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Monashee-Railroad Creeks

Sediment Source Survey and Access Management Plan

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EXECUTIVE SUMMARY

This report presents the results of a Sediment Source Survey and Access Management Map prepared for the Monashee-Railroad Creek watershed located 11 km southeast of the community of Cherryville, BC.

The Sediment Source Survey identified 4 high priority, 9 moderate priority and 21 low priority sites for rehabilitation works to minimize sedimentation within the watershed. A total of 15 of the 34 sites identified were found to require further detailed assessment. The remainder of the sites require minor works to mitigate the impacts of the sediment sources. Prescriptions for each of these sites are given in Table 3 and Appendix 5 of this report.

The Access Management Map component of this report recommends 25.4 km of roads to be permanently deactivated, 45.6 km of roads to be semi-permanently deactivated, and 21.8 km of roads to be temporary deactivated. The remainder of the existing road network is either currently under road permit, road use permit, cutting permit, special use permit, has been deactivated already, or performing deactivation works on the roads would likely cause more environmental damage by repairs than if left alone.

1.0 INTRODUCTION

Wildstone Group (WSG) was contracted by Riverside Forest Products (Armstrong) Ltd., on behalf of Bell Pole Co. Ltd., to conduct an Integrated Watershed Restoration Plan (IWRP) for the Monashee-Railroad Creek watershed. This report will discuss two of the five components required as part of the IWRP, the Sediment Source Survey (SSS) and the Access Management Map (AMM). The SSS and AMM projects involved office and ground level field investigations to identify sources of sedimentation within the watershed. Priorities and budget cost estimates were then established to restore those areas adversely affected by past forest harvesting practices.

This project was awarded in July 1996. The SSS field work was postponed in early November due to an early snowfall and resumed in early June of 1997 when the project area was snow free. The AMM component of the project began after the field work portion of the SSS was completed in mid June 1997. Meetings and consultations with the public and watershed stakeholders were conducted until August 29th, 1997.

This report presents the work program methodology and the results of the SSS and AMM for the Monashee-Railroad Creek watershed. In addition, it sets priorities for actions required for the next level of the WRP.

2.0 SEDIMENT SOURCE SURVEY

2.1 Methodology

The Sediment Source Survey (SSS) involved three phases including: 1) an office review of existing information available for the watershed; 2) on site field assessments; and 3) compilation of information gathered from the field assessment.

The office review consisted of a compilation of available data and maps of the watershed for use in identifying and analyzing potential sediment source sites. The on site field assessments consisted of ground checking each potential site identified from the office review as well as a further examination for sediment sources. The final phase consisted of assembling the field data, identifying those sites eligible for WRP funding and recommending further actions.

2.1.1 Office Review

The office review involved gathering and examining previous studies, TRIM and Forest Cover maps, Bell Pole's Forest Development Plans 1997-2002, and 1994 aerial photographs.

The 1:15 000 aerial photographs were analyzed to identify areas of existing or potential slope movement that may be sources of sedimentation within the watershed. A total of 33 potential hazard sites were identified for ground checking in the next phase of the SSS. The 33 sites ranged from direct impacts such as a small landslide adjacent to a stream, to potential impacts such as a road crossing a stream or a road built on moderate to steep terrain.

2.1.2 Field Assessment

Field assessments for the SSS were initiated in September, 1996. An early snowfall postponed any further field work until the project area was snow free in the spring of 1997. The field work resumed in early June, 1997 and continued until the end of July,

1997. Ground checking was completed using four-wheel drive and all terrain vehicles (ATV's).

There were two stages to the field work consisting of a helicopter reconnaissance overview, and on ground site assessments. During the helicopter overview, many of the hazard sites identified during air photo interpretation were assessed. In addition, new potential hazard sites were identified. Field assessments were conducted on all main, branch, and block roads, and reviewed for new hazard sites which were not located in the office and helicopter overview flight, or may have occurred since the aerial photos were taken. An assessment was undertaken at each hazard site, identifying the hazard type, providing a hazard, consequence, and risk rating, prescription estimates, and recommendations for further assessment. Copies of the field data sheets completed for each hazard site are contained in Appendix 5. Roads on private lands were not assessed as part of this project.

2.1.3 Hazard sites

Hazard sites for the SSS are areas identified as recurrent, ongoing, one time only, or potential sources of sedimentation. These sites may not necessarily be single point sources of sedimentation and can include multiple sediment sources related to entire roads or road sections, or specific areas requiring a number of works. Hazard types for this study are defined as one or more of the following:

- Landslides
- Gullies
- Plugged ditches
- No ditches
- No ditch blocks
- Ditch flowing into stream
- Plugged culverts
- Damaged culverts
- Insufficient cross drains
- Undersized cross drains
- Natural drainage blocked
- Natural drainage diverted
- Ditchline erosion
- Road surface erosion
- Unstable fill slopes
- Unstable cut slopes
- Eroding fill slopes
- Eroding cut slopes
- Washout of road
- Washout of bridge
- Damaged bridge
- Landslide tracks
- Tension cracks on road
- Fill/debris in channel
- Cattle usage
- Organics supporting sidecast
- Wooden box culvert

2.1.3.1 Hazard rating

Once a sediment source has been identified, hazard and consequence ratings are attributed to each site based upon a set of values described in the Watershed Restoration Technical Circular (WRTC) No. 3 (July 1994). The degree of the hazard is a subjective rating that considers the potential or the actual extent of sedimentation resulting from the sediment source. For example, a landslide that occurred 5 years ago beside a stream would likely have deposited sediments and debris into the watercourse at the time of the event and additional sediment during the next freshet. A field check of the slide may reveal that the headscarp appears to be stable and that the slide track has begun to revegetate with grasses and shrubs. In this instance, the hazard may be rated as a moderate or low hazard rating for potential sedimentation depending on the actual site characteristics. On the other hand, a plugged culvert, road side tension cracks, or road surface erosion may rate as high considering the probability of the event occurring or reoccurring and the volume of sedimentation resulting from it. Hazard ratings range from Low to High.

2.1.3.2 Consequence rating

A consequence rating was assigned to each sediment source to establish risk. Consequence was determined by the severity of the potential damage to social, environmental, and economic values that may be at risk from the hazard. Consequence ratings range from Low to High. Refer to Appendix 6 for the guidelines used to assess the consequence rating of the hazard for this project.

2.1.3.3 Risk rating

Using the ratings established from the hazard and consequence assessment, a risk may be attached to each sediment source site by using the formula outlined in the Ministry of Forests Engineering Manual, Risk Assessment Procedure. Risk ratings will range from Low to Very High. Refer to Appendix 6 for the risk-rating chart applied to this assessment.

2.1.3.4 Priority rating

On the basis of this risk assessment, mitigation or restoration work priorities are then assigned to the sediment source sites. High priority, unless noted otherwise, indicates which sites require remedial action immediately. Low priority sites do not, however,

indicate that the hazard need not be rectified. Rather, low priority sites are those where the point source impact may be relatively low compared to other sites of higher priority. Work priorities are based on the Suggested Guidelines for Assigning Work Sequence Priorities contained in WRTC No. 3, (see Appendix 6). Modifications for this particular project were made as necessary.

