

ENGINEERING FROM WATER TO WIRELESS

ORIGINS

Following burning down of several Barcaldine buildings in the 1890s and early 1900s, a town fire brigade was formed, but inadequate water pressure severely handicapped the brigade's performance. Proposals for a water tank and tower were put forward but rejected in 1902 and 1910. Years of debate and indecision ended in 1914 when the Governor in Council approved a loan of £5000 to the Barcaldine Shire Council for the erection of a steel tower and tank and for extending water supply reticulation in the town.

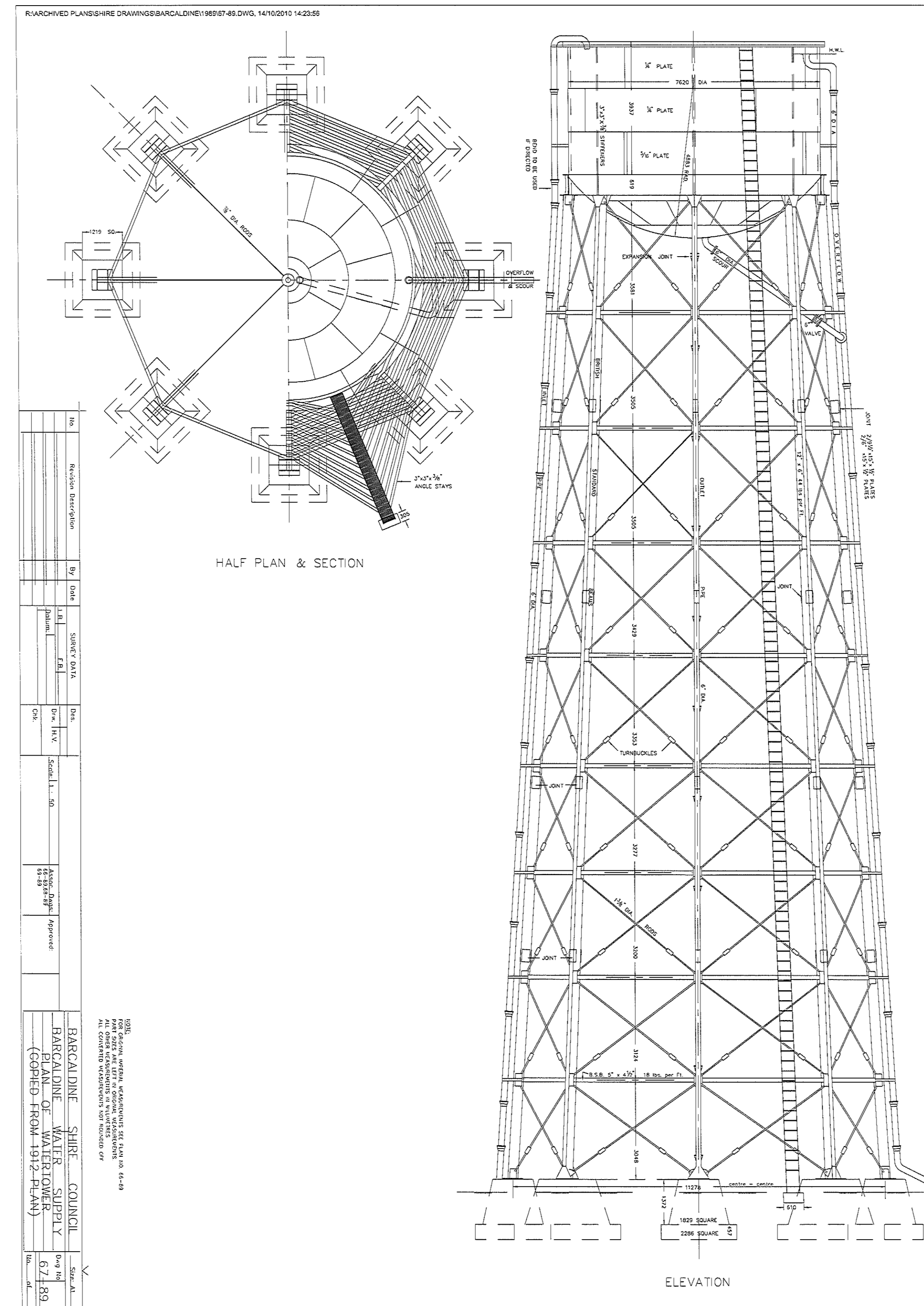


Water Tower c 1920

ENGINEERING

The Government accepted the tender of FE Barbat and Sons, £3495 5s. 4d. (\$370,000 in 2012), for the construction and erection of a 45,000 gallon (170,000 litre) tank on a 100ft (30m) mild steel tower with legs set 6ft (1.8m) into the ground. Designed in 1912 by the Government Hydraulic Engineer John Baillie Henderson, erection was supervised by engineer Campbell Fairley of Henderson's Water Supply Department, and the tank was first filled in November 1914.

