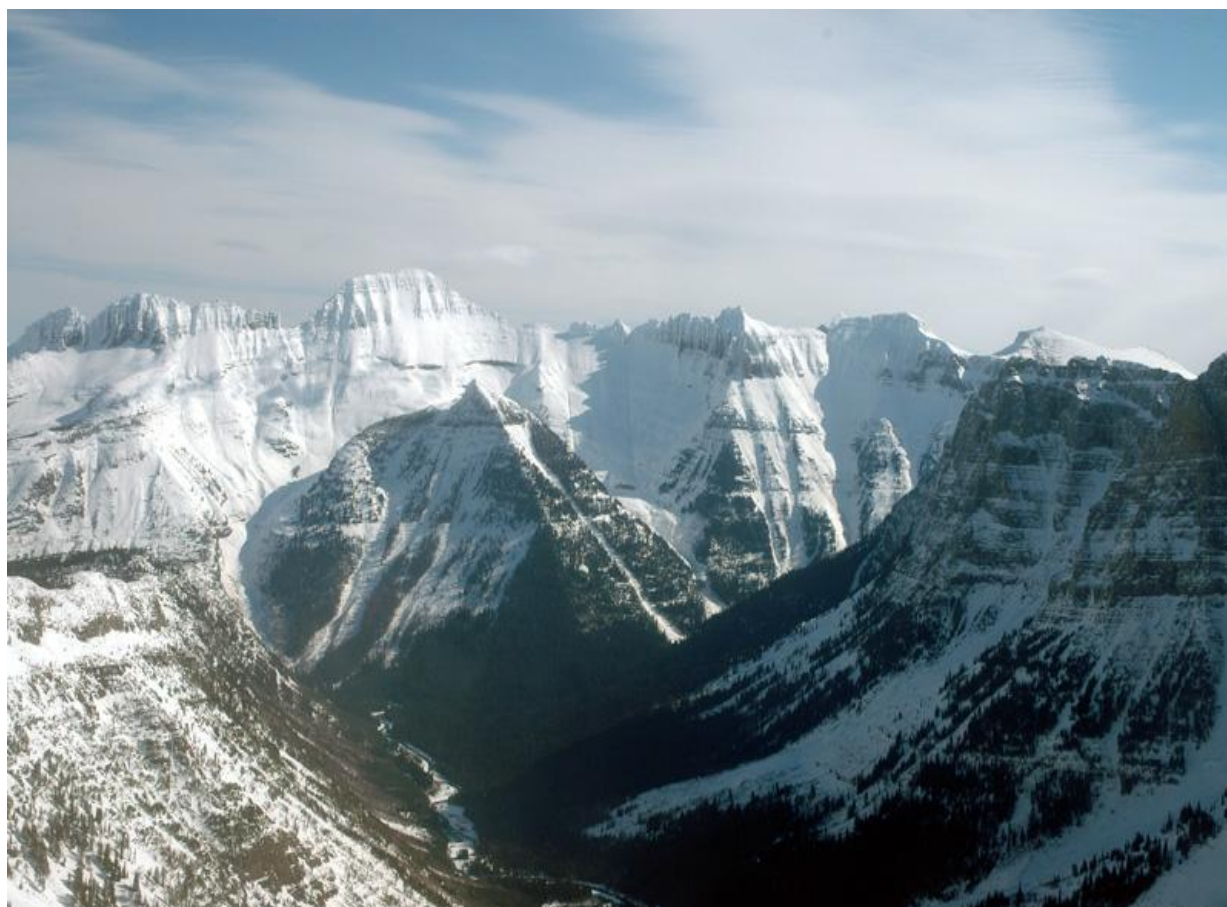


# Going-to-the-Sun Road, Glacier National Park, MT, USA Avalanche Path Atlas

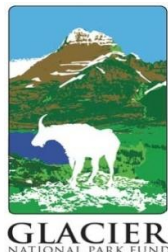


Erich H. Peitzsch  
Daniel B. Fagre

*USGS Northern Rocky Mountain Science Center  
West Glacier, MT, USA*

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Sponsored by the Glacier National Park Fund



Work completed in cooperation with the National Park Service



## Introduction

The Going-to-the-Sun Road (GTSR) is one of the premier attractions in Glacier National Park (GNP), Montana. It opened in 1933 after 12 years of construction and is one of GNP's most heavily used facilities. The two-lane, 80-kilometer road traverses the park from west to east, crossing the Continental Divide at Logan Pass at 2026m elevation. The Park closes a 56km section of the road each winter due to inclement weather, heavy snowfall, and avalanche hazards. Snow removal to re-open the GTSR starts in April, with the mean road opening on June 9.

In 2002, GNP instituted its first formal avalanche hazard forecasting program for snow removal operations. For the 2003 season, GNP established a daily forecasting program with two full-time avalanche specialists. During the season, which typically runs from April through June, equipment operators removing snow from the upper 23 km segment of the GTSR are exposed to a variety of avalanche hazards, including loose snow avalanches, wet and dry slab avalanches, and glide avalanches. In this road section, the GTSR lies mid-track in numerous large avalanche paths capable of destructive class 5 slides. There are a total of 37 avalanche paths that affect the GTSR from West Glacier on the west side of the divide to St. Mary east of the divide.

The avalanche paths threatening the GTSR are predominantly sunny, windward slopes. The paths east of the divide face east through south; those west of the divide face southwest through west. The exceptions are in the bowl-shaped start zones of the larger west-side paths, such as Haystack Creek, Big Bend, and Triple Arches. Parts of these bowls also face west-northwest through northwest. Some west side paths are also shaded each morning by the narrow spine of the Continental Divide known as The Garden Wall, which rises 75-275m above the start zones.

This orientation towards the sun is a significant factor in springtime avalanche conditions. The start zones are subject to direct solar radiation much of the day and temperature swings can be dramatic. The site's mid-hemisphere latitude (48° 40' N) and the time of year magnify insolation. Although the latitude means short days and weak insolation in the winter, it makes for longer periods of ever-more intense insolation – and shorter periods of freeze – as the season progresses.

In addition to forecasting, the program also provides real-time snow safety. During the workday, the equipment operators are in avalanche tracks where stability assessment is difficult at best, and it is of utmost importance that they remain focused on the mentally-demanding task of keeping their equipment on the narrow roadbed. Our mobility affords us access to avalanche starting zones above the work area, where we can effectively monitor changing snow conditions during the day. This monitoring provides an additional margin of safety to the crew during periods of rapidly decreasing stability, or it allows them to work longer when the hazard is not increasing as expected.

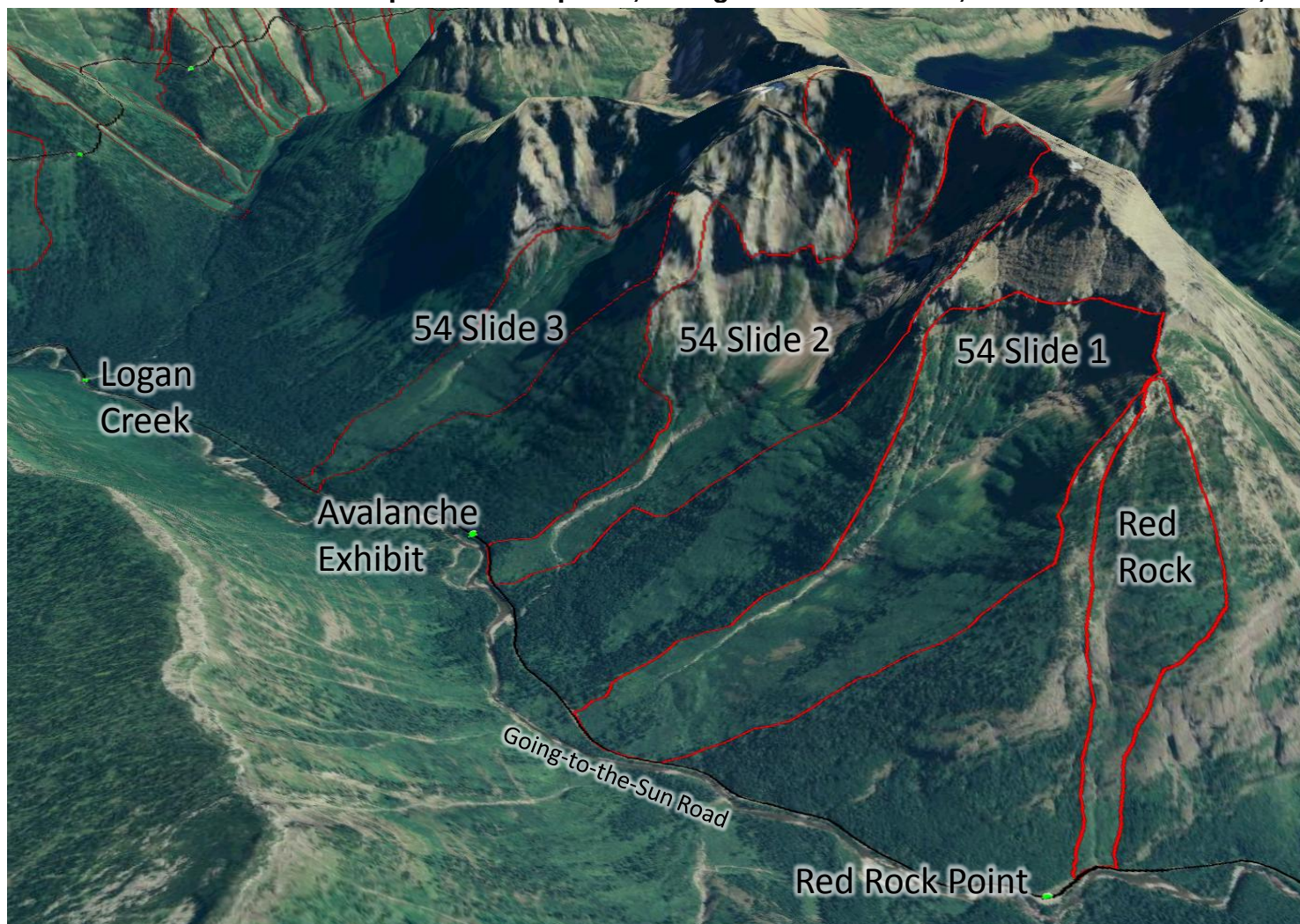
This avalanche atlas is a useful tool for both operational and research purposes. It is designed to provide a spatial understanding for all parties with an interest in the GTSR as well as a foundation for avalanche research and analysis. Establishing precise names and locations for each individual avalanche path allows for easier identification, communication, and planning.

For each individual avalanche path, an oblique photograph and the following topographic metrics are provided:

1. Milepost along the GTSR
2. Geographic coordinates (decimal degrees)
3. Start zone elevation (m)
4. Runout zone elevation (m)
5. Vertical fall (m)
6. Path length (m)
7. Start zone aspect (cardinal directions)
8. Slope angles of start zone, track, runout, and overall slide path (degrees)
9. Detailed description of start zone, track, and runout zone (degrees)
10. The length of the GTSR that is affected by the path (m)
11. The primary type of avalanche that affects the avalanche path during spring opening operations
12. The primary time that the avalanche path melts out during spring opening operations
13. The overall general hazard rating (i.e. the severity of hazard it poses to workers on the GTSR)
14. General comments

This avalanche atlas is constantly a work in progress due to the dynamic nature of avalanches. For information regarding this avalanche atlas or the USGS/GNP GTSR Avalanche Program in general, please contact Erich Peitzsch at 406-888-7925 or [epeitzsch@usgs.gov](mailto:epeitzsch@usgs.gov).

Overview of Red Rock Group avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT





// 01  
Red Rock Slide

**Avalanche Path: Red Rock Slide**  
**Zone: West**

**Number: 01**

**Location:**

GTSR Mile 17.35

Map Coordinates: 48.693597 N / -113.816488 E

**Description of Terrain:**

Starting Zone Elevation: 2120 m

Runout Zone Elevation: 1058 m

Vertical Fall: 1062 m

Length of Path: 1735 m

Aspect of Starting Zone: WNW

Angles of -

*Starting* 39 deg

*Track:* 23 deg

*Runout Zone:* 15 deg

*Slide Path:* 34 deg

*Starting Zone:* Open slope that funnels into 3 separate chutes which is affected by afternoon sun during the plowing season. Unable to see start zone from GTSR below path.

*Track:* Composed of 3 chutes that funnel into one craggy chute with small trees and cliffs throughout. About 1/2 of the track is visible from the GTSR at Red Rock Point.

*Runout Zone:* Steep runout consisting of the GTSR and McDonald Creek. Terrain trap.

**Avalanche Characteristics:**

Length GTSR Affected: 131 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** This path is apt to slide after new snowfall at the onset of solar input. Because of the narrow confines of the runout zone, debris tends to accumulate on the road and in McDonald Creek in a classic terrain trap.

**/ / 01**  
**Red Rock Slide**



1 / 02  
Red Rock Point



**Red Rock Point**  
**Zone: West**

**Number: 02**

**Location:**

GTSR Mile            17.4

Map Coordinates: 48.696132 N / -113.819251 E

**Comments**    This is the vehicle pullout just northeast of the Red Rock Slide Path. From just west along the road on this point, the spotter is able to view approximately 1/2 of the entire slide path. The start zone is still out of view from this point. The photograph displays the actual point in a red rectangle as seen from the Red Rock avalanche path on the GTSR.

**/ / 02**  
**Red Rock Point**



// 03  
54 Slide, 1

**Avalanche Path: 54 Slide, 1**  
**Zone: West**

**Number: 03**

**Location:**

GTSR Mile 18.15

Map Coordinates: 48.705133 N / -113.805988 E

**Description of Terrain:**

Starting Zone Elevation: 2263 m

Runout Zone Elevation: 1056 m

Vertical Fall: 1207 m

Length of Path: 2560 m

Aspect of Starting Zone: NW

Angles of -

*Starting* 45 deg

*Track:* 24 deg

*Runout Zone:* 9 deg

*Slide Path:* 41 deg

*Starting Zone:* Large open bowl facing including NW, W, and SW aspects composed of bedrock and cliffs off of the NW ridge of Mt. Cannon.

*Track:* Long alpine bowl whose slope lessens dramatically. Interspersed with cliff bands.

*Runout Zone:* Long, flat runout including alder and terminating at McDonald Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 416 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Large path that has never affected spring plowing operations directly, but historic path extent suggests it is possible with a large, destructive wet slab avalanche event.

**/ / 03**  
**54 Slide, 1**



**Avalanche Path: 54 Slide, 2    Number: 04**  
**Zone: West**

**Location:**

GTSR Mile            18.9

Map Coordinates: 48.708516 N / -113.791755 E

**Description of Terrain:**

Starting Zone Elevation:        2669 m

Runout Zone Elevation:        1073 m

Vertical Fall:                    1596 m

Length of Path:                2896 m

Aspect of Starting Zone:        SW

Angles of -

*Starting*                    43 deg

*Track:*                    26 deg

*Runout Zone:*        12 deg

*Slide Path:*            41 deg

*Starting Zone:*            Large open bowl facing including NW, W, and SW aspects composed of bedrock and cliffs off of the NW ridge of Mt. Cannon.

*Track:*                      Long alpine bowl whose slope decreases dramatically.

*Runout Zone:*            Long, flat runout composed of alder and terminating at McDonald Creek.

**Avalanche Characteristics:**

Length GTSR Affected:            268 m

Primary Avalanche Type:        Dry Slab

Time of Plow Season Path Melts Out:    Early

Relative Hazard Rating:            Low

**Comments**    Similar to 54 Slide, 1 this is a large path that has never affected spring plowing operations directly, but historic path extent suggests it is possible with a large, destructive wet slab avalanche event.

  / / 04  
54 Slide, 2



1 / 05  
Avalanche Exhibit

**Avalanche Path: Avalanche Exhibit    Number: 05**  
**Zone: West**

**Location:**

GTSR Mile            19.15

Map Coordinates: 48.709077 N / -113.786541 E

**Comments**    The safe zone is actually located between 54 Slide 1 and 2 along the road adjacent to mature timber. The site with the avalanche exhibit sign is located directly within the runout zone of 54 Slide 2 path, and is NOT the actual safe zone.

    / / 05  
**Avalanche Exhibit**



**Avalanche Path: 54 Slide, 3**  
**Zone: West**

**Number: 06**

**Location:**

GTSR Mile 19.65

Map Coordinates: 48.715317 N / -113.779674 E

**Description of Terrain:**

Starting Zone Elevation: 2217 m

Runout Zone Elevation: 1072 m

Vertical Fall: 1145 m

Length of Path: 2181 m

Aspect of Starting Zone: WNW

Angles of -

*Starting* 41 deg

*Track:* 21 deg

*Runout Zone:* 9 deg

*Slide Path:* 35 deg

*Starting Zone:* Large open bowl facing including N, NW, and W aspects composed of bedrock and cliffs off of the NW ridge of Mt. Cannon.

*Track:* Long alpine bowl whose slope lessens dramatically.

*Runout Zone:* Long, flat runout comprised of alder and terminating at McDonald Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 151 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Similar to the two previous paths, this large path has never affected spring plowing operations directly, but historic path extent suggests it is a possibility with a large, destructive wet slab avalanche event.

