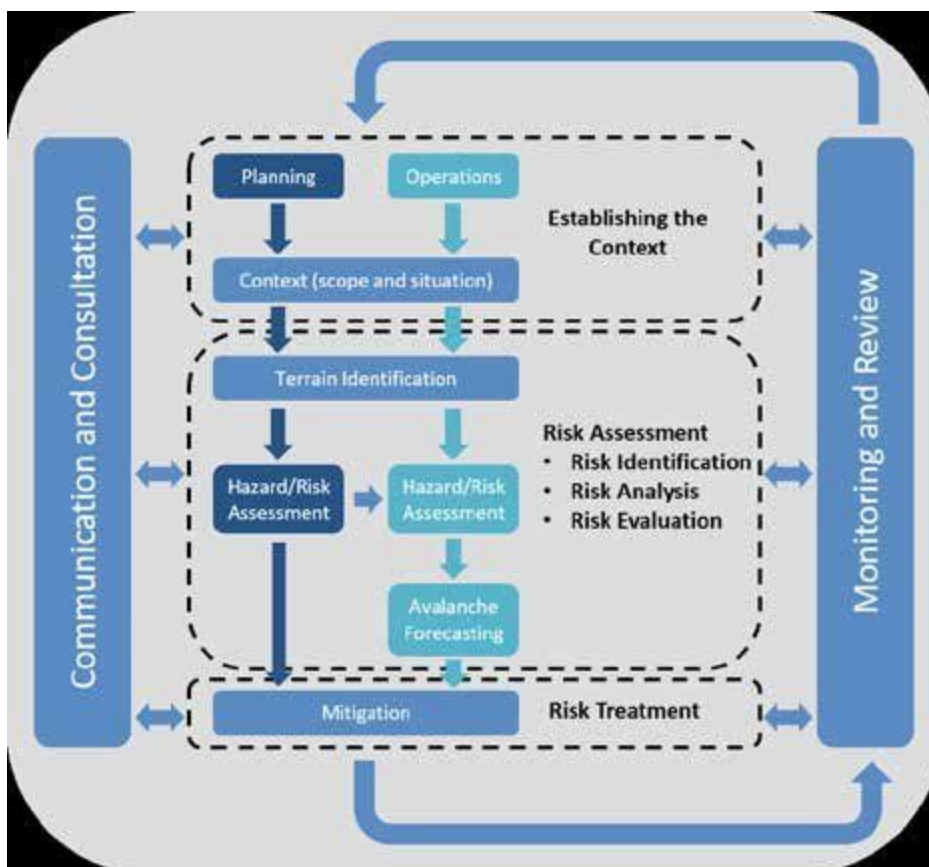
the lifetime of the mine considering we are estimating the return period of avalanche paths 2 and 9 to reach any infrastructure to be 100+ years.

Mitigation procedures will take place during shifts when all mining personnel are out of avalanche terrain either in buildings or in the mine. Mitigation is to be completed by the snow safety team and the mine equipment operator/driver on shift. Recommended mitigation techniques are outlined in the forecaster's bulletin as part of the forecasting plan. Further mitigation than outlined in the bulletin may be appropriate if determined by the snow safety team that it is necessary. We believe even during heavy precipitation events that our mitigation systems are capable of reducing the avalanche hazard, and plowing the roads while mining operation shifts stay on their normal schedule to allow for uninterrupted mining operations year round.

