



NDS®

We put water in its place

Permeable Pavers

High performance alternative to traditional paving



**Greatest Compressive
Strength in the Industry!**

Tufftrack™
Grass Paver

EZ Roll™
Grass Paver

EZ Roll™
Gravel Paver

What are Permeable Pavers?

NDS Permeable Pavers provide a high-performing alternative to traditional paving methods.

Creating a strong and durable grass or gravel surface that can support heavy vehicles, they maintain permeable surface areas, eliminating or reducing stormwater runoff.

Benefits

Stormwater Management. A sustainable solution that reduces impervious area, volume of runoff, and size of downstream BMPs.

High Structural Strength. Offering a high load bearing capacity, NDS Permeable Pavers feature hexagonal cells that connect to form a flexible grid capable of handling significant structural loads.

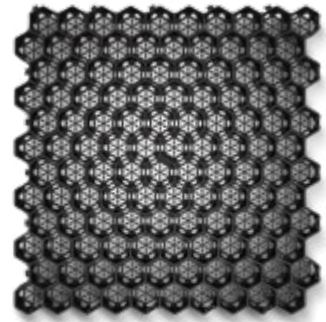
Enhanced Aesthetics. Grass or gravel surfaces blend with surrounding natural surface.

Easy Installation. EZ Roll™ Products come in large rolls that are easily placed and clipped together. Tufftrack™ features an integrated easy assemble clip that greatly reduces installation time.

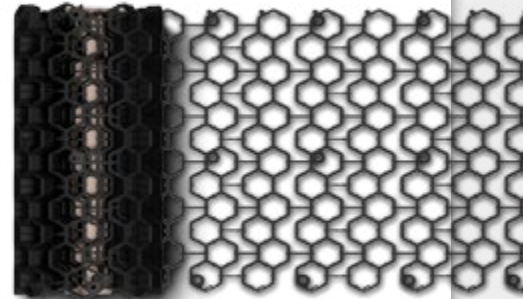
Environmentally Friendly. NDS permeable pavers can help contribute to LEED credits and are made of recycled plastic.



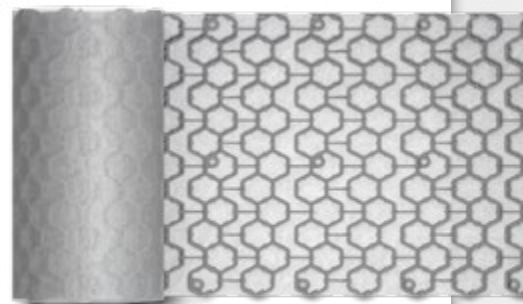
Tufftrack™
Grass Paver



EZ Roll™
Grass Paver



EZ Roll™
Gravel Paver

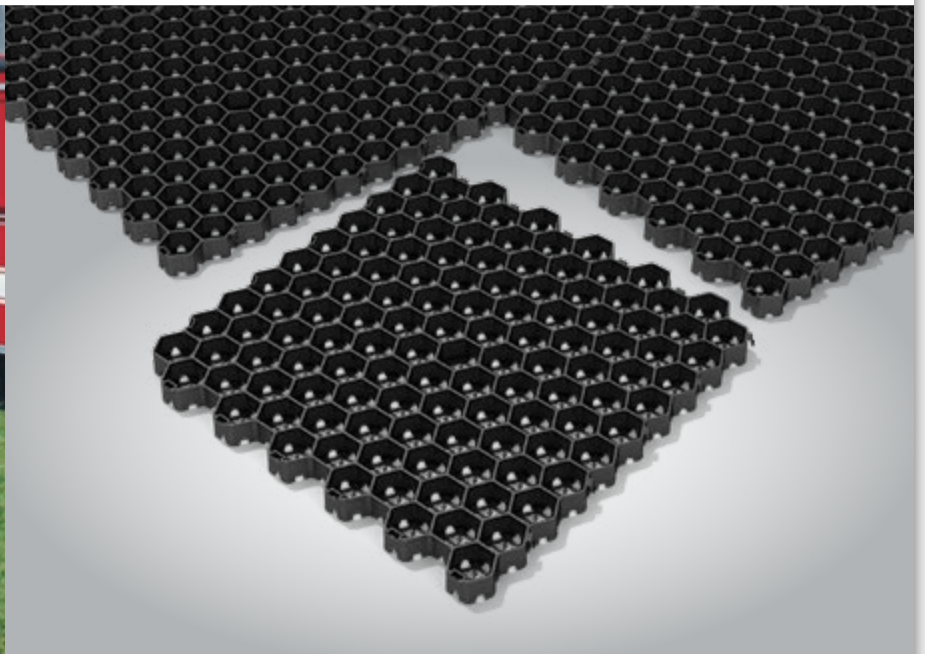


Tufftrack™ Grass Pavers

A turf reinforcement, load transferring paving system designed to be placed directly on a lightly compacted planting base which is installed over an engineer specified compacted road base.

