



## Construction and Management of Drill Sites

*Drill sites are often the most visible aspect of an exploration program. In hilly terrain, drilling often requires earthworks. This must be carefully planned, implemented and managed to minimise environmental impacts and landholder concerns. Malachite Resources Limited has developed expertise in the construction and management of drill sites, especially in difficult terrain.*

### Background

Malachite Resources Limited has been exploring in the hilly terrain of the New England region of northern NSW since 1997. This terrain has presented a number of challenges with respect to the construction and management of drill sites so that environmental impacts are minimised.

Drill sites must be large enough for safe operations, but small enough to minimise their environmental impact. In addition, they need to be designed, constructed and managed so that rehabilitation can be undertaken in an effective and timely manner. This aspect of exploration is the one landholders pay the closest attention, and the one that gives explorers the best opportunity to exceed the landholder's expectations.

A range of construction and management strategies have been used with success and form the basis of all Malachite's drilling procedures.

### Strategies for Drill Site Construction

- Relevant approvals are obtained from I&I NSW prior to commencement of work.
- Aboriginal cultural heritage clearances are conducted as required.
- Drill sites are located in the most 'open' areas in order to minimise impacts on vegetation, pastures and crops.
- Liaison with the landholder regarding the location of each drill site is undertaken prior to the drilling program. Landholders are given a clear understanding of the program and their comments are noted. Discussion and agreement on rehabilitation is undertaken prior to commencement of the program.
- Liaison with the drilling contractor is undertaken to ensure that the drill site will be an adequate size and determine the preferred locations for drill trucks and sumps.
- Dead timber is removed and stacked nearby for re-use in the rehabilitation phase. Overhanging branches may also be removed as they may fall during the drilling operations.
- Only trees which are allowed by permit and agreed by the landholder are removed.
- Grass and topsoil are stripped and stacked separately, adjoining the drill site, for replacement in the rehabilitation phase. These stacks are covered to avoid erosion during heavy rainfall.
- Trip hazards (such as rocks and tree roots) are cleared from the drill site.
- If required, in-ground sumps on the down slope side of the rig are constructed and lined. Excavated materials are placed on the down slope side of the sumps in a manner that would direct any surface flows into the sumps.
- In-ground sumps are positioned and constructed so that excess drilling fluids can safely flow from one sump to the adjoining sump.
- Sediment fences are constructed along the down slope perimeter of the drill site to slow any run-off of surface water and any spills from sumps. Sediment fences may be constructed of silt-stop cloth or hay bales. When using silt-stop cloth, Ring Lock (or Hinge Joint) fencing is attached to 3m spaced star pickets. The cloth is then attached to the up slope side of the fencing with cable ties, digging the bottom of the cloth into the ground to prevent losses. When hay bales are used, these are each secured with a wooden grid peg.



*Sediment fence on down slope side of plastic-lined sumps*



*Multiple sediment fences lined with hay bales below drill site (to right of photo) in environmentally sensitive location*

- Fencing of the drill site (or just the sumps) is undertaken as needed and safety signs at the entry point to the drill site are erected.
- A bunded area is established to contain the drilling contractor's fuel, oils, muds and drilling additives.

## Strategies for Drill Site Management

- A spill response kit is positioned at the drill site before the drill rig arrives.
- Black plastic sheeting (with a sheet of oil absorbent matting above it) is placed under the length of the drill rig to contain any oil or diesel leaks.
- The Project Manager liaises with the senior driller on each visit to the drill site. A walk around the perimeter of the drill site is undertaken to ensure that there are no leaks from sumps, the drill rig, compressor or support vehicles.
- Enlargement or construction of additional sumps is discussed with the driller during the drilling program, along with any requirement to have the sumps pumped out before the hole is completed.
- Damage to sediment fences is promptly repaired as required.
- If during the drilling operations the ground becomes slippery, a thin layer of loose hay is spread to give the drillers a better surface to work on.
- Drilling is stopped immediately if a diesel or oil leak is detected. The leak is contained and the spill cleaned up. The source of the leak is repaired before drilling is recommenced.

Together with effective rehabilitation, these strategies minimise disturbance and facilitate future access for exploration.



*Disclaimer:* This fact sheet is intended to provide summary information only. It does not intend to be comprehensive or to provide specific legal advice. Given the changing nature of legislation, regulations, program rules and guidelines, there is a potential for inherent inaccuracies and potential omissions in information contained in this fact sheet. All information in this fact sheet is provided "as is" with no guarantee of completeness or accuracy and without warranty of any kind, express or implied. In no event will New South Wales Minerals Council Limited, any related members, consultants or employees thereof be liable to anyone for any decision made or action taken in reliance on the information in this paper or for any consequential damages.