

Dimensioning the Rover.

Angle of repose: (from Wikipedia)

Gravel (crushed stone) 45°

Gravel (natural w sand) 25° to 30°

No regolith sample yet so making some estimates.

- Regolith is natural (not crushed) so less than 45°
- Mars has less weathering due to very little atmosphere / water. So Regolith will be more angular than gravel.
- Therefore choose angle of repose of 35° degrees.

Density $\approx 1.20 \text{ kg}\cdot\text{m}^{-3}$

Therefore for a capacity of 5 kg regolith.

I don't want the rover to be more than twice its length in height or width.

I want $3/4$ of its length to be useful load carrying and $1/4$ for mechanisms and electronics.