



The evolution of SULE to TreeAZ

Article for ISAAC Newsletter

BTC/24/2006





The evolution of SULE to TreeAZ

During the 1990s, Safe Useful Life Expectancy (SULE) was a common method of assessing trees in the Australian planning system. Top UK tree consultant, Jeremy Barrell, explains why he created it over 20 years ago and why the time has now come to move on to TreeAZ; his latest contribution to this mainstay of arboricultural consultancy.

I did my first development site in 1983. The owner of a spacious Victorian property in Ferndown, a prosperous small town in southern England, had spotted that there was money to be made by subdivision and wanted to fill the land with more compact modern houses. But there were lots of trees and the council had insisted that the best were retained. So I was asked to assess which were worth keeping. The only technical reference at the time was British Standard 5837 Code of Practice for Trees in relation to construction (1980), which I enthusiastically set about applying to this site. In the UK, British Standards are highly regarded as models of good practice, so I was rather shocked to find that it didn't work!! Of course, it looked fine on paper, as most of these desk exercises do, but the practicalities of applying it on site exposed it to be riddled with inconsistencies, ambiguities and anomalies. Putting it politely, it was incompetent and unworkable.

"Putting it politely, it (the BS 5837 survey method) was incompetent and unworkable."

Rather disillusioned, I set about designing a method of assessment that did work. I was concerned about the relative values of trees within a development site, which was an important aspect of deciding which ones to keep. In a planning context, where the design and future use of the site was important, a significant component of the benefit (amenity) that trees could offer was how long they could live. Biological life expectancy was obviously very important. But where trees were close to people and property, safety was also a significant consideration that could instantly override any amenity benefit. Furthermore, if trees caused excessive inconvenience to people, they ceased to be useful and would be removed before achieving their full biological life expectancy. I concluded that biological life expectancy, modified by safety and usefulness considerations, was an extremely reliable indicator of value, and SULE was born. Trees with a long SULE were really worth keeping and those with a short SULE were much less important. Of course, it all sounds so easy in retrospect but it proved very difficult to work up into a method that actually worked in the field. Despite numerous difficulties with the detail, these core principles endure to the present day as the most effective means of prioritising tree retention on development sites.

However, whilst SULE overcame many of the problems found in BS 5837, my everyday experience in the planning system during the 1990s convinced me there was still a lot of room for improvement. I began to review the issue by going back to basics with a focus on what was required to solve problems in the field rather than from the desktop. This exercise was the start of the evolutionary process that produced the A/Z system of assessing trees on development sites or TreeAZ for short. It is an unusual story because the end result was so unpredictable; a journey of much thinking, many trials of ideas and several leaps of faith.

For many years, I felt quite happy with SULE because it provided a logical structure that was easy to understand. However, deep down, I knew that five categories, colour coded on to a plan, was overly complicated. This unease gradually increased as our experience was revealing that developers and councils alike were beginning to focus on one common requirement; they only seemed to be interested in whether trees were good or bad and not the various shades in between. A trend was emerging; designers wanted precise information about what space was available and councils were only interested in the best trees. To accommodate this, we had been grouping categories 1 and 2 together as the best to keep and the rest (categories 3, 4 and 5) were discounted. Without really realising it, we had been working a two category system for many years. But it was still a radical step to go from five categories to just two and I resisted it for too long. This first leap of faith came at a planning inquiry in 1998 when I was going through the farce of discussing the BS 5837 category descriptions and what they meant with the opposing expert. In the end, the inspector was so confused and fed up with it all, he told us to go away and agree a list of trees that mattered and those that did not. It made so much sense that the next day I stopped in a café on the way to the inquiry and in half an hour, I sketched out the embryo TreeAZ. Of course, it had no name then and it actually had three categories – but it was the start of something different and that was what mattered. From my initial suspicion that all was not well, I now knew there was a better way and the hunt was on for the elusive solution.



The evolution of SULE to TreeAZ

“It was a radical step to go from five categories to just two and I resisted it for too long.”

Having taken that first rather brave step of two categories, I decided this might be a good time to review any other changes that could be equally as obvious but had been missed because the problem had not been analysed properly. This meant focusing on exactly what a tree assessment was intended to do; to identify which trees are worth retaining and which ones are not – which should be a material constraint and which should not. So, the first question I had to answer was what makes trees worth retaining? The seed of that answer lay within SULE in the principle that the longer trees can be safely and usefully retained, the more valuable they become. A fundamental element of any solution would have to consider this issue of length of time; I needed to identify what was a reasonable threshold in years that a tree could be retained for to make it worthy of being a constraint. Through a combination of a literature review, consultation with other members of the profession and common sense, I arrived at a threshold figure of 10 years. If a tree has a SULE of less than 10 years it is not worthy of influencing layout design; if it has a SULE of more than 10 years it should be a material design constraint.

