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"Blanketing Nature With Nature"

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Effective: 09/16/2011

RE: Certificate of Conformance: Excel SR-1 All Natural™

To Whom it May Concern:

This letter is to certify that Western Excelsior manufactures the Rolled Erosion Control Product (RECP) marketed as EXCEL SR-1 All Natural. Each blanket is subjected to Western Excelsior's Quality Assurance Program and is manufactured to the specifications listed in document number WE\_EXCEL\_SR1AN\_SPEC. Further, Western Excelsior utilizes industry standardized test procedures to develop performance references for Excel SR-1 All Natural. Document number WE\_EXCEL\_SR1AN\_PERF presents the industry standardized testing and results. Installation instructions are provided in document numbers WE\_EXCEL\_SR1AN\_SII and WE\_EXCEL\_SR1AN\_CII for hillslope and channel installations, respectively. A copy of document number WE\_EXCEL\_SR1AN\_SPEC is attached; all other documentation may be obtained by calling Western Excelsior Technical Services at 1-800-967-4009, at [www.westernexcelsior.com](http://www.westernexcelsior.com) or by email at [wexcotech@westernexcelsior.com](mailto:wexcotech@westernexcelsior.com).

Regards,

A handwritten signature in black ink, appearing to read "Chad M. Lipscomb". The signature is written in a cursive, flowing style.

Chad M. Lipscomb, PE, CPESC  
Director, Technical Services  
Western Excelsior Corporation

# MATERIAL PROPERTIES AND DIMENSIONS



## EXCEL SR-1 ALL NATURAL™



## Specifications

Western Excelsior manufactures a full line of Rolled Erosion Control Products (RECPs). Excel SR-1 All Natural temporary Erosion Control Blanket is composed of a certified weed free agricultural straw matrix mechanically (stitch) bonded on two inch centers to a single biodegradable, jute/ scrim net. Straw utilized in manufacturing the SR-1 All Natural is certified weed free. Thread utilized in the construction of the blanket is biodegradable cotton. Excel SR-1 All Natural blanket is recommended for use in channels or slopes requiring erosion protection for a period up to twelve months. Actual field longevity is dependent on soil and climatic conditions.

Each roll of EXCEL SR-1 All Natural is manufactured under Western Excelsior's Quality Assurance Program to ensure a continuous distribution of fibers and consistent thickness. Verifiable values are provided in Table 1 and product characteristics are provided in Table 2.

Table 1- Specified Expected Values

Tested Property	Test Method	Value
Tensile Strength (MD) x (TD)	ASTM D6818	9.0 lb/in (1.6 kN/m) x 6.3 lb/in (1.1 kN/m)
Elongation (MD) x (TD)	ASTM D6818	20 % x 20 %
Mass Per Unit Area	ASTM D6475	8.0 oz/yd <sup>2</sup> (271 g/m <sup>2</sup> )
Thickness	ASTM D6525	0.28 in (7 mm)
Light Penetration	ASTM D6567	22 % open
Water Absorption	ASTM D1117	450 %

Table 2 - Netting

Top Net Type	Biodegradable, Jute Scrim Leno Weave
Bottom Net Type	N/A
Top Net Opening Dimensions	0.5 in (13 mm) x 1.0 in (25 mm)
Bottom Net Opening Dimensions	N/A

Excel SR-1 All Natural is available in multiple roll sizes ranging in width from 8.0 ft to 16.0 ft. and 112.5 ft to 600 ft in length. Standard roll sizes are 100 square yards, measuring 8.0 ft wide by 112.5 ft long. Custom roll sizes are available upon request.

Document # WE\_EXCEL\_SR1AN\_SPEC. This document has been developed to provide the characteristic properties of the product described. For questions, to request performance data or installation recommendations, contact Western Excelsior at 800-967-4009 or wexcotech@westernexcelsior.com. Updated 09/16/2011.

# DESIGN DATA AND TEST RESULTS



## EXCEL SR-1 ALL NATURAL™



## Specifications

A variety of test methods are utilized to determine performance and conformance values for Rolled Erosion Control Products (RECPs). Information within this document is presented to provide conformance values and recommended design values. Test results obtained for the Excel SR-1 All Natural Temporary Erosion Control Blanket (ECB) and general design values are presented in Tables 1-4. For specific information detailing testing protocols, results and application of design values, refer to document number WE\_EXCEL\_PERF\_GEN.

