



low impact development technical workshop series

Grid Lattice Paving Systems

Topics

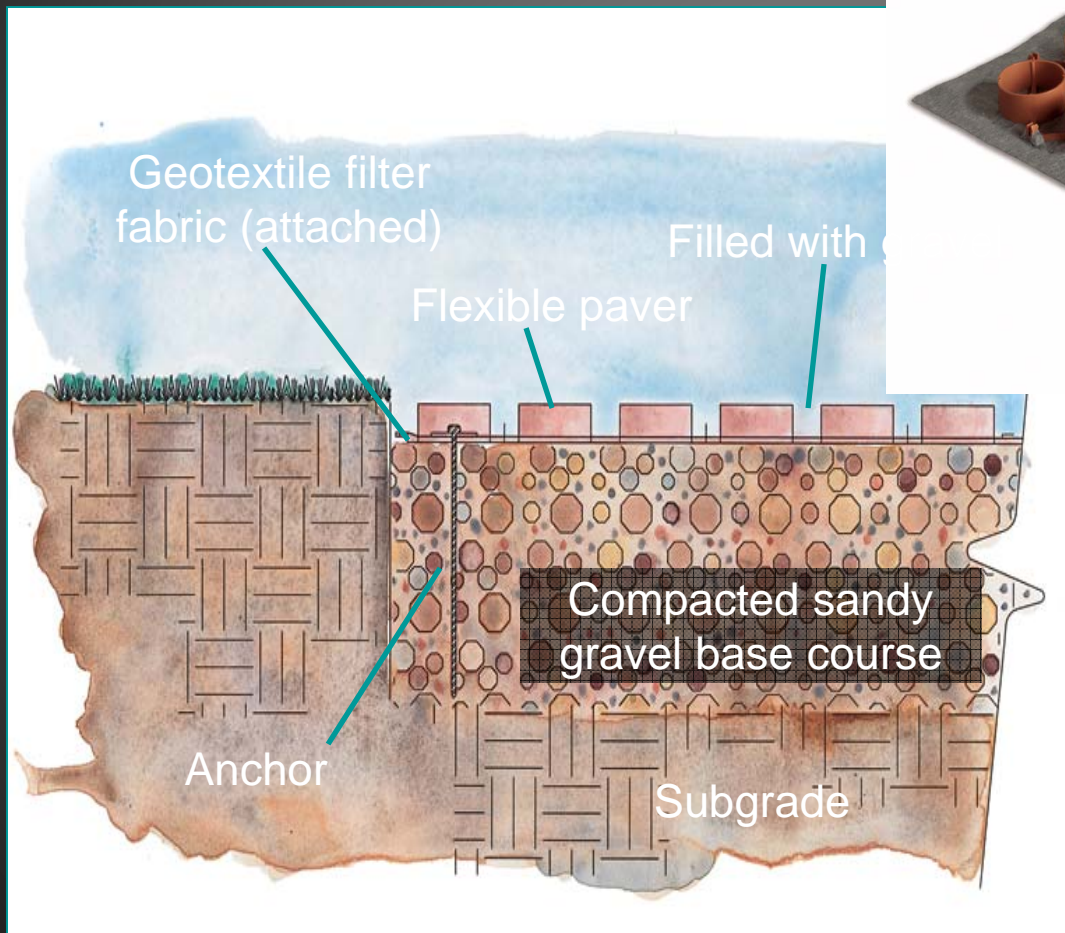
Gravelpave, Grasspave and Grassy Pavers

Applications, Materials and Construction



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Flexible Pervious Gravel Pavers



