

4.6. Helena Bay, Whangaruru

Inundation for Helena Bay is presented in Figures 28-33. The South American tsunami event sees the flooding of part of Te Mimiha Bay and the estuary at the mouth of the Owai Stream to depths of up to 2 m. Speeds in Helena Bay only exceed 1 m s^{-1} at the estuary entrance. With sea level rise data incorporated, inundation extent increases considerably, including several hundred metres of Webb Road inundated, although water depths do not exceed 2 m and current speeds are relatively unchanged.

The TKSZ $M_w8.5$ event results in the flooding of the entire of Te Mimiha Bay, reaching up to Helena Bay township and breaching Russell Road (depths in excess of 3 m at the coast); the flooding of much of Ngawai Bay (depths up to 2 m), and again the entire of the land surrounding the estuary at the mouth of the Owai Stream (depths up to 4m in parts). Current speeds around Te Mimiha Bay, Ngawai Bay, and the mouth of Owai Stream and out past Paparahi point reach up to 5 m s^{-1} . The TKSZ $M_w9.0$ event sees severe inundation in excess of 5 m over the entire of Helena Bay township, Ngawai Bay and around the mouth of Owai Stream. Water speeds reach in excess of 7.5 m s^{-1} . The addition of sea level rise has little noticeable effect on water speeds or inundation extent but increases depth for both the TKSZ $M_w8.5$ and $M_w9.0$ scenarios.

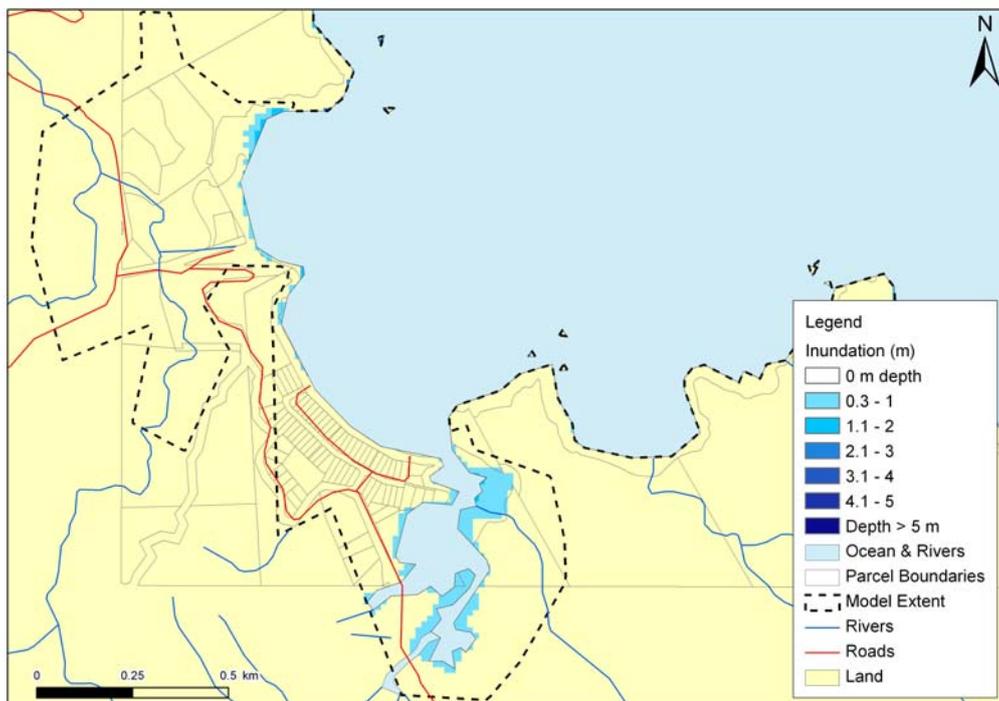
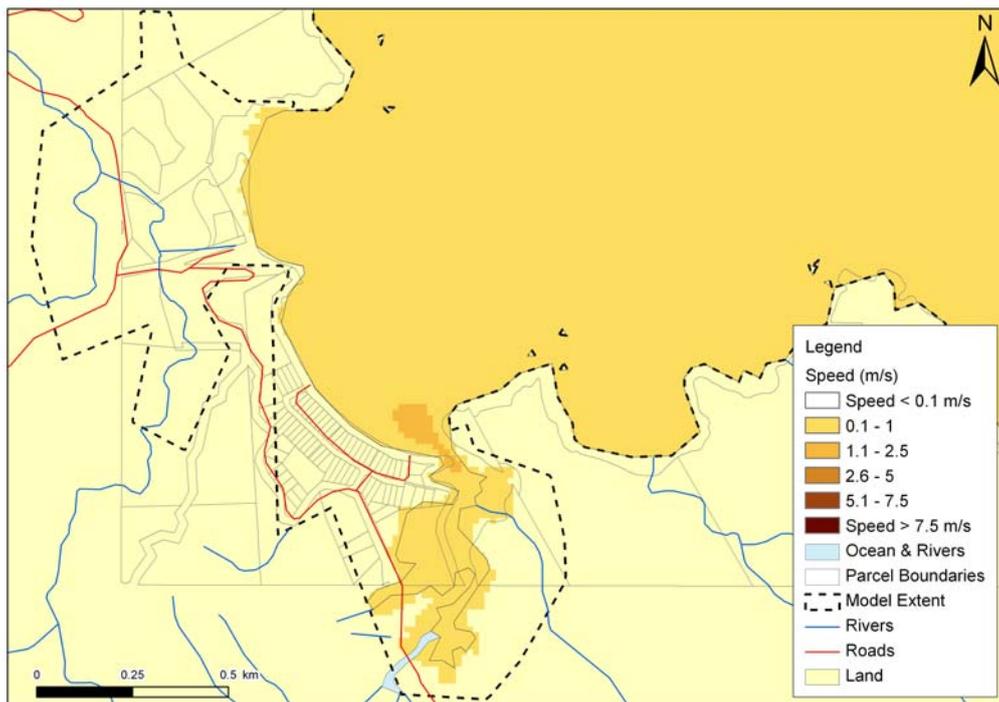


