

## **AGREEMENT FOR STORM WATER SYSTEM MAINTENANCE**

This agreement is made on February 25, 2015, by AMERCO Real Estate Company, (“Developer”) a Nevada Corporation whose address is 2727 N Central Ave., Phoenix, Arizona 85004, and the CITY OF ROCHESTER HILLS (the “City”), whose address is 1000 Rochester Hills Drive, Rochester Hills, MI 48309.

WHEREAS, Developer owns and proposes to develop the Property described in attached Exhibit A; and

WHEREAS, the proposed development of the Property will alter the natural flow of surface and storm water drainage; and

WHEREAS, Developer has proposed, and the City has approved, a storm water drainage system (the “System”) comprised of storm sewer pipe and permeable pavers, and overflow inlets for the Property as described in Exhibit A and in the Plan attached as Exhibit B; and

WHEREAS, the parties will benefit from the proper operation, use and maintenance of the System and enter into this agreement to provide for the same

THEREFORE, the parties agree:

### **1. Use of the System:**

Components of the System, including any and all water conveyance, storm sewer pipe, permeable pavers and overflow inlets, shall be used solely for the purpose of conveying, detaining and treating storm and surface drainage on the property until such time as (i) The City determines and notifies Developer or Developer’s successors, grantees or assigns, in writing, that is no longer necessary to convey, detain, or treat the storm and surface drainage; and (ii) An adequate alternative for conveying, detaining, and treating storm and surface drainage has been provided which is acceptable to the City and which includes the granting of any easements to the City or third parties as may be required or necessary for the alternative drainage system.

**2. Maintenance:**

A. Developer shall be responsible for the proper maintenance, repair, and replacement of the System and all parts thereof as detailed in the Maintenance Plan attached as Exhibit C

B. Proper maintenance of the System shall include, but it not limited to (i) Removing accumulated sediment, trash, and debris from the inlets and pipes; (ii) Managing deleterious vegetative growth; (iii) Maintaining storm sewer, structures, and overflow features, (iv) Controlling the effects of erosion, (v) Inspection of inlet and outlet pipes for structural integrity, (vi) Inspection and cleaning of the permeable pavers; (vii) Any other maintenance that is reasonable and necessary to facilitate and continue the proper operation and use of the System

**3. Action by City:**

If at any time, Developer or Developer's successors, grantees or assigns neglect or fail to properly maintain the System or any part thereof, the City may notify Developer or Developer's successors, grantees, or assigns. The notice shall be in writing and shall list and describe maintenance deficiencies and demand that they be corrected within thirty (30) days

The notice shall further specify a date and place for hearing to be held at least fourteen (14) days after the date of the notice before the City Council, or such other board or official as the City Council designate. At the hearing, the City Council (or other designated board or official) may affirm or modify the list and description of maintenance deficiencies and, for good cause shown, may extend the time for the deficiencies to be corrected

Thereafter, if the maintenance deficiencies are not corrected within the time allowed, the City may undertake the necessary corrective actions, and the City may maintain the System for up to one (1) year. Such maintenance of the System by the City shall not be construed to be a trespass or a taking of the Property, nor shall the City's actions vest in the public any right to enter or use the Property. Thereafter, if Developer or Developer's successors, grantees or assigns do not properly maintain the System, the City may, after providing similar written notice, schedule and hold another hearing to determine whether the City should maintain the System for another year, and subject to similar notice, hearing and determination in subsequent years

In the event the City determines an emergency condition caused by or relating to the System threatens the public health, safety or general welfare, the City shall have the right to immediately and without notice enter the Property and undertake appropriate corrective action.



**7. Recording of Agreement:**

This agreement shall be recorded at the Oakland County Register of Deeds.

