

SP00596B (Special Provisions for the 2024 Book) (Bidding on or after: ~~1109-01-26~~
Last updated: ~~076-2204-26~~
Requires SP00350, SP00440, SP02001, SP02010, & SP02320,
~~Requires SP02340 if gabion baskets are required.~~
~~& Requires SP02350 if metal bin retaining walls are required.~~
Requires SP02630 when base aggregate is required.
Requires SP02690 when PCC Aggregate is required.)

SECTION 00596B - PREFABRICATED MODULAR RETAINING WALLS

(Follow all instructions and make all edits with "Track Changes" turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Comply with Section 00596B of the Standard Specifications modified as follows:

(Use the following subsection .01 and bullets when the contractor is required to select a permanent proprietary Prefabricated Modular wall system. For "Bridge" retaining walls and "Highway" retaining walls, fill in the blank with the structure number. If the retaining wall does not have a structure number, delete the phrase ", structure no. ____ ,".)

00596B.01 Proprietary Prefabricated Modular Walls - Add the following paragraph and bullet list to the end of this subsection:

Select one of the following preapproved Prefabricated Modular proprietary retaining wall systems for the wall, structure no. ____ , as shown:

(Fill in the blanks with the proprietary retaining wall system name (including the "TM" symbol), company name and telephone number from the ODOT Geotechnical Design Manual, appendix 15-D.)

- _____ Retaining Wall System, **provided**
by _____ , telephone: _____ .
- _____ Retaining Wall System, **provided**
by _____ , telephone: _____ .
- _____ Retaining Wall System, **provided**
by _____ , telephone: _____ .

00596B.03 Definitions - Add the following definition after the definition for "Manufacturer":

Minor Retaining Wall - A prefabricated modular retaining wall that meets all of the following conditions for the full length of the wall:

- Wall height (H) from the top of leveling pad to the top of wall does not exceed 4.0 feet.
- Wall fore slope and back slope are both flatter than 1V:4H within a horizontal distance of H, measured from the nearest point on the wall.

- Surcharge loading is not allowed on the retaining wall back slope within a horizontal distance of H, measured from the nearest point on the wall.
- Failure of the wall would not result in significant loss of access and performance of adjacent public or private structures.
- The wall is labeled as a Minor Retaining Wall in the Plans.

Replace the definition that begins “Nonproprietary Retaining Wall System...” with the following definition:

Nonproprietary Retaining Wall System - A Retaining Wall System that is fully designed in the bid documents.

Replace the definition that begins “Preapproved Proprietary Retaining Wall System...” with the following definition:

Preapproved Proprietary Retaining Wall System - A wall system that is listed in Appendix 16-D of the Geotechnical Design Manual (GDM).

00596B.04 Proprietary Retaining Walls - Replace the bullet that begins “Complete stamped Working...” with the following bullet:

- Complete stamped Working Drawings and design calculations according to 00150.35. Minor Retaining Walls do not require stamped Working Drawings unless prepared by a registered professional engineer. Preparation of Working Drawings and design calculations for Minor Retaining Walls does not require professional engineering registration according to ORS 672.060 (See also OAR 820-040-0005(4)(d)(A)).

00596B.04(a) Working Drawings - Replace the paragraph that begins "Working Drawings shall ..." with the following paragraph:

Submit Working Drawings meeting the requirements of the Project documents and the AASHTO *LRFD Bridge Design Specifications*, as modified by the ODOT GDM, and are consistent with the preapproved Retaining Wall System.

(Use the following subsection .04(b) to list proprietary wall design parameters. Obtain information from the designer. Delete what does not apply. Copy and paste the structure number and bullets for each separate retaining wall.)

00596B.04(b) Design Calculations - Replace the paragraph that begins "Design calculations shall ..." with the following paragraph:

Submit design calculations meeting the requirements of the Project documents and AASHTO *LRFD Bridge Design Specifications*, as modified by the ODOT GDM, and are consistent with the preapproved Retaining Wall System.

