Welcome to Zurich Water Supply

Clean and safe drinking water for everyone

Stadt Zürich
Wasserversorgung

natürlich züri wasser

Supply Area

City of Zurich

- 400,000 inhabitants

Plus 67 communities

- 510,000 inhabitants
- 660 km^2 supply area

Origin of the water

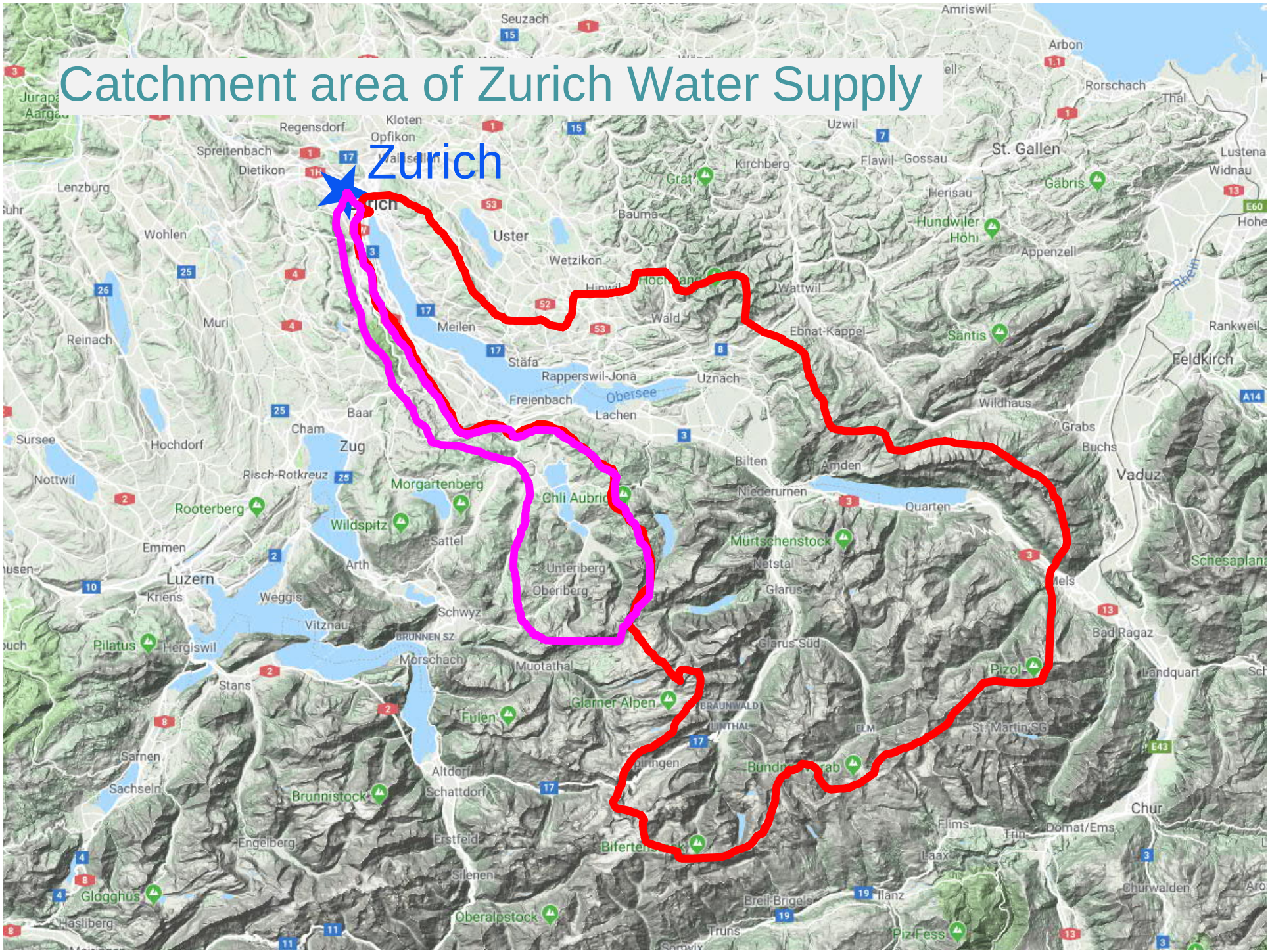
70 % Lakewater
15 % Springwater
15 % Groundwater

