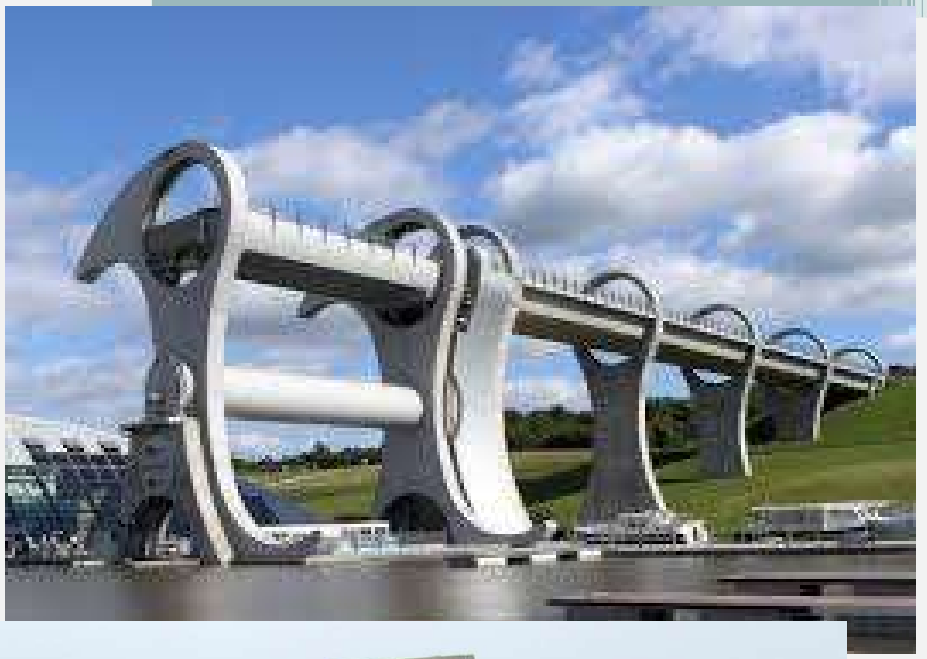
PRACTICAL ASPECTS ON SITE

Cement and Concrete

- **Cement** is the binding agent – powder form – hardens with water
- **Aggregate** is Stone and Sand
- **Concrete** is a mixture of Cement, Sand, Stone and Water
- **Plaster** is Sand and Cement and Water



Concrete Works

- Be realistic about concrete spills
- All concrete structures have concrete on the ground – blinding or foundations
- Understand what is hazardous

Concrete Works

- Cement dust at a concentration exceeding 10 mg/m^3 is hazardous (OHAS Act)
- Concrete slurry is hazardous due to its highly alkaline nature

- Cured concrete is not a hazardous material – reservoirs used to store drinking water

Concrete Works

- Cement dust at a concentration exceeding 10 mg/m^3 is hazardous (OHAS Act)

- Comparable to wood dust and sucrose dust

Drip Trays

- Often a point of disagreement
- Must state clearly in EMP what you want

Generally they are required only when re-fueling. Machines that leak oil should be sent off site

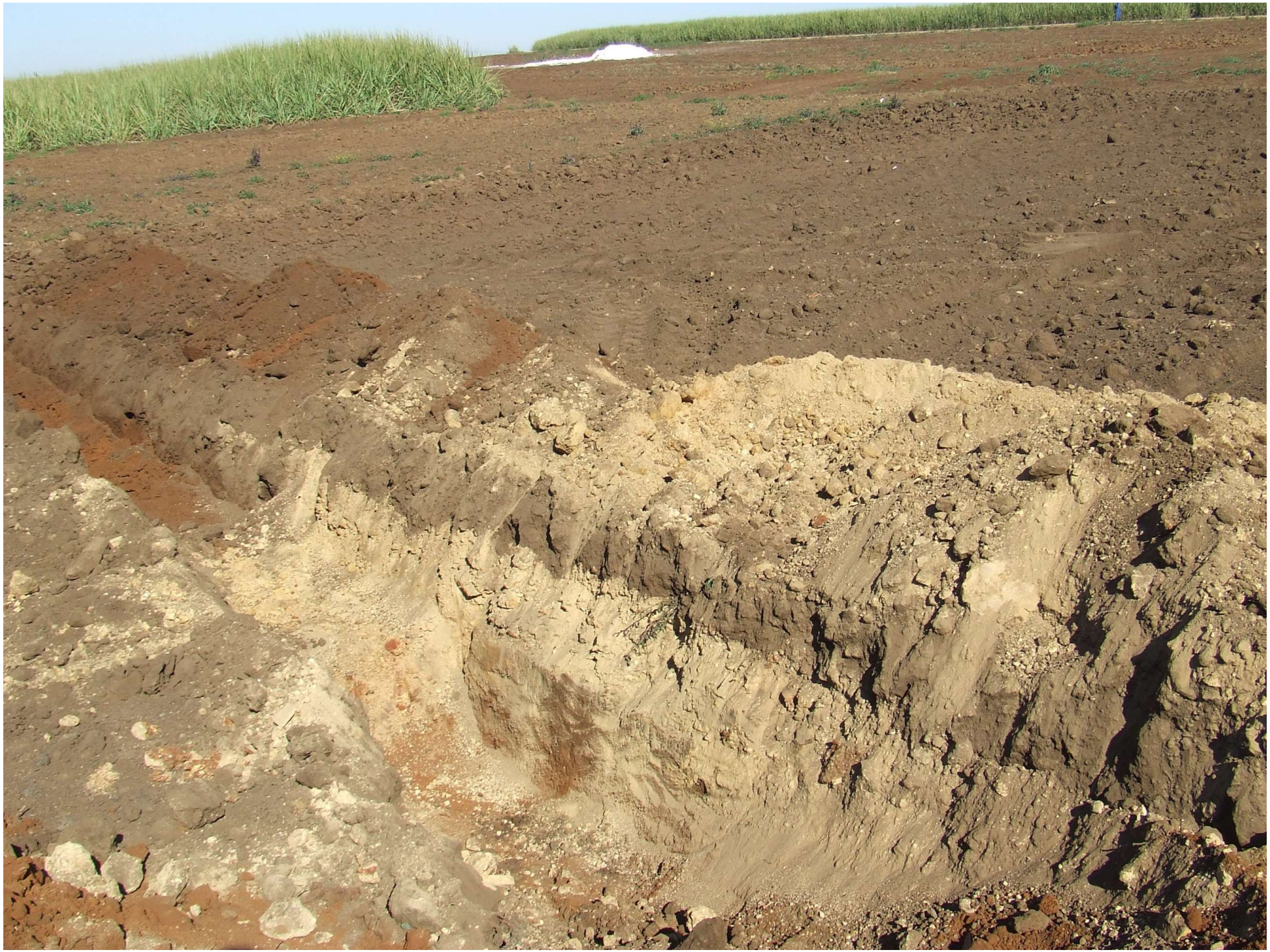
The Rehabilitation Process

- Picture the final product – Desired vegetation on top soil, blended into the existing topography

