

Project Update: February 2018

Objectives completed:

2017/04/25 – 2018/05/01 Site visit at The Overberg Renosterveld Conservation Trust.



It is visible from the above image that the degradation of Renosterveld is still very much an ongoing problem. The cleared vegetation between the two Canola plantations was pristine Renosterveld, rich in biodiversity. The area was cleared by the farmer to ensure water runoff to his feeding trough.

2017/07/02 – 2017/08/15 Source of materials for the design and construction of the biofiltration system.

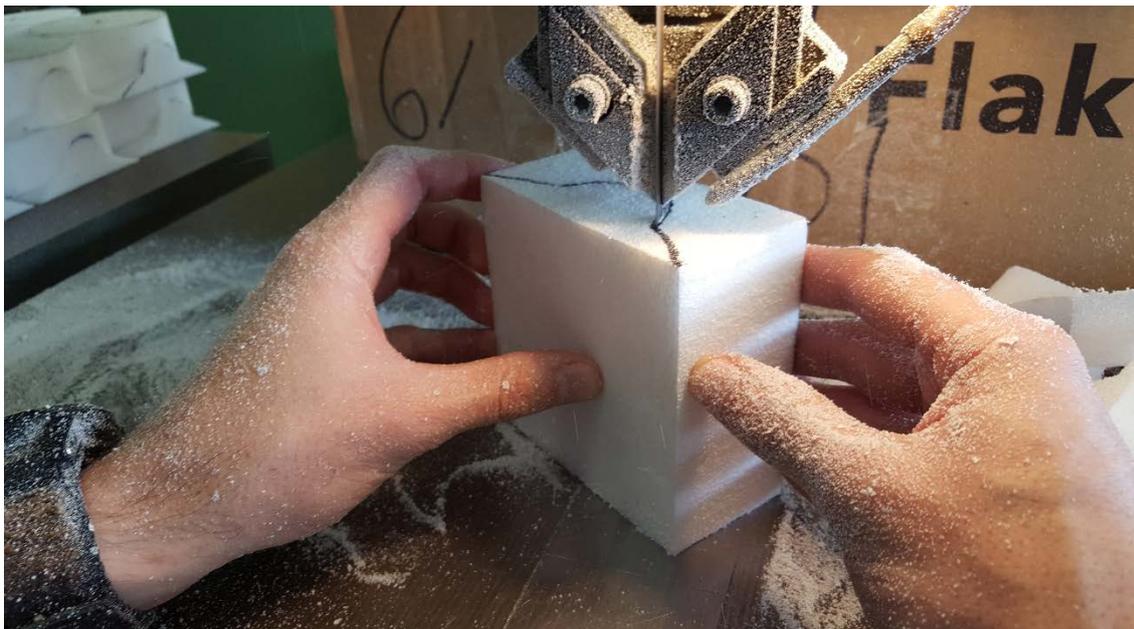


The materials needed for the water purification system are PVC pipes 110 mm and 160 mm diameter. The lengths needed were 60 m and 20 m for the 110 mm and 160 mm diameter pipes respectively. Using a table bandsaw the PVC pipes were cut into the correct lengths. It was established that the optimal depth of each silo is 500 mm, to allow for plant growth, water permeability and a gravel and sand filter with the chamber, above the drainage pipe.

2017/08/22 – 2017/09/02 Reworking of the cut PVC silos to combine drainage and foundation.



Each silo was carefully altered to allow an adhesive surface, used to connect the PVC pipe with its corresponding PVC sheet, the foundation of individual silos.



Creating an Iso-Board drainage holster for every silo, using a band saw and carefully marked measurements.



In total 120 mould were cut from Iso-board which supported the drainage pipes with the silos.

2017/09/07 – 2017/09/21 Cutting the shapes that will protect the plants within the plant combination experiment.



By making use of a jigsaw, very specific shapes were cut from thick (8mm) PVC sheets. These shapes are used within the larger 160mm diameter silos as a rooftop for individual plants. It ensures that collapsing soil does not injure the plants during growing and contamination stage.

Objectives currently underway:

2017/10/10 – in progress the collection of site specific soil from the Overberg, Renosterveld vegetation is indigenous to that area.



The amount of soil medium needed for the experiment has been calculated as 1 cubic meter.



The soil from the area where Renosterveld naturally grows is collected and transported back to Stellenbosch University.



The soil is currently undergoing a soil classification test to establish the content clay, silt and sand. In the above image the soil is dried, which is important when measuring the soil's exact mass. The soil is then ready for a sieve analysis.

Planned objectives:

With the completion of the sieve analysis and the implementation of the experiment's irrigation, we aim to collect the plants from the field. The plants that we cannot collect from the field due to stresses/abundance/health will be sourced from nurseries in the local area.

The plants are then planted and given time to grow. Once they have been established a secondary study will be conducted to determine the specific concentration of my herbicide. The aim is to use a concentration that will not affect the mortality of the individual species, although it must still be easily analysed under LCMS (Liquid chromatography-mass spectrometry) for glyphosate. The active ingredient in Roundup herbicide.