Table 1 - Bench Scale Testing / NTPEP

Test Method	Condition	Result
ASTM D7101 Bench Scale Rainfall and Rainsplash Test	2 in per hour	10.36
	4 in per hour	11.60
	6 in per hour	13.00
ASTM D7207 Bench Scale Shear Resistance Test	1.85 psf (89 PA)	0.5 in (12 mm)
ASTM D7322 Bench Scale Vegetation Establishment Test	Top Soil, Fescue, 21 Day Incubation	138 %

Table 3 - Recommended Design Values\*

Design Value	Unvegetated	Vegetated
Typical RUSLE Cover Factor (C Factor)	0.05	N/A
Maximum Slope Gradient (RUSLE)	3H : 1V	N/A
Max Allowable Velocity (0.5 in (12mm) soil loss)	5.0 ft/s (1.5 m/s)	N/A
Max Allowable Shear Stress (0.5 in (12mm) soil loss)	1.6 psf (77 PA)	N/A
CF <sub>veg</sub> /CF <sub>TRM</sub>	N/A	N/A

Table 2 - Texas Transportation Institute (TTI) Results

Class	Test Condition	Result
A	< 3H:1 Clay Slope Test	Approved
B	< 3H:1 Sand Slope Test	Approved
C	> 3H:1 Clay Slope Test	Approved
D	> 3H:1 Sand Slope Test	Approved
E	2 psf Partially Vegetated Channel Test	N/A
F	4 psf Partially Vegetated Channel Test	N/A
G	6 psf Partially Vegetated Channel Test	N/A
H	8 psf Partially Vegetated Channel Test	N/A
I	10 psf Partially Vegetated Channel Test	N/A
J	12 psf Partially Vegetated Channel Test	N/A

Table 4 - HEC-15 Resistance to Flow Values

Design Value	Unvegetated
Manning's n @ Tau <sub>lower</sub> (0.4 psf (19 PA))	0.040
Manning's n @ Tau <sub>mid</sub> (0.8 psf (38 PA))	0.030
Manning's n @ Tau <sub>upper</sub> (1.6 psf (77 PA))	0.030

\*Recommended Design Values are based on results of standardized industry full-scale testing and may not be applicable for all field conditions. Values provided herein are intended for use with the state of the practice design procedures. For most accurate computation of field performance, consult Excel Erosion Design (EED) at [www.westernexcelsior.com](http://www.westernexcelsior.com).



# Slope Installation

Instructions EXCEL SR-1™  
All Natural

\* Drawings Not to Scale

## Step 1 - Site Preparation

Prepare site to design profile and grade. Remove debris, rocks, clods, etc.. Ground surface should be smooth prior to installation to ensure blanket remains in contact with slope.

## Step 2 - Seeding

Seeding of site should be conducted to design requirements or to follow local or state seeding requirements as necessary.

## Step 3 - Staple Selection

At a minimum, 6 in. long by 1 in. crown, 11 gauge staples are to be used to secure the blanket to the ground surface. Installation in rocky, sandy or other loose soil may require longer staples.

## Step 4 - Excavate Anchor Trench and Secure Blanket

Excavate a trench along the top of the slope to secure the upstream end of the blanket. The trench should run along the length of the installation, be 6 in. wide and 6 in. deep. Staple blanket along bottom of trench, fill with compacted soil, overlap blanket towards toe of slope and secure with row of staples (shown in Figures A, E and F).

## Step 5 - Secure Body of Blanket

Roll blanket down slope from anchor trench. Staple body of blanket following the pattern shown in Figure D. Leave end of blanket unstapled to allow for overlap shown in Figure B. Place downstream blanket underneath upstream blanket to form shingle pattern. Staple seam as shown in Figure E. Secure downstream blanket with stapling pattern shown in Figure D. Stapling pattern shown in Figure D reflects minimum staples to be used. More staples may be required to ensure blanket is sufficiently secured to resist mowers and foot traffic and to ensure blanket is in contact with soil surface over the entire area of blanket. Further, critical points require additional staples. Critical points are identified in Figure G.

## Step 6 - Continue Along Slope - Complete Installation

Overlap adjacent blankets as shown in Figure C and repeat Step 5. Secure toe of slope using stapling pattern shown in Figure E. Secure edges of installation by stapling at 1.0' intervals along the terminal edge.

