E-Fence™ System

By ERTEC Environmental Systems

Special-Status Species Exclusion and Directional Control

High Performance
Low Cost
Zero Waste

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APPLICATION

NEW: ERTEC Offers *Triple Function Capability*for Significant Project Savings:

1. Wildlife Exclusion or Directional Control
2. High Visibility for Personnel & Equipment
3. Control Sediment Control

High Performance, Lost Cost, ZERO Waste

E-Fence™ is a patented, durable, and cost-effective solution for species exclusion and directional control in areas where special-status small vertebrates are present. Designed for use on active construction sites and within fragmented habitats, it helps prevent entry into work zones, guides movement, and defines survey-area perimeters.

Constructed from a heavy, rigid polymer matrix, E-Fence is extruded for enhanced strength and long-term durability. Its continuous strand design resists separation and stretching, preventing entrapment even from persistent intruders. Unlike metal mesh, it eliminates laceration risks, and unlike mono-filament plastic mesh commonly used in erosion control products, it maintains structural integrity under demanding site conditions.

It will neither entangle nor entrap. It will not corrode and decay like metal hardware, cloths or geotextile fabrics. Unlike silt fence, plywood fence, or other solid polymer barriers, E-Fence allows high wind and heavy stormwater flow-through. It can be installed across contours (up and down hills) without enduring the destructive and scouring effects of stormwater runoff. It is non-toxic and environmentally safe. Even after extensive exposure to sunlight, harsh weather and salt water, it continues to perform. E-Fence provides very high reliability (up-time), which significantly reduces maintenance and monitoring costs. E-Fence can be used for temporary or permanent requirements. It is a ZERO Waste solution (recycled, reusable, and then recyclable again). Accepted by wildlife agencies, E-Fence is configurable for individual or combinations of species and flexible for special conditions.

KEY SYSTEM FEATURES:

Rigid Monolithic HDPE Matrix

- Will not separate, stretch or entrap
- Strong, durable and corrosion-resistant
- Allows wind and stormwater to flow through
- Non-toxic, animal safe
- Flexible for sharp elevation changes

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Configure for Distinct Species

- Vary height and trench depth
- Optional one-way gateways/diversion wings
- Optional climber barriers

Three Controls in Same Trench

1. Wildlife exclusion/directional control
2. High-vis personnel and equipment control
3. ERTEC high-performance sediment control

Comprehensive Options/Solutions

- Swing gates/ground sweeps
- No-trench ground seal
- Escape gates
- UV black or high vis orange
- Temporary or permanent

RESULTING BENEFITS:

Higher Reliability, Higher Up-Time

- No stormwater washouts
- No wind knockdowns
- No UV degradation
- Less monitoring
- Up to 15 years

100% American Engineering, Materials, Logistics & Labor

Lower Total Costs

- Fast install, fewer posts, fast remove
- Negligible maintenance
- Reduced monitoring
- Reusable on next or multi-phase projects

ZERO Waste

- Recycled, reusable, recyclable

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E-Fence™ Available Options

Options. Flexibility. Solutions

One-Way Escape Funnels/Gateways -Exit

Ground Sealfor No-Trench Installations

One-Way Escape Gateways Size Options are Available

- Temporary Gates Sediment Control
- Panel Gate Panels
- Ground Sweeps
- High UV Black
- High Visibility Orange
- Livestock Control
- Climber Barriers: Lips or Smooth Panels
- Escape Gateways and Diversion Wings
- Temporary or Permanent Installation
- Trenchless Ground Seal System
- Height, Trench Depth
- Visual Barrier