Lakewatertreatmentplant Lengg

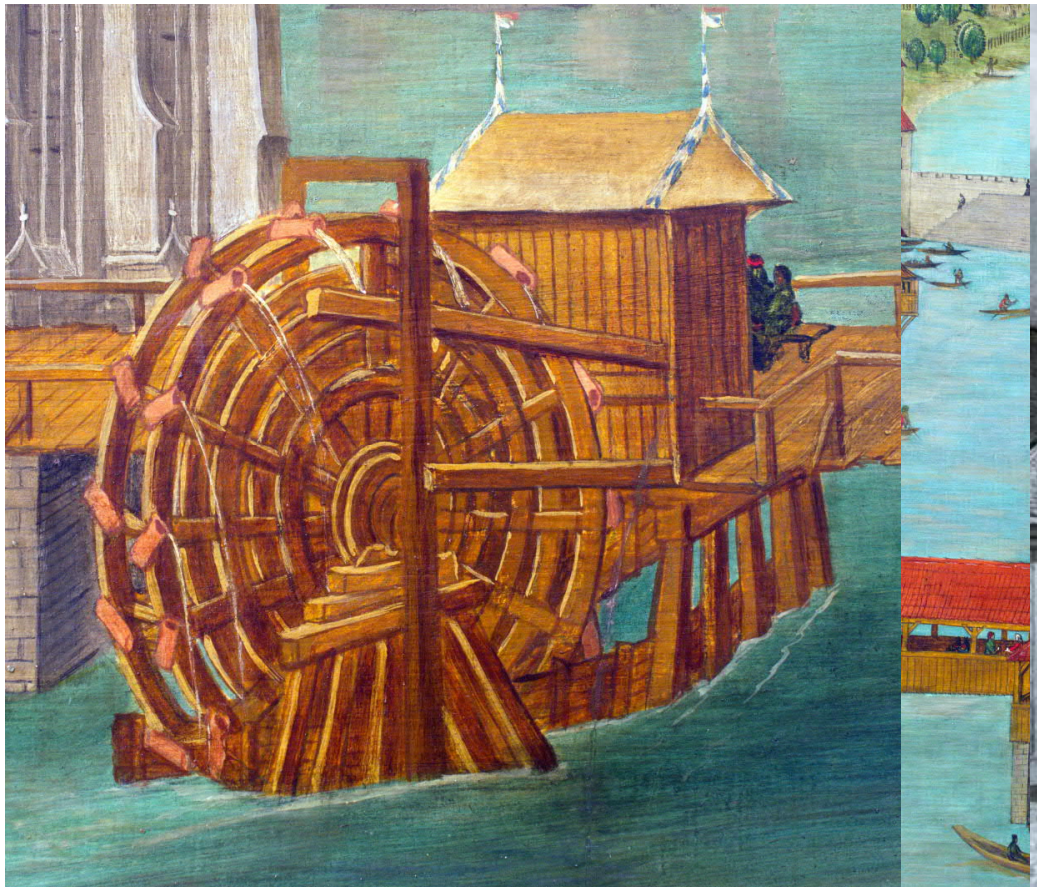
Lakewatertreatmentplant Moos

Groundwaterplant
Hardhof

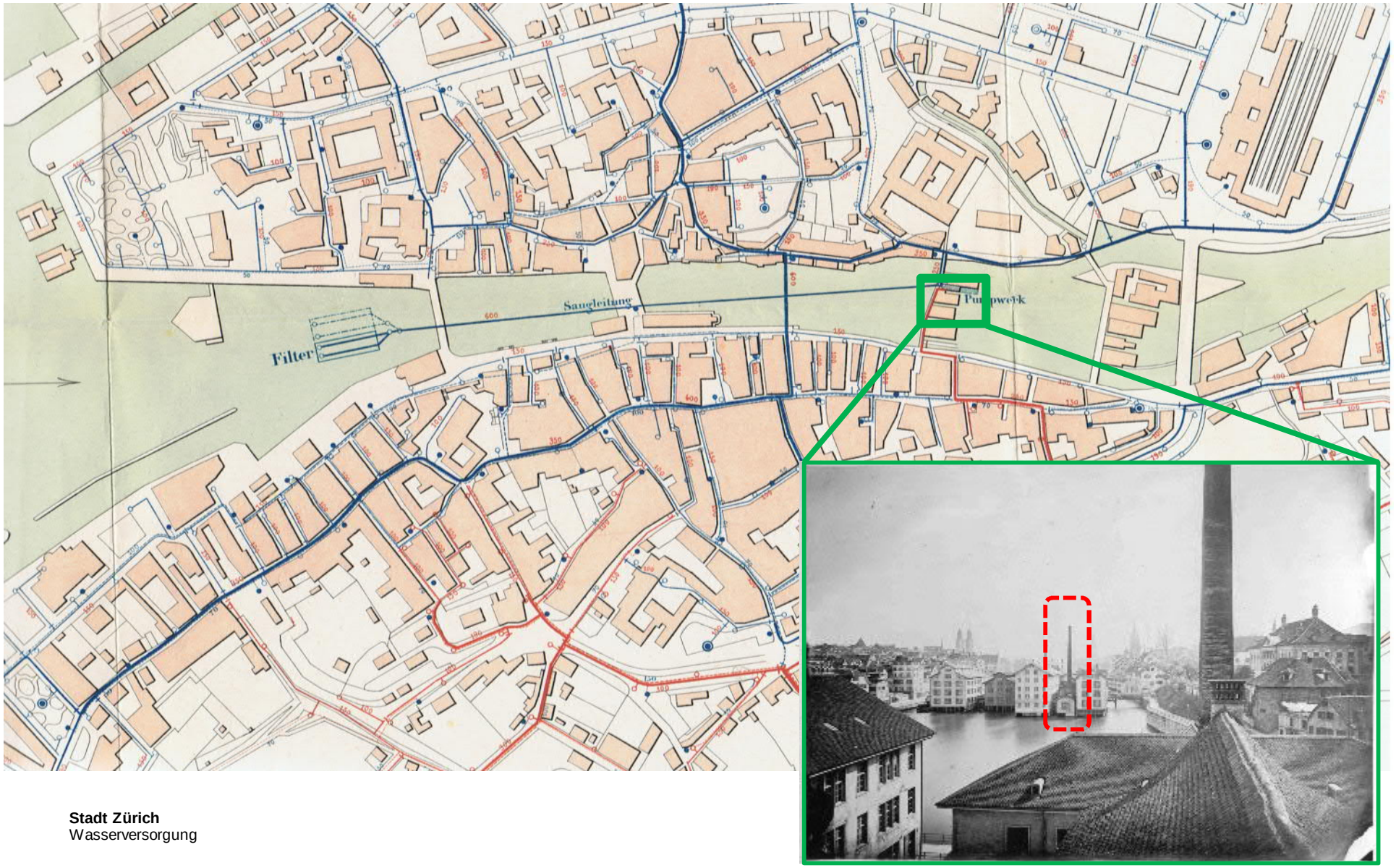
Catchment area of Zurich Water Supply



Water supply before 1868



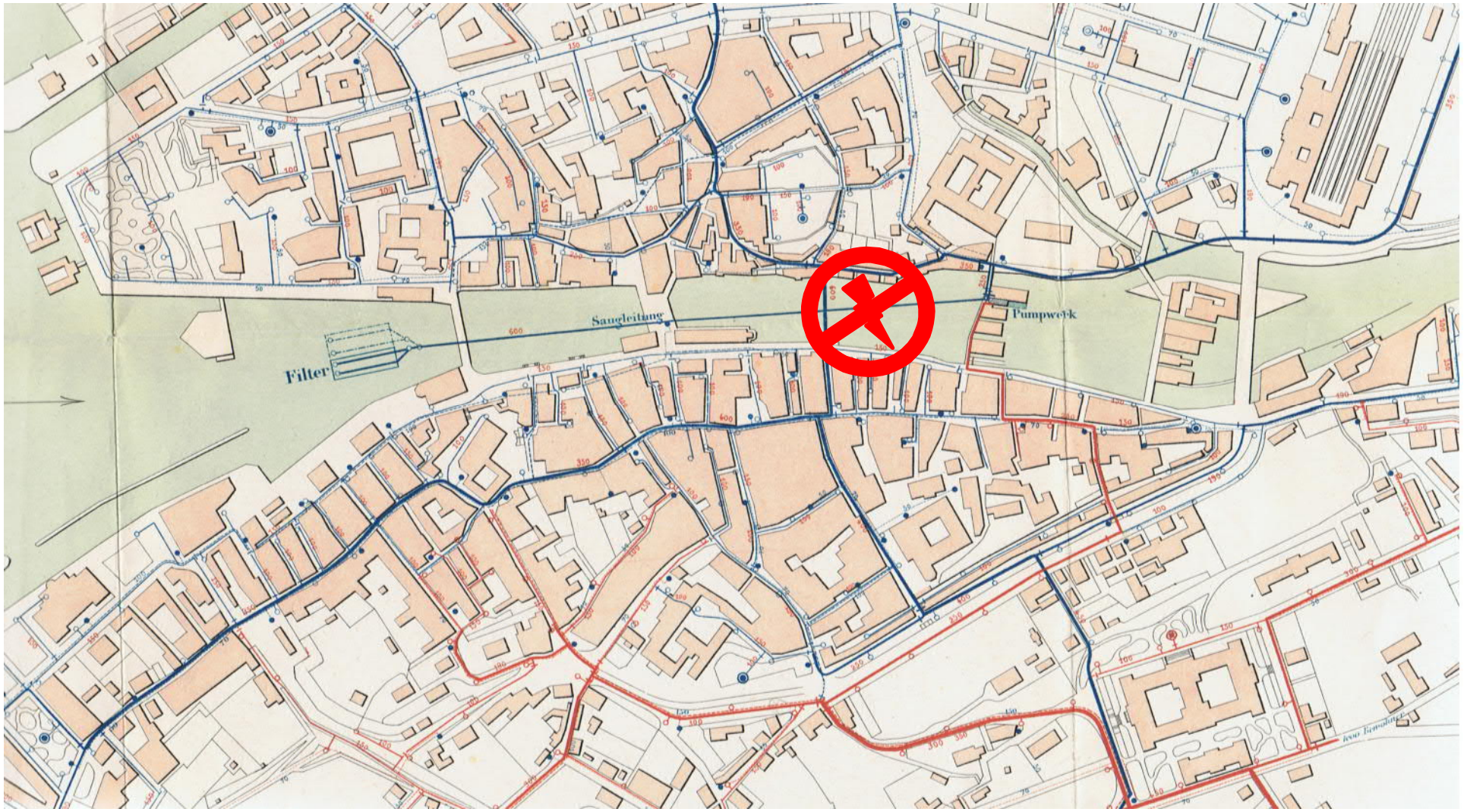
First water distribution 1868



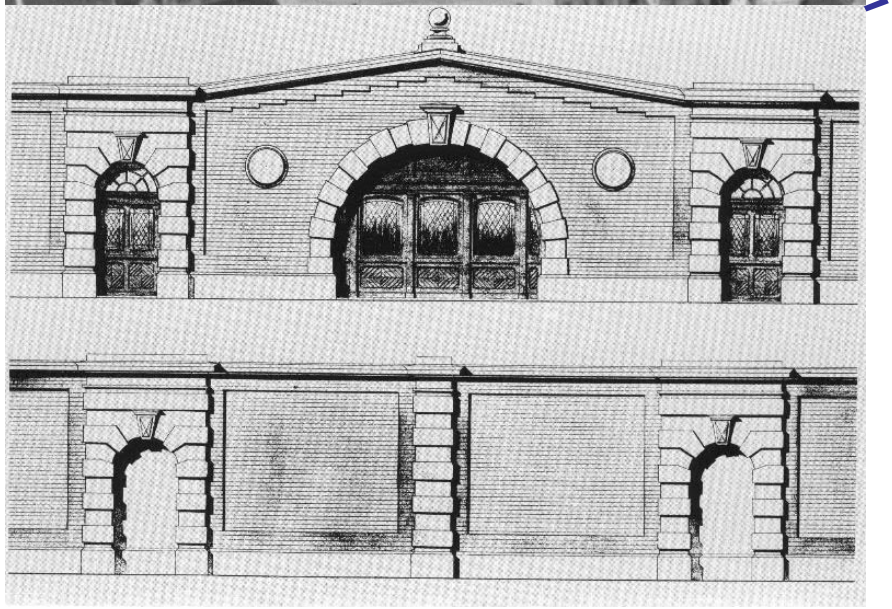
Typhus epidemia 1884

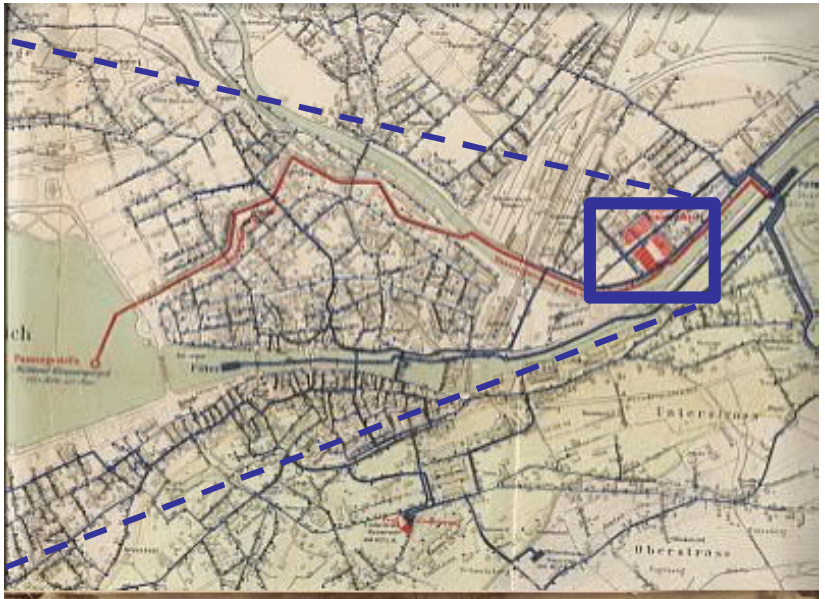
Stadt
Wass

Insufficient maintenance

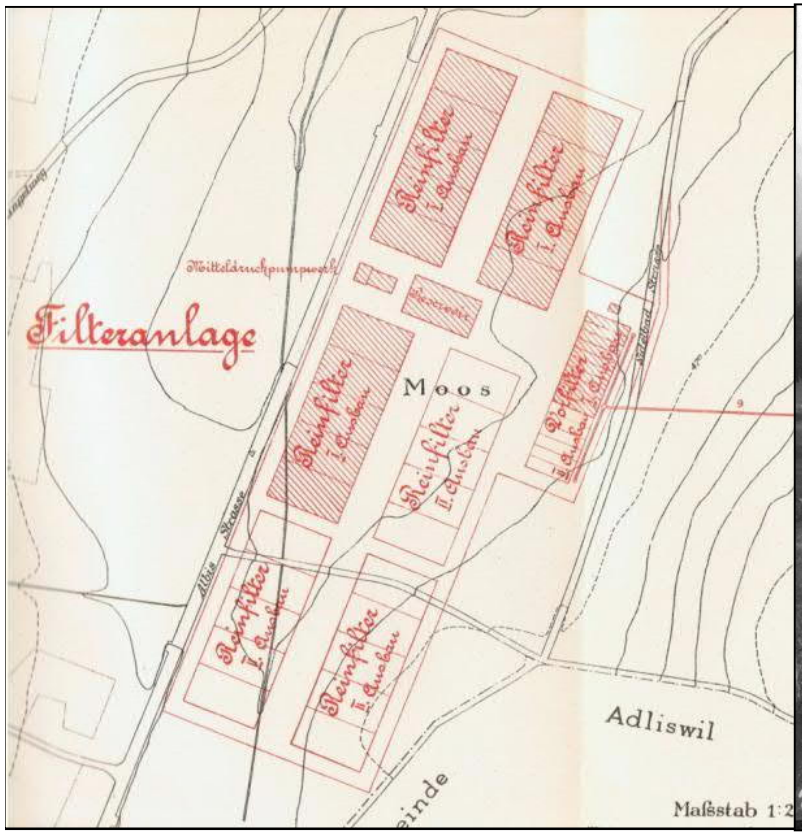


First Lakewaterplant at Silquai 1885





1911: Decision to build
Lakewater treatment plant Moos

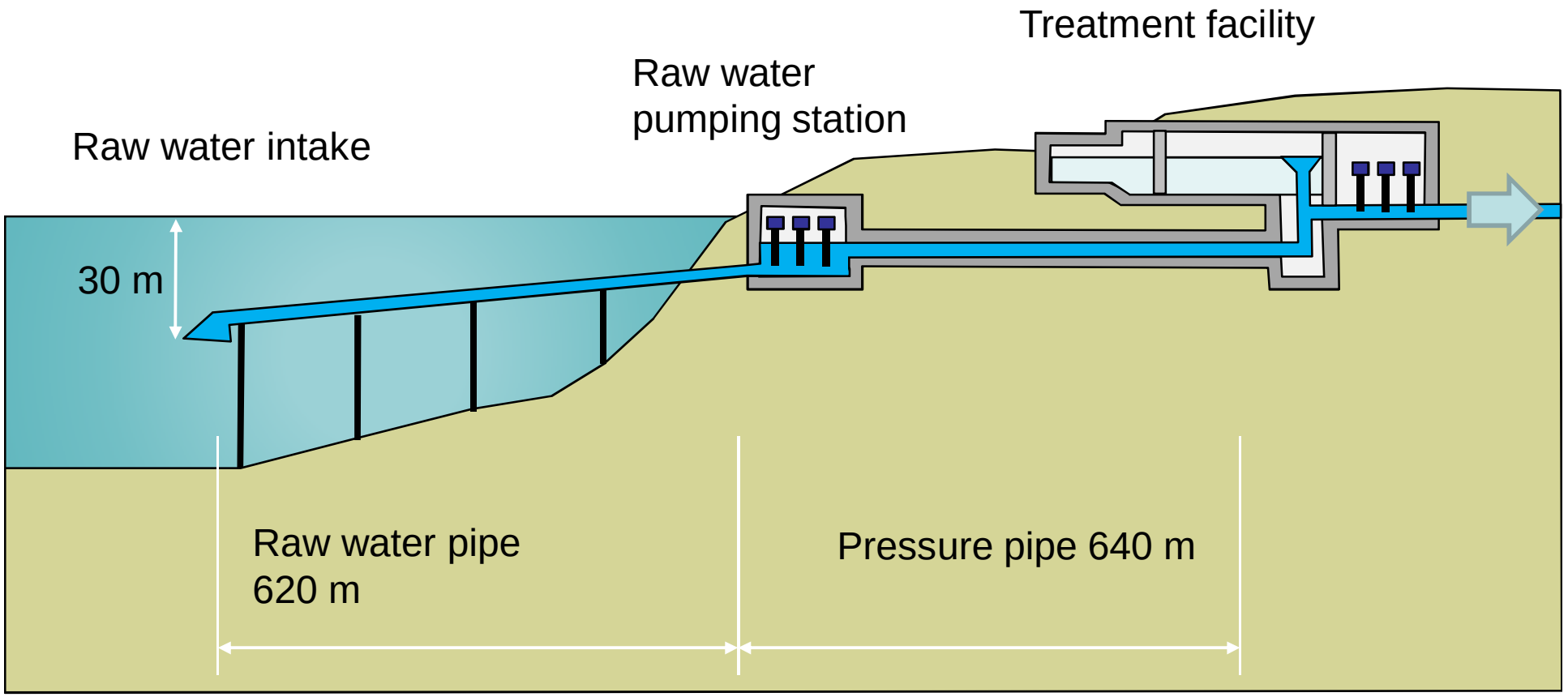


Built: 1914, Capacity: 100‘000* m^3/day *including 20‘000 Springwater)

