



USING CONTOUR-BIOSWALES TO RESTORE COMPACTED CONSTRUCTION SITES

Presented by Elizabeth McGreevy

Roots in Karst

WHAT ARE CONTOUR-BIOSWALES?



Civilian Conservation Corps building contour-terraces in Utah

- Contour-bioswales are shallow swales that are dug staying at the same elevation, or 'contour.' The excavated earth is then used to form low downslope, on-contour berms, then seeded and covered with mulch, straw, or native hay. The purpose of the system is to maximize the sinking of water.
- The Civilian Conservation Corps, from 1933 to 1942, similarly installed large numbers of deeper 'contour-trenches' across the United States to reduce erosion and slow overland flows.

CONTOUR-BIOSWALE VS. URBAN BIOSWALE



Contour-bioswales are different from engineered urban bioswales that are used to filter and direct storm flow. Most urban bioswales use a system of enclosed catchment basins with subsurface piping and filters.

CASE STUDY: COMPACTED CONSTRUCTION SITE



- Located northwest of Brownwood
- About one acre
- Used as a parking lot and turnaround area for more than a year
- Soils were severely compacted with <1 inch infiltration per hour
- Was causing downslope flooding of new construction and dust clouds around new construction

1) BLOCKED OFF VEHICULAR ACCESS



- Assigned new areas for parking and turnarounds
- Installed 5' steel stakes and 14 rolls of 100' long orange fencing

2) LAID OUT SWALE LOCATIONS



Using a plan developed by Elizabeth McGreevy as a guide, Pete Van Dyck with Drought Proof Texas used a survey level to lay out the system on-site

3) EXCAVATED THE CONTOUR-BIOSWALES



Most of the work was done using a mini-excavator

4) SPREAD COMPOST



- Due to the severity of the compaction and urgency (overland flows during rain events were entering new construction) compost was spread across the entire acre. When the urgency doesn't exist, compost can be spread along each berm as needed.
- Bacteria-based cow manure compost was used to boost prairie grass growth.
- The compost was spread the compost about one inch deep

5) SCATTERED SEEDS



- Since the seedbank was severely depleted, seeds were spread to expedite recovery.
- Used grass and forb seeds that were native to the Brown County region
- Combined pioneering, fast growing species with slow growing, climax species

6) SPREAD MULCH



- Wheat straw was used for purity and water absorbing capacity
- Straw “biscuits” were teased and overlapped one by one to reduce drift

SIX MONTHS LATER



Hooded Windmill Grass (*Chloris cucullate*) and Red Indian Blanket (*Gaillardia puchella*)

BEFORE & AFTER



BEFORE & AFTER



QUESTIONS?



info@rootsinkarst.org