

**EROSION AND SEDIMENT CONTROL SYSTEMS**

**DITCH BLOCKS/BARRIERS**

Any product that meets the requirements of the Design Guidelines for Erosion and Sediment Control for Highways (2003) and Alberta Transportation Specifications qualifies under this section.

**SYNTHETIC PERMEABLE BARRIERS**

Permeable barriers are made of UV stabilized high density polyethylene, firmly anchored to the ground, and capable of reducing runoff for storm channels and highway ditches. Typical dimensions are, height=250 mm, length=1000 mm.

For high flow conditions, erosion control matting must be used in conjunction with the barriers to reduce runoff and erosion.

Any product that meets the requirements of the Design Guidelines for Erosion and Sediment Control for Highways (2003), Best Management Practices, BMP #10 qualifies under this section.

**PROPRIETARY**

<b>PROVEN PRODUCTS</b>	<b>TRIAL PRODUCTS</b>	<b>POTENTIAL PRODUCTS</b>
<a href="#">BMP Spring Berm</a>		
<a href="#">EnviroBerm</a>		
<a href="#">GeoRidge</a>		
<a href="#">GeoRidge Bio</a>		
<a href="#">Enviro-Ridge</a>		
<a href="#">Enviro Berm II</a>		

**STRAW ROLL (FIBRE ROLL)**

Straw roll consists of bundled straw (or natural fibre) wrapped in photo-degradable open-weave plastic netting staked into the soil along contours as a grade break to reduce erosion potential.

Any product that meets the requirements of Alberta Transportation Erosion and Sedimentation Control Manual (2003), Best Management Practices, BMP #28a qualifies under this section.

<b>PROVEN PRODUCTS</b>	<b>TRIAL PRODUCTS</b>	<b>POTENTIAL PRODUCTS</b>
<a href="#">Stenlog REPORT</a>		
<a href="#">Curlex Sediment Log REPORT</a>		
<a href="#">Sediment STOP REPORT</a>		
<a href="#">Bio 3 Fiber Roll</a>		
<a href="#">Bio 4 Fiber Roll</a>		

**SILT FENCE**

Geotextile Fence Barrier shall comprise a low fence made from geotextile material and place at locations to retain silt and preventing silt contamination during construction. Minimum height of silt fence shall be 750 mm. Minimum embedment depth of the fabric shall be 150 mm.

Any product that meets the requirements of the Design Guidelines for Erosion and Sediment Control, Best Management Practices, BMP #1, qualifies under this section.

Material: Woven or non-woven geotextile

Property	Test Method	Geotextile Requirements
Maximum post spacing (m)	ASTM D 4632	2
Elongation	ASTM D 4632	<50%
Grab Strength (N)	ASTM D 4632	
Machine direction		550
X-Machine direction		450
Permittivity (sec <sup>-1</sup> )	ASTM D 4491	0.05
Apparent Opening Size (mm)	ASTM D 4751	0.60 max. avg. roll value
Ultraviolet stability (% retained strength)	ASTM D 4355	70% after 500 hrs. of exposure

Note: All numeric values represent MARV (Minimum Average Roll Value) in the weaker principal direction.

**PROPRIETARY**

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<a href="#">Nilex Amoco 2130</a>		
<a href="#">Layfield Wire Back Silt Fence (SF135)</a>		<a href="#">Geotex 2130</a> (Expiry Date: Jan. 2021)
<a href="#">Layfield Silt Fence (SF135)</a>		
<a href="#">AGES Premium Silt Fence</a> and <a href="#">Premium Page Wire Backed Silt Fence</a>		
<a href="#">Armtec Silt Fence (2130)</a>		
<b>Biodegradable Silt Fences</b>		
		<a href="#">Biodegradable Silt Fence</a> (Expiry Date: Dec. 2021)

**CELLULAR CONFINEMENT SYSTEM**

Cellular confinement systems are 3-dimensional plastic matting with open cells that are filled with topsoil or aggregates. As a matting unit placed on channels or slopes, the structure is used to stabilize the slopes, and at the same time permit surface drainage. Shall be constructed of high density polyethylene (HDPE) that has been welded together to form a series of honeycomb cells. It is usually supplied in collapsed form. It comes in various cell depths and cell sizes, perforated or unperforated.

