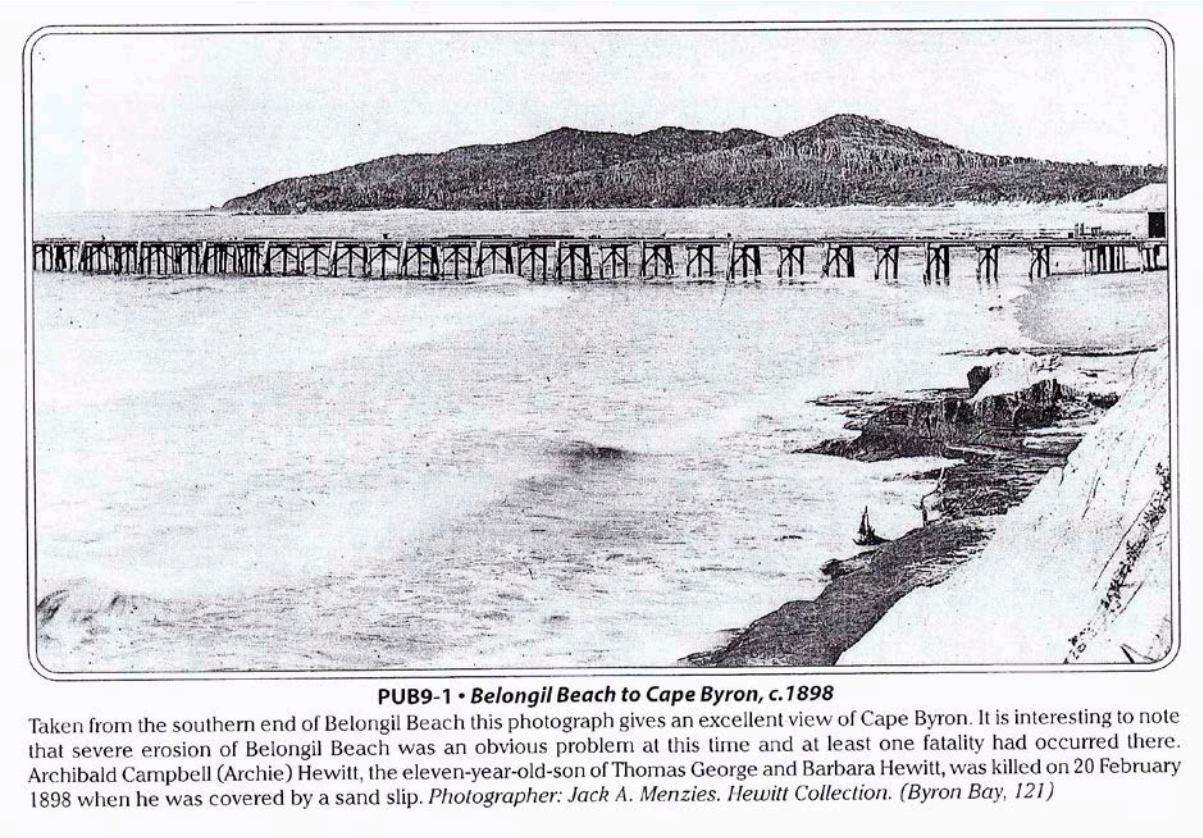
Jonson Street Protection Works

Widening the range of concept designs to include soft and hybrid structural solutions.



PUB9-1 • *Belongil Beach to Cape Byron, c.1898*

Taken from the southern end of Belongil Beach this photograph gives an excellent view of Cape Byron. It is interesting to note that severe erosion of Belongil Beach was an obvious problem at this time and at least one fatality had occurred there. Archibald Campbell (Archie) Hewitt, the eleven-year-old-son of Thomas George and Barbara Hewitt, was killed on 20 February 1898 when he was covered by a sand slip. *Photographer: Jack A. Menzies. Hewitt Collection. (Byron Bay, 121)*

The dunes at Main beach have always eroded after heavy storms events – seen above in 1898.

Townsfolk built on the dunes consistently over that time. But after heavy storm erosion, only soft revetment was used to shore up the dunes and kickstart the natural rebuilding process – soil, logs, timber platforms and fencing, brush – seen here in many of these old

photos. Soft revetment supported the natural replenishment of the beach by the dunes and was effective for over 100 years.

Soft revetment attracts and holds the incoming sands and the dunes and beach rapidly rebuild. As you can see in this 1950s photo of the beach carpark, there was excessive sand build-up, much of it blowing down Jonson Street and needing to be shovelled out.

In the 1960s (above) and 70s, there were more heavy storms and erosion. Asphalt had already been poured directly on top of the dunes where the old sand and dirt parking lot had been – the start of hard revetment. It was local panic that first introduced harmful hard revetment seawalls and groynes.

