

Fair Oak, Hampshire

Our Services

- Site Investigation
- Risk Assessment
- Design of Gas Protection Measures
- Support to Planning Application



Investigation of Gas Regime and Design of Gas Protection Measures

Investigation data for a housing development site in the vicinity of a landfill had flagged up anomalies, with high gas concentrations and low flows alternating with low gas concentrations and high flows. The planning authority would not accept the proposed gas protection measures put forward by others until there was a satisfactory explanation for the unusual monitoring results.

CGL was tasked to establish in detail the gas regime, to provide a risk assessment and to design gas protection measures, based on the existing data, supplemented by some additional work, which included carbon dating of the soil gas.

The model developed by **CGL** indicated that gas below the site was confined within an underlying sand layer by a clay mantle and that migration occurred primarily through the sand. However, falling ground levels coupled with an increase in thickness of the clay mantle away from the

landfill and across the site, accompanied by large sudden fluctuations in groundwater levels resulted in the gas being 'funnelled' under pressure in the sand below part of the site. In this area extremely high gas flows with little evidence of soil gas were recorded when the clay mantle was pierced by the gas monitoring wells. However, on occasions, water levels rose sufficiently to seal the response zone in the monitoring wells, which created anaerobic conditions and bacterial action causing gas generation within the wells, giving rise to false readings of what appeared to be landfill gas.

Having satisfactorily explained the gas regime, the local authority was able to accept the gas protection system, subject to verification of the clay mantle being present at a specified thickness or greater below the foundations.

Client: Barratt Southampton