Lakewater treatment plant Lengg

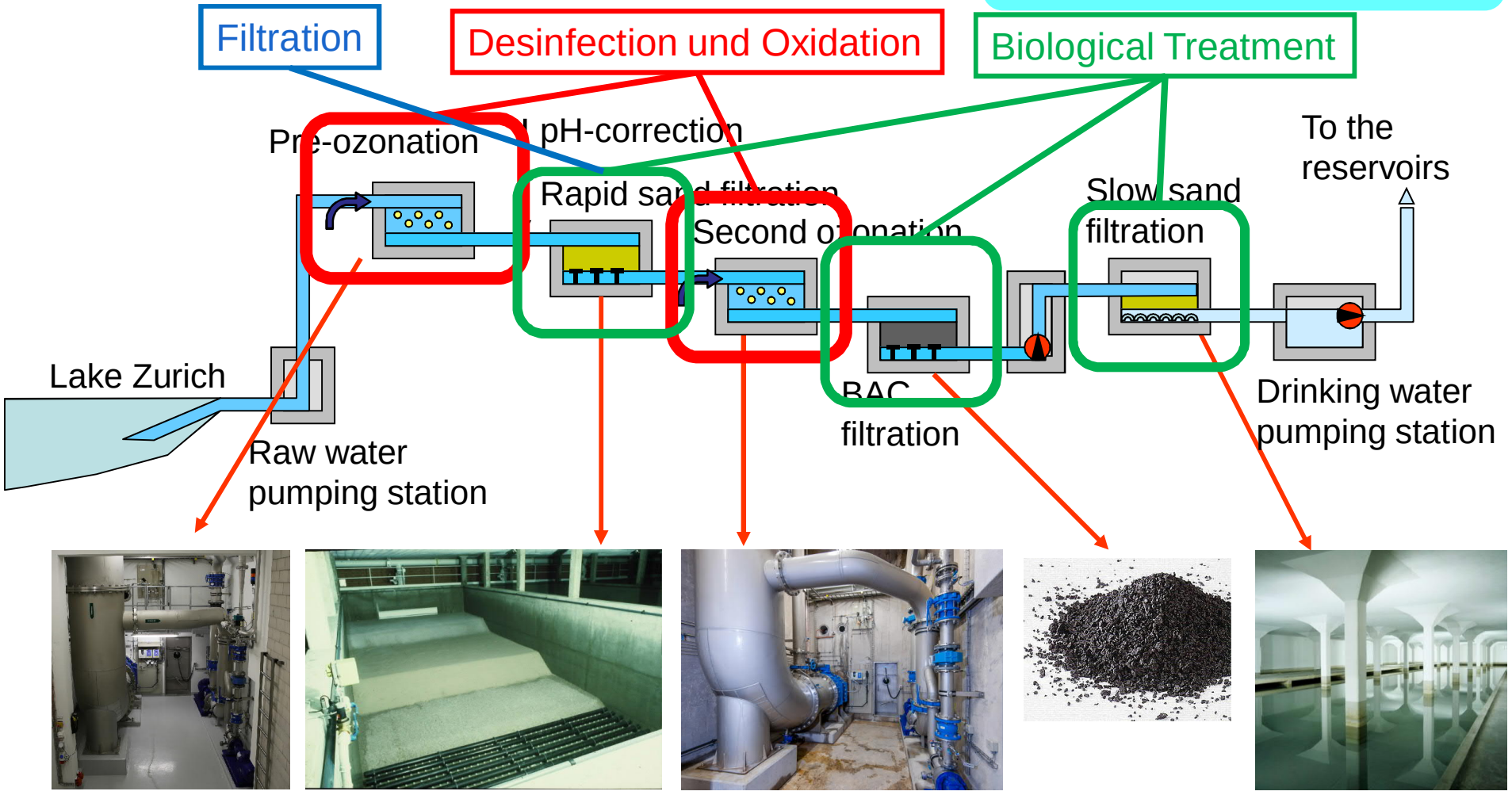
Built: 1960 Expanded:1975, Capacity: 250‘000 m^3/day

Lakewater treatment



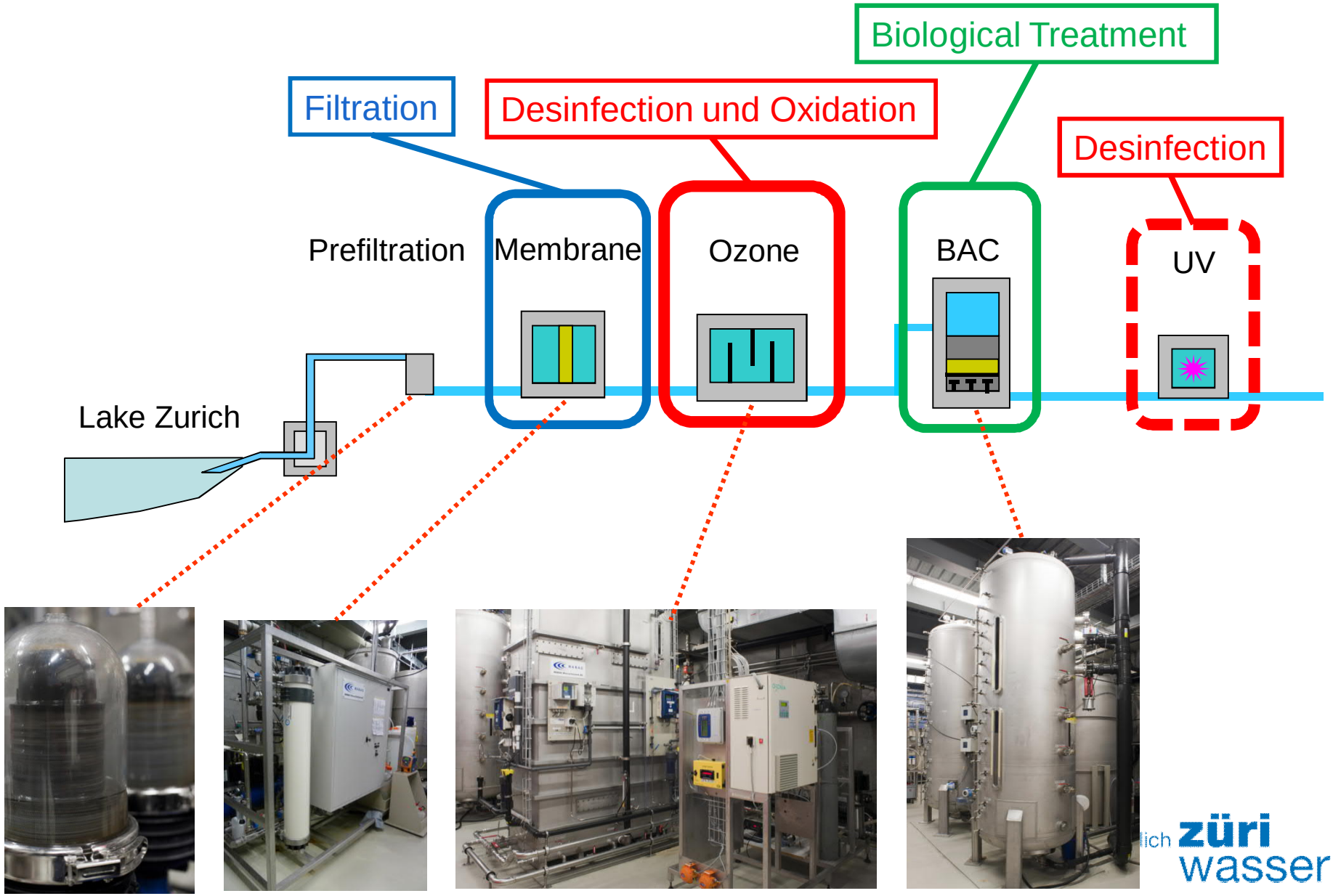
Drinking water treatment (Lengg)

