

STORMWATER'S ARCH ENEMY

MAINTENANCE MANUAL

The PaveDrain® System is a one of a kind paving surface that takes all of the positive attributes of traditional paving surfaces and puts them together into one single permeable paving surface.

FLEXIBLE PAVING SURFACE

- Our cracks are built into the surface...no costly or environmentally harmful tar sealing is required.

PERMEABLE PAVING SURFACE

- Let the stormwater infiltrate like Mother Nature intended.

INTERNAL STORAGE CHAMBER FOR STORMWATER MANAGEMENT

- Up to one inch of additional stormwater is held in the arch.

REPLACEABLE UNITS

- Minimal labor, minimal equipment...quick, cheap repairs.

MINIMAL MAINTENANCE

- PaveDrain Vac Head; Safe, economical, effective combination sewer truck option.
- Elgin Whirlwind or Megawind Vacuum Trucks; quick, no manual labor option.
- System removal. Although unlikely, it is an option.

Questions & Answers

Q: How often should the PaveDrain System be completely cleaned or maintained?

A: This will depend on the project. Following the initial installation, the PaveDrain System should be checked monthly to assess the amount of infiltration still occurring. Ideally, the visual inspection should occur during a rain event. A residential or urban setting with a significant amount of debris may need to be checked more frequently in order to properly determine an appropriate maintenance schedule.

The TWO BEST maintenance options to clean the PaveDrain System are to use either the PaveDrain VAC Head or an Elgin Whirlwind or Megawind vacuum truck.

The PaveDrain VAC Heads are available from local distribution.

<http://www.pavedrain.com/pdf/PaveDrian-Sales-Distribution-Partners.pdf>

A video of the PaveDrain VAC Head in action is available online.

<http://www.youtube.com/watch?v=I2U-4xsy3wo>

Unlike other permeable systems, even if maintenance is not regularly carried out, the PaveDrain System can be back in working order with the use of the VAC Head or Elgin Whirlwind or Megawind Vacuum Trucks.



Combination Sewer Truck with 1,500 gallon water tank



- 36" diameter deck with (2) 15" wands
- (2) 15" wands with (8) nozzles
- Continuous suction up to 2,500 CFM
- Up to 2,000 psi water displacement
- 30" angled suction port

- VAC Head weight is under 50 lbs
- Swivel handle for ease of moving
- (2) Swivels wheels on front of head
- (2) Rigid wheels on rear of head
- Hard rubber debris guard around deck



BEFORE



AFTER



Two years of stormwater runoff from adjacent asphalt, mulched flower beds, flowering trees and residential lawns.

Vac Head Attachment



1. 36" diameter circular deck (maximum 2,500 cfm).
2. Green Carrying Handles.
3. Cotter Pins for attaching removable handle.
4. 30" Angled suction port located on underside of circular deck (maximum 2,500 cfm).
5. 6" diameter hose attachment (maximum 2,500 cfm).
6. Water hose connection manifold (maximum 2,000 psi).
7. (2) - Rigid solid rubber wheels.
8. Hard Rubber debris guard.
9. (2) - wands with 8 nozzles located on underside of circular deck (maximum 2,000 psi).
10. (2) - 360° Swivel solid rubber wheels.



ELGIN

Whirlwind or Megawind Vacuum Trucks

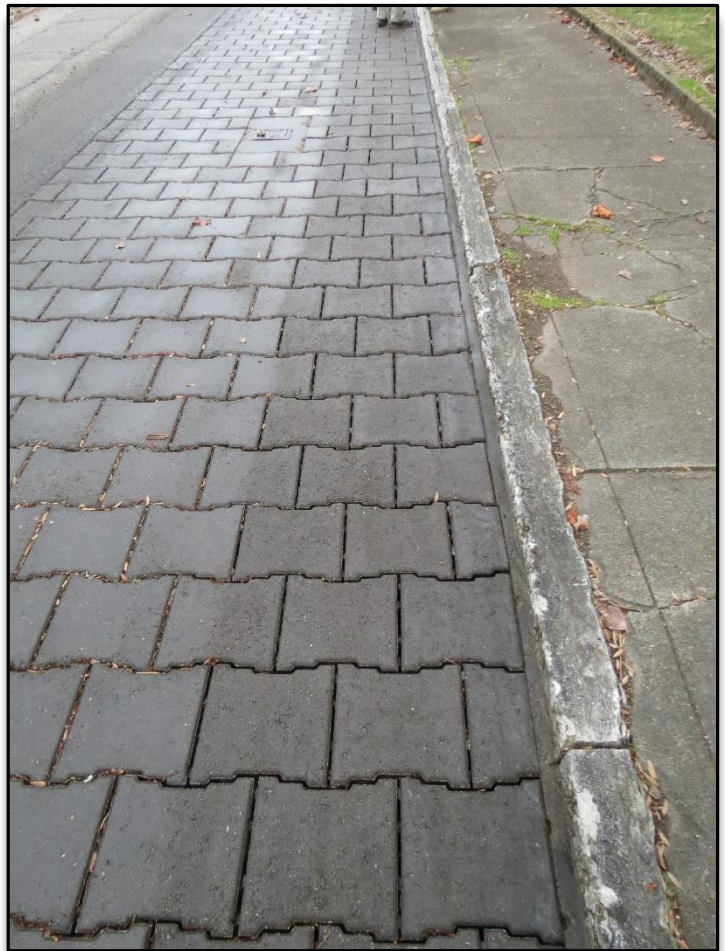
- John Deere 4045T Tier 4 Final engine
- 4 cylinder, turbo-charged diesel
- 8 cubic yard debris hopper
- Push button hydraulic dumping controls
- 335 gallon water tank capacity



