

FIELD OF DREAMS, IOWA



HYDRAWAY[®]
DRAINAGE SYSTEM

**THE DRAINAGE SYSTEM OF CHOICE
FOR THE MOST IMPORTANT GAMES**

HYDRAWAY ATHLETIC DRAINAGE

Hydraway is an industry-leading, innovative technology designed for rapid dewatering of sports field applications.

There is an ever-increasing need to keep sports fields healthy, attractive, and ready for use. Excess moisture can lead to damaged playing surfaces, loss of playing time and revenue and, most seriously, increased risk of injury for players. Hydraway's geocomposite drainage system ensures that surface and subsurface water is quickly and efficiently collected and diverted away. Our system solves drainage issues under football, baseball, and soccer fields as well as golf courses and volleyball courts.

Hydraway has the industry's highest inflow rates and compressive strength, making our product the best drainage solution on the market today.



FEATURES & BENEFITS OF HYDRAWAY



IN-FLOW RATE

Industry's highest in-flow rate



STRENGTH

Industry's highest compressive strength



0% FAIL

No known product failures



70% FASTER

Removes water 70% faster than traditional methods of drainage



LONG LIFE

Dependable, long-life performance

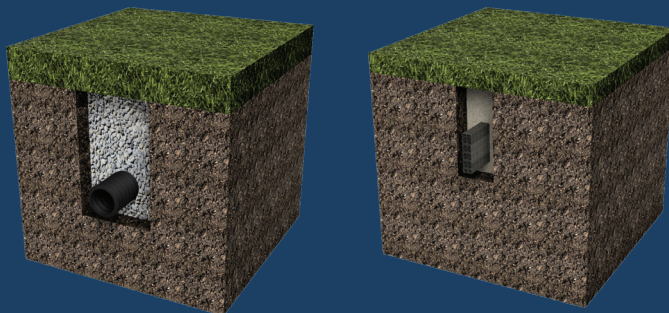


LABOR SAVINGS

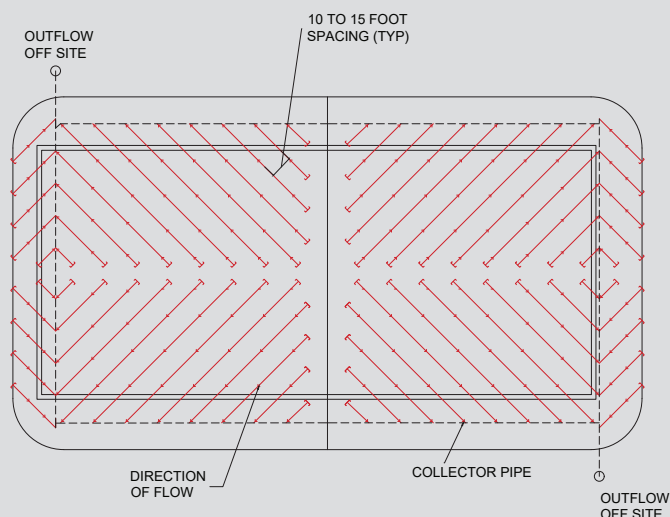
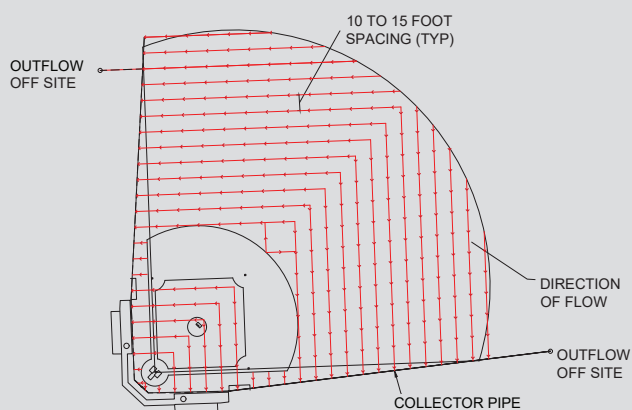
Easy to install means lower total installed cost

TRADITIONAL FRENCH DRAIN VS. HYDRAWAY

Hydraway is commonly installed vertically in natural turf settings and horizontally under synthetic turf. Traditional French drain systems require, on average, a trench 8 inches wide by 12 inches deep. Installing Hydraway vertically requires a trench 3-4 inches wide by 12-15 inches deep. This innovative system reduces the labor hours required for installation and the amount of backfill material needed — both resulting in cost savings.



