



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 PERMEABLE PAVING SURFACE

- Open joint concept between the blocks. No costly re-filling of the joints with rock or harmful tar sealant.

MAINTENANCE QUESTIONS & ANSWERS

- PaveDrain Vac Head; Safe, economical, effective
- Vacuum Trucks; Minimal manual labor
- SALT & SNOW PLOWING RECOMMENDATIONS
- Sealing of the PaveDrain System

REPLACEABLE UNITS

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

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 street 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.
<https://www.pavedrain.com/sales-distribution/>

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

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. (4) - wands with 3 nozzles located on underside of circular deck (maximum 2,000 psi).
10. (2) - 360° Swivel solid rubber wheels.



- 36" diameter deck with (4) 15" wands
- (4) 15" wands with (3) 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.



Vacuum Trucks

SHOWN Left and Below

ELGIN

Whirlwind® or
Megawind®

Vacuum Trucks

*NOTE: This is a VACUUM truck
NOT Regenerative Air*

- 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



**PRE-WETTING OF THE DEBRIS WILL HELP IN THE
VACUUMING PROCESS.**



- 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.

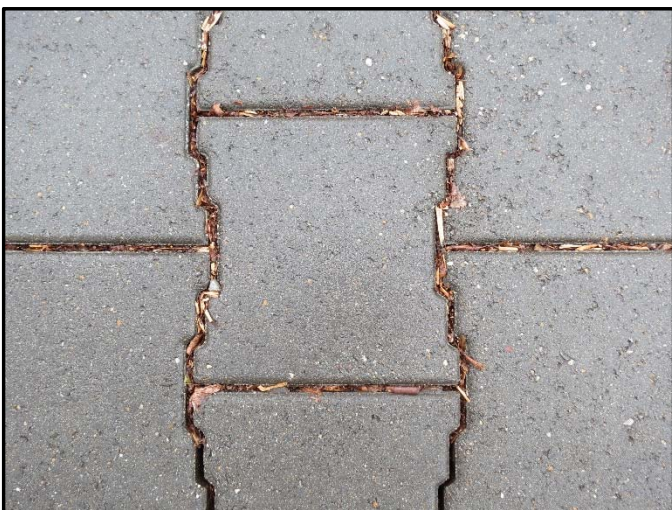
Available Enhancements

- 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.

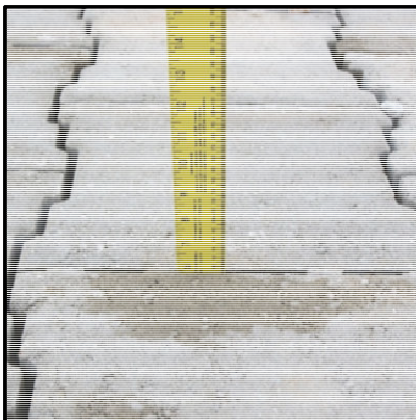
Photo 1 – PaveDrain needs to be maintained



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” in 50% of the area covered with the PaveDrain System. It is time for a cleaning. Checking various spots within a PaveDrain installation is always recommended.



Q: Should the PaveDrain System be salted or sanded?

A: *Sanding is preferred over salt.* Covering the PaveDrain surface with a heavy dose of salt is **NOT** recommended. ***Salt is hard on virtually 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. Which may lead to increased maintenance costs (i.e. vacuuming out the joints). Over time, this may decrease the infiltration performance of the entire system.

Pre-wetting salt or liquid calcium chloride has become common. Wetting provides moisture to make brine. Although this may be good for traditional surfaces (i.e. concrete & asphalt), this is hard on permeable surfaces, such as the PaveDrain system.

Q: What is the recommended method for snow plowing PaveDrain?

A: In order to minimize surface damage to the PaveDrain system, the recommended snow plowing method would be with a rubber tipped or polyethylene snow plow blade.

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.



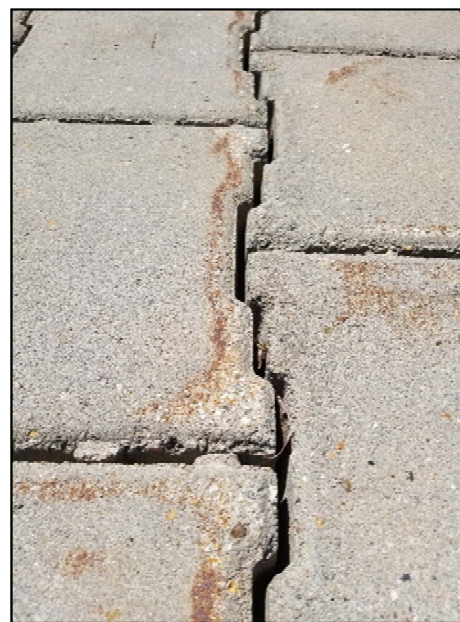
Q: Can the PaveDrain System be snow plowed with a steel snow plow blade?

*A: Accidents do happen. Once or twice...yes. **However**, it should be noted that the edges and tops of the blocks may be scored or damaged by a steel snow plow blade (SEE BELOW). An individual PaveDrain block will not be “flipped” or “kicked out” from being struck by a snow plow blade. To prevent damage during the winter snow plowing operations from standard steel snow plow blades, it is recommended to float the steel blade 1/4-1/2” above the PaveDrain system to avoid damaging the edges of the PaveDrain blocks that MAY be sticking up due to the variances in subgrade preparation. (A rubber edge blade for plowing fixes this!) Many municipalities already float the blades on their traditional concrete and asphalt streets to protect their steel blades and roadway infrastructure. Winter care, if done improperly, typically has the greatest impact to the life of the system.*

Steel Snow Plow Damage



Rust marks from steel snow blades



NOTE: NO MATTER HOW MUCH CARE IS TAKEN...ICE AND SLIPPING IS ALWAYS A POSSIBILITY! (SEE **HEATED** PaveDrain...!) PaveDrain, LLC and it's manufacturing, distribution and licensed partners can NOT be held liable in a slip or fall situation.

Q: Should the PaveDrain System be sealed?

A1: IF YOUR TOWN, CITY OR STATE USES SALT...SEAL THE PAVEDRAIN BLOCK!!!

A2: This depends on the climate. A sealant is **REQUIRED** in salty, northern environments. A sealant is an economical way to assist the PaveDrain system to resist the damages caused by salt. Sealing of the PaveDrain system will increase its longevity. Contact your local hardscapes dealer or block manufacturer for all of the available brands. (EXAMPLE – MasterProtect® H 400 by BASF)

For warmer climates it is strongly recommended to seal the PaveDrain system on projects utilizing **colored** blocks (i.e. Charcoal, Rose Brown,. etc.)

*The PaveDrain system can be sealed **AFTER** it has been installed. Due to its open joint design, the PaveDrain system will remain permeable **AFTER** a sealant has been applied if the joints are open and free of debris. (Excess sealant will simply run down the sides of the PaveDrain Blocks). The PaveDrain system can be sealed with a boom sprayer or any other hand or mechanical applicator for ease of installation.*

Sealant being applied on PaveDrain via Sprayer



Close up immediately following sealant



NOTE: It is strongly recommended to vacuum/clean the PaveDrain system prior to applying a sealant.

NEXT – REPAIRING BROKEN BLOCKS OR DAMAGED SUBGRADE

Q: Can an individual PaveDrain Block be replaced?

A: If a PaveDrain block breaks 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 this method to repair a single block.

Method 1: PaveDrain Extractor

Step 1

You may have to clean the joints between the PaveDrain block for removal. Even the smallest rock can make removal almost impossible.



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.



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 5 lb dead blow hammer!

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

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