

Beyond Manly

Expansion at 4 Pines Brewing Company



By Chris Willcock

Our philosophy at 4 Pines is simple. We take what we do very seriously, but never ourselves. And above all...we love beer! And so do our customers – because from our start-date in 2008, sales of our products had increased until eventually demand had outgrown supply. This is the story of our 2012 expansion project – from where we started – in Manly, the famous peninsula on the Northern Beaches of Sydney – to Brookvale, a light industrial district just a few kilometres away.

We continue our mission to establish 4 Pines Brewing Company as a trusted source of fresh brews and good times on Sydney's North-

ern Beaches. Beer in Australia, like in many other parts of the world, is in the middle of a revolution. Our long-adored national drink of choice

is being consumed in slowly declining quantities, but Australians who once accepted that beer was limited to a narrow variety of ester-fuelled lagers have begun to ponder in ever-increasing numbers that a Pale Ale or a Kolsch might be a better "bevy for the barbie at me mate's place." (*translation – beverage for the barbeque at my friend's house*).

This emergence of craft beer is a very familiar phenomenon in many of the world's mature markets. And just as in the USA, UK and Canada, terms such as locally-produced, variety, freshness and hops are becoming increasingly prominent in an Australian beer drinker's vernacular. Which, of course, is all for the better according to us passionate beer advocates. In fact, it's about time! A good life



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has always been dosed healthily with both good food and good wine. Why shouldn't good beer have equal standing at the table?

4 Pines Brewery in Manly

The name – 4 Pines Brewery – is inspired by the Norfolk pine trees that line the iconic beachfront at Manly, a famous peninsula on the Northern Beaches of Sydney and the birthplace of this eight-year-old company. Four of the distinctive pines were removed during the 2nd World War to make way for embattlements to protect Sydney Harbour from invasion and their sacrifice has been commemorated in a small beachside plaque.

Many years later on the same beautiful beach, co-founders Jaron and Steve Mitchell had just been

for a surf when Steve asked his son "Where do I find a good beer in Manly?" Jaron, who like his dad had become familiar with, and quite fond of, the emerging small brewery scene back in their home state of Western Australia, replied that he had no idea. And so began the story of 4 Pines Brewery.

From that conversation came the opening of the 4 Pines restaurant and micro-brewery in 2008, complete with 5hL brewhouse, 12 beer taps, a real ale cask system and a whole lot of community good will. Today the 'brewpub' is an embedded institution in Manly and is as popular with beach-loving tourists, beer connoisseurs and casual passers-by (often making their way to the ferry wharf across the road) as it is with the locals.

Expansion to Brookvale

A few years later, demand for the hand-crafted beers had outgrown supply and talks of a second brewery were in motion. So it was in October 2012 that 4 Pines brewed its first beer at a newly-built 1-million litre facility in Brookvale, a light industrial district only a few kilometres from the original micro-brewery venue. With its 50hL DME brewhouse (Diversified Metal Engineering – Canada), Brookvale has become the primary headquarters for the 4 Pines wholesale business and the launchpad for distribution that in 2013 reached a (albeit still very small but) national scale. It is also the home of our newest hospitality space – the 4 Pines Truck Bar! This provides visitors with 19 different offerings on tap, all served over the flat bed of a converted 1956 Dodge truck.

I am very pleased to say that the birth of the Brookvale Brewery has not signalled the end of the small brewhouse in Manly – far from it in fact. Through my brief ten years in the Australian beer industry I've been in the unfortunate position of seeing some fantastic operational breweries shut down, justified by the relative "inefficiencies" as part of a larger brewing operation. However, it has always seemed short-sighted to me that these "inefficiencies" are not more often embraced and exploited. Not only is Manly the cultural heart of 4 Pines Brewing, the small 5hL brewery has become a 'brewing playground' that allows us to develop new beers, experiment with new flavours, train our brewers and to educate and collaborate with customers. All of which means we can still operate it at full capacity.