Diversion Wings Guide towards Escape Gateways

Gate Panels with Attached Ground Sweeps

Attach to Barbed Wire Fences

Temporary Swing Gates With E-Fence Gate Panels

Livestock Control Electrical Hot Wire

Sediment Control Panel Eliminates Need for Silt Fence or Straw Wattles

Height andSize Options For Conditions and Behaviors

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Key Design Criteria

Key Design Criteria vs. Performance of Exclusion Fence Type	Fence Type: Open Types		Fence Type: Solid Types			
	E-Fence™ Polymer Matrix	Metal Mesh	Solid Barrier Woven Silt Fence	Solid Barrier Thin HDPE Polymer Sheet	Solid Barrier Plywood Sheets	Solid Barrier Thick Polymer Sheet
Stormwater Scouring and Undermining	Excellent	Excellent	Poor	Poor	Poor	Poor
Stormwater runoff can cause solid-type exclusion barriers to fail in two modes: 1) if a solid-type barrier is installed along contours ponding and associated head-pressure against the barrier can create havoc and loss of integrity at the trench. The resulting undermining will create concentrated flows and cause unwanted and sometimes severe land erosion. 2) If solid barriers are installed up and down contours, stormwater runoff will collect and concentrate along the barrier as it flows downhill. Runoff will scour out the base of the barrier, creating a loss of integrity and requiring an immediate maintenance event. Weep holes drilled or formed into solid barriers do not allow enough water volume to flow through. Weep holes drilled into solid barriers blind-off very quickly in stormwater events. To control damage, it is important to design with a barrier which has at least 50 percent Open Area (Open Type) or allows a flow rate greater than 600 gallons/ft2/min. Open Type barriers allow stormwater to flow through.						
Wind Damage	Excellent	Excellent	Poor	Poor	Poor	Poor
High velocity winds and gusts create significant forces and vibration on solid type fence infrastructure, eventually weakening the structure and leading to failure. Open Type barriers allow wind to flow through.						
Installation on Terrain with Abrupt Elevation Changes	Excellent	Average	Excellent	Excellent	Poor	Poor
A high percentage of exclusion fence installations are on terrain with some elevation change. For ease of installation, it is important that the barrier material be flexible so that it can be installed even in areas of sharp elevation change. Costly grade preparation should not be required.						
Animal Safety	Excellent	Poor	Average	Excellent	Excellent	Excellent
Animals should be safe from laceration or entrapment over the duration of installation (for example, silt fence will become more porous over time). Smooth, low friction surfaces, and if an open type, rigid immovable strands are important for animal safety.						
Rate of Decay (UV or Corrosion), Property Retention	Excellent	Poor	Poor	Excellent	Average	Excellent
Functional longevity in the face of ultraviolet radiation and/or corrosion.						
Ease of Installation Translates to Crew Safety	Excellent	Poor	Excellent	Average	Poor	Average
Average Consider the weight, density and flexibility of the barrier material, ease of mobilization, average speed of installation, sharp edges, worker safety.						
Resistance to Vegetation Cutters	Excellent	Excellent	Poor	Excellent	Excellent	Excellent
Vegetation cutters (weed whackers, weed whips, edge trimmers) are rarely used around exclusion barriers (due to possible presence of special-status species), but might be required for long-term projects.						
ZERO Waste	Excellent	Average	Poor	Excellent	Average	Excellent
Why solve one environmenal challenge by creating another? Exclusion barriers should have zero impact on landfills. Consider barriers with readily available recycle streams and that are easy to remove and transport.						
Design & Installation Support - get the job done right!	Excellent	Poor	Poor	Poor	Poor	Unknown
When working with special-status species, design and installation support for successful installations is critical. Some barrier types are designed expressly for special-status species and supplied by companies that provide both design support and on-site crew support at no additional cost. Other types are supplied by generic construction supply with little or no pre- or post-sale support.						

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Leadership: Hundreds of Projects, Proven Results

Temporary Swing Gates With E-Fence Gate Panels

Livestock Control Electrical Hot Wire

Sediment Control Panel Eliminates Need for Silt Fence or Straw Wattles

Height and Size Options for Conditions and Behaviors

A Growing List Accepted by Wildlife Agencies *(Some examples):*

- Alameda whip snake
- Arroyo toad
- Blunt-nosed leopard lizard
- Butler's garter snake
- California red-legged frog
- California tiger salamander
- Chiricahua leopard frog
- Desert tortoise
- Giant garter snake
- Northern cricket frog
- Northern red-legged frog
- Texas horned lizard
- Riparian brush rabbit
- Tipton kangaroo rat
- Salt marsh harvest mouse
- San Francisco garter snake
- San Joaquin antelope squirrel
- San Joaquin kit fox
- Stephens kangaroo rat
- Western pond turtle

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Cost Saving Multi-Function Barriers

Single Function E-Fence

1. Exclusion Barrier

Solution Shown: E-Fence Black, 48" with one-way escape funnels on 150' centers

Double Function E-Fence

1. Exclusion Barrier
2. Visibility Safety Barrier eliminating the need for a separate construction safety barrier

Solution Shown: E-Fence Orange, 48" with the climber barrier facing towards sensitive habitat

Triple Function E-Fence

1. Exclusion Barrier
2. High Visiblity Safety Barrier
3. Sediment Control Panel elminating the need for separate silt fence or wattle

Solution Shown: E-Fence, Orange, 48" with Sediment Control Panel using ERTEC's leading sediment control technology

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End- to- End Service and Support

ERTEC Provides Rapid Response End-to-End Service and Support for the Engineer, Biologist, and Both Bidding and Installing Contractors.

