American Excelsior Company®
Earth Science Division

Proud Participant in NTPEP and Proud Member of:

# Curlex® Sediment Log®
# SPECIFICATION

## PART I - GENERAL

### 1.01 Summary

A. The sediment log contains excelsior wood fiber for the purpose of slowing water velocity and trapping sediment as described herein.

B. This work shall consist of furnishing and installing the sediment log; including fine grading, installing, staking, and miscellaneous related work, in accordance with these standard specifications and at the locations identified on drawings or designated by the owner's representative. This work shall include all necessary materials, labor, supervision, and equipment for installation of a complete system.

C. All work of this section shall be performed in accordance with the conditions and requirements of the contract documents.

D. The sediment log shall be used to slow water velocity, trap sediment, and enhance revegetation. Based on a project-by-project engineering analysis, the sediment log shall be suitable for the following applications:

1. Perpendicular to the flow of water in ditch bottoms, swales, and waterways
2. As wattles on slopes
3. Around job sites or perimeter control
4. Around inlets and outlets
5. Project ingress and egress termination points
6. All other filtering applications
7. In place of bales, silt fence, and rock checks

### 1.02 Performance Requirements

A. Sediment log shall provide temporary, degradable channel and slope interruption by slowing water velocity to reduce shear stress and soil erosion while enhancing revegetation. Sediment log performance capabilities shall be determined by large-scale testing deemed acceptable by the design engineer. Curlex is made from fibers which are listed by the EPA as a known sorbent.

B. Sediment log performance requirements:

| Property | Value | Method |
|---|---|---|
| Flow Rate (GPM/ft$^2$) | ≥ 35 | ASTM D5141 |
| Soil Retention Effectiveness | ≥ 96% | ASTM D7351 |
| Channel Soil Loss Reduction (%) | ≥ 50 | ASTM D7208 |
| pH Buffering | 8 ± 3 | ASTM D1117, modified |
| Functional Longevity[a] | ≤ 24 Months | Documented laboratory and field studies |
| Removal of Polynuclear Aromatic Hydrocarbons (PAHs) | ≥ 95% | Quantified research[b] |
| Fly Ash Filtration (TSS) | ≥ 78% | Quantified research[c] |
| Fly Ash Filtration (NTU) | ≥ 76% | Quantified research[c] |

[a] Functional longevity varies from region to region because of differences in climatic conditions.

[b] Boving and Zhang, Chemosphere 54 (2004) 831-839.

[c] 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.

## 1.03 Submittals

A. Submittals shall include complete design data, Product Containment Material Information, SDS, Installation Guidelines, Manufacturing Material Specifications, Manufacturing Certifications, Staking Pattern Guide, CAD details, and a Manufacturing Quality Control Program. In addition, the Manufacturer shall provide a test report providing data showing the performance capabilities of the sediment log, along with reference installations similar in size and scope to that specified for the project.

## 1.04 Delivery, Storage, and Handling

A. Sediment log shall be furnished on pallets or master packs.

B. Sediment log may be compressed when packaged. The unique packaging can result in a less than symmetrical shape upon arrival to the jobsite. This will not affect the performance capability of the Sediment log because unique Great Lakes aspen excelsior fibers naturally expand upon wetting and return to a symmetrical tubular shape.

C. Sediment log shall be free of defects and voids that would interfere with proper installation or impair performance.

D. Sediment log shall be stored by the Contractor in a manner that protects them from damage by construction activities.

# PART II - PRODUCTS

## 2.01 Sediment Log

A. Sediment logs shall be Curlex Sediment Logs, as manufactured by American Excelsior Company, Arlington, TX (800-777-7645).

B. Curlex Sediment Log consist of a specific cut of naturally seed free Great Lakes Aspen wood excelsior inside a degradable, durable, flexible containment material. Curlex Sediment Log is designed to provide intimate contact with the soil, which prevents blowouts and undermining. Curlex Sediment Log allows water to flow through the 100% excelsior matrix, minimizing overtopping, slowing high flow water velocities, and intercepting and stopping silt movement. Curlex Sediment Logs may be installed over bare soil, over rolled erosion control products, on steep slopes, around inlets and outlets, or around jobsites for perimeter control. 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.

