
Log Landing Erosion Prevention and Control, BMP 14.11

Erosion Prevention and Control Measures during Timber Sale Operations, BMP 14.12

Objectives

- 1) To protect water quality by minimizing erosion and sedimentation from log landings and skid trails.

Site Description

This site is located on the Northside Timber Sale, off of Road 9962 and 19060. It is on the Missoula Ranger District of the Lolo NF, in Section 5, Township 14N, Range 19W. LSI classification is 30QC.

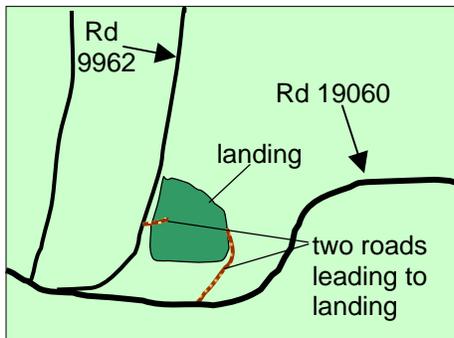


Figure 1

Narrative

Four standards were followed to protect soil and water quality:

- 1) During use, landings were maintained so debris and sediment were not delivered into streams;
- 2) Landings were drained to minimize erosion and prevent sediment delivery to streams;

- 3) Timber sale contract provision B6.63 required that after landings served their purpose, the purchaser was to ditch or slope them to permit water to drain or spread; and
- 4) Landings were to be seeded and fertilized unless otherwise specified.

This site was used as a helicopter landing (photo 1). After construction, it was seeded, left over the winter, and used again the following spring. The two access roads leading from the landing were water-barred. This allowed water to drain off of the landing and the access roads and disperse before it reached roads 9962 and 19060 (figure 1).

Vegetative buffers on all sides of the landing provided a filter for sediment and a safeguard between the landing and the road (photo 2). The landing will be scarified and seeded in the following one to two years.



Photo 1



Photo 2

Observations and Measurements

Erosion prevention and control measures were effectively working. Water bars were draining successfully. There was no sign of rilling or rutting on the road or landing. Any displaced sediment was trapped and filtered by the existing buffer vegetation. Water predominately flowed to the southeast, where the vegetation buffer was wider than 100 feet.

Effectiveness

This practice has proved to be effective, reducing the potential of debris or sediment from reaching the stream. Precautions were taken to provide sediment control before the landing was utilized. The landing will be scarified, seeded, and fertilized within the next two years.

Erosion Prevention and Control Measures during Timber Sale Harvest, BMP 14.12 Erosion Control on Skid Trails, BMP 14.15

Objectives

- 1) To protect water quality by minimizing erosion and sedimentation derived from log landings and skid trails.

Site Description

This site, of the Cave Helo Timber Sale, adjacent to Dunham Creek in Unit 23. Unit 23 is off of Cottonwood Lakes Road on the Seeley Lake Ranger District of the Lolo NF. Unit 23 is in Section 19, Township 16N, Range 12W. LSI classification is 73UA.

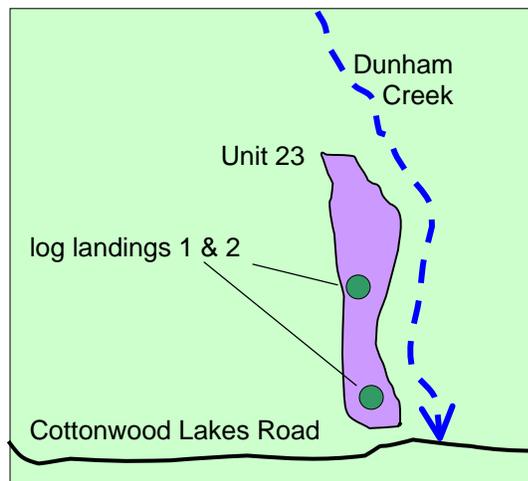


Figure 1

Narrative

BMP 14.12 states that skid trails and landings must be seeded and vegetation established within the first two years. During harvest, water bars and drain dips are built on skid trails to drain water.

Minimizing access limits vehicle pressure on the soil, decreasing compaction and changes in bulk density. Haul trucks were restricted beyond the second landing (figure 1). Beyond this point, the only access was via rubber-tired skidder.

Two log landings were located within Unit 23. At the second landing, where two main skid trails branched off, was an open area. The open area allowed easy access and tractor mobility. In addition, only a few trees were removed for the landing (photo 1). After use, both landings and the road connecting them were scarified and seeded (photos 1, 2 & 3). Froelich and others (1985, p 1017) recommend scarifying skid trails because of the long-term erosion potential.

Some areas at the landings were left bare to promote natural regeneration of Douglas fir and larch. These species require bare soil in order for their seeds to take root.



Photo 1



Photo 2



Photo 3

Observations and Measurements

Erosion prevention measures have left Unit 23 stable and productive. There are no signs

of erosion in the form of tire ruts or rilling observed in the harvest areas or skid trails. Impacts to long-term soil productivity or vegetation re-establishment were not found.