It can also be used for light load applications without road base by simply compacting the planting base per engineer specification. This system is designed to transfer vehicle weight directly to the supportive base course and prevent soil compaction. The web of interconnected honeycomb cells provides resistance from vehicular load as well as lateral containment that prevents the soil compaction that would inhibit healthy root growth. This system also provides a porous condition that allows rapid absorption and movement of stormwater. Tufftrack Grass Pavers can be infilled with soil per specification. Tufftrack Pavers have a compressive strength of 86,563 lbs. in an empty condition; 400,000 lbs. when filled with native top soil. The Tufftrack Grass Paver system has been used and accepted across the country for a wide variety of projects including emergency vehicle access purposes.

Additional information, details, and specifications can be found at
<http://www.ndspro.com/permeable-pavers/grass-pavers/tufftrack-grass-pavers>
For further technical support or assistance, contact: techservice@ndspro.com

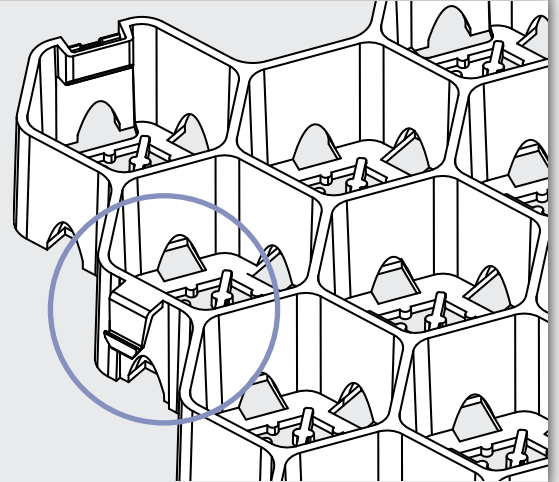


Design Theory

Tufftrack™ Grass Paver has unique Tongue and Groove clips that minimize the paver mat separation and make for quick installation

The Tufftrack™ Grass Paver's secure locking clips prevent paver displacement or mat failure that could result from traffic load movement or changing ground conditions

The Tufftrack™ system has a high compressive strength bare product, meaning that Tufftrack does not rely on the fill material for load carrying



Recommended Use

Light Loads:

Golf Cart Paths
Jogging Tracks
Bike Paths
ATV Paths
Equestrian Parks
Trail Reinforcements
Runoff Areas

Medium Loads:

Roadway Shoulders
Residential Driveways
Parking Lots
Overflow Parking Area
Truck & Cart Wash-Down Areas
RV and Boat Access

Heavy Loads/Fire Lane:

Fire Lanes
Emergency Vehicle Access Roads
Service Vehicle Utility Roads
Truck Maintenance and Equipment Yards
Construction Entrance Soil Stabilization
*Consult NDS Design Worx during design phase
when the intended use is semi trucks with trailers*

Non-load Applications:

Erosion Control on Slopes (staking recommended)
Erosion Control in Swales (staking recommended)

Not Recommended for the Following:

Traffic on slopes exceeding a 10% grade
To support tread driven vehicles



The Tufftrack™ Grass Paver from NDS is the latest and most advanced product of its type on the market. NDS has used its years of experience in the landscaping industry to create a product with all of the most desirable features.

The Tufftrack Grass Paver has a combined series of 120 nested hexagonal cells per paver cell with 12 connecting clips. This unique combination provides superior stability and durability.

Product Specifications

Material. 100% recycled Polyolefin plastic (50% pre-consumer 50% post-consumer). Polyolefin is rugged, flexible and ideally suited for outside exposure and longevity. NDS uses UV inhibitors in the polymer structure to prevent breakdown in the strength of the paver.

Manufacturing. Manufactured in the USA: Lindsay, CA.

Recyclability. 100% recyclable.
Please recycle whenever possible.

Paver Size. Each 24" x 24" x 1½" panel contains 120, 2½" nested hexagonal cells. Each cell has 6 arched cutouts at its base.

Weight Per Unit. 4.0 pounds per 24" x 24" section.

Paver Details. The top surface of the hexagonal cell walls is smooth and devoid of notches or grooves.

Assembly Mechanism. Each Paver section includes 10 sturdy Tongue and Groove locks per panel, which provide secure connection between panels.

Chemical Resistance. Tufftrack™ Pavers have superior chemical resistance and are totally inert.

