

Before a Board of Inquiry  
Transmission Gully  
Notices of Requirement and Consents

---

*under:* the Resource Management Act 1991

*in the matter of:* Notices of requirement for designations and resource consent applications by the NZ Transport Agency, Porirua City Council and Transpower New Zealand Limited for the Transmission Gully Proposal

*between:* **NZ Transport Agency**  
*Requiring Authority and Applicant*

*and:* **Porirua City Council**  
*Local Authority and Applicant*

*and:* **Transpower New Zealand Limited**  
*Applicant*

Statement of evidence of Ian Alexander Bowman (Built heritage) for the NZ Transport Agency, Porirua City Council and Transpower New Zealand Limited

---

Dated: 12 November 2011

---

REFERENCE: John Hassan (john.hassan@chapmantripp.com)  
Nicky McIndoe (nicky.mcindoe@chapmantripp.com)

**STATEMENT OF EVIDENCE OF IAN ALEXANDER BOWMAN FOR  
THE NZ TRANSPORT AGENCY, PORIRUA CITY COUNCIL AND  
TRANSPower NEW ZEALAND LIMITED**

**QUALIFICATIONS AND EXPERIENCE**

- 1 My full name is Ian Alexander Bowman.
- 2 I am an historian, a registered architect and a built heritage conservator. My qualifications are a Bachelor of Arts in History and Economic History from Victoria University, a Bachelor of Architecture from the University of Auckland, and a Master of Arts in Conservation Studies from the University of York.
- 3 I have certificates from the International Centre for the Study of the Preservation and Restoration of Cultural Property (*ICCROM*) in the conservation of stone and earthen architecture. I have completed an Association of Preservation Technology (*APT*) course in Canada in the conservation of timber buildings and a Plymouth University/*ICCROM* course on cob building conservation in England.
- 4 I am a past Chairman of the New Zealand Institute of Architects (*NZIA*) Wellington Branch and I was made a Fellow of the *NZIA* for services to conservation and the Institute. I am an elected member of the International Council on Monuments and Sites (*ICOMOS*) and the International Scientific Committee on the Conservation of Earthen Architectural Heritage (*ISCEAH*). I am a founding member and current committee member of the New Zealand National Committee of *ICOMOS*, a member of the New Zealand Conservators of Cultural Material (*NZCCM*) and co-convenor of the Australasian Chapter of *APT*.
- 5 I have almost 30 years experience working in the United Kingdom, Australia and New Zealand in the field of architecture and building conservation. I have been a principal in my own practice, since its establishment in 1992.
- 6 I have provided built heritage advice on a number of projects for the NZ Transport Agency (*the NZTA*) and its predecessor Transit New Zealand. These include the Wellington Inner City Bypass, between 1986 and 2007, the Otaki Te Horo Expressway in 2003-2004, and the Western Corridor Study in 2004-2005. I am currently working with the *NZTA* on the Basin Reserve and Tunnel Duplication projects.
- 7 As I discuss later in my evidence, two built heritage structures have been identified as being in close proximity to this project; St Joseph's Church and a World War II brick petrol storage tank. I have had extensive experience with investigating, assessing and making recommendations on similar structures. I have prepared

conservation plans, maintenance plans, condition reports and documented and administered contracts on approximately 90 churches throughout New Zealand. I have also advised on the conservation of many brick structures, including a number of which are churches, and I wrote the New Zealand Historic Places Trust (NZHPT) Heritage Guidelines on Historic Brick Structures.<sup>1</sup>