Avalanche Mitigation			
System	Installation Cost(\$)	Estimated Annual Cost	
Avalauncher	70000	11000	250\$ per shot
Fill Dirt (Delivery included)	120633		One time cost
Avalanche Guard (x2)	150000	8000	175\$ per shot
Magazine	60000		one time cost
Hand Charge (1lb)	0	600	30\$ per shot
ANFO (50lbs)	0	200	40\$ per shot
Cap/Fuse	0	500	25\$ per shot
Gazex*(4)	730000	10000	
Wyssen Tower*(2)	440000	12000	
Total Cost	400633	20300	not including Gazex or Wyssen Towers

Risk Management

Our risk management plan is an assessment and treatment procedure of the avalanche hazard in the Mountain Boy Mining Co. permit area including the identification, assessment, and mitigation of the avalanche hazard. (TASARM, 2016)



We have already established the context, discussed risk assessment, and our proposed risk treatment in detail previously in this RFP. To further expand on the adapted ISO 31000 diagram above by communication and consultation we are referring to our established mechanisms for

communication between snow safety operations and mining operations, for instance our daily meetings between forecasters and mine supervisors/managers. Included in these meetings we will discuss and record any “near misses” or other accidents that we did not plan for to validate the effectiveness of our risk management system in place. Monitoring and Review will be used to revise the effectiveness of our risk management system by providing a continuous feedback loop.

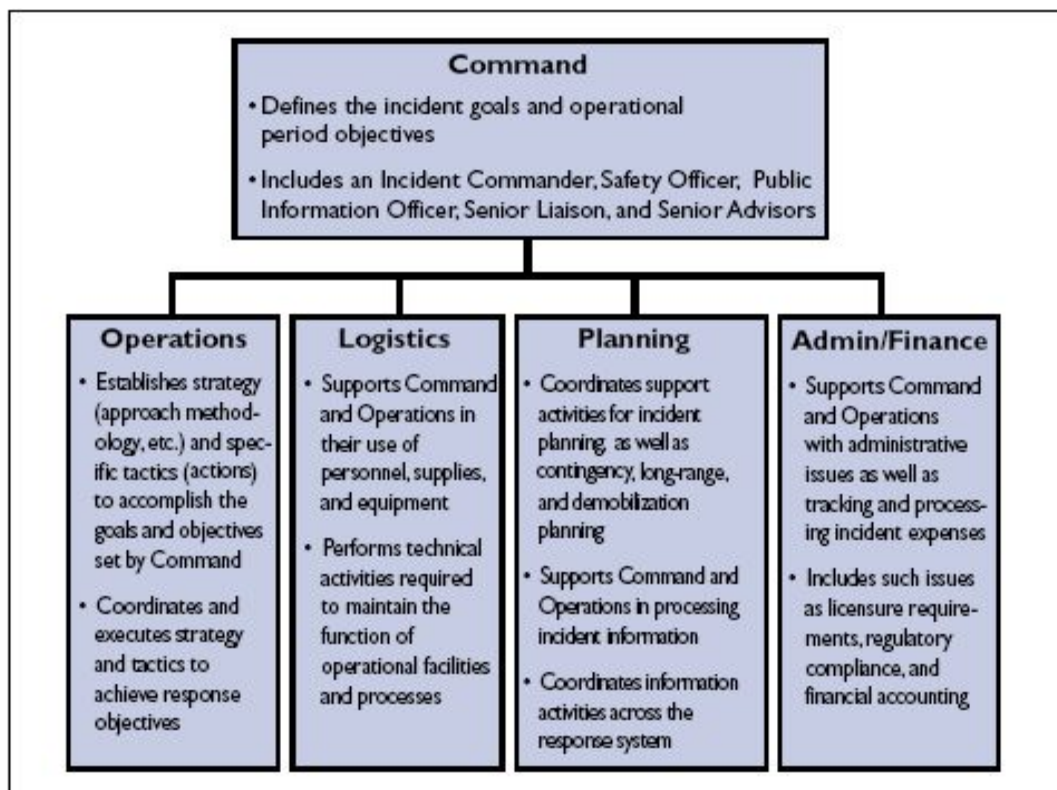
In this section we will detail all needed safety practices relating to snow safety during mining operations for mining workers and the snow safety workers as well as an emergency response plan and a one-day safety orientation learning module for all mine employees to complete at the beginning of every winter season.

