Common Erosion Problems

The impact of erosion on the environment can be serious and potentially irreversible. Our landscape, water sources, agricultural resources and wildlife can all be affected by the devastation.

Billions of dollars are spent each year to manage the effects of erosion. Slopes are washed away by storm water runoff, channels are filled with sediment, shorelines can be altered forever and topsoil can be lost to harvests. Designers, specifiers and installers can prevent much of this destruction by using the latest developments in erosion control. Western Excelsior provides the products and expertise landowners, contractors and government agencies need to protect natural resources from land and soil loss. Western Excelsior’s innovative solutions save many natural resources, save time and save money.

Erosion Control Regulation

Western Excelsior has the expertise to aid in compliance with NPDES and other regulations. Further, Western Excelsior manufactures the products necessary to fulfill the requirements for any erosion problems contractors, designers and specifiers face.

Best of all, Western Excelsior solutions are complete and cost effective.

Western Excelsior is the only single-source supplier of excelsior, straw, coconut/straw, 100% coconut erosion control blankets, 100% synthetic Turf Reinforcement Mats (TRMs), woven TRMs and High Performance TRMs.

Western Excelsior manufacturing facilities are located in Mancos, Colorado, Macon, Georgia, and the corporate offices are located in Evansville, Indiana. Western Excelsior maintains an extensive network of distributors with offices from coast to coast and primary stocking in Middlesex, NC.

Utilizing timber harvested from logging initiatives aimed at dramatically reducing forest fires in the Rocky Mountains, Western Excelsior has been manufacturing machine-produced Excelsior since 1977. Our products are engineered to provide maximum ecological stewardship while delivering the best value for our customers.

Western Excelsior is a proud member of the International Erosion Control Association (IECA) and an active member and supporter of the Erosion Control Technology Council (ECTC).

Western Excelsior provides the ultimate partnership between nature and technology, using natural resources engineered to preserve our natural landscapes—“Blanketing Nature with Nature.”
Why use an erosion control blanket?

Accelerated global soil erosion decimates 12 to 15 million acres of land per year, and the costs to society are immeasurable. Erosion is a naturally occurring process on all lands, with effects ranging from topsoil degradation to gullies and shoreline degradation. Soil erosion can develop practically unnoticed, over time, or it can occur at an alarming rate, with potentially catastrophic consequences.

A Rolled Erosion Control Product (RECP) is a matrix consisting of various organic or inorganic materials confined by netting, stitching and/or geo-composites. When properly placed, RECPs prevent seed and soil loss, which aids in the establishment of healthy vegetation, to prevent erosion in the future.

Western Excelsior products are engineered to control erosion on slopes, drainage channels, canal/river banks, levees and shorelines; establish vegetation in bare areas; reinforce the stems and roots of vegetation; and control the release of sediment into streams, lakes and rivers. Western Excelsior products are engineered to provide variable longevity, allowing for degradation quickly after placement, or a permanent presence. All Western Excelsior products serve as a mulching layer and the Excel PPS series of Turf Reinforcement Mats provide permanent enhancement of vegetation stability. For more information about erosion control, visit the Erosion Control Technology Council (ECTC) web site at www.ectc.org.

Environmental Benefits of Erosion Control

Western Excelsior’s erosion control products are specifically engineered to lessen the impact of soil erosion due to wind and/or water and provide a mulching layer for the establishment of vegetation.

Excelsior is a man-made wood fiber; created by shaving Aspen logs. Logs are harvested from overgrown forests or fire-reduction activities. Once harvested, the logs are dried, de-barked, sawn, split and shaved. The resulting fiber is unique in its properties and more consistent than other natural fibers.

Excelsior achieves excellence in erosion control by bonding with the soil surface when wetted. Excelsior fibers interlock uniquely and adhere to one another protecting the soil surface. Further, the open matrix and superior mulching of Excelsior allows for easy and rapid establishment of vegetation.

Excelsior is the final step in the life cycle of an Aspen tree. After it is harvested, Excelsior is applied to the soil surface and wetted to facilitate vegetation. Then it degrades, leaving no trace and only clean water.

Excelsior has been used in countless projects, providing erosion protection and mulching unmatched by any other degradable material.
Tackmat was designed to be the ideal choice for economical, low risk RECPs. As a single net, straw matrix ECB, Tackmat, the material is among the most economical, ideal for low risk / low gradient installations. However, the addition of an all-natural, high performance tackifier for extended erosion and vegetation establishment performance. The addition of the tackifier holds every soil particle in place, maximizing the potential vegetation establishment. The straw matrix provides mulching and twelve-month protection.