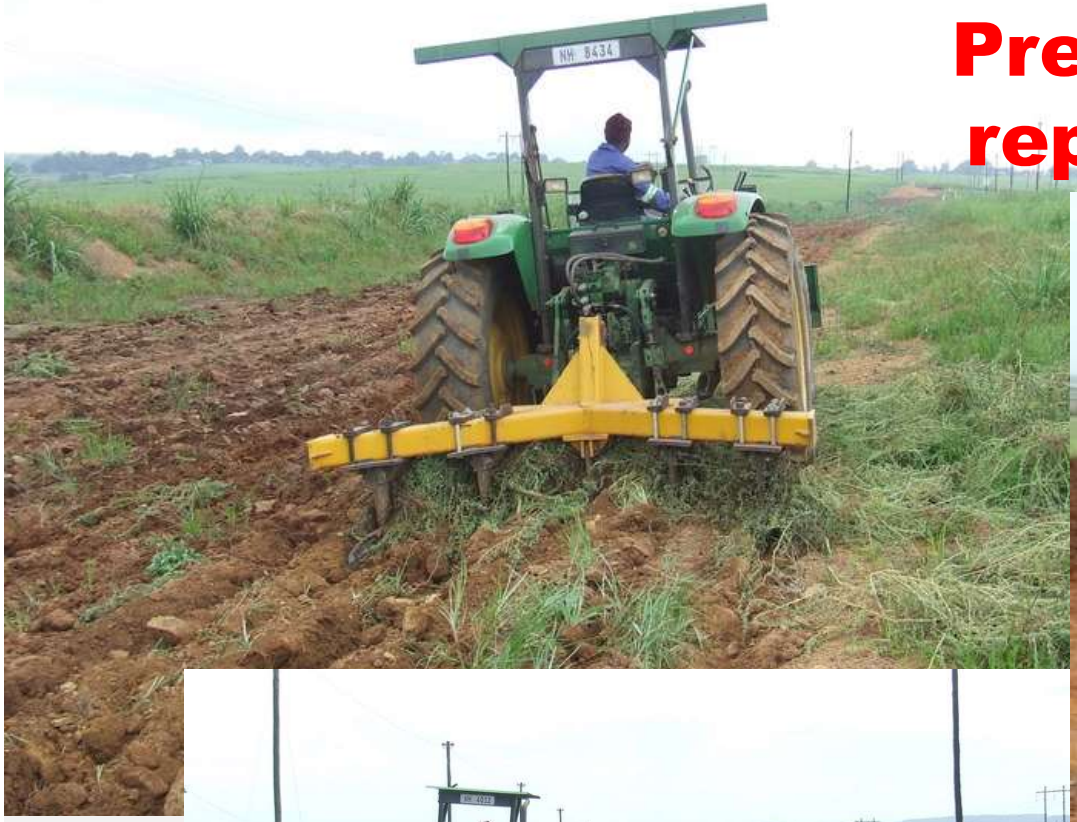
What is Important

- Remove unsuitable material before replacing top soil
- Break up sub-soil compaction before re-placing top soil
- Minimise compaction during and after placing top soil