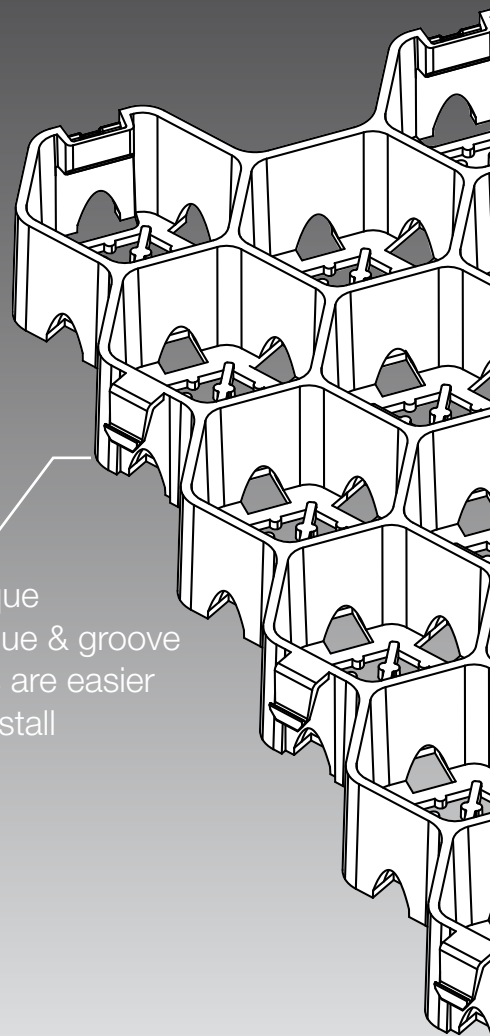
Compressive Strength (Empty Pavers): 86,563 lbs.

Compressive Strength (Native Soil filled Pavers): 400,000 lbs.

Unique Product Features. Tufftrack™ Pavers have features found in no other grass paver product in the industry. Tufftrack features a unique domed opening at the base of each hexagonal cell wall. This promotes a greater flow of water, oxygen and nutrients. Additionally, the slot opening allows root penetration to the soil below the paver and allows roots to grow between cells, promoting healthier grass. In areas where drainage is critical, Tufftrack increases water runoff capabilities. The Tongue and Groove latching system is another unique feature which provides exceptional stability, longevity, and ease of assembly.

Empty cells have compressive strength of 86,563 lbs.

Unique tongue & groove clips are easier to install



Dare to Compare

Tufftrack™ Grass Pavers are **25% STRONGER** than the competition

Compare the strength of NDS Permeable Pavers to the competition below.

Panel Pavers	Max Load Unfilled (lbs.)	Area (sq. in.)	Max Load (PSI)
NDS Tufftrack™ TT24	86,563	144	601
TrueGrid Pro Plus™	64,361	144	447
TrueGrid Eco™	53,797	144	374
Presto GEOPAVE®	35,682	144	248
Presto GEOBLOCK® 5150	35,220	144	245
AirPave Grass Paver	23,910	144	166
NDS Max load filled cells: 400,000 lbs. (soil)			

Pro Plus™ and Eco™ are trademarks of TrueGrid® Pavers. Presto GEOBLOCK® and GEOPAVE® are registered trademarks of Reynolds Presto Products, Inc.

Case Studies – Tufftrack™ Grass Pavers

Union High School Tulsa, OK

Emergency vehicle lane

When the Tulsa Independent School District prepared to open a new school, the design team needed to incorporate emergency vehicle access roads leading up to the building and athletic facilities. The Tufftrack® Grass Paver was selected for its high compressive strength of 81,744 psf and the flexibility either to sod or seed the area immediately following the 8,000 square foot installation.

Hilton Garden Inn Elk Grove, CA

Emergency access lane

An emergency access lane needed to be added along the side of the property, but due to the large width of the lane and proximity to the hotel, the owners wanted a solution that would be aesthetically pleasing as well as functional. Tufftrack® Grass Pavers were selected and installed. Twelve years later the site was revisited and inspected. The Tufftrack® base is virtually indistinguishable from the rest of the landscape. The result was, and still is, a highly functional fire lane that can be enjoyed by their guests when not in use.

Installation As Easy As 1-2-3



1

Lay it out

Lay panels out in square or offset pattern over prepared base to cover entire area



2

Clip it together

Tongue-and-groove latching system connects easily without special tools to create an integral paver mat



3

Add soil infill

Fill the cells with soil and top with sod or seed



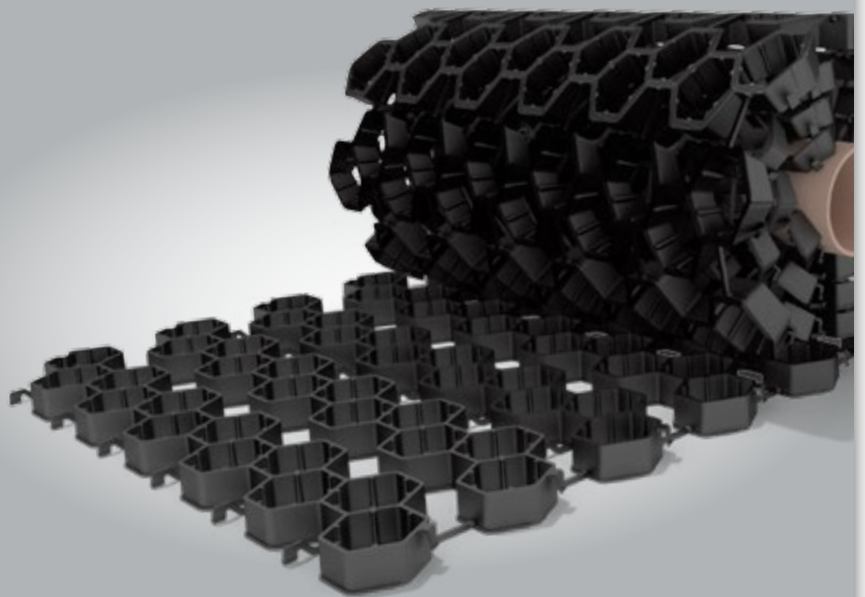
For details & installation instructions visit ndspro.com/specifications

EZ Roll™ Grass Pavers

A turf reinforcement, load transferring paving system designed to be placed directly on an engineer specified compacted road base.