Trade Names

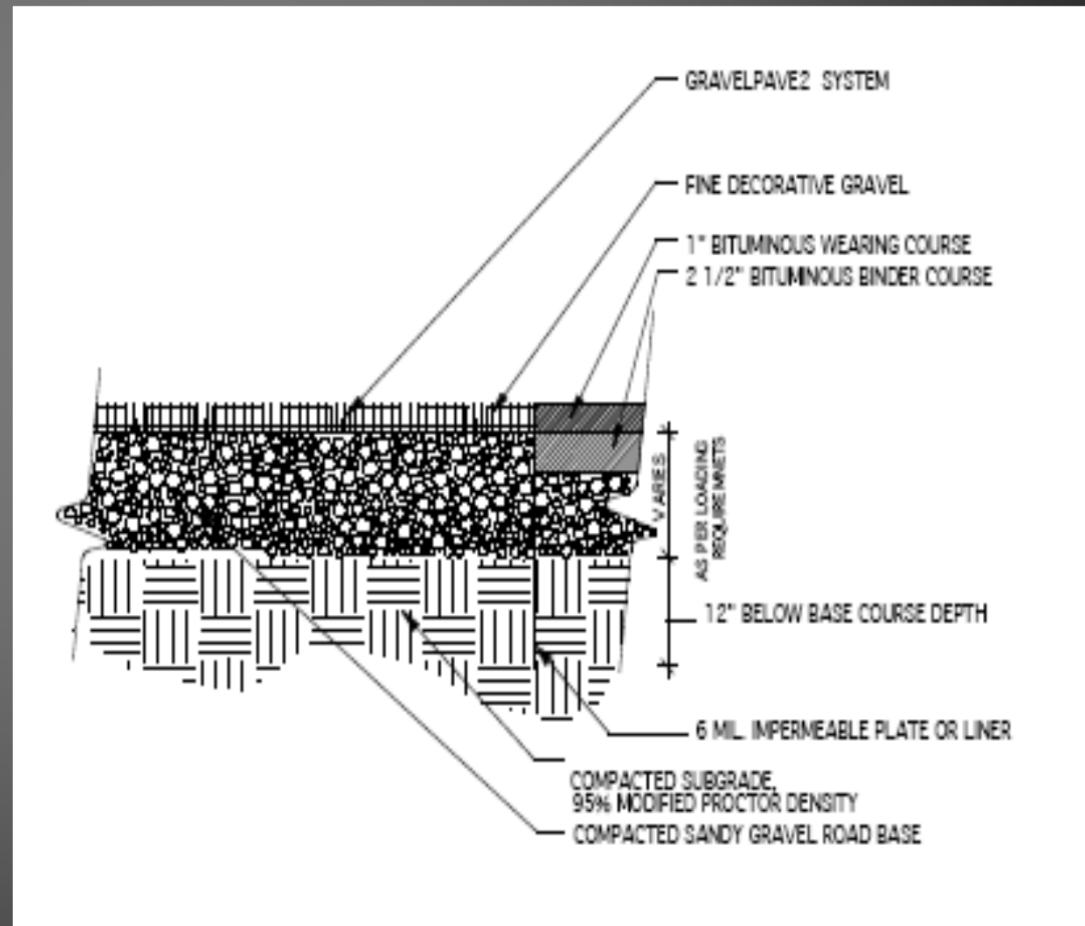
- Gravelpave2
- Agrablock
- Integra 500
- Ground Grid
- Netpave 50

Flexible Pervious Gravel Pavers

Base course specification

Sandy gravel material common for road base

<u>Sieve</u>	<u>% Passing</u>
1"	100
3/4"	90-100
3/8"	70-80
#4	55-70
#10	45-55
#40	25-35
#200	3-8



Installation of Flexible Plastic Pervious Pavement with Gravel Surface

(Refer to manufacturer's technical specifications for complete installation details)



1. Install and compact base



2. Unroll paver, connect and cut as needed



3. Secure to base with anchors*



4. Fill with open graded 3/8" aggregate (gravel)



6. Use and maintain

*Check with Specific Manufacturer. Some do not supply Anchors

Flexible Pervious Gravel Pavers



Grid colors to match aggregate

Flexible Pervious Gravel Pavers

Gravel fill examples



Crushed Granite
3/16"

Decomposed Granite
3/8"

Hard Limestone 3/8"
Add 25-30% sharp mason's
sand to maintain porosity

Use clean, sharp,
hard, uniform size:
3/16 inch to 3/8 inch



Carbon Canyon
5/16" minus

Sanora Tan
3/8"

Sharp Angular Pea
Gravel
**Do Not Use Rounded
Pea Gravel**

Flexible Pervious Gravel Pavers

Trails



Garden Of the Gods

Colorado Springs Park and Recreation Dept.
Colorado Springs, CO

Severe rutting prior to installation

Park estimates an 80% reduction in maintenance
time and cost.



