







## Placing the Beams.

When a load of beams arrives via the forklift, two men can begin positioning the beams in the retaining brackets in the wall end brackets and posts. Pick up one beam at a time with a man at each end to make positioning easier and faster.

The beams are symmetrical and all are of the standard length and weigh about 10 pounds. All the men do is lower the beam with the gasket edge down, into place.















### Securing The Hold-Down Clamps:

When all the beams in a section have been properly placed, a few turns of the hold-down clamp wing nut which is an integral part of the post will provide adequate down pressure to firmly hold the beams in place and provide a watertight seal. This step should be repeated as you go down the length of the wall section by section. And this is the last step in erecting the EKO Removable Barrier Flood Wall.

### Monitoring The Wall;

when all the set up steps have been completed and the water begins to rise, there are no "operational adjustments" that need to be made. There is nothing that needs to be adjusted. All components have been put in place correctly and secured. As with any levee or floodwall installation during a flood event, normal monitoring /observation is recommended.

## Part Two:

# Removing the EKO Barrier After the Flood Event

### Release the Hold-Down Clamps And Remove the Beams.

This is the first step in removing the barrier components. Releasing the clamps will allow the workers to remove the beams and place them on the forklift for transport back to the Storage Container. Before placing the beams in their racks in the Storage Container. It is advisable to pressure wash the beams to remove any scum or residue. The beam gaskets should be checked for any signs of damage.

### Remove The Posts and Braces .

Since the bolts are on the wet side of the post/ barrier, it may be necessary to pressure wash the posts while they are standing in order to remove any silt or residue buildup. This will make it easier to remove the anchor bolts. Place the posts on the forklift for transport to the Storage Container and place them in their racks.

### Inventory The Contents.

As the components for each section are returned and placed in the Storage Container an inventory count of beams posts and anchor bolts should be made and recorded on the Inventory Sheet. Any discrepancies should be noted, the sheet signed and dated. Any parts that appear to be damaged should be noted and replaced in the Storage Container from the Spare Parts supply and replacements ordered immediately from EKO to maintain the proper Spare Parts inventory.

### Replace The End Bracket and Post Anchor Cover Plates.

This is the final step in securing the wall installation for the next event. Simply screw them in place securely using the Allen wrench.

## Maintenance.

A routine "maintenance" schedule can be established on an annual or semi-annual basis. These activities include checking the inventory counts of components for each section in each Storage Container, visually

inspecting the gaskets and noting any need for replacement which can then be scheduled.

Gasket replacement is easily done. There are no adhesives, just use soapy water to make it easy to slip off the old gasket and slide, press on the new .Trim to length. This procedure is the same for the posts and for the end brackets. All use the same gasket.

Examine the posts to make sure all the hold-down wing nuts are in place and visually inspect the sealing strip which is the same material as the beam gaskets and can be replaced in the same manner if necessary.

On site maintenance consists of removing the end bracket cover plates, removing any residue and visually inspecting the gaskets which are of the same material as the posts and beams and can easily be replaced if necessary in the same manner.

## Replacement Components.

Any replacement components can be obtained by contacting Customer Service,  
[info@ekofloodusa.com](mailto:info@ekofloodusa.com)

Phone: 1-307-739-2538

EKO Flood Systems, LLC

P.O.Box 7475, Jackson ,Wyoming 83002

# **Flood Control America**

## Bowe, Pamela

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**From:** George Fryklund <georgefryklund@comcast.net>  
**Sent:** Tuesday, August 28, 2012 3:21 PM  
**To:** Pugh, Terry  
**Subject:** Re: Floodwall Quote

Terry  
Suggest using \$100 per square foot for your guidance, which provides all removeable wall elements + tax for the various dimensions in your schedule. Foundation costs are in addition.  
Please advise for further assistance.\,

-----  
George Fryklund  
Flood Control America  
978-440-8902

----- Original Message -----

**From:** [Pugh, Terry](#)  
**To:** [floodwall@floodcontrolam.com](mailto:floodwall@floodcontrolam.com)  
**Sent:** Monday, August 27, 2012 10:41 AM  
**Subject:** Floodwall Quote

Hello Mr. Fryklund,

I am currently working on a project that is in the study phase of determining possible best solutions for flooding issues along a stretch of the Missouri River and a tributary to the Missouri River. I am collecting estimates for both types of temporary flood protection and cost per square foot.