2.2 Results

A total of 34 forestry related sediment source sites were identified from the SSS for the Monashee-Railroad watershed. A summary of the sediment source sites identified from the SSS is detailed in Table 1. Each site is shown on the sediment source survey map included in the accompanying map tube.

Table 1 lists all of the sediment sources identified by this survey. The table also presents the hazard, consequence, and risk rating for each site, as well as the watershed priority. An estimate of repair costs for sites not requiring further assessment is included in the table. Sites requiring Level II assessments are also indicated. Details on these last two items are included in Tables 2 and 3, discussed below.

2.3 Prescriptions

Table 2 presents costs for each site identified as requiring a detailed professional assessment. The costs presented in Table 2 are for developing the prescription rather than the cost to physically complete the restorative work.

Table 3 lists all sediment source sites, and presents preliminary cost estimates to mitigate sediment sources that do not require a more detailed assessment. Where prescription cost estimates are given, it is assumed that an individual with a sound knowledge of surface soil erosion and road rehabilitation and deactivation could identify and complete the works required to mitigate the sediment source. This type of person would typically be a road construction or deactivation foreman or experienced road construction or deactivation equipment operator.

2.4 Recommendations

The recommendations presented below outline strategies to effectively reduce sedimentation from the existing resource roads:

1. Complete detailed assessments on sediment source survey sites: 1800, 1801, 1806, 1810, 1814, 1815, 1816, 1817, 1819, 1820, 1823, 1830, 1831, 1833, 1834.
2. Where funding is limited, at a minimum, complete detailed assessments on sediment source survey sites 1801, 1810, 1814, 1816, 1823, 1831, and 1833.
3. It is recommended to complete minor works on all moderate and low priority sites. Since these sites require relatively minor works, the cost to benefit ratio is relatively high. The cumulative impacts of the low priority sites within this watershed may exceed the impacts of one or two of the higher priority sites.

Table 1: Sediment Source Survey Site Information Summary

Site No.	Nature of SS	Sediment Source	Hazard Rating	Conseq. Rating	Risk Rating	Watershed Priority	Prescription Works Estimate	Professional Prescription Required	WRP Eligible
1800	Road	Small debris slide, tension crack upslope, unstable cut and fill slopes.	H	M	H	L	N/A	Yes	No
1801	Road	Water seeping from cutslope. Fill slope failure. Unstable cut and fill slopes.	H	M	H	M	N/A	Yes	No
1802	Road	Plugged culverts.	L	L	L	L	$200	No	No
1803	Road	Debris slump plugged ditch.	H	L	M	M	$1000	No	No
1804		This site eliminated							
1805	Road	Plugged ditch	L	L	L	L	$200	No	No
1806	Road	Wooden box culvert	L	L	L	L	N/A	Yes	Yes
1807	Road	Plugged culvert.	L	L	L	L	$200	No	Yes
1808	Road	Damaged bridge	L	M	M	L	$1000	No	Yes
1809	Road	Slumping of cut slope.	M	L	M	L	$900	No	No
1810	Road/ Stream	Unsafe log stringer bridge.	H	H	VH	H	N/A	Yes	Yes
1811	Road	Small slump on cut slope.	L	L	L	L	$500	No	Yes
1812	Road	Eroding cut and fill slopes. Ditching needed.	L	L	L	L	$1000	No	Yes
1813	Stream	Insufficient culverts.	L	L	L	L	$1000	No	Yes
1814	Road/ Stream	Landslide, unstable cut and fill slopes. Fill slope eroding into stream. Failure will deposit debris into stream.	H	H	VH	H	N/A	Yes	Yes
1815	Road/ Stream	Corduroy road over culvert. Unsafe wood stringer bridge. Bridge has settled on one side.	M	H	H	M	N/A	Yes	Yes
1816	Road/ Stream	Unsafe bridge. Decking rotted. Scour of abutments. Stringers rotting.	M	H	H	M	N/A	Yes	Yes
1817	Road	Landslide. Slump and rockfall on steep cutslope.	M	H	H	M	N/A	Yes	Yes

N/A=not available; see Table 2.

Table 1: Sediment Source Survey Site Information Summary con't

Site No.	Nature of SS	Sediment Source	Hazard Rating	Conseq. Rating	Risk Rating	Watershed Priority	Prescription Works Estimate	Professional Prescription Required	WRP Eligible
1818	Road	Road washed out. Inaccessible beyond by 4wd.	L	L	L	L	N/A	No	Yes
1819	Road	Old slump. Unstable cut and fill slopes. Needs regrading and reseeding.	L	L	L	L	N/A	Yes	No
1820	Road	Debris slide. Pistol-butt trees on slope above scarp.	L	L	L	L	N/A	Yes	No
1821	Road	Steep cutslope may be unstable. Insufficient culverts.	L	L	L	L	$3000	No	No
1822	Road	Erosion on cutslope.	L	L	L	L	$1000	No	No
1823	Road	Landslide. Unstable and eroding cut and fill slopes. Sediment reaching Monashee creek.	H	H	VH	H	N/A	Yes	No
1824	Road	Small erosion on cutslope. No ditches.	L	L	L	L	$1500	No	No
1825	Road	Unstable and eroding cut slope.	L	L	L	L	$1000	No	Yes
1826	Road	Landslide. Unstable and eroding cut slope.	L	L	L	L	$1000	No	Yes
1827	Road	Small slumps have blocked ditch.	L	M	M	M	$500	No	No
1828	Road	Culvert inlet crushed, restricting ditch flow.	L	L	L	L	$500	No	No
1829	Road	Inlet of culvert plugged 50%.	L	L	L	L	$100	No	No
1830	Road	Steep cut slopes raveling.	M	M	M	M	N/A	Yes	No
1831	Road	Erosion on cut and fill slopes.	M	M	M	M	N/A	Yes	No
1832	Road	Landslide. Minor failure of cutslope. Debris on road.	L	L	L	L	$2500	No	No
1833	Road	Tension cracks on fill slope. Road has settled 300mm. Site is well vegetated and dry.	M	M	M	H	N/A	Yes	No
1834	Natural	Landslide. Located on south side of Monashee Creek in undeveloped area. Sediment delivery into Monashee Creek. Site is inaccessible for equipment.	M	H	H	M	N/A	Yes	Yes

N/A=not available; see Table 2.

Table 2: Summary of Cost Estimate for Detailed Prescriptions

Site No.	Watershed Priority	Technical Prescription Estimate (days)	Professional Prescription Estimate (days)	Total ($)
1800	L	0.5	1.5	2,000
1801	M	4	4	8,000
1806	L	0.5	0	300
1810	H	1.5	1.5	2,500
1814	H	2	2	3,000
1815	M	1.5	0.5	2,000
1816	M	1.5	0.5	2,000
1817	M	2	2	3,000
1819	L	1	0.5	2,000
1820	L	1	0.5	2,000
1823	H	3	3	5,000
1830	M	1.5	1.5	3,000
1831	M	1.5	1.5	3,000
1833	H	0.5	0.5	2,000
1834	M	2	2	4,000
Totals	**N/A**	**24**	**21.5**	**$43,800**