- 8 My evidence is given in support of Notices of Requirement (*NoRs*) and applications for resource consent lodged with the Environmental Protection Agency (*EPA*) by the NZTA, Porirua City Council (*PCC*) and Transpower New Zealand Limited (*Transpower*) on 15 August 2011 in relation to the Transmission Gully Proposal (*the Proposal*).
- 9 The Proposal comprises three individual projects, being:
- 9.1 The 'NZTA Project', which refers to the construction, operation and maintenance of the Main Alignment and the Kenepuru Link Road by the NZTA;
- 9.2 The 'PCC Project' which refers to the construction, operation and maintenance of the Porirua Link Roads by PCC<sup>2</sup>; and
- 9.3 The 'Transpower Project' which refers to the relocation of parts of the PKK-TKR A 110kV electricity transmission line between MacKays Crossing and Pauatahanui Substation by Transpower.
- 10 My evidence is given in relation to all three projects. For the purposes of referring to the NZTA Project and the PCC Project collectively in this evidence, I will use the term "Transmission Gully Project" (and hereafter *the TGP* or *the Project*).
- 11 I am familiar with the area that the Proposal covers and the State highway (*SH*) and local roading network in the vicinity of the Proposal.
- 12 I am the author of the Assessment of built heritage effects (Technical Report 19) which formed part of the Assessment of Environmental Effects (*AEE*) lodged in support of the NZTA and PCC Projects. I am also the author of the Addendum to Technical Report 19: Assessment of built heritage effects, which was lodged in support of the Transpower Project.
- 13 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this Inquiry were before the Environment Court. My qualifications as an expert are set out

---

<sup>1</sup> Bowman, I, *Historic Brick Structures*, NZHPT, 1992.

<sup>2</sup> The Porirua Link Roads are the Whitby Link Road and the Waitangirua Link Road.

above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

### **SCOPE OF EVIDENCE**

- 14 My evidence will deal with the following:
- 14.1 Background and role in relation to the Proposal;
  - 14.2 Methodology for assessment;
  - 14.3 Effects of the Proposal on built heritage sites in the vicinity of the Proposal area (both during construction and operation);
  - 14.4 Proposed mitigation and conditions (including methods for managing effects on St Joseph’s Church and the Petrol Storage Tank); and
  - 14.5 Response to submissions.

### **SUMMARY OF EVIDENCE**

- 15 I have determined that there are two structures of built cultural heritage value that are in close proximity to and that have the potential to be affected by the Proposal. These are:
- 15.1 The St Joseph’s Church near Pauatahanui which is registered category I with the NZHPT and listed on PCC’s District Plan Heritage Register<sup>3</sup>; and
  - 15.2 The “Petrol Storage Tank” which is listed as a historic building (which includes structures) in the Kapiti Coast District Council (KCDC) District Plan.<sup>4</sup>
- 16 The effects on both these structures during the Proposal’s construction and operation are not significant and can be adequately mitigated by the conditions proposed.

### **BACKGROUND AND ROLE**

- 17 My role was to identify what built heritage may be affected by the Proposal, to define actual and potential effects that may arise from the Proposal on built heritage, and to make recommendations for actions to manage any such effects.

---

<sup>3</sup> Map reference, JA02.

<sup>4</sup> B87, page I-11.

- 18 My evidence has a relationship to the archaeological evidence prepared by **Ms O’Keeffe**. One of the built heritage sites in the vicinity of the Project is St Joseph’s Church. The Church predates 1900 and thus fulfils the definition of an “archaeological site” under the Historic Places Act 1993.
- 19 My evidence is also related to two other technical reports, Technical Report 5: Assessment of landscape and visual effects and Technical Report 12: Assessment of acoustic effects. Those reports are discussed in the evidence of **Mr Lister** and **Dr Chiles**, respectively.

