



### **SECTION 1: DOWNSTREAM IMPACT POTENTIAL**

- *Direct*: gully in direct contact with fish stream or discharges to non-fish stream with > 5% gradient which enters a fish stream.
- *Indirect*: discharges into non-fish stream with < 5% gradient (minimum distance 100 m) before reaching fish stream.

### **SECTION 2: UPSLOPE DEBRIS FLOW POTENTIAL**

#### **Evidence of Landslides**

Must be at least 25 m<sup>2</sup> to be considered a landslide.

### **SECTION 3: WATER TRANSPORT POTENTIAL**

#### **Water Power Index**

To determine the index, measure bank full width and depth, and record these under Channel Width (CW) and Channel Depth (CD) in Table A. Multiply these two to obtain a cross-section area (XS Area). Choose a channel cross-section that looks average in size, or do at least three measurements spaced 10 m apart and record the average. The channel gradient should be measured over a minimum distance of 40 m.

#### **Water-transported Woody Debris Accumulations**

- *LWD jams or no WD*: large woody debris measures at least 10 cm in diameter and at least 3 m long. If there is evidence of the channel being cleaned of woody debris by a water flood, transport potential is high.
- *SWD jams*: small woody debris includes branches, stems and broken stems that are smaller than LWD.
- *WD, no jams*: scattered, unsorted woody debris indicates that there is no transport of woody debris.

#### **Largest Sediment in Storage Wedges**

- *Boulders*: greater than 25 cm, measured on the intermediate (average) axis.
- *Gravel and cobbles*: from 2 mm to 25 cm, measured on the intermediate axis.
- *Sand and finer*: less than 2 mm in diameter.

### **SECTION 4: FAN DESTABILIZATION POTENTIAL**

#### **Fan Destabilization Index**

Count the number of active channels across the fan. Active channels have fresh sediment and little or no vegetation. Inactive channels are filled with vegetation and have moss-covered rocks. Channel incision is measured from the top of the bank to the bottom of the main channel. Choose a channel cross-section that looks average in width, or do at least three measurements spaced 10 m apart. Record in Table B.

### **Debris Flow Return Period**

The age of a debris flow is estimated from vegetation growing on the debris flow deposits.

## **SECTION 5: DEBRIS FLOW INITIATION POTENTIAL**

### **Gully Wall Slope Angle**

Measure the sidewall slope angle from the base of the sidewall to the top. Measure the steepest slope possible (i.e., the fall line). In gullies with a steeper inner gully set within an outer gully, measure the inner gully slope angle. For headwalls, measure the slope along the channel axis.

### **Surficial Materials**

Choices are Bedrock (R), Colluvium (C): generally sharp edges, sizes range from clay to boulders. Morainal and Fluvial (M or F): rounded edges. Morainal sediment ranges in size from clay to boulders. Fluvial sediments generally are sand-size and larger, and well-sorted. Marine and Lacustrine materials (W or L): most particles are finer than sand. The presence of failure scars (FS) is sufficient evidence to rank the risk of further slides as high.

### **Gully Wall Height**

Measure from the bottom of the gully wall to the top at the slope break at the same location the slope angle was measured. For the headwall, measure the longitudinal length of the steepest section.

### **Past Debris Flow Initiation**

Typical evidence of a debris flow initiating within a reach is a sidewall scar, with a channel empty of sediment and debris below the scar.

## **SECTION 6: POST-LOGGING CONDITIONS**

### **Logging Debris in the Channel**

- *Sparse*: 20 percent of the channel is covered in scattered logging debris.
- *Moderate*: 20-80 percent of the channel is covered by scattered logging debris, or there are two or three accumulations of logging debris at least 1 m deep and at least 10 m long.
- *Heavy*: greater than 80 percent of the channel is covered by logging debris, or there are four or more accumulations of logging debris at least 1 m deep and at least 10 m long.
- *Very Heavy*: greater than 80 percent of the channel is filled with logging debris at least 1 m deep.

### **Sediment Stored Behind Woody Logging Debris**

- *Sparse*: little sediment is stored. No development of sediment wedges can be seen.
- *Moderate*: one to three small ( $< 1 \text{ m}^3$ ) wedges of sediment.
- *Heavy*: the channel has developed a stepped profile. Either four or more sediment wedges developing, some with several cubic metres of sediment stored, or one to three large ( $> 10 \text{ m}^3$ ) wedges are developing.
- *Very Heavy*: several large wedges with extensive storage of sediment.