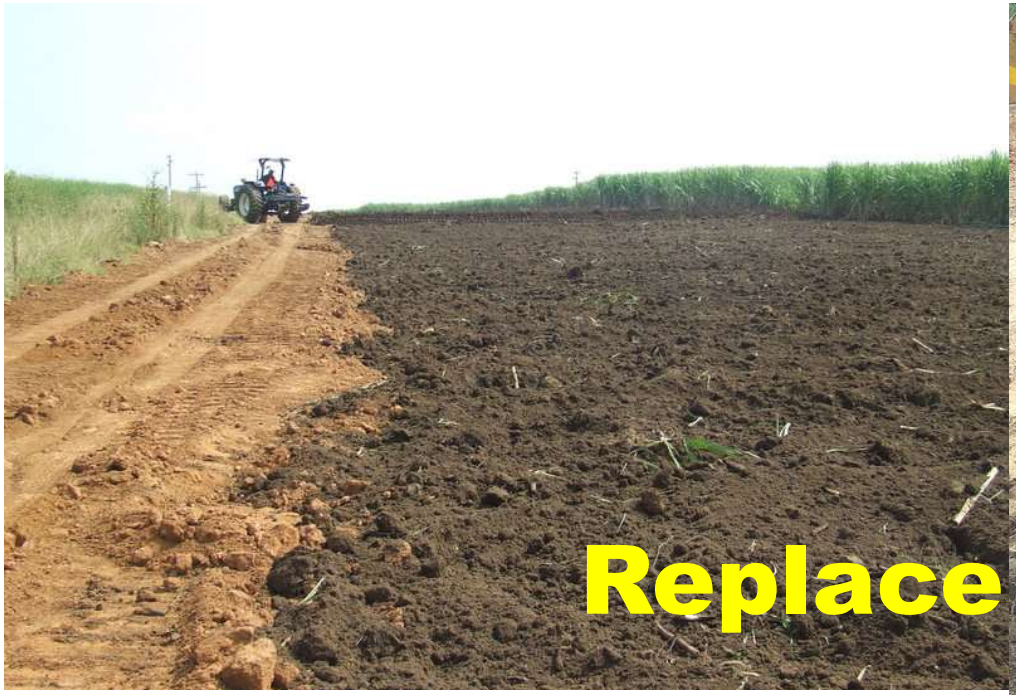
Remove excess material



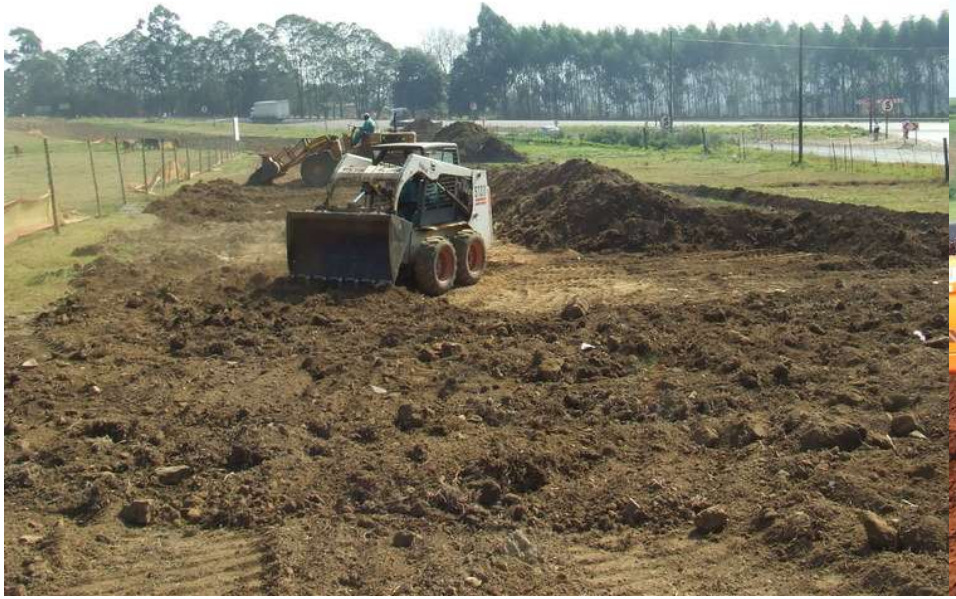
Preparation before replacing Top Soil



Break up compaction



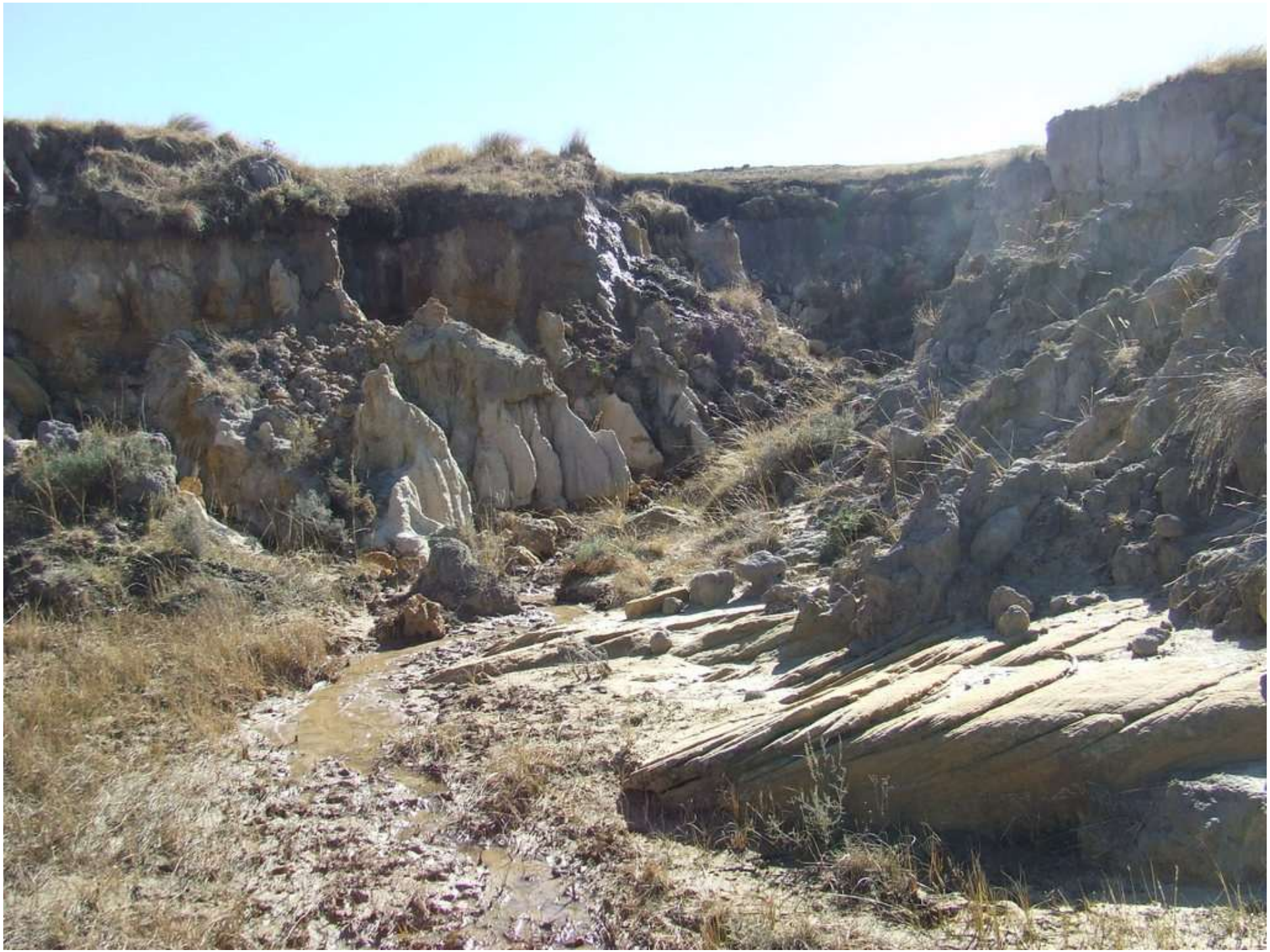
Replace top soil

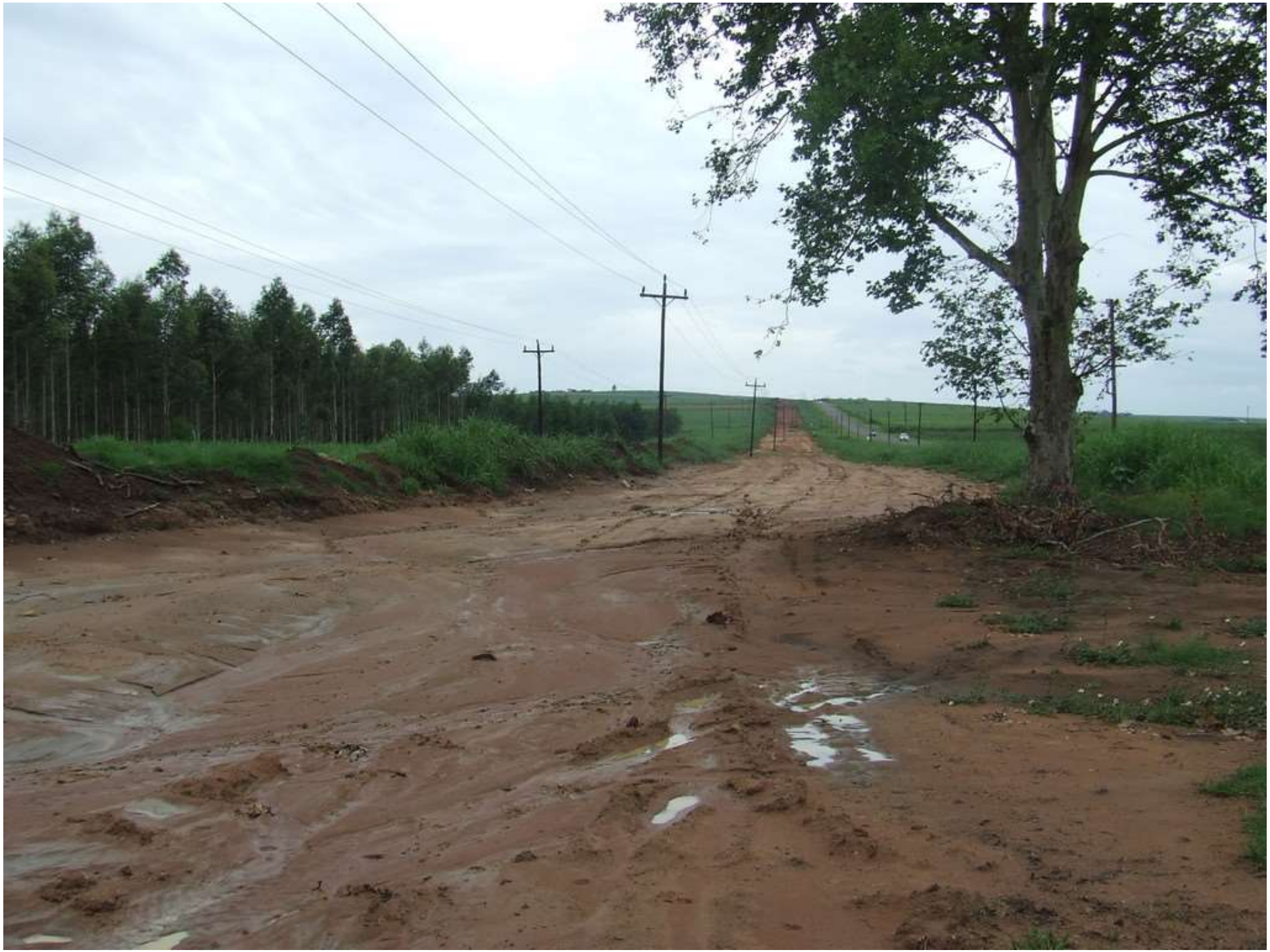


Erosion Control

It is a legal requirement – (CARA)

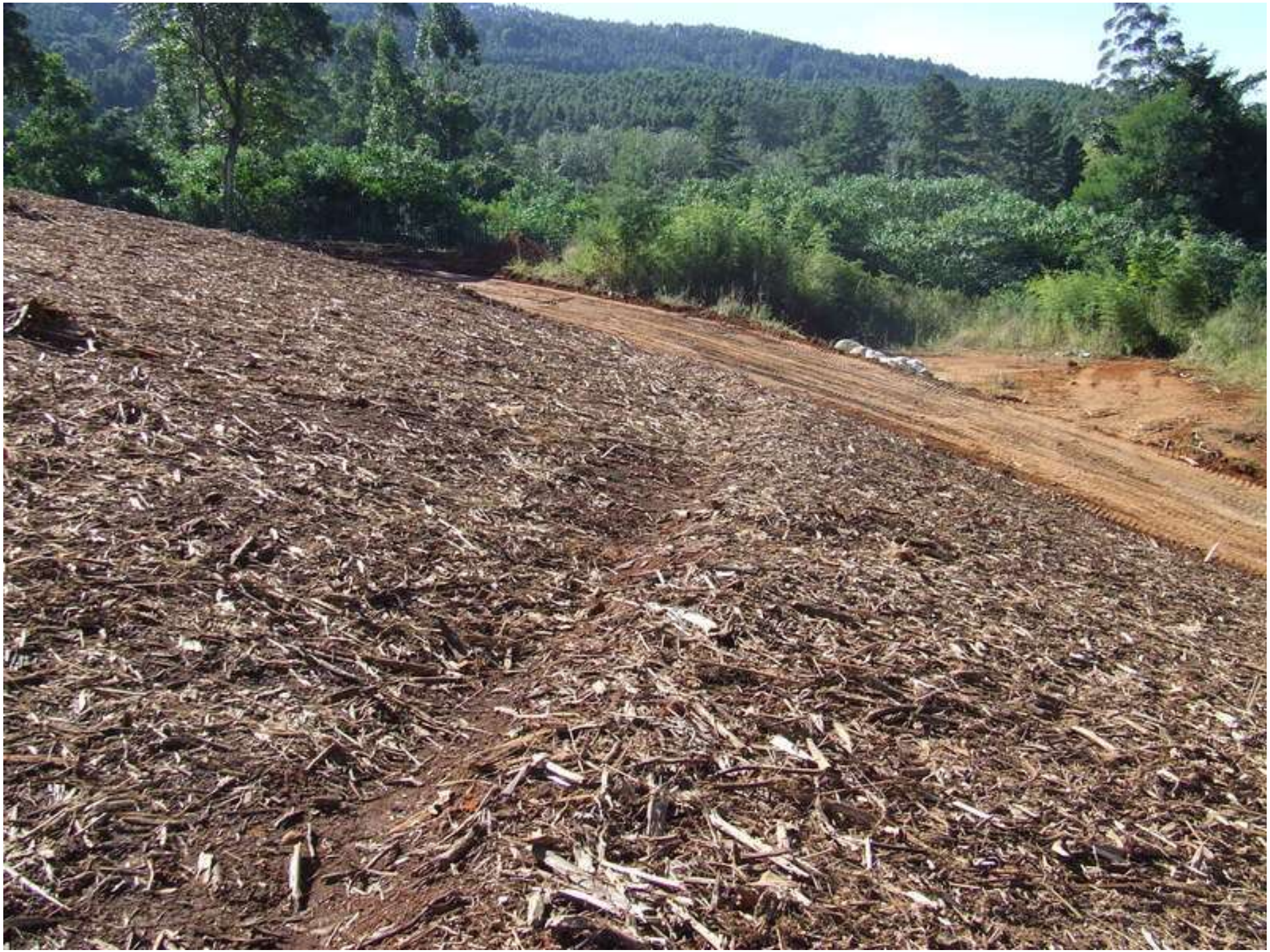
- Cannot stop it – can only minimise it
- What is erosion?