#### **METHODOLOGY FOR ASSESSMENT**

- 20 My methodology for undertaking the built heritage assessment of the Proposal has been as follows:
- 20.1 I reviewed all relevant documents, which could identify built heritage assets within the proposed designation boundaries and also located generally within 1km of the proposed Project alignment. This 1km corridor includes all of the areas covered by the Transpower Project. These included:
- (a) All relevant district plans, comprising the Kapiti Coast District Plan, the Porirua City District Plan, the Upper Hutt City District Plan and the Wellington City Council District Plan;
  - (b) The NZHPT Register; and
  - (c) The Greater Wellington Regional Council’s (GWRC) Asset Grading document of their historically significant buildings;
- 20.2 I also made three site visits, two of which were to specific sites, and the third was to traverse the length of the proposed Project roadways to visually identify any potential built heritage;
- The first visit was to St Joseph’s Church and the second was to Bradey’s grave in Navigation Drive, Whitby. With this latter visit, I confirmed that the site was sufficiently removed from the proposed Project that any construction or operational activity that might be reasonably anticipated to take place would not have any effects on Bradey’s grave. Accordingly, this site was not investigated further;

- 20.3 I also reviewed two heritage assessment reports which had been undertaken by previous consultants regarding the Project<sup>5</sup>; and
- 20.4 Finally, in accordance with best practice, my assessment of effects on built heritage was based on relevant national and international guidance documents.<sup>6</sup>

### **EFFECTS ON BUILT HERITAGE SITES IN THE VICINITY OF THE PROJECT AREA**

- 21 As noted above, from the results of those investigations, I established that there were two structures of built heritage value that would be potentially affected by the Proposal, these being St Joseph's Church and the Petrol Storage Tank:
- 21.1 St Joseph's Church is registered category I with the NZHPT and listed on PCC's District Plan Heritage Register<sup>7</sup>; and
- 21.2 The "Petrol Storage Tank" is listed as a historic building (which includes structures) on the Heritage Register in the KCDC District Plan.<sup>8</sup>

I now discuss the potential effects on these heritage structures.

#### **Effects on St Joseph's Church**

- 22 St Joseph's Church is located on SH58. St Joseph's Church is the oldest Catholic Church still in use in the Wellington region and was the first Catholic Church built in the Porirua area. It was designed by prominent Wellington architect Thomas Turnbull in 1878. It has a rare form of glazing known as 'glacier windows' or 'poor man's stained glass', a form of printed, coloured transparent paper, imitating the forms and colours of glass. Associated with the Church is a cemetery where a number of early settlers in the area were buried. Currently there are views of the Pauatahanui Inlet, around

<sup>5</sup> The Review of the Cultural Aspects of the Coastal Route and Transmission Gully Motorway – Western Corridor Transportation Study, for Porirua City Council, by Boffa Miskell, on 16 November 2005; The Transmission Gully: Scheme Assessment Review of Historical Information (Opus International Consultants Limited Advanced Draft 24 August, 2007).

<sup>6</sup> These included the NZHPT Sustainable Management of Historic Heritage Guidance Information Sheet 1 Principles for Assessing appropriate or inappropriate Subdivision, Use and Development on Historic Heritage Values; Sustainable Management of Historic Heritage Guidance Information Sheet 16 Assessing Impacts in Surroundings associated with Historic Heritage; Sustainable Management of Historic Heritage Guidance Information Sheet 22 Assessing Impacts of Designations on Historic Heritage; the ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value, 1996; the KCDC District Plan Section 8 Heritage Objectives and Policies; and the PCC District Plan Policy C8.1.

<sup>7</sup> Map reference, JA02.

<sup>8</sup> B87, page I-11.

which a number of these settlers lived, from the grounds of the Church.

- 23 The Church will be located approximately 170m from the Main Alignment and 300m from the Project's main construction yard.

***Effects on views***

- 24 The views of the middle distance from St Joseph's Church, including the view of the Inlet, will be affected by the Main Alignment and the proposed SH58 Interchange.

- 25 The Church is located several metres above the level of the existing SH58. I understand that the Main Alignment will be situated approximately 9.5 metres from the existing ground level and will be at approximately the same level as the Church level.<sup>9</sup> Notwithstanding the existing large trees around the Church, the Main Alignment and SH58 Interchange will be visible to the west and north of the Church grounds. In my view, the historical visual connection with the Inlet and wider village setting will be hindered.

