The dose characteristics of small electron fields typical to the treatment of head and neck disease at extended SSDs were studied. Depth-dose curves and beam profiles in water were obtained for 6, 9, and 12 MeV electron beams in 2x10 to 10x10 cm^2 field sizes at 100 cm and 110 cm SSD on a Varian Clinac 2100C. Penumbra width was measured for these fields and found to increase with increasing field size. However the quotient of penumbra width to field size decreased with increasing field size. Fermi-Eyges multiple scattering theory was applied to quantify primary electron scatter contributions. EGS-4 Monte Carlo simulation was applied to separate primary and secondary electron and bremsstrahlung photon contributions. Events occurring in the measurement region were scored for amount of energy deposited, type of particle, and region from which that particle originated. Beam collimation at an extended treatment distance of 110 cm SSD was improved by inserting a 10 cm long Aluminum tube axially into the cerrobend electron cone insert to extend beam collimation to within 5 cm of the phantom surface. Tube cross section dimensions of 2x10 cm^2 to 10x10 cm^2 were studied for comparison to the open field case. A reduction in penumbra width from 2.2 cm to 1.8 cm in a 4x10 cm^2 field was observed with the addition of the Aluminum tube insert. Tubes made of polystyrene and brass were also studied to determine the influence of collimator media on resulting dose distributions.