The project that we are seeking costs for includes a couple of road crossings. Additionally the method of achieving flood protection may be a blend of technologies which could reduce the length of removable floodwall required. Please provide estimates for the types of flood protection you would recommend based on height and length. Additionally there are areas along the length which have limited width (between buildings and other natural and built up areas) available for placement of flood protection materials.

Below are four scenarios of protection levels that we are seeking cost estimates for, along with any support technology information. (For example: the footer required for a 1 foot flood wall should be less than for the 14 foot flood wall).  
Approximate flood wall lengths and heights:

Description of Level of Protection Scenario	Floodwall Height (feet)	Floodwall Length (feet)
First Significant damage	3	520
	1	1730
100- Year Level	8	520
	6	1730
270- Year Level (1993 Flood)	10.5	520
	8.5	1730
500- Year Level	14	520
	12	1730

Thank you for your time.

Sincerely,

Terry Pugh, CFM | CDM Smith | 9200 Ward Parkway, Suite 500 Kansas City, MO 64114 | Main: (816) 444-8270 | Direct: (816) 412-3118 | [pughta@cdmsmith.com](mailto:pughta@cdmsmith.com) | [cdmsmith.com](http://cdmsmith.com)



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# **Hydrological Solutions, Inc**

## **Bowe, Pamela**

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**From:** Kathy Sullivan <KSullivan@HydrologicalSolutions.com>  
**Sent:** Monday, August 27, 2012 11:51 AM  
**To:** Pugh, Terry  
**Subject:** RE: Floodwall Quote  
**Attachments:** ERT.pdf; WIPP features and benefits.pdf; ERT\_Page\_12.jpg; PRICE CHART.docx

Terry, thank you for your time today. The literature attached shows our size options. All WIPP barriers are custom made to fit the specific size needs you would have. I have listed some prices in the attachment. Freight is based on order size. I will mail a presentation folder, ppt CD and material sample today. Please let me know if you need anything else.

Kathy Sullivan  
Hydrological Solutions, Inc.  
41232 Park 290 Drive Bldg A  
Waller, TX 77484  
Toll Free: 800/245-0199  
Cell: 281/627-8792  
Fax: 936/372-1223

[www.hydrologicalsolutions.com](http://www.hydrologicalsolutions.com)

[Learn More About Hydrological Solutions – to watch our 3 minute video please click HERE](#)

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**From:** Pugh, Terry [<mailto:PughTA@cdmsmith.com>]  
**Sent:** Monday, August 27, 2012 10:24 AM  
**To:** Kathy Sullivan  
**Subject:** Floodwall Quote

Hello,

Thank you for your time. Below is the information referred to as see attached. I am currently working on a project that is in the study phase of determining possible best solutions for flooding issues along a stretch of the Missouri River and a

tributary to the Missouri River. I am collecting estimates for both types of temporary flood protection and cost per square foot for the flood protection.

The project that we are seeking costs for includes a couple of road crossings. Additionally the method of achieving flood protection may be a blend of technologies which could reduce the length of removable floodwall required. Please provide estimates for the types of flood protection you would recommend based on height and length. Additionally there are areas along the length which have limited width (between buildings and other natural and built up areas) available for placement of flood protection materials.

Below are four scenarios of protection levels that we are seeking cost estimates for, along with any support technology information. (For example if a footer is needed: the footer required for a 1 foot flood wall should be less than for the 14 foot flood wall). Approximate flood wall lengths and heights:

Description of Level of Protection Scenario	Floodwall Height (feet)	OVERALL Floodwall Length (feet)
First Significant damage	3	520
	1	1730
100- Year Level	8	520
	6	1730
270- Year Level (1993 Flood)	10.5	520
	8.5	1730
500- Year Level	14	520
	12	1730

The terrain along the placement of the floodwall varies by 2 feet as part of the natural terrain, moderately -no extremely steep areas. Slope is based on Lidar information, as this project is in the first stages of research.