C. Sediment logs shall have the following nominal material characteristics:

| PROPERTY | ENGLISH | METRIC |
|---|---|---|
| Product Name | 6 in<br>9 in<br>12 in<br>20 in | 15.2 cm<br>22.9 cm<br>30.5 cm<br>50.1 cm |
| Minimum Diameter | 5.5 in<br>8.0 in<br>11.0 in<br>18.0 in | 14.0 cm<br>20.3 cm<br>27.9 cm<br>45.7 cm |
| Log Density [d]<br>(± 10 %) | (6 in) 2.44 lb/ft$^3$<br>(9 in) 2.26 lb/ft$^3$<br>(12 in) 2.54 lb/ft$^3$<br>(20 in) 1.38 lb/ft$^3$ | 39.09 kg/m$^3$<br>36.20 kg/m$^3$<br>40.69 kg/m$^3$<br>22.11 kg/m$^3$ |
| Log Dimensions (W x L)<br>(± 10 %) | 6 in x 25 ft<br>9 in x 25 ft<br>12 in x 10.0 ft<br>20 in x 10.0 ft | 0.1520 m x 7.620 m<br>0.2290 m x 7.620 m<br>0.3048 m x 3.048 m<br>0.5080 m x 3.048 m |

[d] Weight and density are based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen excelsior is 22%.

## 2.02 Stakes

A. Stakes shall be wooden, 1 1/8 in wide x 1 1/8 in thick by a minimum of 30 in long for 6 in, 9 in, and 12 in Curlex Sediment Logs and 48 in long for 20 in Curlex Sediment Logs.

B. 6 inch and 9 inch Curlex Sediment Logs may also be anchored with E-Staples®, 1 in x 6 in, U-shaped, 11 gauge wire staples, 2 in x 8 in, U-shaped, 8 gauge wire staples. Anchoring with staples shall not be used in channelized flow applications. Stakes may be used in conjunction with staples for additional anchoring of 6 inch and 9 inch Curlex Sediment Logs, as deemed necessary by the Engineer.

## PART III - EXECUTION

### 3.01 Sediment Log Supplier Representation

A. Contractor shall coordinate with the log supplier for a qualified representative to be present on the job site at the start of installation to provide technical assistance as needed. Contractor shall remain solely responsible for the quality of installation.

### 3.02 Site Preparation

A. Before placing sediment logs, the Contractor shall certify that the subgrade has been properly compacted, graded smooth, has no depressions, voids, soft or uncompacted areas, is free from obstructions such as tree roots, protruding stones or other foreign matter, and is seeded and fertilized according to project specifications where applicable. The Contractor shall not proceed until all unsatisfactory conditions have been remedied. By beginning construction, Contractor signifies that the preceding work is in conformance with this specification.

B. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations.

C. No vehicular traffic shall be permitted directly on the sediment log.

### 3.03 Installation

A. Sediment log shall be installed as directed by the owner's representative in accordance to manufacturer's Installation Guidelines, Staking Pattern Guide, and CAD details. The extent of sediment logs shall be as shown on the project drawings.

B. Sediment log should be installed to intercept water flow and collect sediment on site. They may be placed over bare soil or on top of erosion control blankets. Sediment logs are typically installed laying on flat ground and not trenched.

C. They shall be secured to the subgrade by wood stakes every two lineal feet across the length of the sediment log. The stakes shall be intertwined with the outer mesh of the sediment log only and driven into the ground a minimum of 16 inches on the downstream side of the sediment log.

D. 6 inch and 9 inch Curlex Sediment Logs can also be installed to the subgrade with E-Staples or wire staples. Staples shall be installed every two lineal feet across the length on each side of the sediment log. The two rows of staples shall be staggered by one foot along the length of the sediment log. All staples shall be fully inserted into the subgrade below the sediment log.

E. Sediment log installed in a swale or channel bottom shall allow the installation to continue up the slopes three feet above the anticipated high water mark and perpendicular to the flow of water.

F. Spacing of sediment logs shall be such that the elevation of the bottom of the sediment log upstream will be equal to the elevation of the top of the log downstream.

G. Sediment log shall remain in place until fully established vegetation and root systems are present.

### 3.04 Quality Assurance

A. Sediment log shall not be defective or damaged. Damaged or defective materials shall be replaced at no additional cost to the owner.

B. Product shall be manufactured in accordance to a documented Quality Control Program. At a minimum, the following procedures and documentation shall be provided upon request:
   1. Manufacturing Quality Control Program Manual
   2. Additional inspections for product conformance shall be conducted during the run after the first piece inspection.
   3. Moisture content readings recorded for each manufacturing day.
   4. Each individual sediment log shall be inspected, weighed, and documented prior to packaging for conformance to manufacturing specifications.
   5. Documentation and record retention for at least two years.

### 3.05 Clean-up

A. At the completion of this scope of work, Contractor shall remove from the job site and properly dispose of all remaining debris, waste materials, excess materials, and equipment required of or created by Contractor. Disposal of waste materials shall be solely the responsibility of Contractor and shall be done in accordance with applicable waste disposal regulations.

### 3.06 Method of Measurement

A. Sediment log shall be measured for payment as individual items and the unit of measure shall be each.

### 3.07 Basis of Payment

A. The accepted quantities of sediment log shall be paid for at the contract unit price per each unit, complete in place.

Payment shall be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Sediment Log | Individual Item |

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 Curlex 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 guidelines are subject to change without notice.