Tackmat represents a new evolution in Excelsior ECBs. Combining a high-performance, single net Excelsior ECB with a high-performance, soil-stabilizing polyacrylamide (PAM) yields a new ECB with extended capabilities. Tackmat was designed to be utilized on projects with steep gradients and requiring longevity up to fifteen months. Yielding no measurable soil loss in full-scale trials, Tackmat provides a stable soil structure for the establishment of vegetation, holding soil and seed migration to an absolute minimum, thus minimizing the potential for soil structure degradation. TackmatX was designed to be utilized on projects with steep gradients and requiring longevity up to fifteen months. Yielding no measurable soil loss in full-scale trials, Tackmat provides a stable soil structure for the establishment of vegetation, holding soil and seed migration to an absolute minimum, thus minimizing the potential for soil structure degradation.

Western Excelsior produces Tackmat and TackmatX in Regular, Rapid-Go and All Natural nettings.

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TackmatX represents a new evolution in Excelsior ECBs. Combining a high-performance, single net Excelsior ECB with a high-performance, soil-stabilizing polyacrylamide (PAM) yields a new ECB with extended performance. The addition of the tackifier holds every soil particle in place, minimizing the potential for soil structure degradation. TackmatX was designed to be utilized on projects with steep gradients and requiring longevity up to fifteen months. Yielding no measurable soil loss in full-scale trials, Tackmat provides a stable soil structure for the establishment of vegetation, holding soil and seed migration to an absolute minimum, thus minimizing the potential for fines.

Western Excelsior produces Tackmat and TackmatX in Regular, Rapid-Go and All Natural nettings.

**TackmatX**
- All Natural
- Rapid-Go
- Regular

**Tackmat**
- All Natural
- Rapid-Go
- Regular

**NETTINGS and STITCHING**

- UV stabilized synthetic, photodegradable
- UV accelerated synthetic, photodegradable, rapid degradable
- Leno woven jute/scrim, 100% biodegradable

**EXCEL SR-1**
- Single net straw blankets

**EXCEL SS-2**
- Double net straw blankets

**TACKMAT SERIES**

- Enhanced Erosion Control Blankets
- Straw Erosion Control Blankets

**TEMPORARY STRAW EROSION CONTROL BLANKETS**

- Excel SR-1
  - Single net straw blankets
  - Regular, Rapid-Go, All Natural

- Excel SS-2
  - Double net straw blankets
  - Regular, Rapid-Go, All Natural

**EXCEL SR-1**
- [Single Net Straw Blankets]

**EXCEL SS-2**
- [Double Net Straw Blankets]
Western Excelsior produces a series of Excelsior matrix ECBs. Single net, double net and heavy duty materials are available. Single and double net products are available in Regular weight (R) and Superior weight (S). The matrix construction of Western Excelsior’s Excel R-1, R-2, S-1 and S-2 erosion control blankets are comprised entirely of 100% Rocky Mountain Aspen, machine-produced Excelsior. Excelsior fibers produced under Western Excelsior’s Manufacturing Quality Plan are greater than 6 inches in length, strong, durable and absorbent. Since the Excelsior fibers are machine-produced with specified dimensions and properties, the resultant blanket matrix is more consistent and yields greater open area for the establishment of vegetation with less tenting, compared to other ECBs. By using only high-altitude aspen, Western Excelsior produces a naturally drier fiber with greater strength, resiliency and absorbency for improved performance. Regular and Superior weight ECBs are available in Regular, Rapid Go and All Natural configurations.

Excelsior ECBs provide extended longevity and performance.

**NETTINGS and STITCHING**

<table>
<thead>
<tr>
<th>Property</th>
<th>Units</th>
<th>Regular</th>
<th>Rapid Go</th>
<th>All Natural</th>
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<td>0.63</td>
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</table>

Excel R-1 [SINGLE NET EXCELSIOR BLANKET]

Excel R-2 [DOUBLE NET EXCELSIOR BLANKET]

Excel S-1 [SINGLE NET EXCELSIOR BLANKET]

Excel S-2 [DOUBLE NET EXCELSIOR BLANKET]

Excel CS-3 is an Extended-Term ECB comprised of a blended matrix of 70% certified weed free agricultural straw and 30% clean coconut. The blended matrix is mechanically (stitch) bound on two inch centers to Regular or All Natural netting. Excel CS-3 offers extended longevity, compared to straw matrix ECBs, thus providing a longer lasting alternative for moderate gradient slopes and channels.

