

Dewatering

Deep Well System

Thorough, reliable

Australian Dewatering Systems Pty Ltd (ADS) is Queensland's leading dewatering specialist. We provide efficient, thorough and environmentally-friendly site dewatering that meets, and often exceeds the EPA guidelines relevant to the Local, State and Federal governments.

Our Deep Well Dewatering program is especially suited to major high-rise buildings that are expected to be under construction for up to 12 months or more. We also provide deep well systems in a range of civil applications and various other deep excavations throughout Australia. Our experienced team works with the site construction team to strategically position wells around the site. The ADS deep well system economically and reliably lowers the water table with little disruption to the construction and building progress.

Advantages

Reduced Noise

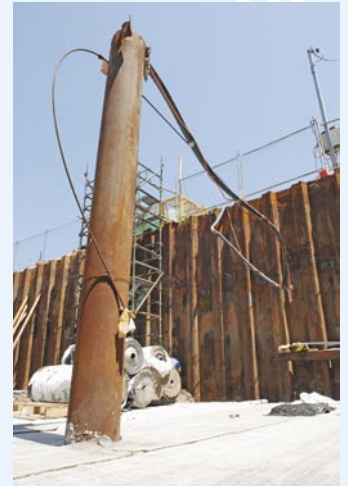
ADS are aware of sensitivity to noise in residential areas. Our deep well systems are designed to work quietly and efficiently. As a company we understand and provide a system that is neighbourhood friendly.

Next To Zero Maintenance

The Deep Well system requires little or no maintenance as the pump sets are robust and reliable. If maintenance is required ADS has fully experienced service technicians on call 24 hours a day, 7 days a week.

Environmentally Sound

In most site dewatering applications, the water is removed from the construction site through our deep well or well point systems and treated prior to discharge. If it is deemed necessary through consultation of the DMP and the clients environmental consultant, ADS monitors and treats the ground water through our state-of-the art, computerised filtration system. This system provides real time telemetry to ensure that water meets relevant statutory requirements.



Methodology

Deep well dewatering differs from wellpoint (also known as spearpoint) systems in that the deep wells contain submersible pumps placed strategically inside the site boundaries to provide a dry site for excavation and construction.

A deep well is installed using an outer and inner caisson. The void between the outer and inner caisson is packed with gravel to act as a filter medium. The inner caisson is slotted to allow for ingress of water. Submersible pumps are lowered into the inner caisson to allow for high head pumping. The pumps are engineered to withstand the aggressive corrosion factors associated with use over sustained periods of time in a saline environment.

The ADS groundwater filtration system is generally used in conjunction with the dewatering system to deliver the best quality discharge of water into the nominated discharge point. A Dewatering Management Plan (DMP) is mandatory prior to commencement of dewatering to co-ordinate the correct method of discharge and the approved water quality guidelines for each individual site. This is a responsibility of the client.

ADS works closely with environmental consultants on a daily basis to ensure the client's environmental requirements are met and the DMP guidelines are stringently followed whilst delivering the most efficient and economical dewatering solution to the client.



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The in-ground experts



Deep Well System Technical Background

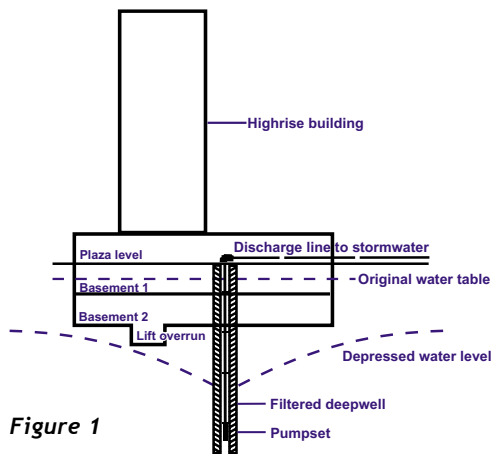


Figure 1

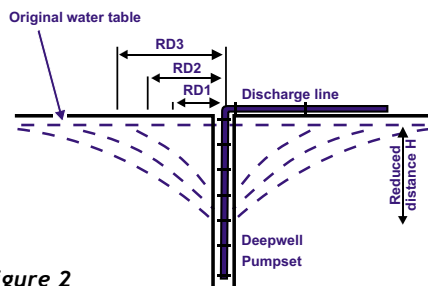


Figure 2

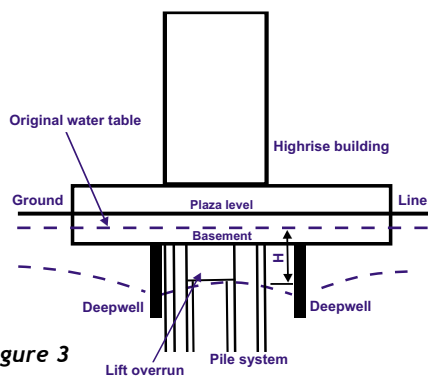


Figure 3

Site dewatering is commonly required when excavations are required to be deeper than the natural water table.

For shallow excavations (generally under 4 metres) well-point dewatering is commonly adopted to achieve an adequate draw down in permeable soils. (i.e. sand, clayey sand etc.)

Deep well dewatering is recognised as a cost effective and efficient way for medium to long term dewatering of larger projects where the excavation is greater than 4 metres or when a wellpoint system is deemed inefficient.

Our system has many advantages:

- Minimal noise
- Easy to install
- Does not rely on vacuum inducement, that is typically associated with spearpoint (well point) dewatering systems.
- Relatively maintenance free as the submersible pumpsets are housed in the deepwell and cooled by the flowing groundwater.

Groundwater Management

The main objective in any dewatering exercise is to lower the water table below the working platform and maintain the depressed level economically and efficiently for the duration of the dewatering period.

The sub-strata and its permeability in and around the site will determine which type of dewatering system will be most effective. This, in turn, will allow ADS to formulate the number and size of wells required to reduce the water table for excavation. Positioning may also be conditioned to suit the builder's construction requirements.

Groundwater management involves strategic positioning of wells to provide a dry working platform and to limit the effects on the groundwater table (GWT) beyond the site. The basic drawdown effect is illustrated in figures 1 to 3 (above left).

The depressed water table forms a cone of depression between the natural GWT and the submersible pump. The extent of local reduction in the water table is dependant on the pump depth, capacity and the permeability of the soil.

The depressed water table at distance (H) (as shown in figure 3) from the natural GWT depicts the dewatering of a typical high-rise site.

Design Criteria

ADS will provide you with technical assistance for the selection of the most efficient method for your particular job or site. We will then manage the system, leaving you to enjoy the cost savings and allowing you to carry on with the rest of your building and construction requirements.

Note: All drawings are examples only for the purpose of demonstration for the need to use a dewatering scenario, each site has specifically designed requirements and should be consulted on an independent basis with an ADS representative.

