



# Project Summary

Texas Department of Transportation

## 0-5731: Synthesis and Study of the Establishment and Management of Roadside Vegetation

### Background

The Texas Pollutant Discharge Elimination System (TPDES) is administered and enforced by the Texas Commission on Environmental Quality (TCEQ) through its General Permit to Discharge Wastes TXR150000, generally referred to as the Construction General Permit (CGP), which applies to the Texas Department of Transportation (TxDOT) construction activities. The CGP requires construction site final stabilization prior to filing a Notice of Termination (NOT), the request for termination of coverage under the CGP. For TxDOT, final stabilization means the establishment of perennial vegetative cover with a density of at least 70 percent of the native background vegetative cover on the disturbed areas of the construction site. However, TxDOT construction activities are often completed before the site has adequate time to establish the required vegetative cover. This may be due to delays that postpone planting operations until the optimal growing season has passed or project termination in hot, dry weather. Establishing vegetation is a constant challenge, even when the construction calendar and the ideal growing season line up. Regions of the state that have limited rainfall and a shorter growing season often take multiple years to establish vegetation to meet the TPDES requirements.

The project objectives were to provide a more diverse set of tools and options for TxDOT personnel that will help ensure timely vegetation establishment to meet the TPDES regulatory requirements, minimize project delays, and help reduce long-term costs in vegetation establishment and management.

### What the Researchers Did

The project objectives were achieved through a series of research tasks. The researchers:

- compared TxDOT's practices to other state departments of transportation and related fields,
- interviewed TxDOT personnel in each district regarding vegetation establishment practices,
- identified methods for more rapid vegetation establishment for regulatory compliance using field demonstration plots installed according to current TxDOT practices,
- created a tool to assist design personnel not familiar with the vegetation establishment process, and
- developed a vegetation establishment field guidebook.

### Research Performed by:

Texas Transportation Institute (TTI),  
The Texas A&M University System

Texas A&M University – Kingsville  
(TAMUK)

West Texas A&M University (WTAMU)

### Research Supervisor:

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**Project Completed:** 8-31-10

## What They Found

The major findings of this study are:

- District problems with vegetation establishment are highly varied and due in part to the state's diverse regional climates, soils, and plant communities.
- Minimal or no training in the vegetation establishment process for designers, consultants, contractors and inspectors is a key issue identified in interviews with TxDOT personnel. Researchers found that:
  - Although training is available through TxDOT for sediment and erosion control, there is limited time for personnel to attend training. Retaining the knowledge from such training can also be difficult.
  - Designers with little or no training in vegetation or related fields develop Storm Water Pollution Prevention Plans (SW3P) and therefore site re-vegetation.
  - Inspectors are spread thin and expected to have a knowledge base in everything from pavement to grass.
  - Some contractors (not all) typically have low expertise in vegetation.
- Lack of communication extends from the designer to contractor to the inspector. The preconstruction meeting is an opportune time to:
  - Increase awareness of vegetation's essential role in regulatory compliance as it relates to the SW3P.
  - Emphasize the importance of salvaging topsoil and how reuse relates to re-vegetation.
- Vegetation establishment/management is often the last part of the project and receives little attention. This may be due in part to:
  - A lack of understanding as to how to evaluate and conduct performance-based requirements for this aspect of the project.
  - Vegetation's (SW3P in general) priority in the project's budgetary allocation.

## What This Means

The main products of this research project are two publications: *Vegetation Establishment Guidance for Decisions: Assistance Tool (VEGDAT)* and *Roadside Vegetation Establishment: Quick Reference Field Guide*. These were developed to:

- provide tools for better decision making for the vegetation establishment process,
- promote greater efficiency, communication and coordination among TxDOT staff, consultants, contractors, and inspectors,
- provide succinct, readily accessible information regarding the pay items generally associated with vegetation establishment, and
- facilitate meeting the TPDES requirements for percent vegetative coverage needed in order to file an NOT to release the contractor's obligations for the project.

VEGDAT was created to provide designers unfamiliar with the re-vegetation process (e.g., engineers-in-training) with a concise method of directly accessing pertinent information from numerous existing TxDOT documents vital to design decisions. *Roadside Vegetation Establishment: Quick Reference Field Guide* was prepared as a field reference of the best-available information contained in existing TxDOT documents.

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