Sincerely,

Terry Pugh, CFM | CDM Smith | 9200 Ward Parkway, Suite 500 Kansas City, MO 64114 | Main: (816) 444-8270 | Direct: (816) 412-3118 | [pughta@cdmsmith.com](mailto:pughta@cdmsmith.com) | [cdmsmith.com](http://cdmsmith.com)



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# ERT

Emergency Response Tools – Solutions Made Easy



Water-Inflated  
**WIPP**<sup>TM</sup>  
Property Protector



Water-Inflated  
**Spil Stop**  
Spill Barrier



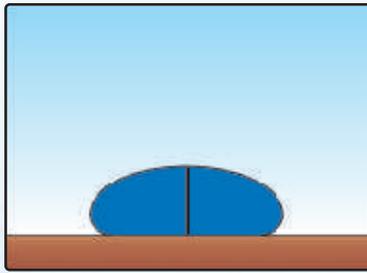
Fluid Filled  
**Insta-Tank**<sup>TM</sup>  
Flexible Container



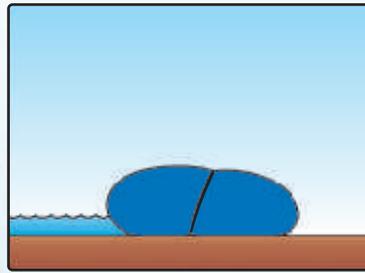
**Hydrological Solutions, Inc.**

*Harnessing the Power of Water*

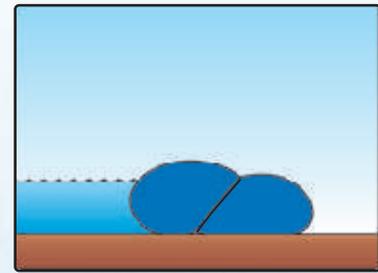
## The Patented Baffle Makes the Difference



System prior to flooding.

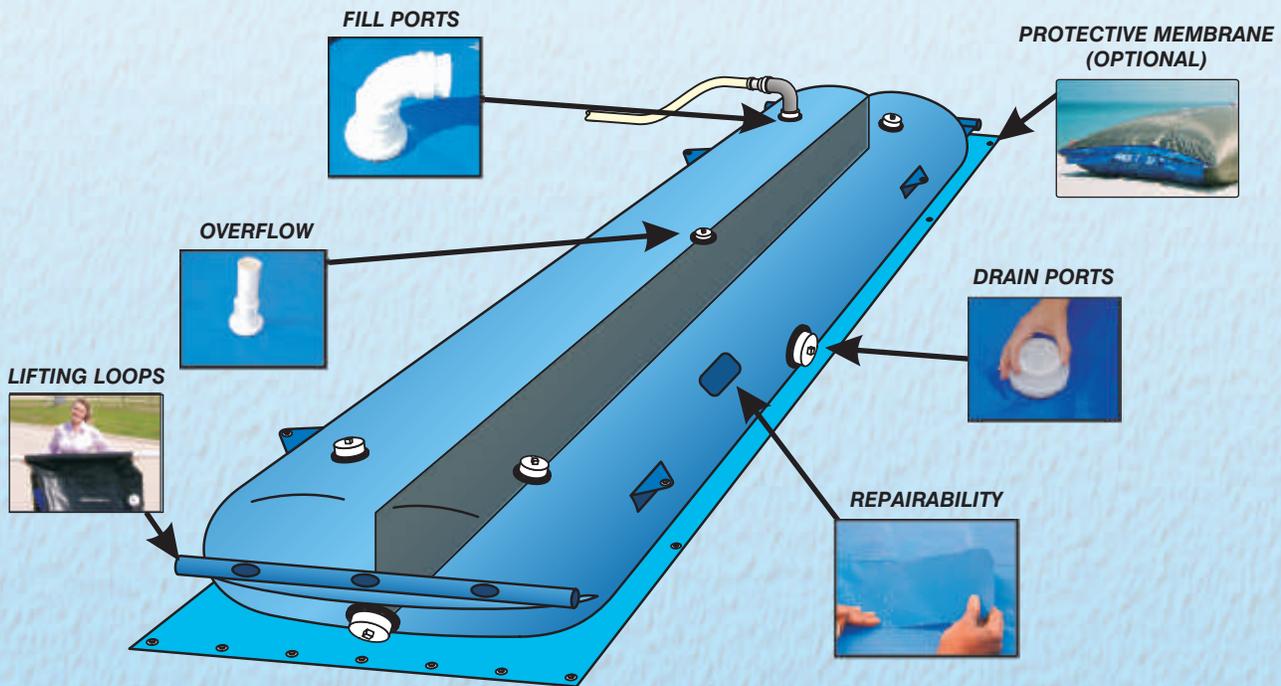


Baffle shifts to stabilize the unit.