Bactereoligical stable water without chlorination

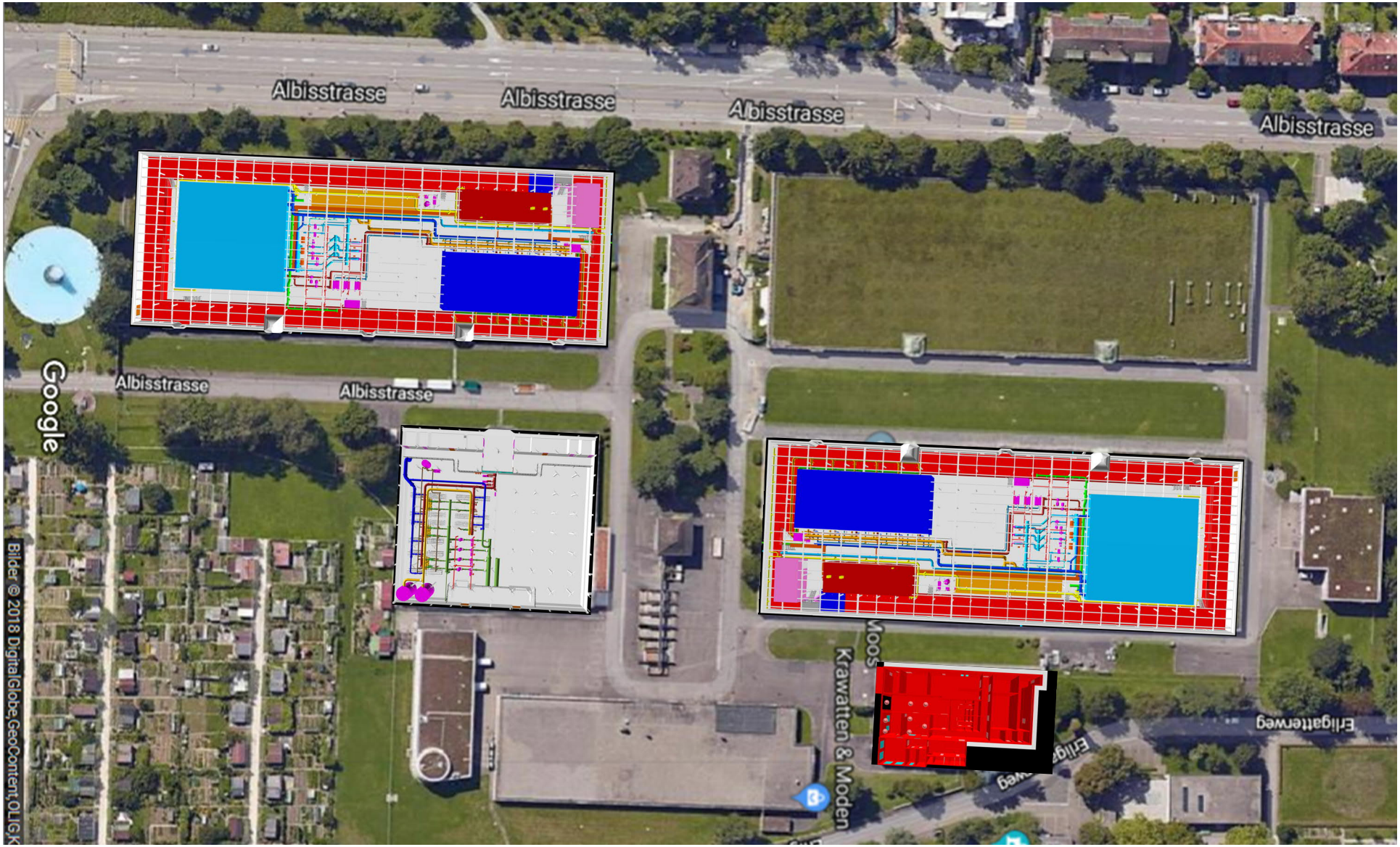


Maintenance of the Slow Sand Filter

Alternative Treatment train



New lakewater treatment plant Moos



New lakewater treatment plant Moos

Origin of the water

Springs around Zurich

160 Springs in Zurich

120 Springs in Sihl- and Lorzetal

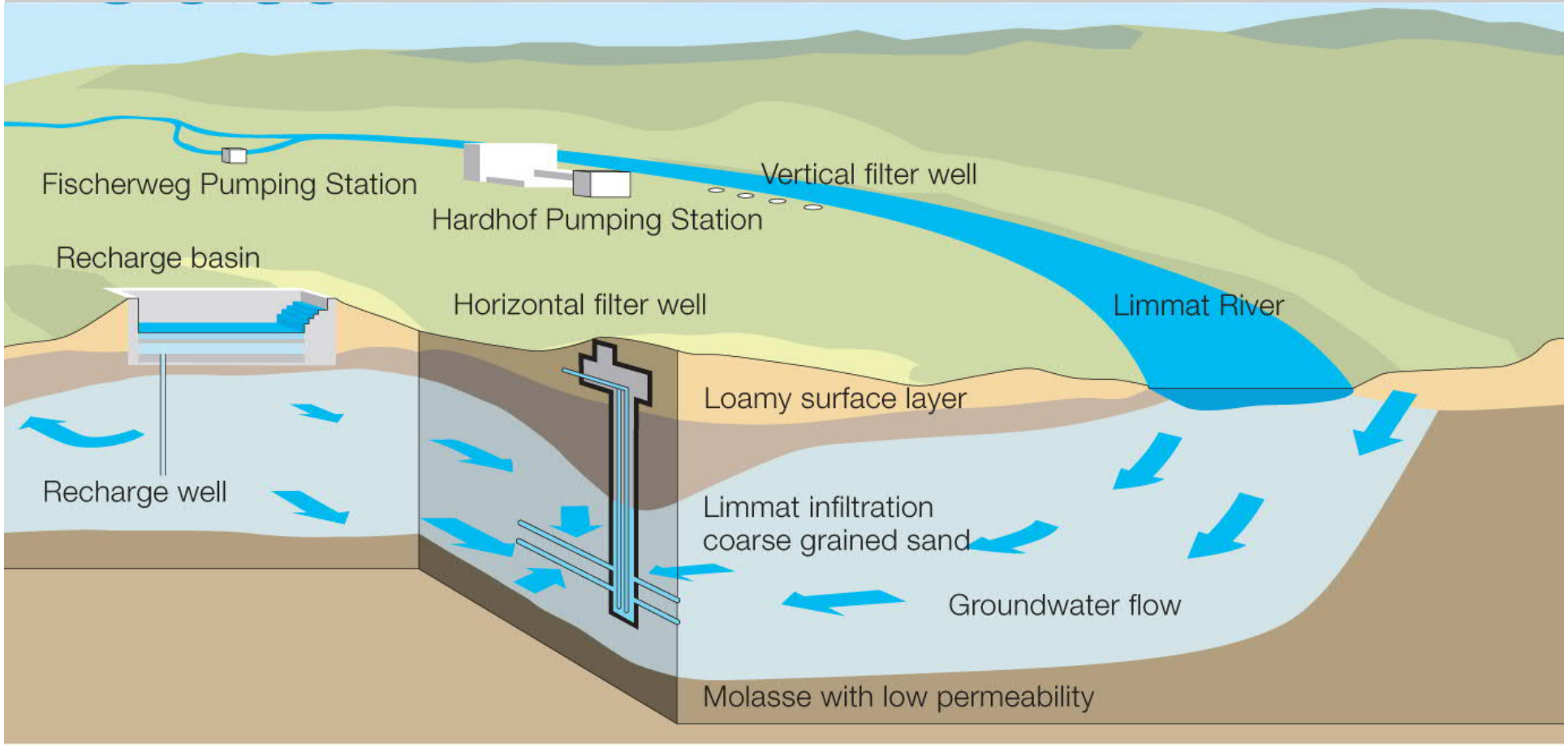
Spring water distribution

The 85 emergency water fountains are included in the 400 spring water fountains and are connected to the 150 km spring water distribution system.

