The Clay Research Group

RESEARCH AREAS

Climate Change ◆ Data Analysis ◆ Electrical Resistivity Tomography
Time Domain Reflectometry ◆ BioSciences ◆ Ground Movement
Soil Testing Techniques ◆ Telemetry ◆ Numerical Modelling
Ground Remediation Techniques ◆ Risk Analysis
Mapping ◆ Software Analysis Tools

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Climate : Telemetry : Clay Soil : BioSciences : GIS & Mapping
Risk Analysis : Ground Remediation : Moisture Change
Data Analysis : Numeric Modelling & Simulations : Software

July 2014

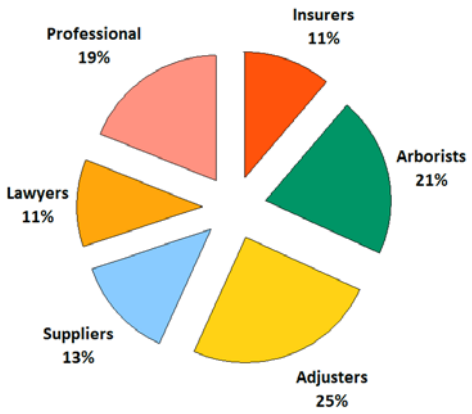
Edition 110

The Clay Research Group

CONTENTS

Issue 110, July 2014

Aston Delegates



Adjusters and arborists formed the largest groups, with 'professional' including Local Authorities, assessors, engineers and colleagues from the RICS and NHBC.

Aston Conference

An excellent conference this year with high satisfaction rating from delegates. It wasn't so much a glimpse into the future as a view of changes that are already taking place across the industry.

All of the technologies are live in one form or another and several of the speakers were confident that the changes will affect us all.

Tony Boobier touched on social networking – the use of Facebook and Twitter to monitor what is going on. This was something that Katy Freeborough from the BGS touched on in 2013 when she explained that they already log events using social networking. Reporting of landslides following exceptionally heavy rainfall was one of the examples she gave.

From analytics, through to intelligent applications and cloud based surveys. Paul outlined his approach which involved gathering data, using and sharing it with interested parties. Homeowners, engineers, adjusters and the various suppliers – arboriculturalists, site investigation, monitoring and repair contractors. A joined-up world using reliable remote streaming and video conferencing.

Anna Madichie from Plexus Law explained the implications following Berent – it isn't the case that the foreseeability judgement confounds a recovery as long as adequate notice is given and good evidence obtained.

Jon Heuch explained the difficulties associated with allocating blame by tree when there are several and gave some very practical advice on this topic.

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Subsidence Forum Update

Kieron Hart is taking over the chair of the Tree Root Claims Liaison Group from Andrea Plunkett. Kieron used to work for Marishal Thompson and is now trading as Tamla Tree Consultancy.

The 10th Anniversary and Annual Training Day will be held on Tuesday 21 October. This is being organised by Lauren Fairley with assistance from Jill MacLean.

Geoff Davies is working on a proposal that The Subsidence Forum awards a cash prize to the best final year graduate dissertation on a subject related to subsidence. More generally, the Forum are considering providing sponsorship for an experienced candidate to undertake research as a means of encouraging innovation. Members of the Executive Committee met on 3 July.

EKO Treatment - Research Update

Research into electrokinesis osmosis (EKO) is due to move to site shortly, following initial work in the laboratory by Tom Clinton as part of his PhD. Sponsorship is being provided by John Peterson of Foundation Piling Ltd.

The proposal is to build a load frame held in place by two piles that would apply pressure equal to that of a domestic dwelling onto a dummy foundation. The team would then instal the two rods that form the anode and cathode to establish the practicalities but also facilitate large scale testing.

Soil sampling would be undertaken before and after treatment to measure any changes in their shrink/swell properties. Nigel Cassidy will be measuring electrical resistivity of the soils to determine moisture change.

Site trials should last a few months, depending on the results of course. Initial hopes that we would use the Aldenham site may be confounded by the need for a load frame, but updates will follow.

