

# INNER DOHA RE-SEWERAGE SYSTEM

## Start of Microtunnel Shafts Grouting



### Location

Doha, Qatar

### Client

Qatar Public Works Authority  
(Ashghal)

### Contractor

Qatar Trading and Contracting  
Group

### Field of application

Tube-a-manchette and post  
excavation grouting

### Products used

2 x IC 650/712 + DPV-H  
2 x MCM 2000/6 x ZMP611

### Volume mixed/pumped

1940 m<sup>3</sup>

### Delivery of plant

March 2017

### Sales contact

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The IDRIS project consists of a sewage network with a capacity of 1.2 bln liters/day of effluent wastes, located at Doha, Qatar. This project will provide a long-term waste water treatment solution to serve the needs of Doha, Al Wakra, and Messaieed.

### Background

In recent years, the Qatari capital, which is due to host the 2022 FIFA World Cup, has experienced sustained population growth that has necessitated the redesign and expansion of its sewage system. The Megaproject, which include a major deep tunnel sewer network and advanced sewage treatment works, will provide a long-term wastewater treatment solution to serve the needs of Doha, Al Wakra and Messaieed.

Phase 1 covers the construction of 73 km of interceptor sewers. The sewers involved in this phase are lateral interceptor sewers, and the phase is divided into 3 contracts. The Contract LIS-01: Central Doha is currently under construction.

Upon its completion in early 2019, the system will cover an area of 680 km<sup>2</sup>.

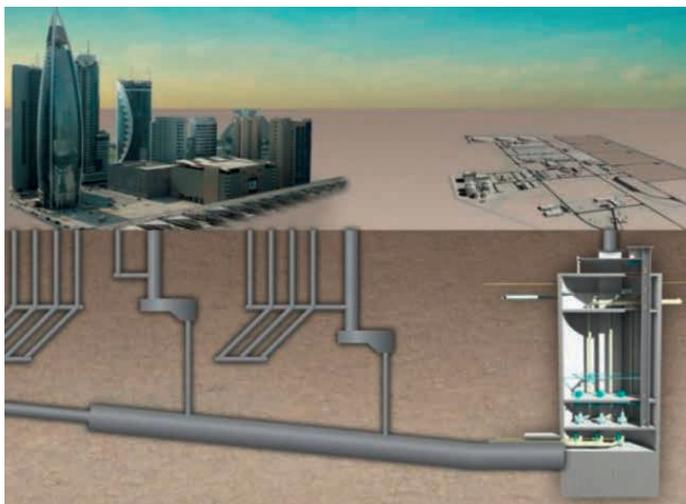
### The challenge

With regards to the lateral interceptor sewer contracts, construction work will involve excavation through microtunneling and pipe jacking, with varying diameters ranging from 400 mm to 2,400 mm, and the construction of approximately 280 shafts. The sewers will be located within the public rights of way, adjacent buffer zones, and allocated utility corridors. The first contracted section, LIS 01 (Lateral Interceptor Sewer 01), includes construction of the three northern segments of the main trunk sewer in central Doha and consists of 98 shafts in total, with depths of 25–38 m and 25–38 injection holes per shaft. Shaft diameters range from 4–6 m. In order to minimize the risk of excessive water inflow during the excavation of deep microtunneling shafts, the permeation grouting method has been chosen (tube-a-manchette grouting) for filling voids or cracks, and to minimize the permeability of the soil surrounding the excavation area



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### Our solution

Due to the complexity of the project, contractor QTCG (Qatar Trading and Contracting Group) came to Häny with a specific request for two large mixing plants and a split system with six grout pumps for each plant, each to be controlled independently. The contractor chose Häny thanks to positive experiences with our grout plants in the past, as well as great after-sales service, and the possibility for full, smooth control and setting of the pump parameters which were mandatory for the project. To save time and minimize the number of people involved, plants were designed to be fully automated, with launch and continuous control carried out via software in real time. All the data (quantity of components, number of batches, pressure, flow, volume, etc.) can be recorded and visualized via a special program for future analysis

### Reliable systems and services from Häny

The system is designed to mix bentonite, cement, fly ash, filler, clay, and similar suspensions. It enables the mixing of water, up to two (2) dry components (such as cement and bentonite), and one (1) liquid admixture.

The plant is also equipped with a Teleservice module, which allows remote access to the plant for software updates, modifications, and remote control.

In addition, two Häny IC650/712 compact grout plants were purchased for the post grouting of problem zones. They were also equipped with a pump control module, with the option to record the main grouting parameters.

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