- 26 **Mr Lister** considers the amenity impacts on the Church (which include visual amenity impacts) to be moderately adverse. As I discuss further below, I recommend that planting is carried out on the Main Alignment to mitigate these effects on the Church.

***Noise and vibration effects***

- 27 It is confirmed by **Dr Chiles'** evidence, that once the Project is constructed and is operational, road traffic noise levels can be anticipated to increase by up to 5 dB LAeq(24h) in the Church grounds. I understand from **Dr Chiles** that this increase would be noticeable, but would not fundamentally alter the noise environment of the Church.

- 28 I anticipate that there will be noise generated near to the Church during the construction phase. A Construction Noise and Vibration Management Plan (CNVMP) is to be developed to minimise any temporary adverse effects.

- 29 Vibration effects arising from construction activities have the potential to affect the Church's glacier windows, as the windows are in a delicate state and are deteriorating. **Dr Chiles** has recommended some management and monitoring procedures so as to ensure construction vibration at this location does not exceed the criteria for structural and cosmetic damage.

- 30 **Dr Chiles'** evidence is also that no increased vibration effects are anticipated, once the Project is operational. In fact, as part of the construction of the Project, SH58 will be resurfaced and located

---

<sup>9</sup> See Sheet GM13 of the AEE Plan Set.

slightly further away from the Church, which I understand will slightly reduce traffic vibration effects.

### **Dust effects**

- 31 There is also the potential for dust arising from construction activities to have a deleterious effect on the Church's glacier windows, causing abrasion of the glass.
- 32 The Church building has painted timber cladding and corrugated steel roofing. The expected dust effects arising from construction may also slightly increase paintwork maintenance on the Church.
- 33 As I discuss further below, management plans are proposed to manage the effects of dust on the Church.

### **Petrol Storage tank**

- 34 The Petrol Storage Tank is a splinter proof circular brick wall protecting a now-removed metal petrol tank. It is situated adjacent to the Te Puka Stream.
- 35 The Petrol Storage Tank was designed by the Public Works Department in 1942 and was built by the Department during World War Two (*WW2*) as a petrol storage depot to supply vehicles operated by the United States (*US*) Defence Force, three of whose camps were constructed nearby. Fourteen other similar storage tanks and protective brick walls were constructed throughout New Zealand, but all of these were used for the storage of aviation fuel. Six of these, including the Petrol Storage Tank, survive.
- 36 War historian, Peter Cooke, states that the Petrol Storage Tank and splinter proof wall at Paekakariki was the last to be constructed and, because it was used for US motor spirits (rather than aviation fuel) it is unique among the depots constructed.<sup>10</sup> He considers that the Petrol Storage Tank is the best preserved of those still in existence.<sup>11</sup> The Petrol Storage Tank is one of few surviving structures, of the many built throughout the Wellington region, associated with the US Defence Force in *WW2*.
- 37 The Main Alignment is proposed to pass approximately 20 metres to the east of the Petrol Storage Tank (in fact, the alignment of the road was altered so as to preserve the feature).
- 38 With respect to the transmission line relocation for the Transpower Project, existing Tower 2 is approximately 120 m to the north of the exterior of the Tank and existing Tower 3 is approximately 240 metres to the south east of the Tank. Proposed new Tower 2A is

---

<sup>10</sup> Defending New Zealand: Ramparts on the Sea 1840-1950s, Defence of New Zealand Study Group, 2000

<sup>11</sup> Personal communication Peter Cooke to Ian Bowman 8 November, 2010.



approximately 22 m to the west of the existing tower (i.e. Tower 2) while Tower 3A is approximately 25 m to the west of the existing tower (i.e. Tower 3).

