

PURE-Sewage Sludge Treatment System built on Terraces with three Read Beads



BAUERUmweltgruppe

Client:	Markt Geiselwind, Germany
Engineering Design and Supervision:	BAUER und MOURIK Umwelttechnik GmbH & Co
Scope of Works:	Planning, Construction Monitoring, Supply of specific Materials, Operation Monitoring
Contract Period:	June 2004 to September 2004



Project

Aim of the project was the construction of a sewage sludge treatment system holding approximately 1,000 m³ sludge on a slope with three treatment basins. With this technique the community of Geiselwind follows innovative ways to treat sewage sludge.

has then to be excavated. With the commissioning of the PURE-sewage sludge treatment system the city set the course towards an economically and environmentally conscious as well as sustainable sewage sludge utilisation.



Implanting the reed plants into the patch. In the background two pipes on support stands made of high-grade steel and two controllable floor drains System PURE.

Treatment Site

A PURE-sewage sludge treatment system with reed bead terraces was built on an area of 5,700 m² of which 3,600 m² can be utilised for sludge treatment. Due to the location of the beads on a slope sludge pumps are just required to transport the sludge into the first bead. Sludge treatment is completed by the intrinsic biocenosis, reed, micro organisms and the sludge itself.

Result

For building the sewage sludge treatment system extensive earthwork was necessary. First three plateaus of approximately 60 m x 30 m were modelled. Several layer water leakages were found, and collected in drainage pipes. In the follow-up the drains of the later reed beds were laid and the planes for the basic sealing were manufactured.

Due to the low permeability of the floor layers below it was possible to use a HP-PE foil with a strength of 1.5 mm and protection fleece 300 g/m² on both sides. The foils were integrated into the constructed dams. Thus the foil is durably protected against UV radiation and mechanical damage without additional measures. Drainage and ventilation of the filter body result from a combined system of drainage pipes, drainage gravel and two controllable floor drains System PURE per patch. The filter body consists of a drainage layer and a filter layer. The rejects of the sewage sludge are held back by the filter layer. 3,300 reed plants per patch were planted into the filter layer.

The sewage sludge is discharged via high-grade steel pipes System PURE und support stands. The stands are implemented adjustable, in order to allow the adjustment of the incline of the pipes to the consistency of the sewage sludge. The maximum stacking height amounts to 1.50 m. With an annual rise of the mud level of 15 cm the plant can be operated 10 years and



Patch 2 is fed with sewage sludge. The entire patch surface is already covered with highly drained sewage sludge, covered by cracks from drying. The treatment patch is close to the motorway A3.

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