Figure 28: Helena Bay, Whangaruru: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS (to extent of LiDAR).

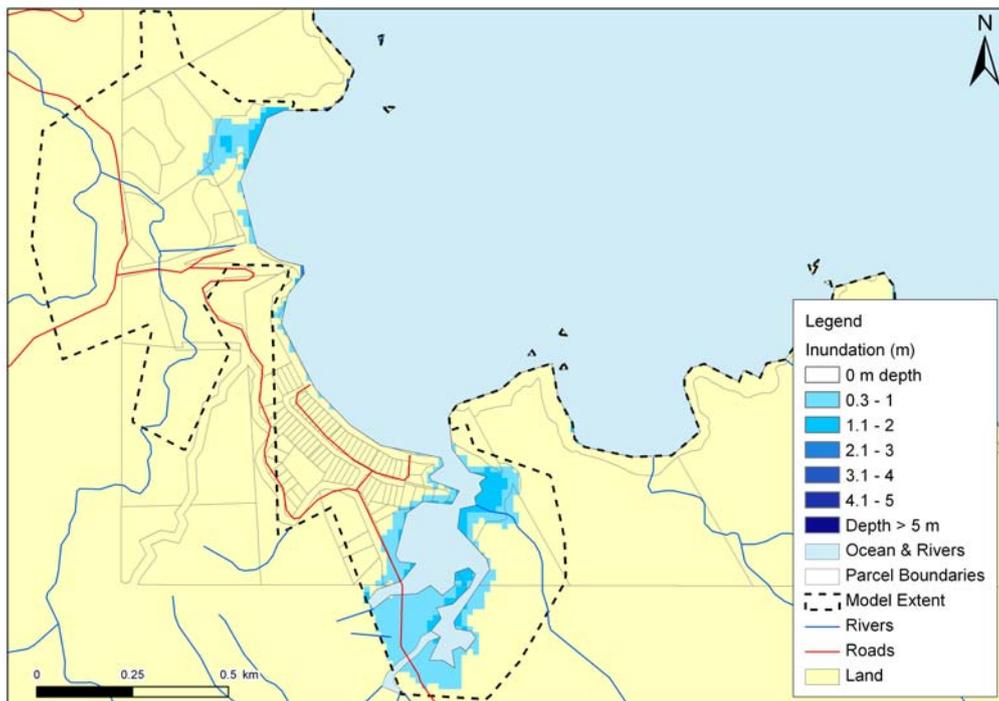
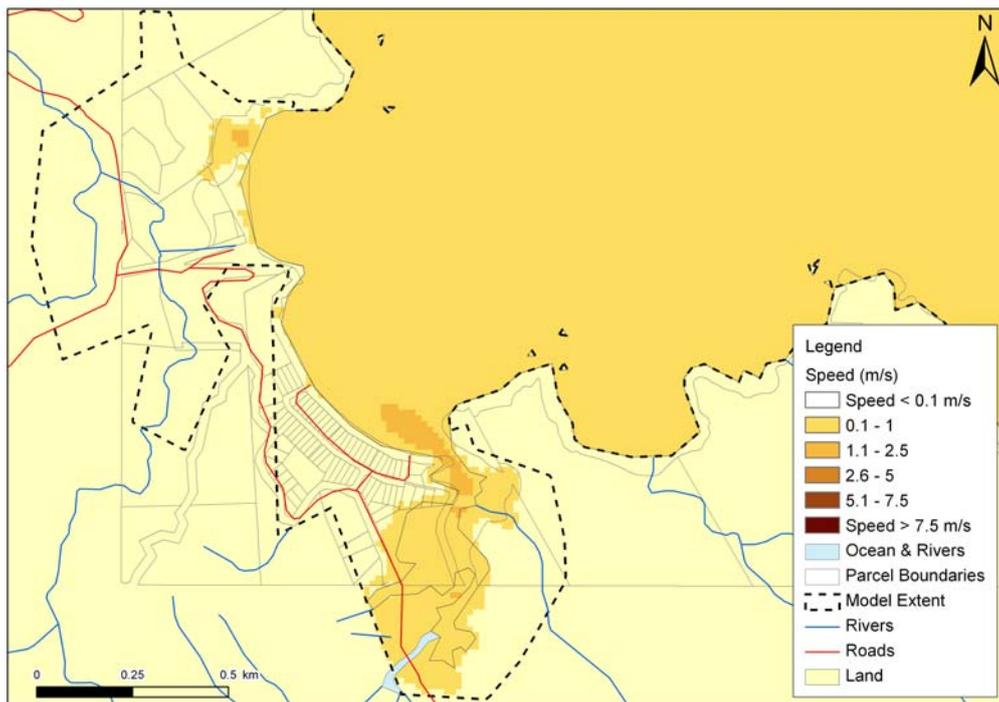