Table 3: Summary of Preliminary Cost Estimates For Preliminary Prescriptions

Site No.	Watershed Priority	Works Estimate ($)	Preliminary Prescription
1800	L	N/A	Requires further assessment. Lessen slope angle and revegetate slope.
1801	M	N/A	Requires further assessment. Revegetate, reslope, drainage controls.
1802	L	200	Clean out culvert and armor.
1803	M	1000	Clean out ditch, round scarp, revegetate.
1804	N/A	N/A	Site eliminated.
1805	L	200	Clean out ditch.
1806	L	N/A	Requires further assessment.
1807	L	200	Unplug culvert, clean out.
1808	L	1000	Remove bridge.
1809	L	900	Reslope, reditch, grass seed.
1810	H	N/A	Requires further assessment. Riprap abutments. Upgrade bridge to required standards.
1811	L	500	Reseed slope.
1812	L	1000	Reseed bare slope and ditch. Regrade road during regular maintenance.
1813	L	1000	Install culvert or cross ditch.
1814	H	N/A	Stabilize cut and fill slopes. Construct proper ditches. Widen road.
1815	M	N/A	Requires further assessment. Pull out corduroy road and resurface.
1816	M	N/A	Requires further assessment.
1817	M	N/A	Requires further assessment. Revegetate slope, clear rocks from road.
1818	L	1500	Regrade road surface.
1819	L	N/A	Requires further assessment. Regrade, reseed slope. Clear debris from road.
1820	L	N/A	Requires further assessment. Regrade slope, cut back scarp, reseed slope.
1821	L	3000	Reslope top portion of cutslope for 100m. Install culverts. Grass seed cutslopes.

Table 3: Summary of Preliminary Cost Estimates For Preliminary Prescriptions con't

Site No.	Watershed Priority	Works Estimate ($)	Preliminary Prescription
1822	L	1000	Stabilize cutslope by resloping. Grass seed.
1823	H	N/A	Requires further assessment. Stabilize cut and fill slopes. Hydroseed, riprap, reditch, and widen road surface.
1824	L	1500	Reslope cutslope, ditch. install culvert, and grass seed.
1825	L	1000	Reseed slope, put in cross ditches and ditch.
1826	L	1000	Pull back scarp, revegetate slope, clear road debris.
1827	M	500	Clean out ditch and reseed slope.
1828	L	500	Replace culvert and clean out sump.
1829	L	100	Clean out culvert inlet and outlet.
1830	M	N/A	Requires further assessment. Grass seeding and stabilization. Clean out ditches
1831	M	N/A	Requires further assessment. Resloping, protection of fill slope required. Grass seed cutslope.
1832	L	2500	Clear debris from road. Reseed slope, clear ditches.
1833	H	N/A	Requires further assessment.
1834	M	N/A	Requires further assessment. Natural Failure.

3.0 ACCESS MANAGEMENT MAP

3.1 Background

The objective of the Access Management Map (AMM) component of this project is to recommend preliminary deactivation strategies for all roads within the project area. The AMM consisted of five phases prior to submission of a final map that indicates those roads requiring deactivation works: 1) office review and preliminary recommendations; 2) input from all stakeholders and public who wished to voice their concerns regarding access to the watershed; 3) lead proponent review of the preliminary recommendations, along with stakeholder and public input; 4) revision of the preliminary maps as required; 5) final review by Ministry of Forests.

3.2 Preliminary Deactivation Strategies

After an office review and completion of the SSS, preliminary road deactivation strategies were proposed and entered onto an Access Management Map. The access strategies were based on one of three options: 1) deactivation to a specified level; 2) maintain road; and 3) leave road alone, work will do more environmental harm than good. Road status maps obtained from Ministry of Forests and Forest Development Plans from Riverside Forest Products containing a list of interest groups and stakeholders were used in this process. Letters were mailed out to each of the stakeholders requesting input regarding individual comments and concerns with respect to access and road deactivation in the watershed. A copy of the form letter mailed out is attached in Appendix 7.

3.3 Stakeholder Consultation

The following is a list of the various agencies, groups, and individuals who were contacted, along with a summary of their input into the preliminary draft AMM.

3.3.1 Riverside Forest Products Ltd., Armstrong Division

Contacts: To include Bell Pole and BJ Carney. See Appendix 8 for Attendance list.

- Silviculture: needs 4wd access into any areas where they have obligations.

- Silviculture: CP 227 requires 4wd access.
- Silviculture: Close to site 1820, road removed from this point on, no access.
- Silviculture: 4wd access needed up Dallas creek road to CP236-1.
- Engineering: New bridge access for CP237, will change RO1809. Should be temporarily deactivated.

3.3.2 Spallumcheen Indian Band

Contact: See Appendix 8 for attendance list

- Indicated that more roads should be permanently deactivated to limit access.
- Wildlife and water quality are of concern.
- Would like to see clearcuts and range pastures away from creeks.

3.3.3 Ranchers

Contact: Don Yaremchio

- Indicated that waterbars are difficult to cross.
- Airport road should be accessible by 2wd.

Contact: Carston Peterson

- Indicated that he has range pastures in the Currie Creek area, not in the Monashee watershed.
- No concerns were noted.

Contact: Gerry Neimi

- Attempts were made by telephone and letters mailed out, but no response.

Contact: Kathy Sanborn 547-[redacted]
6 -6719

- Horseback and ATV are mainly used for their access. No concerns were noted.

3.3.4 Okanagan Indian Band

Contacts: Randy Marchand, Lloyd Ogenhin

- Want to be informed of road deactivation.
- Interested in cutblocks for range pasture.
- Concern about access for hunting – woodcutting.

3.3.5 Tolko Industries Ltd., Lavington Division

Contact: Ian Widdows

- Inches Road, change to Temporary and 2wd.
- Monashee Pass roads, change Spurs to Semi-permanent.

3.3.6 Ministry of Forests, Vernon District

Contacts: See Appendix 8 for attendance list

- Forest Health: No permanent deactivation in areas near standing timber prone to blow down or bugs, unless there is an overriding environmental issue. See comment sheet in Appendix 4 from Eric Goodman.
- Silviculture: Any revegetation needs a backlog silviculture prescription.
- Silviculture: 4wd access through CP227-1, all around this block.
- Recreation: Access to Beavin Trail, Monashee Trail, Pinnacle Lake Trail, and Vista Pass Trail to be 2wd.
- Range: Consider leaving stock water areas for cattle, catch basins below culverts.

3.3.7 Guide

Contact: Bernie Jeager

- Indicated that he would be interested in viewing the AMM, but would call back and inform us if he would have time to view.

3.3.8 Trapper

Contacts: WJ. Whitecotton

- Indicated less access the better.
- Snowmobile access needed for Yeoward Mountain, Barnes Creek trail (Vista pass), Pinnacle Lake trail, Monashee/Berger trail.

Contact: Carl Werner

- Attempts were made by telephone and letters mailed out, but no response.

3.3.9 Ministry of Employment and Investment

Contact: Bruce Madu

- No current mineral or placer activity in watershed.

3.3.10 I Care

Contact: Wayne Cunneyworth

- No particular problems noted. See attached comment sheet in Appendix 4.

3.3.11 North Okanagan Naturalist Club

- Attempts were made by telephone and letters mailed out, but no response.

3.4 Public Consultation

Public consultation for the AMM was included as a component of this project. Advertisements were placed in the classified sections of the local newspapers to notify the public of the project, the objectives, address and contact person to voice their comments and concerns regarding road deactivation within the watershed. Advertisements were placed as follows:

1. The Morning Star – August 8 th
2. The Morning Star – August 10th
3. The Morning Star – August 13 th

A copy of the advertisement is included in Appendix 9 for reference.

