
DMS-4800

Proprietary Earth Retaining Wall System

Effective Date: **October 2020**



1. DESCRIPTION

This Specification governs the qualification procedure, submittal requirements, review and approval process, restrictions for use, and conditions for disqualification for proprietary earth retaining wall systems. The Department classifies retaining wall systems submitted and approved for use as either phase one (restricted use) or phase two (unrestricted use) according to the criteria in this specification.

2. APPROVED SYSTEM LIST

The Bridge Division (BRG) maintains a list of approved systems for each of [Concrete Block Retaining Wall Systems](#) and [Mechanically Stabilized Earth Panel Type Systems](#).

3. BIDDERS' AND SUPPLIERS' REQUIREMENTS

The Department will only purchase or allow on projects those products listed by name and manufacturer shown on the approved system list.

4. PRE-QUALIFICATION PROCEDURE

Submit a request for evaluation under DMS-4800 to DMS_Prequal@txdot.gov. Include the following product information in the request:

- company name;
- physical and mailing addresses;
- contact person, phone number, and email address;
- an overview of the system including system theory and development history;
- laboratory and field data supporting the theory;
- detailed design procedures including sample calculations for installations with no surcharge, level surcharge, sloping surcharge, and abutment conditions;
- durability (corrosion, construction damage, environmental) design procedure for soil reinforcement elements;
- detailed construction manual;
- manufacturer's Quality Control-Quality Assurance Plan for the retaining wall system and components;
- material and construction control specifications which includes acceptance and rejection criteria;
- typical erection and casting drawings including structural analysis, details for leveling pads, footings, copings, etc.;
- details for mounting a concrete traffic barrier on the wall adjoining both concrete and flexible pavements;
- typical obstruction details for both vertical and horizontal obstructions;
- full-scale test data for connection of earth reinforcement to panel or concrete block;
- technical evaluation report for the system from an independent engineer with expertise in retaining wall system. Evaluation report must address system theory, laboratory and field data, proposed design procedures, construction procedures and system components.

After resolution of any comments, the Department's Bridge Division will approve the submitted product for phase one, restricted use. Systems approved for use under phase one status are restricted as outlined in Section 5.1 and require monitoring as outlined in Section 5.2. Use of a phase one wall system on a project is subject to approval by the Department.

5. EVALUATION OF PHASE ONE RETAINING WALLS FOR PHASE TWO CONSIDERATION

5.1. Retaining wall systems approved for phase one use are subject to the following conditions:

5.1.1. The system cannot be used on projects that:

- contain over 50,000 sq. ft. of retaining wall,
- contain walls over 25 ft. tall,
- contain walls that support or are adjacent to interstate, or
- contain walls that support or are adjacent to US highways unless otherwise permitted on plans or general notes.

5.1.2. On projects including phase one wall systems, the wall supplier will conduct a monitoring program as outlined here.

- This program will call for measuring movements on the walls during and after construction.
- Upon completion of the project the supplier will submit to the Department, an initial report detailing any problems encountered with the system, solutions to the problems, any wall movements including vertical and lateral displacement and rotational movement, and overall performance of the wall system.
- The wall supplier must perform post construction monitoring of the walls at least once per quarter for 12 mo. following completion.
- A final report detailing wall performance must be submitted following this period.

5.2. A retaining wall system will be reviewed for approval for phase two (unrestricted) use after satisfactory construction and monitoring of walls on three separate Department projects. At least two of the projects must have individual walls of height and square footage consistent with grade separation structures (height equal to or greater than 15 ft., wall square footage equal to or greater than 5,000 sq. ft.

A project will be considered satisfactory if design and construction of the walls proceeds without issues, and the measured wall movement for 12 mo. following completion is within the overall vertical tolerance (plumbness from top to bottom) as called out in Item 423, "Retaining Walls." If problems require remedial work or necessitate change to design procedures or system components, the project will not count towards meeting the phase two requirements.

The Department will be the sole judge of a project's acceptability in counting toward satisfaction of these requirements.

6. DISQUALIFICATION OF APPROVED SYSTEMS:

Causes for disqualification and removal of a system from the approved systems list may include, but are not limited to:

- two walls, within a 6 mo. period, fail to meet the requirements of the specifications resulting in removal and reconstruction of portions of walls,
- manufacturer fails to report any change in retaining wall system or assembly instructions,
- wall system is not used on a Department project over a period of ten years. Wall systems not used on a Department project over a period of five years will be placed on phase one status.

The Department will remove disqualified systems from the approved system list and will not allow submission of the system for re-qualification for 12 mo., at the discretion of the Department.

7. PERIODIC EVALUATION

Resubmittal of updated product information (outlined in Section 4) is required on a frequency not greater than 5 yr. Failure to resubmit will result in disqualification of approved system.

Product information for currently approved systems with a history of use on Department projects must be submitted within 12 mo. of this DMS effective date.

8. CHANGES TO APPROVED SYSTEMS

Any changes to approved retaining wall systems (including components of the system) must be submitted for review and approval.

The Department will determine if changes warrant resubmittal as a new proprietary system.