Origin of the water

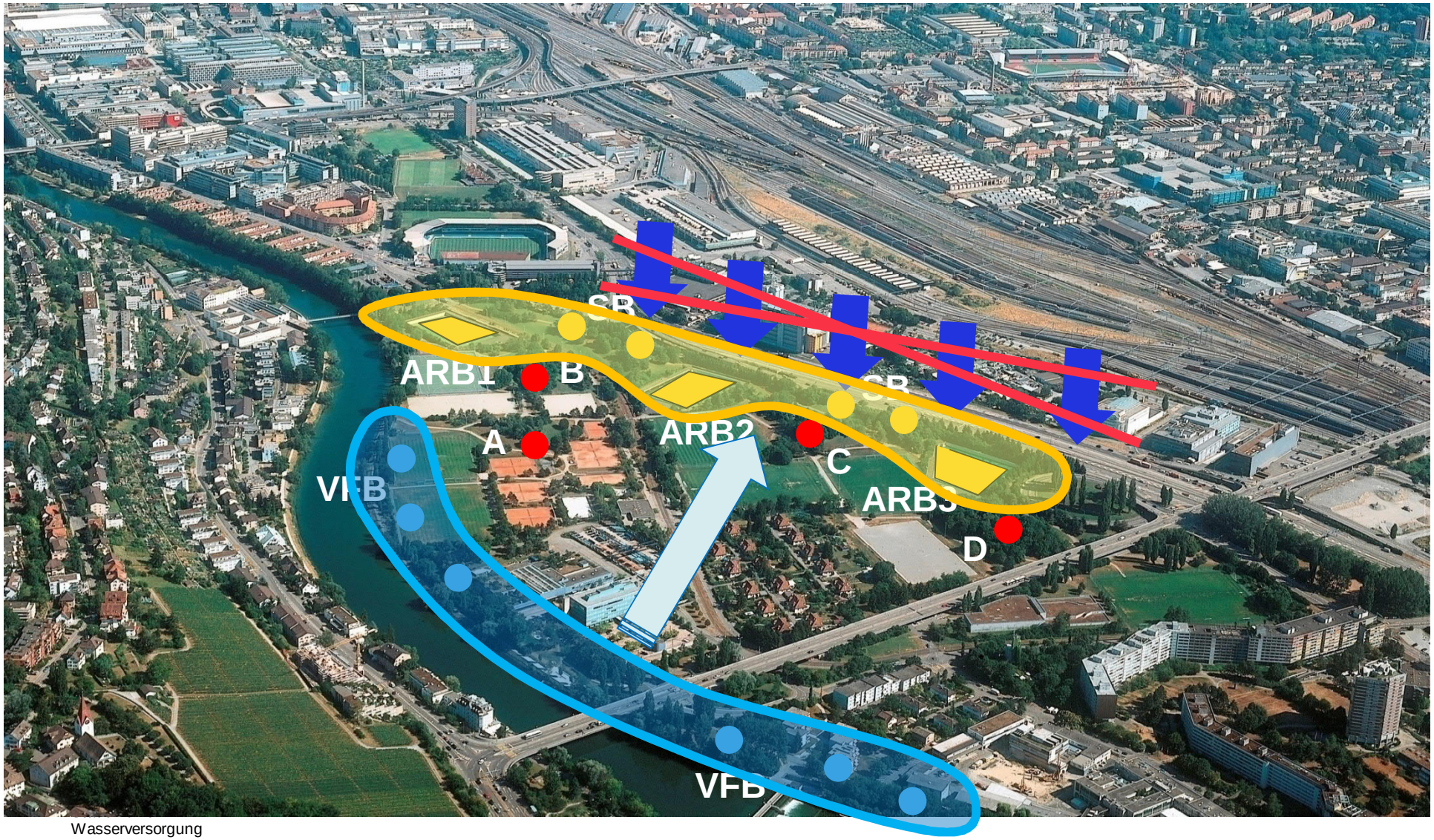
Groundwaterplant Hardhof

Built: 1934/1973, Theoretical capacity: 150‘000 m^3/day

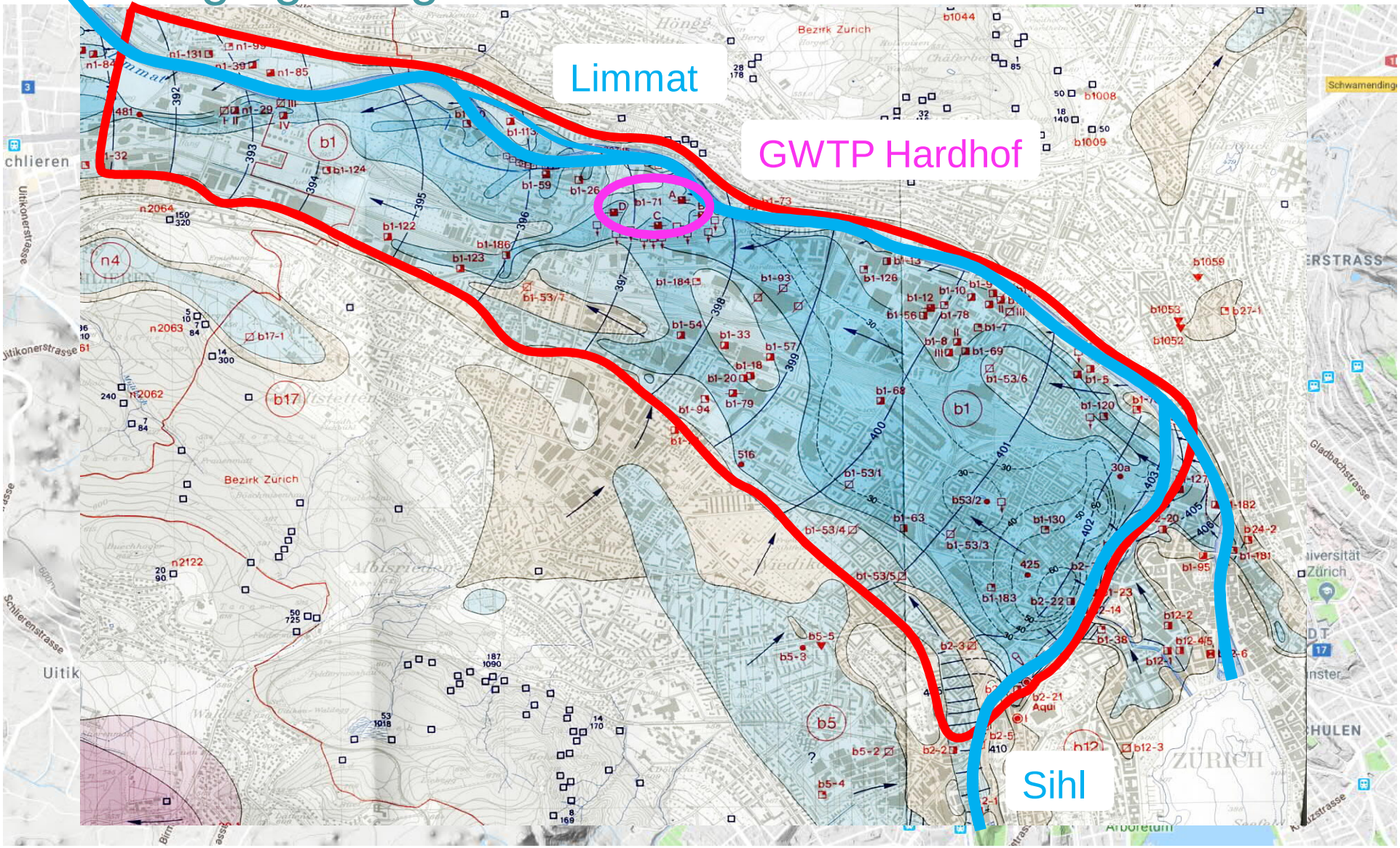


Groundwater plant Hardhof

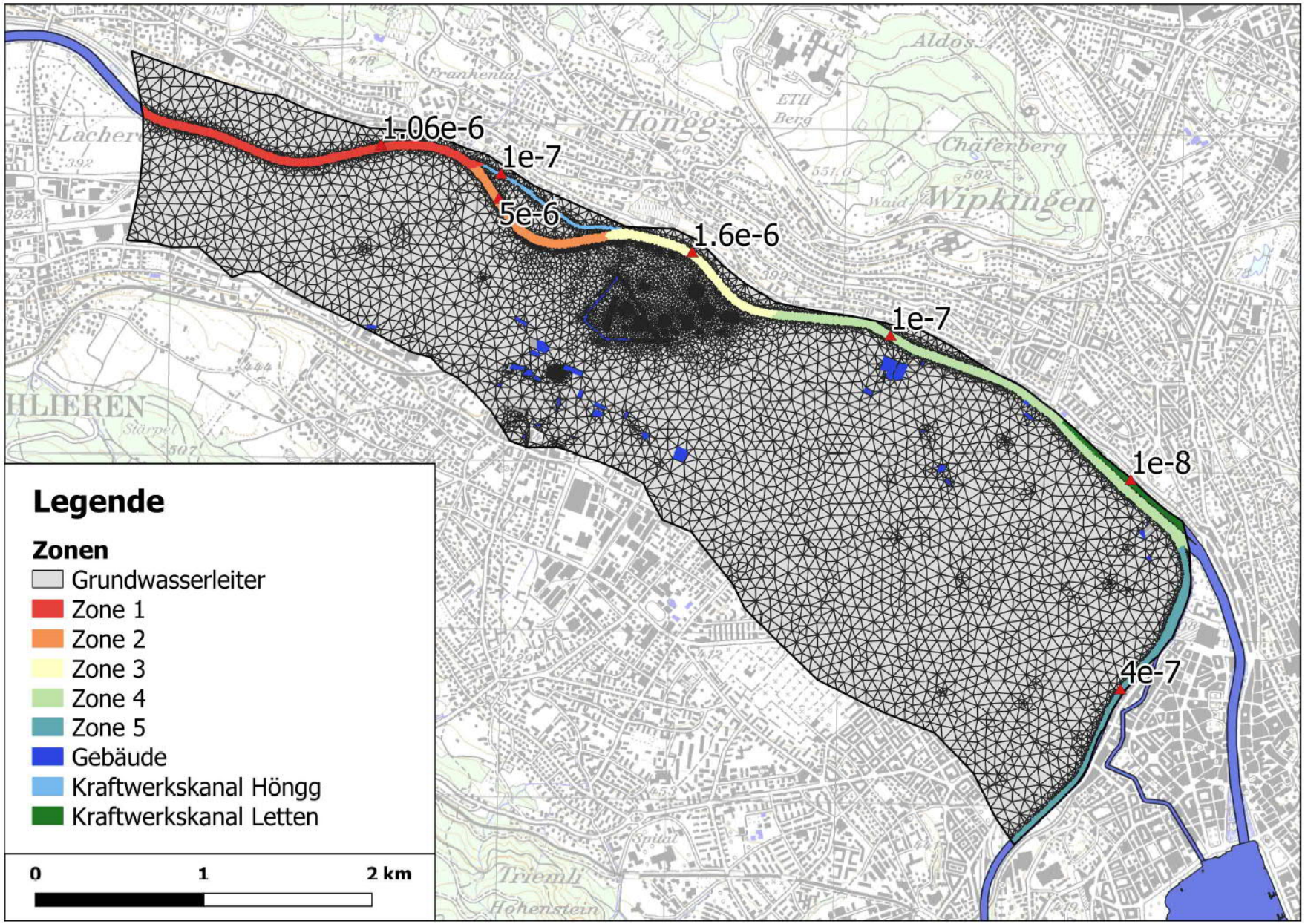
Technical implementation



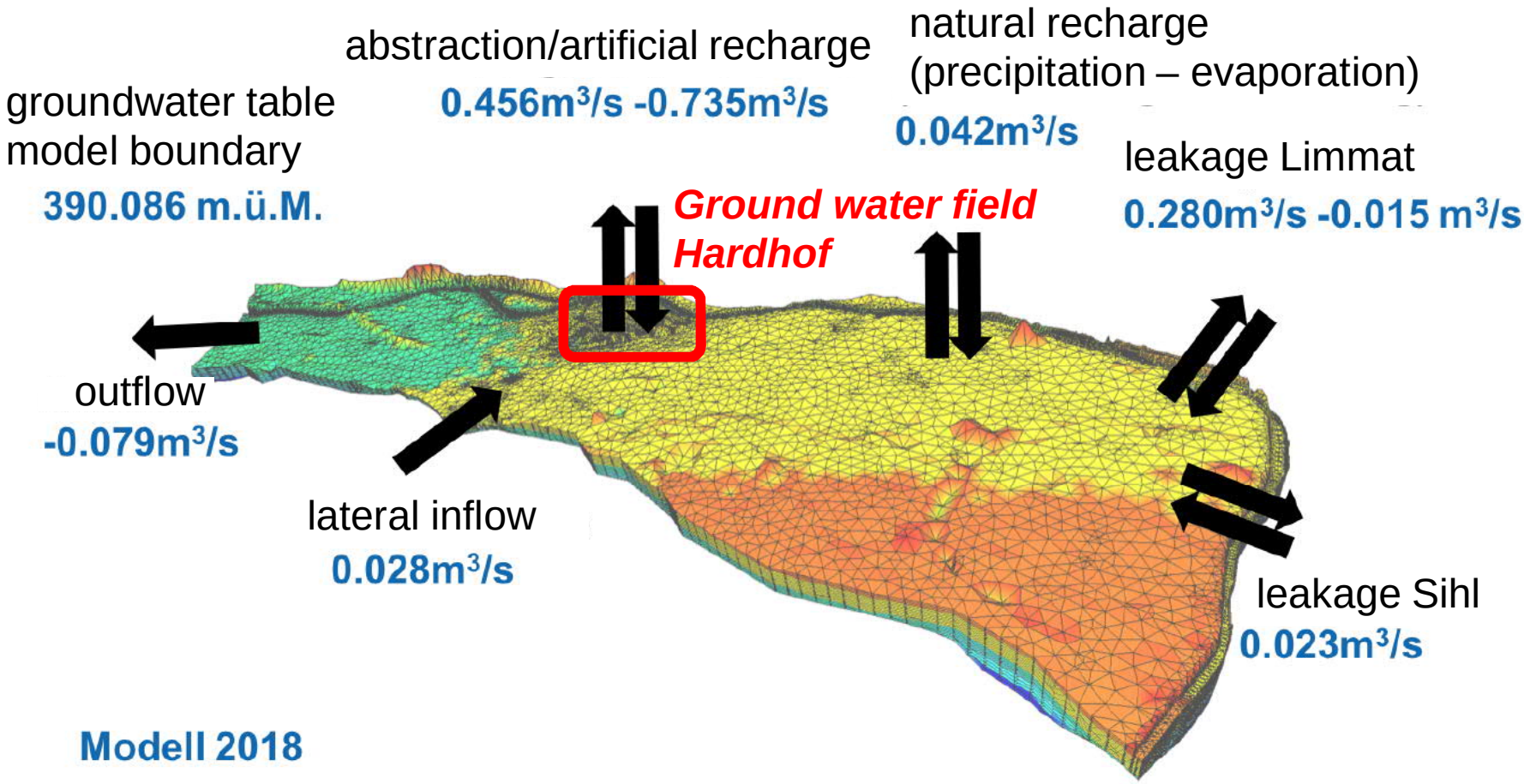
Managing the ground water field



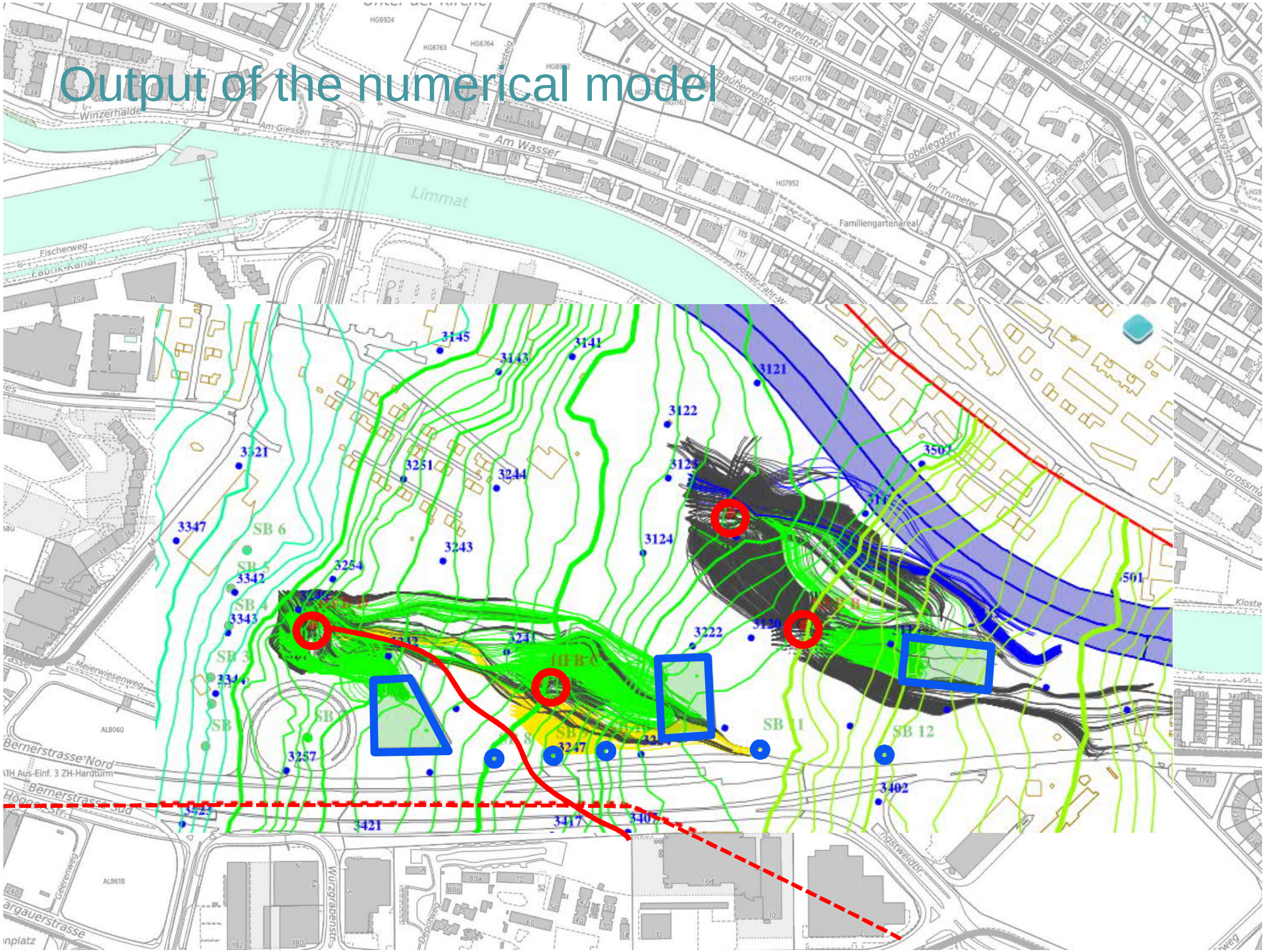