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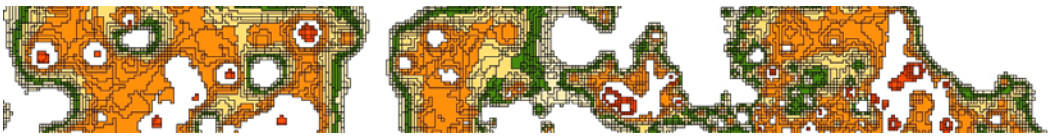

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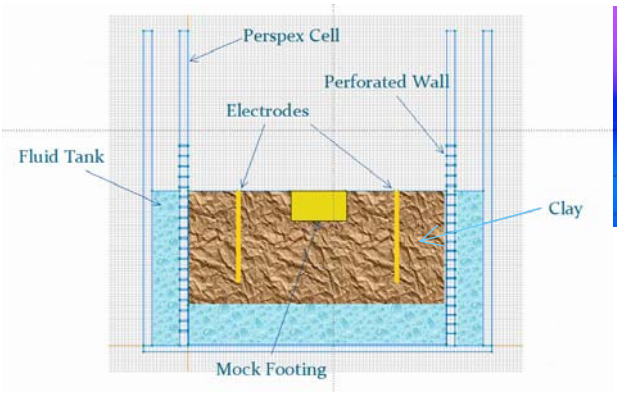
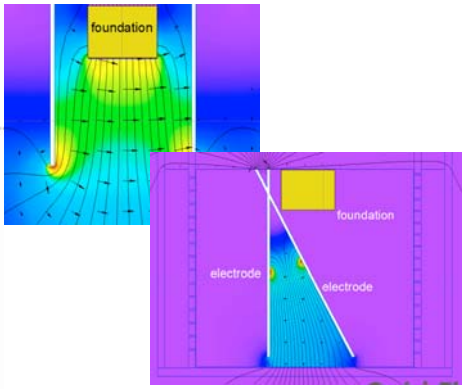
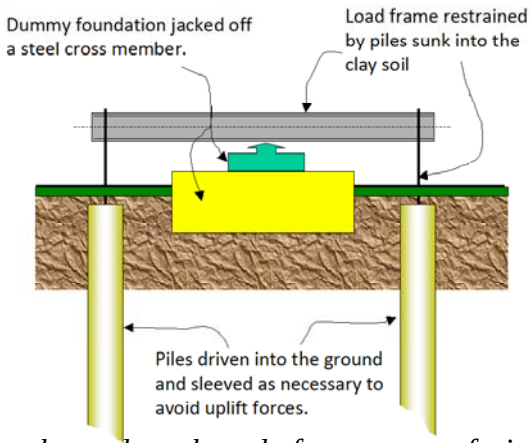
Extracts from the work of Tom Clinton researching Electrokinesis Osmosis for a PhD at Birmingham University

under the direction of Dr Ian Jefferson and sponsored by John Peterson, Foundation Piling Limited.



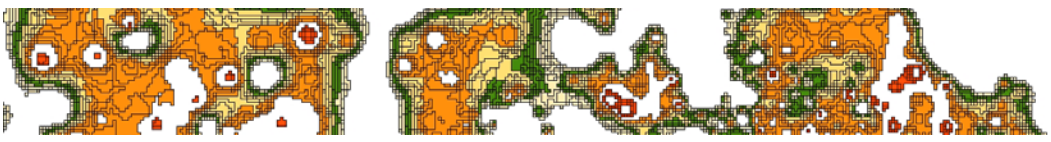


Above, left, the perspex laboratory cell showing a clay sample with electrodes either side of a dummy foundation. The cell is set into an outer chamber containing water. The wall between the chambers has perforations to allow free flow of water. Right, finite element analysis of variable electrode placing using QuickField software.



Left, the electrodes selected after a range of trials taking into account efficiency and cost.

Above, the proposed load frame arrangement for site trials.



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Introduction and "The State of the (adjusting) Nation Address"

Richard Rollit – Director of Engineering, Innovation Property

How will the changes that are taking place as revealed by other speakers, affect the role of the adjuster?

Is it going to be 'business as usual' or do we need to prepare for change?

"The State of the (Adjusting) Nation" looked at some of the changes that have already taken place and their influence on the business model. Fixed cost deals rely not only on innovation, but high technical standards. Is it the case that policy wording might need review to take account of improving standards?