This system is designed to transfer vehicle weight directly to the supportive base course and prevent soil compaction. The web of interconnected honeycomb cells provides resistance from vehicular load as well as lateral containment that prevents the soil compaction that would inhibit healthy root growth. This system also provides a porous condition that allows rapid absorption of stormwater. EZ Roll™ Grass Pavers have a compressive strength of 53,683 lbs. in an empty condition and greater than 400,000 lbs. when filled with native top soil. The EZ Roll™ Grass Paver system has been used and accepted across the country for a wide variety of projects including emergency vehicle access purposes.

Additional information, details, and specifications can be found at
<http://www.ndspro.com/permeable-pavers/grass-pavers/ez-roll-grass-pavers>
For further technical support or assistance, contact: techservice@ndspro.com

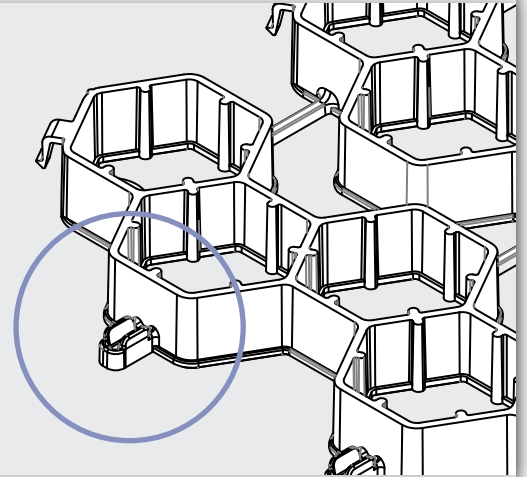


Design Theory

The EZ Roll™ Grass Paver comes in pre-assembled rolls, which means it is easy to roll out, decreasing installation time and increasing efficiency.

EZ Roll™ Grass Paver has been tested for compressive strength at 53,683 lbs. bare product, meaning that EZ Roll™ does not rely on the fill material for load carrying.

Connections between rows of EZ Roll™ are secure due to unique side-to-side and end-to-end clips that minimize the paver mat movement and separation due to lateral and horizontal pressure. These sturdy locking clips prevent paver displacement or mat failure that could result from traffic load movement or changing ground conditions.



Recommended Use

Light Loads:

- Golf Cart Paths
- Jogging Tracks
- Bike Paths
- ATV Paths
- Equestrian Parks
- Trail Reinforcements
- Runoff Areas

Medium Loads (occasional traffic):

- Roadway Shoulders
- Overflow Parking Area
- Truck & Cart Wash-Down Areas
- RV and Boat Access

Heavy Loads/Fire Lane (occasional traffic):

- Emergency Vehicle Access Roads
- Service Vehicle Utility Roads

Non-load Applications:

- Erosion Control on Slopes (staking recommended)
- Erosion Control in Swales (staking recommended)
- Semi-Trucks with Trailers

Not Recommended for the Following:

- Traffic on slopes exceeding a 10% grade
- To support tread driven vehicles
- Frequent use traffic, since grass will not have time to recover



The EZ Roll™ Grass Pavers from NDS is the latest and most advanced product of its type on the market. NDS has used its years of experience in the landscaping industry to create a product with all of the most desirable features.

Product Specifications

Material. 100% recycled HDPE plastic (50% pre-consumer 50% post-consumer). HDPE is rugged, flexible and ideally suited for outside exposure and longevity. NDS uses UV inhibitors in the polymer structure to prevent breakdown in the strength of the paver.

Manufacturing. Manufactured in Lindsay, CA.

Recyclability. 100% recyclable. Please recycle whenever possible.

Paver Size. Each 24" x 24" panel contains 72, 2 1/4" nested hexagonal cells. Panels are integrated with crosslinks and clips to form rolls. Part No. EZ4X24 has dimensions of 4' x 24' per roll and EZ4X150 has dimensions of 4' x 150'. Custom size rolls available upon request.

Paver Details. The top surface of the hexagonal cell walls is smooth and devoid of notches or grooves. The bottom surface of the paver mat has over 80% open area for increased permeability.

Chemical Resistance. EZ Roll™ Pavers have superior chemical resistance and are totally inert.

Compressive Strength (Empty Cells). 53,683 lbs.

