



| ANALYSIS FOR: | | | ADDITIONAL COPY TO: | | |
|---|-----------------|----------------|---------------------|---------------|----------------|
| John Smith Greenroof America 111 Plant Lane Sedum PA 11111 | | | | | |
| LAB ID | SAMPLE ID | SAMPLE TYPE | DATE SAMPLED | DATE RECEIVED | DATE COMPLETED |
| SMOTEST | TOP GROW 187.35 | Drainage Media | 4/1/2008 | 4/3/2008 | 4/10/2008 |

Green Roof Media Analysis

Results on dry weight basis unless specified otherwise

| Analysis | Units | Result | FLL Guidelines for Multi Course Extensive Sites ¹ |
|---|--------------------|--------|--|
| Particle Size Distribution (See accompanying report) | | | |
| ≤ 0.05 mm (Fill reference value based on < 0.06 mm) | mass % | | ≤ 15 |
| Denisty Measurements | | | |
| Bulk Density (dry weight basis) | g/cm ³ | 1.15 | — |
| Bulk Density (dry weight basis) | lb/ft ³ | 71.77 | — |
| Bulk Density (at max. water-holding capacity) | g/cm ³ | 1.35 | — |
| Bulk Density (at max. water-holding capacity) | lb/ft ³ | 84.36 | — |
| Water/Air Measurements | | | |
| Moisture | mass % | 13.0 | — |
| Total Pore Volume ² | Vol. % | 35.4 | — |
| Maximum water-holding Capacity | Vol. % | 20.6 | 35 - 65 |
| Air-Filled Porosity (at max water-holding capacity) | Vol. % | 14.8 | ≥ 10 |
| Water permeability (saturated hydraulic conductivity) | cm/s | 0.016 | 0.001 - 0.12 |
| Water permeability (saturated hydraulic conductivity) | in/min | 0.375 | 0.024 - 2.83 |
| pH and Salt Content | | | |
| pH (CaCl ₂) | | 7.7 | 6.0 - 8.5 |
| Soluble salts (water, 1:10, m:v) | mmhos/cm | 0.29 | — |
| Soluble salts (water, 1:10, m:v) | g (KCl)/L | 2.05 | ≤ 3.5 |
| Organic Measurements | | | |
| Organic matter content | mass % | 6.2 | — |
| Organic matter content | g/L | 71.1 | ≤ 65 |
| Nutrients | | | |
| Phosphorus, P ₂ O ₅ (CAL) | mg/L | 143.8 | ≤ 200 |
| Potassium, K ₂ O (CAL) | mg/L | 502.4 | ≤ 700 |
| Magnesium, Mg (CaCl ₂) | mg/L | 139.6 | ≤ 200 |
| Nitrate + Ammonium (CaCl ₂) | mg/L | 11.6 | ≤ 80 |

GROIA Multi Course Extensive

¹Forschungsgesellschaft Landschaftsentwicklung Landschaftsbau (FLL). 2008. Guidelines for the Planning Execution and Upkeep of Green-Roof Sites

²Total pore volume determined using measured particle density instead of assumed particle density as specified in FLL



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Green Roof Media Particle Size Distribution

| Particle Size Analysis | | Sum of particles less than size specified | | | |
|------------------------|---|---|------------------|------------|--------------------|
| Diameter -mm- | % | Diameter -mm- | Diameter -in- | Sieve size | % sum of particles |
| < 0.002 | | < 0.002 | --- | --- | |
| 0.002-0.05 | | < 0.05 | --- | --- | |
| 0.05-0.25 | | < 0.25 | 0.0098 | 60 mesh | |
| 0.25-1.0 | | < 1.0 | 0.0394 | 18 mesh | |
| 1.0-2.0 | | < 2.0 | 0.0787 | 10 mesh | |
| 2.0-3.2 | | < 3.2 | 0.125 | 1/8 inch | |
| 3.2-6.3 | | < 6.3 | 0.250 | 1/4 inch | |
| 6.3-9.5 | | < 9.5 | 0.375 | 3/8 inch | |
| 9.5-12.5 | | < 12.5 | 0.500 | 1/2 inch | |
| > 12.5 | | | | | |

