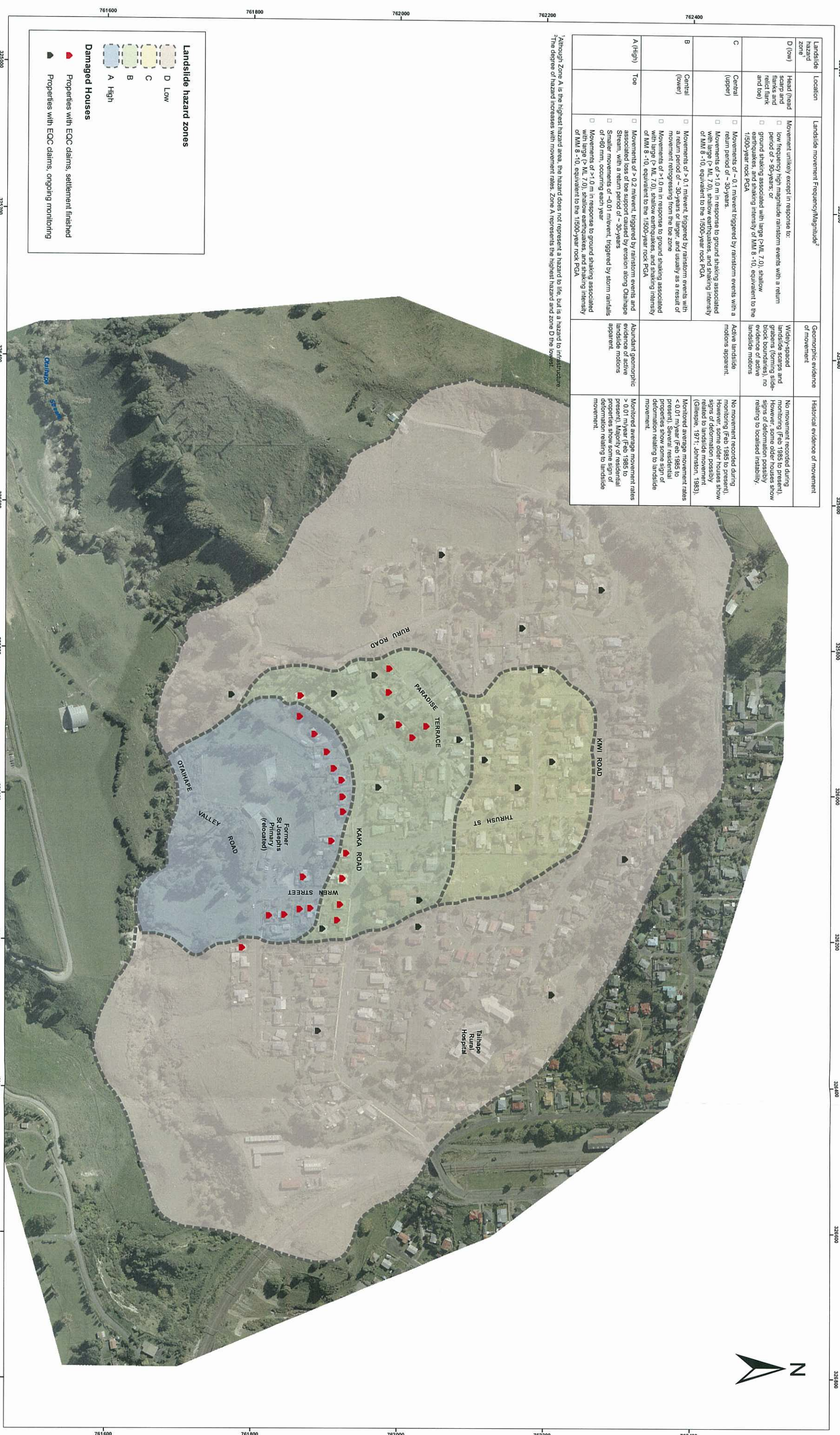


Landslide hazard zone	Location	Landslide movement Frequency/Magnitude ²	Geomorphic evidence of movement	Historical evidence of movement
D (low)	Heard head scarp and flanks and relic flank (and toe)	<ul style="list-style-type: none"> low frequency high magnitude rainstorm events with a return period of > 95-years, or ground shaking associated with large (>ML 7.0), shallow (< 10 km) earthquakes with shaking intensity of MM 8 -10, equivalent to the 1/500-year rock PGA 	Widely-spaced landslide scars and grabens (forming slide-block boundaries), no evidence of active landslide motions	No movement recorded during monitoring (Feb 1985 to present). However, some older houses show signs of deformation possibly relating to localised instability.
C	Central (upper)	<ul style="list-style-type: none"> Movements of ~ 0.1 m/event triggered by rainstorm events with a return period of ~ 30-years. Movements of >1.0 m in response to ground shaking associated with large (> ML 7.0), shallow earthquakes, and shaking intensity of MM 8 -10, equivalent to the 1/500-year rock PGA 	Active landslide motions apparent.	No movement recorded during monitoring (Feb 1985 to present). However, some older houses show signs of deformation possibly relating to localised movement (Grispege, 1971; Johnston, 1983). Monitored average movement rates < 0.01 m/year (Feb 1985 to present). Several residential properties show some sign of movement.
B	Central (lower)	<ul style="list-style-type: none"> Movements of > 0.1 m/event, triggered by rainstorm events with a return period of ~ 30-years or larger, and usually as a result of movement retrogressing from the toe zone Movements of >1.0 m in response to ground shaking associated with large (> ML 7.0), shallow earthquakes, and shaking intensity of MM 8 -10, equivalent to the 1/500-year rock PGA 		Monitored average movement rates > 0.01 m/year (Feb 1985 to present). Majority of residential properties show some sign of deformation relating to landslide movement.
A (High)	Toe	<ul style="list-style-type: none"> Movements of > 0.2 m/event, triggered by rainstorm events and associated loss of toe support caused by erosion along Otahape Stream, with a return period of ~ 30-years Smaller movements of ~0.01 m/event, triggered by storm rainfalls of >50 mm, occurring each year Movements of >1.0 m in response to ground shaking associated with large (> ML 7.0), shallow earthquakes, and shaking intensity of MM 8 -10, equivalent to the 1/500-year rock PGA 	Abundant geomorphic evidence of active landslide motions	

¹Although Zone A is the highest hazard area, the hazard does not represent a hazard to life, but is a hazard to infrastructure.
²The degree of hazard increases with movement rates. Zone A represents the highest hazard and zone D the lowest.



Landslide hazard zones

- D Low
- C
- B
- A High

Damaged Houses

- Properties with EQC claims, settlement finished
- Properties with EQC claims, ongoing monitoring

SCALE BAR: 0 100 200 300 400 m

EXPLANATION:

Coordinates and bearings in terms of Geodetic Datum 1949, Wanganui Circuit 700000mN 300000mE. Contours (2m interval), derived from photogrammetry (NZ Aerial Mapping Ltd.) using 2004 aerial photography.

SCALE:

DRW: BL

CHK: CIM

APP: GH



WEST TAIHAPE LANDSLIDE

HAZARD ZONES

FIGURE 24

DWG

REV: 0 SHEET: 1 of 1

REPORT: DATE: June 2009