



## Newsletter no. 1

### Introduction

The project has had a good start. In the initial stage, Aalborg University have been working intensively with developing general design criteria for the three demonstration facilities. At Aarhus University planting plans were prepared. Simultaneously the water companies in Silkeborg, Århus og Odense have selected locations for the facilities, analyzing the catchments areas and prepared or performed the fieldworks (i.e. topographic and geotechnical surveys of locations). Furthermore applications for the needed approvals have been handed in to the relevant authorities.

### Testing of technical feasibility

The filtration and sorption technologies envisioned in the full scale demonstration facilities were tested in laboratory scale setups. The tests comprised extensive studies on the filtration capacity of different sand filter layouts as well as the sorption efficiencies of the 3 sorption technologies envisioned in the full scale demonstration facilities. The experimental studies showed all 3 sorption technologies to be efficient for removal of dissolved pollutants and yielded important design parameters for the full scale demonstration facilities. The tests on sand filtration yielded important design parameters applied for sizing of the filter surfaces. The experimental studies have been conducted by Aalborg University

### Plants

Aarhus University has in cooperation with Aalborg University prepared the planting plans for the three treatment systems. The planting of the systems will be done in accordance with the functional requirements of the systems (i.e. the water treatment) and the aesthetic appearance of the systems. In addition, plant species that are occurring in natural water bodies bordering the systems will be selected. The filter units of the systems will be planted with Common Reed (*Phragmites australis*) as this species, because of its deep growing root system and its robustness is the best species to secure proper functioning of the filter units. The border of the ponds will be planted with other common and nice-looking wetland species (in groups), and in deep parts of the ponds a few water lilies (*Nymphaea alba* and *Nupha luteum*) will be planted.

At Silkeborg the last pond will be covered with a floating water plant (*Stratiotes aloides*) in order to be able to study its effects on reaeration. The Water Soldier (*Stratiotes aloides*) is shown on picture.



At the system at Aarhus 'polders' will be included planted with *Schoenoplectus lacustris* because similar polders are a main characteristic of the neighbouring lake.

As the required plant species are not readily available at commercial nurseries, a special nursery has been contracted to produce the plant material. The nursery is at present producing the plant material from seeds and vegetative propagules so that the plants can be ready for planting in the autumn of 2007 and the spring of 2008.

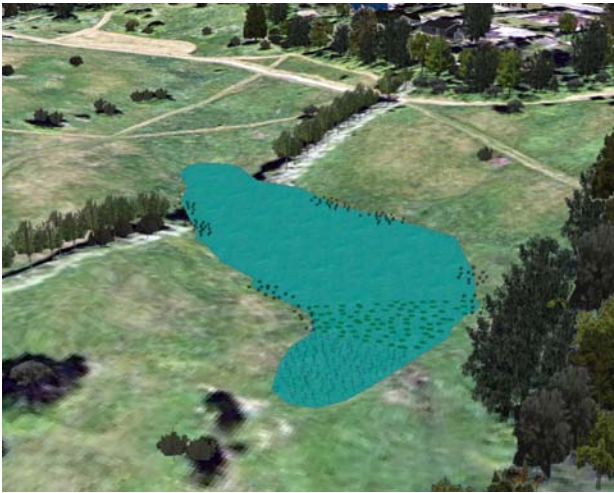
### Design specification and wet pond layout

Based on results produced at the universities in Aalborg and Aarhus, PH-Consult has prepared the design specifications for the individual facilities. The specifications address hydraulic conditions in the catchments, hydraulic and environmental conditions in the receiving water body, location of the facility, monitoring equipment, basin layout, plants, construction of inlet and outlet structures,



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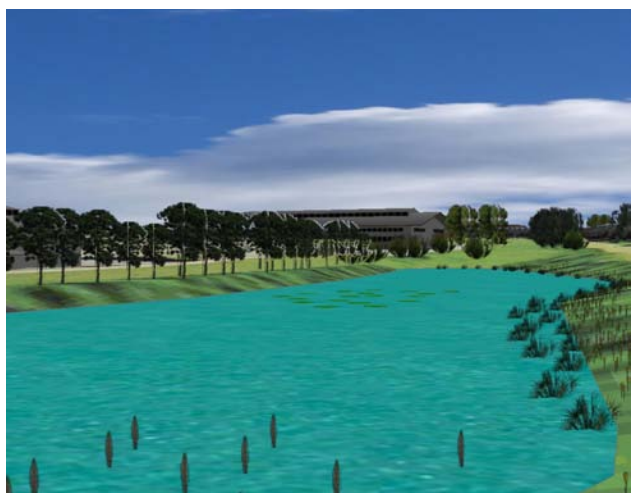
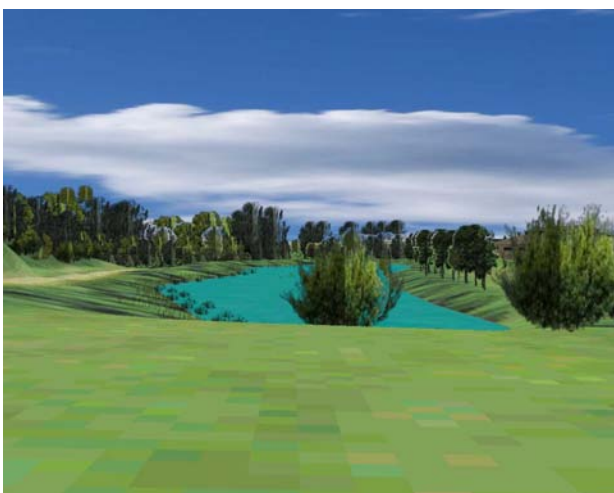
construction of sand and sorption filters and aluminium and iron dosing. Furthermore three-dimensional drawings of the wet ponds have been produced.



3D drawings of wet pond in Silkeborg.



3D drawing of wet pond in Århus



3D drawings of wet pond Odense



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### **Detailed design**

Currently the facilities, i.e. wet ponds, infrastructural and concrete constructions, are in detailed design phase. This phase will be completed late June 2007. Construction on site is expected to begin early August.

### **Next newsletter**

Newsletter no. 2 will be issued October 2007. Then construction of facilities will be in completion stage.