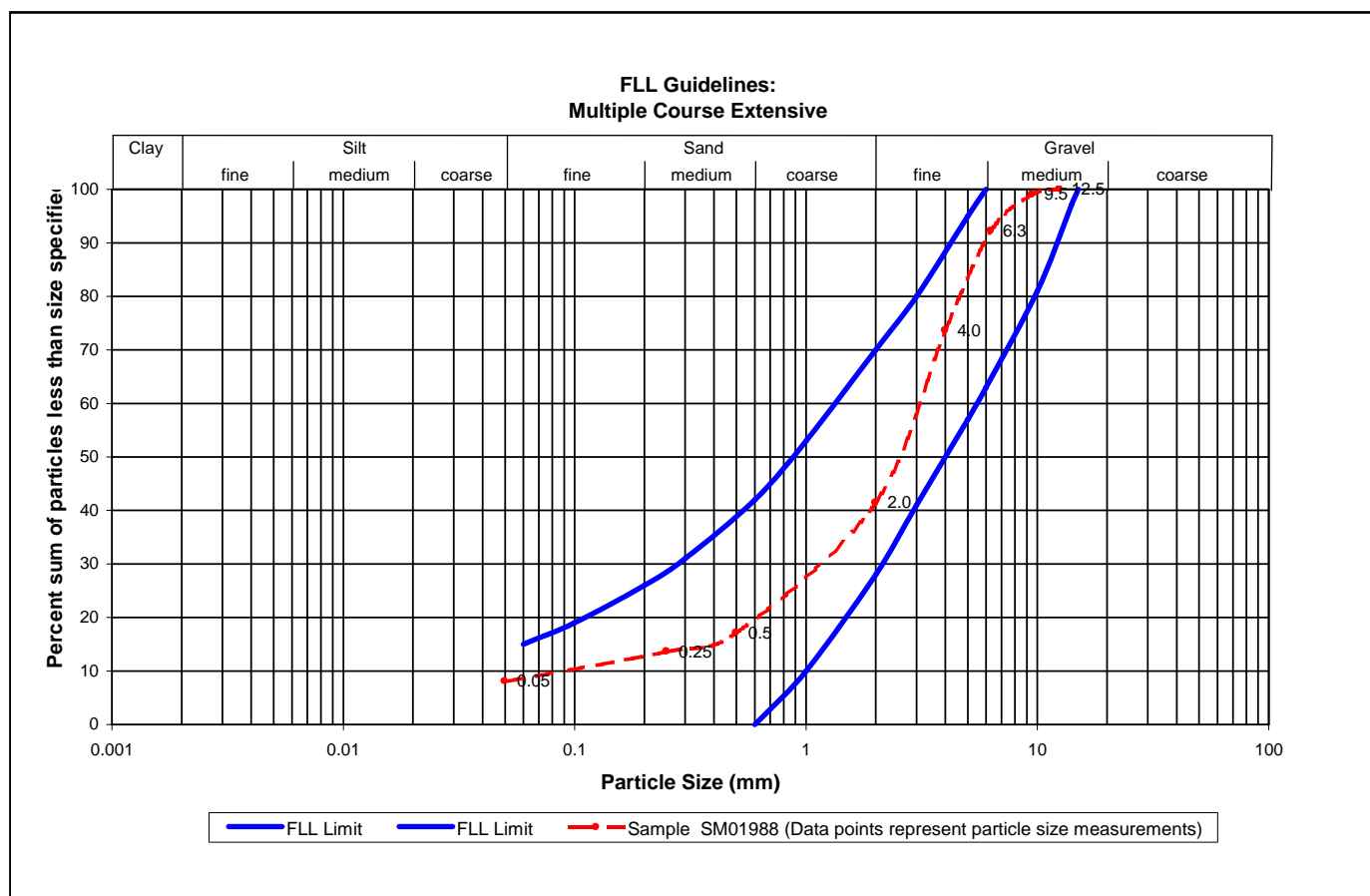


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Green Roof Media FLL¹ Particle Size Distribution Graph for Multiple Course Extensive Systems



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