Because of existing openings, just a few trees needed to be removed to construct the landing and the number of skid trails was reduced. In addition, having two skid trails, minimized the number of passes over each trail. Undisturbed vegetation was left on both sides of the road to landing number 2. According to Gray and Megahan (1981, p 21), leaving vegetation below disturbed areas provides a place for water to spread, reducing the potential for erosion.

Effectiveness

This practice has been effective in preventing erosion and compaction on skid trails and in the unit. Erosion control measures maintained soil productivity and water quality. No signs of sedimentation resulting from timber harvest were seen in Dunham Creek. Rehabilitation measures have been successful. BMP's 14.12 and 14.15 have proven effective for Unit 23.

Stream Channel Protection, BMP 14.17

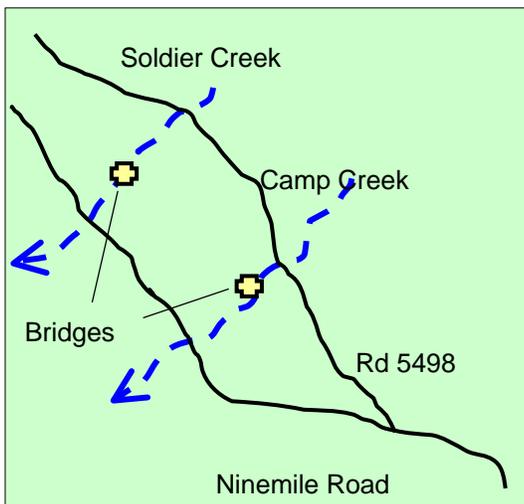
Objectives

- 1) To protect the natural flow of streams;
- 2) To provide unobstructed passage of storm flows;
- 3) To reduce sediment and other pollutants from entering streams; and
- 4) To restore the natural course of any stream as soon as practical if the stream is diverted as a result of timber management activities.

Stream channels are protected to benefit streamflow. The natural stability and function of water and sediment storage and transmission are to be maintained. Refer to BMP 14.06 for stream channel riparian area and woody debris recruitment guidelines, sale area map identification, cable yarding and directional felling descriptions.

Site Description

The Camp Creek and Soldier Creek bridge removal sites are located between Road 5498 (Foothills Road) and Road 412 (Ninemile Road), on Camp and Soldier Creeks. They are found within the Ninemile Ranger District of the Lolo NF, in Sections 24 and 26, Township 17N, Range 23W. LSI classification is 15JB.



Narrative

During the summer of 2000, the Camp and Soldier Creek drainages were locations of moderate to high intensity fires. The fires heavily reduced the vegetation in both drainages resulting in increased runoff and peak discharge, and reduced infiltration. (High run-off was predicted by storm flow calculations made after the fires.)

While evaluating the area after the fire for emergency rehabilitation needs, two log bridges were discovered on Camp and Soldier Creeks. Both bridges had last been used in the 1960's (photos 1, 2, 3 & 4).



Photo 1 – Camp Creek

During high run-off, the bridges constrict the active channel resulting in bank erosion and increased sediment entering the stream. To prevent further sedimentation and stream constriction it was determined that both bridges would be removed.

In order to remove the bridges a small excavator was used to pull the stringers and abutments. By removing the stringers and abutments, water could move naturally along the stream bank.



Photo 2 - Camp Creek abutment

Observations and Measurements

The small excavator used minimized impacts along the stream banks. The stream bank on Camp Creek was re-contoured back to its natural slope. Willow and dogwood slips, 1 to 1½ inches in diameter, were planted in the stream bank to provide future stability. Two slip rows were planted, one directly against the support logs, and the other further up the bank. As the slips grow, their roots will add stability to the soils and reduce erosion.



Photo 3 - Soldier Creek stringers and abutment

The Camp Creek bridge removal area was seeded heavily on the bank and in the area disturbed by the excavator. Small amounts of sediment and bark pushed into the stream during the removals will be washed downstream during high runoff. Storm flow calculations suggested that peak flows could increase from 30 to 50 percent in the short term.

In Soldier Creek, only the stringers were removed from the bridge. The abutments were not considered a threat to bank stability and therefore remain in place (photos 3, 5, & 6). Impacts to date have been minimal and the riparian area is intact and functioning effectively.



Photo 4 - Support logs along the bank of Camp Creek



Photo 5 – Soldier Creek, stringers removed, abutment remains

Effectiveness

This practice was highly successful. Impacts to the stream and surrounding areas were minimized by the timing and size limits on the excavator used. Willows and dogwoods planted along the bank of Camp Creek will increase bank stability and vegetative cover. The seedlings will also result in a vegetative buffer and filter. No long-term effects to the stream are visible. Soldier Creek did not need vegetation rehabilitation.

In both creeks, the natural flow of the stream channel was re-established, the potential for sediment and other pollutants (such as ash) entering the stream reduced, and the natural course of the stream returned.



Photo 6 - Soldier Creek after bridge removed