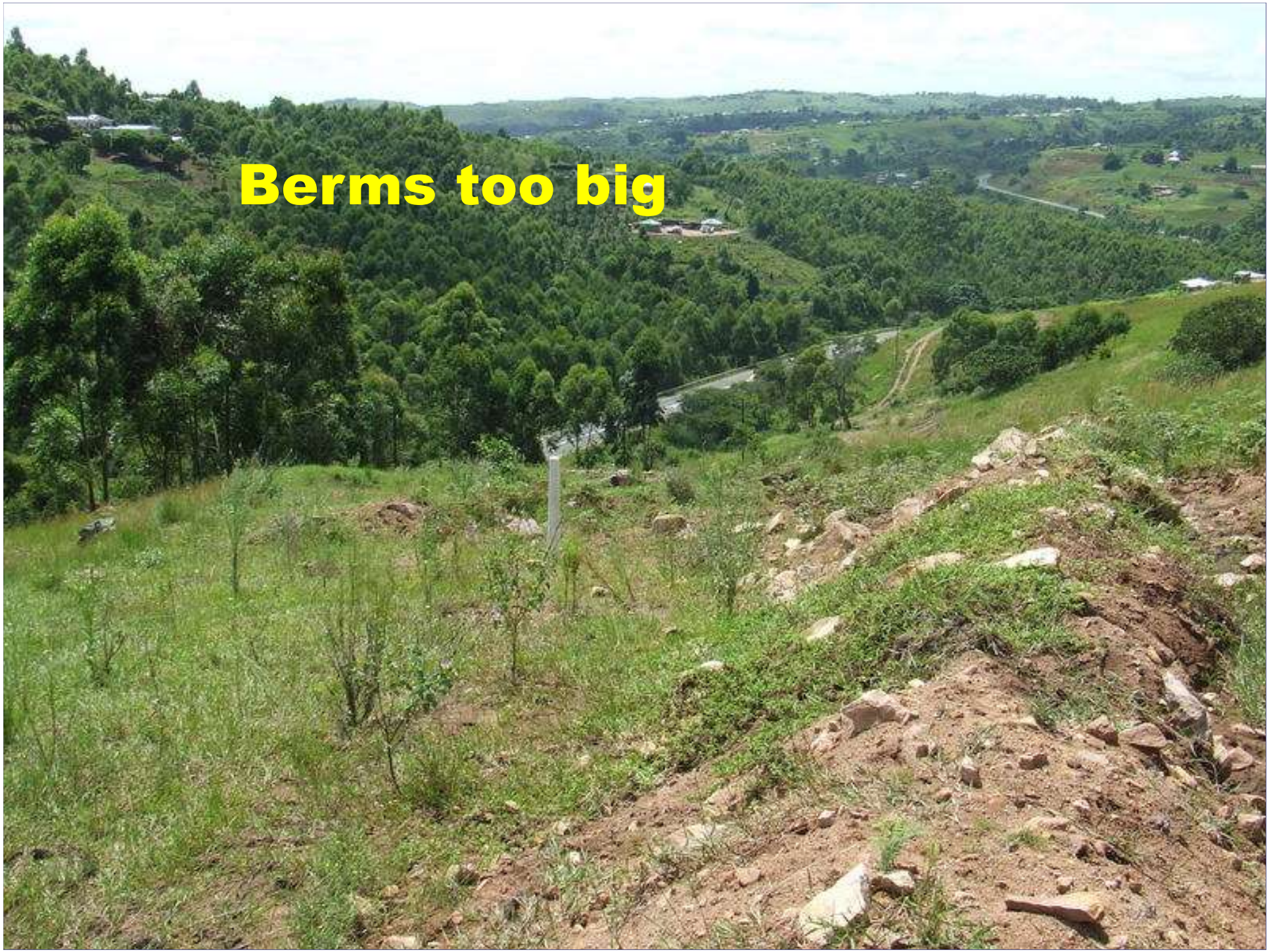




The Storm Water Berms

- Cross fall of 1 to 1.5%
- Sized to handle the run off
- Ideally should silt up when the vegetation establishes
- Must discharge into a "stable" area