AMERCO Real Estate Company

By *Carlos Vizcarra*  
Carlos Vizcarra, President

CITY OF ROCHESTER HILLS

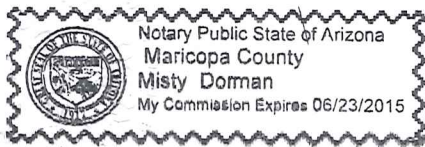
By \_\_\_\_\_  
Bryan K Barnett, Mayor

By \_\_\_\_\_  
Tina Barton, Clerk

STATE OF ARIZONA  
COUNTY OF MARICOPA

This agreement was acknowledge before me on March 5, 2015, by Carlos Vizcarra, President of AMERCO Real Estate Company, a Nevada Corporation.

Drafted By;  
David Pollock  
2727 n central Ave.  
Phoenix, Az. 85004



*Misty Farrow*  
*Misty Dorman* notary public  
Maricopa County, Arizona  
My commission expires 6/23/15

STATE OF MICHIGAN  
COUNTY OF OAKLAND

This agreement was acknowledge before me on \_\_\_\_\_ 2015, by Bryan K Barnett, Mayor and Tina Barton, Clerk, of the City of Rochester Hills on behalf of the City

When Recorded Return to:  
City Clerk  
City of Rochester Hills  
1000 Rochester Hills Drive  
Rochester Hills, MI. 48309

\_\_\_\_\_  
Notary public  
\_\_\_\_\_, County, Michigan  
My commission expires \_\_\_\_\_

*John Staran*  
*Approved 3/23/15*

## **EXHIBIT 'A'**

### **LEGAL DESCRIPTION;**

REAL PROPERTY IN THE CITY OF ROCHESTER HILLS, COUNTY OF OAKLAND, STATE OF MICHIGAN, DESCRIBED AS FOLLOWS: PART OF THE SOUTHWEST 1/4 OF SECTION 2, TOWN 3 NORTH, RANGE 11 EAST, MICHIGAN, DESCRIBED AS: BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 05 MINUTES 02 SECONDS EAST 58.00 FEET AND EAST 33.00 FEET FROM THE SOUTHWEST SECTION CORNER; THENCE NORTH 00 DEGREES 05 MINUTES 02 SECONDS EAST 218.97 FEET; THENCE SOUTH 89 DEGREES 54 MINUTES 58 SECONDS EAST 656.93 FEET; THENCE NORTH 03 DEGREES 43 MINUTES 26 SECONDS EAST 3.65 FEET; THENCE SOUTH 89 DEGREES 52 MINUTES 47 SECONDS EAST 432.03 FEET; THENCE SOUTH 00 DEGREES 05 MINUTES 02 SECONDS WEST 278.75 FEET; THENCE WEST 1031.19 FEET; THENCE NORTH 44 DEGREES 57 MINUTES 29 SECONDS WEST 81.96 FEET TO BEGINNING.

[CONTAINING 6.902 ACRES OR 300,645 SQUARE FEET OF LAND.]

THIS SURVEY DESCRIPTION CONTAINS ALL THAT LAND AS DESCRIBED IN FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NUMBER NCS-589532-ATL BEARING AN EFFECTIVE DATE OF 12/10/12 & REVISED 03/20/13.

**EXHIBIT "B"**

**Storm Water Management System(s) Plan**

**U-Haul Rochester Hills  
Storm-Water Management System Plan**

**Property Owner:  
AMERCO Real Estate Company  
2727 N Central Ave.  
Phoenix, Az. 85004**

**Prepared By:  
AMERCO Real Estate Company  
2727 N Central Ave. Phoenix, Az., 85004  
602-263-6502  
Contact; David Pollock**