Compressive Strength (Native Soil filled Pavers): 400,000 lbs.

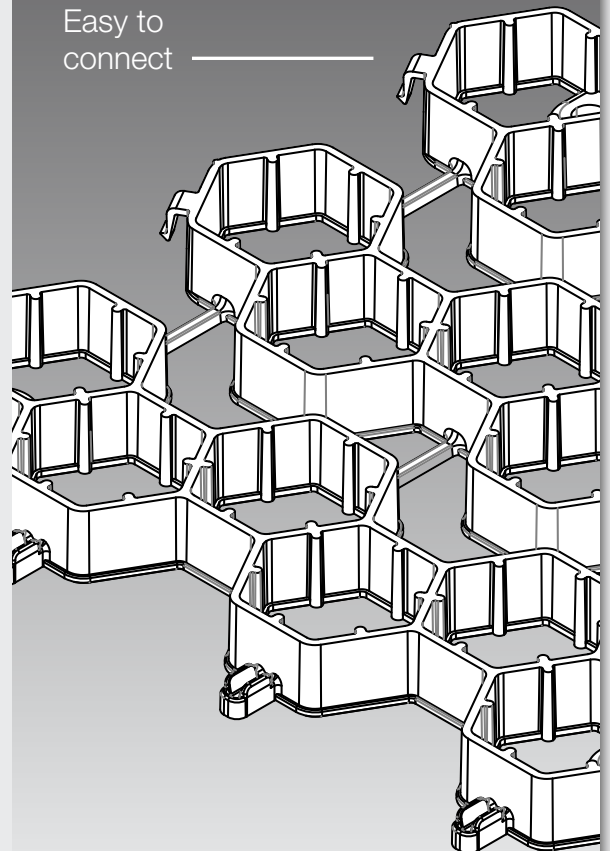
Unique Product Features. EZ Roll™ Pavers feature an easy to install top down locking feature. This locking mechanism allows pavers to be installed quickly and easily.

Empty cells have a
compressive strength of

53,683 lbs.

Product ships in large rolls
for easy rollout

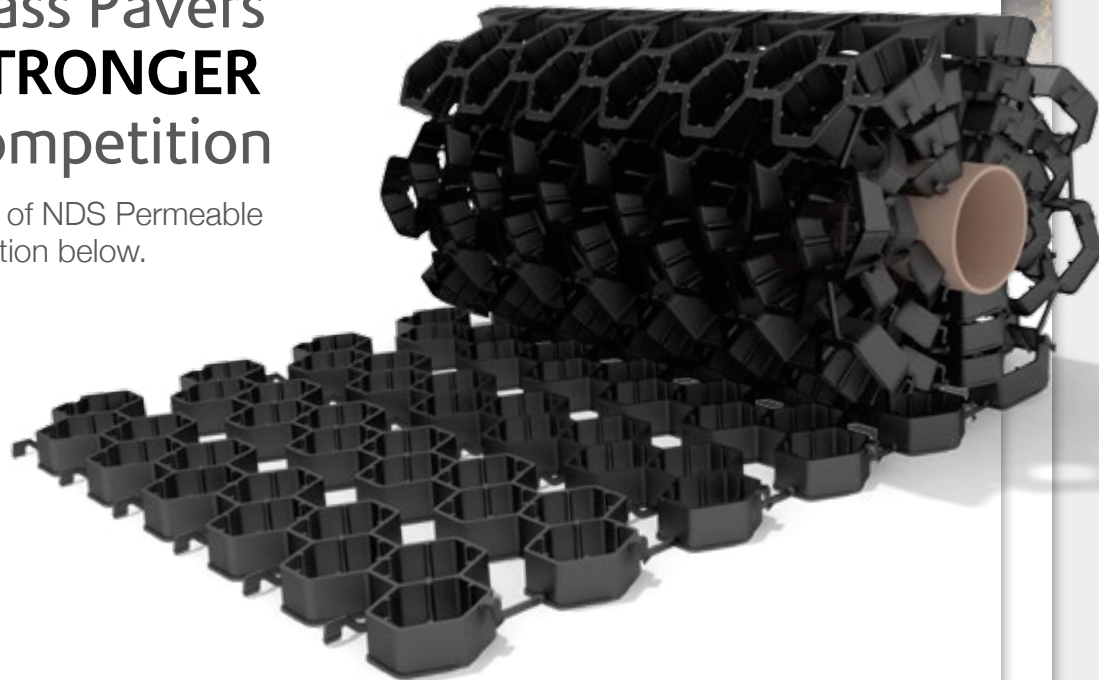
Easy to
connect



Dare to Compare

EZ Roll™ Grass Pavers are **25% STRONGER** than the competition

Compare the strength of NDS Permeable Pavers to the competition below.



Roll Pavers	Max Load Unfilled (lbs.)	Area (sq. in.)	Max Load (PSI)
NDS EZ Roll™	53,683	144	373
ISI GrassPave²	40,623	144	282

NDS Max load for soil-filled cells is 400,000 lbs.

