



USCC Factsheets on Innovative Uses of Compost by State DOTs

Texas DOT – Revegetating Difficult Slopes

PROJECT SUMMARY

Many State Departments of Transportation (DOTs) are using composts made from recycled organic materials in their construction projects. The Texas Department of Transportation (TxDOT) completed a project in July 1999 using compost for revegetating a badly eroded and bare slope along IH 20 in Big Spring, Texas.

The objective of this project was to demonstrate how the utilization of compost could effectively revegetate a barren slope

The slope was treated with 100 cubic yards of feedlot manure compost, further amended with wood chips for erosion control (TxDOT's "Erosion Control Compost"). The compost-chip mix covering the site successfully resisted a 2" heavy rainfall which occurred soon after application. Two months after application, the site was heavily vegetated by a healthy, stable grasses vegetation community.

This project was done as a demonstration project at no cost to TxDOT. The Texas Natural Resources Conservation Commission (TNRCC) paid for the compost and the contractor applied the material at no charge.

METHODOLOGY

In May 1999, TxDOT (working with the Texas Natural Resource Conservation Commission) undertook a project to reclaim and revegetate a badly eroded and bare overpass slope along IH 20 in Big Spring.

The site was constructed in 1968 and had been barren for nearly 30 years. The site was approximately ¾ acre in size (about 50 ft. by 650 ft.). TxDOT had seeded hydromulched and blanketed the site many times without success. Figure 1 shows the pre-remediation eroded site and sparse vegetation.

Compost use in TxDOT projects is defined by TxDOT Special Specification Item 1027, "Furnishing and Placing Compost". This specification defines three grades of compost use and requires testing for particle size, organic matter, soluble salts, maturity, pH, time and temperature standards and EPA Part 503 testing for biosolids compost.

Compost was obtained from South Plains Compost (Lubbock, TX). The compost was produced from feedlot manure, cotton burrs and yard trimming wood chips. The wood chips (3" minus screen size) were added to the compost to help resist wind erosion at the site. The mix ratio was 3 parts compost to 1 part wood chips (on a volume basis).



Figure 1. Original Slope

The compost-wood chip mix was applied to the site with a Rexius blower truck (EcoMulch, Bossier City, LA) to a depth of 3" overall and at a depth sufficient to fill in the erosion gullies on the site. Approximately 100 cubic yards of compost was applied. Figure 2 shows the application of the compost.



Figure 2. Applying Compost

As the compost was applied, the seed was fed through a hopper attached to the Rexius Truck. The TxDOT specified mix (for western Texas) of Blue Grama, Sideoats Grama, Buffalograss, and Green Sprangletop was used. Normal precipitation in the area during May is 3"; a 2" rainfall occurred in late May 1999. The wood chip-amended compost

resisted erosion and wash off during this storm. An ancillary benefit of the compost/chip mix was to retain moisture for longer periods, which was a benefit to grass germination.

RESULTS

By July, 1999, a thick stand of grass was established on the slope, as shown in Figure 3.



Figure 3. Vegetation Established on Slope

The untreated area can be seen on the right of the photo in Figure 3. This was the first time vegetation had been established on this slope since it was constructed in 1968.

ECONOMICS

This project was done as a demonstration project at no cost to TXDOT. The Texas Natural Resources Conservation Commission (TNRCC) paid for the compost and the contractor applied the material at no charge.

TXDOT has committed to using more compost in the future on roadside vegetation and erosion control projects.

For More Information

Barrie Cogburn, RLA
Landscape Design & Enhancements Section Director
TxDOT Design Division
125 E. 11th St.
Austin, TX 78701-2483
Tel.: (512) 416-3086
Email: bcogburn@dot.state.tx.us
Website: www.dot.state.tx.us

Scott McCoy, President
KSS Consulting, LLC
8304 Roan Lane
Austin Texas 78736
512/288-0499: Office
512/698-6946: Cell
Email: smccoy26@austin.rr.com

“Texas Makes Inroads With Highway Use of Compost”,
Biocycle, Vol. 42, No. 2, February 2001

Big Spring Site Compost Demonstration Pictures at
<http://www.dot.state.tx.us/insdtdot/orgchart/des/landscape/compost/examples.htm>

Texas Compost Use Specifications at
http://www.txdot.gov/services/general_services/recycling/specifications.htm

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US Composting Council
www.compostingcouncil.org
phone: 301-897-2715
fax: 919-779-5642
email: uscc@compostingcouncil.org

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