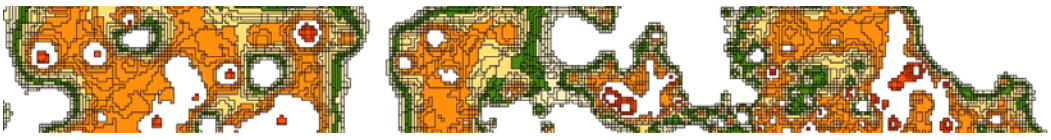
Richard asked how the industry would handle a continued focus on cost reduction whilst maintaining service and quality. Traditionally, the fee structure effectively rewarded failure. The more the adjuster spent on a claim, the higher the fee. No measures were in place to regulate this.

Emerging models had a very different paradigm. Richard felt that these would be centred not just around innovation, but as important, raising technical standards.

He touched on the problems insurers face in handling claims for conservatories with shallow foundations as an example. The policy excludes defective construction, and yet the consumer lives in a world where they expect everything to be covered. Is it the case that the policy wording might need to be amended to cater for the customer-centric approach?

Another case was mitigation. The policy does not cover the cost of tree removal to mitigate damage, and yet most insurers are (correctly) happy to include this as part of the claim, following FOS guidelines.

Is it the case that perhaps the policy is in need of a refresh?



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Subsidence Analytics in the Era of Big Data

Tony Boobier – IBM Analytics

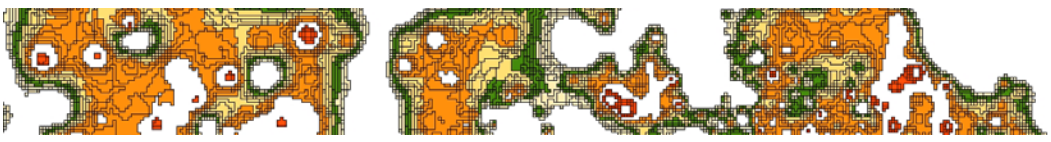
Perhaps one of the more surprising topics from Tony's presentation was the growing importance of Social Networking. The use of Facebook and Twitter etc., to notify claims, keep in touch with the insurer and, from a business point of view, help to detect trends and patterns.

This links in with Paul's presentation. People who are 'tech savvy' may want to drive their own claim, at a rate that suits them, and with higher customer satisfaction as an outcome – for a particular class of homeowner of course. Some may not and it is all about choice.

Tony explained how analytics were playing an increasingly important role in insurance and went on to say that "business as usual" was not an option. The mix of 'price aware' customers, regulations, risk and compliance (Solvency II etc), combined with the need to take account of competition, the general economy and growth meant that change was inevitable.

He touched on the so-called 'intelligent home'. The need for connectivity and how the business will look increasingly to data and analytics to make predictions and steer the business. This would, in Tony's view, lead to the new systems incorporating a cognitive function. Assessing the data to drive outcomes. He termed this the Fourth Age of analytics. IBM are experts in this sector, and interestingly, a recent study suggested that users prefer more timely data that was relevant, over data accuracy.

What does the future hold? Tony predicted the emergence of new business models, digital transformation and subsidence professionals learning new tricks. Surprisingly, and echoing Katy Freeborough's (British Geological Survey) message from last year, social networking is seen as a force to be harnessed. Messages on Twitter "my neighbour has subsidence" could deliver live feedback on claim numbers by geographic location.



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"Apportionment – your tree or mine?"

Jon Heuch – Duramen Consulting Limited

Jon Heuch is a Chartered Forester with a degree and PhD in Forestry from the University of Aberdeen.

He has worked extensively abroad, including Nepal, Vietnam, Uganda and Fiji, where he headed up the Technical Services Department of the Fiji Pine Commission.

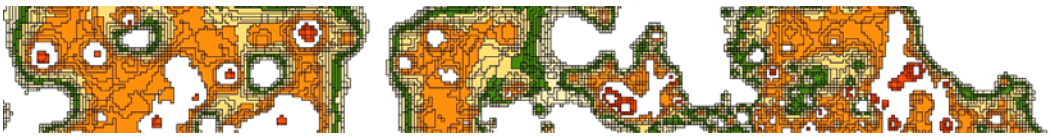
The interaction of trees and water has been a theme of his career over the last 30 years.

He tells us his introduction to UK subsidence was triggered by a call from Paul Thompson of Marishal Thompson, in the 2003 surge saying that "he might have some work for him", which proved an understatement.