Real time ground water model



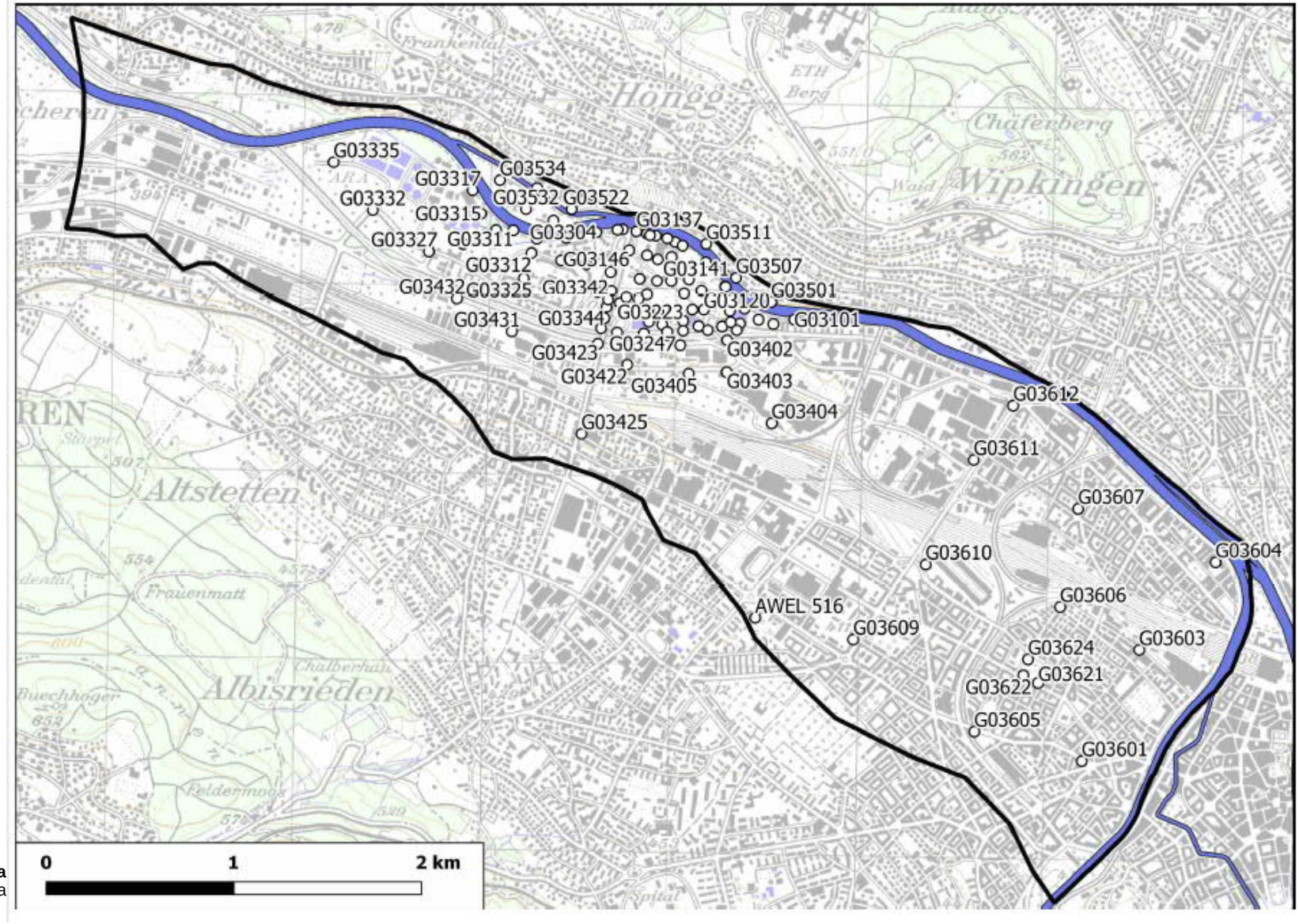
Boundary conditions of the ground water model



Output of the numerical model



Validation of the ground water model
1. Piezometers



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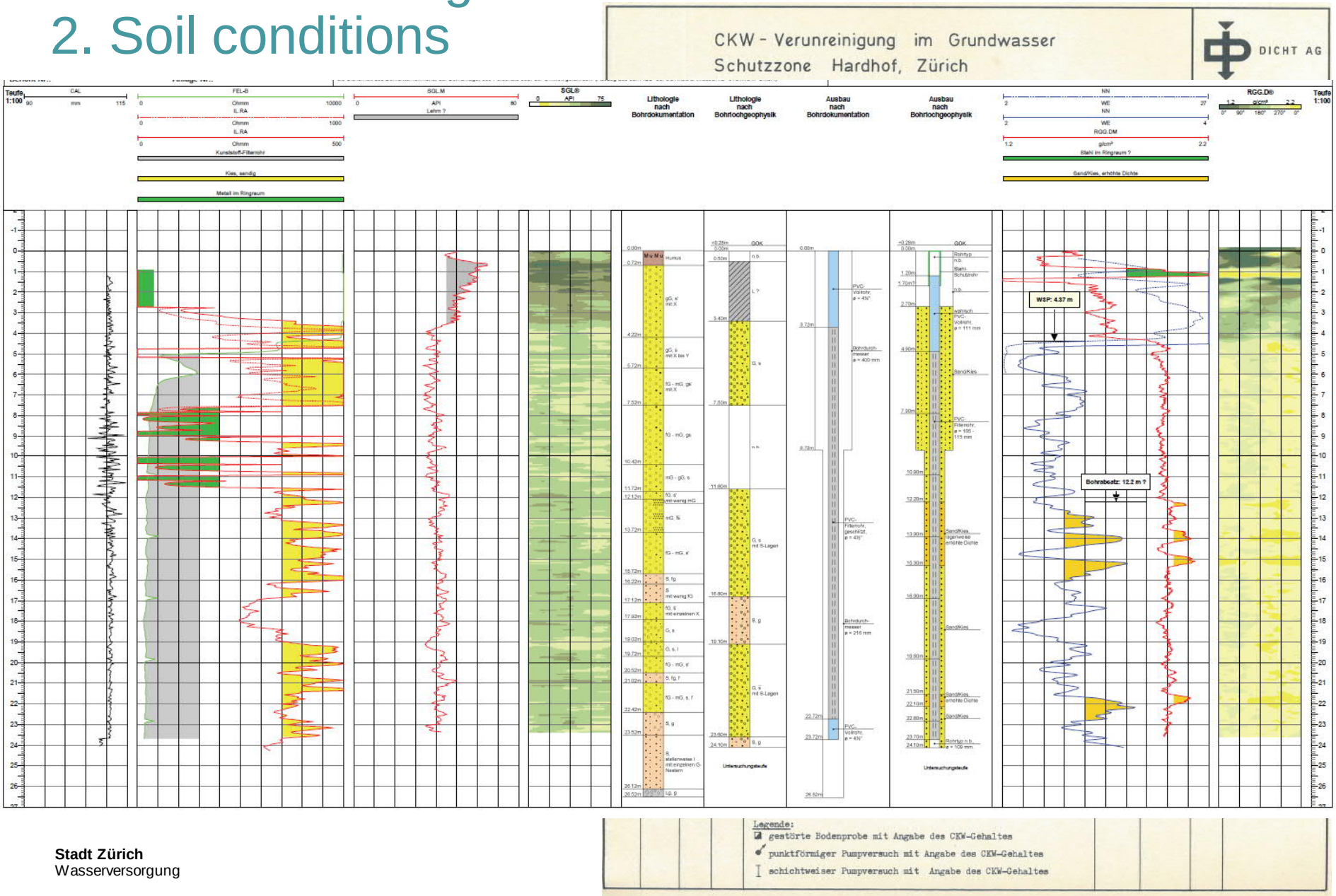
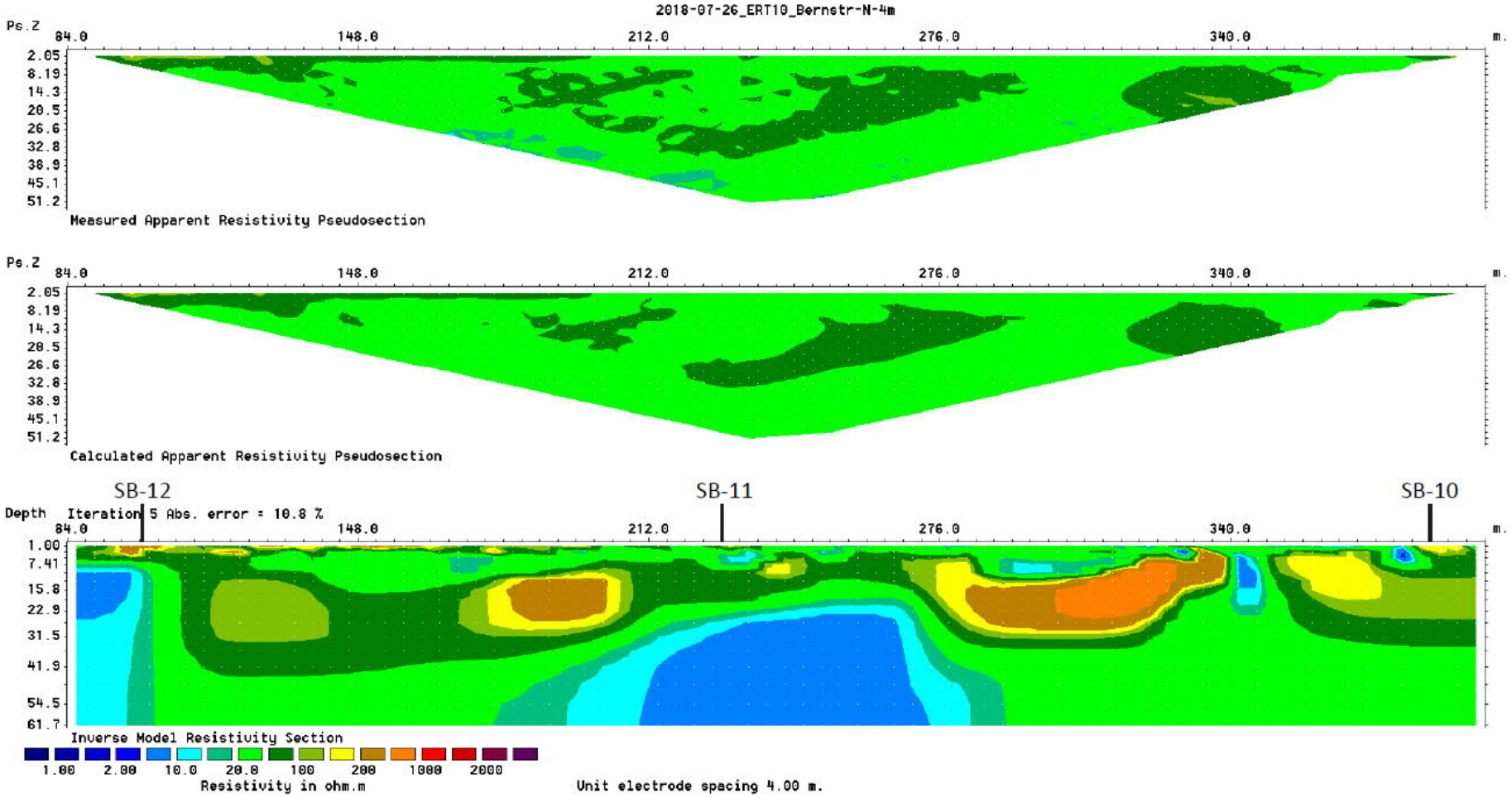
Validation of the ground water model
2. Soil conditions