Viewing of the preliminary draft AMM was made available to the public from August 25th to August 29th, at the Vernon Forest District office.

3.5 General Public Comments

Refer to Appendix 10 for individual written comments.

3.6 Addressing Stakeholder and Public Comments

No conflicting access concerns were noted from either the stakeholders or the public. Any changes that were suggested were agreeable and workable to all that viewed the Access Management Map. Comments were received from the public at the open house only. No other public comments resulted from having the Access Management Map available for viewing at the Vernon Forest District office.

3.7 Recommended Access Strategies

Table 4 is a summary of the access management strategies based upon a review of the existing road network, and considering current and future access requirements for road users within the project area. Appendix 11 includes a road inventory and details of recommended access strategies for each resource road in the watershed. The accompanying map tube contains the Access Management Maps.

Table 4: Monashee/Railroad Access Management Strategy Summary (Note: all roads are located within the Vernon Forest District)

Road System	Kilometers			Recommended Repairs on Road System (Km's)
	Permanent	Semi-Permanent	Temporary	
South Fork Main	0	0	0	0
Inches	0	1.4	7.8	4
Monashee Pass	0	0.5	5.2	0.95
Dallas	1.3	0.3	0.6	0.01
St. Paul	0.5	3.8	0	0.3
Kettle Spur	0	0	0	0.01
Spur 1	0	1.2	0	0
Spur 2	0	1.5	0	0
Spur 3	0	0.5	0	0.01
Spur 4	12.3	12.9	5.2	0.03
Spur 5	2.1	0.3	0	6.9
Spur 6	0	0	0	0
Spur 7	0	0	1	0.04
Spur 8	0	0	4.2	1.4
Spur 9 (Yeoward)	4.7	5.8	10.1	0
Spur 10	0	2	0	0.03
Spur 11	0.2	13.15	3	0
Spur 12	0	1.2	0	0
Old Monashee Pass	0	5.5	0	0
Total	**20.9**	**45.75**	**21.8**	**13.68**

186 km of road was surveyed under a Level 1 Road Condition Assessment Report.

Strategy #1 - Maintained roads - 48.2 km

Strategy #2 - Deactivated roads - 93.0 km

Strategy #3 - Leave road as is - 45.0 km

5.0 REFERENCES

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6.0 RAILROAD/MONASHEE WATERSHED MAPS

Map 1: Sediment Source Survey Road Related Components (Sheets 1 to 4)

Map 2: Sediment Source Survey Gully, Landslide and Hill Slope Assessment (Sheets 1 to 4)

Access Management Plan Overview

IWRP Access Management Plan (Sheets 1 to 4)

Appendix 5: Field Data Sheets, Site Photographs, Landslide/Gully Inventory and Level 2 Assessment Requirements

Site number: 1800

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Start of South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.143

UTM: Northing 390073.814
Easting 5559853.504

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P24

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Failure could fill ditch and partly block road.

Comments:

Small debris slide. Ensure that ditch is maintained. Tension crack upslope. Steep cut slope 85%.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
H	M	H	L

Prescription:

Lessen slope angle and revegetate slope.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.04

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1801

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): 2.1 km South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.144

UTM: Northing 390832.532
Easting 5559588.982

Part 2: Roads, Hillslopes and Gullies

Road length: 1100 m

Aerial overview date:

35 mm photo: R2, P20,21,22,23

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☒ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☒ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Failure could block ditch and cover road. Potential for large failure to reach stream.

Comments:

1000m section requires detailed assessment. Creep evidence of past failures. Water seeping out of cutslope. Culvert partially plugged on hill. Pistol-butt trees. Failure of fillslope 100m before GPS to 900m after, possible road or block above this road.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
H	M	H	M

Prescription:

Revegetate, reslope, drainage controls.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 2.0

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1801

Site 1801

Site number: 1802

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): 3.25 km South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 392677.329
Easting 5559298.033

Part 2: Roads, Hillslopes and Gullies

Road length:

35 mm photo:

Aerial overview date:

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☒ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Comments:

Culvert not visible. All plugged culverts, regardless of risk or priority, must be done.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Assuming culvert exits, clean it out and armour.

Prescription estimate (no level II req): $200

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1803

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): 3.42 km O.D. South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 392800.608
Easting 5559324.746

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P19

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☒ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Water will flow over road.

Comments:

Debris slump plugged ditch. Several sites had previous slumping/sliding activity; however, with reseeding, they appear to be stable. Money spent to fix these areas would be redundant. Glacial Lacustrine noted in areas also.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
H	L	M	M

Prescription:

Clean out ditch, round scarp, revegetate. Excavator 8 hrs, $1000

Prescription estimate (no level ll req):

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.02

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1804

Part 1: Hazard Location

Watershed name:

Site location (main, branch, spur):

This site eliminated.

Map and air photo reference:

1:20,000 forest cover:

1:5,000 air photo:

UTM:

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo:

Site inspection date:

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☐ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Comments:

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)

Consequence rating: (H,M,L)

Risk rating: (VH,H,M,L)

Watershed priority: (H,M,L,N)

Prescription:

Prescription estimate (no level II req):

Level II required: ☐ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation:

Area of hillslope requiring rehabilitation (ha.)

Access ☐ Lowbed ☐ 2WD ☐ 4WD ☐ ATV ☐ Trail

Site number: 1805

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): 12.98 km local, 12.88km O.D., South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94089 No.106

UTM: Northing 400902.003
Easting 5560803.615

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo:

Site inspection date: Oct 17/96

Surficial material:

☒ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☒ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Water would erode road surface.

Comments:

Ditch filled with weathered bedrock (shale).

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Clean out ditch. $200 (grader or excavator), $0.00 if caught during regular maintenance.

Prescription estimate (no level II req): $200

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1806

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): 18.3 km local, 18.35 km O.D., South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L029

1:5,000 air photo: 30BCC94098 No.109

UTM: Northing 404808.744
Easting 5563256.044

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo:

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☒ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☒ Wooden box culvert

Consequence description:

Culvert may collapse, causing road washout.

Comments:

Wooden box culvert to be checked, plugged with willow and underbrush at inlet. 16.8 km - revegetation of cutslope and proper ditch blocks working. Isolate insignificant small debris slides. Culvert may be rotten and require replacement with a CMP. Certain roads assessed are inpassable/stable condition; however, if logging commenced, these roads would require upgrading. ie. proper ditches, culverts.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1807

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): 20.7 km local, 20.45 km O.D., South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L029

1:5,000 air photo: 30BCC94098 No.109

UTM: Northing 406942.633
Easting 5563765.994

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo:

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☒ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Water ponding and crossing road.

Comments:

Culvert plugged.Work should be done, inspite of how low priority rating. Note: End of road is 20.9 km O.D., 21.0 km local. Start of Monashee/Berger trail.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Unplug culvert.

Prescription estimate (no level II req): $200

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1808

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): South Fork Spur 1, 19.15 km local (start), 200m

Map and air photo reference:

1:20,000 forest cover: 82L029

1:5,000 air photo: 30BCC94098 No.109

UTM: Northing 406025.648
Easting 5563548.282

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo:

Site inspection date: Oct 17/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☒ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☒ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Bridge may collapse under weight of vechicle or under its own weight, putting debris in channel.

