

APPENDIX D

**Extracts from the "Bridge Manual",
Transit New Zealand, May 1994 and
Amendment No 1: June 1995
ISBN 0-477-01697-9**

5.2 Design Earthquake Loading and Ductility Demand

5.2.1 Site Subsoil Categories

Site subsoil category (a) (Rock or very stiff soil sites)

Sites where the low amplitude natural period is less than 0.25 s, or sites with bedrock, including weathered rock, with unconfined compressive strength greater than or equal to 500 kPa, or with bedrock overlain by:

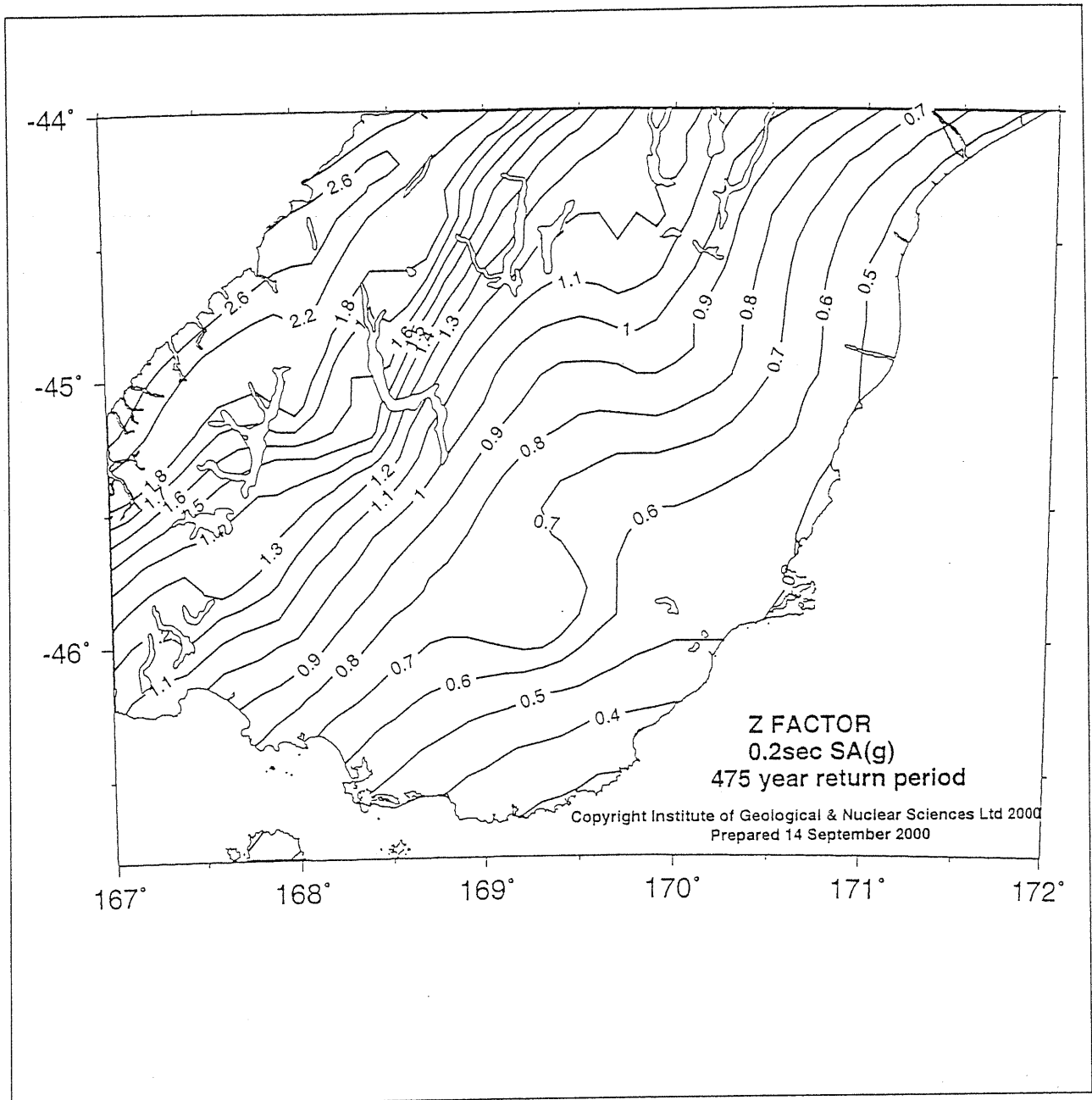
- (i) Less than 20 m of very stiff cohesive material with undrained shear strength exceeding 100 kPa; or
- (ii) Less than 20 m of very dense sand, with $N_1 > 30$, where N_1 is the SPT (N) value corrected to an effective overburden pressure of 100 kPa;
or
- (iii) Less than 25 m of dense sandy gravel with $N_1 > 30$

