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RESEARCH & INNOVATION CENTRE

Soil Sampling Protocol

Prepared By

Dr. Darby McGrath
Jason Henry M.Sc.

The importance of soil sampling

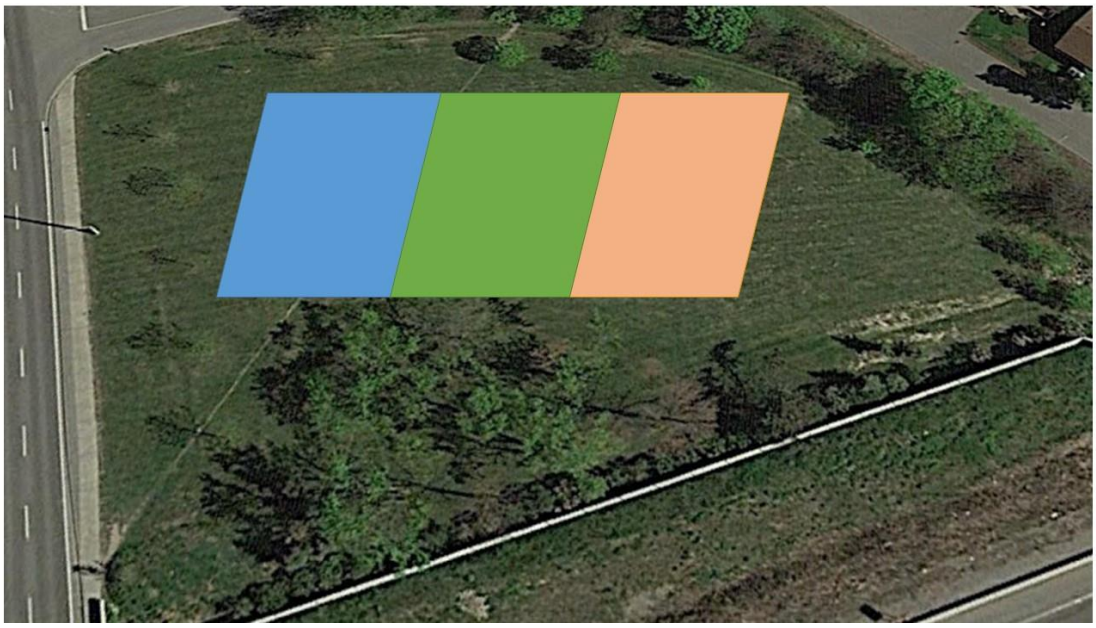
Urban soils are compacted soils and in most instances do not have the physical composition to support tree establishment, survival or growth. The relationship between compaction (measured as bulk density) and organic matter is well established. When organic matter is increased in soils, compaction is decreased and tree survival is improved. Due to this strong relationship and the known compaction thresholds for different soil-types, we have determined thresholds of organic matter required to support tree establishment and growth in urban soils. The analysis of organic matter is a commonly available and relatively inexpensive test at most accredited labs. The sampling of organic matter is a simple procedure with more accurate results for estimating compaction than other methods (e.g. the penetrometer). By following these steps, you can sample your soils and use the Soil Remediation Calculator to determine the work required to improve your soil quality.

Step 1: Assemble all your equipment.

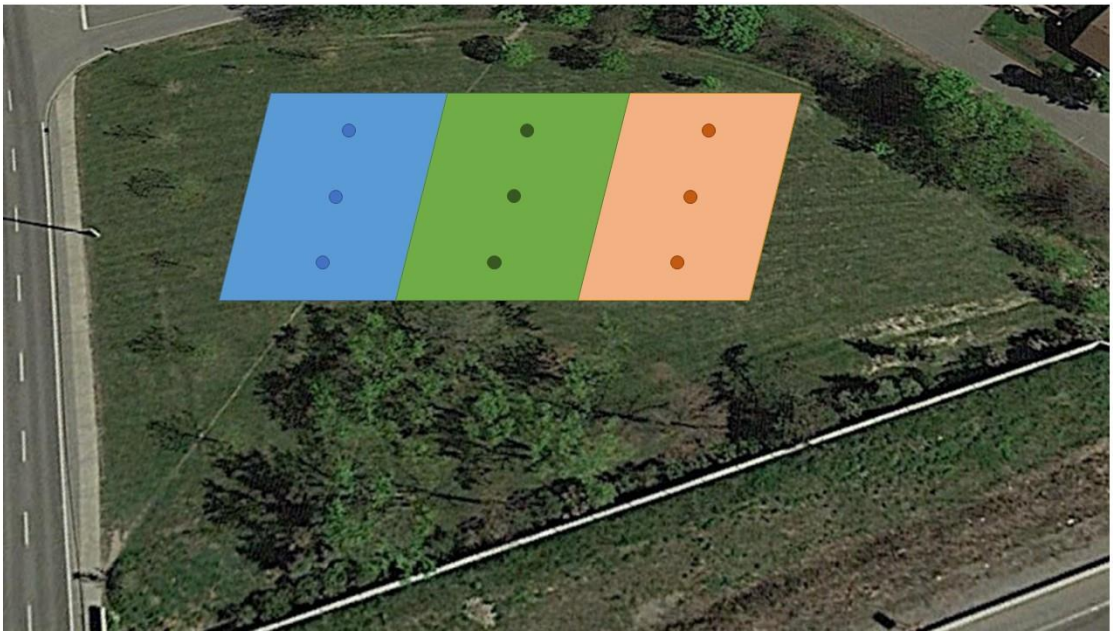
The equipment required for sampling including 2 buckets for mixing your composite samples, a trowel, a shovel or an auger, a metre stick, Ziploc bags and a permanent marker.