Extended Term ECBs are ideal for projects requiring protection for longer than 12 months.

In the case of a Northern California project, Excel CS-3 All Natural was utilized in the stabilization of a steep slope. Yielding a typical longevity between 12 and 24 months and providing the level of erosion control performance necessary, Excel CS-3 All Natural met the designer’s requirements. The All Natural option was included to allow the entire installation to biodegrade and minimize entrapment of wildlife.

**NETTINGS and STITCHING**

<table>
<thead>
<tr>
<th>Property</th>
<th>Units</th>
<th>Regular</th>
<th>Rapid Go</th>
<th>All Natural</th>
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<td>Synthetic, Photo-degradable</td>
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</table>

Excel CS-3 [DOUBLE NET COCONUT/STRAW BLANKET]

Excel R-1 Excel R-2 Excel S-1 Excel S-2 Excel CS-3
**COCONUT AND HEAVY DUTY EXCELSIOR EROSION CONTROL BLANKETS**

### LONG TERM

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<tr>
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<td>≥ 36</td>
<td>≥ 36</td>
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</table>

**NETTINGS and STITCHING**

- Regular: UV stabilized synthetic
- All Natural: UV stabilized synthetic

**EXCEL PP5-8/10/12**

*Double Net, Stitch Bonded, Fiber Filled TRM*

Western Excelsior’s permanent turf reinforcement mats are composed of 100% synthetic components. A matrix of green or tan polypropylene fibers is mechanically bound (stitched) between two UV stabilized heavy-duty synthetic nets. Each is a permanent rolled erosion control product that provides short-term erosion protection and long-term turf reinforcement for greater than 36 months.

Stitch bonded materials are 1st generation permanent TRM products. The PPS line of stitch bonded TRMs are capable of providing significant resistance to hydraulic forces and have been tested in full-scale laboratory environments as well as challenging field conditions. PPS-8, PPS-10 and PPS-12 provide increasing levels of unvegetated performance, giving designers options to make economical use of material while satisfying project needs. Once partially and/or fully vegetated, each material provides a high level of performance in resisting the forces of flowing water and rainfall.

Supporting the establishment and reinforcement of vegetation is economical and reliable with PPS 1st generation TRMs.

---

**EXCEL PP5-8/10/12**

*Double Net, Stitch Bonded, Fiber Filled TRM*

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Supporting the establishment and reinforcement of vegetation is economical and reliable with PPS 1st generation TRMs.

---

**NETTINGS and STITCHING**

- Regular: UV stabilized synthetic

---

**EXCEL SD-3**

*HEAVY DUTY EXCELSIOR BLANKET*

Excel SD-3 is a Long-Term ECB comprised of a heavy duty matrix of high altitude aspen Excelsior fibers mechanically (stitch) bound on two inch centers between two UV stabilized, synthetic nets. The thick, resilient matrix of Excel SD-3 provides the highest level of performance in resisting the forces of flowing water in channel installations.

---

**EXCEL CC-4**

*DOUBLE NET COCONUT BLANKET*

Excel CC-4 is a Long-Term ECB comprised of a 100% clean coconut matrix mechanically (stitch) bound on two inch centers between two long lasting nets. The properties of the coconut matrix provide long-lasting erosion protection and the highest level of performance protecting slope installations from rainfall and raintfall.

---

**NETTINGS and STITCHING**

- Regular: UV stabilized synthetic, photodegradable
- All Natural: Leno woven jute/scrim, 100% biodegradable

---

All of Western Excelsior’s Long-Term products are manufactured in a double net configuration and consist of an organic matrix intended to degrade over time. Coconut or Excelsior fibers are utilized as matrix materials, providing erosion protection and mulching for a period greater than 24 and up to 36 months. Heavy duty, UV stabilized netting is exclusively utilized for regular, long-term products. Coconut blankets are also available with All Natural netting.

Excel CC-4 is a Long-Term ECB comprised of a 100% clean coconut matrix mechanically (stitch) bound on two inch centers between two long lasting nets. The properties of the coconut matrix provide long-lasting erosion protection and the highest level of performance protecting slope installations from rainfall and raintfall.