Figure 29: Helena Bay, Whangaruru: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS + 50cm (to extent of LiDAR).

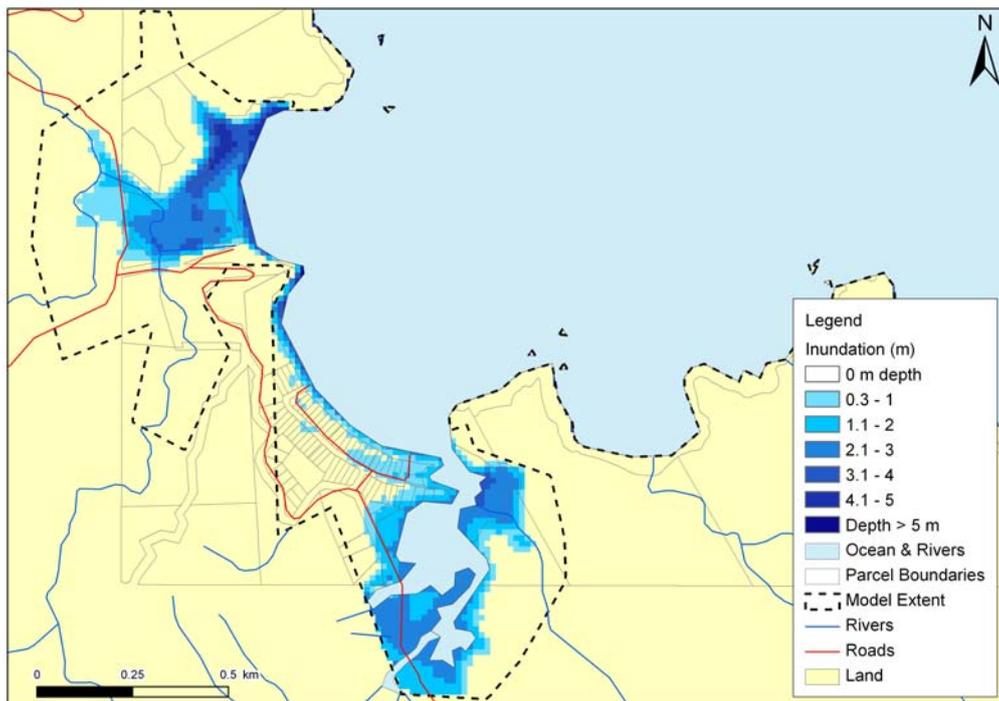
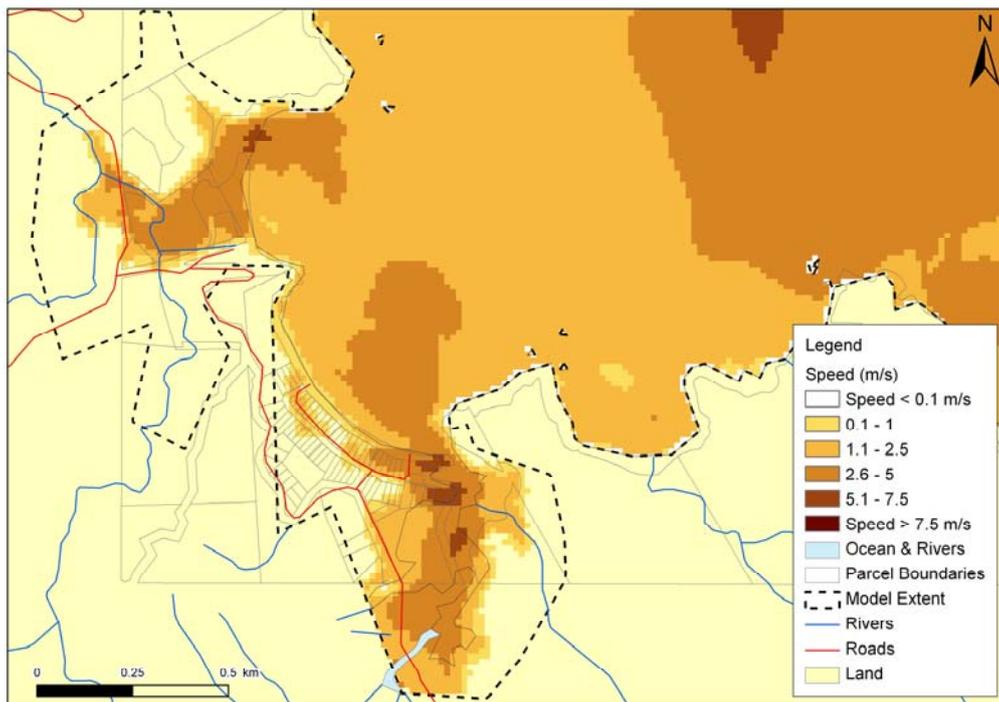


Figure 30: Helena Bay, Whangaruru: Maximum inundation speed (upper) and depth (lower) plots for the M_w 8.5 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LiDAR).