ISI GrassPave² is a registered trademark of Invisible Structures Inc.

Case Studies – EZ Roll™ Grass Pavers

Trump Taj Mahal Casino Resort Atlantic City, NJ

Fire lane and maintenance access

Access to the building facade was needed for maintenance and to allow access for emergency vehicles. EZ Roll™ was chosen for its strength and flexibility, but also for its aesthetic advantages. The ability to sod directly on top of the product reduced the time needed to seed and wait for growth, while keeping up appearances at the busy casino.

Keller High School White Settlement, TX

Overflow parking

A new school needed additional parking for their football program and looked to convert a former cow pasture they owned across the street. The solution had to be aesthetically pleasing, cost-effective and demonstrate to the community an ongoing commitment to supporting the environment. The 150,000 sq. ft. project was installed in just 10 days.

Installation As Easy As 1-2-3



1

Roll it out

Manufactured in pre-assembled rolls for fast and easy installation over prepared base



2

Clip it together

Lateral snap-lock system allows rolls to be connected without any special tools



3

Use suitable soil infill and top with sod or seed per local standards



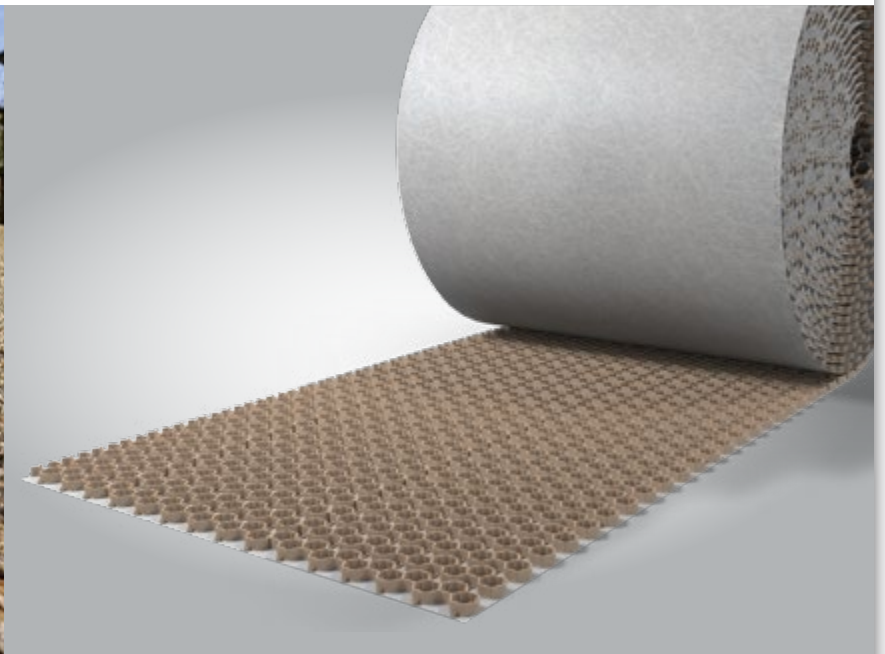
For details & installation instructions visit ndspro.com/specifications

EZ Roll™ Gravel Pavers

A turf reinforcement, load transferring paving system designed to be placed directly on an engineer specified compacted road base.

This system is designed to transfer vehicle weight directly to the supportive base course and prevent soil compaction. The web of interconnected honeycomb cells provides resistance from vehicular load as well as lateral containment that prevents soil compaction. This system also provides a porous condition that allows rapid absorption of stormwater. EZ Roll™ Gravel Pavers have a compressive strength of 53,683 lbs. in an empty condition and greater than 500,000 lbs. when filled with gravel. The EZ Roll™ Gravel Paver system has been used and accepted across the country for a wide variety of projects including emergency vehicle access purposes.

Additional information, details, and specifications can be found at
<http://www.ndspro.com/permeable-pavers/Gravel-pavers/ez-roll-gravel-pavers>
For further technical support or assistance, contact: techservice@ndspro.com

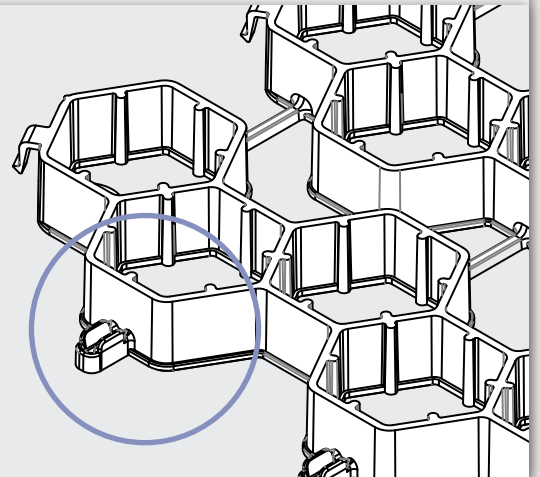


Design Theory

The EZ Roll™ Gravel Paver comes in pre-assembled rolls, which means it is easy to roll out, decreasing installation time and increasing efficiency.

