

## APPENDIX C: PAKURANGA SUBSTATION CONDITIONS

### Documents

1. The initial construction works associated with the North Island Grid Upgrade Project shall be generally in accordance with the plan entitled *Pakuranga Substation NIGUP–Stage 2 Layout–Isometric*, NTS 16/03/2007 PAKSKE1002-1, being page 10 of Part III of the Notices of Requirement Documentation (dated April 2007).

### Cultural / spiritual

2. If any urupā, traditional sites, taonga (significant artefacts), or kōiwi (human remains) are exposed during site works, then the following procedures shall apply:
  - (a) works in the immediate vicinity of the site that has been exposed shall cease;
  - (b) the site supervisor shall immediately secure the area in a way that ensures that any remains or artefacts are untouched;
  - (c) the site supervisor shall notify representatives of relevant tāngata whenua, the New Zealand Historic Places Trust, the Manukau City Council and, in the case of human remains, the New Zealand Police; and
  - (d) the notification in (c) above shall allow such persons being given a reasonable time to record and recover archaeological features discovered before work may recommence on the exposed site.

### Landscaping

3. A visual mitigation and ecological planting plan shall be prepared for the site and submitted at least two months prior to construction of works associated with the Upper North Island Grid Upgrade Project to Manukau City Council's Manager-Resource Consents and Compliance, for approval/certification. The Manager-Resource Consents and Compliance shall respond within 20 working days indicating whether approval is given or refused. Approval shall not be unreasonably withheld. The plan shall be in general accordance with the landscape mitigation concept plan being Map 1 of Appendix V and (subject to archaeological condition 6(d)) shall consist of:

- (a) planting around the south and west sides of the substation site;
  - (b) planting native plants indigenous to the locality on the terrace on the south and west sides of the substation site adjacent to the substation platform, to connect with and extend restoration of the headwaters of the Pakuranga Creek, and including species such as kahikatea, tōtara, kānuka and cabbage trees, and such other species as are common to the locality;
  - (c) a description of the name (including botanical), numbers, location, spacing and size of the plant species to be used in mitigation and ecological planting;
  - (d) provided that suitable sources are available, all indigenous plants shall be propagated from a local, naturally occurring, source.
4. Once approved, the visual mitigation and ecological planting plan required under condition 3 may be altered or updated at any time with the approval of the Manager–Resource Consents and Compliance. The Manager shall not unreasonably withhold his or her approval, in particular for any changes to the plan required as a result of expansion of facilities within the substation site, irrespective of whether the extent of landscaping is reduced as a result of that expansion.
5. Transpower shall implement the visual mitigation and ecological planting plan within the first planting season following completion of bulk earthworks on the site; and shall thereafter maintain the planting to the satisfaction of Manukau City Council’s Manager–Resource Consents and Compliance.

**Archaeology: known archaeological sites R11/2381, R11/2382 and R11/2398**

6. Before any works are carried out associated with the underground cable installation within the substation site for the Upper North Island Grid Upgrade Project, Transpower shall undertake the following:
- (a) Sites R11/2381 and R11/2382 shall be subject to cadastral survey prior to Site Works Plans being finalised.
  - (b) Should it be practicable to avoid either or both of the sites, the site or sites should be marked on all construction plans and have temporary fencing or barriers around their extent during construction to avoid accidental damage.

- (c) All works in the stormwater management area south-east and adjacent to the Pakuranga Substation, where significant earthworks have not occurred in the past and, involving the stripping of topsoil, should be monitored by an archaeologist.
- (d) Any planting plan developed in accordance with condition 3 should either avoid the midden sites, should it be determined that parts of them will remain after construction, or involve replanting with shallow-rooted species.

**Advice notes:**

1. *Maintaining the archaeological sites in mown grass would be the most desirable outcome.*
2. *This condition is subject to any conditions of any archaeological authority granted under the Historic Places Act 1993.*

**Electric and Magnetic Fields (EMF)**

7. The works shall be designed and constructed to limit the EMF exposure at or beyond the secure boundary of the substation site to the *International Commission on Non-Ionising Radiation Protection Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz) (Health Physics, 1998, 74(4): 494–522)* (ICNIRP Guidelines) public reference levels of 5 kV/m for electric fields and 100  $\mu$ T for magnetic flux density at one metre above ground level under maximum normal operating conditions (ie, when there are no faults in the transmission system).

**Radio frequency interference**

8. All works shall be designed to comply with NZS 6869:2004 *Limits and Measurement Methods of Electromagnetic Noise from High-Voltage a.c. Power Systems, 0.15 to 1000 MHz.*

**Earth potential rise**

9. In designing and constructing the work, Transpower shall give consideration to third-party conductive services to ensure compliance with regulations 58, 60, 69 and 87 of the Electricity Regulations 1997 as in force at the date of confirmation of the designation.

10. Substation earth grids shall be designed, built, and tested to ensure electrical safety at or beyond the designation boundary in accordance with Transpower Standard TP.DS.52.01, Issue 2, January 2005.

