

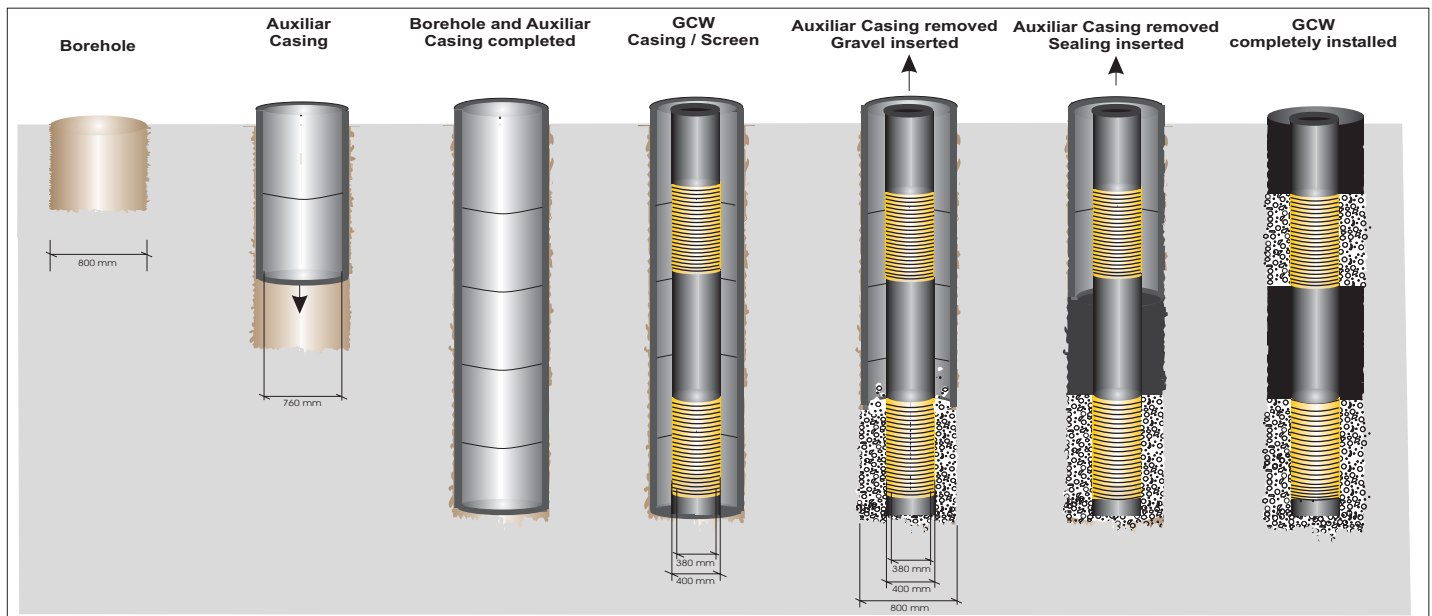
IEG Technical Briefing Note No.21

Drilling Procedure for Groundwater Circulation Wells

Any drilling operation will change the natural permeability of soils and rocks at least near the borehole wall due to the mechanics and the hydraulics of the drilling process. To avoid a reduction of the maximum permeability obtainable along the borehole wall and in the surrounding soils and to avoid the build-up of a less permeable mud-cake in the immediate vicinity of the well a drilling method based on the site specific geology should be selected. The drilling methods to choose from are: grab head, bucket auger, reverse rotary, any other method considered suitable based on local drilling experience.

The installation of a GCW 400 system for example requires an open borehole or temporary casing of at least 600 mm inner diameter. Possible drilling methods for a 800 mm boring of the GCW in the vadose and phreatic zones should be based on the site specific geology, and are temporary cased hole drilling using grab head or bailer (with flap valve). Before installing the GCW casing stem with screens the borehole should be cleaned from top to bottom. Only fresh water should stay in the hole.

After the GCW casing stem and annulus sampling parts are set in place, the remaining annular space can be filled with bentonite, gravel and portland/bentonite grout in the amounts required by the size borehole. After construction is finished the well should be developed to get out drilling mud and fine sediments. Discrete sections of the core that correspond to the screen intervals of the GCW should be analyzed for grain size distribution and sieve analyses. These data can be used for selection of the GCW screen slot size and associated sand pack.



Drilling and Installation Procedures for a Groundwater Circulation Well



IEG Technologie GmbH
Hohlbachweg 2
73344 Gruibingen

Tel.: +49 (0) 7335 96 97 6 0
Fax.: +49 (0) 7335 96 97 6 40
www.ieg-technologie.com

To discuss your in-situ soil and groundwater remediation requirements, or for a free remediation concept and quotation, please contact Dr. Eduard Alesi, email: eduard.alesi@ieg-technologie.de