Any product that meets the requirements of the Design Guidelines for Erosion and Sediment Control for Highways (2003), Best Management Practices, BMP #15 qualifies under this section.

**PROPRIETARY**

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<a href="#">Geocell/Geo Cell/Envirogrid REPORT</a>		
<a href="#">Geoweb</a>		
<a href="#">Neoweb</a>		

**GABIONS AND MATS**

Gabions and Mats are made of hexagonal double twisted wire mesh, filled with stone. They are divided into cells with diaphragms, whose function is to reinforce the structures.

Standards for the gabion materials and rocks can be found in Alberta Transportation Special Provisions SPE007 and the Design Guidelines for Erosion and Sediment Control for Highways, (2003), Best Management Practices BMP #2.

**PROPRIETARY**

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<a href="#">Maccaferri Gabions &amp; Mats</a>		
<a href="#">Modular Gabions &amp; Mats</a>		

**ROLLED EROSION CONTROL PRODUCTS (RECP)**

Rolled Erosion Control mats or blankets are made from straw or hay, coconut fibers, wood excelsior, jute, polypropylene or nylon fibers. They are used to reduce erosion and create conditions to assist the establishment of vegetation. Any product that meets the performance properties below and requirements of Design Guidelines for Erosion and Sediment Control for Highways, 2003 (BMP#13) qualifies under this section.

**TEMPORARY RECPS - EROSION CONTROL BLANKETS (ECB) AND OPEN WEAVE TEXTILES (OWT)**

Erosion Control Blankets are temporary degradable RECPs composed of processed degradable natural and/or polymer fibres mechanically bound together by a single or between two degrading, synthetic or natural fibre netting(s). For environmental friendly applications, some nettings may contain 100% biodegradable natural organic fibres.

Open Weave Textile is a temporary degradable RECP composed of processed natural or polymer yarns woven into a matrix, used to provide erosion control and facilitate vegetation establishment.

Material	Performance Properties for Slopes	Performance Properties for Channels
	Cover Factor, C <sup>1,2</sup>	Permissible Shear Stress <sup>3,4</sup> (N/m <sup>2</sup> )
<b>Type A:</b> (<12 months Functional Longevity) Single-net Erosion Control Blankets and Open Weave Textiles	≤ 0.15 @ 3:1 (h:v) and flatter	72
<b>Type B:</b> (<12 months Functional Longevity) Double-net Erosion Control Blankets and Open Weave Textiles	≤ 0.20 @ 2:1 (h:v) and flatter	84
<b>Type C:</b> (>12 months Functional Longevity) Erosion Control Blankets and Open Weave Textiles	≤ 0.25 @ 1:1 (h:v) and flatter	96

<sup>1</sup> C-factor calculated as ratio of soil loss from RECP protected slope to ratio of soil loss from unprotected (control) plot in large-scale testing. These performance test values should be supported by periodic bench testing under similar test conditions using ECTC Test Method #2.

<sup>2</sup> Acceptable large-scale testing protocol may include ASTM D6459 or other independent testing deemed acceptable by the department engineer.

<sup>3</sup> Minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion [ $>12.7$  mm soil loss] during a 30-minute flow event in large-scale testing. These performance test values should be supported by periodic bench scale testing under similar test conditions using ECTC Test Method #2.

<sup>4</sup> Acceptable large-scale testing protocol may include ASTM D6460 or other independent testing deemed acceptable by the department engineer.