#### **Light spill**

11. All exterior lighting shall be designed to comply with:
- (a) AS/NZS 1158 *Lighting for Roads and Public Spaces* 2005 Part 3.1; and
  - (b) Transpower's *Requirements for Outdoor Switchyard Lighting Policy* TP GS41.01, Issue 3, April 2006.

#### **Operational noise**

12. All activities within the designation (except for construction and maintenance) shall be designed and operated to ensure that the following noise limits shall not be exceeded at or within the boundary of any residentially zoned site:

All days 7.00 am to 10 pm 45 dBA  $L_{10}$

All nights 10 pm to 7 am 35 dBA  $L_{10}$

All nights 10 pm to 7 am 70 dBA  $L_{max}$

13. Sound levels shall be measured and assessed in accordance with NZS6801:1991 *Measurement of Sound* and NZS6802:1991 *Assessment of Environmental Sound*.
14. Sound monitoring shall be undertaken by a suitably qualified and experienced person within one month of the commissioning of any new transformer. The results of the noise monitoring shall be made available to the Manukau City Council upon request.

#### **Vibration**

15. Vibration from all construction activities shall not exceed the limits of, and shall be measured and assessed in accordance with, German Standard DIN 4150-3 (1999-02) *Structural Vibration – Effects of Vibration on Structures*.

#### **Hazardous substances**

16. Any part of the facility containing oil shall be designed to comply with Transpower's *Oil Spill Management Policy* (TPG:GS.54.01), Issue 2, June 2002.

**Construction Management Plan (CMP)**

17. At least 30 days prior to commencement of any construction activity on the site, Transpower shall submit a construction management plan to the Council's Consents Officer. The Council's Consents Officer shall respond within 20 working days indicating whether approval is given or refused. Approval shall not be unreasonably withheld. The construction management plan shall detail:

- (a) the proposed earthworks methodology;
- (b) storage and reuse of topsoil;
- (c) on- and off-site disposal of soil;
- (d) silt and dust control;
- (e) traffic management for delivery of substation equipment and materials (excluding transformers) and general construction activities;
- (f) temporary equipment storage;
- (g) site security and lighting;
- (h) procedures for temporary storage and handling of hazardous substances, including insulation oil;
- (i) compliance with designation conditions, including (where applicable) for:
  - (i) noise;
  - (ii) hours of operation;
  - (iii) accidental discovery protocol;
  - (iv) protection of known archaeological sites;
- (j) community information and liaison (including local marae); and
- (k) procedure for managing the accidental discovery of archaeological sites or sites of significance to Māori, including contractor training prior to commencement of work.

**Construction and maintenance noise**

18. Subject to condition 19, all construction and maintenance work shall be designed, managed and conducted to ensure that construction and maintenance noise from the site does not exceed the limits in NZS6803:1999 *Acoustics–Construction Noise* at locations set out in section 6.2 of that standard.
19. The noise limits shall not apply to emergency work required to re-establish continuity of supply, work urgently required to prevent loss of life or other personal injury, or commissioning works at the substation site, but all practicable steps shall be undertaken to control noise and to avoid adverse noise effects, particularly at times when the stricter noise limits apply (eg, at night-time).
20. Prior to any significant construction work taking place, including any earthworks, a noise management plan shall be prepared, with the assistance of a suitably qualified and experienced person, that sets out the management procedures in terms of section 8 and Annex E of NZS6803:1999; and the works shall be undertaken in accordance with that noise management plan.
21. The noise management plan required by condition 20 shall be submitted to Council's Consents Manager for approval, at least 20 working days prior to the works commencing. The Council's Consents Manager shall respond within 20 working days indicating whether approval is given or refused. Approval shall not be unreasonably withheld.

**Traffic Management Plan (TMP)**

22. A traffic management plan (TMP) shall be prepared in relation to the transformer transportation from the port of arrival to the substation, after consultation with the following:
  - (a) the relevant road-controlling authorities;
  - (b) New Zealand Transport Agency (NZTA);
  - (c) New Zealand Police; and
  - (d) key stakeholders identified by the organisations listed above in (a)–(c).

- 23.** The TMP shall be submitted to the Manukau City Council and NZTA for approval at least one month prior to transformer transportation to the substation site. Manukau City Council and NZTA shall respond within 20 working days indicating whether approval is given or refused (such approval shall not be unreasonably withheld). The TMP shall contain a methodology statement specifying the route and providing full details of:
- (a) deviations to avoid low over-bridges;
  - (b) temporary bridge strengthening (where required);
  - (c) road closures or other temporary traffic control measures required;  
and
  - (d) contingency plans, should the transporter have mechanical problems.

**Construction traffic**

- 24.** During construction associated with the 220-kV switchyard, all access to the substation site associated with construction of the substation equipment shall be via the southern connection of Golfland Drive and Botany Downs Road.
- 25.** All parking associated with construction activities shall be provided within the substation site.