water

MDPI

Supplementary Material

Concentrations and Retention Efficiency of Tire Wear Particles from Road Runoff in Bioretention Cells

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Supplementary Materials Section S1. Particle size distribution of engineered soil

The soil requirements for bioretention are unique: good infiltration capacity to drain excess water as well as water and nutrient retention to promote plant growth are required at the same time [27]. The physical and chemical properties of the soil used in the column experiment were analyzed by a commercial lab, Eurofins. The soil was classified as medium sand with pH 7.8, density of 1.4 g/cm^3, low organic matter content (2 %), medium nutrient content (plant available phosphorus and potassium, as assessed by ammonium lactate (AL) extraction: P-AL 6 mg/100 g air dry soil and K-AL 10 mg/100 g air dry soil). Similar soil composition was reported in [27] to have sufficient air filled pores to drain high rainfall, making the mixture suitable for construction of bioretention cells in very wet areas with short dry periods. Grain size distribution of the engineered soil is presented in Fig. S1. A soil with this grain size distribution meets the Norwegian Road Administration guidelines (process 74.44) for constructions with soil intended for plant growth [29].

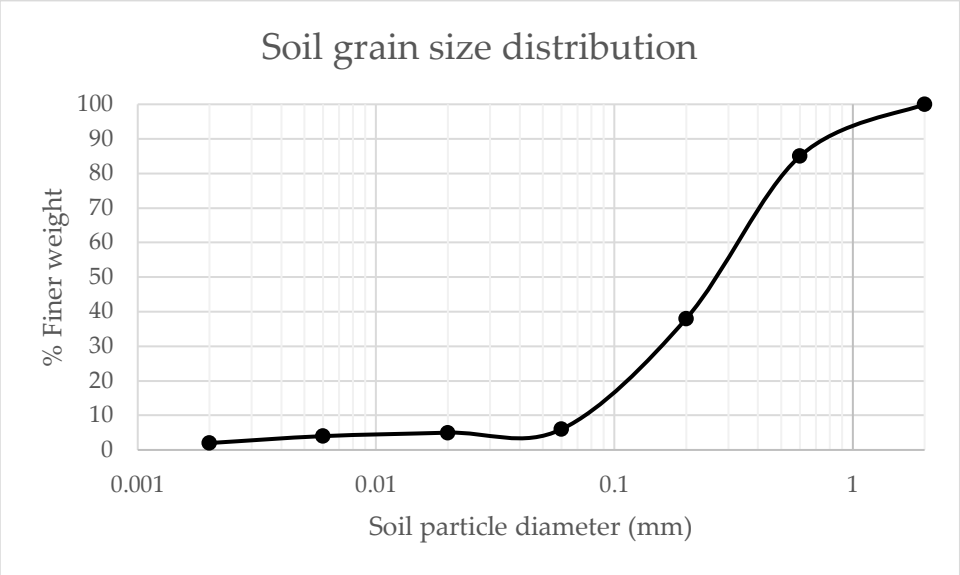

Figure S1. Grain size distribution of the engineered soil used in the column experiment prepared by mixing sand, silty-sand, and garden compost from Lindum AS, in a mass ratio of 8:15:6, respectively.

Supplementary Materials Section S2. PARAFAC model validity indicators

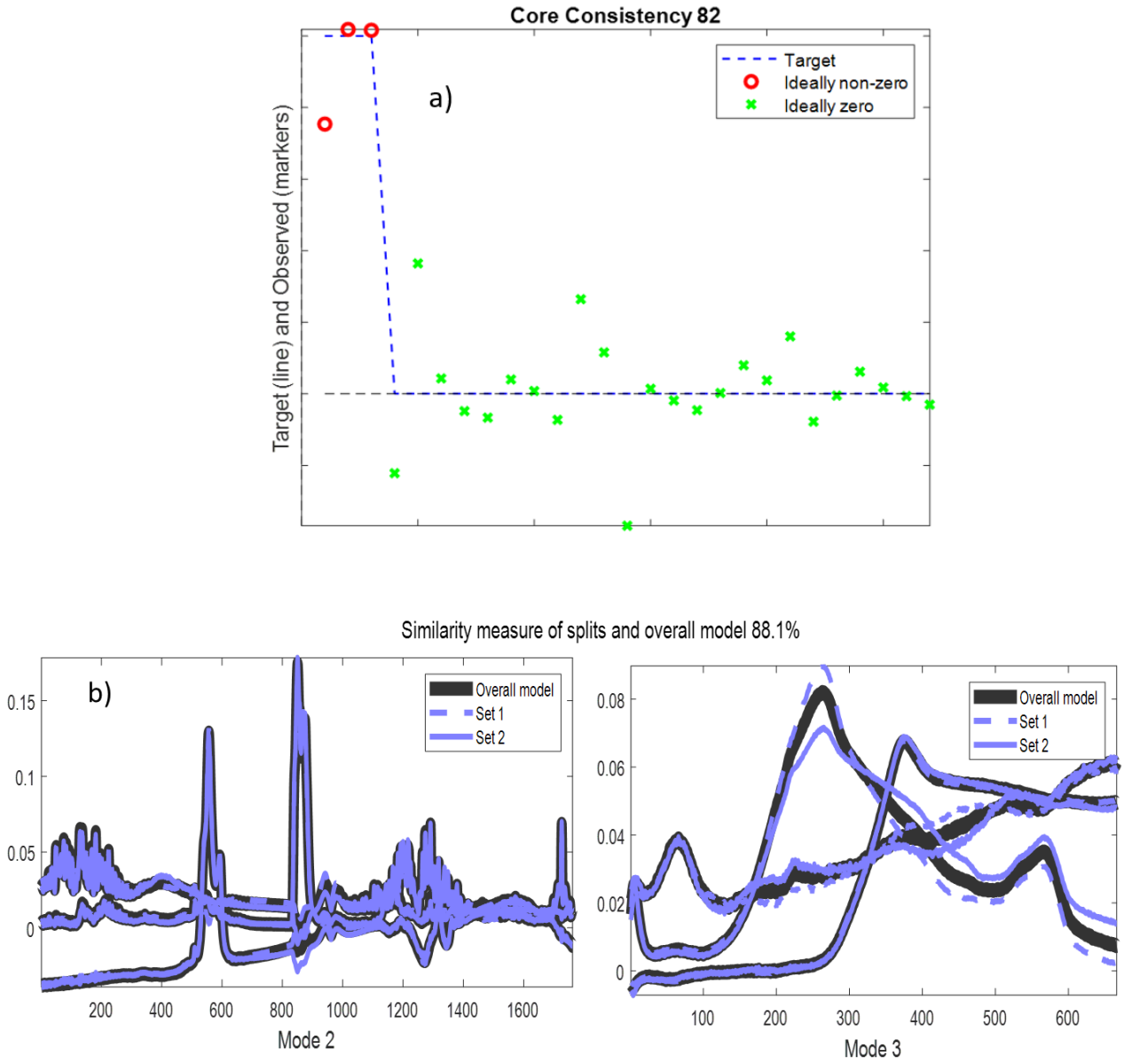

Figure S2. a) core consistency of 82 %, b) similarity measure of splits 88 %.

References

27. Haraldsen, T.K.; Gamborg, M.; Vike, E. *Utvikling av Jordblandinger til regnbed i Drammen Potteforsøk med Periodevis Vannmetning og Uttørking*. Norwegian Institute of Bioeconomy Research (NIBIO), Ås: **2019**; Volume 5.

29. *Prosesskode 1: Standard beskrivelse for vegkontrakter*, R761 Vegdir. Oslo, **2018**.