Comments:

Wooden bridge rotted through.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	M	M	L

Prescription:

Replace bridge if access required. Level II then required.
Remove bridge if access not required.

Prescription estimate (no level II req): $1000 bridge removal

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1809

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4 (off South Fork FSR), 16.95 km local, 16.1 km O.D, (Pinnacle Lake. Vista Pass Rd)

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94098 No.108

UTM: Northing 404258.811
Easting 5560645.203

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P17, 18

Site inspection date: Oct 18/96

Surficial material:

☒ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☒ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Small erosion on cutslope, will probabley plug ditch and 50% of road surface.

Comments:

Pistoll-Butt trees evident. Small slumping. This work should be undertaken if logging is to take place.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	L	M	L

Prescription:

Minor reslope. Grass seed. Reditch.

Prescription estimate (no level II req): $ 900

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.03

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1809

Site number: 1810

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4-2, 22.0 km local, 21.9 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94158 No.110

UTM: Northing 407434.651
Easting 5560163.650

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P15,16

Site inspection date: Oct 18/96

Surficial material:

☒ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☒ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☒ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Bridge could possibly collapse under any heavy loads. Continued scour at abutments could lead to failure.

Comments:

Old log stringer bridge needs erosion protection for abutments (riprap). Stringers and abutments show some rot. Will need to be upgraded to proper standards before hauling logs across. Have bridge engineer assess bridge strength.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
H	H	VH	H

Prescription:

Riprap abutments. Possible upgrade bridge to proper standards.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1810

Site number: 1811

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4-3, 17.0 km local, 0.15 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94098 No.108

UTM: Northing 403926.474
Easting 5560746.207

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P13,14

Site inspection date: Oct 18/96

Surficial material:

☒ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Further slumping could plug ditch.

Comments:

Small slump, area beneath scarp requires revegetation.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Reseed slope.

Prescription estimate (no level II req): $ 500

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.01

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1812

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4-3, 17.65 km local, 0.5 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94098 No.108

UTM: Northing 404102.312
Easting 5560399.461

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P11,12

Site inspection date: Oct 18/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☒ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Debris will impede ditch water flow.

Comments:

Bare slope with fine materials, ditch requires work. 100m of ditching and reseeding, to be continued to bridge. Road has been temporarily deactivated.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Reseed bare slope and reditch. Road should be regraded during regular maintenance.

Prescription estimate (no level ll req): $ 1000

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.01

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1812

Site number: 1813

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4-3, 20.0 km local, 3.0 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94089 No.155

UTM: Northing 405797.930
Easting 5558745.218

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo:

Site inspection date: Oct 18/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☒ Stream
☐ Block road ☐ Block landing ☐ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☒ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Water ponding in ditch (weakens subgrade strength).

Comments:

Culvert required.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Install culvert or crossditch if no logging plans.

Prescription estimate (no level II req): $ 1000

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1814

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4-3, 20.05 km local, 3.1 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94089 No.155

UTM: Northing 405821.489
Easting 5558691.975

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P6,7,8,9,10

Site inspection date: Oct 18/96

Surficial material:

☒ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☒ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Road is not safe. Will slide into stream.
Fill slope eroding onto roadway. Pistol-butt trees on scarp above cutslope. Failure will deposit debris in stream.

Comments:

Unstable fill/cut slopes. Will require a fair amount of hoe work plus some sort of riprap against stream bank. Road is very narrow (Too narrow for logging truck).

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
H	H	VH	H

Prescription:

Stabilize cut and fill slopes. Construct proper ditches. Widen road.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.02

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1814

Site 1814

Site number: 1815

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 4-3-1, 21.41 km local, 0.7 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94089 No.155

UTM: Northing 405601.942
Easting 5558305.010

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P5

Site inspection date: Oct 18/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☒ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☒ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Possible washout of culvert/bridge if further erosion occurs.

Comments:

Fill and corduroy road over culvert. Road has settled on downstream side. Level II should check condition of culvert and fill above culvert.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	H	H	M

Prescription:

Pull out corduroy road to resurface.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1815

Site number: 1816

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 5 (off south fork FSR), 13.7 km local, 0.4 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94098 No.106

UTM: Northing 401698.568
Easting 5560938.331

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P2,3,4

Site inspection date: Oct 18/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☒ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☒ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Scour could lead to failure of bridge and debris in stream.

Comments:

Decking of wooden bridge rotting. Scour of left abutment (looking d/s). Stringers rotting also.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	H	H	M

Prescription:

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1816

Site 1816

Site number: 1817

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 5 (off South Fork FSR), 14.1 m local, 0.8 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L019

1:5,000 air photo: 30BCC94098 No.106

UTM: Northing 401990.237
Easting 5560892.012

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R2, P1, R3, P20,21,22,23,24

Site inspection date: Oct 18/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Further rockfall could block road, debris could block road and possibly enter stream.

Comments:

Slump (+ 5 years old), rockfall on steep cutslope. Pistol-Butt trees above scarp.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	H	H	M

Prescription:

Revegetate slope, clear rocks from road.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.1

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1817

Site 1817

Site 1817

Site number: 1818

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 6, 0.6 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94158 No.117

UTM: Northing 401990.761
Easting 5560898.666

Part 2: Roads, Hillslopes and Gullies

Road length:

35 mm photo:

Aerial overview date:

Site inspection date: Oct 18/96

Surficial material:

☐ Bedrock ☐ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☒ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Road will require regrading before logging use.

Comments:

Road eroded. Deep tracks created in roadway. Distance of approx 500m before road becomes inaccessible by 4wd.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Prescription estimate (no level II req): N/A

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☒ ATV ☐ Trail

Site number: 1819

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 8, 8.2 km local, 1.7 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94158 No.119

UTM: Northing 394019.661
Easting 5560417.401

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R3, P18,19

Site inspection date: Oct 18/96

Surficial material:

☒ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Further slumping or debris slides could partly block road.

Comments:

Old slump, debris channel, some pistol-butt trees on uphill and downhill side. Two sections of slope requiring reseeding and some regrading

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Regrade/reseed slope, clear road.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.02

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1819

Site number: 1820

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 8 (off South Fork FSR), 8.5 km local, 2.0 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94158 No.119

UTM: Northing 394098.953
Easting 5560430.135

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R3, P15,16,17

Site inspection date: Oct 18/96

Surficial material:

☒ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Further debris sliding could partly block road.

Comments:

Pistol-butt trees on slope above scarp. Debris slide.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Regrade slope, cut back scarp, reseed slope.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.04

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1820

Site number: 1821

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 9 - Yeoward Rd, 3.2 km local, 0.5 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 392758.390
Easting 5559094.132

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R3, P14

Site inspection date: Oct 19/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☒ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Ditch and small part of road could become blocked due to ravalling/sluffing of cutslope.

Comments:

Cutslope steep at the top of cut. Minor problem, but could pose a problem in future. Very few culverts present for the first 1.1 km of Yeoward rd.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Reslope the top portion of cutslope for about 100 metres. Install some culverts along the first 1.1 km of Yeoward rd. Grass seed cutslopes.

Prescription estimate (no level II req): $ 3000

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.01

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1822

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 9 - Yeoward Rd, 4.4 km local, 1.7 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 393133.611
Easting 5558893.050

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R3, P12,13

Site inspection date: Oct 19/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☐ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Ditch will most likely become plugged after heavy rains and in springtime.