Our beers

4 Pines is the reigning 'Champion Large Australian Brewery' at the Australian International Beer Awards and was also named joint-Champion Large Brewery at the 2014 Craft Beer Industry Association (CBIA) Awards. All of our beers take their cues from traditional styles with a focus on ingredients and technique.

Pale Ale – American style Pale Ale

5.1% ABV 35 IBU

Produced using four US hop varieties and four types of malt. A colourful deep ruby amber appearance. Aromas of pine and grapefruit overlay a result but dry malt back-





ground. The red label of the Pale Ale is probably the most recognisable in the 4 Pines range. Voted #3 in the 2015 'Hottest 100' Australian Beers Poll.

Kolsch – German style Golden Ale

4.6% ABV 22 IBU
Light straw in colour. Aromas of lemon/lime from New Zealand and noble hops

prelude a light, malty palate. Finishing crisp and clean, showing hints of spice and citrus. Purposely spelled without the traditional *umlaut*. This is southern hemisphere homage to the west-German style.



Hefeweizen – German style Wheat Beer

5.2% ABV 18 IBU
A Bavarian-inspired wheat beer. Cloudy pale straw in appearance, mild sweet nose with hints of banana exhibiting a well-rounded palate showing characters of banana and spice. Great for

an Australian summer.

Stout – Dry Irish Stout

5.1% ABV 40 IBU
A dry, Irish style stout, presenting almost black, bearing a generous tan head. The aroma profile is of coffee, chocolate and caramel malts. These are matched on the palate with a full bodied, smooth finish and a balancing bitterness. Served on nitrogen for maximum 'creaminess'. Champion Stout at the 2012 ABIA Awards.

ESB – Extra Special Bitter

5.4% ABV 40 IBU
A full flavoured, amber coloured English ale. Rich toffee and raisin sweetness from the malt, balanced with a firm bitterness and fresh herbal hop aroma. Champion Pale Ale at the 2014 CBIA Awards.

Keller Door series

4 Pines' Keller Door series is where the brewing team really unleash their creative talents in one-off, small batch (maybe never to be seen again) brews. Keller Door's creativity and innovation are our way of contributing to the evo-

lution of beer in Australia (and the world). We produce around 40 beers annually under this banner, many in small batches that do not go beyond the borders of our two 4 Pines bars. Recent larger-scale releases include Citrus IPA, Red Rye IPA, Oak-aged Baltic Porter and the 'Bastard Children of the British Empire' series (which traces the evolution of Pale Ales alongside a story of British colonisation).



Brookvale Union

Alongside our beers, we have developed a range of other alcoholic beverages including an Alcoholic Apple Cider and a Ginger Beer.



Talent and hard work

During recent years, beer sales have surpassed even Brookvale's initial 1-million litre capabilities, meaning supply had to be partially managed by 'contract brewing' through an external partnership. However, knowing this scenario was never completely satisfactory, we had also begun plotting investment into further expansions that allow us to produce all the 4 Pines beer once more.



The familiar challenge here was how to take advantage of such a large growth opportunity with such limited resources to invest? Time and budgets are often very tight and split across no more than a few individuals who must simultaneously invest in staffing, market strategy, sales relationships, finance, health and safety, production efficiencies and product quality (among other things I'm sure have slipped my mind). At times it feels almost impossible to give every decision the rigour and focus it deserves. In short, there is no easy way to do it. It takes a talented and hardworking team, a lot of research and planning, a healthy dose of pragmatism (my favourite word) and probably a few mistakes made along the way to make it happen.

So somewhere along the way we signed the lease on an additional 1500sqm of warehouse space in

The Bastard Children of the British Empire:

English IPA – 6.0% ABV / 47 IBU

Robust in flavour with subtle aroma of raisins and British herbs, this English IPA combines both traditional floor-malted Maris Otter (English two-row varietal barley) and copious amounts of famously-earthly English hops.

