

MISSOURI DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL REQUIREMENTSⁱ

Introduction

The Missouri Department of Transportation (MoDOT) maintains a Bridge Pre-qualified Product List (BPPL) of mechanically stabilized earth (MSE) Wall Systems. The list includes both large block (panel) and small block wall systems. This list is available on the MoDOT website, at <https://www.modot.org/bridge-pre-qualified-products-list>.

Retaining wall vendor submittal requirements for requesting approval are stated in MoDOT Bridge Prequalified Products Listing (BPPL), Mechanically Stabilized Earth Wall (MSE Wall) System, Checklist and Commentary. A wall system supplier must submit a request for prequalification with a completed and signed checklist, and with a supporting submittal that addressed all of the items on the checklist.

Many of the items listed in the MoDOT Checklist and Commentary for MSE Walls are contained in an IDEA report. However, there are some additional requested items, which are not listed (or specifically noted) on the IDEA protocols (<https://www.geoinstitute.org/special-projects/idea>). A retaining wall supplier with an IDEA report should supplement their IDEA report with the additional, specific items that MoDOT requires listed below. The items are presented with the MoDOT Checklist and Commentary item number.

Information items that are identical to, and therefore redundant to, IDEA protocol listed items are not listed in this supplemental requirements report. However, items under a topic that the agency requests which are, or may be, more specific or detailed than the IDEA protocol are listed. The wall system supplier submittal may address this in their supplemental information or, if fully addressed in their IDEA submittal, refer to their IDEA report.

MoDOT should contact the IDEA webmaster and update this report if/when their policies, etc. change. This supplemental requirements report is readily updateable, and a revision number and new date should be noted when updated.

Supplement Items

- Completed BPPL MSE Wall Checklist and Commentary, signed by owner of the MSE Wall system.
- The following supplemental items, as listed and numbered on the MSE Wall Checklist and Commentary:
 - 2) Indicate category (see MoDOT BPPL) of prequalification requested
 - Large Block Wall System
 - Small Block Wall System
 - 6) Provide where the system was developed and year it was developed/commercialized/patented.

- 7) Provide internal quality control information (i.e. staff, department head qualifications, test facilities, and equipment). Describe the organizational structure, specifically engineering and construction support staff, for the manufacturer/supplier of the systems/components.
- 14) Provide list of users including names, addresses, email address and phone numbers of contacts and the dates when the systems were installed. Provide list of any DOTs which have approved the wall system or components. Give any height restrictions imposed by DOTs for your product. Provide list of any projects that have been completed in the last three to ten years and list any of those projects that have shown any distress or maintenance issues. Provide the maximum wall height (limit) based on your design criteria and maximum wall height built (when and where).
- 15) Provide typical unit costs supported by data from actual projects.
- 16) Provide details of wall elements including reinforcing steel and clearances to reinforcing steel. Provide details of connection between wall elements and soil reinforcement for a straight wall section and a corner section. Indicate the allowable range of wall batter. (MoDOT's Large Block Wall Systems are required to be vertical walls. Each unit of a Large Block Wall System shall have an engineered mechanical anchorage as the primary method of support without relying on shear friction between wall units. This requirement is intended to address concerns with the difficulty of future panel replacements/repairs.) Provide cross section details for meeting seismic requirements in accordance with AASHTO Specifications. Provide the number of bearing pads and bearing size requirements at horizontal joints, including corner joints, based on panel size and wall height.
- 17) Provide design calculations for typical applications in conformance with latest AASHTO Specifications (Standard Specifications for Highway Bridges, 17th Ed., and AASHTO LRFD Bridge Design Specifications) for nonseismic and seismic load combinations. . . . Describe any unique design criteria, assumptions, or special considerations used in the design calculations. If computer analysis is included, then computer input/output must be supported by detailed hand calculations indicating analysis and detailed equations used to support the output.
- 18) Provide typical details showing how the top surface can be sloped to meet a given grade for the top of the wall. If the top surface must be stepped to accommodate the grade, indicate the minimum step and the typical step that can be used with the proposed system.
- 19) Provide details of coping and the method of attachment for both horizontal and sloping surfaces.
- 20) Small block walls are required to have top cap units for aesthetic reasons. These may be precast or cast in place. Provide details of the top cap unit and the resin anchor system which permanently attaches the units (see Bridge Standard Drawing: MSE Walls – MSEW

http://www.modot.org/business/standard_drawings2/mse_wall_new_title_block.htm). A resin anchor system is required for small block walls.

- 21) Provide details of how the gutter can be used on a grade without interfering with the soil reinforcement (see MoDOT Engineering Policy Guide). In most cases a pre-cast gutter will be used behind the wall for drainage.
- 22) Provide a copy of latest shop drawings showing all required details, wall system cross section with concrete leveling pad and drain pipes, general notes, notes and block notes.

ⁱ Report Ver 1, June 2021.