



PROJECTS HYDROGEOLOGY

HydroSOLUTIONS

HydroSol Hydro39

Dewatering Model, Sewer Works for a Residential Development, Canning Vale, Perth



Construction of a drainage system for a residential development required groundwater modelling as part of the approvals process for onsite works. Drains were to be installed in 24, 65 metre sections on an overlapping 4 day schedule, during which variable levels of dewatering were required based on individual sewer invert levels, and variable groundwater levels across the site.

Pumping schedules for ranks of dewatering spears were modelled over the 139 day dewatering period.

Hydraulic conductivity was determined from analysis of falling head tests, and a radius of influence was calculated using the methods of Sichart, Jacob, and Bear. Construction of an initial groundwater table was achieved by normalizing the regional watertable with local static water levels, and drain-specific drawdown targets were interpolated from 3D realizations of the topography and resultant local groundwater surface.



Modelling was performed using Visual MODFLOW software and the PEST inversion model. The works were simulated with both the drain and pumping well packages from Visual MODFLOW, and PEST parameter optimization was used to generate a best fit horizontal permeability field, calibrated to the onsite data.

Forty drawdown estimates and pumping rate schedules were output from the modelling in order to assist the client's engineering strategy for the sewer works.

HydroSOLUTIONS

HydroSolutions Pty Ltd
U14/14 Whyalla Street
Willetton
Western Australia 6155
Tel: (+61 8) 9457 5448
Fax: (+61 8) 9457 4293
Mob: 0403 021 533

E-mail: stuart.jeffries@hydrosolutions.com.au
Website: www.hydrosolutions.com.au

HydroSOLUTIONS