Flexible Pervious Gravel Pavers

Trails



Saperton Landing, BC
Gravelpave2 by Invisible Structures



Daniel Boone National Forest, KY
Gravelpave2 by Invisible Structures



Oakdale Nature Preserve, IL
Gravelpave2 by Invisible Structures



Private Residence Trail, CO
Gravelpave2 by Invisible Structures

Flexible Pervious Gravel Pavers

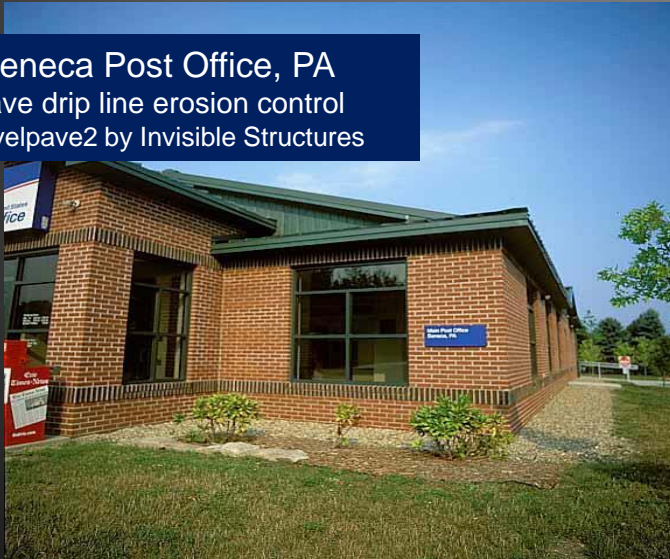
Utility access, fire lanes and specialty installs



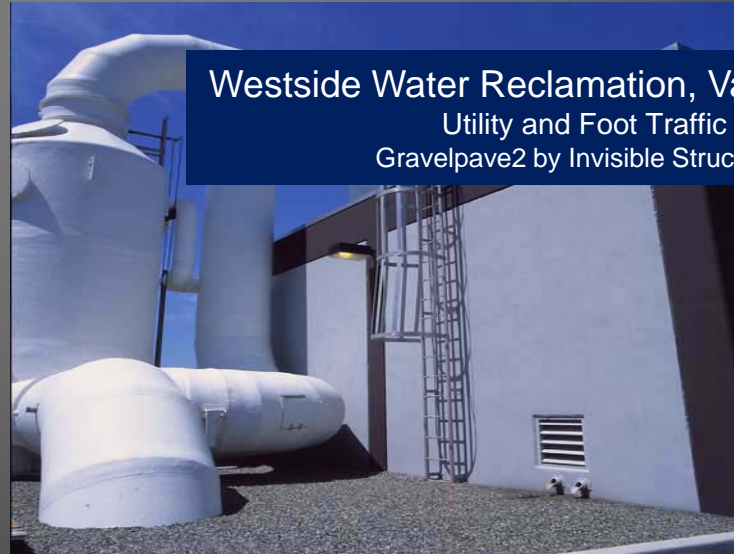
Colorado Springs City Building, CO
Firelane
Gravelpave2 by Invisible Structures



Tri Rail Station, Miami Airport, FL
Utility and Foot Traffic
Gravelpave2 by Invisible Structures