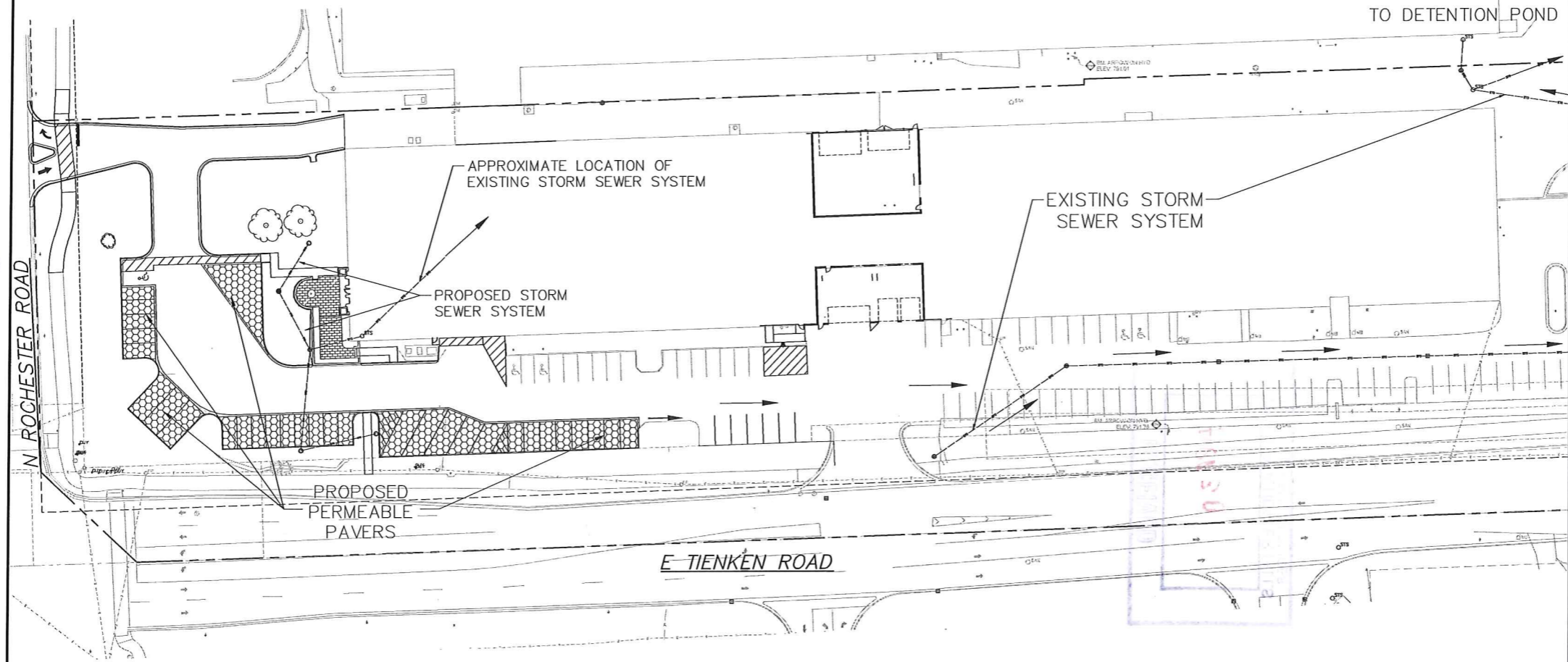
**March 3, 2015**

5-1-15 LM 70

PROPOSED STORM WATER MANAGEMENT SYSTEM



EXHIBIT B



GENERAL NOTES:  
**R.A. Smith National**  
*Beyond Surveying and Engineering*  
 19715 W. Bluffwood Road, Brookfield, WI 53005-5438  
 262.781.0000 Fax 262.781.0400, www.ra-smith.com  
 Appleton, WI Chicago, IL Chicago, IL

REVISIONS:

