Dewatering

Well Point System

Effective, economical

For construction sites where deep well dewatering is not required, Australian Dewatering Systems Pty Ltd (ADS) well point (also known as spear point) dewatering system is an effective and economical way to reduce the level of the water table to the required excavation level.

Well point dewatering is used to reduce the hydrostatic pressure off the back of the sheet pile wall, in conjunction with lowering the water table to the maximum excavation depth required for the construction site.

Well point dewatering can effectively draw the water table down to between 3 and 8 metres depending on the type of pump set used and the type of soil conditions.

The type of dewatering system required is determined by the experienced staff at ADS and in consultation with builders and environmental consultants as to their specific site based requirements. The well point system is ideal for single and some double basement level excavations, civil works and pit excavations.

ADS equipment may be hired from one week to one year and beyond, depending on the project size and the client's scope of works. Our extensive range of dewatering pumps, filtration tanks, hoses, etc, may be hired individually or as a complete dewatering package.

Methodology

Well point dewatering systems are installed around the perimeter of the site against excavation shoring and are coupled with a perimeter discharge line via a pump set. Various pumpsets are available specific to the site requirement.

For a well point dewatering system to be effective, the ground sub strata needs to generally be permeable to allow the well points to draw the groundwater. To achieve the best outcome for the builder, ADS consult with the relevant environmental consultant and the soil reports provided by the builder.

Advantages

Quick Deploy

ADS can efficiently and effectively put a well point system in place to reduce construction downtime. Our experienced team has the know-how to do this with minimal construction downtime to the builder.

Cost Effective

Well point systems and ancillary dewatering equipment can be hired for short and long periods of time, and individually, to cater to the builders dewatering requirements.

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 toensure that water meets relevant statutory requirements.

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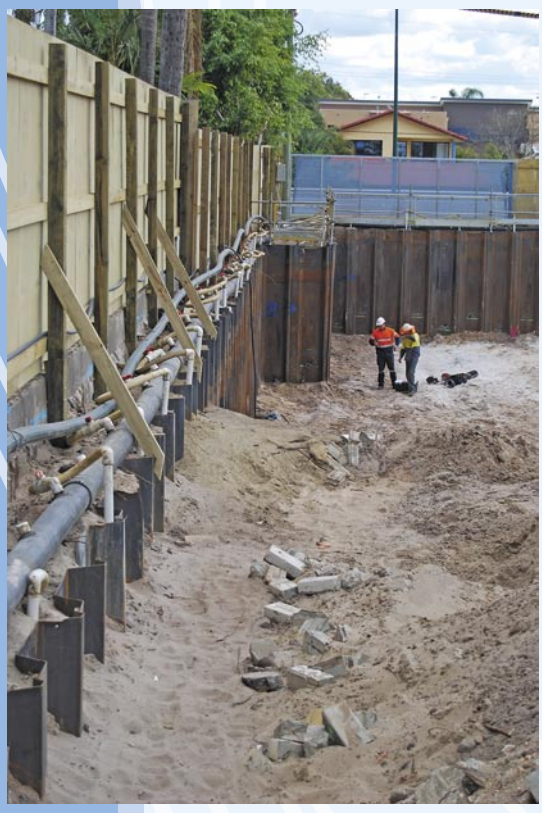
The in-ground experts

Well Point System Technical Background



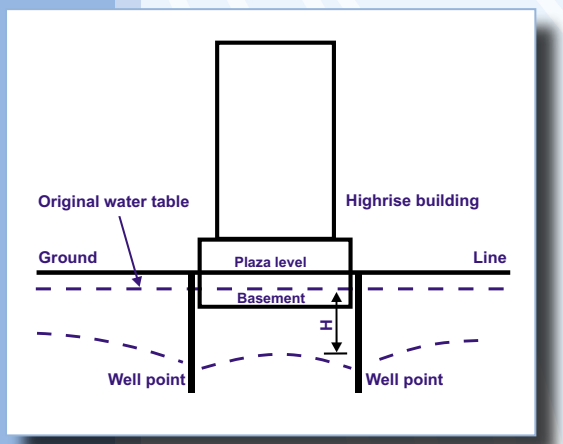
Site dewatering is commonly required when excavations are required to extend beyond the ground water table.

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

PVC spears (well points) are jetted around the site perimeter from ground level and later connected to a common header pipe. These spears draw water (under vacuum) from beneath the excavation. The water is then discharged in accordance with a Dewatering Management Plan (DMP), which is a requirement for the client to have prior to commencing dewatering.

A filtration process is often required depending on the water quality at the discharge point, and the findings of the soil reports engaged by the client.

ADS can offer comprehensive dewatering packages which include a dewatering plan, equipment specification and recommendation, filtration and groundwater monitoring. This is completed with the builder and the relevant environmental consultants. ADS is committed to the environment.



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 well points 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 figure 3 (above left). The depressed water table forms a level of depression between the natural GWT and the well points. The extent of local reduction in the water table is dependant on the well point depth, amount of well points used, the positioning of the well points and the permeability of the soil.

The depressed water table at distance (H) (as shown in diagram 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.