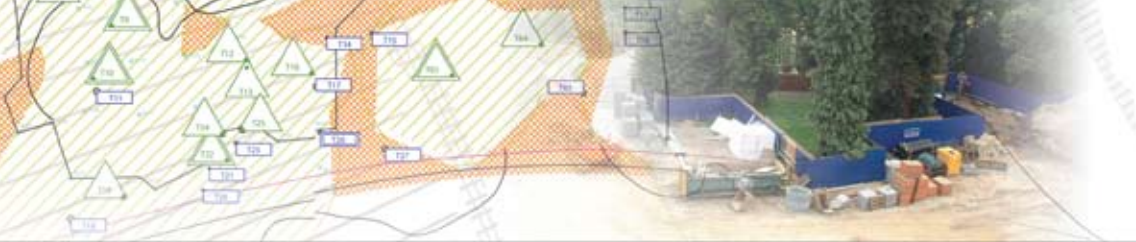
Another dilemma related to small trees; in the context of overall tree management, they are critically important because they are the future cover, but was it realistic that small randomly placed elements of the landscape should have a large influence on layout design? A useful solution flows from taking a wider tree management perspective where the focus is away from the individual and towards the entire tree population. In a planning context, the exact location of individual trees is often not that critical; it is their potential for amenity contribution to the whole community that is the main consideration. If they can be reliably moved or replaced in a location that maintains or enhances this contribution, then their precise location is not a significant issue. For this reason, in most situations, I believe that small trees should not be a material constraint on development sites. In the context of present day abilities to reliably move small trees or replace them with virtually identical semi-matures, they can be discounted from the equation. Of course, the question of what is meant by small still needs to be resolved but this is a matter of detail rather than a problem with the principle.

Amenity is another serious difficulty; what does it mean and how should it be applied to tree assessment? In its widest interpretation, amenity implies the qualities of benefit, wellbeing and goodness. Whilst the multiple benefits that trees impart are well recognised and important, the focus in the UK planning and legal system is on visual amenity over time. The amount of benefit is directly proportional to the volume the tree occupies, how many people can see it and the length of time it can be

seen for. The obvious conundrum here is that visual amenity changes over time as the tree grows larger and then gets smaller as it declines. More subtly, this is often compounded by dramatic changes over time in the number of people seeing it because of new roads or landscape changes in exposure or screening. Even further complication arises because visual amenity fails to consider the overriding priority of safety; a tree of the highest visual amenity may not be retainable because of severe structural defects. These conflicts cannot be resolved; amenity cannot be used as a primary assessment criterion at the pre-design stage of development. However, once the primary assessment criteria have been applied to select trees that are worthy of being a material constraint in the pre-design stage, amenity is then an important element in assessing the impact of a layout in the post-design stage, when the future visibility relating to that layout will be known.

“These conflicts cannot be resolved; amenity cannot be used as a primary assessment criterion at the pre-design stage of development.”

Rather bizarrely, traditionalists in the UK desperately cling to the BS 5837 method (change is just so scary isn't it!). In contrast, I had been instinctively aware for many years that there was a fundamental problem with it but could never quite work out why it was so wrong. Ironically, my final enlightenment was prompted by comments from a colleague on the BS 5837 Review Group charged with updating it in 2003. He had pointed out to me that all trees were a material consideration in planning terms; this was the key point that led to the answer – an answer that just suddenly came to me when I was out walking the dog of all things. As seems to be the case with many great innovations, the final solution was so obvious it defies belief that no one else had worked it out sooner. Of course, if all trees are a material consideration, then the starting point has to be that they are all good unless proven otherwise. So, the most logical approach is to base separation into categories on what makes trees bad rather than what makes them good – a process of exclusion, not inclusion! BS 5837 is completely the other way round, primarily basing its categorisation on why trees should be included. So simple and yet it has gone unnoticed for more than 20 years. This is the root of its incompetence; BS 5837 is fatally flawed because it is based on the principle of inclusion rather than exclusion. A fundamental element of the new method would have to be a general presumption that all trees are important unless there are good reasons to the contrary. Not revolutionary but certainly not a mainstream perception because it had never been proposed before!



The evolution of SULE to TreeAZ

“... the final solution was so obvious it defies belief that no one else had worked it out sooner.”

As I considered and researched all of these issues over several years, the fundamental requirements of the new method began to emerge. It should be based on two simple categories, those categories should be defined by the principle of exclusion rather than inclusion, small trees should be automatically excluded and amenity should not be used. Within that framework, I needed to work on the detail of the category descriptions, how to number them and what to call it all.

I decided on calling the best trees category A and the worst trees category Z very early on for the simple intuitive nature of the choice. Of course, my instincts wanted me to choose numbers because that was what I had used in SULE; BS 5837 used letters so I was not too keen on that. But, despite my prejudices, common sense cried out that there was a natural association with A being the best because it was first in the alphabet and Z being the worst because it was last. Z has a distinct finality to it that anyone could grasp quickly without too much explanation. Numbers did not really do this; 1 is commonly perceived as the best but what was the worst – 5, 10, 100, 1,000 – there was no sensible number that instantly conjured up an image of the worst. Furthermore, it is often a common view that higher numbers imply increased quality so that did not help either. Selecting A and Z for the main category names also helped with the subcategories because it naturally followed that they should be numbered. I knew there were going to be a lot of subcategories for Z trees so numbers rather than letters seemed a more intuitive structure.

