

## 6.2.10 GroSoxx<sup>®</sup> Gabion

### PURPOSE & DESCRIPTION

The Filtrex **GroSoxx<sup>®</sup> Gabion** vegetated system combines soft and hard armor technology and is designed to **stabilize and prevent erosion of waterway and shoreline banks**. The GroSoxx Gabion system is composed of a heavy duty tubular mesh netting matrix used to contain and stabilize Filtrex<sup>®</sup> GrowingMedia<sup>™</sup> and vegetation. This soft armor component can be used solely or as a green fascia within the rock gabion basket. The GroSoxx Gabion technology provides structural protection, erosion control, vegetation growth, and vegetation reinforcement in one system.

### APPLICATION

The GroSoxx<sup>®</sup> Gabion armoring system is used where waterway and shoreline banks are eroding, have become unstable, or cannot sustain vegetation.

GroSoxx<sup>®</sup> Gabions can be used to establish, sustain, and reinforce vegetation in areas of flow and intense hydraulic pressure that typically undermine vegetation growth, such as creeks and streams. Applications where the GroSoxx<sup>®</sup> Gabion system is typically required include:

- Creek, stream, and riparian bank stabilization
  - Pond and lake shoreline stabilization
  - Sediment and storm water retention/detention pond bank slope stabilization
  - Riparian, stream bank, tidal creek, and salt marsh restoration, habitat and ecological restoration, and aesthetic revitalization
- GroSoxx Gabion can also be used to reduce runoff velocity flowing into surface waters. Reducing runoff velocity will decrease soil erosion and increase pollutant removal through trapping, sediment deposition, and plant uptake.

### INSTALLATION

1. GroSoxx Gabion shall meet Filtrex GroSoxx Mesh Material and Filtrex Certified GrowingMedia Specifications.
2. Call Filtrex at 877-542-7699 or visit [www.filtrex.com](http://www.filtrex.com) for a current list of installers and distributors of Filtrex products.
3. GroSoxx Gabion will be placed at locations indicated on plans as directed by the Engineer.
4. GroSoxx Gabion shall be placed in a manner that protects the entire bank or shoreline from erosion and destabilization.
5. GroSoxx Gabion Soxx shall be placed within the rock gabion basket in complete horizontal lifts before placement of next lift. Adjacent GroSoxx shall fit tightly within the basket. Soxx shall fill the entire volume of the basket.
6. Alternatively, GroSoxx used in combination with rip rap shall be placed in the rock gabion basket in complete horizontal lifts with the rip rap. GroSoxx and rip rap should fit tightly together within the basket. GroSoxx are placed along the entire fascia (outward facing side) of the rock gabion basket.
7. Once in place, GroSoxx shall be lightly compacted to tighten seal between GroSoxx layers and encourage even water flow over the surface of the system.
8. GroSoxx Gabion must be installed and stabilized before concentrated flow is allowed to contact bank or slope area.
9. Sediment control devices (such as GroSoxx) shall be installed if construction requires land disturbance or earth moving.
10. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks prior to installation.
11. Waterway bank or shoreline shall be made smooth prior to installation.

