

MAINE DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL REQUIREMENTSⁱ

Introduction

The Maine Department of Transportation (MaineDOT) maintains a list of approved retaining wall systems, and it is available at <https://www.maine.gov/mdot/research/products/>. Wall vendor submittal requirements for requesting approval are stated in their Proprietary Retaining Wall Systems – Product Pre-Approval Process, Criteria, and Information; and is available at https://www.maine.gov/mdot/research/products/submit/#main_tab2.

MaineDOT requires an IDEA report as part of a vendor approval request submittal. Their submittal approval process does require some additional or variation of the information listed on the IDEA protocols (available at <https://www.geoinstitute.org/special-projects/idea>). Specifically, MaineDOT requires submittal of the information listed below to supplement an IDEA report on a particular wall system.

MaineDOT should contact the IDEA webmaster and update their report when their policies, etc. change. This supplemental requirements report is readily updateable, and a revision number and date should be noted.

Criteria for Appointment to QPL

The criteria for appointment to MaineDOT's Qualified Product listed below (per MaineDOT Proprietary Retaining Wall Systems – Product Pre-Approval Process, Criteria, and Information). This list is verbatim from the referenced document since MaineDOT specifically requires an IDEA report (see Item 1.4 below). Therefore, all listed items can be considered either more specific than comparable, or in addition to, IDEA protocol listed items.

- 1.1 The supplier must have a Department approved manufacturing facility to fabricate the wall components.
- 1.2 The wall system has a sound theoretical and practical basis for the Department to evaluate its claimed performance.
- 1.3 Past experience in building and performance of the proposed system.
- 1.4 Evaluation by the Innovations, Developments, Enhancements, and Advancements (IDEA) program, administered by the Geo-Institute of the ASCE.
- 1.5 Documentation and design calculations demonstrating the wall system's compliance with:
 - a) AASHTO LRFD Bridge Design Specifications, current edition (herein referred to as LRFD),
 - b) FHWA-NHI-10-024, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume I, current edition,

- c) FHWA-NHI-10-025, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume II, current edition,
- d) FHWA-NHI-09-087, Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, current edition,
- e) MaineDOT Bridge Design Guide, 2003, with updates through 2019.

1.6 The supplier or wall manufacturer should submit a package that contains the following items:

- a) How and when the wall was developed, system theory, laboratory and field experiments which support the theory or wall design.
- b) Practical applications with descriptions, photos and a list of users including names, addresses and phone numbers.
- c) List of state departments of transportation that have pre-approved the proposed wall system including names, addresses and phone numbers.
- d) Heights, loading, surcharge, and backslope that the supplier is seeking approval for.
- e) Details of wall elements, analysis of structural elements, special designs for traffic barriers or guardrail posts, drainage details, minimum embedment for frost protection, abutments and corner and skew details.
- f) Design calculations demonstrating the stability of the wall against sliding, overturning, eccentricity, bearing resistance, reinforcement pullout, reinforcement rupture, and reinforcement/facing connection failure, for all those wall heights and loading conditions (vehicle impact on guardrail, traffic surcharge) for which the designer-supplier requests preapproval by the Department, in accordance with the codes and documents listed in paragraph 1.5, above.

Design calculations that consist of computer program generated output shall be supplemented with at least one hand calculation and graphic demonstrating the design methodology used. Design calculations shall provide thorough documentation of the sources of equations used and material properties. The wall calculations shall be prepared and sealed by a Professional Engineer licensed in the State of Maine.

- g) Estimated design life, corrosion design, procedures for field and laboratory evaluation of corrosion, corrosivity, durability and long-term performance including special requirements.

- h) Maximum tolerable differential settlements within the wall and between the wall facing elements.
- i) Sample material and construction quality control specifications showing material type, quality, certifications, field testing, acceptance and rejection criteria and installation procedures.
- j) Facing panel or block dimensions, tolerance, geometry and weight, details of how they fit together; shear strength and long-term durability of alignment pins, shear lips; compressive strength, freeze thaw resistance and moisture absorption characteristics of facing blocks or panels.

ⁱ Report Ver 1, December 2020.