American IPA – 6.3% ABV / 70 IBU

Boasting a full flavour and resinous musk, this aggressively hopped American IPA has assertive bitterness and distinctively aromas of citrus and grapefruit. Unfiltered to maintain the raw, tannic mouthfeel from the hops. Antioxidants galore!

New Zealand Pale Ale – 4.5% ABV / 29 IBU

Drink in the broad spectrum of tropical fruit characters typical of New Zealand hops. Clean and crystal clear from cold filtration. What else would you expect from a country so close to Antarctica?



Australian Pale Ale – 5.0% ABV / 32 IBU

This brew is straw-like in appearance, unfiltered and naturally-conditioned for one month in the bottle. Small amounts of carried-over yeast provide a distinctive fruitiness and plenty of vitamin B to help with hangovers in any cases of accidental overconsumption.

Belgian Pale Ale – 5.6% ABV / 19 IBU

Traditionally less bitter with a toasty malt sweetness, the famous yeast-driven phenolics produce a refreshing spicy and fruity character.

4 Pines Pale Ale – 5.1% ABV / 35 IBU

A colourful deep ruby amber appearance. Aromas of pine and grapefruit overlay a malt backbone. On the palate full bodied malty flavours with a tight and bitter finish.

have an intimate understanding of how it all works and was put together. More pain, but certainly more gain.



Our 6,000bph line is now operational and has barely missed a beat since installation. Beer quality is maintained during the aseptic filling operation (our beers are unpasteurised) via in-line carbonation and polishing filtration through lenticular pads at the filler infeed (an integrated craft brewing system designed and built by Moravek International). Other machinery includes a depalletiser built by New Zealand-based Scott Packaging Handling System, a two-head rotary labeller built in Sydney by Impresstik, a WestRock cluster packing machine and a second-hand carton packer/sealer built by Recopak Packaging Solutions in Victoria.

We'll look forward to making many a carton of beer through this hot Australian summer, and I hope there will continue to be many more diverse, flavoursome and hand-crafted offerings from 4 Pines to come. We love beer!

4 Pines Open Day: An open morning at the new 4 Pines packaging brewery facility is planned for Friday 18 March as part of the IBD Asia Pacific conference in Sydney. Conference delegates will have the opportunity see the new brewhouse and bottling line investment. Further details will be available during the conference.

Brookvale, including an 1000sqm warehouse that is separated from the original brewery by a driveway and a rock climbing gym, and we started planning. The two units are now connected via a spanning bridge of stainless-steel conduit and pipework and we recently completed the Phase 1 of a 3-phase expansion plan which has quadrupled capacity to approximately 4-million litres.

Packaging project

The most important aspect of the Phase 1 (completed in September last year) expansion was the purchase, installation and commissioning of a glass bottle filling line. The line is intended to service both the short and longer-term needs of the brewery, while also adhering to a limited capital budget and providing good performance in safety, quality and reliability metrics. Due to the limited budget and my need to write a dissertation project for my final Master Brewer study module, I chose to "have a crack" at project managing the purchase and installation myself. A somewhat risky decision for a brewer who has long been known to suffer from a classic case of "pack-

aging phobia" (I'm sure many of you know the type), but also a decision that probably had several advantages over a turn-key option. The line we've built is now customised for our preferences, we have strong relationships directly with all machine suppliers, it was probably cheaper and my team and I



Chris Willcock is a Master Brewer and Chief Brewer of 4 Pines Brewing Company

Bottling at 4 Pines Brewery in Manly NSW

With continued growth of bottle sales in the Australian market the time had come for 4 Pines to invest in its own beer bottling line. 4 Pines Brewery owner Jaron Mitchell and Head Brewer Chris Willcock put together a line specification that would give them the capability to produce 6,000 BPH at 330ml and 3,000 BPH at 500ml output capacity. After the installation of a new DME brewhouse the new bottling line was another major financial investment for the brewery and it was very important for the company that it chose the right equipment.

