STABILIZED PATHWAY

SECTION [32 15 40]

ORGANIC-LOCK FOR STABILIZED PATHWAY AGGREGATE: FOOT/BICYCLE TRAFFIC

PART 1: GENERAL

1.1 SUMMARY

A. This section includes materials and execution information for construction with aggregate with Organic-Lock binder for foot traffic applications

B. Related Sections:

Section [ ]
Section [ ]
Section [ ]

1.2 REFERENCES

A. ASTM C136 / C136M – 14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates, ASTM International, West Conshohocken, PA, 2014, www.astm.org

B. ASTM D2419 – 14, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregates, ASTM International, West Conshohocken, PA, 2014, www.astm.org

C. ASTM F1951 – 14, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment, ASTM International, West Conshohocken, PA, 2014, www.astm.org

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 - Submittal Procedures:

1. [1 quart] [_____] sample of base course.

2. [1 quart] [_____] sample of crushed aggregate material sourced from an authorized Organic-Lock Dealer.
3. Manufacturer's Material Safety Data Sheet.

1.4 SITE CONDITIONS

A. Ensure that the subgrade and base are properly graded and compacted to required specifications.

B. Do not install the Organic-Lock Stabilized Aggregate during rain. Rain within 3-5 days after installation will increase curing time.

C. Protect all nearby surfaces, plants, and structures from possible contamination from materials or damage by equipment.

D. It is not recommended to install when temperatures are below 40 degrees Fahrenheit (5 degrees Celsius).

1.5 TEST PLOT

A. Install [16] square feet minimum of stabilized crushed aggregate paving including base course, at location approved by [Architect] [Engineer].

B. Allow [Architect] [Engineer] to view test plot before proceeding with rest of stabilized crushed aggregate paving.

C. [Approved mock-up may remain as part of completed Work.] [Remove test plot after acceptance of work specified in this Section.]

1.6 PRE-CONSTRUCTION

A. Contractor to attend a virtual pre-construction meeting led by Organic-Lock to review installation best practices and project expectations.

B. Pre-construction meeting to take place at a minimum [one week] prior to installation.

1.7 DELIVERY, HANDLING, AND STORAGE

A. Delivery:

Delivery of Organic-Lock pre-blended with aggregate is available from select dealers worldwide. Contact your closest dealer or the manufacturer for more information.

B. Storage:

Protect stabilized crushed aggregate mix from contamination. Store undercover. If the blended and hydrated aggregate is sitting for long periods of time (longer than 48 hours), or when subject to rainfall, it needs to be turned with a skid steerer or loader to ensure consistent moisture content throughout prior to installation. Verify hydration level with snowball test before installation. For any questions regarding storage, contact the manufacturer or local dealer.

PART 2: PRODUCTS

2.1 MANUFACTURERS

A. Organic-Lock for Organic-Lock Stabilized Aggregate provided by:

Kafka Granite, LLC
550 State Highway 153
Mosinee, WI 54455
800-852-7415
info@kafkagranite.com
www.kafkagranite.com

2.2 MATERIALS

A. Organic-Lock Stabilized Aggregate

1. Crushed Aggregate Material
    a. Consisting of sound, angular, durable particles.
    b. Gradation, in accordance with ASTM C136:

Optimal Gradation		
Sieve	Sieve Size (mm)	Percent Passing
4	4.75	80% - 100%
8	2.36	65% - 90%
16	1.18	40% - 65%
30	0.6	25% - 55%
50	0.3	15% - 35%
100	0.15	10% - 20%
200	0.075	5% - 15%

PART 3: EXECUTION

SPECIFIER NOTES:

1. *Proper hydration of the Organic-Lock Stabilized Aggregate is crucial to the installation and longevity of the surface. The instructions below refer to Organic-Lock that has been pre-blended with aggregate and contains optimal moisture content. For more information on pre-wetting, and pre-blending Organic-Lock refer to our installation guideline video*

https://www.kafkagranite.com/blog/kafka-granite-organic-lock-stabilized-pathway-mix-installation/

2. *Achieve best results installing Organic-Lock Stabilized aggregate in dry conditions and temperatures above 40° Fahrenheit (5° Celsius). Both wet and cold conditions slow down the curing/drying process.*

3.1 PREPARATION

1. Prepare the Subgrade

   Excavate the area to the depth required so that finish grade can be established as noted on plans.