Excel SD-3 is a Long-Term ECB comprised of a heavy duty matrix of high altitude aspen Excelsior fibers mechanically (stitch) bound on two inch centers between two UV stabilized, synthetic nets. The thick, resilient matrix of Excel SD-3 provides the highest level of performance in resisting the forces of flowing water in channel installations.

Long term ECBs are ideal for arid regions or projects requiring protection for longer than 24 months.
ADVANCING TURF REINFORCEMENT TECHNOLOGY

Western Excelsior has revolutionized the landscape of woven turf reinforcement technology. Utilizing a new advanced production process, Western Excelsior is able to produce woven TRMs and HPTRMs that offer extended capabilities when compared to a competitive product. The PPS line of woven TRMs have a continuous and homogenous three dimensional structure that truly represents the next generation of TRM technology.

In addition to providing superior resistance to hydraulic stresses and environmental degradation (ideal for long life in any climate), Western Excelsior's next generation materials offer greater strength at low strain, which means mobilizing the TRM/HPTRM strength faster. Typical TRMs stretch significantly more when loaded, reducing performance. Western Excelsior's woven materials have been designed to maintain dimension and stability under the most extreme conditions and loads. This formulation provides the highest level of resistance to hydraulic stressing, wheel loads (due to mowing or construction) or debris/ice and provides the highest factor of safety and durability. This technology provides a sensible choice for a cost effective, technically proven, permanent, environmentally sensitive, reinforced vegetative solution to traditional hard armor alternatives.

Woven TRMs can be deployed to provide a range of performance and durability options:

### Material Type
- **2nd Generation TRM**
- **High Performance TRM**
- **Anchor Reinforced Vegetated System**

### Property Units

<table>
<thead>
<tr>
<th>Property</th>
<th>2nd Generation TRM</th>
<th>High Performance TRM</th>
<th>Anchor Reinforced Vegetated System</th>
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<tbody>
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<td>Mass per Unit Area lbs/yd²</td>
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<td>9.2</td>
<td>9.2</td>
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<tr>
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<td>Synthetic, UV Stabilized</td>
<td>Synthetic, UV Stabilized</td>
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<tr>
<td>Matrix</td>
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<tr>
<td>Construction</td>
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<td>Typical Tension</td>
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<td>12 in./in.</td>
<td>Permeate</td>
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<tr>
<td>Loading/Survivability</td>
<td>Medium</td>
<td>High</td>
<td>Highest</td>
</tr>
</tbody>
</table>

PPS-Heavy Duty Woven Turf Reinforcement Mat (WTRM) is a continuously woven, second generation TRM that provides extended performance and durability compared to traditional stitch or melt bonded materials. Capitalizing on Western Excelsior’s ground-breaking woven technology, PPS-Heavy Duty WTRM provides greater strength, durability and performance. The increased strength of the product, combined with systematically entangling the stem and root structure of the vegetative cover, aids in maintaining the integrity of the vegetated system, yielding increased design life and factor of safety. Additionally, the resistance to degradation by sunlight, chemical agents, biologic agents, foot traffic and light vehicle traffic affords an enhanced design life, significantly longer than traditional TRMs. Classified as a Medium Loading/Survivability material, the stability of the established system affords designers a cost-effective solution to common challenges.

### HIGH PERFORMANCE AND HIGH SURVIVABILITY

**ANCHOR REINFORCED VEGETATED SYSTEM**

High Performance TRMs (HPTRMs) provide the highest levels of strength, durability and performance. Utilizing woven technology in construction, the material provides a minimum tensile strength of 3000 lbs/ft of fabric width, in both the machine and cross direction. Unmatched resistance to hydraulic, physical and environmental stresses allow HPTRMs to provide the longest possible design life. When secured with Percussion Driven Anchors (PDAs) and vegetated, HPTRMs form an Anchor Reinforced Vegetated System (ARVS).