Site subsoil category (b) (Intermediate soil sites)

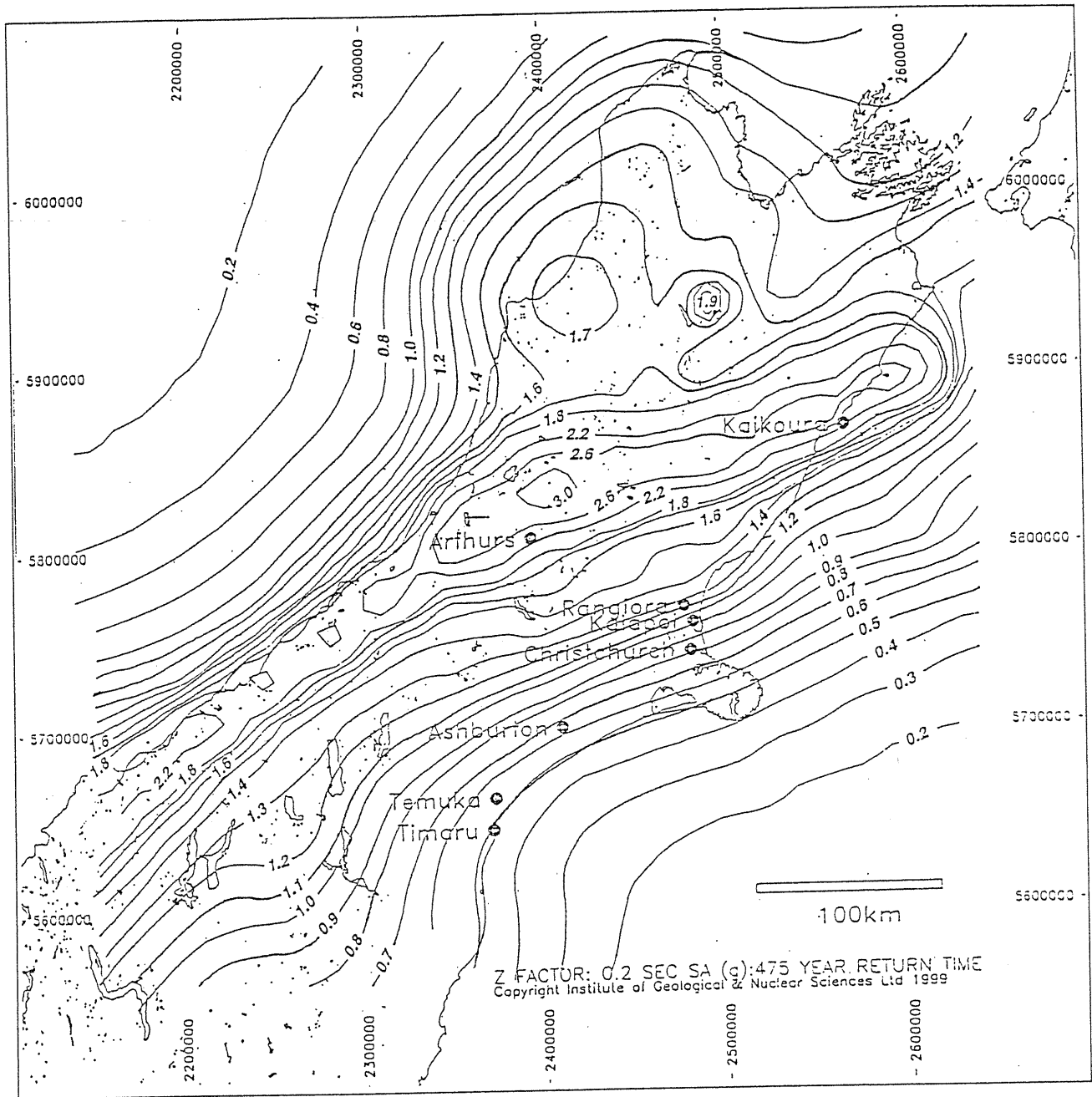
Sites not described as category (a) or (c) may be taken as intermediate soil sites.