All mine workers will have to check in at the parking and maintenance building before entering the mine where they will read the posted avalanche danger of the day on a bulletin board as well as in email form to all mining employees. Mine personnel will be required to wear a Recco tag on them at all times while working in the mine. This tag will be a convenient and wearable item such as a necklace or a wristband. In addition to this all mine workers will be required to carry a beacon shovel and probe while travelling between the mine portal, administrative offices, and mine entrance. As well as all these safety equipment protocols all mine personnel will be required to take the one-day learning module at the beginning of every winter season (details of the learning module found on page 26 and 27 of this RFP).

The snow safety team will also be wearing a Recco tag at all times as well as carrying a beacon shovel and probe with them at all times while in the mine permit area. Radios will be required by every member of the snow safety team and will be on a set channel with the site

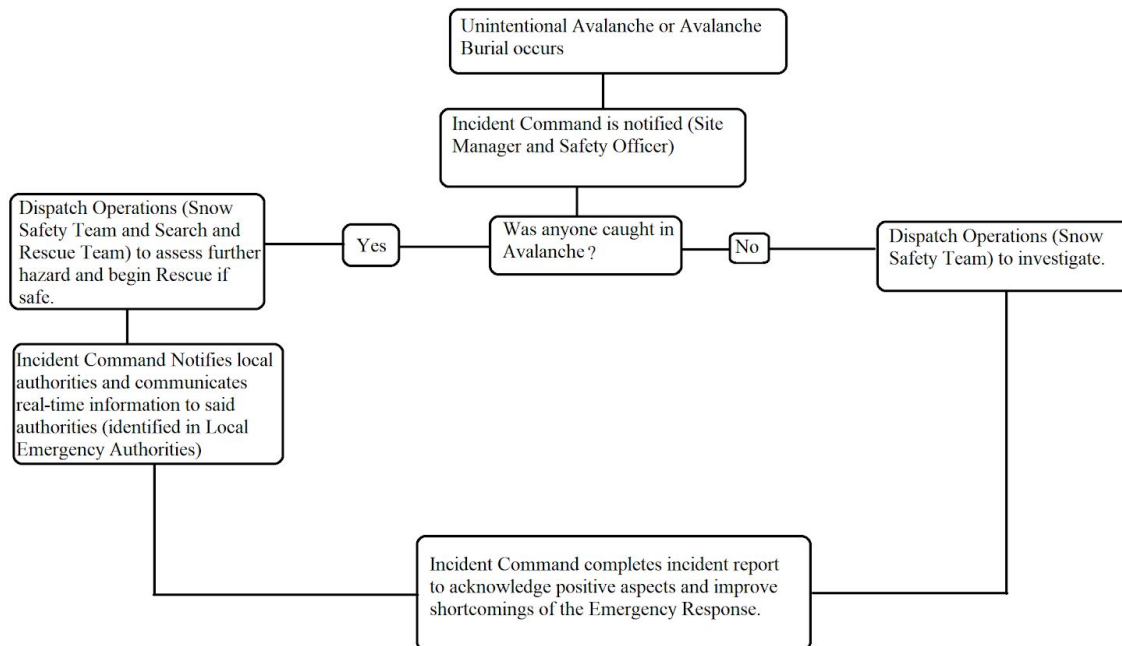
manager, shift supervisor, and any mine personnel assisting with mitigation. Designing the learning module for mining operations will act as a seasonal refresher for all basic snow safety knowledge for the avalanche team as well as running monthly avalanche search and rescue scenarios with the snow safety team and identified mining personnel that will act as the Search and Rescue Team, as identified in the emergency response plan below.

Emergency Response Plan:



Personnel roles will be established and procedures rehearsed annually according to the Incident Command System outline as seen above.

