# Bioretention Soil

Sustainable urban drainage systems are designed to move water in a manner that controls the release into the main sewer system or into attenuation or harvesting systems for re-distribution into irrigation and smart drainage systems. With this in mind, Green-tree Soils has designed its Bioretention Soil with the CIRIA SuDS Guidelines in mind.

**Physical properties according to BS8616 all data supplied in conjunction with STRI. All result values refer only to the substrate sample tested.**

| | Bioretention - Standard | Bioretention - High Performance |
|---|---|---|
| **Substrate Density** | | |
| Bulk Density when Oven Dried | 1.40 g $cm^{-3}$ | 1.16 g $cm^{-3}$ |
| **Water & Air** | | |
| Total Porosity | 38.6% | 42.9% |
| Saturated Hydraulic Conductivity | 2.1 mm $min^{-1}$<br>126.00 mm $hour^{-1}$ | 6.2mm $min^{-1}$<br>372.0mm $hour^{-1}$ |
| **Chemical** | | |
| Organic Matter (weight) | 3.0% | 3.6% |
| pH | 7.3 | 6.9 |
| EC | 3.06 | 3.06 |
| Plant Available Phosphate | 287 mg $l^{-1}$ | 270 mg $l^{-1}$ |
| Plant Available Potassium | 901 mg $l^{-1}$ | 942 mg $l^{-1}$ |
| Total Nitrogen | 0.19% | 0.17% |
| Lead | 7.1 mg $l^{-1}$ | 4.7 mg $l^{-1}$ |
| Nickel | 0.6 mg $l^{-1}$ | 0.9 mg $l^{-1}$ |
| Copper | 4.0 mg $l^{-1}$ | 4.8 mg $l^{-1}$ |
| Cadmium | 0.1 mg $l^{-1}$ | 0.1 mg $l^{-1}$ |
| Zinc | 5.5 mg $l^{-1}$ | 7.0 mg $l^{-1}$ |
| C:N Ratio | 9.2 | 12.3 |



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Green-tree Topsoil

| | Bioretention - Standard | Bioretention - High Performance |
|---|---|---|
| **Particle Size Distribution** | | |
| Stones (>8mm) | 0.0 | 3.8 |
| Coarse Gravel (8-4mm) | 17.1 | 22.6 |
| Fine Gravel (4-2mm) | 16.7 | 17.1 |
| Very Coarse Sand (2-1mm) | 4.2 | 4.5 |
| Coarse Sand (1.0-0.5mm) | 1.9 | 1.9 |
| Medium Sand (0.5-0.25mm) | 23.0 | 18.0 |
| Fine Sand (0.250-0.125mm) | 25.2 | 21.0 |
| Very Fine Sand (0.125mm-0.050mm) | 5.8 | 5.3 |
| Silt (0.050-0.002mm) | 3.6 | 2.9 |
| Clay (<0.002mm) | 2.5 | 2.9 |



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