   A Foot-Traffic Pathway will require a full depth of 7-9 inches: 4-6 inches of compacted base depth together with 3 inches of compacted Organic-Lock Stabilized Aggregate.

   Compact the subgrade to 95% Modified Proctor Density.

2. Prepare the Base

   Install the base material as per your region's approved DOT road base guidelines. Clear stone or ungraded base is NOT acceptable in this application. Compact the base to 95% modified proctor density.

   Foot-Traffic Pathway will require 4-6 inches of compacted base material.

   Depending upon the method of compaction the installation of base material may require separate lifts. 4 inches can be compacted in a single lift with a minimum 2-ton compaction roller.

   Compact the subgrade to 95% Modified Proctor Density using a single or double drum static roller or vibratory compactor.

3.2 WATERSHED MANAGEMENT

Crowns and/or cross-slopes must be incorporated into the compacted base material.

If the slope is 2% or lower, a crown should be incorporated into the pathway. If the slope is greater than 2%, incorporate a cross-slope.

Note: The addition of crowns and cross-slopes is heavily dependent upon surrounding watershed.

3.3 SPREADING

The use of a paving machine is highly recommended for large projects to evenly spread Organic-Lock Stabilized Aggregate at the specified depth. It's recommended to screed the material to ensure the depth is consistent for smaller projects or projects with tight areas.

Spread the loose and uncompacted Organic-Lock Stabilized Aggregate over the compacted base material.

Typically, a lift of 4 inches of loose, pre-wet Organic-Lock Stabilized Aggregate will compact to the required 3-inch depth for Foot-Traffic Pathways.

Where a paving machine is not feasible, Organic Lock Stabilized Aggregate

3.4 COMPACTION

Make passes using a 1-ton double or single static drum roller, or equivalent. A Foot-Traffic Pathway will typically require one lift, compacted to 3 inches.

Compaction will vary with different aggregates due to particle shape and size. Expected compaction is 20-25%, less if using paving machinery. This level of compaction needs to be monitored as early as possible (starting during the test plot) to determine the actual degree of compaction. It is better to put down too much material and to remove it from the top than to put down too little and add a layer later.

Compact until no further deflection occurs during rolling.

Note: Vibratory compaction is acceptable for the base material but generally not suitable for Organic-Lock Stabilized Aggregate as it risks disassociating the bonds of the stabilized aggregate or allowing the fines and moisture to migrate to the surface, causing the surface to take on a smooth, concrete-like appearance. Organic-Lock Stabilized Aggregates should be compacted using a single or double drum static roller wherever possible. For tight spaces that are not accessible by drum rollers, a hand tamper is recommended. However, in certain circumstances, a vibratory or plate tamper can be used where the installer deems it to be more effective as hand-tamping over large spaces will create inconsistent results.

Provided the moisture content of the Organic-Lock Stabilized Aggregate is adequate, additional hydration should not be necessary. On dry, sunny days, however, the surface layer may start to dry out while installing, in which case, a light misting would be appropriate to prevent surface cracks from appearing during compaction. Refer to Organic-Lock installation guideline video https://www.kafkagranite.com/blog/kafka-granite-organic-lock-stabilized-pathway-mix-installation/ for more information.

3.5 COMPLETING INSTALLATION

Apply a light spray to the surface of the material to give a clean appearance. Apply water until the water begins to run-off.

Do not allow any traffic on the newly installed pathway until fully cured, a minimum of 24-72 hours.

3.6 REPAIRS AND PROTECTION

Excavate the damaged area and scarify exposed Organic-Lock Stabilized Aggregate.

Source the replacement material from a Licensed Organic-Lock Stabilized Aggregate Dealer. Apply the material to the excavated area and compact.

Allow the newly installed Organic-Lock Stabilized Aggregate to cure, but not completely dry out.

Re-compact the material (3.4), ensuring that the final grade and crown are maintained.