Jon explained the difficulties faced by the arboriculturalist when asked to determine which tree or shrub was causing damage when there were several present. He reviewed various methods and found issues with each. As a result he has developed his own system which is as follows.

- Tree biomass – stem diameter + height
- Tree vigour – recent growth rate
- Some species' characteristics – weeping willow, poplar, oak, beech
- Relative distances
- The scale of the damage and the size of the movement
- Could an item of vegetation have caused the damage in isolation?

Jon concluded that attempting to ascribe a 'percentage of blame' was probably an exaggeration of what was realistically achievable and particularly without detailed evidence. This links in to the talk delivered by Anna Madichie where she stressed the importance of gathering as much evidence as possible. Monitoring, soils investigations, timing of the event, location of damage etc.



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Berent – legal update. Clarifying some Misconceptions.

Anna Madichie – Associate Partner, Plexus Law

Anna is an Associate Partner at Plexus Law with over 9 years experience of property damage claims and specialises in subrogated recovery property claims arising from tree root related subsidence, fire, flood and theft. She also has experience in policy disputes, general contractual losses and commercial losses and advises insurers' policyholders on uninsured loss claims and commercial contractual disputes. Anna manages the Croydon Subsidence Team.

In 2013 she had a Court of Appeal success where she acted for the Claimant in Robbins v London Borough of Bexley, a landmark tree root subrogated recovery claim

Anna reviewed the various elements including Breach of Duty, Duty of Care, causation and foreseeability. Since Berent there has been a misconception that any action is barred by virtue of the absence of foreseeability, but Anna explained that this wasn't so. She explained that the main points from Berent related to causation, notice, knowledge and Duty of Care.

The first step to improve the prospect of a successful claim was notification as soon as damage is suspected.

Next, evidence – gathering as much detail as possible around damage, timing and so forth, and responding in a timely manner.

The lawyer would be looking for the Tree Maintenance Policy from the Local Authority. What steps did they take to maintain their stock?

Then, did they carry out a reasonable Assessment of Risk.

Anna produced a case study for the delegates to consider. Damage to a front bay window with two items of vegetation nearby. A hedge in the ownership of the homeowner, and a Council tree. This proved to be challenging and the source of much debate.

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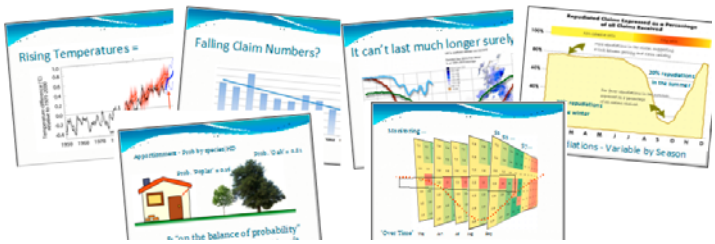
Research Updates

Stephen Plante – Clay Research Group
Tom Clinton – PhD Student, Birmingham University



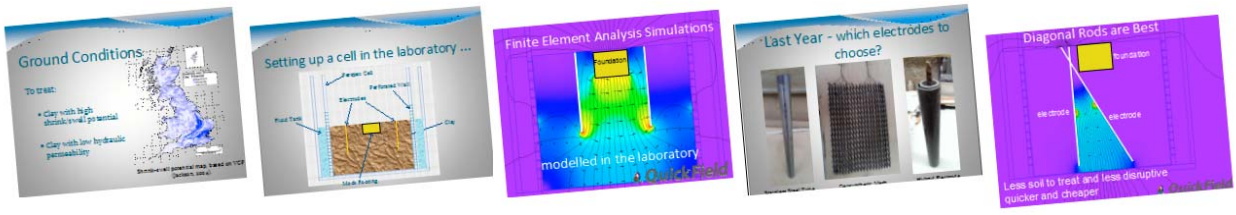
Stephen looked at recent weather patterns, and although the ground had been quite wet up until recently, drying over the last few weeks means that the SMD profile for 2014 is following the 2006 profile very closely. 2006 was a busy year in terms of subsidence with around 48,000 claims notified, but the difference between 2006 and 2014 could be the calming influence of intermittent bouts of heavy rainfall.