Berms too big


Berms directing water into the Trench

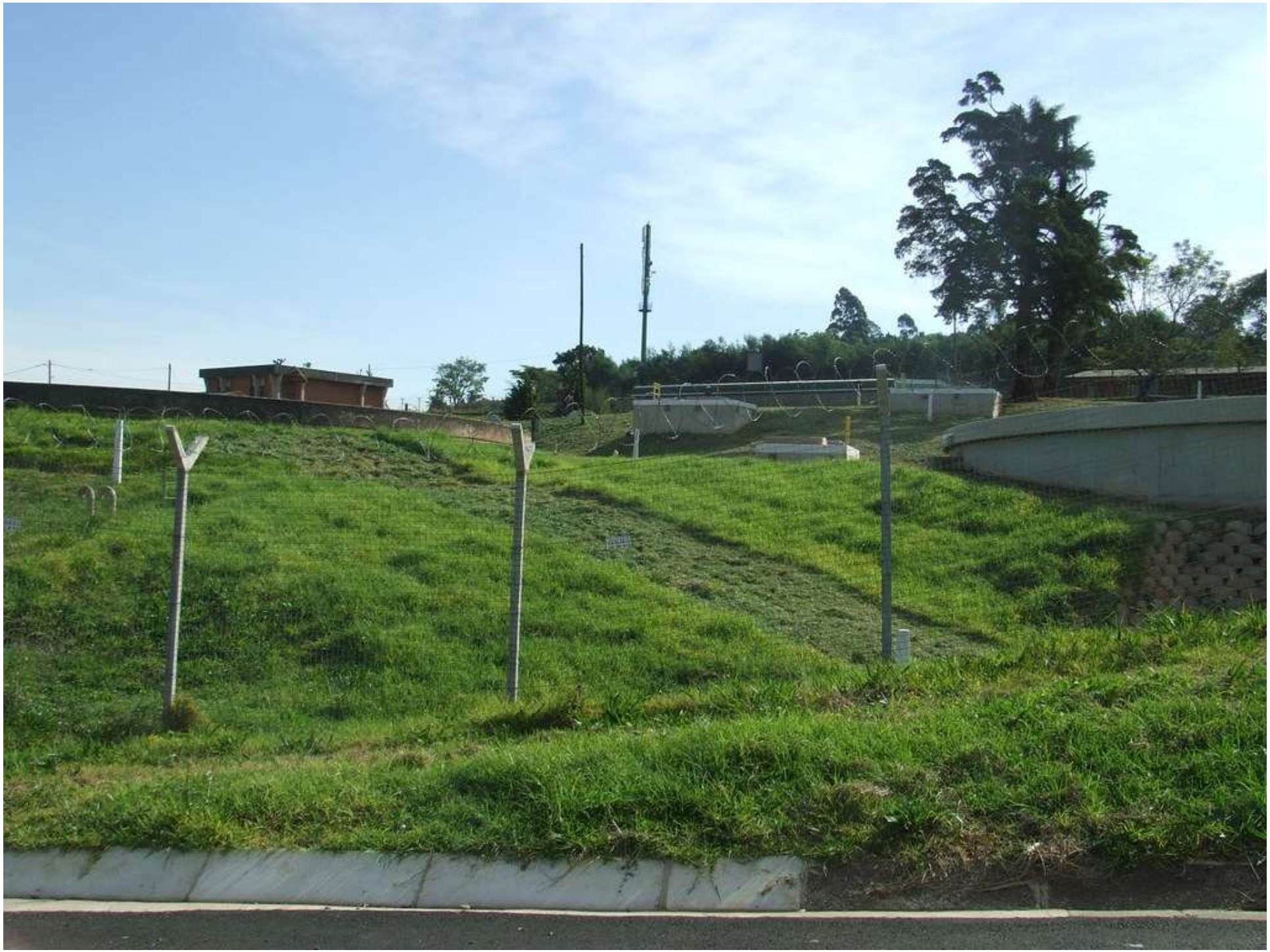
Erosion Control: Cover Crops

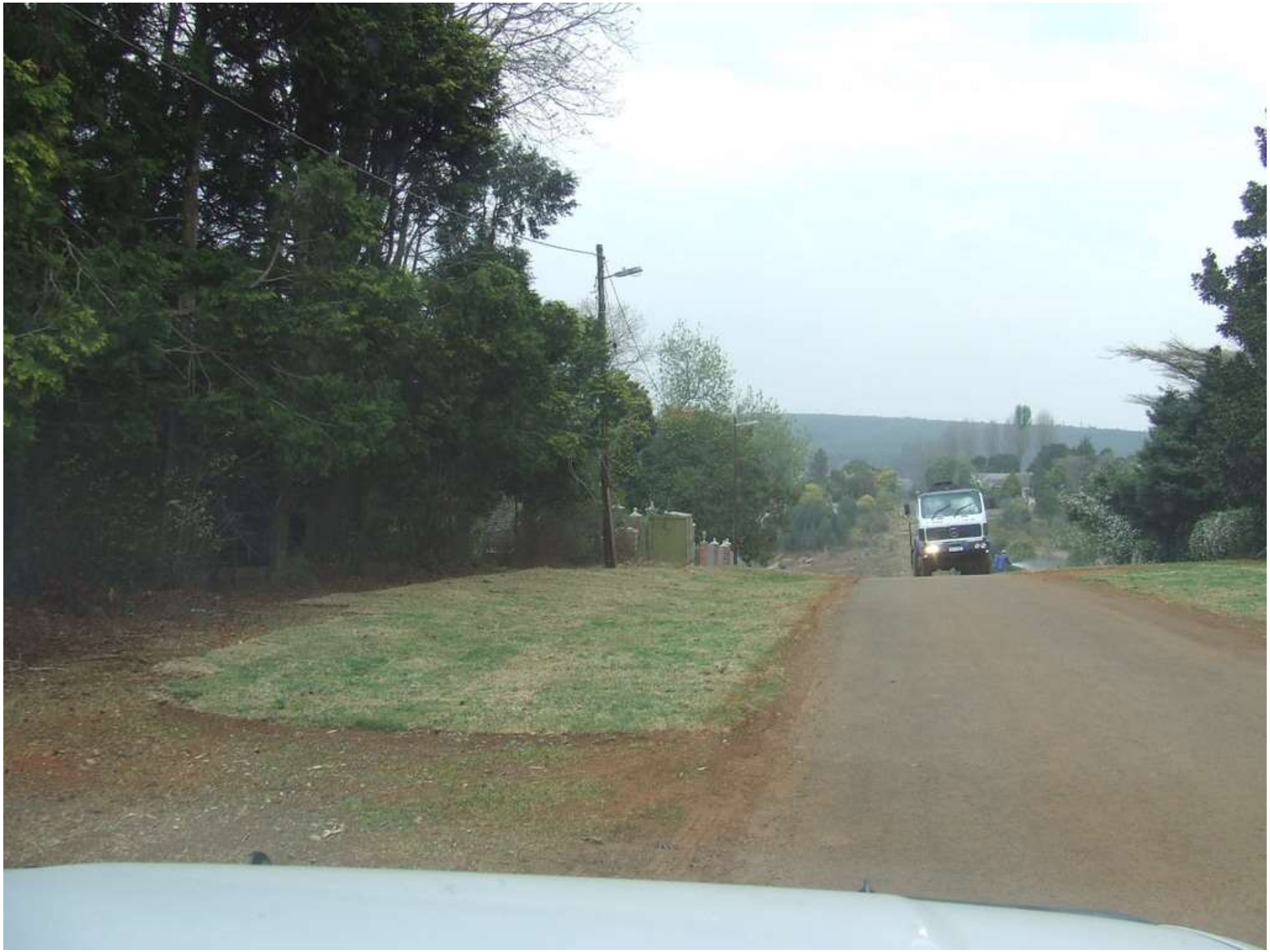
Instant Lawn

- Good for areas of high concentration of water flow
- Often more cost effective than erosion control mats

Erosion Control: BioJute

Erosion Control: Instant lawn





Watering

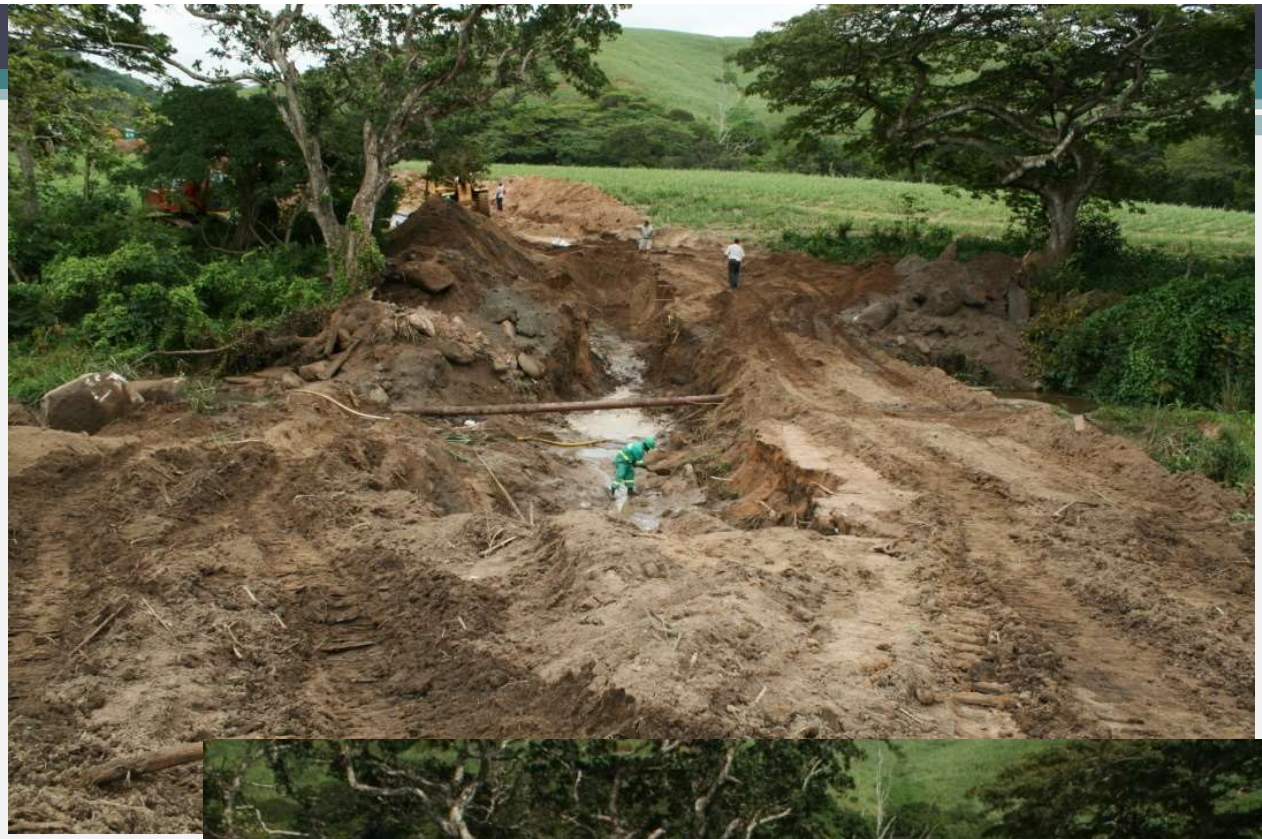
- Do the sums to see how impractical this is on a large scale
- Water tanker takes 2 000 litres
- To put 10mm/week on 10ha needs