Add the following to the end of this subsection:

The following retaining wall design parameters have been established for this Project:

Structure Number _____

- Foundation soil unit density _____ kips/cu. ft.
- Foundation soil angle of internal friction _____ degrees
- Foundation soil nominal (unfactored)
- bearing resistance _____ kips/sq. ft.
- Retained soil unit density _____ kips/cu. ft.
- Retained soil angle of internal friction _____ degrees
- Peak ground acceleration coefficient (PGA) _____
- Long period spectral acceleration coefficient (S_1) _____
- Site class _____

(Use the following two bullets when the Mononabe-Okabe method is required.)

- Peak seismic ground acceleration coefficient modified by short period site factor (A_s) _____
- Horizontal seismic acceleration coefficient (K_h) _____

(Use the following bullet and sub-bullet when the Mononabe-Okabe method is not required. Repeat as necessary for variations in wall height and backslope along the wall.)

- Between Station _____ and Station _____ (Lt.)(Rt.):
 - Total (static plus seismic) external seismic thrust (P_{AE}) _____ kip/ft.

(Use the following bullet and sub-bullets to specify minimum base width for external and overall stability. Repeat as necessary for variations in wall height and backslope along the wall.)

- Between Station _____ and Station _____ (Lt.)(Rt.):
 - Minimum base width for overall stability _____ ft.
 - Minimum base width for external stability _____ ft.

00596B.04(c) Manufacturer's Field Construction Manual - Replace this subsection, except for the subsection number and title, with the following:

Prepare a field construction manual from the manufacturer that includes detailed instructions for constructing the retaining wall.

00596B.10(a) Proprietary Retaining Wall Systems - Replace this subsection, except for the subsection number and title, with the following:

Furnish all Proprietary Retaining Wall System components from the same wall Manufacturer. If there are conflicts between the Manufacturer's requirements and the Agency's requirements, the Agency's requirements prevail.

00596B.10(b) Nonproprietary Retaining Wall Systems - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials according to the applicable material Specifications.

00596B.11(d)(1) Material Passing No. 200 Sieve - Replace this subsection, except for the subsection number and title, with the following:

Ensure the amount of Material passing the No. 200 sieve does not exceed 15 percent by weight. Test according to AASHTO T 11.

00596B.11(d)(2) Plasticity Index - Replace this subsection, except for the subsection number and title, with the following:

Ensure the plasticity index of the material passing the No. 40 sieve does not exceed 6. Test according to AASHTO T 90.

00596B.12(b)(6) Acceptance of Bin Unit Concrete Strength - Replace this subsection, except for the subsection number and title, with the following:

Acceptance is according to 00540.17, except acceptance of concrete strength is determined based on production sublots. A production subplot will consist of either 10 units or a single Day's production, whichever is less. Cast one set of cylinders for each production subplot. The concrete strength of a production subplot is represented by a single compressive strength test on a cylinder.

00596B.12(b)(9) Rejection - Replace this subsection, except for the subsection number and title, with the following:

Units not meeting the requirements of this Subsection are rejected.

00596B.12(c)(1) Aggregate, Strength, Freeze-Thaw Durability, Unit Weight, and Water Absorption - Replace the bullet that begins "Test, no longer than ..." with the following bullet:

- Test, no longer than 18 months before delivery, freeze-thaw durability of five test specimens made with the same materials, concrete mix design, manufacturing process, and curing method that will be used on the Project. A weight loss of not more than 1 percent of the block's initial weight after 150 freeze-thaw cycles as tested according to ASTM C1262 is required in at least four of the five test specimens.

00596B.12(c)(7) Acceptance of Blocks - Replace this subsection, except for the subsection number and title, with the following:

Acceptance is determined on tolerances, visual inspection, compressive strength, water absorption, freeze-thaw durability, and unit weight. Acceptance of compressive strength, water absorption, and unit weight is based on production sublots. The maximum number of blocks per production subplot is 2,000 blocks. Test blocks at the frequency of one set for each production subplot. Acceptance of freeze-thaw durability is based on the freeze-thaw testing requirements of 00596B.12(c)(1).

