



Project: COASTAL AQUIFER SITES
Groundwater Resource Assessment

Location: Sydney Northern Beaches, NSW
Client: Warringah Shire Council

Background

In Sydney's Northern Beaches region there are numerous sporting fields in need of alternative water supply sources for irrigation, and Warringah Council sought an assessment of the groundwater resources at five of these sites. Some sites contain fill material, including potentially hazardous waste material. The dune aquifers are prone to seawater encroachment.

C. M. Jewell & Associates Pty Ltd was commissioned to assess suitable borehole locations, and to assess groundwater quality issues.

Hydrogeological Environment

The five sites lie within the Sydney Basin, with two main aquifer types: Quaternary sediment aquifers and deeper, Triassic sedimentary rock aquifers. The Quaternary sedimentation pattern is strongly influenced by sea-level changes, and occurs in three depositional environments: marine tidal deltas, mud basins, and channels. In the Northern Beaches area, Quaternary aquifers form in unconsolidated sediments in the Narrabeen Lagoon and along crescent-shaped beaches. They provide numerous sources of water supplies, with yields generally of the order of 1 litre per second (L/s).

Objectives and Scope

The assessment considered the following aspects:

- the most suitable locations for groundwater boreholes, having regard potentially higher yielding aquifer zones and surrounding groundwater users;
- potential contamination sources;
- other potential impacts such as seawater encroachment and acid sulphate soil risks; and
- recommendations for further work, including monitoring programs and aquifer testing.