/ / 06  
54 Slide, 3



1 / 07  
Logan Pit



**Avalanche Path: Logan Pit**  
**Zone: West**

**Number: 07**

**Location:**

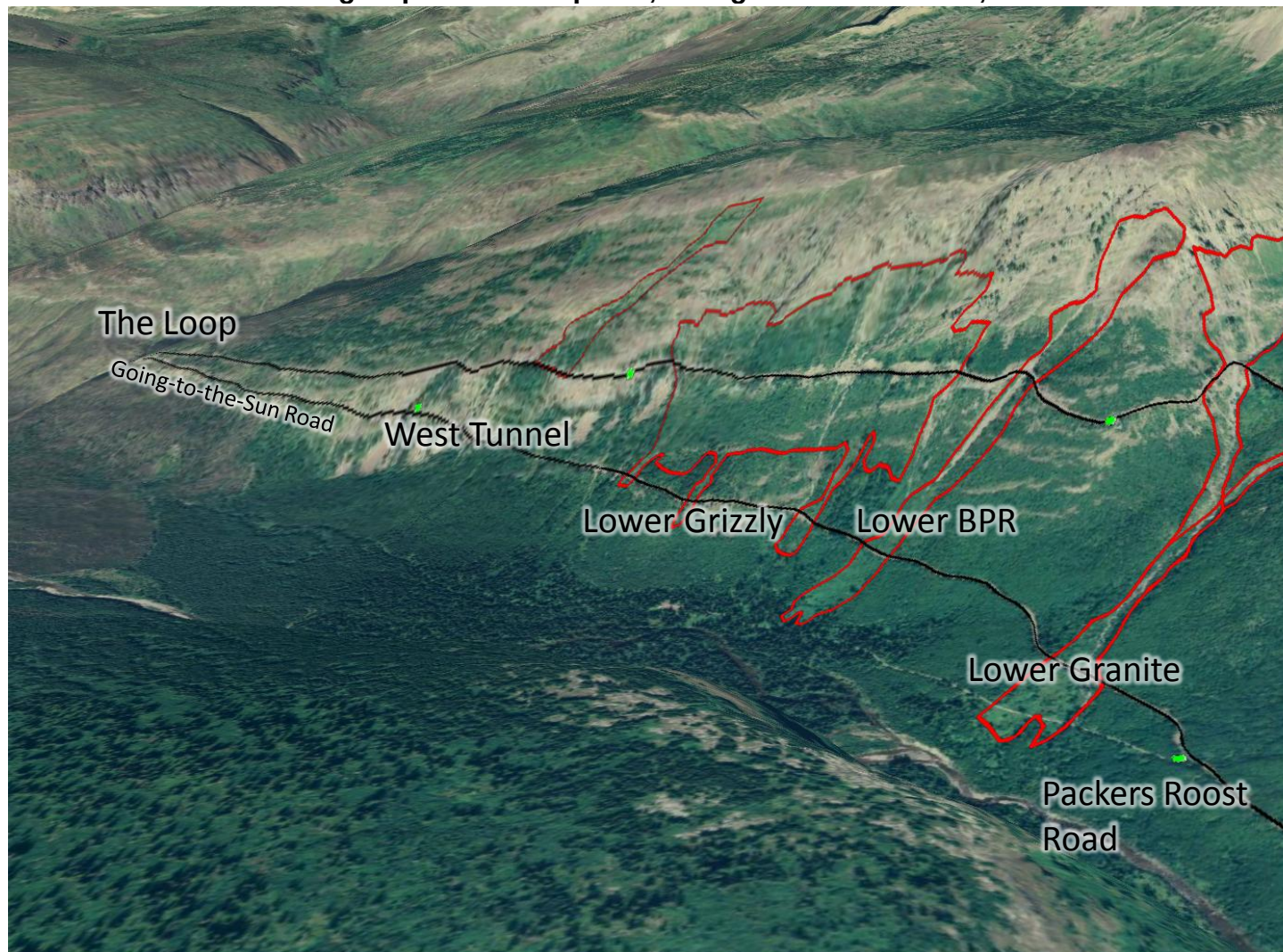
GTSR Mile 20.65

Map Coordinates: 48.72566 N / -113.764506 E

**Comments** Safe zone and helicopter landing zone.

**// 07**  
**Logan Pit**

**Overview of Lower GTSR group avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT**





1 / 08  
Packers Roost Road

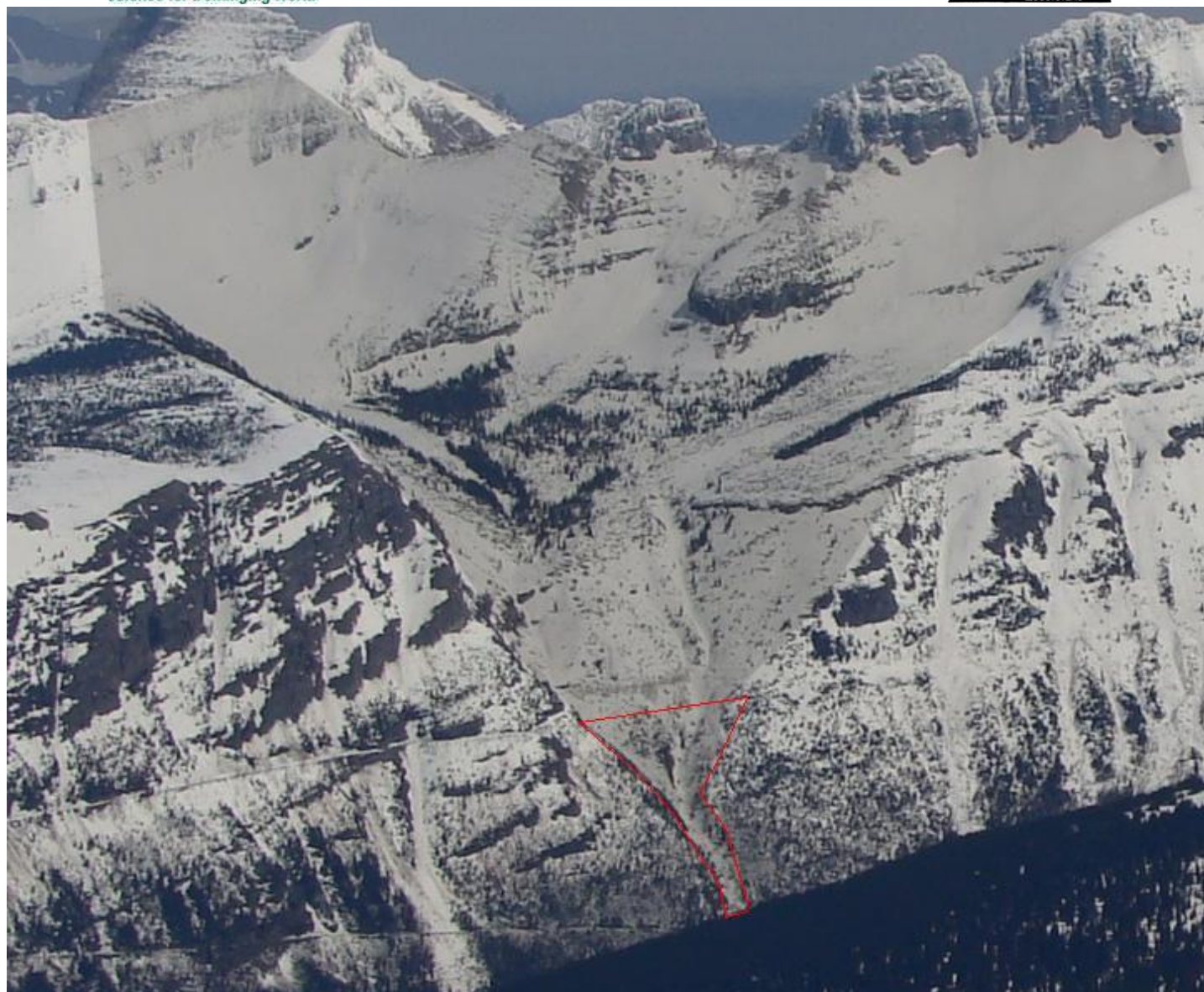


**Number: 08**

GTSR Mile 22.15  
Map Coordinates: 48.740682 N / -113.769856 E

|                 |                                                                                                                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Comments</b> | Lower portion affected by large magnitude avalanches from the Granite Creek and Little Granite avalanche paths. Photo displays entrance of road from GTSR. Intersection of GTSR and Packers Roost Road is considered a safe zone. Along the Packers Roost Road is NOT a safe zone. |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

/ / 08  
 Packers Roost Road



1 / 09  
Lower Granite

**Avalanche Path: Lower Granite  
Zone: West**

**Number: 09**

**Location:**

GTSR Mile 22.3

Map Coordinates: 48.742522 N / -113.771008 E

**Description of Terrain:**

Starting Zone Elevation: 2449 m

Runout Zone Elevation: 1298 m

Vertical Fall: 1151 m

Length of Path: 3362 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 40 deg

*Track:* 19 deg

*Runout Zone:* 12 deg

*Slide Path:* 31 deg

*Starting Zone:* 2 large bowls originating below the Garden Wall that funnel together below the upper GTSR. Bowls consist of large steep snowfields and rock cliffs facing predominantly west.

*Track:* Both bowls transition to extremely long and relatively flat sections that abruptly steepen 500' above the upper GTSR. This steeper gradient tapers off between the upper and lower GTSR.

*Runout Zone:* Below the lower GTSR and the Packers Roost Road.

**Avalanche Characteristics:**

Length GTSR Affected: 105 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Starting zones are NOT visible from the lower road. Track and runout zone widened and extended as a result of a large magnitude avalanche that occurred mid-winter 2009. Area delineated in red represents the track just above the lower GTSR.

**/ / 09  
Lower Granite**



/ / 10  
Lower Bureau of Public Roads (BPR)

**Avalanche Path: Lower Bureau of Public Roads (BPR)**  
**Zone: West**

**Number: 10**

**Location:**

GTSR Mile 22.65

Map Coordinates: 48.746372 N / -113.775292 E

**Description of Terrain:**

Starting Zone Elevation: 1755 m

Runout Zone Elevation: 1123 m

Vertical Fall: 632 m

Length of Path: 1161 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 41 deg

*Track:* 23 deg

*Runout Zone:* 12 deg

*Slide Path:* 36 deg

*Starting Zone:* Steep relatively small rectangular shaped snowfield completely surrounded by steep rock cliffs.

*Track:* Cliff band to the upper road. Gradient dramatically lessens as the track approaches the lower GTSR.

*Runout Zone:* Packers Roost Road.

**Avalanche Characteristics:**

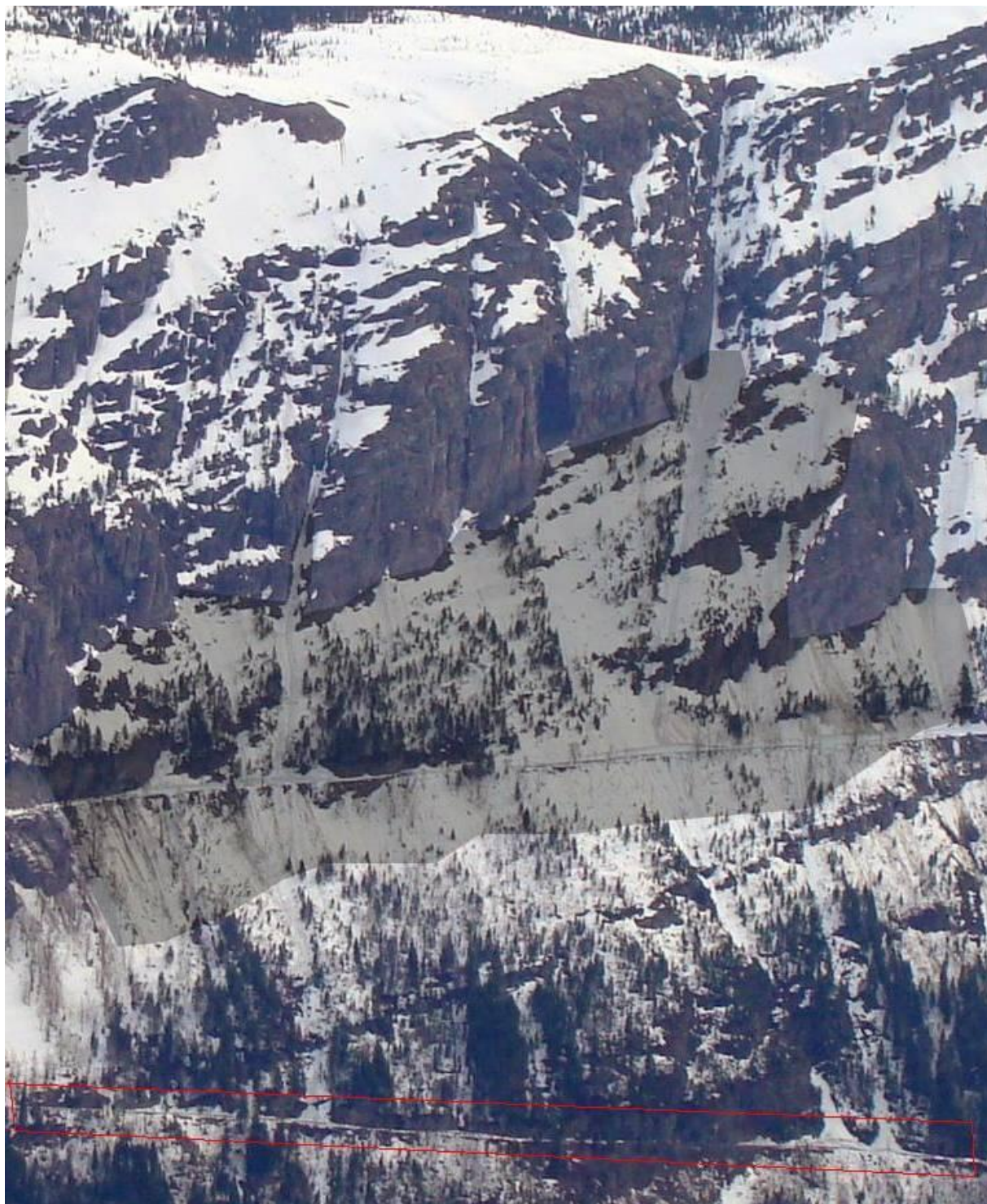
Length GTSR Affected: 63 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** A good view of this starting zone is from the lower GTSR where the track crosses the GTSR. Area delineated in red represents the track just above the lower GTSR.



/ / 11  
Lower Grizzly

**Avalanche Path: Lower Grizzly**  
**Zone: West**

**Number: 11**

**Location:**

GTSR Mile 22.8

Map Coordinates: 48.747201 N / -113.776914 E

**Description of Terrain:**

Starting Zone Elevation: 1651 m

Runout Zone Elevation: 1179 m

Vertical Fall: 472 m

Length of Path: 787 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 39 deg

*Track:* 39 deg

*Runout Zone:* 39 deg

*Slide Path:* 39 deg

*Starting Zone:* Relatively wide area consisting of steep rock cliffs with interspersed snow patches. Area does not resemble the typical or classic starting zone.

*Track:* Steep rock cliffs with widely spaced trees. Does not resemble an obvious track.

*Runout Zone:* Packers Roost Road.

**Avalanche Characteristics:**

Length GTSR Affected: 85 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Start zone or track not visible from the lower GTSR. Red rectangle in the photograph represents the section of the GTSR affected by Lower Grizzly and Grizzly Slopes.