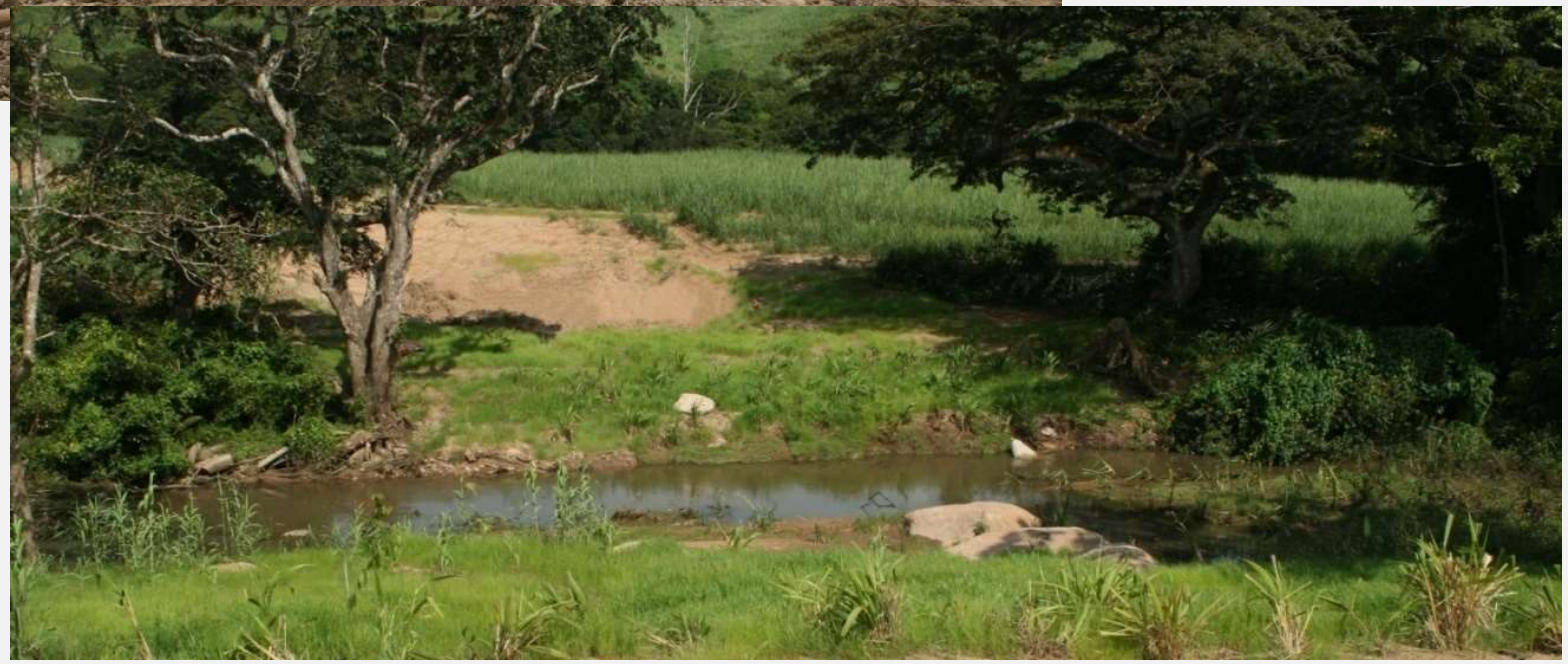
1000 000 liters OR 500 trips / week

Rivers and Wetlands

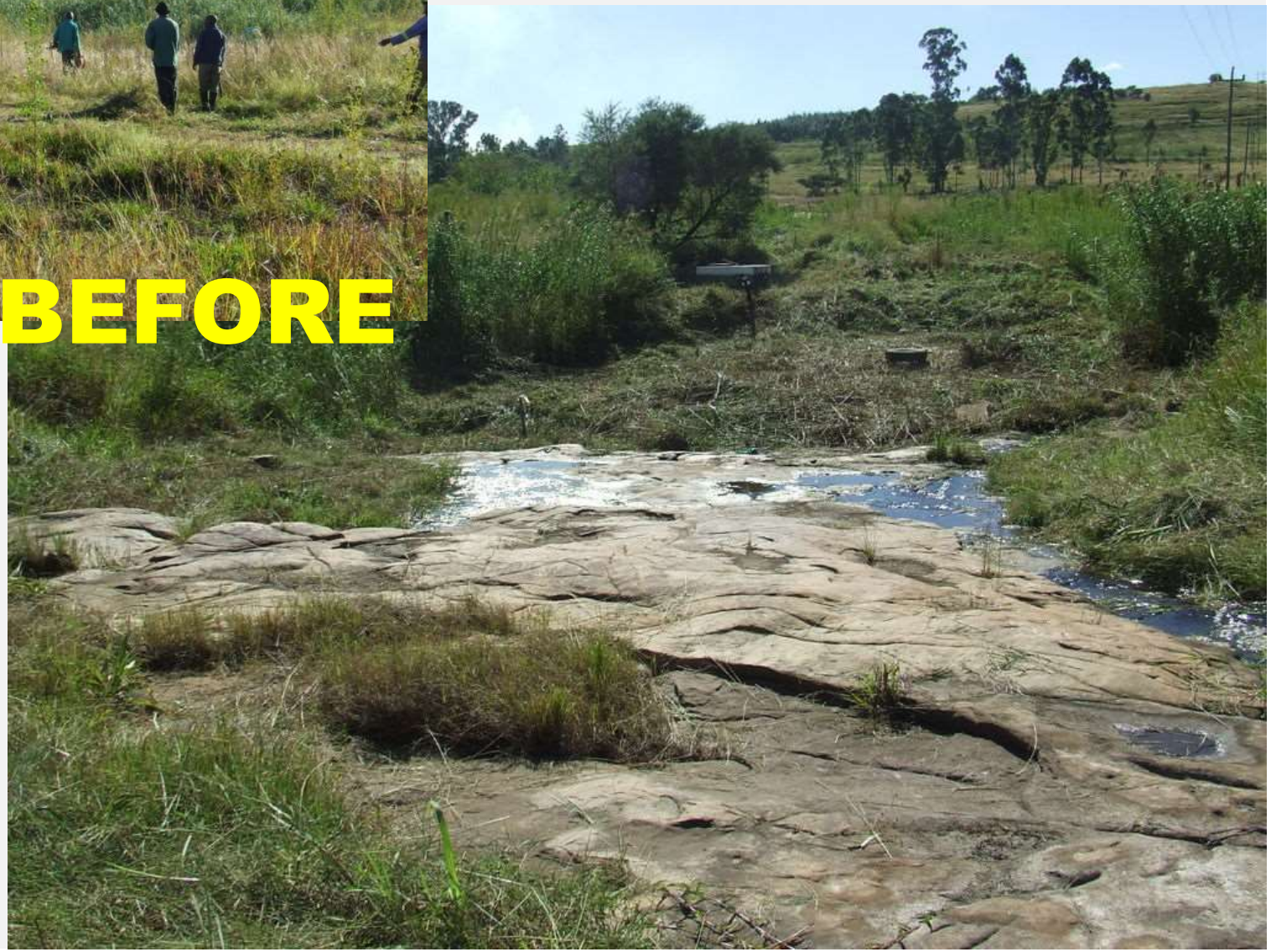
- Will always look messy
- Will repair fairly quickly if the basics are done correctly