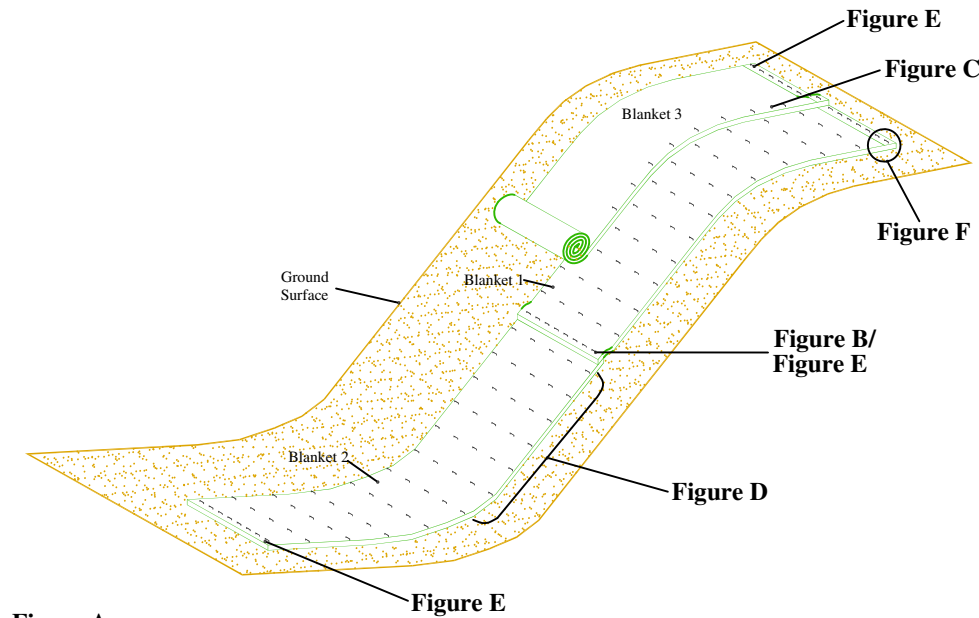


Figure A

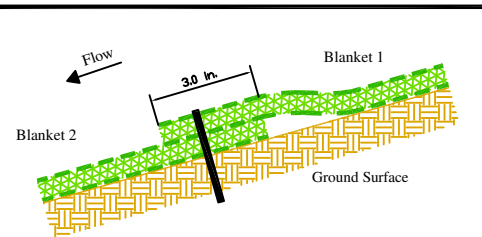


Figure B - Profile View

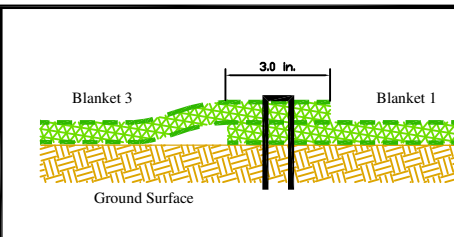
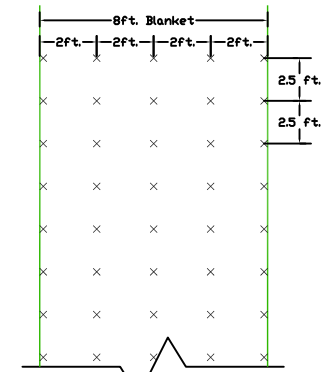


Figure C - Cross Section View

## Product Application/Equivalency Specifications

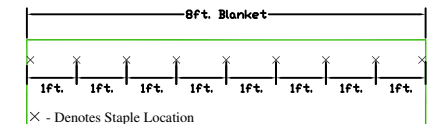
Excel SR-1 All Natural is produced by Western Excelsior and consists of a temporary Rolled Erosion Control Product (RECP) comprised of a 100% certified weed free agricultural straw matrix mechanically (stitch) bound to a single, biodegradable jute/scrim net (top). The expected longevity of Excel SR-1 All Natural is approximately 12 months (actual longevity dependent on field and climatic conditions). Excel SR-1 All Natural is manufactured to include physical properties sufficient to provide the intended longevity and performance. Product specifications may be found on document WE\_EXCEL\_SR1AN\_SPEC and performance information may be found on document WE\_EXCEL\_SR1AN\_PERF. All documents are available from Western Excelsior Technical Support or [www.westernexcelsior.com](http://www.westernexcelsior.com). Additional to above, equivalent products to Excel SR-1 All Natural must meet identical criteria as Excel SR-1 All Natural as follows:

1. Consist of debris free and 100% certified weed free agricultural straw bound to a single, biodegradable jute/scrim net.
2. Sufficient tensile strength, thickness and coverage to maintain integrity during installation and ensure material performance.
3. Listing within AASHTO NTPEP database.
4. Meet ECTC specification for category 2C products.



× - Denotes Staple Location

Figure D - Plan View



× - Denotes Staple Location

Figure E - Plan View

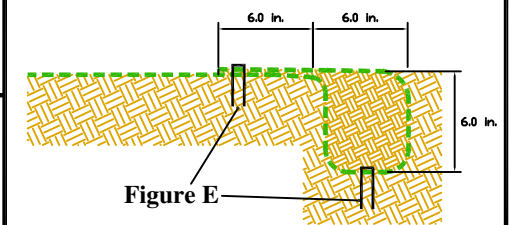


Figure F - Profile View

Figure F - Profile View

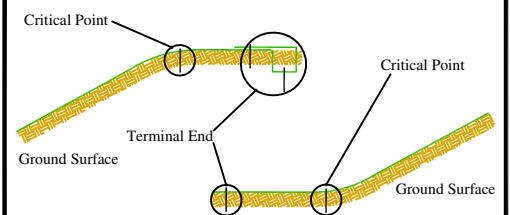


Figure G - Critical Point Securing



# Channel Installation

Instructions EXCEL SR-1<sup>TM</sup>  
All Natural

\* Drawings Not to Scale

## Step 1 - Site Preparation

Prepare site to design profile and grade. Remove debris, rocks, clods, etc.. Ground surface should be smooth prior to installation to ensure blanket remains in contact with slope.