**11**  
**Lower Grizzly**



// 12  
West Tunnel



**Avalanche Path: West Tunnel**  
**Zone: West**

**Number: 12**

**Location:**

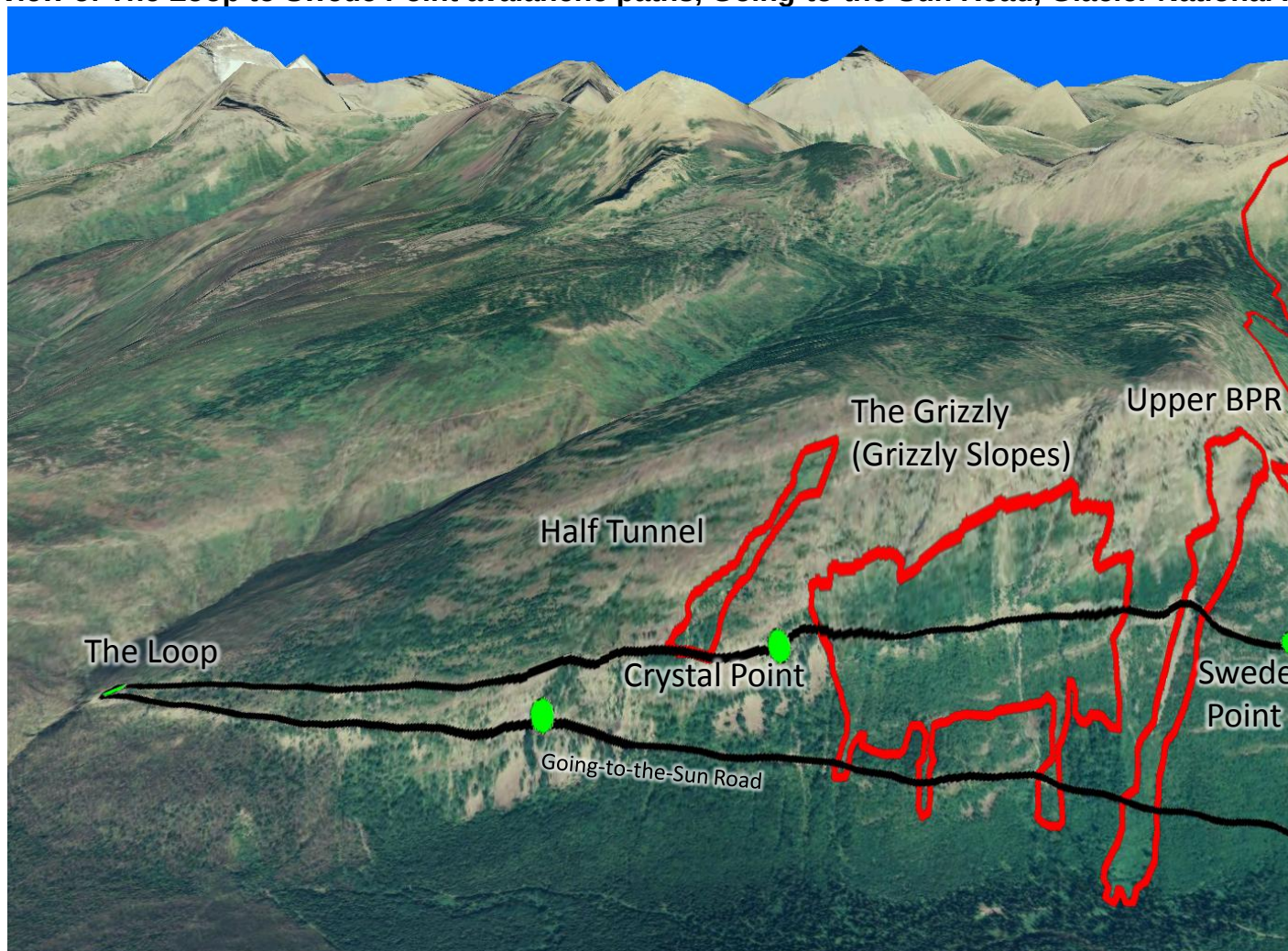
GTSR Mile 23.35

Map Coordinates: 48.751057 N / -113.790832 E

**Comments** All areas between the West Tunnel and The Loop are not in avalanche terrain. The Tunnel itself is a well protected safe spot from both rockfall hazard and avalanche hazard below the tunnel.

**/ / 12**  
**West Tunnel**

**Overview of The Loop to Swede Point avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT**





// 13  
The Loop

**Avalanche Path: The Loop**  
**Zone: West**

**Number: 13**

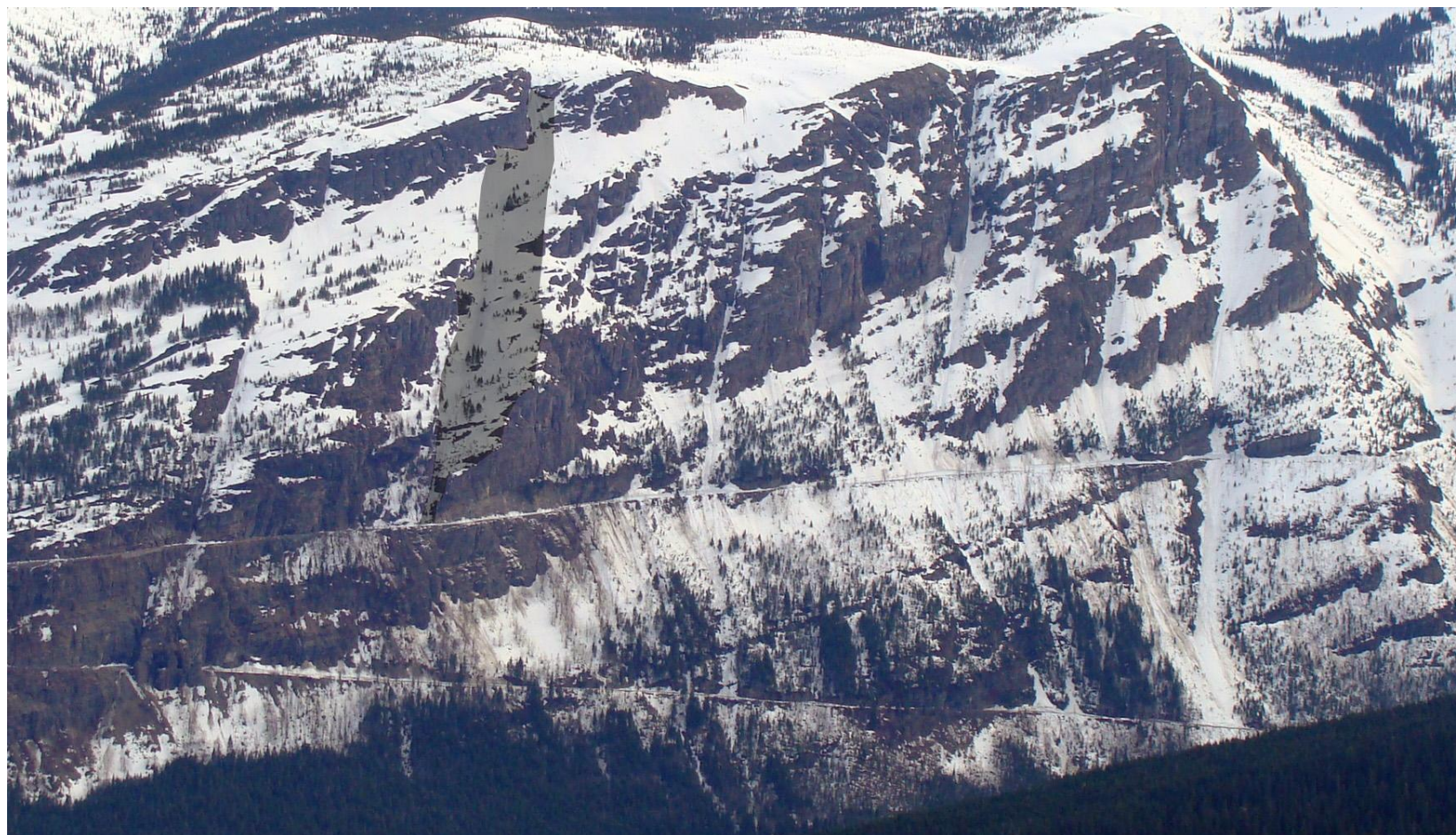
**Location:**

GTSR Mile 23.95

Map Coordinates: 48.754268 N / -113.801508 E

**Comments** Jumping off point to the alpine section of the GTSR. Located on the extreme left of photograph with avalanche paths included to provide perspective.

// 13  
The Loop



// 14  
Half Tunnel

**Avalanche Path: Half Tunnel**  
**Zone: West**

**Number: 14**

**Location:**

GTSR Mile 24.7

Map Coordinates: 48.751423 N / -113.785554 E

**Description of Terrain:**

Starting Zone Elevation: 1733 m

Runout Zone Elevation: 1402 m

Vertical Fall: 331 m

Length of Path: 635 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 40 deg

*Track:* 42 deg

*Runout Zone:* 42 deg

*Slide Path:* 42 deg

*Starting Zone:* Narrow chute that starts within a diagonal E-W-running cliff band.

*Track:* Consistently steep with cliff bands containing the path on each side. Track narrows before reaching the upper GTSR, and then cliffs out before the lower GTSR.

*Runout Zone:* Below the lower GTSR.

**Avalanche Characteristics:**

Length GTSR Affected: 88 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** May not be filled in with snow during below-average snow years.

/ / 14  
**Half Tunnel**



// 15  
Crystal Point

**Avalanche Path: Crystal Point**  
**Zone: West**

**Number: 15**

**Location:**

GTSR Mile 24.85

Map Coordinates: 48.751215 N / -113.78428 E

**Comments** Safe zone in area of numerous small avalanche paths. Provides a suitable location for parking vehicles and equipment. May not be suitable as a safe zone for high avalanche hazard days.

**/ / 15**  
**Crystal Point**



/ / 16  
The Grizzly, Grizzly Slopes

**Avalanche Path: The Grizzly, Grizzly Slopes**  
**Zone: West**

**Number: 16**

**Location:**

GTSR Mile 24.9

Map Coordinates: 48.750957 N / -113.781456 E

**Description of Terrain:**

Starting Zone Elevation: 1651 m

Runout Zone Elevation: 1179 m

Vertical Fall: 472 m

Length of Path: 787 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 39 deg

*Track:* 39 deg

*Runout Zone:* 39 deg

*Slide Path:* 39 deg

*Starting Zone:* A snowfield that is approximately 2-3 times wider horizontally than it is vertically. The top of this snowfield is capped with steep rock cliffs.

*Track:* Steep rock cliffs interspersed with widely spaced trees.

*Runout Zone:* Packers Roost Road.

**Avalanche Characteristics:**

Length GTSR Affected: 632 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Start zone not completely visible from GTSR. The use of a spotter is questionable due to their inability to note rock or snow movement until it is upon them. The use of a spotter in this area is possibly more hazardous than helpful.



1 / 17  
Bureau of Public Roads (BPR)

**Avalanche Path: Bureau of Public Roads (BPR)**  
**Zone: West**

**Number: 17**

**Location:**

GTSR Mile 25.4

Map Coordinates: 48.748753 N / -113.772007 E

**Description of Terrain:**

Starting Zone Elevation: 1755 m

Runout Zone Elevation: 1123 m

Vertical Fall: 632 m

Length of Path: 1161 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 41 deg

*Track:* 23 deg

*Runout Zone:* 12 deg

*Slide Path:* 36 deg

*Starting Zone:* Steep relatively small rectangular shaped snowfield completely surrounded by steep rock cliffs.

*Track:* Cliff band to the upper road. Gradient dramatically lessens as the track approaches the lower GTSR.

*Runout Zone:* Packers Roost Road.

**Avalanche Characteristics:**

Length GTSR Affected: 50 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Start zone not visible from GTSR. Movement of snow and rock is not evident until it is upon the spotter due to the large cliff face above the GTSR.



// 18  
Swede Point



**Avalanche Path: Swede Point**  
**Zone: West**

**Number: 18**

**Location:**

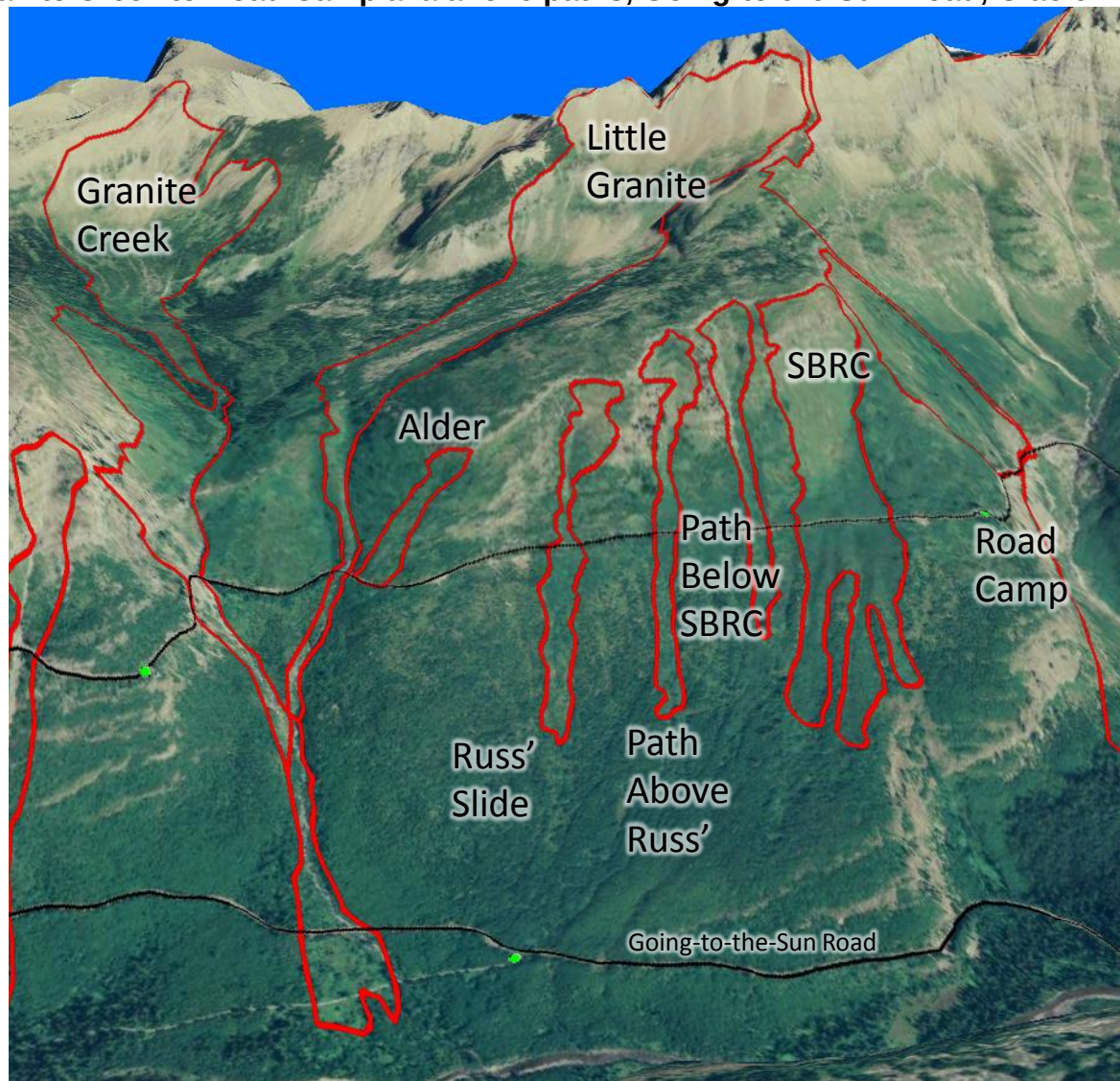
GTSR Mile 25.5

Map Coordinates: 48.747214 N / -113.770281 E

**Comments** A safe zone located along a ridge that provides suitable vehicle and equipment parking in all conditions.

**// 18**  
**Swede Point**

Overview of Granite Creek to Road Camp avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT





// 19  
Granite Creek

**Avalanche Path: Granite Creek**  
**Zone: West**

**Number: 19**

**Location:**

GTSR Mile 25.65

Map Coordinates: 48.747989 N / -113.767631 E

**Description of Terrain:**

Starting Zone Elevation: 2449 m

Runout Zone Elevation: 1298 m

Vertical Fall: 1151 m

Length of Path: 3828 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 37 deg

*Track:* 23 deg

*Runout Zone:* 12 deg

*Slide Path:* 27 deg

*Starting Zone:* Large bowl along the Garden Wall characterized by a uniform slope with south through southwest aspects.

*Track:* Extremely long, relatively flat section that steepens 500' above the upper GTSR. This steep gradient continues below the upper GTSR.

*Runout Zone:* Packers Roost Road.

**Avalanche Characteristics:**

Length GTSR Affected: 48 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Start zone not visible from GTSR. Steep rock and snow face is visible that often deposits loose debris on the GTSR. A cornice above this rock and snow face is visible from the GTSR.



// 20  
Little Granite Creek

**Avalanche Path: Little Granite Creek**  
**Zone: West**

**Number: 20**

**Location:**

GTSR Mile 25.9

Map Coordinates: 48.747528 N / -113.763336 E

**Description of Terrain:**

Starting Zone Elevation: 2462 m

Runout Zone Elevation: 1124 m

Vertical Fall: 1338 m

Length of Path: 3829 m

Aspect of Starting Zone: WSW

Angles of -

*Starting* 40 deg

*Track:* 19 deg

*Runout Zone:* 19 deg

*Slide Path:* 29 deg

*Starting Zone:* Large bowl below the Garden Wall of a predominantly west aspect with steep snowfields interspersed with cliff bands up to 40 m high.

*Track:* Extremely long and relatively flat track that steepens 500' above the road. This steep gradient continues below the upper GTSR.

*Runout Zone:* Packers Roost Road.

**Avalanche Characteristics:**

Length GTSR Affected: 29 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Start zone not visible from GTSR.



1 / 21  
Alder Trail

**Avalanche Path: Alder Trail**  
**Zone: West**

**Number: 21**

**Location:**

GTSR Mile 25.95

Map Coordinates: 48.747134 N / -113.763446 E

**Description of Terrain:**

Starting Zone Elevation: 1637 m

Runout Zone Elevation: 1485 m

Vertical Fall: 152 m

Length of Path: 419 m

Aspect of Starting Zone: W

Angles of -

*Starting* 37 deg

*Track:* 21 deg

*Runout Zone:* 21 deg

*Slide Path:* 26 deg

*Starting Zone:* Small, sparsely treed slope adjacent to the track of the Little Granite slide path.

*Track:* Gradient lessens slightly as it reaches the upper GTSR.

*Runout Zone:* Below the lower GTSR.

