

Purpose of this Guide

To recognize operational factors contributing to soil disturbance during BC Timber Sales (BCTS) harvesting operations and provide guidance to influence practices to minimize disturbance and protect soil productivity and health.

This guide supplements BCTS Environmental Field Procedures (EFPs) and does not replace Site Plans (SP), Harvest Plans (HP), or professional recommendations.

What is Soil Disturbance?

- ❖ **Includes:** compaction, rutting, gouging, scalping, and temporary access structures.
- ❖ **Causes:** machinery movement, wet conditions, unplanned traffic movement and concentrated activity.
- ❖ **Soil disturbance limits:** set under Forest Planning & Practices Regulation (FPPR) section 35. Limits are set for sensitive, non-sensitive and roadside work areas. Refer to SP for specific soil disturbance levels.
- ❖ **Soil disturbance levels less than prescribed in SP** may be defined as “*excessive soil disturbance*” under Sustainable Forest Initiative (SFI) standard and/or identified as “*damage to the environment*” under FPPR section 3.
- ❖ **Excessive soil disturbance** occurs due to poor planning or operations during unfavorable conditions (weather or site conditions) and is defined as soil disturbance that goes beyond what is necessary for forest operations under appropriate equipment and site conditions.

Soil Disturbance Types & Thresholds

Disturbance Type	Identification Criteria	Operational Impact
Compaction Includes repeated machine traffic	Compacted mineral soil, slash or organic debris, puddled mineral soil, <ul style="list-style-type: none"> • >100 m² in area and > 5 m width with 100% compaction compared to conditions of adjacent undisturbed soil 	Reduces drainage, root growth and forest productivity.
Rutting wheels or tracks	<ul style="list-style-type: none"> • Sensitive soils = rut depths of just > 5 cm depth X 30cm width X 2 m length. • Non-sensitive soils = rut depths of > 15 cm depth X 30 cm width and 2 m long. 	Impairs natural drainage. Can lead to compaction, water management and soil productivity issues.
Gouging / Scalps	Removal of organic layer exposing mineral soil <ul style="list-style-type: none"> • Deep Gouge = >30 cm depth or to bedrock • Wide Gouge/Scalp = > 5cm depth or to bedrock 80% of 1.8m X 1.8m • Very Wide Scalp = 80% of 3 m X 3 m • Long Gouge=>5cm depth or to bedrock, 100%of 1 m X 3 m 	Increase erosion risk. Impacts on forest productivity and reducing nutrient availability.
Temporary Access bladed, excavated, corduroy trails	Unplanned trails or landings, excavated into side slopes <ul style="list-style-type: none"> • Trails = >30 cm depth X width >1.5 m 	Can expose subsurface seepage, impact natural drainage patterns. Compacts soils & increases erosion & sediment delivery.

Recommended Practices

Activity	Recommended Practices
Planning / Preparation	<ul style="list-style-type: none"> ✓ Get familiar (prework) with applicable project plan requirements i.e. Timber Sale License, site plans, harvest plans, and professional recommendations. ✓ Identify sensitive soils, wet areas and sensitive site indicators before operations begin. ✓ Schedule harvesting during favorable conditions. ✓ Use appropriate methods to avoid excessive disturbance.
Operations	<ul style="list-style-type: none"> ✓ Use designated trails and minimize machine passes. ✓ Conduct practices that minimize impacts to soil productivity & soil health. ✓ Monitor soil conditions daily. ✓ Operate during favorable conditions.
Winter Harvesting	<ul style="list-style-type: none"> ✓ Ensure adequate snow/frozen ground before operations.
Rehabilitation <i>Where required</i>	<ul style="list-style-type: none"> ✓ Recontour ruts and gouges promptly. ✓ Apply organic material to exposed soils. ✓ Maintain natural drainage. ✓ De-compact soils and restore natural contours.
Stop Work Protocols	<ul style="list-style-type: none"> ✓ Cease operations if soil disturbance exceeds SP limits or conditions become unfavorable (e.g., excessive rutting, saturated soil).
<p><i>BCTS is certified to the SFI 2022 Sustainable Forest Management Standard. The standard requires certified organizations to implement practices that protect and maintain forest and soil productivity and soil health. This includes using appropriate methods to avoid excessive soil disturbance and harvest plans designed to minimize impacts on soil productivity and soil health</i></p>	

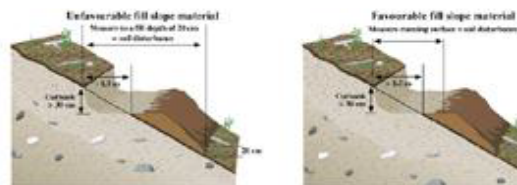


Stop Work, contact your project supervisor and BCTS if soil disturbance occurred



Soil Disturbance Definitions

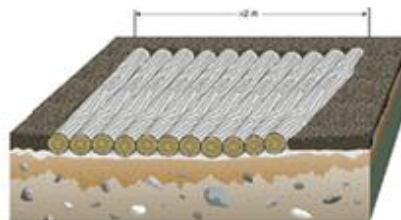
Excavated or bladed trails



Excavated or bladed trails are constructed trails that have:

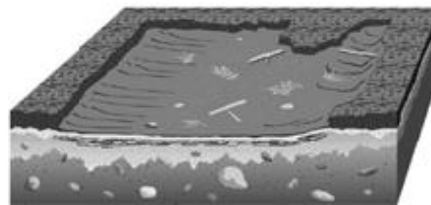
- a mineral soil cutbank height greater than 30 cm, and
- an excavated width greater than 1.5 m.