NO.	DATE	REVISIONS
1		
2		
3		
4		
5		
6		
7		
8		

**AMERCO**  
 REAL ESTATE COMPANY

CONSTRUCTION DEPARTMENT  
 2727 NORTH CENTRAL AVENUE  
 PHOENIX, ARIZONA 85004  
 P: (602) 263-6502  
 F: (602) 277-1026

SITE ADDRESS:  
 U-HAUL ROCHESTER RD  
 6875 ROCHESTER RD  
 ROCHESTER HILLS, MI

SHEET CONTENTS:  
 EXHIBIT B

754025

DRAWN: FBI	EX-B
CHECKED: SJ	
DATE: 04-30-15	

C1.2 SWMP-EXHIBIT B.DWG

## **EXHIBIT “C”**

### **OPERATIONAL AND MAINTENANCE MANUAL**

**U-Haul Rochester Hills  
Permeable Paver and Storm Sewer System  
Maintenance Plan**

**Rochester Hills, Michigan**

**Property Owner:  
AMERCO Real Estate Company  
2727 N Central Ave.  
Phoenix, Az. 85004**

**Prepared by;  
AMERCO Real Estate Company  
2727 N Central Ave. Phoenix, Az. 85004  
602-263-6502  
Contact: David Pollock**

**March 3, 2015**



## **Manholes and Inlets:**

A manhole is an underground structure to allow access to conveyance pipes for maintenance and inspection purposes. Manholes are used in storm sewer main lines at any change in direction, slope, pipe materials or pipe size. Inlets collect storm water and convey water to the storm system.

Storm manholes and inlets provide a sump below the inlet and outlet pipes to allow sediment and debris to settle out of the storm-water runoff.

Manholes and Inlets are enclosed spaces where harmful chemicals and vapors can accumulate. Therefore, the inspection and maintenance of these facilities should be conducted by an individual trained and certified to work in hazardous confined spaces.

### **General;**

Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.

#### **Remove trash or debris**

Trash or debris has accumulated to within six inches of the invert of the lowest pipe; **Remove trash or debris**

### **Sediment:**

Sediment has accumulated to within six inches of the invert of the lowest pipe.

#### **Remove Sediment**

### **Structure Damage to Frame and/or Top Slab:**

Top slab has holes larger than two square inches or cracks wider than 1/4 inch.

#### **Repair or replace to slab**

### **Fracture or Cracks in Structure Walls / Bottom:**

Structure is unsound. **Repair or replace manholes**

Grout has separated or cracked wider than 1/2 inch and longer than one foot at the joint or any inlet / outlet pipe or any evidence of soil particles or ground water entering manhole through cracks. **Re-grout and secure pipe at manhole wall**

### **Settlement / Misalignment:**

Structure has settled or become misaligned creating a safety, function, or design problem. **Repair or replace.**

**Cover;**

**Cover Not in Place:**

Cover is missing or only partially in place. Any open structure requires maintenance. **Replace Cover**

**Locking Mechanism Not Working:**

Mechanism cannot be opened by one maintenance person with proper tools. Bolt into frame have less than ½ inch of thread (may not apply to self-locking lids).

**Repair or replace locking mechanism or lid.**

**Cover Difficult to Remove:**

One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.

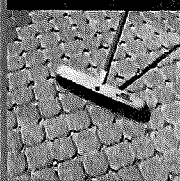
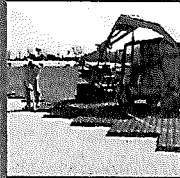
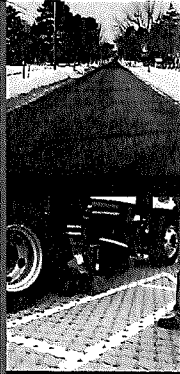
**Repair cover**

**Ladder;**

**Ladder Rungs Unsafe:**

Ladder is corroded or deteriorated, has sharp edges, is not securely attached to structure wall, missing rungs, cracked, or misaligned.

**Repair or replace ladder to design specifications.**



# PERMEABLE PAVER MAINTENANCE GUIDE



DESIGNED  
TO CONNECT



DESIGNED  
TO CONNECT

This guide is specific to Unilock® permeable pavers as a maintainable system for storm water runoff and does not cover cleaning concrete pavers themselves. Please see the Unilock Product Care and Maintenance Guide (available for download at [www.unilock.com](http://www.unilock.com)) for information on cleaning concrete pavers. The maintenance information in this guide is intended for Unilock permeable paver systems only and not for other types of permeable pavers or pervious systems.

