

## **Cardiff Bay Barrage - Drainage and Groundwater Control** Cardiff Bay Development Corporation

The construction of a tidal exclusion barrage across the mouth of Cardiff Bay creates a freshwater lake with a water level close to 4.5m OD in place of a tidal estuary with diurnal water level fluctuations between -2 and 6m OD. This change has a significant impact on the drainage and quality of groundwater in the low-lying areas of South Cardiff which surround the Bay.

Since 1990 Entec has been the principal hydrogeological consultant to the Cardiff Bay Development Corporation on all aspects of the hydrogeology and groundwater estuary interaction in the area. This work has included:

- detailed data synthesis, conceptual understanding and predictive digital modelling to support the Barrage Act;
- design and installation of an extensive (250 piezometer) groundwater surface water and climate monitoring system;
- analysis and interpretation of monitoring data;
- design of 'groundwater control system' including long horizontal boreholes, for installation in South Cardiff;
- participation (jointly with Hyder Consulting) in the supervision of the installation and commissioning of the 'groundwater control system'; and
- analysis and reporting of the impact of impounding and the effectiveness of control pumping on the multilayered groundwater system of the South Cardiff area.

Throughout the work Entec has participated extensively in public consultation activities both with the regulatory and local authorities and with opponents of the Barrage Scheme.



*Hydrogeological advice for one of Europe's largest investment and engineering projects*

