

BUILDINGS AT RISK

Water tanks: keeping the railway steaming along

The Buildings at Risk series covers buildings and structures currently at risk, lost and saved. This week, James Maddrell of the Isle of Man Steam Railway Supporters' Association looks at a seldom-noticed but absolutely crucial set of buildings/structures associated with the Isle of Man Railways.

In its day, the steam railway was vital to life and the economy – possibly approaching as important as perhaps the internet is today.

The railways were transporting many of the workers, holiday makers, goods and minerals such as sand and lead ore around the Island, and rapidly proved a real boon to the island.

The Manx railway network developed quite quickly, and needed infrastructure to function.

As well as the permanent way (track, viaducts etc.) and facilities for handling the passenger and freight cargo, sheds were built to stable and maintain the engines. All of those buildings and structures are well known by those on the island – but you can't run a steam railway unless the engine has the supplies to power it.

We're all familiar with coal bunkers and the image of the fireman on the footplate, shovelling coal to raise the steam.

However, less well known is that a steam locomotive can get through as much water as coal, if not even more.

The water is turned to steam in the boiler and allowed to expand in the cylinders to move the engine, the exhausted steam and condensation is then discharged back into the atmosphere, drawing the fire as it goes.

The Isle of Man railway company chose to use a well-tested locomotive design, first used in Norway; the same design was kept until the last locomotive was delivered in 1926 albeit enlarged and modified through the years.

These locomotives are built to a 3 foot narrow-gauge design and have a limited amount of storage for fuel.

The railway has never had tenders fitted to any locomotives, but the engines' bunkers could carry about ¾ of a ton of coal – sufficient for a round trip from Douglas to Port Erin, or a trip from Douglas to Ramsey.

However, water was a different matter. A pair of side tanks – recognisable as the components that have the name plates attached to them – hold around 480 gallons in total.

That doesn't sound a lot,



Engine No. 5 Mona taking water at Castletown in 1967

(Picture: E.J. Mitchell)

but that's over two tons of water, and, depending on the train composition and load, you will use a lot of it just going from Douglas to Port Erin.

The buildings and structures to provide this boiler water are the subject of this article.

Supplying water to the engines

Compared to water, the engines' consumption of coal was modest and could be supplied by having depots of the imported coal at a small number of terminus stations which could be supplied by seaports.

Similarly, the engines always took on water at the terminus stations such as Douglas, Port Erin, Ramsey and Peel; but they could also need topping-up before or after long gradients, or en-route if they made a long trip such as Douglas via St John's to Ram-

sey. This meant a water supply was required in far more locations around the island's network, exploiting local water sources depending on the location.

Steam engines only earn for their operators whilst they are actually hauling trains, so minimising delays whilst refilling an engine's water tanks, especially mid-journey, is critical.

To assure a reliable supply, and enable it to be delivered into the engines' tanks quickly, the railway erected a network of track-side tanks.

These tanks were mounted on elevated towers or platforms so the water could be fed to the engines by gravity, just like the header tank or cistern in modern houses – but on a larger scale.

Most of the tank bases were constructed of either

Peel brick or random rubble, built to a high standard as the tanks contained a considerable weight of water. The tanks themselves were usually supported on old rails laid across the top of the tower; the Railway company used old rails for lintels all over the railway and many buildings still extant have rail lintels to this day.

Whilst most tanks were supported on masonry, including that at the north end of Castletown station, there are suggestions that an earlier tank at the other end of Castletown station by the Silverburn river bridge was supported solely on a frame made of old rails.

In rural locations, where the engine could run right alongside the tower, the water was delivered directly from the tank to the engine via a six inch diameter leather hose;

but in locations with more tracks, such as Douglas, there were large station tank(s) and then several water cranes or columns between the tracks – effectively large standpipes.

Tank construction

The tanks all varied in size depending on how much demand was expected of them, for example Port Erin, as a terminus where a full refill would be needed, was a large structure; whereas locations like Castletown where only a top-up was required were relatively small.

The materials the tanks themselves are constructed of varied too.

Douglas has two large cast iron tanks which fed three water columns around the yard; two of these columns are still in use today; and although the tanks are now out of use they are still water tight.

They were made by Ransomes and Rapier of Ipswich, including all the pipe work and water columns around Douglas station.

The tanks at Ramsey and the first ones at St John's and Foxdale were constructed of the best well-seasoned English or American oak. The joints between the planks would have been caulked ship style, and they had large steel straps around the tank to brace the timber planks.

Peel tank was unique on the railway, being made out of large slate slabs probably sourced from Wales.