These defensive rocks attempted to secure the dunes and hold them in place, effectively locking away nature's defensive renewal system. No longer could the dunes replenish the beach. Instead the rocks rejected the incoming sand, scoured the seabed in front of the wall, and magnified downdrift erosion. As a consequence, beach alignment changed, the massive dunes before First Sun Caravan Park vanished, and the creation of a quasi-artificial

man-made headland began. Note from this aerial view how the seabed is scoured in front of the rocks as the sands rebound offshore.

This also happened after the 2009 erosion in front of Belongil beach residences. Remember how we all had to swim past those rocks for a 12 month period before there was finally some sand build up?

The 7 options presented for the redesign of the JSPW by Bluecoast are ALL hard rock revetment structures of one kind or another.
No 'soft' structures – beach sand, geotextile sand containers, buried gabion baskets, timber platforms, boardwalks, piers, all of which restore a more natural beach, reduce adjacent coastal erosion and maintain a useable beach for longer – have been assessed. Nor have any hybrid structures – a combination of hard and soft revetment – been considered.

Surely this is a lost opportunity for comprehensively addressing all of the design criteria – coastal protection, shoreline impact, safety, beach and foreshore amenity, surfing and other recreational amenity, eg fishing, the environment and, of course, economic factors.

Four options actually strengthen the current alignment, with all its consequent downsides. One (option 4), even extends the artificial headland further seaward!
And two (options 5 & 6) partially or completely return the beach front to a more natural alignment, but fail to look at public amenity and recreational needs of the public.

At the public workshop held at the Community Centre, the preferred choice was to realign the beach front. This was the best option for saving the beach itself. While that meant moving landward around 30 metres it did not mean removing everything seaward of that defence. The idea was to protect the town centre by burying gabion baskets along the natural beach alignment (approx. 30 metres back), itself not an expensive starting point. The area seaward of that underground wall is then freed up for an innovative redesign using a combination of soft and hybrid structures which in turn can (partially) release the dunes to replenish and grow the beach.

(Note: Small rocks in baskets create voids that provide habitat for sediment retention and marine life to rebuild creating a healthier marine environment. These are now being used at Wamberal beach.)

Bluecoast made Option 6 an expensive option by *exposing* the realigned beach seawall rather than burying it and *removing everything seaward of that wall*.
That meant no carpark, no viewing platform, no recreational open spaces for beachgoers to mill around, busk and enjoying the "views" etc. Removing *everything* seaward of that realignment would be very costly, and while it would give us back our beach, it would take away the recreational public spaces that the community and tourists hold so dear.

This is why I am calling for further options to be designed – options which utilise a combination of structural forms, not just harmful hard revetment.

A hybrid structure could see only the groynes removed and as much of the hard revetment trapping the old dunes as cost effective. Soft structures could then be constructed ABOVE the old rubble and sand – platforms, boardwalks, truncated piers, - thereby improving both beach health and the design of recreational and business spaces on the beach.

Seriously, can't we do better than accept contemporary versions of outmoded and harmful hard revetment structures? Can't we do better than continue to build an artificial headland with the need for an artificial beach sometime down the way? Can't we try to have our cake and eat it too? Can't we search for a win/win solution- a win for the beach, a win for public amenity and a win for town centre protection?

Continuing to shore our beachfront with hard revetment doesn't cut it. Councils in the USA have found this way too costly on so many fronts they are now beginning to ban further seawall construction.

The above 3 photos show alternative hybrid structures that enhance public access and utilisation of the beachfront which freeing the beach to function naturally.

Rob Stokes, the current Planning Minister, is currently offering up to $250 million for Councils planning innovative public spaces for their communities. Too early for us, but surely the State government will continue to consider funding innovative planning ideas for open spaces, especially when Tourism keeps touting the Bay as the place to go!

Should we design something exceptional and original which goes some way to saving our beach while improving our life on and by the beach, I'm sure we will find financial backers, be they government departments or business entrepreneurs.

I've added this USA image for fun. They always have to oversize everything! Here they have parking, businesses, a funfair and more all built ON and above the beach while the beach goes on its merry way. Big beach, big everything on it.

I'm also attaching the notes I sent through earlier, in case they haven't been read and it's too hard to find them now (I have that problem), plus some additional reading on coastal erosion FYI. If anyone wants to browse "The Last Beach" I have several copies and would be pleased to loan them out.

Let's stop the loss of our beach. Let's seek out win/win solutions to the conflicts caused by developing ON our beaches. Let's *add* soft hybrid options to our current list of hard options. Let's seek out innovative structural designs that evenly address *all* our priorities – the health of the beach, the public recreational spaces fronting or ON our beach, the protection of our built environment.

Settling for the limited 7 options before us at this time would be selling us short. Embellishing the mess we currently have is selling us short. We <u>can</u> do better.

After all, this is Byron Bay!