**Avalanche Characteristics:**

Length GTSR Affected: 75 m

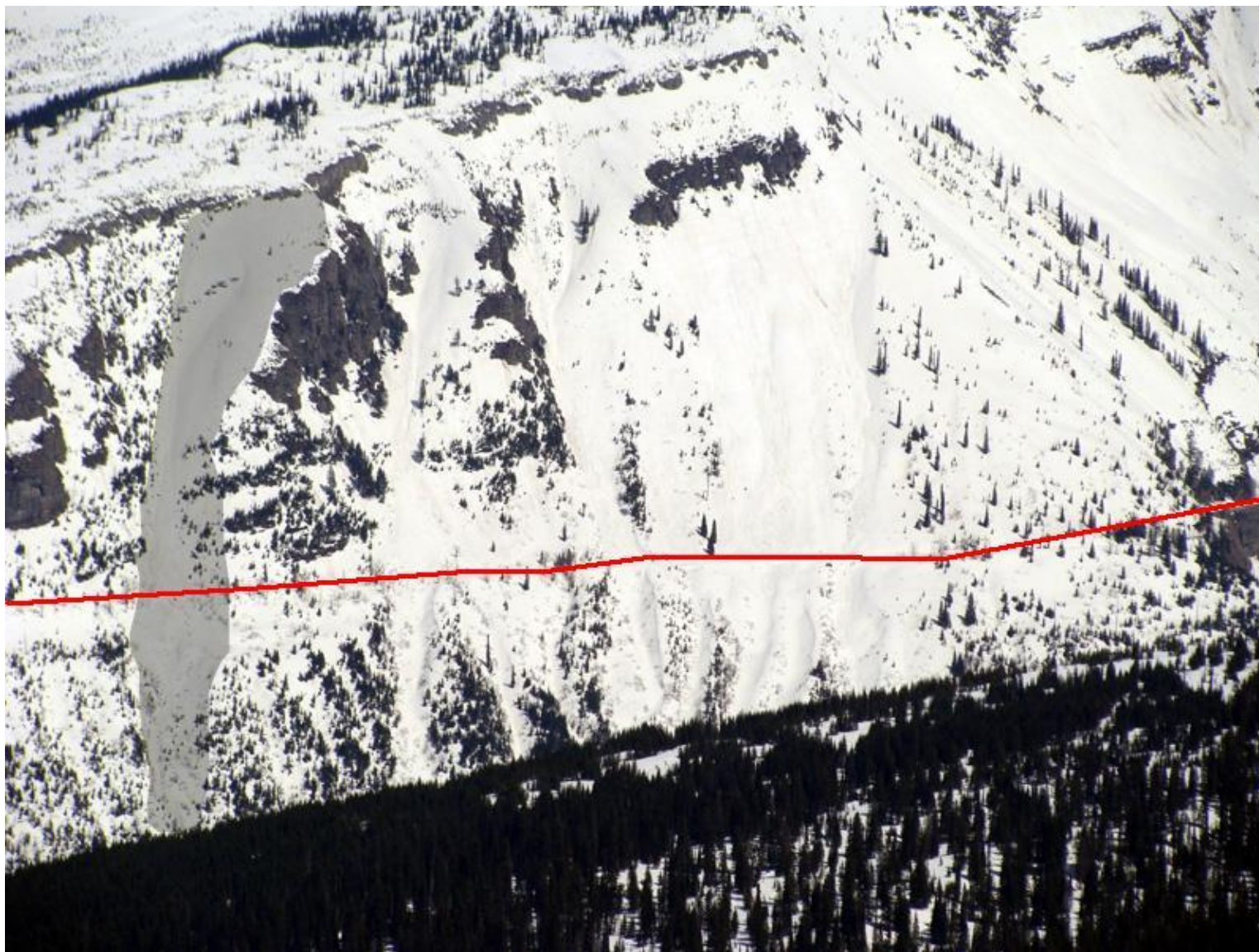
Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Low

**Comments** Small path that rarely reaches the GTSR.

**/ / 21**  
**Alder Trail**



1 / 22  
Russ' Slide

**Avalanche Path: Russ' Slide**  
**Zone: West**

**Number: 22**

**Location:**

GTSR Mile 26.15

Map Coordinates: 48.744697 N / -113.760028 E

**Description of Terrain:**

Starting Zone Elevation: 1785 m

Runout Zone Elevation: 1309 m

Vertical Fall: 476 m

Length of Path: 957 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 35 deg

*Track:* 29 deg

*Runout Zone:* 29 deg

*Slide Path:* 33 deg

*Starting Zone:* Steep snow filled chute that originates in a long horizontal rock band. Start zone burned in the 1967 Glacier Wall fire.

*Track:* Gradient lessens as it approaches the GTSR. Track burned in the 1967 fire. Conifer regeneration and alder are the dominant species.

*Runout Zone:* Alder fields below the GTSR. Burned in the 1967 Glacier Wall fire.

**Avalanche Characteristics:**

Length GTSR Affected: 66 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Medium

**Comments** Excellent view of the entire path from the GTSR. Red line in the photograph represents the GTSR.



1 / 23  
Chute Above Russ'

**Avalanche Path: Chute Above Russ'**  
**Zone: West**

**Number: 23**

**Location:**

GTSR Mile 26.3

Map Coordinates: 48.743497 N / -113.757533 E

**Description of Terrain:**

Starting Zone Elevation: 1851 m

Runout Zone Elevation: 1328 m

Vertical Fall: 523 m

Length of Path: 1064 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 38 deg

*Track:* 26 deg

*Runout Zone:* 26 deg

*Slide Path:* 33 deg

*Starting Zone:* Steep snow filled chute that originates in a long horizontal rock band. Start zone burned in the 1967 Glacier Wall fire.

*Track:* Gradient lessens as it approaches the GTSR. Track burned in the 1967 Glacier Wall fire. Conifer regeneration and alder are the dominant species.

*Runout Zone:* Alder fields below the GTSR. Burned in the 1967 Glacier Wall fire.

**Avalanche Characteristics:**

Length GTSR Affected: 43 m

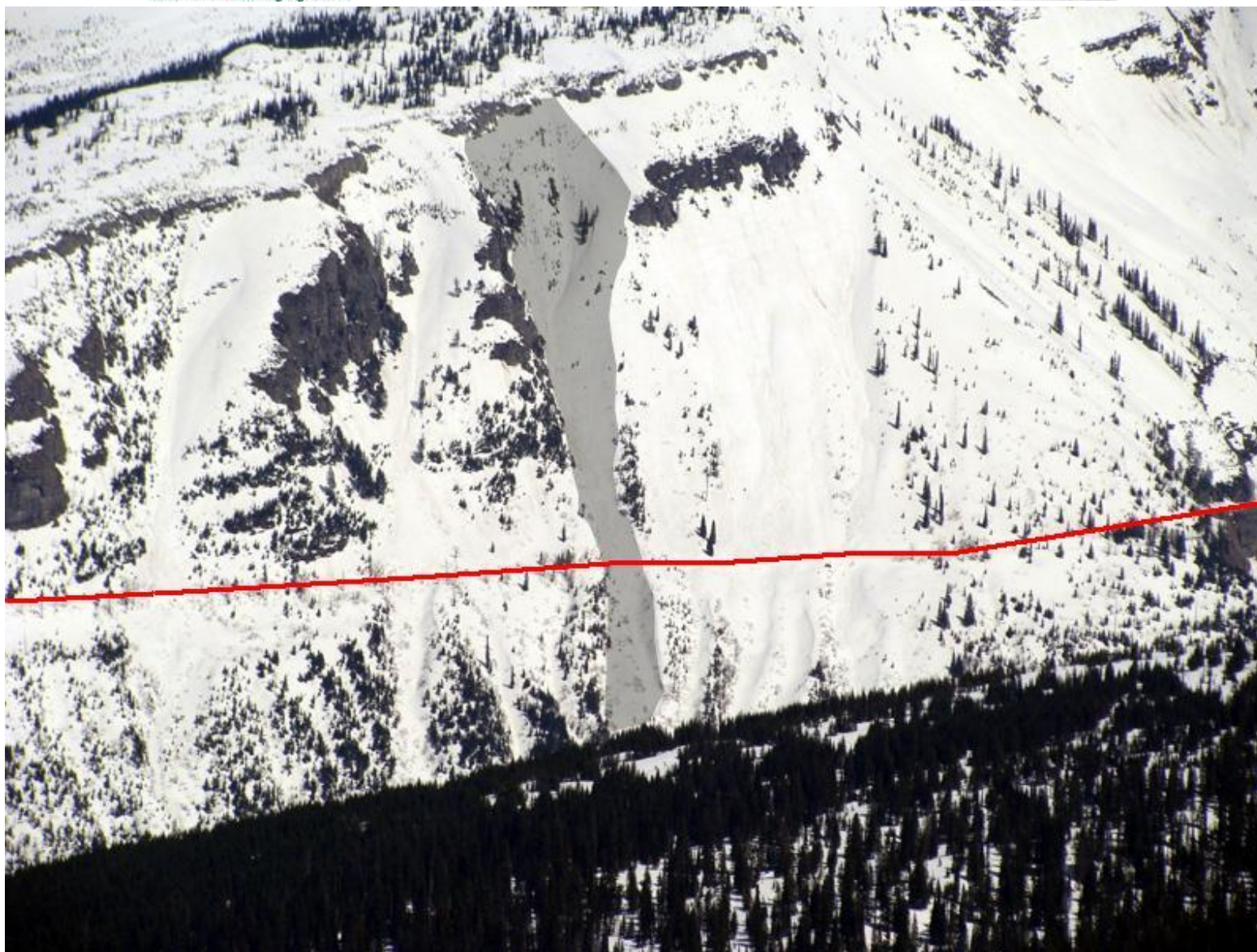
Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Excellent view of the entire path from the road. Red line in the photograph represents the GTSR.

**/ / 23**  
**Chute Above Russ'**



1 / 24  
Chute Below SBRC

**Avalanche Path: Chute Below SBRC**  
**Zone: West**

**Number: 24**

**Location:**

GTSR Mile 26.4

Map Coordinates: 48.742368 N / -113.755698 E

**Description of Terrain:**

Starting Zone Elevation: 1902 m

Runout Zone Elevation: 1428 m

Vertical Fall: 474 m

Length of Path: 992 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 38 deg

*Track:* 23 deg

*Runout Zone:* 23 deg

*Slide Path:* 33 deg

*Starting Zone:* Steep snow filled chute that originates in a long horizontal rock band. Start zone burned in the 1967 Glacier Wall fire.

*Track:* Gradient lessens as it approaches the GTSR. Track burned in the 1967 Glacier Wall fire. Conifer regeneration and alder are the dominant species.

*Runout Zone:* Alder fields below the GTSR. Burned in the 1967 Glacier Wall fire.

**Avalanche Characteristics:**

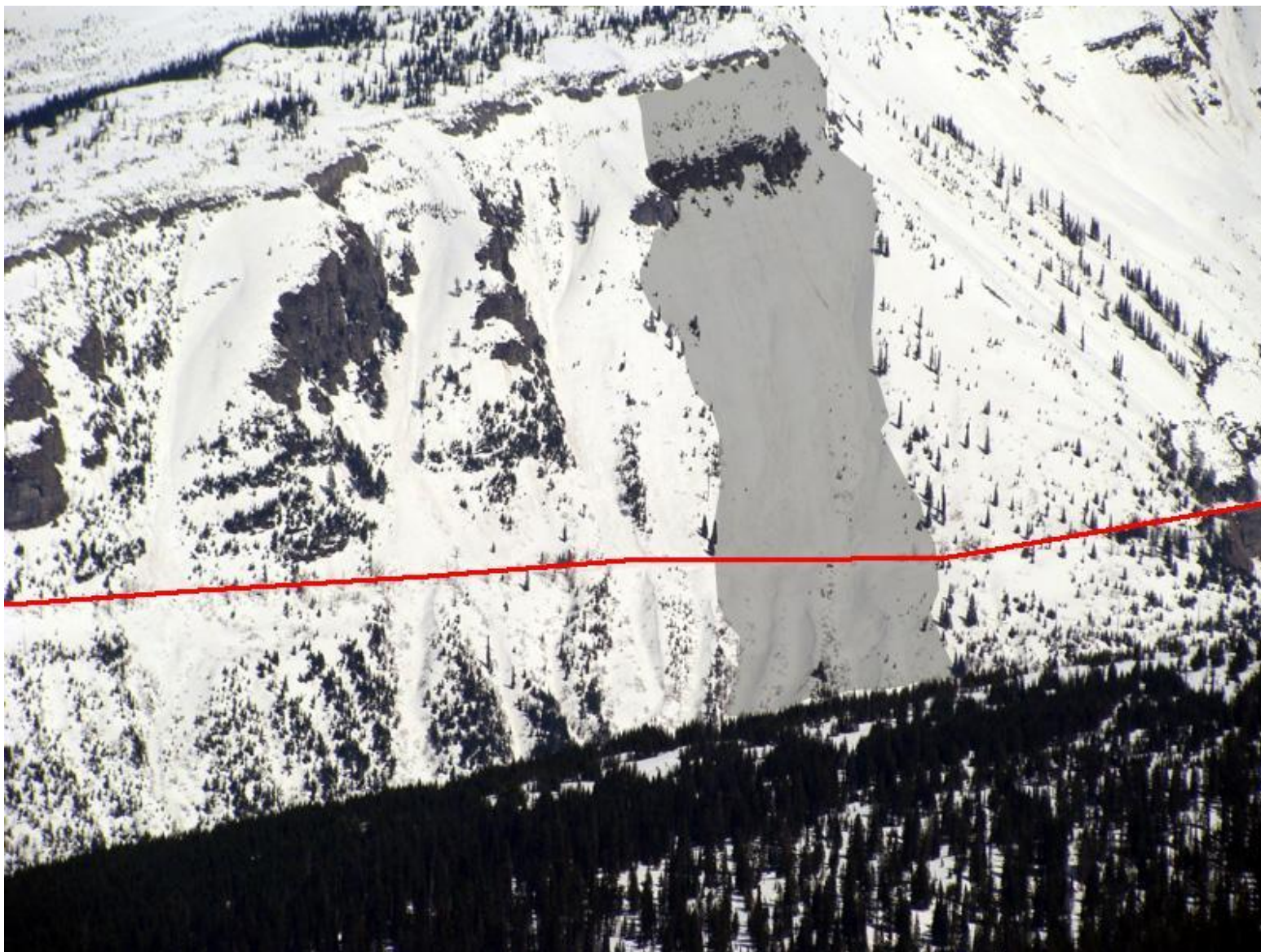
Length GTSR Affected: 42 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Excellent view of the entire path from the road. Red line in the photograph represents the GTSR.



1 / 25  
Slopes Below Road Camp (SBRC)

**Avalanche Path: Slopes Below Road Camp (SBRC)**  
**Zone: West**

**Number: 25**

**Location:**

GTSR Mile 26.45

Map Coordinates: 48.741562 N / -113.754931 E

**Description of Terrain:**

Starting Zone Elevation: 1958 m

Runout Zone Elevation: 1312 m

Vertical Fall: 646 m

Length of Path: 1361 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 41 deg

*Track:* 25 deg

*Runout Zone:* 25 deg

*Slide Path:* 31 deg

*Starting Zone:* Broad, uncontained start zone originating below cliffs up to 40 m high.

*Track:* Characterized by small ridges that separate the paths into 3 major gullies. Gradient lessens as it approaches the GTSR. Track burned in the 1967 Glacier Wall fire. Conifer regeneration and alder are the dominant species.

*Runout Zone:* Alder fields below the GTSR. Burned in the 1967 Glacier Wall fire.