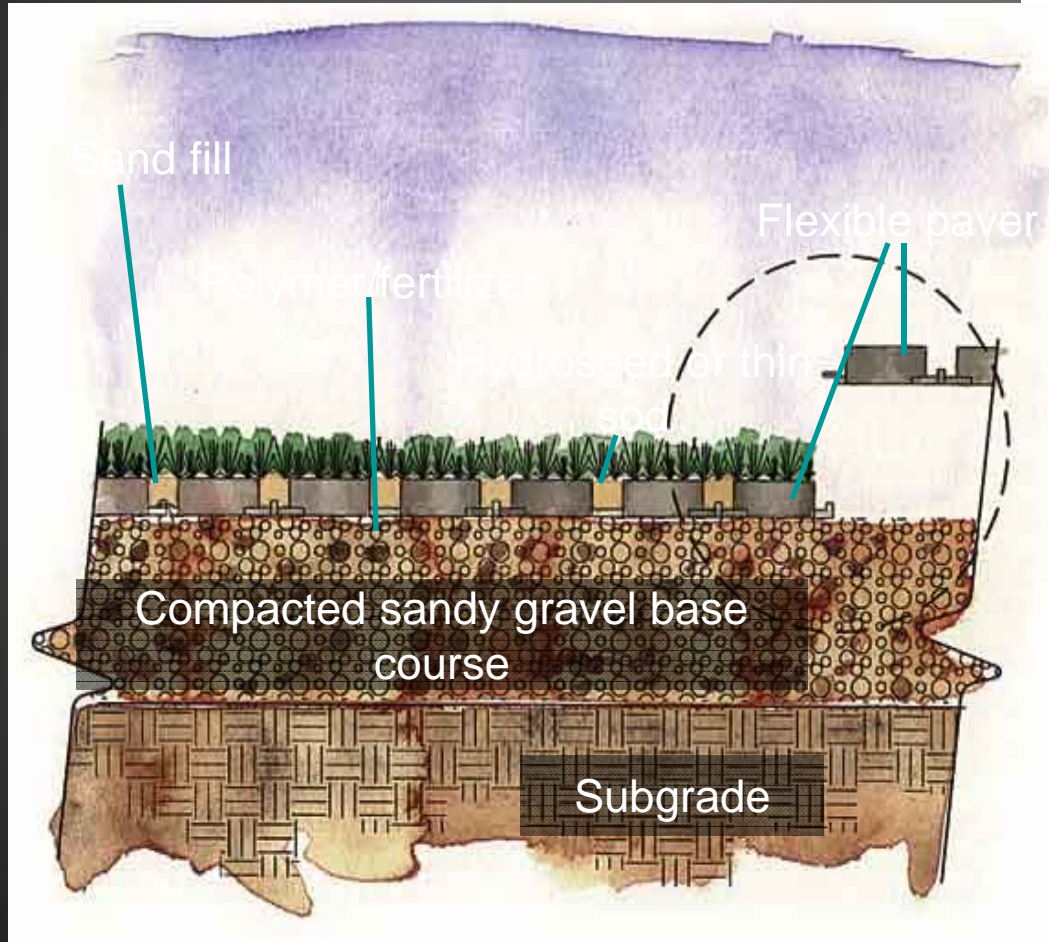


Seneca Post Office, PA
Eave drip line erosion control
Gravelpave2 by Invisible Structures



Westside Water Reclamation, Vancouver, WA
Utility and Foot Traffic
Gravelpave2 by Invisible Structures

Flexible Pervious Grass Pavers



Trade Names

- Grasspave2
- Netpave 50
- GT Interlocking Panels
- MODI Porous Paving Grid
- Salvaverde

From BuildingGreen.com

Installation of Flexible Plastic Pervious Pavement with Grass Coverage

(Refer to manufacturer's technical specifications for complete installation details)



1. Install and compact base



2. Add soil amendment - fertilizer/polymer*



3. Unroll paver, connect, and cut as needed



4. Fill with sand**



5. Lay sod or hydroseed



6. Use and maintain - irrigate, fertilize, mow. Do Not Aerate

*Check with specific manufacturer for availability (soil polymer, Zeopro, Isolite and Humate soil conditioners).