The slate was drilled and metal tie rods fixed the slabs together, and the joints pointed or caulked like the wooden tanks.

There were other examples of domestic slate water tanks in Peel and around the island



A hand-pump used to fill the track-side tanks; and the arrangements to transfer the contents to the engine. A long chain is pulled downwards which in turn lifts a big brass plunger in the bottom of the tank - like a bath plug - allowing the water out of the tank and into the locomotive
(Picture: Sunnycroft collection)



Engine No. 8 Fenella alongside the unique slate water tank at Peel to celebrate the 140th anniversary in 2013
(Picture: John Maddrell)



One of the wooden tanks at Ramsey 1978 (Picture: Sunnycroft collection)



The riveted tank at Port Erin 1965 (Picture: John Maddrell)



At Douglas station - Ransomes and Rapier water tanks filled by pumping river water until early 1980s



An original water crane or column which is still in use at Douglas station (Picture above and left: John Maddrell)

- indeed a part of a tank can be found re-used in the grave-stone at Lonan that Archibald Knox designed for his friend Cannon Quine.

The other tanks on the railway were made up of steel plates riveted together.

This could have been done by the railway's own boiler makers, or contracted out to firms such as Knox's engineering or Gellings in Douglas, or Ransomes and Rapier.

Replenishing the tanks

Depending on the surrounding terrain, and the underlying geology, in the early days there were two main ways to obtain a supply - abstraction from a nearby stream (which could suffer seasonal variation), or from an artesian well. Later, as the mains water network expanded, some station tanks were replenished from 'the mains'.

It is key to have a supply of pure water, and the most reliable source was often a private well.

Douglas railway station and Clinch's brewery were some of the first sites on the island to use 'Abyssinian' tube wells. Tube wells had been invented in America in the 1860s, but their rapid deployment came to prominence via the British Army in places like Abyssinia (now Ethiopia).

Rather than digging a well and lining it with masonry, a series of metal tubes are driven in to, and remain in, the ground.

Unfortunately, in the case of Douglas station, as more fresh water was extracted from these wells, it drew in

brackish salt water from the harbour - similar to Malta's current-day plight with over-extraction from the aquifers that supply their drinking water leading to seawater being drawn in.

By the 1890s, Douglas was forced to abstract water from the river upstream of the harbour; switching latterly to 'mains' supply to replenish the engines.

Peel station was too close to the sea to use a well, so Peel water tower was topped-up by a feed from the local Water Company's reservoir at St German's Place (known locally as 'the tank field').

St John's station used a steam pump capable of lifting 1,500 gallons an hour from a well to fill a 3,000 gallon timber tank. The station was enlarged and modified when the Manx Northern Railway came

on the scene in 1879 - this included two steel tanks and a water column. To augment the well and reduce pumping costs, a header tank fed by a lade or pipe was added, which in turn fed the station tanks.

Identifying the original water source for Port Erin station has proved the most elusive. The most likely candidate is the stream which rises on Meayll hill and runs through what is now Athol park.

Its proximity, and reference to the pump engine disturbing sleeping residents (this was done at night by the engine cleaner), and the problems of pumping water in June, point to this stream possibly being the source prior to the mains supply arriving from the Southern reservoirs.

Ramsey station, with its proximity to the harbour and tidal reach of the Sulby river,

couldn't use a well and was supplied by the Ramsey water company from the Ballure reservoir.

Other stations such as Ballasalla, Kirk Michael and Foxdale all had tanks and tube wells with the water being hand pumped by some unfortunate member of staff - probably the most junior! - at maybe 5 gallons/minute (compared to maybe 50-80 gallons/minute when it ran back out again to the engine).

The Water Towers' fate

Of all the water towers mentioned only three survive intact, the remainder have been lost.

St John's and Foxdale tanks were demolished in 1974/5, and Ramsey station survived until 1978 just shy of its centenary.

Port Erin's original water tower managed to hang on un-

til 1986 and was eventually replaced by a smaller stone clad building and new tank in 1998. Castletown water tower was demolished in 1978 to be replaced with a utilitarian steel frame and tank. Fortunately, the water towers at Douglas, Peel and Ballasalla have survived intact; sadly only Ballasalla is now in use.

Ballasalla water tower was added to the Protected Building Register in 2017 - welcome recognition that the railway and its buildings are considered worthy of protection as part of our heritage.

For some reason, Peel water tower seems to have slipped through the net as regards Registration.

As not only a survivor of the Peel line, but also with its unique slate tank, it too should be assured a place on the Protected Building Register.