Comments:

Erosion on cutslope, small but will require some routine maintenance.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Stabilize cutslope by resloping or other measures. Grass seed.

Prescription estimate (no level II req): $ 1000

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.01

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1823

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 393250.829
Easting 5558924.054

Site location (main, branch, spur):

Spur 9 - Yeoward rd
4.5 km local
1.8 km O.D.

Part 2: Roads, Hillslopes and Gullies

Road length:

35 mm photo: R3, P5,6,7,8,9,10.11

Aerial overview date:

Site inspection date: Oct 19/96

Surficial material:

☐ Bedrock ☐ Coarse till ☒ Glacial fluvial ☒ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2	☐ Undersized cross-drain culverts	☐ Tension cracks on road
☐ If Gully fillout Table 3	☐ Natural drainage blocked/diverted	☐ Fill/debris in channels
☐ Plugged ditches/no ditches	☐ Ditchline/road surface erosion	☐ Beaver dams
☐ No ditch blocks	☒ Unstable or eroding cut/fill slopes	☐ Cattle usage
☐ Ditch water flowing directly into streams	☐ Washout of road/bridge	☐ Organic material & stumps supporting sidecast fill
☐ Plugged/damaged culverts	☐ Damaged/unsafe bridge	☐ Wooden box culvert
☐ Insufficient cross-drain culverts	☐ Landslide tracks	

Consequence description:

Road could become blocked from cutslope failure.
Fillslope is also sliding/eroding.
Potential hazard to road traffic.

Comments:

This area has been a problem in the past. Monashee creek is very close to this site, and has a good chance of sediment reaching it.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
H	H	VH	H

Prescription:

Stabilize cut and fill slopes. Hydroseed. Widen road surface and reditch. Riprap.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: 150m

Area of hillslope requiring rehabilitation (ha.) 0.3

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1823

Site 1823

Site 1823

Site number: 1824

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94049 No.179

UTM: Northing 391870.424
Easting 5555341.564

Site location (main, branch, spur):
Monashee Pass Spur 1 rd
1.9 km local
1.5 km O.D.

Part 2: Roads, Hillslopes and Gullies

Road length:

35 mm photo:

Aerial overview date:

Site inspection date: Oct 19/96

Surficial material:

☒ Bedrock ☐ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☒ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:
Will most likely plug part of road.

Comments:
Small erosion on cutslope.
No ditches present.
This road follows Hydroline.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:
Reslope the cutslope.
Ditch
Grass seed
install culvert

Prescription estimate (no level II req): $ 1500

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.01

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1825

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Beaven Rd (Spur 11), 8.2 km local, 8.1 km O.D.

Map and air photo reference:

1:20,000 forest cover:

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 391734.486
Easting 5560131.608

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R3, P4

Site inspection date: Oct 20/96

Surficial material:

☐ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Failure could partly block road.

Comments:

Bare slope, pistol butt trees evident.
Some crossditches. Road is temporarily deactivated. Section approx 100m long.
Height of slope is less than 10m.
Till material

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Reseed slope, put in crossditches and ditching.

Prescription estimate (no level II req): $ 1000

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.1

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1826

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Spur 11-4, 9.0 km local, 9.1 km O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94158 No.121

UTM: Northing 391951.296
Easting 5560362.102

Part 2: Roads, Hillslopes and Gullies

Road length:

35 mm photo:

Aerial overview date:

Site inspection date: Oct 20/96

Surficial material:

☐ Bedrock ☒ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2	☐ Undersized cross-drain culverts	☐ Tension cracks on road
☐ If Gully fillout Table 3	☐ Natural drainage blocked/diverted	☐ Fill/debris in channels
☐ Plugged ditches/no ditches	☐ Ditchline/road surface erosion	☐ Beaver dams
☐ No ditch blocks	☒ Unstable or eroding cut/fill slopes	☐ Cattle usage
☐ Ditch water flowing directly into streams	☐ Washout of road/bridge	☐ Organic material & stumps supporting sidecast fill
☐ Plugged/damaged culverts	☐ Damaged/unsafe bridge	☐ Wooden box culvert
☐ Insufficient cross-drain culverts	☐ Landslide tracks	

Consequence description:

Further erosion could block road.

Comments:

Small slough partly covered road. Pistol-butt trees above scarp.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Pull back scarp, revegetate slope, clear road.

Prescription estimate (no level II req): $ 1000

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.01

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1826

Site number: 1827

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): St.Paul Rd (off Hwy 6), 0.5 km local and O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 392312.120
Easting 5557233.185

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R4, P18,19

Site inspection date: Oct 21/96

Surficial material:

☒ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☒ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Plugged ditch will force water on to road surface.

Comments:

2 minor sloughs have blocked ditch. Some pistol-butt trees on slope above scarp. Slopes < 3m high.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	M	M	M

Prescription:

Clean out ditch and reseed slope.

Prescription estimate (no level ll req): $ 500

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.005

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1828

Part 1: Hazard Location

Watershed name: Railroad/Monashee

Site location (main, branch, spur): St.Paul Rd, 1.15 km local and O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 392303.997
Easting 5557817.239

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R4, P17

Site inspection date: Oct 21/96

Surficial material:

☐ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☒ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Water ponding will weaken slope.

Comments:

Culvert inlet crushed. Till material.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Replace culvert and clear sump of debris.

Prescription estimate (no level II req): $ 500

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1829

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): St. Paul Spur 1 Junction at 2.4 km on St.Paul Rd

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94089 No.145

UTM: Northing 392811.519
Easting 5557846.870

Part 2: Roads, Hillslopes and Gullies

Road length: 0.4 km

Aerial overview date:

35 mm photo:

Site inspection date: Oct 21/96

Surficial material:

☒ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☐ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☒ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Flow reduced. Water could build up at base of slope or go over road.

Comments:

Plugged culvert inlet (50%). Water ponding at inlet
Road 400m long.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Clean culvert inlet and outlet.

Prescription estimate (no level II req): $ 100

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site number: 1830

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Dallas Rd
4.3km local and O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94049 No.178

UTM: Northing 393865.799
Easting 5555519.773

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R4, P16

Site inspection date: Oct 21/96

Surficial material:

☒ Bedrock ☒ Coarse till ☒ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Further ravelling may block road.

Comments:

Steep slopes ravelling. No ditches. Stretch of approx 200m around switchback (from 4.1 to 4.3 km). Till material present.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	M	M	M

Prescription:

Seeding/stabilization required. Ditches should be dug/cleared out.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) N/A

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1830

Site number: 1831

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94049 No.179

UTM: Northing 393295.170
Easting 5555864.853

Site location (main, branch, spur):
Dallas Spur 2, 2.6 km local and O.D.

Part 2: Roads, Hillslopes and Gullies

Road length:

35 mm photo: R4, P13,14,15

Aerial overview date:

Site inspection date: Oct 21/96

Surficial material:

☐ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:
Further erosion on fill slope could cut into road.
Cutslope erosion could block road.

Comments:
Erosion on cut and fill slopes. Steep slopes 5-10 m high, 75 m segment.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	M	M	M

Prescription:
Resloping, protection of fill slope required. (armouring).
Reslope/seed cutslope. Possibly drainage control required also.