Validation of the ground water model
3. Hydrogeophysical conditions (ERT measurements)

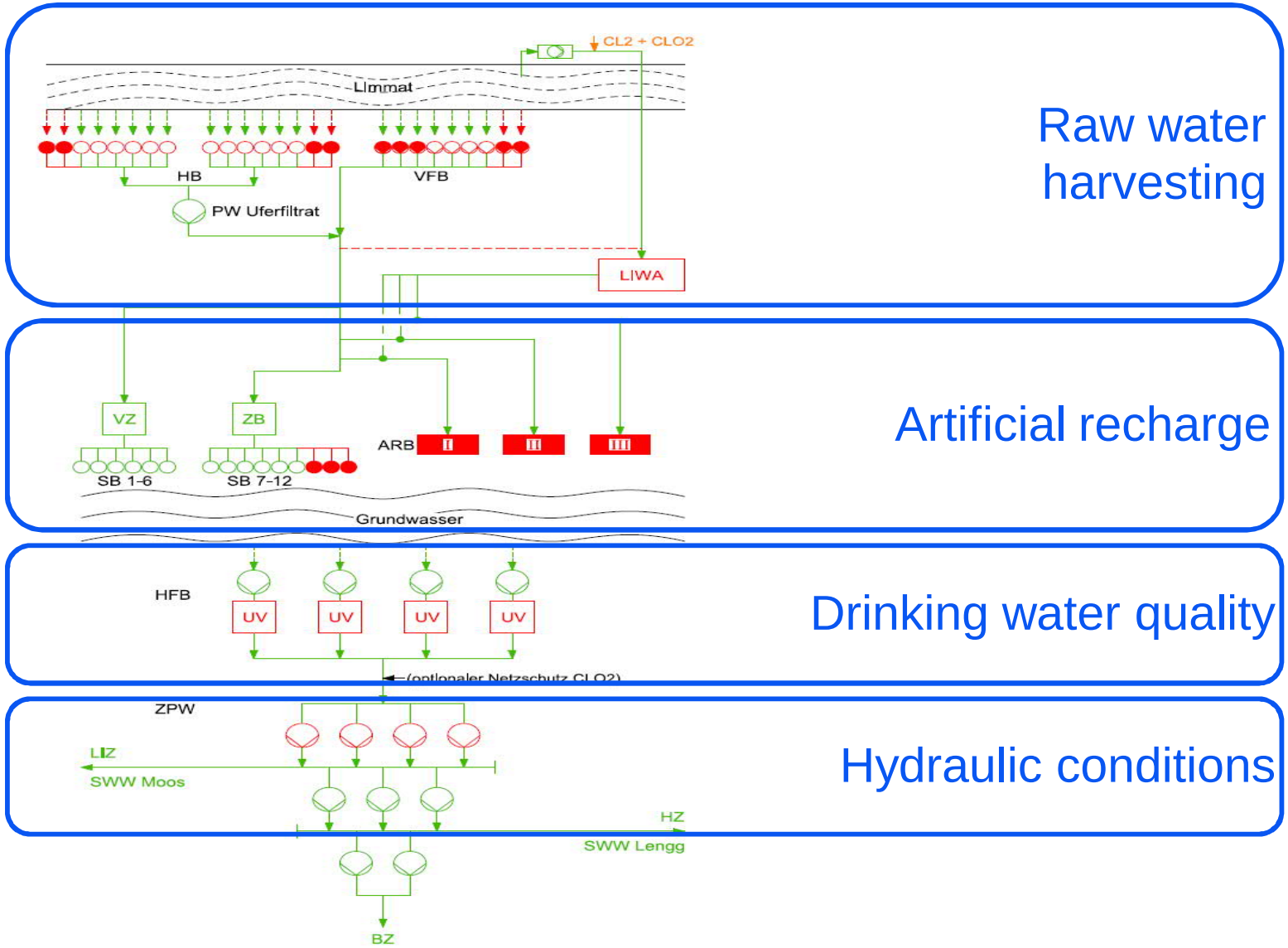
ERT-10 (Wenner-Array mit 4 Kabeln und 99 Sonden, spacing 4 m, Auslage 4 bis 396 m, Skala 1 - 5000 Ohm.m; **Sonden 0-84 m wegen Datenqualität eliminiert!**)

Messort: Hardhofareal/Südgrenze, Bernerstrasse Nord, ERT-Profil 1 m nördl. des Gehwegs (Beginn ERT10-21: 680'295.11 / 249'774.35/ 400.60; Ende ERT10-99: 679'986.62 / 249'774.90 / 399.45);
Schluckbrunnen 12 (SB-12; 680'279.07 / 249'780.25) liegt bei ca. 100 m. Schluckbrunnen 11 (SB-11; 680'151.09 / 249'787.25) liegt bei ca. 228 m. Schluckbrunnen 10 (SB-10; 679'998.05 / 249'788.94) liegt bei ca. 384 m.
ACHTUNG: 4.0 m ist OST-Ende, 396.0 m ist WEST-Ende des ERT-Profils!



Validation of the ground water model
4. Sampling campaigns

Make urban ground water harvesting future-proof



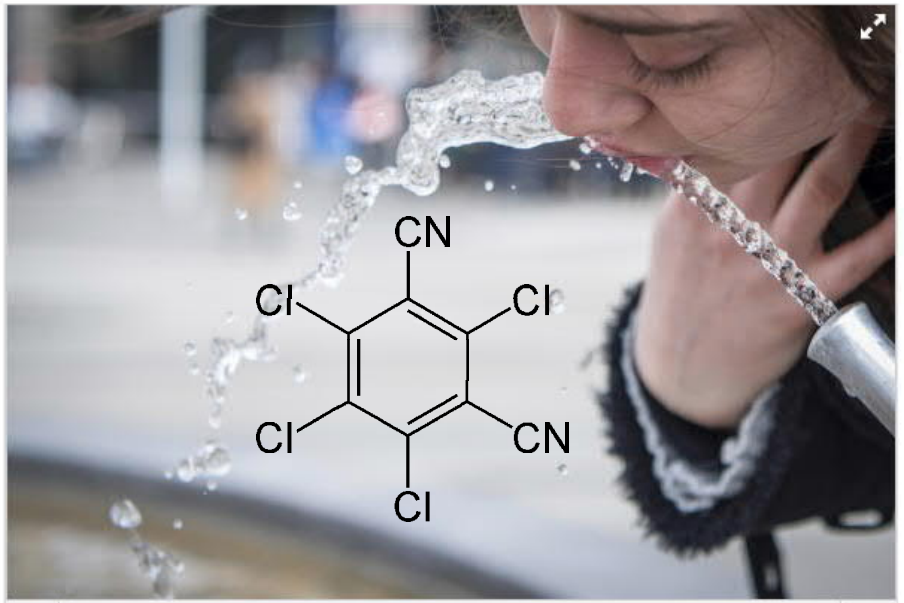
Urban ground water …… future-proof?

Wasserversorgung

Bericht des Bundes 15. August 2019 11:38; *Akt: 15.08.2019 12:30*

Forscher finden giftige Stoffe im Grundwasser

Der Bund schlägt Alarm: Einwandfreies Trinkwasser sei nicht mehr selbstverständlich. Im Grundwasser wurden potenziell krebserregende Stoffe gefunden.



1|9 Das Grundwasser in der Schweiz steht unter Druck: Zu diesem Schluss kommt ein neuer Bericht des Bundesamtes für Umwelt (Bafu) zur Wasserqualität.

