SURFACE ROUGHENING
(a.k.a. scarification)

Surface roughening of bare soil areas is a technique that creates uneven surfaces and depressions that minimize erosion by reducing runoff velocities, providing greater opportunity for infiltration, and encouraging sediment trapping. In areas being seeded, these depressions can also help to keep seed in place and improve the establishment of vegetation.

Typically, surface roughening is done by tracking equipment to create horizontal depressions that are parallel to site contours and perpendicular to the runoff flow path. Surface roughening methods include: dimpling, track walking (Fig. B1-6), stair stepping and grooving.

Figure B1-6: Track walking applied to bare soil

Application

- Can be applied to any inactive disturbed surface that will be left exposed on a temporary basis (less than 30 days). Areas exposed and inactive for longer than 30 days should be stabilized with vegetation and/or RECPs.
- Useful on exposed slopes and any other areas susceptible to erosion.
- Should be applied on any slopes steeper than 3H:1V, where vertical height is more than 1.5 metres.
- Useful where vegetation cannot be immediately established due to the season.
- Effectiveness is limited on very sandy or rocky soil.
- Should only be used alone on a temporary basis.
- Most effective when used with other stabilizing practices such as mulching and seeding.

A roughened slope is better able to ***catch and retain seed, mulch and moisture***, and **reduce runoff velocity**.

Design and Installation

- Should be applied after grading activities have ceased (temporarily or permanently) in an area.
- The selection of an appropriate method depends on slope grade, mowing requirements after vegetative cover is established (if any), whether the slope was formed by cutting or filling, and type of equipment available.
- Roughening tracks should be made parallel to the site contours (perpendicular to runoff flow path). Applying tracks in the incorrect direction encourages the formation of rills and gullies.
- Surface is considered roughened if depression depths are 50 to 100 mm deep, and 100 to 150 mm apart.

- A chisel or ripping instrument can be used in most soil conditions.
- On slopes steeper than 2H:1V, the tracks left by a bulldozer driving perpendicular to the contour can leave acceptable horizontal depressions.

Inspection and Maintenance

- Inspect scarified areas weekly, and before and after significant rainfall (see definition in Section 10.1.2) or snowmelt events, and keep a record of the inspection.
- Ensure vehicles and equipment are not driving over areas that have been roughened as this may result in the breakdown of the depressions and the creation of tracks which channel water down slopes and encourage erosion.
- Where roughening has been applied in conjunction with seed, inspect areas to determine the success of seed establishment and re-seed as needed.
- Identify any areas where roughening should be repeating or where it is providing insufficient erosion protection.
- Any repair or maintenance needs identified should be repaired within 48 hours or sooner if natural receptors are at imminent and foreseeable risk of adverse impact.