**Avalanche Characteristics:**

Length GTSR Affected: 184 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Medium

**Comments** Excellent view of the entire path from the road. Red line in the photograph represents the GTSR.



1 / 26  
Road Camp

**Avalanche Path: Road Camp**  
**Zone: West**

**Number: 26**

**Location:**

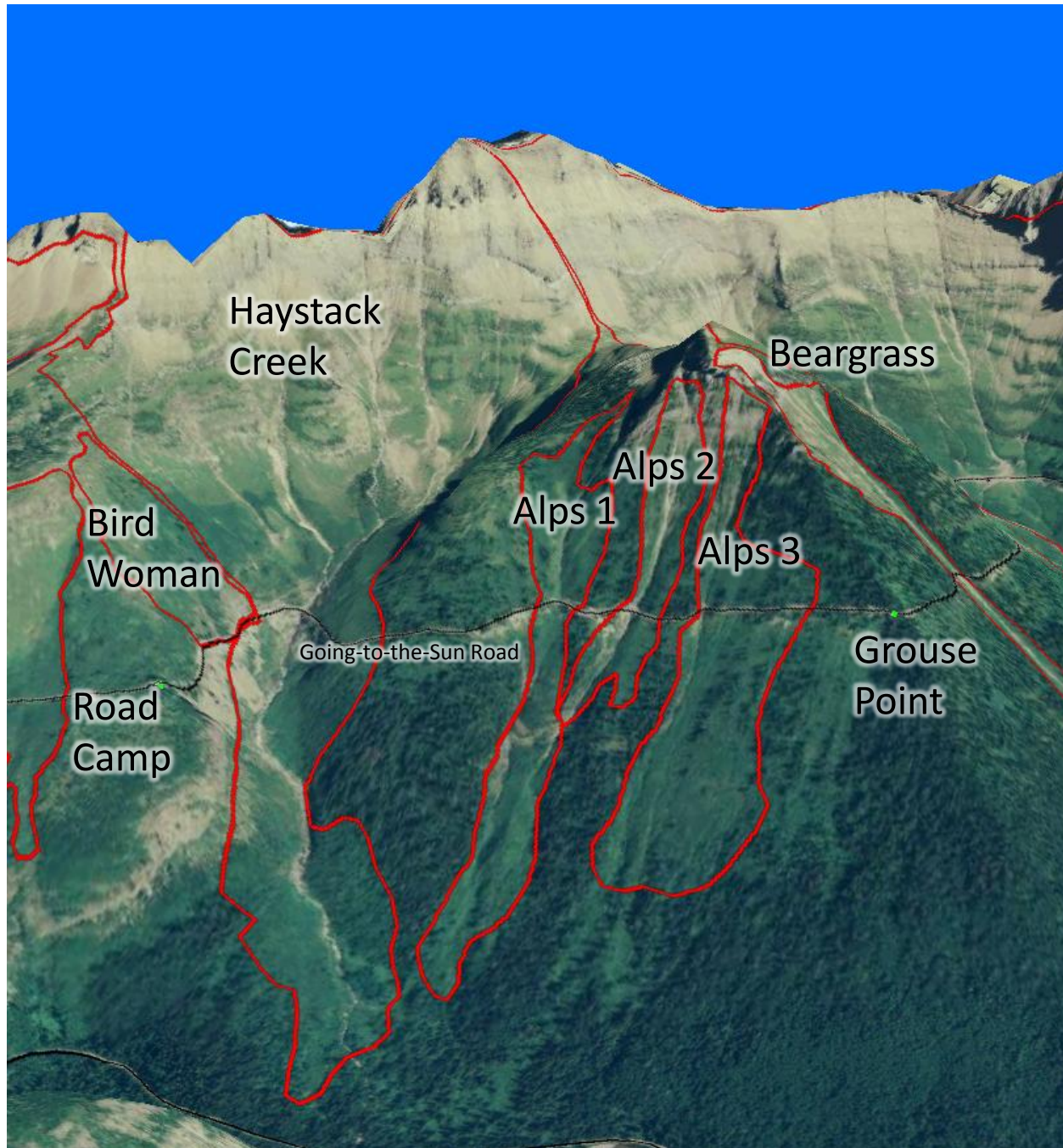
GTSR Mile 26.65

Map Coordinates: 48.738973 N / -113.752118 E

**Comments** Large, safe area that can accommodate many vehicles and equipment. Often used as a staging area before pioneering through the Bird Woman and Haystack Creek paths.

/ / 26  
**Road Camp**

**Overview of Haystack Creek to Beargrass avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT**





1 / 27  
Bird Woman, Show You (Left)

**Avalanche Path: Bird Woman, Show You (Left)**  
**Zone: West**

**Number: 27**

**Location:**

GTSR Mile 26.85

Map Coordinates: 48.739487 N / -113.749039 E

**Description of Terrain:**

Starting Zone Elevation: 1992 m

Runout Zone Elevation: 1587 m

Vertical Fall: 405 m

Length of Path: 800 m

Aspect of Starting Zone: S

Angles of -

*Starting* 35 deg

*Track:* 35 deg

*Runout Zone:* 35 deg

*Slide Path:* 35 deg

*Starting Zone:* Series of gullies separated by small ridges that originate below a small cliff band far looker's left in the Haystack Creek drainage.

*Track:* Steep gullies above a cliff band along the GTSR.

*Runout Zone:* Below the GTSR and merges with the runout from the Haystack Creek runout zone.

**Avalanche Characteristics:**

Length GTSR Affected: 235 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: High

**Comments** First slope impacted by solar input in the Haystack Creek drainage due to aspect. Start zone visible from the GTSR on the south side of the drainage.

/ / 27

**Bird Woman, Show You (Left)**



1 / 28  
Haystack Creek, Show Me (Middle)

**Avalanche Path: Haystack Creek, Show Me (Middle)**  
**Zone: West**

**Number: 28**

**Location:**

GTSR Mile 27

Map Coordinates: 48.739403 N / -113.746184 E

**Description of Terrain:**

Starting Zone Elevation: 2803 m

Runout Zone Elevation: 1103 m

Vertical Fall: 1700 m

Length of Path: 3831 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 39 deg

*Track:* 29 deg

*Runout Zone:* 29 deg

*Slide Path:* 35 deg

*Starting Zone:* Large bowl below Mt. Gould and the Garden Wall interspersed with cliffs and encompasses aspects from SW through WNW.

*Track:* Broad bowl interspersed with cliffs with lessening gradient as it approaches the GTSR.

*Runout Zone:* Full extent reaches just above the GTSR near McDonald Creek at the valley bottom.

**Avalanche Characteristics:**

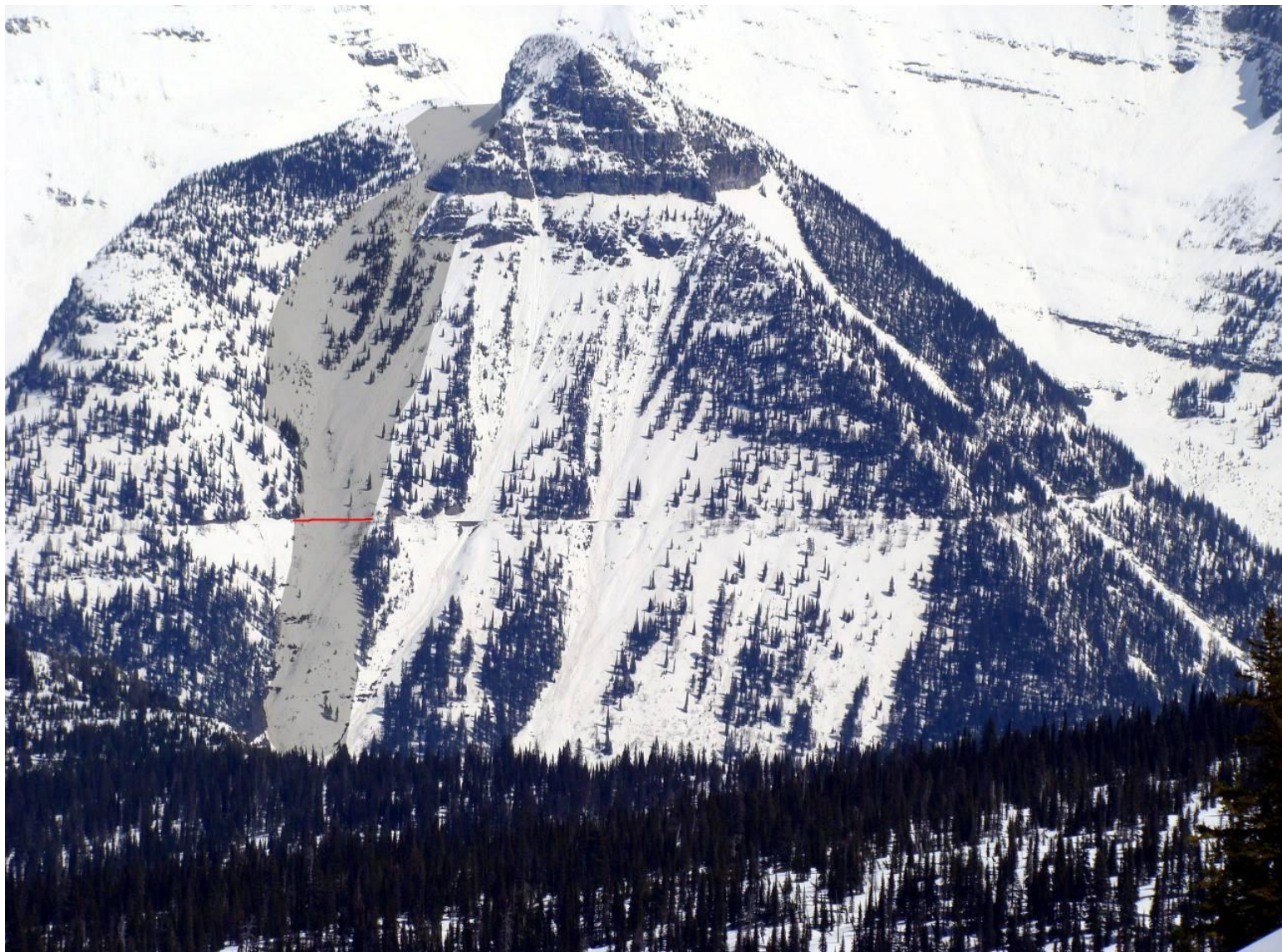
Length GTSR Affected: 530 m

Primary Avalanche Type: Wet Slab

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: High

**Comments** Large start zone visible from GTSR on north side of Haystack Creek drainage. Gradient lessens as it reaches the GTSR. Red line in the photograph represents the GTSR.



**Avalanche Path: Alps, 1**  
**Zone: West**

**Number: 29**

**Location:**

GTSR Mile 27.45

Map Coordinates: 48.733638 N / -113.7439 E

**Description of Terrain:**

Starting Zone Elevation: 2068 m

Runout Zone Elevation: 1159 m

Vertical Fall: 909 m

Length of Path: 1936 m

Aspect of Starting Zone: W

Angles of -

*Starting* 37 deg

*Track:* 28 deg

*Runout Zone:* 28 deg

*Slide Path:* 31 deg

*Starting Zone:* Snowfield on the north side of Haystack Butte.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track.

*Runout Zone:* Valley bottom of McDonald Creek where it merges with the Haystack Creek runout zone.

**Avalanche Characteristics:**

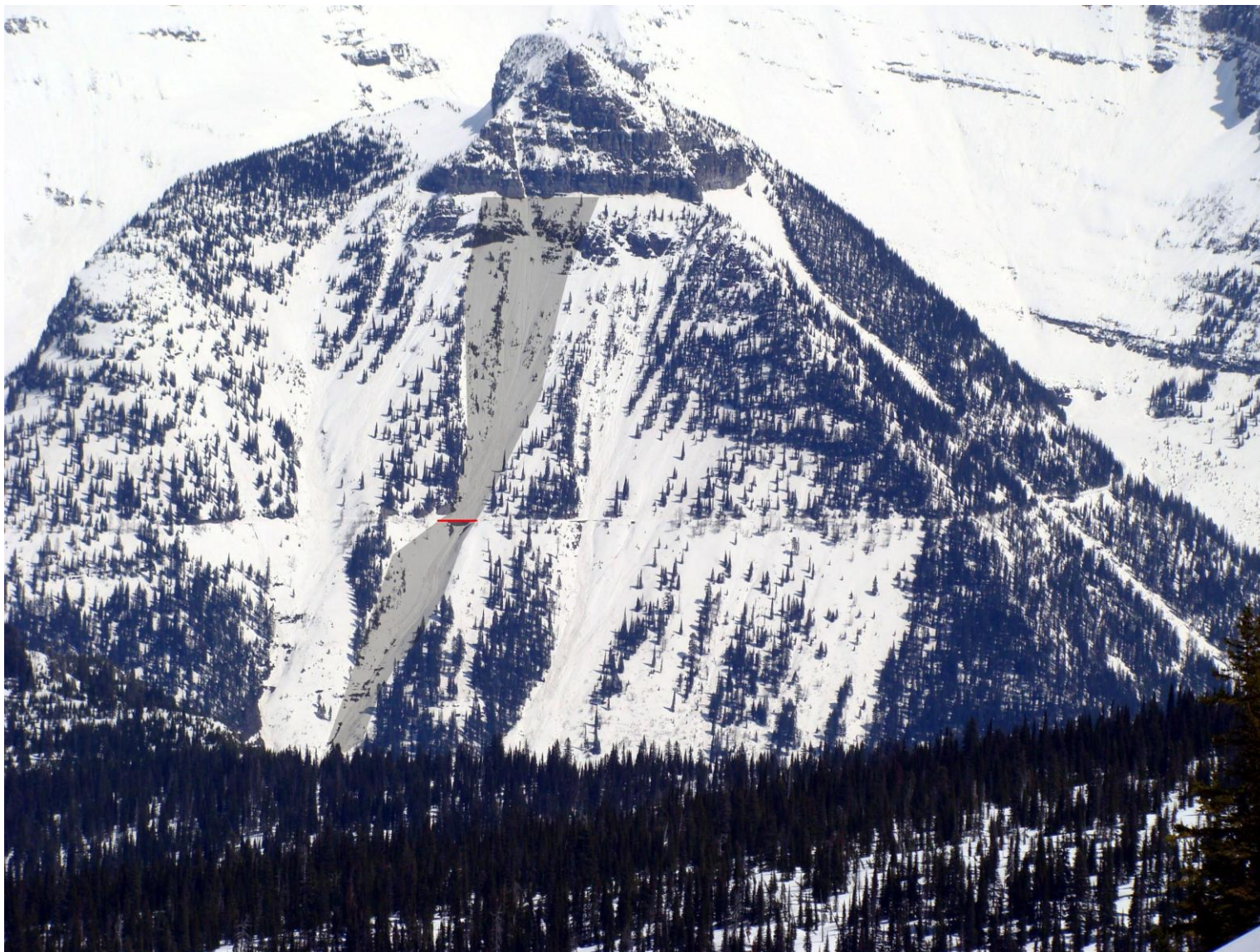
Length GTSR Affected: 108 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Steepness of the path allows most new snow loose slides to hit the GTSR. Good sight distance for spotters. Red line in the photograph represents the GTSR.



**Avalanche Path: Alps, 2**  
**Zone: West**

**Number: 30**

**Location:**

GTSR Mile 27.6

Map Coordinates: 48.731966 N / -113.742956 E

**Description of Terrain:**

Starting Zone Elevation: 2143 m

Runout Zone Elevation: 1474 m

Vertical Fall: 669 m

Length of Path: 1107 m

Aspect of Starting Zone: 266

Angles of -

*Starting* 43 deg

*Track:* 27 deg

*Runout Zone:* 27 deg

*Slide Path:* 39 deg

*Starting Zone:* Snowfield below the west facing cliffs of Haystack Butte.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track.

*Runout Zone:* McDonald Creek where it merges with the Alps 1 runout zone.

**Avalanche Characteristics:**

Length GTSR Affected: 114 m

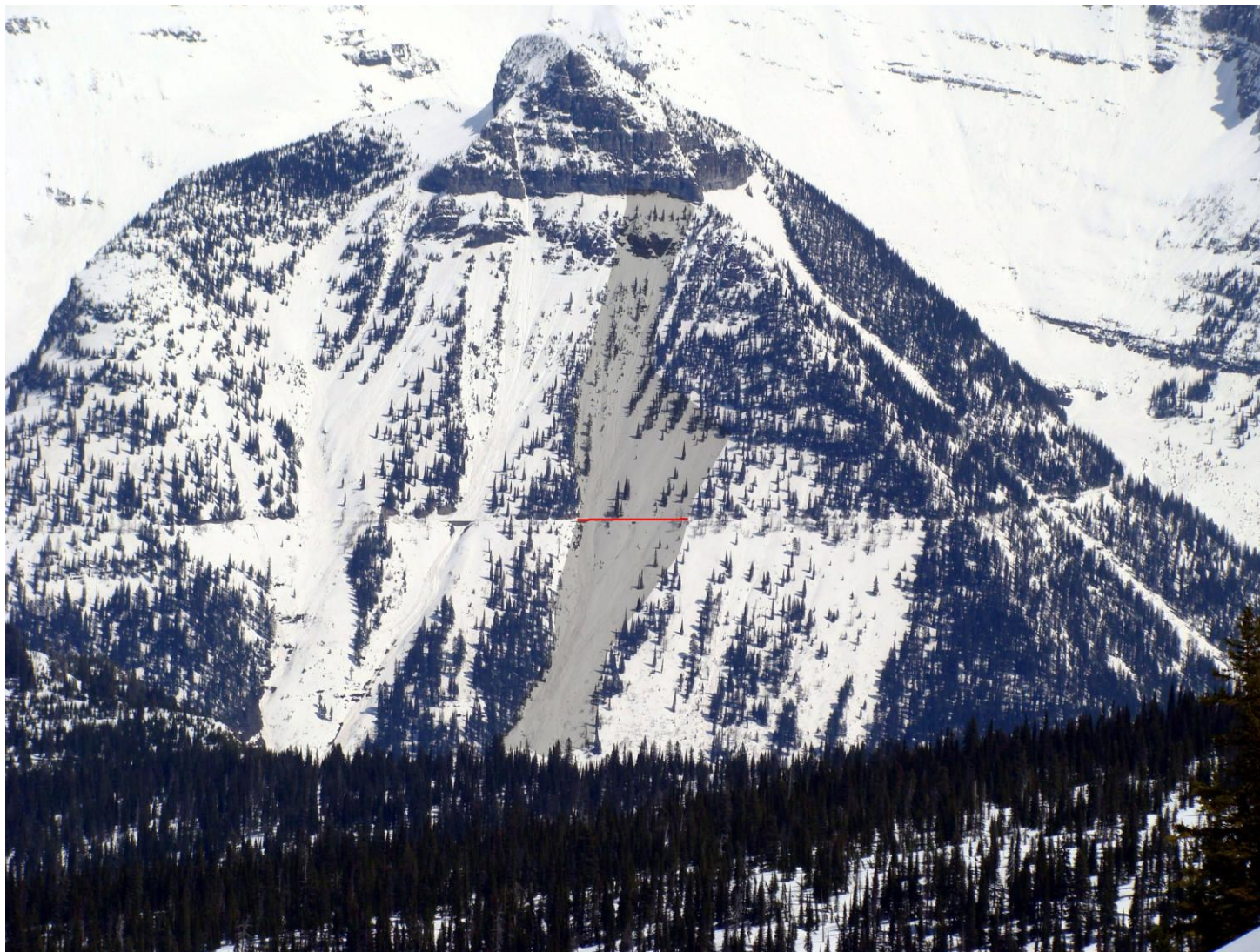
Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Steepness of the path allows most new snow loose slides to hit the GTSR. Red line in the photograph represents the GTSR.