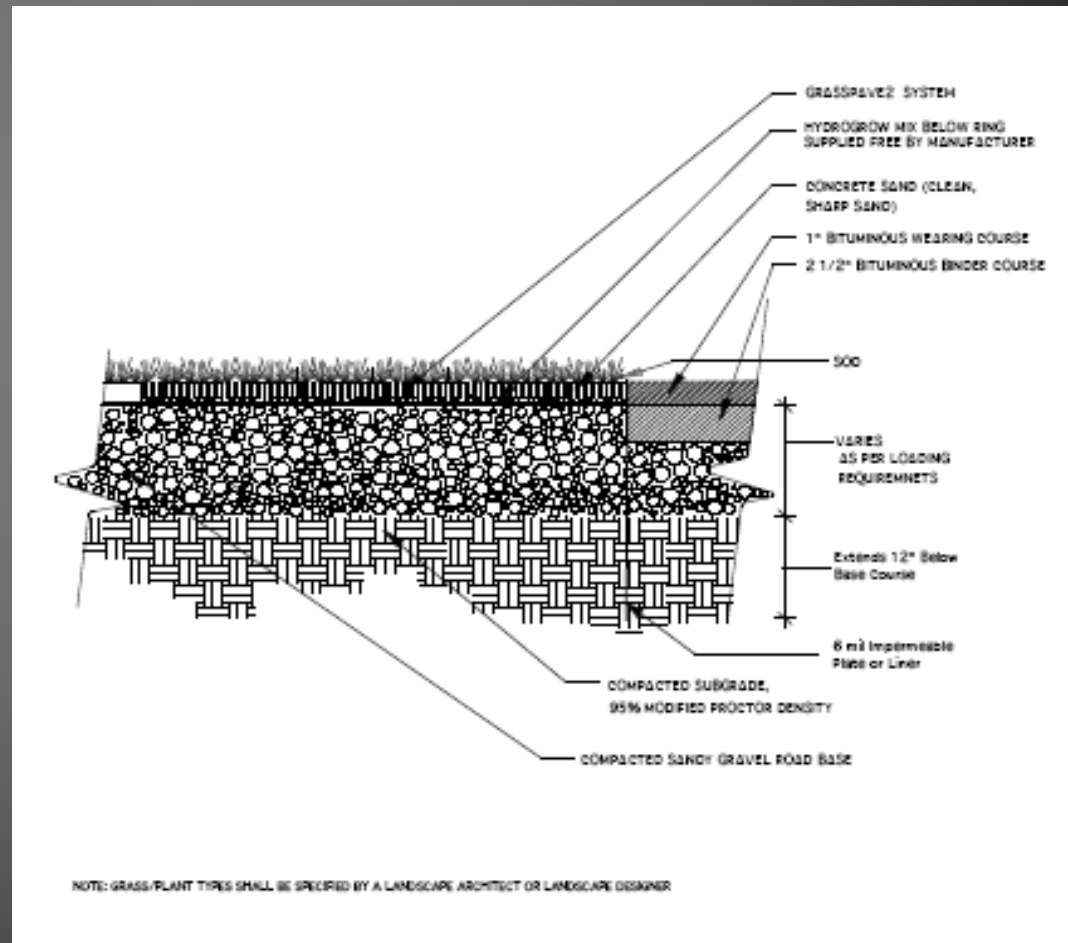
**Some manufacturers fill with top soil or existing soil. Sand is the preferred method of Prof. Bruce K. Ferguson, author, Porous Pavements: Integrated Studies in Water Management and Land Development

Flexible Pervious Grass Pavers

Base course specification

Sandy gravel material common for road base

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Flexible Pervious Grass Pavers

Fire Lanes and Emergency Access



100' ladder with outrigger
70,000 lbs.
Grasspave2 by Invisible
Structures



Dupont Center, Irvine, CA
fire lane
Grasspave2 by Invisible Structures

5,720 psi load bearing capacity (filled)

Flexible Pervious Grass Pavers



World's Fair Park, Knoxville, TN
Grasspave2 by Invisible Structures

Primary Applications

- Parking
- Fire/emergency access
- Utility access
- Residential drives and parking
- Pedestrian traffic