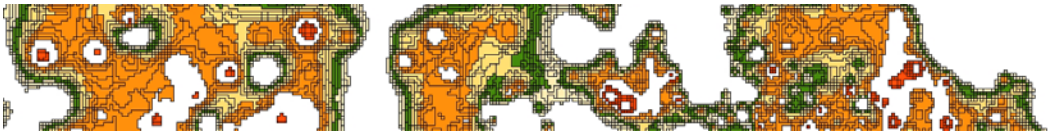
He provided an update on the work of Neil Hipps and pointed out the review of Hortlink was initiated by Margaret McQueen of OCA. No work had been carried out on the application of anti-transpirants due to heavy rainfall, which would confound any trials. InterTeQ was the subject of a patent application, but over 150 claims had been satisfactorily treated using this method since 2008.

Stephen then went on to demonstrate the work being undertaken by the CRG on the so-called 'intelligent systems' described by Tony Boobier earlier; recording information and having the system learn and make decisions using Bayesian cubes. The cognitive element.

He handed over to Tom Clinton, the PhD student from Birmingham who is researching the use of electrokinesis osmosis (EKO) to stabilise shrinkable clay soils. Tom updated us on his work over the last twelve months looking at the most suitable materials for the anode and cathode, and the most appropriate chemicals to introduce to stabilise shrinkable clay soils, effectively 'fixing' them.

This would be a cheaper, less disruptive and faster method of stabilising houses than underpinning, hopefully allowing retention of the tree. See elsewhere in this newsletter for detail on the EKO project.





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The Black Box for Subsidence.

Paul Stanley – Director, 360GlobalNET

Paul spoke about so-called 'disruptive technologies'. New approaches that would change the way insurers and adjusters work.

He gave the example of how traditional site inspections might be a thing of the past. Instead of the adjuster or engineer travelling perhaps hundreds of miles in the course of a week, his company make use of crowd sourcing. Using agents close to the claim to make the initial inspection using video streaming.

This challenges the idea that the expert has to make the inspection and may resolve – or reduce the impact of - surge. His company can arrange for homeowners to have an inspection within hours of them notifying their claim and at a time convenient to them. In cases where the homeowner prefers, they can carry out the survey themselves. The 'self-serve' option.

Using this approach, the homeowner is linked into the cloud using a secure connection. They download forms from the web, each tailored to suit the peril. This doesn't prevent a visit being made by an expert if the circumstances warrant.

The idea increases the channels by which a homeowner can notify and handle their claim which accords with the latest FCA recommendations. This was also referred to earlier by Tony Boobier when he described how insurers will have to take account of clients' profiles. Some like to take charge and others would prefer assistance and direction.

The process is already being used by a major insurer, with high satisfaction ratings in terms of service standards. Customers can choose when they notify their claim and they feel part of the decision making process. The traditional option of a site inspection is still available for the less tech savvy customers, but with a reduced number of visits, service delivery is far easier with every step audited using the video record if required.

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Effects of two contrasting Canopy manipulations on growth and water use of London plane (Platanus x acerifolia) trees

Hipps et al, Plant and Soil, May 2014.

Neil Hipps reports on the work undertaken at East Malling as part of the Hortlink project.

The paper outlines the method whereby two trees received differing canopy treatments. One was crown thinned by removing 30% of the lateral branches, and the other had the branches reduced by 30% in length to reduce the overall crown volume.

Apparently, both trees recovered the full leaf area. This took two years for canopy thinning, and three years for the crown reduced specimen.

In summary, reducing the crown volume led to a reduction in water uptake, whilst crown thinning had little effect.

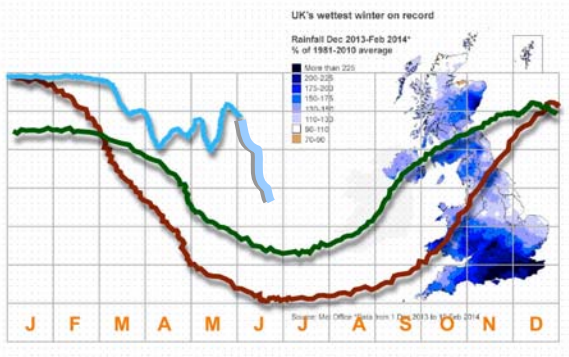
The paper explains, "soil moisture data suggested that lower boundary layer conductance within the canopy-reduced trees restricted tree water use, whereas for the canopy-thinned trees the opposite occurred."

