

Guiding Light

The report below is reprinted with kind permission from ABP.

AN ICONIC illuminated cross which has been used for decades as an informal navigation aid to Marine Pilots bringing ships into the port, has been restored thanks to ABP Southampton.

Marine Pilot Mark Bray (pictured) works in the Port of Southampton helping to bring some of the largest ships in the world alongside and when he noticed the cross on Christ Church in Freemantle was no longer illuminated, he was keen to see what could be done to remedy the situation.

He explained: "For many hundreds of years Marine Pilots and ships' navigators have used prominent landmarks to help fix their vessel's position.

Southampton Marine Pilots back in the days of sail and steam will have used the many magnificent church spires which surround the docks as navigation aids.

Today's Marine Pilots now bring in monster sized, ultra large container ships. They use modern hi-tec electronic positioning equipment called Portable Pilot Units to get the 400m long ships through the docks.

Even with this equipment, Marine Pilots still verify the ship's position and progress by looking at fixed objects ashore.

The illuminated cross on the Freemantle church is especially useful at night to guide us into the 400m turning circle."

Mark contacted Priest in Charge, Reverend Angi Nutt and she was delighted to discover the cross was used as a guiding light by mariners.

"The iconic cross on the tower of Christ Church was first installed in the early 1950s and has been unlit for a while after the final tube in it failed. In the past, it has been a tricky and often eventful project to lower the cross to change the bulbs and do maintenance work on it," she said.

Apprentice Morgan Rodaway,17, stripped back the 2.2m high cross and fitted LED bulbs with photocell technology so the cross lights up as darkness falls. He joined maintenance team colleagues who used a cherry picker to safely re-attach the cross at a height of 18m.

ABP Southampton Contracts Technician Joe Atkinson explained it was one of the most unusual projects his team has ever tackled.

"This is certainly not an everyday project for us and that's why it was great for Morgan, our electrical apprentice, to be able to work on it. It's great to be able to do something that helps our Marine Pilots - and also restores a much loved icon for the church community," he said.

The Portable Pilot Units mentioned above enable the pilots to not only monitor their own movements and progress in real time, but also that of any other vessels in the port area, without the need for ship/ship or ship/VTS communications.

Four images from such a PPU display are shown on the opposite page and were taken by a pilot, Past Captain John Mileusnic, on his mobile phone while sat at home.

The information displayed is from AIS; if John had been afloat he could have plugged his PPU into the ship's system and received much more data and information.

The images show the progress of the container vessel *Cosco Vietnam* which departed her berth (SCT 3/4) at 1730 on the evening of Saturday 18th Feb. With the assistance of two tugs, the *Svitzer Bargate* for'd and the *Lomax* aft, she backs round Post Office Corner into the swinging ground.

I have superimposed the transit line of the cross and the end of the shed at 109 berth and you can see that it nearly bisects the 400m turning circle.

In the second image the bridge position of the ship or, more correctly, the position of the AIS transponder (the small blue circle and orange cross) is right on the line.

The other transit shown on the chart, the YBR beacons, were established years ago to assist vessels using the KGV dry dock. Note that the *Vietnam* is too wide to have fitted in to that 'huge' dry dock.

The shadow profiles show the predicted position of the vessel up to five minutes ahead, each ship shape at one minute intervals, *if the vessel continues on its current path without any change of course, speed or rate of turn*. They are based on past data because all the wonders of modern technology have yet to develop a crystal ball. In practice, these factors are changing almost constantly.

The vessel on what was 201/202 berth, now designated SCT5, is the *CMA CGM Benjamin Franklin*, one of the new breed of extra large container ships of ~400m length. With my trusty dividers (what they?) I measured the distance from the edge of the turning circle to the hull of the *Franklin* and, comparing it to the 400m circle, calculated that it is around 44m. So that is precious little space for the 28m *Lomax*, hanging on the towing wire aft, to manoeuvre.