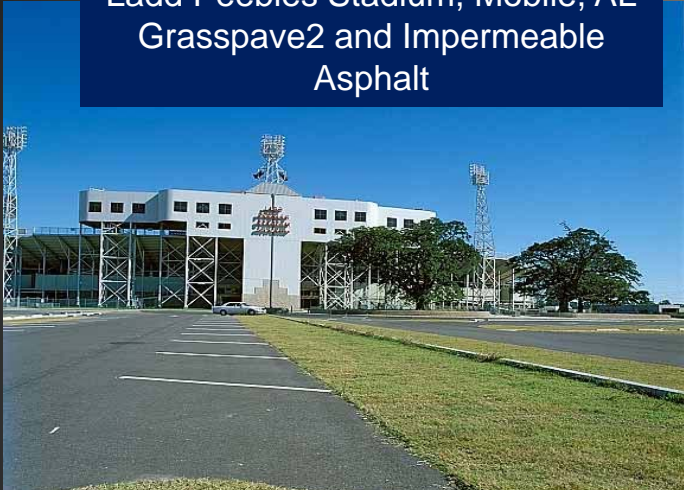


City Works Yard, Vancouver, BC

Flexible Pervious Grass Pavers

Stadium and arena parking lots

Ladd Peebles Stadium, Mobile, AL
Grasspave2 and Impermeable
Asphalt



Orange Bowl, Miami, FL
Grasspave2 and Impermeable
Asphalt

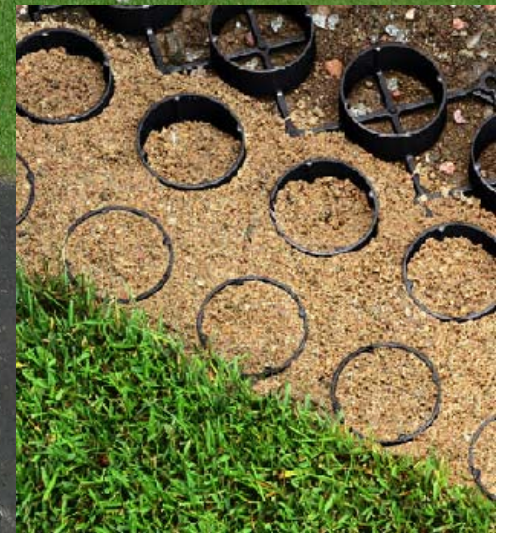


St. Louis Rams Stadium, MO
Grasspave2 and Impermeable Concrete



Mitchell Center Arena, Mobile, AL
Grasspave2 and Gravelpave2
perimeter in Impermeable Asphalt





Flexible Pervious Grass Pavers

Seasonal and overflow parking



Snow removal

Raise blade 1 inch above surface and/or
attach skids



Westfarms Mall, West Hartford, CT

Flexible Pervious Grass Pavers



Urban heat island mitigation

- Grass Albedo 0.40
- Air Conditioning effect through transpiration

Reprinted with permission from The National Center of Excellence on SMART Innovations for Urban Climate and Energy, Arizona State University

Flexible Pervious Gravel Pavers

Americans with Disabilities Act (ADA)



Gravelpave2 - tested to meet
required standards
by Beneficial Designs, Inc.
April 1999