***Effects on the setting of the Tank***

- 39 The only long-term effect of the Main Alignment on the significance of the brick structure will be the modification of the current setting and surrounds. The structure is not likely to be visible from the Main Alignment and will be physically separated by a six metre high embankment when immediately adjacent. While the impact on the setting will be considerable, the effect on the overall heritage significance of the structure will be, in my view, minor.
- 40 With respect to the new transmission line towers for the Transpower Project, Tower 2A is slightly closer and approximately 40% taller than the existing tower, but the relatively small differences from the existing situation will have little visual impact on the Tank and therefore minimal impact on its heritage values.
- 41 As Tower 3A is further away still and is only marginally taller than the tower it replaces, its visual impact on the Tank will be even less than that of Tower 2A. The power lines will be slightly closer to the Tank but, given the increased height of Tower 2A compared with the existing tower, the overall visual effect on the Tank (and hence the effect on its heritage values) will also be minimal. There will be no change to the tower access tracks within a 200 metre distance from the Tank, and therefore negligible visual effect (and hence heritage effect) on the Tank.

***Vibration effects***

- 42 **Dr Chiles'** view is that there could be vibration effects on the Petrol Storage Tank caused by the construction of the Project and that these will need to be managed. I understand that a CNVMP is proposed to manage these effects (see further discussion below).
- 43 Once the Main Alignment is operational, I understand from **Dr Chiles'** assessment that there will be adequate separation distance so as to ensure that vibration effects associated with traffic movements will be avoided.

**PROPOSED MITIGATION AND CONDITIONS**

- 44 With respect to St Joseph's Church, I recommend the following mitigation and conditions:
- 44.1 The edges of the Main Alignment should be planted with appropriate vegetation so that it is largely obscured from the Church. As the Main Alignment will largely obscure visual connections with the Inlet and wider village, planting along the roadway would mitigate, to some extent, the visual

impact of the view from the Church. I understand that the Landscape Plans (which are proposed to form part of the NZTA designation conditions)<sup>12</sup> incorporate such planting.

44.2 Appropriate actions should be taken so as to measure and manage any vibration effects on the Church. The draft CNVMP (required by designation condition NZTA.12) recommends that condition surveys of the Church be undertaken before and after construction, so that any deterioration in the building due to construction effects can be measured. The draft Plan also recommends that there should be monitoring of vibration levels when works are conducted within 50 metres of the Church (page 12). I support these measures.

44.3 I am in agreement with **Ms O’Keefe** that a Heritage Management Plan <sup>13</sup>(HMP) be prepared, in consultation with NZHPT and iwi. With respect to built heritage issues, the HMP should contain methods to avoid noise, vibration and dust effects on the Church (as required by condition NZTA.9). For example, in relation to the Church, I suggest that a HMP could require the following measures:

- (a) Measures to address vibration effects (such as those described above in relation to the CNVMP);
- (b) Regular inspections of the condition of Church during construction to monitor any physical effects;
- (c) That where physical effects are discovered, appropriate action is taken to remedy those effects as soon as possible;
- (d) That additional washing of paintwork is carried out by the NZTA because of the potential effects of dust arising from construction works on the exterior of the Church;
- (e) That there is very close monitoring of the glacier windows in the Church by a stained glass window conservator member of the New Zealand Conservators of Cultural Material. Their advice should be sought and followed for appropriate conservation measures, which may include removal of the windows and appropriate

<sup>12</sup> As Mr Lister explains in evidence, condition NZTA.46 is proposed to be amended in order to incorporate reference to the Landscape Plans.

<sup>13</sup> The conditions appended to the AEE referred to this plan as the Archaeological Management Plan (NZTA.9). However, to recognise that the plan includes measures in relation to built heritage, the title of the Plan is proposed to be changed to the “Heritage Management Plan.”

storage throughout the duration of the contract, or retention of the windows on site and installation of protective covers over them.

- 45 With respect to the Petrol Storage Tank, it is recommended that:
- 45.1 A HMP<sup>14</sup> is prepared in consultation with NZHPT and iwi which contains methods to avoid vibration and other construction effects on the structure (the HMP is required by designation condition NZTA.9);
  - 45.2 During the detailed design phase, consideration is given to retaining the immediate environs of the structure as far as possible;
  - 45.3 That a conservation plan for the structure is written and followed. The plan could include issues as to the structure's condition, earthquake vulnerability, public accessibility, immediate setting and interpretation.