00596B.12(c)(10) Rejection - Replace this subsection, except for the subsection number and title, with the following:

Blocks not meeting the requirements of this Subsection are rejected.

00596B.12(d)(1) Concrete - Replace this subsection, except for the subsection number and title, with the following:

Furnish Class 4000 structural concrete meeting the requirements of Section 02001. Furnish aggregate with 3/4 inch or greater maximum nominal aggregate size.

00596B.12(d)(7) Acceptance of Blocks - Replace this subsection, except for the subsection number and title, with the following:

Acceptance is determined by tolerances, visual inspection, and concrete strength. Concrete strength is based on production sublots. A production subplot is 20 blocks or a single Day's production, whichever is less. The production subplot is represented by a single compressive strength sample of one set of cylinders.

00596B.12(d)(8) Rejection - Replace the paragraph that begins "Blocks not meeting the ..." with the following paragraph:

Blocks not meeting the requirements of this Subsection, or that exhibit any of the following defects are rejected:

00596B.12(e)(6) Acceptance of Concrete Strength - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of concrete strength is determined based on production sublots. A production subplot will consist of either 100 Crib Wall members or a single Day's production, whichever is less. Cast one set of cylinders for each production subplot. The concrete strength of a production subplot is represented by a single compressive strength test on a cylinder.

00596B.12(e)(7) Rejection - Replace this subsection, except for the subsection number and title, with the following:

Crib units not meeting the requirements of this Subsection are rejected.

00596B.40(a) Proprietary Retaining Walls - Replace the paragraph that begins "Construct proprietary retaining ..." with the following paragraph:

Construct proprietary retaining walls according to Agency requirements, Manufacturer's Working Drawings, and the Manufacturer's field construction manual. If the Manufacturer's Working Drawings or the Manufacturer's field construction manual conflict with Agency requirements, Agency requirements take precedence.

00596B.41 Excavation and Foundation Preparation - Replace the bullet that begins "Do not construct backfill ..." with the following bullet:

- Do not construct backfill when the backfill, the foundation, or the embankment that it would be placed on is frozen, or unstable.

00596B.44(c)(1) General - Replace the bullet that begins "Minimum overlap shall ..." with the following bullet:

- With a minimum overlap of 12 inches.

00596B.47(b)(5)(a) Test Pad Method - Replace this subsection, except for the subsection number and title, with the following:

Before placing the wall backfill, determine the number of Passes necessary to achieve the specified density by constructing a test pad that is at least 5 feet wide, 15 feet long, and 3 feet in final depth. Construct test pad fill in layers no more than 8 inches thick using the same Equipment and methods that are used to compact the wall backfill. Perform at least one density test according to AASHTO T 310 on each test pad layer. Construct and test a new test pad when changes in material occur or different Equipment is used during the construction of the wall backfill, except a new test pad is not required for modular block drainage backfill.

00596B.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of retaining walls are:

(Provide wall area below. Copy as necessary.)

Station Limits	Area
Sta. _____ to Sta. _____ (Lt.)(Rt.)	_____ (Wall area here) _____ sq. ft.

(Use the following paragraph to list estimated quantities for nonproprietary retaining wall systems only. Ensure that the Wall (Bridge) Designer addresses quantities for excavation, shoring (if needed), and leveling pad concrete and rebar, and backfill. Copy and paste more lines to address the estimated quantities for nonproprietary retaining wall systems. For Minor Retaining Walls (walls that are not assigned a structure number), revise the Structure Number column heading to a descriptor that will match the plans identification for the wall.)

The estimated quantities, for estimating purposes only, of excavation, shoring, leveling pads, and specified backfill for nonproprietary retaining wall systems are:

Structure Number	Material	Estimated Quantities
# _____	_____	_____ cu. yd.
# _____	_____	_____ foot
# _____	_____	_____ lb.

00596B.90 Payment - Replace the paragraph that begins "In item (b) ..." with the following paragraph:

In item (b), the height of barrier is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.