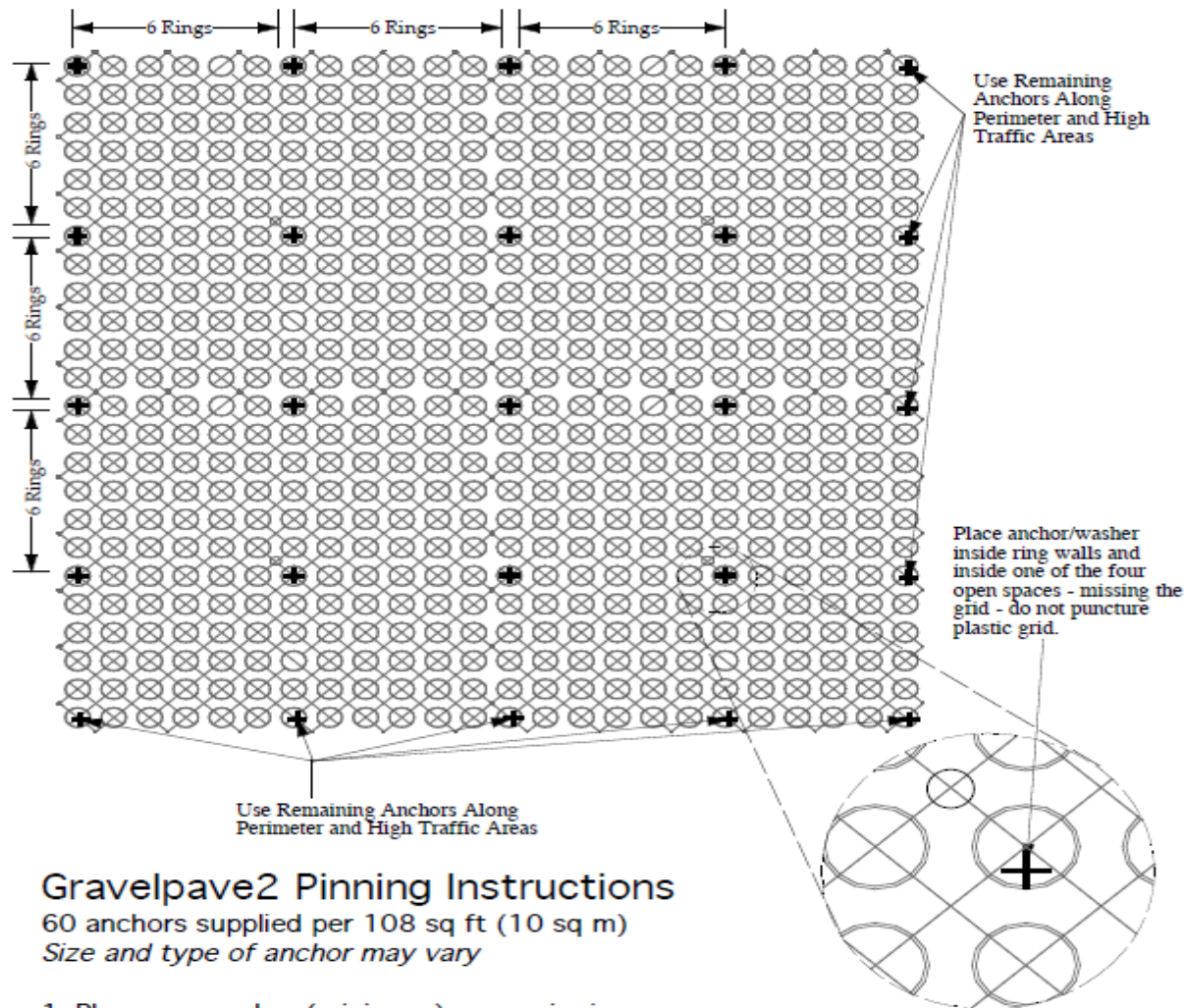


Flexible Pervious Gravel Pavers

Follow pinning instructions



Flexible Pervious Gravel Pavers



Gravelpave2 Pinning Instructions

60 anchors supplied per 108 sq ft (10 sq m)

Size and type of anchor may vary

1. Place one anchor (minimum) every six rings
2. Place anchor inside rings, in one of the four open spaces (do not puncture grid).
3. Place remaining anchors around perimeter of site and in high traffic areas

Flexible Pervious Grass Pavers

Installation costs

\$6.00 to \$7.00/sq foot

- Base course including excavation
- Polymer/fertilizer
- Flexible Grass Paver
- Sand
- Hydroseeding or thin cut sod
- Labor

