

Collapse of Unstable Ground

A Heavy Equipment Operator and the excavator they were operating to remove gravel from an old quarry site slid into the water-filled excavation.

It is important to assess site conditions, including proper slope or grade as excavations can cause the ground surface to become unstable. Working on unstable surfaces can cause slides potentially endangering the heavy equipment and equipment operator.

Safe Work Practices

- **Complete a Hazard Assessment with all workers involved:** Identify and review the hazards, including the history of the worksite, soil's condition, actions to minimize or eliminate the hazards, rescue procedures and emergency plans.
- Inspect excavation slope/walls daily: Check for erosion or deterioration. Confirm slope control is adequate for the soil's condition. The type of soil determines the overall strength and stability of the trench and excavation walls. Hard soil may also contain faults in seams or layers that make it unstable when excavated.
- Know the six main causes of soil instability and excavation collapse:
 - 1. Increased depth of cut
 - 2. Increased water content in the soil
 - 3. Water pressure within or near the slope/wall
 - 4. Weight of excavated material and the equipment nearby
 - 5. Effects of shock and vibration from machinery, traffic or blasting, and
 - 6. Effects from frost

Accumulated excavated ground waste materials and equipment must maintain a 1 metre distance from the excavation's leading edge.

The WSCC is committed to safety. For more information on workplace health and safety, call us toll-free or visit our website.







wscc.nu.ca 1.877.404.4407

What the OHS Legislation Says:

NWT and Nunavut Occupational Health and Safety Regulations

Section 162.

An employer shall ensure that only competent workers operate powered mobile equipment or are required or permitted to operate that equipment.

Section 266.

- (1) An employer shall ensure that
 - (c) equipment, spoil piles, rocks and construction materials are kept not less than 1 m from the edge of an excavation or trench;
- (2) Subject to subsections (3) and (4), if a wall of an excavation or trench is cut back, an employer shall ensure that
 - (a) in the case of type 1 or type 2 soil, the walls are sloped to within 1.2 m of the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 45° measured from the horizontal;
 - (b) in the case of type 3 soil, the walls are sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 45° measured from the horizontal; and
 - (c) in the case of type 4 soil, the walls are sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than three horizontal to one vertical, or 19° measured from the horizontal.
- (6) An employer shall ensure that none of the following is operated or located near an excavation or trench so as to affect the stability of the walls of the excavation or trench:
 - (a) a unit of powered mobile equipment;
 - (b) a vehicle of any type;
 - (c) any other load.