

parks&carbons  
parksCquest

# **Col Cambell Park VRM Trial**

5 February, 2008

## **Table of Contents**

1.	Introduction .....	1
2.	Experimental Design .....	2
3.	Maps .....	3
4.	Costs.....	4
5.	Application of the Product .....	5
6.	Results of First Testing .....	6
7.	Contacts .....	7

## **1. Introduction**

Townsville City Council Parks Services has implemented a Corporate Carbon Management Program which is investigating a range of carbon management techniques including soil carbon sequestration. In particular, Parks is undertaking three field trials of soil carbon sequestration techniques.

One of these trials includes the use of a soil carbon enrichment system developed by Townsville based biotechnology firm, Vital Resource Management Pty Ltd (VRM) on Col Campbell Park, Mt. Louisa. This briefing paper details the Field Trial as of 14 January, 2008 and shows a small increase in soil carbon in line with expectations.

The Vital Resource Management soil carbon enrichment system relies on inoculating the soil with a mixture of selected micro-organisms including photosynthetic bacteria. As these organisms reproduce they absorb CO<sub>2</sub> from the atmosphere and this stays in the soil. The end result is soil that is higher in carbon, but also has better water retention capabilities. Importantly, this means that carbon enriched soils require less watering. These soils also provide a more fertile substrate for growing plants, including grass.

## **2. Experimental Design**

### **Step 1: Week 1**

Soil is taken from multiple parts of the Park and mixed together. A single sample is analysed for Soil Carbon and Soil Moisture. This is repeated three times over a week. The average results of these soil carbon readings is the baseline against which soil carbon is measured.

### **Step 2: Week 2**

The Park is divided into three zones: Treatment, Control and Buffer.

Apply soil conditioning products diluted 10 to 1 to Treatment zone mechanical sprayer.

- 10 litres                      BB1
- 2.5 litres                     Bios Start Plus
- 2.5 litres                     Cal Booster

### **Step 3: Week 6**

Second Application of soil conditioning products as above.

### **Step 4: Week 12**

Clustered soil sample of Control and Treatment. This sampling has been undertaken and the results are shown below.

### **Step 5: Week 54**

Clustered soil sample of Control and Treatment.

### 3. Maps

**Top:** Showing Control, Treatment and Buffer Zones. **Bottom:** Street Location of Col Campbell park on Lornsleigh St, Mt Louisa



## 4. Costs

Soil sample analysis by STC P/L = \$106

- Total Organic Carbon - Total Carbon - Moisture - Structure

### **Week 1= \$418**

- \$100 labour
- \$106 Analysis Soil Sample 1
- \$106 Analysis Soil Sample 2
- \$106 Analysis Soil Sample 3

### **Week 12= \$736**

3 samples Treatment Zone and 3 samples from Control Zone

- \$100 labour
- \$106 Analysis Treatment Soil Sample 1
- \$106 Analysis Treatment Soil Sample 2
- \$106 Analysis Treatment Soil Sample 3
- \$106 Analysis Control Soil Sample 3
- \$106 Analysis Control Soil Sample 3
- \$106 Analysis Control Soil Sample 3

### **Week 54 = \$736**

3 samples Treatment Zone and 3 samples from Control Zone

- \$100 labour
- \$106 Analysis Treatment Soil Sample 1
- \$106 Analysis Treatment Soil Sample 2
- \$106 Analysis Treatment Soil Sample 3
- \$106 Analysis Control Soil Sample 3
- \$106 Analysis Control Soil Sample 3
- \$106 Analysis Control Soil Sample 3

### **Totals**

Week 1	\$418
Week 12	\$736
Week 54	\$736

**Total** **\$1,890**

**Note:** the VRM product was donated at no cost to Council by the supplier.

## 5. Application of the Product

On Tuesday 5 June, 2007 the first application of VRM product was made on Col Campbell Park. On site were Guy Lane, Ken Bellamy and Peter Campbell and the spray truck driver.

Application rates were:

- 10 litres                   BB1
- 2.5 litres                 Bios Start Plus
- 2.5 litres                 Cal Booster

These products were mixed together with 150 litres of water. The tank was cleaned before the application. The spraying took about an hour and went without incident.

On the day of the spraying it was noted that there was a lot of excess water on the ground and a decision was made to reduce the total volume of irrigation across the whole park by half. Of note, a few days after the spraying, there was a few days of rain.



Council spray truck applying the VRM product.

Six weeks later, a second spraying of the product was undertaken as per manufacturers instructions.

## 6. Results of First Testing

Between the 11<sup>th</sup> and 19<sup>th</sup> November, 2007, six months after the second application of VRM products, soil samples were taken. These were taken from both the treated and the control section of the park and were mixed. In total, six samples were analysed, three from the control and three from the treated area. The results are showing in the SGS Laboratory, Cairns, report No. 57893, 11-19 November, 2007.

Of specific interest, the results showed an increase in the organic soil carbon in the side treated with the VRM product. A summary of the results is shown below.

### Control

Organic Carbon

Sample 1	2.6% w/w
Sample 2	3.0% w/w
Sample 3	3.7% w/w
<b>Average</b>	<b>3.1% w/w</b>

### Treatment with VRM Products

Organic Carbon

Sample 1	3.5% w/w
Sample 2	4.4% w/w
Sample 3	3.4% w/w
<b>Average</b>	<b>3.8% w/w</b>

The test results indicate an increase of 0.7% w/w soil carbon for the treated side. This evidence supports the argument that the VRM product can assist to sequester carbon from the atmosphere.

## **7. Contacts**

### **TCC Parks Services**

Applies the soil conditioning product.  
Tristram Denyer  
0407 672 835  
4727 8345  
tjd@townsville.qld.gov.au

### **Project Manager**

Coordinates activities and provides communication between team members as required. Provides reports to Council on the Progress of the trial  
Guy Lane  
SEA O2 Sustainable Development  
0410 450 351  
info@seao2.com

### **Vital Resource Management P/L**

Provides the VRM soil carbon enrichment system and undertakes soil samples.

Claudia Brassard  
P.O. Box 350  
Deeragun Qld 4818  
Phone: (07) 4774 6337  
Fax:(07) 4774 6338