EZ Roll™ Gravel has been tested for compressive strength at 53,683 lbs. bare product, meaning that EZ Roll™ does not rely on the fill material for load carrying.

Connections between rows of EZ Roll™ are secure due to unique side-to-side and end-to-end clips that minimize the paver mat movement and separation due to lateral and horizontal pressure. These sturdy locking clips prevent paver displacement or mat failure that could result from traffic load movement or changing ground conditions.



Recommended Use

Light Loads:

Golf Cart Paths
Jogging Tracks
Bike Paths
ATV Paths
Equestrian Parks
Trail Reinforcements

Medium Loads:

Roadway Shoulders
Residential Driveways
Parking Lots
Overflow Parking Area
Truck & Cart Wash-Down Areas
RV and Boat Access

Heavy Loads/Fire Lane:

Emergency Vehicle Access Roads
Service Vehicle Utility Roads
Equipment Yards

*Consult NDS Design Worx during design phase
when the intended use is semi trucks with trailers*

Non-load Applications:

Erosion Control on Slopes (staking recommended)
Erosion Control in Swales (staking recommended)

Not Recommended for the Following:

Traffic on slopes exceeding a 10% grade
To support tread driven vehicles



The EZ Roll™ Gravel Pavers from NDS is the latest and most advanced product of its type on the market. NDS has used its years of experience in the landscaping industry to create a product with all of the most desirable features.

Product Specifications

Material. 100% recycled HDPE plastic (50% pre-consumer 50% post-consumer). HDPE is rugged, flexible and ideally suited for outside exposure and longevity. NDS uses UV inhibitors in the polymer structure to prevent breakdown in the strength of the paver.

Color. EZ Roll™ Gravel is available in tan, black, brick red, and gray to provide design flexibility.

Manufacturing. Manufactured in Lindsay, CA.

Recyclability. 100% recyclable. Please recycle whenever possible.

Paver Size. Panels are integrated with crosslinks and clips to form rolls. Part No. EZ4X150 has dimensions of 4' x 150' per roll. Custom size rolls available upon request.

Paver Details. The top surface of the hexagonal cell walls is smooth and devoid of notches or grooves. The bottom surface of the paver mat has over 80% open area for increased permeability.

Chemical Resistance. EZ Roll™ Pavers have superior chemical resistance and are totally inert.

Compressive Strength (Empty Cells): 53,683 lbs.

Compressive Strength (Gravel-Filled Pavers): 500,000 lbs.

Unique Product Features. EZ Roll™ Pavers feature an easy to install top down locking feature. This locking mechanism allows pavers to be installed quickly and easily.

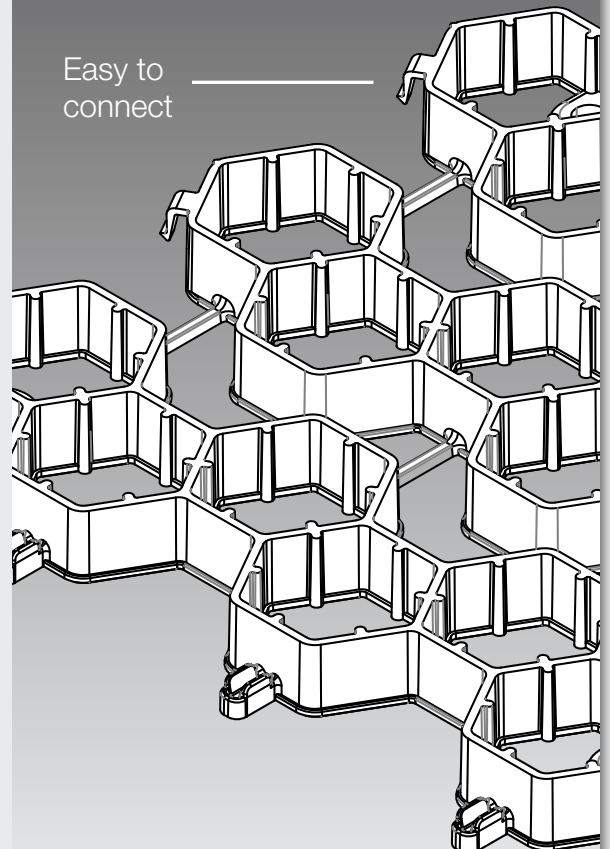
Our fabric is fused to the paver using a proprietary heat-and-pressure-fusion process that is permanent!

Empty cells have a compressive strength of

53,683 lbs.

Product ships in large rolls for easy rollout

Easy to connect



Dare to Compare

EZ Roll™ Gravel Pavers are **25% STRONGER** than the competition

Compare the strength of NDS Permeable Pavers to the competition below.



Roll Pavers	Max Load Unfilled (lbs.)	Area (sq. in.)	Max Load (PSI)
NDS EZ Roll™	53,683	144	373
ISI GravelPave²	35,682	144	248

NDS Max load for gravel-filled cells is 500,000 lbs.

