

Fig. S1. Schematic graphic log through the intrusion at locality ND2-06 in zone 2 (for location, see the inset map and [Fig. 1e](#)). Images of exposures and SEM photomicrographs correspond to specific levels in the intrusion, labelled (a)–(f). The intrusion can broadly be divided into three units: (1) olivine-poor and phlogopite rich (a & g); (2) olivine-rich and phlogopite-poor (c & d), and (3) olivine and phlogopite-rich (e & f). See caption to [Figure 4](#) for an explanation of the rose diagrams.

Fig. S2. Series of maps of zone 1 of the intrusion (see [Figs 1c and e](#)) summarising (a) the variations in maximum crystal size (scaled black circles, see legend) and intrusion thickness (vertical lines), and (b) the variations in crystal content (depicted as pie charts, see legend) and intrusion thickness.

Fig. S3. Summary map of part of zone 2 of the SLI ([Fig. 1e](#)) depicting 19 schematic graphic logs through the intrusion; note the significant variations in lithofacies geometry and distribution over metre to tens of metre scales.

Fig. S4. Schematic cross-section of the internal structure of the intrusion in part of zone 2 ([Fig. 1e](#); see inset for traverse location). Refer to the caption of [Figure 10](#) for an explanation of the rose diagrams.

Fig. S5. Schematic cross-section of the internal structure of the intrusion in part of zone 2 ([Fig. 1e](#); see inset for traverse location). Refer to the caption of [Figure 10](#) for an explanation of the rose diagrams.