// 30  
Alps, 2



**Avalanche Path: Alps, 3**  
**Zone: West**

**Number: 31**

**Location:**

GTSR Mile 27.7

Map Coordinates: 48.730411 N / -113.742608 E

**Description of Terrain:**

Starting Zone Elevation: 2113 m

Runout Zone Elevation: 1246 m

Vertical Fall: 867 m

Length of Path: 1506 m

Aspect of Starting Zone: W

Angles of -

*Starting* 38 deg

*Track:* 27 deg

*Runout Zone:* 27 deg

*Slide Path:* 35 deg

*Starting Zone:* Snowfield below the west facing cliffs of Haystack Butte.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track.

*Runout Zone:* Above the valley bottom of McDonald Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 273 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Steepness of the path allows most new snow loose slides to hit the GTSR. Red line in the photograph represents the GTSR.

**// 31**  
**Alps, 3**



1 / 32  
Grouse Point



**Avalanche Path: Grouse Point**  
**Zone: West**

**Number: 32**

**Location:**

GTSR Mile 27.95

Map Coordinates: 48.726626 N / -113.742263 E

**Comments** Safe zone located between Alps 3 and Beargrass.

**/ / 32**  
**Grouse Point**



1 / 33  
Beargrass

**Avalanche Path: Beargrass**  
**Zone: West**

**Number: 33**

**Location:**

GTSR Mile 28.2

Map Coordinates: 48.725869 N / -113.738159 E

**Description of Terrain:**

Starting Zone Elevation: 2251 m

Runout Zone Elevation: 1247 m

Vertical Fall: 1004 m

Length of Path: 1931 m

Aspect of Starting Zone: S

Angles of -

*Starting* 38 deg

*Track:* 31 deg

*Runout Zone:* 8 deg

*Slide Path:* 33 deg

*Starting Zone:* Snowfield on the SW corner of Haystack Butte.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track

*Runout Zone:* Valley floor at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 51 m

Primary Avalanche Type: Loose

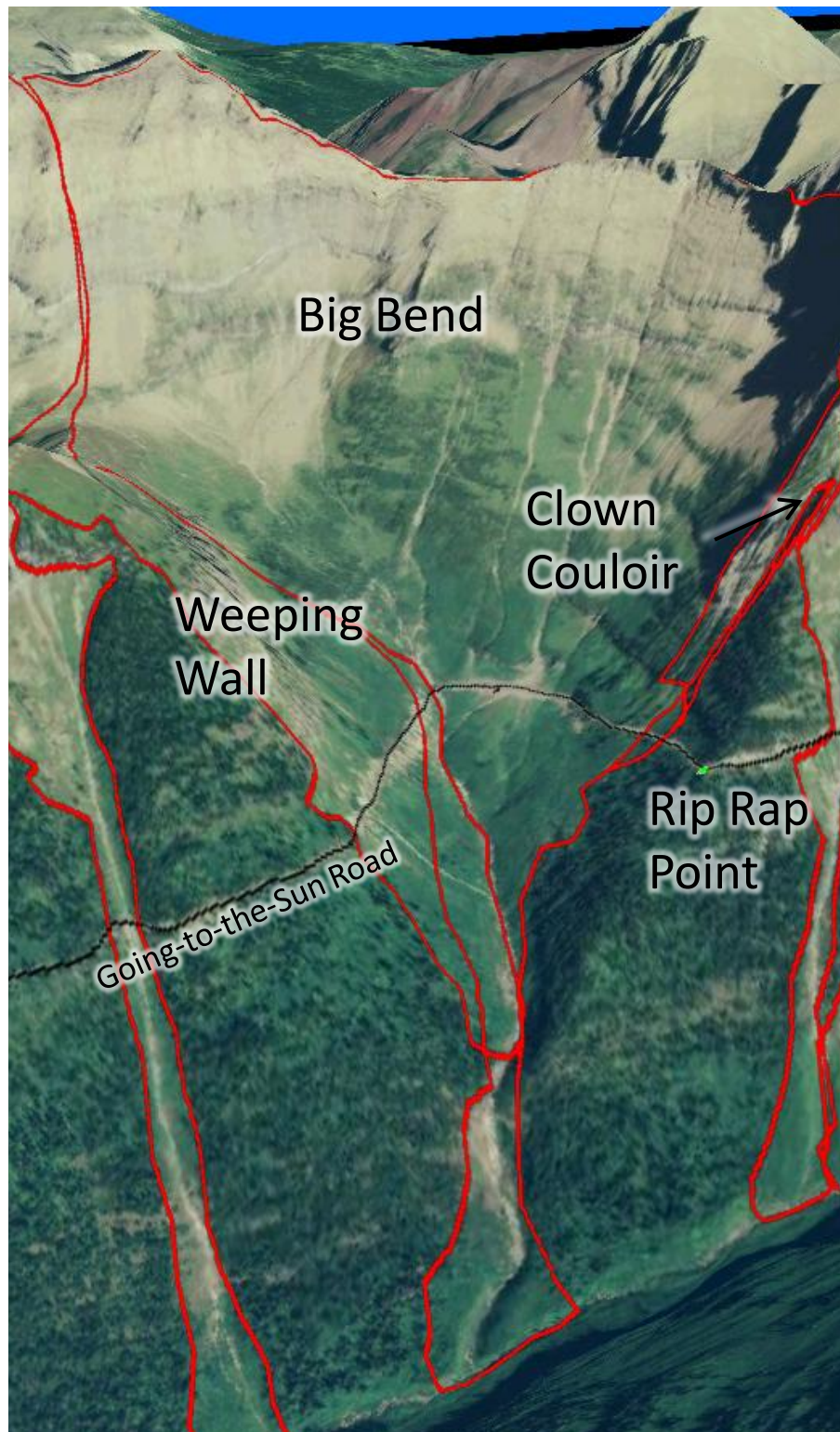
Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Steepness of the path allows most new snow loose slides to hit the GTSR. Red line in the photograph represents the GTSR.

**/ / 33**  
**Beargrass**

**Overview of Big Bend group avalanche paths, Going-to-the-Sun Road, Glacier  
National Park, MT**





/ / 34  
Weeping Wall

**Avalanche Path: Weeping Wall**  
**Zone: West**

**Number: 34**

**Location:**

GTSR Mile 28.5

Map Coordinates: 48.725193 N / -113.731886 E

**Description of Terrain:**

Starting Zone Elevation: 2278 m

Runout Zone Elevation: 1514 m

Vertical Fall: 764 m

Length of Path: 1677 m

Aspect of Starting Zone: SE

Angles of -

*Starting* 37 deg

*Track:* 27 deg

*Runout Zone:* 27 deg

*Slide Path:* 36 deg

*Starting Zone:* Southeast facing snowfield on Haystack Butte.

*Track:* Gradient steepens from start zone before it reaches the GTSR and is interrupted by a large cliff band mid-track.

*Runout Zone:* Merges with the main Big Bend track below the GTSR.

**Avalanche Characteristics:**

Length GTSR Affected: 552 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Good view of the starting zone and track from the south side of Big Bend drainage. Aspect exposed to solar input starting early in the day during the spring. Red line in the photograph represents the GTSR.



1 / 35  
Big Bend

**Avalanche Path: Big Bend**  
**Zone: West**

**Number: 35**

**Location:**

GTSR Mile 28.8

Map Coordinates: 48.727454 N / -113.726297 E

**Description of Terrain:**

Starting Zone Elevation: 2905 m

Runout Zone Elevation: 1285 m

Vertical Fall: 1620 m

Length of Path: 3737 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 39 deg

*Track:* 24 deg

*Runout Zone:* 11 deg

*Slide Path:* 35 deg

*Starting Zone:* Large bowl below the Garden Wall encompassing aspects from SW through NW.

*Track:* Gradient lessens dramatically as the track nears the GTSR, and then steepens again below the GTSR.

*Runout Zone:* Valley bottom at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 587 m

Primary Avalanche Type: Wet Slab

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: High

**Comments** Start zone visible from both sides of Big Bend drainage. Red line in the photograph represents the GTSR.

**// 35**  
**Big Bend**



1 / 36  
Clown Couloir

**Avalanche Path: Clown Couloir**  
**Zone: West**

**Number: 36**

**Location:**

GTSR Mile 29.2

Map Coordinates: 48.723633 N / -113.724383 E

**Description of Terrain:**

Starting Zone Elevation: 2181 m

Runout Zone Elevation: 1766 m

Vertical Fall: 415 m

Length of Path: 666 m

Aspect of Starting Zone: NW

Angles of -

*Starting* 45 deg

*Track:* 40 deg

*Runout Zone:* 30 deg

*Slide Path:* 37 deg

*Starting Zone:* Steep, narrow chute surrounded by rock faces on both sides.

*Track:* Fans out into a steep open snowfield whose gradient decreases as it approaches the GTSR.

*Runout Zone:* The track of Big Bend avalanche path below the GTSR.

**Avalanche Characteristics:**

Length GTSR Affected: 90 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Red line in the photograph represents the GTSR.



1 / 37  
Rip Rap Point

**Avalanche Path: Rip Rap Point**  
**Zone: West**

**Number: 37**

**Location:**

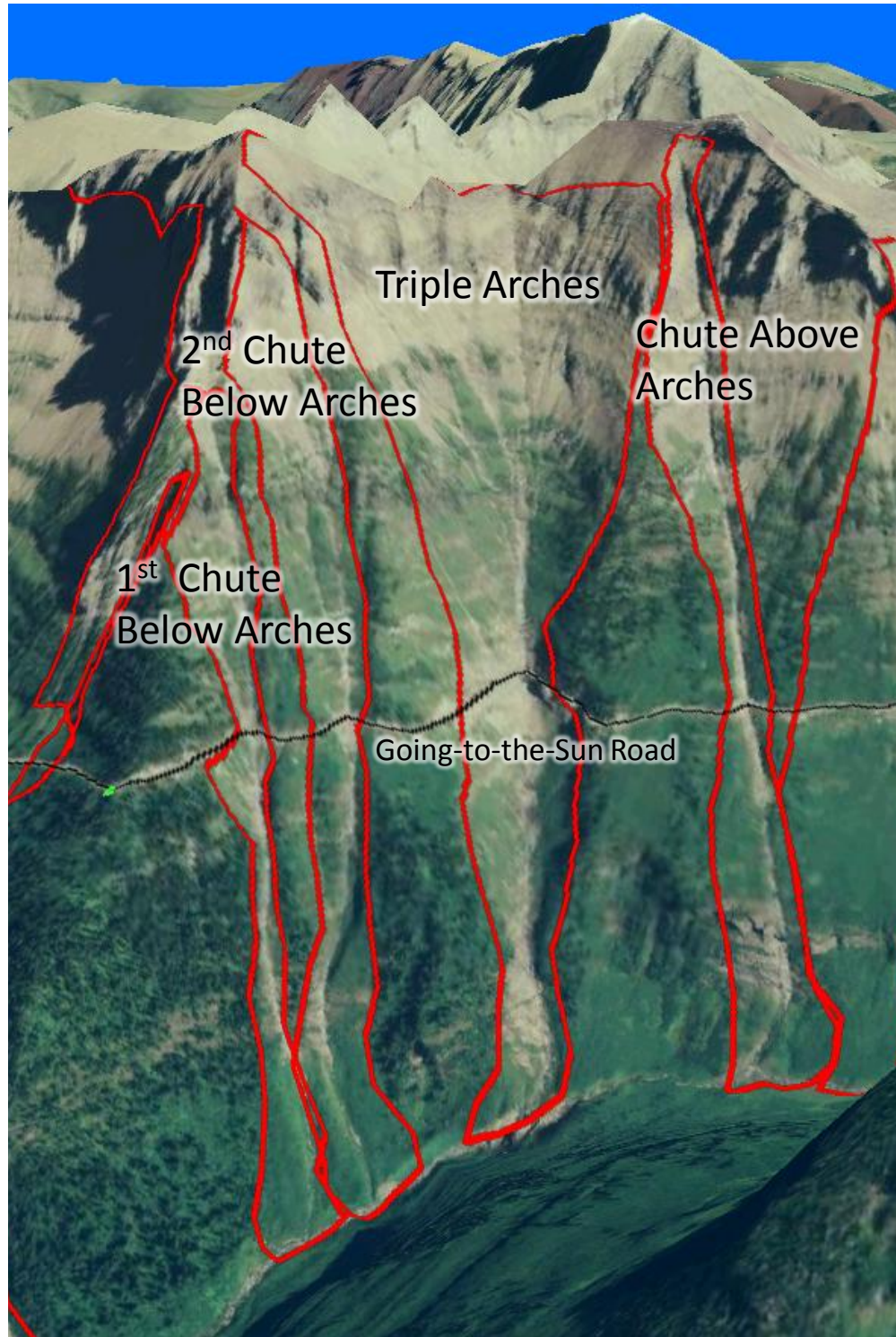
GTSR Mile 29.25

Map Coordinates: 48.7218 N / -113.726263 E

**Comments** Safe zone located along a ridge of Bishop's Cap between Big Bend and the 1<sup>st</sup> Chute Below the Arches.

**// 37**  
**Rip Rap Point**

**Overview of Triple Arches group avalanche paths, Going-to-the-Sun Road,  
Glacier National Park, MT**





// 38  
1st Chute Below Arches

**Avalanche Path: 1st Chute Below Arches**  
**Zone: West**

**Number: 38**

**Location:**

GTSR Mile 29.45

Map Coordinates: 48.720626 N / -113.722973 E

**Description of Terrain:**

Starting Zone Elevation: 2591 m

Runout Zone Elevation: 1364 m

Vertical Fall: 1227 m

Length of Path: 2048 m

Aspect of Starting Zone: WSW

Angles of -

*Starting* 40 deg

*Track:* 29 deg

*Runout Zone:* 12 deg

*Slide Path:* 39 deg

*Starting Zone:* Steep chute below cliff band located on the W aspect of Bishop's Cap.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track with interspersed rock outcroppings that narrows as it reaches the GTSR.

*Runout Zone:* Valley floor at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 95 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Start zone and track not visible from the GTSR.

/ / 38  
**1st Chute Below Arches**



// 39  
2nd Chute Below Arches

**Avalanche Path: 2nd Chute Below Arches**  
**Zone: West**

**Number: 39**

**Location:**

GTSR Mile 29.5

Map Coordinates: 48.719647 N / -113.722133 E

**Description of Terrain:**

Starting Zone Elevation: 2288 m

Runout Zone Elevation: 1353 m

Vertical Fall: 935 m

Length of Path: 1664 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 39 deg

*Track:* 28 deg

*Runout Zone:* 13 deg

*Slide Path:* 36 deg

*Starting Zone:* Steep chute below cliff band located on the W aspect of Bishop's Cap.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track with interspersed rock outcroppings that narrows as it reaches the GTSR.

*Runout Zone:* Valley floor at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 53 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Start zone and track not visible from the GTSR.

/ / 39  
**2nd Chute Below Arches**



// 40  
Triple Arches

**Avalanche Path: Triple Arches**  
**Zone: West**

**Number: 40**

**Location:**

GTSR Mile 29.7

Map Coordinates: 48.717872 N / -113.720068 E

**Description of Terrain:**

Starting Zone Elevation: 2723 m

Runout Zone Elevation: 1431 m

Vertical Fall: 1292 m

Length of Path: 2261 m

Aspect of Starting Zone: SW and S

Angles of -

*Starting* 48 deg

*Track:* 30 deg

*Runout Zone:* 12 deg

*Slide Path:* 40 deg

*Starting Zone:* Steep snowfield located on the W aspects below the ridge between Bishop's Cap and Pollock Mountain.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track with interspersed rock outcroppings that narrows before it reaches the GTSR.

*Runout Zone:* Valley floor at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 222 m

Primary Avalanche Type: Wet Slab

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: High

**Comments** Start zone contains both SW and S aspects. SW start zone visible from downhill side of the path where it intersects the GTSR. S aspect visible from uphill side of the path where it intersects the GTSR.