Potential site cost savings

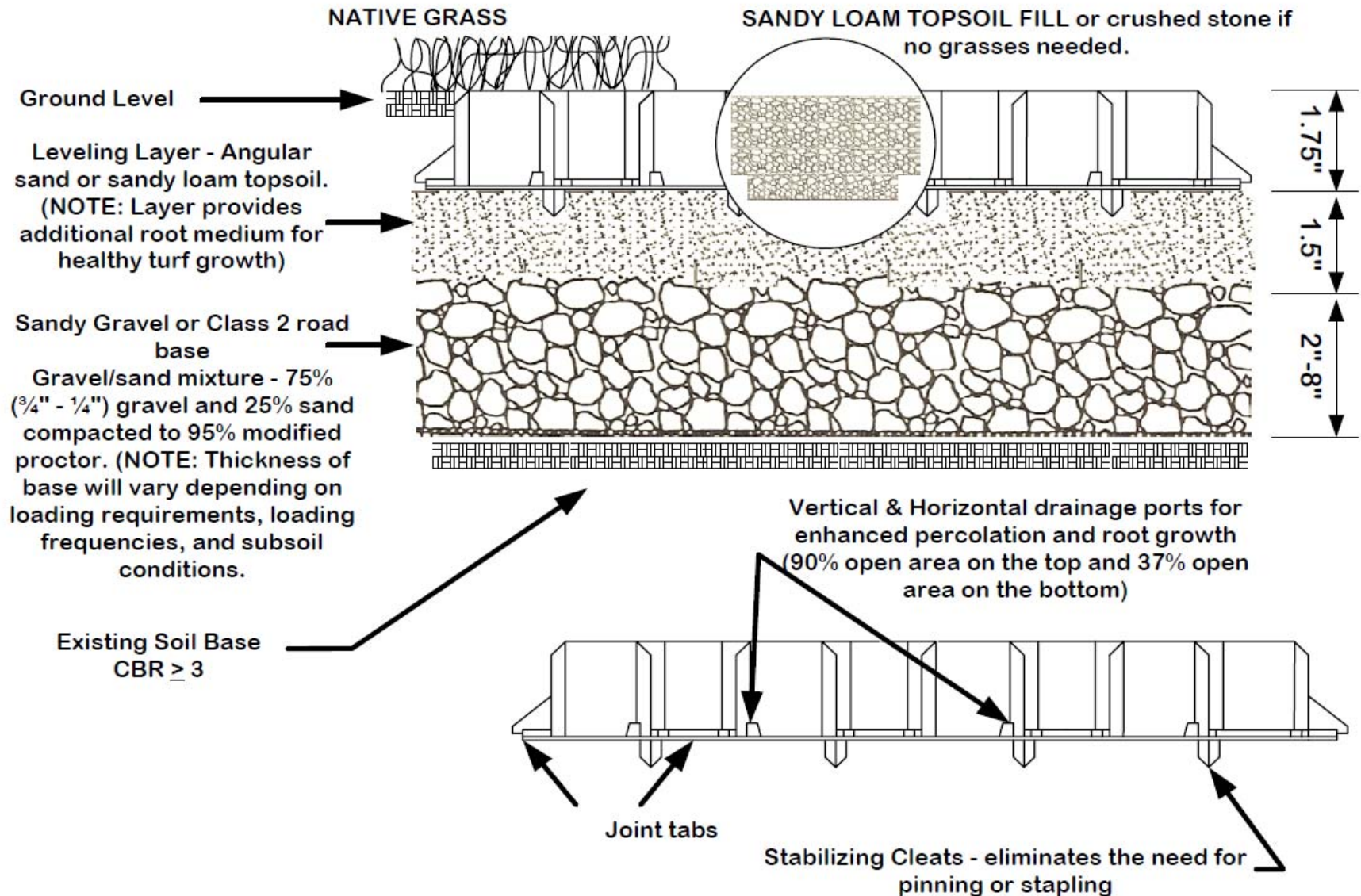
- No root barrier for trees
- Reduce or eliminate drainage infrastructure (depends on subgrade)
- Stormwater mitigation
- Multiple use site
- Reduced maintenance?
- 60 year lifespan (Grasspave2)

Grassy Pavers



- Exceeds H-20 loading requirements.
- Turf (sandy loam) or aggregate (3/16 minus to 3/8) top fill.
- Both Grassy Pavers and Invisible Structures recycled HDPE.

Grassy Pavers



Flexible Pervious Grass Pavers



LEED™ Points

(Leadership in Energy and Environmental Design)

LEED points for all products - Grasspave2 photos shown

- Reduced site disturbance
- Stormwater management
- Reduced heat island effect
- Water efficient landscaping
- Innovative wastewater technology
- Water use reduction
- Recycled content
- Erosion and sediment control