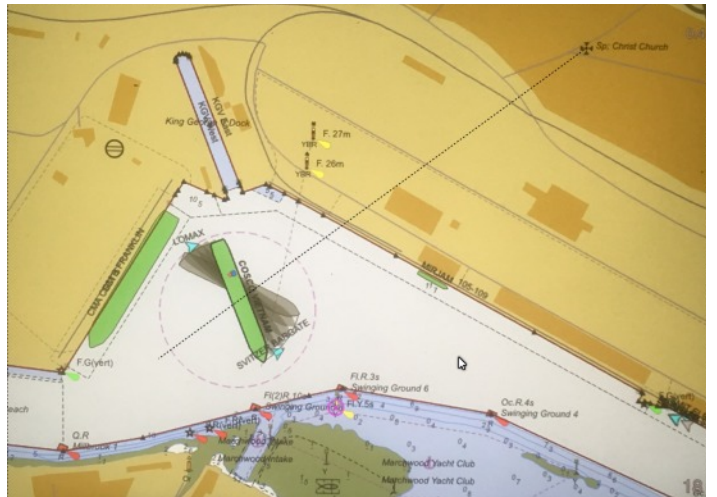
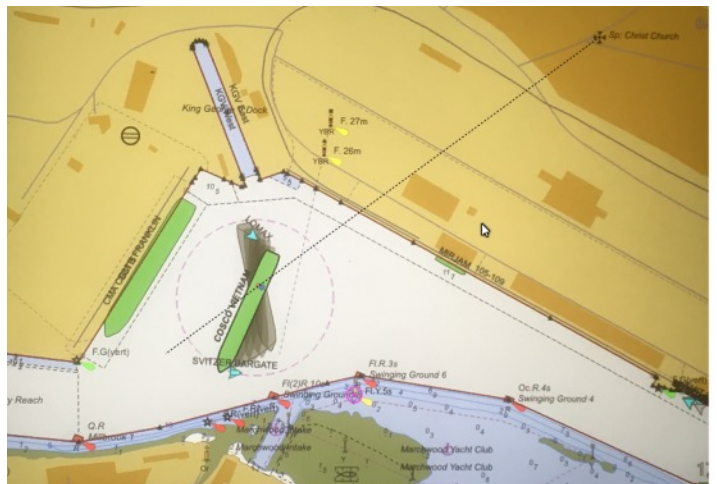
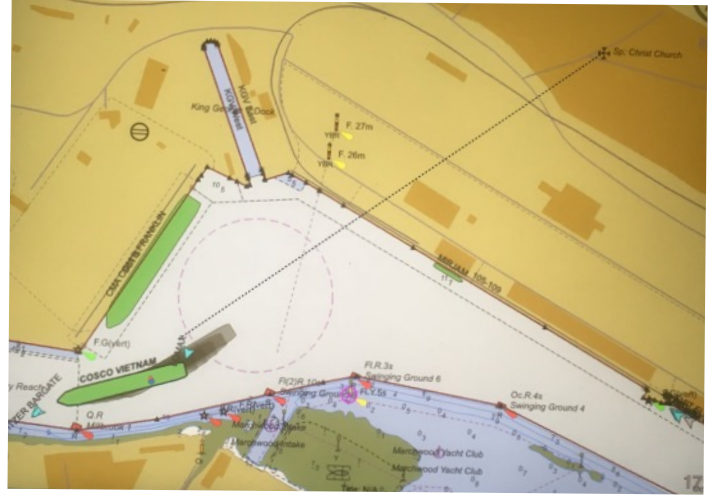
BUT, we need a bit of caution when doing such sums and making such assumptions. If you look closely at the *Franklin* you will see that her green hull shape is slightly overlapping the quayline. We can confidently assume that she isn't sat up on the quay so this indicates a discrepancy between the base mapping and the overlaying AIS data; this is not uncommon. What I should have done was measure the distance from the circle to the quay (both from the same map) and then deduct the 54 m beam of the *Franklin*, giving me a new clearance of 41m. That's 3m less for the *Lomax* to work in. The main lesson to learn from all this is that the modern technologies are wonderful aids, but just that, 'aids', and one must be aware of their limitations.

And, as a retired pilot myself, I know that pilots are still very happy to use the Mark I eyeball and visual aids such as the newly restored transit to re-assure them of the veracity of what their sophisticated equipment is telling them.



Elevated positions

Pilot Mark Bray and electrical apprentice Morgan Rodaway



The economies of scale

The *Cosco Vietnam*, above, is 334m x 43m, 91,051grt, 101,500 dwt and has a capacity of 8500 TEU (standard boxes).

The *Benjamin Franklin* on SCT 5 berth is 399m x 54m, which doesn't look a great deal bigger in the plan view.

But, consider the following:

That 19.5% increase in length and 25.6% in beam equates to an increase of 95% in grt (178,228) and 82% in dwt (185,070).

But at 18000 TEU it has more than double the carrying capacity, at + 111.76%!!

No wonder big is beautiful in the shipowners' eyes.

The container ships are divided into categories and the *Vietnam* is a Cat 3, > 60,000 dwt, and takes one Specialist Containership Pilot (no longer *Choice*). That pilot was Richard Harding, whose father, Roger Harding, was a lecturer at Warsash and a Cachalot who sadly went aloft last year.

The *Franklin* is a Cat 4, >100,000 dwt and >365m and takes two Specialist Pilots. who bring with them a berthing / navigation aid which once set up is independent of the ship, including power, and uses a fixed aerial system around the port giving incredible position accuracy, said to be around ±2cm.

They are now working on the criteria for Cat 6, at around 199,999 dwt and the rules governing their safe passage. There are only a few places in the port and its approaches where these giants can safely pass each other. Consider a Fawley pass, with perhaps a VLCC on no.5 berth. The vast quantities of water displaced by each vessel, with limited underkeel clearance, can only go sideways and the greater the speed, the greater effect. The slower the speed, the less efficient the rudder and you lose the steering. Take your pick.