

# Advanced treatment of wastewater and sewage sludge by artificial wetlands at Fronhausen, Germany

Operating company:  
Zweckverband Mittelhessische  
Abwasserwerke  
Teichweg 24  
D-35396 Gießen, Germany

Strengthening and enhancement of a rotating disc reactor wastewater treatment plant for domestic sewage with constructed wetlands and sewage sludge drying basins with reed.

Population equivalents:  
5.000 PE

Planning: 2000 – 2003  
Construction: 2005 – 2006

Wastewater treatment plant from 1962:  
- rotating disc reactor

Structural alteration measures:  
- new screen  
- new process, measuring and control technology

Effluent (2010):	Legal Limits:
COD: 15 mg/l	55 mg/l
BOD: 3 mg/l	10 mg/l
NH <sub>4</sub> -N: 1,1 mg/l	10 mg/l
P <sub>tot</sub> : 3,7 mg/l	5 mg/l

Enhancement of the old rotating disc reactors:

- 1 polishing pond
- 2 reed planted artificial wetlands
- 1 reed planted sludge drying bed

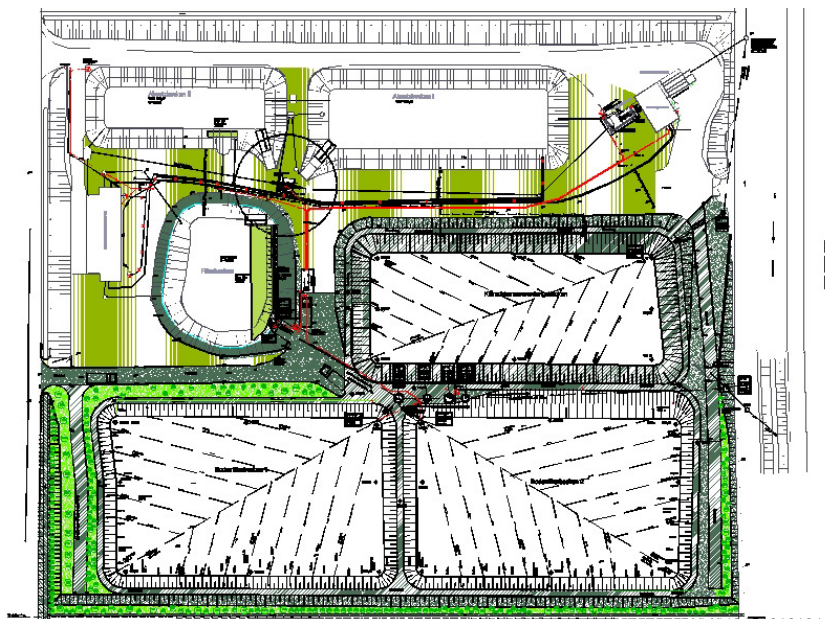
Design parameters:  
760 m<sup>3</sup>/d (dry weather) – 3.320 m<sup>3</sup>/d (rainy weather)


Space requirement for polishing pond:  
760 m<sup>2</sup>

Space requirement for artificial wetlands:  
5.320 m<sup>2</sup>

Hydraulic loading rate (2010):  
187 l/m<sup>2</sup> · d

Space requirement for reed planted sludge drying bed:  
2.065 m<sup>2</sup>



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