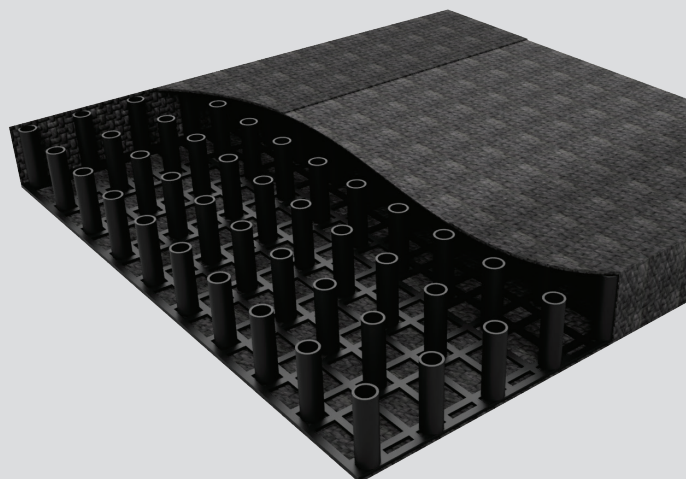
TYPICAL INSTALLATION



Property	Test Method	Unit of Measurement
GEOTEXTILE¹ - NEEDLE-PUNCTURED, NONWOVEN		
Elongation	ASTM D-4632-91	50%
Grag Tensile	ASTM D-4632-92	120 lbs
Flow Rate	ASTM D-4491	135 gal/mn/ft ² ₃
CORE - HDPE		
Compressive Strength	ASTM D-695/1621 ⁴	11,400 PSF
Flow Rate at 1,500 PSF	ASTM D-47162 ²	21 GPM/ft-width
Peel Strength ³	ASTM D-1876	50 lbs/ft-width

Hydraway comes in widths of 6 and 12 inches with a standard length of 150 feet — but can be customized in a variety of lengths and widths.

1. 4 oz fabric
2. Gradient of 0.1
3. Values shown are in weaker principal direction. Minimum average roll values are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that nay samples taken from quality assurance testing will exceed the value reported.
4. Modification was made to an existing ASTM test since a recognized test method had not been established for this type of product at time of testing.



Hydraway Drainage System is unparalleled in the drainage market. With its 70% inflow rate, Mid-America Sports Construction recommends this product to any of our customers. Hydraway's **diversity** allows for us to use it on synthetic turf and natural grass fields. For us, it's a no-brainer to recommend and use Hydraway Drainage System.

KIRK GREGO
MID-AMERICA SPORTS CONSTRUCTION

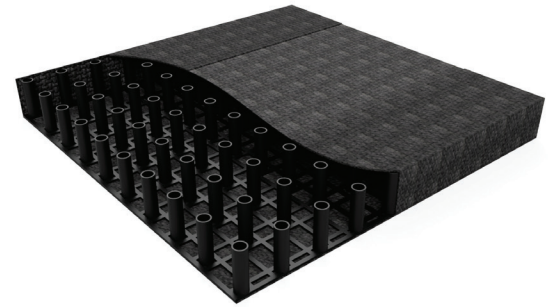
As larger construction projects begin to include more sand cap fairways, we are utilizing Hydraway more and more within the golf industry. The **cost-effective** installation allows us to more efficiently budget tighter spacing required with fairway sand cap installation. The durability of the product also gives us a higher level of comfort with an extended-life drainage system. We recommend the use of Hydraway with all your sports field and golf drainage projects.

TOMMY SHOOK
EAGLE GOLF & ATHLETICS

For several years, we have specified Hydraway products as part of the subsurface drainage design under natural and synthetic athletic fields, utilizing both horizontal and vertical applications. We could not be more pleased with the **high quality** and performance of the products.

ED NORTON
HOLCOMBE NORTON
PARTNERS





Hydraway is a geocomposite subsurface drainage solution that’s composed of a structured high-density polyethylene (HDPE) perforated core that is thermally bonded to a geotextile filter fabric.

The geotextile allows water to pass through while retaining backfill materials. The perforated core allows water collection from all sides and provides a continuous flow path.

Hydraway provides a value engineered solution to the conventional perforated pipe and aggregate subsurface drainage systems. This solution is more durable as it prevents clogs, fungal growth, and disintegration.

Hydraway comes in widths of 6 and 12 inches with a standard length of 150 feet. It can be customized in a variety of lengths and widths upon request.

PROPERTY	TEST METHOD	UNIT OF MEASUREMENT	HY206-A150	HY211-A150
Size		in x ft	6x150	12X150
GEOTEXTILE¹ – NEEDLE-PUNCTURED, NONWOVEN				
Elongation	ASTM D-4632-91	%	50	50
Grab Tensile	ASTM D-4632-91	LBS	120	120
Puncture Strength	ASTM D-4833-00	LBS	65	65
Mullen Burst Strength	ASTM D-3756-87	PSI	225	225
Trapezoidal Tear	ASTM D-4533-91	LBS	50	50
Wide width Tensile	ASTM D-4595	LBS/IN	50	50
UV Resistance ²	ASTM D-4355-02	%	70	70
Permitivity	ASTM D-4491-99A	SEC	1.8	1.8
Permeability	ASTM D-4751-99A ₄	CM/SEC	.21	.21
Flow Rate	ASTM D-4491	GAL/MIN/FT ² ₄	135	135
AOS (EOS)	ASTM D-4751-99A	US STANDARD SIEVE	70	70
CORE – HDPE				
Compressive Strength	ASTM D-695/1621 ₅	PSF	11,400	11,400
Flow Rate at 1,500 PSF	ASTM D-47162 ₃	GPM/ft-width	21	21
Peel Strength ³	ASTM D-1876	lbs/ft-width	50	50