3.7 MAINTENANCE

All outdoor products require a level of maintenance analysis. It is recommended to do a thorough analysis of your installed Organic-Lock Stabilized Aggregate 7 days after installation followed by monthly analysis to ensure no alterations are required.

Erosion Damage

The greatest element of concern is rainfall erosion. Often, this problem can be greatly reduced by adjusting the watershed areas surrounding the product itself. The best way to determine how the water is building up, is to examine your project area during a rainstorm. Learning where the water is coming from can lead to water diverting that dramatically reduces the stress on your surface.

Installing culverts, drains, cross slopes, crowns, or diverters can limit the majority of stress causing damage.

If you do experience erosion damage, first look at ways to get the water away or slow the water down, that's causing the damage...secondly, replace the lost material with new material following the guidelines below.

Excess Loose Material

Directly after the installation, the aggregate surface will be smooth because of the weight of the fresh compaction. As the surface weathers with traffic and time, the larger particles of the aggregate will loosen on the surface to create a natural look and feel which is often sought after. The loose aggregate particles on your surface should not exceed 1⁄4" in depth.

Sweeping off the excess particles can be accomplished in areas where excess 1⁄4" chip is not detrimental. These loose particles can also be shoveled and removed from site. The remaining surface will eventually chip loose again, so new material is recommended as a top up (see instructions below) after doing this more than once.

If material exceeds a 1⁄4", redistribute the particles over a greater surface, scarify the surface to a depth of 1" and water to a 1" depth and compact with a roller of no less than 1000-lbs. Keep traffic off for 24-72 hours.

Removing Debris

You can remove grass clippings, soil, debris or organic material by mechanically blowing or hand raking as needed.

Snow Plowing

When plowing snow, use a shoe lift or rubber baffle on the blade of the plow to lift the blade up 1/4" off the surface. Extra precautions should always be taken after the first snow and last snow of the season, as this is when the material is most prone (i.e. the ground is not frozen).

3.8 ADDING NEW BLENDED ORGANIC-LOCK STABILIZED AGGREGATE MATERIAL TO DAMAGED AREAS

Below the loose surface particles, the firmed material should be stable to resist erosion and support the intended traffic.

If this lower level material incurs damage, we recommend the following:

Fixing Lightly Damaged Areas

Lightly damaged areas can be repaired by soaking, scarifying with a rake to 1-2 inches and compacting the scarified area using a roller or a hand tamper.

Adjusting Organic-Lock Stabilized Aggregate

The Organic-Lock gel activates each time it comes in contact with water, which allows for the stabilized aggregate to be physically broken up, re-worked and returned back to its initial state. This self-healing nature allows for a simplified maintenance procedure that leaves no sign of the maintenance itself.

For example:
If you have to run an irrigation line below your finished pathway, all you need to do is add water, dig the material up, put down your irrigation line, spread the material back in place, then water and compact it using a roller or a hand tamper back to new.

Fixing Larger or More Severely Damaged Areas

Excavate the damaged area to a depth of 2" to an approximate 50% increase in area (i.e. if your area is in a 4-foot radius circle, excavate a total of 6 feet in diameter.

Estimate amount of material lost or material needed to be topped up. Add this amount of preblended Organic-Lock aggregate in the area.

Blend this newly blended aggregate in by one of the following methods:

A. Rototill to a Depth of 2 Inches

   This needs to be done with multiple passes and should not exceed the depth of the Organic-Lock Stabilized Aggregate (i.e. avoid disrupting the base material). Spray the surface with a light spray and begin to till this material to achieve a homogeneous blend of the new and existing material. Add further water as you mix to achieve the optimal snowball (as seen in the snowball test).

B. Remove and Blend the Material Off Site

   Add the new Organic-Lock Stabilized Aggregate to the existing material on a clean pad. Using a front-end loader (or shovels for smaller projects) mechanically turn the material over until you achieve a homogeneous blend. Add water into this mixture until you achieve an optimal snowball (as seen in the snowball test).

Spread this newly blended material back into the area where the excavation was completed and compact using a roller or a hand tamper

Note: Maintenance or patching should not be compacted with a vibratory plate compactor because it will rattle and damage the surrounding cured area.

END OF SECTION