Protected site. Baffle has stabilized.

## Unique Accessories Make Installation A Snap



**Fill port with adapter:** Each unit will contain the appropriate number of female threaded fill ports and hose adapters. Available in: 3/4", 2", 3", and 4" inner diameter.

**Drain ports:** Each unit will be equipped with the appropriate number of drain ports and plugs. Available in: 2", 3", 4", and 8" inner diameter.

**Overflow fitting:** The overflow fitting provided will allow for proper inflation and over inflation protection.

**The WIPP™, Spil-Stop™, and Insta Tank™ have standard sizes and accessories. All accessories are interchangeable on all inflatable systems. Each inflatable system can be custom built for your unique application.**

**Lifting loop:** End loops are available and act as an aid in the installation and removal process.

**Protective membrane:** Optional outer membrane which provides additional protection to the barrier from rough terrain and debris.

**Repairability:** The external vinyl membrane is repairable in wet or dry conditions. A repair kit, with instructions, is provided with each order.



Made in the U.S.A.

[www.wippsystem.com](http://www.wippsystem.com)

800-245-0199



**HS Hydrological Solutions, Inc.**  
Harnessing the Power of Water

# COMPACT FOR MINIMAL SHIPPING COST AND EASY STORAGE



2ft x 20ft unit



3ft x 100ft unit



6ft x 100ft unit

**All of our products come in custom sizes to fit the customer's needs and are compact for minimal shipping cost and easy to store.**

## Standard Heights and Dimensions

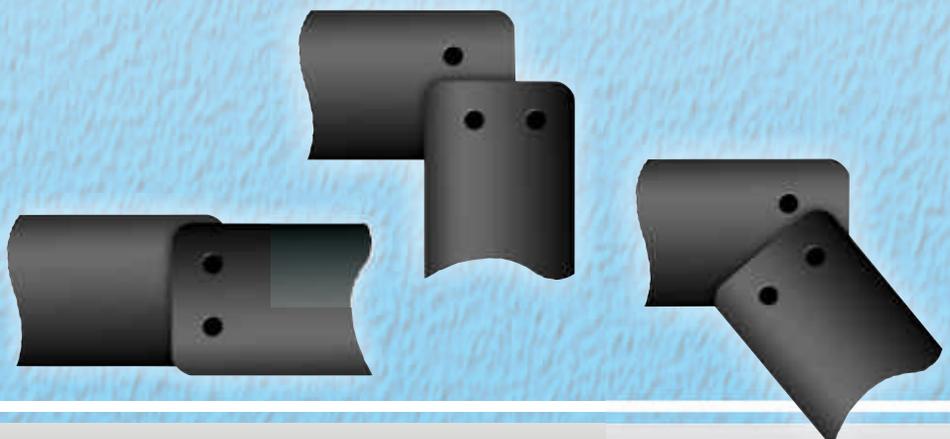
*All units are available in customized lengths to suit your unique situation.*

Inflated Height (ft/m)	Max. Controllable Water/Sediment Depth (in/cm)	Gallons per Linear ft (L/m)	Inflated Width (ft/m)	HD-22oz Vinyl Weight per (lb per linear ft/kg per linear m)	MD-30oz Vinyl Weight per (lb per linear ft/kg per linear m)
9in/ 0.23	6.75 / 17.18	10 / 130	1.69 / 0.52	1.00/1.50	1.31/1.96
1 / 0.31	9 / 22.9	14 / 174	2.25 / 0.69	1.34/2.00	1.75/2.61
2 / 0.61	18 / 45.7	56 / 695	4.50 / 1.37	2.21/3.29	2.97/4.42
3 / 0.92	27 / 69.6	131 / 1627	7 / 2.14	3.38/5.04	4.60/6.85
4 / 1.22	36 / 91.4	225 / 2794	9 / 2.75	4.21/6.27	5.76/8.58
5 / 1.53	45 / 114.3	352 / 4371	11.25 / 3.43	N/A	8.32/12.39
6 / 1.83	54 / 137.2	506 / 6284	13.5 / 4.12	N/A	10.40/15.49
7 / 2.14	63 / 160.0	688 / 8544	15.75 / 4.81	N/A	12.00/17.87
8 / 2.44	72 / 183.0	901 / 11189	18 / 5.50	N/A	13.64/20.32