1. 4oz fabric

2. Based on 500 hours of testing

3. Gradient of 0.1.

4. Values shown are in weaker principal direction. Minimum average roll values are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

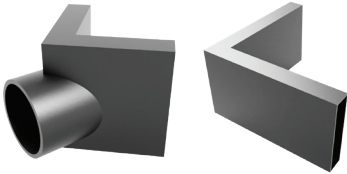
5. Modification was made to an existing ASTM test since a recognized test method had not been established for this type of product at time of testing.

The Hydaway Fittings are used in conjunction with the Hydaway product.

The fittings are made of polypropylene plastic that prevents disintegration. The fabric end cap is made of a geotextile filter fabric that prevents backfill material from entering the Hydaway.

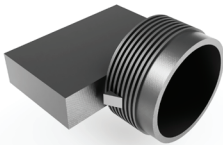
PRODUCT CATALOG # BOX QTY. DESCRIPTION

CORNER - Used to connect two strips of Hydaway at a junction.



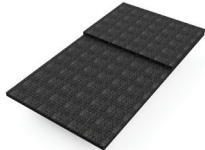
COROUT-06	10	6" to 4" corrugated pipe
COROUT-12	10	12" to 4" corrugated pipe
COR-06	10	6"

END OUTLET - Used to make transition from Hydaway to a corrugated or smooth 4" plastic pipe.



EO-06	10	6" to corrugated pipe
EO-12	10	12" to corrugated pipe
EO-12SCH40	10	12" to PVC pipe

FABRIC - Used to cover the end cut of Hydaway in a horizontal termination.



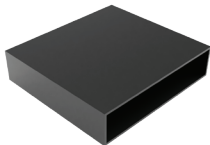
EC-06	25	6"
EC-12	25	12"

SIDE OUTLET - Used to make in line transition from Hydaway to 4" corrugated pipe.



SO-06-C	10	6"
SO-12-C	10	12"

SPLICE - Used to connect two strips of Hydaway either vertically or horizontally.



SP-06	10	6"
SP-12	10	12"

STEP DOWN - Used to connect two strips of Hydaway on a vertical stepped foundation.



SD-06	10	6"
SD-12	10	12"

Hydraway vs. ADS, Multi-Flow, Enkaturf Drain, J-Drain, Akwa Drain

Product Comparison

Properties	Test Method	Hydraway 2000 HDPE	Advan-Edge HDPE	Multi-Flow HDPE	Enkatrain HDPE	J Drain Polystyrene	AKWA Drain Polystyrene
Core Material							
Compressive Strength	ASTM D-1621	11,400 PSF	3000 PSF	6000 PSF	1000 PSF	9500	9000
Percent of open space to allow for water "In-Flow"		71%	10.4%	3.9%**	Not published	54%	55%
Open sides for water intake for horizontal applications		Yes - both sides open	No - both sides are closed	one side open	N/A	yes	yes
Flow Rate	ASTM D4716	21 GPM/ ft. width	17 GPM/ ft. width	29 GPM/ ft. width	5.0 gal/min.ft	30	21
Size compared		12x1"	12x1"	12x1"	12x1"	12x1"	12x1"

Geo-Textile Filter

Properties	Hydraway	Advan-Edge	Multi-Flow	Enkatrain	J Drain	AKWA Drain
Weight (oz/sq yd)	4.8oz.	3.4 oz	4.0 oz	3.54 oz	unknown	unknown
Grab Tensile Strength	120 lbs.	120 lbs.	100 lbs.	125 lbs.	100 lbs.	145 lbs.
Grab Elongation	50%	60%	50%	40%	unknown	60%
Puncture Strength	65 lbs.	30 lbs.	50 lbs.	35 lbs.	65 lbs.	50 lbs.
Mullen Burst	225 psi	90 psi	200 psi	160 psi	210 psi	150 psi
Trapezoidal Tear	50 lbs.	40 lbs.	42 lbs.	40 lbs.	unknown	70 lbs.
UV Resistance	70%	70%	70%	unknown	70%	70%
Apparent Opening Size (AOS)	70	60	70	45	70	80
Permittivity	1.8 sec.	0.7sec	1.8sec	2.5 sec	unknown	1.0 sec
Permeability	0.21 cm/sec	unknown	0.1 cm/sec	unknown	unknown	0.4 cm/sec
Water Flow Rate	135	unknown	100	185	140	80
Bond to core method	Heat Fusion	not bonded	not bonded	Glue	Glue	Glue

All information is gathered directly from each manufacturer's published data sheets posted on the respective web sites

** Estimate based on measurement of an independent engineer.