Prescription estimate (no level II req):

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 0.08

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1831

Site 1831

Site number: 1832

Part 1: Hazard Location

Watershed name: Monashee/Railroad

Site location (main, branch, spur): Dallas Spur 2, 2.9 km local and O.D.

Map and air photo reference:

1:20,000 forest cover: 82L018

1:5,000 air photo: 30BCC94049 No.179

UTM: Northing 393207.445
Easting 5555602.404

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R4, P12

Site inspection date: Oct 21/96

Surficial material:

☐ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☐ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☒ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Further erosion and road blockage may occur.

Comments:

Minor failures next to road - debris in road.
Blow down and logs on scarp.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
L	L	L	L

Prescription:

Clear debris from road, reseed slope. Clear ditches. Possibly culverts or crossditches required.

Prescription estimate (no level II req): $ 2500

Level II required: ☐ Yes ☒ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation:

Area of hillslope requiring rehabilitation (ha.) 0.1

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1832

Site number: 1833

Part 1: Hazard Location

Watershed name: RR./Monashee

Site location (main, branch, spur): 8.6 Km South Fork FSR

Map and air photo reference:

1:20,000 forest cover: 82L.018

1:5,000 air photo: 30BCC94158 No.119

UTM: Northing 397200
Easting 5560000

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R 15, p 19-22

Site inspection date: June 12/97

Surficial material:

☐ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☒ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☐ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☒ Road ☐ Other...

Hazard type:

☐ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☒ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

25% of road width has dropped approxiamately 12 ", making it unsafe for traffic.

Comments:

Tension crack on fill slope has settled about 12" but now seems fairly stable. No evidence of water nearby or at the toe of the fill slope, site is very dry at present. Lots of vegetation noticed on fill slope.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	M	M	H

Prescription:

Import fill material and place/compact to bring bring up to road grade. Control surface drainage by insloping the road at this point. Grass sedd all disturbed areas.

Prescription estimate (no level ll req): N/A

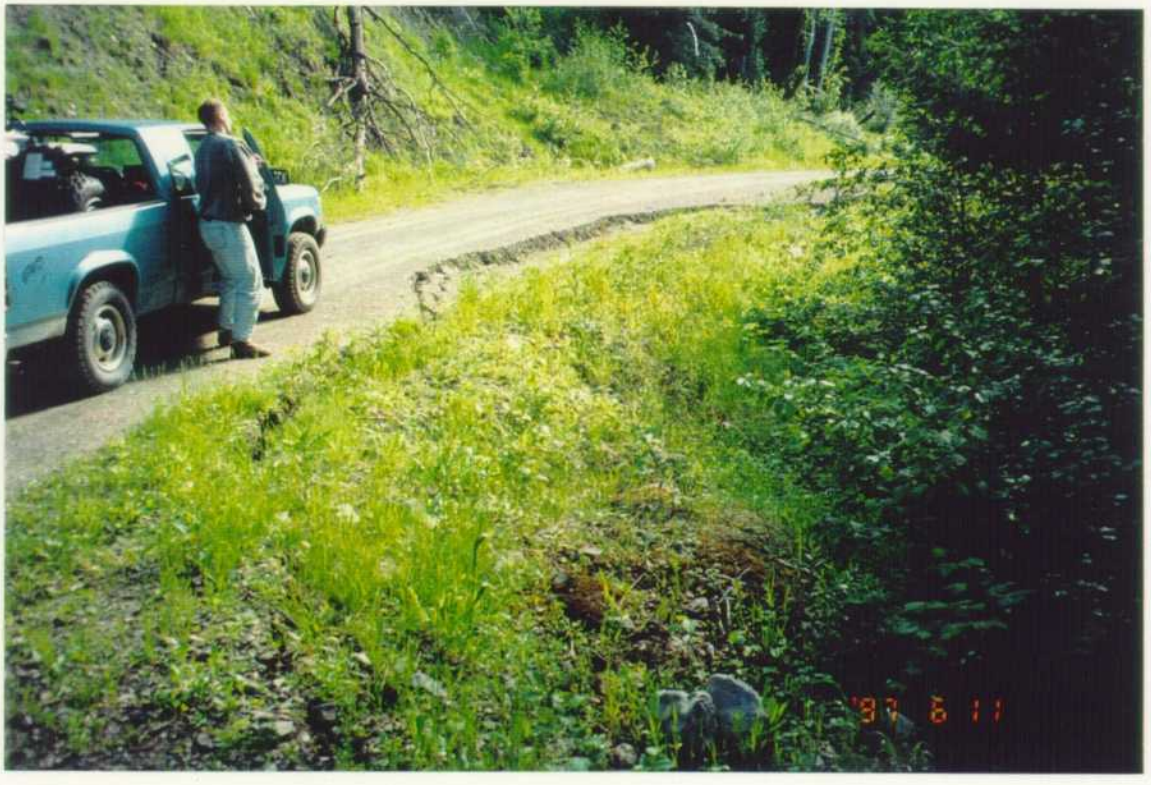
Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: 50 m

Area of hillslope requiring rehabilitation (ha.) .02

Access ☐ Lowbed ☐ 2WD ☒ 4WD ☐ ATV ☐ Trail

Site 1833



Site 1833

Site number: 1834

Part 1: Hazard Location

Watershed name: RR/Monashee

Site location (main, branch, spur): 6.7 Km Spur 8 (Next to Monashee Creek across from South Fork FSR)

Map and air photo reference:

1:20,000 forest cover: 82L.018

1:5,000 air photo: 30BCC94158 No.120

UTM: Northing 395200
Easting 5559000

Part 2: Roads, Hillslopes and Gullies

Road length:

Aerial overview date:

35 mm photo: R 15, p17, 18

Site inspection date: June 12/97

Surficial material:

☐ Bedrock ☒ Coarse till ☐ Glacial fluvial ☐ Lacustrine
☐ Colluvial ☒ Fine till ☐ Fluvial ☐ Unknown

Nature of hazard:

☒ Natural ☐ Block slope ☐ Block gully ☐ Stream
☐ Block road ☐ Block landing ☐ Road ☐ Other...

Hazard type:

☒ If Landslide fillout Table 2
☐ If Gully fillout Table 3
☐ Plugged ditches/no ditches
☐ No ditch blocks
☐ Ditch water flowing directly into streams
☐ Plugged/damaged culverts
☐ Insufficient cross-drain culverts
☐ Undersized cross-drain culverts
☐ Natural drainage blocked/diverted
☐ Ditchline/road surface erosion
☐ Unstable or eroding cut/fill slopes
☐ Washout of road/bridge
☐ Damaged/unsafe bridge
☐ Landslide tracks
☐ Tension cracks on road
☐ Fill/debris in channels
☐ Beaver dams
☐ Cattle usage
☐ Organic material & stumps supporting sidecast fill
☐ Wooden box culvert

Consequence description:

Possible sediment delivery to fish bearing stream.

Comments:

These slide have been present for some time. Located on south side of Monashee Cr. in undeveloped area.