// 41  
Chute Above Arches

**Avalanche Path: Chute Above Arches**  
**Zone: West**

**Number: 41**

**Location:**

GTSR Mile 30

Map Coordinates: 48.714085 N / -113.718551 E

**Description of Terrain:**

Starting Zone Elevation: 2703 m

Runout Zone Elevation: 1501 m

Vertical Fall: 1202 m

Length of Path: 2121 m

Aspect of Starting Zone: SW

Angles of -

*Starting* 41 deg

*Track:* 29 deg

*Runout Zone:* 19 deg

*Slide Path:* 36 deg

*Starting Zone:* Snowfield below cliffs on the SW aspect of Pollock Mountain.

*Track:* Consistently steep gradient above and below the GTSR. Well defined track with interspersed rock outcroppings that narrows dramatically before it reaches the GTSR.

*Runout Zone:* Valley floor with Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 84 m

Primary Avalanche Type: Loose

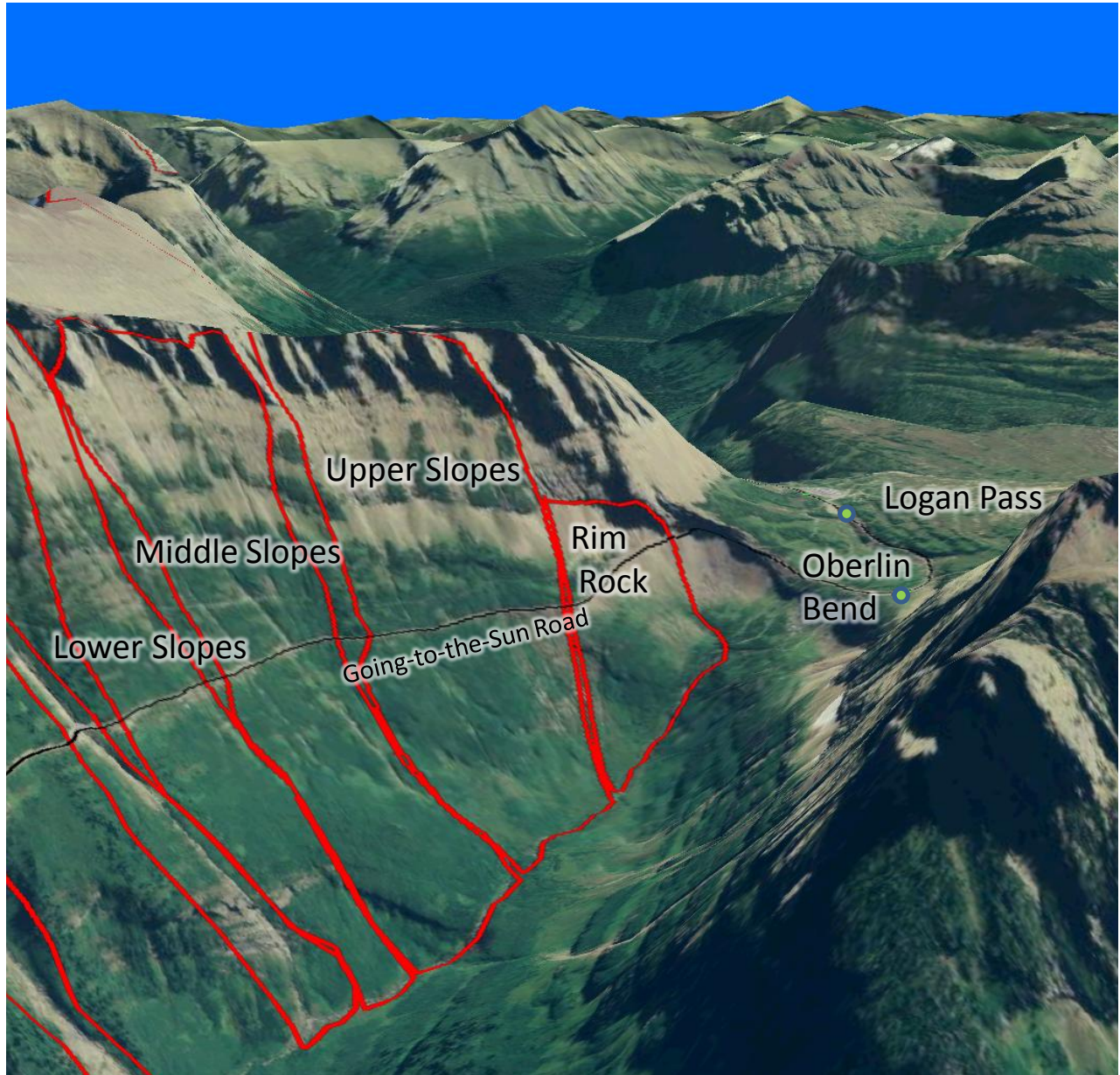
Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Last well defined avalanche path before reaching The Slopes. Area of GTSR affected by this path is relatively narrow.

**/ / 41**  
**Chute Above Arches**

**Overview of The Slopes to Logan Pass avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT**





**Avalanche Path: Lower Slopes**  
**Zone: West**

**Number: 42**

**Location:**

GTSR Mile 30.1

Map Coordinates: 48.713016 N / -113.718401 E

**Description of Terrain:**

Starting Zone Elevation: 2566 m

Runout Zone Elevation: 1522 m

Vertical Fall: 1044 m

Length of Path: 1725 m

Aspect of Starting Zone: W

Angles of -

*Starting* 41 deg

*Track:* 29 deg

*Runout Zone:* 13 deg

*Slide Path:* 37 deg

*Starting Zone:* Several snow filled chutes originating within a cliff area near the top of the Garden Wall. Start zone not confined.

*Track:* Steep track intersected by the GTSR.

*Runout Zone:* Valley bottom at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 207 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Wide open paths that are not very well defined and extend until Rim Rock. Very few and completely safe zones.



1 / 43  
Middle Slopes

**Avalanche Path: Middle Slopes**  
**Zone: West**

**Number: 43**

**Location:**

GTSR Mile 30.25

Map Coordinates: 48.71078 N / -113.717428 E

**Description of Terrain:**

Starting Zone Elevation: 2532 m

Runout Zone Elevation: 1548 m

Vertical Fall: 984 m

Length of Path: 1634 m

Aspect of Starting Zone: W

Angles of -

*Starting* 41 deg

*Track:* 27 deg

*Runout Zone:* 11 deg

*Slide Path:* 37 deg

*Starting Zone:* Several snow filled chutes originating within a cliff area near the top of the Garden Wall.

*Track:* Steep track intersected by the GTSR.

*Runout Zone:* Valley bottom at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 270 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Wide open paths that are not very well defined and extend until Rim Rock. Very few and completely safe zones.



1 / 44  
Upper Slopes

**Avalanche Path: Upper Slopes**  
**Zone: West**

**Number: 44**

**Location:**

GTSR Mile 30.45

Map Coordinates: 48.707831 N / -113.717269 E

**Description of Terrain:**

Starting Zone Elevation: 2481 m

Runout Zone Elevation: 1623 m

Vertical Fall: 858 m

Length of Path: 1354 m

Aspect of Starting Zone: WNW

Angles of -

*Starting* 41 deg

*Track:* 29 deg

*Runout Zone:* 9 deg

*Slide Path:* 39 deg

*Starting Zone:* Several snow filled chutes originating within a cliff area near the top of the Garden Wall.

*Track:* Steep track intersected by the GTSR.

*Runout Zone:* Valley bottom at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 456 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Wide open paths that are not very well defined and extend until Rim Rock. Very few and completely safe zones.



1 / 45  
Rim Rock

**Avalanche Path: Rim Rock**  
**Zone: West**

**Number: 45**

**Location:**

GTSR Mile 30.75

Map Coordinates: 48.703634 N / -113.718421 E

**Description of Terrain:**

Starting Zone Elevation: 2089 m

Runout Zone Elevation: 1663 m

Vertical Fall: 426 m

Length of Path: 752 m

Aspect of Starting Zone: NW

Angles of -

*Starting* 41 deg

*Track:* 29 deg

*Runout Zone:* 15 deg

*Slide Path:* 35 deg

*Starting Zone:* Small snowfield interspersed with cliffs that originates on the S ridge of Pollock Mountain.

*Track:* GTSR located in the upper portion of the track.

*Runout Zone:* Valley bottom at Logan Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 338 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Low

**Comments** Subject to late afternoon avalanche hazard due to aspect. Also prone to notable rockfall.

/ / 45  
**Rim Rock**



1 / 46  
Oberlin Bend



**Avalanche Path: Oberlin Bend**  
**Zone: West**

**Number: 46**

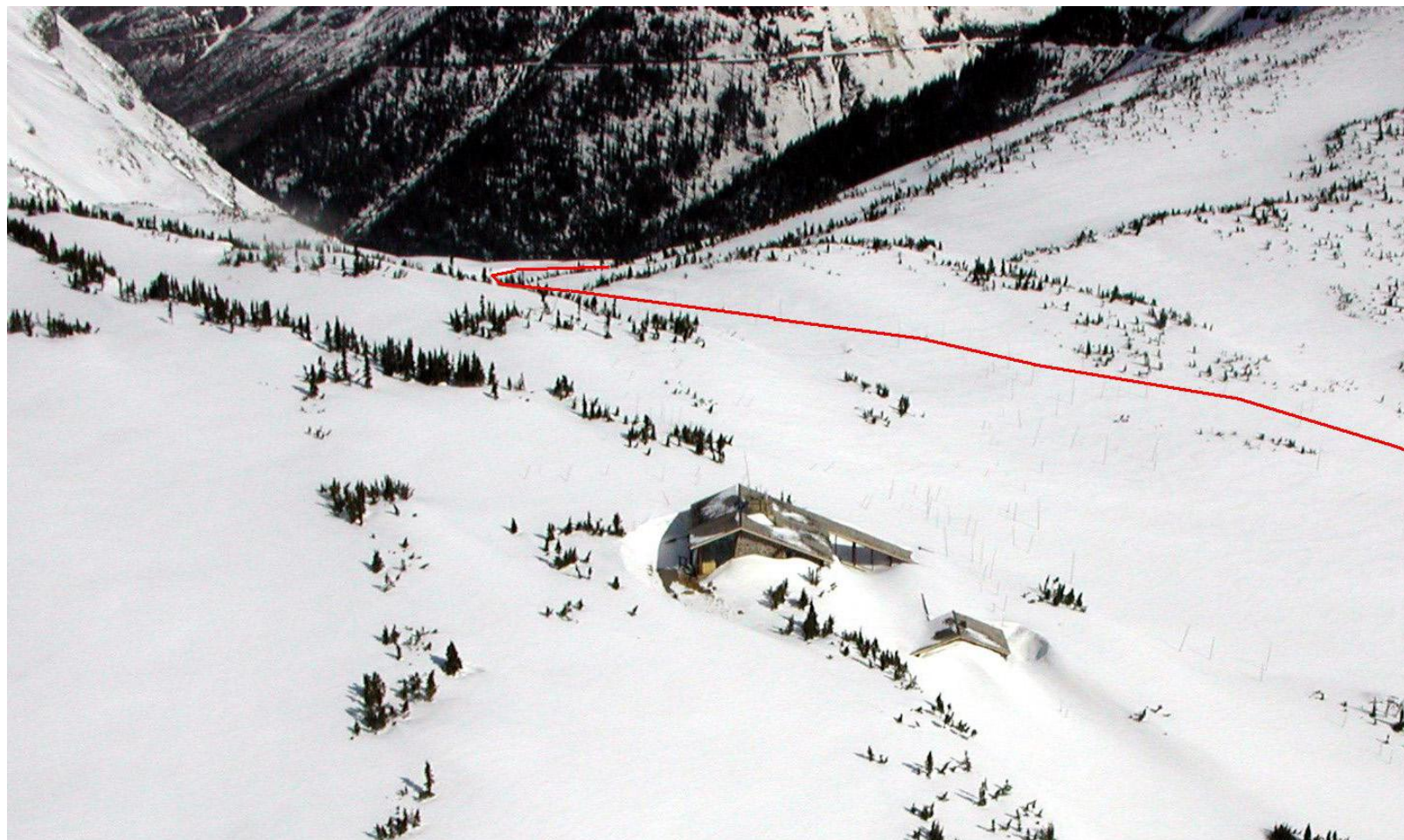
**Location:**

GTSR Mile        31.25

Map Coordinates: 48.700537 N / -113.726424 E

**Comments**     Large safe zone after Rim Rock.

**/ / 46**  
**Oberlin Bend**



1 / 47  
Logan Pass



**Avalanche Path: Logan Pass**  
**Zone: West**

**Number: 47**

**Location:**

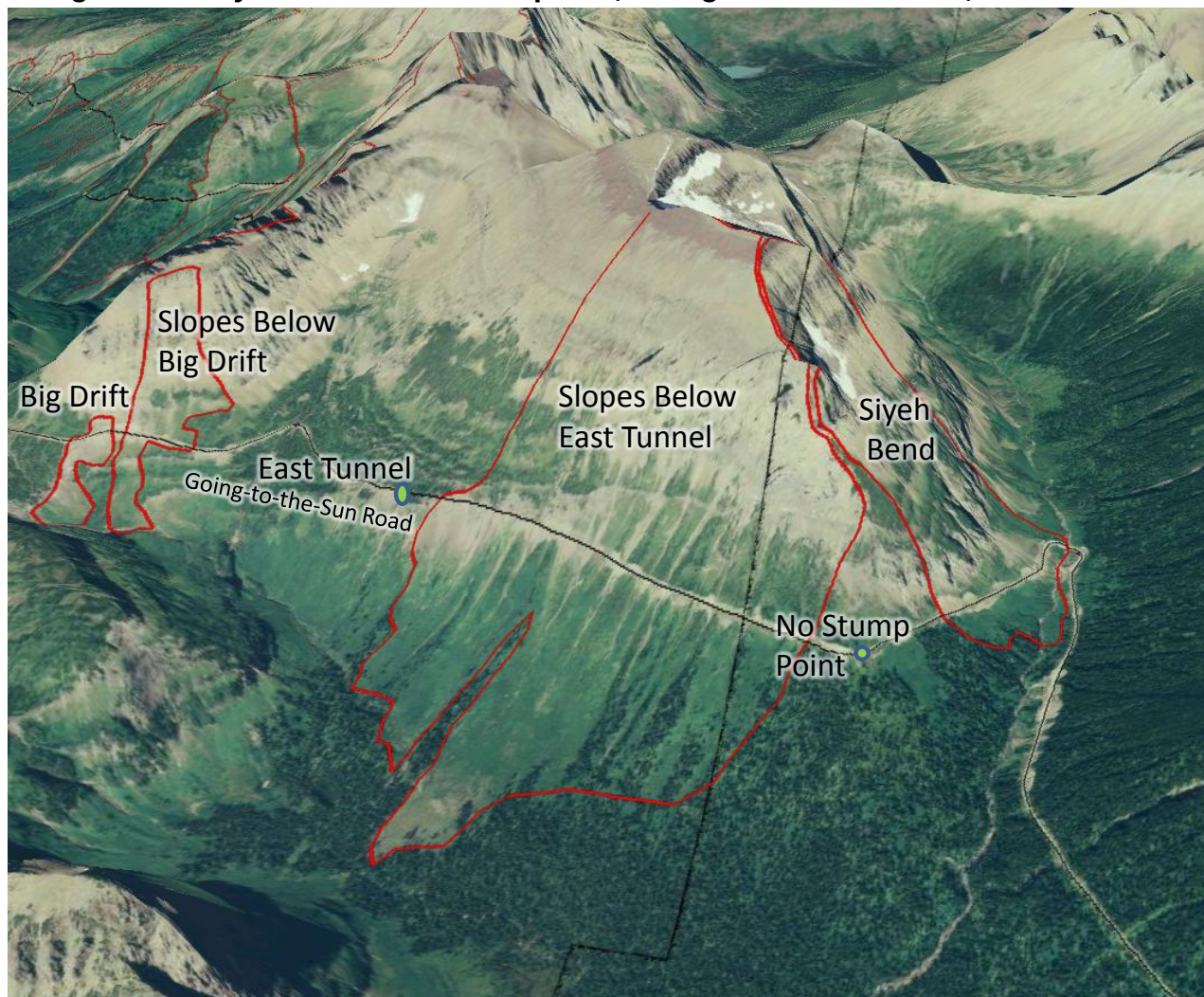
GTSR Mile            31.75

Map Coordinates: 48.697272 N / -113.717728 E

**Comments**    Safe zone before entering the Big Drift. Red line in the photograph represents the GTSR.

|| 47  
**Logan Pass**

Overview of Big Drift to Siyeh Bend avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT





// 48  
Big Drift

**Avalanche Path: Big Drift**  
**Zone: East Side**

**Number: 48**

**Location:**

GTSR Mile 32

Map Coordinates: 48.696448 N / -113.712588 E

**Description of Terrain:**

Starting Zone Elevation: 2036 m

Runout Zone Elevation: 1850 m

Vertical Fall: 186 m

Length of Path: 506 m

Aspect of Starting Zone: SE

Angles of -

*Starting* 35 deg

*Track:* 29 deg

*Runout Zone:* 17 deg

*Slide Path:* 31 deg

*Starting Zone:* Steep wind loaded pocket of snow that originates on the E aspect of the S ridge of Pollock Mountain. The GTSR intersects the middle of the start zone.

*Track:* Gradient lessens below the GTSR.