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<b>Type A:</b>		
North American Green: <a href="#">S75</a>		
North American Green <a href="#">S150BN</a>		<a href="#">Landlok S1</a> (Expiry Date: Jan. 2021)
North American Green C <a href="#">SC150BN</a>		
<b>Type B:</b>		
North American Green: <a href="#">S150</a>		
Propex: <a href="#">Landlok S2</a> , <a href="#">REPORT</a>		

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
ErosionControlBlankets.com <a href="#">S32</a>		
<a href="#">AEC Premier Straw Double Net</a>		

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<b>Type C:</b>		
ErosionControlBlankets.com: <a href="#">C32</a>		
North American Green: <a href="#">C125, SC150</a>		
Eastcoast <a href="#">ECSC-2</a>		
Belton Industries: <a href="#">DeKowe 700</a> coir		
Propex: <a href="#">Landlok C2</a> , <a href="#">Landlok CS2</a>		
ErosionControlBlankets.com <a href="#">SC32</a>		
Eastcoast <a href="#">ECC-2</a>		
<a href="#">AEC Premier Coconut</a>		
<a href="#">AEC Premier Straw/Coconut</a>		
<a href="#">AEC Curlex II</a>		

**PERMANENT RECPS - TURF REINFORCEMENT MATS (TRM)**

TRMs are long-term, non-degradable rolled erosion control products composed of UV stabilized, non-degradable, synthetic fibres, filaments, nettings and/or mesh processed into 3-dimensional reinforcement matrices designed for permanent and critical hydraulic applications where design discharges exert velocities and shear stresses that exceed the limits of mature, natural vegetation. Turf reinforcement mats provide sufficient thickness, strength and void space to permit soil filling and/or retention and the development of vegetation within the matrix. Some trm included in this category, may contain organic materials and may be termed as composite turf reinforcement mats (c-trm).

Material	Performance Properties for TRM	
	Permissible Shear Stress <sup>3, 4, 5</sup>	Minimum Tensile Strength
	(N/m <sup>2</sup> )	(kN/m)
Turf Reinforcement Mats <sup>1, 2</sup>		
TRM Type A	288	1.82
TRM Type B	384	2.19
TRM Type C	480	2.55

<sup>1</sup> For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.

<sup>2</sup> Minimum thickness of TRM is 6.35 mm.

<sup>3</sup> Shear stress that fully vegetated TRM can sustain without physical damage or excess erosion [ $>12.7$  mm soil loss] during a 30-minute flow event in large-scale testing.

<sup>4</sup> Acceptable large-scale testing protocol may include ASTM D6460 or other independent testing deemed acceptable by the engineer.

<sup>5</sup> Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m or greater.

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<b>TRM Type A:</b>		
Propex: <a href="#">Landlok 450</a>		<a href="#">PC42 TRM</a> (Expiry Date: Jan. 2021)
<a href="#">Maccaferri MacMat N10 REPORT</a>		
<b>TRM Type B:</b>		
Greenfix America <a href="#">CFG2000</a>		
North American Green: <a href="#">SC250</a> , <a href="#">P300</a>		
<a href="#">Eastcoast ECP2 10oz. Polypropylene</a>		
<b>TRM Type C:</b>		
North American Green: <a href="#">C350</a>		<a href="#">Futerra 7020</a> (Expiry Date: Feb. 2021)
<a href="#">Tenax Multimat 100</a> :		<a href="#">Macmat R6 TRM</a> (Expiry Date: July 2022)
North American Green: <a href="#">P550</a>		<a href="#">Macmat R8 TRM</a> (Expiry Date: July 2022)
ErosionControlBlanket.com <a href="#">P42</a>		<a href="#">TriNet Recyclex TRM</a> (Expiry Date: April 2023)
<a href="#">Landlok Pyramat TRM</a>		<a href="#">TriNet Straw Coconut TRM</a> (Expiry Date: May 2023)
Propex: <a href="#">Landlok 300</a>		<a href="#">TriNet Curlex TRM</a> (Expiry Date: May 2023)
North American Green <a href="#">C125BN</a>		<a href="#">TriNet Coconut TRM</a> (Expiry Date: May 2023)

## PRODUCTS LIST

<a href="#">Curlex Enforcer</a>		
<a href="#">Futerra R45 High Performance</a>		
<a href="#">PS42 TRM</a>		

### **SEDIMENT CONTROL**

Sedimentation is the deposition of soil particles previously held in suspension by flowing water. Sedimentation is promoted before surface sediment laden water flow leaves a construction site.