- 32" Vacuum nozzle on passenger side
- Optional (2) vacuum can be added to the driver's side of truck
- Continuous suction up to 20,000 CFM
- (2) Nozzles reduces CFM to 10,000 each
- Standard sweeper broom attached
- Additional suction boom on rear of truck. VAC Head can be attached for detail cleaning.

Available Enhancements

- Complete **PaveDrain VAC Head**
- Front spray bar
- Spray bar mounted at front of vacuum
- LifeLiner® Hopper System
- Upgrade to 10 cubic yard hopper
- Stainless steel hopper
- Aux. lighting packages
- In-cab side broom tilt
- Variable broom speed
- Wandering hose 8" diameter
- Auxiliary hydraulic system
- Auto lubrication system
- Hopper inspection door(s)
- Hopper deluge washout system
- Hopper drain
- High/low pressure wash-down
- Aux. water tank capacities
- Extended warranty



The 32" suction path is visible on the surface of the PaveDrain System after one pass of the Whirlwind.

BEFORE



AFTER



Just one pass of an Elgin Whirlwind Vacuum Truck over the PaveDrain System filled with mulch and road debris.

Q: How do I know when to clean the PaveDrain System?

A: The PaveDrain® system is unlike any other permeable system. The PaveDrain system can “tell” you when it needs maintenance even when it is NOT raining. A simple visual inspection can be accomplished by walking on it and determining if the joints are filled with debris.

1. Visual inspection to see if the joints between the PaveDrain Blocks are filled with debris (see photo 1 & 2 below).

NOTE: If you have a 5,000 square foot installation and if 50% (approx. 2,500 SF) of the joints between the PaveDrain blocks are filled with debris. It is time to schedule a cleaning.

Photo 1 – PaveDrain needs to be maintained



Photo 2 – PaveDrain following maintenance



2. Inserting a ruler between the joints of the PaveDrain system can help you determine the depth of debris between the PaveDrain blocks.

NOTE: A PaveDrain block is 5.65” thick. If the ruler only goes down 2 inches in 50% of the area covered with the PaveDrain System. It is time for a cleaning. Checking various spots within a PaveDrain installation is recommended.



The last resort for maintenance of the PaveDrain System is the removal of the blocks/mats and the subsequent cleaning of the aggregate layer. Once cleaned, then everything is re-installed as a sustainable stormwater solution.



Q: Can the PaveDrain System be snow plowed with steel snow plow blade?

A: Yes. However, it should be noted that the edges of the block may be scored or slightly damaged by a steel blade (see below).



*In order to minimize any surface damage to a PaveDrain block, the recommended snow plowing method would be with a rubber tipped snow blade. The following is an excerpt from a popular rubber snow blade provider. **NOT AN ENDORSEMENT***

www.plowrubber.com

Long Lasting: Our rubber snowplow edges are made of a tough, resilient rubber compound that shows very little wear after many hours of use. They can outlast steel edges many times. No Gouging: Rubber edges easily adjust to irregular road surfaces & pavement markers-without gouging. Rubber edges save you costly repairs to submerged lighting and surfaces such as cobblestone and brick.

Q: Should the PaveDrain System be sealed?

A: A sealant is not discouraged, but it's not mandatory. A sealant is an economical way to assist the PaveDrain System to resist the damage caused by salting of adjacent hardscape surfaces. Sealing of the PaveDrain System will increase the longevity. Contact your local hardscapes dealer or block manufacturer for all of the available brands.