## Step 2 - Seeding

Seeding of site should be conducted to design requirements or to follow local or state seeding requirements as necessary.

## Step 3 - Staple Selection

At a minimum, 6 in. long by 1 in. crown, 11 gauge staples are to be used to secure the blanket to the ground surface. Installation in rocky, sandy or other loose soil may require longer staples.

## Step 4 - Excavate Anchor Trench and Secure Blanket

Excavate a trench along the top of the channel side slopes and the upstream terminal end of the channel to secure the edges of the blanket. The trench should run along the length and width of the installation, be 6 in. wide and 6 in. deep. Staple blanket along bottom of trench, fill with compacted soil, overlap blanket towards toe of slope and secure with row of staples (shown in Figures A, E and F).

## Step 5 - Secure Body of Blanket

Roll blanket down slope from anchor trench. Staple body of blanket following the pattern shown in Figure D. Leave end of blanket unstapled to allow for overlap shown in Figure B. Place downstream blanket underneath upstream blanket to form shingle pattern. Staple seam as shown in Figure E. Secure downstream blanket with stapling pattern shown in Figure D. Stapling pattern shown in Figure D reflects minimum staples to be used. More staples may be required to ensure blanket is sufficiently secured to resist mowers and foot traffic and to ensure blanket is in contact with soil surface over the entire area of blanket. Further, critical points require additional staples. Critical points are identified in Figure G.

## Step 6 - Continue Along Slope - Complete Installation

Overlap adjacent blankets as shown in Figure C and repeat Step 5. Secure toe of slope using stapling pattern shown in Figure E. Secure edges of installation by stapling at 1.0' intervals along the terminal edge.

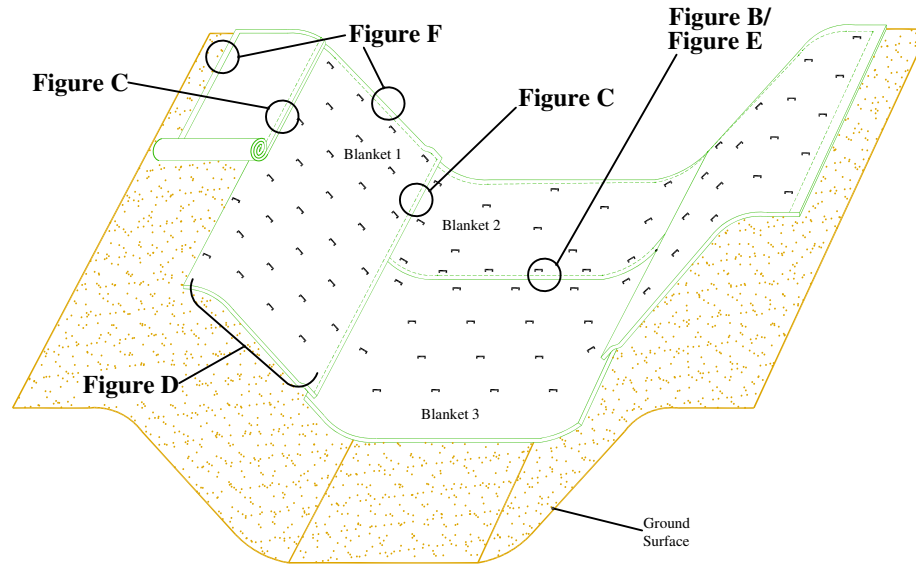


Figure A

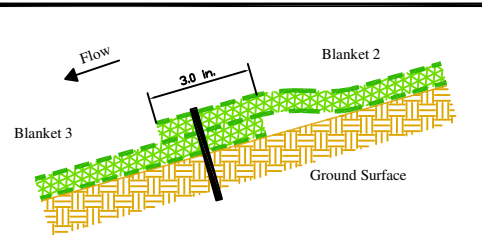


Figure B - Profile View

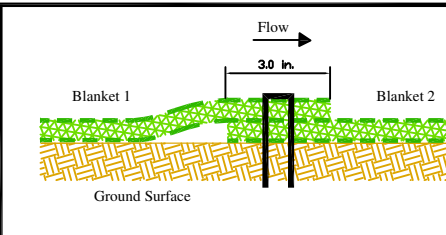
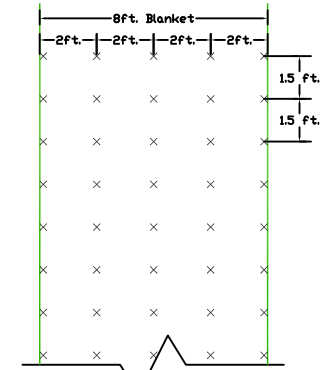