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS

### **POLYACRYLAMIDE (PAM)**

#### PROPRIETARY

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<a href="#">Water Lynx and Soil Lynx</a>		
		<a href="#">Clearflow Treated Floc Curtain</a> (Expiry Date: September 2020)
		<a href="#">Clearflow Treated Geo-Jute</a> (Expiry Date: September 2020)

### **MISCELLANEOUS EROSION AND SEDIMENT CONTROL**

#### PROPRIETARY

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<a href="#">A-Jacks</a>	<a href="#">Flexamat</a> (Expiry Date: June 2020)	<a href="#">Prairie Mat</a> (Expiry Date: Jan. 2021)
<a href="#">Propex ArmorMax Report</a> (May 2012)		
<a href="#">ScourSheild</a>		
<a href="#">ScourStop</a>		
<a href="#">ShoreMax</a>		
<a href="#">Concrete Cloth</a>		

**HYDRAULIC EROSION CONTROL PRODUCT (HECP)**

A HECP is a manufactured, temporary, degradable, pre-packaged fibrous material that is mixed with water and hydraulically applied as a slurry designed to reduce soil erosion and assist in the establishment and growth of vegetation. The HECP will achieve maximum performance after a sufficient curing period, which will vary based upon site specific conditions. The HECP forms a protective layer which controls erosion and allows for enhanced seed germination and accelerated plant growth.

<b>PROVEN PRODUCTS</b>	<b>TRIAL PRODUCTS</b>	<b>POTENTIAL PRODUCTS</b>
<a href="#">Cocoflex ET – FGM</a>	<a href="#">EcoAnchor</a> (Expiry Date: Sept. 2020)	<a href="#">Rainier Supreme</a> (Expiry Date: Sept. 2021)
<a href="#">Flexterra FGM</a>		<a href="#">Profile Wood with Tack</a> (Formerly Known as Terra-Wood with Tacking Agent 3 – Hydraulic Mulch) (Expiry Date: Feb. 2021)
<a href="#">Earth Guard Fiber Matrix</a>		<a href="#">Profile Wood Fiber</a> (Formerly Known as Terra-Wood HM) (Expiry Date: Feb. 2021)
<a href="#">Nilex MulchMax 200</a>		<a href="#">EcoFibre-Wood Hydraulic Mulch</a> (Expiry Date: Feb. 2021)
<a href="#">Nilex MulchMax ULTRA</a>		<a href="#">EcoFibre Plus Tackifier Hydraulic Mulch</a> (Expiry Date: Feb. 2021)
<a href="#">EcoMatrix</a>		
<a href="#">Proganics Biotic Soil Media</a>		<a href="#">HydroStraw Cellulose Fibre Plus</a> (Expiry Date: Feb. 2021)
<a href="#">Verdyol Biotic Earth Black HGM</a>		<a href="#">HydroStraw Fibre RX</a> (Expiry Date: Feb. 2021)
<a href="#">Rainier Fiber Plus Tacifier</a>		<a href="#">HydroStraw Straw Lock</a> (Expiry Date: Feb. 2021)
		<a href="#">HydroStraw All In One Bounded Fibre Matrix</a> (Expiry Date: Feb. 2021)
		<a href="#">HydroStraw Bounded Fibre Matrix</a> (Expiry Date: Feb. 2021)
		<a href="#">HydroStraw Guar Plus</a> (Expiry Date: Feb. 2021)
		<a href="#">HydroStraw Original Formulation</a> (Expiry Date: Feb. 2021)



**ARTICULATING CONCRETE BLOCKS**

PROVEN PRODUCTS	TRIAL PRODUCTS	POTENTIAL PRODUCTS
<a href="#">Cable Concrete</a>		
<a href="#">Armorflex</a>		