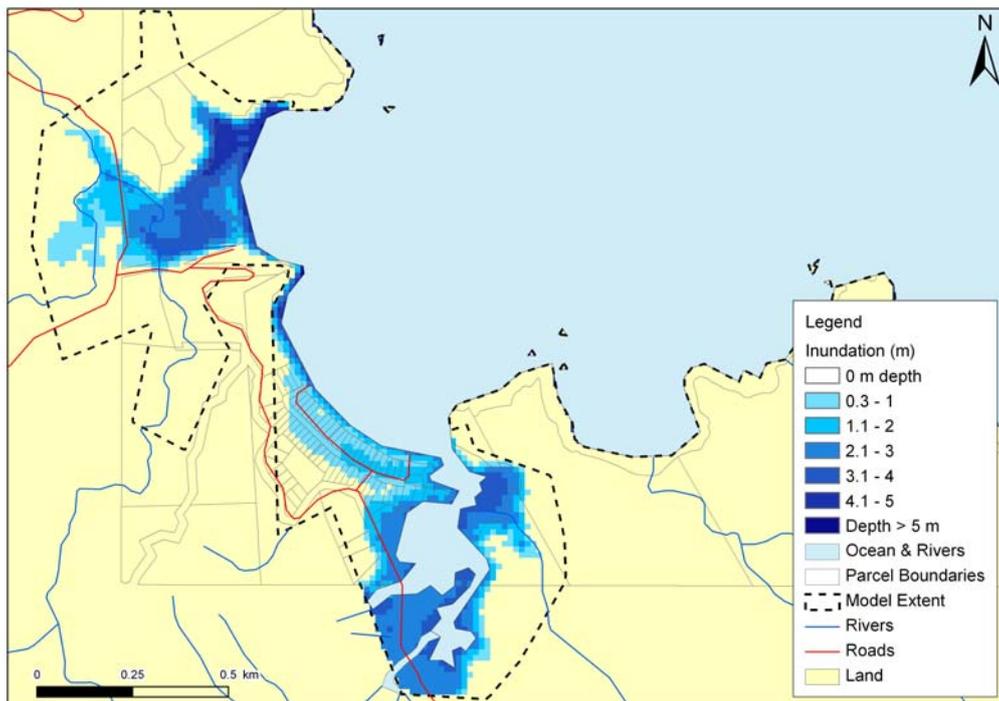
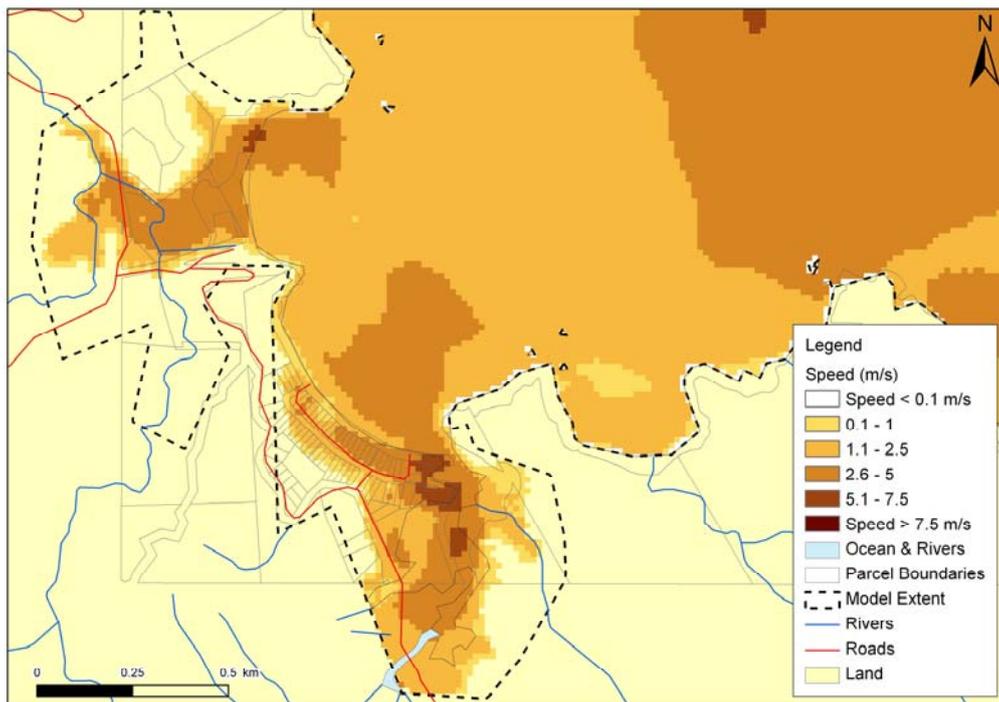


Figure 31: Helena Bay, Whangaruru: Maximum inundation speed (upper) and depth (lower) plots for the M_w 8.5 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LiDAR).