Site subsoil category (c) (Flexible or deep soil sites)

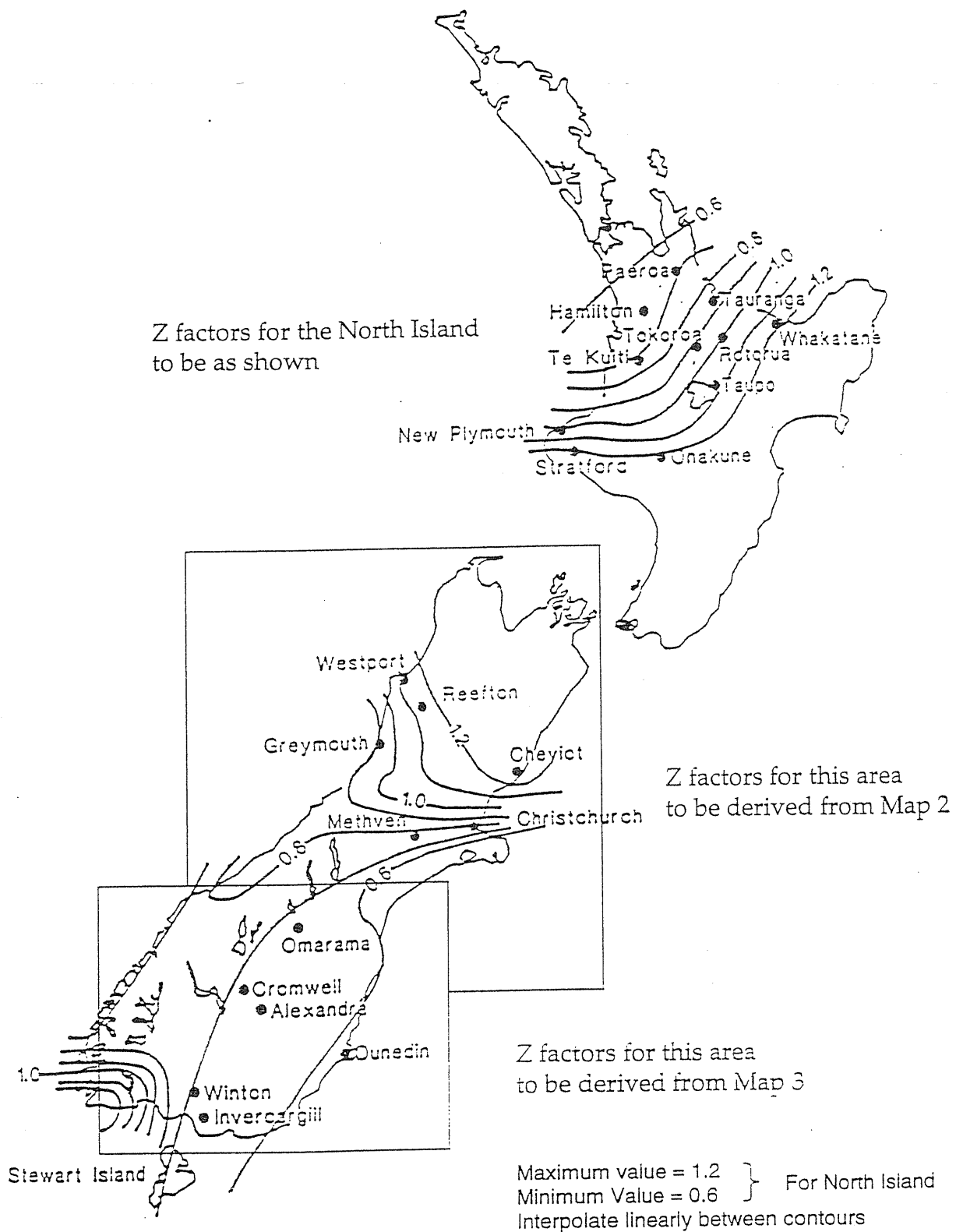
Sites where the low amplitude natural period exceeds 0.6 s, or sites with depths of soils exceeding the values given in Table 5.1.



Map 3 - Zone Factor Z for South Part of South Island
 (refer to Map 1)



Map 2 - Zone Factor Z for North Part of South Island
(refer to Map 1)



Map 1 - Zone Factor, Z

Source: Transit New Zealand Bridge Manual, Amendment 1: June 1995



APPENDIX D - NOTE FOR INFORMATION

Recent research on the perceived seismic hazard, as reflected by the values of Zone Factor specified in this appendix, has led to revision of the curves. Complete results for the whole country are not yet available, but change to the North Island hazard does not justify changes to the current Zone Factor curves for screening of North Island bridges (see Map 1). Results for the north of the South Island were presented in Amendment 3 and curves for the south of the South Island, for screening of bridges in Regions 13 and 14, are now included in Amendment 4 (see Map 3).