



Groundwater Management Information Fact Sheet 4: Groundwater Mapping

This fact sheet is one of five fact sheets developed from the information contained in the Sydney Coastal Councils Group *Groundwater Management – A Guide for Local Government*. For further information about the other facts sheets of the Sydney Coastal Councils Group please visit www.sydneycoastalcouncils.com.au

Groundwater Mapping

Hydrogeological maps have been historically utilised to illustrate groundwater flow directions, water levels, and quality. The introduction of Geographic Information Systems (GIS) has allowed the rapid development and revision of hydrogeological maps. This, in turn, provides an opportunity for both spatial and temporal analysis of groundwater data.

Most of the pertinent aspects of groundwater systems can now be accessed through the Community Access to Natural Resource Information (CANRI) program internet site - the NSW Natural Resource Atlas (Figure 1) at: www.nratlas.nsw.gov.au. This program collates the environmental maps and data prepared by the following agencies:

- NSW Department of Environment and Climate Change.
- NSW Department of Lands.
- NSW Department of Primary Industries.
- NSW Department of Planning.
- Australian Museum.
- NSW Office of Information and Communications Technology.
- NSW Local Government and Shires Association.
- Murray Darling Basin Commission.
- NSW Premier's Department.
- NSW Treasury.

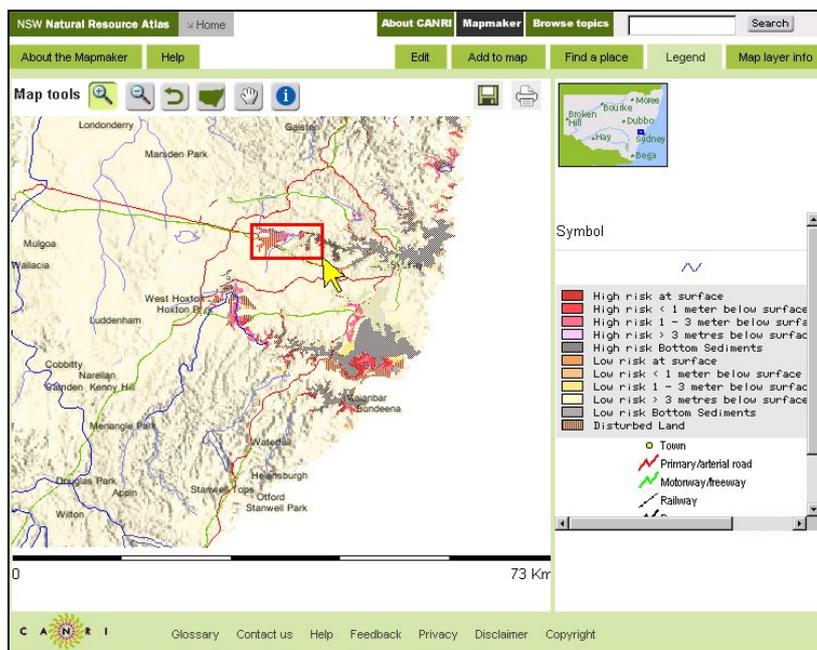


Figure 1: NSW Natural Resource Atlas internet site

Utilising Groundwater Mapping for Development Assessment

In order to adequately assess proposals provided as part of a Development Application not referred to the Department of Water and Energy (DWE) (formerly the Department of Natural Resources) through the Integrated Development Assessment System process, Council staff need to be aware of the local groundwater conditions and the potential for adverse impacts to occur (both on the environment and on the development).

Assessment Process

The most effective and rapid approach currently available is to screen the area of a proposed development against the pertinent groundwater data maintained on statewide databases (that is, a screening assessment). The mapping capability of the NSW Natural Resource Atlas should be utilised to initially screen the locality of a proposed development. The NSW Natural Resource Atlas provides four main products that can be of use in the assessment of groundwater-related issues applying to a development: an acid sulphate soil map layer, bore distribution layer, groundwater availability layer and groundwater vulnerability layer (Figure 2).

Following an initial screening of the area around a property, a preliminary appraisal of the Development Application can be made. Should the application not adequately address various aspects of the surrounding environment, further detail should be sought from the proponent. If a reasonable attempt has been made to assess environmental impacts according to those identified in the screening process, then a more detailed data assessment can be undertaken

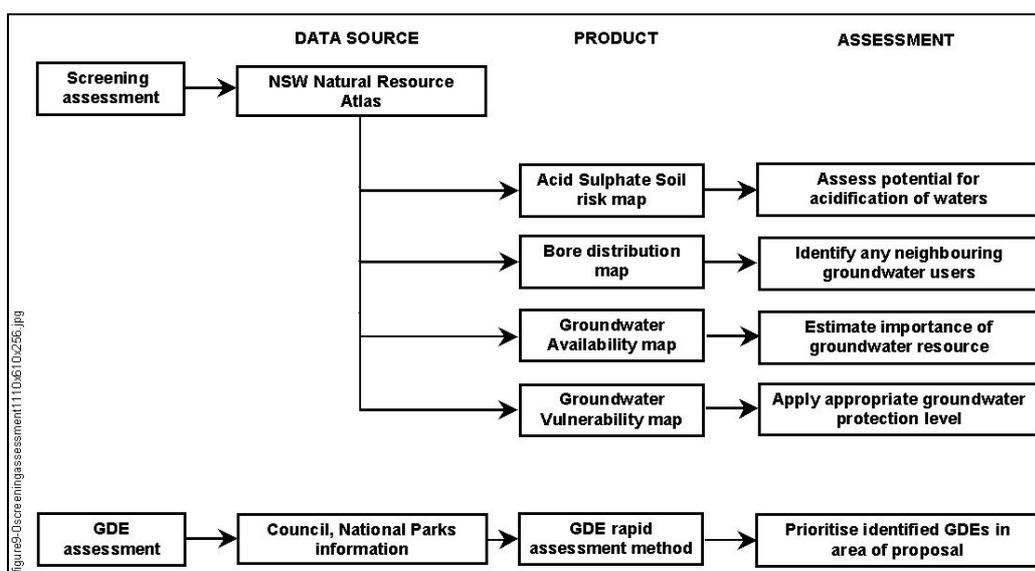


Figure 2: Groundwater Assessment Framework

Conclusion

It is essential that all stakeholders are aware of the local groundwater conditions and potential for adverse impacts to occur (both on the environment and on the development) before development approval is given.

Recommendations

Based on the information contained in this fact sheet and the *Groundwater Management – A Guide for Local Government*, the SCCG recommends that:

- Council staff familiarise themselves with the NSW Natural Resource Atlas as a tool for rapid screening of groundwater conditions in the area of a proposed development.
- Councils develop GIS layers of the groundwater data provided by DWE as an overlay to allow more detailed assessment of local impacts from proposed development.
- Council staff be made aware of the limitations of data being used and the requirement in all cases of proposed development for site-specific information to be collected and reported.
- SCCG and member Councils develop standard screening procedures, in consultation with DWE, to carry out rapid assessment of proposed developments.
- Councils adopt the assessment requirements, based on groundwater vulnerability classification as applied to the Hawkesbury-Nepean Catchment, and require developers to address these as part of the Development Application process.
- Councils identify sensitive environmental areas within their LGAs and provide this information to DWE as a composite GIS layer to assist in setting “buffer zones” for groundwater management.

For more information on groundwater management please see the other fact sheets in the series. All fact sheets are available at www.sydneycoastalcouncils.com.au

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