IF YOUR TOWN, CITY OR STATE USES SALT.....SEAL THE PAVEDRAIN BLOCK!!!

Q: Should the PaveDrain System be salted or sanded?

A: A light salting is preferred over sanding. Covering the PaveDrain surface with a heavy dose of salting is not recommended. Salting is hard on everything, sanding will help with traction but also has the adverse effect of washing the sand between the open joints and into the base material. This will decrease the infiltration performance of the entire system. Of note, it will take years, if not decades, to show any decreased drainage performance to the PaveDrain System's aggregate bedding layer in typical parking lot applications.

Pre-wetting salt has become common. Wetting provides moisture to make brine. Faster melting action may occur. In addition, the wet salt has less of a tendency to bounce off the surface during spreading or by traffic, thereby saving money.

While any liquid de-icing chemical can be used to pre-wet, liquid calcium chloride is used widely. Applications of 6-10 gallons per cubic yard of salt are recommended. Calcium chloride has the added advantage of producing extra melting due to its effectiveness.

NOTE: NO MATTER HOW MUCH CARE IS TAKEN...ICE AND SLIPPING IS ALWAYS A POSSIBILITY!

Q: Can an individual PaveDrain Block be replaced?

A: *If a PaveDrain block breaks under a hard, sharp pressure or sudden impact it is easy to replace the single block without having to pull out any of the adjacent blocks or the entire mattress (if your installation method was mats). Follow one of these Two Methods to repair a single block.*

Method 1: PaveDrain Extractor

Step 1

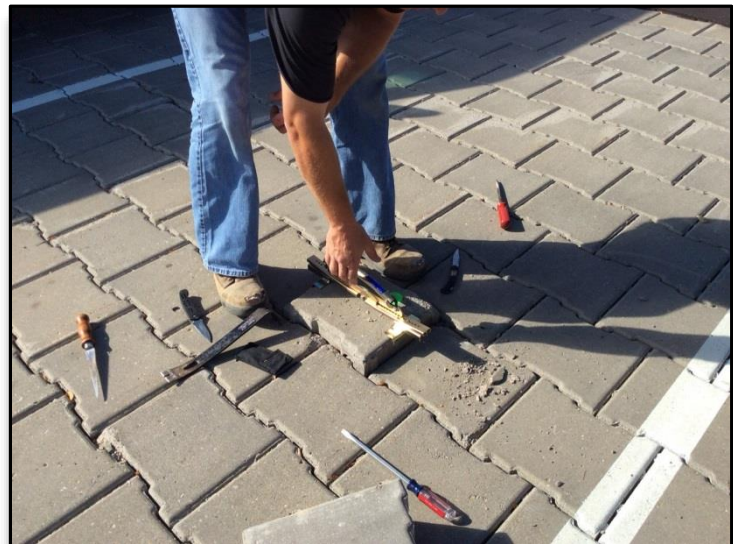
Cut the (2) cables on each side of the PaveDrain block using a thin, rigid knife. A hand-held reciprocating saw with a thin, rigid metal blade can also be used.



***The Polyester cables (as shown in Step 1 above) can be cut and removed. It will not affect the performance of the PaveDrain system.*

Step 2

Adjust the PaveDrain Extractor so that it will pick from the two flat sides of a PaveDrain block. Pull and move handle of extractor back and forth to remove damaged block.



Once the damaged block is removed, debris should be cleaned out of area. Use the PaveDrain extractor to install the new block.



Method 2: Break out the Block

Step 1



Break out the block using a 3 lbs. hammer, being careful not to damage any of the adjacent blocks. It is best to start in the middle of the block and work your way out. A concrete masonry chisel can help as well.

Step 2



Break out the block using a 3 lbs. hammer, being careful not to damage any of the adjacent blocks. It is best to start in the middle of the block and work your way out. A concrete masonry chisel can help as well.

***The Polyester cables (as shown in Step 1 above) can be cut and removed. It will not affect the performance of the PaveDrain system.*

Step 3



Now that the damaged block is fully removed, you are ready to install the new block. Line up the replacement block to fit the hole where the old block was.

Step 4



Slide the new block down into place. You may use a rubber mallet to tamp it down securely at the edges, be sure not to damage the new block by using your 3 lbs. hammer!

Please go to www.pavedrain.com and review the Maintenance Video located under the “Media” section or the “Installation and Maintenance” section of the site.

There are also many informative PaveDrain videos at https://www.youtube.com/results?search_query=pavedrain