**PP5-XTREME**

Strength sets PPS-Xtreme (HPTRM) apart from any other material. Real, practical working strength is provided by PPS-Xtreme because the material produces full strength at low strain (the material stretches less when loaded). Further, the initial tangent modulus of PPS-Xtreme (a measure of immediate strength when first loaded) shows an instantaneous and significant resistance to loading. This strength is what enables PPS-Xtreme be more durable when exposed to debris and wheel loading and provide higher performance (hydraulic stressing). The woven matrix is ideal for the reinforcement of vegetation and the composition of PPS-Xtreme offers the greatest possible resistance to chemical, biological and ultra-violet degradation possible. Strength and durability allow PPS-Xtreme to be classified as a High Survivability material, offering a design life up to fifty years. Quite simply, the next generation of turf reinforcement, durability, and high performance has arrived. PPS-Xtreme.

**The Next Generation of High Performance TRM**

Securing an HPTRM with Percussion Driven Anchors (PDAs) imparts the strength of the material to the soil, yielding a durable, stable mechanically connected veneer.

The Xtreme Armor System (XAS) is an ARVS consisting of PPS-Xtreme secured to an embankment surface with PDAs. Utilizing the XAS increases the interaction of the HPTRM and the soil matrix, imparting the strength of the HPTRM to the soil. Once in place, the XAS minimizes the risk of shallow plane failures and allows for the highest loading by way non-hydraulic stresses such as foot or machine traffic and/or debris or ice flow. Once vegetation begins to establish, the XAS provides higher factors of safety, compared to traditionally secured HPTRMs. The XAS provides a high-performance, high durability, vegetated alternative to rock rip-rap or other, traditional hard armor.

**PP5 Heavy Duty**

**PP5 Xtreme**

<table>
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</thead>
<tbody>
<tr>
<td>Mass per Unit Area lbs/yd²</td>
<td>9.2</td>
<td>9.2</td>
<td>9.2</td>
</tr>
<tr>
<td>Material Type</td>
<td>2nd Generation TRM</td>
<td>High Performance TRM</td>
<td>Anchor Reinforced Vegetated System</td>
</tr>
<tr>
<td>Matrix</td>
<td>Synthetic, UV Stabilized</td>
<td>Synthetic, UV Stabilized</td>
<td>Synthetic, UV Stabilized</td>
</tr>
<tr>
<td>Construction</td>
<td>Woven, Continuous</td>
<td>Woven, Continuous</td>
<td>Woven, Continuous</td>
</tr>
<tr>
<td>Typical Tension</td>
<td>12 in./in.</td>
<td>12 in./in.</td>
<td>Permeate</td>
</tr>
<tr>
<td>Loading/Survivability</td>
<td>Medium</td>
<td>High</td>
<td>Highest</td>
</tr>
</tbody>
</table>
**HYDRAULIC MULCHES**

**100% ASPEN MULCH**

Aspen Excelsior Logs consist of a machine-produced high-altitude Rocky Mountain aspen excelsior matrix confined by a synthetic, tubular net to form a log of specific length, mass and diameter. Excel Aspen Excelsior Logs are designed to reduce hydraulic energy and filter sediment-laden flow in channels and on slopes. The logs are flexible, to conform to soil surfaces, and are secured by staking to create a temporary water-permeable structure.

Once in place, the Aspen Excelsior Log provide fast, efficient filtration that offers superior flow interception, filtration and containment properties. They are specifically engineered to be used on slopes to minimize displacement of in-situ sediments, in channels, as small check dams, and to restrict sediment-laden flow from inlets. Aspen Excelsior Logs are also offered in a 100% biodegradable option as Excelsior Bio Logs. All Aspen Excelsior Logs may be ordered in custom lengths.

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**ASPIDEN TURBO MULCH**

Aspen Turbo Mulch consists of a blended mulch of wood fibers and recycled cellulose material. The blend of fibers creates a diversity of sizes, yielding a highly effective mulching layer, adept at protecting seed, maintaining integrity and minimizing moisture loss from the soil. Packaged in fifty pound bales, Aspen Turbo Mulch is formulated for clog free application from a hydroseeder.

Hydromulch products are ideal for uneven or un-cleared surfaces and low risk projects. Added tackifier improves erosion control benefit.

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**100% ASPEN TACK MULCH**

In addition to a full line of RECPs, Western Excelsior manufactures 100% Aspen Mulch, which consists entirely of virgin aspen wood fibers. Packaged in fifty pound bales, 100% Aspen Mulch is an economical and effective mulch that provides a growth medium that is highly absorbent and is designed for clog free application from a hydroseeder. 100% Aspen Mulch is also available with a high quality, organic tackifier as Aspen Tack Mulch. The addition of the tackifier provides added erosion control benefit, yielding even greater protection from rainfall and rain splash.