Risk assessment and Level II requirements:

Hazard rating: (H,M,L)	Consequence rating: (H,M,L)	Risk rating: (VH,H,M,L)	Watershed priority: (H,M,L,N)
M	H	H	M

Prescription:

N/A

Prescription estimate (no level II req): N/A

Level II required: ☒ Yes ☐ No ☐ If yes go to table 5

Length of road requiring deactivation or rehabilitation: N/A

Area of hillslope requiring rehabilitation (ha.) 1.8

Access ☐ Lowbed ☐ 2WD ☐ 4WD ☐ ATV ☐ Trail

Site 1834

TABLE 1: LANDSLIDE INVENTORY AND REHABILITATION APPROACHES

Watershed/ Main Road: Monashee/Railroad

Slide or Flow (i.d.ref#)	Approx Date of Failure	Area (ha)	Type of Failure [1]	Initiation Point [2]	Surficial Materials [3]	Sediment Delivery [4]	Current Revegetation (%)	Detailed Assessment Needed?	Rehabilitation: general method(s) or approach [5]	Rehabilitation: priority and rationale [6]
1800	1996	0.04	OSSF	steep cut above rd	GF	OS	60%	yes	scarp pullback, lessen slope	L
1801	active/?	0.2	OSD/OSS	unstable cutslope	T,GF	OS	80%	yes	scarp pullback, lessen slope	M
1814	1994	0.02	OSSF	Road shoulder	B,C	OS	20%	yes	Stabilize Cut/Fill slopes, Widen Road, Ditch	H
1817	active	0.1	OSD/OSS/RS	unstable cutslope	C,GF	OS	30%	yes	reveg	H
1819	active	0.02	OSS/RS	unstable cut and fill slope	C,GF,B	OS	10%	yes	reveg	M
1820	active	0.04	OSS/RS	unstable cutslope	C,GF,B	OS	10%	yes	reveg	M
1823	active	0.3	OSD	cut & fill slopes	GF,FT,L	OS	5%	yes	hydroseed,scarp pullback, reveg	H
1826	active	0.02	OSD/OSS	unstable cutslope	CT,GF	OS	5%	no	seed,scarp pullback	L
1827	1996	0.01	OSS/OSD	unstable cutslope	T,B	OS	50%	no	reseed, clean ditch	M -river
1832	1995	0.1	OSSF	Road shoulder	CT	OS	20%	no	Clear debris on Road, reseed, clear ditches	L
1834	1992	1.8	OSDF	Center of vegetated area	CT, FT	Stream Channel	15%	Yes	grass seed, stabilize slopes	M, no current threat to traffic but fish stream
TOTAL THIS PAGE		2.65								

Notes:

[1] Types: open slope deep failure (slump & earthflow) vs. open slope shallow failure (debris slide/avalanche) vs. channelized debris flow/torrent vs bedrock failure (rock slide)

[2] Initiation: natural forest vs. road or landing (fill or sidecast material) vs. within harvested block vs. block boundary (possible windthrow)

[3] Surficial Materials: based on geology/terrain/soils report or map, with a few field checks.

[4] Sediment Delivery: stream channel at valley bottom vs. floodplain or riparian area in valley flats vs. gully on hillslope vs. open slope

[5] Examples: slope rounding/scarp pullback, check dams, log structures, berm with sediment basin, controlled blasting, dryseeding, hydroseeding, biotechnical protection (livestaking, brush layering, wattling),conifer planting.

[6] Priority: Assign a rating (H,M,L,N), based on total area, sediment delivery to stream, degree of revegetation and visual impacts

TABLE 2: GULLY INVENTORY AND ASSESSMENT RECOMMENDATIONS

Watershed/ Main Road: Monashee/Railroad

Gully (i.d.ref.#)	Number of Road Crossings (list i.d.#'s)	Length in Cutblock (m)	Width [1] mid-slope lower slope (m)	Water Flow & Debris Transport Potential [2]	Sediment Sources & Debris Loads [3]	Sediment Delivery [4]	Detailed Assessment Needed?	Remedial measures [5]
			No Gullies in Project Area					
TOTAL THIS PAGE								

Notes:

[1] Bankful width as observed at road crossing or in cut block, representative of mid-slope and lower slope locations.

[2] Preliminary evaluation of contributing drainage area, channel gradient and width, bed material & evidence of sediment/debris transport - state key factors for High potential.

[3] Preliminary evaluation of upslope sediment sources or potentially unstable areas, plus soil exposures/sediment deposits and debris loads on gully sidewalls and in-channel - state key sources for High hazard.

[4] Evaluate potential for sediment delivery to downstream fish habitat, water supply or significant water resources; state rationale (e.g. location of previous deposition fan, width of valley flat or mid-slope bench, etc.).

[5] Remedial measures: none (leave as is), selectively clean (remove small and unstable woody debris), seed and/or plant sidewalls, need site specific prescription/design for road crossing, etc.

TABLE 3: REQUIREMENTS, TIME SCHEDULE AND COST ESTIMATE FOR DETAILED ASSESSMENTS/ PRESCRIPTIONS

Watershed/ Main Road: Monashee/Railroad

Road, Landslide, &/or Gully (i.d.#'s) [1]	Summary of Problems	Road length needing deact. (km)	Slope area needing rehab. (ha)	Slope specialist (PEng. or PGeo.) needed?	Revegetation specialist (RPBio., RPF.,PAg., etc.) needed?	Estimated person-days for Level 2 (professional)	Estimated person-days for Level 2 (technical)	Estimated Cost for Level 2 ($)
1831	ravelling cut & fill slopes	N/A	0.3	yes	yes	1.5	1.5	3000
1833	tension cracks on fill slope	50 m	0.02	yes	no	0.5	0.5	2000
1834	natural slides into Monashee Creek	N/A	1.8	yes	yes	2	2	4000
TOTAL THIS PAGE		50	2.12			4	4	9000

Notes:

[1] See "Maps" for site locations

[2] N/A=not applicable

TABLE 3: REQUIREMENTS, TIME SCHEDULE AND COST ESTIMATE FOR DETAILED ASSESSMENTS/ PRESCRIPTIONS

Watershed/ Main Road: Monashee/Railroad

Road, Landslide, &/or Gully (i.d.#'s) [1]	Summary of Problems	Road length needing deact. (km)	Slope area needing rehab. (ha)	Slope specialist (PEng. or PGeo.) needed?	Revegetation specialist (RPBio., RPF.,PAg., etc.) needed?	Estimated person-days for Level 2 (professional)	Estimated person-days for Level 2 (technical)	Estimated Cost for Level 2 ($)
1800	debris slide in cutslope	N/A	0.04	yes	yes	1.5	0.5	2000
1801	slide/slumping in cutslope	N/A	0.2	yes	yes	4	4	8000
1806	wooden box culvert	N/A	N/A	no	no		0.5	300
1810	abutments & stringers rotted	N/A	N/A	N/A	N/A	1.5	1.5	2500
1814	fillslope failure	N/A	0.02	yes	yes	2	2	3000
1815	road settlement	N/A	N/A	yes	no	0.5	1.5	2000
1816	bridge	N/A	N/A	yes	no	0.5	1.5	2000
1817	debris slide in cutslope	N/A	0.1	yes	yes	2	2	3000
1819	landslide, debris slump	N/A	0.02	yes	yes	0.5	1	2000
1820	debris slide	N/A	0.02	yes	yes	0.5	1	2000
1823	erosion/slides on cut & fill slopes	N/A	0.3	yes	yes	3	3	5000
1830	ravelling steep cutslope	N/A	0.2	yes	yes	1.5	1.5	3000
TOTAL THIS PAGE			0.9			17.5	20	34800

Notes:

[1] See "Maps" for site locations

[2] N/A=not applicable