Figure C - Cross Section View

## Product Application/Equivalency Specifications

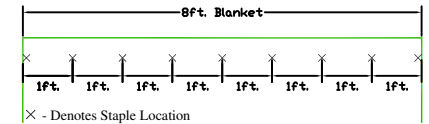
Excel SR-1 All Natural is produced by Western Excelsior and consists of a temporary Rolled Erosion Control Product (RECP) comprised of a 100% certified weed free agricultural straw matrix mechanically (stitch) bound to a single, biodegradable jute/scrim net (top). The expected longevity of Excel SR-1 All Natural is approximately 12 months (actual longevity dependent on field and climatic conditions). Excel SR-1 All Natural is manufactured to include physical properties sufficient to provide the intended longevity and performance. Product specifications may be found on document WE\_EXCEL\_SR1AN\_SPEC and performance information may be found on document WE\_EXCEL\_SR1AN\_PERF. All documents are available from Western Excelsior Technical Support or [www.westernexcelsior.com](http://www.westernexcelsior.com). Additional to above, equivalent products to Excel SR-1 All Natural must meet identical criteria as Excel SR-1 All Natural as follows:

1. Consist of debris free and 100% certified weed free agricultural straw bound to a single, biodegradable jute/scrim net.
2. Sufficient tensile strength, thickness and coverage to maintain integrity during installation and ensure material performance.
3. Listing within AASHTO NTPEP database.
4. Meet ECTC specification for category 2C products.



× - Denotes Staple Location

Figure D - Plan View



× - Denotes Staple Location

Figure E - Plan View

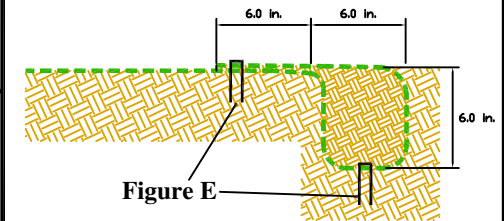


Figure F

Figure F - Profile View

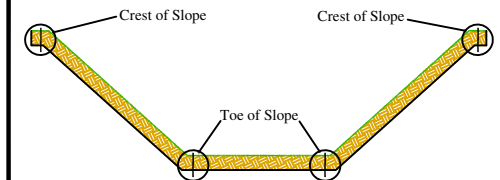


Figure G - Critical Point Securing



# Instalación en Pendiente

## Instrucciones EXCEL SR-1 All Natural

### Paso 1 - Preparación del Lugar

Prepare el lugar según el perfil del diseño y de la pendiente. Remueva el escombros, piedras, y terrones, etc. La superficie de la tierra debe estar lisa antes de la instalación para asegurar que el cojín permanezca en contacto con la pendiente.

### Paso 2 - Semilla

El sembrado de la semilla en el lugar se debe hacer de acuerdo a los requisitos del diseño o a los requisitos locales y estatales, según sea necesario.

### Paso 3 - Selección de Grapas

Lo mínimo que se debe usar son grapas de calibre 11, de 6 in. de largo y 1 in. de corona para sujetar el cojín a la superficie de la tierra. La instalación en tierra rocosa, arenosa o suelta puede requerir grapas más largas.

### Paso 4 - Excave Zanja para Anclaje y Sujete el Cojín

Excave una zanja a lo largo de la parte superior de las pendiente para sujetar la punta de arriba del cojín. La zanja debe correr a lo largo de la instalación, tener 6 in. de ancho y 6 in. de profundidad. Engrape el cojín a lo largo del fondo de la zanja; llénela con tierra compactada, empalme el cojín hacia la parte inferior de la pendiente y sujételo con una hilera de grapas (Vea las Figuras A, E y F).

### Paso 5 - Sujete el Cuerpo del Cojín

Desenrolle el cojín hacia abajo desde la zanja de anclaje. Engrape el cuerpo del cojín siguiendo el patrón que se muestra en la Figura D. Deje la punta del cojín sin engrapar para que lo pueda empalmar como se muestra en la Figura B. Coloque el cojín que baja por debajo del de arriba para formar un patrón como de tejas. Engrape las uniones como se muestra en la figura E. Sujete el cojín de bajada con el patrón de engrapado que se muestra en la Figura D. El patrón de engrapado de la Figura D refleja el mínimo de grapas que se debe usar. Se pueden requerir más grapas para asegurar que el cojín quede sujetado suficientemente para resistir podadoras y tráfico a pie y para asegurar que el cojín permanezca en contacto con la superficie de la tierra en toda el área. Además, los puntos críticos requieren grapas adicionales. Los puntos críticos están identificados en la Figura G.

### Paso 6 - Continúe a lo largo de la Pendiente - Termine la Instalación

Empalme los cojines adyacentes como se muestra en la Figura C y repita el Paso 5. Sujete la parte inferior de la pendiente usando el patrón de grapas que se muestra en la Figura E. Sujete las orillas de la instalación engrapando a intervalos de 1.0' a lo largo de la orilla.

\* El Dibujo No Está a Escala Se.