The preparation of a conservation plan is consistent with Policy 5- Planning (a)<sup>15</sup> of the *Policy for Government Department's management of historic heritage 2004*, issued by the Ministry for Culture and Heritage. Such a plan generally identifies the heritage values of a structure and recommends policies for long term conservation aimed at retaining or enhancing heritage values. I consider a conservation plan would contribute to the long term conservation of the structure.

The AEE for the Project discussed the prospect of NZTA facilitating an off-road access trail to allow public access to the Tank. Revealing and interpreting built heritage is recommended in the ICOMOS NZ Charter and providing public access to the structure (with appropriate interpretation) would assist these aims. Methods for implementing these aims are standard policy sections in a conservation plan and could form part of the conservation plan which I propose.

I understand that, in principle, the NZTA is comfortable with including a designation condition relating to the preparation of a conservation plan for the Tank; and

<sup>14</sup> The conditions appended to the AEE referred to this plan as the Archaeological Management Plan (NZTA.9). However, to recognise that the plan includes measures in relation to built heritage, the title of the Plan is proposed to be changed to the "Heritage Management Plan."

<sup>15</sup> Policy 5-a Planning provides that "Government departments will provide for the long-term conservation (including disaster mitigation) of historic heritage, through the preparation of plans, including management plans for historic reserves, maintenance or conservation plans, and specifications. Hapu and iwi will be consulted where their historic heritage is involved."

45.4 Finally, I also understand that the draft CNVMP (designation condition NZTA.12) suggests that vibration assessments be carried out on equipment operating in proximity to the tank, that condition surveys be undertaken before and after construction and that there is monitoring of vibration levels when works are occurring in close proximity to the Tank (page 12). I consider those measures are appropriate.

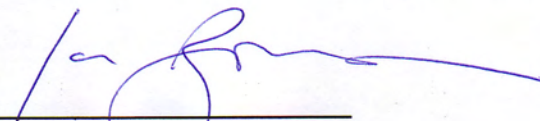
## RESPONSE TO SUBMISSIONS

- 46 I have read the two submissions relating to built heritage made by the KCDC (submitter 23) and NZHPT (submitter 33).
- 47 KCDC considers that condition NZTA.9 (relating to the Archaeological Management Plan<sup>16</sup>) is too vague and would like conditions relating to the Petrol Storage Tank to be more specific. I consider that the proposed mitigation and conditions recommended above adequately address these concerns.
- 48 The NZHPT submission recommends that, instead of proposed condition NZTA.9, a Site Specific Environmental Management Plan be implemented for St Joseph's Church, which would include a conservation plan, construction management plan and monitoring conditions.
- 49 As explained above, a HMP is to be prepared in consultation with the NZHPT (condition NZTA.9). **Ms O'Keefe** explains in her evidence how an HMP can adequately address all of the concerns raised by the NZHPT in their submission. I concur with her assessment as it will cover any archaeological issues as well as relevant building conservation issues in a single document, avoiding confusion, as recommended by the NZHPT.
- 50 The NZHPT also recommends that the NZTA consider earthquake strengthening of the Petrol Storage Tank and they concur with my recommendation for the preparation of a conservation plan. Along with the site-specific management plan they recommend mitigation planting.
- 51 As I have discussed above, I recommend that a HMP and a conservation plan is prepared. This would include an assessment of the Tank's condition and its vulnerability to earthquakes. I do not consider a further site-specific management plan is required as issues of concern will be addressed by the HMP.

---

<sup>16</sup> As noted above, this will now be called a Heritage Management Plan.

52 Finally, I understand that **Mr Lister's** evidence recommends that some mitigation planting occurs between the Tank and the Main Alignment. I agree with his recommendations.



---

Ian Alexander Bowman  
12 November 2011