

Excelsior Sediment Control Device

With Biodegradable Containment Material



Curlex Sediment Logs use excelsior fibers to reduce hydraulic energy & filter sediment-laden runoff. Tired of straw and hay bale checks being blown out and the fibers washed downstream to clog the nearest outlet? Fed up with spending all of your time and effort installing silt fence only to see it get knocked down when it rains or a good wind comes along? How about when you have to go back and pick up the loose fibers and/or remove those worn out silt fences and take them to the landfill?

Next time, consider giving our Bioengineered Sediment Logs a try. Water filters through (not underneath) the diameter of the porous, interlocked fiber log matrix. As it does, velocity is naturally reduced and sediment is collected on the upstream side of the excelsior fiber log. Install Curlex Sediment Logs over bare soil or over rolled erosion control products for a variety of typical job site applications.

### Typical Applications

- Perpendicular to the flow of water in ditch bottoms, swales, and waterways
- As wattle on slopes
- Around job sites or perimeter control
- Around inlets and outlets
- Project ingress and egress termination points
- All filtering applications
- In place of bales, silt fence, and rock checks

### Material Characteristics

Sediment logs are versatile excelsior logs comprised of an outside containment fabric that is filled with unique Curlex fibers. Curlex fibers are made of Great Lakes Aspen excelsior fibers. The fibers are curled with soft interlocking barbs. The outside containment fabric is biodegradable; thus, sediment logs will degrade in place if not removed. Sediment Logs are porous, allowing water to pass through the excelsior matrix, progressively slowing velocity and filtering sediment as it passes through the log diameter. Sediment logs are extremely flexible and contour to the terrain to maintain intimate contact with the subgrade. In addition, they come with five other benefits; lightweight, no trenching, no seeds, no disposal hassle, and they may be reusable depending on the application.



### Performance Capabilities

#### Product Names / Nominal Diameter

- (20 in) energy dissipation in heavy duty concentrated flow areas, slope interruption, inlet protection, perimeter control
- (12 in) energy dissipation in mild to medium concentrated flow areas, slope interruption, inlet protection, perimeter control
- (9 in) energy dissipation in mild concentrated flow areas, slope interruption, inlet protection, perimeter control
- (6 in) energy dissipation in low concentrated flow areas, slope interruption, inlet protection, perimeter control



# Suggested Specifications

**General:** Sediment Log consists of an outside biodegradable containment fabric filled with Great Lakes Aspen curled excelsior fibers. Its purpose is to provide a flexible, lightweight, porous, sediment control device demonstrating the ability to conform to terrain details, dissipate water velocity, and filter contaminated flows.

**Product:** Sediment Control Device shall be Curlex Sediment Log, as manufactured by American Excelsior Company. Curlex Sediment Logs shall be made of Great Lakes Aspen excelsior fibers encased in an outside biodegradable containment fabric secured on each end. Fibers shall be curled with soft, interlocking barbs to form a strong, organic filtration matrix. Curlex is made from fibers which are listed by the EPA as a known sorbent. Fibers shall be evenly distributed throughout the diameter and length of the Sediment Log. Excelsior fibers shall be seed free. Density of Sediment Logs shall not exceed 2.6 lb/ft<sup>3</sup> to ensure necessary flow rates for filtering of  $\geq 35$  GPM/ft<sup>2</sup>. Curlex Sediment Log shall be manufactured in the U.S.A. at company locations where QA/QC is implemented and managed by the manufacturer. Field fabricated products and products made by anyone other than the manufacturer (i.e. distributors, dealers, etc.) shall not be accepted.

Product Name/Nominal Diameter <sup>a</sup>	20 in	12 in	9 in	6 in
Length ( $\pm 10\%$ )	3.05 m (10 ft)	3.05 m (10 ft)	7.62 m (25 ft)	7.62 m (25 ft)
Weight ( $\pm 10\%$ ) <sup>b</sup>	13.62 kg (30 lb)	9.02 kg (20 lb)	11.35 kg (25 lb)	5.45 kg (12 lb)
Containment Material opening (rib-shaped)	0.191 cm (0.075 in)	0.191 cm (0.075 in)	0.191 cm (0.075 in)	0.191 cm (0.075 in)

## Performance Requirements

Property	Value	Method
Flow Rate (GPM/ft <sup>2</sup> )	$\geq 35$	ASTM D5141
Soil Retention Effectiveness	$\geq 96\%$	ASTM D7351
Channel Soil Loss Reduction (%)	$\geq 50$	ASTM D7208
pH Buffering	$8 \pm 3$	ASTM D1117, modified
Functional Longevity <sup>c</sup>	$\leq 24$ Months	Documented Laboratory and Field Studies
Removal of Polynuclear Aromatic Hydrocarbons (PAHs)	$\geq 95\%$	Quantified Research <sup>d</sup>
Fly Ash Filtration (TSS)	$\geq 78\%$	Quantified Research <sup>e</sup>
Fly Ash Filtration (NTU)	$\geq 76\%$	Quantified Research <sup>e</sup>

<sup>a</sup> Custom sizes available

<sup>b</sup> Weight and density are based on a dry weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen excelsior, AEC Premier Straw and AEC Premier Coconut fibers are 22%, 15%, and 20% respectively.

<sup>c</sup> Functional longevity varies from region to region because of differences in climatic conditions.

<sup>d</sup> Boving and Zhang, Chemosphere 54 (2004) 831-839.

<sup>e</sup> Kelsey, K. and M. Murley. (2017, January). *Fly Ash Slurry Filtration Using Curlex® Sediment Log® - Quantifying Total Suspended Solids and Turbidity Reduction*. Unpublished internal document, ErosionLab.

<sup>f</sup> Based on ASTM D5141

<sup>g</sup> Based on large simulated rainfall testing

## Curlex Sediment Logs Design Values with Comparisons to Typical Straw Wattles

Product Name/ Nominal Diameter	Density <sup>b</sup> (lb/ft <sup>3</sup> )	Channel Design		Slope Design	
		GPM/ft <sup>2</sup> <sup>f</sup>	GPM/linear ft of installed product	P Factor <sup>g</sup> (event-based)	% Soil Retained
6 in Curlex Sediment Log	2.4	$\approx 42.5$	$\approx 19.5$	$\approx 0.461$	$\approx 53.9$
9 in AEC Premier Straw Wattle	4.5	7.5	5.6	0.676	32.4
9 in Curlex Sediment Log	2.3	$\approx 42.5$	$\approx 29.0$	$\approx 0.461$	$\approx 53.9$
12 in AEC Premier Straw Wattle	3.8	8.0	8.0	0.828	17.2
12 in Curlex Sediment Log	2.5	$\approx 40.0$	$\approx 36.7$	$\approx 0.297$	$\approx 70.3$
20 in Curlex Sediment Log	1.4	$\approx 37.5$	$\approx 46.9$	$\approx 0.297$	$\approx 70.3$

Disclaimer: Curlex Sediment Log is a system for sediment control in channels and on slopes. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in sediment control applications. However, since physical conditions vary from job site to job site and even within a given job site, AEC makes no performance guarantees and assumes no obligation or liability for the reliability or accuracy of information contained herein, for the results, safety or suitability of using Sediment Log, or for damages occurring in connection with the installation of any erosion control product whether or not made by AEC or its affiliates, except as separately and specifically made in writing by AEC. These specifications are subject to change without notice.