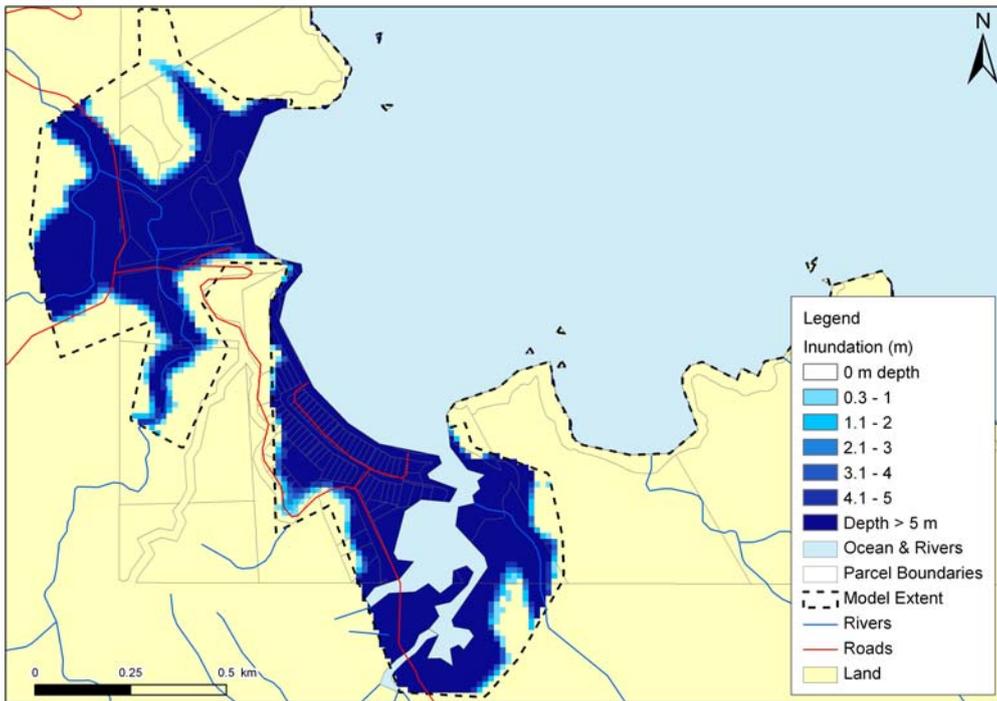
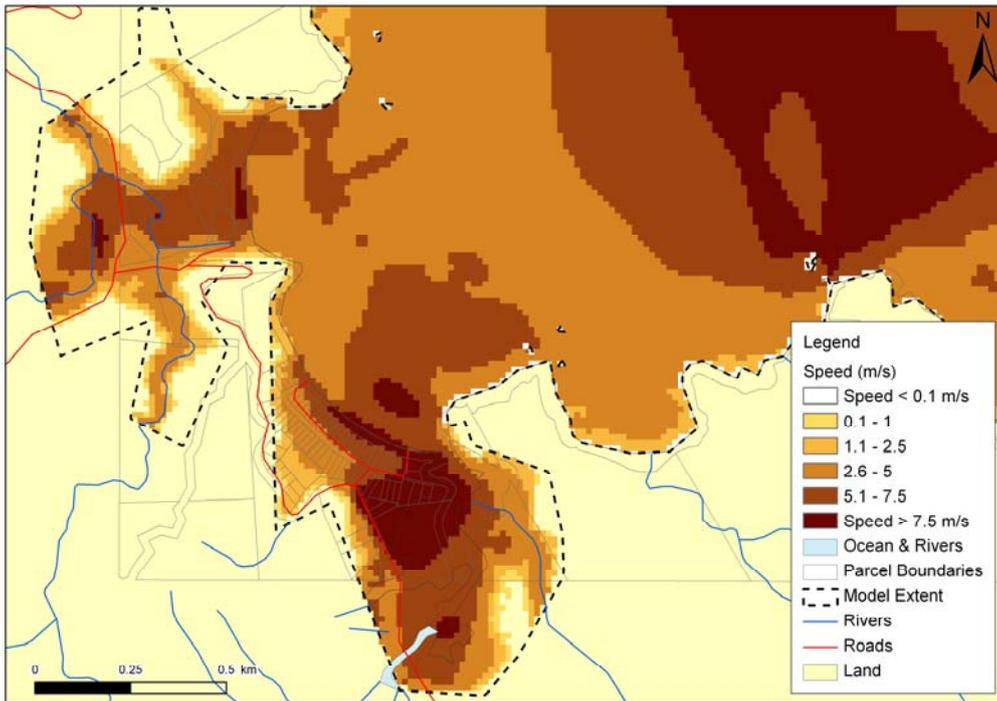


Figure 32: Helena Bay, Whangaruru: Maximum inundation speed (upper) and depth (lower) plots for the M_w 9.0 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LiDAR).