Maintenance is necessary for any type of permeable pavement system, much like any impervious pavement with catch basins and underground infrastructure. Over the lifetime of the permeable paver system there will be a need to clean any sediment, soil, dirt and debris from the joint aggregate material to maintain a sufficient infiltration rate. Every project will vary in performance needs, as well as to the frequency in which the joint material must be cleaned. The surface infiltration rate must be greater than the regional 100 year rainfall intensity to adequately ensure no runoff is generated, which is only one goal for using permeable pavers. Unilock® suggests establishing a maintenance plan using the techniques in this document to prevent clogging.



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## PRECEDING MAINTENANCE

Before providing maintenance on permeable paver systems, proper installation and protection during construction is required. Here are a few conditions to observe, require and prevent for establishing a successful system:

### 1. Verify correct installation and materials:

- Hire contractors with knowledgeable experience installing permeable pavers.
- Review and approve all sub-base, base and joint aggregate materials.
- Do not allow sand and dense-graded aggregates.

### 2. Prevent construction damage:

- Limit subgrade soil compaction when infiltration is necessary.
- Restrict vehicles with muddy tires from driving over newly placed pavers.
- Do not mix aggregate materials.

### 3. Refill joint material:

- Once, between 3 and 6 months after initial installation.
- Repeat as needed - approximately every 5-10 years.

### 4. Avoid stockpiling of materials such as:

- Topsoil.
- Mulch.

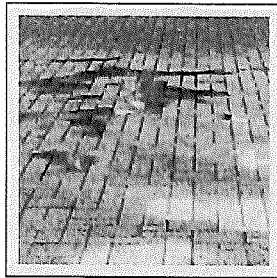
The proper materials and installation execution can be found in the Unilock specifications for permeable pavers. Both residential and commercial projects will utilize the same base, setting bed and joint aggregates. Some projects may not require sub-base materials, underdrainage or geotextile. It is not necessary to separate the setting bed from the base aggregates with a geotextile.

## EXAMPLES OF COMMON MAINTENANCE ISSUES

Below are several warning signs and visual clues of common maintenance issues which must be prevented and addressed or remediated to ensure continued surface infiltration.

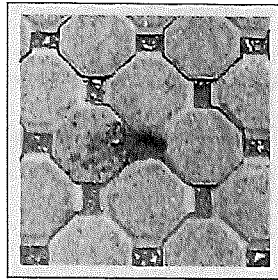
### 1. Slow Draining/Runoff:

- Verify with simple infiltration testing or observe after rain storms.
- Surface should drain immediately.



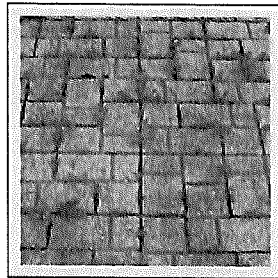
### 2. Ponding and Bird Baths:

- Rule of thumb: if more than a nickel deep one minute after a rainfall event, maintenance is necessary.
- Verify correct materials were installed.
- Exceptions at bottom of slopes.



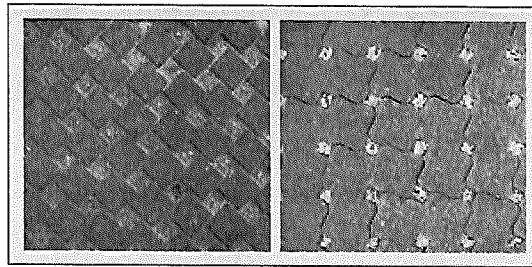
### 3. Surface Crusting:

- Identify if there is a problem such as run on sediments.
- Increase cleaning frequency in troubled areas.
- Remove debris immediately.



### 4. Weeds:

- Weeds will not germinate unless there is a collection of soil or moisture.
- Remove weeds immediately.
- Clean sediment from joint material.
- Chemical treatment may be required prior to maintenance removal.



### 5. Covered Joint Material:

- Identify problem and correct.
- Remove immediately.
- Joint material should appear as photo on right.