Emergency Response Plan Outline:



Local Emergency Authorities:

Call 9-1-1 to notify first responders (State nature of incident and location being Mountain Boy Mine on Independence Pass)

Lake County Sheriff's office: (719) 486-1249

Pitkin County Sheriff's office: (970) 920-5300

Gunnison County Sheriff's office: (970) 641-1113

As part of our risk management plan we have developed a one-day 8 hour course for all mine employees to take at least once per year before the release of the first Avalanche Bulletin of the season. The course overview can be seen below.

Mountain Boy Mine Snow Safety Course

Course Description: The Mountain Boy Mining Company's Snow Safety Team has designed a one-day snow safety orientation module to introduce the mine personnel to the avalanche hazard, avalanche mitigation procedures, basic safety practices, safety equipment, and an emergency response plan.

Learning Objectives:

At the end of this one-day course participants should be able to:

- Properly read the daily avalanche bulletin
- Identify Avalanche Paths in the mine's permit area.
- Know when avalanche mitigation is being done and how to avoid it.
- Know basic companion rescue.
- Identify what equipment to carry and when.

Training Outline:

This course will take place in Mountain Boy Mine twice in the month of October in order to ensure every employee can complete it. This 8-hour lesson will entail approximately 4 hours in a classroom overviewing lessons and concepts and 4 hours in the field going over companion rescue and identifying avalanche paths.

Lesson Plan & Activities:

- Overview of the risk of avalanches while working at the mine, where and when you will be at risk, and how to protect yourself and your coworkers.
 - Instructors will teach employees how to properly read the daily avalanche bulletin, teach employees how to identify avalanche terrain, discuss the risks of working in and around avalanche terrain, take a drive throughout the mine stopping and identifying every avalanche path in the mine, and discuss when it is appropriate for vehicles to be stopped underneath avalanche paths.
- Overview of avalanche safety operations and mitigation techniques to be conducted in the mine permit area.
 - Instructors will review the snow safety team's job and the communication plan in place for when avalanche mitigation will be performed as well as how to stay out of danger when mitigation is being done.
- Overview of basic avalanche safety practices and companion rescue.

Mountain Boy Mine Snow Safety Course

- Instructors will review the importance of carefully reading the daily avalanche bulletin then teach employees basic companion rescue in the field for approximately 2 hours.
- Description of minimum safety equipment while working.
 - Instructors will review all required personal protective equipment[PPE] for mineworkers while they are traveling within the permit area and the importance of being familiar with your own PPE.
- A detailed description of the snow safety team's avalanche emergency response plan.
 - Instructors will review the Avalanche Emergency Response Plan.
- Other important information for mining workers to stay safe from avalanches and questions about avalanche safety while working in the mine.
 - Extra time for questions and/or discussion.

Budget

Snow Safety Operations Budget			notes
Position	Hourly Wage (\$)	Annual Wage (\$)	
1 yr round forecaster	50	76000	20 hr weeks in offseason for maintenance and data collection
2 seasonal forecasters	50	48000	
assistant	25	24000	
		148000	

Data Collection Tools	Cost (\$)		notes
ProSnowKit 2	720		
Snowboard (x2)	144		
Delux 12" SWE Kit	185		
Standard Ramsonde Kit*	1545		Not required
Remote Weather Station	7837.92		Quoted from Campbell Scientific
Total Cost	10431.92		

Avalanche Mitigation			
System	Installation Cost(\$)	Estimated Annual Cost	notes
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Fill Dirt (Delivery included)	120633		One time cost
Avalanche Gaurd (x2)	150000	8000	175\$ per shot
Magazine	60000		one time cost

Hand Charge (1lb)	0	600	30\$ per shot
ANFO (50lbs)	0	200	40\$ per shot
Cap/Fuse	0	500	25\$ per shot
Gazex*(4)	730000	10000	
Wyssen Tower*(2)	440000	12000	
Total Cost	400633	20300	not including Gazex or Wyssen Towers

Link to Caltopo map:

<https://caltopo.com/m/2JGG>