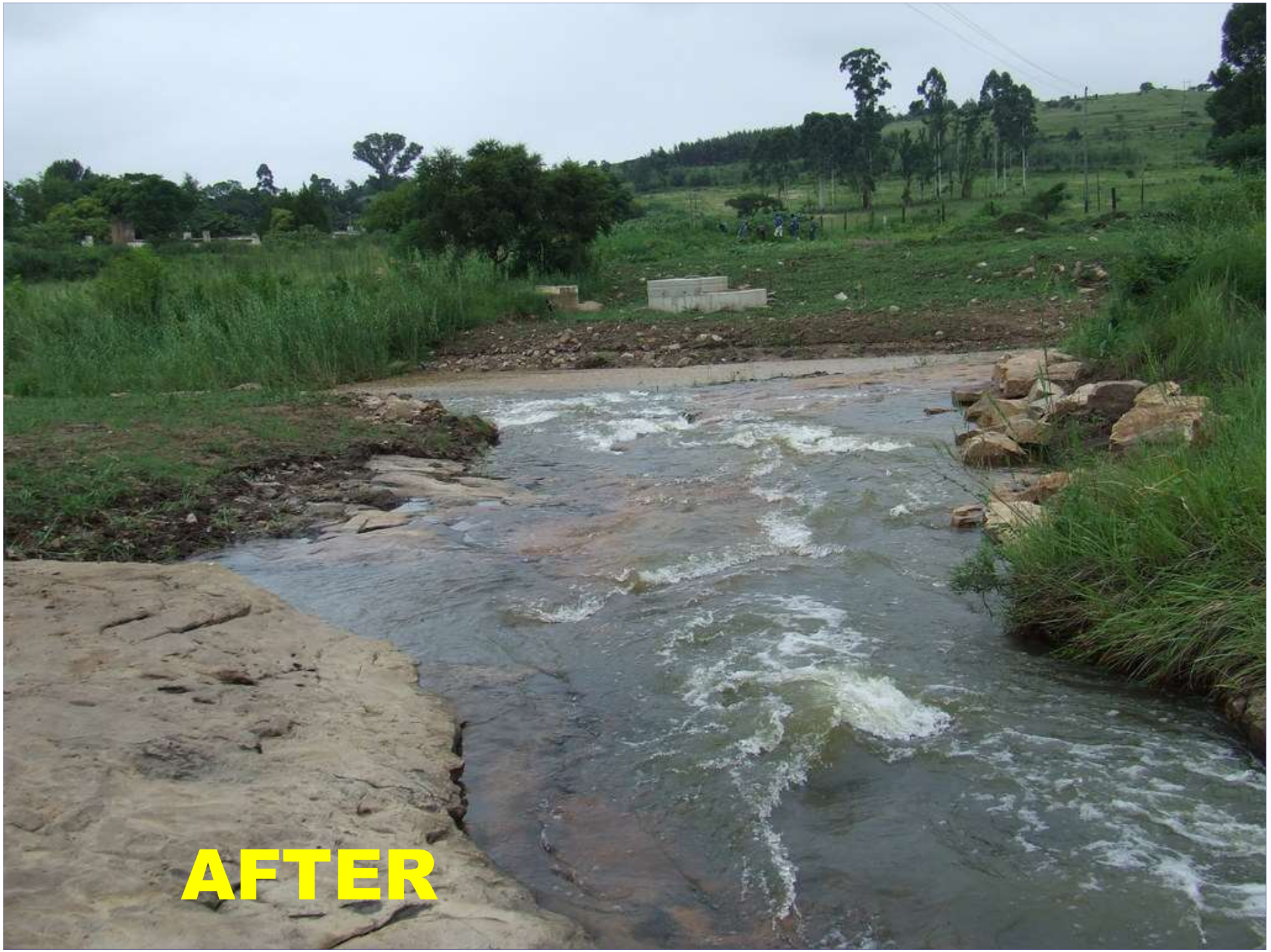
Fixing the Mess





BEFORE




AFTER

Wetlands

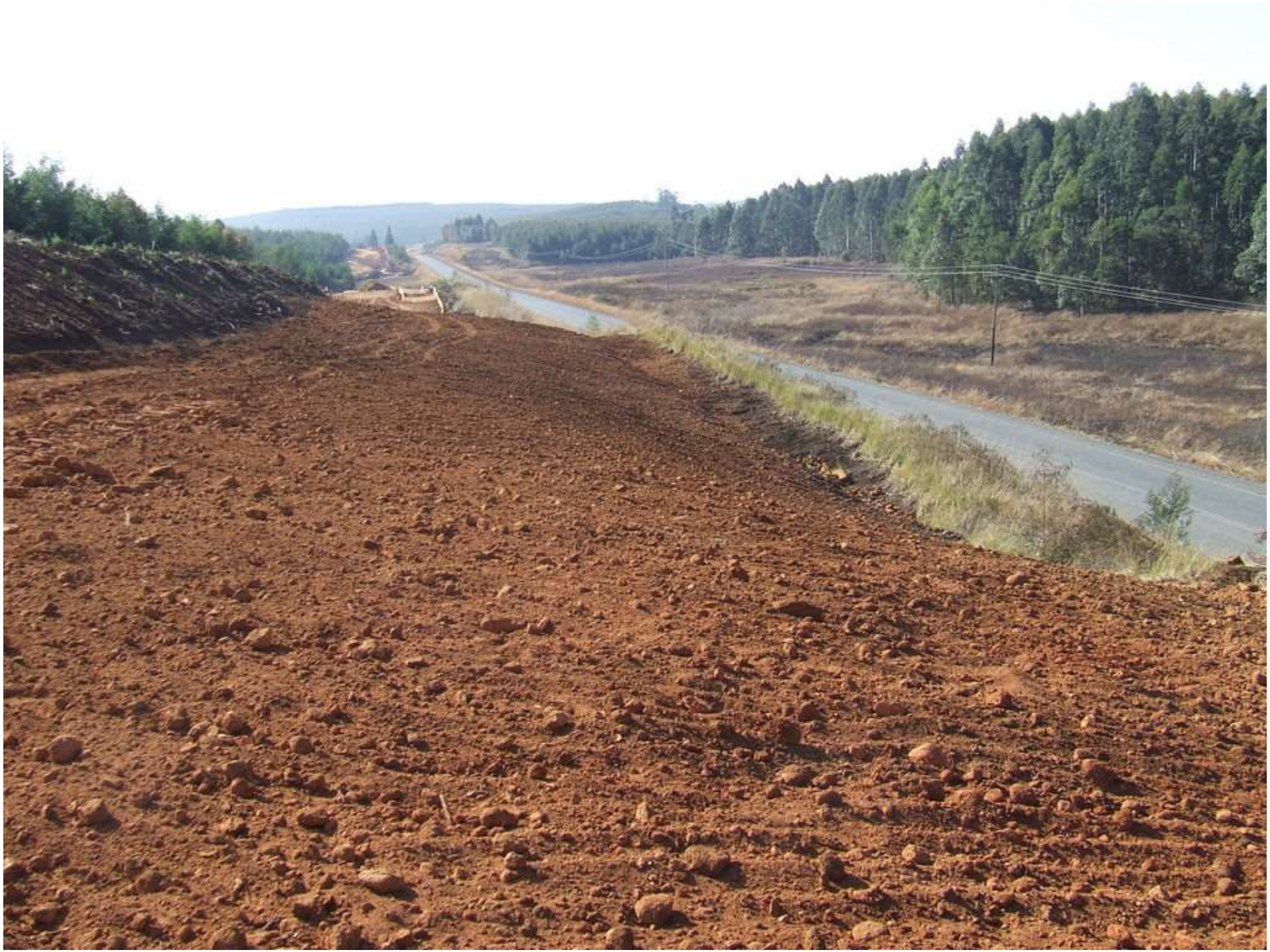
The Rehabilitation Process

- Initial shaping (Body filler)
- Plan Erosion control
- Replace the top soil (Under coat)
- Establish vegetation (Final coat)

Timing of Rehabilitation Process

- Do not pressurise for environmental rehabilitation too soon

- Consider
  - Machine access
  - Final works to structures



Control of Alien Plants

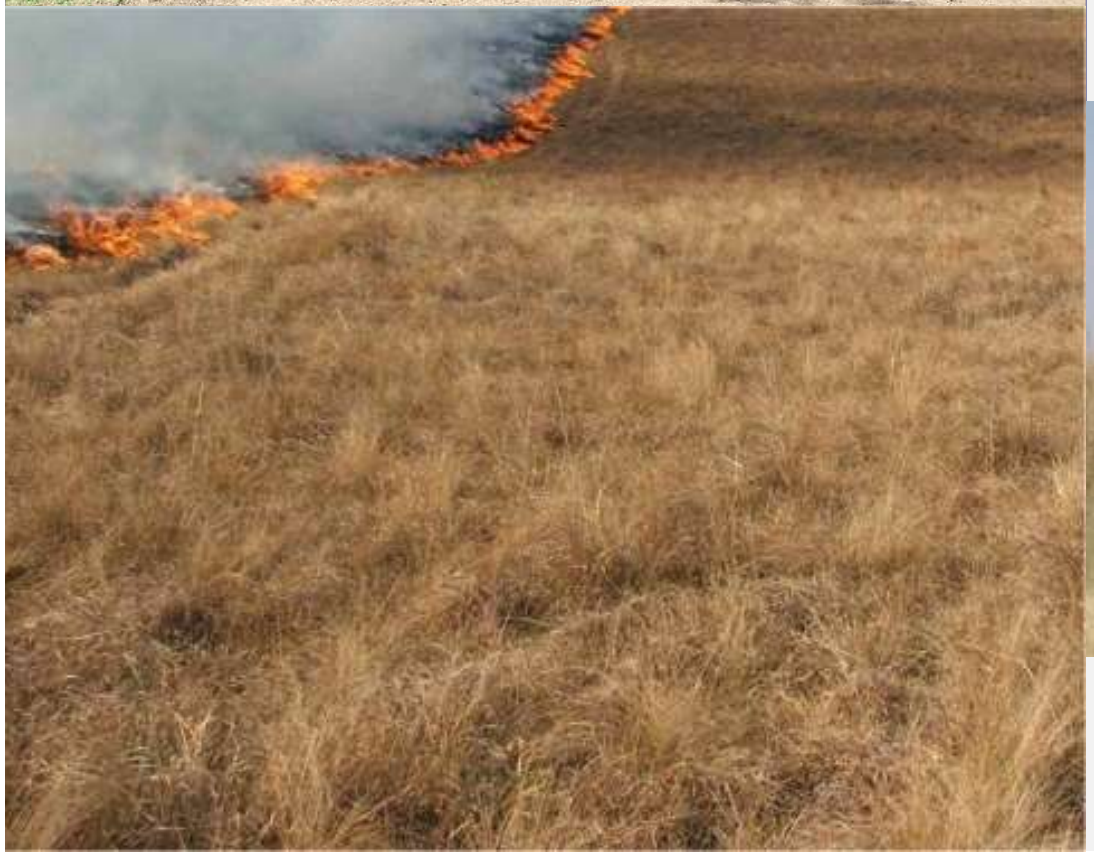
- It is a Legal requirement
- Easier to do it regularly
- Plants should be removed before they seed

