

# Ted's News

## May 2018

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### Protect your Top Surfaces

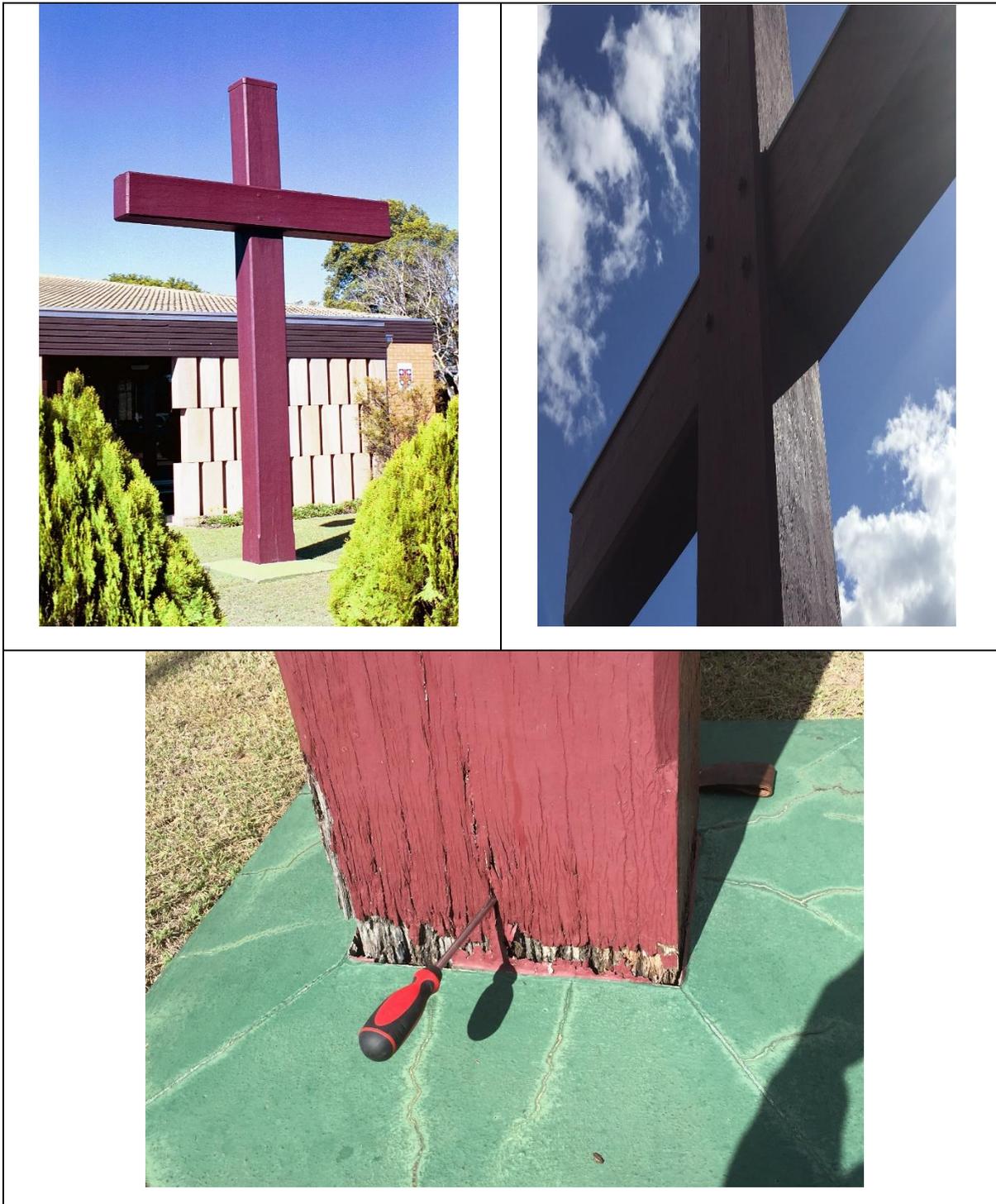


The annoying thing about footbridges, boardwalks and decks is that most of their life they are simply supporting their own weight and the usual design loads of 5 kPA and 4.5 kN can seem onerous. Then, maybe once in the structures life, it actually has to carry the intended load and, when it does, you need to make sure the details are right. The images are from the Gatton railway overpass bridge on Anzac Day and it simply couldn't take another person. So, **Lesson One** is to take the design loads seriously. But the **Lesson Two** is to protect the top surface.

