



# Illinois Department of Transportation

## Memorandum

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To: Regional Engineers  
From: Jack A. Elston   
Subject: Special Provision for Geotextile Retaining Walls  
Date: July 26, 2019

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This special provision was developed by the Central Bureau of Materials to update the physical properties of geotextile retaining wall fabric in accordance with AASHTO specifications.

This special provision should be inserted into contracts requiring geotextile retaining walls.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2019 and subsequent lettings. The Project Coordination and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory July 26, 2019.

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## GEOTEXTILE RETAINING WALLS (BDE)

Effective: November 1, 2019

Revise Article 1080.06(d) of the Standard Specifications to read:

“(d) The geotextiles for geotextile retaining walls shall be Class 1 according to AASHTO M 288 and consist of woven yarns or nonwoven filaments of polyolefins or polyesters. The yarns or filaments shall be dimensionally stable (i.e. maintain their relative position with respect to each other) and resistant to delamination. The yarns or filaments shall be free from any chemical treatment or coating that might significantly reduce porosity and permittivity. A Class 1A geotextile according to AASHTO M 288 Tables 1 and 6 will also be permitted.

The Class 1 fabric shall be according to the following.

PHYSICAL PROPERTIES <sup>1/</sup>		
	Woven	Nonwoven
Grab Strength, lb (N) ASTM D 4632 <sup>2/</sup>	314 (1400) min.	202 (900) min.
Elongation/Grab Strain, % ASTM D 4632 <sup>2/</sup>	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 <sup>2/</sup>	112 (500) min.	79 (350) min.
Puncture Strength, lb (N) ASTM D 6241 <sup>2/</sup>	618 (2750) min.	432 (1925) min.
Apparent Opening Size, Sieve No. (mm) ASTM D 4751 <sup>3/</sup>	40 (0.43) max.	
Permittivity, sec <sup>-1</sup> ASTM D 4491	0.2 min.	
Ultraviolet Stability, % retained strength after 500 hours of exposure – ASTM D 4355	70 min.	

1/ NTPEP results or manufacturer's certification to meet test requirements.

2/ Values represent the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)].

3/ Values represent the maximum average roll value.

In addition, the allowable strength of the fabric shall meet or exceed the ( $T_{min}$ ) strength specified on the plans. The ultimate tensile strength of the fabric ( $T_{ult}$ ) used to determine the allowable strength of the fabric shall be determined from the wide width tensile tests specified in ASTM D 4595 and shall be the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)]. The

strength of the geotextile shall meet the requirements determined by the Contractor's approved design."

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