Colours had always concerned me; SULE had five categories and some consultants used split categories with BS 5837 that gave seven colour combinations. This was ridiculous when seen on a plan and was always more confusing than helpful. Two categories lent itself to a much neater and intuitive presentation, which is essential if the planning process is to run smoothly. Layout designers and other professionals who have no tree expertise have to interpret and use this information so the existing colour confusion made no sense. And there was another problem; the almost universal use of green for good and red for bad could not be easily distinguished by people with the commonest colour blindness disorder. Traffic lights addressed this issue by light sequences and orientation but there are no such clues on a flat plan; the colours had to be changed. I was keen to stick with green as good, which left blue for bad. This works well and I expect all colour presentations to follow this lead as the realisation dawns.

So, lots of changes and new ideas but it still had no name. It contained elements of SULE so I originally considered calling it SULE 2 in the absence of anything better. But there was a problem with using the word ‘safe’; the faint hearted were quite

twitchy about that word because it implied a certainty that could not be delivered with trees. Furthermore, it was different, so much so, that it soon became clear that it had to have a name of its own. I had been mulling it over for quite a few months; the letters A and Z were obviously important but it also had to be easy to remember and preferably mean something so the word ‘tree’ would help and be original. Again, the solution came to me when I was walking the dog (he has a lot to answer for!!). Looking back, TreeAZ is so obvious, it is hard to believe it took so much thought and consideration to get there.

With it christened at last, the final dilemma was how to market such an important, unique and innovative product. I had specifically developed it to make our company more effective than our competitors, with the obvious financial benefits. It had taken literally hundreds of man-hours (possibly thousands!!) working all this out, a very significant business cost in terms of lost revenue that could have been charged to a client. Did I keep it secret and get some of my investment back by selling it under licence (such as QTRA) or did I make it freely available and recoup the costs another way? Well, I chose the latter and it still remains to be seen if there ever will be a payday. This is a risky strategy because opening it up for public scrutiny exposes any mistakes and if we got it wrong, our credibility is in tatters. But we have field tested this to death so we know it works and that is a fantastic confidence booster. I believe that any risk is far outweighed by the benefit to the Profession by having access to such an excellent tool and that my payday will come by being a member of a better Profession.

“This is a risky strategy because opening it up for public scrutiny exposes any mistakes and if we got it wrong, our credibility is in tatters.”

TreeAZ has been available for public comment for about four years now and there has been substantial feedback from all over the world. Thankfully, the basic principles have withstood that test and remained more or less intact but I have made changes to detail, which has only been achieved so quickly by this wider consultation. The most interesting feedback related to only having two categories; many people felt there was a benefit to having more to allow the very best and the very worst to be identified. At first, I resisted, but it soon became clear that there was a groundswell of opinion that it would be folly to ignore!



The evolution of SULE to TreeAZ

Whilst my practical experience committed me to the basic principle of only two categories, I realised that this was not compromised by providing the opportunity of subdividing each category if the user found it useful. So we quickly field tested a revised version identifying the very best trees as AA and the very worst as ZZ on the following basis:

- AA Very important trees suitable for retention
- A Important trees suitable for retention
- Z Unimportant trees not particularly suitable for retention
- ZZ Poor trees unsuitable for retention

This worked well and is now incorporated into the method for those who wish to use it. A simple example of the value of the feedback exercise that is already making this less our tool and more a resource for the Profession. Continuing this evolutionary theme, there is now a TreeAZ discussion group that can be accessed from our website (www.barrelltreecare.co.uk) to assist those who have questions and need rapid feedback.

Another post-launch change relates to the ordering of the A and Z category descriptions on the field sheet. It seems just so obvious that the A categories should come first and the Z last; that is the intuitive way we think so that was how it was originally set out. But, in fact, TreeAZ actually considers the reasons for exclusion first and so, illogical as it seems at first glance, it would be more appropriate to put the Z categories first and the A categories last. This is so counter-intuitive that the immediate reaction is that it cannot be right. But it is and it works, so now the Z categories come first. When I was explaining this at a workshop in New Zealand last year, one delegate commented that TreeAZ should actually be TreeZA. My heart sank because he was right. It is too late to change the name now but it was a valuable reminder that no matter how well you think you've got these things covered you will never have it completely right!

“At a workshop in New Zealand last year, one delegate commented that TreeAZ should actually be TreeZA. My heart sank because he was right.”

After seven years of evolution, SULE is still very much alive in principle but the practical method of application is now TreeAZ. If you are interested in how to apply TreeAZ in the wider management of trees on development sites and how to present professional reports, then we will be with you in May presenting a series of workshops in collaboration with Enspec. Alternatively, try our website where you can download further information on how it all works. Although SULE is not dead, it is certainly time to move on.



Trees with almost identical visual amenity do not have the same value in a planning context. The beech on the right has a long SULE and is much more important than the Monterey cypress, which has a SULE of less than five years.



The evolution of SULE to TreeAZ



Visual amenity may seem the most intuitive way to assess trees but safety considerations override it every time.

Superficially, this beech must have a very high value but the significant stem defect creates a dilemma with no resolution until SULE is brought into the equation.