December 2013 Newsletter

Written by Ted Stubbersfield

For Infrastrucxion Pty Ltd

Contents

Project: Tannum Blue Boardwalk and Deck

Asset Owner: Economic Development Queensland
Landscape Architect: RPS Group
Boardwalk systems: Infrastrucxion Pty Ltd
Boardwalk Certification: David Strohfeldt
Construction: Boyds Bay Group
Images courtesy Boyds Bay Group.

The Tannum Sands Urban Development Area (UDA) marketed as Tannum Blue was declared by the Queensland State Government in September 2011. This allowed fast track development of 170 HA of mostly state land to provide approximately 1500 new homes (both rental and ownership) in a mix of densities and prices. This strategic development by the state government was considered necessary to allow Gladstone to continue to grow as a consequence of the resource industries that it services. The estate is about 25 km from Gladstone city centre. The following text about the project has been supplied by Rob Guthrie of RPS

Tannum Blue is a residential community developed by Economic Development Queensland who set the guidelines for the development, which allowed RPS to enhance the existing natural features of the site

Use of locally native species and therefore adapted to local site soil, especially around watercourses will mean that fertilisers are not required in these areas

Seed collection was undertaken on site to ensure plants are not only 'locally native' but locally endemic and will therefore capture the site's endemic plant genes to maintain the local plant gene pool – these plants have evolved to have a higher survival rate as they are highly adapted to the local environment.

Planting densities appropriate to promote sufficient infill of planting areas to minimise weed growth potential and therefore reduce herbicide use. While also encouraging local fauna back into the built site

Large areas of turf restricted to large urban park areas away from water courses or buffered by native planting to watercourse edges to minimise potential for runoff of fertilisers into native planting and waterways

Site soils were re-used with, ameliorants and soil conditioners throughout the topsoil (and where required subsoil) profile to minimise need for ongoing fertiliser use

Stone and timber are used throughout the site, to create a natural sophisticated response to the existing environment. Where in-ground posts are required, the timber was treated hardwood with CN Oil direct application so that ongoing spray pesticides are not required

The key creek corridors were largely kept in their natural state with disturbance due to construction works made good through a strategy of translocating existing site plant understorey species including full depth topsoil profile from adjacent areas which would otherwise be lost as part of the residential development process.

Urban design outcomes have allowed for 'fingers' of wildlife corridors to extend throughout the site to link to areas of ecological importance and create a network of habitat linkages throughout the site to facilitate native fauna movement

Where existing areas of ecological importance are being retained within open space areas, one of the site strategies is to not 'tidy up' these spaces, but to ensure existing understorey is retained and enhanced with endemic species planting where required, to facilitate safe movement of native fauna to encourage them to remain on site during and post construction

Bioretention areas have been installed to improve site water quality prior to discharge into the natural systems

Tannum Blue is a residential development where people can enjoy the quality of the local, environement in a natural living community RPS is proud to be associated with Economic Development Queensland and their vision for the development of Tannum Blue

Back to Ted.
RPS Group provided Infrastrucxion with the architectural intent of the boardwalk and deck, and after discussion with them over details of the cross section, Infrastrucxion provided certified working drawings and a timber and hardware kit for Boyds Bay Group to construct. The handrail is a modification of our standard C4 barrier system and the specified wires were our OSA2 system at 60 mm centres. The boardwalk is curved and this was able to be achieved neatly with our standard tapered sections. The decking is of course Deckwood. For more information on stainless wires purchase my Commercial Barrier Guide.

Links to AutoCAD blocks of wire rope systems and our handrail posts can be found on the Outdoor Structures website – look under designers tools.