Control of Alien Plants

- Often not in BOQ
- Thus Contractor does not want to / have to do it
- Sit with the team at the start to decide how to resolve this

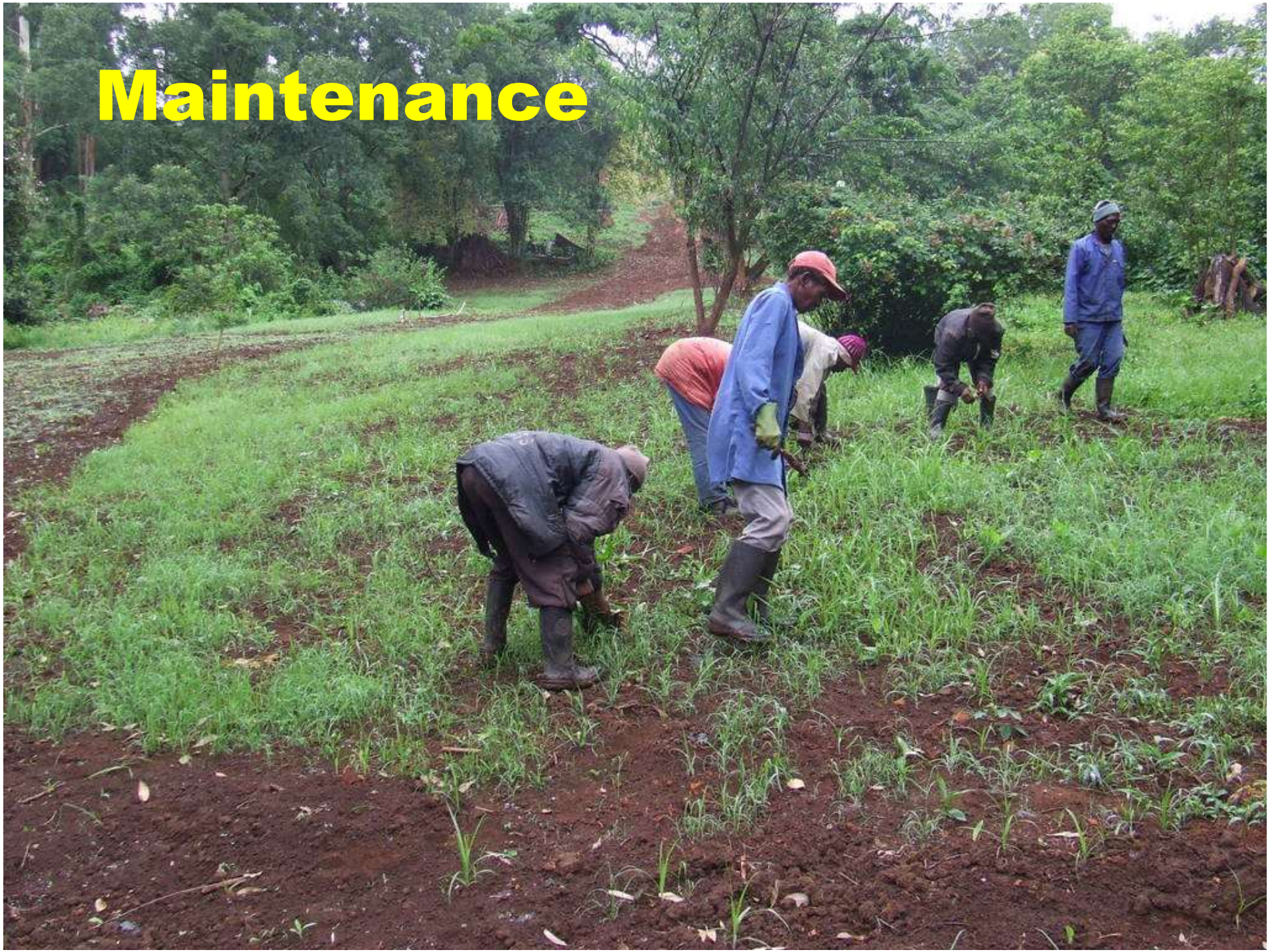
Maintenance

- Cost effective to use machines where possible – mow with tractor and slasher
- Do it regularly



Maintenance

Maintenance

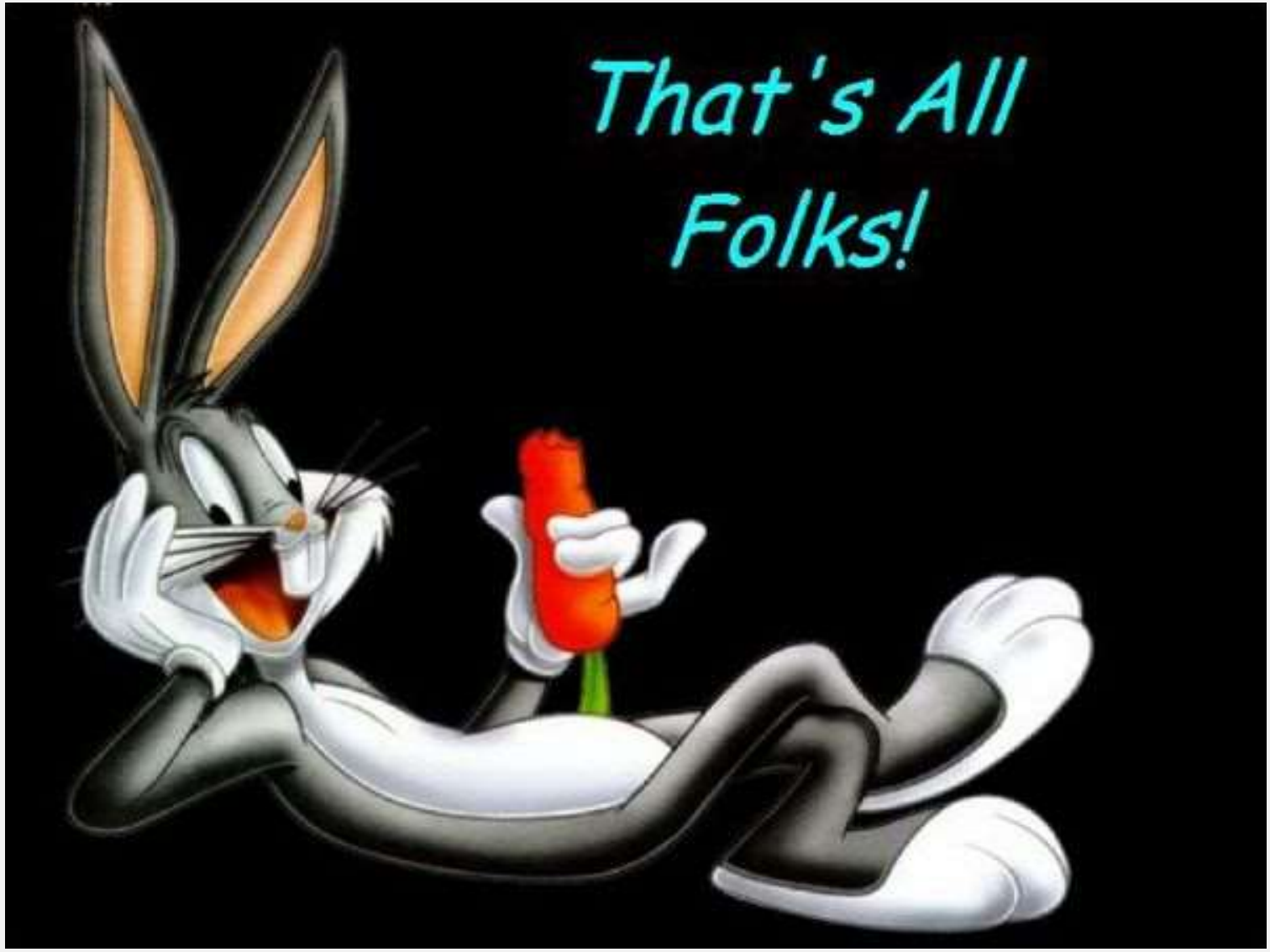


Maintenance

- Should be specified in the EMPr
- Set up a phased hand over
- Will vary with Land use

Maintenance

- Agricultural land – hand back once top soil is replaced
- Water courses 3 year maintenance required under Water Act
- Grassland at least two growing seasons


That's All
Folks!