Eco-design of a filtering system through a garden in the Ashar Tented Resort, in Saudi Arabia

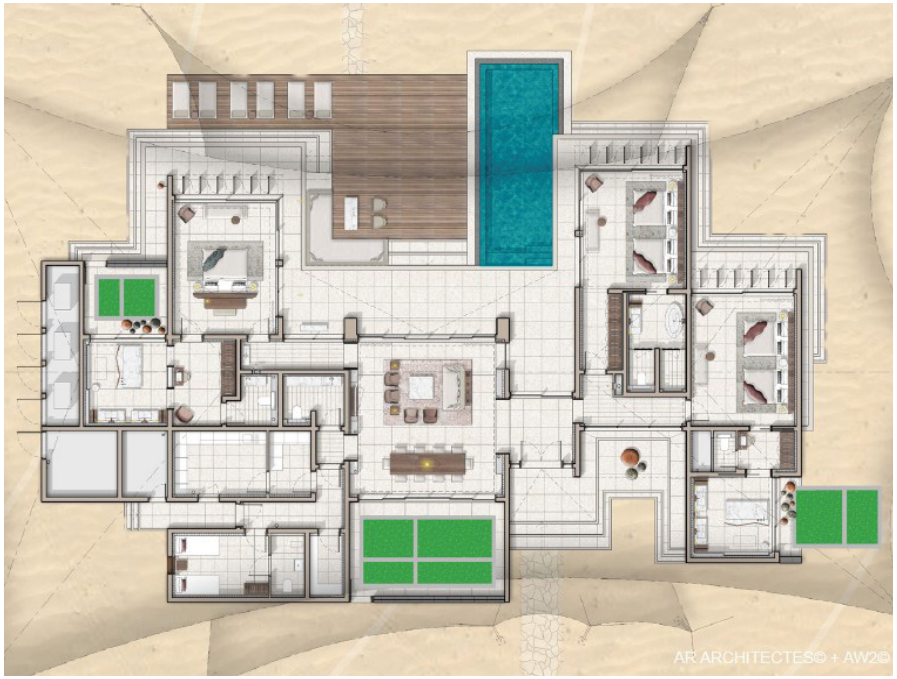
Lanscaping Planning : Infrastructure, HQE® approach

Client	RCU, AFALULA
Location	Al-Ula, Saudi Arabia
Project mission	Eco-design of filtering ponds in the garden in the hotel
Consultant capacity	Landscaping HQE®, study AW2, EGIS, AR ARCHITECTES
Date	On average 2,100 l/d per room of wastewater to be treated Study in 2020 - Detailled Design

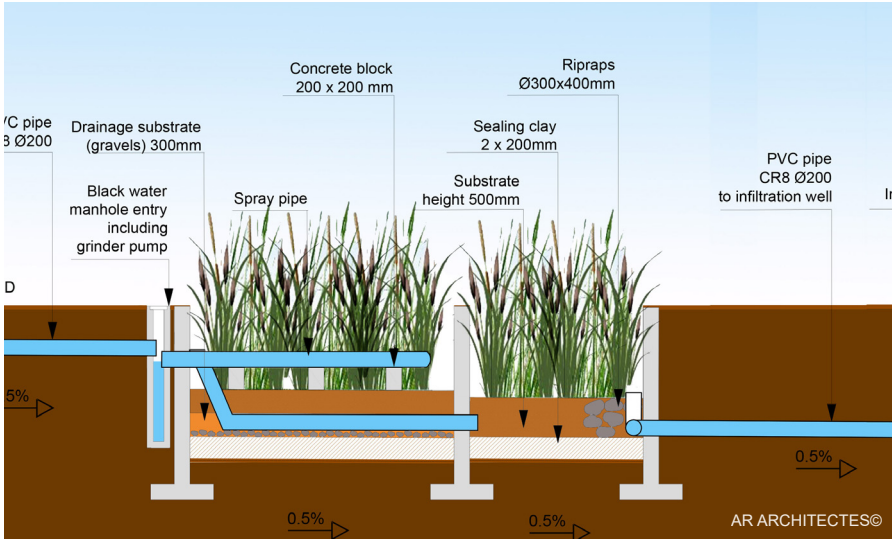
Mass plan of the site

Perspective from the patio of the master bedroom bathroom

The site is in a desert area of the city of Al-Ula in Saudi Arabia. The objective is to minimize the resort's water consumption that often comes from desalination and so has a high impact on the environment. Thus, the filtering gardens in the patios of each tent make it possible to recycle gray and black water in order to reuse it for sanitary uses, maintenance and irrigation of the hotel's landscaping.
The major challenge is to create responsible water management in line with the ecological and economic principles of the Ashar Tented Resort hotel, which aims to be innovative in this area.



Plan of the 3 bedrooms tent integrating the filtering gardens



Section of a grey water phytopurificating system

Various substrates *(natural filters)* + **Cyperus Papyrus** *(natural phytopurificating abilities)* + **Micro-organisms** *(living in the substrates and the plant roots)*

= Phytopurification

Section of the grey water filtering system by *Cyperus Papyrus*

HQE® TARGETS

TARGET 1: HARMONIOUS RELATIONSHIP WITH THE ENVIRONMENT

• Perfect integration of the filtering ponds in the various tent's patios.
• Limitation of Noise, olfactory and visual pollutions.

TARGET 5: WATER MANAGEMENT

• The used water treatment is done by the various filtering ponds.
• Those ponds avoid an over-consumption of potable water
• Cleaned water is recycled for sanitary use, irrigation and cleaning.
• The surplus of cleaned water recharges the phreatic table

TARGET 7: MAINTENANCE MANAGEMENT

• The maintenance of vegetalised spaces are minimised by choosing the *Cyperus Papyrus, which requires only 2 cuttings a year.*

CIBLE 15: BIODIVERSITY

• The filtering ponds that are planted with *Cyperus Papyrus enable the reintroduction of this plant in the desertic zone of* Al-Ula.

FILTERING GARDENS IMPACTS ON THE PROJECT ECONOMY:

Using of the water provided by the city (per year) = **-20%**

grey water + black water + swimming pool water

Filling of the phreatic table (per year) = **+370%**

grey water + black water + swimming pool water

Building additionnal cost = **+ 2.3%**

Estimated cost reduction for the infrastructure = **- 95%**