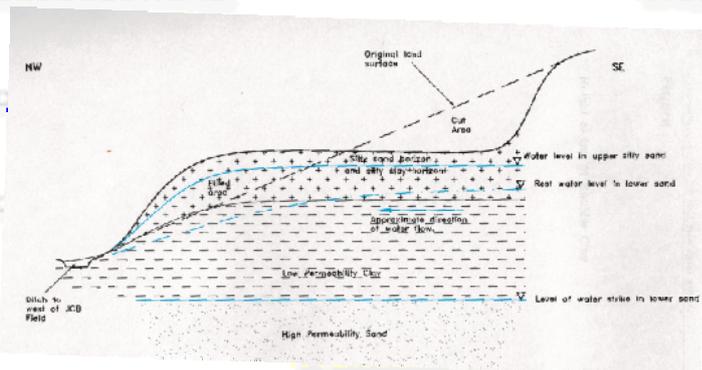




## PROJECTS

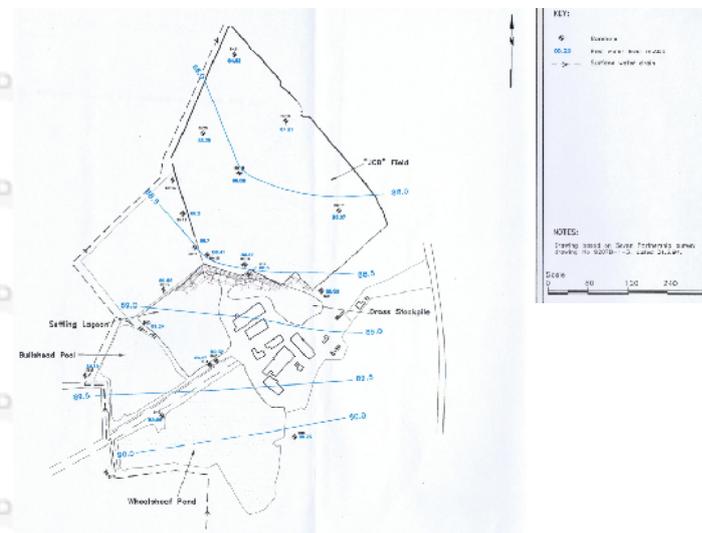
### CONTAMINATED LAND & GROUNDWATER

## Review of Site Suitability for Landfill Development, Aluminium Recycling Factory



Aluminium metal scrap is refined using a reverberatory furnace to produce the pure metal. Slag from the furnace is highly reactive, and is hosed down with water before disposal to a former clay extraction pit which had become full; the company is seeking to develop an adjacent field as a new landfill facility.

The field had been extensively levelled for intended development for a tractor factory. The site was investigated using a push-tube rig to obtain samples of clay for geotechnical testing, and trial pitting. Seven groundwater monitoring bores were constructed through clays and interlayered sands. This identified two aquifer units, with a deep sand confined beneath clays underlying a shallow unconfined or perched sand unit. Groundwater in the lower unit flows to the north, and is impacted by leachate from the adjacent former slag settling pond, including elevated alkalinity, chloride, ammonium and aluminium. Perched groundwater is locally impacted; however this is interpreted to be from windborne dusts from the current uncovered landfill operation.



The most suitable area for landfill development was identified where the clay is thickest, where the remaining clay after excavation (<3m) will be sufficient to prevent groundwater uplift within the wastes. The clays were subjected to compaction testing and permeability determinations at different compaction to assess its potential for re-working to form landfill liners, and was found to be generally suitable. However, due to the reactivity of the slag, a secondary HDPE liner would be required to maintain long-term integrity. Development costs were estimated for the landfill.

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