I learnt early on that horizontal surfaces should shed moisture so all our handrails etc. did just that, hard to do with decking though. You can see from the top right-hand image that the bolt goes straight through a flat surface and there is potential for decay in the best of circumstances but in conjunction with the coach screws the top surface has split allowing moisture directly into the bolt

hole. On the bottom left hand image, the member was nailed into position before drilling for the bolt. The 4.5mm nail close to the end has split the timber, again allowing moisture to enter. The cross bolt intended to stop splitting does nothing as the timber shrinks. The last image shows a detail of construction. These bridges were built spanning 11.3 m if not more with these traditional joints. More on this in my books [Timber Joints and Commercial Barriers](#).

### Your Design Sins Will Find You Out



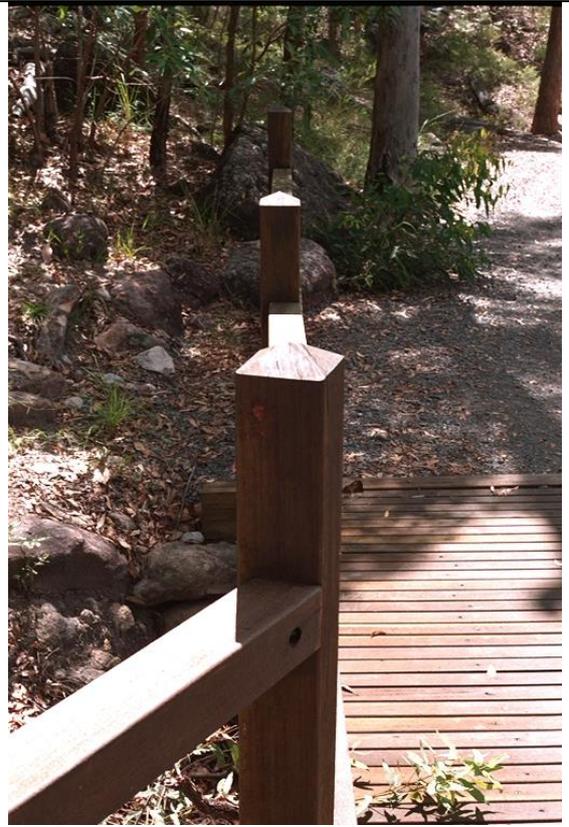
Great Grandfather Stubbersfield was a founding member of St Albans Anglican Church in Gatton back in 1870 and Grandfather Stubbersfield built the first small wooden church in 1879. So when the parish was building a new church in 1967 they naturally came to my father, with a sawmill, to donate the cross. The timber is ironbark and measures roughly 400x300. The sawn surface was then textured with a broad axe. (The venerable Bede's account of St Alban is interesting reading).

Now, this cross has been proving a liar out of me for many years for as you can see the shrinkage has been way under what would be expected which you can see from the gap in the concrete. Now, shrinkage was expected, and you may be able to see the joint of the arm to the post is tapered and was intended to be tightened as the timber shrunk. It never happened, and the joist is as tight today as when it was installed. Unfortunately, the Lockyer Valley is one of the worst areas in Queensland for ground line decay and this post has the further handicap of being set in concrete. The last time I inspected the base, which was about 5 years ago, there was still virtually no degradation at all. But at a wedding there on Saturday I saw that in the intervening period that the decay had been rapid. In the front there it was up to 100 mm deep and in the back up to 50 mm i.e. half way through.

