

Horizontal Directional Drilling

Bennett Associates has an international reputation for Mechanical and Structural Engineering Design across virtually all disciplines and industries.

As always Bennett Associates' engineers worked in close conjunction with the Client to ensure their full requirements were met.

The initial brief was to produce a design for a rig which could pull at 100 tonnes and be capable of handling pipelines up to 0.9 metres diameter and 1000 metres in length at depths up to 30 metres.

Horizontal directional drilling is a technique developed from oilfield technology and enables pipelines to be installed beneath canals, rivers, railways, roads and environmentally sensitive areas without the necessity for unsightly and expensive excavation or trenching work.

The rig first drills a pilot hole along the prescribed route. Reaming tools, the size of which are increased for each pass until the required diameter is achieved, are then passed through the hole. Bentonite Mud is pumped to the reaming tool creating a "caked" lining. This keeps the hole open, and reduces friction during the pipe pulling operation.

The pulling head is attached to the pipeline which has its initial sections elevated on rollers to give it an included angle introduction to the drilled hole. Special care has to be taken during the pulling of the pipe to avoid "kinking".

Pulling loads are constantly monitored and the position of the pipeline is recorded as pulling proceeds. This information is reproduced to obtain "as built" information

On recent occasions this rig has been used both in the UK and overseas and Stockton (Pipelines) Limited have been delighted with its performance as it has exceeded their expectations.

Once again Bennett Associates' design expertise, working in close co-operation with the client, produced detailed CAD manufacturing drawings which enabled the rig to be manufactured by non-specialist fabricators. The client benefits in several ways by this close co-operation. In the final analysis, however, the main benefit is that "they get the tool they want for the price they want".

Bennett Associates (originally founded in 1984) was acquired in 2008 by Atkins; bringing their proven technical expertise to the UK's leading engineering consultancy.

