



## FLOOD MANAGEMENT SOIL COMPACTION, TEXTURE & COLOUR

The soil of a Tiny Forest is just as important as the trees! Together they play an important role in flood management, allowing water to be absorbed and stored. This survey will investigate the characteristics of the soil which play an important role in how much water can be taken in by the soil, and therefore its ability to reduce flood risk.

### EQUIPMENT PER GROUP:

- 1 x Penetrometer
- 1 x Soil texture flow diagram and soil colour charts (included in protocol)
- 1 x Pair of gloves (optional)
- 1 x Tablet/phone/printed field sheet

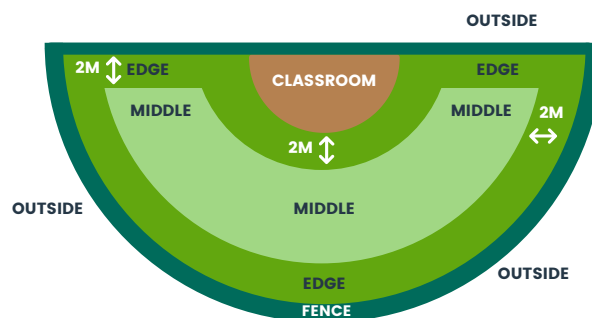
### WHEN TO SURVEY

Any time of day and any time of year, but best avoid when there is heavy rain.

### INSTRUCTIONS

#### STEP 1:

- Record where you are taking your measurements. Choose a spot where you will collect your data. This can be in the middle, the edge, or outside the tiny forest. Once you have chosen where to sample, use the diagram to help you classify your location.

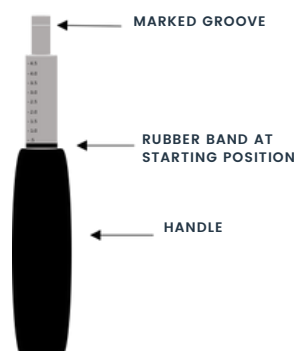


#### STEP 2:

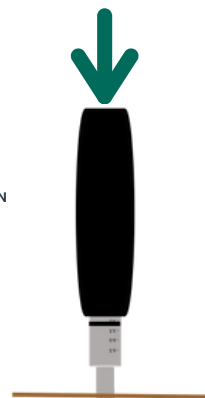
- Measure how compacted the soil is, using the penetrometer (a small, black, pen shaped instrument). Compaction is a measurement of how packed together the soil is.

Make sure the rubber band is pushed back against the handle of the penetrometer. Carefully clear a small area of the mulch (the top layer covering the soil) to expose the soil surface. Then, place the penetrometer so that it is sticking upright from the ground, and push it firmly with a constant force into the soil up to the marked groove on the end of the shaft. Remove it from the soil - the rubber band should have moved slightly - read the number where the band is now sitting.

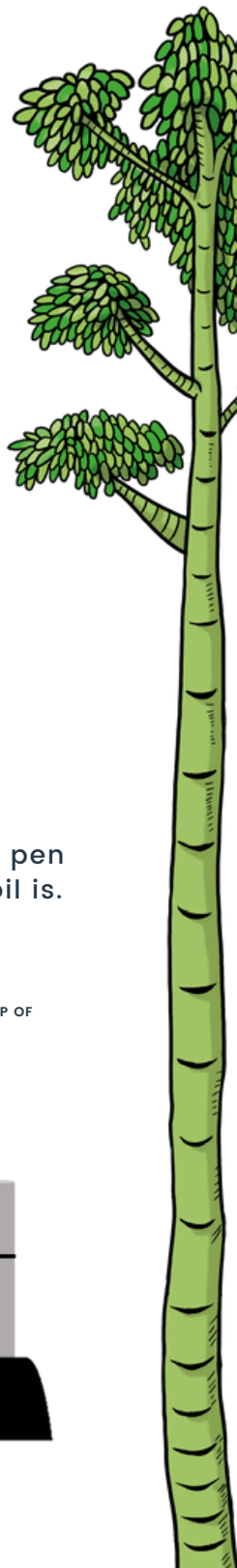
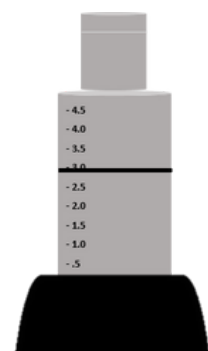
STARTING POSITION

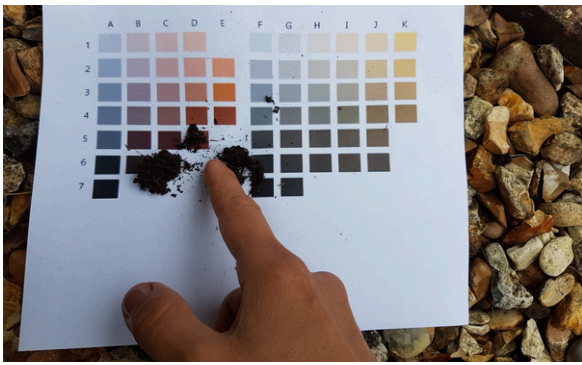


PRESS INTO SOIL UNTIL GROOVE



READ FROM TOP OF BAND





### STEP 3:

- Estimate what the soil colour is. Take a fresh bit of soil from your sampling point and place on the soil colour chart. Move the soil around the chart until you find the colour block that most closely matches your sample. Then record the column letter and row number for that colour block on your tablet, phone or field sheet.



### STEP 4:

- Assess the soil texture by taking handful of soil from your sampling point and follow the steps on the soil texture flow diagram to find out the soil texture. Record the selection on your tablet, phone or field sheet.

You can repeat the steps at a new sample point. Aim to do three samples in different parts of the forest.

## SOIL COLOUR CHART

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
7											

## SOIL TEXTURE FLOW DIAGRAM

Grab a handful of soil, add water and knead until moldable.  
Make sure it's not too dry or wet – add dry soil if it's too wet.

Can you roll it to make a ball?

NO

SAND

YES

Place ball between finger and thumb and  
squeeze it upward to make a ribbon.  
Does the soil make a ribbon?

NO

LOAMY SAND

YES

How long is your ribbon?

<2.5 cm

2.5–5cm

>5cm

Put a pinch of the soil in your palm, add drops of water and rub it with your forefinger.

Does soil feel  
very gritty?

SANDY LOAM

Does soil feel  
very smooth?

SILT LOAM

Neither gritty  
nor smooth  
predominance.

LOAM

Does soil feel  
very gritty?

SANDY CLAY  
LOAM

Does soil feel  
very smooth?

SILTY CLAY  
LOAM

Neither gritty  
nor smooth  
predominance.

CLAY LOAM

Does soil feel  
very gritty?

SANDY CLAY

Does soil feel  
very smooth?

SILT CLAY

Neither gritty  
nor smooth  
predominance.

CLAY



**tinyforest**  
earthwatch  
AUSTRALIA

STAY IN TOUCH



EARTHWATCH AUSTRALIA



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