Post Spacing and how it Relates to Wire Tension

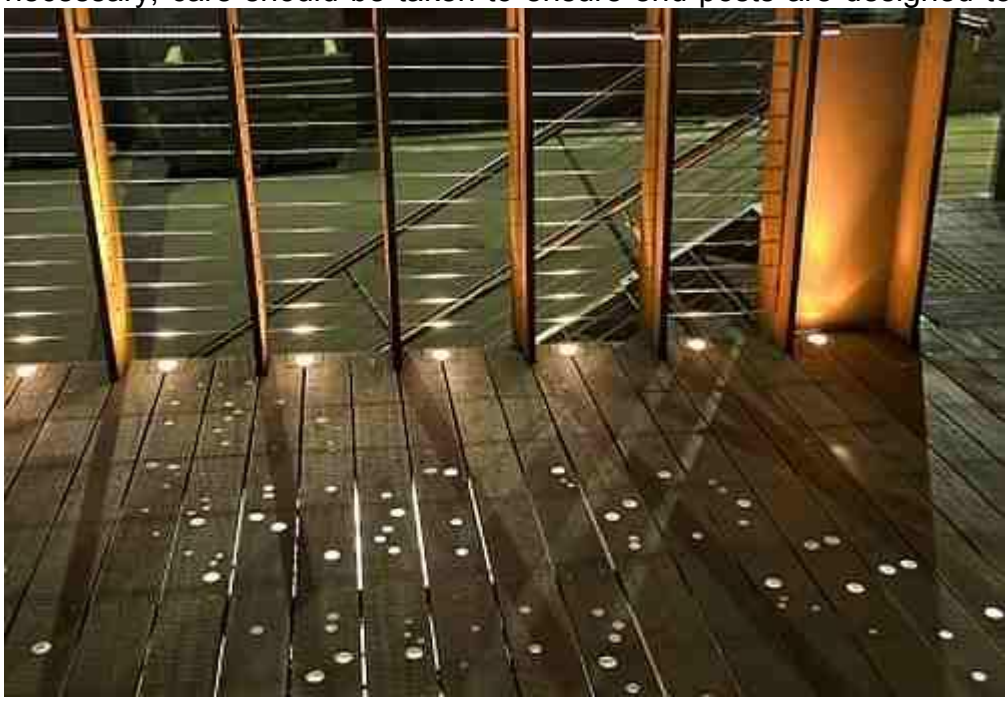
Guest Contributor Rafael Katigbak of Ronstan
(Not a paid advertisement)

One of the most common inquiries we receive from specifiers relates to the spacing of cables in cable balustrades. While the BCA provides a table as guide, the information can be difficult to understand for those not familiar with tensioned cables.

The BCA table is based on the allowable deflection of each cable in the system. Based on the flexibility of the wire, the unsupported span of the cable, and the spacing between each cable, the table recommends what tension is required in each cable to prevent a 125mm

sphere from passing through the wires.

When specifying cable balustrades, it is important to pick your cable and post spacing to keep the cable tensions to a reasonable level. Often, designers and builders space the cables and intermediate posts farther apart to save cost. However, spacing these elements too far apart generally results in increased load being imposed on the end posts causing them to deflect. While some may consider this an aesthetic concern only, this deflection increases the difficulty of achieving even tension in all cables. The more tension applied to one cable, the more the post deflects and other cables slacken. If bigger spacings are necessary, care should be taken to ensure end posts are designed to accept these loads.



Another good tip is to recognize that although many cable assemblies are capable of high loads, most cable fittings, such as turnbuckles, can be quite difficult to adjust under high loads. Trying to achieve high tension with these fittings can cause nuts to shear or stainless threads to seize. In these cases the primary tensioning device should be something like a winch or other mechanism with the turnbuckle simply used to take up the slack in the cable

Rafael Katigbak is Business Development Manager at Ronstan Tensile Architecture, an Australian company recognized as a leading manufacturer of tensile cables and bars for Architecture worldwide. Ronstan provides a full design and construct service in South East Asia.

