

 Office of Structures <i>Guidelines and Procedures</i> <i>Memorandum</i>	DESIGN
	Number: D-82-25(4)
	Date: 03/16/2018
Proprietary Retaining Wall Approval Process	Approval: DRAFT

In order for a proprietary retaining wall to be constructed within Maryland Department of Transportation, State Highway Administration (MDOT SHA) right-of-way, the wall must be on the list of Approved Proprietary Retaining Walls maintained by the Office of Structures and posted on the MDOT SHA website (www.roads.maryland.gov). All proprietary wall systems must go through a four (4) step approval process prior to inclusion on the list. It should be noted that the inclusion of a retaining wall system onto the Approved Proprietary Retaining Wall list does not guarantee that it will be used on any project. In addition, a system will only be used on projects where it is reviewed and approved by the Administration prior to advertising and is specified in the Contract Documents.

It should be noted that the approval of a retaining wall system for inclusion on the Approved Proprietary Retaining Wall list does not extend to approval of precast plants or to approval of the materials used to construct the wall. All precasters and materials used on MDOT SHA projects must be approved by MDOT SHA's Office of Materials Technology prior to use.

The approval process for selection and placement on the approved list is as follows:

Step 1 – Request for Inclusion

A retaining wall system representative must request in writing to the Director of the Office of Structures, the desire to be placed on this list. The request must include enough information for the Office of Structures to make a determination based on the following points:

- The system has a sound theoretical and practical basis for the engineers to evaluate its claimed performance.
- Past experience in building and performance of the proposed system.

Step 2 – Wall System Information

Should the system be accepted for consideration, the wall firm representative must submit a package which includes and satisfactorily addresses the following items:

- (A) The system theory and the year it was first used;
- (B) Where and how the theory was developed;
- (C) Laboratory and field experiments which support the theory;
- (D) Practical applications with descriptions and color photos. Direction to a manufacturer's website containing this information is acceptable.
- (E) Limitations and disadvantages of the system;
- (F) Any known failures of the system, including where, how and why it failed. If applicable, include information on how the system was repaired.

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(G) List of users (other states, etc.) including contact names, addresses and phone numbers,

(H) Details of wall elements, analysis of structural elements, design calculations, factors of safety, estimated life, corrosion design procedure for soil reinforcement elements, procedures for field and laboratory evaluation including instrumentation and special requirements, if any.

(I) Sample material and construction control specifications--showing material type, quality, certifications, field testing, acceptance and rejection criteria (tolerances) and placement procedures,

(J) A well documented field construction manual describing in detail, and with illustrations where necessary, the step by step construction sequence, and any special equipment required. The document should also include repair procedures.

(K) Typical unit costs, supported by data from actual projects.

Step 3 – Design Evaluation

If, after evaluating this material, the Office of Structures finds the retaining wall system acceptable, the wall firm must have the total system reviewed by an independent professional engineer, registered in Maryland, and acceptable to this Office. A list of professional engineering firms acceptable to this Office is available upon request. If the retaining wall firm selects an engineering firm who is not on the list, the name and qualifications must be submitted to this Office for approval.

The independent professional engineer shall at no expense to MDOT SHA, review the design concepts, specifications, calculations, construction specifications, for compliance with AASHTO, and MDOT SHA criteria. If the independent, professional engineer finds the wall system meets AASHTO and MDOT SHA criteria and so documents in writing, the wall will be added to the approved list, and considered for use at locations deemed appropriate by this Office, based on aesthetics, economy, design requirements and constraints, etc. The independent professional engineer shall stamp the design calculations indicating that they have been reviewed and found to be acceptable. A copy of the stamped calculations will be kept on file.

The design of the proprietary retaining wall system must follow the current AASHTO LRFD Specifications. Design calculations should clearly indicate the date of the specifications and interims used in the wall design.

Backfill material for proprietary walls shall consist of No. 57 stone. A phi (ϕ) angle of 34° shall be used for No. 57 stone during design.

The maximum approved wall height will be 50 ft.

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Step 4 – Submittal of Standard Details

Once a retaining wall system is on the Approved Proprietary Retaining Walls list, the wall firm shall provide standard details and specifications showing panels, leveling pads or footings, earth reinforcements, materials, coping/moment slab, cast-in-place or precast barriers, repair details, etc. for review and approval by the Office of Structures. Once approved by the Office of Structures, they will be stamped and kept on file. For Contracts in which the system is selected, the wall firm shall submit construction plans, etc. using only the approved details, specifications, etc. on file. Shop drawing review will be based on these details.

For information on what is to be included in the advertised contract documents, see GPM No. P 94-38(4), Contract Documents for Retaining Walls.

Revisions to Approved Proprietary Retaining Walls

Should any detail, specification, etc. change during the time it is on the Approved Proprietary Retaining Walls list, the wall firm must submit the revision for review and approval, prior to using that revision on MDOT SHA projects. Revisions may not be submitted for projects which are already bid.

Approval Expiration

The approval of a retaining wall system is good for 10 years from the date of acceptance. To have the retaining wall system approval renewed, the wall system representative must request in writing to the Director of the Office of Structures indicating any changes to the wall system since the prior approval. An evaluation as outlined in Step 3 may be required.

The Administration reserves the right to remove a retaining wall system from the Approved Proprietary Retaining Wall list at any time. Failure to produce substitute project details to be incorporated as a redline revision in accordance with GPM No. P 94-38(4) will be grounds for removal from the Approved Proprietary Retaining Wall List.