

# Veolia Environmental, Bobbingworth

## Surface flow: Landfill leachate



### Project

Veolia Environmental Services,  
Bobbingworth

### Location

Bobbingworth, Essex

### Project type

Design and construct

### Wastewater type

Landfill leachate

### Completion date

2007

### Treatment system

Passive horizontal surface  
flow reed bed

### Needs

Bobbingworth landfill site in Essex is operated by Veolia Environmental Services. Following the capping and landscaping of the site Veolia required a means of treating leachate which was accumulating within the landfill and being pumped to the surface at an average rate of 30 m<sup>3</sup>/d. This leachate was being tankered away for treatment and disposal at a remote location at cost to the operator. A water treatment works situated a few hundred metres away could accept this leachate if the Iron loading was reduced from 100 mg/l to below 20 mg/l and any soluble methane removed.

### Solution

Once pumped to the surface the Iron within the leachate was primarily in its oxidised or ferric state as an insoluble precipitate. There was also some Iron in its ferrous or soluble form. The wetland solution was a passive horizontal surface flow reed bed using *Typha latifolia* in a soil based media with a process area of approximately 560m<sup>2</sup>. The surface flow system would allow the precipitated iron to spread and settle over the whole bed avoiding clogging along the leading edge of the system. The surface flow provides additional oxygenation of the leachate converting any insoluble ferrous Iron into precipitated ferric form. *Typha latifolia* provides a bulky rhizome and stem suited to knocking down suspended solids in the effluent stream. Methane strippers were supplied by others but installed by ARM Ltd.

### Benefits

The installation of the wetland system provided a robust treatment solution with a low maintenance requirement minimising the need for operator attendance on site. The costs associated with tankering leachate away were eliminated and delivery to the local wastewater treatment works provided security of ongoing treatment for Veolia without the concern of tight consent achievement and discharge into the local environment.