This is the background to the current proposals to explore the possible benefit of crown reduction in the urban environment.

Weather Update

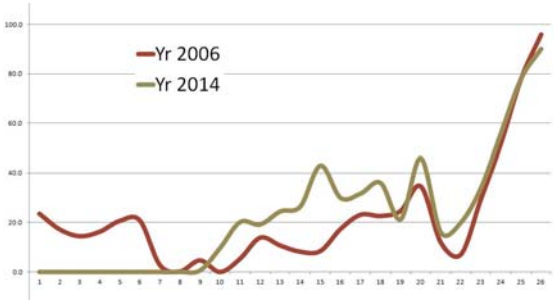
SMD data supplied by the Met Office for tile 161 (North West London) for Medium Available Water Capacity with grass cover.

2014 started off with the soil at field capacity, and remained well below the plot that could indicate a surge year.

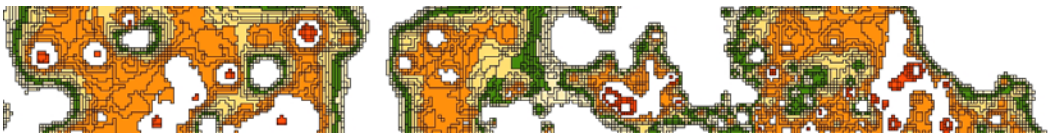


Until a few weeks ago, the SMD was at a low level, with the soil close to field capacity.

The situation changed a few weeks ago, with the trace following the 2006 profile very closely – see below. 2006 delivered 48,000 claims – a busy year.



The risk would be reduced if, as predicted, there is an increase in the number of intermittent showers. The data will be useful in developing our understanding of the role of steep drying curves in relation to the response of the tree.



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Stagecoach South Western Trains Ltd v Kathleen Hind and Andrew Steel

FREETHS

Thanks to Rachel Bolt from Freeths who has circulated details of the above case which deals with the following:-

- The minimum steps an ordinary tree owner must take to avoid liability for impact damage.
- A tree surgeon's duty doesn't extend beyond the works he is asked to do.
- Expert witnesses should steer clear of legal analysis.

Rachel explains, *"Stagecoach South Western Trains Ltd sued Ms Hind, a primary school headmistress, and Mr Steel, her occasional tree surgeon, when a stem from her ash tree fell onto the train track during adverse weather conditions and caused significant damage to its train.*

The ash tree was in a part of the garden that was covered with ivy, brambles and nettles. Whilst the tree looked healthy it transpired that the ivy covering the base concealed a wound with decayed wood within it.

MJ Coulson heard evidence from Ms Hind that she regularly informally inspected her garden. He found her to be an enthusiastic gardener who knew a reasonable amount about trees and was familiar with signs to look out for.

"He was satisfied that she was fully capable of making a meaningful informal inspection.

"MJ Coulson also found that the wound would not have been visible save for on close inspection, and further that as the tree looked to be healthy there was no onus on Ms Hind to struggle her way through the nettles and brambles and strip them away to make a closer inspection.

From time to time Ms Hind appointed a tree surgeon, Mr Steel, and instructed him to carry out specific works in the garden. Whilst he was a tree surgeon Mr Steel was not a qualified arboriculturalist. MJ Coulson found that Mr Steel was under no obligation to advise generally or to warn about the state of the tree. His duties were limited to doing the tending works that he was asked to do."

Message from Keiron Hart of Tamla Trees Limited.

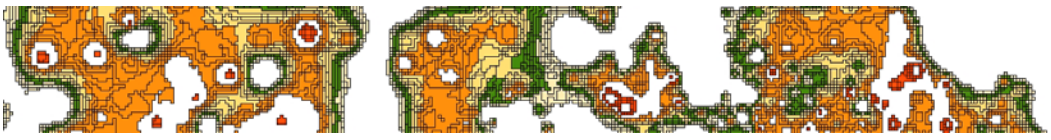
Tamla Trees consulting arborists

TROLLEYWISE

Keiron has found a site that plants a tree for every sighting of a 'lost' shopping trolley.

http://www.trolleywise.co.uk/

Keiron says, *"Many of us are out and about and we all carry smart phones these days. I've spotted 27 trolleys to date this year - that's 27 trees planted, funded and 27 trolleys recycled, which can only be a good thing."*



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