

VIRGINIA DEPARTMENT OF TRANSPORTATION
2007 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS**SUPPLEMENTAL SECTION 401—STRUCTURE EXCAVATION**

SECTION 401—STRUCTURE EXCAVATION of the Specifications is amended as follows:

Section 401.02(a) Backfill is replaced with the following:

- (a) **Earthen or other backfill** shall be approved by the Engineer and shall be free from large or frozen lumps, wood, or rocks more than 3 inches in their greatest dimension or other extraneous material. Porous backfill shall conform to the requirements of Section 204.02(c) or as specified herein.

Section 401.03(i) Backfilling is replaced with the following:

- (i) **Backfilling:** Excavated spaces that are not occupied by wingwalls, abutments, piers, or other permanent work not specifically addressed herein shall be backfilled with soil to the surface of the surrounding ground.

Select backfill material shall be used behind all abutments. A detail indicating the limits (zone) of the select backfill will be included in the plans on the abutment detail sheet(s). Select backfill material shall be No. 21A or 21 B stone conforming to Section 208 or Select Material Type I, Min. CBR 30 conforming to Section 207 and shall be compacted in accordance with Sections 305 and 303 respectively. The top surface of the backfill material shall be neatly graded.

The earthen fill around the perimeter of the select material zone in abutments, wingwalls, and retaining walls shall be placed in horizontal layers not more than 6 inches in loose thickness and compacted at ± 20 percent of optimum moisture to a density of at least 95 percent as compared to the theoretical maximum density as defined in Division I. Tests for compliance with density requirements will be performed in accordance with the requirements of VTM-12. As the work progresses, backfill in front of units shall be placed and compacted in horizontal layers to the same elevation as the layers behind units until the final elevation in front is reached. Backfill shall be placed in a manner to prevent wedging action against the concrete. Slopes bounding excavation for abutments, wingwalls, or retaining walls shall be modified to lock in adjacent backfill material by stepping or serrating the existing soils. Jetting of the fill behind abutments, wingwalls, or retaining walls will not be permitted.

Fills and backfills around piers not included in the roadway prism shall be constructed in uniformly compacted layers and placed alternately to maintain a uniform elevation on both sides of the structure. However, the density requirement will be waived.

Provisions shall be made for the draining of backfill material. Geocomposite Wall Drains shall be used to drain the select backfill material in all abutments. Porous backfill shall be used in to drain backfill material in retaining structures unless otherwise stated on the plans. In the event the Contractor requests to substitute geocomposite wall drain in lieu of porous backfill in retaining structure and the Engineer approves such a request, the geocomposite wall drain shall be provided at no additional cost.

Geocomposite Wall Drains shall meet the requirements of Section 245.03 (f) and shall be installed in accordance with the manufacturer's recommendations. A minimum three (3) inch joint overlap of geotextile fabric at the top, bottom, ends, and at adjoining panels

shall be provided. The geocomposite wall drain shall be connected to an outlet drain pipe or weephole of at least 6 inches in diameter. The outlet drain shall be completely wrapped by the bottom fabric flap of the geocomposite wall drain. The Contractor shall provide a detailed sketch of the outlet drain pipe connection as well as connections to any special drainage systems associated with the structure for the Engineer's approval prior to installation.

Porous backfill for draining backfill material behind retaining structures shall consist of crusher run aggregate, conforming to the requirements of Section 205 unless stated otherwise on the plans. Porous backfill shall be placed at the back of weep holes to extend 18 inches behind the entrance to the hole, 18 inches above the elevation of the bottom of the hole, and 18 inches laterally on each side of the centerline of the hole. Where crushed glass is used as porous backfill, No. 78 and/or No. 8 aggregate and an 18-inch by 18-inch swatch of drainage fabric meeting the requirements of Section 245.03(c) shall be used to cover the #4 mesh at each weep hole opening exposed directly to crushed glass, or as otherwise approved by the Engineer.

Backfill shall not be placed against abutments or wingwalls until concrete has been in place 14 days, exclusive of days on which the average high-low air temperature is below 40 degrees F in the shade or until test cylinders have attained a compressive strength equal to 93 percent of the required 28-day design compressive strength, except in cases where completion of grading in the area in front of an abutment is desired. In those circumstances, backfill and/or fill may be placed against abutments or wingwalls to a point no higher than the elevation necessary to complete grading in front of the abutment, provided:

1. The concrete has been in place 7 days, exclusive of days on which the average high-low air temperature is below 40 degrees F in the shade, or
2. Test cylinders have attained a compressive strength greater than or equal to 900 psi and the concrete has been in place a minimum of 2 days, exclusive of days on which the average high-low air temperature is below 40 degrees F in the shade. The Contractor shall take additional cylinders at the time of concrete placement and use a calibrated machine or an independent lab to test the cylinders and verify the compressive strength prior to backfilling.

Backfill shall be placed as soon as practicable following attainment of the required compressive strength but not later than 30 days after concrete placement. Excavation openings shall be maintained as dry as practicable at the time of backfilling. Backfill shall be placed in a manner to deter impoundment of water and facilitate existing drainage.

Section 401.04—Measurement and Payment is amended to add the following:

Select backfill (Abutment zone) will be measured in tons and paid for at the contract unit price per ton. This price shall include furnishing, placing, compacting and grading backfill material.

Geocomposite Wall Drain will be measured in square feet and will be paid for at the contract unit price per square foot. This price shall include furnishing and placing the wall drain, complete-in-place. Overlaps will not be measured for payment

Payment will be made under:

Pay Item	Pay Unit
Geocomposite Wall Drain	Square Yard
Select Backfill (Abutment Zone)	Ton

