Allen enlisted into D Company, AN&MEF on 11th August 1914. On his attestation papers he stated that he was born on a steamer of the Orient Shipping Company, between Liverpool and Fremantle around 1891. He also stated that he was a bushman and boundary rider, was single, and gave his sister, Catherine Burger of 46 High St, Millers Point, as his next of kin.

It is unclear as to what happened in Rabaul, but on 8th December 1914 he was sentenced to three months hard labour and returned to Sydney on the MATUNGA, and was discharged, at on request on 11th December 1914, having completed 128 days service.

Allen moved to Melbourne and joined the 1st RAN Bridging Trail, on 11th March 1915, and was mustered as an AB Driver, regimental number 54. At some time between enlistment and departure, he married Doris Smith in Melbourne. He left Melbourne on 4th June 1915 on the PORT MACQUARIE and together with the 2nd Bridging Train from Sydney and ended up on Suvla Bay on the Gallipoli Peninsular. His unit returned to Alexandria after the evacuation of Gallipoli on 20th Jan 1916. With the withdrawal, the train had no defined purpose and so began the dismantling of it with many of its members joining AIF units and some returning home.

Allen joined the 2nd Pioneer Battalion on 12th March 1916 and was re-graded as a driver. He remined with the Pioneers until 25th November 1917 when he was transferred to the 22nd battalion, had his regimental number changed to 54A and reverted to a private at his own request.

On 18th April 1918, at Albert, he received a gun shot wound to the left leg and was evacuated back to the UK and then returned to Australia aboard the BORDA, arriving in Sydney on 15th December 1915. He then trained to Melbourne, where he was discharged on 30th, March 1920.