

## Capability Statement

# Well Construction and Material Selection

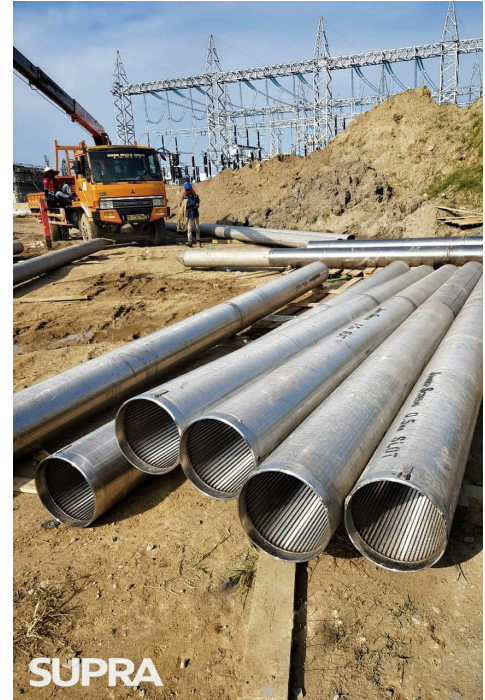
Well screens are needed in most wells, especially where sand and fine materials may enter the borehole

We offers a wide range of material for well construction. It includes different screen types (slot screens, slot bridge screens, wire wrapped screens), which are available with different connectors (threaded, ZSM, flange) and in various materials (steel, stainless steel, PVC, PE and GRP).

Proper screen selection is extremely important in the design of a well drawing from unconsolidated aquifers. Selection is often a complicated matter that demands a highly specialized knowledge of well construction and operation. The type of the screen, the size of screen openings and the slot number of the screen, is the most important criteria to select the most appropriate well screens. Our engineer will assist you on how to select the most specific screens for individual water well construction case.

Constructing a well that sustainable begins with appropriate selection of well material

Water wells are built in a wide variety of designs for a variety of uses. The selection of the right well material fundamentally determines the quality, durability and cost-efficiency of the well. Factors such as construction depth, annular volume, weight of the gravel fill, formation type, and others have to be considered when choosing the right material. These factors have an impact on the external pressure the casing string will have to bear. We implement case by case design individualized for every application depending on the dimensions of the well, the discharge quantities and the water parameter. This leads to high-quality well structures, as reflected in excellent well efficiency and, as a result of that, optimized operating costs.



Casing provides support for the wall of the well so that loose rock fragments or unconsolidated sand and gravel through which the well has penetrated do not collapse into the well shaft. The casing protects the electrical wires, pull cable and water tubing/piping that are connected to the submersible pump. It also provides a vertical-cylindrical surface that in conjunction with the outer vertical wall of the drilled hole can facilitate the placement of an impermeable grout seal around the well casing. The grout seal in the annular space outside of the casing prevents surface water and potential contaminants (bacteria, fertilizers, pesticides etc.) from descending along the outside wall of the well down to the zones of stored ground water.

The type of casing that will be used in a well depends on several factors including water chemistry and geology. The corrosivity of the water is an important factor. High (alkaline) or low (acidic) pH values may be corrosive to metal pipes. Similarly, water with high levels of dissolved solids (“salts”) may also be corrosive to metal pipe resulting from galvanic current (electrolysis). PVC is a thermoplastic material that is very resistant to pH corrosion, is not conductive, and therefore is not susceptible to galvanic corrosion.

The screen is designed to eliminate fine particulates that may damage downstream pumps and treatment equipment, while allowing the maximum amount of water from the aquifer to enter the well with a minimum of resistance. Generally, wells completed in unconsolidated formations, such as sands and gravels, are equipped with screens. In competent rock that will not release fines, such as limestone or granite, screens may not be required. Screens are sometimes installed in fractured formations that may collapse into the borehole and trap equipment.

Although a screen prevents sand from entering the well during pumping, a screen may allow fine formation particles to enter the well during the development process so they may be removed by bailing. At the same time, the large particles of sand are held back, forming a permeable, graded natural-gravel pack around the well screen itself. In this way, the hydraulic conductivity of the water-bearing formation around the well screen is greatly increased, resulting in lower velocity head loss and higher capacity per foot of drawdown.