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**30% ASPEN TURBO TACK**

Aspen Turbo Tack consists of the same fiber blend as Aspen Turbo Mulch, with the addition of a high quality, natural tackifier. The addition of the tackifier provides added erosion control benefit, yielding even greater protection from rainfall and rain splash.

Western Excelsior mulches provide excellent vegetation establishment while remaining economical and efficient. Over the course of countless field applications, Western Excelsior mulches have been proven to be an excellent choice to blanket nature with nature.

---

**(Property Units)**

<table>
<thead>
<tr>
<th>Property</th>
<th>100% Aspen Mulch</th>
<th>Aspen Tack Mulch</th>
<th>Aspen Turbo Mulch</th>
<th>Aspen Turbo Tack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bag Weight lbs</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Bags per Bundle</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>N/A</td>
<td>Wood</td>
<td>Wood/Cellulose Blend</td>
<td>Wood/Cellulose Blend</td>
</tr>
<tr>
<td>Fiber Length % Between 0.5 and 5.0 mm</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Tackifier</td>
<td>N/A</td>
<td>Organic Guar</td>
<td>N/A</td>
<td>Organic Guar</td>
</tr>
</tbody>
</table>

---

**EXCELSIOR BIODLOGS**

Aspen Excelsior Logs consist of a machine-produced high-altitude Rocky Mountain aspen excelsior matrix confined by a synthetic, tubular net to form a log of specific length, mass and diameter. Excel Aspen Excelsior Logs are designed to reduce hydraulic energy and filter sediment-laden flow in channels and on slopes. The logs are flexible, to conform to soil surfaces, and are secured by staking to create a temporary water-permeable structure.

Once in place, the Aspen Excelsior Log provide fast, efficient filtration that offers superior flow interception, filtration and containment properties. They are specifically engineered to be used on slopes to minimize displacement of in-situ sediments, in channels, as small check dams, and to restrict sediment-laden flow from inlets. Aspen Excelsior Logs are also offered in a 100% biodegradable option as Excelsior Bio Logs. All Aspen Excelsior Logs may be ordered in custom lengths.

---

**PROPERTY UNITS**

<table>
<thead>
<tr>
<th>Property</th>
<th>100% Aspen Logs</th>
<th>Excelsior Bio Logs</th>
<th>Excel Straw Logs</th>
<th>Excel Straw Bio Logs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>8, 12, 18, 20</td>
<td>8, 12, 18, 20</td>
<td>9, 12, 16, 20</td>
<td>9, 12, 16, 20</td>
</tr>
<tr>
<td>Lengths</td>
<td>10 - 25</td>
<td>10 - 25</td>
<td>10 - 25</td>
<td>10 - 25</td>
</tr>
<tr>
<td>Netting</td>
<td>Synthetic, UV Stabilized</td>
<td>Synthetic, UV Stabilized</td>
<td>Synthetic, UV Stabilized</td>
<td>Synthetic, UV Biodegradable</td>
</tr>
<tr>
<td>Closure</td>
<td>Tied or Hog Ring</td>
<td>Tied or Hog Ring</td>
<td>Tied or Hog Ring</td>
<td>Tied or Hog Ring</td>
</tr>
</tbody>
</table>
Anchor trenches are used to prohibit water from flowing directly underneath the installed blanket along the edges. Construction of an anchor trench is shown in Figure C. Seams are placed to ensure a shingle pattern in the direction of flow. Figures F and G provide schematics of seam installation.

When combined with Erosion Control Blankets (ECBs), SRFRs improve the performance of the integrated system, allowing for satisfactory performance to be achieved in the most challenging applications. Installed on a slope with ECBs, SRFRs reduce flow velocity, dissipate energy and spread the flow. The result is more infiltration and less erosion. In addition to greater erosion control performance, holding more water on the slope can improve vegetation establishment in semi-arid type environments. SRFR/ECB composite systems can be installed with confidence on steeper and longer slopes than SRFRs or ECBs alone.

### PERIMETER SEDIMENT CONTROL

Installed as perimeter control, SRFRs reduce flow concentration and prevent sediment laden flow from crossing the boundary. Installed on a roadside, SRFRs can keep sediment from the road or keep runoff from concentrating and attacking downslope soil. In a roadside channel, SRFRs provide a temporary ditch-check, slowing the velocity of the flow and minimizing the migration of the channel sediments downstream. As vegetation establishes, the SRFRs degrade.