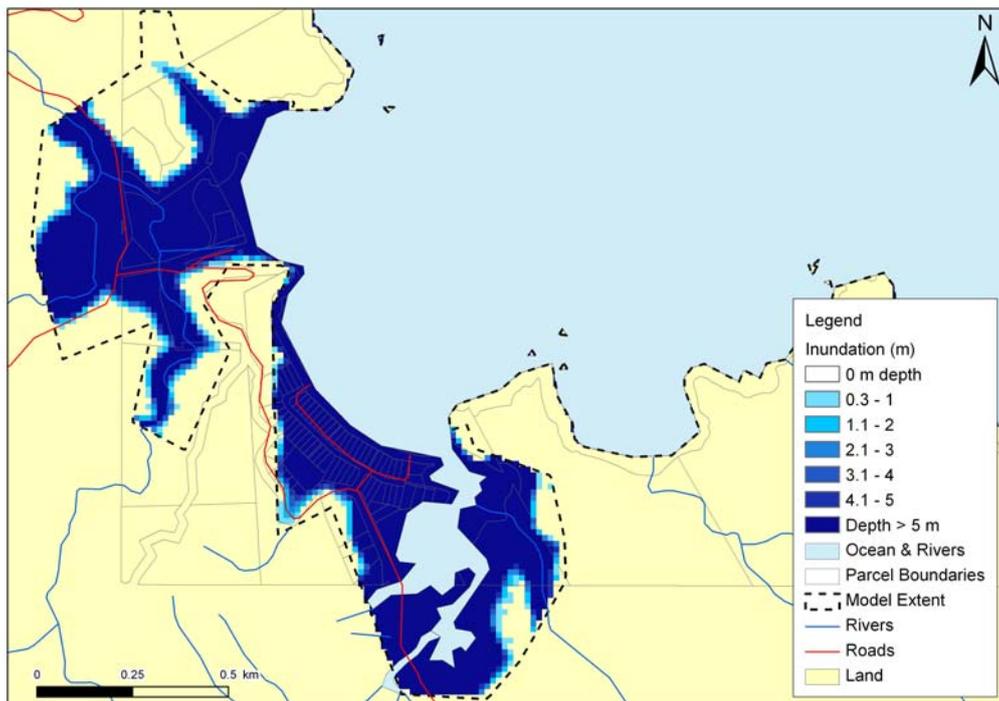
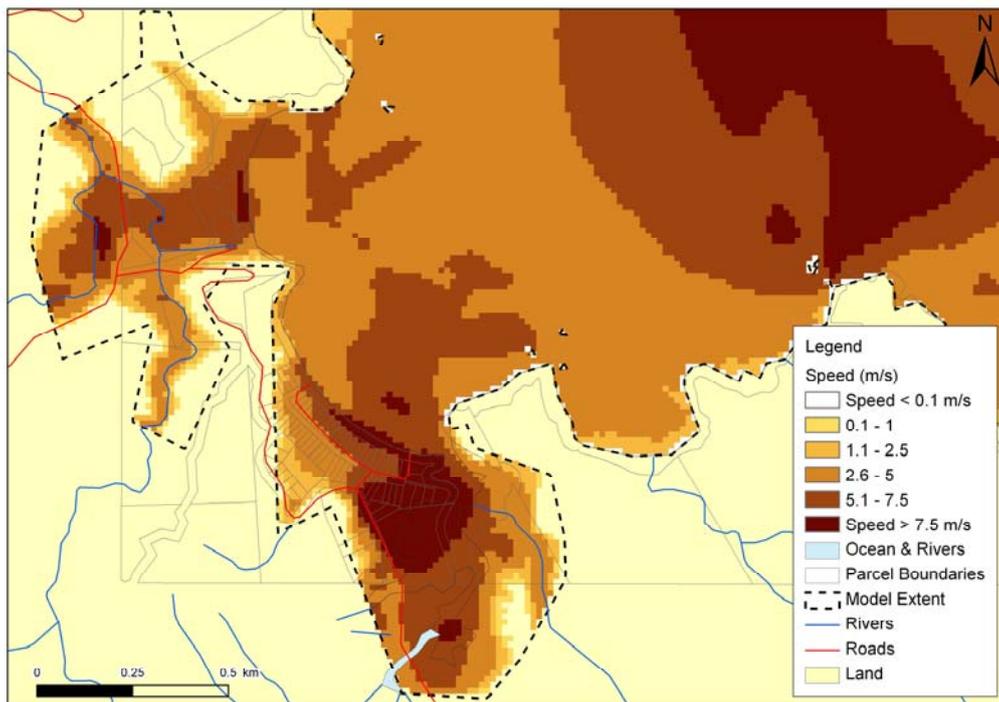


Figure 33: Helena Bay, Whangaruru: Maximum inundation speed (upper) and depth (lower) plots for the M_w 9.0 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LiDAR).