SUMMARY STATEMENT

1. My full name is **Jesse Leif Dykstra**. I am employed as Principal Geotechnical Advisor in the Technical Services & Design team at the Christchurch City Council (**the Council**).

2. I have prepared evidence on behalf of the Council to assist in the understanding of areas that may be susceptible to liquefaction and slope instability as possible Qualifying Matters (**QMs**) for Plan Change 14 (**PC14**) to the Christchurch District Plan. I took part in Expert Witness Conferencing (with respect to natural hazards) at the Crown Plaza Hotel on 21 September 2023. There were no issues of contention that related to my evidence.

3. This summary statement covers only the slope instability aspects of my evidence.

4. My evidence is based on review of background information that informed the development of the current Slope Instability Management Areas (**SMAs**) overlays in the operative District Plan, and my practical experience assessing sites within these hazard overlays since the Canterbury Earthquake Sequence (**CES**).

5. In my opinion, the area encompassed by three existing slope instability management areas (**SMAs**) in the District Plan (specifically Cliff Collapse 1, Cliff Collapse 2 and Rockfall 1) are appropriate QMs for PC14:

    (a) These three SMAs exist exclusively within the Port Hills (both city and Lyttelton Harbour side), while the remainder of the slopes in the greater Christchurch area are covered by a separate overlay (Remainder of Port Hills & Banks Peninsula (RPHBP). This reflects that;

        (i) The majority of the rockfall during the CES occurred within the Port Hills,

        (ii) The main effects of rockfall during the CES (loss of life, damage to property, and retreat away from high risk areas) occurred within the Port Hills,

        (iii) Therefore, much more detailed hazard assessment and risk modelling was completed in the Port Hills area, compared to the remainder of Banks Peninsula.

(b) The current life safety risk within these three overlays has been previously calculated as unacceptably high, considering the former low-density residential use (primarily Residential Hills Zone). In my view, any intensification within these areas would increase the aggregate risk.

(c) There are areas within the PPHBP hazard overlay (for example outside of the Port Hills) where there are significant slope instability hazards that have not been fully assessed following the CES.

(d) Due to their nature, rockfall and cliff collapse hazards cannot usually be removed. The risk associated with these hazards can be temporarily mitigated (e.g. with engineered rockfall protection structures), but the hazard usually remains permanently.

6. There are a number of private properties within these SMAs that have had rockfall protection structures installed to reduce the risk (as opposed to Crown buy-out and “red zoning”). In my opinion, existing slope hazard mitigation works should not be considered appropriate for a future SMA overlay, because they do not remove or change the actual hazard.

Jesse Dykstra

Date: 18 October 2023