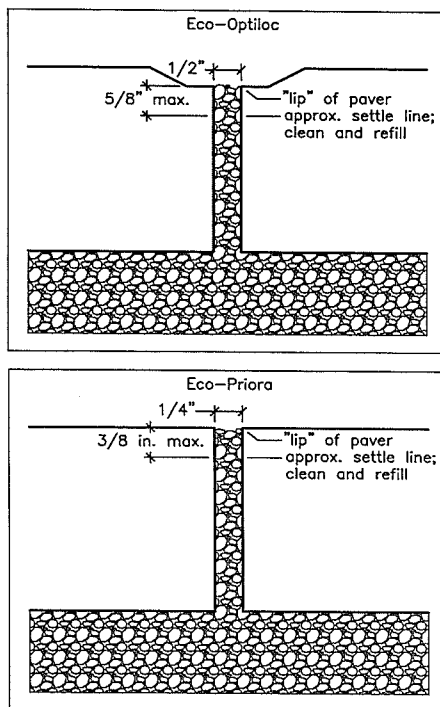
These common problems can often be easily remedied by maintaining the proper joint aggregate level.

## MAINTENANCE TYPES

There are two service types for maintaining the integrity of a permeable paver system.

1. **Preventative** – removes most miscellaneous debris before being trapped in the joint aggregate material causing clogging. This usually does not require removal of any joint material to restore infiltration.
2. **Restorative** – requires some removal or complete removal of the joint material to renew infiltration. Occurs after miscellaneous debris has been captured and lodged in the joint aggregate.





*\*Note: Both maintenance types will be most effective when the joint aggregate material is filled to the "lip" of the paver. If the joint aggregate material has settled more than the joint width, plus 1/8 inch below the paver lip, the maintenance equipment is significantly less effective and potentially more expensive.*

## MAINTENANCE EQUIPMENT

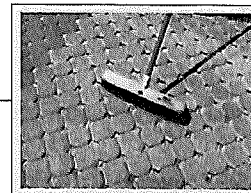
Maintenance equipment requirements will vary according to project size, age, and product type.

**Project Type 1:** For smaller pedestrian type areas such as sidewalks, driveways, plazas, patios or similar:

### **Preventative:**

#### **1. Hand-Held Bristle Broom**

- Available at any hardware store.
- Sweep as needed to keep the surface clear of debris.
- Approximate cost: \$15.



#### **2. Leaf Blower**

- Electric or gas powered.
- Minimum air speed of 120 mph.
- Joint aggregate material will remain in place while removing debris from paver surface.
- Approximate cost: \$50 to \$300.





### 3. Rotary Brush

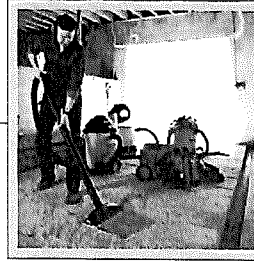
- Poly bristles only.
- Flips debris from joint.
- Will require slight refilling of the joint aggregate material.
- Approximate cost: varies depending on attachment vehicle.



### Restorative:

#### 1. Wet/Dry Shop Vacuum

- Minimum 4 HP (peak) motor with 130 cubic feet per minute suction.
- Will remove some joint aggregate material.
- Replenish removed joint aggregate material to "lip" of paver.
- Approximate cost: \$50 to \$150.



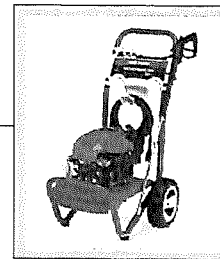
#### 2. Riding Litter Vacuum

- Tennant ATLV 4300.
- 48 inch wide vacuum head.
- 110 gallon capacity.
- Can also be used as a preventative technique.
- Will evacuate most debris from joint except for aggregate material.
- Approximate cost: approx. \$25K new.



#### 3. Powerwasher

- Capable of spraying 1,400 to 1,800 psi.
- Spray at a 30 degree angle approximately 18 to 24 inches from the surface.
- Will evacuate joint material.
- Replenish removed joint aggregate material to "lip" of paver.
- Approximate cost: \$125 to \$500.