## Overlap Requirements

Inflated Height (ft)	Overlap Length (ft)
9"	14"
1	2.5
2	3
3	4.5
4	6
5	7.5
6	9
7	10.5
8	12

**Units are joined together by an overlapping technique. The units can be joined end to end or at any angle.**





# WIPP™

## for Residential and Commercial Flood Applications

The WIPP™ (water inflated property protector) flood protection system provides effective flood protection and can prevent costly damage to commercial and residential properties. Simply use any available water source, even approaching flood waters, to inflate the WIPP™ unit. The unit relies on a patented internal baffle system for stability. Each unit is manufactured using a commercial grade, flexible membrane and is available in sizes ranging from 1ft to 8 ft high, by 10ft to 100ft in length. The WIPP™ system is rapidly deployed, lightweight, compact in storage, repairable and reusable.



### KEEPS ROADWAYS OPEN

*If your neighborhood is located along a body of water, our WIPP™ system provides protection from the dangers of flooded streets.*



Made in the U.S.A.

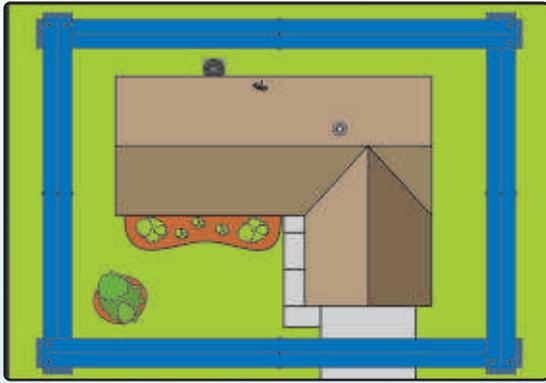
[www.wippsystem.com](http://www.wippsystem.com)

800-245-0199



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Harnessing the Power of Water

## COMPLETE ENCLOSURE



*Completely enclose your property using several barriers and a simple overlapping technique.*

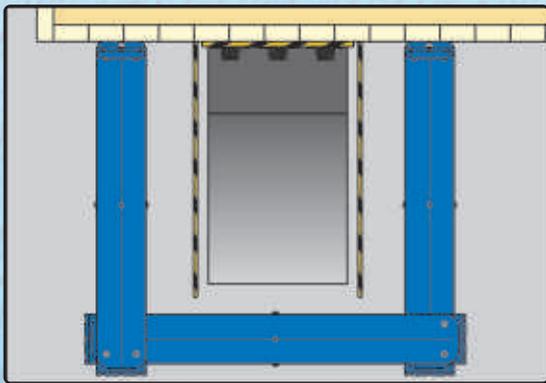
*Partial enclosure allows protection on the most vulnerable side of your property.*



## PARTIAL ENCLOSURE



## LOADING DOCK ENCLOSURE

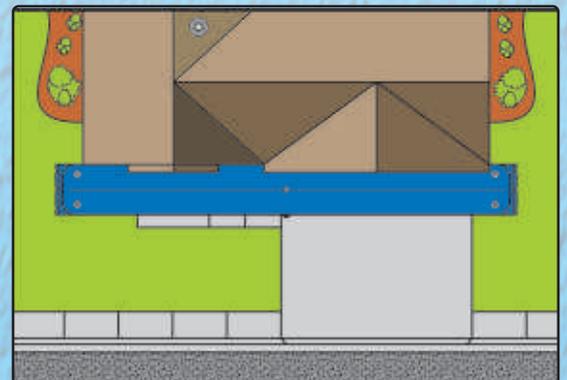


*Loading dock enclosure provides access to loading docks and doors while keeping flood waters at bay. In some cases, a pump should be kept on hand to remove rain waters that could accumulate.*

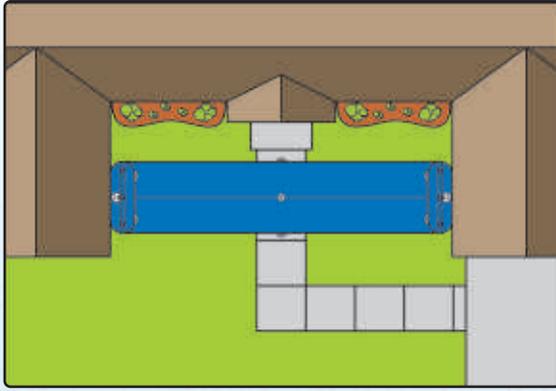


## IN-LINE BLOCK

*In many instances, one unit can be used to protect your assets.*



## BETWEEN VERTICAL OBJECTS



When installed between two vertical walls, the barrier creates a tight seal.



