

DISTRICT HEATING SYSTEM BACHSTRASSE - SWITZERLAND

Wasserverbund Bachstrasse



Fig 1: Pictures of the pumping station inside (left) and outside (right) at Bachstrasse.

Summary of the project

Over the past three years, the various municipal water supply systems in the area of Berne have been merged together to form the Wasserverbund Region Bern AG. As a consequence of this union, smaller drinking water supply networks have been disused for economic reasons. As a consequence, the conversion of these networks to an energy source for space heating and domestic hot water supply has been realized.

Detailed summary of the project

The groundwater pumping station Bachstrasse in Ostermundigen near Bern is located in a residential area. In order to maintain the protection zone for drinking water, pumping became increasingly problematic. With the extension work on a nearby railroad line, the pumping of drinking water finally stopped in 2004.

Energie Wasser Bern has developed the idea of implementing a process water network for operating a heat pump system network. After the analysis, it became clear that, in order to be economically viable, the existing

” DISUSED DRINKING WATER SUPPLY NETWORK BECOMES SOURCE FOR DISTRICT HEATING SYSTEM ”

infrastructure Bachstrasse had to be taken over at zero cost and the supply of energy to the area Schmäatterling and Mitteldorfpark should be contractually secured.

The two properties, the residential development Schmäatterling and the retirement home Mitteldorfpark, will be supplied with a total of 185 000 m³ of process water per year. Existing delivery pumps were replaced by new ones. Given the design and dimensioning of the heat pump systems and the heat demand of the two properties, it can be assumed that peak demand will be approximately 1 800 litres/minute. The groundwater abstraction licence, which is issued by the Water Management Office of the Canton of Berne, permits a maximum extraction rate of 2 700 litres/minute. Consequently, a water volume of around 900 litres/minute is still available for the connection of additional properties in the planning area. Coefficient of performances between 3.5 and 4 are expected.



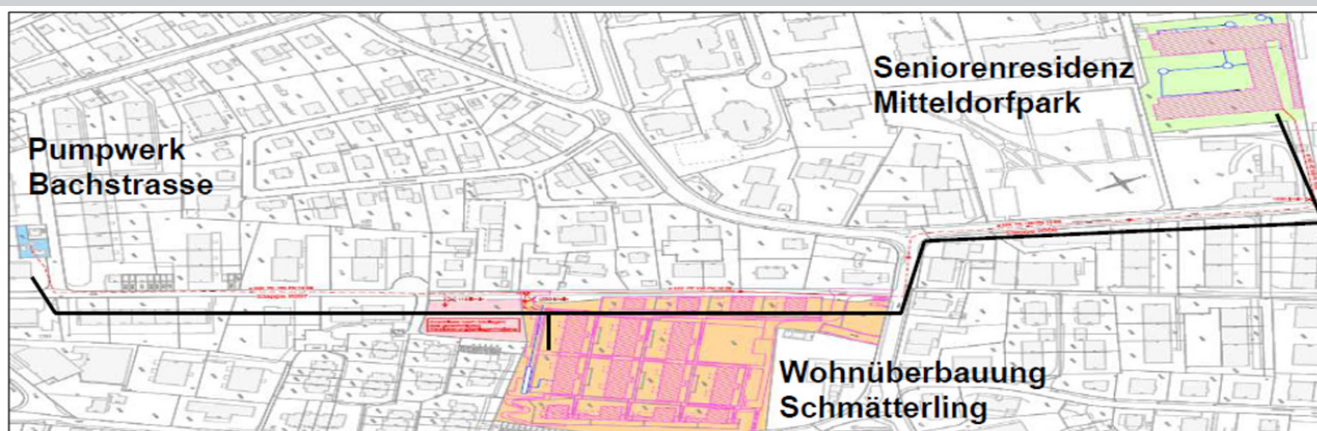


Fig 2: Plan of the pumping station at Bachstrasse and supplied area Mitteldorfpark and Schmätterling.

The municipality of Ostermundigen has announced that further planning areas in Bachstrasse would be subject to mandatory connection to the grid. By connecting further users, the return on investment would happen very fast and the grid would be very quickly economically profitable.

FACTS ABOUT THIS PROJECT

Building type: Apartment (residential) buildings

Heated floor area [m²]: -

Installed heat capacity [kW]: 1 500 kW

Heating demand: 3 450 MWh/a

Heat source: Ground water (from disused water supply system)

Investment cost: 575 000 CHF

Participating countries: Switzerland

Time frame: 2007

Project organisation:

Project leader: Energie Wasser Bern

Project partners:

- Contractor: Energie Wasser Bern
- Planner: Ryser Ingenieure AG

Link to web page or report:

<http://wvrb.ch/> (in German)

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**IEA Technology Collaboration Programme on
Heat Pumping Technologies (HPT TCP)**