12. Soil bed may be compacted and graded prior to installation.
13. If toe-cutting is an issue at the waterway bed and slope interface, excavation should be performed at the interface below creek bed level to allow placement of GroSoxx Gabion.
14. Excavation should be to a minimum of 1 foot (300mm) below scour line for waterways with flow depths of 6 inches (150mm) or greater.
15. GroSoxx Gabion shall be placed parallel to concentrated water flow and perpendicular to wave action.
16. Applications below the waterline will use pea gravel and small rock in the GroSoxx Gabion Soxx at the base of the system and GrowingMedia in the Soxx where vegetation will be established above the waterline.
17. In areas where waterline fluctuates below and above the system, custom soil blends may be used, as directed by the Engineer. Custom soil blends may include GrowingMedia, topsoil, sand, pea gravel, or other small aggregate.
18. For GroSoxx Gabion terrace applications, areas between GroSoxx Gabion should be on a level grade, and backfilled with seeded GrowingMedia. Waterline should be below terraced areas receiving backfill.
19. GroSoxx Gabion shall be seeded at the time of application, seed selection will be determined by the Engineer.
20. Seeded GroSoxx Gabion should not be installed prior to seasons where growing vegetation is difficult.
21. Seed shall be thoroughly mixed with the GrowingMedia prior to construction or at time of application.
22. Biotechnical engineering with live stakes, tubers, seedlings, or plugs should be conducted after staking is complete.
23. Live stakes should be from a live species, and cuttings should be 1 to 3 feet (300-900mm) long.
24. Live stakes should be spaced 5-7 feet (1.5-2.1m) apart, and planted vertically with one end planted through the GroSoxx Gabion and at least 2 inches (50mm) into native soil.
25. Seeded and/or live staked GroSoxx Gabion shall be thoroughly watered after installation and allowed to settle for 1 week.
26. Drip tape may be installed within the GroSoxx Gabion Soxx during construction to provide irrigation for establishing vegetation.
27. If drip irrigation system is installed, a reliable water source should be located and secured.
28. If drip irrigation system is installed and municipal water or a pump will be utilized, a pressure reducer may be required to manage flow and prevent drip tape from bursting.

### INSPECTION & MAINTENANCE

Routine inspection should be conducted within 24 hours of a runoff event for the first year after installation, until permanent vegetation has established, or as designated by the regulating authority. If product dislodgement occurs, or vegetation does not establish, GroSoxx Gabion should be repaired, reseeded, and/or replanted. If bank or shoreline erosion occurs, the area should be repaired immediately. Vegetation practices should always be inspected for noxious or invasive weeds. If sediment accumulation is 25% of the height of the vegetation, sediment removal is recommended. Storm debris and trash should be removed immediately.

1. The Contractor shall maintain the GroSoxx Gabion in a functional condition at all times and it shall be routinely inspected.
2. GroSoxx Gabion shall be maintained until a minimum uniform

70% cover of the applied area has been vegetated, permanent vegetation has established, or as required by the jurisdictional agency.

3. GroSoxx Gabion may need to be irrigated in hot and dry weather and seasons, or arid and semi-arid climates to ensure vegetation establishment.
4. Where a GroSoxx Gabion fails or becomes dislodged, the contractor will ensure the practice is in good contact with the soil and backfill media, repair, and use additional staking or anchoring if necessary.
5. Where bank or shoreline erosion occurs, the contractor will regrade the soil if necessary and repair or replace the GroSoxx Gabion.
6. Where vegetation does not establish, the contractor will reseed, replant, replace live stakes, or provide an approved and functioning alternative.
7. If GroSoxx Gabion is only seeded at time of installation, live stakes may be added to increase stability, aesthetics, wildlife habitat, and ecological succession.
8. No additional fertilizer or lime is required for vegetation establishment and maintenance.
9. No disposal is required for this product/practice.
10. GroSoxx Gabion shall become part of the permanent landscape.
11. Maintenance of grass vegetation on seeded GroSoxx Gabion to a minimum height of 4 inches (100mm) and a maximum height of 10 inches (250mm) will deter invasive weeds, allow sunlight to kill captured pathogens from storm water, and provide maximum sediment removal efficiency and sediment storage capacity in the vegetation.
12. Storm debris and trash deposited on GroSoxx Gabion should be removed immediately.
13. Sediment shall be removed if it reaches 25% of the height of the vegetation (mowed) to prevent diversion of storm runoff and reduction of vegetation health and cover.
14. If drip tape irrigation system is installed, once vegetation is fully established, connections to drip tape irrigation system may be removed, leaving the drip tape inside the GroSoxx Gabion Soxx. Cut ends of drip tape and discard in approved waste receptacle.

#### ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at [filtrexx.com](http://filtrexx.com)

Filtrexx International, Technical Support  
877-542-7699 | [www.filtrexx.com](http://www.filtrexx.com) | [info@filtrexx.com](mailto:info@filtrexx.com)  
Call for complete list of international installers and distributors.

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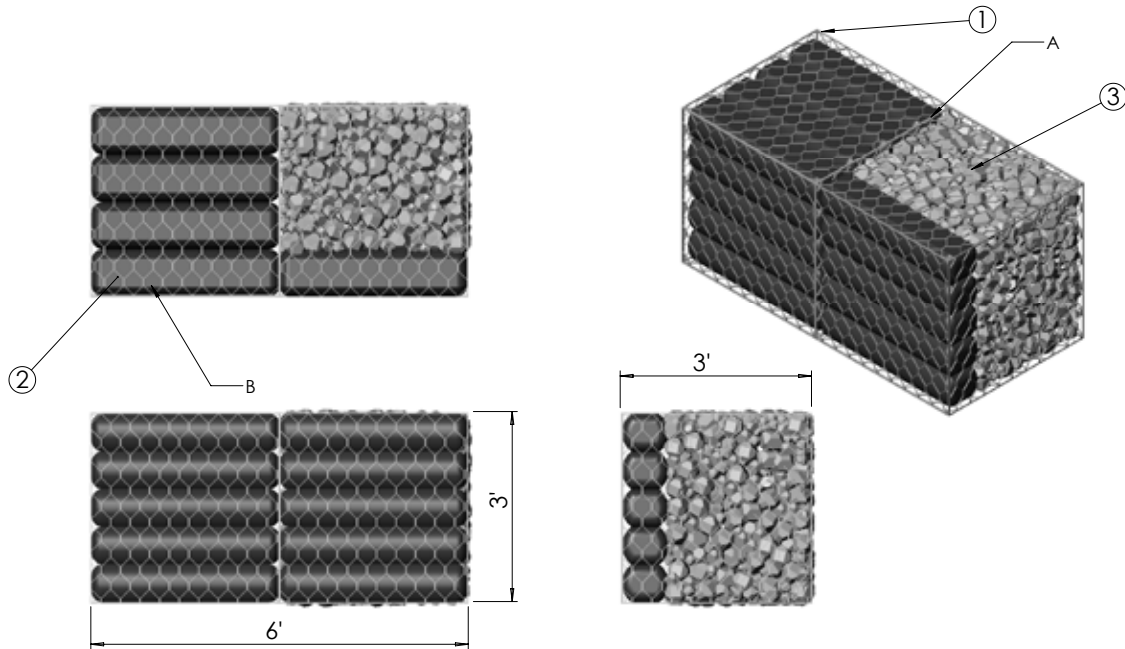
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Figure 10.1. Engineering Design Drawing for Filtrexx GroSoxx® Gabion

# Filtrexx® GroSoxx® Gabion



**NOTES:**

- A. 3' X 3' PEICE OF GABION WIRE CREATES CENTRAL DIVIDER.
- B. SOXX™ MAY BE FILLED WITH FILTER OR GROWING MEDIA, DEPENDING ON THE APPLICATION.
- C. THE TWO CHAMBERS CAN BE FILLED WITH ALL SOXX™ OR PART SOCK AND PART ROCK DEPENDING ON THE APPLICATION.

ITEM NO.	DESCRIPTION	QTY.
1	STANDARD GABION CAGE	~100 FT^2
2	8" FILLED SOXX™ 36"L	25
3	ROCK, #1S AND 2S (PER CHAMBER)	~1 YD^3

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DIMENSIONS ARE IN INCHES  
 ANGULAR: BEND ± 2°  
 TWO PLACE DECIMAL ± .015  
 THREE PLACE DECIMAL ± .005

DO NOT SCALE DRAWING

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SIZE <b>A</b>	TITLE: GREEN GABION	REV.
DWG./PART NO.		SHEET 1 OF 1