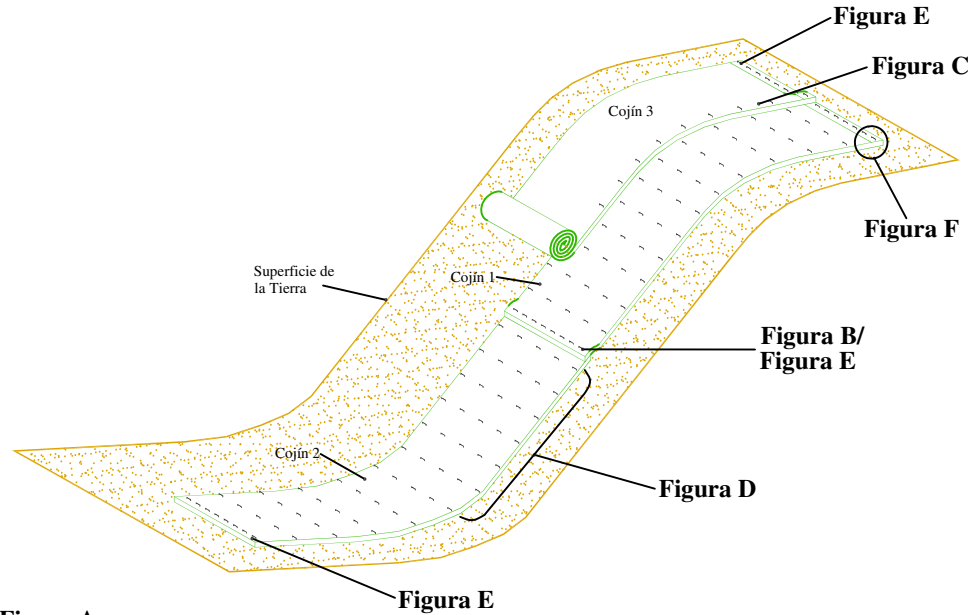


Figura A

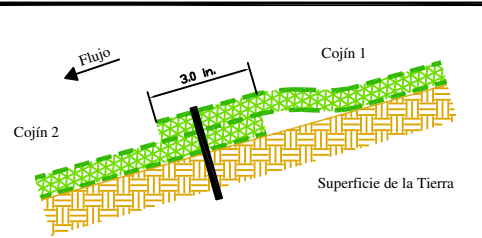


Figura B - Vista de Perfil

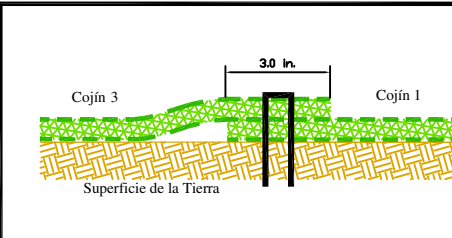
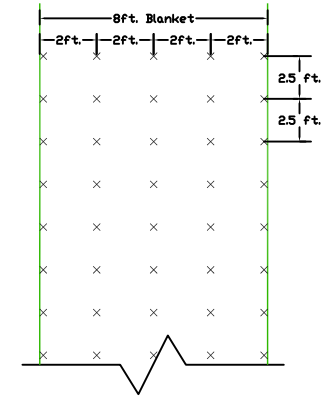


Figura C - Corte de Vista Transversal

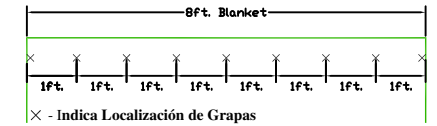
### Aplicación del Producto/Especificaciones de Equivalencia

Excel SR-1 All Natural es producido por Western Excelsior y consiste de un Producto en Rollo para Control temporal de la Erosión (PCER), formado de una matriz de paja de agricultura certificada 100 % libre de hierbas unida mecánicamente (cosida) a una sola red de yute/cañamazo biodegradable (parte superior). La vida útil del EXCEL SR-1 All Natural es aproximadamente 12 meses (la vida útil real depende del campo y de las condiciones climáticas). El Excel SR-1 All Natural se fabrica para incluir propiedades físicas suficientes para proporcionar la vida útil y rendimiento esperado. Las especificaciones del producto se encuentran en el documento WE\_EXCEL\_SR1AN\_SPEC y la información de rendimiento se puede encontrar en el documento WE\_EXCEL\_SR1AN\_PERF. Todos los documentos están disponibles en Western Excelsior Technical Support (Soporte Técnico de Western Excelsior) o en [www.westernexcelsior.com](http://www.westernexcelsior.com). Además de lo anterior, los productos equivalentes a Excel SR-1 All Natural deben cumplir con los siguientes criterios idénticos a Excel SR-1 All Natural:

1. Consistente en paja de agricultura libre de basura, certificada 100% libre de hierbas unida con una sola red de yute/cañamazo biodegradable.
2. Suficiente fuerza de tensión, grosor y cobertura para mantener su integridad durante la instalación y asegurar el rendimiento del material.
3. Incluido en la base de datos AASHTO NTPEP.
4. Cumplir especificación ECTC para productos de categoría 2C.