Bild: Keystone/Melanie Duchene

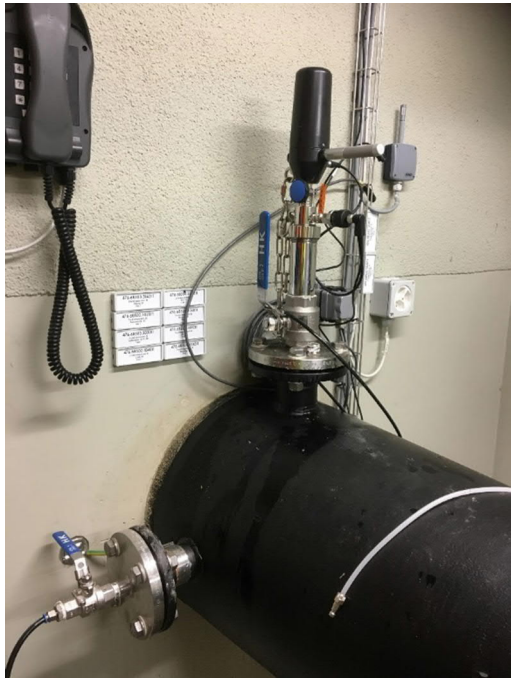
Water distribution

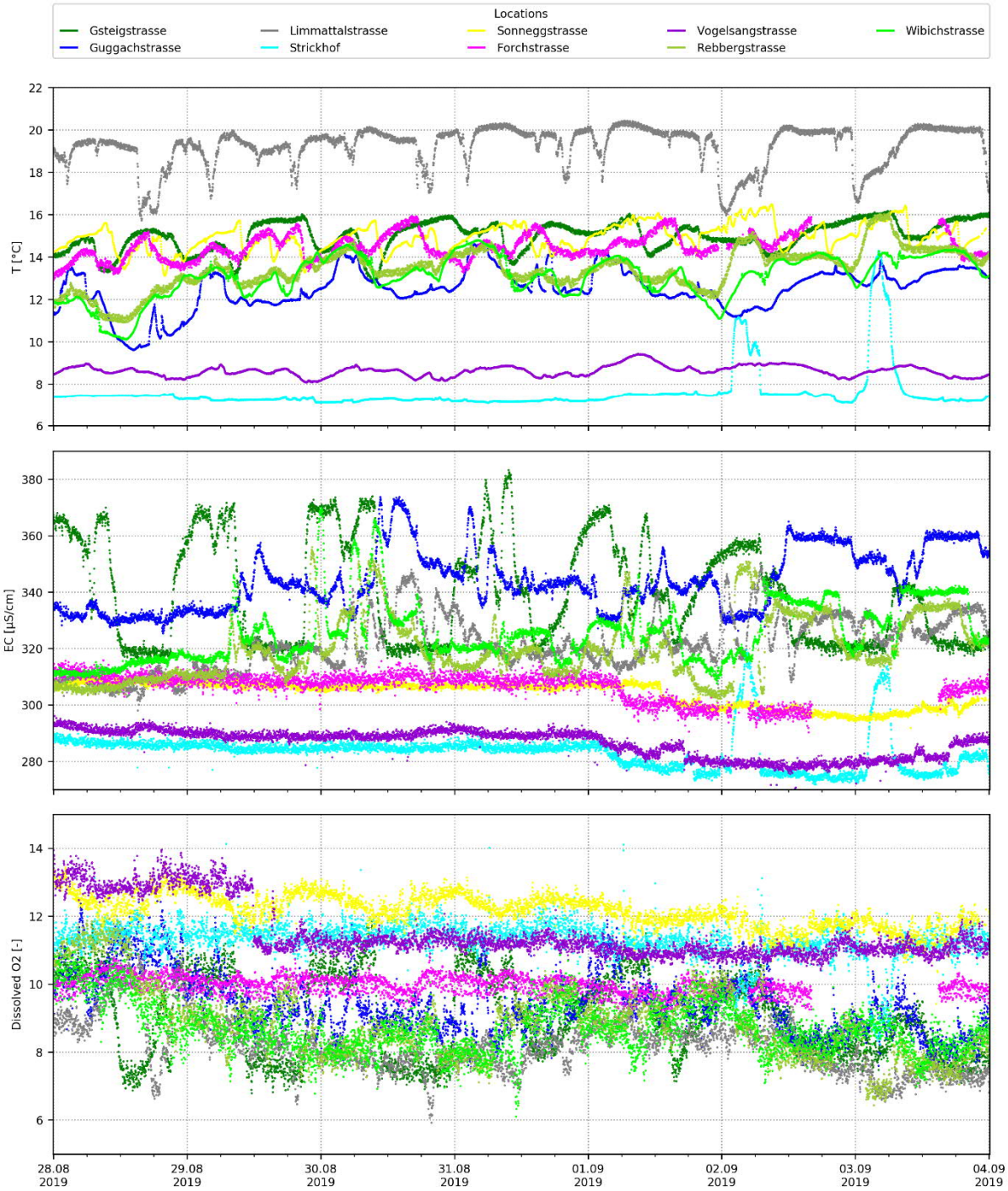
Maintainance of the system:

1100 km distribution
450 km household
8000 hydrants

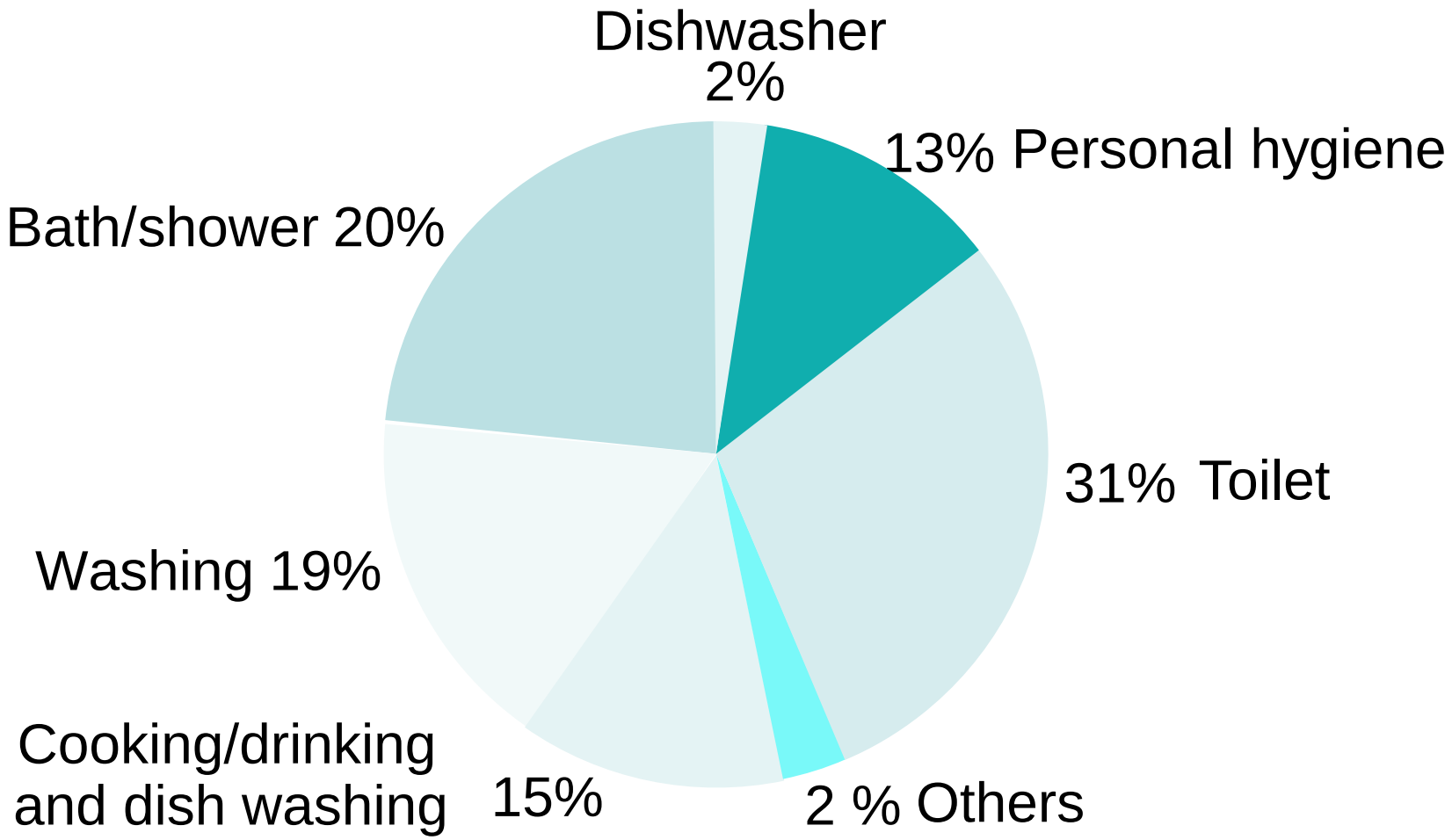
Yearly renewal rate of 30km.

Online monitoring





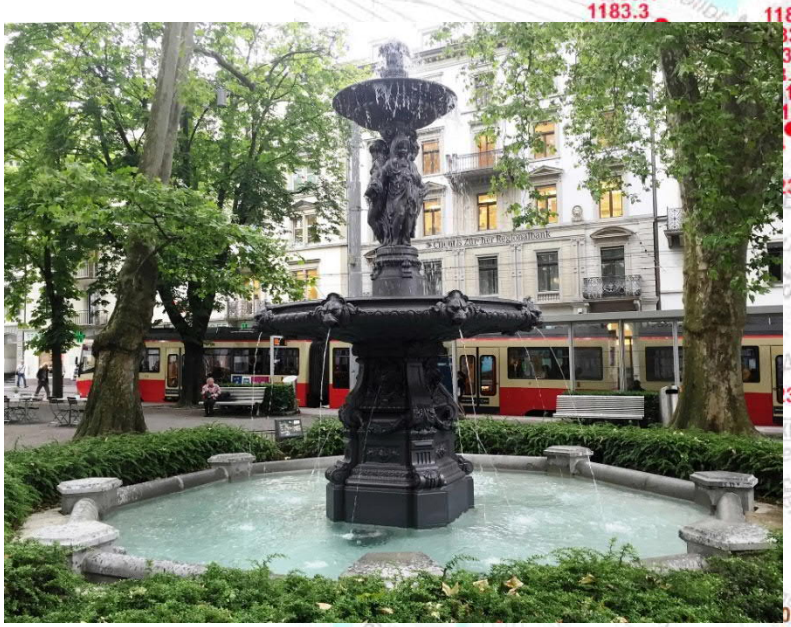
Consumption: 160 l / Person per day

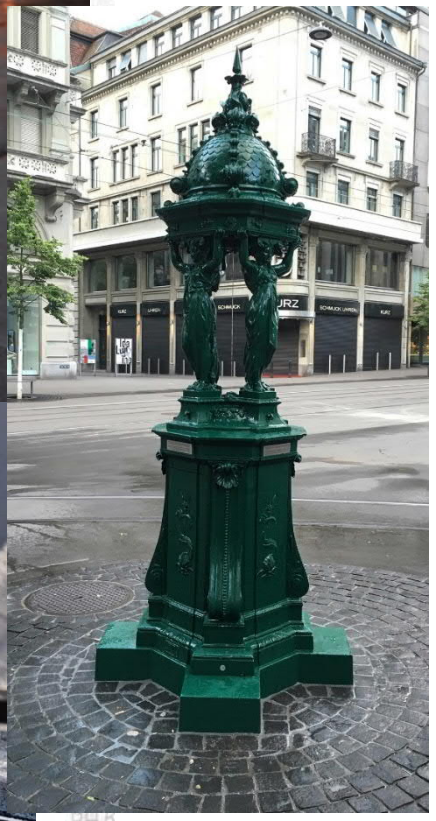


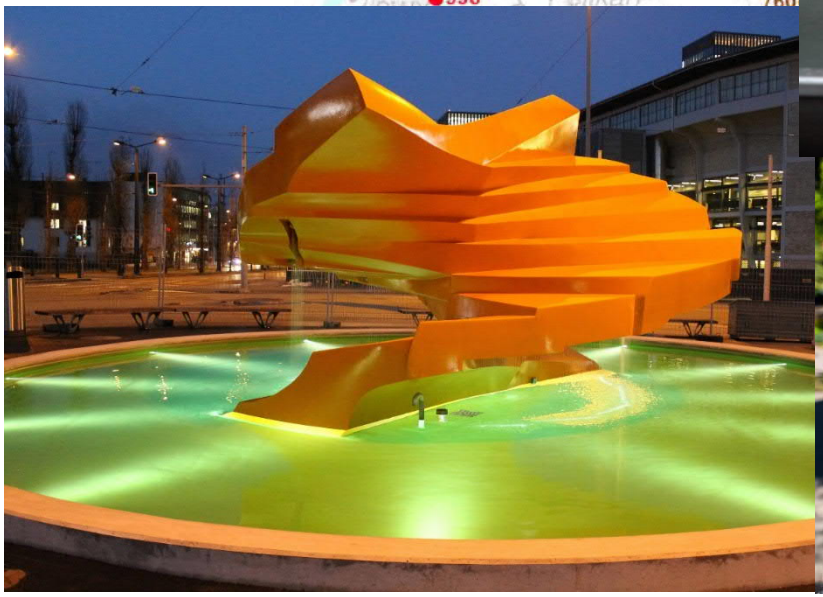
Water pricing

Average price per m^3 drinking water: approx. 2 Fr.
(yearly revenue: approx. 100 Mio.)

1200 fountains in the city







Thank you very much for your attention…

Any questions?