ISI GravelPave² is a registered trademark of Invisible Structures Inc.

Case Studies – EZ Roll™ Gravel Pavers

Dallas Arboretum Dallas, Texas

Daily parking

The arboretum is a high-profile facility in Dallas that generates critical tourism and income to the area. The busy arboretum needed additional parking to accommodate a predicted rise in traffic volume over the next decade and wanted something that would blend in with the natural surroundings while handling heavy amounts of traffic. They also wanted a permeable solution that could mitigate stormwater runoff. EZ Roll™ Gravel pavers were selected for their strength, durability and ease of installation. The project was completed in two phases totaling 185,000 square feet.

Gastonia Readiness Center Gastonia, NC

Parking and heavy vehicle access

An Army facility, the Gastonia Readiness Center was adding two separate buildings for soldiers and equipment along with a new parking lot for forty vehicles. The new 16,000 sq. ft. lot needed to supply daily parking, but also function as an emergency access lane capable of supporting the weight of National Guard military vehicles. EZ Roll™ Gravel was selected for its strength, permeability and overall aesthetics.

Installation As Easy As 1-2-3



1

Roll it out

Manufactured in pre-assembled rolls for fast and easy installation over prepared base



2

Clip it together

Lateral snap-lock system allows rolls to be connected without any special tools



3

Fill with gravel

Use clean gravel that is uniform in size, 3/8" angular stones work best



For details & installation instructions visit [ndspro.com/specifications](https://www.ndspro.com/specifications)

EZ Roll™ and Tufftrack™ Pavers can be used in a number of categories that contribute points to LEED certification according to LEED v3.

Category: Sustainable Sites

Credit 5.1 Site Development – Protect or Restore Habitat (1 credit):

Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

- To attain this credit, all site disturbances during construction must be limited to within a certain distance from the building perimeter. Use of EZ Roll™ and Tufftrack™ extends the allowed area of site disturbance from 10 ft. to 25 ft., thus providing more area to work during construction.
- EZ Roll™ and Tufftrack™ seeded with native plants in place of asphalt or other non-pervious surfaces will contribute to the overall percentage of habitat restored.
- For projects that qualify for 5.2 (below), use of EZ Roll™ and Tufftrack™ Pavers on a vegetated roof with native or adapted plants can contribute to overall percentage of habitat restored or protected.

Credit 5.2 Site Development – Maximize Open Space (1 credit):

Provide a high ratio of open space to development footprint to promote biodiversity.

- Application of EZ Roll™ and Tufftrack™ provides vegetated open space that will contribute to the open space requirements.
- Use of EZ Roll™ and Tufftrack™ on a vegetated roof can contribute to credit compliance.

Credit 6.1 Stormwater Design – Quantity Control (1 credit):

Limit disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff, and eliminating contaminants.

- EZ Roll™ and Tufftrack™ can be utilized as part of a stormwater management plan as it reduces impervious cover, increases on-site infiltration, and reduces pollution from stormwater runoff.
- EZ Roll™ and Tufftrack™ can be used to maintain a vegetated roof, which will minimize impervious surface area onsite.

Credit 6.2 Stormwater Design – Quality Control (1 credit):

To limit disruption and pollution of natural water flows by managing stormwater runoff.

- EZ Roll™ and Tufftrack™ can be utilized as part of a stormwater management plan as it reduces impervious cover, increases on-site infiltration, and reduces pollution from stormwater runoff.

Credit 7.1 Heat Island Effect – Nonroof (1 credit):

To reduce heat islands to minimize impacts on microclimates and human and wildlife habitats.

- As open grid pavement systems, the use of EZ Roll™ and Tufftrack™ reduces heat absorption and contributes to the overall hardscaped area calculation for this credit.

Credit 7.2 Heat Island Effect – Roof (1 credit):

To reduce heat islands to minimize impacts on microclimates and human and wildlife habitats.

- EZ Roll™ and Tufftrack™ utilized on a vegetated roof can reduce heat absorption.

Category: Materials and Resources

Credit 4.1 Recycled Content: 10% (post-consumer + ½ pre-consumer) (1 credit):

Increase demand for the building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

- EZ Roll™ and Tufftrack™ is made from 100% recycled HPPE (approximate blend is 50% post-consumer, 50% pre-consumer material). Utilization of this product will increase the proportion of materials used on site that are recycled, and can contribute towards attainment of this credit.

Credit 4.2 Recycled Content: 20% (post-consumer + ½ pre-consumer) (1 credit):

Increase demand for the building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

- As cited in credit 4.1 (above), utilizing EZ Roll™ and Tufftrack™ can contribute to the attainment of this credit, if used in a larger proportion on site relative to the proportion of materials that are not recycled.

NOTES

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Permeable Pavers

Reinforced Turf & Gravel Systems

High Performing. Proven Durability. Easy Installation.

Tufftrack™
Grass Paver



EZ Roll™
Grass Paver



EZ Roll™
Gravel Paver