× - Indica Localización de Grapas  
Figura D - Vista del Plano



× - Indica Localización de Grapas  
Figura E - Vista del Plano

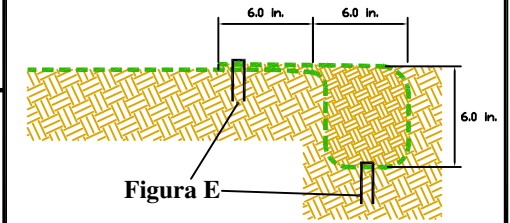


Figura F - Vista de Perfil

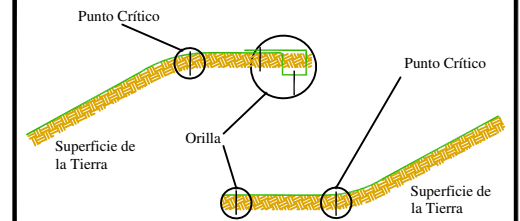


Figura G - Sujeción de Puntos Críticos



# Instalación en Canal

## Instrucciones EXCEL SR-1 All Natural

### Paso 1 - Preparación del Lugar

Prepare el lugar según el perfil del diseño y de la pendiente. Remueva el escombros, piedras, y terrones, etc. La superficie de la tierra debe estar lisa antes de la instalación para asegurar que el cojín permanezca en contacto con la pendiente.

### Paso 2 - Semilla

El sembrado de la semilla en el lugar se debe hacer de acuerdo a los requisitos del diseño o a los requisitos locales y estatales, según sea necesario.

### Paso 3 - Selección de Grapas

Lo mínimo que se debe usar son grapas de calibre 11, de 6 in. de largo y 1 in. de corona para sujetar el cojín a la superficie de la tierra. La instalación en tierra rocosa, arenosa o suelta puede requerir grapas más largas.

### Paso 4 - Excave Zanja para Anclaje y Sujete el Cojín

Excave una zanja a lo largo de la parte superior de las pendientes de los lados del canal y la orilla de arriba del canal para sujetar las orillas del cojín. La zanja debe correr a lo largo y ancho de la instalación, tener 6 in. de ancho y 6 in. de profundidad. Engrape el cojín a lo largo del fondo de la zanja; llénela con tierra compactada, empalme el cojín hacia la parte inferior de la pendiente y sujételo con una hilera de grapas (Vea las Figuras A, E y F).

### Paso 5 - Sujete el Cuerpo del Cojín

Desenrolle el cojín hacia abajo desde la zanja de anclaje. Engrape el cuerpo del cojín siguiendo el patrón que se muestra en la Figura D. Deje la punta del cojín sin engrapar para que lo pueda empalmar como se muestra en la Figura B. Coloque el cojín que baja por debajo del de arriba para formar un patrón como de tejas. Engrape las uniones como se muestra en la figura E. Sujete el cojín de bajada con el patrón de engrapado que se muestra en la Figura D. El patrón de engrapado de la Figura D refleja el mínimo de grapas que se debe usar. Se pueden requerir más grapas para asegurar que el cojín quede sujetado suficientemente para resistir podadoras y tráfico a pie y para asegurar que el cojín permanezca en contacto con la superficie de la tierra en toda el área. Además, los puntos críticos requieren grapas adicionales. Los puntos críticos están identificados en la Figura G.

### Paso 6 - Continúe a lo largo de la Pendiente - Termine la Instalación

Empalme los cojines adyacentes como se muestra en la Figura C y repita el Paso 5. Sujete la parte inferior de la pendiente usando el patrón de grapas que se muestra en la Figura E. Sujete las orillas de la instalación engrapando a intervalos de 1.0' a lo largo de la orilla.

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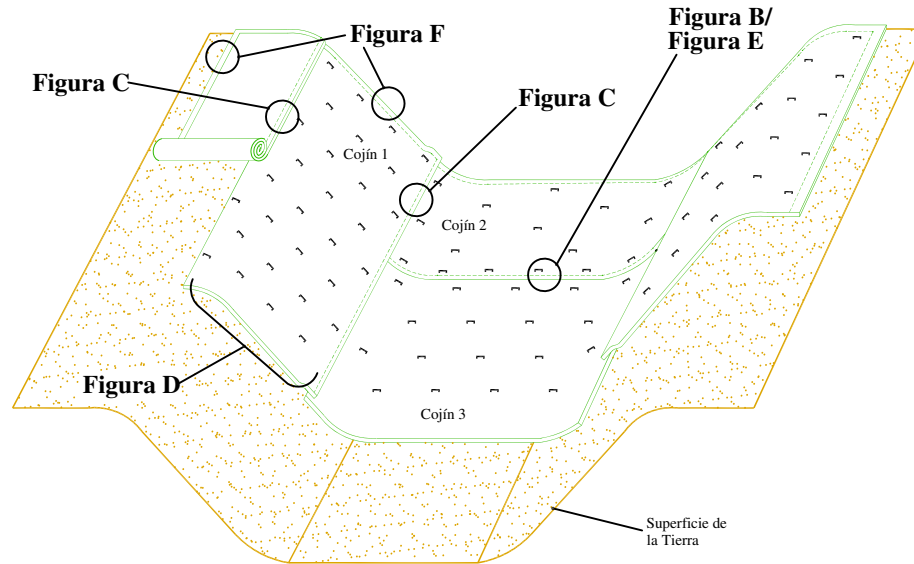