Moravek

Chris and his team set about the selection process of potential suppliers for the new line and after a thorough evaluation process of a number of suppliers Four Pines selected Moravek to supply the wet end of their new line.

4 Pines chose Moravek for a number of reasons; the benefits of the BC Beer Carbonator technology and a highly-satisfied customer base in the craft brewing industry. To meet the required specification Moravek supplied and commissioned a BC30 inline automatic Beer Carbonator with BF30 lenticular type beer filters and 24/24/4 beer filler tribloc with double pre-evacuation.

Moravek also designed and supplied a special beer delivery system to transfer beer across from the brew house to the bottling hall, which are housed in two separate buildings divided by a road. Bright beer is transferred from the BBTs located in the brew house building to the Moravek BC30 Beer carbonator located alongside the bottling line in the bottling hall.



Filtration, carbonation and filling

Reduction in DO

The Moravek BC30 inline gas atomise type beer carbonator delivers a smooth natural carbonated finish with consistent CO₂ levels. A reduction in dissolved oxygen DO is also achieved by gas stripping in the BC30 carbonating chamber.

Combined oxygen de aeration of the beer at the carbonator and high-vacuum double pre-evacuation at the filler achieved the following final pack DO results;

- Original bright beer in tank DO content = 0.20 mg/L
- Final Bottle sample DO content: = 0.08 mg/L
- Represents DO reduction of 0.12 mg/L across the bottling process against the typical industry norm of DO pick up of + 0.05 mg/L

These DO reduction results are also supported by further test results carried out by Heriot Watt University in Edinburgh on its pilot scale Moravek CW400 carbonator bottle/keg filler installed in the research laboratory back in 2007. Furthermore, this highly-efficient method of carbonation also delivers a stable product to the filler reducing the risk of fobbing and superior filler performance.

Tribloc filler

The inline carbonated and filtered beer is delivered to the Moravek 24/24/4 rinser/filler/crowner which is rated to a maximum output of 7,000BPH x 330ml and 5,000BPH x 500ml. The BC30 Beer Carbonator and 24/24/4 tribloc filler are interfaced electronically as well as being hydro-mechanically synchronised. This ensures the beer process pressures and filler counter pressures are automatically balanced and always correctly set to optimum further enhancing filler performance.

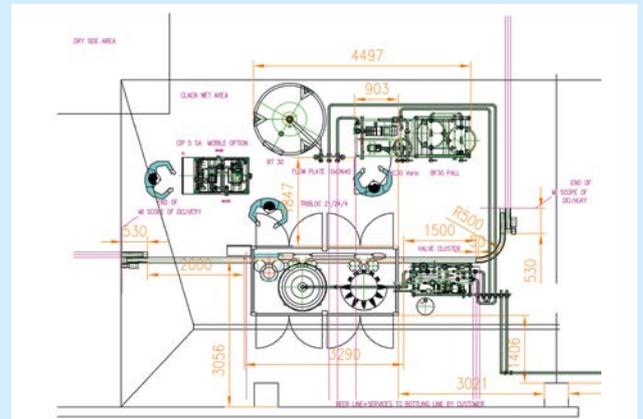


The Moravek triblock filler in-situ

The BC30 also features automatic filler prime function, automatic purge run out with minimal beer losses as well as CIP function of the complete system.

A combination of full factory pre-delivery testing and Moravek's well-proven technology ensured a quick smooth quick commissioning start-up of the line within one week of Moravek technician's being onsite in Manly.

"We got off to a solid start putting 4,000 cartons straight into the warehouse in the first week of commission production, and we have been delighted both the quality of packaged beer the Moravek system produces plus the various features of the BC make life simpler for our production team," says Chris.



For more information about Moravek integrated process and packaging technology for craft breweries go to their website at www.moravekinternational.com