Corduoyed trails



Corduoyed trails are constructed using logs and woody debris placed side by side to form a surface greater than 2 m in length and capable of supporting equipment traffic.

Compacted areas



Compacted areas are areas on which there is evidence of compaction at the survey point and on 100% of a portion that is both greater than 100 m² in area and greater than 5 m wide.

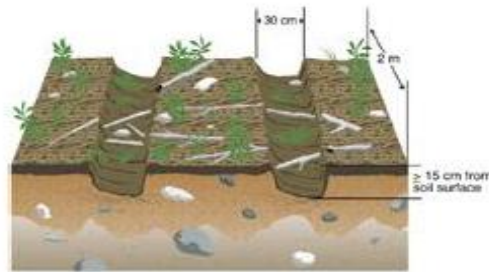
Can also be compacted mineral soil, puddle mineral soil, and compacted slash and organic debris. Mineral soil compaction compare to condition of adjacent undisturbed soil.



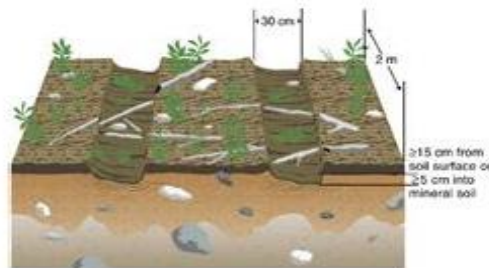
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Dispersed trail: wheel or track ruts



Wheel or track ruts 15cm deep X 30cm wide and 2m long are counted as soil disturbance on all sites.



Wheel or track ruts 5cm deep X 30cm wide X 2m long are counted as soil disturbance on sites with high or very high soil compaction hazard or where compaction hazard has not been assessed.

Dispersed trail: repeated machine traffic



Repeated machine traffic must be counted as soil disturbance where there is 100% evidence of compaction in a 1m X 2m area on all sites, except those with low compaction hazard. Where the compaction hazard has not been assessed, repeated machine traffic must be counted as soil disturbance.



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Deep gouges



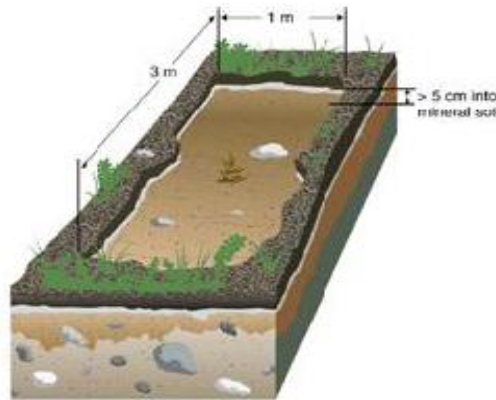
Deep gouges are excavations into mineral soil that are deeper than 30 cm or to bedrock at the survey point.

Wide gouges



Wide gouges are excavations into mineral soil that are a) deeper than 5 cm at the survey point and b) deeper than 5 cm or to bedrock, on at least 80% of an area 1.8 x 1.8 m.

Long gouges



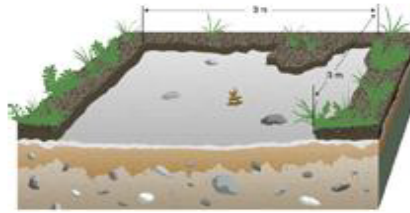
Long gouges are excavations into mineral soil that are a) deeper than 5 cm at the survey point and b) deeper than 5 cm or to bedrock on 100% of an area 1 x 3 m.



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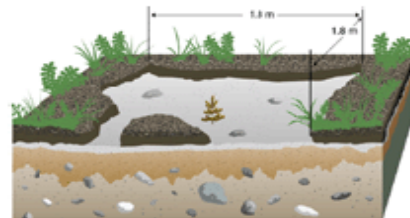


Very wide scalps



Very wide scalps are areas where the forest floor has been removed at the survey point and from over 80% of an area 3 x 3 m.

Wide scalps



Wide scalps are areas where the forest floor has been removed at the survey point and from over 80% of an area 1.8 x 1.8 m.



Stop Work, contact your project supervisor and BCTS if soil disturbance occurred