The water tank is fabricated from $\frac{1}{4}$ " (6.4mm) mild steel plate joined by $\frac{3}{4}$ " (19mm) hot-driven rivets. The elegant hemispherical base is of 16ft. 4in. (5.0m) radius. Steel for the tower structure was rolled in and imported from Glengarnock Steel, Scotland. A float and pulley system indicated the water level in the tank, for all to see from the ground. After over 90 years of water storage service, the maximum corrosion measured was only 20% of the overall steel thickness – indicative of the dry climate of Barcaldine. The tower is similar in design to those erected in the same era at Goodna and Sandy Gallop (Ipswich) mental asylums, to carry 60,000 gallon tanks. The Barcaldine tower is the only one of the three still standing.

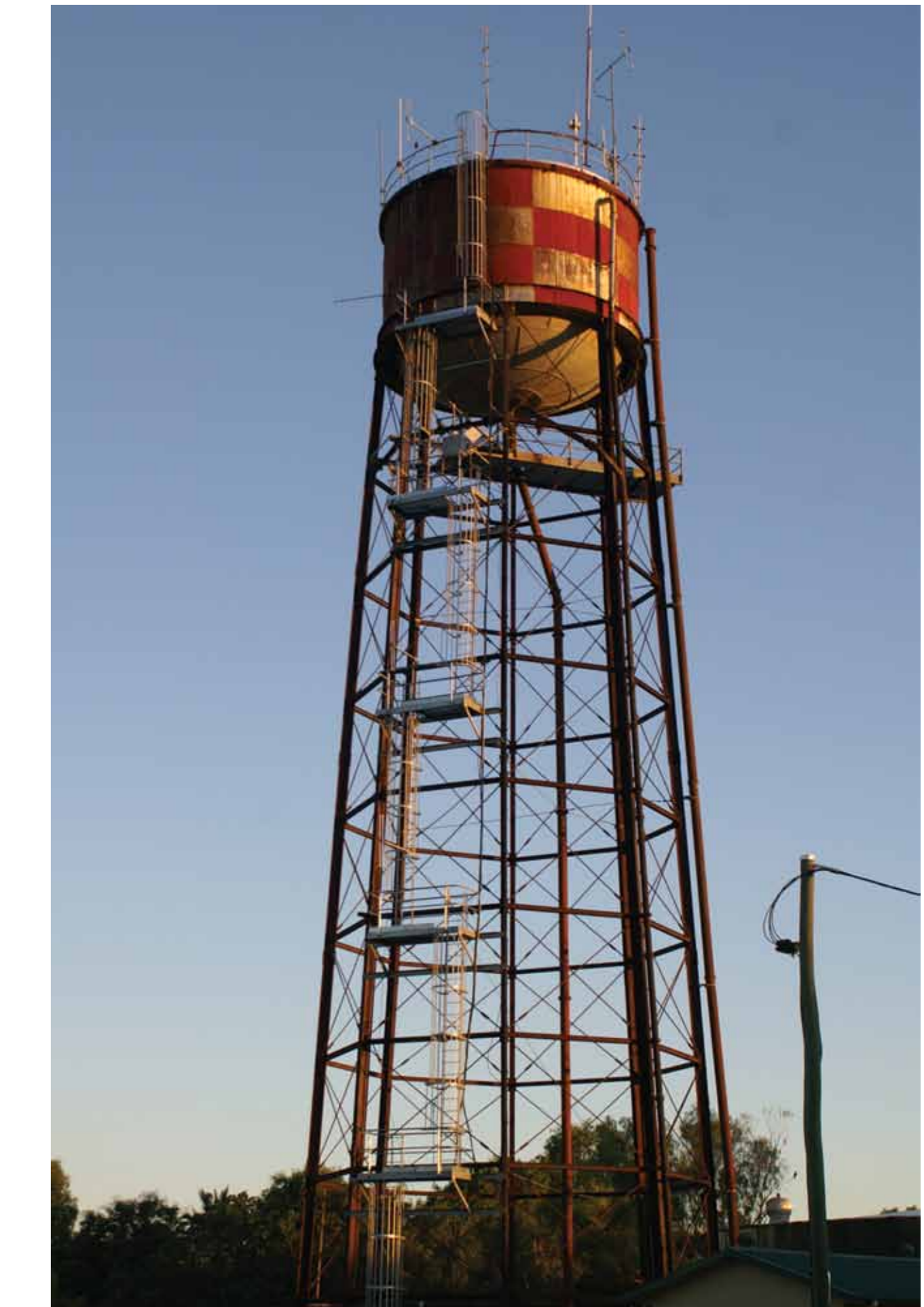


PRESENT CONDITION

A planning report completed in 2002 identified deficiencies in both water pressure and flow in the town. The option of upgrading the existing water tower was discarded due to the age of the tower and high costs associated with the upgrading. A pumping station at the nearby Pomona Bore would replace the water tower system.

In November 2006, the Barcaldine Shire Council decided to retire the tower from water storage service and adapt it for use as a communications tower. A condition audit to assess the structural suitability of the tower for its proposed new use showed the tower structure to be in good condition with little adherent rust; and the holding down bolts passed a full scale load test indicating that they have sufficient capacity to carry the design loads.

The conversion to a communications tower involved draining the water tank, removing the roof and installing new walkways and landings to satisfy current standards. The tower now carries an impressive array of radio and television antennae. The Barcaldine tower survives in its original position, forming the centrepiece of a heritage park of growing tourism significance.



Water Tower c 2006