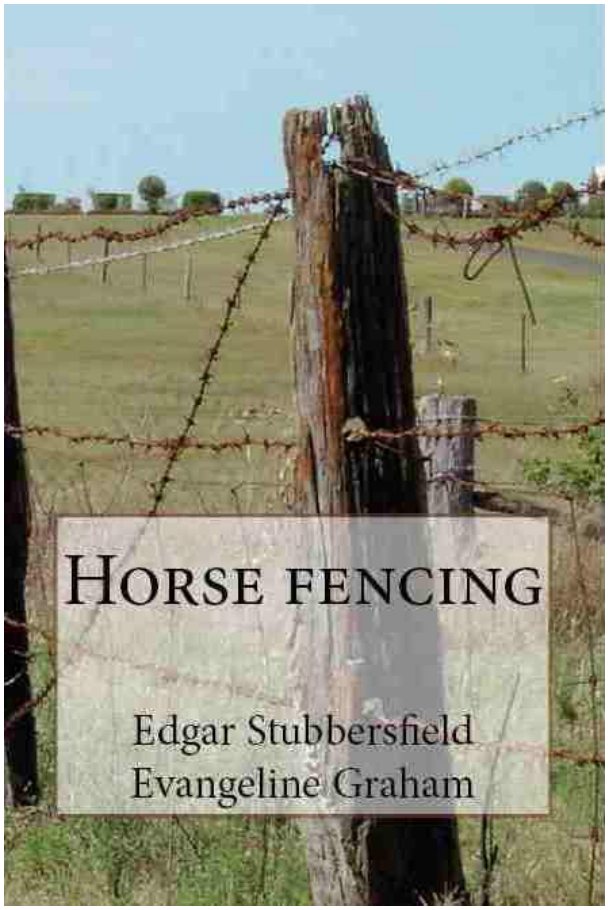
60 Year Old Timber Still Unseasoned

Moisture Metre being used on 300x150 hardwood
Image used with permission

On a recent consultancy I checked the moisture content of large hardwood timbers. It was assumed, as you would, that 60 year old timber would be seasoned. I thought not, and when I drove in the prongs, the metre showed a moisture content of 25%. Timber does not start shrinking till it reaches 25% so any timber resawn from this would behave just like green off saw timber. The lesson, do not assume that just because the timber is old that it is dry. Large timber sections do not dry.

I know of a deck where turpentine piles that went back to world war two were re-sawn into decking for a replacement deck and it shrunk like green off saw timber. Turpentine shrinks 13%. It was a disaster.

Horse Fencing



I have revised and published on Amazon my small guide to horse fencing. I have taken the original down from my website and it is now only available as a hard copy paperback or as a Kindle. The book was originally written for a reseller in Japan who wanted to supply the timber posts and rails to a racehorse breeder who had many horses worth over a million dollars. I quickly learnt that the design of an ideal horse fence was complicated and that the owner had to make a number of compromises. This book guides the owner through the decision making process. The cover image shows a barbed wire fence that cut a friend's horse so badly it had to be put down.

You wouldn't do it with Steel

Rusty bridge over a salt water creek

What would you think if, for your next coastal footbridge, your consultant specified black steel, so badly rusted that it only had 30% of its strength left and with no corrosion protection. Well, frankly you would change engineers, its not logical. But this happens all the time with timber and it's just as illogical. It is a credit to timber that it gives any service at all. Spotted Gum F17 unseasoned has only 60% of the strength of that species without any defect and for ironbark it is only 48%. The moment you go to kiln dried the percentages drops to 38% and probably 28% respectively (it is actually so low a grade for ironbark that it is beyond anything conceived as saleable). It is mind boggling to then consider F14. I continually see that specifiers do not differentiate between the strength properties of green off saw and kiln dried. It is critical that you do as you cannot expect anything on site any better than what you have asked for. Of course this is all fairly complicated but Infrastrucxion is here it guide you with appropriate products. Basically, it won't work with steel and it won't work with timber.

This is all explained in my Guide to Grading hardwood.

Robust Barbecue Tables

Infrastrucxion have four very robust barbecue tables that it regularly builds. The first two are well known to our national park readers but unfortunately, due to copyright reasons they are only available to them. Pity, as they are good classic styled tables but unlike some of our competitors that copy our products without any qualms, we respect copyright.

Queensland parks table

NSW parks table

The Queensland national parks table is lighter than the NSW version but still is very robust. Infrastrucxion make two robust barbecue tables of its own design and one it manufactures under permission of Guymer Bailey Architects, the HD006B full hardwood table and the Flinders that is on a galvanised steel frame. The similarity between the HD006B model and the national parks table is not coincidental. We redesigned an earlier table with straight legs to incorporate hardware that we use in the parks range.

HD006B Blaxland Barbecue Table

Flinders Barbecue Table

Lawson Barbecue table (Copyright Guymer Bailey Architects)

In the HD006B model the table tops and seats are assembled on stainless angles that simply bolt to the pre-assembled leg and rail units. Sometimes it is more practical to have the tables delivered assembled.

For design tools including CAD drawings see the designers tools section of my website at http://www.outdoorstructures.com.au/tpd_park_table.php#flinders