



# WATER IN ACTION

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## Waste water upgrade helps protect Haarbach community ground water

The ever greater emphasis being given to the sustainable and efficient use of water is causing national governments and local authorities to redouble efforts to improve their strategies and systems for its management and conservation.

Of key importance is the protection of ground water which is often the principal source of drinking water. With this in focus, the municipality of Haarbach, in Germany's Lower Bavaria province, has taken measures to further preserve ground water quality in its jurisdiction. This has involved a new waste water pipeline to replace the outdated drainaway and collection system serving Haarbach's outlying Anleng rural community.



*As a country Germany is particularly well served with water reserves. The volume of available water is more than 180 billion cubic meters and as little as 3% of that is used for public water supply. Nevertheless, the sustainability and efficient use of water continues to be given a high priority.*

*Currently around 70% of the country's drinking water is provided from ground water and programmes to improve the quality of these resources are ongoing. To aid sustainability, these efforts have been successfully complemented by initiatives to encourage lower water consumption by households and small businesses.*

## Serving community and environmental needs

Central to the protection of ground water is its separation from waste water in the environment and a particular focus for action in this are rural communities not yet having direct connection to public sewer systems. This was the case for Anleng, a rural farming area with a dispersed population of 2,500 inhabitants, close to the town of Haarbach, approximately 150km northeast of Munich.

As part of a programme of local infrastructure improvements, following Anleng's connection to the Haarbach drinking water network, the municipal authority turned its attention to upgrading the community's waste water disposal system. Within the pre-existing system, waste water was collected in drainage wells across the area then channelled into a drainage stream to a retention basin and soakaway, the solids from which were disposed of on an annual basis by the municipality. This system was both very expensive to operate and, because it was adjacent to a drinking water protection zone, did not provide an efficient quality safeguard for the area's ground water.

## Eliminating the risk of water pollution

Having taken the decision to connect the community, principally farms, to the municipality's main

waste water network the next step was to determine how to achieve it quickly and cost efficiently given the special conditions and constraints that applied to the project. The plan to link Anleng residents to the main system would require laying a 7.2 km pipeline. A large proportion of this would be laid in close proximity to a newly surfaced road which, to avoid unnecessary additional costs and traffic disruption, had to remain undamaged. Moreover, because the pipeline passed through the area's drinking water protection zone all work would be subject to strict rules limiting any soil disturbance that posed the risk of degrading water resources.

To cope with the conditions with the greatest economy and maximum efficiency, the Haarbach authority decided in favour of a wet-boring process for pipelaying. This method, which is possible only in conjunction with plastic pipes, excavates a bore using a pressurised jet of water. Because the majority of preparation and pipe pull-through installation work is confined underground, it has negligible impact on the surface environment.

## A 100-year sustainable leak-free water supply

To provide the durable solution necessary to resist the stresses of the installation process and the harsh sub-soil conditions, BorSafe PE100 polyethylene material from Borealis was selected for manufacturing the systems waste water pressure pipes. Highly resilient to surface damage including point loads resulting from sharp-edged stones and external pressures generated by traffic or earth movement, the PE100 pipes are projected to deliver a sustainable, leak-free service life of at least 100 years.

Moreover, in addition to improved service to the community and safeguards for the area's ground water, post-project calculations showed that in choosing a no-dig piping solution the Haarbach municipality had achieved a 30% cost saving over a conventional open-trench installation.

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