When protecting special-status species, it is important that information and support flow quickly and comprehensively through the supply chain. The project must be setup for success!

For the Owner and Specifying Engineer

- Automated design guide, designer's checklist
- Advice on best practices
- Advice on the most cost-effect
- Installation drawings (PDF)

For the Bidding Contractor at Bid Time

- Help interpreting project plans
- Advice on equipment, crew size, production rates and methods
- Advice on unusual conditions

For the Installing Contractor

- On-site training or videos to assure the job gets done right with the best tips and tricks
- Advice on special conditions
- Advice on removal, reuse and recycling

For the Field Biologist

- Availability for Q&A
- Training and support
- Seek feedback for continuous system improvements

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Hundreds of Projects. Proven Results.

Specify E-Fence™ with Confidence

- **Proven Performance**
  9 Years in the field
- **Construction Specifications**
  Guide spec and installation guidelines
- **Wide Ranging Expereince**
- **Engineered System**
  Rigoursly tested and field-proven
- **Zero Waste**
  Noting to landfill

Connect with **Titan Environmental** to specify E-Fence™ on your next project:
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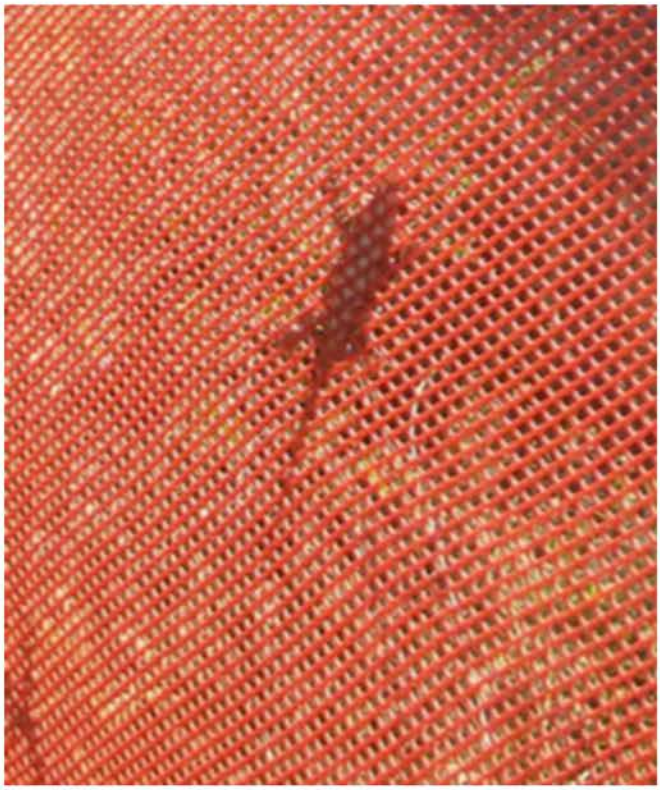
Learn more about other ERTEC solutions at: www.ertecsystems.com | 866-521-0724

Our products are offered with our express limited warranty.



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Titan Environmental supplies proven geosynthetics and specialty civil engineering construction solutions designed to extend the life of vital infrastructure while protecting precious natural resources.

We push limits with creative solutions. Our product lines include geomembranes, geotextiles, geogrids, primary & secondary containment systems, stormwater management solutions, drainage solutions, MSE wall & slope systems, and erosion & sediment control products. We service the road construction, agricultural, waste management, water resources, mining, oil and gas, and hydroelectric industries that support essential infrastructure worldwide. By providing engineers with a resilient foundation for building better, we've become North America's fastest-growing-end-to-end geosynthetics supplier, fabricator, and installer.

We do more than help manage environmental impact, we help improve how that's done. With a team of audacious innovators and agile problem-solvers, we're trusted to adapt to change, respond quickly, and support you at every stage. When you build with Titan, you strive for your very best.

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