The WIPP™ system is reusable, not a loss revenue like sandbags.

WIPP System Height	Sandbag Wall Height	Sandbag per 100ft section filled size (6in H x 15in W x 6in L)	WIPP weight per 100ft section prior to inflation	Sandbag Weight per 100ft section (50lbs per bag)	WIPP Storage Requirements (Cubic Yards)	Sandbag Storage Requirements (20 bags per cubic yard)	WIPP System average cost Per linear foot	Sandbag cost per linear foot
1 foot	1 foot	850	115 lbs	42,000 Lbs	.07 c y	42.5 c y	\$24.75	\$17.39
2 feet	2 feet	1,800	188 lbs	90,000 Lbs	.20 c y	90 c y	\$37.25	\$36.83
3 feet	3 feet	3,450	270 lbs	172,500 Lbs	.33 c y	172.5 c y	53.250	\$70.59
4 feet	4 feet	5,600	392 lbs	280,000 Lbs	.66 c y	280 c y	\$63.88	\$114.58
5 feet	5 feet	8,250	930 lbs	412,500 Lbs	1.15 c y	412.5 c y	\$145.63	\$168.80
6 feet	6 feet	12,350	1098 lbs	617,500 Lbs	1.83 c y	617.5 c y	\$161.38	\$252.68
7 feet	7 feet	18,500	1227 lbs	925,000 Lbs	2.72 c y	925 c y	\$205.13	\$378.51
8 feet	8 feet	27,750	1620 lbs	1,387,500 Lbs	3.80 c y	1,387.5 c y	\$265.00	\$568.16

### Sandbag costs are calculated as follows:

- Estimated bag cost per each \$.55
- Estimated sand cost per bag \$.28
- Cost of labor for filling & installing per bag \$.35
- Estimated removal & disposal costs per bag \$.88
- Total cost per sandbag \$2.06

\* Sand bag costs vary greatly. Sandbag costs are derived from cost analysis provided by the U.S. Army Corps of Engineers. The above cost categories are subject to variations due to sandbag size, type, sand availability, and labor costs.

\* The WIPP system cost are calculated by the purchase price plus \$0.20 a linear foot for labor required to install.



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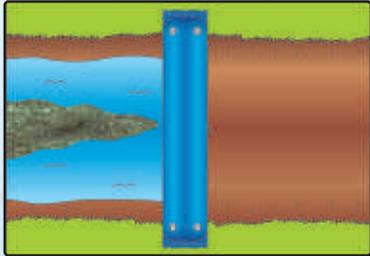
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# SPIL- STOP™



Spil-Stop™ Spill Barriers are specifically engineered to contain accidental spills until they can be properly handled. The patented internal baffle system creates stability to keep the unit in place. The units are quick to deploy, easy to drain, roll, and store! Spil-Stop™ is custom made to fit your containment needs.

## STREAM BLOCK



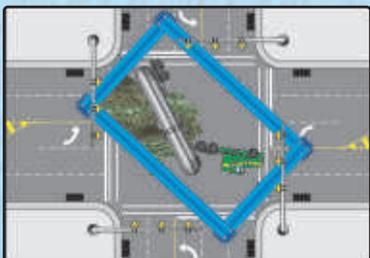
*If a stream or water source has been contaminated, this application can be used to stop the contamination from spreading or entering a shared water supply until the contamination can be removed properly.*

## PLANT SPILL CONTAINMENT



*This application is used to contain spills/overflows until they can be properly handled.*

## TRUCK SPILL CONTAINMENT



*The truck containment method is used to contain potential hazardous substances until they can be properly disposed of by the appropriate emergency response team(s).*

## EMERGENCY SPILL CONTAINMENT

*Spil-Stop™ can be used by emergency response teams to help prevent contamination. The units are compact for easy storage, easy installation, and quick deployment.*