**Project Type 2:** For larger vehicular areas such as roads, parking lots, alleys, plazas or similar that can support vehicles:

### Preventative:

#### 1. Rotary Brush

- Poly bristles only.
- Flips debris from joint.
- Will require slight refilling of the joint aggregate material.
- Approximate cost: Varies depending on attachment vehicle.



## 2. Broom Sweepers

- Typical “street sweeper” type.
- Rotating curb brushes with center pickup.
- Poly bristles only.
- Do not utilize water to clean the surface as this can have detrimental effects on the cleaning.
- Best for seasonal cleaning.
- Approximate cost: \$100 to \$120 per hour from a service company.



## 3. Regenerative Air Sweepers

- Light duty suction cleaning.
- Utilizes stream of air blowing horizontally across surface and vacuuming.
- No rotating brushes.
- Approximate cost: \$45 to \$65 per hour from a service company.



### Restorative:

#### 1. Vacuum Sweepers

- Vacall Dynamic Multi-Purpose Vacuum. (top photo)
- Elgin Whirlwind. (bottom photo)
- Heavy duty cleaning.
- Minimum suction of 14,000 cubic feet per minute.
- Complete evacuation of joint aggregate material.
- Replenish removed joint aggregate material to “lip” of paver.
- Approximate cost: \$2.50 to \$4.50 per parking space.



#### 2. Powerwashers

- Capable of spraying 1,400 to 1,800 psi.
- Spray at a 30 degree angle approximately 18 to 24 inches from the surface.
- Will evacuate joint aggregate material.
- Replenish removed joint aggregate material to “lip” of paver.

## STRATEGIC PROCEDURES FOR MAINTAINING INFILTRATION

Observe and implement the following habitual procedures to ensure longevity of the system.

1. **Weekly** – prevent contamination from routine landscape maintenance such as grass clippings from mowing, hedge trimming, mulching plant beds, etc. by implementing the following joint opening cleaning procedures immediately after contamination occurs:
  - Hand broom debris from the paver surface.
  - Blow debris from the paver surface with backpack blower type device, collect and dispose.
  - Mechanically sweep paver surface.

2. **Monthly** – observe any collection areas of debris, dirt, topsoil, mulch, etc. after season events such as snowfall, rain storms, leaf litter, etc. and investigate if clogging is occurring. Immediately restore infiltration using the following cleaning options:
  - Break up any crust covering the joint aggregate material with hand broom for smaller areas or mechanically with a rotary sweeper for larger areas. Remove debris material.
  - When necessary, restore infiltration using wet/dry shop vacuum for small areas or vacuum truck for larger areas by removing debris from joint aggregate material.
  - Replenish joint aggregate material to “lip” of paver.
3. **Yearly** – establish a seasonal maintenance schedule that includes the following:
  - Sweep entire permeable paving surface with appropriate preventative sweeping devices.
  - Replenish joint aggregate material to “lip” of paver.
4. **Ten years plus** – plan long term maintenance to rejuvenate infiltration rates:
  - Complete restoration of the joint aggregate material.
  - Replenish joint with cleaned or new aggregate material to “lip” of paver.

## RECOMMENDED SEASONAL MAINTENANCE SCHEDULE

Unilock suggests establishing a best practices maintenance program to ensure longevity of the systems before restorative action is required. Biannual preventative maintenance is suggested as shown in the schedule below. This includes sweeping once in the early spring and once again in the late fall. Below is a preventative maintenance timeline that includes four maintenance suggestions:

1. **After the snow melt – March 1 through April 15**
  - Broom, blow, rotary brush or sweep entire surface.
  - Clean debris from paver surface in location of snow stockpile area.
  - Replenish joint aggregate material after cleaning.
  - Every fifth year, vacuum or power wash problem areas and refill joint material.
2. **Late Spring – April 1 through May 15**
  - Broom, blow, rotary brush or sweep flowers from trees and shrubs.
  - Collect any additional debris from areas mulched or planted with annual flowers.
  - Replenish joint aggregate material as necessary.
3. **Late Summer – July 15 through August 30**
  - Broom, blow, rotary brush or sweep lawn and shrub clippings or tree fruits.
  - Collect any additional debris from summer activities such as charcoal coals inadvertently dumped on the permeable surface, beach sand, etc.
  - Replenish joint aggregate material as necessary.
4. **Late Fall – October 15 through November 30**
  - Broom, blow, rotary brush or sweep plant leaves.
  - Replenish joint aggregate material as necessary.

Various factors will affect each project’s preventative maintenance timeline and must be reviewed individually.

*See the Recommended Seasonal Maintenance Schedule chart on next page.*

Recommended Maintenance Schedule	Seasonal BMP			
	After Snow Melt	Late Spring	Late Summer	Late Fall
<b>Project Type 1: Preventative - choose one</b>		1x per season	optional	1x per season
Bristle Broom	**	*	**	*
Leaf Blower	**	*	**	*
Rotary Brush	*	*	**	*
<b>Project Type 1: Restorative</b>		**		**
Wet-Dry Vacuum	**	**	**	**
Riding Litter Vacuum		*	**1x every 5 yrs.	*
Powerwasher	**	**	**	**
<b>Project Type 2: Preventative - choose one</b>		1x per season	optional	1x per season
Rotary Brush		*	*	*
Broom Sweepers		*		*
Regenerative Air Sweepers		*		*
<b>Project Type 2: Restorative</b>			** 1x every 10 yrs.	
Vacuum Sweepers			**	
Powerwasher	**	**	**	**

\* recommended  
 \*\* as needed per Strategic Procedures

## WINTER MAINTENANCE AND DE-ICING

Durability is one benefit that Unilock paving stones are known for. Almost all Unilock paving stones have a slight bevel around the edge of the stone. This helps protect the edges from potential chipping by snow clearing equipment. Always use a plastic snow shovel for paving stones. Also fit snow blowers with plastic shoes on the adjustable gliders and on the scoop edge.

When using commercial snow removal companies, confirm in writing they have protective edges on the snowplow equipment to avoid scratching the surface. Although the metal on snow clearing equipment will not adversely affect Unilock paving stones structurally, the contact of any steel on concrete can potentially leave tiny particles of metal in the paver surface which will rust and leave unsightly brown streaks. (A good example of this can be seen on the municipal curbs at the street). To reduce aesthetic damage to the paver surface, only use a polymer or rubber cutting edge on the plow.

De-icing substances, when used in proper amounts, will not damage good-quality concrete. They will, however, speed up the surface wear on some styles of pavers. Many of the exposed aggregate products and tumbled products are unaffected by virtue of their style.

### There are three primary types of de-icing salts:

- Sodium chloride (common rock salt) is the most popular de-icing salt. It is widely available and it will melt snow and ice at temperatures down to approximately 16° F. Below 16° F, rock salt stops melting snow and ice. Sodium chloride can damage adjacent grass, plants and metal. Apply with caution and use as sparingly as possible.
- Calcium chloride is another de-icing salt. It generally looks like small, white, round, pellets. It will melt snow down to about 0° F. It can irritate skin. Studies indicate that depending on the concentration, calcium chloride is less damaging to grass than sodium chloride is. Heavy concentrations of calcium chloride can chemically attack concrete.
- Potassium chloride is a de-icing salt available in some markets. It will not hurt skin or damage plants. However, it melts ice only when the air temperature is above 15° F, but it can be combined with sand to improve effectiveness.

*Note: Do not use magnesium chloride.*

*Note: Do not use sand for anti-skid with permeable pavers as it will clog the joint material.*

*Note: Fertilizers that contain ammonium nitrate and ammonium sulfate should not be used for de-icing since these substances attack the integrity of concrete. Always read the manufacturer's recommendations for use and heed all warnings and cautions.*