If we can learn anything from this cross, it is that your design sins will eventually have a consequence. You can read more about this design issue in my book [\*The Seven Deadly Sins Of Timber Design.\*](#)

### [An Early Boardwalk Revisited.](#)





**Project:** Toohey Forest Park Boardwalk

**Asset Owner:** Brisbane City Council

**Engineer:** James Pierce and Associates (Now retired)

**Construction:** Eureka (I think)

**Supply:** Gatton Sawmilling Co. (Later known as Outdoor Structures Australia)

**Date:** Prior to 1997

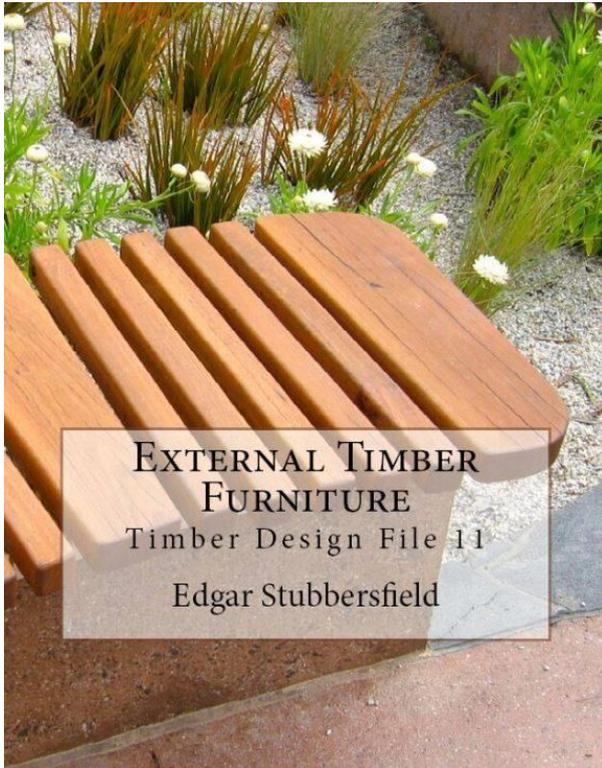
I was doing preliminary design work for a small boardwalk at Toohey Forest Park in Brisbane and I asked my contact in the Council how an old boardwalk I supplied the design and timber for was standing up. He commented that it was in excellent condition further adding "It certainly still feels like it fits and suits the landscape that it was built in those many years ago."

The top two images show the boardwalk now after 21 years. What was special about this boardwalk was that it was built on rock meaning we couldn't put our normal H5 pine posts in the ground. The left-hand image in the middle row shows a custom made post support painted with a tar epoxy paint to help with corrosion. In 2018 it would be stainless. Of course, that support will not give the rigidity required so that was achieved by incorporating large L brackets where the post met the bearers. All the galvanised items were also coated with tar epoxy.

The posts were sawn 125x125, note the pyramid tops to shed moisture which is not easy to do neatly on sawn posts. Fire was considered a risk in his location and all the timbers were fire resistant and a fire retardant was applied at the time.. We came to the conclusion that for large changes of direction that round posts were better suited than sawn.

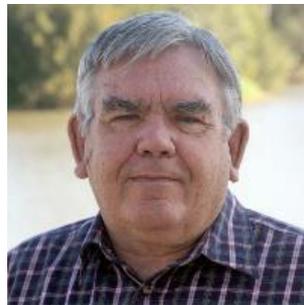
This type of outcome is achievable every time but I know that many don't succeed and this is usually through purchasing to price and not specification and nor dealing with specialists who know what they are doing. (Unfortunately, I can think of specialists who don't know what they are doing). I can help you get these excellent results through my consulting service. Two of my books are free, the [Boardwalk Design Guide](#) and the [Deckwood Selection Guide](#) but most want to tinker with the system without asking me what is the consequence, and there always is. The third book [Deck and Boardwalk Design Essentials](#) covers what happens when you change things. The \$50 investment is money well spent.

## External Timber Furniture



My book, External Timber Furniture is now completed apart from a few images I am having trouble with Copyright. Can you help with images of:

- Decay under film finish
- Decayed sapwood
- Failed glue joints
- Problems with edges of round tables
- Corner details



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