Figura A

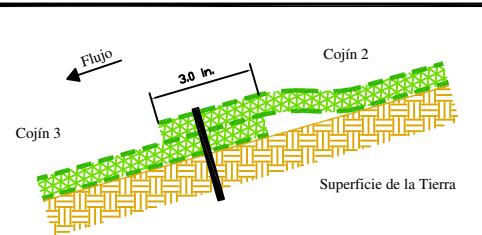


Figura B - Vista de Perfil

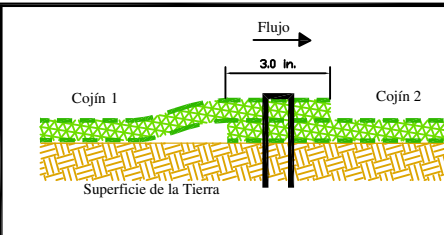
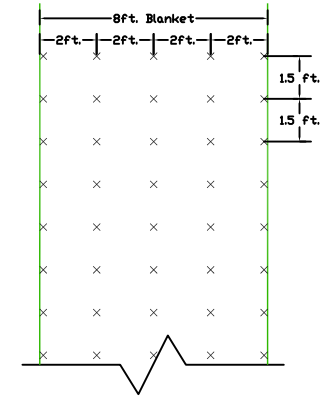


Figura C - Corte de Vista Transversal

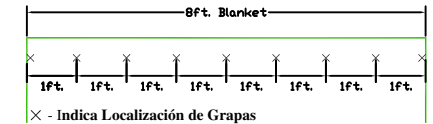
### Aplicación del Producto/Especificaciones de Equivalencia

Excel SR-1 All Natural es producido por Western Excelsior y consiste de un Producto en Rollo para Control temporal de la Erosión (PCER), formado de una matriz de paja de agricultura certificada 100 % libre de hierbas unida mecánicamente (cosida) a una sola red de yute/cañamazo biodegradable (parte superior). La vida útil del EXCEL SR-1 All Natural es aproximadamente 12 meses (la vida útil real depende del campo y de las condiciones climáticas). El Excel SR-1 All Natural se fabrica para incluir propiedades físicas suficientes para proporcionar la vida útil y rendimiento esperado. Las especificaciones del producto se encuentran en el documento WE\_EXCEL\_SR1AN\_SPEC y la información de rendimiento se puede encontrar en el documento WE\_EXCEL\_SR1AN\_PERF. Todos los documentos están disponibles en Western Excelsior Technical Support (Soporte Técnico de Western Excelsior) o en [www.westernexcelsior.com](http://www.westernexcelsior.com). Además de lo anterior, los productos equivalentes a Excel SR-1 All Natural deben cumplir con los siguientes criterios idénticos a Excel SR-1 All Natural:

1. Consistente en paja de agricultura libre de basura, certificada 100% libre de hierbas unida con una sola red de yute/cañamazo biodegradable.
2. Suficiente fuerza de tensión, grosor y cobertura para mantener su integridad durante la instalación y asegurar el rendimiento del material.
3. Incluido en la base de datos AASHTO NTPEP.
4. Cumplir especificación ECTC para productos de categoría 2C.



× - Indica Localización de Grapas  
Figura D - Vista del Plano



× - Indica Localización de Grapas  
Figura E - Vista del Plano

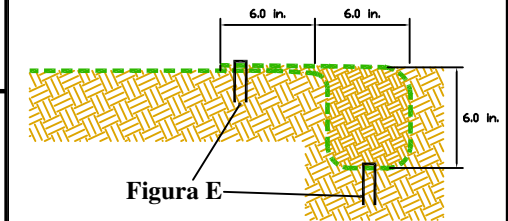


Figura F - Vista de Perfil

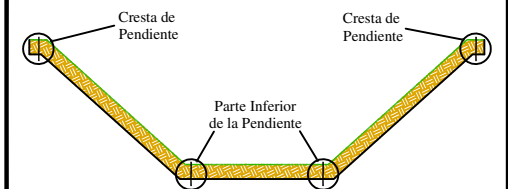


Figura G - Sujeción de Puntos Críticos