Step 2: Examine an aerial image of your site to help to identify your planting area.

Mark out your planting area using flags/poles that can be left in place until site has been prepared.



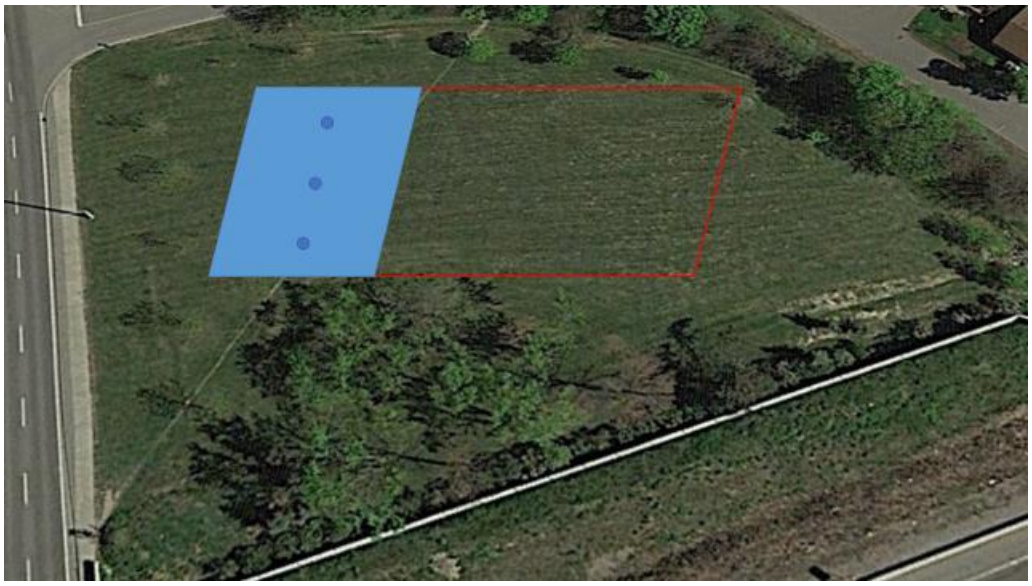
Break your planting area down into multiple sections based on key site features like changes in topography and vegetation. Three composite samples will be taken from each section (i.e. three samples from each of the blue, green and orange sections).



Mark out your soil sampling locations. The locations should be representative of the entire section that you are sampling. When you are finished you will have 2 composite samples for each section (Sample 1 is the composite 0 to 30 cm and Sample 2 is the composite 40 to 50 cm depth from each section).

Step 3: Sample collection

Using a shovel or an auger begin to collect your samples.



Begin by sampling in section 1, and for each of the three sampling areas identified, collect the 0 to 30 cm composite sample. Once completed collect 0 to 30 cm samples for the other two identified sample points.

Clear any turf or debris from from the sampling location. Insert the sampling equipment into the soil to collect the 0 to 30 cm depth sample. Using a metre stick check to ensure you are reaching the correct depth for sampling.

Collect your sample from composite 1 (0 to 30 cm) in the first bucket. Repeat your collection for the 40 to 50 cm depth from the first sampling point in section 1 followed by 2 and 3.

Step 4: Mixing the composite samples.

Mix all samples from section 1 from the 0 to 30 cm in the first bucket and the 40 to 50 cm in the second bucket. Once the samples are thoroughly mixed label your Ziploc bags and fill

it with about 1 cup of the mixture. Now repeat the same process for all the sampling sections identified.

Vineland Research and Innovation Centre
4890 Victoria Avenue North, Box 4000
Vineland Station, ON L0R 2E0

tel: 905.562.0320

vinelandresearch.com

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