

Feasibility Assessment for Landfill Phytocap

Tamworth, New South Wales, Australia

Client

Tamworth Regional Council, Tamworth Forest Road Landfill

Highlights

- ◆ Conducted phytocap feasibility study
- ◆ Performed modeling
- ◆ Produced final report
- ◆ Performed physical and hydraulic properties soil testing

The Forest Road Landfill receives municipal waste from the local area in Australia. As part of a team, DBS&A was contracted by the Tamworth Regional Council to conduct a feasibility study on possible on-site cover materials for the landfill closure.

The purpose of the feasibility assessment is to assess if materials available for construction will limit infiltration, provide adequate growth media, and perform long-term as an evapotranspiration (ET) cover or phytocap. This assessment takes into account the borrow soil characteristics, climate, and vegetation. Soil samples were collected and tested at laboratories, including DBS&A's Soil Testing and Research Laboratory, for physical and hydraulic properties, including: Standard Proctor, Atterberg Limits, particle size distribution, specific gravity, porosity, density, salinity, hydraulic conductivity, and nutrients. The soil analysis along with climate data acquisition and a vegetation characterization provided all of the inputs required to complete the modeling task of this project. The modeling drew on the field observations and soil characteristics gathered during sampling, as well as the laboratory testing results, and climate and vegetation data described above. DBS&A evaluated several scenarios using different soil properties, densities, and thicknesses. In addition, a sensitivity evaluation of cover performance over time under different vegetation and weather (specifically precipitation (amount and seasonality)) conditions will be performed.

The information that DBS&A derived from the assessment effectively addressed questions raised by regulators relating to the final closure process, and the assessment successfully evaluated the available borrow materials near the Forest Road facility for their potential as a phytocap profile in the local climate. DBS&A summarized the findings from the various modeling scenarios in a report, indicating that the on-site soils could be used in a number of configurations to provide a phytocap which would yield very low drainage. The next phase of work includes an on-site trial for comparison of a phytocap and an existing clay cap.

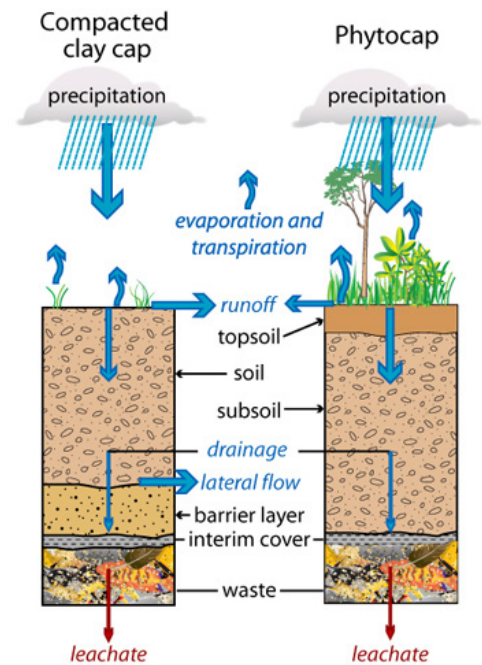


Diagram comparing compacted clay cap (left) and phytocap (right).