### CHANNEL ENERGY DISSIPATION

Used as an inlet filter, SRFRs are particularly effective at reducing the sediment and attached pollutants entering the storm sewer, storm storage or conveyance. If flow-through capacity to the drain is not a concern, a dense SRFR can be ideal for inlet filtration, reducing the inflow of pollutants to an absolute minimum. Installation is quick and easy, typically requiring just staking of each unit to form a barrier around the drain. SRFRs can last up to two years in place and are easily repaired or replaced if necessary.
All projects benefit from good planning. Understanding product thresholds is a good start, however, erosion control product performance is affected by site-specific conditions. For site-specific product selection, consult Excel Erosion Design (EED), the state-of-the-art design program developed by Western Excelsior. EED utilizes the most proven design methods to optimize the use of the unique properties and advantages of each product. Both slope/rainfall and channel projects may be evaluated. Additionally, vegetated and unvegetated conditions can be considered. EED is easy and free to use, but also complete in execution and output.

Outstanding features of the program include:

- Work in English or Metric Units Seamlessly
- Enter estimates or Exact Values for Design Parameters
- Utilize State of the Practice Design Techniques
- Engineer Preferred Output
- Easy Web Based Interface
- Always Free and Available
- Multiple Product Options with Corresponding Factor of Safety

Log on to www.westernexcelsior.com to access the program.

PROJECT DESIGN - EXCEL EROSION DESIGN

Excel SR-1 is ideal for low shallow slopes, Excel R-1 and Excel CS-3 provide longer lasting options.

TackmatS provides excellent performance, Excel R-1 and Excel CS-3 provide longer lasting options.

Excel SS-2 yields excellent slope protection. TackmatS provides upgraded performance with greater economy.

Excel R-1 yields excellent slope protection and vegetation establishment. TackmatS provides upgraded performance.

Industry leading performance is achieved with TackmatS. Excel CC-4 provides longer lasting protection and water shedding.

Excel SS-2 affords greater durability and performance for channel lining projects. Excel R-1 provides a longer lasting option.

Excel SR-1 provides adequate protection and mulching for low risk projects. Excel R-1 is a cost-effective upgrade.

VEGETATED CHANNEL APPLICATIONS

Applications requiring the highest level of resistance to hydraulic forces, physical damage and degradation. Wheel and debris loading are of concern and ground may not be geotechnically stable.

Applications requiring the highest level of resistance to hydraulic forces, debris/wheel loading, and degradation. Ground is geotechnically stable, however, a design life of up to fifty years is appropriate.

Applications requiring higher factors of safety and/or resistance to moderate wheel/debris loading. Ground is geotechnically stable, however, a design life of up to twenty-five years is appropriate.

Basic applications that require a permanent material to enhance the stability of a stand of vegetation but are not subjected to debris loading or wheel loading. Ground is geotechnically stable.

VEGETATED SLOPE APPLICATIONS

Applications requiring highest level of resistance to hydraulic forces, physical damage and degradation. Wheel and debris loading are of concern and ground may not be geotechnically stable.

Applications requiring the highest level of resistance to hydraulic forces, debris/wheel loading, and degradation. Ground is geotechnically stable, however, a design life of up to fifty years is appropriate.

Applications requiring higher factors of safety and/or resistance to moderate wheel/debris loading. Ground is geotechnically stable, however, a design life of up to twenty-five years is appropriate.

Basic applications that require a permanent material to enhance the stability of a stand of vegetation but are not subjected to debris loading or wheel loading. Ground is geotechnically stable.
Quality Assurance

Western Excelsior backs its products with one of the most comprehensive guarantees in the industry.

If any Western Excelsior specified and installed product fails, Western Excelsior will replace the failed product and include the cost of seed, fertilizer, topsoil or other amendments lost due to product failure.

All of Western Excelsior’s products have been extensively tested, both internally and by independent agencies, in the laboratory and in the field. Tests have proven that Excel erosion control products provide superior erosion control protection.

Excel erosion control products are available through Western Excelsior’s extensive network of distributors and are fully supported by our highly trained technical sales and customer service representatives.

You can have the highest level of confidence in the products Western Excelsior provides as you make the choice to blanket nature with nature.

Contact a Western Excelsior distributor or visit our Web site at www.westernexcelsior.com for more information.