*Runout Zone:* Valley bottom at Reynolds Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 142 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Late

Relative Hazard Rating: Medium

**Comments** Red line in the photograph represents the GTSR.

/ / 48  
**Big Drift**



/ / 49  
**Slopes Below the Big Drift**

**Avalanche Path: Slopes Below the Big Drift**  
**Zone: East Side**

**Number: 49**

**Location:**

GTSR Mile 32.1

Map Coordinates: 48.697569 N / -113.707399 E

**Description of Terrain:**

Starting Zone Elevation: 2430 m

Runout Zone Elevation: 1805 m

Vertical Fall: 625 m

Length of Path: 1076 m

Aspect of Starting Zone: SE

Angles of -

*Starting* 39 deg

*Track:* 28 deg

*Runout Zone:* 16 deg

*Slide Path:* 36 deg

*Starting Zone:* Broad slope with unconfined start zones interspersed with small cliff bands on the E side of the S ridge on Pollock Mountain.

*Track:* Unconfined shallow gullies containing small trees. GTSR intersects the middle of the track.

*Runout Zone:* Valley bottom at Reynolds Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 243 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Unconfined start zones with no safe zones between Logan Pass and Lunch Creek. Hazard exists after new snow accumulates on slopes and is affected by subsequent solar input.



/ / 50  
East Tunnel



**Avalanche Path: East Tunnel**  
**Zone: East Side**

**Number: 50**

**Location:**

GTSR Mile        32.85

Map Coordinates: 48.696449 N / -113.697367 E

**Comments**     Safe zone between No Stump Point and Lunch Creek.

  / / 50  
**East Tunnel**



1 / 51  
Slopes Below East Tunnel

**Avalanche Path: Slopes Below East Tunnel**  
**Zone: East Side**

**Number: 51**

**Location:**

GTSR Mile 32.95

Map Coordinates: 48.69388 N / -113.677565 E

**Description of Terrain:**

Starting Zone Elevation: 2733 m

Runout Zone Elevation: 1557 m

Vertical Fall: 1176 m

Length of Path: 2580 m

Aspect of Starting Zone: SSW

Angles of -

*Starting* 33 deg

*Track:* 24 deg

*Runout Zone:* 9 deg

*Slide Path:* 31 deg

*Starting Zone:* Broad slope above a large cliff band on the E face of Piegan Mountain.

*Track:* Unconfined gullies below a large cliff band intersected by the GTSR.

*Runout Zone:* Valley bottom at Reynolds Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 1326 m

Primary Avalanche Type: Loose

Time of Plow Season Path Melts Out: Middle

Relative Hazard Rating: Medium

**Comments** Start zone not visible from GTSR below the slopes. Only visible from Logan Pass/Big Drift area.

**/ / 51**  
**Slopes Below East Tunnel**



114

1 / 52  
No Stump Point

**Avalanche Path: No Stump Point**  
**Zone: East Side**

**Number: 52**

**Location:**

GTSR Mile        33.85

Map Coordinates: 48.693874 N / -113.677568 E

**Comments**    Protected ridge on the S side of Piegan Mountain on one side of No Stump Point, but a gully with a large cornice on the S side of the ridge is not a safe spot.

    / / 52  
**No Stump Point**



// 53  
Siyeh Bend

**Avalanche Path: Siyeh Bend**  
**Zone: East Side**

**Number: 53**

**Location:**

GTSR Mile 34.1

Map Coordinates: 48.701579 N / -113.66775 E

**Description of Terrain:**

Starting Zone Elevation: 2684 m

Runout Zone Elevation: 1730 m

Vertical Fall: 954 m

Length of Path: 1730 m

Aspect of Starting Zone: ESE

Angles of -

*Starting* 41 deg

*Track:* 24 deg

*Runout Zone:* 12 deg

*Slide Path:* 39 deg

*Starting Zone:* Numerous chutes on an otherwise rocky face on the E side of Piegan Mountain. Large cornice overhangs the E face of Piegan Mountain.

*Track:* Steep, rocky, chutes.

*Runout Zone:* Valley bottom of Siyeh Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 720 m

Primary Avalanche Type: Loose

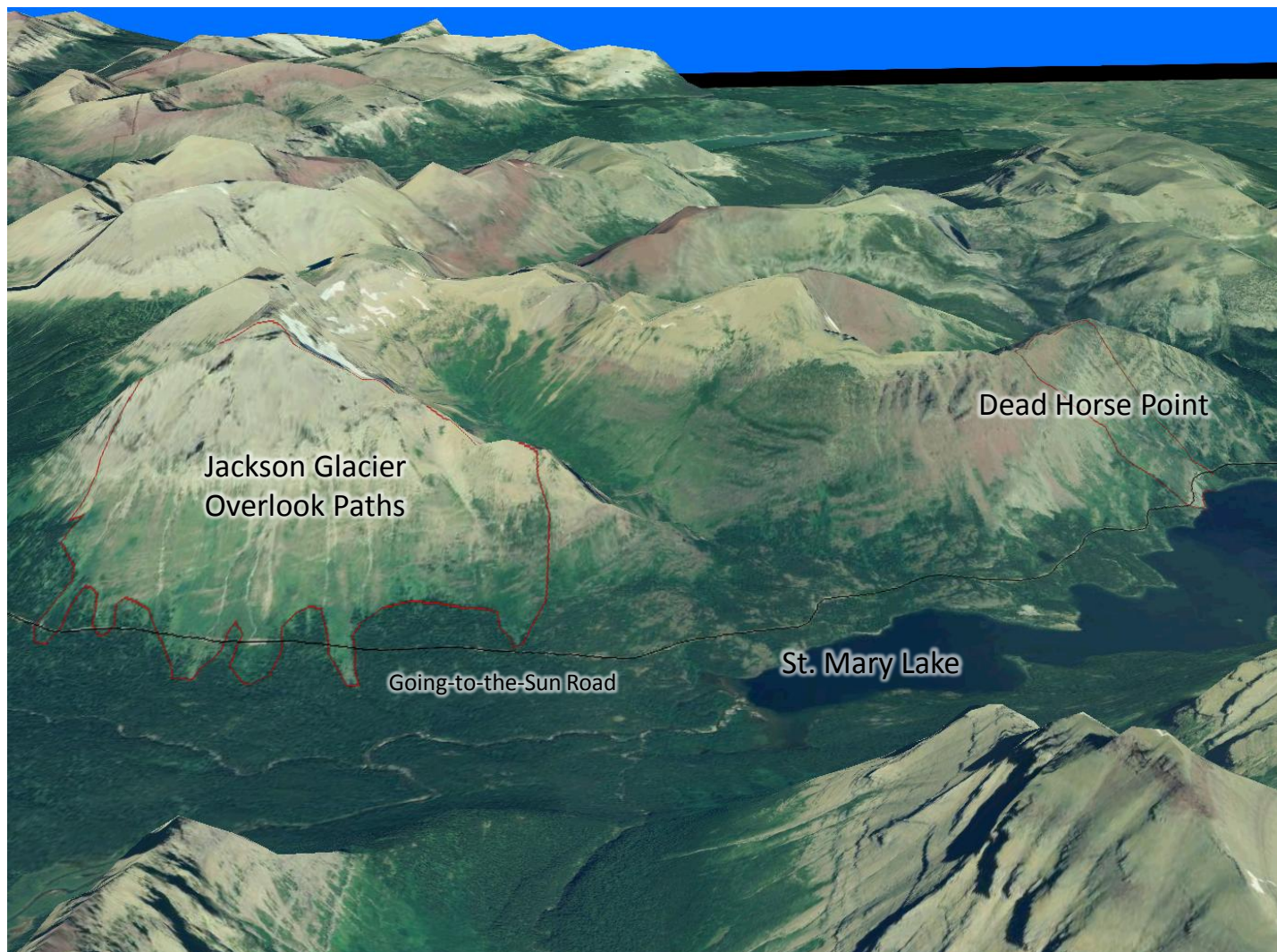
Time of Plow Season Path Melts Out: Late

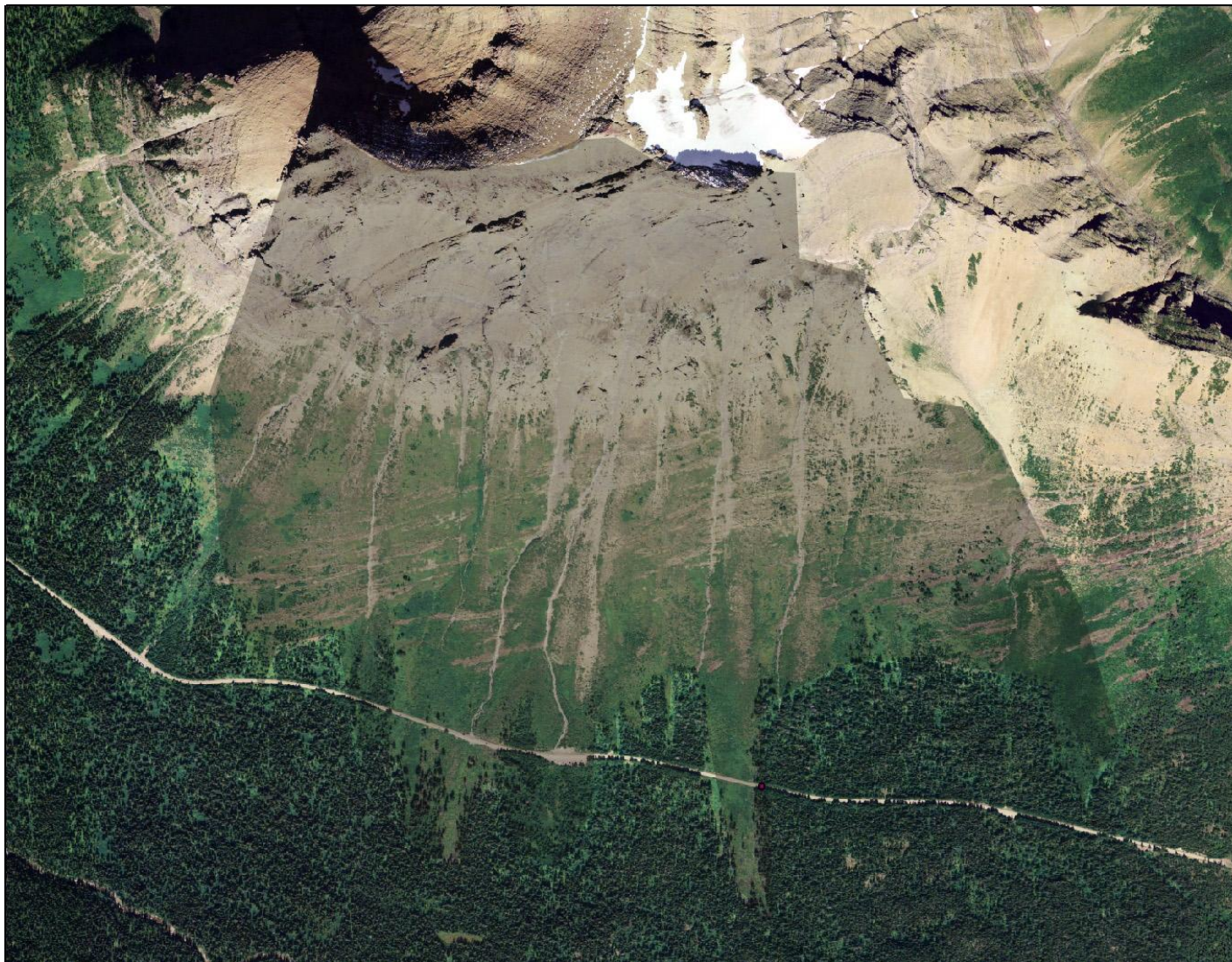
Relative Hazard Rating: Medium

**Comments** Path sees solar input early in the day due to aspect. This path is a frequent performer after new snow accumulation and subsequent solar input. Large cornice forms at top of ridge.

**/ / 53**  
**Siyeh Bend**

Overview of Below Siyeh Bend avalanche paths, Going-to-the-Sun Road, Glacier National Park, MT





/ / 54  
Jackson Glacier Overlook Paths

**Avalanche Path: Jackson Glacier Overlook Paths**  
**Zone: East Side**

**Number: 54**

**Location:**

GTSR Mile 36.4

Map Coordinates: 48.675311 N / -113.630691 E

**Description of Terrain:**

Starting Zone Elevation: 2875 m

Runout Zone Elevation: 1465 m

Vertical Fall: 1410 m

Length of Path: 2479 m

Aspect of Starting Zone: S

Angles of -

*Starting* 40 deg

*Track:* 23 deg

*Runout Zone:* 21 deg

*Slide Path:* 35 deg

*Starting Zone:* Broad S facing slopes originating on Going-to-the-Sun Mountain.

*Track:* Gradient lessens gradually along the slope.

*Runout Zone:* Below the GTSR near the valley bottom at Reynolds Creek.

**Avalanche Characteristics:**

Length GTSR Affected: 962 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Start zones are typically melted by the start of spring plowing operations and rarely pose a notable hazard. Paths are mid-winter performers.



// 55  
Dead Horse Point

**Avalanche Path: Dead Horse Point**  
**Zone: East Side**

**Number: 55**

**Location:**

GTSR Mile 41.2

Map Coordinates: 48.692443 N / -113.552673 E

**Description of Terrain:**

Starting Zone Elevation: 2308 m

Runout Zone Elevation: 1367 m

Vertical Fall: 941 m

Length of Path: 1634 m

Aspect of Starting Zone: SE

Angles of -

*Starting* 38 deg

*Track:* 29 deg

*Runout Zone:* 19 deg

*Slide Path:* 35 deg

*Starting Zone:* Large cornice and narrow gully located on the N shore of St. Mary Lake.

*Track:* Steep, narrow gully above the GTSR.

*Runout Zone:* St. Mary Lake.

**Avalanche Characteristics:**

Length GTSR Affected: 623 m

Primary Avalanche Type: Dry Slab

Time of Plow Season Path Melts Out: Early

Relative Hazard Rating: Low

**Comments** Not a large path, but the failure of the cornice and wet loose avalanches in the gully pose a hazard in the spring.

/ / 55  
**Dead Horse Point**

## Avalanche Hazard Rating System for the Going-to-the-Sun Road

| Avalanche Rating    | Avalanche Probability                                             | Travel Danger                    | Work Danger                    |
|---------------------|-------------------------------------------------------------------|----------------------------------|--------------------------------|
| <b>Low</b>          | Natural Avalanches very unlikely to affect Going-to-the-Sun Road. | Low Risk                         | Low Risk                       |
| <b>Moderate</b>     | Natural Avalanches unlikely to affect Going-to-the-Sun Road.      | Low Risk                         | Low Risk for Work with Spotter |
| <b>Considerable</b> | Natural Avalanches possible; may affect Going-to-the-Sun Road.    | Low Risk for Travel with Spotter | WORK NOT ADVISED               |
| <b>High</b>         | Natural Avalanches likely to affect Going-to-the-Sun Road.        | TRAVEL NOT ADVISED               | NOT SAFE                       |
| <b>Not Rated</b>    | Information not available or no rating was obtained.              |                                  |                                |

## Glossary

**Aspect:** The compass direction a slope faces (i.e. North, South, East, or West.)

**Avalanche Path:** A terrain feature where an avalanche occurs. Composed of a Starting Zone, Track, and Runout Zone.

**Cornice** - A mass of snow deposited by the wind, often overhanging, and usually near a sharp terrain break such as a ridge. Cornices can break off unexpectedly and should be approached with caution

**Couloir:** A steep gully in alpine terrain. In winter, a couloir is usually filled with snow bound by rocks on either side.

**Dry Snow Avalanche:** An avalanche that occurs in dry snow at below freezing temperatures. Dry snow avalanches can be either sluffs (loose snow) or slabs. The vast majority of avalanche fatalities are caused by dry slab avalanches.

**Leeward:** The downwind side of an obstacle such as a ridge

**Loose Snow Avalanche:** An avalanche that releases from a point and spreads downhill collecting more snow - different from a slab avalanche. Also called a point-release or sluff.

**Runout Zone:** The portion of an avalanche path where the debris typically comes to rest.

**Slab:** A relatively cohesive snowpack layer.

**Slide:** A mass of snow sliding, tumbling, or flowing down an inclined surface. Same as avalanche.

**Starting Zone:** The portion of an avalanche path where an avalanche releases.

**Terrain Trap:** Terrain in which the consequences of an avalanche are especially hazardous, such as a gully, an abrupt transition, an avalanche path that terminates in trees, a crevasse field or a cliff.

**Track:** The portion of an avalanche path between the starting zone and the runout zone.

**Wet Snow Avalanche:** An avalanche caused by snow losing its strength after becoming damp, moist or saturated with water.

**Windward:** The upwind side of an obstacle such as a ridge. Usually snow is eroded from windward slopes making them relatively safer.

## Acknowledgements

This work was initially underwritten by the Glacier National Park Fund. The manual was compiled by the USGS with significant collaboration from Glacier National Park personnel. Mark Dundas assisted in the collection of data and contributed to the description of avalanche paths. The Glacier National Park Road Crew provided historical insight and anecdotal information. Some of the photographs were collected by former colleagues at the USGS Northern Rocky Mountain Science Center Glacier Field Station. Chris Lundy and Blase Reardon provided an initial structure and database to this avalanche atlas.